PERIODIC REVIEW

Kenmore Industrial Park Site
aka Lakepointe Development
Facility Site ID# 2348
Cleanup Site ID# 2134

6500-6800 NE 175th Street, Kenmore, WA 98028

Northwest Region Office

TOXICS CLEANUP PROGRAM

April 2014

Publication No. 14-09-201

FIGURES

TABLES

APPENDICES

1.0 INTRODUCTION

This document is a review by the Washington State Department of Ecology (Ecology) of site conditions and monitoring data to ensure that human health and the environment are being protected at the Kenmore Industrial Park (KIP) Site also known as Lakepointe Development (Site) located at 6500-6800 Northeast 175th Street, Kenmore, King County, Washington.

Cleanup at this Site was approved by Ecology under Consent Decree No. 01-2-22187-6SEA entered at King County Superior Court on August 14, 2001. The Consent Decree and Cleanup Action Plan are under the state cleanup requirements called the Model Toxics Control Act (MTCA) regulations, Chapter 173-340 Washington Administrative Code (WAC).

Cleanup activities at this Site as defined in the Consent Decree were to begin in 2001 however cleanup activities were placed on hold when the Lakepointe Development financing was withdrawn. The Consent Decree allows the Site owner to continue industrial activities with periodic monitoring. The Site owner has kept the building and related permits current in order to initiate the development and the associated cleanup actions when funding becomes available. Like Brownfield sites, the proposed development is combined with the site cleanup actions and to be implemented together.

This document summarizes the periodic monitoring at the Site and is the first Periodic Review Report. It emphasizes the Site activities conducted from 2009 through 2013 with a brief history of the Site from 2001 to 2013. The periodic review includes:

- Site history.
- Groundwater compliance monitoring in 2009, 2010 and two events in 2012.
- Deferred industrial maintenance work and focus on the western 14-acre area of the property in 2011-2012 with soil testing and storm water drainage installation.
- City of Kenmore and Ecology near shore sediment sampling and analysis study.
- Public meetings for sediment planning on July 18, 2012, sediment results on January 23, 2013 and July 11, 2013 with Community Questions & Agency Responses Summaries, September 20, 2012 and August 20, 2013.

The MTCA Method A or B cleanup level for unrestricted land use of soil is established under WAC 173-340-740. The MTCA Method A cleanup level for groundwater is established under WAC 173-340-720. Cleanup levels for both soil and groundwater are intended to be protective of human health and the environment. The Site chemicals of concern for soil are total petroleum hydrocarbons for oil and diesel, and four metals: arsenic, barium, lead and selenium. The chemicals of concern for groundwater are the same as those for soil without selenium. Soil gas and near shore sediments were each evaluated and dismissed as a medium of concern during the Remedial Investigation. The Consent Decree and Cleanup Action Plan identify the Site media of concern as soil and groundwater.

Washington regulations 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, 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; or
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 Description and History

The Lakepointe Development also called the Kenmore Industrial Park (KIP) Site entered a Consent Decree (No. 01-2-22187-6SEA) with Department of Ecology in August 2001. This legal agreement allows two options to: 1.) Implement the cleanup actions with the development, or 2.) Continue commercial and industrial use at the Site with compliance monitoring and a Restrictive Covenant (recorded 2001). The Lakepointe Development Plan was withdrawn in the early 2000s and commercial/industrial use continues. The Site owner has kept the Development Building Permit current with the City of Kenmore and continues to pursue a development option.

The Remedial Investigation and Feasibility Study were conducted in the 1990s. These documents and the Cleanup Action Plan (CAP) were final in August 2001 after a 30-day public comment period. The CAP combines the proposed development with the cleanup action tasks so when the development financing was withdrawn the proposed cleanup actions were placed on hold. The Consent Decree specifies if financing was delayed or withdrawn then current commercial and industrial activities would continue at the Site with a Restrictive Covenant, until new development funding was secured. The Consent Decree and Restrictive Covenant are in compliance and are attached in Appendix A.

The 40-acre waterfront site, shown in Figure 1 is located at the northeast shore of Lake Washington and the confluence with the Sammamish River in the City of Kenmore, King County, Washington. The Site is mostly surrounded with water at the north with Kenmore Navigation Channel, west with Lake Washington, and south with the Sammamish River. The east property line is west and parallel with 68th Avenue Northeast (also called Juanita Drive NE) and bridge. The Site is now part of the City of Kenmore incorporated in 1998 with businesses and residents to the east and north in suburban King County.

The MTCA cleanup action timeline is illustrated in Figure 2. The public outreach and public involvement events are listed in the top half of the figure. The MTCA cleanup steps and year are outlined in the lower half of the figure. The title of the cleanup steps and reports are listed as footnotes. This figure provides an opportunity to see the MTCA cleanup steps at this Site during the period from 1984 to 2014 and future actions.

Historically, this Site was a swamp and lowlands at the confluence of the lake and river. The Hiram Chittenden locks were constructed in the early 1900s and lowered Lake Washington eight feet exposing a new peninsula where the Sammamish River flowed into the lake. In the 1950s-1960s the Site was filled with construction demolition debris during the I-5 highway installation. Underlying part of the Site is a former landfill registered with King County as an unlined construction debris landfill (King County Unclassified Use Permits No. P-69-138 and 118-72-P) and operated through the 1970s. There is little information about the details of the former landfill.
There were rumors that restaurant and medical wastes and transformers were deposited at this former landfill site. However, sampling results to date have shown no evidence that this is true.

For example, the common chemical related to transformers, PCBs showed no detection in 12 soil and 20 groundwater samples with one exception. The exception is reported as one erroneous sample of poor quality from a wood chip in boring AW-7. This result was 2.4 mg/kg (milligram per kilogram or parts per million) and slightly above the unrestrictive cleanup level (1 mg/kg) and significantly below industrial cleanup level at 10 mg/kg. Since it was a wood fragment and not soil, the sample was dismissed. And PCBs are not a chemical of concern at this Site as reported in the Final Remedial Investigation Report (AMEC 2001).

The US Environmental Protection Agency (EPA) conducted a preliminary assessment in November 1984 and dismissed the Site as not requiring additional evaluation.

Ecology reviewed the Site and conducted a first step in the state cleanup process called a site hazard assessment (SHA). The SHA ranked the Site in 1991 as a "1" on a scale of 1 to 5 where 1 is estimated most hazardous and 5 is least hazardous compared to other ranked sites at that time. Further investigations at the Site have found little contamination other than the chemicals of concern listed in the Consent Decree and Cleanup Action Plan. The Site ranking of "1" has been questioned however, Ecology policy is not to re-rank a site once cleanup action has begun, see WAC 173-340-330 (4).

In the 1990s, the Site owner conducted several remedial investigations to evaluate the lateral and vertical extent of contamination at the Site. The investigations included extensive testing of soil, groundwater and surface water, soil gas at the Site, and sediments at the adjacent waterways.

The former landfill was evaluated for soil gas and vapors and none were identified. Sediment sampling was conducted near the property boundary at the Sammamish River (AMEC 2001) and Navigation Channel (USACE 1996). These results were below state cleanup requirements, so soil gas and sediment were dismissed as media of concern.

The final Remedial Investigation (AMEC 2001) summarized all testing results and identified the following chemicals of concern at or above the Washington State cleanup requirements as:

- Groundwater – petroleum diesel and oil, metals –arsenic, barium and lead.
- Soils – petroleum diesel and oil, metals –arsenic, barium, lead and selenium.
- Soil gas and vapors – no substances.
- Freshwater sediments – no substances.

The final RI report eliminated all other tested chemicals including medical wastes and PCBs (poly-chlorinated biphenyls) as chemicals of concern at this Site because they were not detected at levels of concern. Testing for PCBs resulted in no conclusive evidence of contamination in soil or groundwater at the Site.

2.2 Site Investigations and Results

For continued industrial use under the terms of the restrictive covenant, no cleanup actions are required. A cleanup action to support potential future residential land use has not been implemented at the Site.

During 2009 to 2013, the Site owner with Ecology oversight conducted four groundwater monitoring events, and deferred industrial maintenance work with soil sampling. The site maintenance and restoration work focused on the western 14-acre area of the Property. The Deferred Industrial Maintenance project included:

- Relocation of stockpiled material (soils), and clear and grub brambles and weeds.
- Regrading and updating drainage and erosion controls.
- Replacement of gravel surfacing across western 14-acre area adding 1 foot clean gravel.
- Repair and strengthening of existing wharf -
  - -No in-water work
  - -Fixing concrete surfacing
  - -Strengthening wharf behind bulkhead

The deferred industrial maintenance work was under City of Kenmore permits, Ecology general construction storm water NPDES permit, and for more details, see Appendix B.

As a separate project in 2012-13, the City of Kenmore and Ecology prepared a freshwater sediment sampling and analysis plan for northeast Lake Washington and the lower reaches of the Sammamish River, and these results are discussed below.

Groundwater Compliance Monitoring Results

Groundwater compliance monitoring was conducted for the wet and dry season in 2009-2010 and again in April and November 2012. The 2009-2010 work evaluated the chemicals of concern listed in the Cleanup Action Plan (CAP). This analysis included petroleum hydrocarbons for diesel and oil, selected metals for arsenic, barium, lead, and poly-aromatic hydrocarbons (PAHs). Well location and groundwater flow direction are shown in Figure 3 and groundwater flow direction was consistently towards the southwest during all four events. The monitoring results are listed on Table 1 for field parameters, Table 2 for dissolved metals and petroleum, Table 3 for poly-aromatic hydrocarbons (PAHs), and Table 4 for priority pollutant dissolved metals.

The dry season monitoring event was conducted in September 2009 (Kleinfelder 2009) and the wet season in January 2010 (SCS Engineers 2010) at the four designated compliance monitoring wells (AW-6, -10R, -11R, and -12) plus the designated background well (AW-9). These results are significantly below the Site cleanup level.

The 2012 groundwater compliance monitoring was conducted to set a baseline or benchmark prior to and during the deferred industrial maintenance work at the Site discussed below. The monitoring included the same five wells and the chemical laboratory analyses were expanded. The 2012 samples were collected in April for wet season and October for dry season (SCS Engineers 2012a and b). The results show a similar pattern compared to the 2009-2010 results. The petroleum diesel and oil and arsenic results were below detection. Dissolved barium and lead showed low detection with concentrations below Site cleanup levels.

The priority pollutant metal results are listed on Table 4 for the 12 common metals. These results show no detection for mercury, selenium and silver; and low detections for arsenic, barium, cadmium, copper, chromium, lead, nickel, antimony and zinc. All priority pollutant metal results are below state cleanup standards.

The four groundwater compliance monitoring events have confirmed that there is no known risk directly related from this Site to the community, fish and aquatic life at the adjacent waterways at the Sammamish River and northeast Lake Washington –the two main waterways representing more than 3300 feet of shoreline adjacent to this Site.

The next groundwater compliance monitoring event is scheduled for 2019.

Soil Results

Soil sampling and analyses were implemented in part to establish a baseline, and in part for deferred industrial maintenance work at the Site. This work is listed in Appendix B and a brief discussion below. The work focused primarily on the western 14-acre area of the Site.

On behalf of the site owner, Floyd Snider Inc. collected soil samples at 14 locations including the stockpile of former dredge solids/soils (S1, S2…S8) and baseline soils (B1, B2…B6) as shown on figure in Appendix B. These samples were tested for a large suite of chemical analyses. The soil samples were tested for metals, total petroleum hydrocarbons (TPH), semi-volatile organic compounds (SVOC), poly-aromatic hydrocarbons (PAHs), volatile organic compounds (VOC), poly-chlorinated biphenyls (PCBs), pesticides, and conventional parameters (total solids and total organic carbon). These results show a low detection for several substances and all results were significantly below Site cleanup levels and below state cleanup standards. For example, the PCB results were all below detection. See Appendix B for the complete soil results (Floyd Snider, 2011).

In addition, soil analysis was conducted on six soil samples from stockpile soils (former dredged solids/soils) moved from the western area to the eastern area of the Site as shown in Figure 4. The six samples were combined (composited) into two samples for multiple analyses. The results showed no detection for petroleum-gasoline and oil, and one detection for diesel, with all results below state cleanup standards. For metals, the results showed there were no detection for arsenic, cadmium, mercury and selenium; and low detections for barium, chromium and lead. These analyses included PAHs, PCBs and pesticides. Results are significantly below state

cleanup standards and all are protective of nearby surface waterways (KPFF Consulting Engineers 2012).

Remedial Investigation Results

The remedial investigations included extensive soil and groundwater testing, in addition to soil air and vapor evaluation, and adjacent freshwater sediment testing. These results showed most substances below laboratory detection levels and six chemicals identified as chemicals-of-concern. Most chemicals were located at the eastern portion of the site and include petroleum-diesel and oil, and four metals –arsenic, barium, lead and selenium for soil and the same chemicals without selenium for groundwater. The remedial investigations ruled out volatile organics and semi-volatile organic substances, other metals, pesticides and PCBs, and represent hundreds of samples across the Site.

The Final Remedial Investigation Report listed two wetlands at the Site and described their function and value. Wetland A is a class 2 wetland described as a palustrine forested/scrub-shrub wetland located at the west shoreline at Lake Washington. Wetland B is a class 2 wetland described as a lacustrine wetland and mudflat located at the southeast along the Sammamish River (AMEC 2001 and Beak Consultants Inc. 1997). The deferred maintenance work included construction of a berm and fence around the eastern side of Wetland A for protection. No maintenance work was conducted near Wetland B.

Ecology approved the City of Kenmore Shoreline Master Program (SMP) on March 16, 2012 and the SMP became effective on March 30, 2012. The SMP is applicable to the Site along the Lake Washington and Sammamish River shorelines and extending inland 200 feet. Any proposed development or alteration penetrating the subsurface will require Ecology review and approval (Consent Decree and Restrictive Covenant, Appendix A), and a SMP permit.

Sediment Sampling & Analysis Study and Results

The sediment sampling and surface water characterization work was implemented by the City of Kenmore and Ecology. This work focused on the Kenmore area near shore sediment at Lake Washington and the lower reaches of the Sammamish River for two purposes:

- Dredge planning
- Ecology Environmental evaluation

The sediment and water characterization sample locations are shown in Figure 5 and the Site results are listed on Table 5 and the Navigation Channel results are on Table 6. Most sediment results are below Ecology's MTCA Sediment Management Standards (SMS) freshwater criteria except at the two private marinas, located along the Lake Washington north shore and approximately 400 and 700 feet west of the Site.

Sediment results located adjacent to the KIP Site show the sediments are below the SMS screening values for all samples located to the north, west, and south of the Site at the near shore waterfront. These results indicate there are no known environmental issues associated with near shore sediments at the Site. For more information, see the Ecology report in Appendix C.

The sediment and surface water characterization work was to evaluate concern about human health and environmental risks in near shore lake and river sediment and lake water. These results were evaluated by the City's consultants Anchor QEA, two state agencies, and US Army Corps of Engineers, and produced four separate reports:

- Anchor QEA "Anchor QEA Sampling and Analysis Results Memorandum for the Kenmore Sediment and Water Characterization" dated March 2013.

- Ecology "Kenmore Area Sediment & Water Characterization Environmental Evaluation Report" Ecology Publication No. 13-09-174 dated May 2013.

- Washington State Department of Health "Health Consultation – Kenmore Area of Lake Washington and Sammamish River Evaluation of Sediment, Surface Water, and Groundwater, King County, Washington" Publication No. DOH 334-333 July 2013 dated June 27, 2013.

- US Army Corps of Engineers Memorandum Kenmore Navigation Channel Screening Level Evaluation dated May 17, 2013.

In general, this work represents an important and successful step in evaluating the current conditions of the near shore northeast waterfront at Lake Washington, the Navigation Channel and the lower reaches of the Sammamish River. The surface water results are significantly below protection levels for human health and aquatic life.

The sediment results indicate there are no significant environmental issues at the two public parks – Log Boom Park and Lyon Creek Park, and the Kenmore Industrial Park Site. The sediment results are below MTCA SMS freshwater criteria except for samples from the two private marinas.

The Kenmore Navigation Channel sediment results on Table 6 show that the channel would not be classified as a MTCA cleanup site. All Navigation Channel sediment results are below the Freshwater Cleanup Screening Level (CSL). Likewise, the near shore Lakepointe aka Kenmore Industrial Park (KIP) site sediment results show no contamination above the screening values in the sediment adjacent to the Site at the north, west, and south waterfront.

Overall, the sediment results compared to state cleanup criteria show no exceedance for metals, poly-aromatic hydrocarbons (PAHs), pesticides, and miscellaneous extractables (benzoic acid and benzyl alcohol) There is no state cleanup level for dioxins in freshwater sediments, and dioxin cleanup level is to be calculated on a site by site basis.

Washington Department of Health (WDOH) completed a health consultation when evaluating the Site groundwater compliance monitoring results and the sediment results and stated:

> "Health Consultation is to address concerns raised by members of the Kenmore community. The members were concerned that swimmers and boaters were potentially being exposed to contaminated sediments and water around the north end of Lake Washington and near the mouth of the Sammamish River. The WDOH evaluation showed that contact with the sediments or water is not expected to harm people's health."

For more information, see the WDOH or Corps of Engineers reports on the Site webpage at https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=2134

Sediment Study Public Meetings

Significant environmental concerns were expressed by citizens and citizen groups in 2009 and through 2013, and these encouraged Ecology to expand public involvement and outreach. Ecology revised the KIP Site Public Participation Plan and attended and organized public meetings. The citizen concerns were about contamination at the KIP Site, possible migration of contamination to the adjacent waterways, and near shore sediment contamination from the Site.

In response, Ecology has met with citizen groups and attended several Kenmore City Council meetings. The City of Kenmore and Ecology agreed to conduct sediment sampling and to hold public meetings. The City and Ecology held a public meeting for the Draft Kenmore Area Sediment Sampling and Analysis Plan (SSAP) on July 18, 2012, and followed by a public comment period for the draft plan in October 2012.

When the sediment results were available, the City and Ecology with Washington Department of Health, and the Dredge Materials Management Program held an open house at City Hall on January 23, 2013 followed by a public meeting on July 11, 2013. The public outreach was beneficial and provided dialog and discussion with the community and agencies and elected officials. The public meeting summaries are attached in Appendix D.

2.3 Site Investigations and Sample Results

The Remedial Investigation and Feasibility Study were completed in August 2001 (AMEC 2001). Groundwater Compliance Monitoring Report was conducted in November 2009 by Kleinfelder and Ecology (Kleinfelder 2009). Monitoring was again implemented by Ecology and SCS Engineers in January 2010, June 2012, and October 2012 (SCS Engineers 2010, 2012a and 2012b) in addition to the earlier work in 2001. These results are discussed in Section 2.2.

2.4 Cleanup Actions

The Cleanup Action Plan and Consent Decree were approved in August 2001. Continued industrial use at the Site is consistent with the Cleanup Action Plan and Consent Decree. Per the Consent Decree, additional cleanup actions would be required if the Site was to be redeveloped for residential use. The Consent Decree and Cleanup Action Plan are attached as Appendix A.

2.5 Cleanup Levels

Table 7. KIP Site Cleanup Levels for Groundwater in micrograms per liter or parts per billion.

Chemical of Concern	Cleanup Level	Standard/Criteria
Total Petroleum Hydrocarbon-diesel	1000	MTCA method A
Total Petroleum Hydrocarbon-oil	1000	MTCA method A
Arsenic	5	MTCA method A
Barium	1000	MTCA method A &B
Lead (dissolved)	14.4	MTCA method A &B (based on hardness formula at 524 mg.eq./L)

Table 8. KIP Site Cleanup Levels for Soil in milligrams per kilogram or parts per million.

Chemical of Concern	Cleanup Level	Standard/Criteria
T PH-diesel	200	MTCA method A
TPH-oil	200	MTCA method A
Arsenic	20	MTCA method A
Barium	100	MTCA method B
Lead (dissolved)	250	MTCA method A
Selenium	0.5	MTCA method B

Additional cleanup action levels are defined in the CAP for continued industrial uses.

2.6 Restrictive Covenant

Based on the historic Site use, surface cover, and restriction on groundwater use, Ecology determined that a Restrictive Covenant was required at this Site. The Restrictive Covenant was recorded in October 30, 2001 and requires the following limitations:

1. This Restrictive Covenant prohibits Site activities that would interfere with the Remedial Action or other measures that would interfere with the clean gravel cap or other activities that would reduce the integrity of the soil cover (gravel cap and/or impervious surface cover) required by the Consent Decree.

2. Restricts use of groundwater at the property (Site).

3. Conveyance requirement restricts voluntary or involuntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the property without provision for continued provision of this Restrictive Covenant.

4. Lease restriction requires owner to restrict leases to uses and activities consistent with this Restrictive Covenant and requires notifying lessees of the Restrictive Covenant.

5. Inconsistent use requirements.

6. Access.

7. Allowed residential and commercial uses to be consistent with the Consent Decree and Cleanup Action Plan,

8. Reservation of rights.

The Restrictive Covenant is consistent with the Consent Decree and current Site conditions, and see Appendix A.

3.0 PERIODIC REVIEW

3.1 Effectiveness of completed cleanup actions

The Restrictive Covenant for the Site was recorded in 2001 and is currently in place. It prohibits activities that could result in the release of contaminants at the Site. It requires Ecology's approval before conducting tasks that could damage the Site gravel cover, or penetrate the subsurface, and prohibits any use of the property that is inconsistent with the Covenant. This Restrictive Covenant serves to ensure the long term integrity of the remedy.

Based upon the Site visit conducted on February 3, 2014, the crushed rock (clean gravel cover) at the western 14-acre area of the Site was in good condition. The near shoreline berm and wetland protection are functioning as designed and protecting the lake and river shoreline and wetlands. The NPDES storm water permit is in compliance and monitored quarterly. Routine commercial and industrial functions continue in compliance with the state cleanup and compliance monitoring, and Restrictive Covenant requirements. No further MTCA actions are required at this time. A photo log is available as Appendix E.

Soils with petroleum hydrocarbons and metal concentrations higher than MTCA cleanup levels were reported at the Site (AMEC 2001). However, the Restrictive Covenant prevents human exposure to this contamination by ingestion and direct contact with soils. The Restrictive Covenant for the property will ensure that the contamination remaining is contained and controlled and monitored.

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

There is no new scientific information for the chemicals of concern identified at this Site at this time.

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

No new state or federal laws are applicable for hazardous substances at this Site. The cleanup at the Site is in accordance with Chapter 173-340 WAC and Restrictive Covenant.

3.4 Current and projected Site use

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

3.5 Availability and practicability of higher preference technologies

The remedy implemented included capping and containment of hazardous substances, groundwater compliance monitoring, and the Restrictive Covenant. The remedy continues to be protective of human health and the environment. While higher preference cleanup technologies may be available, they are 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 writing this Consent Decree were capable of detection below selected Site cleanup levels. The presence of improved analytical techniques will be evaluated at the time of writing the Engineering Design Report and before implementing the Cleanup Action Plan for the Site.

4.0 CONCLUSIONS

The following conclusions have been made as a result of this periodic review:

- The periodic monitoring and Restrictive Covenant at this Site are protective of human health and the environment.

- The Restrictive Covenant for the property is in place and continues to be effective in protecting public health and the environment from exposure to hazardous substances and protecting the integrity of the cleanup action.

Based on this periodic review, the Department of Ecology has determined that the requirements of periodic groundwater compliance monitoring and the Restrictive Covenant continue to be met. No additional cleanup actions are required by the property owner 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 2019. 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.

Recommendations for next review include wet and dry season groundwater compliance monitoring in addition to annual inspection of the Site and surface cover.

5.0 REFERENCES

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Figures

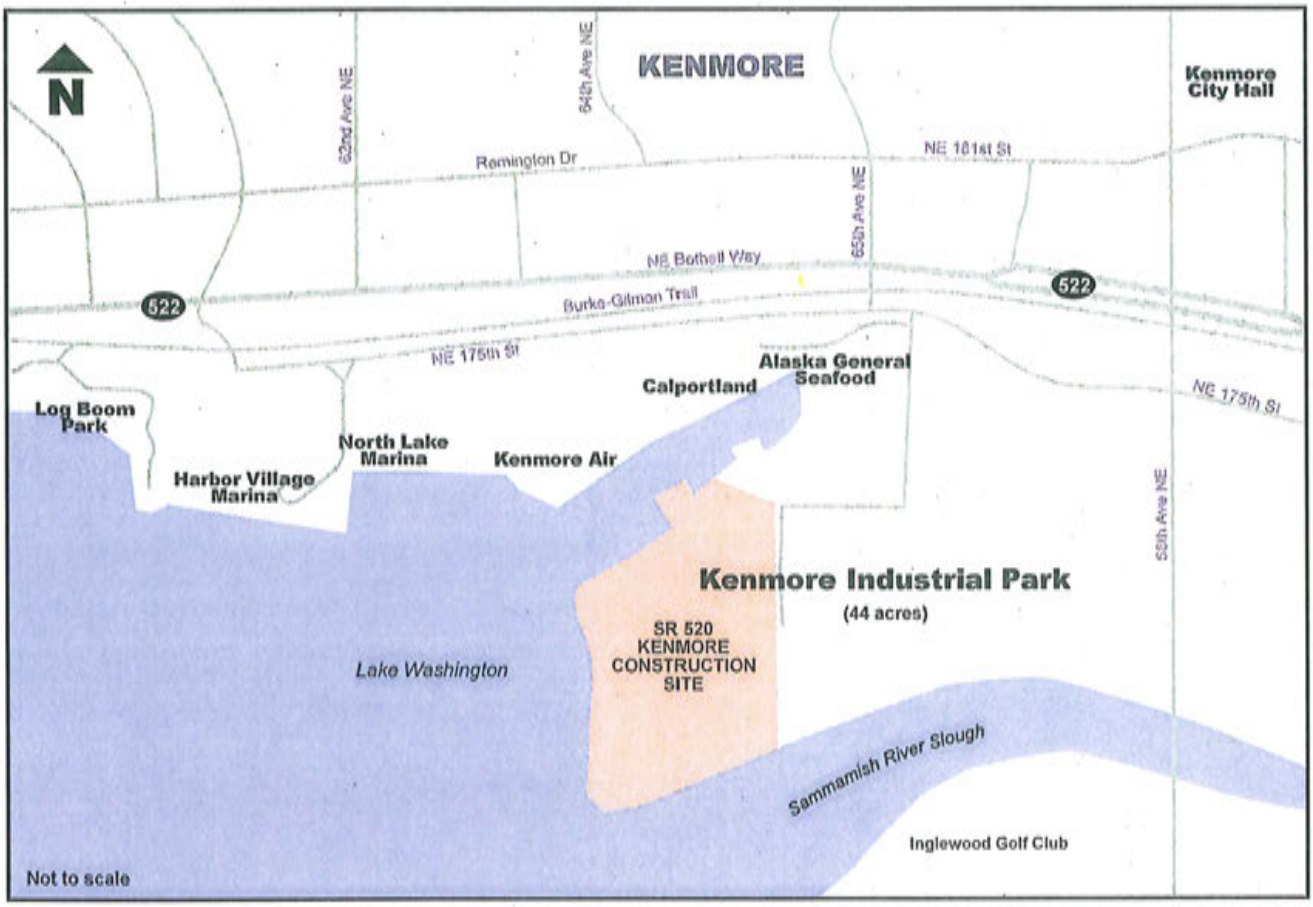


Figure 1. Kenmore Industrial Park Site also called Lakepointe Development, located at 6500 – 6800 Northeast 175th Street, Kenmore, King County, Washington and Cleanup Site Identification No. 2134 and Facility Site No. 2348 (figure from Washington State Department of Transportation).

TIMELINE KENMORE INDUSTRIAL PARK SITE UNDER MODEL TOXICS CONTROL ACT CLEANUP ACTION

Public Outreach & Involvement Elements		Public Comment Period for Consent Decree, MTCA Cleanup Action Plan, SEPA checklist & DNS for Cleanup & Public Participation Plan-2001 Draft Documents				Revised Public Participation Plan-2012	Public Meetings July 18, 2012 Jan 23, 2013 Jan 11, 2013	Public Comment Period SPRR	//	Public Comment Periods for Engineering Design Proposed Development & MTCA Cleanup & Public Participation Plan Draft Documents
1984*	**91-2001****	**8/2001**	**2002-03**	**2001-Present**	**2009-2010**	**2012*****	**2013+**	**2014**	//	**Future**
Landfill & Reported Soil & Groundwater Contamination	Remedial Investigations 1991 1992 1996 1999-2001	CD, CAP, SEPA & PPP final	Lakepointe Development Funds Withdrawn	Industrial Uses Continue with Compliance Monitoring & Environmental Covenant-2001	Groundwater Compliance Monitoring ***Results - No chemicals Above Cleanup Level***	Groundwater Compliance Monitoring ***Results - No chemicals Above Cleanup Level***	Area Lake & River Sediments ***Results - No chemicals Above Cleanup Level except two private marinas***	Site draft Periodic Review Report-SPRR ***Results - Site in Compliance***		MTCA Cleanup Action & Development Implemented with Ecology Oversight & Compliance Monitoring

Draft 031914

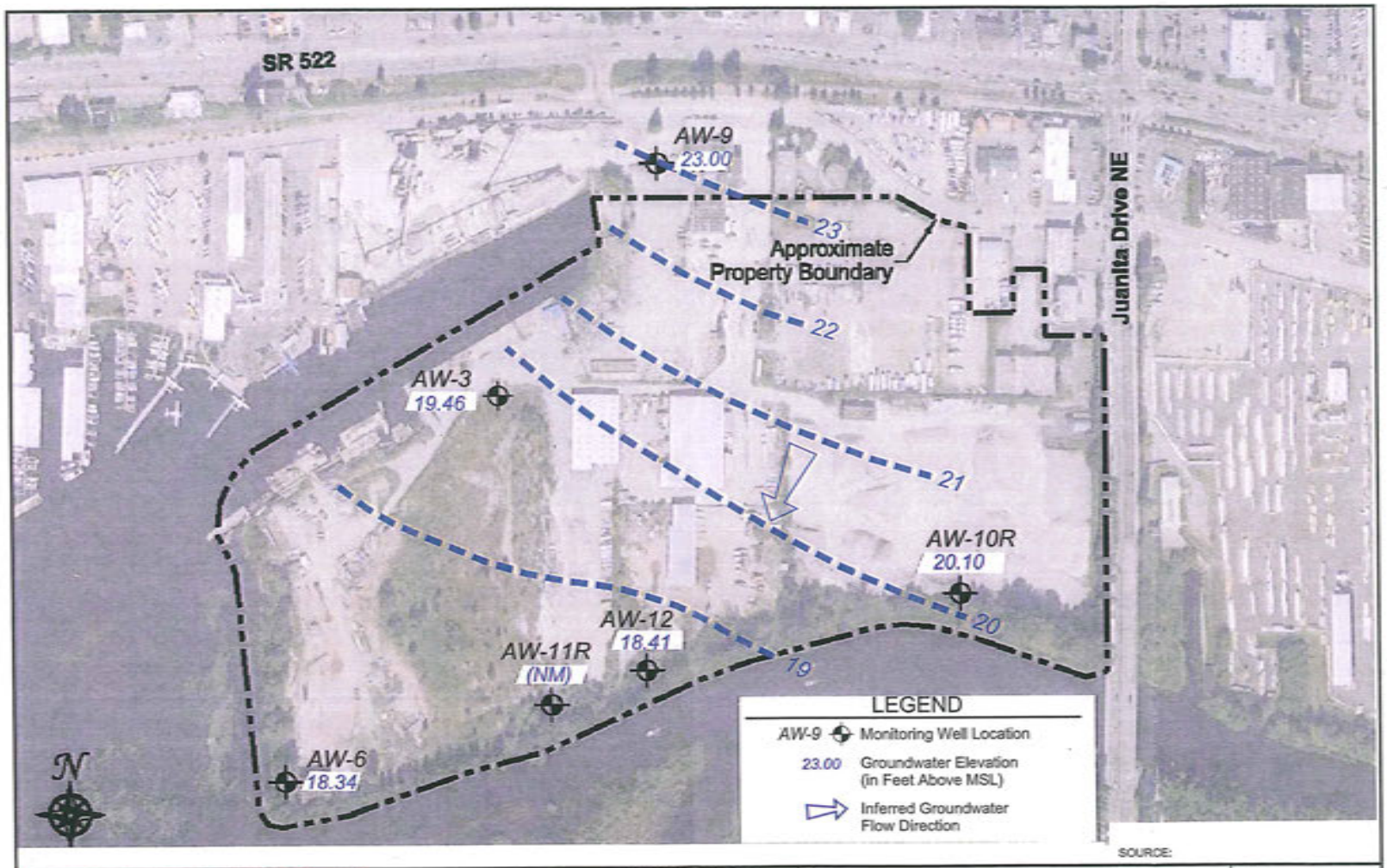
* Former landfill with demolition debris with possible other wastes including restaurant, medical and transformers reported 1981, 1982 & 1984.

** Remedial investigations in 1991, 92, 96, 98, 99, 00 & 01 completed extensive soil & groundwater testing with additional testing of surface water, sediment and landfill gases. Results show known chemicals of concern are petroleum diesel, oil, arsenic, barium and lead in soil and groundwater above MTCA cleanup levels. Note PCBs and pesticides were tested and showed no detection or very low levels significantly below MTCA cleanup level.

*** Groundwater Compliance Monitoring for Deferred Industrial Maintenance tested known chemicals of concern for petroleum, arsenic, barium and lead in addition to copper, cadmium, zinc, priority pollutant metals, and semi-volatile organic compounds. All results showed no detection or very low levels significantly below MTCA cleanup level. PCB testing showed no detection.

2013+ Kenmore Area Sediment & Water Characterization Environmental Evaluation Report, Ecology Publication No. 13-09-174, May 2013.

Figure 2. KIP Site Timeline for Model Toxics Control Act Cleanup Action showing public outreach (top half of figure) and MTCA cleanup action process and associated documents and year of completion (lower half) and document titles listed in footnotes.



SCS ENGINEERS
Environmental Consultants and Contractors
2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005
(425) 746-4600 FAX: (425) 746-6747

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Scale In Feet

PROJECT NO. 04209040.00	DES BY S.A.
SCALE AS SHOWN	DRK BY E.S.
CAD FILE FIGURE 3	APP BY K.L.

WATER LEVEL MAP
APRIL 3, 2012

KENMORE INDUSTRIAL PARK
KENMORE, WASHINGTON

DATE JUNE 2012
(REVISED JULY 16, 2012)

FIGURE 3

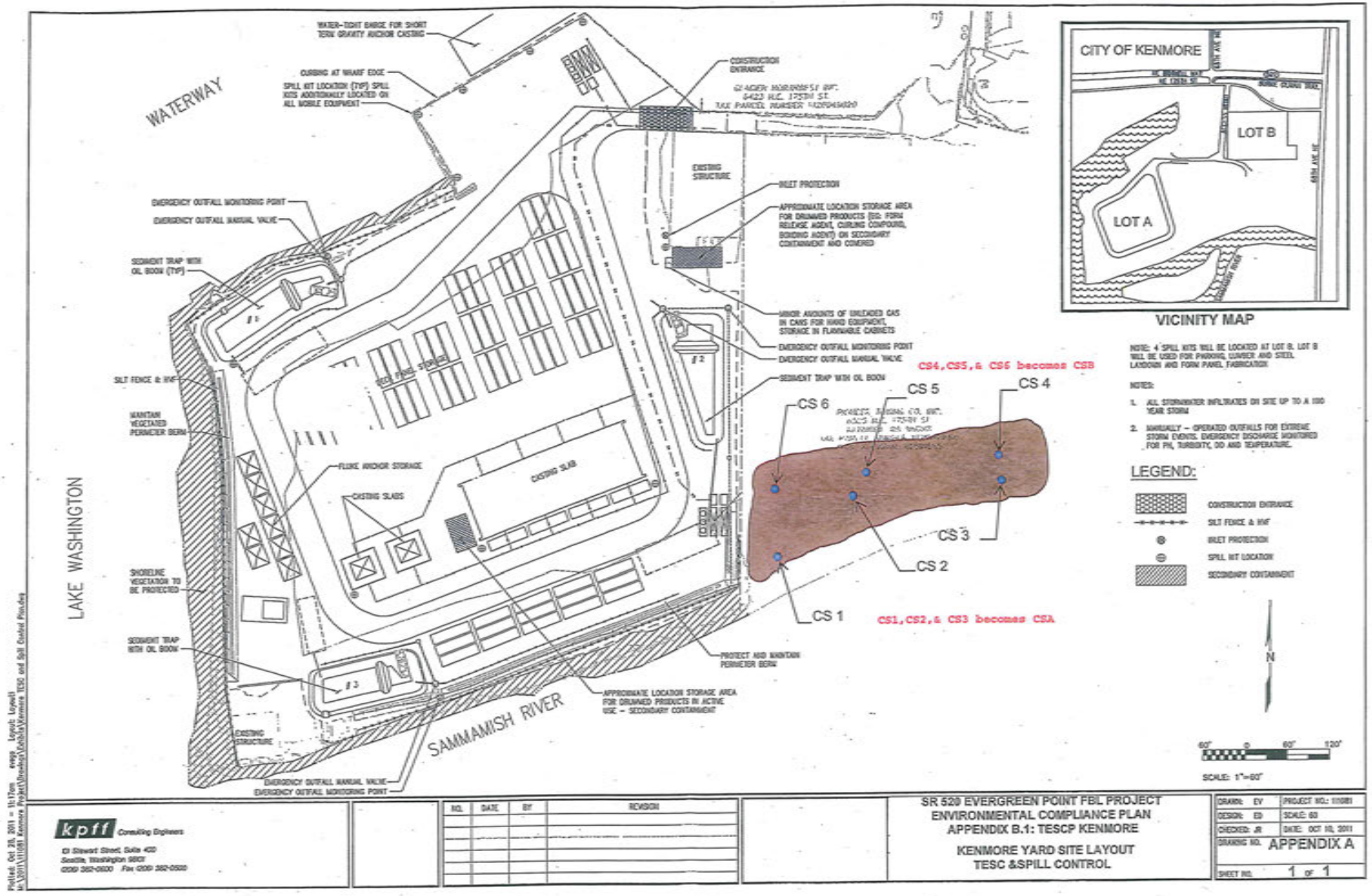
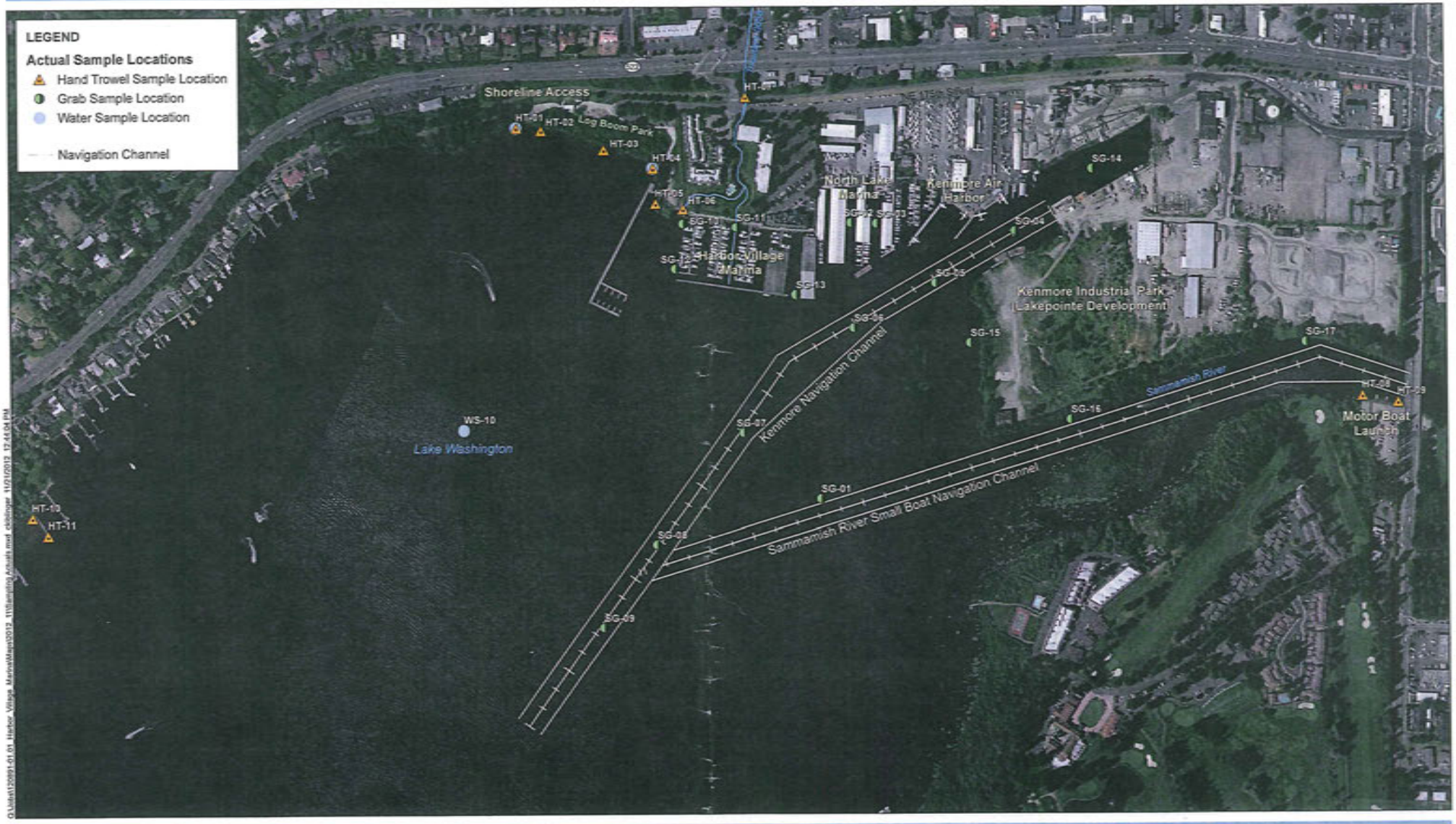


Figure 4. Site Deferred Industrial Maintenance Work with three storm water detention basins, berm and shoreline protection fencing, clean gravel surface, wharf strengthening, and soil results (figure from KPFF Consulting Engineers).



ANCHOR QEA

Figure 5. Kenmore Area Sediment Sampling and Water Characterization Sampling Locations (figure from Anchor QEA, LLC).

Tables

Table 1
Kenmore Industrial Park, Groundwater Monitoring Results
Field Parameters

Well	Sample No.	Sample Date	Depth to Water	Water Level Elevation	pH	Conductivity (µS)	Dissolved Oxygen (mg/L)	Temperature (°C)
AW-9 Background	KIP-0909-01	9/9/2009	8.56	21.66	5.99	165	1.31	19.6
AW-9 Background	KIP-0110-01	1/18/2010	7.01	23.21	5.26	224	0.26	13.1
AW-9 Background	KIP-0412-01	4/3/2012	7.22	23.00	6.06	190	0.27	12.2
AW-9 Background	KIP-0412-01	4/27/2012	7.46	22.76	—	—	—	—
AW-9 Background	KIP-1012-01	10/3/2012	8.58	21.64	6.07	187	0.26	16.5
AW-6	KIP-0909-05R	9/9/2009	10.96	17.50	6.53	1252	1.52	15.6
AW-6	KIP-0110-05	1/19/2010	11.08	17.38	6.29	1429	0.25	11.9
AW-6	KIP-0412-01	4/3/2012	10.12	18.34	6.52	1127	0.18	11.0
AW-6	KIP-0412-01	4/27/2012	9.67	18.79	—	—	—	—
AW-6	KIP-1012-02	10/3/2012	11.15	17.31	6.56	1267	0.19	14.9
AW-10R	KIP-0909-02	9/9/2009	10.75	19.25	6.73	1059	1.05	12.6
AW-10R	KIP-0110-02	1/18/2010	10.15	19.85	6.17	525	0.20	9.6
AW-10R	KIP-0412-01	4/3/2012	9.86	20.14	6.19	306	0.10	7.7
AW-10R	KIP-0412-01	4/27/2012	9.84	20.16	—	—	—	—
AW-10R(2)	KIP-1012-06	10/19/2012	10.21	—	6.43	562	0.18	11.7
AW-11	KIP-0909-04	9/9/2009	11.76	17.83	6.54	1314	1.17	14.8
AW-11	KIP-0110-04	1/18/2010	11.75	17.84	6.39	908	0.14	9.5
AW-11R	KIP-0412-05'	4/3/2027	—	—	—	—	—	—
AW-11R	KIP-0412-05'	4/27/2012	15.51	—	6.37	1140	0.14	11.2
AW-11R	KIP-1012-04	10/3/2012	16.73	—	6.52	1327	0.24	13.4
AW-12	KIP-0909-03	9/9/2009	12.11	17.71	6.51	1042	0.51	14.0
AW-12	KIP-0110-03	1/18/2010	12.07	17.75	6.38	1081	0.19	12.6
AW-12	KIP-0412-01	4/3/2012	11.41	18.41	6.49	942	0.19	11.2
AW-12	KIP-0412-01	4/27/2012	—	—	—	—	—	—
AW-12	KIP-1012-05	10/3/2012	12.30	17.52	6.42	789	0.21	12.7

Notes: (-) indicates not measured.
Water level elevations for AW-10R are approximate, based on an assumed elevation from abandoned well AW-10.

Table 2
Kenmore Industrial Park, Groundwater Monitoring Results
Dissolved Metals and Total petroleum Products (TPH)
All concentrations are presented in milligrams per liter (mg/l)

Well	Sample No.	Sample Date	TPH		Dissolved Metals					
			Diesel Range	Oil Range	As	Ba	Pb	Cd	Cu	Zn
AW-9 Background	KIP-0909-01	9/9/2009	<0.25	<0.40	<0.003	<0.025	<0.001	—	—	—
AW-9 Background	KIP-0110-01	1/18/2010	<0.27	<0.43	<0.003	<0.025	<0.001	—	—	—
AW-9 Background	KIP-0412-01	4/3/2012	<0.27	<0.43	<0.003	<0.025	<0.001	—	—	—
AW-9 Background	KIP-1012-01	10/3/2012	<0.27	<0.43	<0.003	<0.025	<0.001	—	—	—
AW-6		1/18/2001	<0.25	<0.75	—	—	—	—	—	—
AW-6		3/26/2001	—	—	0.001	0.54	0.002	—	—	—
AW-6	KIP-0909-5R	9/10/2009	<0.27	<0.43	<0.003	0.86	<0.001	—	—	—
AW-6 DUPL	KIP-0909-06	9/10/2009	<0.25	<0.40	<0.003	0.89	<0.001	—	—	—
AW-6	KIP-0110-05	1/19/2010	<0.26	<0.41	<0.003	0.54	<0.001	—	—	—
AW-6 DUPL	KIP-0110-06	1/19/2010	<0.26	<0.42	<0.003	0.55	<0.001	—	—	—
AW-6	KIP-0412-04	4/3/2012	<0.28	<0.44	<0.003	0.41	0.002	<0.004	<0.010	<0.025
AW-6 DUPL	KIP-0412-05	4/3/2012	<0.26	<0.42	<0.003	0.40	0.002	<0.004	<0.010	<0.025
AW-6	KIP-1012-02	10/3/2012	<0.27	<0.43	<0.003	0.84	<0.001	<0.004	<0.010	<0.025
AW-6 DUPL	KIP-1012-03	10/3/2012	<0.27	<0.43	<0.003	0.83	<0.001	<0.004	<0.010	<0.025
AW-10R	KIP-0909-02	9/9/2009	<0.25	<0.40	<0.003	0.25	<0.001	—	—	—
AW-10R	KIP-0110-02	1/18/2010	<0.26	<0.41	<0.003	0.12	0.003	—	—	—
AW-10R	KIP-0412-02	4/3/2012	<0.26	<0.42	<0.003	0.11	0.001	—	—	—
AW-10R(2)	KIP-1012-06	10/19/2012	<0.27	<0.44	<0.003	<0.025	<0.001	—	—	—
AW-11		3/26/2001	<.25	<.75	0.001	0.86	<0.001	—	—	—
AW-11	KIP-0909-04	9/9/2009	<0.25	<0.40	<0.003	0.87	<0.001	—	—	—
AW-11	KIP-0110-04	1/18/2010	<0.28	<0.45	<0.003	0.49	<0.001	—	—	—
AW-11R	KIP-0412-05'	4/27/2012	<0.28	<0.45	<0.003	0.55	0.002	<0.004	<0.010	<0.025
AW-11R	KIP-1012-04	10/3/2012	<0.27	<0.43	<0.003	0.91	0.001	<0.004	<0.010	<0.025
AW-12		3/26/2001	<0.25	<0.75	0.002	0.19	<0.001	—	—	—
AW-12	KIP-0909-03	9/9/2009	<0.25	<0.40	<0.003	0.24	<0.001	—	—	—
AW-12	KIP-0110-03	1/18/2010	<0.27	<0.43	<0.003	0.12	<0.001	—	—	—
AW-12	KIP-0412-03	4/3/2012	<0.27	<0.42	<0.003	0.12	<0.001	—	—	—
AW-12	KIP-1012-05	10/3/2012	<0.26	<0.42	<0.003	0.18	<0.001	—	—	—
Site Cleanup Levels			0.50	0.50	0.005	1.0	0.014	—	—	—

Notes:
DUPL = duplicate sample

Table 3
Kenmore Industrial Park, Groundwater Monitoring Results
Polynuclear Aromatic Hydrocarbons
All concentrations are presented in micrograms per liter (µg/l)

			Polynuclear Aromatic Hydrocarbons																				
Well	Sample No.	Sample Date	NAPH	2-MN	1-MN	ACEN	ACE	FLUOR	PHEN	ANTH	FLUORA	PYR	B(a)A	CHRY	B(b)F	B(j,k)F	B(a)P	I(1,2,3-cd)P	DB(ah)A	B(ghi)P	Total PAH	Total cPAH	TEF-Corrected Total cPAH
AW-6	KIP-0909-5R	9/10/2009	0.20	0.10	0.19	<0.10	2.10	0.73	<0.10	<0.10	0.13	0.13	0.053	0.054	0.060	0.019	0.038	0.018	<0.01	0.020	3.84	0.252	0.054
AW-6 DUPL	KIP-0909-6	9/10/2009	0.19	0.11	0.20	<0.10	2.20	1.00	<0.10	<0.10	<0.10	<0.10	0.023	0.019	0.025	<0.01	0.021	0.013	<0.01	0.015	3.82	0.116	0.027
AW-6	KIP-0110-05	1/19/2010	<0.10	<0.10	<0.10	<0.10	1.20	0.59	<0.10	<0.10	<0.10	<0.10	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.80	0.011	0.001
AW-6 DUPL	KIP-0110-06	1/19/2010	<0.10	<0.10	<0.10	<0.10	1.30	0.68	<0.10	<0.10	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.98	0.000	0.000
AW-6	KIP-0412-04	4/3/2012	0.10	<0.10	<0.10	<0.10	0.74	0.34	<0.10	<0.10	<0.10	<0.10	0.025	0.059	0.052	0.012	<0.01	0.019	<0.01	0.017	1.36	0.184	0.011
AW-6 Dupl	KIP-0412-05	4/3/2012	<0.10	<0.10	<0.10	<0.10	0.64	0.29	<0.10	<0.10	<0.10	<0.10	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.94	0.014	0.001
AW-6	KIP-1012-02	10/3/2012	0.51	<0.48	<0.48	0.48	1.70	0.60	<0.48	<0.48	<0.48	<0.48	0.055	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	3.35	0.055	0.006
AW-6 DUPL	KIP-1012-03	10/3/2012	0.49	<0.49	<0.49	<0.49	1.70	0.65	<0.49	<0.49	<0.49	<0.49	0.058	<0.049	<0.049	<0.049	<0.049	<0.049	<0.049	<0.049	2.90	0.058	0.006
AW-11	KIP-0909-4	9/9/2009	<0.10	<0.10	<0.10	<0.10	1.30	0.64	<0.10	<0.10	0.150	0.110	0.033	0.031	0.036	0.012	0.028	0.016	<0.01	0.018	2.37	0.174	0.003
AW-11	KIP-0110-04	1/18/2010	<0.10	<0.10	<0.10	<0.10	0.99	0.78	<0.10	0.100	0.200	0.150	0.040	0.039	0.044	0.030	0.044	0.026	<0.01	0.032	2.48	0.255	0.004
AW-11R	KIP-0412-05'	4/27/2012	0.23	0.11	0.16	<0.099	1.00	0.51	<0.099	<0.099	<0.099	<0.099	0.030	0.022	0.077	0.057	0.057	0.055	<0.050	0.071	2.38	0.369	0.003
AW-11R	KIP-1012-04	10/3/2012	<0.48	<0.48	<0.48	<0.48	1.20	0.66	<0.48	<0.48	<0.48	<0.48	0.054	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	1.91	0.054	0.005
	MTCA Method A Unrestricted Use Groundwater Cleanup Levels			160		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.1*

Notes:
DUPL = duplicate sample
PAH = polynuclear aromatic hydrocarbons
PAHs analyzed by EPA Method 8270
ACE = acenaphthene
ACEN = acenaphthylene
ANTH = Anthracene
B(a)A = Benzo(a)Anthracene
B(a)P = Benzo(a)Pyrene
B(b)F = Benzo(b)Fluoranthene
B(g,h,i)P = Benzo(g,h,i)Perylene
B(j,k)F = Benzo(j,k)Fluoranthene
CHRY = Chrysene
DB(a,h)A = Dibenz(a,h)Anthracene
FLUOR = Fluorene
FLUORA = Fluoranthene
I(1,2,3-cd)P = Indeno(1,2,3-cd)Pyrene
NAPH = Naphthalene
1-MN = 1-Methylnaphthalene
2-MN = 2-Methylnaphthalene
PHEN = Phenanthrene
PYR = Pyrene
TEF = toxicity equivalency factor for Benzo(a)Pyrene
*Level presented is for the sum of the carcinogenic PAHs listed in WAC 173-340-708(8)(e)(ii) adjusted based on TEFs relative to benzo(a)pyrene

Table 4. Kenmore Industrial Park Site aka Lakepointe Deferred Industrial Maintenance Groundwater Performance Monitoring Results after Site Maintenance Work - 2012

Groundwater Sampling was conducted on April 3 & 27 for wet season and October 3 & 19, 2012 for dry season to evaluate changes to the subsurface due to Deferred Industrial Maintenance work at the KIP site during October 2011 through March 2012.
Results are reported in ug/L or parts per billion. The results show all metals are significantly below KIP and MTCA cleanup level.
Results show that the Deferred Industrial Maintenance work has not caused changes to the subsurface causing chemicals of concern to migrate to the adjacent waterways - Sammamish River, Lake Washington, and Kenmore Navigation Channel.
The results confirm that the KIP site is not causing pollutants to move to the adjacent waterways.

Wells Analytes	Sample Date	AW-9 Dissolved	AW-10R* Dissolved/Dup	AW-12 Dissolved	AW-6 Dissolved/Dup	AW-11R Dissolved	Cleanup Levels KIP	 MTCA	 Method
Arsenic	4/3/2012 10/3/2012	0.21 U>1.0	1.96 1.10/1.15	1.80 U>1.0	1.00/1.01 U>1.0	 U>1.0	5	5	Meth A
Barium	4/3/2012 10/3/2012	9.98 10.9	104 131/129	126 186	400/434 831	 931	1000	560	Meth A&B
Cadmium	4/3/2012 10/3/2012	0.022 0.046	U>0.020 U>0.020/U>0.020	U>0.020 U>0.020	U>0.020/U>0.020 U>0.020	 U>0.020	ns	5	Meth A
Copper	4/3/2012 10/3/2012	0.45 0.37	0.70 0.49/0.23	0.70 1.76	0.65/0.59 0.87	 0.69	ns	592	Meth B
Chromium	4/3/2012 10/3/2012	1.69 U>5.00	1.52 U>5.00/U>5.00	1.73 U>5.00	1.18/1.35 U>5.00	 U>5.00	ns	50	Meth A
Lead	4/3/2012 10/3/2012	U>0.020 U>0.020	0.874 U>0.020/0.037	0.457 0.048	1.97/1.93 0.125	 0.070	14.4**	15	Meth A&B
Mercury	4/3/2012 10/3/2012	U>0.050 U>0.050	U>0.050 U>0.050/U>0.050	U>0.050 U>0.050	U>0.050/U>0.050 U>0.050	 U>0.050	ns	2	Meth A
Nickel	4/3/2012 10/3/2012	1.60 1.51	3.10 0.57/0.46	2.78 0.53	0.80/0.58 0.75	 0.49	ns	320	Meth B***
Antimony	4/3/2012 10/3/2012	U>0.20 U>0.20	U>0.20 U>0.20/U>0.20	0.44 U>0.20	0.49/0.46 U>0.20	 U>0.20	ns	6.40	Meth B
Selenium	4/3/2012 10/3/2012	U>0.50 U>5.0	U>0.50 U>5.0/U>5.0	U>0.50 U>5.0	U>0.50/U>0.50 U>5.0	 U>5.0	ns	32	Meth B
Silver	4/3/2012 10/3/2012	U>0.20 U>0.02	U>0.20 U>0.020/0.024J	U>0.20 UJ>0.02	U>0.20/U>0.20 U>0.02	 U>0.02	ns	80	Meth B
Zinc	4/3/2012 10/3/2012	6.0 U>10	27.6 5.0/7.6J	3.7 U>10	20.0/15.3 U>10	 U>10	ns	32	Meth B

Kenmore Industrial Park Site Deferred Industrial Maintenance Groundwater Performance Monitoring Results - page 2
Groundwater Performance Monitoring Results after Site Maintenance Work - April and October 2012.

Manchester Environmental Laboratory conducted Priority Pollutant Metal analyses for the April and October 2012 results.
All dissolved metal results are listed above in ug/L or parts per billion with KIP site specific cleanup levels and Model Toxics Control Act method A or B cleanup levels. Total metal results are listed on laboratory sheets.
Note, KIP site specific metal cleanup levels are defined as dissolved metals, not total metals, see Consent Decree.
Results for mercury, beryllium, selenium and thallium analyses showed no detection and below cleanup level.
AW-6/Dup = AW-6 was sampled and a duplicate (Dup) sample at AW-6 was collected at the same time for QA/QC.
AW-10R* was damaged and replaced in October 2012 listed as AW-10R2. Duplicate samples were collected October 19, 2012.
** Consent Decreee defined lead cleanup level based on water hardness of 524 mg.eq./L using MTCA formula.
*** Cleanup level for nickel based on CLARC version 3 MTCA Method B nickel soluble salts.
U = analyte was not detected at or above laboratory reporting limit with listed LRL.
J = analyte was positively identified and associated numerical result is an estimate.
ns = Cleanup level was not specified in the Consent Decree and analyte was not identified as a chemical of concern at KIP site.
11/29/2012

Kenmore Area Lake Washington & Sammamish River Sediment Sampling Results - November 2012

Table 5. Lakepointe aka Kenmore Industrial Park Site results compared with SMS Freshwater screening criteria.

Note sample depth varies and results are reported in different units -parts per million (ppm), parts per billion (ppb) and parts per trillion (pptr).

Screening Criteria	SMS Freshwater		Kenmore Industrial Park Site - NE to West to SE					Range	
Analyte/Sample #	SCO	CSL	#SG-14	#SG-04	#SG-15	#SG-16	#SG-17	Min	Max
Sample depth, cm			0-10 cm	0-15 cm	0-10 cm	0-10 cm	0-10 cm		
Metals, ppm									
Cadmium	2.1	5.4	**0.7**	**0.3**	0.3U	0.2U	0.4U	0.2U	**0.7**
Chromium	72	88	**36**	**35**	**20.9**	**29.9**	**54**	**20.9**	**54**
Copper	400	1200	**111J**	**14.6**	**5.5J**	**5.4J**	**13.5J**	**5.4J**	**111J**
Zinc	3200	>4200	**182J**	**49**	**57J**	**43J**	**64J**	**43J**	**182J**
Tributyltin, ug/L	0.047ppb	0.320ppb	**0.010**	**0.049**	ns	ns	ns	**0.010**	**0.049**
Polycyclic Aromatic Hydrocarbons, ppb									
Total Light PAHs, U=1/2	not specified		**1500**	**190J**	**35J**	**17J**	**120J**	**17J**	**1500**
Total Heavy PAHs, U=1/2	17,000	30,000	**4200**	**900J**	**56J**	**44J**	**540**	**44J**	**4200**
Phthalate, ppb									
Bis(2-ethylhexyl)Phth	500	22,000	**280**	62U	**21J**	**19J**	**150**	**19J**	**280**
Dimethyl Phth*	undefined/toxic*		19U	20U	19U	19U	**38**	19U	**38**
DNOP	39	>1100	**24**	20U	19U	19U	**11J**	**11J**	**24**
Misc Extractables, ppb									
Benzoic acid	2900	3800	**610**	390U	370U	390U	**430**	370U	**610**
Benzyl alcohol	not specified		**100**	20U	19U	19U	**62**	19U	**100**
PCBs Total, ppb	110	2500	**20**	20U	18U	18U	19U	18U	**20**
Dioxin TEQ, pptr, U=1/2	not specified		**10.1J**	**1.6J**	**0.65J**	**0.36J**	**2.3J**	**0.36J**	**10.1J**

MTCA Sediment Management Standards for Freshwater Sediments based on Benthic (bottom dwelling) Organisms:
Sediment Cleanup Objectives (SCO) & Cleanup Screening Levels (CSL) are:
Freshwater SCO = No adverse effects to benthic community.
Freshwater CSL = Establishes a minor advers effects level including acute or chronic effects and maybe defined as potential cleanup for benthic community see Rule .

* Dimethyl phthalate reported levels are higher than model and at this time do not know toxicity and recommend substance be considered a chemical of concern for future evaluation.

Kenmore Area Lake Washington & Sammamish River Sediment Sampling Results - November 2012

Table 6. Navigation Channel results are compared with MTCA Sediment Freshwater criteria.

Note sample depth varies and results are reported in different units -parts per million (ppm), parts per billion (ppb) and parts per trillion (pptr).

Screening Criteria	SMS Freshwater[a]		East KNC[b]	Kenmore Navigation Channel Results - NE to SW						
Analyte/Sample #	SCO	CSL	#SG-14	#SG-04	#SG-05	#SG-06	#SG-07	#SG-07 Dup	#SG-08	#SG-09
Sample depth, cm			0-10 cm	0-15 cm	0-23 cm	0-25 cm	0-25 cm	0-25 cm	0-25 cm	0-25 cm
Metals, mg/kg, ppm										
Cadmium	2.1	5.4	0.7	0.3	0.7	0.8	0.6	0.6	0.6	0.6
Chromium	72	88	36	35	43	57	41	44	44	48
Copper	400	1200	111J	14.6	35.6	43.6	30	28.7	28	31.1
Zinc	3200	>4200	182J	49	143	164	126	123	113	130
Tributyltin** ug/kg, ppb	47 ug/kg[a]	320 ug/kg[a]	0.010	0.049	0.008	0.023	0.005U	0.005U	0.005U	0.005U
Polycyclic Aromatic Hydrocarbons, ppb										
Total Light PAHs, U=1/2	not specified		1500	190J	330	250J	120J	103J	78J	83
Total Heavy PAHs, U=1/2	17,000	30,000	4200	900J	1340	1510	860J	690J	620J	600J
Phthalates, ppb										
Bis(2-ethylhexyl)Phthalate	500	22,000	280	62U	260	540	330	300	240	240
Dimethyl Phthalate*	not specified*		19U	20U	20U	20U	20U	19U	19U	20U
DNOP	39	>1100	24	20U	22J	41J	22J	19U	19U	20U
Miscellaneous Extractables, ppb										
Benzoic acid	2900	3800	610	390U	1300	1100	430	480	300J	510
Benzyl alcohol	not specified		100	20U	160	190	120	100	61	110
PCBs Total, ppb	110	2500	20	20U	29U	28U	19U	22	18U	20U
Dioxin TEQ, pptr, U=1/2	not specified		10.1J	1.6J	6.8J	8.4J	4.2J	4.0J	3.9J	4.9J

MTCA Sediment Management Standards for Freshwater Benthic:
Sediment Cleanup Objectives (SCO) & Cleanup Screening Levels (CSL):
Freshwater SCO = No adverse effects to benthic community.
Freshwater CSL = Establishes a minor advers effects level including acute or chronic effects and maybe defined as potential cleanup for benthic community see Rule.

J = Laboratory analysis shows chemical is present and the concentration is an estimated value.
U = Laboratory analysis shows chemical is not detected at the laboratory detection limit.
East KNC[b] = sample location at northeast of USACE defined Kenmore Navigation Channel.
Tributyltin** testing for SMS reported as dry weight normalized in ug/kg or parts per billion.
PAH-TH = Total Heavy Poly-aromatic hydrocarbons (PAHs). PAH-TL = Total Light PAHs.
Phthalate DNOP = Di-n-octyl phthalate.

Dioxin TEQ = Total Dioxin/Furan Toxicity Equivalency (TEQ) values as of 2005 World Health Organization. PCBs Total = Total 7 Polychlorinated biphenyls (Aroclors).

[a]SMS Freshwater screening criteria reported in parts per billion dry weight from WAC 173-204-563(2)(g) or as specified.

* Dimethyl phthalate reported levels are higher than interim freshwater criteria, toxicity is unknown and recommend substance be considered a chemical of concern for future

Appendix A.

Site Consent Decree and Restrictive Covenant

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR KING COUNTY

STATE OF WASHINGTON,
DEPARTMENT OF ECOLOGY,

Plaintiff,

v.

PIONEER TOWING COMPANY, INC.,

Respondent.

NO. 01-2-22187-6SEA

CONSENT DECREE

TABLE OF CONTENTS

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

I. INTRODUCTION

A. In entering into this Consent Decree (Decree), the mutual objective of the Washington State Department of Ecology (Ecology), and Pioneer Towing Company, Inc. (Pioneer Towing) is to provide for remedial action at a facility where there has been a release or threatened release of hazardous substances. This Decree requires Pioneer Towing to undertake the following remedial action(s):

1. Implement the Cleanup Action Plan, summarized in Section VI of this Decree and attached hereto as Exhibit B, and

2. Provide for public participation.

Ecology has determined that these actions are necessary to protect public health and the environment.

B. The Complaint in this action is being filed simultaneously with this Decree. An answer has not been filed, and there has not been a trial on any issue of fact or law in this case. However, the parties wish to resolve the issues raised by Ecology's complaint. In addition, the parties agree that settlement of these matters without litigation is reasonable and in the public interest and that entry of this Decree is the most appropriate means of resolving these matters.

C. In signing this Decree, Pioneer Towing agrees to its entry and agrees to be bound by its terms.

D. By entering into this Decree, the parties do not intend to discharge nonsettling parties from any liability they may have with respect to matters alleged in the complaint. The parties retain the right to seek reimbursement, in whole or in part, from any liable persons for sums expended under this Decree.

E. This Decree is not an admission of and shall not be construed against Pioneer Towing as proof of liability or responsibility for any releases of hazardous substances or cost

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

for remedial action nor an admission of any facts; provided, however, that the Pioneer Towing shall not challenge the jurisdiction of Ecology in any proceeding to enforce this Decree.

F. The Court is fully advised of the reasons for entry of this Decree, and good cause having been shown: IT IS HEREBY ORDERED, ADJUDGED, AND DECREED AS FOLLOWS:

II. JURISDICTION

A. This Court has jurisdiction over the subject matter and over the parties pursuant to Chapter 70.105D RCW, the Model Toxics Control Act (MTCA) and venue is proper in King County.

B. Authority is conferred upon the Washington State Attorney General by RCW 70.105D.040(4)(a) to agree to a settlement with any potentially liable person if, after public notice and hearing, Ecology finds the proposed settlement would lead to a more expeditious cleanup of hazardous substances. RCW 70.105D.040(4)(b) requires that such a settlement be entered as a consent decree issued by a court of competent jurisdiction.

C. Ecology has determined that a release or threatened release of hazardous substances has occurred at the Site which is the subject of this Decree.

D. Ecology has given notice to Pioneer Towing, as set forth in RCW 70.105D.020(16), of Ecology's determination that Pioneer Towing is a potentially liable person for the Site and that there has been a release or threatened release of hazardous substances at the Site.

E. The actions to be taken pursuant to this Decree are necessary to protect public health, welfare, and the environment and to comply with the MTCA and Chapter 173-340 WAC.

F. Pioneer Towing has agreed to undertake the actions specified in this Decree and consents to the entry of this Decree under the MTCA.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

G. Ecology has determined that this Decree is not based upon circumstances unique to Pioneer Towing within the meaning of RCW 70.105.040(4)(e)(ii).

III. PARTIES BOUND

This Decree shall apply to and be binding upon the signatories to this Decree (parties), their successors and assigns. The undersigned representative of each party hereby certifies that he or she is fully authorized to enter into this Decree and to execute and legally bind such party to comply with the Decree. Pioneer Towing agrees to undertake all actions required by the terms and conditions of this Decree and not to contest state jurisdiction regarding this Decree. No change in ownership or corporate status shall alter the responsibility of the Pioneer Towing under this Decree. Pioneer Towing shall provide a copy of this Decree to all agents, contractors and subcontractors retained to perform work required by this Decree and shall ensure that all work undertaken by such contractors and subcontractors will be in compliance with this Decree.

IV. DEFINITIONS

Except for as specified herein, all definitions in WAC 173-340-200 apply to the terms in this Decree.

A. Site: The Site, referred to as Kenmore Industrial Park, is located in King County, southwest of the intersection of NE Bothell Way and 68th Avenue NE. The Site is further described in Exhibit A, a Site map, and Exhibit E, a legal description of the property.

B. Parties: Refers to the Washington State Department of Ecology and Pioneer Towing.

C. Pioneer Towing: Refers to the Pioneer Towing Company Inc. The registered agent for Pioneer Towing is Mr. Gary Sergeant.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

D. Consent Decree or Decree: Refers to this Consent Decree and each of the exhibits to the Decree. All exhibits are integral and enforceable parts of this Consent Decree. The terms "Consent Decree" or "Decree" shall include all Exhibits to the Consent Decree.

V. STATEMENT OF FACTS

Ecology makes the following finding of facts without any express or implied admissions by Pioneer Towing.

1. Pioneer Towing is the owner of real property located in King County, Washington southwest of the intersection of NE Bothell Way and 68th Avenue NE, and known as the Kenmore Industrial Park (hereinafter the Site).

2. The Site is approximately forty-five acres in size and is more particularly described in Exhibits A (Site Map) and E (Legal Description) which are incorporated herein by reference.

3. A landfill operated at the Site under King County Unclassified Use permits, numbers P-69-138 and 118-72-P, from 1969 until the landfill closed in 1976. The landfill received primarily wood construction debris. The landfill was limited by permit to receiving wood, rubble, brick, broken concrete, plaster, glass, dirt and gravel. Disposal of paper, garbage, organic material, solid and liquid chemicals, all liquid oil or other petroleum products and car bodies was prohibited as an express condition of permit approval. However, there is evidence that prohibited materials may have been disposed of at the landfill. As described in the Remedial Investigation/Feasibility Study (RI/FS), the landfill material is 15 to 20 feet deep over native peat and organic silt soils and covers most of the Site. Previous Site operations also included various industrial park uses.

4. In 1992, Ecology performed a Site Hazard Assessment (SHA) at the Site. The SHA identified several areas of concern: temporary waste piles maintained by Sterling Asphalt, the former landfill, and a truck wash-out impoundment. With the exception of the

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

landfill, the areas of potential concern have been the subject of independent remedial actions and are no longer considered areas of concern.

5. AGRA Earth and Environmental (AGRA), the technical consultant for Pioneer Towing, characterized the nature and extent of soil and ground water contamination at the Site in a RI/FS submitted to Ecology in October 1998 and revised in June 2001. Based on the RI/FS, Ecology finds that there is a release or threat of release of "hazardous substances" from the landfill, specifically, that the landfill contains hazardous substances including but not limited to lead, arsenic, and possibly petroleum hydrocarbons at levels above MTCA cleanup standards that pose a threat to human health and the environment.

6. Based on the RI, the following contaminants of concern (COC) were selected for evaluation in the FS:

a. Lead and arsenic were detected above their respective Method B soil cleanup calculations based on protection of groundwater, but dissolved arsenic concentrations did not exceed chronic aquatic criteria for surface water; and

b. Diesel- and oil-range TPH were detected using standard analysis techniques at levels slightly above the Method A cleanup standard in soil and groundwater samples from across the southern filled two-thirds of the Site. Use of the Draft TPH Method silica gel cleanup procedure to eliminate natural hydrocarbons from groundwater samples, however, resulted in no petroleum hydrocarbon detection above the MTCA Method A cleanup standard.

The proposed cleanup standards for the COCs (lead, arsenic, and petroleum hydrocarbons) are presented in the CAP. The groundwater cleanup levels are currently met at the proposed point of compliance.

7. The Site is included on Ecology's Hazardous Site List, and Ecology has concluded that remedial action is required at the Site.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

8. Pioneer Towing Company, the owner of the Site, voluntarily accepts status as a potentially liable person pursuant to WAC 173-340-500(5).

9. Wellington Lakepointe proposes to redevelop the Site for residential and commercial uses.

VI. WORK TO BE PERFORMED

This Decree contains a program designed to protect public health, welfare and the environment from the known release, or threatened release, of hazardous substances or contaminants at, on, or from the Kenmore Industrial Park Site. Pioneer Towing agrees to take the remedial actions which are described in detail in the Cleanup Action Plan (CAP), Exhibit B to this Decree, and to perform all work in accordance with Chapter 173-340 WAC, as provided below. The work to be performed will be carried out in conjunction with redevelopment of the Site, occur in phases, and be implemented in accordance with the Schedule set out in Exhibit C. If redevelopment of the entire site is completed, Pioneer Towing shall complete the cleanup described in the CAP for the entire Site and obtain Ecology certification for all phases in accordance with Section XXVI of this Decree. If redevelopment of the Site is initiated but is not completed, Pioneer Towing shall complete the cleanup described in the CAP for the redeveloped phases, obtain Ecology certification of the redeveloped phase(s) in accordance with Section XXVI of this Decree, and implement the remedial actions set forth in the CAP for continued industrial use for the portion of the Site that remains industrial. If the Site is not redeveloped to commercial/residential uses and remains entirely industrial, Pioneer Towing shall implement only the remedial actions set forth in the CAP for continued industrial use. A summary of the work program to be performed is as follows:

A. Task 1: Develop engineering design for the development project structures that will form and constitute the landfill cap:

1. Submit a Draft Engineering Design Report to Ecology;

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

2. Submit a Final Engineering Design Report to Ecology.

B. Task 2: Implement the Cleanup Action Plan:

1. Construct in phases the development project structures that form the engineered cap over portions of the upland area of the property;

2. Implement physical measures in areas not yet redeveloped and in areas not currently under construction to limit access and potential exposure to landfilled debris at the Site.

3. Implement Site modifications outside the engineered cap that reflect habitat preservation and enhancement goals;

4. Implement institutional controls, including a deed notice;

5. Implement a worker safety and health plan per WAC 173-340-810(2);

6. Record a deed restriction as shown in Exhibit F (Restrictive Covenant) for the completion of each phase; and

7. Conduct long-term groundwater monitoring at the points of compliance in accordance with the Ecology Environmental Information Data Submittal Guide.

C. Task 3: Provide for public participation:

1. Implement the Public Participation Plan.

D. Task 4: Prepare and submit to Ecology bimonthly progress reports:

1. Include in the bimonthly progress reports a summary of actions taken, problems encountered, and progress made on the work during the past two months;

2. Include in the bimonthly progress reports a summary of anticipated activities for upcoming months and explanation of any problems with meeting the project Schedule.

E. Task 5: Submit groundwater sampling data to Ecology.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

Pioneer Towing agrees not to perform any remedial actions outside the scope of this Decree unless the parties agree to amend the Cleanup Action Plan or this Section to cover these actions. All work conducted under this Decree shall be done in accordance with ch. 173-340 WAC unless otherwise provided herein.

VII. DESIGNATED PROJECT COORDINATORS

The project coordinator for Ecology is:

Ching-Pi Wang
Department of Ecology, NW Region
3190 160th Avenue SE
Bellevue, WA 98008-5452
Telephone (425) 649-7135

The project coordinator for Pioneer Towing is:

Gary Sergeant
P.O. Box 82298
Kenmore, WA 98028
Telephone (425) 486-2756

Each project coordinator shall be responsible for overseeing the implementation of this Decree. The Ecology project coordinator will be Ecology's designated representative at the Site. To the maximum extent possible, communications between Ecology and Pioneer Towing and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Decree, shall be directed through the project coordinators. The project coordinators may designate, in writing, working level staff contacts for all or portions of the implementation of the remedial work required by this Decree. The project coordinators may agree to minor modifications to the work to be performed without formal amendments to this Decree. Minor modifications will be documented in writing by Ecology.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

Any party may change its respective project coordinator without amendment of this Decree. Written notification shall be given to the other parties at least ten (10) calendar days prior to the change.

VIII. PERFORMANCE

All work performed pursuant to this Decree shall be under the direction and supervision, as necessary, of a professional engineer or hydrogeologist, or equivalent, with experience and expertise in hazardous waste site investigation and cleanup. Any construction work must be under the supervision of a professional engineer. Pioneer Towing shall notify Ecology in writing as to the identity of such engineer(s) or hydrogeologist(s), or others and of any contractors and subcontractors to be used in carrying out the terms of this Decree, in advance of their involvement at the Site.

IX. ACCESS

Ecology or any Ecology authorized representatives shall have the authority to enter and freely move about all property at the Site at all reasonable times for the purposes of, *inter alia*, inspecting records, operation logs, and contracts related to the work being performed pursuant to this Decree; reviewing Pioneer Towing's progress in carrying out the terms of this Decree; conducting such tests or collecting such samples as Ecology may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Decree; and verifying the data submitted to Ecology by Pioneer Towing. Without limitation on Ecology's rights under this section, Ecology will provide Pioneer Towing advance notice of its entry onto the Site when feasible. All parties with access to the Site pursuant to this paragraph shall comply with approved health and safety plans. Ecology shall make available to Pioneer Towing the results of all sampling, laboratory reports, photographs, videos, and other test results generated by Ecology or on its behalf.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

X. SAMPLING, DATA REPORTING, AND AVAILABILITY

With respect to the implementation of this Decree, Pioneer Towing shall make the results of all sampling, laboratory reports, and/or test results generated by it, or on its behalf available to Ecology and shall submit these results in accordance with Section XI of this Decree.

In accordance with WAC 173-340-840(5), ground water sampling data shall be submitted according to the Ecology Environmental Information Data Submittal Guide (and any updates or revisions thereto, including succeeding publications). These submittals shall be provided to Ecology in accordance with Section XI of this Decree.

If requested by Ecology, Pioneer Towing shall allow split or duplicate samples to be taken by Ecology and/or its authorized representatives of any samples collected by Pioneer Towing pursuant to the implementation of this Decree. Pioneer Towing shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow split or duplicate samples to be taken by Pioneer Towing or its authorized representatives of any samples collected by Ecology pursuant to the implementation of this Decree provided it does not interfere with the Department's sampling. Without limitation on Ecology's rights under Section IX, Ecology shall strive to notify Pioneer Towing seven (7) days in advance of any sample collection activity.

XI. PROGRESS REPORTS

During engineering design and remedial action construction, Pioneer Towing shall submit to Ecology written monthly progress reports which describe the actions taken during the previous month to implement the requirements of this Decree. The progress reports shall include the following:

A. A list of on-site activities that have taken place during the reporting period;

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

B. Detailed description of any deviations from required tasks not otherwise documented in project plans or amendment requests;

C. Description of all deviations from the schedule (Exhibit C) during the current reporting period and any planned deviations in the upcoming reporting period;

D. For any deviations in schedule, a plan for recovering lost time and maintaining compliance with the schedule;

E. All validated data (including laboratory analysis) received by Pioneer Towing during the past reporting period and an identification of the source of the sample; and

F. A list of deliverables for the upcoming reporting period if different from the schedule.

All progress reports shall be submitted by the tenth day of the reporting period in which they are due after the effective date of this Decree. Unless otherwise specified, progress reports and any other documents submitted pursuant to this Decree shall be sent to Ecology's project coordinator. The frequency of submission of progress reports following remedial action construction shall be reduced to the frequency required in the monitoring plan.

XII. RETENTION OF RECORDS

Pioneer Towing shall preserve, during the pendency of this Decree and for ten (10) years from the date this Decree is no longer in effect as provided in Section XXVII, all records, reports, documents, and underlying data in its possession relevant to the implementation of this Decree and shall insert in contracts with project contractors and subcontractors a similar record retention requirement. Upon request of Ecology, Pioneer Towing shall make all non-archived records available to Ecology and allow access for review. All archived records shall be made available to Ecology within a reasonable period of time.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

XIII. TRANSFER OF INTEREST IN PROPERTY

No voluntary or involuntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated without provision for continued operation and maintenance of any containment system, treatment system, and monitoring system installed or implemented pursuant to this Decree.

Prior to transfer of any legal or equitable interest in all or any portion of the property, Pioneer Towing shall provide either a copy of the Consent Decree or a written disclosure statement of the status of the Site that includes notice of the availability of and instructions for obtaining a copy of the Consent Decree to any prospective purchaser, lessee, transferee, assignee, or other successor in interest of the property. Pioneer Towing shall provide a copy of the Consent Decree to any purchaser or transferee that undertakes responsibility for continued operation and maintenance of any containment system, treatment system, or monitoring system installed or implemented pursuant to this Decree. For all other purchasers, lessees, transferees, assignees, or other successors in interest of the property, a disclosure statement shall be contained in the real estate purchase agreement, the lease agreement, the Public Offering Statement ("POS"), or other applicable transfer document. The disclosure statement shall contain language substantially to the effect that: 1) the property is a former landfill that is subject to a consent decree, 2) remedial actions were undertaken to address environmental concerns associated with the former landfill, 3) property owners and other persons holding an interest in the property may not interfere with the remedy or measures related to the cleanup, and 4) copies of the Consent Decree are available by request. Pioneer Towing shall also file a copy of the Consent Decree with the property record. Pioneer Towing shall notify Ecology at least thirty (30) days prior to any transfer of a fee interest in the Property, excluding any transfers of a fee interest in a condominium unit, a lease or rental of an apartment unit, or a commercial lease of less than 50,000 square feet.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

XIV. RESOLUTION OF DISPUTES

A. In the event a dispute arises as to an approval, disapproval, certification, payment assessment or obligation, proposed modification, extension request, or other decision or action by Ecology's project coordinator, the parties shall utilize the dispute resolution procedure set forth below.

1. Upon receipt of the Ecology project coordinator's decision, Pioneer Towing has fourteen (14) days within which to notify Ecology's project coordinator of its objection to the decision.

2. The parties' project coordinators shall then confer in an effort to resolve the dispute. If the project coordinators cannot resolve the dispute within fourteen (14) days, Ecology's project coordinator shall issue a written decision.

3. Pioneer Towing may then request Ecology management review of the decision. This request shall be submitted in writing to the Toxics Cleanup Program Manager within seven (7) days of receipt of Ecology's project coordinator's decision.

4. Ecology's Program Manager shall conduct a review of the dispute and shall issue a written decision regarding the dispute within thirty (30) days of Pioneer Towing's request for review. The Program Manager's decision shall be Ecology's final decision on the disputed matter.

B. If Ecology's final written decision is unacceptable to Pioneer Towing, the parties may, by mutual agreement, submit the dispute to a neutral mediator. If the parties reach agreement as a result of the mediation, they shall jointly prepare a written resolution of the dispute immediately following the mediation session. If the parties fail to reach agreement as a result of the mediation, then Ecology shall, within thirty (30) days after the conclusion of the mediation, issue a written statement either reaffirming its original decision or setting forth a new decision. Pioneer Towing has the right to submit the dispute to the Court for resolution

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

within thirty (30) days after any of the following: (i) Pioneer Towing receives written notice that Ecology does not agree to submit the dispute to mediation; (ii) after mediation, Pioneer Towing receives a written statement from Ecology that is unacceptable to Pioneer Towing; or (iii) Ecology fails to issue the final decision described earlier in this paragraph. The parties agree that one judge should retain jurisdiction over this case and shall, as necessary, resolve any dispute arising under this Decree.

C. For disputes that involve Ecology's investigative and remedial decisions, and others covered by RCW 70.105D.060, the Court shall uphold Ecology's decisions unless the decisions were arbitrary and capricious or the Court determines that that another standard of review is appropriate and Ecology's decisions are not in accord with such standard.

D. The parties agree to only utilize the dispute resolution process in good faith and agree to expedite, to the extent possible, the dispute resolution process whenever it is used. Where either party utilizes the dispute resolution process in bad faith or for purposes of delay, the other party may seek sanctions.

Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Decree, unless Ecology agrees in writing to a schedule extension or the Court so orders.

XV. AMENDMENT OF CONSENT DECREE; ADDING PARTIES TO THE DECREE

Except for an extension granted pursuant to Section XVI below or technical revisions to Section VI (Work to be Performed) as detailed in the CAP (Exhibit B) that affect the nature or scope of remedial work and do not represent a substantial change, this Decree may only be amended by a written stipulation among the parties to this Decree that is entered by the Court or by order of the Court. Such amendment shall become effective upon entry by the Court. Agreement to amend shall not be unreasonably withheld by any party to the Decree.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

Pioneer Towing shall submit any request for an amendment to Ecology for approval. Ecology shall indicate its approval or disapproval in a timely manner after the request for amendment is received. If the amendment to the Decree is substantial, Ecology will provide public notice and opportunity for comment. Reasons for the disapproval shall be stated in writing. If Ecology does not agree to any proposed amendment, the disagreement may be addressed through the dispute resolution procedures described in Section XIV of this Decree. Technical revisions to Section VI or the CAP affecting the nature or scope of remedial work that do not represent a substantial change, may be made by mutual agreement of the parties or by procedures established in the CAP without approval of the Court.

When Pioneer Towing contemplates conveyance of the Site, or a portion of the Site, to a proposed successor in interest that agrees to undertake compliance with the terms and conditions of this Decree and to become a party to this Decree, Pioneer Towing may request that the Decree be amended to add such successor in interest as a party to the Decree. Ecology shall consent to the amendment adding the proposed successor in interest as a party to the Decree unless it finds that Pioneer Towing or the proposed successor in interest are in violation or will be in violation of a material term of the Decree. An amendment to make a proposed successor in interest a party to the Decree shall not by itself require public notice or comment. In the event that a successor in interest becomes a party to this Decree, Ecology shall look first to such successor for performance of the requirements of this Decree, unless Ecology determines that such successor will not comply with the requirements of this Decree.

XVI. EXTENSION OF SCHEDULE

A. An extension of schedule shall be granted only when a request for an extension is submitted in a timely fashion, generally at least thirty (30) days prior to expiration of the deadline for which the extension is requested, and good cause exists for granting the extension.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

All extensions shall be requested in writing. The request shall specify the reason(s) the extension is needed.

An extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. A requested extension shall not be effective until approved by Ecology or the Court. Ecology shall act upon any written request for extension in a timely fashion. It shall not be necessary to formally amend this Decree pursuant to Section XV when a schedule extension is granted.

B. The burden shall be on Pioneer Towing to demonstrate to the reasonable satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause includes, but is not limited to, the following.

1. Circumstances beyond the reasonable control and despite the due diligence of Pioneer Towing including delays caused by unrelated third parties or Ecology, such as (but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by Pioneer Towing; or

2. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, or other unavoidable casualty; or

3. Endangerment as described in Section XVII; or

4. Other circumstances agreed to by Ecology to be exceptional or extraordinary.

However, neither increased costs of performance of the terms of the Decree nor changed economic circumstances shall be considered circumstances beyond the reasonable control of Pioneer Towing.

C. Ecology may extend the schedule for a period not to exceed ninety (90) days where an extension is needed as a result of:

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

1. Delays in the issuance of a necessary permit which was applied for in a timely manner; or

2. Other circumstances deemed exceptional or extraordinary by Ecology; or

3. Endangerment as described in Section XVII.

Ecology shall give Pioneer Towing written notification in a timely fashion of any extensions granted pursuant to this Decree. Ecology shall not unreasonably withhold approval of requested extensions.

XVII. ENDANGERMENT

In the event Ecology determines that activities implementing or in compliance with this Decree, or any other circumstances or activities, are creating or have the potential to create a danger to the health or welfare of the people on the Site or in the surrounding area or to the environment, Ecology may order Pioneer Towing to stop further implementation of this Decree for such period of time as needed to abate the danger or may petition the Court for an order as appropriate. During any stoppage of work under this section, the obligations of Pioneer Towing with respect to the work under this Decree which is ordered to be stopped shall be suspended and the time periods for performance of that work, as well as the time period for any other work dependent upon the work which is stopped, shall be extended, pursuant to Section XVI of this Decree, for such period of time as Ecology determines is reasonable under the circumstances.

In the event Pioneer Towing determines that activities undertaken in furtherance of this Decree or any other circumstances or activities are creating an endangerment to the people on the Site or in the surrounding area or to the environment, Pioneer Towing may stop implementation of this Decree for such period of time necessary for Ecology to evaluate the situation and determine whether Pioneer Towing should proceed with implementation of the

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

Decree or whether the work stoppage should be continued until the danger is abated. Pioneer Towing shall notify Ecology's project coordinator as soon as possible, but no later than twenty-four (24) hours after such stoppage of work, and thereafter provide Ecology with documentation of the basis for the work stoppage. If Ecology disagrees with Pioneer Towing's determination, it may order Pioneer Towing to resume implementation of this Decree. If Ecology concurs with the work stoppage, Pioneer Towing's obligations shall be suspended and the time period for performance of that work, as well as the time period for any other work dependent upon the work which was stopped, shall be extended, pursuant to Section XVI of this Decree, for such period of time as Ecology determines is reasonable under the circumstances. Any disagreements pursuant to this section shall be resolved through the dispute resolution procedures in Section XIV.

XVIII. OTHER ACTIONS

Ecology reserves its rights to institute remedial action(s) at the Site and subsequently pursue cost recovery, and Ecology reserves its rights to issue orders and/or penalties or take any other enforcement action pursuant to available statutory authority under the following circumstances:

1. Where Pioneer Towing fails, after notice, to comply with any requirement of this Decree;

2. In the event or upon the discovery of a release or threatened release not addressed by this Decree;

3. Upon Ecology's determination that action beyond the terms of this Decree is necessary to abate an emergency situation which threatens public health or welfare or the environment; or

4. Upon the occurrence or discovery of a situation beyond the scope of this Decree as to which Ecology would be empowered to perform any remedial action or to issue

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

an order and/or penalty, or to take any other enforcement action. This Decree is limited in scope to the geographic Site described in Exhibit A and Exhibit E and to those contaminants which Ecology knows to be at the Site when this Decree is entered.

Ecology reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the release or threatened release of hazardous substances from Kenmore Industrial Park.

Ecology reserves the right to take any enforcement action whatsoever, including a cost recovery action, against potentially liable persons not party to this Decree.

XIX. RESERVATION OF RIGHTS

Pioneer Towing reserves all of its rights and defenses with respect to any actions against Pioneer Towing that are outside the scope of this Decree. By agreeing to this Decree, Pioneer Towing and Ecology agree to abide by its terms. The execution and performance of the Decree is not, however, an admission by Pioneer Towing of any fact or liability for any purpose.

XX. INDEMNIFICATION

Pioneer Towing agrees to indemnify and save and hold the State of Washington, its employees, and agents harmless from any and all claims or causes of action for death or injuries to persons or for loss or damage to property arising from or on account of acts or omissions of Pioneer Towing, its officers, employees, agents, or contractors in entering into and implementing this Decree. However, the Defendant shall not indemnify the State of Washington nor save nor hold its employees and agents harmless from any claims or causes of action arising out of the State of Washington's, or any of its agencies', status as a potentially liable person with respect to contamination at the Site or from any claims or causes of action arising out of the intentional misconduct or negligent acts or omissions of the State of

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

Washington, or the employees or agents of the State, in implementing the activities pursuant to this Decree.

XXI. COMPLIANCE WITH APPLICABLE LAWS

A. All actions carried out by Pioneer Towing pursuant to this Decree shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in paragraph B of this section.

B. Pursuant to RCW 70.105D.090(1), the substantive requirements of chapters 70.94, 70.95, 70.105, 75.20, 90.48, and 90.58 RCW and of any laws requiring or authorizing local government permits or approvals for the remedial action under this Decree that are known to be applicable at the time of entry of the Decree have been included in Exhibit G, and are binding and enforceable requirements of the Decree. Pursuant to RCW 70.105D.090(1), Pioneer Towing is exempt from the procedural requirements of 70.94, 70.95, 70.105, 75.20, 90.48, and 90.58 RCW and the procedural requirements of any laws requiring or authorizing local government permits or approvals for the remedial action.

Pioneer Towing has an obligation to determine whether additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Decree. In the event either Pioneer Towing or Ecology determines that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Decree, it shall promptly notify the other party of this determination. Ecology shall determine whether Ecology or Pioneer Towing shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, Pioneer Towing shall promptly consult with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the remedial action. Ecology shall make the final determination on the additional substantive requirements that must be met by Pioneer Towing and on how

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
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FAX (360) 586-6760

Pioneer Towing must meet those requirements. Ecology shall inform Pioneer Towing in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Decree. Pioneer Towing shall not begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination. Any disagreements pursuant to this section shall be resolved through the dispute resolution procedures in Section XIV.

Ecology shall ensure that notice and opportunity for comment is provided to the public and appropriate agencies prior to establishing the substantive requirements under this section.

C. Pursuant to RCW 70.105D.090(2), in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70.105D.090(l) would result in the loss of approval from a federal agency which is necessary for the State to administer any federal law, the exemption shall not apply in such circumstances and Pioneer Towing shall comply with both the procedural and substantive requirements of the particular law referenced in RCW 70.105D.090(l), including any requirement to obtain permits.

XXII. REMEDIAL AND INVESTIGATIVE COSTS

Pioneer Towing agrees to pay costs for work performed by Ecology or its contractors for, or on, the Site under Ch. 70.105D RCW both prior to and subsequent to the issuance of this Decree for investigations, remedial actions, and Decree preparation, negotiations, oversight and administration. Ecology costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). Pioneer Towing agrees to pay the required amount within ninety (90) days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. A statement of work performed will be provided upon request. Itemized statements shall be prepared quarterly.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

Failure to pay Ecology's costs within ninety (90) days of receipt of the itemized statement and statement of work performed will result in interest charges at the rate specified in RCW 43.17.240. Pioneer Towing reserves the right to review and approve any charges prior to payment. Any dispute regarding costs shall be subject to dispute resolution pursuant to Section XIV. Pioneer Towing reserves the right to pay the undisputed portion of an invoice and not pay the disputed portion.

XXIII. IMPLEMENTATION OF REMEDIAL ACTION

If Ecology determines that Pioneer Towing has failed without good cause to implement the remedial action, Ecology may, after notice and reasonable opportunity for Pioneer Towing to cure the failure, perform any or all portions of the remedial action that remain incomplete. If Ecology performs all or portions of the remedial action because of Pioneer Towing's failure to comply with its obligations under this Decree, Pioneer Towing shall reimburse Ecology for the costs of doing such work in accordance with Section XXII, provided that Pioneer Towing is not obligated under this section to reimburse Ecology for costs incurred for work inconsistent with or beyond the scope of this Decree.

XXIV. FIVE YEAR REVIEW

As ground water monitoring continues at the Site, the parties agree to review the data accumulated as a result of Site monitoring as often as is necessary and appropriate under the circumstances. The parties agree to meet to discuss the Site status every five years upon request of either Ecology or Pioneer Towing. Ecology reserves the right to seek further remedial action at the Site under appropriate circumstances if necessary to protect public health and the environment. This provision shall remain in effect for the duration of the Decree.

XXV. PUBLIC PARTICIPATION

Prior to entry of this Decree, Pioneer Towing and Ecology prepared and implemented a Public Participation Plan for the Site, attached hereto as Exhibit D, that complied with MTCA

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

and Chapter 173-340 WAC. Ecology shall maintain the responsibility for public participation at the Site. However, Pioneer Towing shall continue to cooperate with Ecology and, if agreed to by Ecology, shall:

A. Prepare drafts of public notices and fact sheets at important stages of the remedial action, such as the submission of work plans, Remedial Investigation/Feasibility Study reports and engineering design reports. Ecology will finalize (including editing if necessary) and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings;

B. Notify Ecology's project coordinator prior to the preparation of all press releases and fact sheets, and before major meetings with the interested public and local governments. Likewise, Ecology shall notify Pioneer Towing prior to the issuance of all press releases and fact sheets, and before major meetings with the interested public and local governments;

C. Participate in public presentations on the progress of the remedial action at the Site. Participation may be through attendance at public meetings to assist in answering questions, or as a presenter;

D. Provide Ecology with copies of documents for placement in information repositories to be located at the Kenmore Public Library and Ecology's Northwest Regional Office at 190 160th Avenue SE, Bellevue, Washington 98008-5452. At a minimum, copies of all public notices, fact sheets, and press releases; all quality assured ground water, surface water, soil sediment, and air monitoring data; remedial action plans, supplemental remedial planning documents, and all other similar documents relating to performance of the remedial action required by this Decree shall be promptly placed in these repositories.

XXVI. CERTIFICATION OF PHASES OF CLEANUP

In order to facilitate the timely redevelopment of the Site, Pioneer Towing or any other party to the Decree may request a certification of completion from Ecology for each phase of

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

the cleanup. Within sixty (60) days of receiving such a request, Ecology shall certify in writing that cleanup activities required pursuant to the CAP have been satisfactorily completed for that phase of the cleanup or provide written notice of any additional work required to be completed in order to satisfy the requirements of the Decree.

XXVII. DURATION OF DECREE

This Decree shall remain in effect and the remedial program described in the Decree shall be maintained and continued until Pioneer Towing has received written notification from Ecology that the requirements of this Decree have been satisfactorily completed. Ecology shall issue such notification within sixty (60) days after the requirements of this Decree have been satisfactorily completed. Thereafter, the parties within thirty (30) days shall jointly request that the Court vacate this Consent Decree. The provisions set forth in Section XXX (Contribution Protection), Section XXIX (Covenant Not to Sue), Section XX (Indemnification), and other such continuing rights of Pioneer Towing, its successors in interest, or Ecology under this Decree shall survive the termination of the Decree pursuant to this Section. Any disagreements pursuant to this section shall be resolved through the dispute resolution procedures in Section XIV.

XXVIII. CLAIMS AGAINST THE STATE

Pioneer Towing hereby agrees that it will not seek to recover any costs accrued in implementing the remedial action required by this Decree from the State of Washington or any of its agencies, except to the extent that the State of Washington or any of its agencies is a potentially liable person with respect to contamination at the Site; and further, that the Pioneer Towing will make no claim against the State Toxics Control Account or any Local Toxics Control Account for any costs incurred in implementing this Decree. Except as provided above, however, Pioneer Towing expressly reserves its right to seek to recover any costs incurred in implementing this Decree from any other potentially liable person.

ATTORNEY GENERAL OF WASHINGTON
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XXIX. COVENANT NOT TO SUE

A. In consideration of Pioneer Towing's compliance with the terms and conditions of this Decree, the State of Washington covenants not to institute administrative, legal, equitable, or enforcement actions against Pioneer Towing regarding matters within the scope of this Decree. Compliance with this Decree shall stand in lieu of any and all administrative, legal, and equitable remedies and enforcement actions available to the State against Pioneer Towing for the release or threatened release of hazardous substances covered by the terms of this Decree.

B. In accordance with RCW 70.105D.040(4)(e), the covenants in this Section XXIX shall apply to any owner or operator who is a successor in interest to Pioneer Towing if the successor owner or operator is liable solely due to that person's ownership interest or operator status acquired as a successor in interest to Pioneer Towing, unless under the terms of this Decree the State could enforce against Pioneer Towing.

C. This covenant is strictly limited in its application to the Site specifically defined in Exhibits A and E and to those hazardous substances which Ecology knows to be located at the Site as of the date of entry of this Decree. This covenant is not applicable to any other hazardous substances or area, and Ecology retains all of its authority relative to such substances and areas.

D. Reopeners: In the following circumstances, the State of Washington may exercise its full legal authority to address releases and/or threatened releases of hazardous substances at the Site notwithstanding the Covenant Not to Sue set forth above.

1. In the event Pioneer Towing fails to comply with the terms and conditions of this Decree, including all Exhibits, and Pioneer Towing, after written notices of noncompliance, fails to come into compliance;

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
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2. In the event new information becomes available regarding factors previously unknown to Ecology at the time of entry of this Decree, including the nature or quantity of hazardous substances at, or originating from, the Site, and Ecology determines that these factors present a previously unknown threat to human health or environment requiring further remedial action at the Site; provided that if this paragraph becomes operative Ecology will allow Pioneer Towing to propose the further action where such proposal can be made promptly and without endangering human health or the environment; or

3. Upon Ecology's determination that action beyond the terms of this Decree is necessary to abate an emergency situation that threatens public health or welfare or the environment.

E. Applicability: The Covenant Not to Sue set forth above shall have no applicability whatsoever to:

1. Criminal liability;

2. Liability for damages to natural resources;

3. Liability for contaminated sediments;

4. Liability for cleanup of contiguous properties owned by Pioneer Towing; or

5. Any Ecology action against potentially liable persons not a party to this Decree, including cost recovery.

XXX. CONTRIBUTION PROTECTION

A. By signing this Decree, the parties intend that Pioneer Towing will receive full protection against claims for contribution for matters addressed in this Decree as is provided in RCW 70.105D.040(4)(d) or as is otherwise provided by law.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
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B. In accordance with RCW 70.105D.040(4)(f), this Section XXX shall apply to any owners or operators who are not subject to enforcement by the State under RCW 70.105D.040(4)(e).

XXXI. EFFECTIVE DATE

This Decree is effective upon the date it is entered by the Court.

XXXII. PUBLIC NOTICE AND WITHDRAWAL OF CONSENT

This Decree has been the subject of public notice and comment under RCW 70.105D.040(4)(a). As a result of this process, Ecology has found that this Decree will lead to a more expeditious cleanup of hazardous substances at the Site.

If the Court withholds or withdraws its consent to this Decree, it shall be null and void at the option of any party and the accompanying Complaint shall be dismissed without costs and without prejudice. In such an event, no party shall be bound by the requirements of this Decree.

The undersigned parties enter into this Consent Decree on the date specified below.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

STEVE ALEXANDER, Section Head
Toxics Cleanup Program, NW Regional Office

DATED: 8-9-01

CHRISTINE O. GREGOIRE
Attorney General

ANDREW A. FITZ, WSBA #22169
Assistant Attorney General

DATED: 8/13/01

PIONEER TOWING COMPANY, INC.

Gary W. Sargent, PRESIDENT

DATED: 8/7/01

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

SO ORDERED this _____ day of _____ 2001.

CARLOS VELATEGUI

JUDGE
King County Superior Court

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
FAX (360) 586-6760

FINAL

CLEANUP ACTION PLAN
KENMORE INDUSTRIAL PARK
N.E. BOTHELL WAY AND JUANITA DRIVE N.E.
KENMORE, WASHINGTON

August 8, 2001

DECLARATIVE STATEMENT

This Final Cleanup Action Plan document presents the Washington State Department of Ecology's selected cleanup action for the Kenmore Industrial Park in Kenmore, Washington. Consistent with Chapter 70.105D RCW, "Model Toxics Control Act," as implemented by Chapter 173-340 WAC, "Model Toxics Control Act Cleanup Regulation," it is determined by Ecology that the selected cleanup actions are protective of human health and the environment, attain Federal and State requirements which are applicable or relevant and appropriate, comply with cleanup standards and provide for compliance monitoring. The cleanup actions satisfy the preference expressed in WAC 173-340-360 for the use of permanent solutions within a reasonable time frame, and consider concerns raised during public comment on the draft Cleanup Action Plan.

A determination of nonsignificance (DNS) was issued for the cleanup action on June 25, 2001, in accordance with the State Environmental Policy Act, Chapter 43,21C RCW. After the close of the comment period and review of all of the public comments, Ecology retained the DNS. Additional information can be found in the administrative record for this site on file at the Department of Ecology's Northwest Regional Office in Bellevue, Washington.

Thank you for your interest and participation in the cleanup of the Kenmore Industrial Park.

Ching-Pi Wang
Project Manager
Northwest Region
Toxics Cleanup Program
Washington Department of Ecology

August 8th, 2001
Date

Steve Alexander
Section Head
Northwest Region
Toxics Cleanup Program
Washington Department of Ecology

8-9-01
Date

FINAL

CLEANUP ACTION PLAN
KENMORE INDUSTRIAL PARK
N.E. BOTHELL WAY AND JUANITA DRIVE N.E.
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August 8, 2001

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Thank you for your interest and participation in the cleanup of the Kenmore Industrial Park.

Ching-Pi Wang
Project Manager
Northwest Region
Toxics Cleanup Program
Washington Department of Ecology

August 8th, 2001
Date

Steve Alexander
Section Head
Northwest Region
Toxics Cleanup Program
Washington Department of Ecology

8-9-01
Date

TABLE OF CONTENTS

PLANS AND FIGURES

DETAILS

ATTACHMENTS

TABLES

CLEANUP ACTION PLAN
KENMORE INDUSTRIAL PARK
N.E. BOTHELL WAY & 68TH AVENUE N.E.
KENMORE, WASHINGTON

1. INTRODUCTION

This Cleanup Action Plan (CAP) for the Kenmore Industrial Park was prepared in accordance with Washington Administrative Code (WAC) 173-340-360 and WAC 173-340-400 Model Toxics Control Act (MTCA) requirements for cleanup action plans.

2. SUMMARY

The site is located north of and adjacent to the mouth of the Sammamish River on an approximately 45-acre property. The property was used in the past as a demolition landfill between the late 1950s and early 1960s. An estimated 800,000 cubic yards of demolition debris underlie the southern two-thirds of the site. The demolition debris area is covered by an estimated 200,000 cubic yards (over 1 foot) of mineral soil cover. The property is currently industrial, but is slated for mixed-use redevelopment, including residential use.

The cleanup action will be implemented in conjunction with proposed redevelopment. The objectives of the cleanup action as described in the RI/FS are to prevent human contact with Contaminants of Concern (COCs) in the landfilled demolition debris and to reduce rainfall infiltration that might otherwise mobilize COCs above levels of concern to surrounding surface waters. The proposed cleanup action includes construction of an engineered cap on a portion of the upland area of the property, implementation of institutional controls, and performance of long-term groundwater monitoring at the points of compliance. The following presents a summary of the key elements of the Cleanup Action:

- Construction of an engineered cap will be phased with planned redevelopment such that the proposed new structures for the development will be designed as an engineered cap. The area between the proposed building footprint and the perimeter fire lane will also be covered with an engineered cap.

- Design and implementation of site modifications outside the engineered cap, between the proposed fire lane and the shoreline, will balance preservation and enhancement goals for natural habitat, public access, and stormwater swale functions.

- Surface deposits of roofing debris will be moved from the southern shoreline to the site interior and capped.

- Landfill gas and natural methane gas management will be implemented in conjunction with cap construction.

- The following institutional controls will be implemented in conjunction with site cleanup: filing a notice on the property deed to notify future owners of the presence of COCs under the property; recording of a restrictive covenant to limit inconsistent site uses, ensure that remedial measures are maintained, and prevent use of groundwater at the site; and preparation of a health and safety plan to address protective requirements for workers. Areas under construction and awaiting redevelopment will have access and erosion controls.

- Health and safety monitoring will be performed during construction activities.

- Groundwater performance and compliance monitoring will be performed during and after construction to verify that contaminants of concern meet cleanup standards at the conditional point of compliance.

If redevelopment is initiated, but is not completed to allow for commercial/residential use of the entire site, appropriate access restrictions and erosion controls will be implemented for the portions of the site that remain industrial. If the entire site remains industrial, deed notices, access restrictions, erosion controls and groundwater monitoring . appropriate for continued industrial use and provided for in this Plan will be implemented as the cleanup action.

3. LOCATION AND FACILITY BACKGROUND

Kenmore Industrial Park is located southwest of the intersection of Bothell Way N.E. and 68th Avenue N.E. in Kenmore, King County, Washington, along the 6500 to 6800 blocks of N.E. 175th Street. The site comprises approximately 45 acres and its location is indicated on Figure 1, the Location Map. The southwestern portion of this property forms a peninsula that extends into Lake Washington. The site is currently utilized as an industrial park predominantly occupied by a sand and gravel stockpile yard, and several smaller storage and light industrial operations. The current owner is Pioneer Towing Company, Inc.

4. SUMMARY OF CLEANUP ALTERNATIVES

Based upon the RI, the following contaminants of concern (COC) were selected for evaluation in the FS: diesel- and oil-range petroleum hydrocarbons (DRPH, ORPH), arsenic, barium, lead and selenium in soil, and DRPH, ORPH, arsenic, barium, and lead in groundwater. These substances are randomly distributed within soils in the landfilled portion of the site. The affected media are soil, groundwater and surface water.

Five process options were developed in the FS: no action, institutional controls, groundwater monitoring, containment by engineered containment cap, and containment by permeable groundwater barrier. Various combinations of these process options were evaluated and developed into four viable cleanup action alternatives:

Alternative 1 -	No Action
Alternative 2 -	Institutional Controls and Monitoring
Alternative 3 -	Engineered Low Permeability Cap across a Portion of the Site
Alternative 4 -	Engineered Impermeable Cap with Permeable Groundwater Barrier

All these alternatives, except no action, include institutional controls and compliance monitoring.

In accordance with MTCA, each alternative was reviewed with respect to the following: protection of human health and the environment, compliance with cleanup standards, compliance with applicable state and federal laws, provision for compliance monitoring, short-term effectiveness, long-term effectiveness, permanent reduction of toxicity, mobility, and volume, ability to implement, cost, and provision for a reasonable restoration schedule.

Alternative 3 was selected in the FS process because it is protective of human health and the environment; is readily implementable in conjunction with property development; has a relatively low cost; will not exacerbate oxygen reducing conditions in groundwater at the site; is compatible with landfill gas management and surface water management; is compatible with proposed site redevelopment plans; and poses minimal impact to shoreline habitats.

4.1. Alternative 1 - No Remedial Action

Under the No Action alternative, site development would proceed without any required remedial action. Landfill gas mitigation and consolidation of roofing debris would occur as part of the development. A partial cap would also be constructed, but it would not be engineered to maximize its effectiveness.

4.2. Alternative 2 - Institutional Controls and Monitoring

Under this alternative, site development would proceed without any required remedial action. Landfill gas management and consolidation of roofing debris would occur as part of the development. A partial cap would also be constructed, but it would not be engineered to maximize its effectiveness. Notices would be attached to the existing deeds to prevent future owners from unknowingly intruding on potential subsurface contamination. Groundwater monitoring would be performed, in accordance with a Compliance Monitoring Plan approved by Ecology, to confirm long-term compliance.

4.3. Alternative 3 - Containment by an Engineered Cap on a Portion of the Site

Under Alternative 3 site development would occur in conjunction with installation of an engineered cap over a portion of the site to prevent human contact with the demolition debris and reduce the potential risk of contaminant migration in groundwater beneath the site. This alternative would include management of any landfill gases generated within the demolition debris layer below the cap and consolidation of roofing debris under the cap.

The engineered cap would extend to the proposed fire lane and generally be set back an average of 100 feet behind the shoreline along the river and the lake. The engineered cap would avoid impacting existing wetland, riparian and aquatic habitats around the southern and western site margin. The engineered cap would be extended in areas around the site margin where stormwater ponds/swales are constructed. Potential contact with the demolition debris by humans and the environment might result if excavation occurred in habitat areas designated for protection. Institutional controls would be implemented to limit human interference within those habitats and to require protection of workers performing any excavation activities. Notices and restrictions would be attached to the existing deeds to prevent future owners from unknowingly intruding on subsurface debris. Groundwater monitoring would be performed in accordance with a Compliance Monitoring Plan approved by Ecology.

This alternative assumes that proposed land use redevelopment would ultimately create an estimated 35 acres of engineered cap. The majority of the engineered cap will consist of new, concrete or asphalt structures supported upon structural piling. The landfilled area outside the building footprints that is not covered with concrete or asphalt paving (the "soil cover area") will have a soil cover overlain with landscaping. For purposes of this alternative, "soil cover" means at least 2 feet of soil or equivalent media. Consistent with WAC 173-304-461 specifications for closure of demolition waste landfills, the site was previously closed with a cover of at least 1 foot of soil. Although not required, up to one additional foot of soil or equivalent media will be added on top of the existing cover in the soil cover area where needed to bring the total cover to at least 2 feet in thickness. Soil for the cover may come from areas on-site where the existing cover currently exceeds 2 feet. The additional soil (or equivalent media) above the existing cover will provide an extra measure of protection at the site consistent with the overall goal of protection of human health and the environment. The structures, paved areas, and soil cover will prevent human contact with the demolition debris and reduce the risk of contaminant migration in groundwater beneath the site but without increasing the risk of landfill gas buildup or exacerbating the oxygen reducing conditions in groundwater under the site. A schematic of the non-structural landfill cap is shown in Detail B to figure 2. The area that would be capped under Alternative 3 is presented in Figure 4.

4.4. Alternative 4 - Engineered Impermeable Cap and Permeable Groundwater Barrier

Alternative 4 would include an engineered impermeable cap that encompassed the entire upland portion of the site. In addition, a groundwater barrier would be constructed around the site perimeter, extending out as close to the shoreline as feasible, to slow the rate of exchange between groundwater and adjacent surface water. The barrier would be permeable, to prevent the groundwater table from rising underneath the upland area.

Alternative 4 would cap the entire upland portion of the property. However, installation of the barrier would displace existing wetland, riparian and aquatic habitats in the vicinity of the southern and western site margins. Installation of the impermeable cap would potentially increase methane risk, exacerbate oxygen reducing conditions that could mobilize COCs in groundwater, and increase stormwater runoff. Expansion of the cap to the shoreline would also displace existing habitat areas in an effort to maximize coverage of the upland area. This alternative conflicts with existing shoreline management permit conditions for site development which require an uncapped buffer zone along the shoreline.

This alternative assumes that, over the course of phased development, impervious cover will be constructed across the landfilled portion of the 45-acre site up to the perimeter established by the groundwater barrier wall. Approximately 30 acres of impervious structure would be in the form of parking areas and buildings and the balance of property, extending out to the shoreline, would be cleared of all existing trees and vegetation, graded, and resurfaced with a landscaped impermeable cover. The new structures and cover would be engineered to serve as an impervious cap and prevent human contact with the demolition debris and to intercept rainfall infiltration that might otherwise mobilize COCs into the groundwater table or surface waters. The impermeable cap could increase the risk of methane buildup, exacerbate the oxygen reducing conditions in groundwater under the site, and increase stormwater runoff.

5. SITE CLEANUP LEVELS AND POINTS OF COMPLIANCE

Establishing cleanup standards involves the specification of cleanup levels (concentrations protective of human health and the environment) and points of compliance (the location on the site where cleanup levels must be attained). The cleanup levels and points of compliance for the COCs at the site are identified in the following paragraphs. The applicable cleanup levels and COC concentrations are shown on Tables 5-1 through 5-6.

5.1. Groundwater Cleanup Levels

As discussed in the RI/FS, the proposed groundwater cleanup levels are based on protecting beneficial uses of adjacent surface water. MTCA allows groundwater cleanup

levels based on protecting beneficial uses of adjacent surface water where, as here, the groundwater at the site is hydraulically connected to the adjacent lake and river waters, the surface water is not a suitable domestic water supply source, groundwater flows into surface waters do not exceed applicable surface water cleanup levels, institutional controls will prevent the use of contaminated ground water prior to entry into surface water, and it is unlikely that hazardous substances will be transported from the contaminated ground water to groundwater that is a current or potential future source of drinking water. WAC 173-340-720. MTCA regulation WAC 173-340-700(4)(d) provides that where natural background concentrations are greater than the cleanup level established by Methods A, B, or C, the cleanup level is set at the natural background concentration. The cleanup levels for groundwater are shown on Table 5-1.

5.1.1 TPH Groundwater Cleanup Levels

The proposed groundwater cleanup level for TPH (ORPH and DRPH) is based on MTCA Method A for groundwater. The MTCA Method A groundwater cleanup level is used because there is no applicable surface water cleanup level under MTCA Methods A, B, or C and there is no MTCA Method B groundwater cleanup level. Specifically, the *Water Quality Standards for the State of Washington* (WAC 173-201A) do not set cleanup limits for petroleum hydrocarbons and total petroleum hydrocarbons are not listed in the Method B CLARC II tables (February 1996). Based on MTCA Method A, the groundwater cleanup level for diesel and heavy oil range TPH is 1,000 µg/L. The TPH cleanup level is currently met at the conditional point of compliance based upon samples collected from the downgradient perimeter monitoring wells and analyzed using Ecology's proposed silica gel cleanup method. See Table 5-4.

5.1.2 Arsenic Groundwater Cleanup Levels

The proposed groundwater cleanup level for arsenic is based on the natural background concentration of arsenic. Application of the human health surface water quality criteria for protection of beneficial uses of adjacent surface water establishes a cleanup level for arsenic of 0.018 µg/l based on consumption of organisms that live in the water. However, where the MTCA method establishes a concentration that is below natural background concentrations, the cleanup level is adjusted to equal the natural background concentration. WAC 173-340-700(4)(d). Based on natural background concentrations for arsenic of 5 µg/l in groundwater in the state, the groundwater cleanup level for arsenic at the site is 5 µg/l. With the exception of a single anomalous exceedence in well AW-10, groundwater samples from downgradient perimeter wells tested in 1996 were all below natural background concentrations. Further, follow-up groundwater samples collected in 2001 from all of the existing downgradient perimeter wells are all below natural background concentrations. Therefore, the arsenic cleanup level is currently met at the conditional point of compliance. See Table 5-4

5.1.3 Lead Groundwater Cleanup Levels

The groundwater cleanup level for lead is based on protecting beneficial uses of adjacent surface water. The Water Quality Standards for Surface Waters of the State of Washington provide the relevant groundwater cleanup levels. The chronic aquatic life surface water lead standard is a dissolved standard based on a hardness dependent formula, rather than a single concentration. The formula is:

Lead Cleanup Level = (1.46203 - [(ln hardness)(0.145712)])(e(1.273[ln(hardness)]-4.705))

Based on the most conservative hardness measurement from the existing downgradient perimeter monitoring wells (524 mg/l CaCO3 equivalents), the current cleanup level is 14.4 µg/L. All of the site groundwater wells data, including all of the existing downgradient perimeter monitoring wells, are below the formula lead cleanup level. Therefore, the lead cleanup level is currently met at the conditional point of compliance. See Table 5-4.

5.1.4 Barium Groundwater Cleanup Levels

The groundwater cleanup level for barium is based on protecting beneficial use of adjacent surface water. Application of the surface water cleanup level from EPA's National Recommended Water Quality Criteria establishes a cleanup level for barium of 1,000 µg/L. Groundwater barium samples from downgradient perimeter wells tested in 1996 were all below the cleanup level, except a single anomalous exceedence in well AW-11. Follow-up groundwater samples collected from well AW-11 and from all other existing downgradient perimeter wells in 2001 are all below the cleanup level. Therefore, the barium cleanup level is currently met at the conditional point of compliance. See Table 5-4.

5.2. Soil Cleanup Levels

Organic and inorganic COC cleanup levels for soil are based on MTCA Method A and Method B residential soil values. The cleanup levels for soil are shown on Table 5-2. Based on MTCA Method A, the applicable residential cleanup levels for arsenic, lead and TPH (ORPH and DRPH) are 20.0, 250, and 200 mg/kg, respectively. Where no Method A cleanup level exists for a soil COC, applicable residential cleanup levels are based on the most stringent MTCA Method B soil values. Under MTCA Method B criteria, the most stringent soil cleanup levels are equal to 100 times the surface water standards, resulting in a barium cleanup level of 100 mg/kg and in a selenium cleanup level of 0.5 mg/kg. TPH soil concentrations exceed the cleanup standard throughout the landfilled areas of the site. See Table 5-5. Barium, selenium and lead soil concentrations exceed

cleanup levels at various locations throughout the site. See Table 5-5. However, existing groundwater concentrations meet the cleanup levels at the conditional point of compliance. Therefore, the existing soil concentrations at the site are protective of groundwater. There are no exceedences of the soil arsenic cleanup levels.

5.3. Points of Compliance

5.3.1 Groundwater Point of Compliance

In accordance with MTCA, compliance with the cleanup levels for TPH, lead, and arsenic in groundwater will be determined at a conditional point of compliance. Although typically MTCA requires that a point of compliance be established "throughout the site," conditional points of compliance are allowed at sites where hazardous substances remain onsite as part of the cleanup action or where the affected groundwater flows into nearby surface water. WAC 173-340-720(6)(c) and (d). In cases where the conditions listed in WAC 173-340-720(6)(d) are met, MTCA allows a conditional point of compliance "within the surface water as close as technically possible to the point or points where ground water flows into the surface water." WAC 173-340-720(6)(d).

Achieving groundwater cleanup levels throughout the site is not a reasonable expectation here because hazardous substances will be contained on site. Also, the groundwater flows to nearby surface water. Therefore, based on WAC 173-340-720(6)(c) and (d), Ecology has approved a conditional point of compliance for TPH, lead and arsenic at the shoreline of the site. Groundwater COC concentrations will be monitored at the existing downgradient perimeter monitoring wells AW-6, AW-10, AW-11, and AW-12 or similar replacements. These four shoreline wells are situated within the property boundary and within 100 feet of the existing lake and river shorelines. An estimate of attenuation between the monitoring wells and the shoreline may be considered, as provided in the Compliance Monitoring Plan to be submitted and approved by Ecology, in evaluating compliance with the TPH and lead cleanup levels because the cleanup levels for these COCs are based on the protection of adjacent surface water. Attenuation will not be considered for arsenic because the cleanup level is based on groundwater background concentrations. If future sampling data from the shoreline wells exceed cleanup standards, appropriate follow-up sampling will occur to confirm the data before further action is taken. All of the sampling will be performed in accordance with provisions of the MTCA regulations and the Compliance Monitoring Plans required to be submitted and approved by Ecology after entry of the Consent Decree.

5.3.2 Soil Point of Compliance.

In general, the point of compliance for soil cleanup standards is established in the soils throughout the site in accordance with WAC 173-340-740(6). However, WAC 173-340-740(6)(d) provides that in cases where containment is a component of the cleanup action,

"the cleanup action may be determined to comply with cleanup standards" where the compliance monitoring program ensures the long-term integrity of the containment system and related containment measures are implemented in accordance with WAC 173-340-360(8). All of the alternatives evaluated in the Remedial Investigation and Feasibility Study (RI/FS) and discussed in this Cleanup Action Plan, including the selected cleanup alternative, provide for the implementation of institutional controls and monitoring to achieve the Remedial Action Objectives (RAOs) for contaminated soil that will remain at the site. Also, the proposed containment and compliance program for this site, as discussed in detail in Section 11.0, satisfies the conditions in WAC 173-340-360(8). Therefore, in accordance with WAC 173-340-740(6)(d), the cleanup action at the site will comply with soil cleanup standards.

5.4. Industrial Cleanup Standards

If redevelopment does not occur and the site remains industrial, cleanup standards are based on continued industrial use of the site. Typically, industrial cleanup levels are equal to or less stringent than the cleanup levels for residential use. The applicable groundwater cleanup levels for continued industrial use are based on protection of surface water. The groundwater cleanup levels are 1,000 ug/l for TPH, 14.4 ug/l for lead, 1,000 ug/l for barium, and 5 ug/l for arsenic (based on natural background). These groundwater cleanup levels are the same as the cleanup levels for residential use. See Sections 5.1.1, 5.1.2, 5.1.3 and 5.1.4 above. The cleanup levels for groundwater are shown on Table 5-1.

For soil COCs, the proposed industrial soil cleanup levels for continued industrial use are based on the MTCA Method A Industrial Soil Table and MTCA Method C calculations. The applicable soil cleanup levels for continued industrial use are 200 mg/kg for TPH (diesel and heavy oil), 200 mg/kg for arsenic, and 1,000 mg/kg for lead based on the Method A cleanup levels for industrial soils. The applicable soil cleanup levels for continued industrial use are 100 mg/kg for barium and 0.5 mg/kg for selenium based on MTCA Method C (100 x the applicable groundwater cleanup level). These soil cleanup levels are equal to or less stringent than the soil cleanup levels for residential use. See Section 5.2. The industrial cleanup levels for soil are shown on Table 5-3.

The groundwater and soil points of compliance are the same as identified in Section 5.3.1 and Section 5.3.2 respectively.

With respect to groundwater, the industrial groundwater cleanup levels for the COCs are currently met at the conditional point of compliance. See discussion in Section 5.1 above and Table 5-4. As for soils, landfilled debris that exceed the soil cleanup levels for TPH, barium, lead and selenium will be left in place beneath the existing soil cover. See, Table 5-6. Institutional controls and a monitoring program appropriate for continued industrial use, as described in Section 7, will be implemented to achieve the RAO of preventing human contact with landfilled media.

6. SCHEDULE FOR IMPLEMENTATION, RESTORATION TIMELINE

Following submittal of the draft RI/FS, CAP, and Consent Decree documents for the 30-day public comment period, and issuance of a Final CAP and entry of the Consent Decree, the implementation time frame for the first phase would consist primarily of engineering design. A copy of the timeline is included as Attachment A. If development occurs, the cleanup action would be implemented in phases over seven to 15 years in conjunction with the proposed development. The following elements of the cleanup can be commenced shortly after issuance of the Final CAP:

- Preparation and filing of deed notices;
- Preparation of a health and safety plan in accordance with WAC 173-340-810;
- Preparation of a sampling and analysis plan in accordance with WAC 173-340-820 for groundwater compliance monitoring; and
- Preparation and submittal of Draft and Final Engineering Design Reports, including the Landfill Gas Design Report.

Once permits for the development are obtained, the following remedial tasks would begin in conjunction with City of Kenmore development time lines, and be completed over the course of development:

- Phased construction of the development, which will be engineered as a cap over the landfilled media.
- Access controls and implementation of erosion control BMPs for site areas that will not be developed in the first phase;
- Consolidation of roofing debris away from the southern shoreline to the site interior;
- Phased construction of the landfill gas management system, which will be incorporated in the building and pavement development footprint to control landfill gas beneath the development cap.

Phase specific Compliance Monitoring Plans will be prepared and submitted to Ecology for review and approval for each phase of the redevelopment. See Attachment A, Timeline. Ecology will also review the cleanup action, in accordance with WAC 173-340-420, no less frequently than every five years to assure that human health and the environment are being protected. Bimonthly progress reports on the status of the cleanup action will be submitted to Ecology. Semi-annual groundwater monitoring data will be submitted to Ecology for on-going review, and meetings may be scheduled at least every two years to discuss the status of the cleanup action and compliance monitoring program.

7. INSTITUTIONAL CONTROLS AND MONITORING

Several institutional controls (measures undertaken to limit or prohibit activities that may interfere with the integrity of a cleanup action or result in exposure to hazardous substances at the site) and monitoring programs will be implemented in conjunction with the site cleanup. These controls and monitoring programs include:

- Notice on the property deed to notify future owners of the presence of COCs under the property.
- A deed restriction with conditions to prohibit extraction and use of groundwater at the site, maintain the integrity of the cap; and require adherence to measures for protection of construction workers who may come into contact with landfilled media.
- Access controls to prohibit incompatible uses of areas under construction and awaiting development. Site access controls will include fencing of and signage at all areas under active construction. In addition, upon initiation of actual residential site use, the remaining industrial areas (areas upland of the fire lane that are neither in residential use nor under construction) will be fenced until the soil cover and erosion controls provided for in this Cleanup Action Plan are installed in such areas.
- Erosion controls for areas under construction and awaiting development.
- Health and safety monitoring during construction activities.
- Groundwater (and surface water if necessary) performance and compliance monitoring during and after construction as provided for in a Compliance Monitoring Plan deliverable subject to Ecology approval in accordance with the attached timeline. The Compliance Monitoring Plan will include verification sampling and consultation with Ecology as contingency steps in the case of non-compliance. All submittals pursuant to the Plan will include water levels, field parameters, and analytical parameters.
- Department of Ecology periodic review, in accordance with WAC 173-340-420.
- Periodic cap inspections and maintenance.

If site redevelopment does not occur, the following institutional controls and monitoring will be implemented:

- Notice on the property deed to notify future owners of the presence of COCs under the property.

- A deed restriction appropriate for continued industrial use with conditions to prevent extraction and use of groundwater at the site and prohibit soil excavation without proper health and safety procedures.

- Access controls to prohibit incompatible site uses. Fencing and prominent signage at site access points will constitute access control if redevelopment does not proceed.

- Erosion controls as appropriate for continued industrial use.

- Groundwater (and surface water if necessary) performance and compliance monitoring appropriate for continued industrial use as provided for in a Compliance Monitoring Plan deliverable subject to Ecology approval in accordance with the attached timeline. The Compliance Monitoring Plan will include verification sampling and consultation with Ecology as contingency steps in the case of non-compliance. All submittals pursuant to the Plan will include water levels, field parameters, and analytical parameters.

8. JUSTIFICATION

The selected alternative will attain the remedial action objectives (RAOs) over the long-term. The RAOs established in the draft RI/FS for the site are 1) prevention of human contact with landfilled media, and 2) reducing potential migration of COCs to surrounding surface waters. Groundwater COCs currently meet the cleanup levels for the site at the conditional point of compliance, therefore, the remainder of this Section focuses on the goal of preventing human contact with the landfilled media.

In the RI/FS, each alternative was evaluated by the following criteria: short-term effectiveness, long-term effectiveness, permanent reduction of mobility, ability to implement, and cost. The selected alternative will meet the short-term effectiveness goal through the implementation of health and safety procedures to protect workers during site construction. Long-term effectiveness will be achieved by the completion of the cap and the implementation of the groundwater compliance monitoring program. The selected alternative will reduce contaminant mobility, but not toxicity or volume. The cleanup action is readily implementable as part of the site redevelopment over an estimated time period of seven to 15 years. The cost of the remedial action is considered practicable relative to the risks reduced, when implemented in conjunction with planned redevelopment.

Institutional controls will be implemented at the outset that prohibit extraction and use of groundwater at the site and that provide access and erosion controls. Worker safety and health plans containing measures to protect workers during construction will also be implemented after review and approval by Ecology. See, Timeline, Attachment A. Periodic cap inspections and maintenance will occur in accordance with Operation and Maintenance Plans prepared and approved for each phase of the development.

Groundwater performance monitoring will take place to verify effectiveness of remediation efforts through each phase of planned development in accordance with Compliance Monitoring Plans to be submitted to and approved by Ecology. Due to the length of time anticipated to develop and cap the site in phases, protection, performance, and conformational monitoring schedules will proceed concurrently as development progresses. Meetings will be scheduled with Ecology at least every two years to review groundwater monitoring data, and review the goals and appropriateness of continued monitoring for each phase. Ecology will review the cleanup action, in accordance with WAC 173-340-420, no less frequently than every five years to assure that human health and the environment are being protected.

9. APPLICABLE STATE AND FEDERAL LAWS

Under MTCA, remedial actions must comply with the substantive requirements of applicable state and local laws and all requirements of applicable federal law. The applicable state and federal laws for the proposed cleanup action are set out in detail in the Applicable State and Federal Laws Table attached to this Cleanup Action Plan as Attachment B. Notification will be provided to Ecology as to any additional substantive requirements of state and local laws that are determined to apply.

10. COMPLIANCE WITH THRESHOLD AND OTHER REQUIREMENTS

The proposed cleanup action plan will comply with MTCA threshold and other requirements for protecting human health and the environment by preventing human contact with the landfilled media and by reducing the potential risk of contaminant migration in groundwater beneath the site.

10.1. MTCA Threshold Requirements

All cleanup actions conducted under MTCA must protect human health and the environment, comply with cleanup standards, comply with applicable state and federal laws, and provide for compliance monitoring. These "threshold requirements" are defined in WAC 173-340-360 (2). The remedial action will comply with these threshold requirements by preventing human contact with landfilled materials; reducing the potential risk of contaminant migration in groundwater beneath the site; complying with all applicable state and federal requirements listed in Section 9.0; and providing groundwater (and surface water if needed) compliance monitoring to verify that cleanup standards continue to be met at the conditional point of compliance. In addition, the engineered cap will not interfere with the southern or western shoreline habitat areas. The engineered cap will also be designed to incorporate landfill gas management, reduce stormwater flows associated with developed surfaces, and avoid exacerbating existing reducing conditions.

TPH concentrations currently exceed the soil cleanup standard at three locations, and lead and arsenic concentrations exceed the soil cleanup standard throughout the site. However, existing groundwater concentrations meet the groundwater cleanup standards at the conditional point of compliance. Therefore, the existing soil concentrations at the site are protective of groundwater and surface water for either proposed residential or continued industrial uses.

Temporary erosion and sedimentation control (TESC) measures and BMPs will be implemented during construction, on active and inactive phases of the development, to protect surface water quality in compliance with substantive requirements under the Clean Water Act and Water Pollution Control Act. Phasing is discussed further in Section 10.3.

The cleanup action provides for compliance and performance monitoring to verify that groundwater continues to meet cleanup standards, as described in Section 11.2.

10.2. MTCA Other Requirements

Other requirements are defined in WAC 173-340-360 (3) and include application of reasonable restoration timeframes, consideration of public comments, and use of permanent solutions to the maximum extent practicable. The selected alternative satisfies each of these requirements. First, the restoration time frame for the site will reasonably achieve the remedial action objectives within the time frame for the applicable property use. If the change in land use to mixed residential/commercial goes forward for any part of the site, an engineered cap and associated institutional controls will be in place prior to residential use of such areas. If the site remains industrial, institutional controls and monitoring appropriate for ongoing industrial uses will be implemented as soon as practical after entry of the consent decree. Second, public concerns will be addressed through the Public Participation Plan prepared concurrently for, and attached to, the project Consent Decree.

As part of the public participation process, a thirty day comment period is scheduled to begin on June 25, 2001 and run until July 24, 2001. An open house and public hearing is scheduled for July 11, 2001.

In addition, the selection of a partial engineered cap as the proposed cleanup action maximizes practicable use of permanent solutions. MTCA regulations provide that cleanup actions should use permanent solutions to the maximum extent practicable in order to minimize the amount of untreated hazardous substances remaining at a site. WAC 173-340-360(3)(a), (4)(a). The regulations also recognize that permanent solutions are not practicable for all sites. WAC 173-340-360(4)(d). The criteria for evaluating practicability include: overall protectiveness of human health and the environment; long term effectiveness; short-term effectiveness; permanent reduction of toxicity, mobility

and volume of the hazardous substance; ability to be implemented; cleanup costs; and the degree to which community concerns are addressed.

Alternative 3, the selected alternative, is permanent to the maximum extent practicable for the site and consistent with routine landfill cleanup actions. Installation of an engineered cap will prevent human contact with landfill demolition debris under the cap and reduce the potential risk of contaminant migration in groundwater beneath the site. Over the short term, health and safety procedures will protect workers that would be exposed to landfilled media during site construction activities. Over the long term, this alternative will reduce mobility of contaminants and effectively achieve the remedial action objectives. Moreover, the cost of this alternative is considered practicable relative to the risks reduced when implemented in conjunction with planned redevelopment. If site development does not occur under this alternative and the property remains in industrial use, the applicable deed notices, access restrictions, erosion controls and groundwater monitoring provided in this Cleanup Action Plan are permanent to the maximum extent practicable for the site and consistent with routine demolition debris landfill cleanup actions for industrial properties. If the site remains in industrial use, institutional controls and groundwater monitoring appropriate for such industrial use will achieve the Remedial Action Objective of limiting human contact with landfill demolition debris that will remain on site.

Remedies that might provide more permanent solutions than alternative 3 are not feasible at the site. The landfilled areas are characterized by low levels of contamination in landfill media dispersed over significant portions of the site. Due to the large area (approximately 35 acres) and significant depth (average 14 feet) of impacted landfilled media (approximately 24,393,600 cubic feet) and the varying groundwater levels due to lake fluctuations, excavation of soil would be difficult, prohibitively expensive, and could not be accomplished without impairing existing shoreline, wetland, and aquatic habitats. Removal, treatment, and subsequent replacement of affected soil would also impact surface water quality, require relocation of existing utilities, and impair adjacent facility operations. Finally, due to the low volatility of the contaminants at the site, the high groundwater recharge capacity of the adjacent surface water bodies, and the absence of free product, *in situ* treatment technologies are not considered feasible.

A detailed evaluation of all of the alternatives with respect to the practicability criteria is provided in the RI/FS. A more detailed discussion of the alternative selection process is presented in Section 8.0.

10.3. Compliance During Project Phasing and Continued Industrial Use

If redevelopment proceeds, construction of the engineered cap will be phased with development over a period of seven to 15 years. During this time interval, the majority of the site will either be undergoing construction or remain industrial. These areas are

shown on Figure 3 as Phases 1-6. Compliance with the RAOs will be met with provisions to protect site workers and the general public during and after the onset of site redevelopment.

Health and safety provisions to protect site workers will be implemented as part of a Worker Safety and Health Plan (per WAC 173-340-810) after review and approval of the Plan by Ecology. These provisions would also apply to site workers performing cap inspection, maintenance or repair duties. Areas under construction will be fenced for access control. These provisions will be implemented prior to the time of initial site clearing, and continue as phased development and cap construction proceed. Phasing of temporary erosion and sedimentation control measures, as they pertain to the RAOs, will involve implementation of measures at the outset of the project on active and inactive phases of development. The temporary erosion and sedimentation control measures may include hydro-seeding of inactive phase areas, maintenance of siltation fencing, and/or construction of temporary, construction-phase retention facilities. Phasing of temporary erosion and sedimentation control measures and the measures to be implemented are discussed further in Section 11.1.3. During the time period after commencement of on site residential use and prior to installation of a soil cover, industrial use areas upland of the firelane will be fenced to control incompatible uses.

If redevelopment is initiated but is not completed to allow for commercial/residential use of the entire site, institutional controls and groundwater monitoring appropriate for continued industrial use, as described in Section 7.0 of this plan, will be implemented for the portions of the site that remain industrial. If redevelopment does not proceed and the entire site remains industrial, institutional controls and groundwater monitoring appropriate for continued industrial use, as described in Section 7.0 of this plan, will be implemented for the entire site.

11. CONTAINMENT AND COMPLIANCE PROGRAM

The containment and compliance program will apply to the landfilled area as generally shown on figure 4. In addition to the site containment and compliance program, a Worker Safety and Health Plan (per WAC 173-340-810) with measures to protect the health and safety of workers during construction activities will be prepared in accordance with the Cleanup Action Plan Timeline and subject to Ecology review and approval.

11.1. Containment

The purpose of containment will be to prevent human contact with the landfilled debris and to reduce the potential risk of contaminant migration in groundwater beneath the site. The site containment program will consist of, or be integrated with, the following elements:

- Relocation of surficial roofing debris away from the southern shoreline to the site interior.
- Site grading.
- Surface water runoff management.
- An engineered cap covering approximately 68 percent of the site area, as generally shown on Figure 4. Construction of the engineered cap will be phased with redevelopment.
- Management of landfill gases that may accumulate beneath the engineered cap.
- Utility installations.
- Rehabilitation of the existing channel bulkhead.
- Construction of storm water treatment swales and grading outside the engineered cap.

Each of these elements is discussed below.

11.1.1 Relocation of Roofing Debris

Surface deposits of roofing debris will be relocated from the southern shoreline area and relocated to the lower elevations of the site interior for placement beneath the engineered cap during site grading.

11.1.2 Site Grading

Combinations of cuts and fills will occur as part of the cleanup and development. In addition, construction of planned stormwater pond/swales and utility trenches will involve excavations into the landfilled debris. Excavations will likely encounter two to three feet of existing soil cover over the landfilled media, which consists predominantly of demolition debris with concrete and asphalt rubble, and some soil. Excavated media will be relocated for placement beneath the engineered cap or to designated fill areas outside the engineered cap. Contaminated media will not be used as fill in areas outside the engineered cap without Ecology approval.

Relocation of landfilled media for placement under the engineered cap will take place, to the extent practicable, during the preliminary grading phase, prior to pile installations. Construction of the engineered cap is described in Section 11.1.4. Surface completion of stormwater pond /swales and other areas outside the development footprint is described in Section 11.1.8.

An array of four shoreline monitoring wells will constitute the conditional point of compliance. Site development or re-grading activities may necessitate replacement, or vertical extension, of the some wells. Modifications to the compliance wells would be resurveyed.

All site grading activities will comply with the substantive requirements of applicable state and local laws and with all requirements of applicable federal laws. The requirements of federal, state, and local laws applicable to the cleanup are described in Section 9.0. Notification will be provided to Ecology as to any additional substantive requirements that are determined to apply.

11.1.3 Surface Water Runoff Management

Temporary erosion and sedimentation control measures and BMPs will be implemented at the outset of the project on active and inactive phases of development in accordance with federal, state and municipal regulations at the onset of construction to protect surface water quality. Appropriate temporary erosion and sedimentation control measures may include hydro-seeding of inactive phase areas, maintenance of siltation fencing, and/or construction of temporary, construction-phase retention facilities. The existing stormwater collection and discharge system will be replaced and be diverted to temporary facilities during the construction phase.

Once each phase is constructed, rainfall that lands on or flows onto the developed surfaces (parking lots, buildings) will be intercepted by the stormwater collection and treatment systems before discharge to the Sammamish River or Lake Washington.

Storm retention/detention facilities will be lined with an impermeable membrane to prevent infiltration to the landfilled media. Preparation will include excavation and removal or cover of angular debris that could compromise the integrity of the membrane. All storm water management activities occurring on, or for control of runoff from, the engineered cap will be carried out in compliance with the substantive requirements of applicable laws. Discharge of collected storm runoff from the engineered cap will comply with the substantive municipal requirements contained in the 1998 King County Surface Water Management manual and any updates and revisions thereto applicable at the time of design plan approval. If contaminated sediments are discovered in the existing storm-water collection system, the sediments will also be managed in accordance with the substantive requirements of applicable laws.

Contingency procedures and design features to address and control spills and accidental discharges will be included in the Engineering Design Report and Operations and Maintenance Plan deliverables subject to Ecology review and approval and in the Contingency Plan submitted pursuant to the Shoreline Substantial Development Permit (File No. L96SH107).

11.1.4 Engineered Cap

The majority of the engineered cap will consist of new, concrete or asphalt structures supported upon structural piling. The landfilled area outside the building footprints that is not covered with concrete or asphalt paving (the "soil cover area") will have a soil cover overlain with landscaping. For purposes of this cleanup action, "soil cover" means at least two feet of soil or equivalent media. Consistent with WAC 173-304-461 specifications for closure of demolition waste landfills, the site was previously closed with a cover of at least one foot of soil. Although not required, up to one foot of soil or equivalent media will be added on top of the existing cover in the soil cover area to bring the total cover up to at least two feet in thickness. Soil for the cover may come from areas on-site where the existing cover currently exceeds two feet. The additional soil (or equivalent media) above the existing cover will provide an extra measure of protection at the site consistent with the overall goal of protection of human health and the environment. A schematic of the soil cover (non-structural landfill cap) is shown in Detail B to figure 2. The structures, paved areas, and soil cover will prevent human contact with the demolition debris and reduce the risk of contaminant migration in groundwater beneath the site but without increasing the risk of landfill gas buildup or exacerbating the oxygen reducing conditions in the groundwater at the site.

Redevelopment and cap construction will occur in several phases, beginning with the eastern portion of the subject property. The presently planned general phasing pattern is indicated on Figure 3.

Within the building footprint, pile installations for the new structures, and for the Lakepointe Way N.E. flyover, will use cranes to embed piling into dense sand and gravel soils found at depth beneath the site. Various types of driven piling suitable for use at the subject site are recommended in AGRA"s *Preliminary Geotechnical Engineering Report* dated 8 November 1996. Appropriate pile types include cast-in-place, driven grout, precast concrete, steel pipe, or steel H-piles. These pile types generally will not raise landfilled debris to the surface or generate excessive amounts of waste concrete during installation. In the event that piles are augered in place rather than driven, small quantities of landfilled debris brought to the surface, and any excess concrete or liquids, will be contained as described in Section 11.1.2. The lowest level of the pile supported structures will be situated at Elevation 25 feet and be utilized as parking space. The parking floor elevation will be established to achieve a balanced cut and fill and to accommodate a landfill gas management system, to the extent such a system is necessary. Figure 2 depicts conceptual profiles for structural (pile-supported) areas.

Outside of the building footprint, the engineered cap will extend out to a fire lane easement in the form of a soil cover. After installation, the cover will be overlain with topsoil to support appropriate vegetation, or concrete or asphalt to provide further protection from surface disturbance. Where used, appropriate landscape plantings will be

selected and installed in a manner consistent with maintaining the integrity of the engineered cap. Figure 2 depicts conceptual profiles for non-structural areas.

Operation and Maintenance Plan provisions, subject to review and approval by Ecology, and deed restrictions on the property will assure that the cap is protected during construction and occupation of the site. In addition, periodic inspections will be performed to evaluate the condition and performance of the engineered cap. Formal inspections of the entire site will be performed twice a year throughout construction of the engineered cap and redevelopment, and annually thereafter. Cap repairs will also be subject to reinspection. The scope of inspections will include, but not be limited to, cracks, deflections, seepage, drainage issues, landfill gas emissions, the effects of pile driving and construction activities, and movement of heavy equipment. Detailed provisions for periodic inspections will be included in the Operation and Maintenance plan deliverable that is subject to review and approval by Ecology.

11.1.5 Landfill Gas Management

Landfill gas mitigation will be addressed in the engineering design stage. A Landfill Gas Design Report will be a deliverable submitted during the design stage and subject to Ecology review and approval. The Landfill Gas Design Report will discuss gas characterization, distribution, constituents, probe installation, passive and active management options, and applicable requirements in Chapter 173-304 WAC. Landfill gas generated by decomposition of the landfilled media and of the underlying native peat soils will be managed to prevent unsafe or excessive accumulation underneath the development and engineered cap. Control and treatment of landfill gas accumulations, as appropriate, will be accomplished in accordance with the applicable substantive provisions of King County Solid Waste Regulations, Chapter 10.76.020 and Chapter 173-304 WAC.

11.1.6 Utility Installations

Utility installations will be buried underground or suspended through the lower building levels within utilidors. Watertight seals will be used where utilities pass into a utilidor from outside the building footprint. Flexible connections will be used to accommodate differential settlements where utilities extend beyond the pile-supported areas of the engineered cap. Fill materials excavated during utility installations will be placed under the cap in accordance with Site Grading, Section 11.1.2. Buried utility systems within the landfilled area that are not pile-supported will use flexible couplings to accommodate gradual shifting or settling of soil over time. No special environmental engineering requirements are anticipated for underground utilities installed north of the landfilled area.

11.1.7 Bulkhead Rehabilitation

The existing bulkhead facing the Kenmore Navigation Channel will be rehabilitated by placing a new sheet pile bulkhead immediately landward of the existing bulkhead or by placing a new sheet pile bulkhead immediately waterward of the existing bulkhead. The new sheet pile bulkhead will be engineered so tie-backs are not required, thereby allowing any contaminated material present behind the existing bulkhead to remain undisturbed. This will require the use of interlocking sheet pile section, or "Z-piling" with a deep section and may move the front face of the bulkhead a maximum of three feet waterward. Along some portions of the existing bulkhead voids are presumed to be present and will be filled with either granular fill or fill material excavated from other areas on site. Contaminated media excavated from other areas of the site will not be used as fill material for bulkhead rehabilitation unless approved by Ecology. The backside of the new sheet pile bulkhead will be lined with a membrane to create an impermeable barrier between the lake and the fill material. The final design of the bulkhead will be an element of the Engineering Design Report that is subject to review and approval by Ecology as a deliverable required under the Cleanup Action Plan Timeline.

All bulkhead rehabilitation activities will comply with the substantive requirements of applicable state and local laws and with all requirements of applicable federal laws, including any applicable Army Corps of Engineer permitting requirements. The federal, state, and local laws applicable to the cleanup are described in Section 9.0. Notification will be provided to Ecology as to any additional substantive requirements that are determined to apply.

11.1.8 Stormwater and Utility Construction

Construction of the site stormwater system will manage rain runoff from the building footprint area, including parking lots and roof areas. The stormwater collection system will discharge to vaults/pond/swales and/or to storm outfalls that discharge runoff to the Sammamish River. An impermeable layer will be installed beneath the vault/pond/swale areas.

Grading associated with vaults/ponds/swales construction and utility trenching will include both cuts and fills. In areas where grading is planned, existing vegetation will be grubbed out and the land surface will be reshaped. Where fill placement is called for in the landscaping plan, landfilled demolition debris relocated from adjacent cuts may provide lightweight fill material, provided that it is surfaced with cap material. Following grading activities, the graded area will be capped to prevent human contact with landfill debris. The area will be sloped to discourage ponding of rain runoff in topographic depressions.

All planned stormwater vaults/ponds/swales and utility trenches will comply with the substantive requirements of all applicable laws. The substantive requirements of federal, state, and local laws applicable to the cleanup are described in Section 9.0.

11.1.9 Shoreline Habitat Enhancement and Preservation

Shoreline habitat enhancement and preservation will take place between the proposed fire lane and the shoreline. Enhancement will occur in areas to be reconfigured, as well as in areas with new stormwater vaults/ponds/swales or utility trenches. Public access would be allowed in the enhanced areas. Areas of existing shoreline habitat will also be preserved. In the preservation areas, features that manage human access such as interpretive trails and viewing platforms will be provided. Viewing platforms will be constructed to allow views of the southern shoreline. Within both enhancement and preservation areas, riparian/slope plantings are planned along the shoreline. Riparian plantings will be accomplished by hand labor, with minimal disturbance to the existing soil profile. Throughout these areas, existing healthy and safe trees will be preserved where feasible and appropriate; diseased and unsafe trees will be removed under the direction of a qualified arborist.

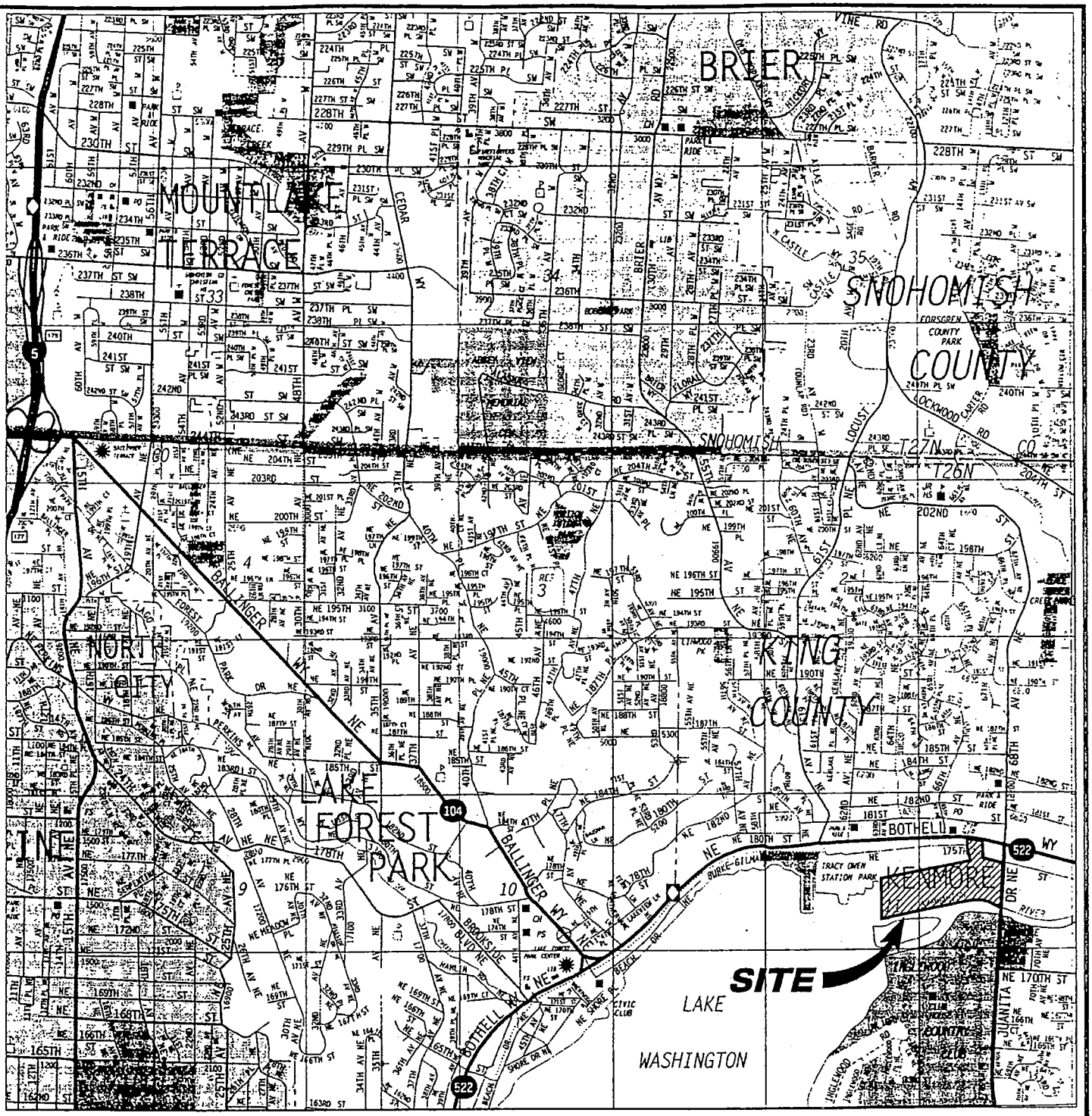
All planned habitat enhancement activities will comply with the substantive requirements of all applicable laws. The substantive requirements of federal, state, and local laws applicable to the cleanup are described in Section 9.0.

11.2. Compliance

The selected cleanup action will meet the remedial action objectives. As described in Section 2.0, an estimated 800,000 cubic yards of landfilled media comprised primarily of wood, concrete and asphalt rubble, and soil, will remain on site following construction of the engineered cap. The COCs identified in the RI/FS are TPH, arsenic and lead, and proposed cleanup standards for the COCs are presented in Sections 5.1 and 5.2 of this Plan.

In the soil or landfilled media, TPH concentrations currently exceed cleanup levels at three locations and arsenic and lead concentrations in the soil exceed cleanup levels throughout the landfilled areas of the site. Human contact with the soil COCs, which will remain at the site as part of the proposed cleanup action, will be prevented by the construction of the engineered cap and by institutional controls.

Groundwater COC concentrations currently meet cleanup standards at the conditional point of compliance as detailed in Sections 5.1 and 5.4 of this Plan. Groundwater compliance monitoring will verify that standards continue to be met. The point of compliance wells listed in Section 5.3 will be included in the monitoring program. A Compliance Monitoring Plan will be prepared for review and approval by Ecology after entry of the Consent Decree.



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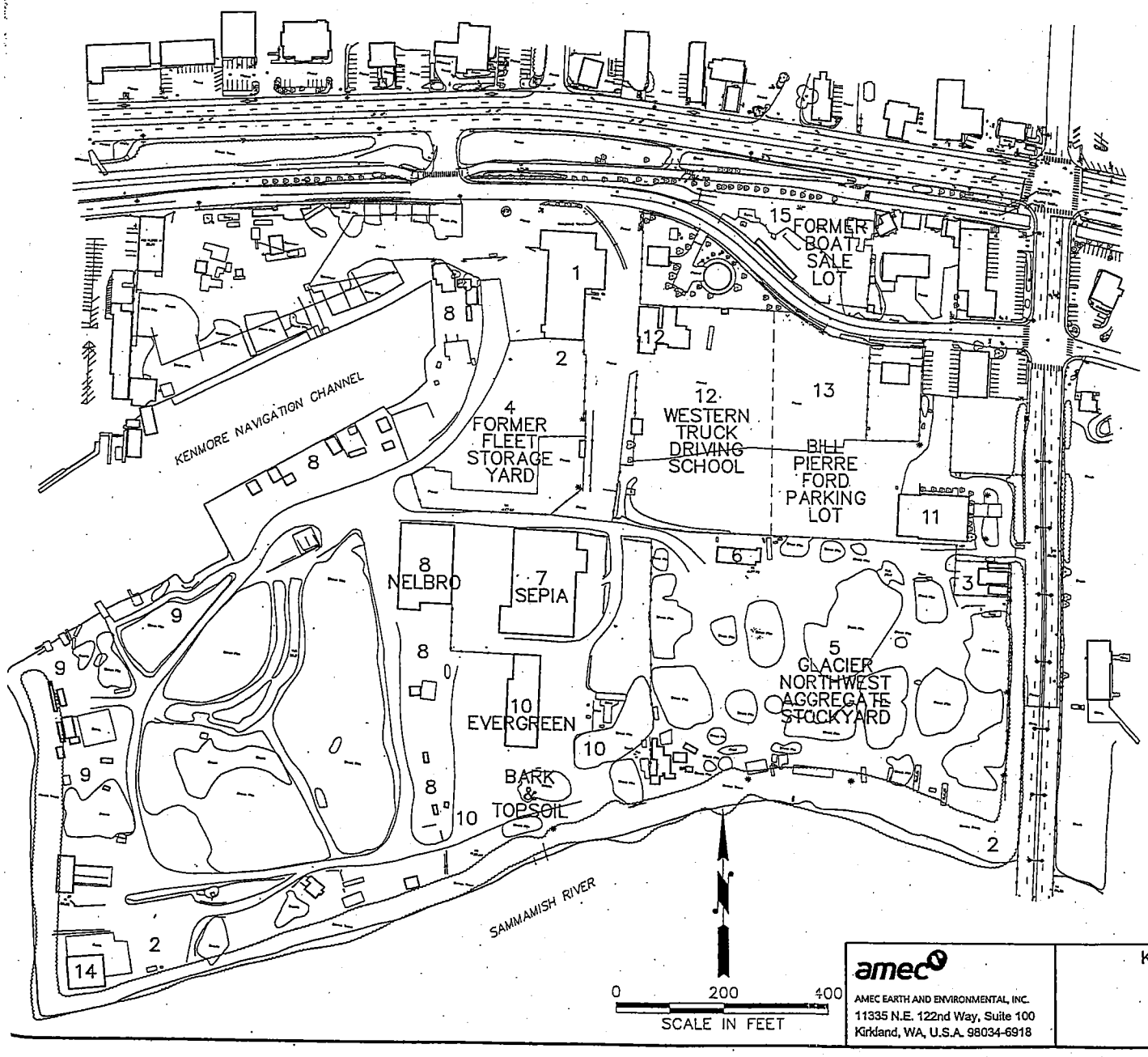
LOCATION MAP

KENMORE INDUSTRIAL PARK

KING COUNTY, WASHINGTON

FIGURE 1

JOB NO.: 7-91M-10459-D-CAP | DWG DATE: 04-10-2001 | SCALE: N.T.S. | DESIGN BY: DHG | FILE NAME: LOCATION-CAP.DWG



KEY TO BUSINESSES

	CURRENT/FORMER OPERATORS	OPERATORS
1.	PIONEER TOWING CO., INC.	OFFICE
2.	PIONEER TOWING CO., INC.	DEMOLITION LANDFILL
3.	PIONEER TOWING CO., INC.	RV STORAGE
1.	GLACIER NORTHWEST	OFFICE
1.	GLACIER NORTHWEST	EQUIPMENT REPAIR SHOP
4.	GLACIER NORTHWEST	FLEET YARD
5.	GLACIER NORTHWEST	AGGREGATE STOCKYARD
6.	STERLING ASPHALT	FORMER PCS STOCKPILES
7.	SEPIA DESIGN	OFFICE INTERIOR DESIGN WAREHOUSE
8.	NELBRO PACKING	STAGING WAREHOUSE FOR COMMERCIAL FISHING OPERATIONS, WHARFS, OUTDOOR STORAGE
9.	WATERFRONT CONSTRUCTION	BULKHEAD, DOCK AND SHORELINE CONSTRUCTION CONTRACTOR'S STAGING YAR
10.	EVERGREEN TOPSOIL	LANDSCAPING MATERIALS
10.	FORMER STOUT ROOFING	ROOFING CONTRACTOR AND ROOFING WASTE RECYCLING
11.	CUSTOM INDUSTRIES	CHARITABLE DONATION, COLLECTION, REPAIR AND SALES
6.	ALBRECHT BIRKENBUEL CONTRACTOR	CONCRETE FINISHING CONTRACTOR
12.	WESTERN TRUCK DRIVING SCHOOL	COMMERCIAL TRUCK DRIVING SCHOOL
12.	FORMER OLYMPIC FOREST PRODUCTS	LUMBERYARD, WAREHOUSE AND OFFICE
2.	ALYESKA	STAGING OF EQUIPMENT AND STRUCTURES BOUND FO ALASKA NORTHSLOPE
2.	OLYMPIC PREFAB	MANUFACTURER OF MODULAR OFFICE UNITS BOUND FOR ALASKA NORTHSLOPE
2.	SQUIRE DEVELOPMENT	NO KNOWN OPERATIONS
13.	BILL PIERRE FORD	NEW AUTOMOBILE STORAGE YARD
15.	WASHINGTON WATER SPORTS	RECREATIONAL BOAT SALES LOT
15.	SKIMASTERS WATER SPORTS	RECREATIONAL BOAT SALES LOT

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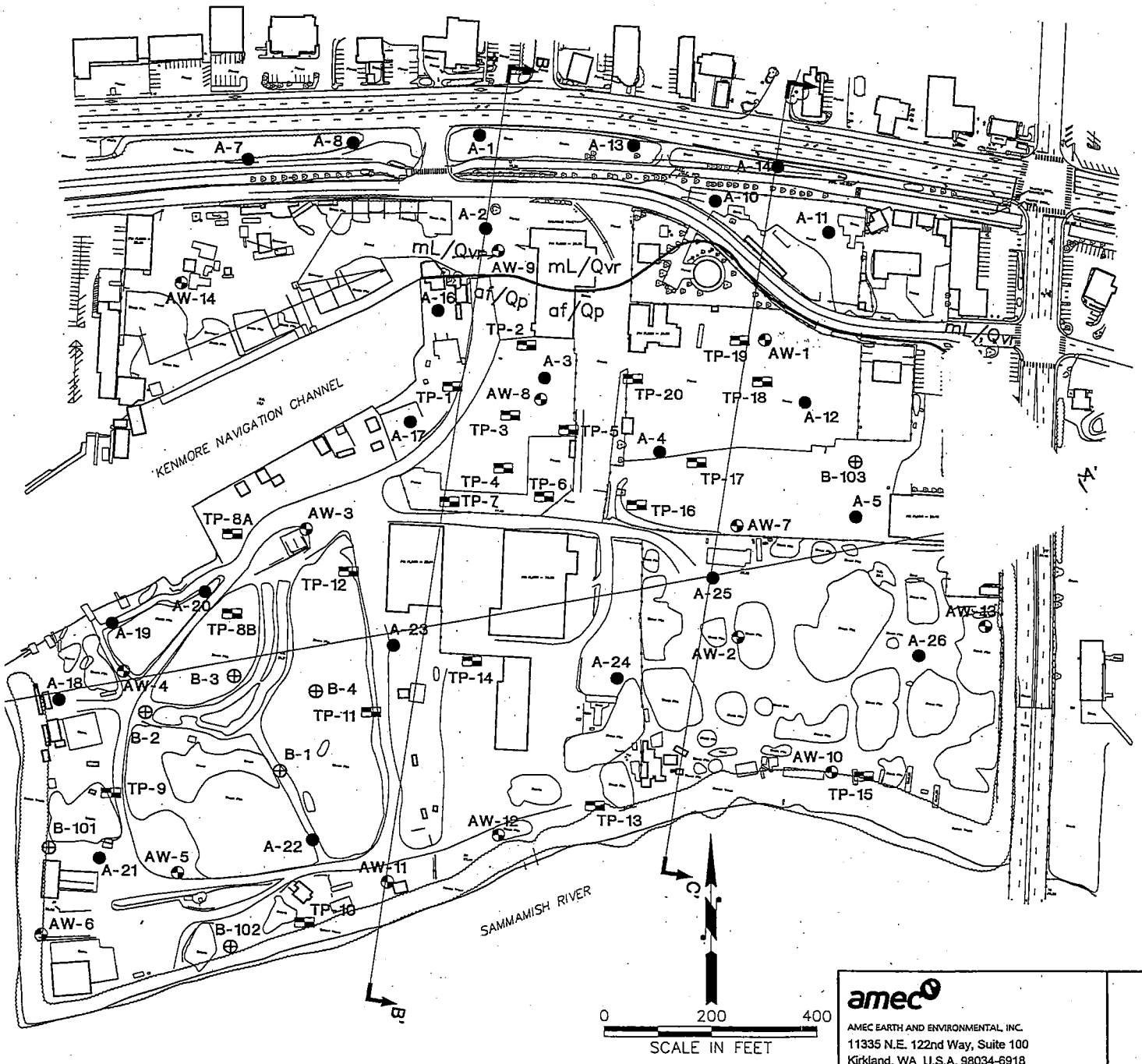
KEY TO CURRENT/FORMER BUSINESSES

KENMORE INDUSTRIAL PARK

KENMORE, WASHINGTON

FIGURE 2



LEGEND

- AW-14 — GROUNDWATER MONITORING WELL NUMBER AND LOCATION
- B-103 — APPROXIMATE LOCATION OF FORMER WELLS INSTALLED BY OTHERS
- A-26 — GEOTECHNICAL BORING NUMBER AND LOCATION
- TP-20 — TEST PIT NUMBER AND LOCATION
- A A' — ALIGNMENT OF GENERALIZED GEOLOGIC CROSS SECTION
- mL/Qvr / af/Qp — GEOLOGIC CONTACT (DASHED WHERE INFERRED)

mL – MODIFIED LAND

ORIGINAL TOPOGRAPHY DISTURBED BY REMOVAL OF SOME PLEISTOCENE DEPOSITS, GRADING AND ARTIFICIAL FILL OF UNKNOWN QUALITY.

af – ARTIFICIAL FILL

ORIGINAL TOPOGRAPHY MODIFIED BY PLACEMENT OF SIGNIFICANT THICKNESS OF ARTIFICIAL FILL. COMPRISES THE DEMOLITION DEBRIS FILL DESCRIBED IN SUBSURFACE EXPLORATIONS.

af/Qp – PEAT

SIGNIFICANT THICKNESS OF ARTIFICIAL FILL OVER ACCUMULATIONS OF ORGANIC MATERIAL MAY CONTAIN SMALL AMOUNTS OF SAND, SILT, CLAY AND VOLCANIC ASH DEPOSITED IN SWAMPS AND BAYS.

mL/Qvr – VASHON RECESSIONAL OUTWASH

ORIGINAL TOPOGRAPHY DISTURBED.
LIGHT BROWN, LOOSELY COMPACTED SAND AND GRAVEL, WELL-ROUNDED FROM STREAM TRANSPORTATION. SORTING VARIES; PARTICLE SIZE VARIES FROM MEDIUM SAND TO COBBLES.

NOTES: INFORMATION REGARDING THE EXTENT OF PEAT SOILS WAS SUPPLEMENTED BY PREVIOUS STUDIES PERFORMED FOR RIGHT-OF-WAYS AND FOR METRO SEWER STATION, AND BY REVIEW OF AERIAL PHOTOGRAPHS OF THE SITE AND VICINITY.

THE GEOLOGIC DEPOSITS SHOWN REPRESENT NATIVE SOIL CONDITIONS BELOW ARTIFICIAL FILLS.

* MONITORING WELLS INSTALLED BY OTHERS. REFER TO REVISED: PHASE II ENVIRONMENTAL STUDY – KENMORE PRE-MIX SITE, BY GEOTECH CONSULTANTS, INC., DATED 24 JANUARY 1991.

REFERENCE:
U.S. GEOLOGICAL SURVEY (USGS) GEOLOGICAL MAP OM-14, "PRELIMINARY SURFICAL GEOLOGIC MAP OF THE EDMONDS EAST AND EDMONDS WEST QUADRANGLES, SNOHOMISH AND KING COUNTIES, WASHINGTON (1975).

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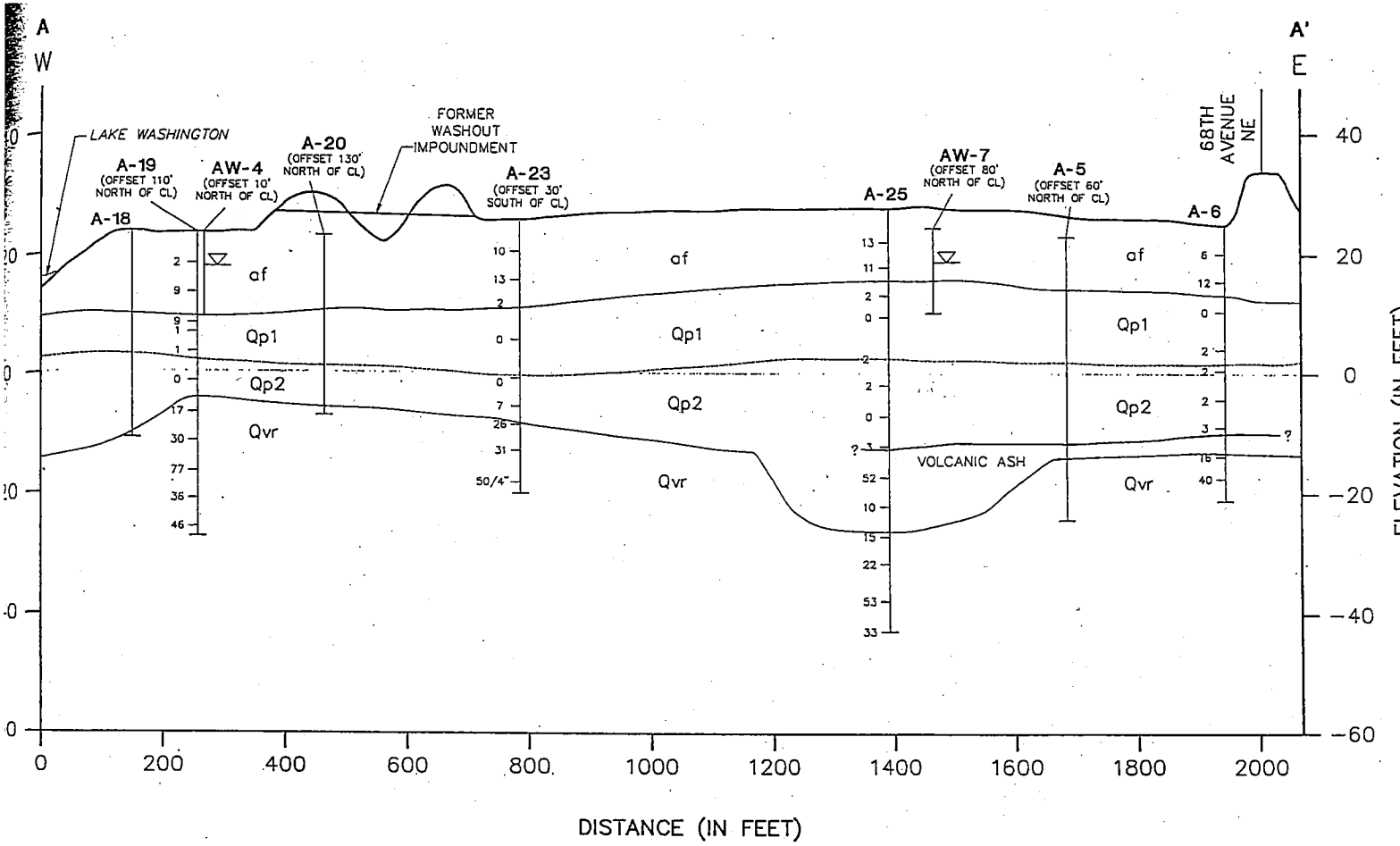
SITE & EXPLORATION PLAN

KENMORE INDUSTRIAL PARK

KING COUNTY, WASHINGTON

FIGUR 3



mL – MODIFIED LAND

ORIGINAL TOPOGRAPHY DISTURBED BY REMOVAL OF SOME PLEISTOCENE DEPOSITS, GRADING AND ARTIFICIAL FILL OF UNKNOWN QUALITY.

af – ARTIFICIAL FILL

ORIGINAL TOPOGRAPHY MODIFIED BY PLACEMENT OF SIGNIFICANT THICKNESS OF ARTIFICIAL FILL. COMPRISES THE DEMOLITION DEBRIS FILL DESCRIBED IN SUBSURFACE EXPLORATIONS.

Qp – PEAT

ACCUMULATION OF ORGANIC MATERIAL (Qp1)
LOOSE ALLUVIUM.
MAY CONTAIN SMALL AMOUNTS OF SAND, SILT, CLAY AND VOLCANIC ASH DEPOSITED IN SWAMPS AND BOGS (Qp2)

Qvr – VASHON RECESSIONAL OUTWASH

LIGHT BROWN, LOOSELY COMPACTED SAND AND GRAVEL, WELL-ROUNDED FROM STREAM TRANSPORTATION. SORTING VARIES; PARTICLE SIZE VARIES FROM MEDIUM SAND TO COBBLES. NOT DIFFERENTIATED FROM MORE RECENT ALLUVIUM, THAT MAY CONTAIN SILT, CLAY AND ORGANIC MATTER.

Qvt – VASHON TILL

POORLY SORTED, NONSTRATIFIED LODGMENT TILL DEPOSITED AS GROUND MORAINE. MIXTURE OF CLAY, SILT, SAND, PEBBLES AND COBBLES WITH OCCASIONAL LARGE BOULDERS. STONES ARE SUBANGULAR TO ROUNDED.

LEGEND

A-25 — SOIL BORING/MONITORING WELL NUMBER AND LOCATION

OBSERVED GROUNDWATER LEVEL

53 — BLOW COUNT (BLOWS/FOOT)

APPROXIMATE BOUNDARY OF GEOLOGIC UNIT

APPROXIMATE BOUNDARY BETWEEN ORGANIC PEATS (Qp1) AND ALLUVIUM (Qp2)

ELEVATION 0 (KING COUNTY BENCHMARK "KC-B-16")

BOTTOM OF HOLE

0 20 40
VERTICAL SCALE IN FEET

0 200 400
HORIZONTAL SCALE IN FEET

REFERENCE:
U.S. GEOLOGICAL SURVEY (USGS) GEOLOGICAL MAP OM-14, "PRELIMINARY SURFICAL GEOLOGIC MAP OF THE EDMONDS EAST AND EDMONDS WEST QUADRANGLES, SNOHOMISH AND KING COUNTIES, WASHINGTON (1975).

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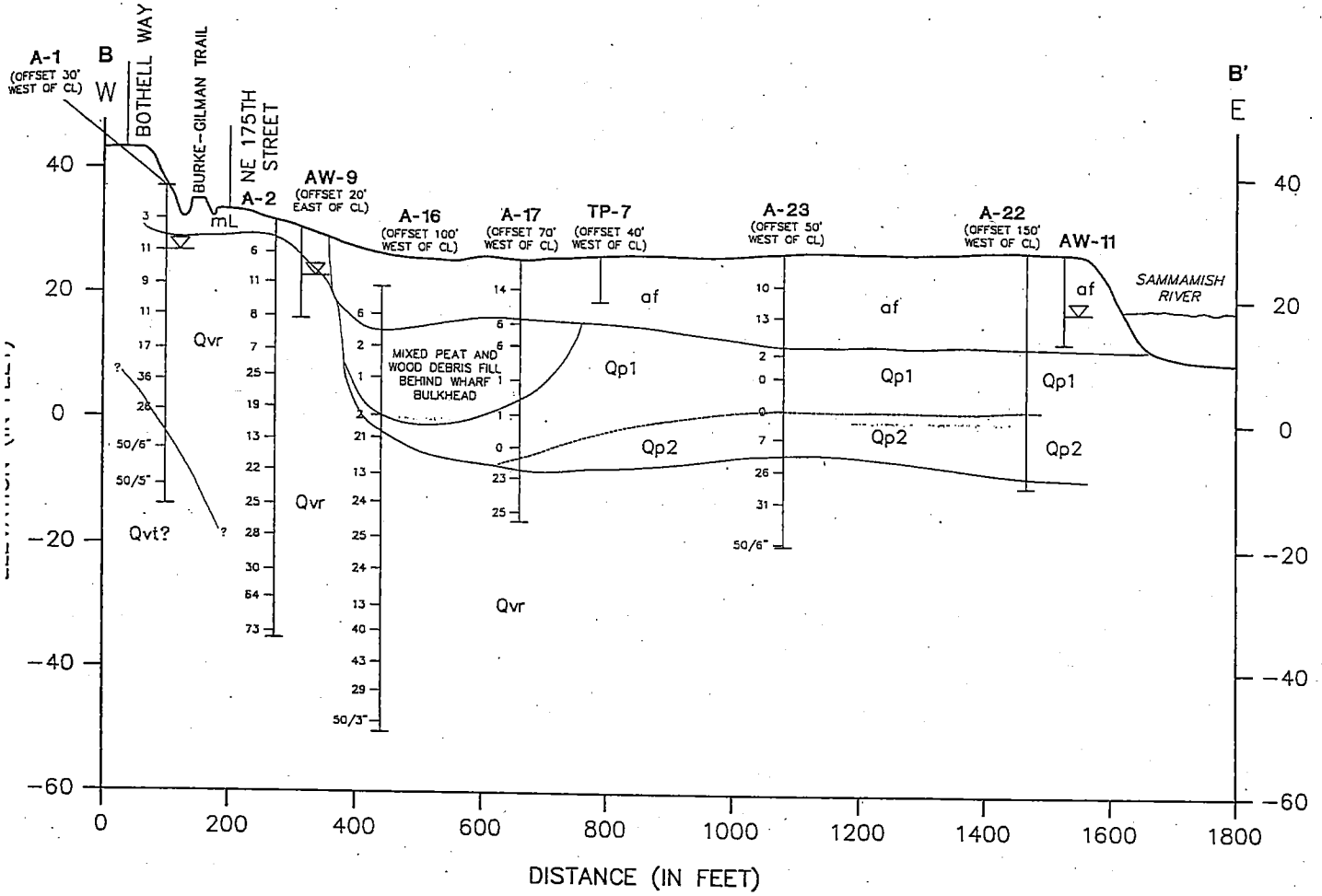
GENERALIZED GEOLOGIC CROSS-SECTON A-A'

KENMORE INDUSTRIAL PARK

KING COUNTY, WASHINGTON

FIGURE 4



LEGEND

A-25 — SOIL BORING/MONITORING WELL NUMBER AND LOCATION

OBSERVED GROUNDWATER LEVEL

53 — BLOW COUNT (BLOWS/FOOT)

APPROXIMATE BOUNDARY OF GEOLOGIC UNIT

APPROXIMATE BOUNDARY BETWEEN ORGANIC PEATS (Qp1) AND ALLUVIUM (Qp2)

ELEVATION 0 (KING COUNTY BENCHMARK "KC-B-16")

BOTTOM OF HOLE

mL – MODIFIED LAND

ORIGINAL TOPOGRAPHY DISTURBED BY REMOVAL OF SOME PLEISTOCENE DEPOSITS, GRADING AND ARTIFICIAL FILL OF UNKNOWN QUALITY.

af – ARTIFICIAL FILL

ORIGINAL TOPOGRAPHY MODIFIED BY PLACEMENT OF SIGNIFICANT THICKNESS OF ARTIFICIAL FILL. COMPRISES THE DEMOLITION DEBRIS FILL DESCRIBED IN SUBSURFACE EXPLORATIONS.

Qp – PEAT

ACCUMULATION OF ORGANIC MATERIAL (Qp1)
LOOSE ALLUVIUM.
MAY CONTAIN SMALL AMOUNTS OF SAND, SILT, CLAY AND VOLCANIC ASH DEPOSITED IN SWAMPS AND BOGS (Qp2)

Qvr – VASHON RECESSIONAL OUTWASH

LIGHT BROWN, LOOSELY-COMPACTED SAND AND GRAVEL, WELL-ROUNDED FROM STREAM TRANSPORTATION. SORTING VARIES; PARTICLE SIZE VARIES FROM MEDIUM SAND TO COBBLES. NOT DIFFERENTIATED FROM MORE RECENT ALLUVIUM, THAT MAY CONTAIN SILT, CLAY AND ORGANIC MATTER.

Qvt – VASHON TILL

POORLY SORTED, NONSTRATIFIED LODGMENT TILL DEPOSITED AS GROUND MORAINE. MIXTURE OF CLAY, SILT, SAND, PEBBLES AND COBBLES WITH OCCASIONAL LARGE BOULDERS. STONES ARE SUBANGULAR TO ROUNDED.

0 20 40
VERTICAL SCALE IN FEET

0 200 400
HORIZONTAL SCALE IN FEET

REFERENCE:
U.S. GEOLOGICAL SURVEY (USGS) GEOLOGICAL MAP OM-14, "PRELIMINARY SURFICAL GEOLOGIC MAP OF THE EDMONDS EAST AND EDMONDS WEST QUADRANGLES, SNOHOMISH AND KING COUNTIES, WASHINGTON (1975).

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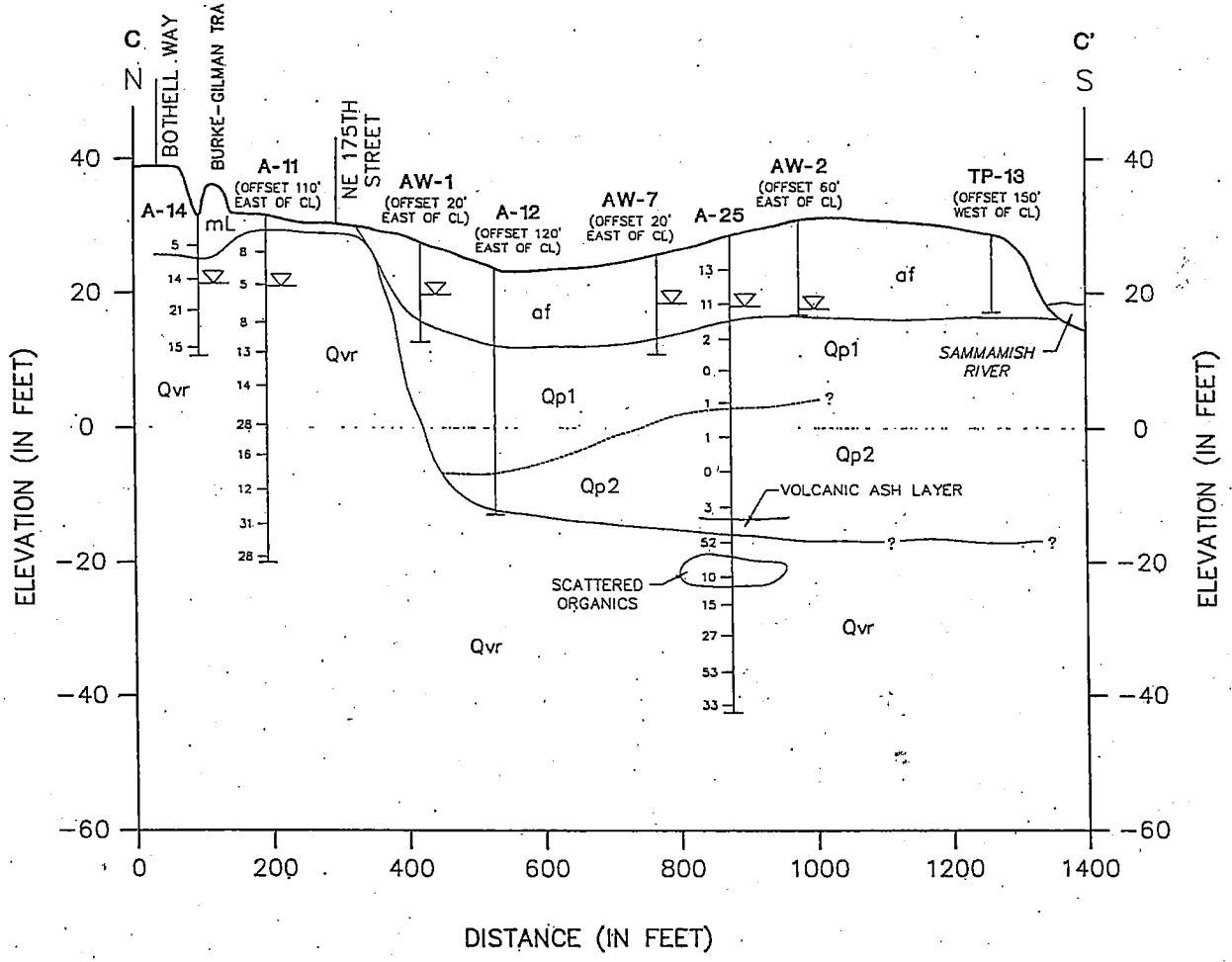
GENERALIZED GEOLOGIC CROSS-SECTION B-B'

KENMORE INDUSTRIAL PARK

KING COUNTY, WASHINGTON

FIGURE 5



mL – MODIFIED LAND

ORIGINAL TOPOGRAPHY DISTURBED BY REMOVAL OF SOME PLEISTOCENE DEPOSITS, GRADING AND ARTIFICIAL FILL OF UNKNOWN QUALITY.

af – ARTIFICIAL FILL

ORIGINAL TOPOGRAPHY MODIFIED BY PLACEMENT OF SIGNIFICANT THICKNESS OF ARTIFICIAL FILL. COMPRISES THE DEMOLITION DEBRIS FILL DESCRIBED IN SUBSURFACE EXPLORATIONS.

Qp – PEAT

ACCUMULATION OF ORGANIC MATERIAL (Qp1)
LOOSE ALLUVIUM.
MAY CONTAIN SMALL AMOUNTS OF SAND, SILT, CLAY AND VOLCANIC ASH DEPOSITED IN SWAMPS AND BOGS (Qp2)

Qvr – VASHON RECESSIONAL OUTWASH

LIGHT BROWN, LOOSELY COMPACTED SAND AND GRAVEL, WELL-ROUNDED FROM STREAM TRANSPORTATION. SORTING VARIES; PARTICLE SIZE VARIES FROM MEDIUM SAND TO COBBLES. NOT DIFFERENTIATED FROM MORE RECENT ALLUVIUM, THAT MAY CONTAIN SILT, CLAY AND ORGANIC MATTER.

Qvt – VASHON TILL

POORLY SORTED, NONSTRATIFIED LODGMENT TILL DEPOSITED AS GROUND MORAINE. MIXTURE OF CLAY, SILT, SAND, PEBBLES AND COBBLES WITH OCCASIONAL LARGE BOULDERS. STONES ARE SUBANGULAR TO ROUNDED.

LEGEND

A-25 — SOIL BORING/MONITORING WELL NUMBER AND LOCATION

▽ — OBSERVED GROUNDWATER LEVEL

53 — BLOW COUNT (BLOWS/FOOT)

APPROXIMATE BOUNDARY OF GEOLOGIC UNIT

APPROXIMATE BOUNDARY BETWEEN ORGANIC PEATS (Qp1) AND ALLUVIUM (Qp2)

ELEVATION 0 (KING COUNTY BENCHMARK "KC-B-16")

BOTTOM OF HOLE

0 20 40
VERTICAL SCALE IN FEET

0 200 400
HORIZONTAL SCALE IN FEET

REFERENCE:
U.S. GEOLOGICAL SURVEY (USGS) GEOLOGICAL MAP OM-14, "PRELIMINARY SURFICAL GEOLOGIC MAP OF THE EDMONDS EAST AND EDMONDS WEST QUADRANGLES, SNOHOMISH AND KING COUNTIES, WASHINGTON (1975).

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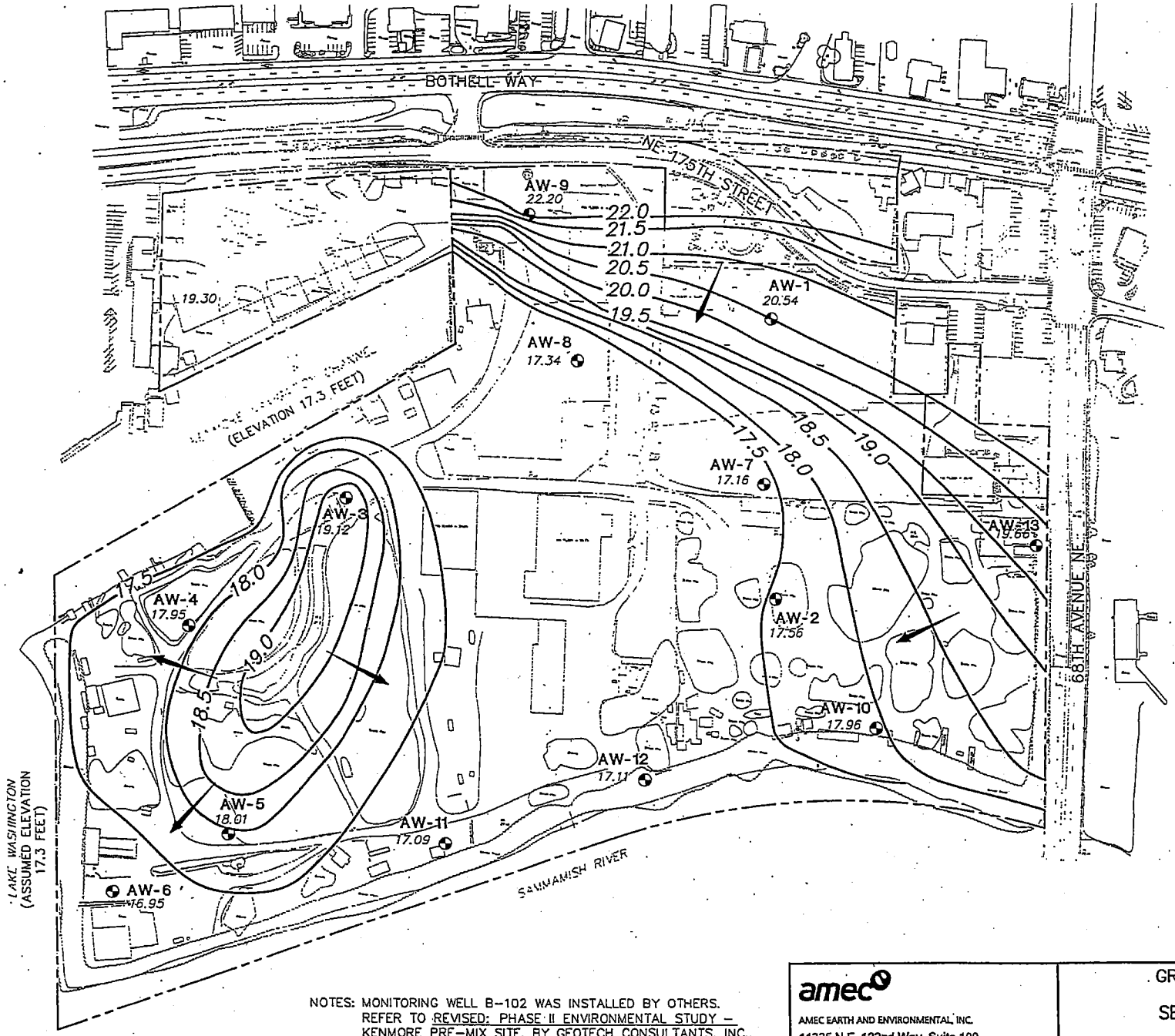
GENERALIZED GEOLOGIC CROSS-SECTION C-C'

KENMORE INDUSTRIAL PARK

KING COUNTY, WASHINGTON

FIGUR 6



LEGEND

- AW-13 — MONITORING WELL NUMBER AND LOCATION
- —22.0— INFERRED GROUNDWATER SURFACE ELEVATION CONTOUR IN FEET
- 22.20 SPOT GROUNDWATER SURFACE ELEVATION IN FEET
- INFERRED DIRECTION OF GROUNDWATER MIGRATION
- BULKHEAD BARRIER
- PROPERTY BOUNDARY

0 200 400

SCALE IN FEET

NOTES: MONITORING WELL B-102 WAS INSTALLED BY OTHERS. REFER TO REVISED: PHASE II ENVIRONMENTAL STUDY – KENMORE PRE-MIX SITE, BY GEOTECH CONSULTANTS, INC., DATED 24 JANUARY 1991.

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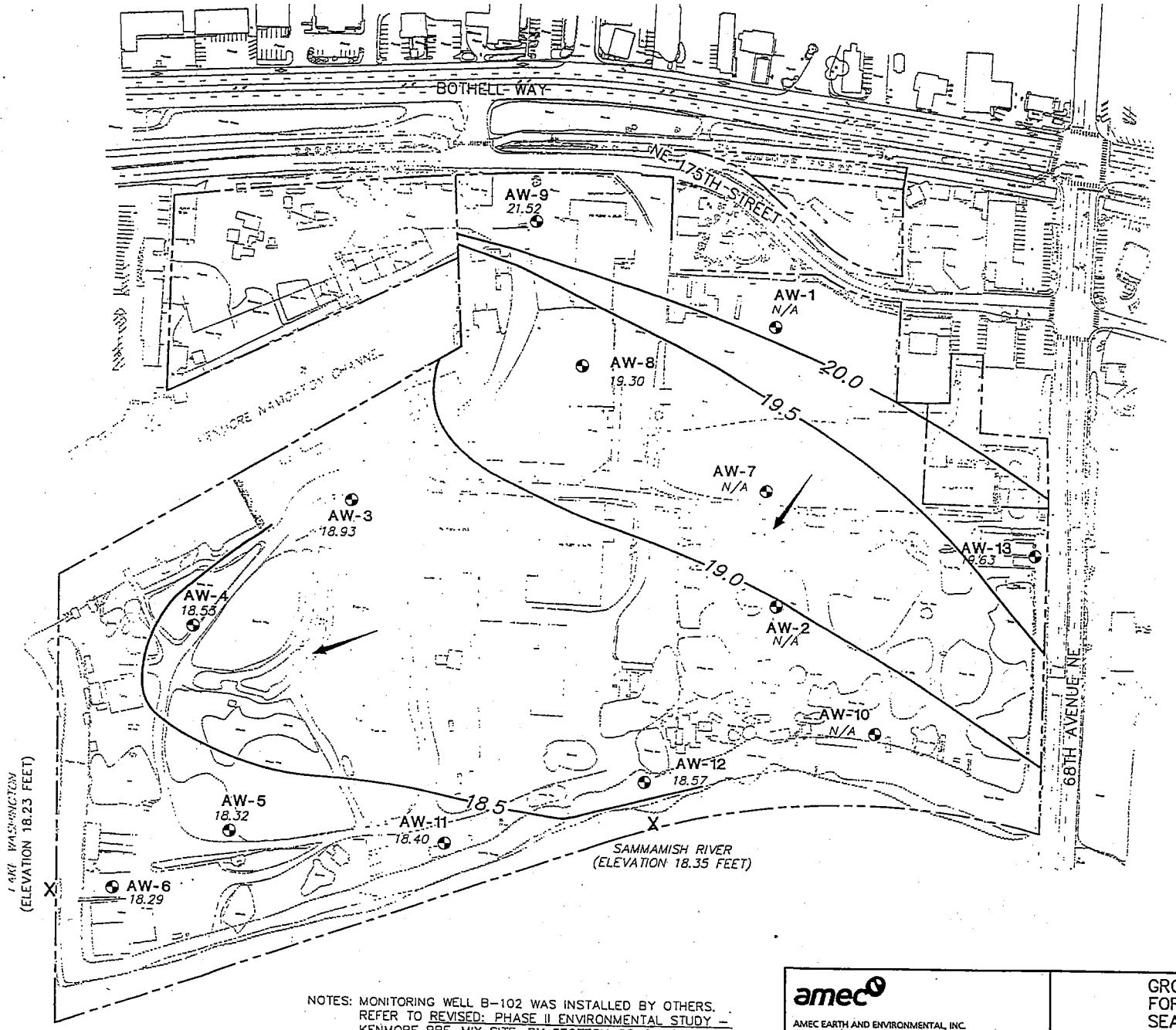
GROUNDWATER CONTOUR MAP
FOR 22 DECEMBER 1997
SEASONAL LOW LAKE LEVELS
KENMORE INDUSTRIAL PARK
KING COUNTY, WASHINGTON

FIGUR 7



LEGEND

- AW-13 — MONITORING WELL NUMBER AND LOCATION
- —21.00— INFERRED GROUNDWATER SURFACE ELEVATION CONTOUR IN FEET
- 21.52 — SPOT GROUNDWATER SURFACE ELEVATION IN FEET
- INFERRED DIRECTION OF GROUNDWATER MIGRATION
- BULKHEAD BARRIER
- PROPERTY BOUNDARY
- X — LAKE LEVEL SURVEY POINT

0 200 400
SCALE IN FEET

NOTES: MONITORING WELL B-102 WAS INSTALLED BY OTHERS. REFER TO REVISED: PHASE II ENVIRONMENTAL STUDY - KENMORE PRE-MIX SITE, BY GEOTECH CONSULTANTS, INC., DATED 24 JANUARY 1991.

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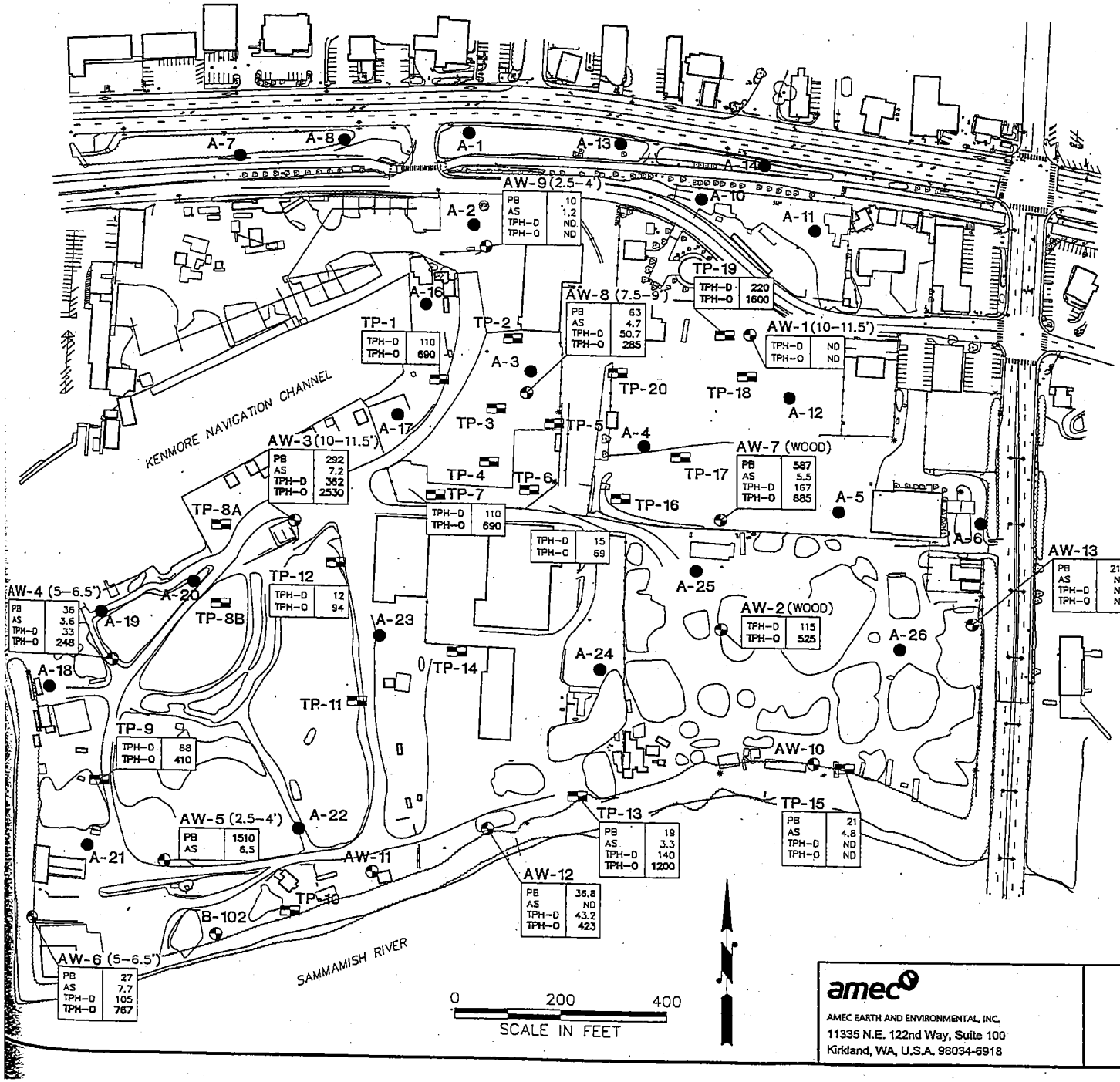
GROUNDWATER CONTOUR MAP
FOR 26 AND 27 MARCH 2001
SEASONAL HIGH LAKE LEVELS
KENMORE INDUSTRIAL PARK
KING COUNTY, WASHINGTON

FIGURE 8



LEGEND

AW-14 ⊕	GROUNDWATER MONITORING WELL NUMBER AND LOCATION
A-26 ●	GEOTECHNICAL BORING NUMBER AND LOCATION
TP-20 ▭	TEST PIT NUMBER AND LOCATION
(2.5–4')	SAMPLE DEPTH COLLECTED (IN FEET)
(WOOD)	NO SOIL SAMPLE OBTAINED DURING EXPLORATION. ANALYSES PERFORMED ON WOOD CUTTINGS.

SOIL TEST RESULTS

ALL CONCENTRATIONS ARE REPORTED IN PARTS PER MILLION (PPM)

ND	NOT DETECTED, BELOW METHOD DETECTION LIMIT
PB	TOTAL LEAD BY EPA METHOD 6010/7000
AS	TOTAL ARSENIC BY EPA METHOD 6010/7000
TPH–D	TOTAL PETROLEUM HYDROCARBONS – DIESEL RANGE BY ECOLOGY METHOD WTPH–D EXT.
TPH–O	TOTAL PETROLEUM HYDROCARBONS – HEAVY OIL RANGE BY ECOLOGY METHOD WTPH–D EXT.

PB	587
AS	ND
TPH–D	ND
TPH–O	ND

BOLD TEXT DENOTES CONCENTRATION IN EXCESS OF MTCA CLEANUP STANDARD

CONCENTRATIONS IN PPM

COMPOUNDS

NOTES: OTHER COMPOUNDS ARE PRESENT. PLEASE REFER TO THE REPORT TEXT FOR FURTHER DISCUSSION OF ANALYTICAL RESULTS.

MONITORING WELL B–102 WAS INSTALLED BY OTHERS. REFER TO REVISED: PHASE II ENVIRONMENTAL STUDY – KENMORE PRE–MIX SITE, BY GEOTECH CONSULTANTS, INC., DATED 24 JANUARY 1991.

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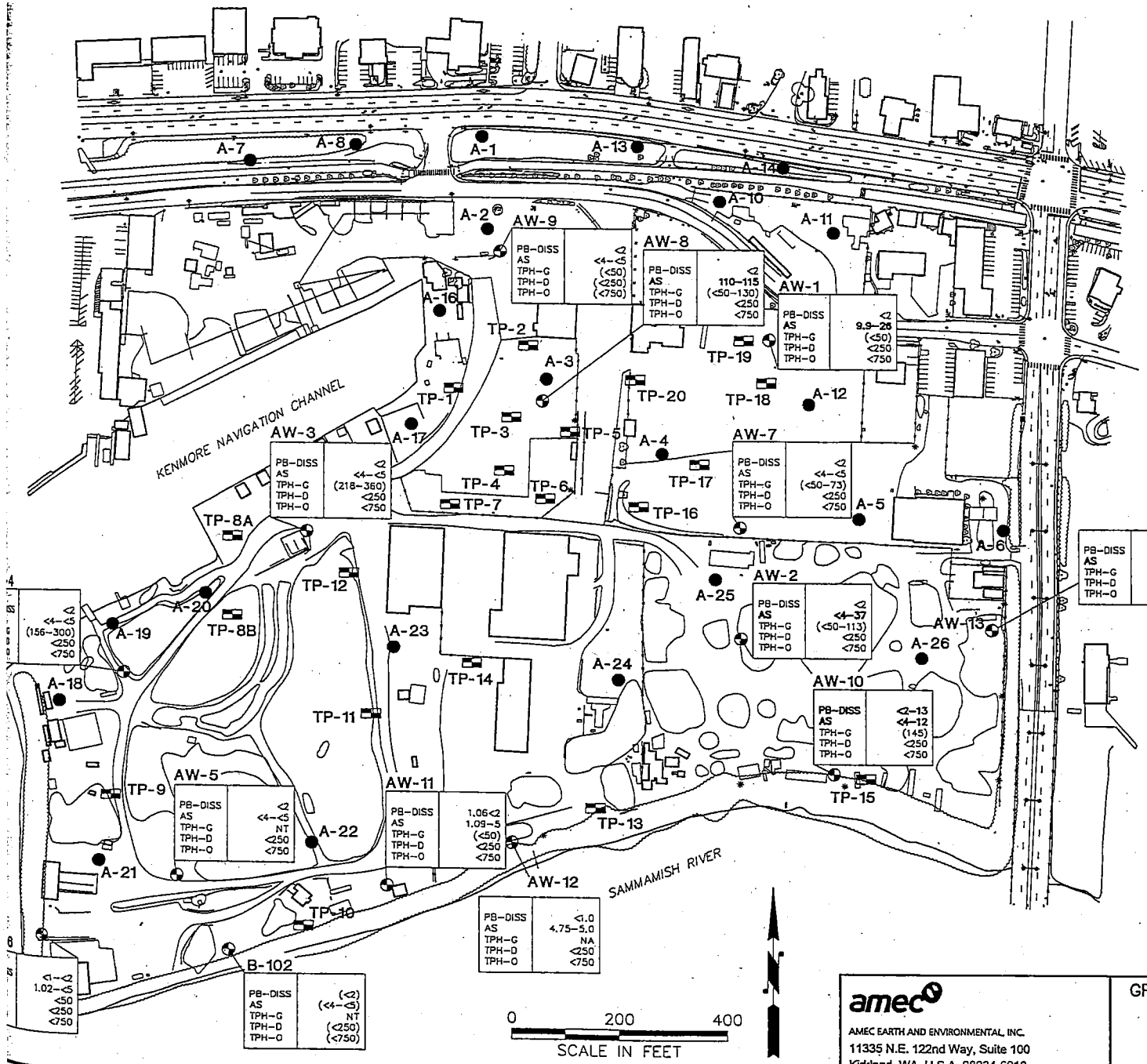
SOIL CONTAMINANT CONCENTRATIONS

KENMORE INDUSTRIAL PARK

KING COUNTY, WASHINGTON

FIGURE 9



LEGEND

- AW-14 — GROUNDWATER MONITORING WELL NUMBER AND LOCATION
- A-26 — GEOTECHNICAL BORING NUMBER AND LOCATION
- TP-20 — TEST PIT NUMBER AND LOCATION

GROUNDWATER TEST RESULTS

CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)

- ND — NOT DETECTED, BELOW METHOD DETECTION LIMIT
- NA — NOT APPLICABLE

- PB-DISS — DISSOLVED LEAD BY EPA METHOD 6010/7000
- AS — TOTAL ARSENIC BY EPA METHOD 6010/7000
- TPH-G — TOTAL PETROLEUM HYDROCARBONS – GASOLINE RANG BY ECOLOGY METHOD WTPH-G.
- TPH-D — TOTAL PETROLEUM HYDROCARBONS – DIESEL RANGE BY ECOLOGY METHOD WTPH-D EXT. WITH SILICA GEL CLEANUP
- TPH-O — TOTAL PETROLEUM HYDROCARBONS – HEAVY OIL RANGE BY ECOLOGY METHOD WTPH-D EXT. WITH SILIC GEL CLEANUP

PB-DISS	ND
AS	**9**
TPH-G	(ND)
TPH-D	ND
TPH-O	ND

- BOLD TEXT SIGNIFIES CONCENTRATION(S) IN EXCESS OF CLEANUP STANDARD
- QUALIFIED DATA (SEE TABLE 1)
- CONCENTRATIONS IN PPB
- COMPOUNDS

NOTES:

1. EXCEPT FOR COLLECTION OF TPH-G SAMPLES, MICROPURGE TECHNIQUES WERE USED TO MINIMIZE TURBIDITY WHILE SAMPLING THE WELLS. CONCENTRATIONS ARE REPORTED AS A RANGE FROM TWO SAMPLING EVENTS.
2. TOTAL ARSENIC IS COMPARABLE TO DISSOLVED ARSENIC CONCENTRATIONS.
3. OTHER COMPOUNDS MAY BE PRESENT. PLEASE REFER TO THE REPORT TEXT FOR FURTHER DISCUSSION OF SAMPLING METHODOLOGY AND ANALYTICAL RESULTS.

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GROUNDWATER CONTAMINANT CONCENTRATIONS

KENMORE INDUSTRIAL PARK

KING COUNTY, WASHINGTON

FIGURE 10

TABLE 5-1 CLEANUP LEVELS FOR GROUNDWATER, KENMORE INDUSTRIAL PARK		
Contaminant	**Cleanup Level (Φg/L)**	**Standard/Criteria**
TPH (ORPH and DRPH)	1,000	MTCA Method A (based on protection of groundwater because no applicable surface water cleanup level exists under MTCA Methods A, B, or, C, and there is no MTCA Method B groundwater cleanup level)
Arsenic	5	MTCA Method A (based on natural background concentrations for the State of Washington)
Lead (dissolved)	14.4	MTCA Method A and B (based on hardness dependent formula in WAC 173-201A-040. Calculation was based on lowest observed groundwater hardness of 524 mg. eq./L)
Barium	1,000	MTCA Method A and B (based on EPA National Recommended Water Quality Criteria)

TABLE 5-2 CLEANUP LEVELS FOR SOIL		
Contaminant	**Cleanup Level (mg/kg)**	**Standard/Criteria**
TPH (ORPH and DRPH)	200.0	Method A Residential
Arsenic	20.0	Method A Residential
Barium	100	Method B Residential
Lead	250	Method A Residential
Selenium	0.5	Method B Residential

TABLE 5-3
CLEANUP LEVELS FOR SOIL FOR CONTINUED INDUSTRIAL USE

Contaminant	Cleanup Level (mg/kg)	Standard/Criteria
TPH (ORPH and DRPH)	200.0	Method A Industrial
Arsenic	200.0	Method A Industrial
Barium	100	Method C Industrial
Lead	1000	Method A Industrial
Selenium	0.5	Method C Industrial

TABLE 5-4
COMPARISON OF CURRENT COC CONCENTRATIONS TO GROUNDWATER CLEANUP LEVELS FOR PROTECTION OF SURFACE WATER AT CONDITIONAL POINT OF COMPLIANCE, KENMORE INDUSTRIAL PARK

Contaminant	2001 Measured Groundwater Concentration Range at Shoreline Compliance Wells (Φg/L)	Cleanup Level (Φg/L)	Exceedance of Cleanup Levels at the Conditional Point of Compliance
TPH (ORPH and DRPH)	<250 to <750	1,000	None
Arsenic	1.02 to 4.75	5	None[1]
Barium	68.9 to 889	1,000	None[2]
Lead	<1 to 13	14.4	None

Notes: [1]A single anomalous exceedance of 12 Φg/L occurred in 1996 in the no longer operable well AW-10.
[2]A single anomalous exceedance of 1,090 Φg/L occurred in 1996 in the well AW-11.

TABLE 5-5 COMPARISON OF COC CONCENTRATIONS TO RESIDENTIAL SOIL MEDIA CCLs, KENMORE INDUSTRIAL PARK			
Contaminant	**Measured Soil Concentration Range (mg/kg)**	**Cleanup Level (mg/kg)**	**Exceedance Of CCL**
TPH (ORPH and DRPH)	15 to 4,800	200	Throughout
Arsenic	<1.2 to 7.7	20	None
Barium	22 to 441	100	3 exceedances
Lead	<10 to 1,510	250	3 exceedances
Selenium	<0.5 to 0.6	0.5	2 exceedances

TABLE 5-6 COMPARISON OF COC CONCENTRATIONS TO INDUSTRIAL SOIL MEDIA CCLs, KENMORE INDUSTRIAL PARK			
Contaminant	**Measured Soil Concentration Range (mg/kg)**	**Cleanup Level (mg/kg)**	**Exceedance Of CCL**
TPH (ORPH and DRPH)	15 to 4,800	200	Throughout
Arsenic	<1.2 to 7.7	200	None
Barium	22 to 441	100	3 exceedances
Lead	<10 to 1,510	1,000	1 exceedance
Selenium	<0.5 to 0.6	0.5	2 exceedances

HellerEhrman
ATTORNEYS

mailed 10-30-01

October 17, 2001

Madeline J. Kass
mkass@hewm.com
(206) 389-4285
Main (206) 447-0900
Fax (206) 447-0849

19100-0003

Mr. Ching-Pi Wang
Toxics Cleanup Program
Washington Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

Re: Restrictive Covenant for Lakepointe Consent Decree

Dear Ching-Pi:

I am enclosing a signed original of the Kenmore Industrial Park/Lakepointe restrictive covenant for Ecology's acknowledgment of receipt. Please have the appropriate person in your office sign and date the attached original where noted and return it to our office for recording. Thank you.

Very truly yours,

Madeline J. Kass

Enclosure
cc: Gary Sergeant
John Hamilton
Andrew Fitz

200053 v01.SE (4@D101!.DOC)

RECORDED AT THE REQUEST OF
AND WHEN RECORDED RETURN TO:

Madeline J. Kass
Heller Ehrman White & McAuliffe LLP
6100 Bank America Tower
701 Fifth Avenue
Seattle, Washington 98104-7098

RESTRICTIVE COVENANT

Grantor:	Pioneer Towing Company, Inc.
Grantee:	Owners of property described, commonly known as Kenmore Industrial Park
Legal Description:	A portion of Government Lots 1 and 2 of Section 11, Township 26 North, Range 4 East, W.M. in King County, Washington, and Second Class Shorelands Additional legal description on page 6
Assessor's Tax Parcel No:	1126049001; 1126049020; 1126049158
Reference Nos. of Document Released/Assigned/Amended:	NA

RESTRICTIVE COVENANT

KENMORE INDUSTRIAL PARK
N.E. BOTHELL WAY AND JUANITA DRIVE N.E.
KENMORE, WASHINGTON

This Restrictive Covenant is made pursuant to RCW 70.105D.030(l)(f) and (g) and WAC 173-340-440 by the Pioneer Towing Company Inc.

A remedial action (hereafter "Remedial Action") is to be conducted on the property that is the subject of this Restrictive Covenant. The Remedial Action includes cleanup actions appropriate for mixed residential/commercial use of the property (hereafter the "Residential/Commercial Remedial Action") and/or cleanup actions appropriate for continued industrial use of the property (hereafter the "Continued Industrial Use Remedial Action"). The Residential/Commercial Remedial Action and the alternative Continued Industrial Use Remedial Action are both described in (1) the Cleanup Action Plan for Kenmore Industrial Park ("CAP"), dated August 8, 2001 and (2) Consent Decree No. 01-2-22187-6SEA, entered as of August 14, 2001. The CAP and the Consent Decree are on file at Ecology's Northwest Regional Office located at 3190 160th Avenue S.E. Bellevue, Washington.

This Restrictive Covenant is required because residual concentrations of lead, arsenic, barium, selenium, and petroleum hydrocarbons remain in soil and/or groundwater below the subsurface of the property in concentrations that exceed Washington Department of Ecology ("Ecology") residential cleanup standards. This Restrictive Covenant is also required because a conditional point of compliance has been established for groundwater.

The undersigned, Pioneer Towing Company, Inc. ("Owner"), is the fee owner of real property (hereafter "Property") in the County of King, 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 following covenants, conditions, and restrictions apply to the use of the Property. They are intended to run with the land, and be binding on the Owner and its successors and assigns.

Section 1. **Activity Prohibitions.** The Owner shall prohibit activities on the Property that (a) interfere with either the Remedial Action or other measures to assure the integrity of the cleanup action and continued protection of human health and the environment or (b) may result in the release of a hazardous substance which was contained as a part of the cleanup. Pursuant to this requirement, the Owner of the Property shall not take any action that will reduce the integrity of the soil cover or the impervious surface cap without Ecology approval; provided, however, that the completion of maintenance or construction activities at the Property that will include the replacement of portions of the soil cover or impervious surface cap located at the Property, including the construction of foundations and other structure and the installation or maintenance of dry utility, gas, stormwater, water and sewer lines, shall not constitute activities that will reduce the integrity of the soil cover or impervious surface cap at the Property if performed in accordance with the Ecology approved Health and Safety Plan, Operations and Maintenance Plan, and Engineering Design Report, including the Landfill Gas Design Report, required by the Consent Decree.

Section 2. **Restriction on Use of Groundwater at the Property.** No groundwater may be taken for any use from the Property that is inconsistent with the Remedial Action unless approved by Ecology.

Section 3. **Conveyance Requirement.** No voluntary or involuntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Property shall be consummated without provision for continued operation and maintenance of any containment system, treatment system, or monitoring system and for continued compliance with this restrictive covenant. Owner shall notify Ecology at least thirty (30) days prior to any transfer of a fee interest in the Property, excluding any transfers of a fee interest in a condominium unit, a lease or rental of an apartment unit, or a commercial lease of less than 50,000 square feet.

Section 4. **Lease Restriction.** The Owner shall restrict leases to uses and activities consistent with this restrictive covenant and notify lessees of the restrictions on the use of the Property.

Section 5. **Inconsistent Use Requirement.** The Owner shall 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 of an inconsistent use only after public notice and opportunity for comment; however, Ecology's approval shall not be unreasonably withheld.

Section 6. **Access.** The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times, and after advance notice from Ecology, for the purposes of inspecting records related to the Remedial Action, reviewing the progress of remedial actions conducted at the Property, conducting tests and collecting samples, and verifying data submitted to Ecology. However, Ecology need only provide advance notice if feasible.

Section 7. **Allowed Residential and Commercial Uses.** The Residential/Commercial Use Remedial Action contemplates and is to be carried out in conjunction with and as part of redevelopment of the Property as a mixed use property. Following implementation of the Residential/Commercial Use Remedial Action for each phase, residential and commercial uses of that portion of the Property consistent with the terms of this Restrictive Covenant shall be

permitted. If the Continued Industrial Use Remedial Action alternative is implemented for all or a portion of the Property, only industrial property uses and support facilities (e.g., facilities such as offices or restaurants that are commercial in nature but are primarily devoted to administrative functions necessary for the industrial use and/or are primarily intended to serve the industrial facility employees and not the general public) as described under WAC 173-340-200 and WAC 173-340-745(b)(i), and/or property uses approved by Ecology, shall be permitted for those portions of the Property where the Continued Industrial Use Remedial Action alternative is implemented.

Section 8. **Reservation of Rights**. 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 any portion of the Property or be of any further force or effect. Such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs; however, Ecology's concurrence shall not be unreasonably withheld.

PIONEER TOWING COMPANY, INC.

By Gary W. Sergeant
Its President
Dated this 12th day of October, 2001

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

On this 12th day of October, 2001, before me personally appeared Gary W. Sergeant, to me known to be the President of Pioneer Towing Company, Inc. the corporation that executed the within and foregoing instrument, and acknowledged 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 was authorized to execute the said instrument, and that the seal affixed, if any, is the corporate seal of said corporation.

IN WITNESS WHEREOF I have hereunto set my hand and affixed my official seal the day and year first above written.

Catherine J. Bryan
(Signature)

Catherine J. Bryan
(Please print name legibly)

NOTARY PUBLIC in and for the State of Washington, residing at
Seattle.
My commission expires: 11/20/2003

RECEIPT OF THIS RESTRICTIVE COVENANT IS HEREBY ACKNOWLEDGED.

Executed this 30th day of October, 2001.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

By _____

(Printed name) Ching-Pi Wang

Title Environmental Engineer

Appendix B.

Deferred Industrial Maintenance Overview and Soil Results

Site Maintenance and Restoration to Prepare for Lease

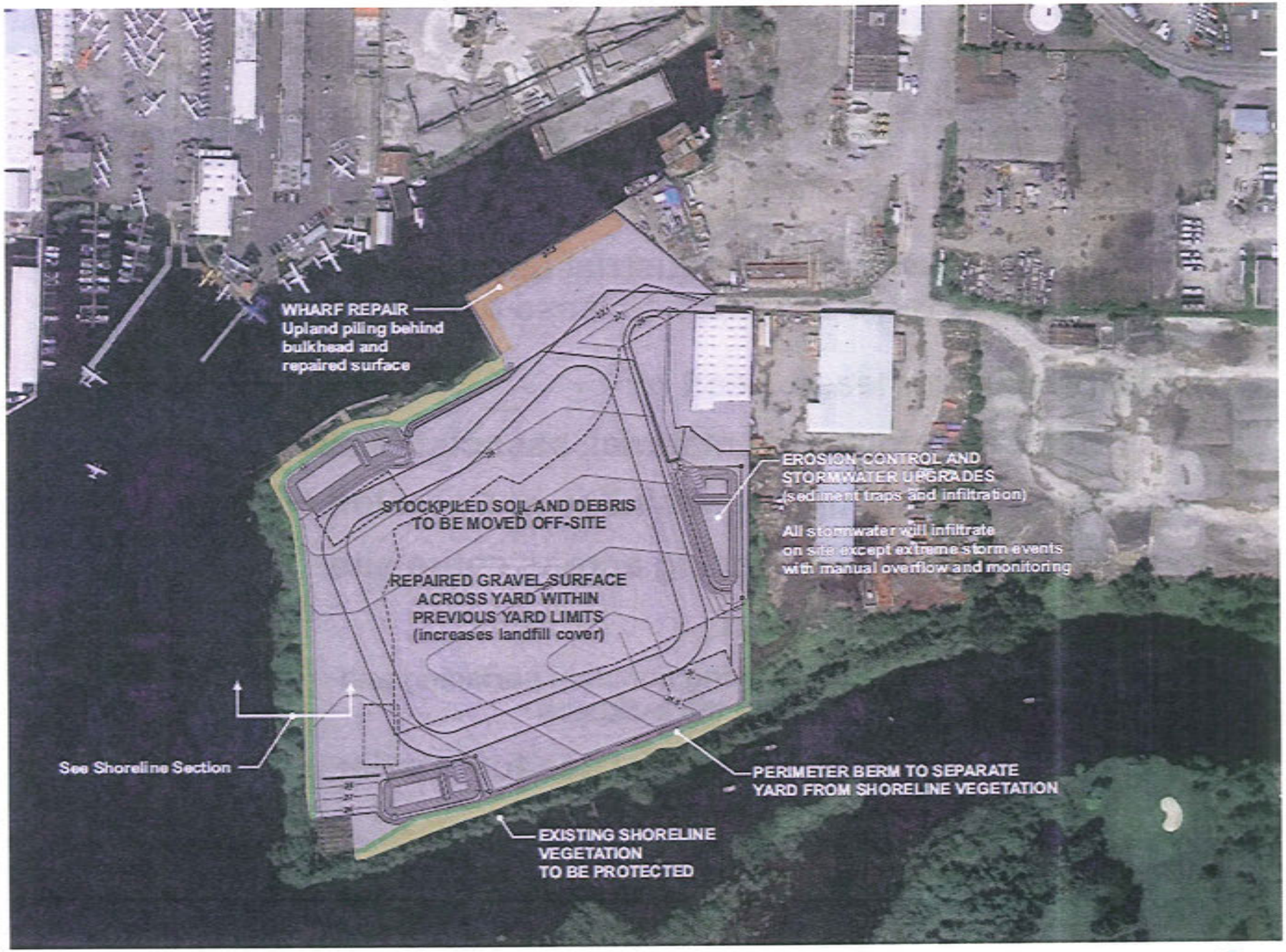
Multiple requests from industrial users to lease the property – would have to do this work to lease to anyone

To prepare for lease, need to:

- Relocate stockpiled material, associated clear & grub
- Re-grade and update drainage and erosion controls
- Replace gravel surfacing across entire site
- Repair existing wharf
  - No in-water work – fixing concrete surfacing and strengthening behind the bulkhead

Lease for continued industrial use for interim period before Lakepointe development

Lease to KGM is for a 3-year period



Pioneer Towing Company, Inc.

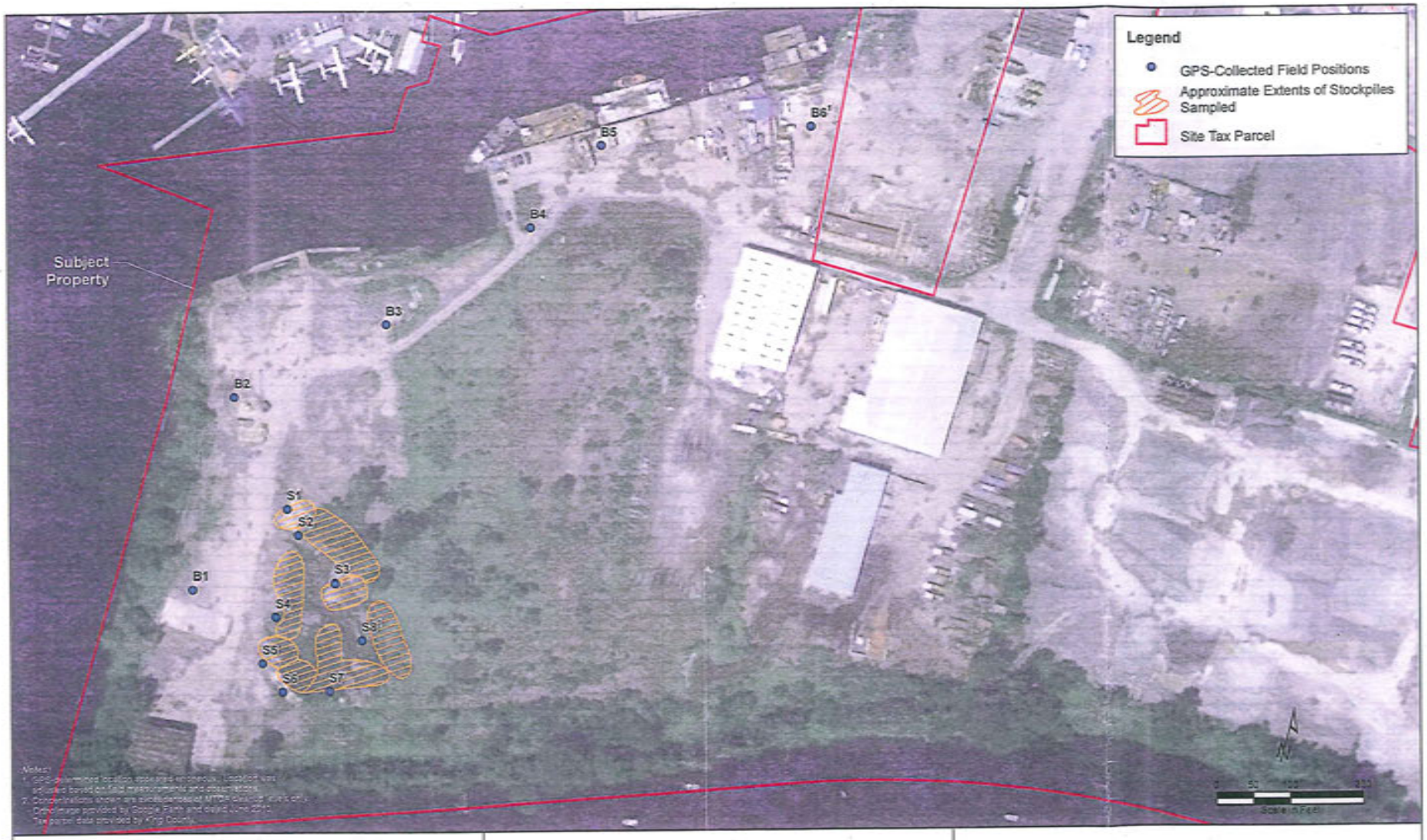
Site Plan - Maintenance and Restoration

Important Points About Our Work

- Extent of gravel surface is not bigger than previous industrial yard
- Brings the yard back to how it was, but with better environmental controls
- Shoreline vegetation will be protected
  - Continuous berm separate shoreline vegetation from industrial yard
- All yard area will drain to new sediment traps - drainage will infiltrate on site – <u>not</u> run off to lake or river
  - Manually controlled emergency overflows for extreme weather conditions
- <u>No</u> in-water work

Permitting the Pioneer Towing Work

- We (Pioneer Towing) will permit this work with the City
- SEPA checklist, shoreline exemption for maintenance and repair work
- Grading Permit
- Building Permit for wharf repairs
- Construction Stormwater General Permit from Ecology
- Work meets requirements of Ecology Consent Decree for Continued Industrial Use
  - Industrial use and access restrictions
  - Upgraded erosion controls
  - Continued groundwater monitoring



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Kenmore Industrial Park
Stockpile and Baseline Soil Sampling
Kenmore, Washington

Sample Location Map

F:\projects\KG-S20 BRIDGE\GIS\Other\Figure 1 (Sample Location Map).mxd
1/14/2011

Table 1
Stockpile Soil Sampling Analytical Results

Parameter	MTCA A Industrial Cleanup Level	MTCA C Industrial Cleanup Level	Station	S1	S2	S3	S3	S4	S5	S6	S7	S8
			Sample ID	KM-S1-1	KM-S2-1	KM-S3-1	KM-S3-2	KM-S4-1	KM-S5-1	KM-S6-1	KM-S7-1	KM-S8-1
			Sample Date	12/17/2010	12/17/2010	12/17/2010	12/17/2010	12/17/2010	12/17/2010	12/17/2010	12/17/2010	12/17/2010
			Units									
Conventionals												
Total Solids	NA	NA	%	90.00	70.30	88.60	87.50	83.10	83.20	82.40	81.40	35.60
Total Organic Carbon	NA	NA	%	0.785	5.18	1.12	0.891	3.76	3.28	1.36	2.97	27.4
Metals												
Arsenic	2.0E+01	8.8E+01	mg/kg	5 U	11	5 U	5 U	11	8	8	9	10 U
Cadmium	2.0E+00	3.5E+03	mg/kg	0.2 U	0.3	0.3	0.3	0.3	0.3	0.2 U	0.3	0.6
Chromium	NA	NA	mg/kg	10.9	32.3	27.5	25.7	34.2	33.8	33.9	33.4	32
Lead	1.0E+03	NA	mg/kg	2.7	36	12	13	39	59	24	40	40
Mercury	2.0E+00	1.1E+03	mg/kg	0.02 U	0.10	0.04	0.04	0.09	0.19	0.05	0.14	0.14
Total Petroleum Hydrocarbons												
Diesel Range	2.0E+03	NA	mg/kg	7.4 U	17	9.0	5.6 U	36	40	8.3	14	140 U
Motor Oil Range	2.0E+03	NA	mg/kg	15 U	130	54	38	210	150	53	83	570
Gasoline Range[1]	1.0E+02	NA	mg/kg	3.9 U	5.9 U	3.4 U	3.8 U	7.8	4.5 U	4.5 U	5.2 U	31
Semivolatile Organic Compounds[2]												
Acenaphthene	NA	2.1E+08	µg/kg	62 U	62 U	64 U	63 U	710	62 U	65 U	61 U	66 U
Anthracene	NA	1.1E+09	µg/kg	62 U	62 U	64 U	63 U	980	62 U	65 U	130	97
Benzo(a)anthracene	NA	NA	µg/kg	62 U	62 U	64 U	63 U	2000	140	65 U	380	270
Benzo(a)pyrene	2.0E+03	1.8E+04	µg/kg	62 U	62 U	86	78	2000	180	65 U	380	230
Benzo(g,h,i)perylene	NA	NA	µg/kg	62 U	62 U	64 U	63 U	800	92	65 U	230	110
Carbazole	NA	6.6E+06	µg/kg	62 U	62 U	64 U	63 U	600	62 U	65 U	78	66 U
Chrysene	NA	NA	µg/kg	62 U	72	90	82	2100	180	65 U	410	460
Dibenz[a,h]anthracene	NA	NA	µg/kg	62 U	62 U	64 U	63 U	98	62 U	65 U	61 U	66 U
Dibenzofuran	NA	7.0E+06	µg/kg	62 U	62 U	64 U	63 U	460	62 U	65 U	61 U	66 U
Fluoranthene	NA	1.4E+08	µg/kg	62 U	62 U	120	100	3900	250	65 U	680	530
Fluorene	NA	1.4E+08	µg/kg	62 U	62 U	64 U	63 U	650	62 U	65 U	61 U	66 U
Indeno(1,2,3-c,d)pyrene	NA	NA	µg/kg	62 U	62 U	64 U	63 U	870	89	65 U	210	120
1-Methylnaphthalene	NA	NA	µg/kg	62 U	62 U	64 U	63 U	100	62 U	65 U	61 U	66 U
2-Methylnaphthalene	NA	1.4E+07	µg/kg	62 U	62 U	64 U	63 U	150	62 U	65 U	61 U	66 U
Naphthalene	5.0E+03	7.0E+07	µg/kg	62 U	62 U	64 U	63 U	680	62 U	65 U	61 U	140
Phenanthrene	NA	NA	µg/kg	62 U	62 U	65 U	63 U	3088	130	65 U	500	150
Pyrene	NA	1.1E+08	µg/kg	62 U	62 U	130	120	2900	220	65 U	600	480
Benzofluoranthenes	NA	NA	µg/kg	62 U	110	180	160	4000	370	85	700	710
Volatile Organic Compounds[3]												
Acetone	NA	3.5E+08	µg/kg	20 BM	230 BM	46 BM	38 BM	99 M	54 B	2.4	88	1200 M
2-Butanone	NA	2.1E+09	µg/kg	3.0 U	14	3.1	2.8 U	8.8	4.7	3.7 U	5.6	100
Carbon Disulfide	NA	3.5E+08	µg/kg	1.3	3.0	58	38	1.2	1.8	27 B	1.1	53
4-Isopropyltoluene	NA	NA	µg/kg	0.6 U	0.8 U	0.5 U	0.6 U	0.7 U	0.6 U	0.7 U	0.8 U	2.8
Methylene Chloride	2.0E+01	1.8E+07	µg/kg	1.2 U	4.3	1.1 U	1.1 U	1.4 U	1.3 U	1.5 U	1.6	11
Benzene	3.0E+01	2.4E+06	µg/kg	0.6 U	0.8 U	0.5 U	0.6 U	0.7 U	0.6 U	0.7 U	0.8 U	2.8 U
Ethylbenzene	6.0E+03	3.5E+08	µg/kg	0.6 U	0.8 U	0.5 U	0.6 U	0.7 U	0.6 U	0.7 U	0.8 U	2.8 U
Toluene	7.0E+03	2.8E+08	µg/kg	0.6 U	0.9	0.5 U	0.6 U	0.7 U	0.6 U	0.7 U	0.8 U	3.9
m,p-Xylene	9.0E+03	7.0E+08	µg/kg	0.6 U	0.8 U	0.5 U	0.6 U	0.7 U	0.6 U	0.7 U	0.8 U	2.8 U
o-Xylene	9.0E+03	7.0E+08	µg/kg	0.6 U	0.8 U	0.5 U	0.6 U	0.7 U	0.6 U	0.7 U	0.8 U	2.8 U

Parameter	MTCA A Industrial Cleanup Level	MTCA C Industrial Cleanup Level	Station / Sample ID / Sample Date / Units	S1 KM-S1-1 12/17/2010	S2 KM-S2-1 12/17/2010	S3 KM-S3-1 12/17/2010	S3 KM-S3-2 12/17/2010	S4 KM-S4-1 12/17/2010	S5 KM-S5-1 12/17/2010	S6 KM-S6-1 12/17/2010	S7 KM-S7-1 12/17/2010	S8 KM-S8-1 12/17/2010
Polychlorinated Biphenyls (PCBs)												
Aroclor 1016	NA	2.5E+05	ug/kg	33 U	32 U	33 U	32 U	31 U	33 U	31 U	32 U	33 U
Aroclor 1242	NA	NA	ug/kg	33 U	32 U	33 U	32 U	31 U	33 U	31 U	32 U	33 U
Aroclor 1248	NA	NA	ug/kg	33 U	32 U	33 U	32 U	31 U	33 U	31 U	32 U	33 U
Aroclor 1254	NA	7.0E+04	ug/kg	33 U	32 U	33 U	32 U	31 U	33 U	31 U	32 U	33 U
Aroclor 1260	NA	NA	ug/kg	33 U	32 U	33 U	32 U	31 U	100 U	31 U	32 U	49 U
Aroclor 1221	NA	NA	ug/kg	33 U	32 U	33 U	32 U	31 U	33 U	31 U	32 U	33 U
Aroclor 1232	NA	NA	ug/kg	33 U	32 U	33 U	32 U	31 U	33 U	31 U	32 U	33 U
Pesticides[1]												
Dieldrin	NA	8.2E+03	ug/kg	3.3 U	3.2	3.3 U	3.2 U	14 P	3.3 U	1.6 U	1.6 U	3.3 U
4,4'-DDT	4.0E+03	3.9E+05	ug/kg	3.3 U	3.2 U	3.3 U	3.2 U	5.1	3.3 U	3.1	3.1	3.3 U

Notes:

1 Gasoline range total petroleum hydrocarbon cleanup presented without benzene and the total of ethyl benzene, toluene, and xylene less than 1% of the gasoline mixture as these compounds were not detected.

2 Pesticide, SVOC and VOC analytes are presented that were detected in at least one sample, with the exception that all BETX analytes are presented. Additional analytes that were not detected in any soil samples are not presented in the above table, but are listed below.

Qualifiers:

J The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

U Undetected.

B Analyte detected in an associated Method Blank at a concentration greater than one-half of lab's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters.

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% relative difference with no obvious chromatographic interference.

The following additional compounds were analyzed, but not detected in any samples:

SVOCs: 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2,2'-Oxybis(1-Chloropropane), 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Chlorophenol, 2-Chloropnaphthalene, 2-Methylphenol, 2-Nitroaniline, 2-Nitrophenol, 3,3'-Dichlorobenzidine, 3-Nitroaniline, 4,6-Dinitro-2-methylphenol, 4-Bromophenyl-phenylether, 4-Chloro-3-methylphenol, 4-Chloroaniline, 4-Chlorophenyl-phenylether, 4-Methylphenol, 4-Nitroaniline, 4-Nitrophenol, Acenaphthylene, Benzoic Acid, Benzyl Alcohol, bis(2-Chloroethoxy)methane, bis-(2-Chloroethyl) Ether, bis(2-Ethylhexyl)phthalate, Butylbenzylphthalate, Diethylphthalate, Dimethylphthalate, di-n-Butylphthalate, Di-n-octylphthalate, Hexachlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane, Isophorone, Nitrobenzene, N-Nitroso-di-N-Propylamine, n-Nitrosodiphenylamine, Pentachlorophenol, Phenol

VOCs: 1,1,1,2-Tetrachloroethane, 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,1,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,1-Dichloropropene, 1,2,3-Trichlorobenzene, 1,2,3-Trichloropropane, 1,2,4-Trichlorobenzene, 1,2,4-Trimethylbenzene, 1,2-Dibromo-3-chloropropane, 1,2-Dichlorobenzene, 1,2-Dichloroethane, 1,2-Dichloropropane, 1,3,5-Trimethylbenzene, 1,3-Dichlorobenzene, 1,3-Dichloropropane, 1,4-Dichlorobenzene, 2,2-Dichloropropane, 2-Chloroethylvinylether, 2-Chlorotoluene, 2-Hexanone, 4-Chlorotoluene, 4-Methyl-2-Pentanone, Acrylonitrile, Arcolein, Bromobenzene, Bromochloromethane, Bromodichloromethane, Bromoethane, Bromoform, Bromomethane, Carbon Tetrachloride, Chlorobenzene, Chloroethane, Chloroform, Chloromethane, cis-1,2-Dichloroethene, cis-1,3-Dichloropropene, Dibromochloromethane, Dibromomethane, Ethylene Dibromide, Hexachlorobutadiene, Isopropylbenzene, Methyl Iodide, Naphthalene, n-Butylbenzene, n-Propylbenzne, sec-Butylbenzene, Styrene, tert-Butylbenzene, Tetrachloroethene, trans-1,2-Dichloroethene, trans-1,3-Dichloropropene, trans-1,4-Dichloro-2-butene, Trichloroethene, Trichlorofluoromethane, Vinyl Acetate, Vinyl Chloride

Pesticides: 4,4'-DDD, 4,4'-DDE, Aldrin, alpha-BHC, beta-BHC, cis-Clordane, delta-BHC, Endosulfan I, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Endrin Ketone, gamma-BHC (Lindane), Heptachlor, Heptachlor Epoxide, Methoxychlor, Toxaphene, trans-Chlordane

Table 2
Baseline Soil Sampling Analytical Results

Parameter	MTCA A Industrial Cleanup Level	MTCA C Industrial Cleanup Level	Station	B-1	B-2	B-3	B-4	B-5	B-6
			Sample ID	KM-B1-1	KM-B2-1	KM-B3-1	KM-B4-1	KM-B5-1	KM-B6-1
			Sample Date	12/17/2010	12/17/2010	12/17/2010	12/17/2010	12/17/2010	12/17/2010
			Units						
Conventionals									
Total Solids	NA	NA	%	79.60	77.80	80.60	77.30	79.20	92.30
Total Organic Carbon	NA	NA	%	2.33	4.37	3.08	1.74	2.52	0.785
Metals									
Arsenic	2.0E+01	8.8E+01	mg/kg	11	20 U	9	8	10 U	10 U
Cadmium	2.0E+00	3.5E+03	mg/kg	0.4	0.7 U	0.3	0.4	1.1	0.5 U
Chromium	NA	NA	mg/kg	33.3	43	37.6	33.6	48	44
Lead	1.0E+03	NA	mg/kg	56	37	46	23	56	16
Mercury	2.0E+00	1.1E+03	mg/kg	0.07	0.06	0.07	0.04	0.03	0.03 U
Total Petroleum Hydrocarbons									
Diesel Range	2.0E+03	NA	mg/kg	18	69	23	25	300	37
Motor Oil Range	2.0E+03	NA	mg/kg	91	400	92	120	1500	220
Gasoline Range[1]	1.0E+02	NA	mg/kg	4.2 U	5.9 U	4.6 U	4.8 U	4.2 U	2.5 U
Semivolatile Organic Compounds[2]									
Anthracene	NA	1.1E+09	µg/kg	77	64	65 U	63 U	79	60 U
Benzo(a)anthracene	NA	NA	µg/kg	200	160	82	94	360	69
Benzo(a)pyrene	2.0E+03	1.8E+04	µg/kg	190	200	110	100	400	74
Benzo(g,h,i)perylene	NA	NA	µg/kg	110	150	81	70	220	60 U
Chrysene	NA	NA	µg/kg	330	360	140	160	550	140
Dimethylphthalate	NA	3.5E+09	µg/kg	63 U	61 U	65 U	63 U	61 U	460
Fluoranthene	NA	1.4E+08	µg/kg	530	390	160	190	1000	180
Indeno(1,2,3-c,d)pyrene	NA	NA	µg/kg	110	150	75	64	200	60 U
Phenanthrene	NA	NA	µg/kg	190	220	120	110	420	97
Pyrene	NA	1.1E+08	µg/kg	460	320	150	170	940	140
Benzofluoranthenes	NA	NA	µg/kg	460	610	260	270	990	230
Volatile Organic Compounds[2]									
Acetone	NA	3.5E+08	µg/kg	71 M	110 M	64 M	30 M	56 M	24 M
2-Butanone	NA	2.1E+09	µg/kg	7.9	9.5	5.0	5.2	9.8	4.3
Carbon Disulfide	NA	3.5E+08	µg/kg	4.4	6.5	4.0	2.7	1.4	0.8
4-Isopropyltoluene	NA	NA	µg/kg	0.6 U	0.7 U	0.5 U	0.7 U	0.6 U	0.5 U
Methylene Chloride	2.0E+01	1.8E+07	µg/kg	1.2 U	1.3 U	1.1 U	2.2 M	1.1 U	1.1
Benzene	3.0E+01	2.4E+06	µg/kg	0.6 U	0.7 U	0.5 U	0.7 U	0.6 U	0.5 U
Ethylbenzene	6.0E+03	3.5E+08	µg/kg	0.6 U	0.7 U	0.5 U	0.7 U	0.6 U	0.5 U
Toluene	7.0E+03	2.8E+08	µg/kg	0.6 U	0.7 U	0.8	0.7 U	0.6 U	0.5 U
m,p-Xylene	9.0E+03	7.0E+08	µg/kg	0.6 U	0.7 U	0.5 U	0.7 U	0.6 U	0.5 U
o-Xylene	9.0E+03	7.0E+08	µg/kg	0.6 U	0.7 U	0.5 U	0.7 U	0.6 U	0.5 U
Polychlorinated Biphenyls (PCBs)									
Aroclor 1016	NA	2.5E+05	µg/kg	32 U	32 U	32 U	33 U	32 U	31 U
Aroclor 1242	NA	NA	µg/kg	32 U	32 U	32 U	33 U	32 U	31 U
Aroclor 1248	NA	NA	µg/kg	32 U	32 U	32 U	33 U	32 U	31 U
Aroclor 1254	NA	7.0E+04	µg/kg	32 U	32 U	32 U	33 U	32 U	31 U
Aroclor 1260	NA	NA	µg/kg	32 U	32 U	32 U	33 U	160 U	31 U
Aroclor 1221	NA	NA	µg/kg	32 U	32 U	160 U	33 U	32 U	31 U
Aroclor 1232	NA	NA	µg/kg	32 U	32 U	32 U	33 U	32 U	31 U

Parameter	MTCA A Industrial Cleanup Level	MTCA C Industrial Cleanup Level	Station	B-1	B-2	B-3	B-4	B-5	B-6
			Sample ID	KM-B1-1	KM-B2-1	KM-B3-1	KM-B4-1	KM-B5-1	KM-B6-1
			Sample Date	12/17/2010	12/17/2010	12/17/2010	12/17/2010	12/17/2010	12/17/2010
			Units						
Pesticides[2]									
Dieldrin	NA	8.2E+03	µg/kg	3.2 U	3.2 U	3.2 U	3.3 U	3.2 U	3.1 U
4,4'-DDD	4.0E+03	3.9E+05	µg/kg	3.2 U	3.2 U	3.2 U	3.3 U	3.2 U	3.1 U

Notes:

1 Gasoline range total petroleum hydrocarbon cleanup presented without benzene and the total of ethyl benzene, toluene, and xylene less than 1% of the gasoline mixture as these compounds were not detected.

2 Pesticide, SVOC and VOC analytes are presented that were detected in at least one sample, with the exception that all BETX analytes are presented. Additional analytes that were not detected in any soil samples are not presented in the above table, but are listed below.

Qualifiers:

J The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

U Undetected.

B Analyte detected in an associated Method Blank at a concentration greater than one-half of lab's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

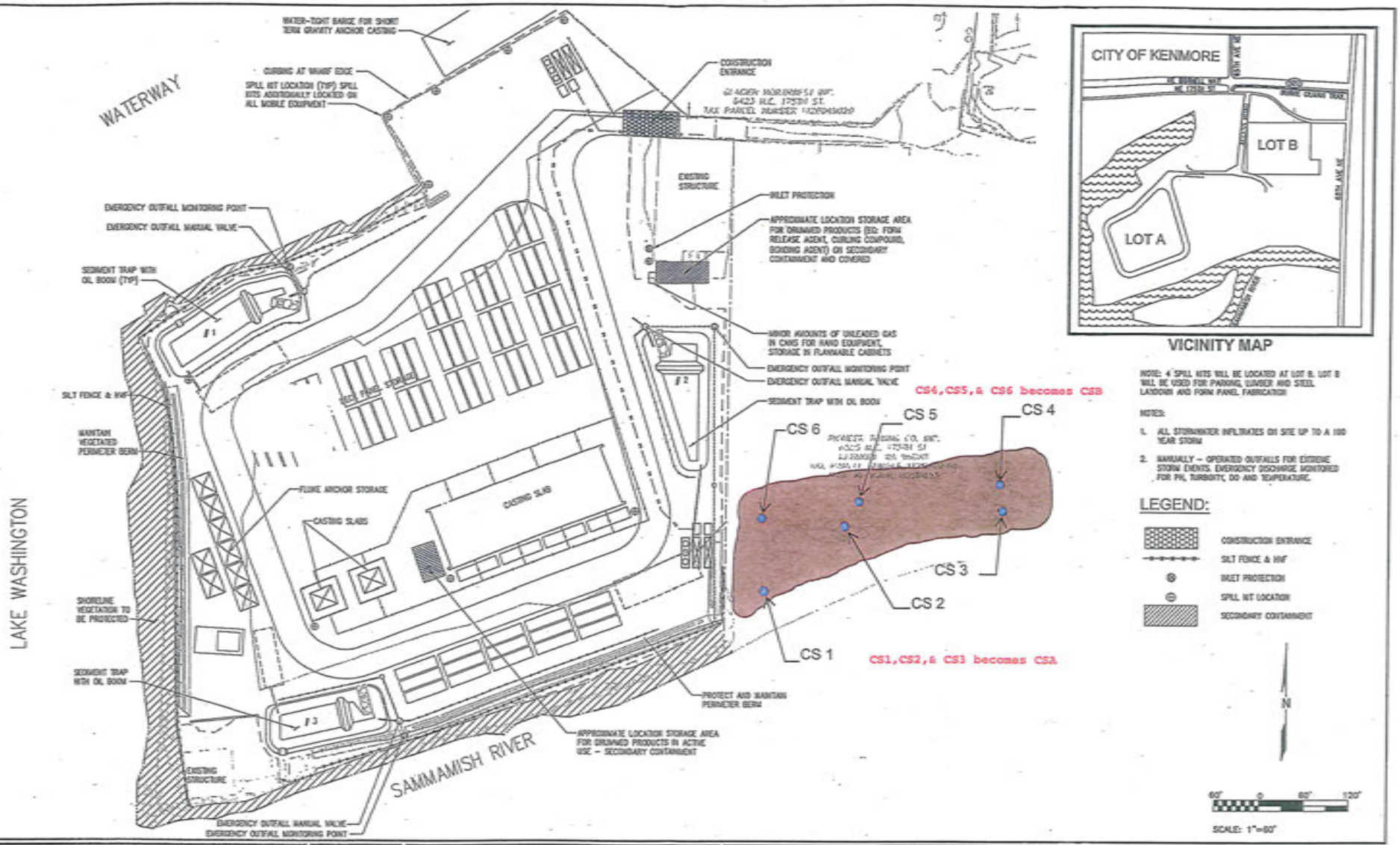
M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters.

The following additional compounds were analyzed, but not detected in any samples:

SVOCs: 1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
1-Methylnaphthalene
2,2'-Oxybix(1-Chloropropane)
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
2-Chlorophenol
2-Chloropnaphthalene
2-Methylnaphthalene
2-Methylphenol
2-Nitroaniline
2-Nitrophenol
3,3'-Dichlorobenzidine
3-Nitroaniline
4,6-Dinitro-2-methylphenol
4-Bromophenyl-phenylether
4-Chloro-3-methylphenol
4-Chloroaniline
4-Chlorophenyl-phenylether
4-Methylphenol
4-Nitroaniline
4-Nitrophenol
Acenaphthene
Acenaphthylene
Benzoic Acid
Benzyl Alcohol
bis(2-Chloroethoxy)methane
bis-(2-Chloroethyl) Ether
Butylbenzylphthalate
Carbazole
Dibenz(a,h)anthracene
Dibenzofuran
Diethylphthalate
di-n-Butylphthalate
Di-n-octylphthalate
Fluorene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Isophorone
Naphthalene
Nitrobenzene
N-Nitroso-di-N-Propylamine
n-Nitrosodiphenylamine
Pentachlorophenol
Phenol

VOCs: 1,1,1,2-Tetrachloroethane
1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane
1,1,2-Trichloro-1,1,2-trifluoroethane
1,1,2-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethene
1,1-Dichloropropene
1,2,3-Trichlorobenzene
1,2,3-Trichloropropane
1,2,4-Trichlorobenzene
1,2,4-Trimethylbenzene
1,2-Dibromo-3-chloropropane
1,2-Dichlorobenzene
1,2-Dichloroethane
1,2-Dichloropropane
1,3,5-Trimethylbenzene
1,3-Dichlorobenzene
1,3-Dichloropropane
1,4-Dichlorobenzene
2,2-Dichloropropane
2-Chloroethylvinylether
2-Chlorotoluene
2-Hexanone
4-Chlorotoluene
4-Methyl-2-Pentanone
Acrylonitrile
Arcolein
Bromobenzene
Bromochloromethane
Bromodichloromethane
Bromoethane
Bromoform
Bromomethane
Carbon Tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
cis-1,2-Dichloroethene
cis-1,3-Dichloropropene
Dibromochloromethane
Dibromomethane
Ethylene Dibromide
Hexachlorobutadiene
Isopropylbenzene
Methyl Iodide
Naphthalene
n-Butylbenzene
n-Propylbenzne
sec-Butylbenzene
Styrene
tert-Butylbenzene
Tetrachloroethene
trans-1,2-Dichloroethene
trans-1,3-Dichloropropene
trans-1,4-Dichloro-2-butene
Trichloroethene
Trichlorofluoromethane
Vinyl Acetate
Vinyl Chloride

Pesticides: 4,4'-DDE
4,4'-DDT
Aldrin
alpha-BHC
beta-BHC
cis-Clordane
delta-BHC
Endosulfan I
Endosulfan II
Endosulfan Sulfate
Endrin
Endrin Aldehyde
Endrin Ketone
gamma-BHC (Lindane)
Heptachlor
Heptachlor Epoxide
Methoxychlor
Toxaphene
trans-Chlordane



Plotted: Oct 26, 2011 - 11:17am evega Layout: Layout1
M:\2011\111081 Kenmore Project\Drawings\Civil\Kenmore TESC and Spill Control Plan.dwg

kpff Consulting Engineers
101 Stewart Street, Suite 400
Seattle, Washington 98101
(206) 382-0600 Fax (206) 382-0500

NO.	DATE	BY	REVISION

SR 520 EVERGREEN POINT FBL PROJECT
ENVIRONMENTAL COMPLIANCE PLAN
APPENDIX B.1: TESCP KENMORE

KENMORE YARD SITE LAYOUT
TESC &SPILL CONTROL

DRAWN: EW	PROJECT NO.: 111081
DESIGN: ED	SCALE: 60
CHECKED: JR	DATE: OCT 10, 2011
DRAWING NO.	APPENDIX A
SHEET NO.	1 OF 1

Kenmore Industrial Park Site Stockpile Soil Results

KGM Stockpile Surface Soil Results in mg/kg or ppm - May 2012

Location/Analyte	Petroleum Diesel	Petroleum Oil	Petroleum Gas	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium
CSA -1	U 10.0	U 100	U 5	U 5	26.4	U 0.3	15.4	10	U 0.05	U 8
CSA -2	83.2	U 100	U 5	U 5	35.4	U 0.3	7.8	6	U 0.05	U 8
MTCA Cleanup Level	200	200		20	100			250		0.5
MTCA method A or B	200	200	100/30	20	100	2	19/2000	250	2	0.5

Location/Analyte	4,4-DDD	4,4-DDE	4,4-DDT	PCB	Benzene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene
CSA -1	0.003	0.003	U 0.002	U 0.01	U 0.025	0.106	0.110	0.120
CSA -2	0.003	U 0.002	U 0.002			3.33	1.83	2.07
MTCA method A or B				1	0.03			

Location/Analyte	Benzo(ghi)perylene	Benzo(k)fluoranthene	Chrysene	Fluoranthe	Indeno(123cd)pyrene	Pyrene	
CSA -1	0.053	0.086	0.151	0.202	0.056	0.198	
CSA -2	0.374	1.48	4.75	10.0	0.488	6.96	
MTCA method A or B							

Draft 07/09/12

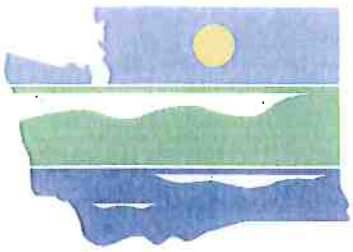
Appendix C.

Kenmore Area Sediment & Water Characterization

Environmental Evaluation Report

May 2013

Publication No. 13-09-174



DEPARTMENT OF
ECOLOGY
State of Washington

Kenmore Area Sediment & Water Characterization Environmental Evaluation Report

Kenmore and Lake Forest Park,
Northeast Lake Washington and Sammamish River,
Kenmore Area, King County, Washington

Prepared by

Toxics Cleanup Program
Washington Department of Ecology
Northwest Regional Office
Bellevue, Washington

May 2013

Publication No. 13-09-174

Table of Contents

Abstract/Executive Summary

The Washington State Department of Ecology (Ecology) Environmental Evaluation Report for the Kenmore Area Sediment and Water Characterization summarizes the sediment and surface water results with a focus on human health and environmental evaluation. This report represents the work conducted by Anchor QEA and Ecology for the City of Kenmore in November 2012.

The sediment and water results have two general purposes. First, is to assist the City of Kenmore for dredge planning for the Kenmore Navigation Channel with the US Army Corps of Engineers. The second purpose is for human health and environmental evaluation to assess current conditions at the near shore waterfront at the Cities of Kenmore and Lake Forest Park. The report compares the results with the state's cleanup requirements including the new Sediment Management Standards Amendments (SMS).

In general, this work represents an important and successful step in evaluating the current conditions of the near shore northeast waterfront at Lake Washington and the lower reaches of the Sammamish River. The surface water results are significantly below protection levels for human health and aquatic life representing Log Boom Park and northeast Lake Washington reference sample. The sediment and water characterization results indicate there are no significant environmental issues at the two public parks – Log Boom Park and Lyon Creek Park. Most of the sediment results are below SMS freshwater criteria except for samples at the two private marinas.

The Kenmore Navigation Channel sediment results show that the channel would not be classified as a MTCA cleanup site. All Navigation Channel sediment results are below the Freshwater Cleanup Screening Level (CSL). Likewise, the near shore Lakepointe aka Kenmore Industrial Park (KIP) site sediment results show no contamination above the screening values in the sediment adjacent to the KIP site at the north, west, and south waterfront. The two public parks, KIP site, and Navigation Channel report a relatively healthy near shore environment.

Overall, the sediment results compared to state cleanup criteria show no exceedance for metals, poly-aromatic hydrocarbons (PAHs), pesticides, and miscellaneous extractables (benzoic acid and benzyl alcohol), and only one occurrence of PCBs. There are multiple occurrences of phthalates and dioxin at low levels. The sediment dioxin levels range from 0.3 to 71 parts per trillion at the Kenmore area with the two private marina results, and from 0.3 to 10 parts per trillion without the marina results. One comparison is the Seattle urban neighborhood dioxin levels, which range from 1.7 to 115 parts per trillion. With or without the two private marinas, the Kenmore sediment dioxin levels are lower than the Seattle neighborhood soil dioxin levels. The MTCA soil dioxin cleanup level is 11 parts per trillion, so without the two private marina results, all Kenmore sediment dioxin results are below the state soil dioxin cleanup requirements.

Ecology has met with the marina owners and we have agreed to work together for the next steps in dredge planning and environmental evaluation. Also, more work will be required to identify the dioxin source or sources. Ecology will follow up on possible dioxin sources when funds become available.

Acronyms and Abbreviations

ARAR Applicable or Relevant and Appropriate Requirements also called ARARs for federal, State and tribal requirements for environmental requirements.

ATSDR Agency for Toxic Substances Disease Registry is a federal agency.

Benthic community is the bottom dwelling organisms that live on a lake bottom or river bed.

CLARC Cleanup Levels and Risk Calculations under the Model Toxics Control Act Cleanup Regulations and see weblink at: https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx

DMMP Dredged Material Management Program including the US Army Corps of Engineers, EPA, WDNR and Ecology.

EPA Environmental Protection Agency is a federal agency.

MTCA Model Toxics Control Act are the Washington State environmental cleanup regulations under Chapter 70D RCW, Chapter 64.70 RCW, and Chapter 173-340 WAC.

QA/QC Quality assurance and quality control is an evaluation process to confirm the quality of the sampling and laboratory results.

PAHs Polycyclic Aromatic Hydrocarbons.
PCBs Polychlorinated biphenyls and also called Aroclors.

SMS CSL and SCO Sediment Management Standards promulgated under WAC 173-340-760 with two screening levels –SCO called sediment cleanup objectives and CSL called cleanup screening levels.

SQV Sediment quality values developed for screening pollutants in a water system.

SSAP Sediment Sampling and Analysis Plan

TBT Tributyltin
TEQ Toxicity Equivalency values used with dioxin/furans and defined by World Health Organization 2005.

USACE US Army Corps of Engineers

VOCs Volatile Organic Compounds

WDFW Washington State Department of Fish and Wildlife
WDNR Washington State Department of Natural Resources
WDOH Washington State Department of Health

Kenmore Area Sediment Sampling and Water Characterization Environmental Evaluation Report

1. Introduction

This report, prepared by Ecology, summarizes the sediment sampling and surface water characterization results with a focus on human health and environmental evaluation. The sediment and water results represent the work conducted by Anchor QEA and Ecology for the City of Kenmore in November 2012. The work focused on the near shore sediment and surface water in northeast Lake Washington, Kenmore Navigation Channel, and the lower reaches of the Sammamish River in Kenmore and Lake Forest Park, King County, WA as shown on figure 1.

This work is the result of the Sediment Sampling and Analysis Plan (SSAP) that was finalized on November 6, 2012. The final SSAP is attached in Appendix A. The draft SSAP was prepared by Anchor QEA (October 2012) for the City of Kenmore and Ecology, with input from the Dredged Material Management Program (DMMP), and Washington State Department of Health (DOH). Ecology conducted a 15-day public comment period (October 15-29, 2012) for the SSAP for the public to review and make suggestions and comments. Ecology received 15 comments and recommended to revise the SSAP, incorporating many of the comments. Anchor QEA revised the SSAP and the City, Ecology and DMMP approved the final SSAP in close consultation with DOH. Sampling was conducted November 8, 9 and 10, 2012. For more details, see the final SSAP (November 6, 2012) in Appendix A, and Ecology's Responsiveness Summary for the Kenmore Area SSAP Public Comment Period in Appendix B, and the Anchor QEA Results Memorandum in Appendix C.

2. Purpose

The SSAP has two general purposes. First purpose is to assist the City of Kenmore for dredge planning for the Kenmore Navigation Channel with the US Army Corps of Engineers (USACE). This sampling event was a screening effort for dredge planning and budget estimation, rather than the final sampling conducted for support of the dredge permit application. Evaluation of the results for the purposes of dredge is briefly discussed in this Ecology report. The second purpose is for human health and environmental evaluation to assess current conditions for both sediment and surface water at the near shore Kenmore Area waterfront including the Cities of Kenmore and Lake Forest Park, and especially the public access locations.

This environmental evaluation is one step in the Ecology screening process to evaluate the lateral extent of chemical conditions in sediment and surface water at the near shore waterfront where children could easily access and play. For the dredging evaluation, vibracore sampling required for full dredge prism analysis is very expensive, so this preliminary screening dredge material evaluation focused on the shallow, biologically active zone and not the deeper sampling used to acquire a formal determination on suitability of dredge material for open water disposal.

The environmental evaluation includes comparison of the laboratory results with Ecology's cleanup requirements under the state Model Toxics Control Act (MTCA) and Chapter 70.105D RCW. The MTCA requirements include cleanup levels for soil, water, air and sediment. The SMS have recently been amended (Ecology February 23, 2013) and go into effect on September 1, 2013. The SMS amendments are more fully described below in Section 5 - B. The evaluation includes surface water quality criteria, and DMMP screening levels, and comparison with recent urban results for selected chemicals in Seattle area and the state.

In addition, DOH and DMMP are preparing documents based on these sediment and water quality results. The DOH is completing a Health Consultation for the Kenmore area waterfront including Lakepointe also called the Kenmore Industrial Park site and Log Boom Park. The Health Consultation will be a separate report later this spring. The DMMP is preparing a dredge screening guidance memo and it will be posted on the web link below when it is available at:

http://www.nws.usace.army.mil/Missions/CivilWorks/Dredging/SuitabilityDetermination.aspx

Ecology participated financially with the City of Kenmore and contributed funds from the state's Clean Sites Initiative to assist with funding for a portion of this sampling effort. Ecology would like to express thanks and appreciation to the City and citizens of Kenmore for their commitment and involvement in the wellness of the waterfront area. Ecology also appreciates the diligent work and rapid turn-around provided by Anchor AEQ in finalizing the SSAP and publishing the SSAP Results Memorandum.

3. SSAP Work Plan

The Anchor QEA SSAP outlines the methods, procedures, sampling locations, testing and analyses, quality assurance, reporting and schedule. In general the two purposes utilized two different sampling methods. For dredge planning, the samples were collected using a box core sampler and collected 0-25 centimeters (0-10 inches) below mudline to better represent deeper sediment that would be removed during dredging. However, full dredge prism analysis (0-3.3 meters or 0-4 feet) will be needed for final characterization of the material for dredge purposes. For assessing the potential threat to human health and the environment, shallow samples were collected 0-10 centimeters (0-4 inches) using a hand trowel or grab sampler to represent the biologically active zone. This report focuses more on the second purpose: to evaluate human health and the environment.

Twenty eight sediment samples were collected at eight locations and four water samples were collected at three locations. The sampling locations are shown in Figure 1 and the sediment locations include:

- Kenmore Navigation Channel
- Log Boom Park at the waterfront in City of Kenmore
- Lyon Creek Park at the waterfront in the City of Lake Forest Park
- Washington Department of Fish and Wildlife (WDFW) Sammamish River Boat Launch at the 68th Avenue NE bridge

- Sammamish River at lower reaches
- Lakepointe aka Kenmore Industrial Park site at nearshore
- Harbour Village Marina
- North Lake Marina

The surface water samples were conducted at Log Boom Park and a reference sample was taken offshore at northeast Lake Washington. These samples were collected following Ecology's Standard Operating Procedure (Ecology 2006) and following protocols for Beach Environmental Assessment, Communication, and Health (Schneider 2004). Samples were collected using a dipper attached to an extended rod at a depth of 15-30 cm (6-12 inches) below water surface. The reference or background water sample was collected from boatside following the same method of the shoreline sample collection. For details, see Anchor QEA SSAP Plan in Appendix A, and Anchor QEA SSAP Results Memorandum in Appendix C.

The dredge planning samples for the Navigation Channel and one marina –North Lake Marina were collected from surface to 25 cm depth (0 – 10 inches) with care to represent each depth interval equally. These samples were homogenized, and pebbles, shells, root and wood debris were removed. The samples were analyzed for the full suite of dredge chemical analyses including conventional parameters, metals, tributyltin (TBT), polycyclic aromatic hydrocarbons (PAHs), chlorinated hydrocarbons, phthalates, phenols, miscellaneous extractables, pesticides, polychlorinated biphenyls or PCBs Aroclors, and dioxin/furans (dioxin). We did not test for volatile organic compounds (VOCs) because there is no DMMP and no other SMS Freshwater criteria for them and they were not a suspected chemical of concern. Note that the results for each chemical group are reported in different units. For example, metals are reported in milligrams per kilogram, mg/kg or parts per million; phthalates are reported in micrograms per kilogram, µg/kg or parts per billion; and dioxin/furans are reported in Toxicity Equivalency (TEQ) values in nanograms per kilogram, ng/kg or parts per trillion. TBT was measured in porewater for dredge characterization samples (micrograms per liter, µg/L) and in bulk sediment dry weight for other samples (µg/kg).

The human health and environmental evaluation samples were collected using a hand trowel (labeled HT) or sediment grab sampler (labeled SG). These samples were collected from the surface to 10 cm (0 – 4 inches) depth, representing the biologically active zone and the zone most likely accessible during near shore wading and play. During sampling, care was given to represent each depth interval equally (so the sample represented a column and not a cone). These samples were homogenized, and pebbles, shells, root and wood debris were removed. The sediment samples were analyzed for the same suite of chemical analyses with the exception of tributyltin that was analyzed only where there is an option for dredging.

The water sample analyses included conventional parameters, total and dissolved metals, polycyclic aromatic hydrocarbons, chlorinated hydrocarbons, phthalates, phenols and miscellaneous extractables. The water sample analyses did not include tributyltin, pesticides, PCBs Aroclors, and dioxin/furans. The excluded analytes are generally not found in water, and tend to adhere to sediment. Ecology made the recommendation to exclude these analyses at this time. If any of these chemicals occur in the sediment results, then future sampling will consider

and evaluate the appropriate analyses for future evaluation and if any of these excluded analyses should be added to the sampling plan for future evaluation.

The samples were transported under chain-of-custody and were submitted to Analytical Resources, Inc. in Tukwila, WA for laboratory analyses. The laboratory results were reviewed and compared to quality assurance/quality control (QA/QC) parameters by Anchor QEA using EPA Stage 2A for all analyses except dioxin/furans. The QA/QC review for dioxin/furans was performed by Laboratory Data Consultants, Inc (LDC) of Carlsbad, California using EPA Stage 4 validation. The quality assurance review is to confirm custody procedures and laboratory precision, accuracy, representativeness, completeness, and comparability. One water and two sediment sample duplicates were collected and analyzed for the full suite of analyses for each medium (sediment or water). The duplicate results are reported and marked "D" as a duplicate sample. For more details, see the Anchor QEA SSAP Plan in Appendix A, and the laboratory data sheets and QA/QC review in the SSAP Results Memorandum in Appendix C.

4. SSAP Results Memorandum

The "Sampling and Analysis Results Memorandum for Kenmore Sediment and Water Characterization" was prepared by Anchor QEA and dated March 2013. The Memorandum summarizes the sediment and water characterization results for the Navigation Channel screening and the environmental evaluation compared to Ecology's interim sediment screening criteria. Since this time, Ecology has adopted the new SMS Amendments and the SMS Amended screening criteria are reported below in this Evaluation Report.

The Anchor QEA memorandum lists the sediment sample collection summary on Table 1, and the water quality collection on Table 2. Table 3 compares the sediment results to dredge criteria specified by the DMMP. Table 4 shows the sediment results compared with Ecology's Interim 2006 Sediment Evaluation Framework. Table 5 lists the surface water quality results and a reference sample at northeast Lake Washington. The Memorandum is a comprehensive overview of the results for the SSAP work, and is attached as Appendix C.

5. Environmental Evaluation Framework

A. Report Framework

This report compares the Kenmore area sediment and water sampling results with the state's cleanup requirements. These cleanup requirements include the MTCA, the state's water quality requirements, and Ecology's new SMS Amendments and other regulatory guidelines. The chemical results are listed on each table in bold when the chemical concentration detected is above the laboratory reporting limit.

Chemical results that showed no detection are listed with a U based on the laboratory reporting limit, also called the practical quantification limit or PQL. Hundreds of chemicals were tested and if all results were no detection at the laboratory reporting limit, then they are not listed on the

tables in this report. For the full suite of chemicals tested, see the Anchor QEA Results Memorandum in Appendix C.

This review presents the general results, and describes the minimum and maximum levels for each chemical analyzed and detected at one or more sample sites, as well as the results for each sampling location. The Navigation Channel results are compared with the DMMP guidance for open water disposal, and all results are compared with the state cleanup requirement for SMS freshwater screening criteria. In addition, the Kenmore area sediment dioxin results are contrasted with Seattle and Washington urban and rural soil background levels for dioxin (Ecology 2011 and Hart Crowser 2011) and the Puget Sound sediment results reported by the Ocean Survey Vessel (OSV) *BOLD* Summer 2008 Survey (DMMP 2009) in Sections 7 and 8. This report closes with conclusions and recommendations in Sections 9 and 10.

B. Sediment Management Standards Amendments

The SMS Amendments were signed by Ecology on February 23, 2013, and go into effect on September 1, 2013. The Anchor QEA Memorandum cites the 2003 interim freshwater Screening Levels. This report uses the new SMS freshwater criteria.

Figure 2 illustrates a flow diagram for the new freshwater screening criteria and how they relate with setting cleanup levels including human health, ecological risk, Applicable or Relevant and Appropriate Requirements also called ARARs for federal, state and tribal requirements. The diagram reads from right to left with changes to the previous rule are highlighted in red. Under the old rule, MTCA cleanup requirements for human health was a single tier system that set a cleanup level at a hazard quotient equal to one, or a 10^{-6} risk level, or natural background, whichever is higher. The new SMS rule uses a two or multiple tier system to achieve the same hazard quotient, 10^{-6} risk level, or natural background, or laboratory practical quantification level whichever is higher. The new SMS rule includes freshwater screening criteria for toxicity to the benthic community (bottom dwelling organisms). The freshwater criteria establish two categories as:

- Sediment Cleanup Objectives (SCO) establish a no adverse effects level including acute and chronic adverse effects on the benthic community. Chemical concentrations at or below the SCO correspond to sediment quality that results in no adverse effects to benthic community.

- Cleanup Screening Levels (CSL) establish a minor adverse effects level, including acute or chronic effects on the benthic community. Chemical concentrations at or below the CSL but greater than the SCO correspond to sediment quality that results in minor adverse effects to the benthic community.

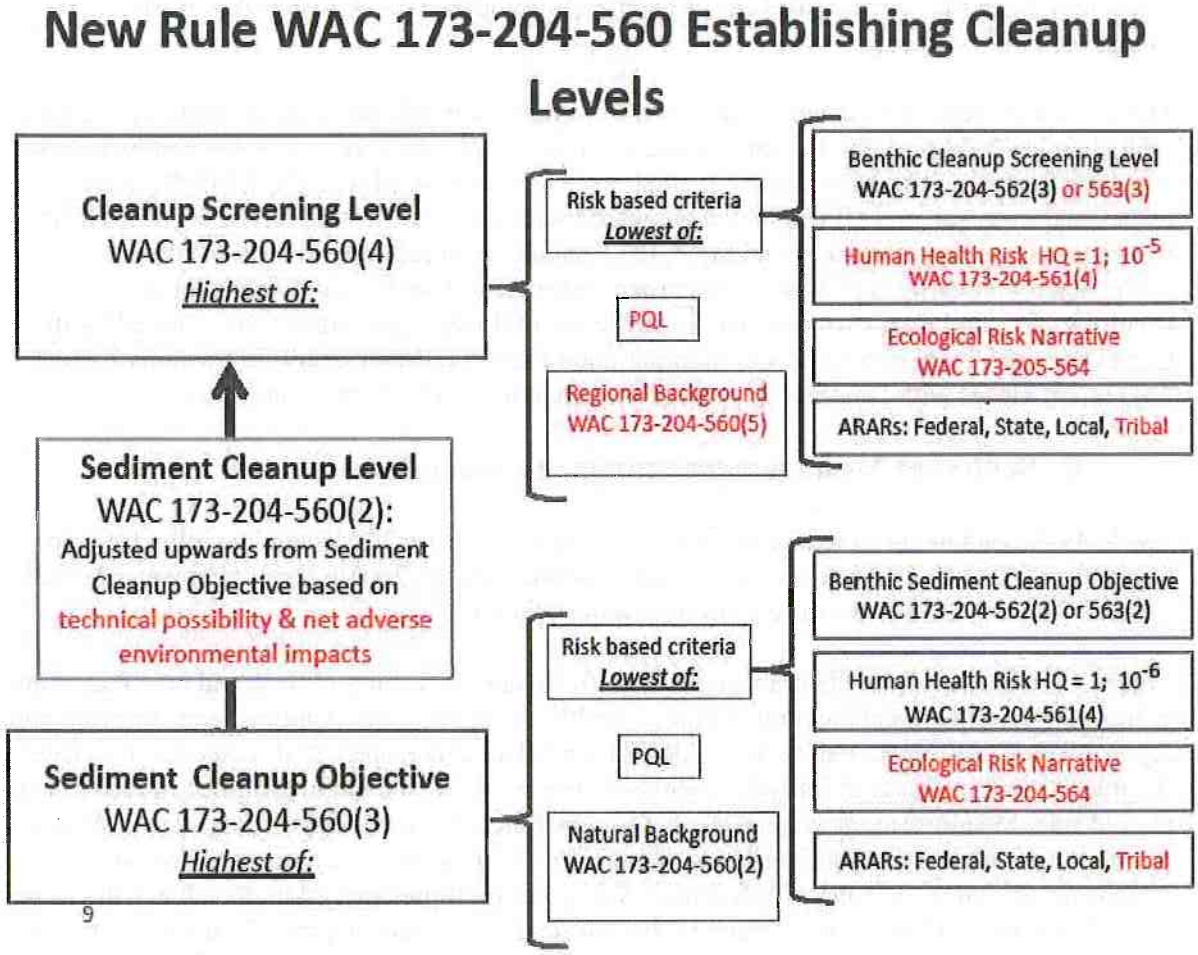


Figure 2. MTCA Sediment Management Standards New Rule WAC 173-204-560 establishing cleanup levels. Black shows existing rule and red highlights new rule changes.

The chemical and biological CSLs establish minor adverse effects as the level above which station clusters of potential concern are defined and may be defined as potential cleanup sites for benthic community toxicity and at or below which station clusters of low concern are defined per procedures identified in WAC 173-204-510.

The CSL chemical criteria are exceeded when the sediment chemical concentration for a single chemical is above the CSL as listed on the tables (SCO in yellow CSL in blue). Where the chemical criteria represent more than one chemical or a sum of individual compounds or isomers, then there are specific methods to be applied, and see SMS Rule at WAC 173-204-563(2)(f).

Ecology recognizes that for some freshwater environments, the SCO and CSL criteria may not be predictive of benthic toxicity. Sediment environments with unique geochemical characteristics may require alternative methods. When unusual characteristics are present in sediment environments -- such as bogs, wetlands, unusual pH, or places affected by metals

mining, milling or smelting -- then other methods for characterizing the benthic toxicity shall be required such as biological criteria or other approaches in accordance with WAC 173-204-130 and approval by Ecology.

The SMS amendments incorporated information from a document called "Development of Benthic Sediment Quality Guidelines for Freshwater Sediments in Washington, Oregon and Idaho" (Ecology 2011). This report proposes sediment quality values (SQV) for conventional pollutants, metals, organic chemicals and petroleum hydrocarbons using two screening levels. It notes that there are significant differences in variability of water characteristics between marine and freshwater systems, and these impact bioavailability of some chemicals. Due to greater variability in some of these factors between freshwater systems, the mathematical model used to calculate marine standards did not work for developing freshwater SQVs. Because of these differences, a different mathematical model is used to calculate the freshwater SQV values.

The new SMS freshwater criteria are listed in two categories and reported as dry weight normalized as SCO and as the CSL, and for more details, see SMS Rule WAC 173-204.

6. Kenmore Area Sediment & Water Evaluation

A. Overview of Kenmore Area Sediment Results

The Kenmore area sediment sampling sites cluster around specific locations such as a public park, the Navigation Channel, a marina, or Washington State Department of Natural Resources (WDNR) Aquatic Lands associated with adjacent upland property. The sediment results are grouped following these locations. The results are discussed in general and then by location.

Table 1 summarizes the detected sediment results compared to the screening criteria and lists the detected chemicals in bold, and the minimum and maximum levels reported. Overall, the Kenmore area sediment results represent 28 sediment samples (plus two field duplicates) including analyses for 11 chemical groups, and more than 120 analytical results per sample. Most results show no detection or very low levels of detection and are significantly below the Washington State SMS freshwater screening criteria, and see Appendix C for full suite of chemicals tested. Note that the freshwater criteria do not specify screening criteria for dioxin/furans (dioxin). However, the two private marinas show some elevated results.

Specifically, the two marinas show elevated phthalates, miscellaneous extractables (benzoic acid and benzyl alcohol), dioxin, and one occurrence of polychlorinated biphenyls (PCBs) and tributyltin (TBT) above one or more screening criteria. The marina sediment results are discussed below in Section 6 - G. In general, the sediment results represent an important step and worthwhile investment in evaluating the current conditions of the near shore waterfront at Lake Washington and Sammamish River in the Kenmore Area.

The Kenmore Area sediment results show almost all analyses are below Ecology's MTCA cleanup requirements for SMS freshwater criteria with the exception of two phthalates, and one occurrence of PCBs. Note that the SMS freshwater criteria do not specify screening criteria for

dioxin/furans. Aside from the two private marinas, these results represent a relatively healthy near shore environment and natural background levels.

The Kenmore Navigation Channel sediment results show that the channel would not be classified as a MTCA cleanup site. All Navigation Channel sediment results are below the Freshwater CSL. Two substances were below CSL and above SCO: two phthalates (bis(2-ethylhexyl) phthalate and di-n-octyl phthalate). When compared to the DMMP screening guidance, there were no exceedances reported for metals, PAHs, pesticides, and PCBs. However, the channel results showed two miscellaneous extractables and one occurrence of dioxin exceeding the dredge DMMP screening guidance. These results are slightly above the Freshwater SCO and below the CSL criteria. Note these are screening results for planning and do not provide full dredge characterization sampling, which will be accomplished at a later date with a dredge application. For further details, DMMP is preparing a "Screening Level Evaluation for Kenmore Navigation Channel Dredge Planning" and see web link in Section 2.

Likewise, the near shore Lakepointe aka Kenmore Industrial Park site sediment results show no contamination above the screening values in the sediment adjacent to the KIP site at the north, west, and south waterfront. All sediments tested adjacent to the KIP site show very low detection and are significantly below MTCA freshwater cleanup screening criteria. So the KIP site and the Navigation Channel report a relatively healthy near shore environment.

In general, the sediment results compared to state cleanup criteria show no exceedance for metals, poly-aromatic hydrocarbons (PAHs), pesticides, and miscellaneous extractables (benzoic acid and benzyl alcohol), and only one occurrence of PCBs. There are multiple occurrences of phthalates and dioxin. The phthalates are present at most sampling sites and specifically three phthalates are identified:

- bis(2ethylhexyl) phthalate
- dimethyl phthalate
- di-n-octyl phthalate

Phthalates are common urban background substances, some of which have screening and cleanup level requirements.

Dioxin/furans (dioxin) were detected at all 28 sample locations, and mostly at low urban background levels except at the two private marinas. Dioxin concentration ranged from 0.25 to 71.0 TEQ (toxicity equivalency values) in parts per trillion (pptr) and the median is 3.1 TEQ parts per trillion. The state soil cleanup standard for dioxin is 11 parts per trillion. Six of the study's samples were above 11 parts per trillion and 82 percent of the samples were below 11 parts per trillion. For more detail on the dioxin results, see Sections 7 and 8 below.

The source or sources of dioxin in this area are unknown at this time. The dioxin results suggest that this chemical does not originate from the Navigation Channel, the Lakepointe aka Kenmore Industrial Park site, nor the Sammamish River as concentrations at these three locations were significantly below the concentration at the two marinas. The sediment results also suggest that the source of dioxin is not ongoing, nor continuous, and may have been an historic release, as

these results represent a much lower concentration compared with the 2011 marina results for Harbour Village Marina (Harbour Village Marina Dredging 2011 Characterization, 2011).

Note the Harbour Village Marina 2011 sample results represent composite samples (two or three discrete samples homogenized together to represent one sample), so the Harbour Village Marina 2011 results camouflage the sample source location. Specifically, a composite sample represents an average based on sample materials from two, three or more locations, so the results cannot be traced to one sample location. More work will be required to identify the dioxin source or sources. Ecology will follow up on possible sources for the dioxin when funds become available.

B. Overview Kenmore Area Water Characterization Results

The four surface water samples representing Log Boom Park and northeast Lake Washington reference or background show all results as very low levels of detection and significantly below cleanup and water quality criteria and listed on Table 2. The testing included total and dissolved metals, poly-aromatic hydrocarbons, chlorinated hydrocarbons, phthalates, phenols and miscellaneous extractables. Nine total metals and eight dissolved metals and pentachlorophenol were the only chemicals detected. The metals and phenol showed very low concentration levels, significantly below MTCA water quality standards, and do not represent a risk to human health nor aquatic life and the environment.

The surface water results for pentachlorophenol report very low levels of concentration ranging from 0.020 to 0.024 J µg/L or parts per billion, significantly below the cleanup level. Note symbol J represents that the analyte is present and the concentration level is estimated. The reference water sample results for northeast Lake Washington offshore show no detection and are below the laboratory practical detection level for pentachlorophenol at 0.025 U µg/L or parts per billion. Note symbol U represents that the analyte is not detected at or above the laboratory practical quantification level. When compared to the MTCA surface water cleanup level for protection of human health in freshwater, the level for pentachlorophenol is 0.27 µg/L under the Clean Water Act §304 and 0.28 µg/L under National Toxics Rule -40 CFR 131. For comparison with protection for aquatic life the level is 19 µg/L for freshwater acute under the Clean Water Act §304 and 20 µg/L under National Toxics Rule -40 CFR 1312. This information and more detail may be viewed at CLARC (Ecology 2013) online at:

https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx

So the Log Boom Park and northeast Lake Washington water reference results are significantly below protection levels for human health and aquatic life. Note that the pentachlorophenol level is pH dependent, and a pH level of 7.8 was used to calculate the standard. The pH values for Lake Washington water samples varied from 7.5 to 7.9 and are similar to the calculated standard. These Lake Washington surface water results are more than an order of magnitude below MTCA and CLARC levels, and do not represent a known risk to human health nor the environment.

C. Public Parks and Boat Launch Location Sediment Results

The sediment results for the public parks and boat launch location show all chemicals are below the state cleanup action level. Table 3 lists the sediment results for the parks – Log Boom Park in Kenmore and Lyon Creek Park in Lake Forest Park -- and the WDFW boat launch area at the Sammamish River and 68th Avenue NE bridge in the City of Kenmore. These results are compared with the SMS freshwater screening criteria.

The public parks results show that the waterfront areas do not represent a risk to human health and the environment based on state cleanup SMS freshwater screening criteria. The boat launch location shows all substances below state cleanup requirements. There is no SMS screening criterion for dimethyl phthalate, and at this time we do not know the toxicity of dimethyl phthalate. Ecology recommends that it be considered a possible chemical of concern at this location, and include it in future evaluation. Ecology has notified the WDFW about the boat launch results. Pesticides and PCBs were below laboratory detection levels. Four metals – cadmium, chromium, copper and zinc -- were detected at low levels and significantly below SMS freshwater screening criteria. Likewise, PAHs, miscellaneous extractables, and PCBs were at low concentrations and significantly below screening criteria.

Dioxins at the public locations were detected at low levels ranging from 0.30 to 7.9 TEQ parts per trillion and the median is at 0.92 TEQ parts per trillion. These results show that the near shore sediments at these parks and boat launch location are well within what would be considered natural background for dioxin. No further evaluation is required by Ecology at these parks and the boat launch location. Ecology has notified WDFW about the boat launch results.

D. Kenmore Navigation Channel Sediment Results

The Navigation Channel results are listed on Table 4 and compared to the Dredge Materials Management Program (DMMP) open water disposal guidance and the SMS freshwater criteria. For DMMP open water disposal guidance, three chemicals are reported above screening level 1 (SL) and they are two miscellaneous extractables (benzoic acid and benzyl alcohol) and dioxin. For further details on dredge evaluation see DMMP memorandum "Screening Level Evaluation for Kenmore Navigation Channel Dredge Planning" and see web link in Section 2.

Table 4 includes all samples collected at the Kenmore Channel. Note the U.S. Army Corps of Engineers (USACE) classifies the Navigation Channel as sample #SG-04 to SG-09 shown in white lines on Figure 1, and in this report Ecology includes sample #SG-14 located at the northeast area of the channel.

When comparing the Navigation Channel results with the SMS freshwater criteria, almost all results show no detection and are significantly below freshwater criteria with the exception of two chemicals. The chemicals are bis(2-ehtylhexyl)phthalate and di-n-octyl phthalate which were above their respective SCOs but well below their respective CSLs. Several metals, several other phthalates, and all pesticides were not detected above the laboratory reporting limit. There

are two occurrences of PCBs compared to eight sample results and the detected concentrations are 20 and 22 parts per billion, and are significantly below the freshwater SCO screening criterion of 110 parts per billion.

Freshwater criteria for dioxin/furans are not available at this time. The Navigation Channel (including the Kenmore Harbor sample SG-14) dioxin sediment concentrations range from 1.6 to 10.1 TEQ parts per trillion, and the median is 4.6 TEQ parts per trillion. For general comparison, the MTCA soil dioxin cleanup level is 11 parts per trillion and although soil is a different medium compared to sediment, all the Navigation Channel sediment results are below the dioxin soil cleanup level, and are similar to natural background levels. For more details on dioxin see Sections 7 and 8 below.

E. Lakepointe aka Kenmore Industrial Park Site Sediment Results

The Lakepointe, also called the Kenmore Industrial Park site is surrounded by water on three sides of this 50-acre site. Sediment samples were collected to the north at the Kenmore Navigation Channel, to the west at Lake Washington, and to the south at the lower reaches of the Sammamish River. The sediment samples were collected at nearshore WDNR Aquatic Lands. The KIP site is located at the 6500 - 6800 blocks of NE 175th Street in Kenmore, King County, Washington. The sediment results are listed on Table 5. Note that one sample in this group is part of the Navigational Channel results (#SG-04) and is included in this section for a more complete characterization of the KIP location.

The KIP location sediment results show all chemical groups tested are significantly below SMS freshwater screening criteria. These sediment results show no detection for several metals, pesticides and PCBs (except one occurrence at low level). All phthalates and miscellaneous extractables are below freshwater screening criteria. Dioxin is detected and ranges from 0.36 to 10.1 TEQ parts per trillion and the median is 1.6 TEQ pptr. There are no SMS freshwater screening criteria for dioxin at this time. So, the KIP site near shore sediment results represent natural background and do not represent a risk to the freshwater benthic community. No further evaluation is required.

F. Sammamish River Location Sediment Results

The lower reaches of the Sammamish River location included five sediment samples and the results are listed on Table 6. The sediment results show that most chemicals are reported below laboratory detection, and no chemical is reported above the SMS freshwater screening criteria. There is no SMS screening criterion for dimethyl phthalate. At this time we do not know the toxicity of dimethyl phthalate, and recommend that it be considered a possible chemical of concern at this location, and to be included in future evaluation. Dioxin results range from 0.36 to 2.3 TEQ parts per trillion, and the median is 0.56 TEQ parts per trillion. All dioxin results are below the state soil cleanup level at 11 TEQ parts per trillion. No further evaluation is required.

G. Private Marina Location Sediment Results

The two private marinas list elevated sediment results for four specific chemicals shown on Table 7. Harbour Village Marina includes five sediment samples with a depth of 0 – 10 cm (0 – 4 inches), representing the biologically active zone. The North Lake Marina lists two sediment samples with a depth of 0 - 25 cm (0 – 10 inches) for dredge planning. When comparing these results, please note that the sediment samples represent varying depths. Harbour Village Marina is located at 6155 NE 175th Avenue, and the North Lake Marina is located east towards the Navigation Channel at 6201 NE 175th Avenue, in Kenmore, Washington. The Washington Department of Natural Resources holds Aquatics Land lease agreements with each marina.

The Harbour Village Marina sediment results show two phthalates above the state cleanup requirements for freshwater criteria. TBT ranged from 3.6 to 12 µg/kg or parts per billion, which is below the freshwater Sediment Cleanup Objective (SCO) criterion of 47 parts per billion. Bis(2-ethylhexyl) phthalate and di-n-octyl phthalate results ranged two to three times above the respective freshwater CSL. Dioxin sediment results range from 6.6 to 71 TEQ pptr and the median is 26.6 TEQ pptr. Further testing will be required for evaluation and dredge planning.

The North Lake Marina sediment results show the same two phthalates above SMS freshwater criteria and similar exceedence as the Harbour Village Marina, plus one occurrence of PCBs. However, the TBT results at North Lake Marina are for porewater, not bulk sediment, and are not comparable with the freshwater criteria. This is because the samples were taken for dredge planning purposes, and the DMMP open water disposal guidance is based on porewater, not bulk concentrations. Note that the porewater concentration for one of the two samples exceeded DMMP's open water guidance.

North Lake Marina showed PCBs ranging from 22 to 121 parts per billion which is slightly above the freshwater Sediment Cleanup Objective (110 parts per billion) and significantly below the freshwater CSL (2500 parts per billion). The freshwater SCO shows no adverse effects to benthic (bottom dwelling) organisms compared to CSL with minor adverse effects to the benthic community. NOAA has a fish screening level for PCBs at 76 parts per billion, and one of two sample results at North Lake Marina is above this level. Dioxin sediment results list concentrations ranging from 20.3 to 37 TEQ parts per trillion, and the mean is 28.7 TEQ pptr at North Lake Marina.

All other chemicals tested at the two marinas were below laboratory detection levels and do not represent a risk to human health and the environment. Ecology has met with the marina owners and WDNR, and we have agreed to work together for the next steps in dredge planning and environmental evaluation.

7. Kenmore Area Sediment Dioxin Results Comparisons

The Kenmore area sediment results for dioxin are listed on Table 8 and compared with the Seattle urban neighborhood soil dioxin results (Ecology 2011) and the Washington State background soil dioxin levels including urban and rural parks (Hart Crowser 2011). These

results are compared with state and federal regulatory limits. The Seattle neighborhood dioxin results are attached in Appendix D.

The three studies represent two different environmental media, one being sediment in the Kenmore area and the other soils. Each medium (soil or sediment) has different characteristics and properties. Cleanup and screening criteria involve multiple evaluations for each medium related to health risk, pathways and exposures. Information in this section is available for background information. The reader should consider these differences when comparing Kenmore area sediment results with Seattle, other cities and/or rural background soil results.

Table 8 lists the results from the three studies including urban neighborhoods, urban and rural parks, and open and forested areas. The dioxin results are all reported in dry weight toxicity equivalency (TEQ) values in parts per trillion (pptr). The results are compared with state and federal regulatory cleanup and screening levels. The regulatory levels show a range of limits for dioxin from 4 parts per trillion for dredge screening for open water disposal to 72 parts per trillion for the EPA proposed soil dioxin cleanup level.

The Kenmore area sediment dioxin levels range from 0.3 to 71 parts per trillion with the two private marina results, and from 0.3 to 10 parts per trillion without the marina results, while the Seattle urban neighborhood levels range from 1.7 to 115 parts per trillion. With or without the two private marina results, the Kenmore sediment dioxin levels are lower than the Seattle urban neighborhood soil dioxin levels.

At the Kenmore area with the two private marina results, 18 percent of the samples are above the state MTCA soil cleanup level for dioxin as compared with 53 percent of the Seattle urban soil dioxin samples. At the Kenmore area without the two private marina results, there are no sample locations above the MTCA soil cleanup level at 11 parts per trillion. The MTCA method B soil dioxin cleanup level represents cleanup level protective for unrestricted land use.

The third study analyzes Washington urban and rural parks soil dioxin background levels, including open and forest soil results, range from 0.03 to 19 parts per trillion. The Washington parks soil dioxin results are significantly lower than the Kenmore sediment dioxin results with the two private marinas (range 0.3 to 71 pptr). However, the Kenmore results without the two marinas (range 0.3 to 10 pptr) are lower than the Washington urban and rural parks soil level.

Similarly, the Washington urban and rural park dioxin soil results show an estimated 8 out of 30 samples above MTCA soil dioxin cleanup level, or approximately 27 percent. The open and forest park areas are all below the state MTCA soil cleanup level.

The federal Agency for Toxic Substances Disease Registry (ATSDR) is a screening level set at 50 parts per trillion to identify when more study is needed, and it is not a cleanup level. In comparing the number of Kenmore samples above the ATSDR screening level, there are two Kenmore results from one private marina, and no other Kenmore sediment result is above this level. For Seattle neighborhoods, there are nine sample results above the ATSDR screening level. The urban or rural parks show all results below the ATSDR screening level.

The proposed EPA draft soil dioxin cleanup level at 72 parts per trillion, when compared with the Kenmore dioxin results, show that no Kenmore area sediment dioxin result is above this EPA cleanup level. For the Seattle neighborhood soil results, three of the 120 results are above this EPA cleanup level representing 2.5 percent of the sample results. The Washington urban and rural park soil dioxin results are all below the proposed EPA limit. Again, Table 8 represents two different media (sediment and soil) and it is provided for background information. The Kenmore sediment results are significantly lower compared with the Seattle urban soil results, and are similar and slightly lower when compared with the Washington urban and rural parks background information.

Specifically, when you compare Log Boom Park and Lyon Creek Park results ranging from 0.30 to 7.9 parts per trillion with urban park soil results ranging from 0.13 to 19 pptr and rural open and forested park soil results ranging from 0.03 to 5.2 pptr, one sees that Log Boom Park and Lyon Creek Park results are lower compared to urban parks, and on par with rural open and forested park background soil levels. This suggests that whatever the causes are for the Seattle neighborhood soil dioxin levels, these causes have not impacted the near shore Lake Washington park environment at Kenmore and Lake Forest Park.

8. Kenmore Sediment Comparison with the OSV *Bold* Survey

The DMMP agencies (US Army Corps of Engineers, EPA, WDNR and Ecology) conducted a survey to evaluate the Puget Sound sediment to set guidelines for several persistent organic substances and prepared the "Ocean Survey Vessel *Bold* Summer 2008 Survey Report" (DMMP 2009). The survey includes sediment results for dioxin/furans in addition to other substances. This dataset allows comparison of dioxins concentrations found in marine sediments that can be considered background.

The survey shows that overall dioxin concentration ranged from 0.05 to 11.6 TEQ parts per trillion with a median value of 0.86 TEQ pptr (Table 9). The Kenmore freshwater sediment results show a dioxin range from 0.3 to 71 TEQ pptr with a median value of 3.1 TEQ pptr with the private marina results included, and a range from 0.3 to 10 TEQ pptr and median value of 1.4 TEQ pptr without the two private marina results. Excluding the two private marina results, the Kenmore dioxin sediment results show very similar dioxin concentrations as found in Puget Sound background.

The OSV *Bold* survey data indicate no correlation between dioxin concentrations and the total organic carbon (TOC) in sediment or the percent of fine particles within the sediment samples (percent of clay and silt size particles). This lack of correlation was likely due to the low concentrations of dioxins, which makes correlations and trend analysis difficult.

9. Kenmore Area Sediment & Water Evaluation Conclusions

The Kenmore area sediment and water characterization results show that both sediment and water at northeast Lake Washington and the lower reaches of the Sammamish River are below the state cleanup requirements with the exceptions of the two private marinas. Elevated dioxin concentrations were detected at two private marinas. The marina sediment results show two

chemicals above SMS freshwater CSL and three chemicals above freshwater SCO. Ecology, the marina owners and WDNR have agreed to work together for future testing and dredge planning.

The surface water evaluation at the Log Boom Park and northeast Lake Washington water reference results are significantly below protection levels for human health and aquatic life.

The sediment sample locations include a variety of land use from public parks and a boat launch to private marinas and commercial-industrial land use. There are no sediment results above the freshwater SCO and CSL screening criteria at the public parks. The boat launch and the lower Sammamish River sediment results show natural background levels and no environmental risk compared to SMS freshwater criteria. Elevated dimethyl phthalate was detected at the boat launch and its toxicity is unknown at this time. Ecology recommends that this chemical would be carried forward as a chemical of concern and to be included in future evaluation.

The Navigation Channel shows no chemicals above the SMS freshwater CSL and two chemicals above freshwater SCO. The KIP site shows no chemical above freshwater CSL and one chemical above freshwater SCO. The Kenmore Navigation Channel and the Lakepointe aka Kenmore Industrial Park site show all results are below state cleanup requirements except two phthalates at the channel. All other chemicals tested report detections significantly below state cleanup requirements, and no further evaluation is required by Ecology. These results confirm that the former landfill underlying part of the KIP site is not causing chemicals of concern to migrate into the sediments at the adjacent waterways –Navigation Channel, Lake Washington and the lower reaches of the Sammamish River.

This sediment and water characterization work provides an important step in the screening process. The results indicate there are no significant environmental issues at the two public parks. Most of the sediment results are below SMS freshwater criteria except the two private marinas. One sample containing dimethyl phthalate was present at the boat launch location, and the toxicity of this substance is not known. The sediment results compared to state cleanup criteria show no exceedance for metals, poly-aromatic hydrocarbons (PAHs), pesticides, and miscellaneous extractables (benzoic acid and benzyl alcohol), and only one occurrence of PCBs, and multiple occurrences of phthalates and dioxin at low concentrations.

10. Kenmore Area Sediment & Water Evaluation Recommendations

Based on the sediment and water characterization results for the Kenmore area, Ecology will not require further environmental testing except at the two private marinas. Additional environmental testing is recommended for the sediment beneath the two private marinas. Ecology has met with the marina owners and Washington Department of Natural Resources Aquatics Land manager. All parties have agreed to work together for dredge planning and future evaluation.

For the boat launch location, Ecology has forwarded these results to WDFW, the agency who maintains the boat launch facilities to notify them of the occurrence of one chemical and that its toxicity is unknown. Ecology recommends that this chemical -dimethyl phthalate would be carried forward as a chemical of concern at this location and to be included in future evaluation.

For any future sampling or evaluation, Ecology recommends that additional sampling efforts to consider including testing for tributyltin, phthalates, miscellaneous extractables, and dioxin for future surface water evaluation because these substances were detected in sediment at a nearby waterfront location. These analytical methods were excluded in the surface water testing for this work.

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Figure

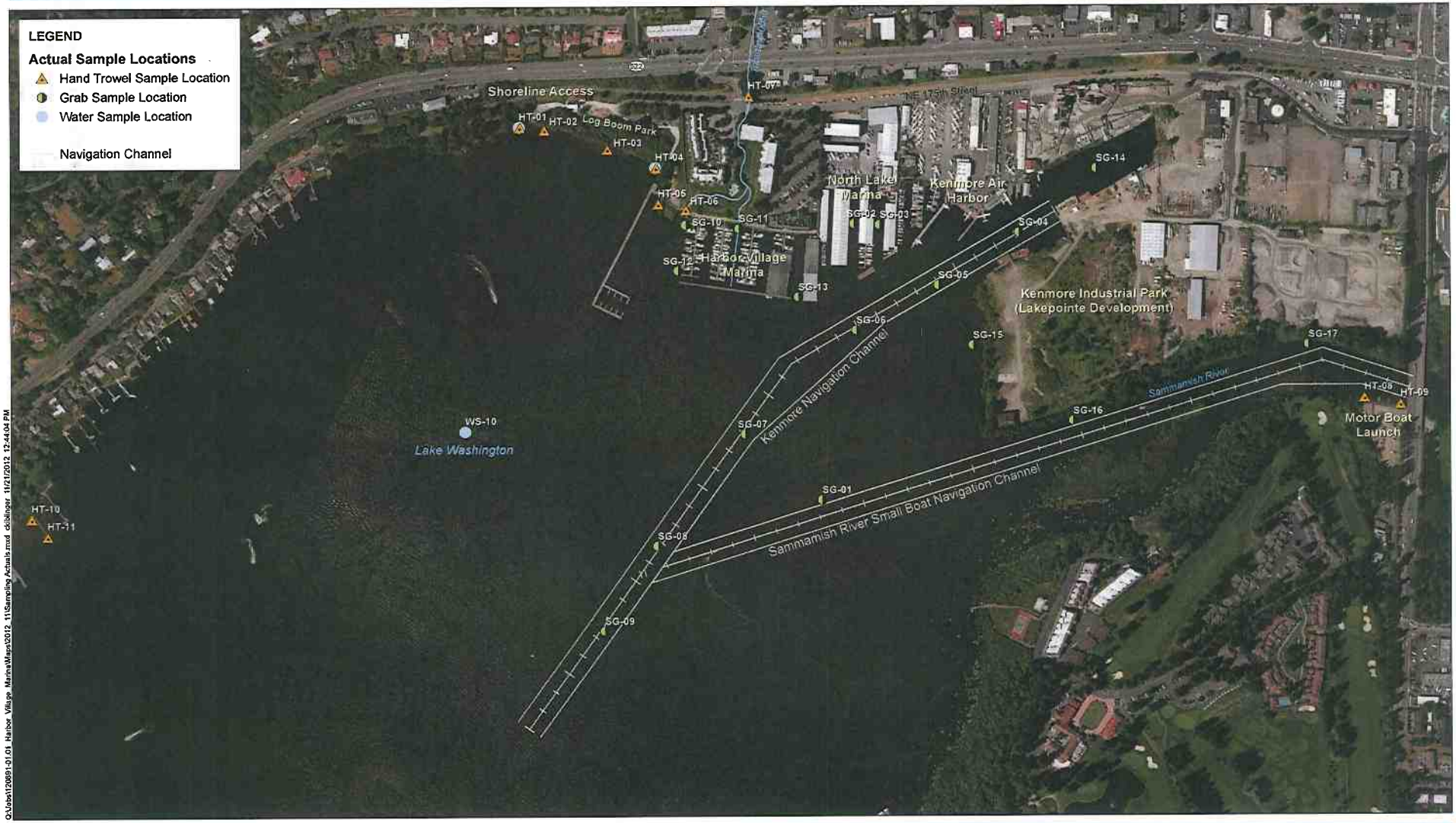

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Figure 2
Sample Locations
Sampling and Analysis Plan
Kenmore Sediment Characterization

Tables

Kenmore Area Sediment Sampling Results - November 2012

Table 1. Kenmore Area Sediment Results - Minimum & Maximum Levels Compared to Screening Criteria.

Screening Criteria	SMS Freshwater[a]		All Locations Environ'l Evaluation		DMMP Guidance		Navigation Channel Dredge Planning	
Analyte	SCO	CSL	Min	Max	DMMP SL	DMMP ML	Min	Max
Sample Depth, cm			0-10 cm	0-10 & 0-25 cm			0-25 cm	0-25 cm
Metals, mg/kg, ppm								
Cadmium	2.1	5.4	0.2U	**1.3**	5.1	14	**0.3**	**0.8**
Chromium	72	88	**17.8J**	**56**	260	--	**35**	**57**
Copper	400	1200	**4.3**	**220**	390	1300	**14.6**	**111J**
Zinc	3200	>4200	**34**	**377**	410	3800	**49**	**182J**
Tributyltin* ug/L or ug/kg	47 ug/kg[a]	320 ug/kg[a]	no sample	no sample	0.15ug/L		0.005U ug/L	**0.049 ug/L**
Polycyclic Aromatic Hydrocarbons, ug/kg, ppb								
Total Light PAHs, U=1/2	not specified		4.8U	**3,600**	5200	29,000	**78J**	**1500**
Total High PAHs, U=1/2	7,000	30,000	**3.1J**	**2,000**	12,000	69,000	**600J**	**4,200**
Phthalates, ug/kg, ppb								
Bis(2-ethylhexyl) Phthalate	500	22,000	**16J**	**740**	1300	8300	62U	**540**
Dimethyl Phthalate**	not specified**		19U	**970**			19U	20U
Di-n-octyl Phthalate	39	>1100	**11J**	**87**	6200	6200	19U	**41J**
Miscellaneous Extractables, ppb								
Benzoic acid	2900	3800	**140J**	**1500**	650	760	**300J**	**1300**
Benzyl alcohol	not specified		18U	**530**	57	870	20U	**190**
PCBs Total, ug/kg, ppb	110	2500	17U	**121**	130	3100	18U	**22**
Dioxin TEQ ng/kg,pptr,U=1/2	not specified		**0.30J**	**71.0J**	4	10	**1.6J**	**10.1J**

MTCA Sediment Freshwater Benthic Community Sediment Cleanup Objectives & Cleanup Screening L:

Freshwater SCO = No adverse effects benthic comm

Freshwater CSLevel = Establishes a minor adverse effects level including acute or chronic effects & maybe defined as potential cleanup for benthic community see Rule Chapter 173-204 WAC.

Dredge DMMP Screening Level 1 (SL1).

Dredge DMMP Marine Maximum Level (ML).

J = Laboratory analysis shows chemical is present and the concentration is an estimated value.
U = Laboratory analysis shows chemical is not detected (is not present) at the reporting limit.
* Tribytyltin = Reported for DMMP as porewater in ug/L or ppb; or SMS reported as bulk in ug/kg or ppb.
PAH-TH = Total High Poly-aromatic hydrocarbons (PAHs). PAH-TL = Total Low PAHs.
U=1/2 = Totals are calculated as sum of all detected results and 1/2 the undetected reporting limit.
Phthalate DNOP = Di-n-octyl phthalate. PCBs = Total 7 Polychlorinated biphenyls (Aroclors).
**Dimethyl phthalate toxicity is unknown and recommend substance be considered a chemical of concern for future evaluation.
Dioxin TEQ = Total Dioxin/Furan Toxicity Equivalency (TEQ) values for 2005 World Health Organization.
SMS Freshwater[a] =criteria reported in parts per billion dry weight see WAC 173-204-563(2)(g) or as specified.

Kenmore Area Sediment & Water Results - November 2012

Table 2. Kenmore Area Surface Water Results Compared to MTCA Method B and Surface Water ARARs - other cleanup requirements.

Kenmore Area Detected Chemicals	MTCA Screening Criteria		Log Boom Park Surface Water Results			NE Lake Washington Reference
Analyte	Method B	ARARs[1]	HT-01W	HT-04W	HT-04WDup	WS-10
Total Metals, ug/L, ppb	Surface	acute/chronic				
Arsenic	5*	360/190	**2**	**2**	**1.2**	**0.9**
Barium	560**		**11**	**9**	**8.7**	**6.2**
Copper	2660	13.04/8.92	**2.8**	**2.6**	**3.2**	**1.6**
Lead	15*	47.43/1.85	**0.5**	0.5U	**0.3**	0.1U
Nickel	1100	1114/123	**2**	**1**	**1.2**	**0.7**
Zinc	16,500	90/82	20U	20U	4U	4U
Dissolved Metals, ug/L, ppb						
Arsenic	5*	360/190	**0.8**	**1.0**	**1.0**	**0.8**
Barium	560**		**7.4**	**7.8**	**7.7**	**6.0**
Copper	2660	13.04/8.92	**1.9**	**2.1**	**2.0**	**1.2**
Lead	15*	47.43/1.85	**0.1**	**0.1**	0.1U	0.1U
Nickel	1100	1114/123	**1.1**	**1.1**	**1.0**	**0.8**
Zinc	16,500	90/82	**6**	4U	4U	4U
Phenols, ug/L, ppb						
Pentachlorophenol	4.91	0.28	**0.024J**	**0.022J**	**0.020J**	0.025U

Ecology 4/30/13

Model Toxics Control Act method B for surface water standard formula values see CLARC (Ecology 2013), and
ARARs[1] = Ambient Water Quality Criteria for protection of aquatic life from WAC 173-201A-040 see CLARC link at:
https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx

* = MTCA method A groundwater for arsenic set on Washington background level, for lead set on applicable state and federal law (40 C.F.R. 141.80).

** = Method B groundwater for barium set on barium and compounds.

J = Laboratory analysis shows chemical is present and the concentration is an estimated value.

U = Laboratory analysis shows chemical is not detected.

Kenmore Area Lake Washington & Sammamish River Sediment Sampling Results - November 2012

Table 3. Public Parks and Boat Launch Sediment Results and note units vary by chemical group.

Analyses	Screening Criteria SMS Freshwater[a]		Lyon Creek Park		Log Boom Park						Samm Boat Launch	
Analyte/Sample #	SCO	CSL	#HT-10	#HT-11	#HT-01	#HT-02	#HT-03	#HT-04	#HT-05	#HT-06	#HT-08	#HT-09
Sampe Depth, cm			0-10 cm	0-10 cm	0-10 cm	0-10 cm	0-10 cm	0-10 cm	0-10 cm	0-10 cm	0-10 cm	0-10 cm
Metals, mg/kg, ppm												
Cadmium	2.1	5.4	**0.3**	**0.3**	0.2U	0.3U	**0.3**	**0.5**	**0.4**	**0.3**	**0.3**	**0.4**
Chromium	72	88	**24.3J**	**22.6J**	**17.8J**	**23.3J**	**23J**	**27J**	**20.3J**	**25.5J**	**29.6J**	**28.8J**
Copper	400	1200	**8.9**	**8.9**	**4.3**	**5.6**	**7.6**	**15.2**	**220**	**9.9**	**38.2**	**21.9**
Zinc	3200	>4200	**59**	**55**	**34**	**41**	**58**	**117**	**69**	**53**	**54**	**64**
Polycyclic Aromatic Hydrocarbons, ppb												
Total Light PAHs, U=1/2			**43**	4.8U	**17J**	**47J**	**590J**	**2000**	**24J**	**83J**	**28J**	**71J**
Total High PAHs,U=1/2	7,000	30,000	**240J**	**30J**	**23J**	**77J**	**860**	**3600**	**98J**	**450**	**130**	**330J**
Phthalate, ppb												
Bis(2ehtylhexyl) Phth	500	22,000	**31**	**21J**	**16J**	**18J**	**66**	**460**	**23**	**110**	**72**	**130**
Dimethyl Phthalate*	not specified*		19U	20U	19U	20U	19U	20U	18U	19U	**97**	**970**
DNO Phth	39	>1100	19U	20U	19U	20U	19U	20U	18U	19U	18U	**15J**
Misc Extractables, ppb												
Benzoic acid	2900	3800	390U	390U	380U	390U	390U	**390J**	370U	380U	370U	**140J**
Benzyl alcohol	not specified		19U	20U	19U	20U	**20**	**210**	18U	**37**	18U	**23**
PCBs Total, ppb	110	2500	19U	19U	18U	19U	19U	**28J**	17U	17U	17U	19U
Dioxin TEQ,pptr, U=1/2	not specified		**0.54J**	**0.37J**	**0.30J**	**0.630J**	**2.2J**	**7.9J**	**1.2J**	**1.3J**	**0.56J**	**1.4J**

Ecology April 30, 2013

MTCA Sediment Management Standards for Freshwater Benthic:
Sediment Cleanup Objectives (SCO) & Cleanup Screening Levels (CSL):
Freshwater SCO = No adverse effects to benthic community.
Freshwater CSL = Establishes a minor adverse effects level including acute or chronic effects and may be defined as potential cleanup for benthic community see Rule WAC 173-204 Sediment Management Standards.

J = Laboratory analysis shows chemical is present and the concentration is an estimated value.
U = Laboratory analysis shows chemical is not detected (is not present) at detection reporting limit.
PAH-TH = Total High Poly-aromatic hydrocarbons (PAHs). PAH-TL = Total Low PAHs.
U=1/2 = Totals are calculated as sum of all detected results and 1/2 the undetected reporting limit.
Phthalate DNOP = Di-n-octyl phthalate. PCBs Total = Total 7 Polychlorinated biphenyls (Aroclors).
Dioxin TEQ = Total Dioxin/Furan Toxicity Equivalency (TEQ) values 2005 World Health Organization.
ppm = parts per million. ppb = parts per billion. pptr = parts per trillion.

* Dimethyl phthalate toxicity is unknown and recommend substance be considered a chemical of concern for future evaluation.
SMS Freshwater[a] = Feshwater screening critieria reported in parts per billion dry weight from WAC 173-204-563(2)(g) or as specified.

Kenmore Area Lake Washington & Sammamish River Sediment Sampling Results - November 2012

Table 4. Navigation Channel results are compared with MTCA Sediment Freshwater criteria[a] and Dredge DMMP screening guidance.
Note sample depth varies and results are reported in different units -parts per million (ppm), parts per billion (ppb) and parts per trillion (pptr).

Screening Criteria	SMS Freshwater[a]		DMMP Planning		East KNC[b]	Kenmore Navigation Channel Results - NE to SW							Range	
Analyte/Sample #	SCO	CSL	SL	ML	#SG-14	#SG-04	#SG-05	#SG-06	#SG-07	#SG-07 Dupl	#SG-08	#SG-09	Min	Max
Sample depth, cm					0-10 cm	0-15 cm	0-23 cm	0-25 cm	0-25 cm	0-25 cm	0-25 cm	0-25 cm		
Metals, mg/kg, ppm														
Cadmium	2.1	5.4	5.1	14	0.7	0.3	0.7	0.8	0.6	0.6	0.6	0.6	0.3	0.8
Chromium	72	88	260	--	36	35	43	57	41	44	44	48	35	57
Copper	400	1200	390	1300	111J	14.6	35.6	43.6	30	28.7	28	31.1	14.6	111J
Zinc	3200	>4200	410	3800	182J	49	143	164	126	123	113	130	49	182J
Tributyltin** ug/L or ug/kg	47 ug/kg[a]	320 ug/kg[a]	0.15ug/L	0.15ug/L	0.010	0.049	0.008	0.023	0.005U	0.005U	0.005U	0.005U	0.005U	0.049
Polycyclic Aromatic Hydrocarbons, ppb														
Total Light PAHs, U=1/2	not specified		5200	29,000	1500	190J	330	250J	120J	103J	78J	83	78J	1500
Total Heavy PAHs, U=1/2	17,000	30,000	12,000	69,000	4200	900J	1340	1510	860J	690J	620J	600J	600J	4200
Phthalates, ppb														
Bis(2-ethylhexyl)Phthalate	500	22,000	1300	8300	280	62U	260	540	330	300	240	240	62U	540
Dimethyl Phthalate*	not specified*				19U	20U	20U	20U	20U	19U	19U	20U	19U	20U
DNOP	39	>1100	6200	6200	24	20U	22J	41J	22J	19U	19U	20U	19U	41J
Miscellaneous Extractables, ppb														
Benzoic acid	2900	3800	650	760	610	390U	1300	1100	430	480	300J	510	300J	1300
Benzyl alcohol	not specified		57	870	100	20U	160	190	120	100	61	110	20U	190
PCBs Total, ppb	110	2500	130	3100	20	20U	29U	28U	19U	22	18U	20U	18U	22
Dioxin TEQ, pptr, U=1/2	not specified		4	10	10.1J	1.6J	6.8J	8.4J	4.2J	4.0J	3.9J	4.9J	1.6J	10.1J

Ecology Draft April 30, 2013

MTCA Sediment Management Standards for Freshwater Benthic:
Sediment Cleanup Objectives (SCO) & Cleanup Screening Levels (CSL):

Freshwater SCO = No adverse effects to benthic community.
Freshwater CSL = Establishes a minor advers effects level including acute or chronic effects and maybe defined as potential cleanup for benthic community see Rule.
Dredge DMMP Screen Level 1 (SL).
Dredge DMMP Marine Maximum Level (ML).

J = Laboratory analysis shows chemical is present and the concentration is an estimated value.
U = Laboratory analysis shows chemical is not detected (is not present) at the laboratory detection reporting limit.
East KNC[b] = sample location at northeast of USACE defined Kenmore Navigation Channel.
Tributyltin** testing for DMMP reported in porewater as ug/L, and SMS reported as dry weight normalized in ug/kg or parts per billion.
PAH-TH = Total High Poly-aromatic hydrocarbons (PAHs). PAH-TL = Total Low PAHs.
Phthalate DNOP = Di-n-octyl phthalate. PCBs Total = Total 7 Polychlorinated biphenyls (Aroclors).
Dioxin TEQ = Total Dioxin/Furan Toxicity Equivalency (TEQ) values as of 2005 World Health Organization.
[a]SMS Freshwater screening criteria reported in parts per billion dry weight from WAC 173-204-563(2)(g) or as specified.

* Dimethyl phthalate reported levels are higher than interim freshwater criteria, toxicity is unknown and recommend substance be considered a chemical of concern for future evaluation.

Kenmore Area Lake Washington & Sammamish River Sediment Sampling Results - November 2012

Table 5. Lakepointe aka Kenmore Industrial Park Site results compared with SMS Freshwater screening criteria.

Note sample depth varies and results are reported in different units -parts per million (ppm), parts per billion (ppb) and parts per trillion (pptr).

Screening Criteria	SMS Freshwater[a]		Kenmore Industrial Park Site - NE to West to SE					Range	
Analyte/Sample #	SCO	CSL	#SG-14	#SG-04	#SG-15	#SG-16	#SG-17	Min	Max
Sample depth, cm			0-10 cm	0-15 cm	0-10 cm	0-10 cm	0-10 cm		
Metals, ppm									
Cadmium	2.1	5.4	**0.7**	**0.3**	0.3U	0.2U	0.4U	0.2U	**0.7**
Chromium	72	88	**36**	**35**	**20.9**	**29.9**	**54**	**20.9**	**54**
Copper	400	1200	**111J**	**14.6**	**5.5J**	**5.4J**	**13.5J**	**5.4J**	**111J**
Zinc	3200	>4200	**182J**	**49**	**57J**	**43J**	**64J**	**43J**	**182J**
Tributyltin[b]	47ug/kg	320 ug/kg	ns	ns	ns	ns	ns	ns	ns
Polycyclic Aromatic Hydrocarbons, ppb									
Total Light PAHs, U=1/2	not specified		**1500**	**190J**	**35J**	**17J**	**120J**	**17J**	**1500**
Total Heavy PAHs, U=1/2	17,000	30,000	**4200**	**900J**	**56J**	**44J**	**540**	**44J**	**4200**
Phthalates, ppb									
Bis(2-ethylhexyl)Phthalate	500	22,000	**280**	62U	**21J**	**19J**	**150**	**19J**	**280**
Dimethyl Phthalate*	not specified*		19U	20U	19U	19U	**38**	19U	**38**
DNOP	39	>1100	**24**	20U	19U	19U	**11J**	**11J**	**24**
Miscellaneous Extractables, ppb									
Benzoic acid	2900	3800	**610**	390U	370U	390U	**430**	370U	**610**
Benzyl alcohol	not specified		**100**	20U	19U	19U	**62**	19U	**100**
PCBs Total, ppb	110	2500	**20**	20U	18U	18U	19U	18U	**20**
Dioxin TEQ, pptr, U=1/2	not specified		**10.1J**	**1.6J**	**0.65J**	**0.36J**	**2.3J**	**0.36J**	**10.1J**

Ecology April 30, 2013

MTCA Sediment Management Standards for Freshwater Benthic:
Sediment Cleanup Objectives (SCO) & Cleanup Screening Levels (CSL):
Freshwater SCO = No adverse effects to benthic community.
Freshwater CSL = Establishes a minor advers effects level including acute or chronic effects and maybe defined as potential cleanup for benthic community see Rule.

PCBs Total = Total 7 Polychlorinated biphenyls (Aroclors).
Dioxin TEQ = Total dioxin/Furan Toxicity Equvalency values as of 2005 World Health Organization.
U=1/2 = Totals are calculated as sum of all detected results and 1/2 the undetected reporting limit.

[a]SMS Freshwater screening criteria reported in parts per billion dry weight from WAC 173-204-563(2)(g) or as specified. ns = no sample in SMS freshwater units.

Tributyltin[b] = SMS testing reported in dry weight in ug/kg or parts per billion. DMMP tributyltin testing is porewater in ug/L.

* Dimethyl phthalate reported levels are higher than interim freshwater criteria, toxicity is unknown and recommend substance be considered a chemical of concern for future evaluation.

Kenmore Area Lake Washington & Sammamish River Sediment Sampling Results - Nov 2012

Table 6. Sammamish River lower reaches sediment results are compared with SMS Freshwater criteria.
Note sample results are reported in different units -parts per million (ppm), parts per billion (ppb) and parts per trillion (pptr).

Screening Criteria	SMS Freshwater[a]		Sammamish River Results					Range	
Analyte/Sample #	SCO	CSL	#SG-01	#SG-16	#SG-17	#HT-08	#HT-09	Min	Max
Sample depth, cm			0-10 cm	0-10 cm	0-10 cm	0-10 cm	0-10 cm		
Metals, ppm									
Cadmium	2.1	5.4	0.2U	0.2U	0.4U	0.3	**0.4**	0.2U	**0.4**
Chromium	72	88	**29.3**	**29.9**	**54**	**29.6J**	**28.8J**	**28.8J**	**54**
Copper	400	1200	**5.9J**	**5.4J**	**13.5J**	**38.2**	**21.9**	**5.4J**	**38.2**
Zinc	3200	>4200	**43J**	**43J**	**64J**	**54**	**64**	**43J**	**64**
Polycyclic Aromatic Hydrocarbons, ppb									
Total Light PAHs, U=1/2	not specified		**40**	**17J**	**120J**	**28J**	**71J**	**17J**	**120J**
Total High PAHs, U=1/2	17,000	30,000	**180J**	**44J**	**540**	**130**	**330J**	**44J**	**540**
Phthalates, ppb									
Bis(2-ethylhexyl)Phthalate	500	22,000	**28**	**19J**	**150**	**72**	**130**	**19J**	**150**
Dimethyl Phthalate*	not specified*		19U	19U	**38**	**97**	**970**	19U	**970**
DNOP	39	>1100	19U	19U	**11J**	18U	**15J**	**11J**	19U
Miscellaneous Extractables, ppb									
Benzoic acid	2900	3800	380U	390U	**430**	370U	**140J**	**140J**	**430**
Benzyl alcohol	not specified		19U	19U	**62**	18U	**23**	18U	**62**
PCBs Total, ppb	110	2500	17U	18U	19U	17U	19U	17U	19U
Dioxin TEQ, pptr, U=1/2	not specified		**0.47J**	**0.36J**	**2.3J**	**0.56J**	**1.4J**	**0.36J**	**2.3J**

Ecology Draft April 30, 2013

MTCA Sediment Management Standards for Freshwater Benthic:
Sediment Cleanup Objectives (SCO) & Cleanup Screening Levels (CSL):
Freshwater SCO = No adverse effects to benthic community.
Freshwater CSL = Establishes a minor advers effects level including acute or chronic effects and maybe defined as potential cleanup for benthic community.

PAH-TH = Total high Poly-aromatic hydrocarbons (PAHs). PAH-TL = Total light PAHs.
U=1/2 = Totals are calculated as sum of all detected results and 1/2 undetected reporting limit.
PCBs Total = Total 7 Polychlorinated biphenyls (Aroclors).
Dioxin TEQ = Total Dioxin/Furan Toxicity Equvalency values- 2005 World Health Organization.

[a]SMS Freshwater screening criteria reported in parts per billion dry weight from WAC 173-204-563(2)(g) or as specified.
* Dimethyl phthalate reported levels are higher than interim freshwater criteria, toxicity is unknown and recommend substance be considered a chemical of concern for future evaluation.

Kenmore Area Lake Washington & Sammamish River Sediment Sampling Results - November 2012

Table 7. Private Marina Results Compared to SMS Freshwater & Dredge DMMP Screening Criteria and concentration varies by chemical group.

Screening Criteria	SMS Freshwater[a]		DMMP Planning		Harbour Village Marina					North Lake Marina		Range	
Analyte	SCO	CSL	SL	ML	#SG-10	#SG-11	#SG-12	#SG-13	#SG-13 D	#SG-02	#SG-03	Min	Max
Sample Depth, cm					0-10 cm	0-10 cm	0-10 cm	0-10 cm	0-10 cm	0-22 cm	0-25 cm		
Metals, mg/kg, ppm													
Cadmium	2.1	5.4	5.1	14	0.4	1U	0.7U	0.9U	0.9U	1.3	1.2	0.4	1.3
Chromium	72	88	260	--	29.8	52	44	54	55	56	55	29.8	56
Copper	400	1200	390	1300	18.8J	97J	47.5J	62.1J	62.8J	92.4	88.1	18.8J	97J
Zinc	3200	>4200	410	3800	97J	377J	185J	205J	205J	231	267	97J	377J
Tributyltin* ug/L or ug/kg	47ug/kg	320ug/kg	0.15ug/L	0.15ug/L	3.6Uug/kg	9.8ug/kg	6.8ug/kg	12ug/kg	12ug/kg	0.67ug/L	0.058ug/L	different units	
Polycyclic Aromatic Hydrocarbons, ug/kg, ppb													
Total Low PAHs, U=1/2	6600	9200	5200	29,000	410J	450J	350J	390J	320J	760	410J	320J	760
Total High PAHs, U=1/2	31,000	55,000	12,000	69,000	2600	2500	1500	1800	1500	2,820	2,260	1500	2,820
Phthalates, ug/kg, ppb													
Bis(2-ethylhexyl)Phthalate	220	320	1300	8300	480	740	360	560	430	680	510	360	740
Dimethyl Phthalate[b]	not specified[b]				20U	20U	20U	20U	20U	28	20U	20U	28
Di-n-octyl Phthalate	26	45	6200	6200	20U	87	20U	73J	42	19U	58J	19U	87
Misc Extractables, ug/kg, ppb													
Benzoic acid	2900	3800	650	760	520	1400	1500	1600	1700	960	1300	520	1700
Benzyl alcohol	not specified		57	870	200	530	300	360	380	82	130	82	530
PCBs Total, ug/kg, ppb	110	2500	130	3100	32U	29J	49U	50U	35U	121	22	22	121
Dioxin TEQ pptr, U=1/2	not specified		4	10	6.6J	71.0J	26.6J	50.0J	19.0J	37.0J	20.3J	6.6J	71.0J

Ecology April 30, 2013

MTCA Sediment Management Standards for Feshwater Benthic:
Sediment Cleanup Objectives & Cleanup Screening Levels:
Freshwater SCO = No adverse effects to benthic community.
Freshwater CSL = Establishs a minor adverse effects level including acute or chronic effects and may be defined as potential cleanup for benthic community see Rule.
Dredge MMP Screen Level 1 (SL)
Dredge MMP Marine Maximum Level (ML)

J = Laboratory analysis shows chemical is present and the concentration is an estimated value.
U = Laboratory analysis shows chemical is not detected (is not present) at the detection reporting limit.
PAH-TH = Total High Poly-aromatic hydrocarbons (PAHs). PAH-TL = Total Low PAHs.
U=1/2 = Totals are calculated as sum of all detected results and 1/2 the undetected reporting limit.
Dioxin TEQ = Total Dioxin/Furan Toxicity Equivalency (TEQ) values as of 2005 World Health Organization.
* Tributyltin = Reported for DMMP as porewater in ug/L or ppb; or SMS reported as dry weight in ug/kg or ppb.
Phthalate DNOP = Di-n-octyl phthalate. PCBs Total = Total 7 Polychlorinated biphenyls (Aroclors).
Dioxin TEQ = Total Dioxin/Furan Toxicity Equivalency values as of 2005 World Heath Organization.

[a]SMS Freshwater screening criteria reported in parts per billion dry weight from WAC 173-204-563(2)(g) or as specified.

[b] = Dimethyl phthalate reported levels are higher than interim freshwater criteria, toxicity is unknown and recommend substance be considered a chemical of concern for future evaluation.

Table 8. Kenmore Area Sediment Results for Dioxin Compared with Seattle and other Urban & Rural Soil Dioxin Results with different regulatory limits.

These results represent three different studies and two different sampling media -one being sediment and the second being soil, and four different cleanup or screening criteria. Cleanup and screening criteria involve multiple evaluations related to health risk, pathways and exposures. This information is available for background information, and be aware of these differences when you compare Kenmore area sediment results and Seattle and Washington background soil results.

Dioxin Concentrations compared to State and Federal Regulatory Limits*.

Location	Range-Parts per trillion (pptr)	Average (pptr)	Number of samples abo State MTCA Method B so cleanup leve (11 pptr)	Number of samples abo Federal ATSDR screening lev (50 pptr)	Number of samples abo EPA draft cleanup level (72 pptr)	Number of samples above DMMP screening level - SL 1 (4 pptr)
Kenmore Sediment Results						
Public Parks & Boat Launch						
Lyon Creek Park	**0.4 - 0.5**	**0.45**	0	0	0	Not
Log Boom Park	**0.3 - 7.9**	**2.4**	0	0	0	Applicable
Samm R Boat Launch	**0.6 - 1.4**	**1.0**	0	0	0	
K Navigation Channel	**1.6 - 10**	**5.5**	0	0	0	5
Private Site & Marinas						
Harbour Village Marina	**6.6 - 71**	**35**	3	2	0	5
North Lake Marina	**20 - 37**	**29**	2	0	0	2
Lakepointe -KIP Site	**0.4 - 10**	**3.0**	0	0	0	1
Waterways						
Lake Washington near sho	**0.5 - 0.7**	**0.6**	0	0	0	0
Samm River near shore	**0.4 - 2.3**	**1.0**	0	0	0	0
Kenmore Area -30 results	**0.3 - 71**	**12.5**	5 17%	2	0	14
Kenmore Area without mar	**0.3 - 10**	**3.03**	0 0%	0	0	Not applicable
Seattle Neighborhood Urban Soil Dioxin Results**						
Ballard	**1.9 - 62**	**26.1**	17	2	0	
Capitol Hill	**3.2 - 96**	**18.2**	8	3	1	
Georgetown	**5.3 - 115**	**35.5**	17	4	2	Not
Ravenna	**5.2 - 50**	**14.7**	7	0	0	Applicable
South Park	**3.5 - 23**	**12.4**	12	0	0	
West Seattle	**1.7 - 33**	**7.5**	2	0	0	
All Seattle Areas -120 resu	**1.7 - 115**	**19.1**	63 53%	9	3	
Washington Urban, Open and Forest Soil Dioxin Background Results***						
Urban - Tri-Cities	**1.4 - 4.8**	**3.1**	0	0	0	
Urban - Spokane	**0.98**	**0**	0	0	0	
Urban - Tacoma	**9.5 - 19**	**15**	*estimated 5*	0	0	Not
Urban - Seattle	**0.13 - 6.0**	**2.4**	0	0	0	Applicable
Urban	**0.13 - 19**	**4.1**	*estimated 3*	0	0	
Open	**0.04 - 4.6**	**1.0**	0	0	0	
Forest	**0.03 - 5.2**	**2.3**	0	0	0	
Total -30 results	**0.03 - 19**	**2.8**	*est 8 27%*	0	0	

continued...

Continued - Kenmore Area Sediment Dioxin Results Compared with Seattle and other Urban and Rural Soil Dioxin Results with different regulatory limits.

* Regulatory limits. Range of sediment data for dioxins are reported as toxic equivalents (TEQs). This means the measured concentrations have been adjusted to reflect the different levels of potency of individual dioxin and furan components. The concentrations, adjusted for potency level, are combined into a single concentration that reflects the potential toxicity of the mixture of dioxin and furan components.
State MTCA is a rule that outlines procedures for setting cleanup levels for hazardous substances.

Federal Agency for Toxic Substances Disease Registry Screening Levels. This level is used to identify areas where more study is needed and is not a cleanup level.
U.S. Environmental Protection Agency proposed soil screening levels. EPA's Superfund cleanup program published draft soil cleanup guidelines in 2009. These guidelines are used for setting cleanup levels for hazardous substances.
DMMP Screening Level. Dredged Material Management Program (USACE, EPA, WADNR, Ecology) set screening guidance for dredge solids open water disposal for dioxin/furan at 4 pptr for unrestricted open water disposal.

**Washington Soil Dioxin Study Results, Ecology Publication # 11-09-219 dated September 2011, see Appendix D.
***Washington State Background Soil Concentratiion Study in Rural State Parks by Hart Crowser, June 7, 2011.

Table 9. Kenmore Area Sediment Results for Dioxin Compared with Ocean Survey Vessel Bold Puget Sound background sediment data -DMMP 2009.

These results are all for sediments. However, the OSV Bold survey was conducted in Puget Sound, a marine setting in Washington. The sample locations were selected to focus on sediments that were outside the influence of known sources. More information on the sampling locations can be found at http://www.nws.usace.army.mil/Missions/CivilWorks/Dredging/Dioxin/PugetSoundPCBDioxinSurvey.aspx

Dioxin Concentrations compared to OSV Bold Sediment results.

Location	Range-Parts per trillion (pptr)	Average (pptr)	Number of samples above State MTCA Method B soil cleanup level (11 pptr)	Number of samples above Federal ATSDR screening level (50 pptr)	Number of samples above EPA draft cleanup level (72 pptr)	Number of samples above DMMP screening level - SL 1 (4 pptr)
Kenmore Sediment Results						
Public Parks & Boat Launch						
Lyon Creek Park	**0.4 - 0.5**	**0.45**	0	0	0	0
Log Boom Park	**0.3 - 7.9**	**2.4**	0	0	0	1
Samm R Boat Launch	**0.6 - 1.4**	**1.0**	0	0	0	0
K Navigation Channel	**1.6 - 10**	**5.5**	0	0	0	5
Private Site & Marinas						
Harbour Village Marina	**6.6 - 71**	**35**	3	2	0	5
North Lake Marina	**20 - 37**	**29**	2	0	0	2
Lakepointe -KIP Site	**0.4 - 10**	**3.0**	0	0	0	1
Waterways						
Lake Washington near shore	**0.5 - 0.7**	**0.6**	0	0	0	0
Samm River near shore	**0.4 - 2.3**	**1.0**	0	0	0	0
Kenmore Area -all 30 results	**0.3 - 71**	**12.5**	5 17%	2	0	13
Kenmore Area without marinas	**0.3 - 10**	**3.03**	0 0%	0	0	Not applicable
Puget Sound OSV Bold Samples						
Hood Canal (n=5)	**0.65 - 1.15**	**0.89**	0	0	0	0
Outer Sound[1] (n=15)	**0.26 - 1.74**	**0.74**	0	0	0	0
Inner Sound[2] (n=30)	**0.26 - 11.6**	**1.91**	1	0	0	2
Reference bays[3] (n= 20)	**0.24 - 5.15**	**1.13**	0	0	0	1
Total -70 results	0.24 - 11.6	1.42	1 0%			

[1]Outer Sound samples includes samples from Admiralty Inlet, San Juan Islands, and Straits of Juan de Fuca

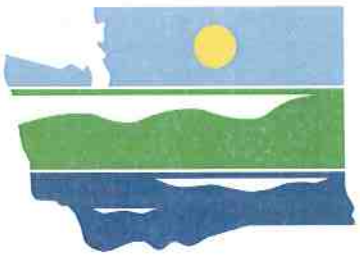
[2]Inner Sound samples includes all OSV Bold sample locations other than Hood Canal, reference, and Outer Sound. These samples ranged from the northest side of Whidbey Island to Squaxin Island/Case inlet.

[3]Reference bays included Carr Inlet, Holmes Harbor, Dabob Bay, and Samish Bay

Appendix D.

Kenmore Area Sediment Study Planning

& Results Meeting Summaries



DEPARTMENT OF
ECOLOGY
State of Washington

Public Meeting Summary July 18, 2012

Kenmore Industrial Park aka Lakepointe Site &

Kenmore Lakefront Area, Kenmore, Washington

Former Landfill Site

Northeast Lake Washington Sediments

Environmental Concerns

Meeting Comments & Ecology Responses

Prepared by

Washington Department of Ecology

September 20, 2012

Environmental Protection on the City of Kenmore Lakefront

Summary Kenmore Industrial Park & Area Public Meeting - July 18, 2012

Kenmore residents have expressed concern about potential environmental contamination in the City of Kenmore's Lake Washington harbor and waterfront area. These concerns center on two locations:

- An industrial area situated over a former landfill
- An area, of dimensions to be determined, where lake bottom sediments contain dioxin and other contamination

The Department of Ecology (Ecology), other government agencies, and more than 60 citizens met on July 18, 2012, at Kenmore City Hall for discussions of these and related concerns. Audience members provided several comments and recommendations to which Ecology agreed to respond. We preface these responses with an overview, including some general background discussion on the origin and transport of dioxins in the environment.

Former Landfill Site

The old landfill is a formal cleanup site under Washington's environmental cleanup law, the Model Toxics Control Act (MTCA). Ecology oversees the private owner's management of the site under a legal agreement called a Consent Decree (CD). The 44-acre property is called Kenmore Industrial Park (KIP), also referred to as Lakepointe.

KIP underwent a site investigation from 1996 through 2001, prior to signing the Cleanup Action Plan and the CD. The investigation followed federal and state procedures and requirements to identify or rule out hundreds of potential pollutants that could exist in such a site. This process produces a list called the chemicals of concern, substances that bear further monitoring and evaluation. The investigation identified five of these substances: petroleum oil and diesel, and the metals arsenic, barium, and lead.

These materials can dissolve in water and be transported by groundwater. KIP has monitoring wells placed to intercept the path of groundwater under the site in order to detect movement of contaminants by groundwater before they can reach the Lake Washington, Sammamish River, and Navigation Channel - waters on three sides of the property. To date, this monitoring has not detected these chemicals and has only found barium at concentrations well below state cleanup standards set under MTCA.

The landfill is isolated below ground level. It is covered with two or more feet of clean soil and an additional foot of gravel, to prevent people or wildlife from coming into contact with deposited materials. The CD prohibits digging into or otherwise disturbing the old landfill. Should the property undergo redevelopment that involves excavation, the CD requires a systematic process to identify, clean up, and safely dispose of landfill material at an approved waste facility.

KIP has several tenants, all of whom must conduct their activities above ground in a manner that complies with the CD and does not disturb the landfill materials isolated below. The largest current tenant, occupying the 14 westernmost acres, is a joint venture construction firm that is building concrete structures under a contract with the Washington State Department of Transportation (WSDOT) for the Highway 520 bridge replacement project.

The WSDOT contractor also operates under Ecology's construction stormwater general permit, which requires practices to prevent construction-related pollution of stormwater.

Dioxins in Sediments

The second matter of concern involves a discovery last year of contamination in the lake bottom, called sediments, at a boat marina on the opposite side of the lake harbor, at Harbour Village Marina (HVM) in Kenmore. As part of the process for applying for approval to dredge in the marina, the owner's consultant studied samples of the sediment to determine if the lake sediment contained contamination that may require special disposal and handling. This process identified the presence of dioxins, PCBs, and other contaminants.

Dioxins are a group of chemicals that form as unwanted byproducts of burning household or industrial wastes. They also are produced in industrial processes that involve chlorine, such as bleaching wood pulp or manufacturing certain chemicals. Exhaust from vehicles, forest fires, and wood or coal burning can release dioxins into the air. Small amounts, at levels not considered harmful, are found in various paper and pulp products. For more information, see Ecology Publication #10-=09-053 "Natural Background for Dioxins/Furans in Washington Soils" dated August 9, 2010, and "Lower Duwamish Waterway – Seattle Soil Dioxin Study" dated July 6, 2012.

Dioxins can be found at low, but detectable levels throughout the world. They tend to "stick" onto small particles. Soot and other fine airborne particles settle to the ground. Soils near burning sites may contain dioxin contamination. Stormwater carries these particles to storm drains to streams or lakes. Dioxins in water do not readily dissolve and tend to settle to the bottom and "stick" to sediment particles. Places where particles and silt settle or accumulate, such as dips in stream beds or where puddles form may have raised levels of dioxins if the incoming particles carry the chemical. If carried downstream, such particles may accumulate near stream mouths or drain outfalls.

Once it "sticks" to particles, dioxin holds on. It tends not to "let go." Lake or stream bottoms with dioxin contamination may continue to accumulate and it is very unlikely to release dioxin into the water.

Dioxin also bonds to animal fat. It enters the food chain when small creatures eat tiny plants that grow in dioxin-contaminated sediments and ingest some of the fine particles. Dioxin has a stronger "affinity" for fat than for particles, and it accumulates in the fat tissue of whatever eats it. This process works up the food chain. Large fish or mammals that eat smaller creatures with dioxin-contaminated fat will accumulate the highest concentrations of dioxin.

The most common way people are exposed to dioxin is by eating something that contains it. Meats and produce may contain small amounts, but fish tend to have the highest levels. Lake Washington has a state fish consumption warning for PCBs, another pollutant that adheres to sediment particles and accumulates in fat. Urban metropolitan areas tend to have higher background levels of both pollutants. For this reason, many urban areas have advisories or restrictions on the consumption of certain kinds of fish.

Ecology and the City of Kenmore are preparing to conduct additional sediment sampling to test for dioxins, PCBs, and other chemicals of concern in the Kenmore waterfront area. The City is also preparing to test the Navigation Channel for future dredging. This study will begin to define the "footprint" of the location with elevated levels of contamination sediments. Depending on the results, further testing may be needed. The sediment sampling will provide information that will help scientists determine possible risks to public health and to the environment. The sampling may generate evidence to help identify a source(s) for the dioxin contamination.

The landfill material isolated in the ground at KIP does not appear to be a likely source of dioxin in the lake sediments. Even if the landfill material contained some dioxin, it is unlikely to have a path, or means of transport, through the ground and into lake or adjacent channel or river sediments. Groundwater tends not to carry dioxin because the chemical tends to "stick" to the soil particles and not release to the water. Additionally, the movement of groundwater through soil does not dislodge the soil particles. Free-flowing water, like surface water runoff, however can carry dioxin-contaminated particles and deposit them in lakes or adjacent waterways. However, the cap on the landfill is designed to prevent the release of any potential landfill contaminants from entering surface waters.

Nevertheless, to address concerns about the KIP site as a potential source of dioxins to Lake Washington and the Sammamish River, Ecology plans to test sediments adjacent to and offshore of the KIP site.

Environmental Concerns Expressed at the July 18, 2012 Community Meeting

Concerns expressed at the meeting fell into four overarching topic areas:

- Desire for enhanced public communication, engagement, and participation
- Additional toxin sampling to identify locations and sources, with a focus on dioxins and PCBs in the harbor and lakefront, including Log Boom Park
- Additional funding for testing
- Signage at Log Boom Park

Ecology continues its ongoing commitment to work on all of these issues. At the same time, our agency must proceed within legal and regulatory requirements, appropriate scientific procedures, and available funding and resources. In brief overview:

- Public Engagement: The agencies are developing a coordinated public forum approach to provide information, answer questions, and receive input, on a scheduled, ongoing basis.
- Toxin Sampling: Ecology and the City are preparing to conduct additional sampling at the harbor and lakefront including KIP, HVM, and Log Boom Park, with a focus on PCBs, dioxins, and other chemicals of concern, in coordinated studies.
- Funding: Ecology acquired $35,000 for additional targeted testing.
- Signage: The City of Kenmore has posted an advisory at Log Boom Park.

KIP and Sediment Contamination

A conviction that hazardous materials are migrating from the KIP site underpinned many of the questions and comments.

The data to date from the site evaluation and subsequent monitoring indicate that toxics are not migrating from the KIP site. A document, Potential Hazardous Waste Site Preliminary Assessment from EPA dated November 11, 1984, that lists various materials, such as transformers and medical waste, is a checklist used at the time as a tool to describe potential landfill contents. In addition, one waste disposal company, Bayside Disposal, lists food and medical waste and transformers being deposited. However, site testing to date has not identified theses wastes. The site investigation determined that the landfill presented five chemicals of concern for future monitoring: petroleum oil and diesel, and the metals arsenic, barium, and lead.

Ecology appreciates the concerns expressed about the landfill's potential contents. The presence of a landfill on any site is always a serious matter. We acknowledge that it is not possible to know all the contents of a historic landfill. Nevertheless, the Toxics Cleanup Program has developed considerable expertise in evaluating and managing a number of former landfill sites. The KIP landfill went through the protocols that guide the careful investigation needed for all former landfills.

We recognize the amount of time that has passed since the site underwent its Remedial Investigation Feasibility Study in 2001. Whenever a contaminant is isolated below ground, Ecology requires periodic monitoring, which was conducted at the KIP site in 2009-2010. For that reason, KIP has monitoring wells that allow us to access groundwater to detect migration of pollutants from the landfill area. Samples taken and analyzed in 2009, 2010, and April 2012 show no detectable level of contaminants except for barium at levels significantly below state cleanup standards. The groundwater's lack, or low level, of chemicals provides evidence that there is currently no migration of pollutants from the landfill to adjacent waterways.

Could the former landfill be a source of dioxin and PCBs found in sediment at HVM? Dioxins and PCBs tend to also stick or bind to soil and to rarely dissolve in water. Sediment transport from the landfill to the lake is unlikely, if not impossible. The specific responses below provide further detail on this subject.

Even though there is no evidence of contaminant migration from the landfill into the water or sediments, we will address concerns that KIP may be a sediment contamination source by collecting sediment samples offshore of the KIP site. This is part of the sediment sampling and analysis plan being prepared by Ecology and the City to follow up on the contaminants found at HVM. We look forward to providing the sediment sampling plan to the community for their review in the near future.

Lake Washington Use, Recreation and Public Safety

The discovery of contamination in the lake bottom rightly prompts concerns for safety, health, and the environment. The tendency of dioxins and PCBs to bind with sediment and not dissolve freely in to the water argues against classifying the present circumstances in Kenmore as an emergency or crisis. With results from the upcoming sediment studies, community members, the City, Ecology and other agencies will be able to proceed on a mutually informed basis.

July 18, 2012 Meeting Comments

Signage

- *Need for signage warning the public of possible exposure risks due to swimming.*
- *Several speakers expressed significant frustration that Ecology and DOH are not providing adequate warning of potential risks to the public. Requests were made for signage, in all languages appropriate for those swimming in the area. Several speakers also expressed the opinion that Ecology should not wait for additional testing before providing warning signage to the public.*

Ecology Remarks:

The City posted an advisory sign at Log Boom Park on July 27, 2012. The sign calls attention to the discovery of contamination in nearby sediments and that follow-up testing is planned.

Public Participation

- *Need for greater public participation in the testing and cleanup processes, including the formation of a citizens' advisory committee.*
- *Several speakers identified the need for public participation in the design and selection of sampling plans and locations.*
- *State Representative Pollet reiterated his request for the formation of a committee/forum for communication between citizens and the agencies involved in these sites. There was notable frustration that the same issues continue to be articulated by the public, but answers are not forthcoming.*

Ecology Remarks:

Ecology is committed to open communication and coordination with all interested people. We welcome comments and recommendations at any time. This applies within the formalized

framework of a public participation plan, or the more general outreach associated with a site investigation. Specifically, citizen comments to Ecology on the KIP, or Kenmore lakefront area, are welcome any time. The proposed Sediment Sampling and Analysis Plan draft will be posted on the webpage and circulated for citizen review and comments.

Recent Ecology outreach efforts related to KIP and the Harbor Village Marina sites include:

- Revised and updated the Public Participation Plan, which applies only to the KIP site.
- Held a public meeting on July 18, 2012, to present detailed information on the KIP site, HVM sediment contaminant discovery, related background information, and listen to citizen comments.
- Maintains and updates websites for KIP site and HVM site.
- Informed the community about the opportunity to apply for public participation grant funds, which can assist with outreach activities and with independent community professional technical support for the KIP site. For more information, please contact Ecology's Waste 2 Resources Public Participation Grants: Allyson Ruppenthal at arup461@ecy.wa.gov or 360-407-6044.
- In addition, Ecology and other agencies active on Kenmore lakefront issues are developing a joint approach for community information and communication forums to facilitate contact and communication between community and agency representatives. This process will incorporate the KIP public participation plan.

PCBs and Dioxins:

- *Several requests were made for Ecology to investigate specific areas as possible sources of PCBs and dioxins: the shores of KIP, storm water outfalls near HVM, Cal Portland, CEMEX asphalt plant, among others.*

Ecology remarks:

Ecology and the City of Kenmore are preparing the Sediment Sampling and Analysis Plan (SSAP) in coordination with Washington Department of Health. Ecology will incorporate as many requested locations and suggestions as feasible, but must follow the site selection requirements of MTCA and WDOH recommendations. The SSAP will be posted on the HVM webpage at http://ecyapps4/gsp/SitPage.aspx?csid=9197.

- *Ecology was asked why it has not previously tested several areas for both PCBs and dioxins. Not testing groundwater samples at KIP for dioxins were identified in particular and several questions attempted to ascertain Ecology's confidence as to whether or not toxics were migrating off-site through groundwater.*

Ecology Remarks:

Some basic scientific information regarding dioxins and PCBs will aid in addressing this issue. Dioxins and PCBs do not dissolve in water. They attach to fine silt and sediment, and to fat

tissue if ingested by aquatic animals and people. Dioxin is transported when contaminated sediment particles are pushed and moved by water. Groundwater generally does not carry these pollutants except when they are attached to suspended particles like silt or clay. PCBs and dioxins, because of their shared characteristics, are commonly found in the same samples.

Dioxin Testing: Per MTCA requirements, Ecology selects contaminants of concern based on evaluation of site history, operational practices, and associated contaminant classes. In the late 1990s and early 2000s, when KIP underwent its site investigation, Ecology's general practice was not to analyze for dioxin unless there was specific reason to believe that dioxin generating industrial activities, such as wood treatment or bleached paper production, had occurred at the site, or at the source of the landfill material. With the recent interest in the site and concerns associated with dioxins, Ecology will be conducting dioxin testing as part of the SSAP.

PCB Testing: PCB analysis has been conducted several times at KIP. The results were summarized at the July 18, 2012, public meeting and have been posted on the KIP site webpage. The KIP Remedial Investigation Report (AMEC 2001) listed soil and groundwater testing for PCBs and all results showed no detection with one exception. The one exception was a wood chip at one boring site. Further testing showed no detection, so that result was dismissed. Soil tests in 2011 and 2012 also showed no detection for PCBs.

Dioxin Testing

- *Need for dioxin to be included in all future sediment and water quality testing.*

Ecology remarks:

Ecology is preparing to conduct sediment sampling, including dioxin/furans, in Kenmore lakefront area sediments in conjunction with the City's Sediment Sampling Plan. Of important note: PCBs are generally found on particles of soil, sediments, and fat tissues, but not in the water itself. We expect results in late fall 2012. These studies will provide a preliminary level of information as a first step in the follow-up to the PCBs and dioxin levels found at HVM. Decisions on future testing will depend on these results.

Funds for Testing

- *Need for greater funding for testing and eventual cleanup.*
- *State Representative Pollet and others indicated that the Ecology budget of $35,000 is inadequate for the [Sediment Sampling and Analysis Plan] testing needs in this area. He and other speakers requested Ecology to seek additional funds, as well as petitioning private parties to contribute towards independent testing if possible.*

Ecology Remarks:

The KIP site underwent investigations that screen for hundreds of substances, under procedures developed for the state Model Toxics Control Act requirements for a site of this type. Follow-up monitoring, including those planned for this fall, also complies with these requirements. Based

on these scientific evaluations, Ecology is confident that the site has undergone appropriate characterization and does not require additional testing at this time, other than periodic monitoring for chemicals of concern.

The City of Kenmore and Ecology are preparing a Sediment Sampling and Analysis Plan to evaluate and follow up on the October 2011 report of dioxins, PCBs, and other contaminants in sediments at HVM. Both the City of Kenmore and Ecology have secured funds for the sediment testing. The City of Kenmore had previously planned sediment testing to prepare to apply for federal dredging to maintain the Kenmore Navigation Channel. Sediments to be dredged must first undergo testing for contamination to determine the proper disposal option.

The City will broaden the scope of its study by extending it to include sediments off Log Boom Park, and by cooperative agreements with other lakefront property owners for additional sample locations. Ecology has secured $35,000 in state Toxics Control Account funds to conduct additional testing at HVM and the Kenmore lakefront vicinity, including locations off KIP shorelines. We estimate that this funding will provide the next step in evaluating dioxin and PCB occurrence at the Kenmore lakefront area including Log Boom Park.

Ecology and the City of Kenmore expect the sediment studies to provide:

- Direct information on sediment conditions off Log Boom Park
- Information to determine – or begin determining – the "footprint" of elevated dioxins, PCBs, and other potential contaminants in area sediments
- Clues from the footprint to identify – or begin identifying –the elevated contaminant source
- Data on navigation channel sediment for proper dredged materials disposal

Such studies at this stage of an initial investigation may indicate or clarify a need for additional study. If so, cooperation among citizens, the City, Ecology, other agencies, and the legislative delegation will be essential in making the case for obtaining funding and support needed to proceed in order to address the community's concerns. If a potential source is identified, Ecology could require that the potentially liable party or parties assume responsibility for further investigation and possible cleanup.

Identify Sources of Toxins

- *Need to identify source(s) of the toxins. Several requests were made for Ecology to investigate specific areas as possible sources of PCBs and dioxins: the shores of KIP, storm water outfalls near HVM, Cal Portland, asphalt/hot mix plant, among others.*

Ecology Remarks:

Ecology agrees on the need to determine the source of toxins that are found at a site and, if possible, whether the contamination is historic or active. Generally, the first step is to determine the "footprint," the area where the contaminant is elevated. In the case of dioxins, part of this

involves a horizontal assessment, particularly if the elevated concentrations are at or near the sediment surface. Shallow findings could suggest an active source. If this were the case, identifying the source would become a higher priority. The horizontal assessment also would evaluate the lateral extent of this contaminant – how far east and west the contaminant occurs, and how best to control and cleanup this contaminant. The next step would be to evaluate a vertical assessment and determine if this is a recent or historic issue.

Stockpiled soils:

- *Speakers presented conflicting observations of stockpile soil movement and possible excavation at the KIP site. Some speakers also identified the fact that Ecology did not propose testing of the stockpile soils until citizens became involved.*

Ecology Remarks:

KIP's proposal to Ecology and Kenmore for the Deferred Industrial Maintenance project in October 2011 addressed proper and safe management of surface soils stockpiled at the site's west area. This included a plan for moving the surface soil from the west to the east area of the KIP site and never included sale of these soils. The surface stockpile soil rested on top of the clean, not-to-be-disturbed fill that covers the landfill site. Moving the stockpile involved no disturbance of the fill cap.

In response to citizen inquiries, Ecology directed KIP to conduct additional sampling. Ecology has posted the 2011 results on the KIP site webpage. Kiewit General Manson (KGM), which now occupies KIP's western 14 acres, sampled additional soil samples in 2012, and Ecology has added the results to the webpage.

All results showed no detection of PCBs and levels below state cleanup standards. Ecology has confirmed with KIP that these soils will be stockpiled at the east area of the site and will not be sold for unrestricted use. The stockpiled material has been contoured to minimize erosion potential and proper stabilization with permanent erosion controls, including mulch and seeding, has been performed.

The 2011 and 2012 samples indicate that the material is well below industrial cleanup levels for all substances tested, and is appropriate for the material to remain on the industrial site. If KIP were to consider future off-site use of the soil for unrestricted land-use applications, the material would require additional sampling, subject to Ecology approval. If KIP undergoes development, and the stockpike dirt remains on-site at the time of redevelopment, it would be relocated in accordance with the KIP Cleanup Action Plan, which addresses testing and disposal for all soil at the site.

Stormwater:

- *Several speakers expressed skepticism regarding the use of infiltration for treatment of stormwater as well as the possibly inadequate sizes of retention basins. They expressed the opinion that adequate safeguards are not in place to ensure that contaminated stormwater does not enter groundwater.*

Ecology Remarks:

Ecology's Construction Stormwater General Permit governs the management of stormwater on KIP's 14 acres leased for the Highway 520 bridge project. This permit allows infiltration of stormwater into the ground. The type of construction at this site generates two pollutants: turbidity and high pH.

Turbidity is the amount of solid particles in the water and for example, comes from runoff water that drains off bare soils, which is common at many construction sites when excavation takes place. This site, though, does not involve such excavation. All work occurs on a layer of crushed rock. Turbid stormwater is a concern if discharged directly to surface water; it is not a concern when discharged to ground as the subsurface soil accumulates the solid particles.

Construction of concrete structures can produce high pH (caustic) runoff water due to the high pH of uncured concrete. The permit does not allow the discharge of high-pH stormwater into the ground. Various practices prevent this. Examples include recovery and proper disposal of water used to rinse concrete forms and the use of rain sheds to prevent stormwater from contacting uncured concrete. At the 520 bridge project at KIP, high-pH stormwater is collected at the concrete forming areas and discharged to the King County sanitary sewer under permit. The high-pH water is not discharged to groundwater.

Concerning the former landfill materials isolated underground at KIP, groundwater monitoring results from April 2012 showed the new stormwater drainage system is working as designed. All of the monitoring results for the entire KIP site showed no detection for KIP chemicals of concern (petroleum diesel and oil, arsenic, barium and lead) and pH and turbidity were normal and not a concern. The testing included additional chemicals - semi-volatile organic compounds, copper, cadmium and zinc - and these results showed no detection or very low levels, substantially below state cleanup levels.

In other words, the April 2012 results show no migration of chemicals to adjacent waterways. The 520 bridge concrete work at Kenmore has not caused changes to the subsurface causing chemicals to migrate to adjacent waterways, and has not caused high pH and turbidity to be discharged to the adjacent waterways. Dioxins and PCBs tend not to be transported in water, and sediment transport from the landfill to the lake is unlikely if not impossible. This monitoring will be repeated in September 2012.

Endangered species:

- *Speakers expressed particular concern about possible impacts of toxic exposure on fish, especially endangered Chinook salmon. One speaker also identified bird species as not receiving adequate environmental consideration.*

Ecology Remarks:

The elevated dioxin and PCB levels found in HVM sediments concerns Ecology and other agencies. The City and Ecology follow-up sediment studies will provide the first information

that will give some indication whether dioxins occur in shallow sediments where they can enter the food chain.

Contaminants in the isolated former landfill at the KIP are unavailable to the food chain. Groundwater monitoring at KIP in 2009, 2010, and 2012 have tested all known chemicals of concern and the results show no migration of these chemicals into adjacent waterways. The groundwater tests will be repeated in September, 2012.

Mitigation:

- *Several speakers expressed the opinion that WSDOT should leave the KIP site better than when it was found. Members of the public requested that WSDOT consider mitigation strategies once construction activities have been completed.*

Ecology Remarks:

Ecology has forwarded these comments to WSDOT.

Kenmore Area Sediment & Water Characterization Sampling Results
Public Meeting and Community Questions and Agency Responses

Agencies: City of Kenmore, Washington State Departments of Ecology and Health, and Dredge Material Management Program (DMMP with Corps of Engineers, EPA, Ecology and Washington Department of Natural Resources)

Date: July 11, 2013 - Open House 5:30-7 pm - Public Meeting 7-8:30 pm at Kenmore City Hall

Presentations: -Ecology Environmental Evaluation for the Kenmore Area Sediment & Water Characterization Results by Maura S O'Brien, Ecology Toxics Cleanup Program

-Kenmore Area of Lake Washington & Sammamish River Evaluation of Sediment, Surface Water and Groundwater, King County, WA by Lenford O'Garro, Department of Health

Date: August 30, 2013 - Public Meeting Summary with Community Questions and Responses

Community Questions & Agency Responses

1. *Citizen Comments - More work needs and comments by Greg Wingard, KAN Kenmore Action Network representative:*
   - *Would like numeric value for risk – not just terms low to insignificant.*

   Department of Health Response - The numeric values for risk are included in the Health Consultation report (Page 16 and Appendix C Tables C3 – C5) along with the qualitative terms "low to insignificant (see page 15 – Text box – Estimated Cancer Risk).

   - *More work needs to be done in a timely fashion –need to identify source(s) of dioxin. We do not know if it is static or continues to be released.*

   - *Missing from Ecology next steps – there is no definitive timeline. Need to have timeline to hold agencies and PLPs (Potential Liable Persons for contamination) accountable for work getting done.*

   Ecology Response –This sampling event represents a screening level evaluation of current near shore sediment conditions compared to the state cleanup requirements for human health and the environment including the new Washington state sediment standards called Freshwater Sediment Cleanup Screening Criteria.

   Ecology plans to conduct more investigation and testing at the two private marinas, and testing to identify the possible source or sources of dioxin. The time line for these tasks is yet to be determined and funds to be confirmed. For Ecology, I will submit a request for additional funds to implement further sampling.

2. *Citizen questions:*
   - *Land north of the KIP (Kenmore Industrial Park) property is owned by a Japanese company called Fuyo. In the KIP reports there are wells located at the Fuyo property and were tested at one point, and question, are those wells being tested? If not, why?*

Ecology Response –Fuyo General Lease LLC is the current owner of the concrete batch plant at the north side of the Kenmore Navigation Channel. The Kenmore Industrial Park site footprint in the final Remedial Investigation/Feasibility Study Report (2001) and delineated in the Consent Decree (2001) does not include the Fuyo parcel because the former owner sold it. However, earlier testing in 1998 listed soil results and no groundwater results at the north side of the Navigation Channel.

Earlier investigation was conducted by Agra Earth & Environmental Inc (August 1998). Agra listed one well (AW-14) approximately in the center of the concrete plant area with soil results and no groundwater results. The August 1998 report showed soil testing for petroleum, polychlorinated biphenyls (PCBs aroclor 1254 and 1260) and metals. The petroleum soil results showed no detection for Total Petroleum Hydrocarbons TPH-gas, and low levels for TPH-diesel and oil. The TPH-diesel results showed 27 parts per million (ppm) compared to MTCA cleanup level in 1998 at 200 ppm and today at 2000 ppm. The TPH-oil results showed 143 ppm where the MTCA method A cleanup level in 1998 was 200 ppm and today at 2000 ppm. The August 1998 results for PCBs were all below detection at 0.050 ppm. The metal soil results showed no detection for arsenic, cadmium, lead, mercury, selenium and silver; and low concentration level for barium at 18 ppm compared with cleanup level at 200 ppm, and for chromium at 102 ppm compared to cleanup level at 100 ppm. No further investigation is reported for the concrete batch plant area.

3. *Citizen questions:*
   - *How deep did testing go down in sediment to determine the dioxin concentration of 92ppt at Harbour Village Marina in 2011?*

Ecology Response –The Harbour Village Marina (HVM) sediment testing for the 2011 dredge characterization application included three samples, which were composited (combined) from seven locations. The dioxin results (TEQ = total dioxin/furan Toxicity Equivalency values) are reported at 92, 77 and 43 TEQ parts per trillion (pptr) and represent sample depths of 0.5 – 1.5 feet. HVM sample C1 with 92 TEQ pptr dioxin results included three discrete samples from depths of 0.5, 1.0, and 1.5 feet that were combined together (composited) to represent one result.

   - *Indicated why city may not have to dredge - If you find such a difference in dioxin at these levels, why wouldn't Army Corps of Engineers not sample deeper if 3 feet will need to be removed?*

Ecology Response - The City and Mayor of Kenmore are actively seeking funding for dredge characterization sampling. Dredge characterization testing must include the entire dredge prism, plus material below the expected dredging depth that would be exposed by dredging (antidegradation evaluation).

Dredge sampling is required to go deeper than the proposed dredge depth for two reasons 1.) to characterize the sediment quality for disposal, and 2.) to characterize the sediment quality left in place after dredging. Also dredging may require an additional foot or more to be removed in order to add one-foot of clean sand to cap the sediment floor. For the Navigational Channel, which is authorized to 15 ft, this would include up to 4 ft of material plus an additional 2 ft below the authorized depth for

the antidegradation evaluation and clean sand cap. The necessary dredging depth will be evaluated in the dredge application.

- *Confirm this was screening and more testing needs to be done.*

Ecology Response - Ecology has confirmed that the November 2012 sediment & water characterization sampling event was a screening evaluation. More sediment sampling will be required for dredge planning, and environmental evaluation at the two private marinas. Also, more work needs to be done to investigation the source or sources of dioxin at the two private marinas.

4. *Citizen questions:*
   - *Have there been epi studies to see if chronic disease has occurred in the area?*

Department of Health Response - In 2006, Public Health-Seattle and King County did a report that looked at the health of King County, including chronic disease. Due to population size, Kenmore was part of the Bothell/North Shore group. There is a link to the document below, along with a link to King County Community Health Indicators.

Health of King County Report, 2006

http://www.kingcounty.gov/healthservices/health/data/hokc.aspx

King County Community Health Indicators

http://www.kingcounty.gov/healthservices/health/data/chi2009.aspx

- *Have toxicology studies been performed on sediments?*

Ecology Response - Sediment testing was conducted at the Kenmore Navigation Channel in 1996 and 2012 and used chemical testing; and no bioassay, fish or micro organisms were tested. Likewise at the KIP site near shore included chemical testing for metals in 2000 and this recent November 2012 testing, and no toxicology testing. The Harbour Village Marina testing in 2011 and this recent testing in November 2012 were chemical analyses and not toxicology testing.

- *What about comparisons around Lake Washington?*

Ecology Response - Last year at the public meeting, Ecology summarized the Windward Environmental LLC study for dioxin background levels at Lake Washington. This work was conducted for the Lower Duwamish Waterway Remedial Investigation background study (May 21, 2010). The Windward results included four surface sediment locations at Lake Washington. The four sediment results show dioxin concentration in TEQ parts per trillion (pptr) varying from:

- 53.4 J TEQ pptr near and northeast of the Montlake Cut,
-14.7 J TEQ pptr where Mercer Slough enters Lake Washington in Bellevue,
-14.1 and 14.5 J TEQ pptr where the Cedar River enters the lake in Renton, and
-13.2 J TEQ pptr west of Sammamish River entering Lake Washington in Kenmore.

These dioxin sediment results show that the Kenmore results are similar to and lower than the other four background study results. The Windward results are attached in Appendix A.

5. *Citizen questions:*
   - *Asked for collaboration of public and agencies at beginning of process. Collaboration was not done – public was barred from weighing in and feeling of cover-up. We want people in citizen groups to be part of evidence that is gathered so public conscience can be eased.*

Ecology Response –We respectfully disagree with your statement. Here are the steps Ecology and the City of Kenmore took to involve the public during development of the sediment sampling and analysis plan:

-Ecology asked the City of Kenmore and Anchor QEA who prepared the Sediment Sampling and Analysis Plan (SSAP) for Ecology to conduct a public comment period.

-The Draft SSAP (Anchor QEA October 2012) was available for public review and comments from October 15 to 29, 2012. Copies were available at City Hall, Kenmore and Lake Forest Park libraries, in addition to e-copies on the Ecology webpage and Ecology office. Ecology mailed Fact Sheets prior to the comment period to Kenmore residents in the area.

-Ecology received 15 comments from community members and prepared the Responsiveness Summary for the SSAP comments (November 2012) and this is posted on the Ecology webpage.

-Anchor QEA revised the SSAP (Anchor QEA November 2012) based on Ecology's review and recommendations from the community comments and in concurrence and review with the City and Washington Department of Health and the DMMP.

-An Open House was held at City Hall as soon as the sediment results were available. The City and Ecology met with the citizens and answer questions at City Hall on January 23, 2013.

-In addition, Ecology met with citizens in March 2012 at Janet Hayes' home, met with KAN in February 2013 and has answered numerous emails and telephone calls discussing contamination issues and environmental investigations during the last several months.

Ecology cares about your comments, and we want to hear your recommendations and comments.

See the Ecology webpage at https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=2134

6. *Citizen questions:*
   - *Can Department of Health explain the methods used in the health consultation?*

Department of Health Response - The methods used in the health consultation are standard health risk assessment methodology and can be found in the discussion section of the health consultation report (pages 9 – 12) and Appendix C (page 51).

Our approach was similar to assessing soil contamination in a person's yard. The difference was the exposure frequency, or how often a person would come into contact with the contamination. For a

residential yard, 350 or 365 days per year exposure is typically used. For this assessment, we were looking at areas that people visit less frequently. For limited public access areas where sediment is more difficult to come into contact with (Navigation Channel, KIP or marinas), we used a 15 days per year exposure. For the general public access areas (Log Boom Park and boat launch at 68th Street bridge) 30 and 120 days per year exposure was used.

- *Why did Department of Health and Ecology do two similar but different studies when there are resource constraints?*

Ecology Response - The Ecology study was for two purposes to assist in dredge planning and to conduct a screening level environmental evaluation in the Kenmore - Lake Washington area. The Department of Health evaluated possible health effects.

Department of Health Response - Health's consultation differs somewhat from the assessment conducted by Ecology. While both types of assessments use similar steps to address the potential human health effects of environmental exposures (e.g., data gathering, exposure assessment, toxicological evaluation), they are approached differently and are used for different purposes. The Department of Health assessment provides additional public health perspective by using site-specific exposure assumptions along with health effects data to respond to specific community health concerns.

- *Can you talk about historic metals analyses and how that compares over time?*

Ecology has reviewed the metal groundwater results at the Kenmore Industrial Park site over the Ecology history working at this Site. Earlier testing in 1995 and 1996 included priority pollutant metals (arsenic, barium, cadmium, copper, chromium, lead, mercury, selenium, silver and zinc) and later testing focused on three metals –arsenic, barium and lead. One testing event occurred in 1995, three events in 1996, one event in 2009 and 2010, and two events in 2012. The results are summarized in Appendix B.

Over the 17 year history of groundwater monitoring at the KIP site shows all priority pollutant metals are consistently over time below the state MTCA cleanup requirements. The single occurrence of arsenic and barium concentrations slightly above cleanup level show minor fluctuations. Monitoring results repeated over time for these metals at all the wells tested show that arsenic and barium are not a concern at the KIP site. All metals results are below KIP and MTCA cleanup level. Metals are not migrating off-site via groundwater to the adjacent waterways – Sammamish River, northeast Lake Washington, and Kenmore Navigation Channel, and do not represent a risk to human health and the environment. See Appendix B for more details.

7. *Citizen questions:*
   - *How can you say no harm to people's health? What kind of exposure?*

Department of Health Response - When the Department of Health evaluated the data, we compared all the chemical levels to residential soil health-based comparison values. All the chemicals were below the health-based values except two, dioxins and cPAHs (carcinogenic Poly-Aromatic Hydrocarbons). Levels of chemicals below the comparison values are not expected to cause health

effects. However, a chemical level above the comparison values does not mean people will experience health effects. It just does tell us that we need to further assess that chemical, which is what we did for dioxins and cPAHs.

When we further evaluated the dioxins and cPAHs, we considered how people may be exposed to them (touching or swallowing) in the water. Our evaluation of exposure to the maximum levels of the two contaminants indicates no non-cancer health effects and the cancer risk ranged from very low to insignificant. The Department of Health does not expect to see any health effects from exposure to sediment or water at the Kenmore site.

Ecology Response –Ecology used the state Model Toxics Control Act cleanup methods and procedures to evaluate the Kenmore area sediment and water characterization results to see if there is a risk or hazard to human health and the environment. The results show that shallow near shore sediments tested do not represent a risk to human health and the environment at the public parks, Navigation Channel, near shore to the KIP site and lower reaches of the Sammamish River and boat launch location. Further evaluation and testing will be scheduled at the two private marinas.

8. *Citizen questions.*
   - *Pointing out letter written by PERK – read portions of letter.*

Ecology Response – PERK letter was received by Ecology July 10, 2013. Ecology appreciates your concerns and recommendations. Ecology is preparing a response letter.

- *Senator Frockt stated that he is willing to help facilitate funding for additional sampling.*

Ecology Response – Ecology appreciates Senator Frockt's comments and offer to work together for additional sampling and funding. Yes we will definitely follow up.

9. *Citizen questions:*
   - *Can the Department of Health do an assessment that includes exposure to dogs?*

Department of Health Response - No, the Department of Health's evaluates potential exposures to humans, not animals. Potential animal exposure to the chemicals at the site would be assessed by Ecology. However, if dog owners are concerned about the sediments, they can take precautions such as preventing or limiting consumption of, or contact with sediment from the lake or rinsing off sediments if they stick to the dog's coat or skin.

- *Would barges going through the area change the Department of Health's analysis? Would sediment in water column change people's risk.*

Department of Health Response - No, the Department of Health's analysis is based on eating or touching the maximum concentration of contaminants found in sediments. Sediments suspended in the water column would be considered similar to direct contact with in-place sediments and would not be expected to be a health concern.

Appendix A.

Background Dioxin Results at Lake Washington

by

WindWard Environmental LLC

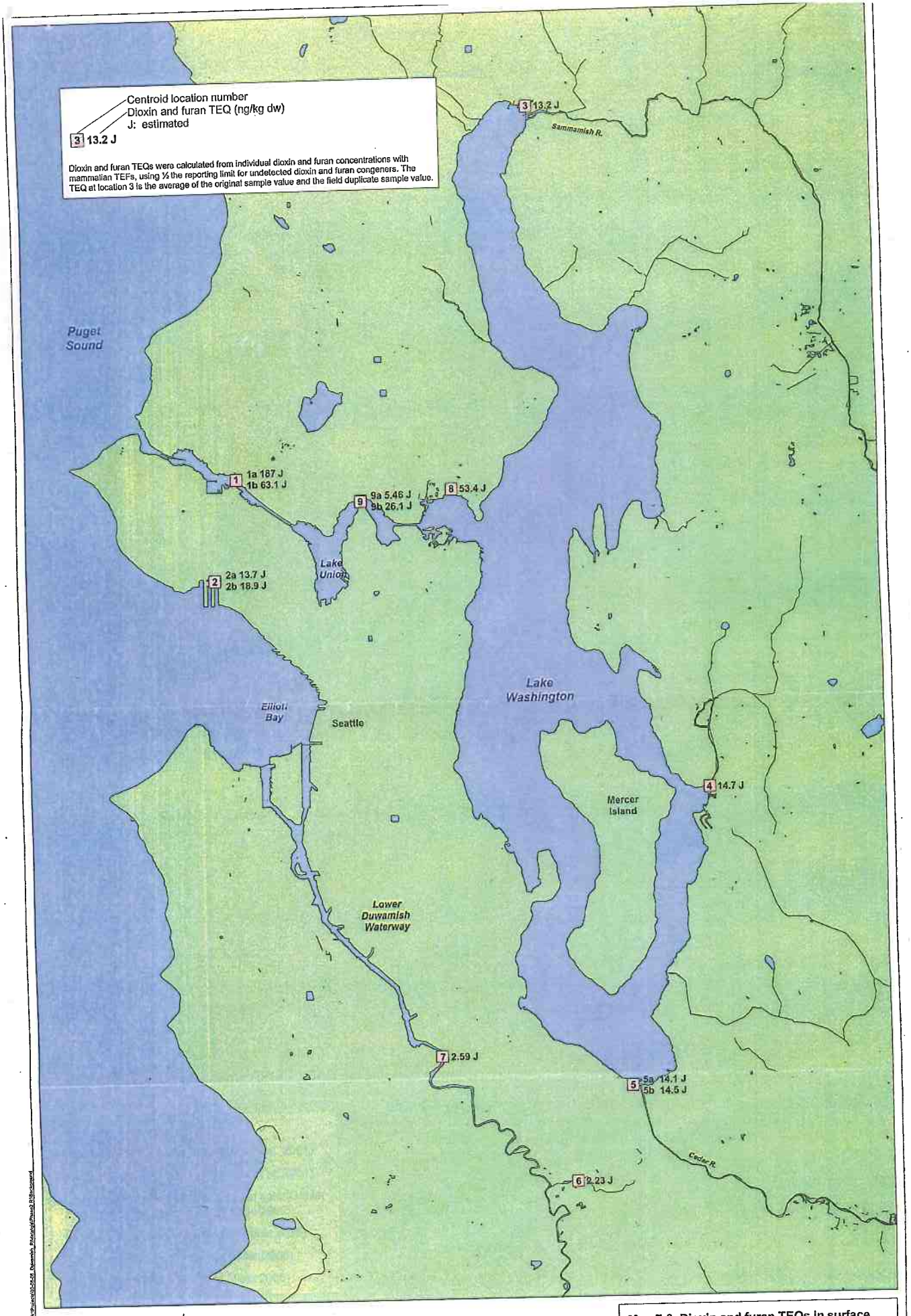
Lower Duwamish Waterway Remedial Investigation
Technical Memorandum

2009/2010 Surface Sediment Sampling Results for
Dioxins and Furans and Other Chemicals

May 21, 2010

Map 7-8. Dioxin and Furan TEQ [Toxic Equivalent]
in Surface Sediment Samples
from Greater Seattle Area

Results measured in TEQ ng/kg or parts per trillion



Wind Ward LLC environmental

Map 7-8. Dioxin and furan TEQs in surface sediment samples from the greater Seattle area

Appendix B.

Kenmore Industrial Park aka Lakepointe Site

Groundwater Compliance Monitoring Dissolved Metal Results

from

Agra Earth & Environmental, Inc
Kirkland, Washington

and

Kleinfelder, Inc
Bellevue, Washington

and

SCS Engineering Environmental Consultants
Bellevue, Washington

Appendix B.

Kenmore Industrial Park aka Lakepointe Site Groundwater Compliance Monitoring Dissolved Metal Results

Ecology has reviewed the dissolved metal groundwater results at the KIP site also called the Lakepointe Site (Site). Groundwater monitoring gives you a reliable history to evaluate change in metal concentration over time by comparing results at each monitoring well over time. Groundwater testing also called monitoring has occurred since 1995 to recent and selected wells list eight different monitoring events.

There are six compliance monitoring wells at the KIP Site, and see figure 1 for location. Earlier testing in 1995 and 1996 included priority pollutant metals (arsenic, barium, cadmium, copper, chromium, lead, mercury, selenium, silver and zinc) and later testing focused on three metals – arsenic, barium and lead. One testing event occurred in 1995, three events in 1996, one in 2009 and 2010, and two events in 2012. The results are summarized on Table 1 for all metals including three testing (sampling) events. Table 2 shows results for the three metals selected for additional evaluation and monitoring with eight sampling events.

Note these results are based on available data from the KIP Site during remedial investigation and from groundwater compliance monitoring reports. Some wells were not tested (NT) at every event and results did not include analyses for all metals. These results represent dissolved metals where the concentration is measured in microgram per liter (ug/L or parts per billion (ppb)). Ecology uses dissolved metal results at this Site as they represent the metal concentration that may migrate with groundwater to surface water.

Table 1 shows all metal results below the Model Toxics Control Act (MTCA) cleanup level. Table 2 lists the three metals –arsenic, barium and lead and all results are substantially below cleanup level with two exceptions. One exception is one occurrence where arsenic concentration is at 9.0 and duplicate sample at 6.0 ug/L (ppb) compared to the cleanup level at 5.0 ug/L (ppb). This testing was in 1996 and since then all arsenic results are below cleanup level. The second exception is one occurrence of barium at 1050 ug/L (ppb) compared to barium cleanup level at 1000 ug/L (ppb) and more recent barium results are below cleanup level.

Over the 17 year history of groundwater monitoring at the KIP Site shows all priority pollutant metals are consistently over time below the state MTCA cleanup requirements. The single occurrence of arsenic and barium concentrations slightly above cleanup level show minor fluctuations. Monitoring results repeated over time for these metals show that arsenic and barium are not a concern at the KIP site. The results show all tested metals are below KIP and MTCA cleanup level. Metals at the KIP Site are not migrating off-site via groundwater to the adjacent waterways – Sammamish River, northeast Lake Washington, and Kenmore Navigation Channel.

For more information, check the KIP webpage at:

https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=2134

Table 1. Kenmore Industrial Park Site Dissolved Metal Results in Groundwater Compliance Monitoring in 1996, April and October 2012.

Results are reported in micrograms per Liter, ug/L or parts per billion.
Results show all dissolved metals are significantly below KIP and MTCA cleanup level.
The results confirm that the KIP site is not causing metals to migrate to the adjacent waterways.

Wells Analytes	Sample Date	AW-9 Dissolved	AW-10/10R Dissolved/Dupl	AW-12 Dissolved	AW-6 Dissolved/Dupl	AW-11R Dissolved	Cleanup Levels KIP	 MTCA	 Method
Arsenic	4/3/2012 10/3/2012 4/16/96	0.21 U>1.0 U>4.0	1.96 1.10/1.15 U>4.0	1.80 U>1.0 NT	1.00/1.01 U>1.0 U>4.0	NT U>1.0 U>4.0	5	5	Meth A
Barium	4/3/2012 10/3/2012 4/16/96	9.98 10.9 U>10	104 131/129 210	126 186 NT	400/434 831 370	NT 931 590	1000	560	Meth A&B
Cadmium	4/3/2012 10/3/2012 4/16/96	0.022 0.046 U>5	U>0.020 U>0.020/U>0.020 U>5	U>0.020 U>0.020 NT	U>0.020/U>0.020 U>0.020 U>5	NT U>0.020 U>5	-	5	Meth A
Copper	4/3/2012 10/3/2012	0.45 0.37	0.70 0.49/0.23	0.70 1.76	0.65/0.59 0.87	NT 0.69	-	592	Meth B
Chromium	4/3/2012 10/3/2012 4/16/96	1.69 U>5.00 U>10	1.52 U>5.00/U>5.00 U>10	1.73 U>5.00 NT	1.18/1.35 U>5.00 U>10	NT U>5.00 U>10	-	50	Meth A
Lead	4/3/2012 10/3/2012 4/16/96	U>0.020 U>0.020 U>2	0.874 U>0.020/0.037 13	0.457 0.048 NT	1.97/1.93 0.125 U>2	NT 0.070 U>2	14.4	15	Meth A&B
Mercury	4/3/2012 10/3/2012 4/16/96	U>0.050 U>0.050 U>1.0	U>0.050 U>0.050/U>0.050 U>1.0	U>0.050 U>0.050 NT	U>0.050/U>0.050 U>0.050 U>1.0	NT U>0.050 U>1.0	-	2	Meth A
Selenium	4/3/2012 10/3/2012 4/16/96	U>0.50 U>5.0 U>5	U>0.50 U>5.0/U>5.0 U>5	U>0.50 U>5.0 NT	U>0.50/U>0.50 U>5.0 U>5	NT U>5.0 U>5	-	32	Meth B
Silver	4/3/2012 10/3/2012 4/16/96	U>0.20 U>0.02 U>20	U>0.20 U>0.020/0.024J U>20	U>0.20 UJ>0.02 NT	U>0.20/U>0.20 U>0.02 U>20	NT U>0.02 U>20	-	80	Meth B
Zinc	4/3/2012 10/3/2012	6.0 U>10	27.6 5.0/7.6J	3.7 U>10	20.0/15.3 U>10	NT U>10	-	32	Meth B

U = undetected at laboratory reporting limit. U>4.0 = undetected at or above 4.0 ppb laboratory reporting limit. NT = not tested.

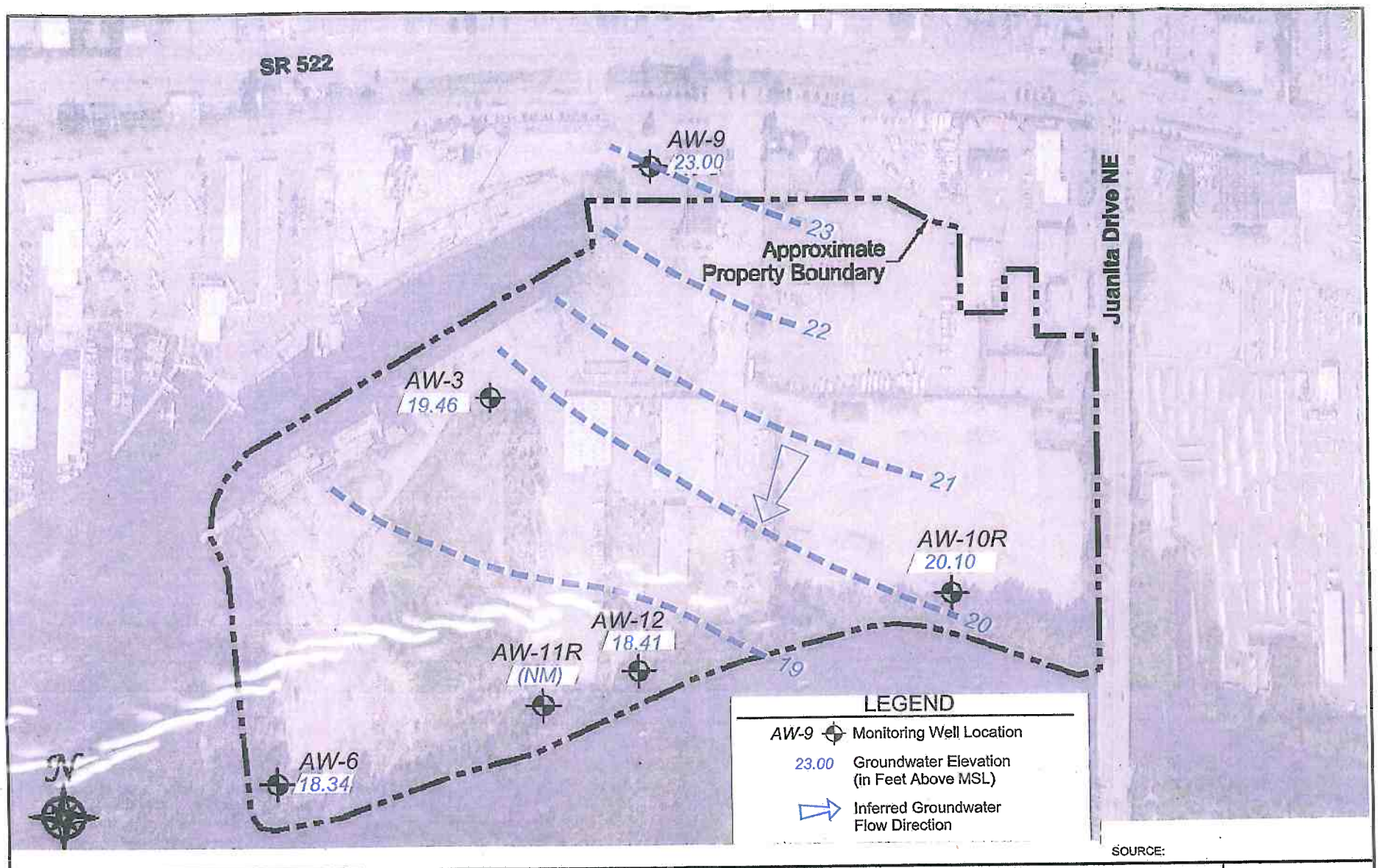
Table 2. Kenmore Industrial Park Site Dissolved Metal Results Groundwater Compliance Monitoring from 1995 - 2012.

Historic Groundwater Sampling was conducted in 1995, 1996, 2009, 2010 and 2012 to evaluate changes to groundwater quality and to the subsurface at the KIP site. Results are measured in micrograms per Liter, ug/L or parts per billion.

Results show arsenic, barium and lead all below MTCA cleanup level, except two occurrences in 1996.
Results show that dissolved metals are not migrating from the KIP site via groundwater to surface water to the adjacent waterways - Lower reaches of the Sammamish River, northeast Lake Washington, and Kenmore Navigation Channel.

Wells Analytes	Sample Date	AW-9 Dissolved	AW-10/10R Dissolved/Dup	AW-12 Dissolved	AW-6 Dissolved/Dup	AW-11R Dissolved	Cleanup Levels KIP	MTCA	Method
Arsenic	10/02/95	U>5.0	NT	NT	NT	NNT			
	2/23/96	U>5.0	NT	NT	NT	NT			
	4/16/96	U>4	U>4	NT	U>4	U>4			
	8/12/96	U>5	9.0/6.0	NT	U>5.0	U>5.0			
	9/29/09	U>3.0	U>3.0	U>3.0	U>3.0/U>3.0	U>3.0	5	5	Meth A
	1/18/10	U>3.0	U>3.0	U>3.0	U>3.0/U>3.0	U>3.0			
	4/3/2012	0.21	1.96	1.80	1.00/1.01	NT			
	10/3/2012	U>1.0	1.10/1.15	U>1.0	U>1.0	U>1.0			
Barium	10/02/95	50	NT	NT	NT	NT			
	2/23/96	U>5	NT	NT	NT	NT			
	4/16/96	U>10	210	NT	370	590			
	8/12/96	10	420	NT	890	1050			
	9/29/09	U>25	250	240	860/890	870	1000	560	Meth A&B
	1/18/10	U>25	120	120	540/550	490			
	4/3/2012	9.98	104	126	400/434	NT			
	10/3/2012	10.9	131/129	186	831	931			
Lead	10/02/95	3	NT	NT	NT	NT			
	2/23/96	U>3.0	NT	NT	NT	NT			
	4/16/96	U>2	13	NT	U>2	U>2			
	8/12/96	U>2	U>2/U>2	NT	U>2	U>2			
	9/29/09	U>1.0	U>1.0	U>1.0	U>1.0	U>1.0	14.4**	15	Meth A&B
	1/18/10	U>1.0	3.0	U>1.0	U>1.0	U>1.0			
	4/3/2012	U>0.020	0.874	0.457	1.97/1.93	NT			
	10/3/2012	U>0.020	U>0.020/0.037	0.048	0.125	0.070			

U = undetected at laboratory reporting limit. U>3.0 = undetected above 3 ug/L or parts per billion laboratory reporting limit. NT = not tested.
9.0/6.0 = concentration level is above MTCA cleanup level.



SCS ENGINEERS
Environmental Consultants and Contractors
2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005
(425) 746-4600 FAX: (425) 746-6747

0 600
Scale In Feet

PROJECT NO. 04209040.00	DES BY S.A.	WATER LEVEL MAP APRIL 3, 2012	DATE JUNE 2012 (REVISED JULY 16, 2012)
SCALE AS SHOWN	CHK BY E.S.	KENMORE INDUSTRIAL PARK KENMORE, WASHINGTON	FIGURE 3
CAD FILE FIGURE 3	APP BY K.L.		

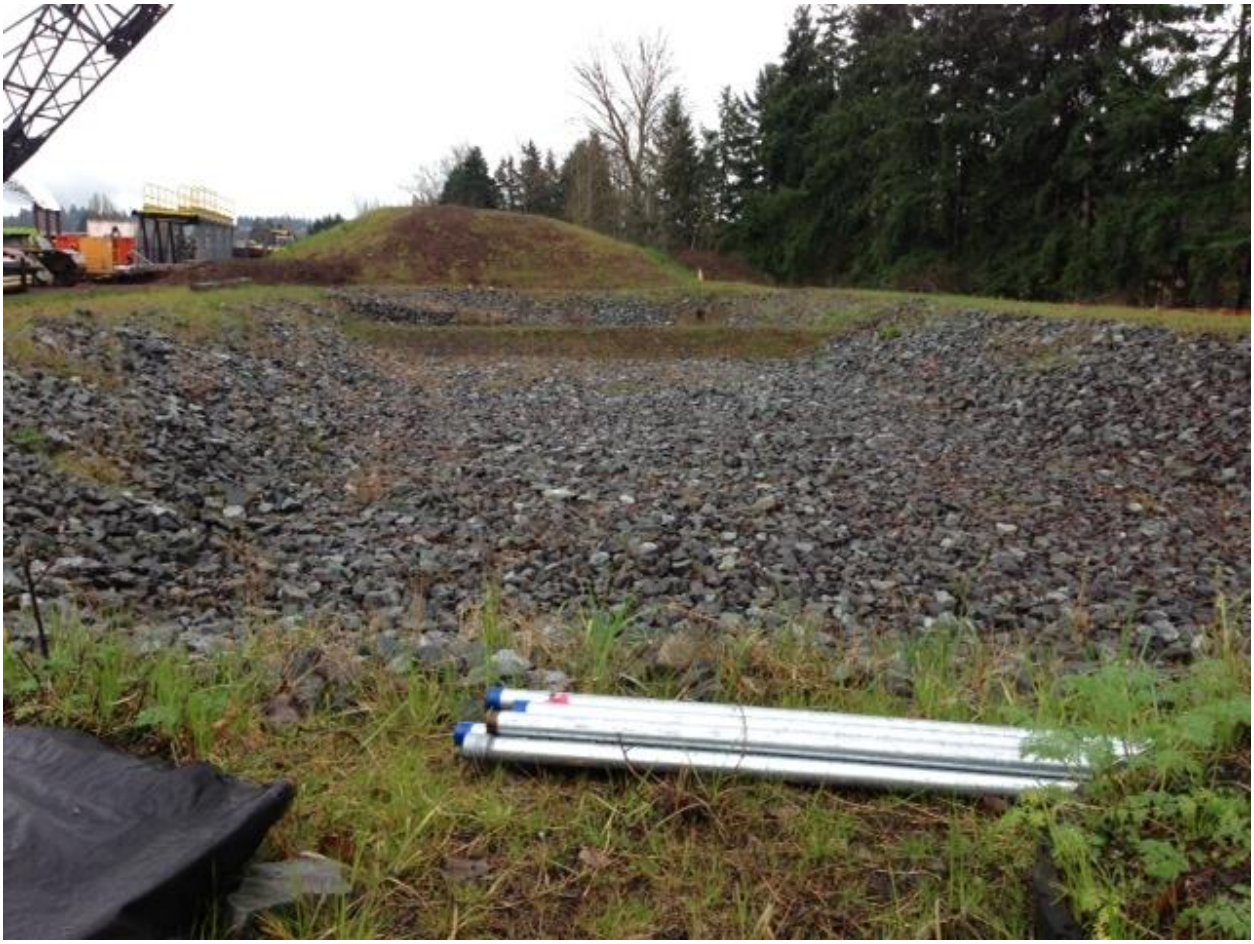
Appendix E.

Site Photographs

Appendix E -1. KIP Site at west berm and fence looking northwest to Lake Washington and north shore in Kenmore, Washington.

Appendix E -2. KIP Site at northwest corner gravel surface work area, storm water drainage basin, and Navigation Channel looking northeast.

Appendix E -3. KIP Site at west side looking southwest to Lake Washington where worker is standing on berm, fence below (black and orange) and Wetlands A described as a class 2 palustrine forested/scrub-shrub wetland located at the west shoreline at Lake Washington (AMEC 2001 and Beak Consultants Inc. 1997).



Appendix E -4. KIP Site at southwest storm water drainage basin looking east.

Appendix E -5. KIP Site at drainage ditch south of historic work "garage" structure at southwest corner. Note drainage ditch is currently dry and would discharge westward to the confluence of Sammamish River and Lake Washington south of fabricated metal work structure. Sammamish River to the right and not in photo.

Appendix E -6. KIP Site at southwest corner looking west at south side of work “garage” structure and drainage ditch with green grasses. Sammamish River to the left and not in photo.

Appendix E -7. KIP Site at gravel stockpiles located at southeast area looking west to forested shoreline and Sammamish River, and golf course at south side of river.

Appendix E -8. KIP Site at southeast corner worker at gravel stockpiles looking east to 68th Avenue NE bridge also called Juanita Drive NE bridge.