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

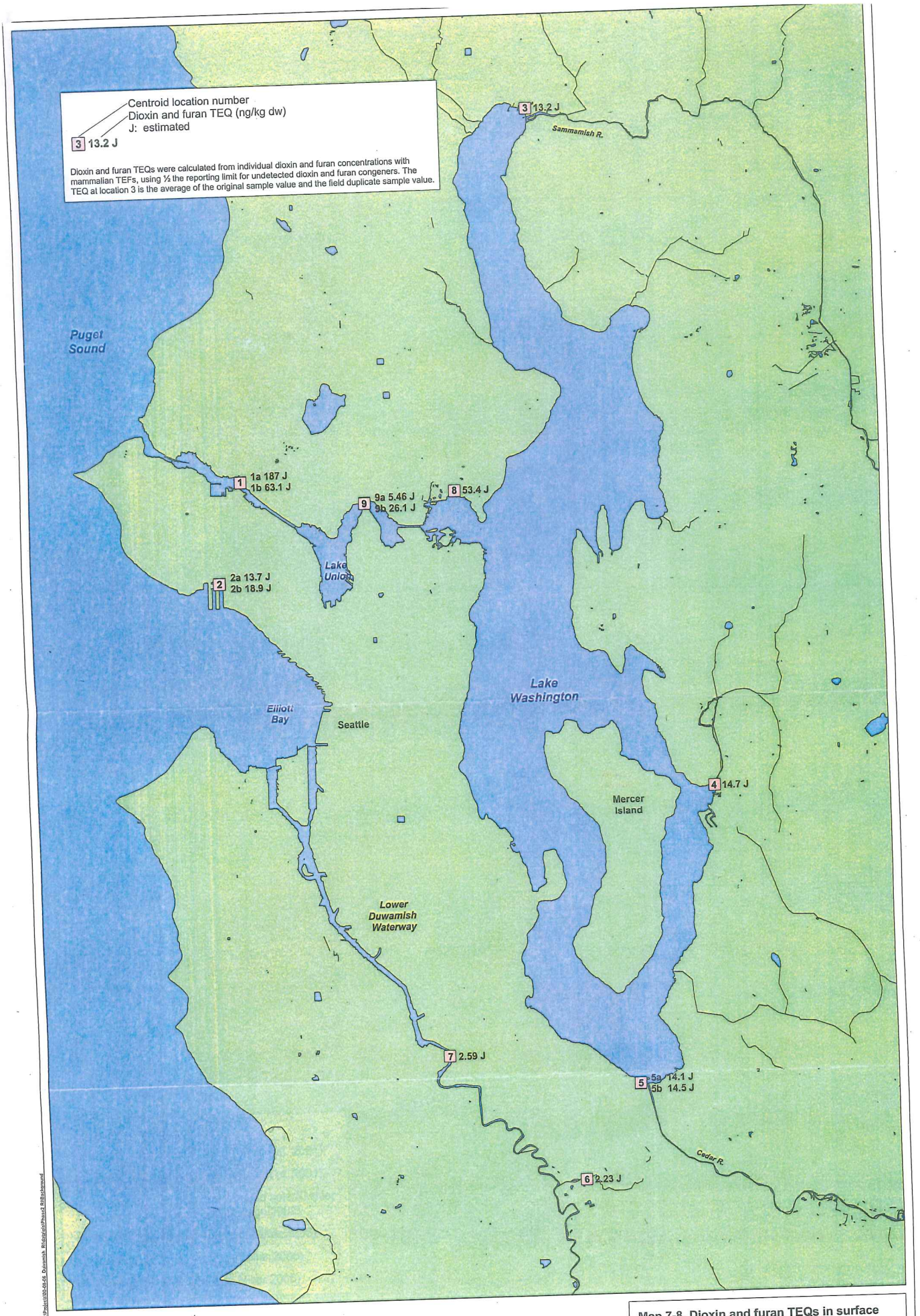
Lower Duwamish Waterway Remedial Investigation
Technical Memorandum

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 environmental LLC

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.

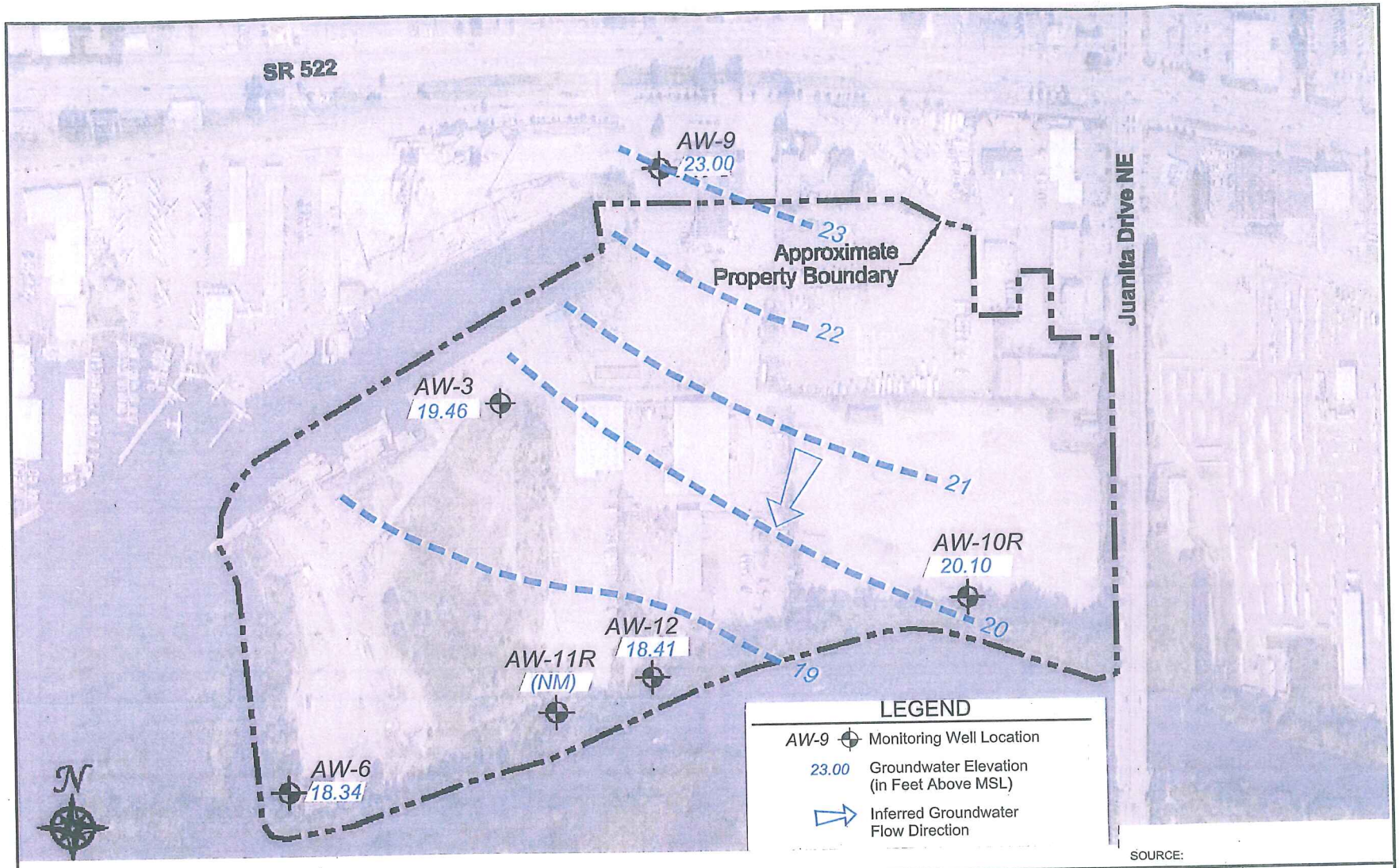
Note these results are based on available data from the KIP Site during remedial investigation and from groundwater compliance monitoring reports. Some wells were not tested (NT) at every event and results did not include analyses for all metals. These results represent dissolved metals where the concentration 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



SOURCE:

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.
SCALE AS SHOWN	CHK 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

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.