STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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October 21 2016

Michael Marchetti
Breakwater Marina
5603 N Waterfront Dr
Tacoma, WA 98407-6536

Re: No Further Action at the following Site:

- **Site Name:** Breakwater Marina Inc.
- **Site Address:** 5603 N Waterfront Dr. Tacoma, WA 98407 Pierce Co.
- **Facility/Site No.:** 1794148
- **Cleanup Site No.:** 5266
- **VCP Project No.:** SW1479

Dear Mr. Marchetti:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Breakwater Marina facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

NO. Ecology has determined that no further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Petroleum and associated constituents into the soil and groundwater.
- Lead (Pb) into the soil and groundwater.

Please note the parcel(s) of real property associated with this Site are also located within the projected boundaries of the Tacoma Smelter Plume facility (Facility Site # 62855481). At this time, we have no information that those parcel(s) are actually affected. This opinion does not apply to any contamination associated with the Tacoma Smelter Plume facility.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. *Phase II Site Assessment*, Northwest Environmental Solutions, Inc., undated, received by Ecology on February 9, 2006.

2. *Focused Subsurface Investigation/Underground Storage Tank Site Assessment*, ECI Environmental Services, November 26, 2013.

3. *Supplemental Focused Subsurface Investigation*, ECI Environmental Services, January 13, 2014.

4. *Underground Storage Tank Closure & Site Assessment Report*, ECI Environmental Services, January 29, 2015.

5. *Remedial Excavation Report*, ECI Environmental Services, May 28, 2015.

6. *Groundwater Sampling and Analysis Plan*, ECI Environmental Services, June 23, 2015.

7. *Groundwater Sampling and Analysis Plan Addendum*, ECI Environmental Services, July 9, 2015.

8. *Focused Groundwater Assessment*, ECI Environmental Services, September 7, 2015.

9. *Groundwater Monitoring Report, Fourth Quarter 2015*, ECI Environmental Services, December 1, 2015.

10. *Groundwater Monitoring Report, First Quarter 2016*, ECI Environmental Services, March 7, 2016.

11. *Groundwater Monitoring Report, Second Quarter 2016*, ECI Environmental Services, June 15, 2016.

These documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You may make an appointment by calling the SWRO resource contact at (360) 407-6365.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that **no further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**

The Site is located at 5603 North Waterfront Drive, Tacoma, Washington (Figure 1). It sits on the eastern edge of a 29.30 acre parcel and consists of the Breakwater Marina building, an uncovered storage area, a storage shed, a locker, a gangway to the marina proper, and a small parking lot area. It has been a marina used for boat docking and moorage since 1933. The fueling facility was added in 1972.

A paved two-lane road serves as the western border and Puget Sound is the eastern border. The surrounding area is home to Point Defiance Park, Washington State Point Defiance ferry dock and parking area, the Tacoma Yacht Club, and Puget Sound. Entertainment for all ages featuring of a zoo, aquarium, a go-cart track, a park, tennis courts, rose garden, and historical sites are close by along with fine dining on the waterfront.

The Site physiographic setting is in the Puget Sound Lowlands. The area has been glaciated over time, with the last period being the Vashon Stade which ended approximately 13,000 years ago. Soils encountered during work at the Site consisted of medium to coarse brown sand with gravel to a depth of approximately 10 feet bgs and then glacial till composed of fine silts and sands to the depth explored. The Site is around 20 feet above sea level. The depths to groundwater range from 6 to 9 feet below ground surface (bgs). Flow direction of the groundwater is predominantly to the northeast and is highly tidally influenced.

Five underground storage tanks (USTs), apparently installed in 1972, were located next to Waterfront Drive. Three USTs were 3,000-gallon capacity and two were 8,000-

gallons. One 3,000-gallon UST and one 8,000-gallon UST contained diesel. The rest of the USTs contained gasoline. Piping conveyed the product to dispensers on a fuel dock.

In December 2005, the three 3,000-gallon USTs were decommissioned by pumping out remaining product, cleaning the tanks, and filled in place. Nine soil samples and one groundwater sample were collected from around the USTs using a direct push rig (Figure 2). Samples were analyzed for Total Petroleum Hydrocarbons-Gasoline (TPH-G), Total Petroleum Hydrocarbons-Diesel extended (TPH-Dx), Total Petroleum Hydrocarbons-Oil (TPH-O), benzene, toluene, ethylbenzene, total xylenes (BTEX), methyl tert-butyl ether (MTBE), and Pb.

Soil sampling results found only TPH-D at 3,500 milligrams per kilogram (mg/kg), above the Method A cleanup level of 2,000 mg/kg. The one water sample collected had only Pb at 210 micrograms per liter (µg/l), which is well above the Method A cleanup level of 15 µg/l. The sample was not analyzed for TPH-D or TPH-O. No groundwater sample was collected from around the diesel tank.

In November, 2013, a focused subsurface investigation was done. This work consisted of advancing 11 direct push and two hand-augered borings. The locations addressed all five tanks at the Site (Figure 3). Soil and groundwater samples were analyzed for TPH-G, TPH-D, and BTEX. The only result above non-detect was a detection in soil of 45 mg/kg TPH-D. The sample was collected from boring B11-3 at 3 feet bgs (Figure 3). The only detection above Method A cleanup levels in groundwater was TPH-D at 34,300 µg/l in boring B1 (Figure 3). The Method A cleanup level in groundwater for TPH-D is 500 µg/l. The only other detection above detection limits was xylenes at 2.3 µg/l in B13. The Method A cleanup level for xylene is 1,000 µg/l.

Additional investigative work was done at the Site in December 2013. Six direct push borings, B14 through B19, were advanced in locations shown on Figure 3. During this work, soils at the Site were found to consist of sand and gravels with some wood debris. The deepest point reached was 10 feet bgs. Groundwater was found between 8 and 9 feet bgs. Groundwater samples collected during drilling were analyzed only for TPH-D. No soil samples were sent for laboratory analysis since no contamination was detected during field screening.

All five tanks were removed in December 2014. Soil contamination was found in the area of the 8,000-gallon USTs. After removal, free-phase petroleum was found on the groundwater surface. Approximately 2,800 gallons of water/petroleum was pumped out of the excavation and transported off-Site for recycling. After removal, groundwater recharged the excavation. Only a minor sheen of petroleum was visible on the water surface.

After the removal of each UST, soil samples were collected from the excavation. A total of 26 soil samples and one groundwater sample were collected (Figure 4). Due to space limitations, stockpiling soil was not feasible so removed soil was returned to the excavation.

Analytical results of the soil confirmed TPH-D, TPH-G, benzene, xylenes, and Pb above Method A cleanup levels. In the grab groundwater sample, TPH-D and Pb were found above Method A cleanup levels.

In April and May, 2015, cleanup actions took place at the Site. Starting at the northwest end, contaminated soil was removed in a total of cells, each approximately 20 to 25 feet long by 12 to 15 feet wide. After soil was removed from a cell, it was loaded directly into dump trucks to be transported to the Pierce County Regional Landfill (LRI) for disposal. Soil samples were field screened and if contamination was found, more soil was removed until the field instruments didn't detect contamination. Soil samples were then collected from the excavation sidewalls and base and taken to the mobile laboratory on-Site for analysis. When laboratory results confirmed concentrations below Method A cleanup levels, the cell was then backfilled with imported clean soil and the process repeated on the next cell.

The final dimensions of the excavation totaled approximately 144 feet long by 18 feet wide by 10.5 feet deep. Approximately 658 tons of soil were taken to LRI. Groundwater was found at approximately 8 feet bgs. Due to soil contamination below the water surface, groundwater was pumped out of the excavation to allow additional soil excavation. The approximately 80,000 gallons of water removed were transported off-Site for recycling.

All samples were analyzed for TPH-G, TPH-D, and BTEX. One sample collected from the base of the excavation, where a previous sample had Pb above the Method A cleanup level of 250 mg/kg, was analyzed for Pb. Confirmation sample locations and results are shown in Figure 4.

The confirmation sample results were all either non-detect or below Method A cleanup levels which verified that all soil contaminated by TPH-G, TPH-D, BTEX, and Pb were removed from the Site.

Six wells were installed in August, 2015 (Figure 5). Sampling of the six wells was conducted later that month and the samples were analyzed for TPH-G, TPH-D, BTEX, and total Pb. Four of the samples had detections of Pb of which the highest result was 8.3 µg/l. This is below the cleanup level of 15 µg/l. The results for all of the rest of the analyses were all non-detect.

Three more rounds of groundwater sampling were completed, the last one on May 23, 2016. The only detection above detection levels in these last rounds was a detection of Pb at 9.0 µg/l in MW3 the May 2016 round. This level was below the Method A cleanup level. These four rounds of sampling confirmed that no contamination remained in groundwater at the Site. All sampling results for groundwater are presented in Table 1.

2. Establishment of cleanup standards.

a. Cleanup levels

MTCA Method A Cleanup Levels for unrestricted land use for soil and groundwater are being used to characterize the Site.

The proposed Method A cleanup levels are:

Soil:

TPH-Gasoline	30 mg/kg
Benzene	0.03 mg/kg
Toluene	7 mg/kg
Ethylbenzene	6 mg/kg
Total Xylenes	9 mg/kg
Pb	250 mg/kg

Groundwater:

TPH-Gasoline	800 ug/l
Benzene	5 ug/l
Toluene	1000 ug/l
Ethylbenzene	700 ug/l
Total Xylenes	1000 ug/l
TPH-Diesel	500 ug/l
Pb	15 µg/l

b. Points of compliance

Standard points of compliance are being used for the Site.

The proposed Points of Compliance are:

Soil -Direct Contact: For soil cleanup levels based on human exposure via direct contact, the point of compliance is: "*...throughout the Site from ground surface to 15 feet below the ground surface.*"

Soil- Leaching: For sites where soil cleanup levels are based on the protection of groundwater: "*...the point of compliance is throughout the Site*

Groundwater: For groundwater, the standard point of compliance as established under WAC 173-340-720(8) is: "*...throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the site.*"

Vapor: Ambient and Indoor Air throughout the site

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site meets the substantive requirements of MTCA.

The selected remedy for the Site was comprised of excavation of contaminated soil with off Site disposal.

Monitoring of potentially affected groundwater using on-Site groundwater monitoring wells was selected to determine the condition of the groundwater.

4. Cleanup.

Ecology has determined the cleanup you performed meets the cleanup standards established for the Site.

The cleanup conducted at the Site removed, through excavation, all affected soils.

During excavation, groundwater infiltrating into the excavation was pumped out and disposed of off-Site for treatment. Approximately 80,000 gallons was removed, transported off-Site, and treated.

After completion of the affected soil, confirmation samples were collected to verify that all contamination in soil was removed.

A total of approximately 658 tons of contaminated soil was transported to the LRI Landfill in Graham, Washington, for disposal.

Six groundwater monitoring wells were installed which allowed quarterly sampling to verify that no impacts to groundwater remained at the Site.

Listing of the Site

Based on this opinion, Ecology will initiate the process of removing the Site from our lists of hazardous waste sites, including:

- Hazardous Sites List.
- Confirmed and Suspected Contaminated Sites List.

This process includes public notice and opportunity to comment. Based on the comments received, Ecology will either remove the Site from the applicable lists or withdraw this opinion.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Termination of Agreement

Thank you for cleaning up the Site under the Voluntary Cleanup Program (VCP). This opinion terminates the VCP Agreement governing this project SW1479.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion or the termination of the Agreement, please contact me by phone at (360) 407-6263 or e-mail at carol.johnston@ecy.wa.gov .

Sincerely,

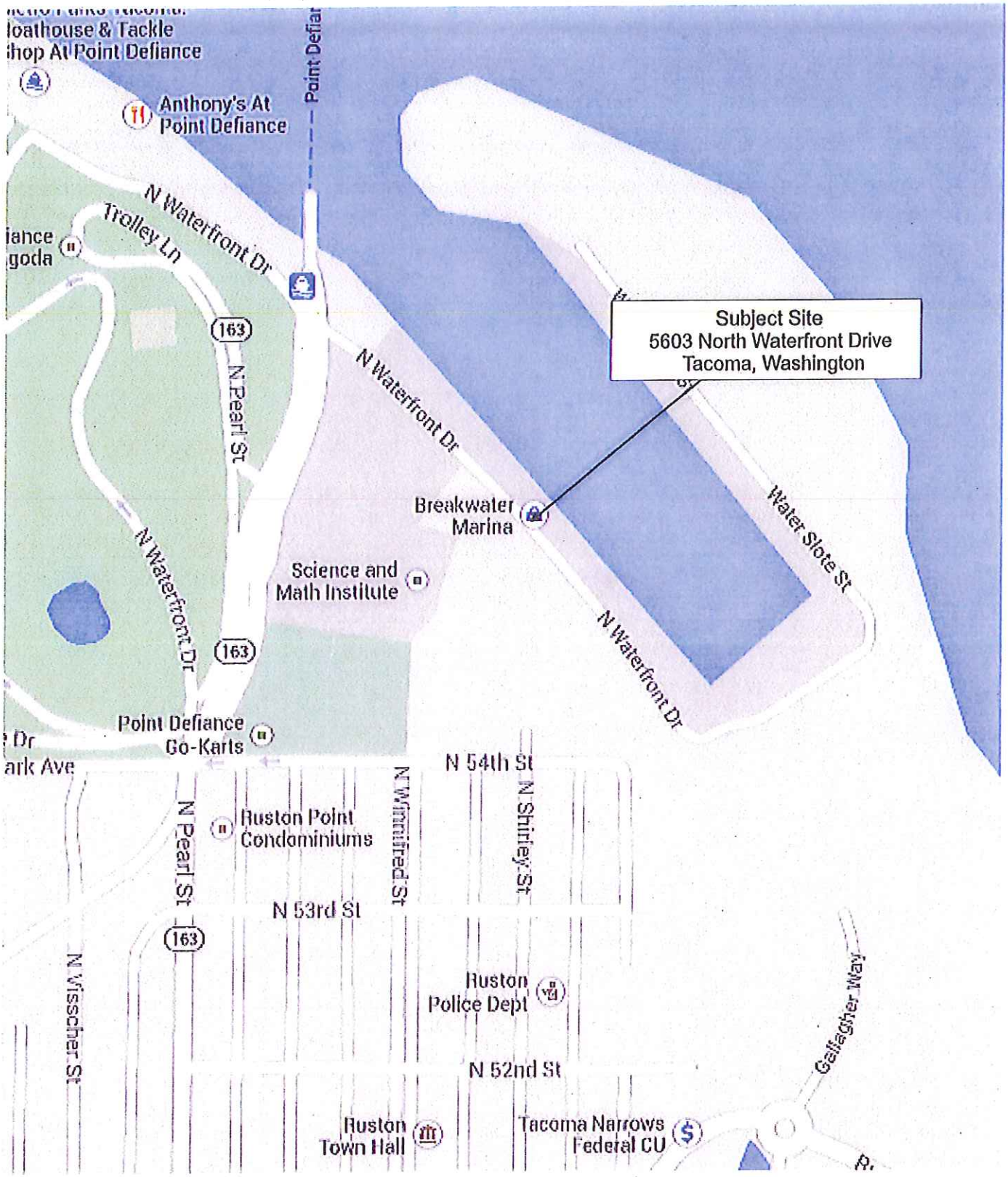
Carol A. Johnston
SWRO Toxics Cleanup Program

CAJ: hd

By certified mail [91 7108 2133 3939 7042 7131]

Enclosures (5 figures, 1 table):

cc: Metropolitan Parks Board
K. Craig Klein, ECI Environmental Services
Mr. Rob Olsen, Tacoma Pierce County Health Department
Matthew Alexander, Ecology
Nick Acklam, Ecology



RECEIVED
JUN 30 2015
Tacoma-Pierce County
Health Dept.

N
Not To Scale

Project Location Map
Groundwater Monitoring Project
5603 North Waterfront Drive
Tacoma, Washington

Date:	June 29 ,2015
Completed By:	K. Reed
Reviewed By.:	S. Spencer
Version:	ECI-001
Project No.:	0483-06

Figure No.: 01
Sheet 01 of 03

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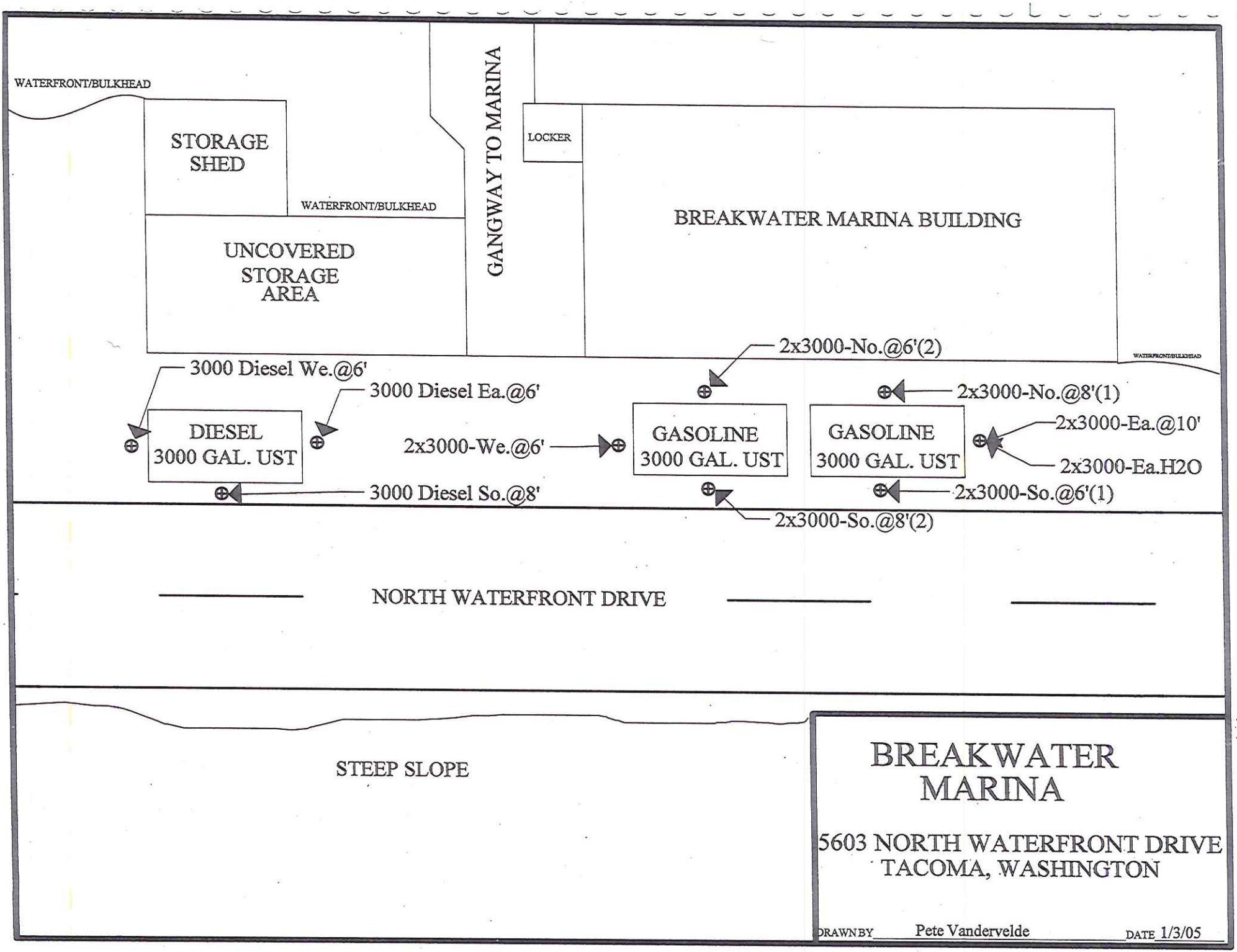
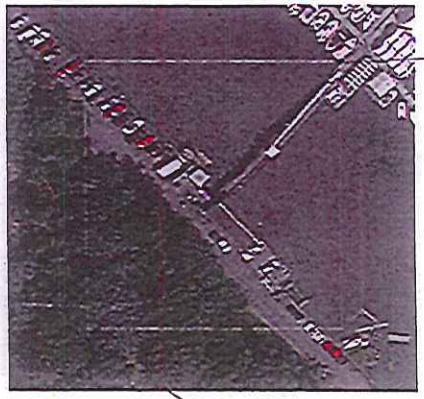
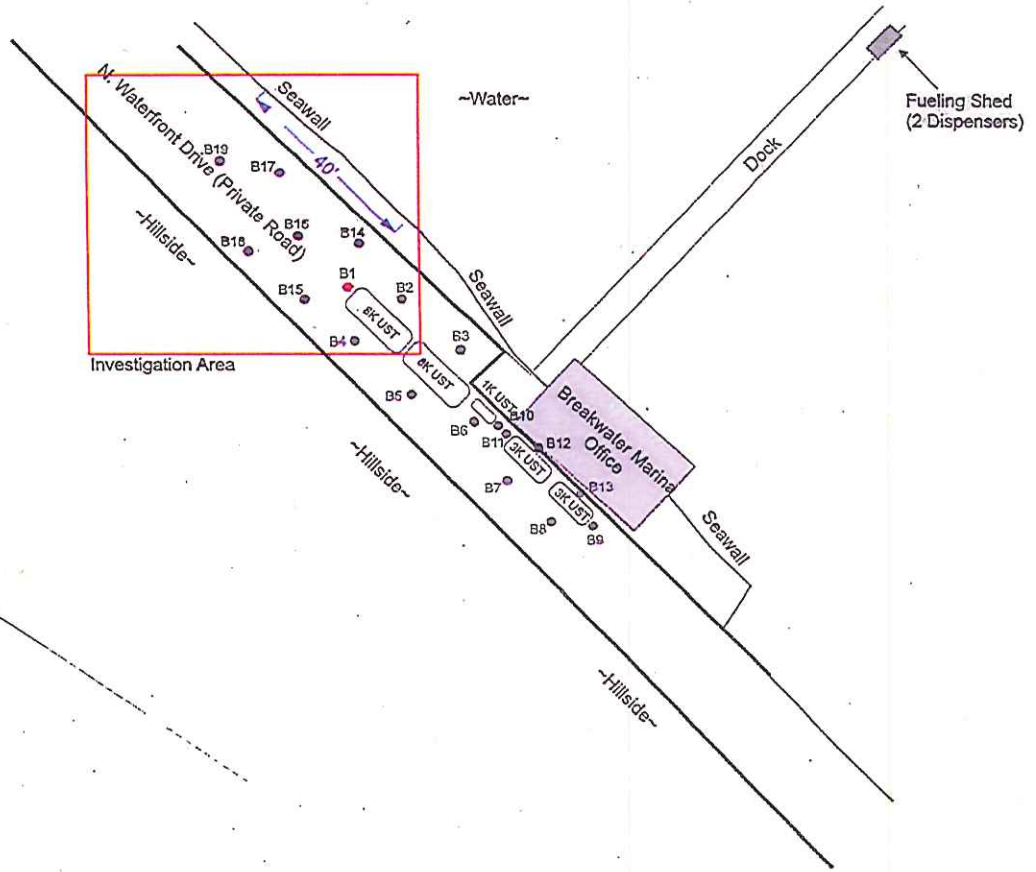

WATERFRONT/BULKHEAD
STORAGE SHED
WATERFRONT/BULKHEAD
UNCOVERED STORAGE AREA
GANGWAY TO MARINA
LOCKER
BREAKWATER MARINA BUILDING
WATERFRONT/BULKHEAD
2x3000-No.@6'(2)
3000 Diesel We.@6'
3000 Diesel Ea.@6'
2x3000-No.@8'(1)
2x3000-Ea.@10'
DIESEL 3000 GAL. UST
2x3000-We.@6'
GASOLINE 3000 GAL. UST
GASOLINE 3000 GAL. UST
2x3000-Ea.H2O
3000 Diesel So.@8'
2x3000-So.@6'(1)
2x3000-So.@8'(2)
NORTH WATERFRONT DRIVE
STEEP SLOPE
BREAKWATER MARINA
5603 NORTH WATERFRONT DRIVE
TACOMA, WASHINGTON
DRAWN BY Pete Vandervelde
DATE 1/3/05

FIGURE 2





0 20 40 80

Approximate Scale In Feet

N

Not To Scale

Explanation

- Boring Locations
- Boring Locations (Previous Sampling Event)
- Groundwater Sample Exceeds MTCA Method A CUL for DRO (DRO Concentration 34,600 ug/L) (Previous Sampling Event)

Additional Boring Locations
5603 North Waterfront Drive
Tacoma, Washington

Date:	December 23, 2013
Completed By:	K. Spencer
Reviewed By:	S.Spencer
Version:	ECI-001
Project No.:	0403-03

Figure No.: 03

Sheet 03 of 03

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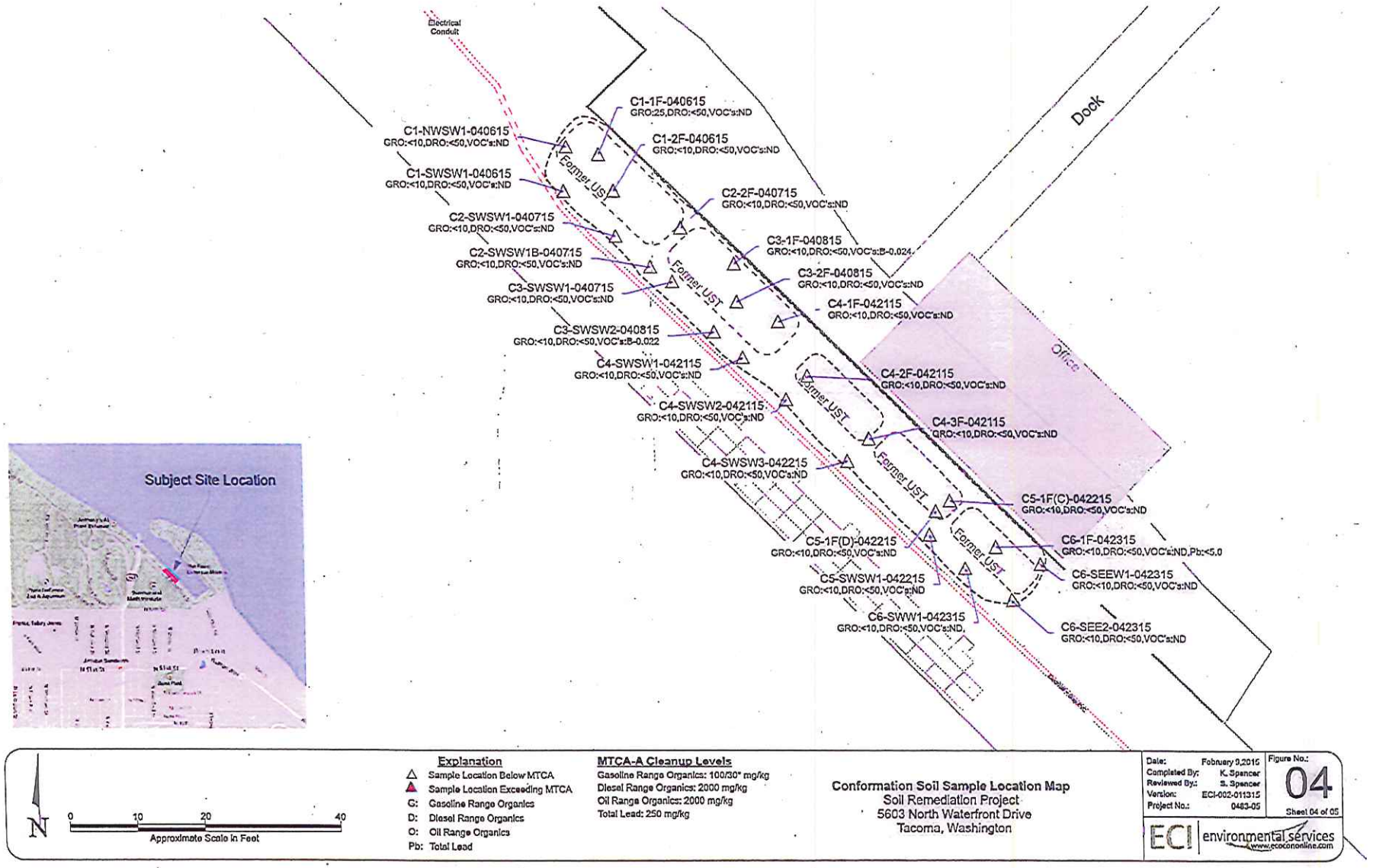
Electrical Conduit
C1-1F-040615
GRO:25,DRO:<50,VOC's:ND
C1-NWSW1-040615
GRO:<10,DRO:<50,VOC's:ND
C1-2F-040615
GRO:<10,DRO:<50,VOC's:ND
C1-SWSW1-040615
GRO:<10,DRO:<50,VOC's:ND
C2-2F-040715
GRO:<10,DRO:<50,VOC's:ND
C2-SWSW1-040715
GRO:<10,DRO:<50,VOC's:ND
C3-1F-040815
GRO:<10,DRO:<50,VOC's:B-0.024
C2-SWSW1B-040715
GRO:<10,DRO:<50,VOC's:ND
C3-2F-040815
GRO:<10,DRO:<50,VOC's:ND
C3-SWSW1-040715
GRO:<10,DRO:<50,VOC's:ND
C4-1F-042115
GRO:<10,DRO:<50,VOC's:ND
C3-SWSW2-040815
GRO:<10,DRO:<50,VOC's:B-0.022
C4-SWSW1-042115
GRO:<10,DRO:<50,VOC's:ND
C4-2F-042115
GRO:<10,DRO:<50,VOC's:ND
C4-SWSW2-042115
GRO:<10,DRO:<50,VOC's:ND
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GRO:<10,DRO:<50,VOC's:ND
C4-SWSW3-042215
GRO:<10,DRO:<50,VOC's:ND
C5-1F(C)-042215
GRO:<10,DRO:<50,VOC's:ND
C5-1F(D)-042215
GRO:<10,DRO:<50,VOC's:ND
C6-1F-042315
GRO:<10,DRO:<50,VOC's:ND,Pb:<5.0
C6-SEEW1-042315
GRO:<10,DRO:<50,VOC's:ND
C5-SWSW1-042215
GRO:<10,DRO:<50,VOC's:ND
C6-SWW1-042315
GRO:<10,DRO:<50,VOC's:ND
C6-SEE2-042315
GRO:<10,DRO:<50,VOC's:ND
Former UST
Former UST
Former UST
Former UST
Dock
Office
Bulkhead
Subject Site Location
N
0
10
20
40
Approximate Scale in Feet
Explanation
Sample Location Below MTCA
Sample Location Exceeding MTCA
G: Gasoline Range Organics
D: Diesel Range Organics
O: Oil Range Organics
Pb: Total Lead
MTCA-A Cleanup Levels
Gasoline Range Organics: 100/30* mg/kg
Diesel Range Organics: 2000 mg/kg
Oil Range Organics: 2000 mg/kg
Total Lead: 250 mg/kg
Conformation Soil Sample Location Map
Soil Remediation Project
5603 North Waterfront Drive
Tacoma, Washington
Date: February 9,2015
Completed By: K. Spencer
Reviewed By: S. Spencer
Version: ECI-002-011315
Project No.: 0463-05
Figure No.: 04
Sheet 04 of 05
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N

0 15 30 60

Approximate Scale in Feet

Explanation

⊕	Groundwater Monitoring Wells
AMSL	Above Mean Sea Level
B,T,E,X	Benzene, Toluene, Ethylbenzene, Xylenes
GRO	Gasoline Range Organics
DRO	Diesel Range Organics
ORO	Oil Range Organics

Groundwater Monitoring Well Location Map & Sample Results

Groundwater Monitoring Project - 2nd Quarter 2016
5603 North Waterfront Drive
Tacoma, Washington

Date:	June 6, 2016
Completed By:	K. Spencer
Reviewed By.:	S. Spencer
Version:	ECI-003
Project No.:	0483-06

Figure No.: 05
Sheet 03 of 03

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Table 1 Historical Groundwater Sampling Results
Groundwater Monitoring Project - 2nd Quarter 2016
5603 North Waterfront Drive
Tacoma, Washington

Sample Identification Number	Sample Location		GW Depth (feet bgs)	GE Elevation (feet AMSL)	Sample Date	NWTPH-Dx Ext.		NWTPH-Gx	8021B				200.8
	Longitude	Latitude				Diesel Range Organics (c10-c25)	Oil Range Organics (c25 - c36)	Gasoline Range Organics (c3-c10)	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
						µg/L							
MW1	47°18'14.56" N	122°30'43.33" W	6.60	6.70	8/24/2015	<50	<250	<100	<1	<1	<1	<3	8.3
			7.70	5.60	10/23/2014	<50	<250	<100	<1	<1	<1	<3	<1
			5.44	7.86	2/22/2016	<50	<250	<100	<1	<1	<1	<3	<1
			6.06	7.24	5/23/2016	<50	<250	<100	<1	<1	<1	<3	<1
MW2	47°18'15.41" N	122°30'44.89" W	6.88	6.65	8/24/2015	<50	<250	<100	<1	<1	<1	<3	<1
			7.60	5.93	10/23/2014	<50	<250	<100	<1	<1	<1	<3	<1
			5.78	7.75	2/22/2016	<50	<250	<100	<1	<1	<1	<3	<1
			6.34	7.19	5/23/2016	<50	<250	<100	<1	<1	<1	<3	<1
MW3	47°18'15.63" N	122°30'44.84" W	7.06	5.80	8/24/2015	<50	<250	<100	<1	<1	<1	<3	<1
			6.63	6.23	10/23/2014	<50	<250	<100	<1	<1	<1	<3	<1
			6.04	6.82	2/22/2016	<50	<250	<100	<1	<1	<1	<3	<1
			6.56	6.30	5/23/2016	<50	<250	<100	<1	<1	<1	<3	9
MW4	47°18'14.97" N	122°30'44.19" W	6.74	6.90	8/24/2015	<50	<250	<100	<1	<1	<1	<3	6
			7.79	5.85	10/23/2014	<50	<250	<100	<1	<1	<1	<3	<1
			5.61	8.03	2/22/2016	<50	<250	<100	<1	<1	<1	<3	<1
			6.19	7.45	5/23/2016	<50	<250	<100	<1	<1	<1	<3	<1
MW5	47°18'14.89" N	122°30'43.76" W	6.61	6.37	8/24/2015	<50	<250	<100	<1	<1	<1	<3	6
			7.70	5.28	10/23/2014	<50	<250	<100	<1	<1	<1	<3	<1
			5.12	7.86	2/22/2016	<50	<250	<100	<1	<1	<1	<3	<1
			5.78	7.20	5/23/2016	<50	<250	<100	<1	<1	<1	<3	<1
MW6	47°18'15.26" N	122°30'44.22" W	6.72	6.10	8/24/2015	<50	<250	<100	<1	<1	<1	<3	5.3
			7.42	5.40	10/23/2014	<50	<250	<100	<1	<1	<1	<3	<1
			5.28	7.54	2/22/2016	<50	<250	<100	<1	<1	<1	<3	<1
			5.93	6.89	5/23/2016	<50	<250	<100	<1	<1	<1	<3	<1
Laboratory Minimum Method Reporting / Practical Quantitive Level (MRL)						50	250	100	1	1	1	3	1
Model Toxic Control Act - Method A Cleanup Levels For Groundwater						500	500	1000/800	5	1,000	700	1,000	15

Bold/Underlined: Analysis reported concentration exceeding Method Reporting Limits (MRL)
Bold / Shaded: Analysis reported concentration exceeding the MTCA Method A cleanup level
MTCA 2007 Method A Cleanup Levls for Groudwater - Table 720-1 - WAC 173-340 -900 Tables
Samples reported in micrograms per killigrams (µg/L)
bgs: below ground surface