State of Oregon
Department of Environmental Quality **Memorandum**

Date: February 2, 2015

To: Rich Muza and Kristine Koch, USEPA

Through: Keith Johnson, DEQ Northwest Region Cleanup Manager

From: Alex Liverman, Portland Harbor Stormwater Coordinator

Subject: Draft Source Control Decision
Oregon Beverage Recycling Cooperative (former Container Recovery)
ECSI # 4015

1.0 Introduction

This memo presents the basis for the Department of Environmental Quality source control decision for the Oregon Beverage Recycling Cooperative (former Container Recovery) site, located at 3900 NW Yeon Avenue in Portland.

OBRC completed a Source Control Evaluation report (Wohlers 2014b) for the stormwater pathway at the site in accordance with the 2005 *EPA/DEQ Portland Harbor Joint Source Control Strategy*, also known as the JSCS.

DEQ concludes from review of the Source Control Evaluation report and supporting documents that OBRC has identified and controlled upland sources of contamination from current and past operations such that contaminant transport pathways at the site do not pose a significant current or future threat to the Willamette River. On-going control measures will be applied at the site as regulated by the NPDES 1200Z Industrial Stormwater General Permit, including installation of engineered controls as required for Tier II exceedances of zinc.

2.0 Site Description and History

The OBRC site covers approximately 9.07 acres in Section 20, Township 1 North, Range 1 East of the Willamette Baseline and Meridian. The site location and surrounding properties are shown in **Figure 1**. OBRC operates a working industrial site, zoned Heavy Industrial by the City of Portland, within the Guilds Lake Industrial Sanctuary, and is surrounded by other industrial properties, including Univar, ABF Freight Systems and Owens Corning-Trumbull Asphalt. The site is approximately 0.5 mile south-southwest of the Willamette River and topography is relatively flat.

Current activities on the site include warehouse processing and storage of used beverage containers, office use, storage of equipment and reverse vending machines and trailer repair. Approximately 94% of the site is impervious, with the remaining 6% infiltrating stormwater on site. Runoff from impervious areas is captured in 10 catch basins, nine of which eventually discharge to the Willamette River through City of Portland outfall 18, within the Portland Harbor Superfund Site. The remaining catch basin conveys stormwater to underground injection facilities registered with DEQ.

Depth to groundwater at the site is approximately six to 10 feet below the ground surface. which is well below the depth of stormwater conveyance system piping at the site.

3.0 Site Investigation and Regulatory History

As documented on DEQ's ECSI database, in DEQ's site-related files and in the 2004 Bridgewater RI/FS for soil and groundwater at the site, multiple site investigations and removal actions have occurred. Beginning in 1987, leaking underground storage tanks were investigated and eventually decommissioned and removed in 1990, 1998 and 2003, in compliance with DEQ regulations. Petroleum, perchloroethylene and polychlorinated biphenyls impacted soils were also removed.

Five groundwater monitoring wells were installed on the site in 1990 and it appeared that shallow contaminated groundwater from the adjacent Van Waters & Rogers (now Univar) site had flowed east to impact the western portion of the OBRC (then Container Management) site.

Subsurface samplings via 20 drive point borings and additional groundwater collection at existing wells continued in 2002, which led to discovery and removal of additional underground tanks in 2003.

DEQ issued a Record of Decision on groundwater and soils at the site indicating current risks were acceptable but future risk to workers must be mitigated by institutional controls. Once controls were executed, DEQ issued a No Further Action decision for the site in 2004.

As part of Portland Harbor upland source control site discovery efforts in City of Portland outfall basin 18, DEQ and the City collected and analyzed catch basin sediment samples at the site in 2007. The layout of the site, drainage basins and stormwater infrastructure is illustrated in **Figure 2**. DEQ initial catch basin solids sampling occurred in CB-1 and CB-6. Because concentrations of cadmium, lead, zinc, polychlorinated biphenyls, and some polycyclic aromatic hydrocarbons and phthalates exceeded Portland Harbor screening level values, in 2008, DEQ invited OBRC into the Voluntary Cleanup Program to complete a stormwater source control evaluation.

OBRC declined to enter at the time, but had catch basins and drain lines cleaned in 2008 and began sampling and observations of accumulated soil, catch basin sediment, glass processing dust and truck underbodies in 2009, in order to identify any existing sources of contaminants that could be mobilized to the Willamette River from the site. Subsequently, the facility enclosed glass processing operations, removing a potential source of total suspended solids, metals and phthalates in shredded container labels.

Operations at the site trigger regulation of stormwater under the NPDES 1200Z Industrial Stormwater General Permit, which the facility obtained in 1999 and has maintained and renewed, as appropriate, since.

Three drywells are present along the east side of the main building, which were registered and rule authorized through DEQ's Underground Injection Control Program in June 2014.

4.0 Source Control Evaluation

Because the site is located within the Portland Harbor Superfund Site, upland source control investigations were guided by the JSCS. The objective of a source control evaluation is to determine whether existing and potential sources of contamination at the site have been identified and if additional characterization or source control measures are needed. When stormwater is a potential pathway to mobilize contamination from the site to the river, these determinations generally rest upon demonstrating that site-related information provides sufficient support to make the following findings:

1. Existing and potential facility-related contaminant sources have been identified and characterized.

2. Contaminant sources were removed or are being controlled to the extent feasible.

3. Performance monitoring conducted after source control measures were implemented supports the conclusion that the measures are effective.

4. Adequate measures are in place to ensure source control and good stormwater management measures occur in the future (DEQ 2010).

4.1 Source Control Investigations and Actions in Response

As summarized in **Figure 3** and detailed in Sections 5, 6 and 7 of the Wohlers *Source Control Evaluation* report, multiple instances of investigation, sampling, control measure implementation, and performance evaluation were undertaken at the site. Drain lines on site were inspected via inline camera in April 2013. Pipe repairs indicated by the survey were completed in June 2013. Underground drywells within drainage basins 3 and 5 (see **Figure 2**) were located using ground penetrating radar in July 2013 and catch basin

sediment sampling at CB-1, CB-6, CB-7 and CB-8 was also completed at this time. NPDES 1200Z permit stormwater sampling occurs at SMH-1 and additional source control stormwater sampling occurred at SMH-1, CB-6, CB-7 and CB-8, though it should be noted that drainage represented by CB-7 samples does not discharge to the Willamette River. Catch basin inserts were installed in September 2013 and catch basins 6 and 7 were replaced in October 2013. Pipes from catch basins 6 and 8 were confirmed using ground penetrating radar in February 2014. In March 2014, oil booms were added to catch basin inserts and two roof drains were redirected to infiltrate on site. In April 2014, biobags surrounding catch basins were switched out for gravel socks, to address potential metals leaching from the biobag wood chip fill. The timing of the investigation and actions in response from 2007 through 2014 is documented in **Figure 3**.

Each iterative implementation or enhancement of the source control measures above was preceded by stormwater sampling: December 2013, January, March, April, May and June 2014, as detailed in the *Stormwater Assessment Sample Event Report* (Wohlers 2014a) and the *Source Control Evaluation* report (Wohlers 2014 b). Stormevent hydrographs indicate that storm event criteria described in the DEQ Guidance for Evaluating the Stormwater Pathway at Upland Sites were met, such that both a first flush event and one within three hours of start of flow on site were sampled. Thus, in alignment with DEQ's Guidance (DEQ 2010), potential sources were selectively targeted and addressed iteratively followed by effectiveness monitoring, which demonstrated a downward trend in contaminant exceedance magnitudes and frequencies.

4.2 Contaminants of Potential Concern.

Based on site operations and site sampling results the following contaminants are of potential concern in the stormwater system at the site:

- Metals
- PAHs
- Phthalates
- Oil
- Diesel
- Total Suspended Solids

4.3 Line of Evidence Evaluation

Preliminary investigation and catch basin solids data is presented in **Table 1.** Exceedances of Portland Harbor screening level values for some metals, PCBs, phthalates and PAHs helped to target source control actions, as described above. On-going NPDES 1200Z stormwater monitoring and monitoring at additional locations for the source control process is presented in **Table 2**. Initial stormwater monitoring helped to target appropriate source control actions and subsequent monitoring was used to gauge effectiveness of control measures applied. Exceedances of Portland Harbor screening

levels values were noted for some metals, PAHs and one instance of bis(2-ethylhexyl) phthalate.

Stormwater discharges from site drainage basins 1, 2, 4 and 6 eventually discharge to the Willamette River through City of Portland outfall 18. Stormwater from approximately 470 acres, 60% of which originates in Forest Park, is conveyed to the river through outfall 18, which discharges to sediment area of potential concern 19. Contaminants found at elevated concentrations in AOPC 19 include: aluminum, barium, cadmium, copper, iron, manganese, mercury, silver, zinc, bis(2-ethylhexyl)phthalate, PCBs, PAHs, dioxins/furans, aldrin, delta-HCCH, dieldrin, endrin, DDx, chloroethane. As noted above, some metals, PCBs, PAHs and phthalates were also found above screening level values in site stormwater solids, stormwater, or both.

Because contaminants that were detected in one or more samples at concentrations exceeding applicable JSCS upland source control screening values, concentrations were compared to DEQ charts from *Appendix E: Tools for Evaluating Stormwater Data* found in DEQ 2010. This tool was created by compiling contaminant concentration data from many of the stormwater and stormwater solids samples collected at Portland Harbor-area heavy industrial sites. This data was used to create a series of charts that plot rank-order samples against contaminant concentrations, and are used to identify contaminant concentrations in samples that are atypically elevated. Concentrations falling within the upper/steeper portion of the curve are an indication that uncontrolled contaminant sources may be present at the site and that additional evaluation or source control measures may be needed. Concentrations that fall on the lower/flatter portion of the curve suggest that stormwater is not being unusually impacted by contaminants at the site, and while concentrations may exceed the risk-based SLVs, they are within the range found in stormwater from active industrial sites in Portland Harbor.

Site data plotted on the curves is presented is **Figure 4.** These plots demonstrate that the source control measures implemented at the site have reduced concentrations of contaminants in stormwater leaving the site and establish a downward trend of all contaminants over time. By January 2014, contaminants concentrations were reduced to the knee of the curves or below, with the exception of chromium, lead and zinc. The plots also indicate that, following refinement of source control measures (adding oil booms, redirecting roof runoff and changing biobag media), June 2014 concentrations of all contaminants of interest, including those elevated in AOPC 19, fall below the flat part of the curves. Therefore, contaminants in stormwater from the site are controlled, such that additional source control measures are not warranted.

4.4 Source Control Decision

Based on review of the file, DEQ concludes that this upland site is adequately characterized and follow-up monitoring confirms that source tracing and iteratively applied control measures have been effective for minimizing pollutants leaving the site via the stormwater pathway. The property does not appear to be a current or reasonably likely future source of contamination to the Willamette River, provided that effective

stormwater source control measures are implemented and maintained. Site stormwater discharges will continue to be regulated under the NPDES 1200Z Industrial Stormwater General Permit, which includes regular monitoring and implementation of corrective actions to maintain compliance.

5.0 References

Bridgewater Group. 2004. *Soil and Groundwater Remedial Investigation Report and Feasibility Study – Container Management Site*. September 2004.

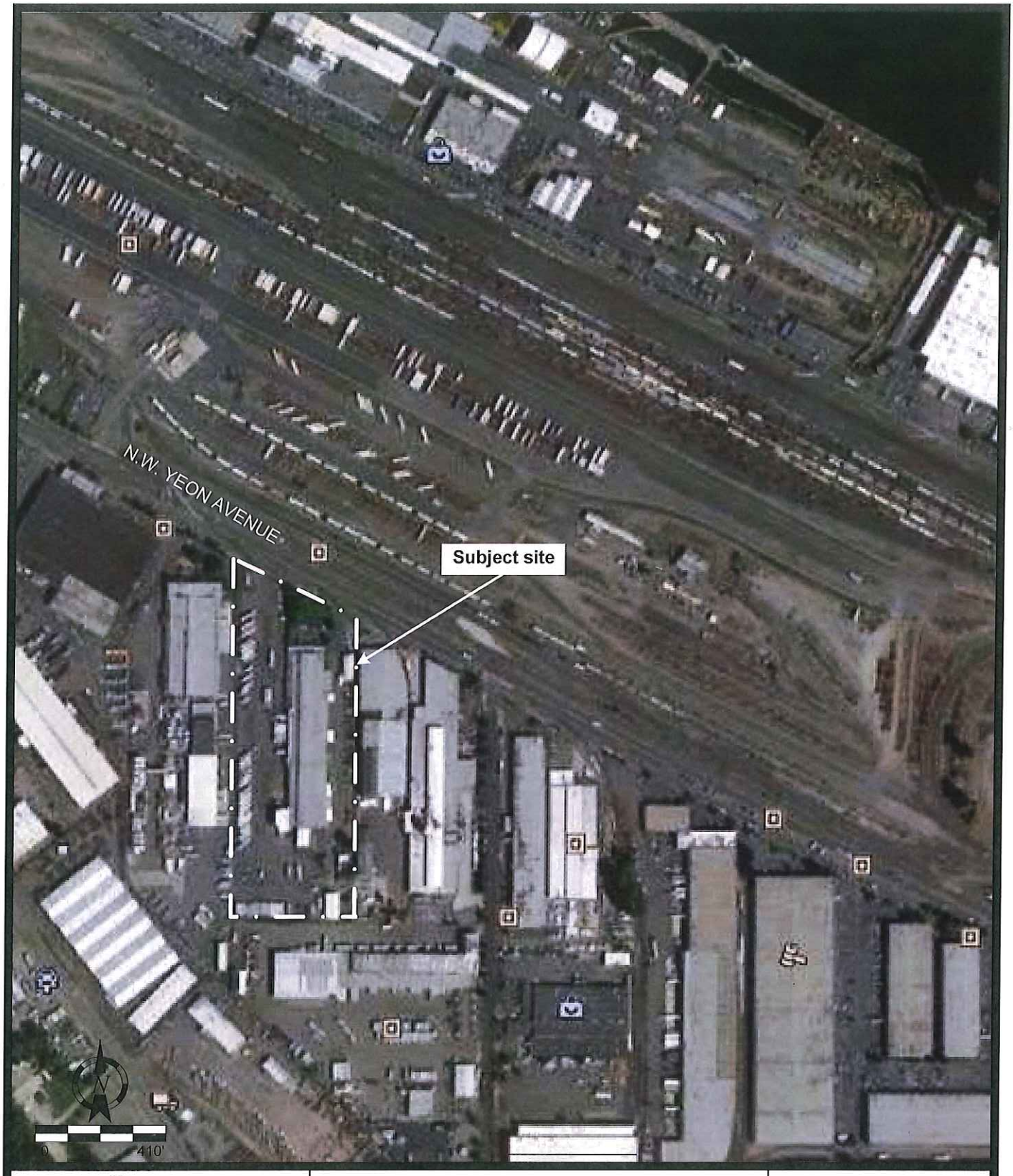
DEQ. 2010. *Guidance for Evaluating the Stormwater Pathway at Upland Sites*. October 2010. http://www.deq.state.or.us/lq/cu/stmwtrguidance.htm

DEQ and USEPA. 2005. *Portland Harbor Joint Source Control Strategy*. December 2005. http://www.deq.state.or.us/lq/cu/stmwtrguidance.htm

Wohlers Environmental Services. 2014a. *Stormwater Assessment Sample Event Report – Oregon Beverage Recycling Cooperative.* March 2014.

Wohlers Environmental Services. 2014b. *Source Control Evaluation - Oregon Beverage Recycling Cooperative*. August 2014.

Figure 1



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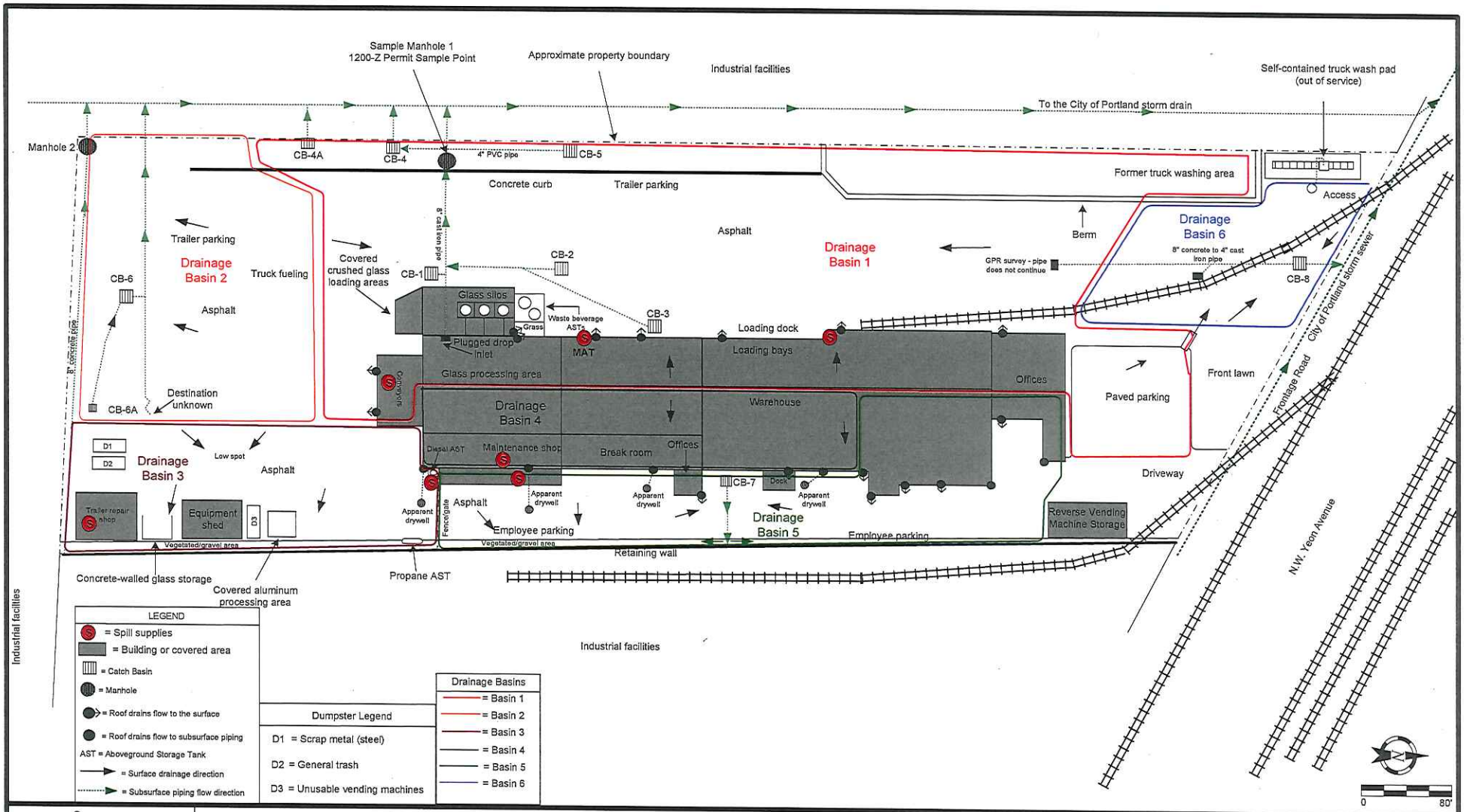
SITE LOCATION MAP

OREGON BEVERAGE RECYCLING COOPERATIVE
3900 N.W. YEON AVENUE
PORTLAND, OREGON 97210

PROJECT NO.:	13-0008
DATE:	8/30/14
SCALE:	1" = 410'
FILE:	Expanded aerial sm
DRAWN BY:	KB

Figure 2



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SITE STORMWATER DRAINAGE FEATURES LOCATION MAP

OREGON BEVERAGE RECYCLERS COOPERATIVE
3900 N.W. YEON AVENUE
PORTLAND, OREGON

PROJECT NO.:	13-0008
DATE:	3/17/2014
SCALE:	1" = 80'
FILE:	Figure 3
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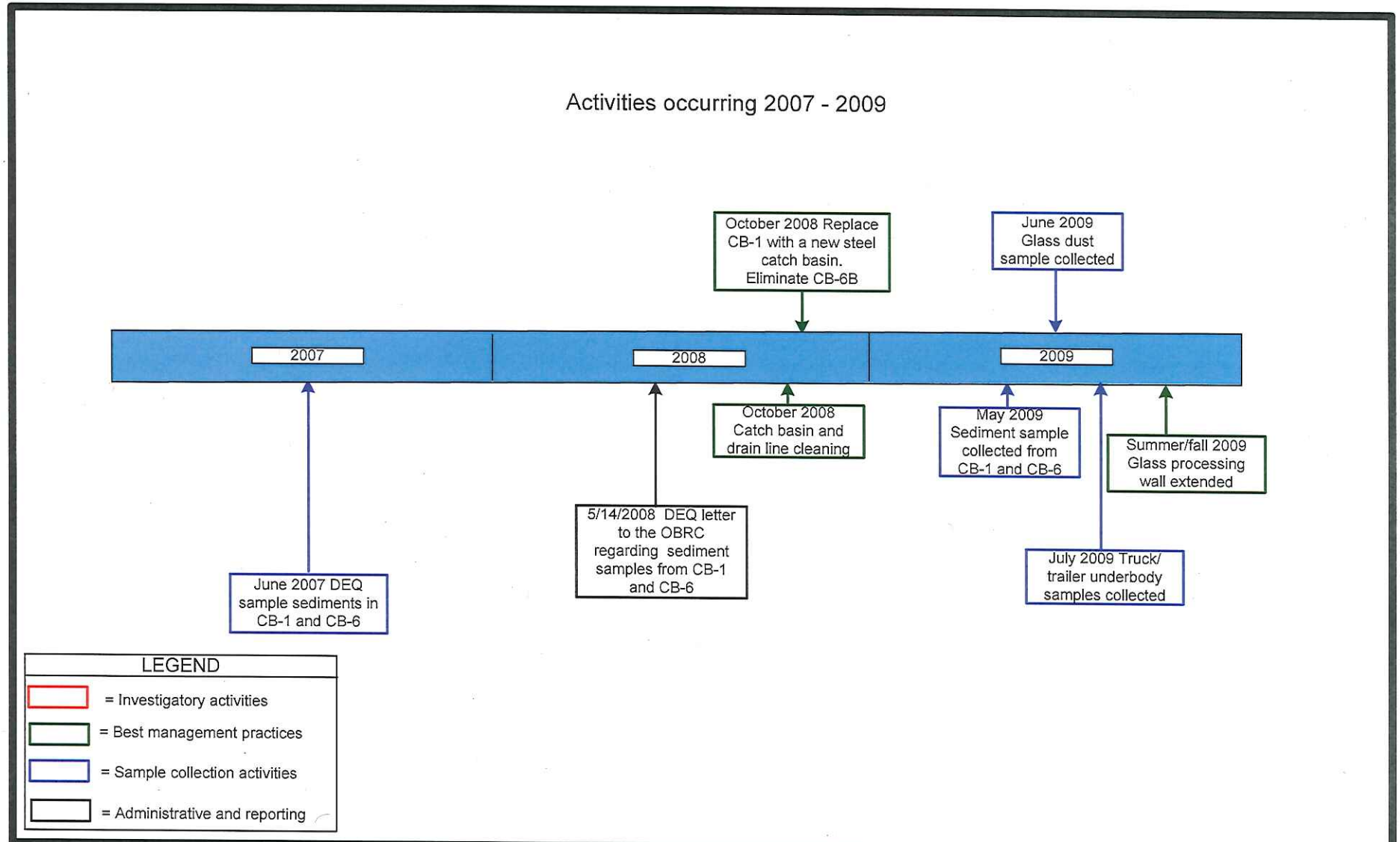
Figure 3



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SOURCE CONTROL EVALUATION TIMELINE

OREGON BEVERAGE RECYCLING COOPERATIVE
3900 N.W. YEON AVENUE
PORTLAND, OREGON 97210

PROJECT NO.:	13-0008
DATE:	09/03/14
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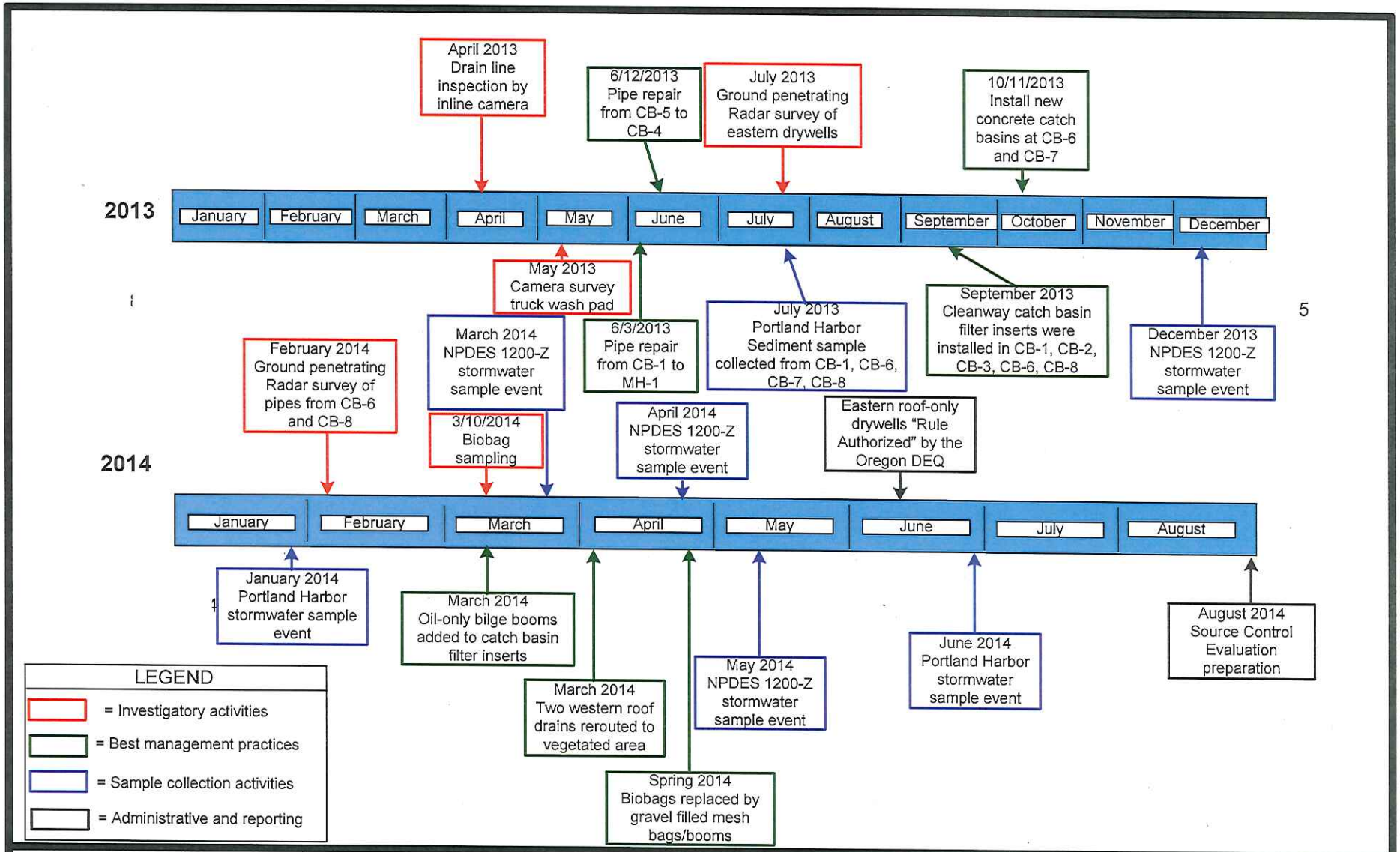

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PROJECT NO.:	13-0008
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SCALE:	Not to scale
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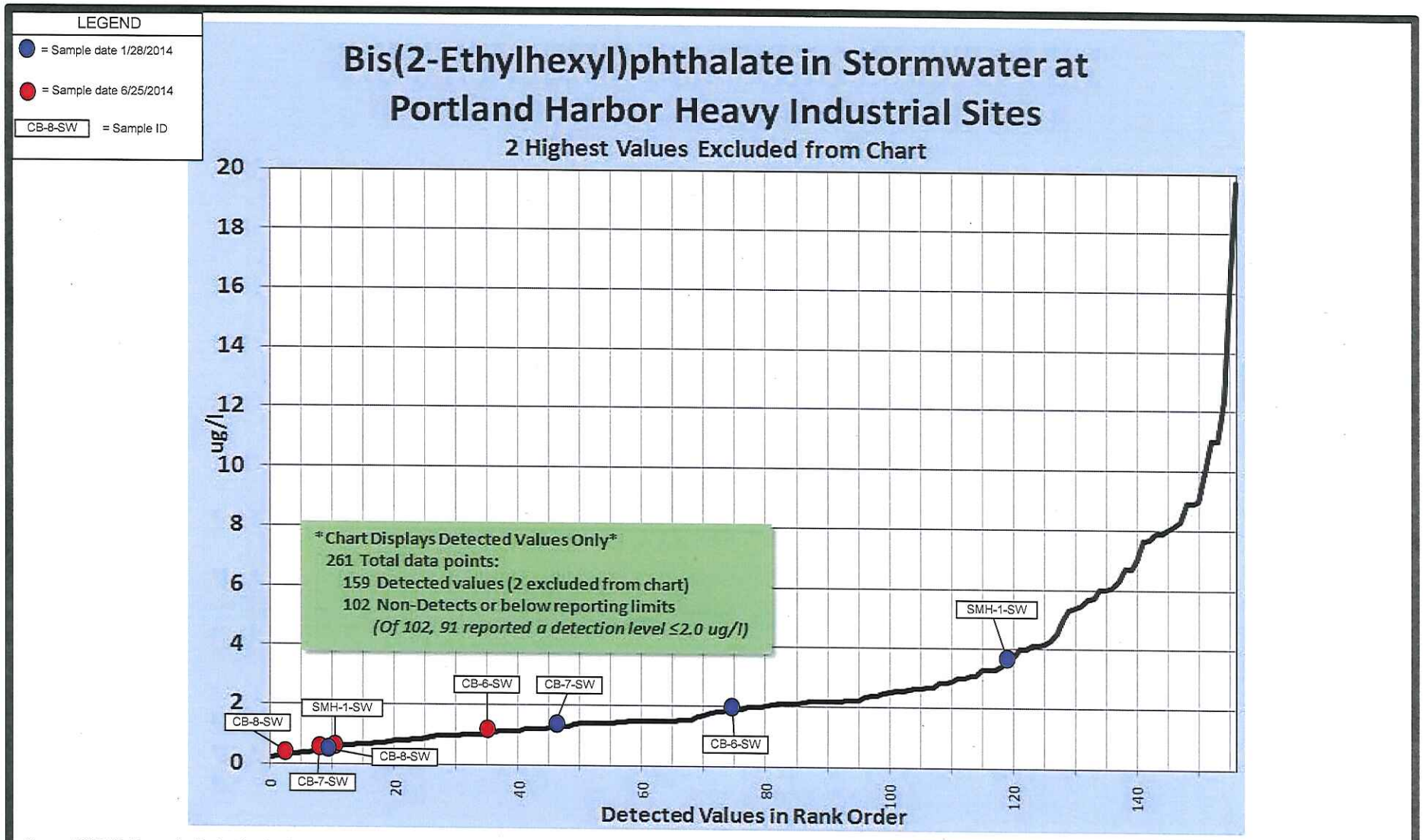
Figure 4



Source: "DEQ Guidance for Evaluating the Storm Water Pathway at Upland Sites, Appendix E: Tool for Evaluating Storm Water Data".

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STORMWATER EVALUATION USING OREGON DEQ SCREENING TOOL

OREGON BEVERAGE RECYCLING COOPERATIVE
3900 N.W. YEON AVENUE
PORTLAND, OREGON 97210

PROJECT NO.:	13-0008
DATE:	08/04/14
SCALE:	Not to scale
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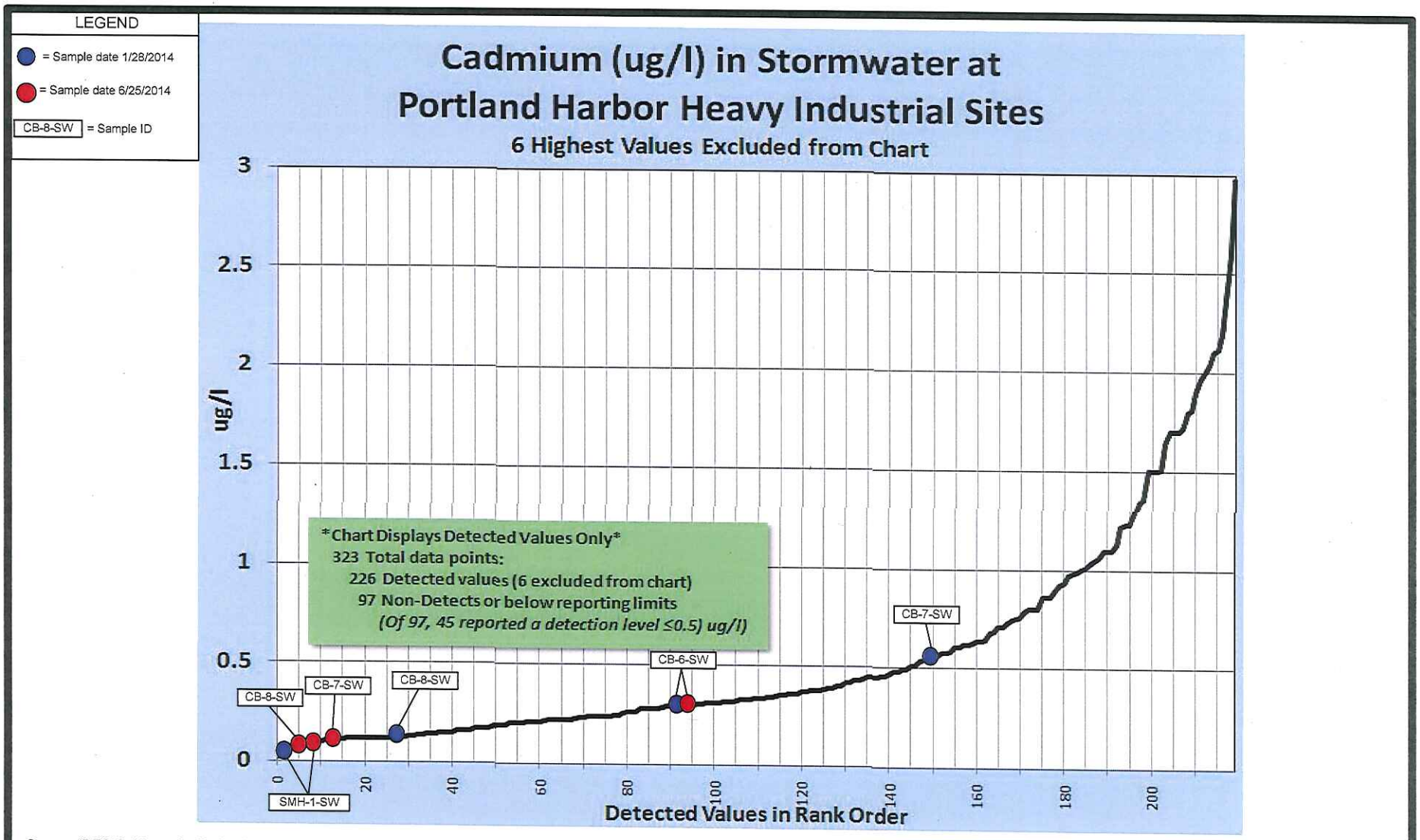

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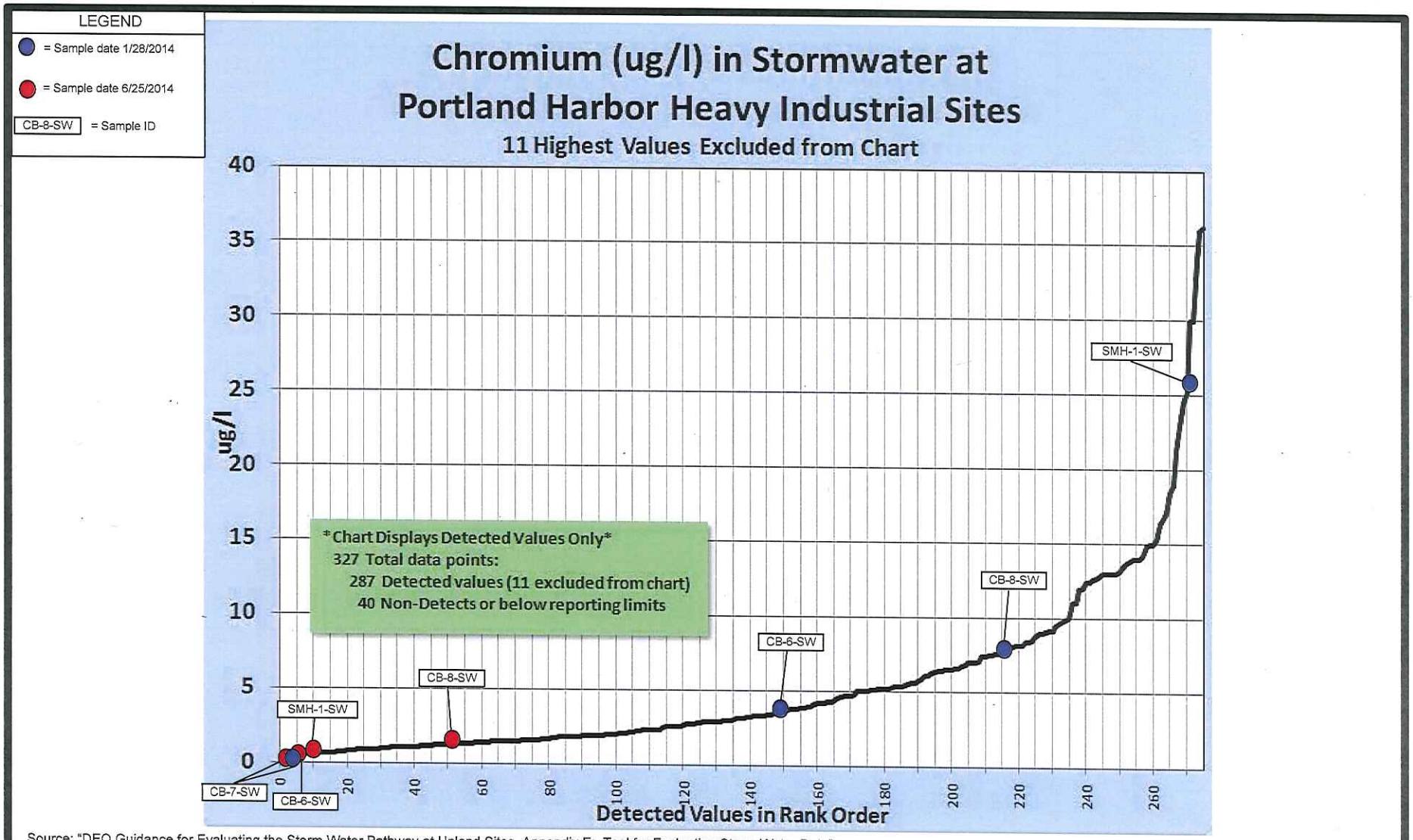

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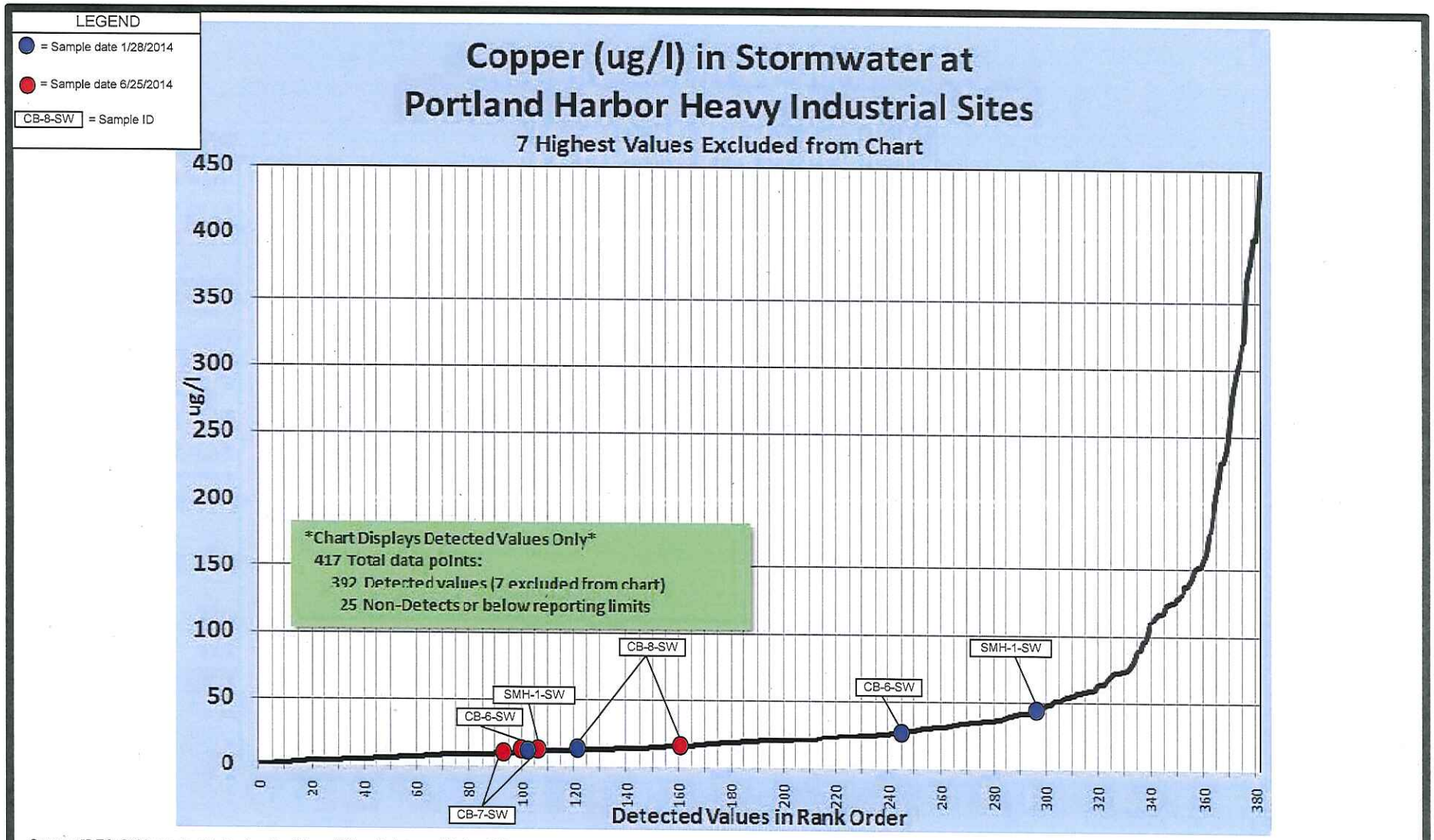

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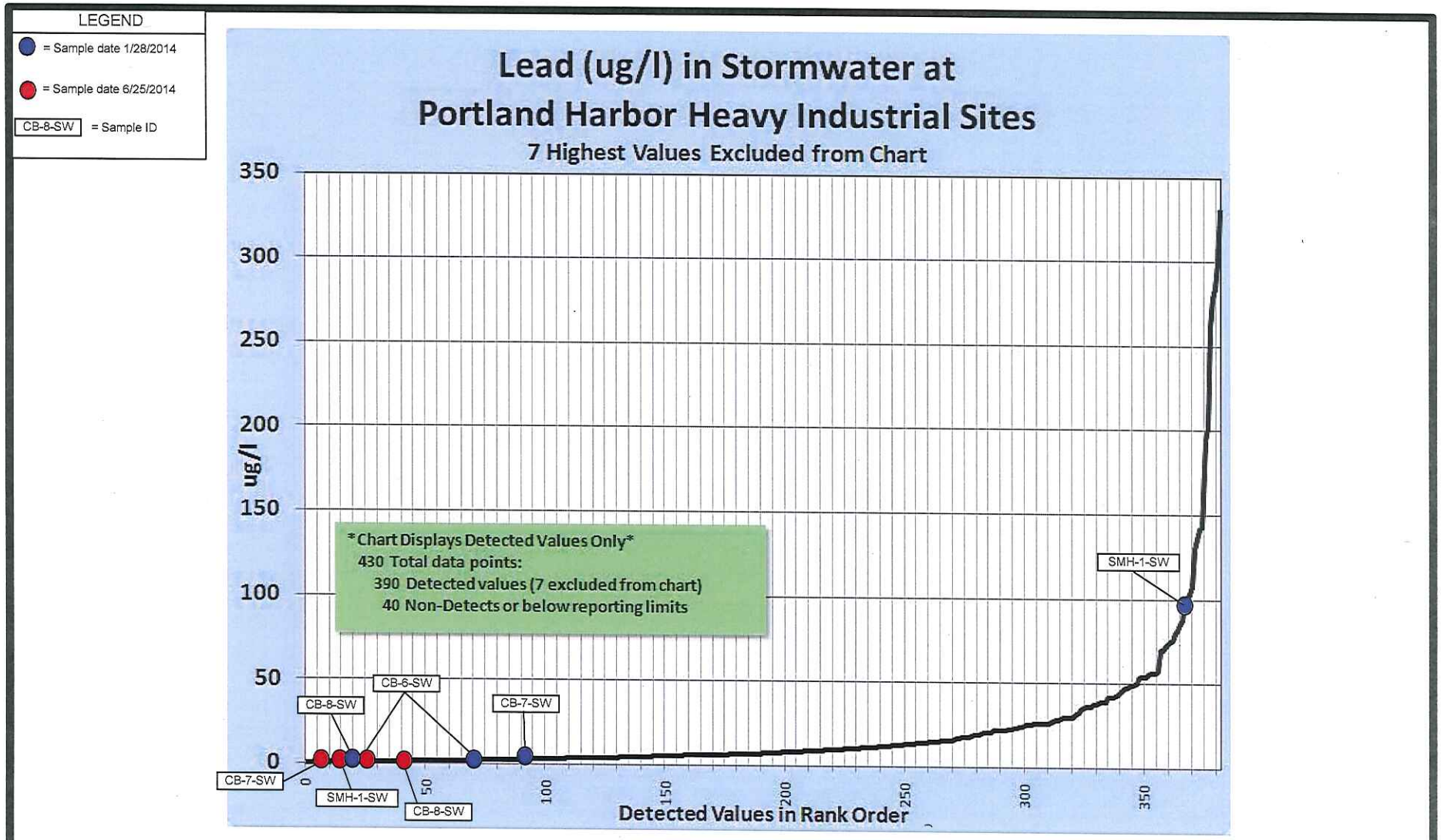

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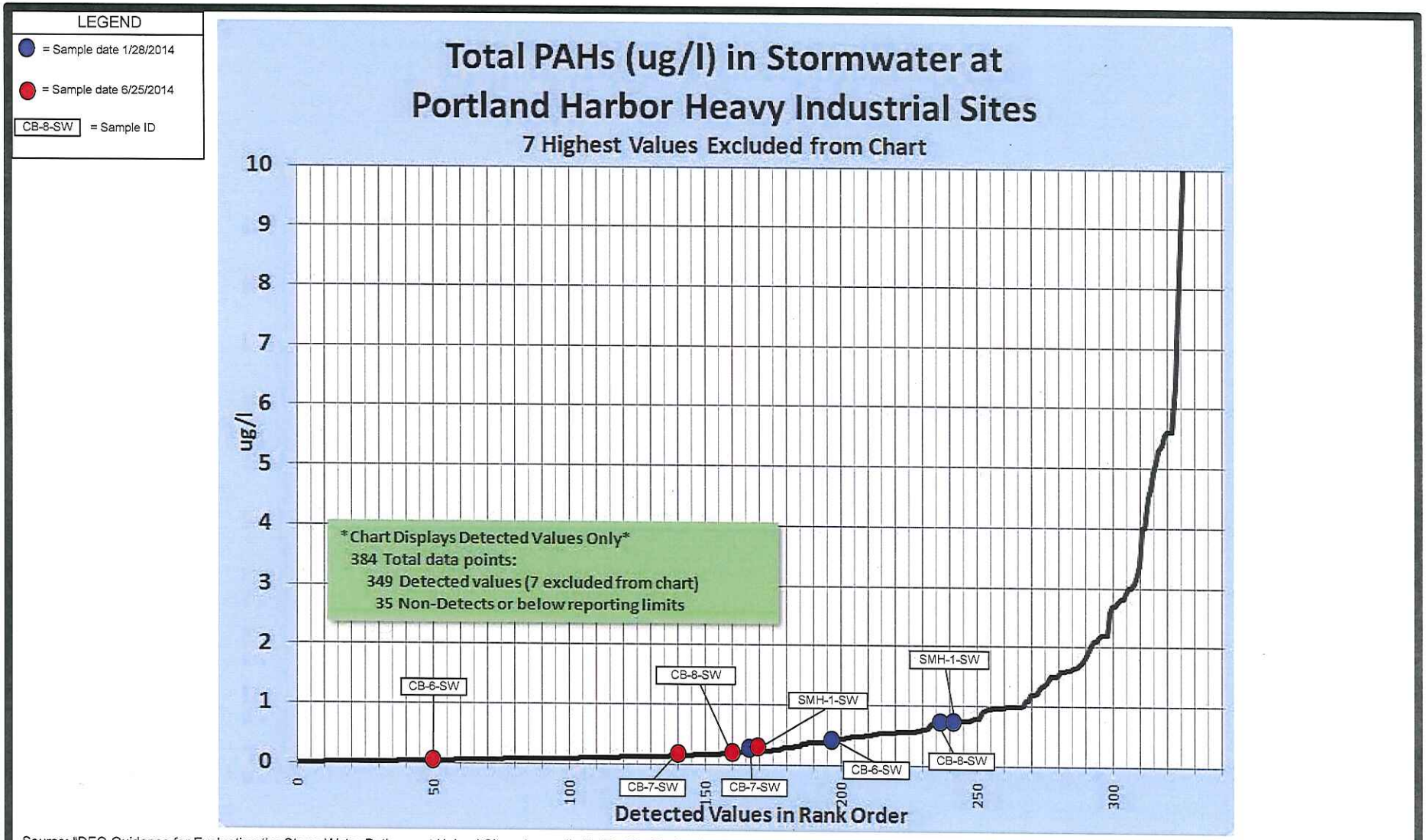

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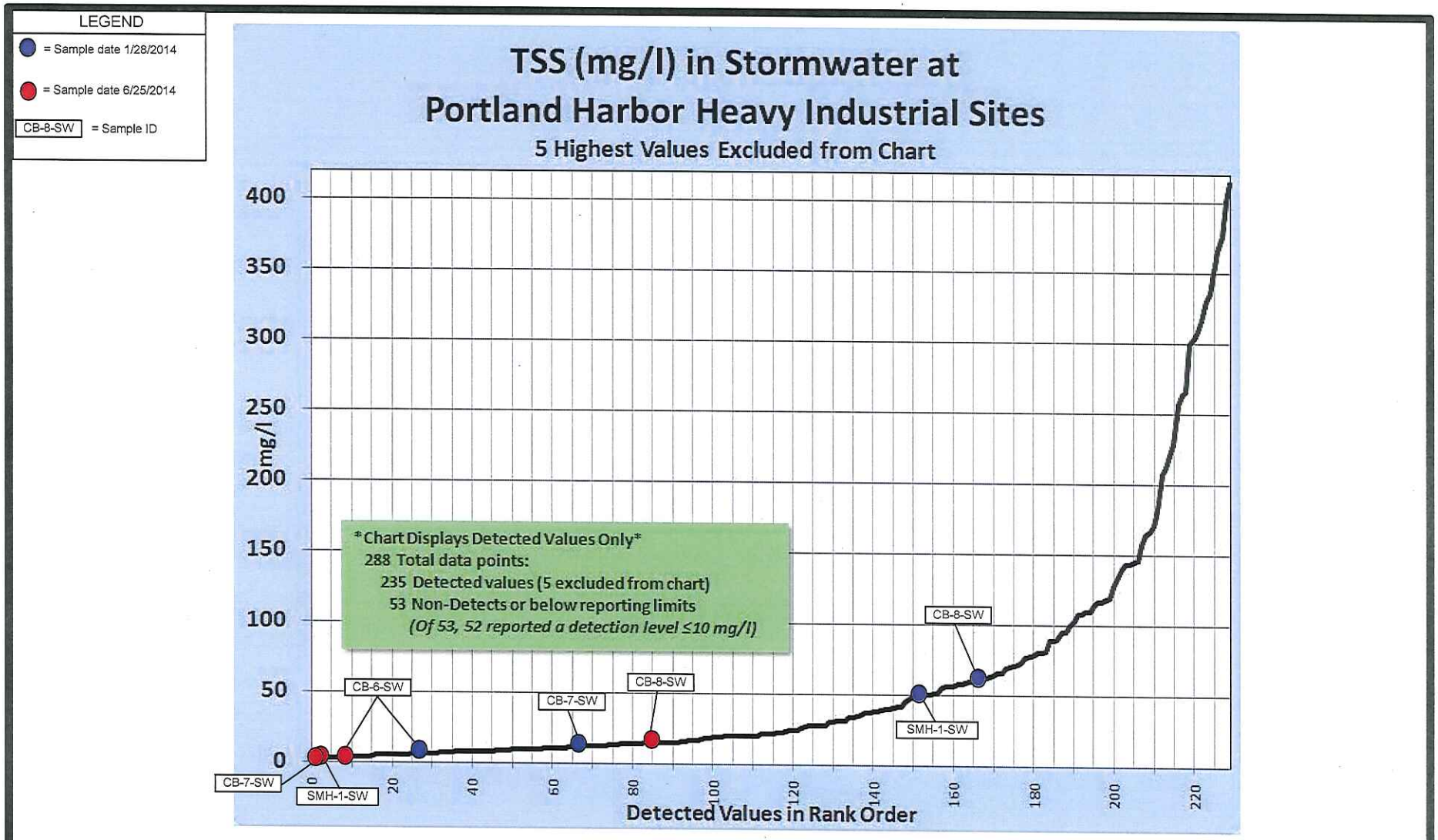

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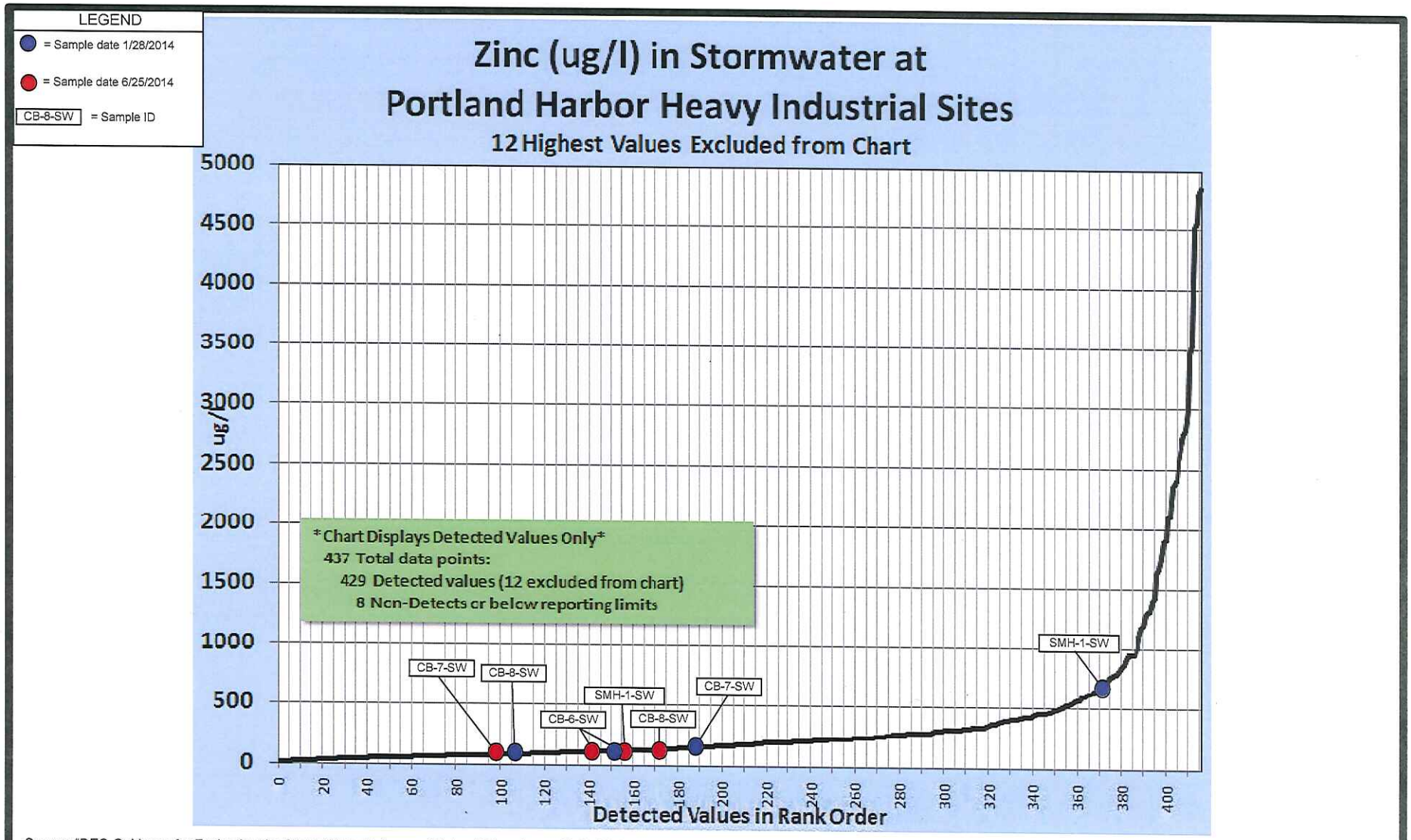

Source: "DEQ Guidance for Evaluating the Storm Water Pathway at Upland Sites. Appendix E: Tool for Evaluating Storm Water Data".

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Table 1

CUMULATIVE SEDIMENT SAMPLE ANALYTICAL RESULTS
OREGON BEVERAGE RECYCLING COOPERATIVE
3900 N.W. YEON AVENUE
PORTLAND, OREGON 97210
WES Project No. 13-0008

		Investigatory Sampling				Portland Harbor Source Control					
		5/15/2009		6/12/2009	7/23/2009	6/5/2007		7/19/2013			
ANALYTE	SLV	CB-1	CB-6	Op. Dust	Trailer	CB-1	CB-6	CB-1-Sed	CB-6-Sed	CB-7-Sed	CB-8-Sed
Metals (mg/kg)											
Silver	5	NS	NS	NS	NS	0.718	0.175	0.131	0.126	0.138	0.146
Arsenic	7	NS	NS	NS	NS	2.76	6.79	0.922	2.97	2.69	3.99
Cadmium	1	<1.49	2.4	<0.496	2.01	1.11	3.98	0.268	1.46	0.555	0.697
Chromium, total	111	NS	NS	NS	NS	15.1	64.0	11.1	31.8	175.0	35.8
Copper	149	NS	NS	NS	NS	43.1	112	190.0	69.8	69.7	59.1
Manganese	1,100.00	NS	NS	NS	NS	NS	NS	115.0	216.0	239.0	380.0
Lead	17	34.3	84.9	3.02	65.9	34.6	112	15.5	274.0	105.0	37.5
Mercury	0.070	NS	NS	NS	NS	0.0379	0.0396	<0.0218	0.0328	0.250	0.0249
Nickel	48.6	NS	NS	NS	NS	12.7	36.1	89.9	24.2	164.0	25.0
Zinc	459	732	657	294	593	505	511	266.0	557.0	352.0	766.0
PCB Aroclors (ug/kg)											
Aroclor 1016	530	NS	NS	NS	NS	9.37	25.9	<0.574	<0.965	<0.617	<0.350
Aroclor 1221	No SLV	NS	NS	NS	NS	33.7	52	<0.574	<0.965	<0.617	<0.350
Aroclor 1232	No SLV	NS	NS	NS	NS	9.37	25.9	<0.574	<0.965	<0.617	<0.350
Aroclor 1242	No SLV	NS	NS	NS	NS	9.37	25.9	<0.574	<0.965	<0.617	<0.350
Aroclor 1248	1,500	NS	NS	NS	NS	9.37	25.9	<0.574	<0.965	<0.617	<0.350
Aroclor 1254	300	<20.3	<16.2	NS	NS	29.5	407	<0.574	<0.965	<0.617	<0.350
Aroclor 1260	200	<20.3	51.3	NS	NS	8.58	208	12.6	139	17.3	10.9
Aroclor 1262	No SLV	NS	NS	NS	NS	NS	NS	<0.574	<0.965	<0.617	<0.350
Aroclor 1268	No SLV	NS	NS	NS	NS	NS	NS	<0.574	<0.965	<0.617	<0.350
Total PCBs	0.39	NC	51.3	NS	NS	38.08	615	12.6	139	17.3	10.9
Phthalate Esters (ug/kg)											
Dimethylphthalate	No SLV	NS	NS	NS	NS	2,350	2,170	<115	<193	<123	<70.0
Diethylphthalate	600	NS	NS	NS	NS	2,350	2,170	<115	<193	<123	<70.0
D-n-butylphthalate	60	NS	NS	NS	NS	2,350	2,170	264	<193	221	<70.0
Butylbenzylphthalate	No SLV	NS	NS	NS	NS	2,350	2,170	<115	<193	1,670	219
Di-n-octylphthalate	No SLV	NS	NS	NS	NS	4,710	3,120	<115	<193	<123	<70.0
Bis(2-Ethylhexyl)phthalate	330	30,800	31,500	4,590	21,199	21,600	23,600	5,390	18,500	3,430	2,160

		Investigatory Sampling				Portland Harbor Source Control					
		5/15/2009		6/12/2009	7/23/2009	6/5/2007		7/19/2013			
ANALYTE	SLV	CB-1	CB-6	Op. dust	Trailer	CB-1	CB-6	CB-1-Sed	CB-6-Sed	CB-7-Sed	CB-8-Sed
Polycyclic Aromatic Hydrocarbons (ug/kg)											
Naphthalene	561	NS	NS	NS	NS	53.5	229	59.7	46.4	<24.7	25.2
2-Methylnaphthalene	200	<203	<163	NS	NS	285	2,180	103	81.2	<24.7	<14.0
Acenaphthylene	200	NS	NS	NS	NS	188	867	<23.0	131	<24.7	57.5
Acenaphthene	300	NS	<163	NS	NS	188	403	<23.0	61.9	<24.7	<14.0
Fluorene	536	NS	<163	NS	NS	202	763	27.6	116	<24.7	<14.0
Phenanthrene	1,170	NS	308	NS	NS	637	3,170	89.6	847	126	126
Anthracene	845	NS	NS	NS	NS	80.8	538	<23.0	456	<24.7	96.7
Fluoranthene	2,230	NS	467	NS	NS	408	2,740	292	1,030	386	653
Pyrene	1,520	NS	485	NS	NS	593	2,260	149	711	116	230
Benzo(a)anthracene	1,050	NS	NS	NS	NS	69.9	553	<115	371	54.4	172
Chrysene	1,290	NS	NS	NS	NS	258	1,190	<115	823	245	308
Benzo(b)fluoranthene	NA	NS	NS	NS	NS	188	695	<115	522	267	453
Benzo(k)fluoranthene	13,000	NS	NS	NS	NS	188	607	<115	<193	59.3	174
Benzo(a)pyrene	1,450	NS	NS	NS	NS	188	533	184	638	141	263
Indeno(1,2,3-cd)pyrene	100	NS	<163	NS	NS	75.6	3,525	<115	<193	109	202
Dibenz(a,h)anthracene	1,300	NS	NS	NS	NS	188	867	<115	<193	54.4	96.7
Benzo(g,h,i)perylene	300	NS	335	NS	NS	277	574	<115	<193	297	591
Other Analytes (mg/kg)											
TPH Diesel	No SLV	NS	NS	NS	NS	NS	NS	1,160	2,940	723	388
TPH Heavy Oil	No SLV	NS	NS	NS	NS	NS	NS	7,730	10,500	3,430	3,040
Total Organic Carbon	No SLV	NS	NS	NS	NS	NS	NS	51,300	71,100	55,600	25,000
TOC Percent	No SLV	NS	NS	NS	NS	6.14	NS	5.13	7.11	5.56	2.50

ug/L = Microgram per Liter
SLV = Screening Level Value
<value = Results is less than the reporting limit indicated
Result = Analyte was detected
Results shaded gray = Results exceeds the Portland Harbor SLV
NC = Not Calculated
Op. Dust = Dust generated by crushing glass beverage containers
Trailer = Trailer underbody samples
TOC = Total Organic Carbon

Grain Size Data Sample Dte 7/19/2013				
Sample Location	Sample ID	Percent Sand	Percent Clay	Percent Silt
CB-8	1307146-001	86	2	12
CB-7	1307146-002	88	2	10
CB-6	1307146-003	82	3	15
CB-1	1307146-004	76	3	21

Table 2

CUMULATIVE STORMWATER SAMPLE RESULTS 2013/2014
OREGON BEVERAGE RECYCLING COOPERATIVE
3900 N.W. YEON AVENUE
PORTLAND, OREGON 97210
WES Project No. 13-0008

		NPDES				Portland Harbor Source Control							
		12/12/2013	3/28/2014	4/24/2014	5/9/2014	1/28/2014				6/25/2014			
ANALYTE	SLV	SMH-1-SW				SMH-1-SW	CB-6-SW	CB-7-SW	CB-8-SW	SMH-1-SW	CB-6-SW	CB-7-SW	CB-8-SW
Metals (ug/L)													
Cadmium	0.094	<0.400	<1.0	NS	NS	0.0302	0.308	0.545	0.127	0.104	0.309	0.105	0.0534
Chromium, total	100	10.1	<5.0	NS	NS	25.8	3.9	<2.0	8.0	0.932	0.567	0.368	1.32
Copper	2.7	MW	<10.0	NS	NS	45.4	28.6	10.8	13.3	12.9	10.2	9.07	16.6
Iron	1,000	3,780	698	NS	NS	4,780	576	1,040	1,160	518	478	115	499
Lead	0.54	MW	<20.0	NS	NS	97.2	3.18	2.89	1.53	1.24	1.5	1.08	2.21
Mercury	0.77	0.0279	NS	NS	NS	<0.016	<0.016	<0.016	<0.016	<0.0160	NS	NS	NS
Nickel	16	4.9	<5.0	NS	NS	13.7	1.5	1.7	<1.0	2.57	1.79	0.741	1.34
Zinc	36	MW	93.2	79.3	69.9	679	134	160	79.6	137	120	95.2	150
PCB Aroclors (ug/L)													
Aroclor 1016	0.96	<0.00954	NS	NS	NS	<0.00961	<0.0193	<0.0191	<0.0191	<0.00190	<0.0190	<0.0204	<0.0189
Aroclor 1221	0.034	<0.00954	NS	NS	NS	<0.00961	<0.0193	<0.0191	<0.0191	<0.00190	<0.0190	<0.0204	<0.0189
Aroclor 1232	0.034	<0.00954	NS	NS	NS	<0.00961	<0.0193	<0.0191	<0.0191	<0.00190	<0.0190	<0.0204	<0.0189
Aroclor 1242	0.034	<0.00954	NS	NS	NS	<0.00961	<0.0193	<0.0191	<0.0191	<0.00190	<0.0190	<0.0204	<0.0189
Aroclor 1248	0.034	<0.00954	NS	NS	NS	<0.00961	<0.0193	<0.0191	<0.0191	<0.00190	<0.0190	<0.0204	<0.0189
Aroclor 1254	0.033	<0.00954	NS	NS	NS	<0.00961	<0.0193	<0.0191	<0.0191	<0.00190	<0.0190	<0.0204	<0.0189
Aroclor 1260	0.034	<0.00954	NS	NS	NS	<0.00961	<0.0193	<0.0191	<0.0191	<0.00190	<0.0190	<0.0204	<0.0189
Aroclor 1262	No SLV	<0.00954	NS	NS	NS	<0.00961	<0.0193	<0.0191	<0.0191	<0.00190	<0.0190	<0.0204	<0.0189
Aroclor 1268	No SLV	<0.00954	NS	NS	NS	<0.00961	<0.0193	<0.0191	<0.0191	<0.00190	<0.0190	<0.0204	<0.0189
Total PCBs	0.000064	<0.00954	NS	NS	NS	<0.00961	<0.0193	<0.0191	<0.0191	<0.00190	<0.0190	<0.0204	<0.0189
Phthalate Esters (ug/L)													
Dimethylphthalate	3	NS	NS	NS	NS	1.92	0.334	<0.104	0.114	0.104	0.218	<0.951	<0.947
Diethylphthalate	3	NS	NS	NS	NS	0.332	0.138	<0.115	<0.114	0.179	0.142	<0.951	<0.947
D-n-butylphthalate	3	NS	NS	NS	NS	0.436	0.196	<0.100	0.152	0.594	0.588	0.342	0.303
Butylbenzylphthalate	3	NS	NS	NS	NS	0.266	<0.154	<0.150	<0.149	<0.943	<0.949	<0.951	<0.947
Di-n-octylphthalate	3	NS	NS	NS	NS	<0.0560	<0.0580	0.0573	<0.0561	<0.943	<0.949	<0.951	<0.947
Bis(2-Ethylhexyl)phthalate	2.2	NS	NS	NS	NS	3.61	1.88	1.28	0.533	0.575	1.08	0.447	0.379

		NPDES				Portland Harbor Source Control							
		12/12/2013	3/28/2014	4/24/2014	5/9/2014	1/28/2014				6/25/2014			
ANALYTE	SLV	SMH-1-SW				SMH-1-SW	CB-6-SW	CB-7-SW	CB-8-SW	SMH-1-SW	CB-6-SW	CB-7-SW	CB-8-SW
Polycyclic Aromatic Hydrocarbons (ug/L)													
Naphthalene	0.2	NS	NS	NS	NS	0.064	0.072	0.046	0.04	0.0092	<0.0065	0.037	0.034
2-Methylnaphthalene	0.2	NS	NS	NS	NS	0.0081	0.018	0.014	0.0098	<0.0054	<0.0055	<0.0055	0.013
Acenaphthylene	0.2	NS	NS	NS	NS	<0.0053	<0.0053	<0.0053	0.0079	<0.0050	0.0095	<0.0051	<0.0051
Acenaphthene	0.2	0.014	NS	NS	NS	<0.0019	0.032	<0.0019	0.009	0.0059	0.015	0.02	0.0064
Fluorene	0.2	0.041	NS	NS	NS	<0.0021	<0.0021	<0.0021	<0.0021	0.01	0.0087	0.0082	0.0026
Phenanthrene	0.2	NS	NS	NS	NS	0.10	0.073	0.034	0.093	0.03	0.017	0.035	0.026
Anthracene	0.2	0.024	NS	NS	NS	0.015	0.021	0.013	0.021	0.014	0.017	0.0064	0.014
Fluoranthene	0.2	0.12	NS	NS	NS	0.14	0.051	0.034	0.099	0.037	<0.0029	0.0079	0.027
Pyrene	0.2	0.21	NS	NS	NS	0.11	0.061	0.038	0.13	0.038	<0.0027	<0.0027	0.018
Benzo(a)anthracene	0.018	NS	NS	NS	NS	0.058	0.036	0.023	0.041	0.033	0.0036	0.027	0.015
Chrysene	0.018	0.0055	NS	NS	NS	0.066	0.015	0.021	0.074	0.033	0.0069	0.0098	0.025
Benzo(b)fluoranthene	0.018	0.043	NS	NS	NS	0.039	0.023	0.0082	0.042	0.014	0.0034	<0.0028	0.0059
Benzo(k)fluoranthene	0.018	0.017	NS	NS	NS	0.013	0.023	0.0081	0.027	0.012	0.0067	0.0023	0.0069
Benzo(a)pyrene	0.018	0.022	NS	NS	NS	0.056	<0.0017	0.0052	0.032	0.0089	<0.0016	0.0041	0.0084
Indeno(1,2,3-cd)pyrene	0.018	0.0071	NS	NS	NS	<0.0017	<0.0017	0.002	<0.0017	<0.0016	<0.0016	<0.0016	0.0037
Dibenz(a,h)anthracene	0.018	0.011	NS	NS	NS	<0.0015	<0.0015	0.0049	<0.0015	0.005	<0.0014	<0.0014	0.0055
Benzo(g,h,i)perylene	0.018	NS	NS	NS	NS	0.058	<0.0015	<0.0015	0.094	0.0065	0.0039	0.0037	0.013
Total PAHs						0.73	0.425	0.251	0.72	0.257	0.0917	0.161	0.224
Other Analytes (ug/L)													
TPH Diesel	No SLV	NS	NS	NS	NS	2,240	1,080	592	268	527	256	173	186
TPH Heavy Oil	No SLV	NS	NS	NS	NS	3,560	2,730	1,240	817	848	412	193	213
Total Suspended Solids	No SLV	MW	NS	NS	NS	50,000	7,000	13,000	61,000	4,000	3,000	<1,100	16,000

ug/L = Microgram per Liter
SLV = Screening Level Value
<value = Results is less than the reporting limit indicated
Result = Analyte was detected
Result shaded gray = Results exceeds the Portland Harbor Sceening Level Value