Northwest Region Cleanup Program

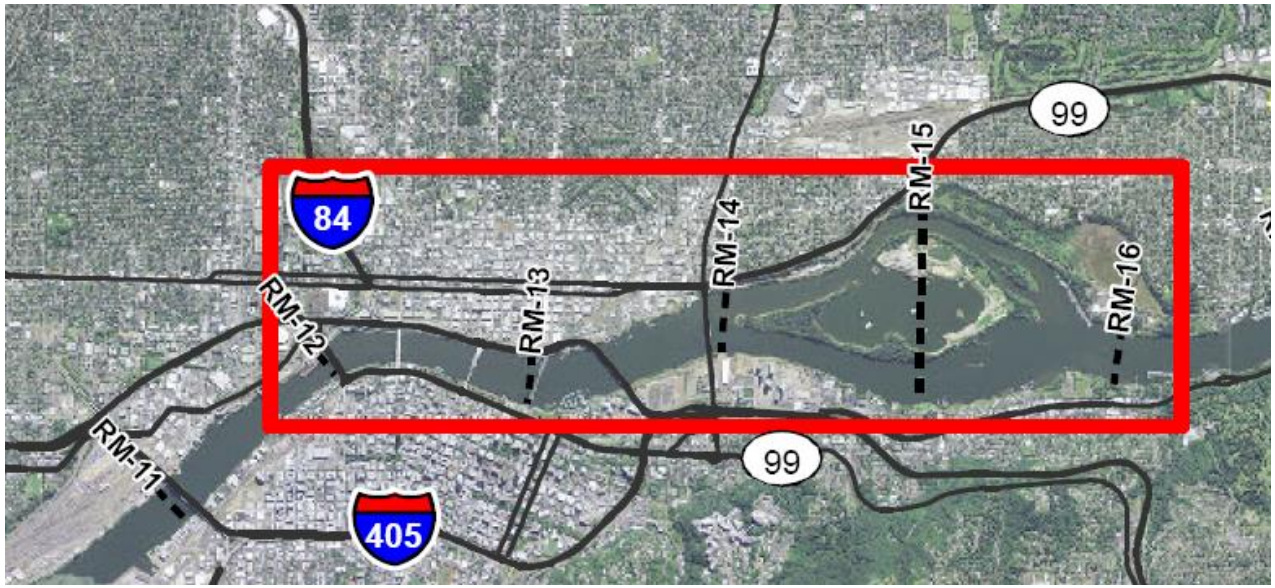
Willamette River Portland Downtown Reach Status Update to EPA

Oct. 29, 2014
Portland

Keith Johnson | Oregon Department of Environmental Quality

DEQ
State of Oregon
Department of
Environmental
Quality

Willamette River Portland Downtown Reach



Presentation Outline

1. History of the Downtown Reach
2. Conceptual Site Model
3. Data Comparison – DTR vs PH vs Upriver - surface sediment, sediment traps, tissue overview
4. DEQ DTR Study
5. Stormwater Conveyance System
6. Source Control Summary Report
7. Conclusions
8. Next steps

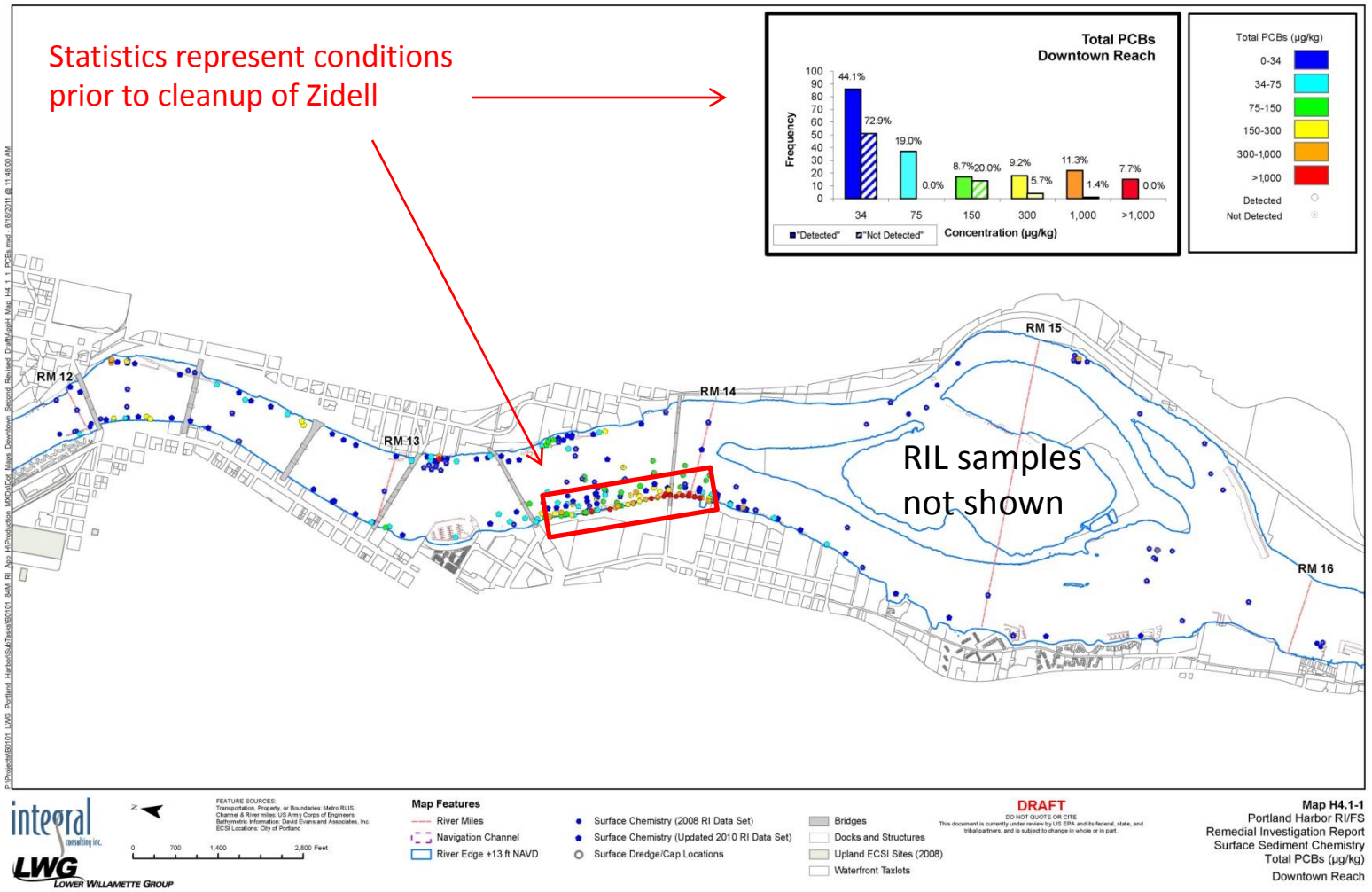
Conceptual Site Model

1. The most contaminated sites have been identified and cleanups completed or underway
2. No significant on-going upland sources
   - Contaminated sediment is primarily the result of historical releases
   - The majority of stormwater draining to this reach has been redirected to the Columbia Blvd Treatment facility
3. Contaminant extent and magnitude small relative to PH
4. DTR is not a recontamination threat to PH and will not delay remedy implementation
5. Suspended sediment concentrations leaving DTR to PH Site are currently low and will decrease by natural recovery towards PH background levels

Data Comparison – DTR vs PH vs Upriver

- Sediment investigation by DEQ, City and others (2008-2011)
  - Assess presence of contaminants in sediment
  - 108 surface sediment locations
  - 45 subsurface locations
- Sediment trap investigation by LWG and City (2007-2009)
- Smallmouth Bass by LWG (2012)

Surface Sediment Locations



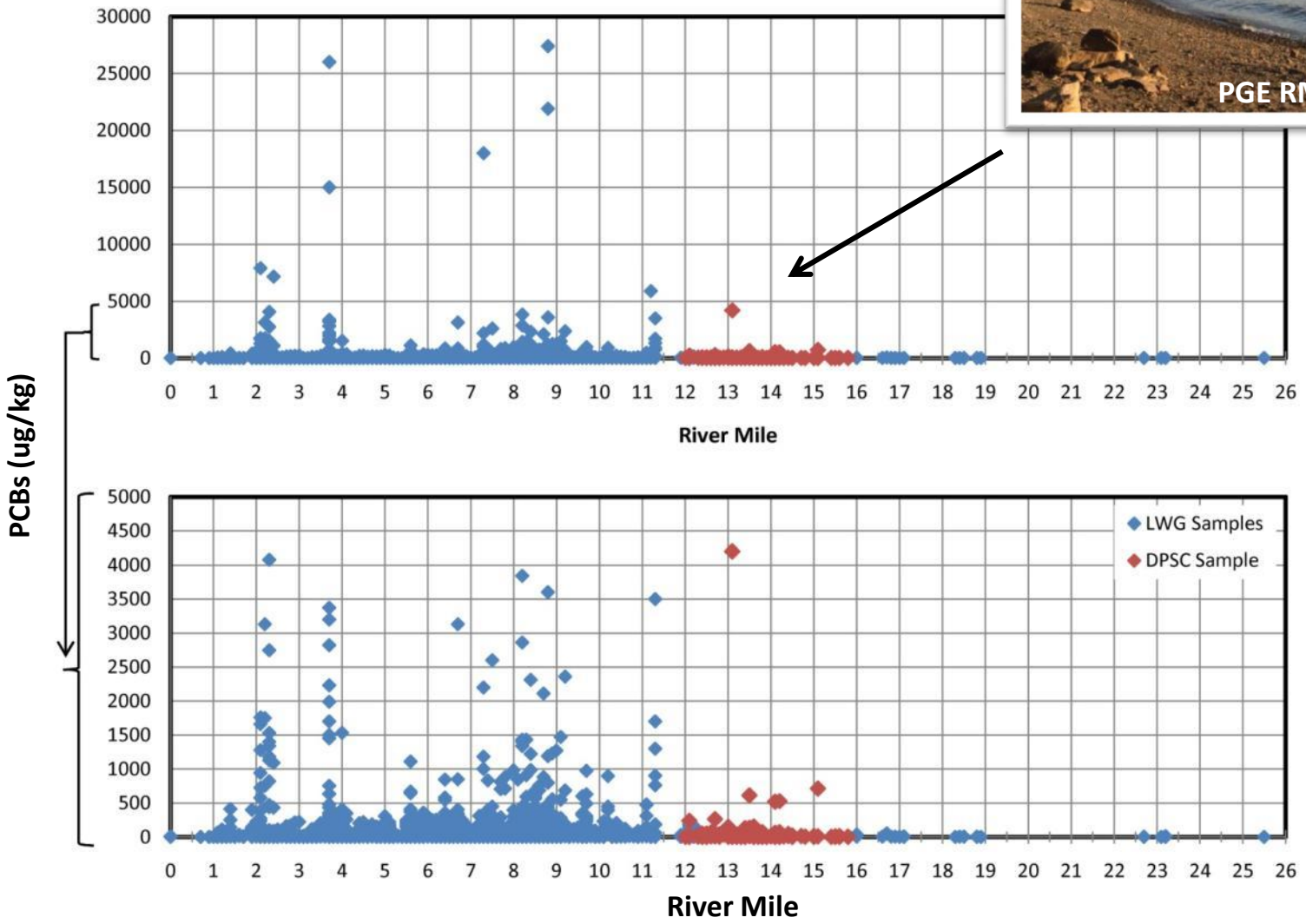
Source: LWG Draft Final RI Rpt App H

Surface Sediment PCBs Summary Stats

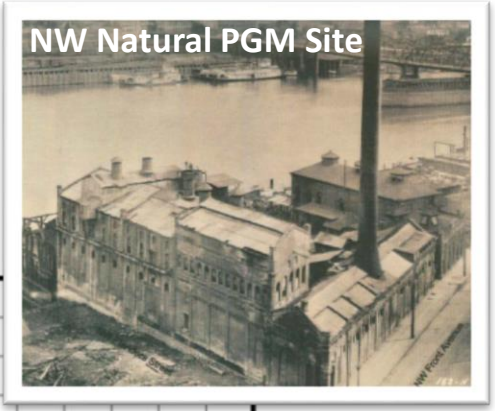
Reach	No. Samples	Mean	Median	95th %	Max
Study Area (RM1.9-11.8)	1318	183	20	601	35400
Downtown Reach (RM11.8 -15.3)	154	81	11	297	4200*
Upriver (RM15.3-28.4)	81	5.7	2.9	20	31

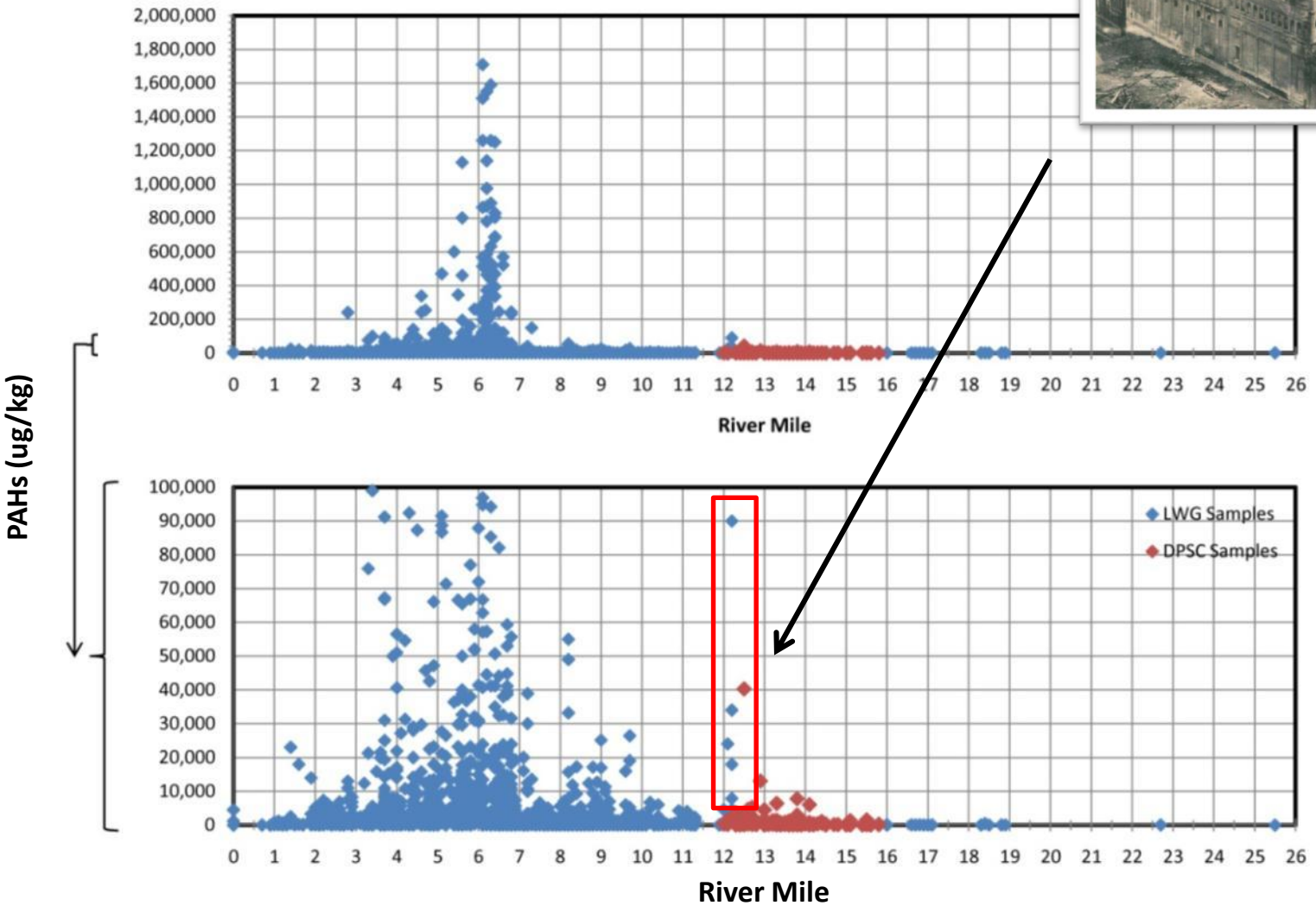
Notes:
ug/kg (ppb)
detected and non-detected (half DL); Zidell data excluded, Ross Island data excluded
Source: LWG Draft Final RI Rpt App H
*Collected at RM13.1E - area is undergoing RI/FS by PGE

Surface & Subsurface Samples - PCBs

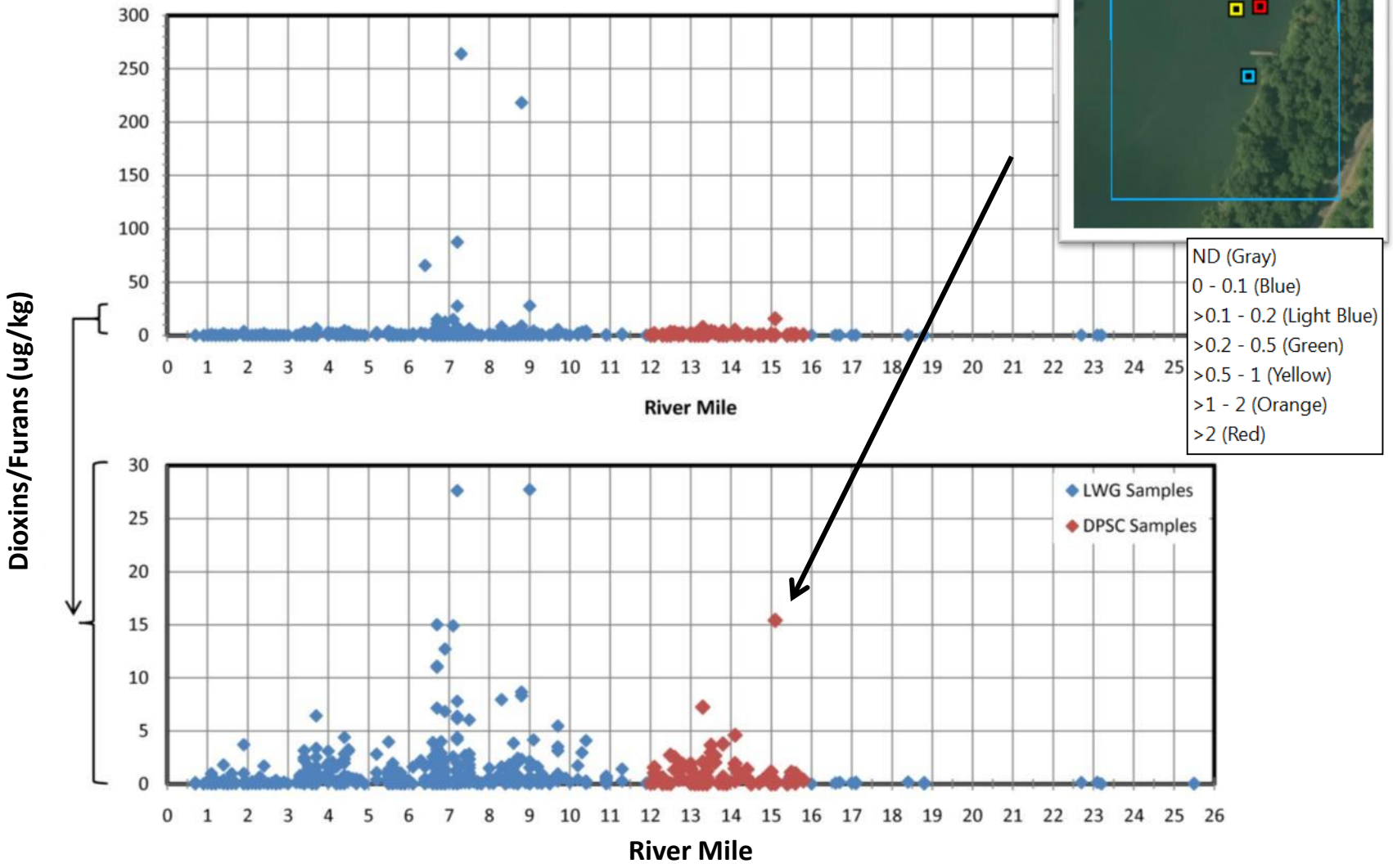


Surface & Subsurface Samples - PAHs

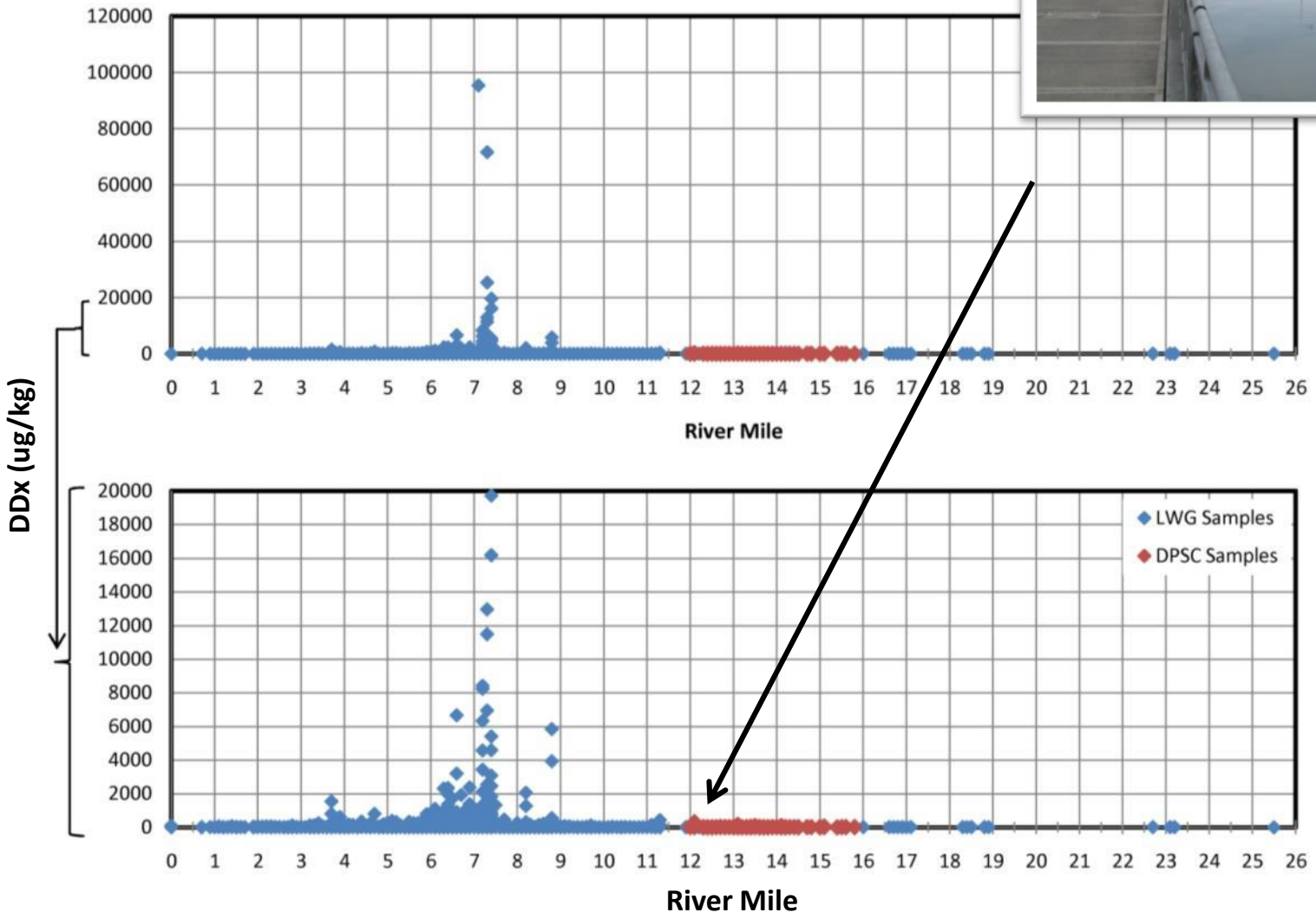




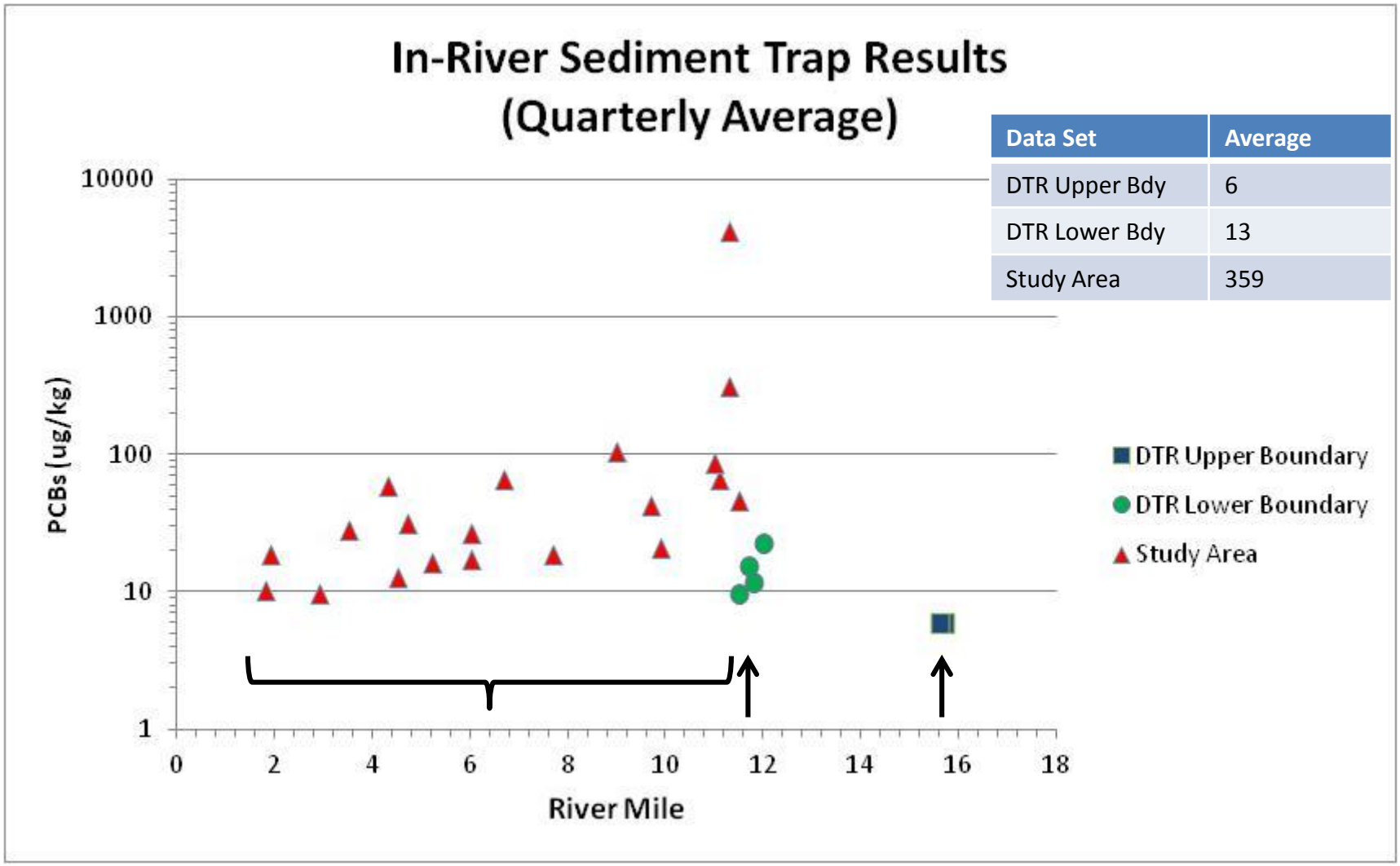
Surface & Subsurface Samples – Dioxins/Furans



Surface & Subsurface Samples - DDx

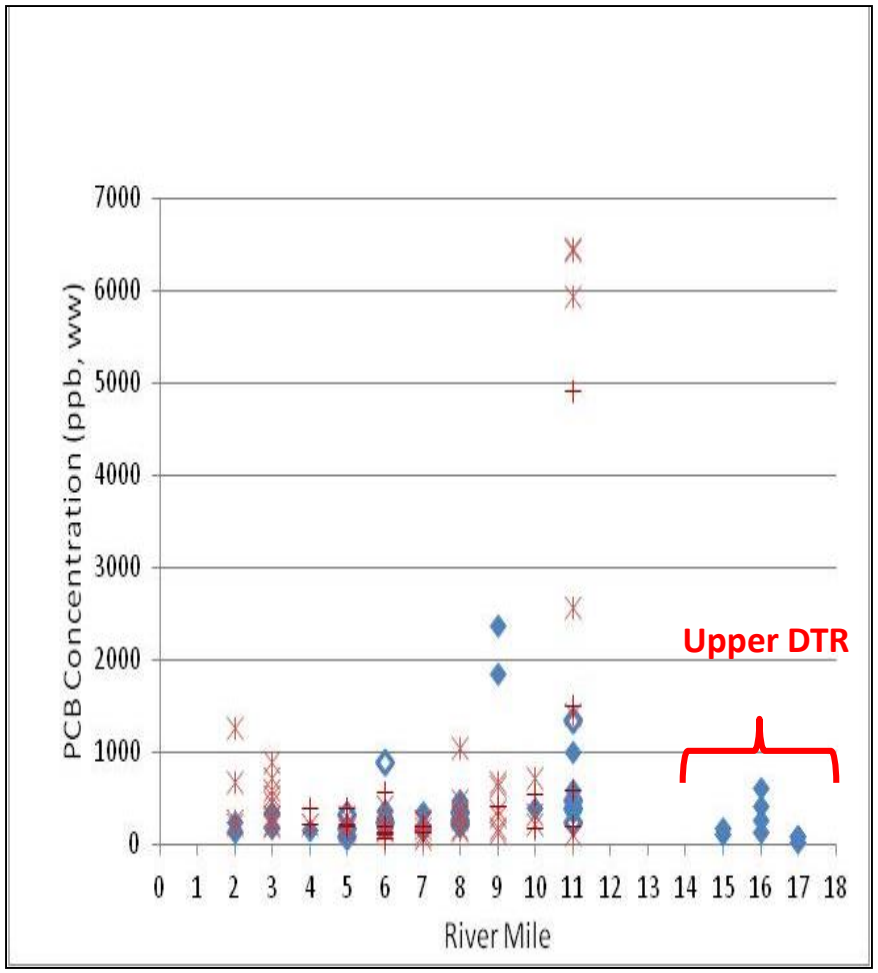


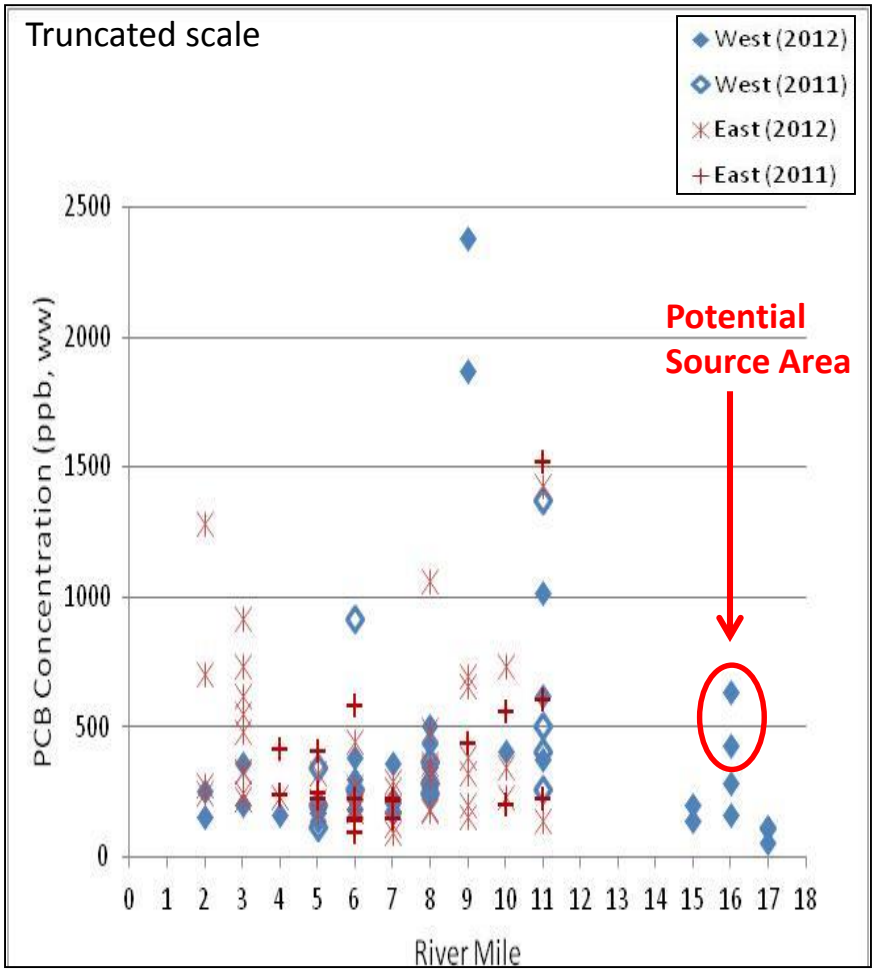
Sediment Traps - PCBs



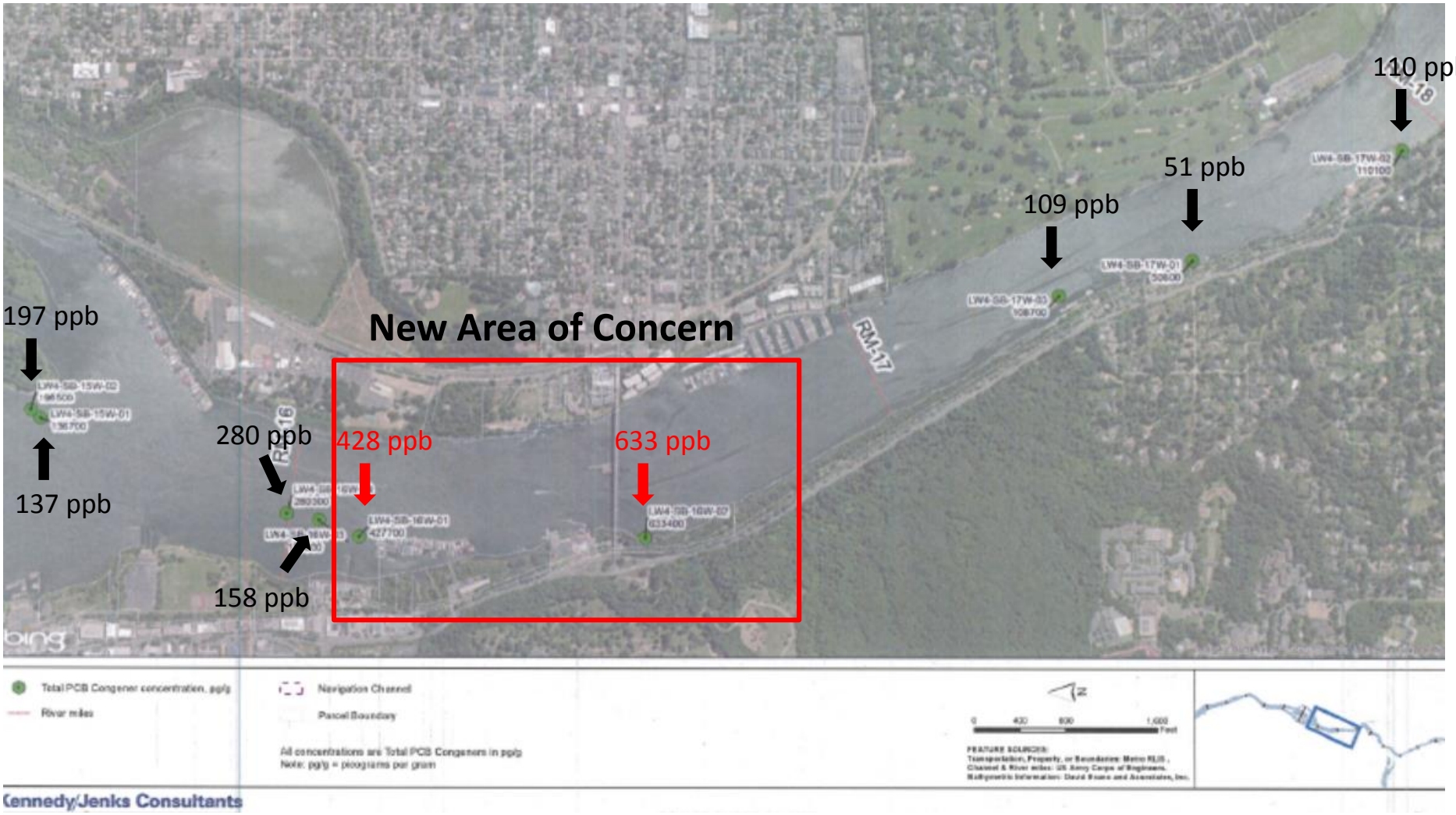
Data Set	Average
DTR Upper Bdy	6
DTR Lower Bdy	13
Study Area	359

Smallmouth Bass Whole Body - PCBs





Smallmouth Bass Whole Body – 2012



Smallmouth Bass Whole Body PCBs Summary Stats (2012 data)

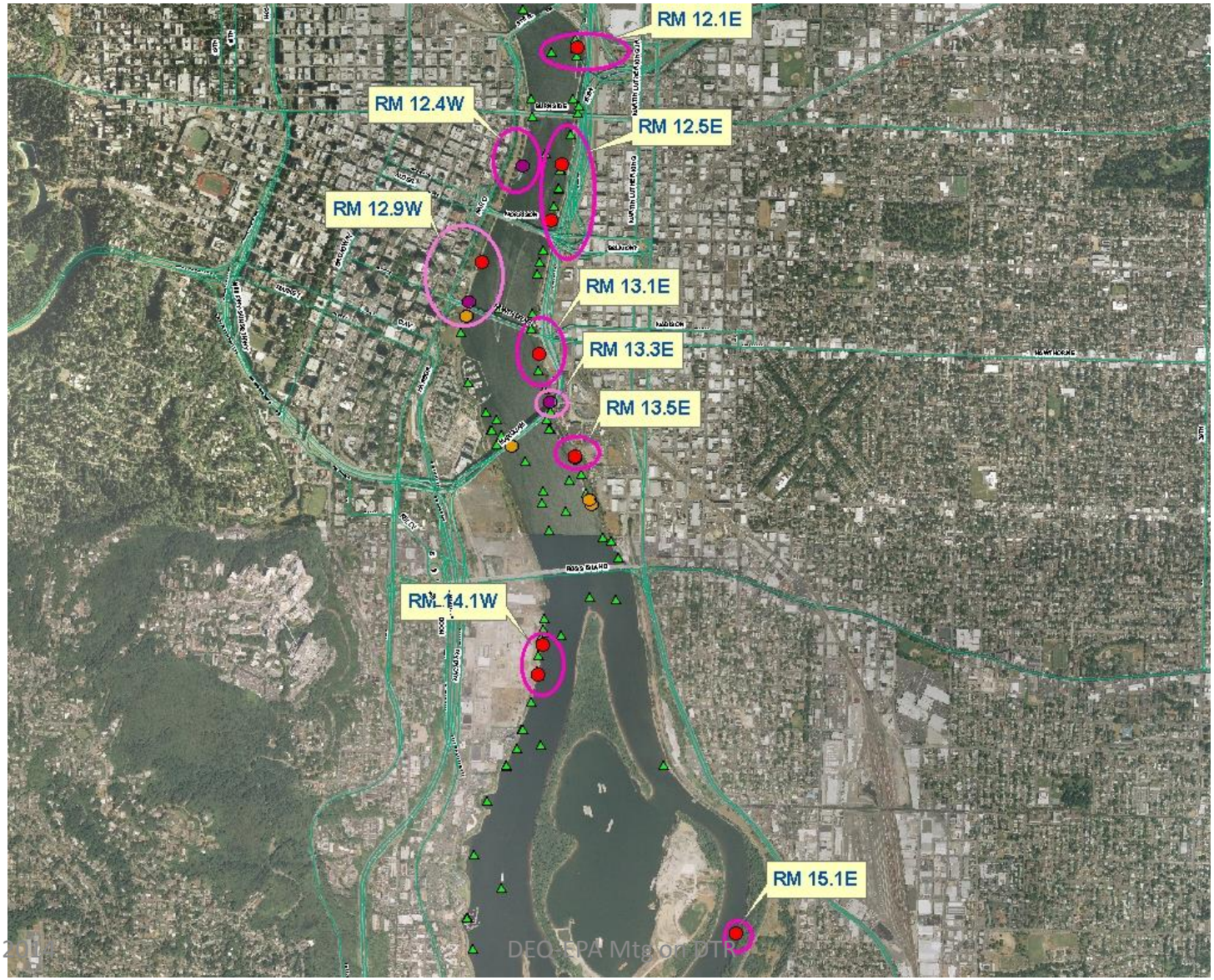
Reach	No. Samples	Mean	Median	95th %	Max
Study Area (RM1.9-11.8)	82	648	293	2328	6465
Upper Downtown Reach (RM15 -18)	9	234	158	551	633

Notes: ug/kg ww (ppb)
Calculated from data table provided by K Gustavson

DEQ Downtown Reach Study
Two Phases of Data Collection

- Phase I focus: Assess contamination levels in likely source areas, evaluation if DT reach poses a recontamination threat to PH
- Phase I (2009) data prioritized based on potential bioaccumulation and toxicity risk
- 9 Priority areas were identified
- Contaminants of concern (COCs) in these focus areas included PCBs, dioxins/furans, pesticides, PAHs, and metals
- Phase II (2011) focused additional data collection in priority areas to confirm initial detections, help id sources, and provide general sense of magnitude/extent of contamination

Priority Areas



Active/Completed Cleanup Projects in the Downtown Reach in 2009

Sediment Investigations/Cleanups

- PGE Station L – cleanup completed 1991
- Ross Island – cleanup completed 2010
- Zidell – cleanup completed 2012
- Portland Gas Manufacturing investigation completed – FS to be submitted 2014


Portland Gas Manufacturing
PGE-Station L
Zidell
Ross Island

PGE Station L Remedy

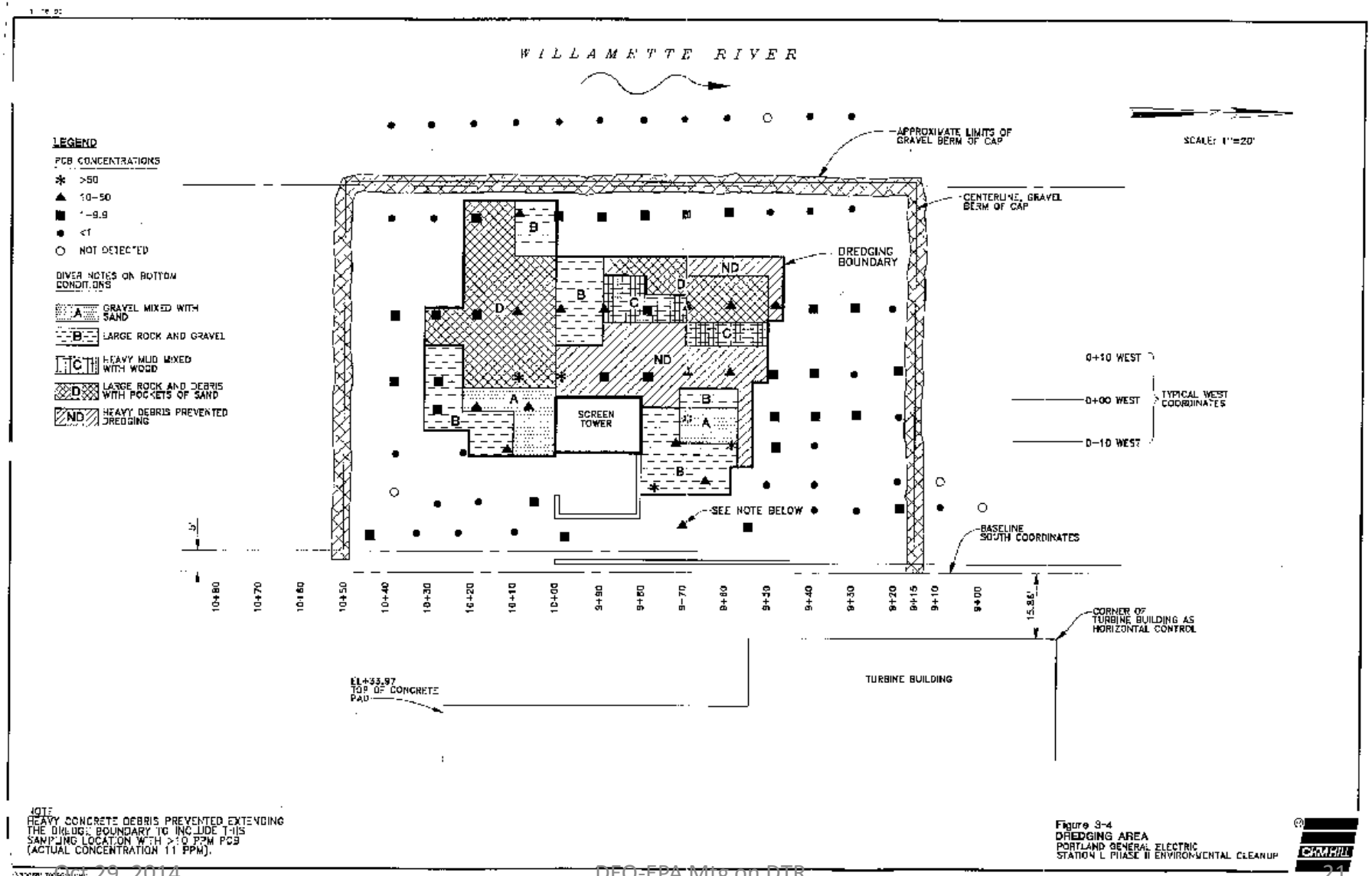
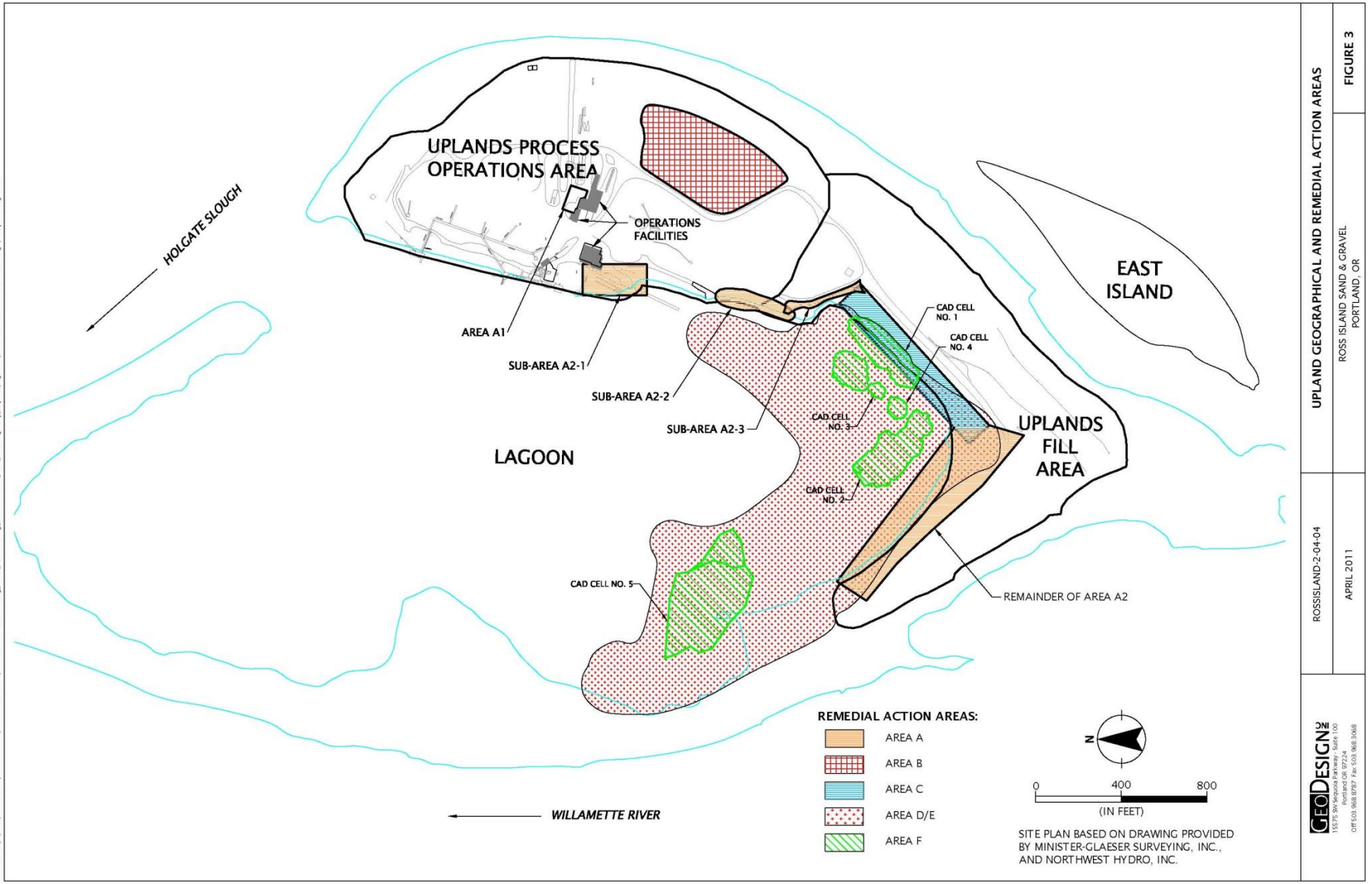
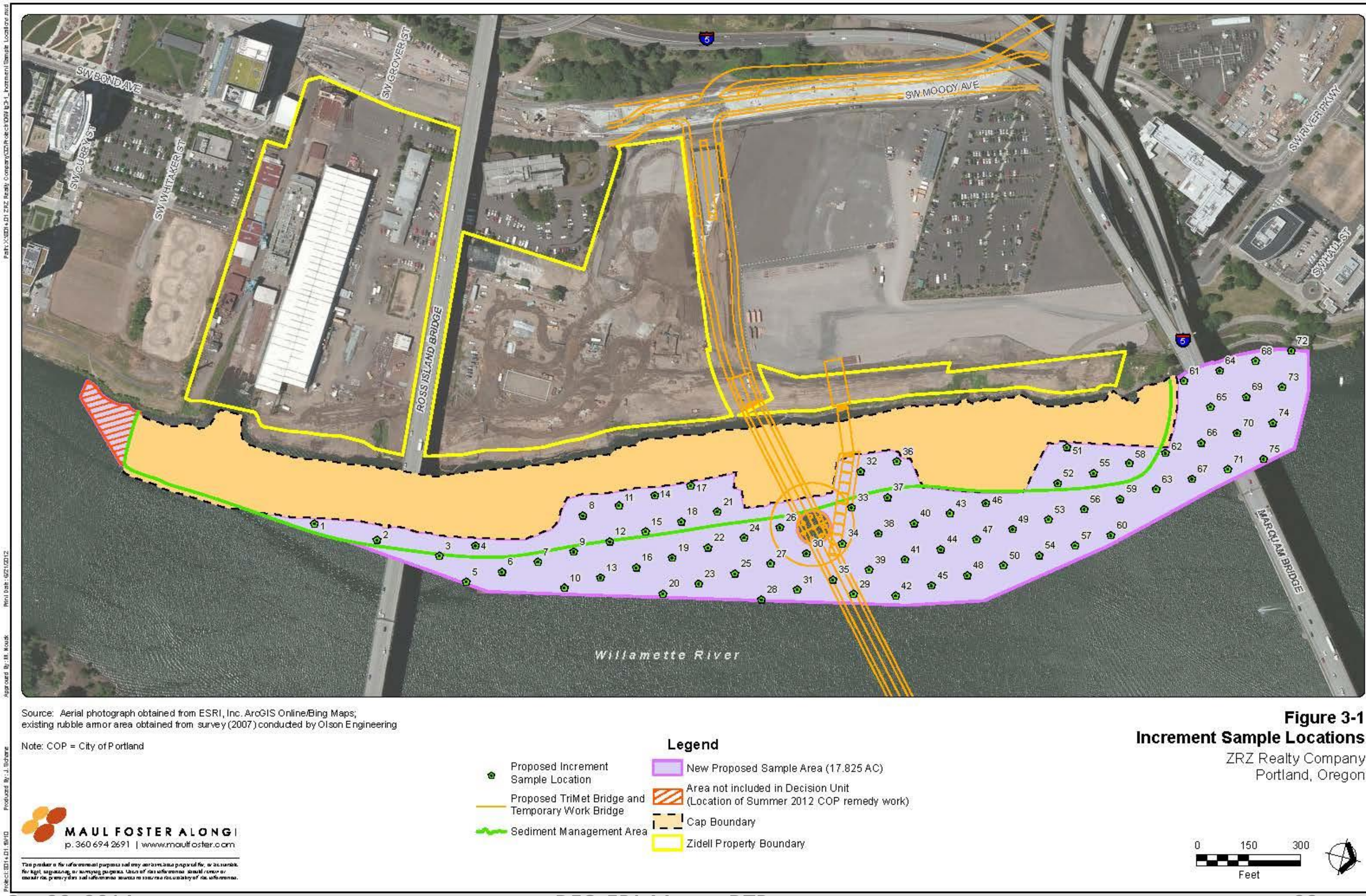


Figure 3-4
DREDGING AREA
PORTLAND GENERAL ELECTRIC
STATION L PHASE II ENVIRONMENTAL CLEANUP

Ross Island


UPLANDS PROCESS OPERATIONS AREA
OPERATIONS FACILITIES
HOLGATE SLOUGH
EAST ISLAND
AREA A1
SUB-AREA A2-1
SUB-AREA A2-2
SUB-AREA A2-3
CAD CELL NO. 1
CAD CELL NO. 4
CAD CELL NO. 3
CAD CELL NO. 2
CAD CELL NO. 5
LAGOON
UPLANDS FILL AREA
REMAINDER OF AREA A2
REMEDIAL ACTION AREAS:
AREA A
AREA B
AREA C
AREA D/E
AREA F
WILLAMETTE RIVER
N
0
400
800
(IN FEET)
SITE PLAN BASED ON DRAWING PROVIDED BY MINISTER-GLAESER SURVEYING, INC., AND NORTHWEST HYDRO, INC.
UPLAND GEOGRAPHICAL AND REMEDIAL ACTION AREAS
FIGURE 3
ROSS ISLAND SAND & GRAVEL
PORTLAND, OR
ROSSISLAND-2-04-04
APRIL 2011
GeoDesign
15575 SW Sequoia Parkway, Suite 100
Portland OR 97224
Off 503 968 8787 Fax 503 968 3068
Printed By: aday | Print Date: 4/29/2011 3:52:45 PM
File Name: J:\M-R\rossisland\rossisland-2\rossisland-2-04\rossisland-2-04-04-long_term_monitoring_maintenance_and_contingency_report\Figures\CRossIsland-2-04-04-SP02.dwg | Layout: Figure 3

Zidell


SW BOND AVE
SW CURRY ST
SW WHITAKER ST
SW GROVER ST
ROSS ISLAND BRIDGE
SW MOODY AVE
SW RIVER PKWY
SW HALL ST
MARQUAM BRIDGE
Willamette River
Source: Aerial photograph obtained from ESRI, Inc. ArcGIS Online/Bing Maps; existing rubble armor area obtained from survey (2007) conducted by Olson Engineering
Note: COP = City of Portland
Legend
Proposed Increment Sample Location
Proposed TriMet Bridge and Temporary Work Bridge
Sediment Management Area
New Proposed Sample Area (17.825 AC)
Area not included in Decision Unit (Location of Summer 2012 COP remedy work)
Cap Boundary
Zidell Property Boundary
MAUL FOSTER ALONGI
p. 360 694 2691 | www.maulfoster.com
Figure 3-1
Increment Sample Locations
ZRZ Realty Company
Portland, Oregon
0 150 300
Feet

PGM

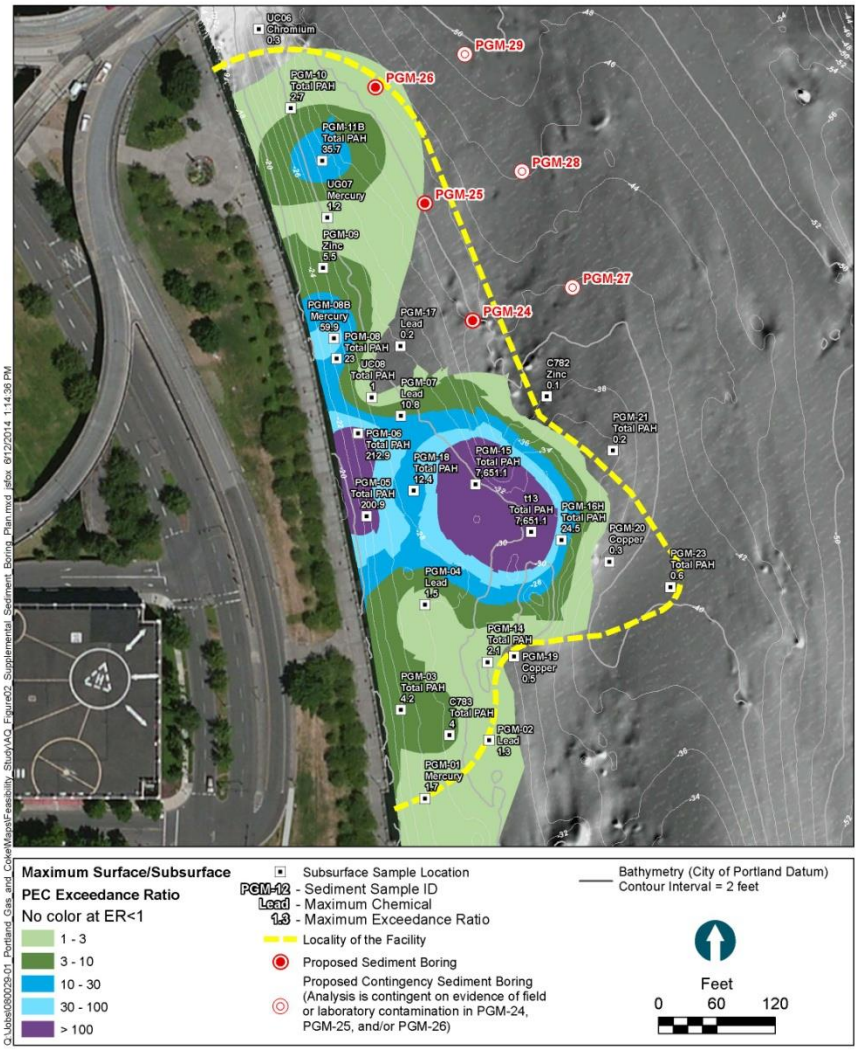


Figure 2
Supplemental Sediment Boring Plan
FS Investigation Sampling and Analysis Plan
Former Portland Gas Manufacturing Site

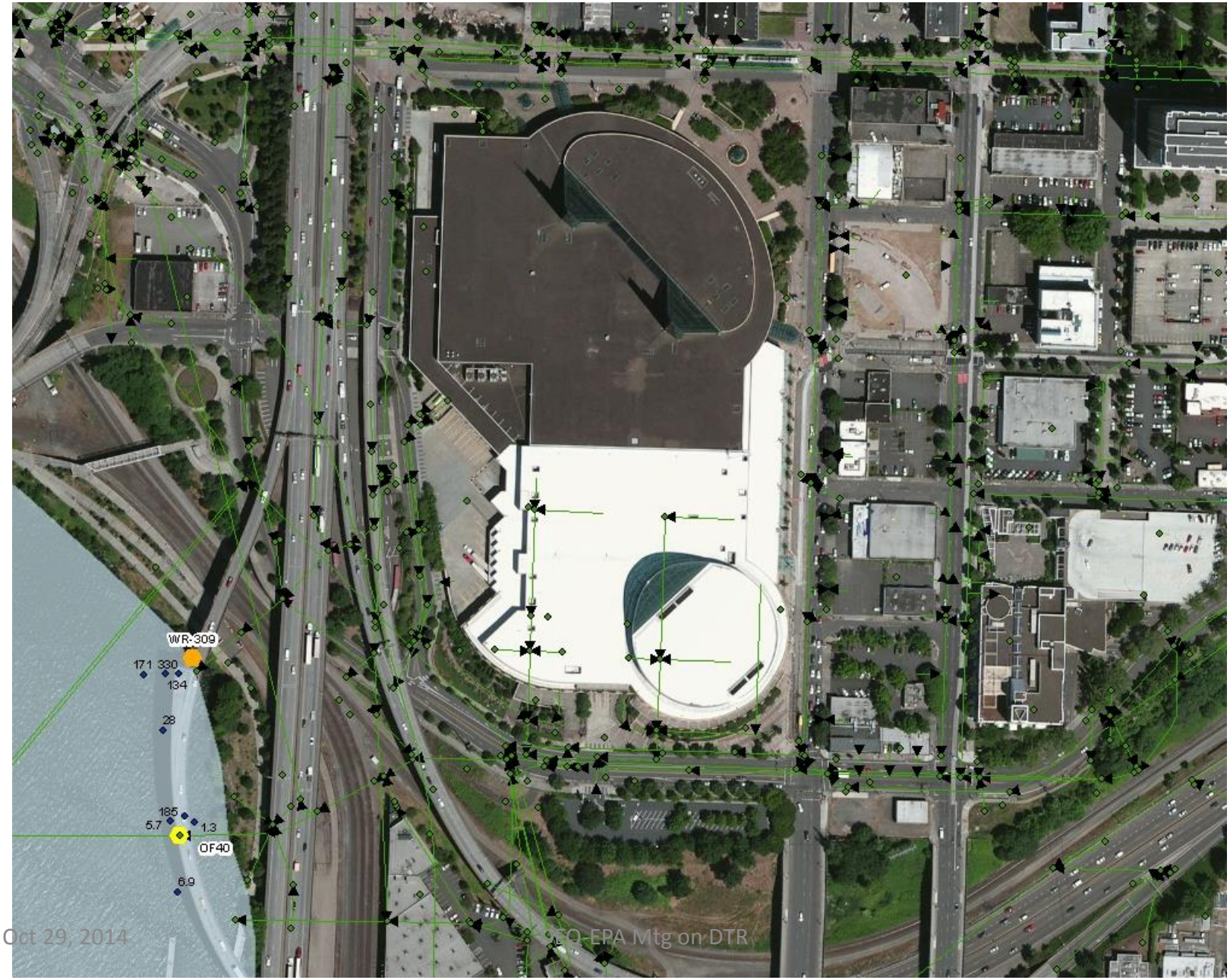
Downtown Willamette Priority Area Follow-Up

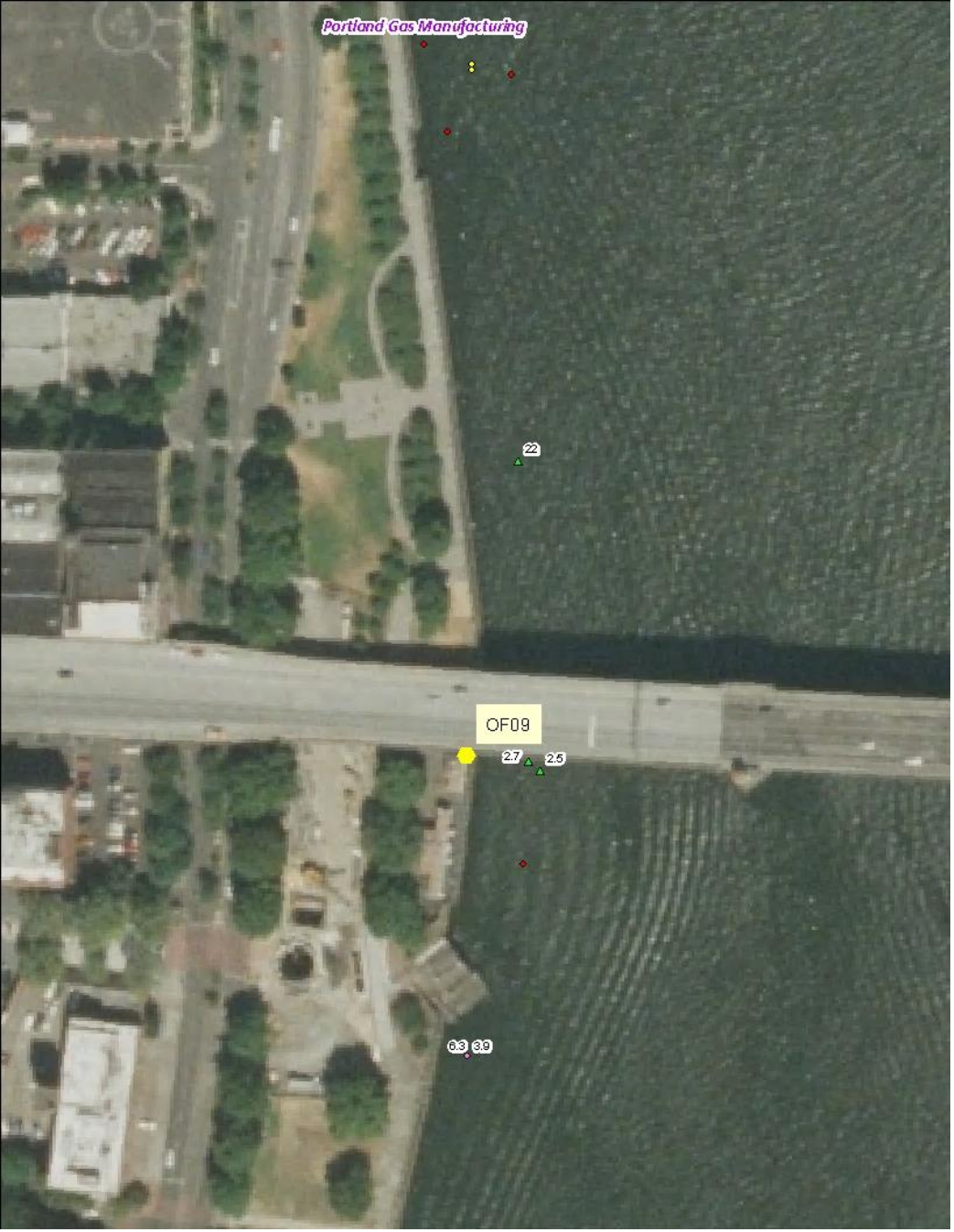
Priority Area	Follow-up/Status
RM 12.1E	Site discovery
RM 12.4W	Reassess priority following completion of the PGM investigation
RM 12.5E	Site discovery
RM 12.9W	Site discovery – lower priority
RM 13.1E	PGE investigation completed, FS drafted
RM 13.3E	PGE preliminary assessment completed, Crescent site NFA
RM 13.5E	PGE investigation completed, FS drafted
RM 14.1W	Shoreline cleanup conducted, additional sediment investigation planned – CD Greenway
RM 15.1E	Sample sediments in stormwater lines that drain to OF 28 – low priority based on follow-up data

EVALUATION:

- Samples placed to assess OF most likely to be source
- Elevated PCBs in sample near ODOT outfall, core shows conc decrease with depth
- ND PCBs in sample near City OF, core shows conc increase with depth
- Drainage to City OF redirected to Columbia Blvd Treatment plant
- Sediment traps indicate minimal contaminant transport downstream
- Site discovery in OF WR-309 drainage area

RM 12.1 drainage area



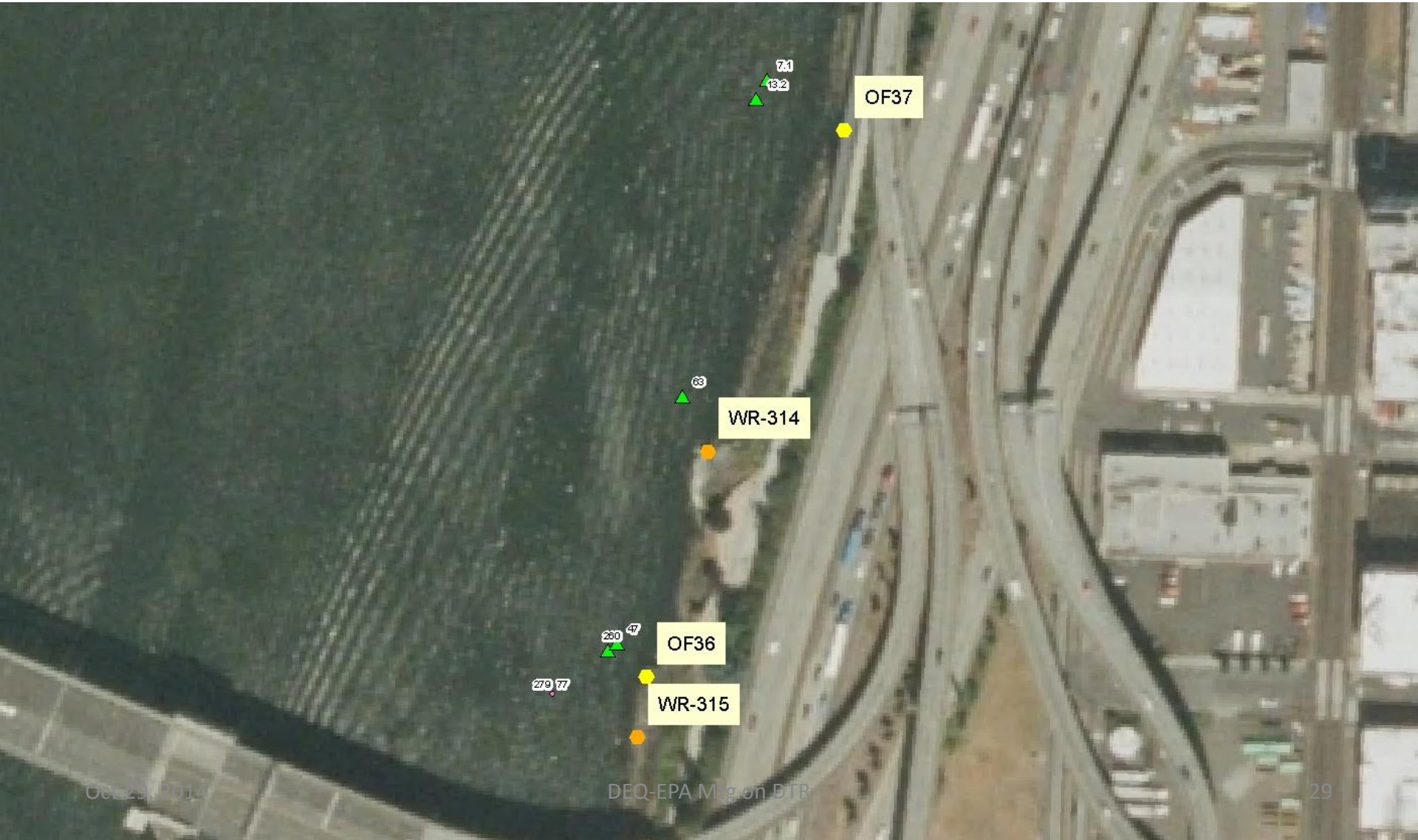


Focus Area RM12.4W:

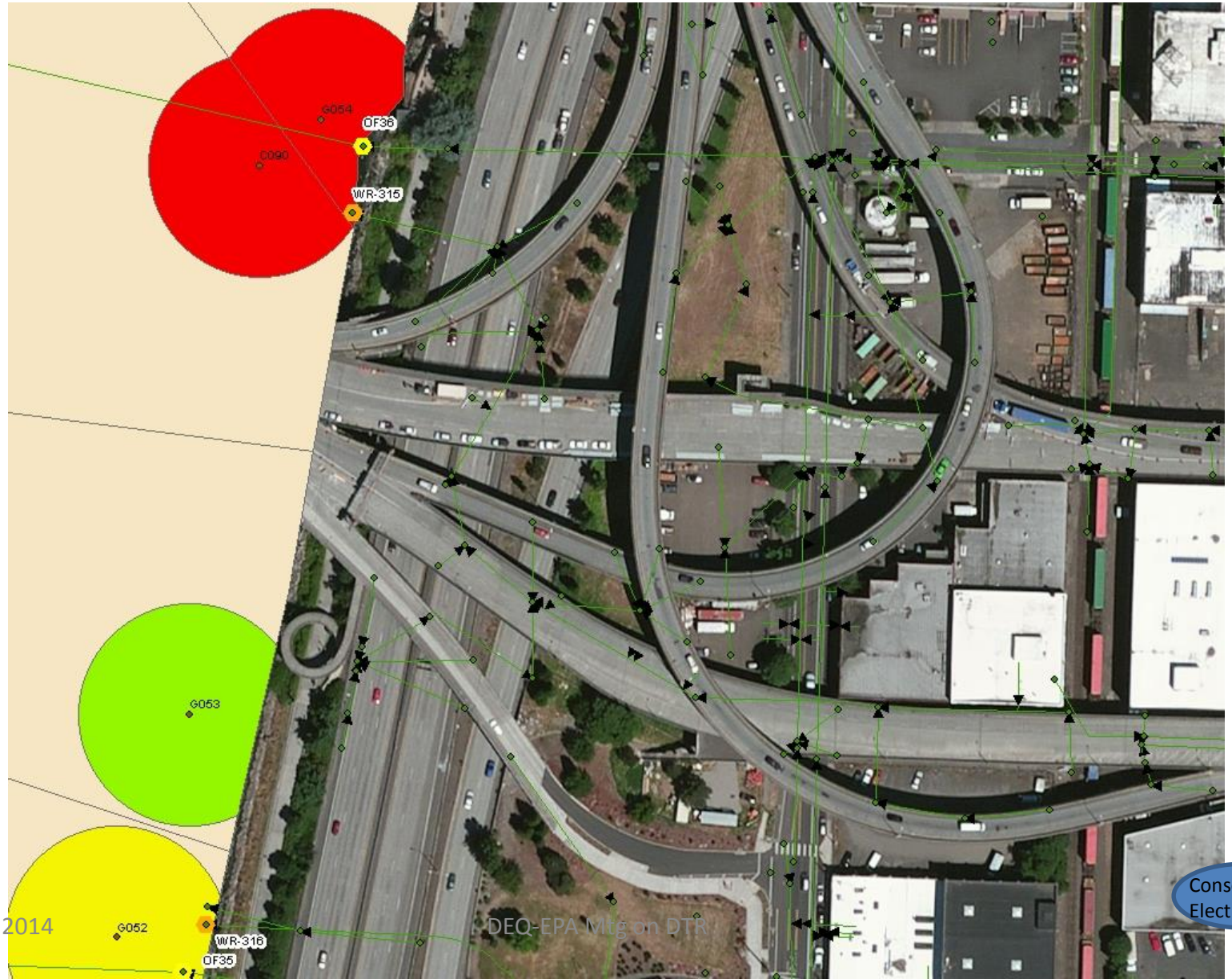
- Initial sample had elevated PAHs, hg
- Phase II sample collected for bioassay – no toxicity indicated
- No contaminants detected at elevated concentrations
- PGM connection not present

Focus Area RM12.5E EVALUATION:

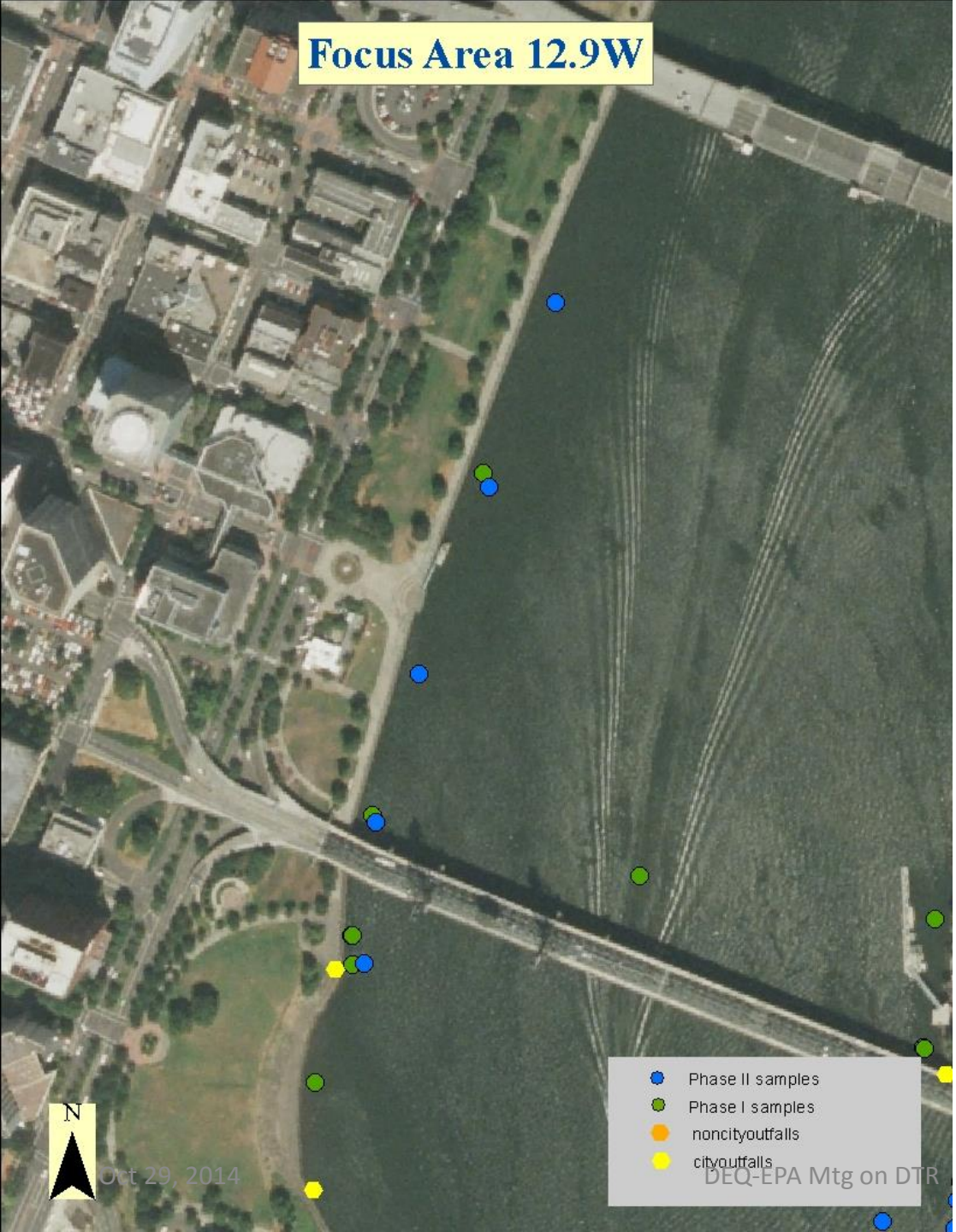
- Samples placed to assess OF most likely to be source for highest priority samples
- No significant elevations indicated in sample at downstream end
- Elevated PCBs detected in sample at upstream end
- Drainage to City OF redirected to Columbia Blvd Treatment plant
- Site discovery in OF WR-315 drainage area



RM 12.5E drainage



Consolidated Electronics



EVALUATION:

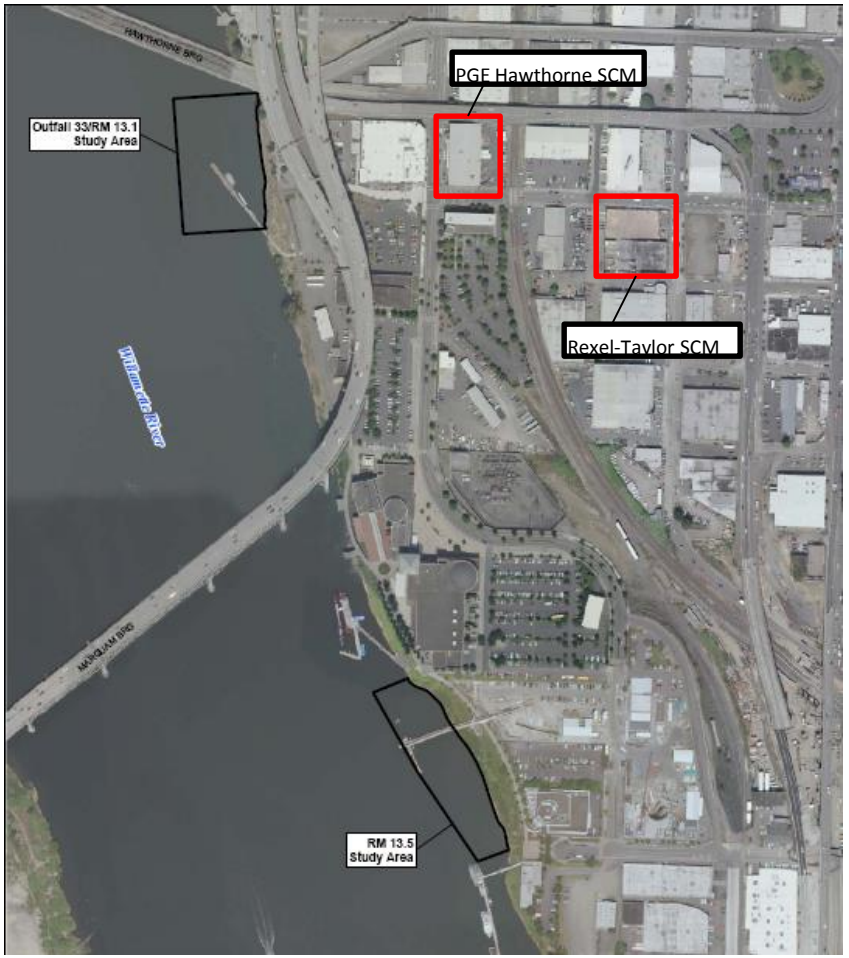
- Samples placed along the seawall to assess sediment toxicity
- Potential toxicity observed in two samples, but no clear correlation to contaminant concentrations
- Elevated PCBs near OF 08 may warrant some site discovery

RMs 13.1 and 13.5

PGE Activities:

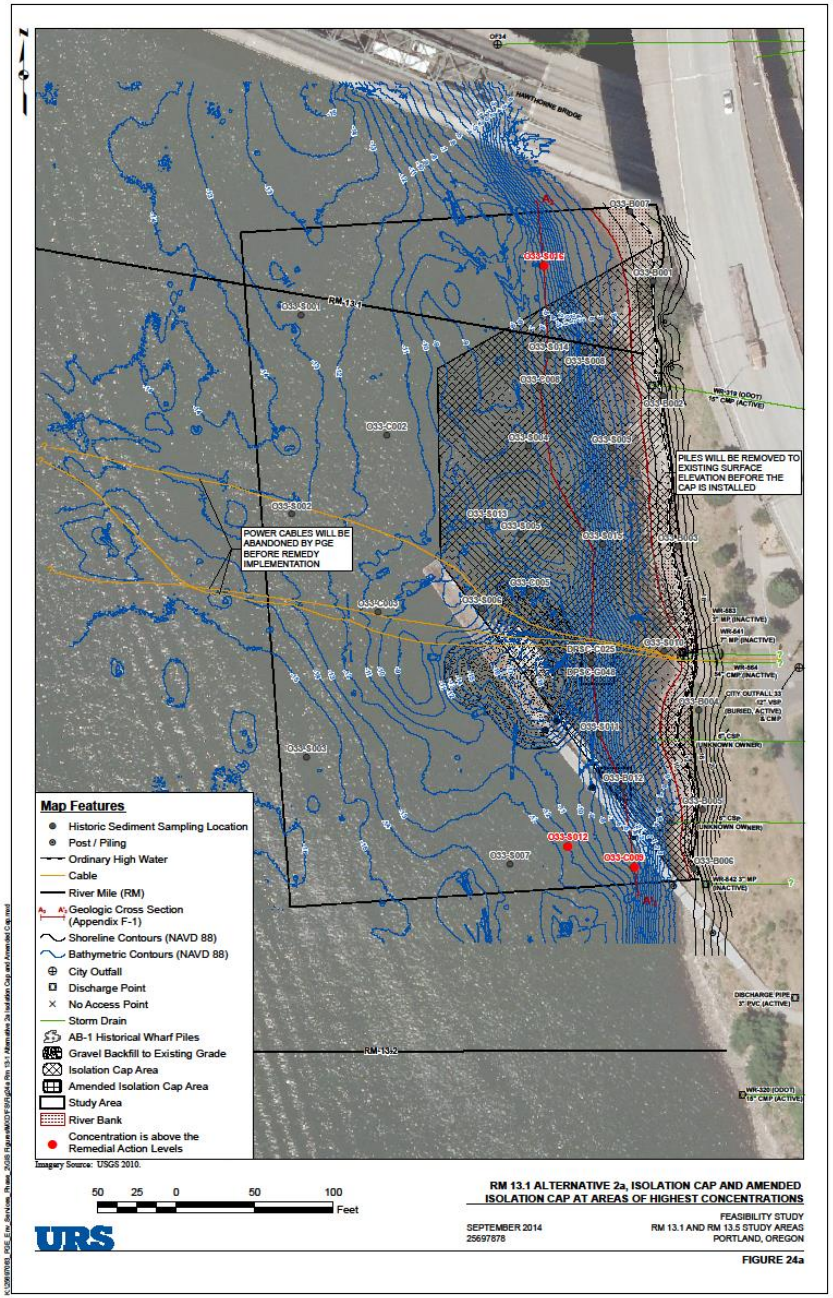
- Upland SCE and 2 SCMs
- Stormwater pipeline cleanout
- In-water RI
- FS (finalized in 2014)
- In-water Remedial

Actions expected in 2015 and 2016



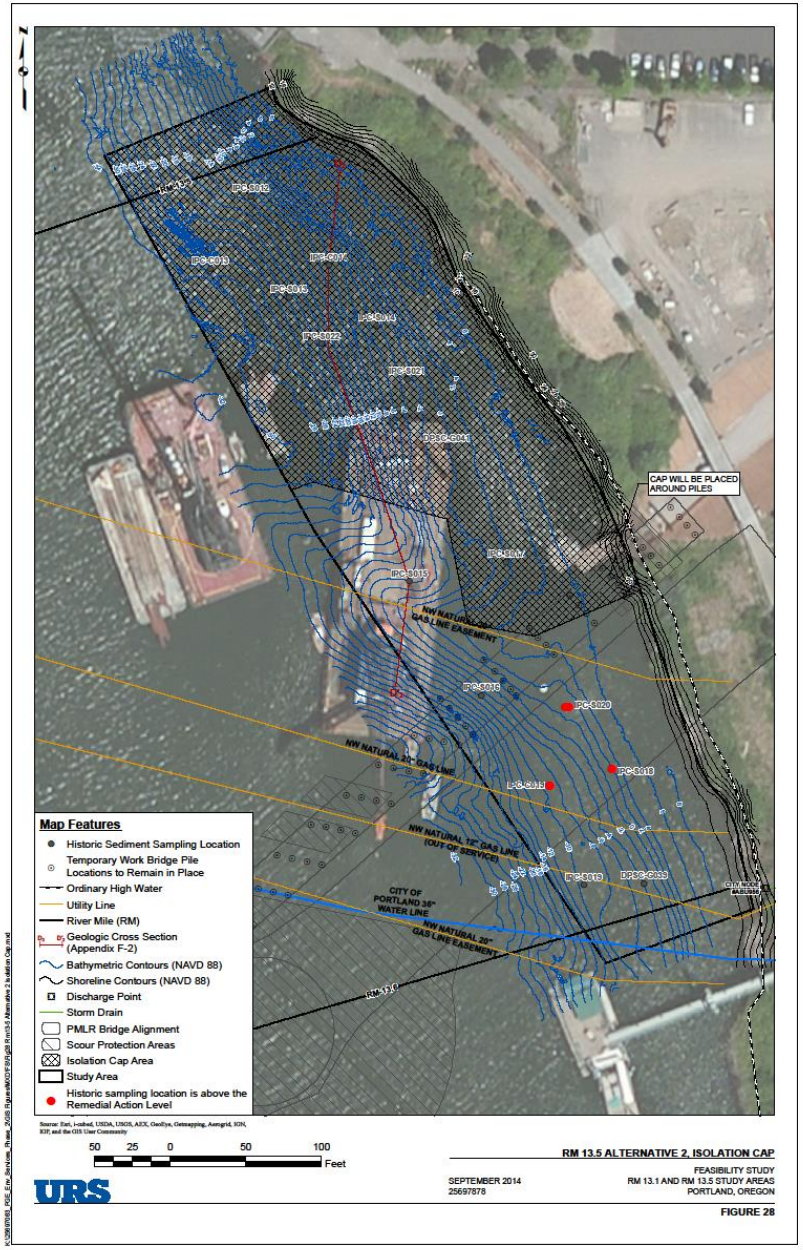
RM 13.1E

- 18 In-water sediment sampling locations
- 7 Beach sediment sampling locations
- Proposed sediment cap remedy results in Study Area SWAC < SLVs/background
- Hot spots addressed with amended caps



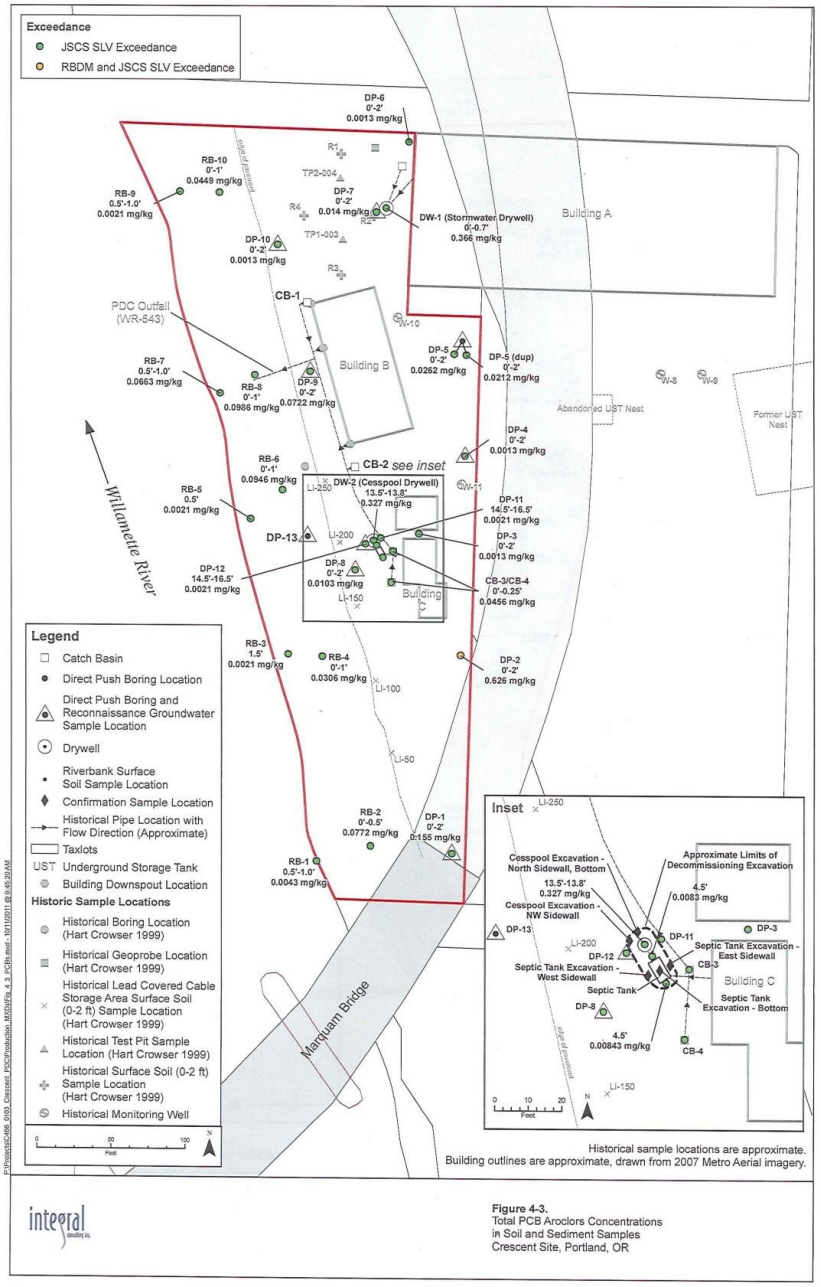
RM 13.5E

- 15 In-water sediment sampling locations
- Soil and sediment samples collected from riverbank, erodible soil and areas of historic industrial activity
- Proposed sediment cap remedy results in Study Area SWAC < SLVs/background

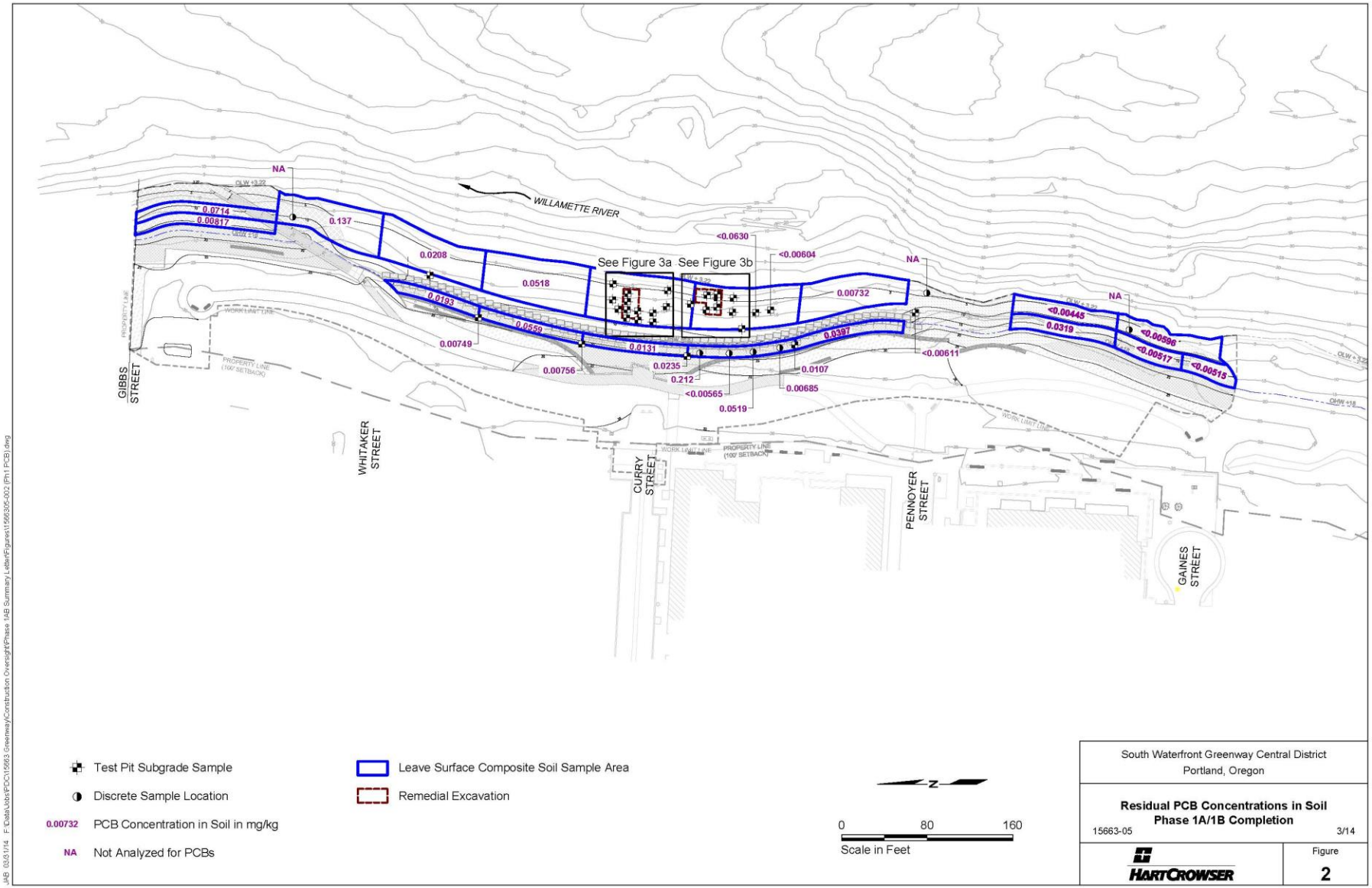


RM 13.3E Crescent Site

Site investigation, source control evaluation and risk assessment completed. Evaluation concluded that the site does not present a risk to park users or the Willamette River. No Further Action determination issued.



RM 14.1W - CD Greenway



RM 14.1W - CD Greenway

- ROD issued May 2011
- Remedial action implemented 2012-14 – Excavation and off-site disposal of approximately 6,000 yd3 of contaminated soil in uplands, riverbank and beach area. Some contamination in riverbank and beach area soil managed upland under a protective cap. Riverbank was regraded and capped (minimum 3 feet) along entire bank line.
- Cap included granular activated carbon reactive core mats
- Additional sediment samples collected by PDC adjacent to CD Greenway site indicated PCB contamination extent into river not completely delineated
- DEQ identified options for completing additional sediment investigation and is discussing path forward with City

EVALUATION:

- Samples located around original sample with elevated concentrations
- Moderate levels of PCBs in one sample but no other samples showed significant levels of contaminants
- Stormwater flow in the drainage to the City OF diverted to the Columbia Boulevard Treatment Plant
- Some sampling of any residual solids in the stormwater line could be helpful to identifying contaminated upland sites that may warrant investigation

Stormwater Conveyance System
City Outfalls in the Downtown Reach

1952 Interceptors installed to capture combined flows. Separated systems installed in the industrial areas so that industrial waste discharged to the WWTP.

1991 City began implementation of it 20-year CSO Abatement Program

2006 All westside (except one) and one eastside combined outfalls diverted to the Tunnel ("Big Pipe")

2011 All remaining eastside and westside outfalls diverted to the Tunnel

- The Abatement Program significantly reduced CSO events. As part of this program, some separated stormwater was also diverted to the WWTP.

Current stormwater discharging through City outfalls is managed under the City's MS4 program. Highlights include:

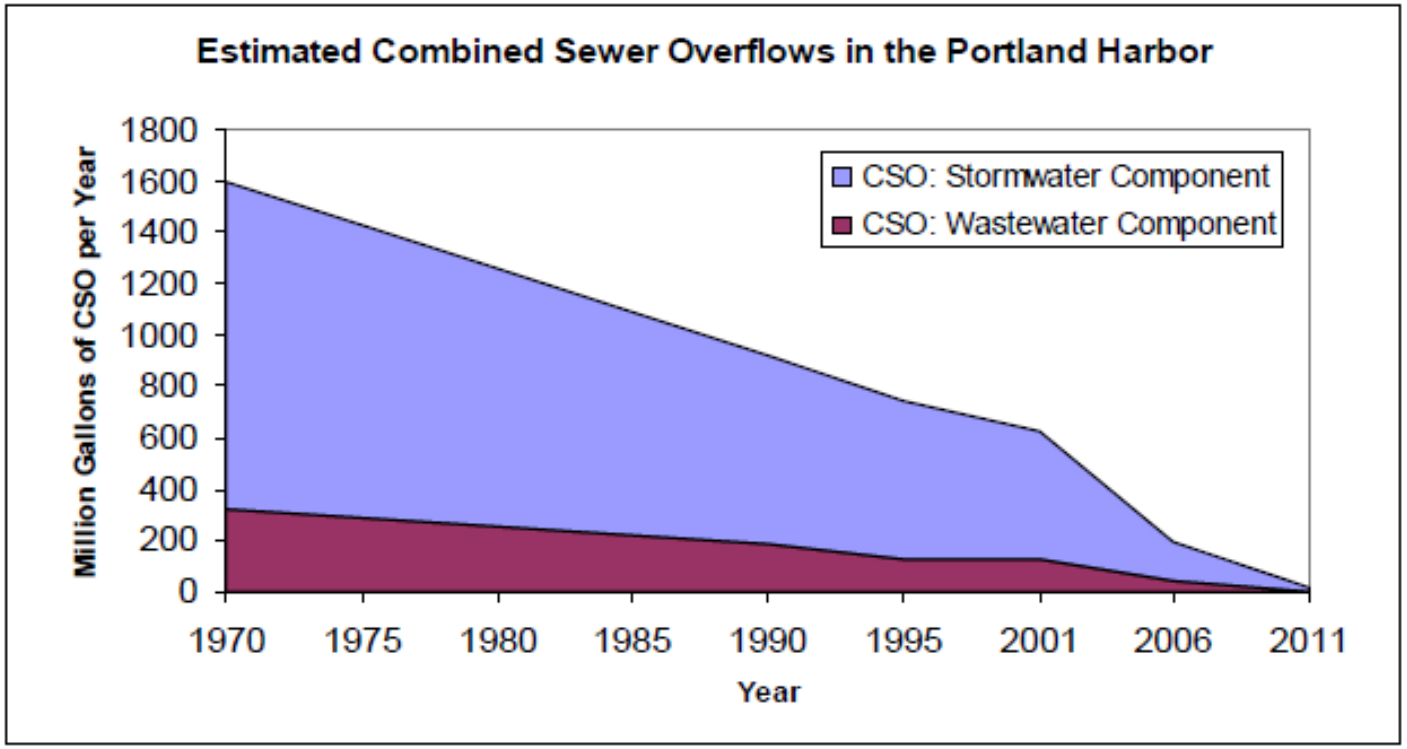
1996 Ecoroof Program promotes ecoroofs to decrease stormwater discharging from sites

1999 Stormwater Management Manual: Low Impact Development requirements for new and redeveloped facilities promote onsite management of stormwater

2006 Clean River Rewards Program: provides incentives to private property owners to infiltrate stormwater onsite

2007 Green Street Policy to incorporate the use of green street facilities that reduce stormwater runoff in public and private development

Reduction in CSO Discharge

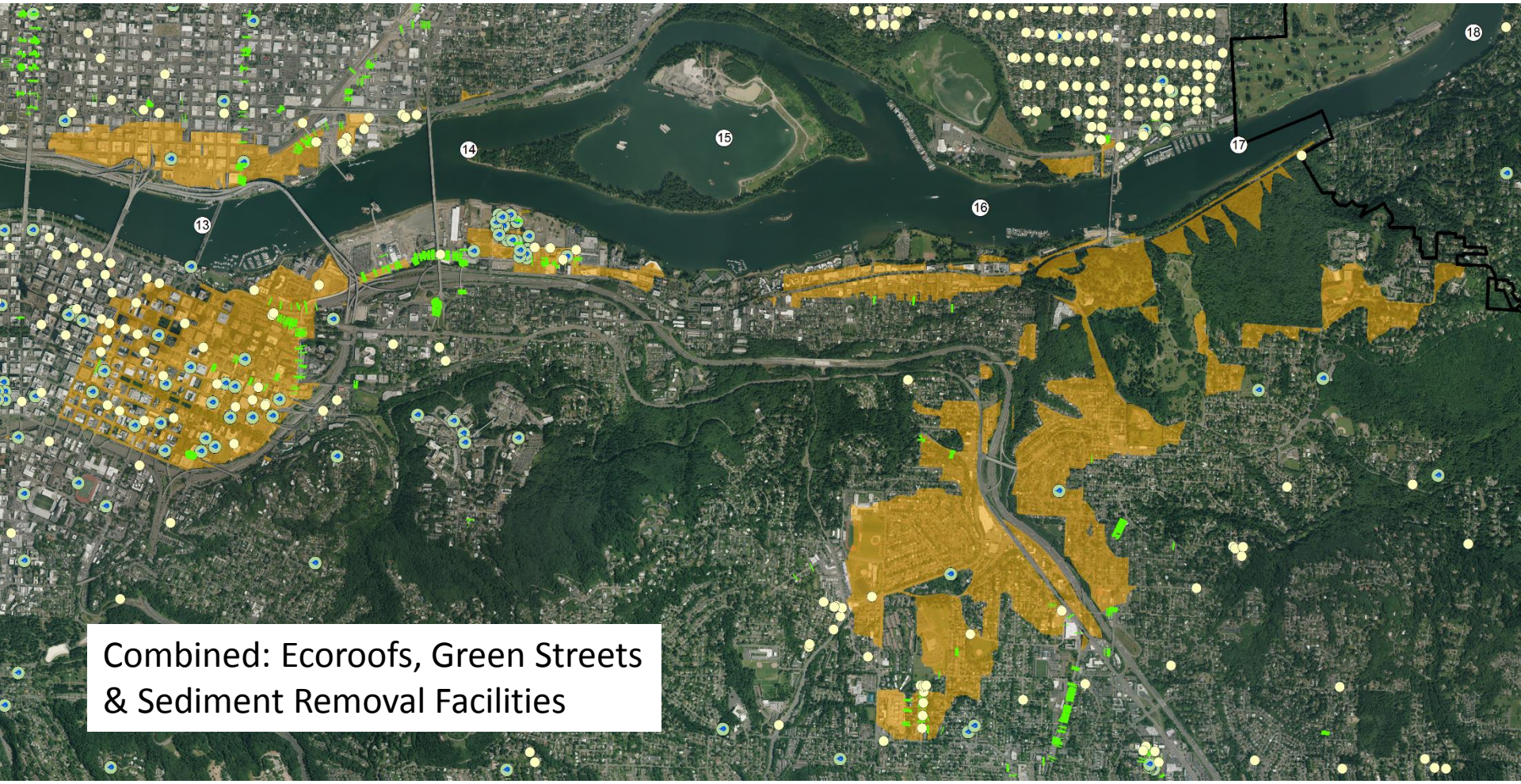


integral LWG Lower Willamette Group

DRAFT
DO NOT QUOTE OR CITE
This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.

Figure 4.4-1
Portland Harbor RI/FS
Remedial Investigation Report
Estimated Combined Sewer Overflows
in the Portland Harbor

Downtown Reach: MS4 Stormwater Drainage and Controls



Source Control Summary Report

Upstream Source Control

- Downtown Reach Sediment Investigation Findings & Conclusions
- Status of Downtown Reach sediment/upland sites
- Stormwater discharges into upstream reach & other water quality programs within basin
- In-stream sediment trap data
- Conclusions: Source control is sufficient

Conclusions

1. The most contaminated sites have been identified and cleanups completed or underway
2. No significant on-going upland sources
   - Contaminated sediment is primarily the result of historical releases
   - The majority of stormwater draining to this reach has been redirected to the Columbia Blvd Treatment facility
3. Contaminant extent and magnitude small relative to PH
4. DTR is not a recontamination threat to PH and should not delay PH remedy implementation
5. Suspended sediment concentrations leaving DTR to PH Site are currently low and will decrease by natural recovery towards PH background levels

Downtown Reach
Additional Follow-Up Actions

- Historical Portland Shipbuilding Co.
  - Preliminary evaluation and sediment sampling at RM 15.5W
- Elevated 2012 bass tissue samples
  - Sediment sampling between RM 16.1W and 16.5W
- Stormwater in-line sampling/cleaning
  - RM 12.1E, 12.5E, 12.9W, 15.1E
- In-River sediment trap
  - RM 12E/W and RM16E/W
  - Four quarters

Discussion and EPA's CSM