DATA SUMMARY REPORT

OCCIDENTAL CHEMICAL CORPORATION
TACOMA GROUNDWATER SITE

Prepared for

Glenn Springs Holdings Inc.

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LIST OF ACRONYMS AND ABBREVIATIONS

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
ALS	ALS Environmental
AWQC	ambient water quality criteria
CB N/T	Commencement Bay Nearshore/Tideflats
COC	chemical of concern
CRA	Conestoga Rovers Associates
cVOC	chlorinated volatile organic compound
cm	centimeter
cy	cubic yard
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
GHD	GHD Services Inc.
mg/kg	milligrams per kilogram
MS	matrix spike
MSD	matrix spike duplicate
OCC	Occidental Chemical Corporation
PDB	polyethylene diffusion bags
QC	quality control
Site	Occidental Chemical Corporation Site
SQAPP	Sampling and Quality Assurance Project Plan
SQO	sediment quality objective
SVOC	semivolatile organic compound
TOC	total organic carbon
TS	total solids
UAO	Unilateral Administrative Order
VOC	volatile organic compound
Waterway	Mouth of Hylebos Waterway

1 INTRODUCTION AND PURPOSE

On behalf of Occidental Chemical Corporation (OCC), Anchor QEA and GHD Services Inc. (GHD) prepared this Data Summary Report (Report) summarizing sample collection, laboratory analyses, and analytical results for surface sediment and near-surface porewater in the Mouth of Hylebos Waterway (Waterway) adjacent to the OCC Site (Site) in Tacoma, Washington (Figure 1). Based on a review of available data (CRA 2015a), there are potential groundwater transport pathways from the Site uplands to the Waterway, including potential upwelling of impacted groundwater into surface sediments and near-surface porewater.

This Report summarizes the data collection program described in the Sampling and Quality Assurance Project Plan (SQAPP; Anchor QEA and GHD 2016), developed with and approved by the Washington State Department of Ecology (Ecology) and U.S. Environmental Protection Agency (EPA) in May 2016. The SQAPP details collection methods and analytical protocols for sediment and porewater sampling in the Waterway. The overall objective of the SQAPP is to further characterize surface sediment and porewater quality in the Waterway potentially affected by Site groundwater transport pathways, and to provide a baseline for long-term monitoring following completion of remedial actions at the Site.

As described in detail in the SQAPP (Anchor QEA and GHD 2016), three coordinated and complementary sampling programs at collocated sampling stations in the Waterway were conducted:

- **Surface Sediment Sampling**. Thirty-three surface sediment samples were collected and analyzed for bulk concentrations of Site chemicals of concern (COCs).
- **Subsurface Porewater Grab Sampling**. Sample collection was attempted at three depths at 33 locations using mini-piezometers deployed at 10-, 30-, and 90-centimeter (cm) depths. Grab samples collected from those mini-piezometers that generated groundwater flow were analyzed for Site COCs.
- **Polyethylene Diffusion Bag Porewater Sampling.** Thirty-three passive samplers were deployed in surface sediment as close to the sediment/surface water interface as practicable (2-cm depth), and also at 10-, 30-, and 90-cm depths (i.e., at the same locations and depths as the mini-piezometers), using polyethylene diffusion bags (PDBs). Six PDBs were also deployed in the near-bottom surface water at six

representative locations. All retrieved PDB porewater samples were analyzed for Site chlorinated volatile organic compounds (cVOCs).

The remainder of this section summarizes the Site background and briefly reviews the current conceptual site model, prior sediment cleanup actions, previous porewater sampling, and data quality objectives. Section 2 of this Report summarizes the field investigation, Section 3 summarizes laboratory methods, Section 4 summarizes analytical data validation, and Section 5 summarizes overall results of the investigation. References are presented in Section 6. Appendices to this Report provide supporting technical information.

1.1 Background

As discussed in more detail in the SQAPP (Anchor QEA and GHD 2016), from 1947 to 1973 a chlorinated solvents facility operated in the northern section of the Site, primarily producing cVOCs including tetrachloroethene and trichloroethene. During the first year of production, effluent from the chlorinated solvents process (consisting of an aqueous slurry composed of byproduct calcium chloride [lime sludge] and solvent residue) was discharged directly to the Waterway. From approximately 1949 to 1952 (and again from 1972 to 1973), the process effluent discharged into upland settling ponds where the solids settled out, and the supernatant was subsequently discharged to the Waterway. During the period from 1952 to 1972, the effluent was discharged to a settling barge berthed alongside the present northern walking pier. The solids settled in the barge, and the supernatant was subsequently discharged to the Waterway. Solids in the barge were disposed off site.

Soil and groundwater remedial actions within upland areas of the Site have been underway for more than three decades, as summarized in Conestoga Rovers Associates (CRA; 2015). In addition, two sediment remedial actions were completed in the Waterway between 2002 and 2005, as summarized below.

1.2 Conceptual Site Model

The lateral and vertical extents of the subsurface groundwater plume of cVOCs at the Site have been delineated through numerous investigations (CRA 2015a). Pressure differentials are known to have mobilized the plumes away from the historical source. As depicted in

Figure 2, the groundwater plumes extend beyond the historical facility northwest towards Commencement Bay, and northeast to the Waterway. The groundwater plumes do not extend south to the Blair Waterway. While the northwest groundwater plume has migrated downward to approximately 100 to 200 feet below Commencement Bay, there are potential groundwater transport pathways to the Waterway, including potential upwelling of impacted groundwater into surface sediments and near-surface porewater. As depicted on Figure 3, seepage meter monitoring (CMA 2006) confirmed that groundwater discharge to the Waterway (greater than 1 centimeter per day) is predominantly directed into nearshore embankment areas on either side of the federal navigation channel, consistent with the conceptual site model.

Representative cross sections depicting the groundwater plume below the Site uplands and Waterway are shown on Figure 4. Groundwater vinyl chloride (a representative Site cVOC) concentrations along these cross sections are shown on Figures 5 and 6. These data reveal two important additional components of the conceptual site model. First, the predominant groundwater discharge pathways depicted on Figure 3 are characterized by relatively lower groundwater cVOC concentrations, compared to pathways with less flow. Second, over the last 10 to 20 feet of the groundwater transport pathway to surface water, cVOC concentrations decline by more than 100-fold. Both of these observations are consistent with the conceptual site model of groundwater diffusion and dispersion (e.g., enhanced by tidal oscillations) as the surface water interface is approached. These historical data and the corresponding conceptual site model, along with previous porewater data collected at the Site (see Section 1.5), were used by Ecology and EPA to determine appropriate sampling locations for the SQAPP (Anchor QEA and GHD 2016).

1.3 Area 5106 Sediment Removal Action

In 1997, EPA and OCC entered into an Administrative Order on Consent (Docket No. 10 97 0011 Comprehensive Environmental Response, Compensation, and Liability Act) to address Area 5106 sediments as a non-time critical removal action. Dredging, treatment, and dewatering of Area 5106 sediment began in October 2002 and was completed in February 2003. Approximately 36,000 cubic yards (cy) of Area 5106 Sediment (defined based on cVOC leachability criteria) were removed from the Waterway. Post-dredge verification

sampling confirmed that Area 5106 sediment was successfully removed from the Waterway. The dredged material was treated prior to placement into the Slip 1 nearshore confined disposal facility, consistent with EPA requirements and oversight. However, confirmation sampling revealed underlying native sediment contained concentrations of cVOCs exceeding Commencement Bay Nearshore/Tideflats (CB N/T) sediment quality objective (SQO) chemical criteria (defined based on bulk sediment concentrations). Based on these data, as well as concurrent reconnaissance investigations of Area 5106, additional post-Area 5106 removal investigations were performed beginning in 2003 to further delineate the nature and extent of remaining subsurface sediment and groundwater contamination in this area.

1.4 Mouth of Hylebos Sediment Remedial Action

In 2002, EPA issued a Unilateral Administrative Order (UAO) to OCC and the Port of Tacoma to complete remedial design/remedial action in the Waterway. (In 2005, the UAO was replaced with the Mouth of Hylebos Consent Decree, [Civil Action No. CO5 5103 FDB], which included reference work completed under the UAO.) Dredging within Segment 5 of the Waterway began in September 2003 and was completed in February 2004. Approximately 151,000 cy of sediments were removed from the Waterway during this period, and included removal of sediment in the Area 5016 Boundary Area to below 41 feet below mean lower low water, roughly 3 to 5 feet below surrounding grades (i.e., forming a local depression). Post-dredge verification sampling confirmed the removal of Waterway sediments exceeding sediment remedial action levels (i.e., concentrations projected to recover to CB N/T SQO chemical criteria within 10 years of completion of construction). As appropriate, dredged material was either placed into the Slip 1 nearshore confined disposal facility or at the Commencement Bay open-water disposal site, consistent with EPA and other regulatory requirements and oversight. The final remedial action completion report, revised based on comments received from EPA (CRA 2015b), was accepted by EPA as complete in August 2015. Long-term monitoring of the Mouth of Hylebos remedial action is ongoing (Anchor QEA 2015).

Segment 5 of the Waterway is located adjacent to and partly coincident with the Pier 24 and Pier 25 Embankment Remediation Project. The Pier 24 and Pier 25 Embankment Remediation Project construction, including debris removal, limited sediment excavation,

and capping, was completed in 2008 under the Mouth of Hylebos Consent Decree. A remedial action completion report was submitted by the Port of Tacoma under separate cover to the EPA (Hart Crowser 2013) and conditionally approved by EPA in September 2013. Long-term monitoring of the Pier 24 and Pier 25 Embankment Remediation Project remedial action is ongoing (Anchor QEA 2016).

1.5 Previous Porewater Sampling

In 2004, EPA (Duncan et al. 2007) performed a reconnaissance investigation of Area 5106 that included monitoring ambient surface water for groundwater signatures by installing mini-piezometers within the sediment, along with passive diffusion samplers and seepage meters. Among other findings, the reconnaissance investigation suggested that relatively long and deep flow paths from upland source areas extend into the Waterway, with a high degree of hydraulic connectivity between groundwater and the Waterway. Elevated concentrations of Site cVOCs were detected in subsurface porewater using a mini-piezometer apparatus, with concentrations of vinyl chloride ranging from below 1 microgram per liter (µg/L; below detection limits) to approximately 8,800 µg/L. Passive diffusion sampler arrays detected vinyl chloride at 3 of the 26 deployment locations, at concentrations ranging from approximately 6.7 to 4,200 µg/L. The passive diffusion samplers were deployed approximately 20 cm below the sediment surface.

In part because of the reconnaissance investigation, more comprehensive subtidal investigations were performed by OCC in 2006, including seepage meter monitoring at 26 subtidal locations over a 24-hour period (Figure 3; CMA 2006). Discharge water samples were collected from the seepage meters at 19 of these locations for chemical analysis (cVOCs, semivolatile organic compounds [SVOCs], polychlorinated biphenyls, metals, and pH). As summarized in CRA (2015), the 2006 seepage meter data resulted in the following findings:

- Porewater discharging through the seepage meters had a neutral pH (below pH 8.5) and a relatively high oxidation reduction potential (generally above 200 millivolts), indicative of aerobic conditions and surface water influence (e.g., diffusion and dispersion).
- Localized areas of elevated cVOC concentrations were observed in nearshore embankment areas (5 of the 19 seepage meter locations), particularly in the vicinity of

Area 5016; all cVOC concentrations were significantly lower than concentrations measured in adjacent Site groundwater.

- Concentrations of SVOCs did not exceed screening criteria at any of the six seepage meter locations where discharge samples were collected for SVOC analysis.
- Field filtered metals concentrations were above screening criteria at all 12 of the seepage meter locations where discharge samples were collected for metals analysis; however, there was no spatial pattern evident in the metals data, suggesting possible quality control (QC) issues, possibly associated with field filtration.

1.6 Data Quality Objectives

As discussed in the SQAPP (Anchor QEA and GHD 2016), based on a review of available sampling data at the Site (Duncan et al. 2007, CRA 2015a), there are groundwater transport pathways from the Site uplands to the Waterway, including upwelling of impacted groundwater into surface sediments and porewater. Site COCs include cVOCs, as well as metals and pH. Sample collection was conducted in order to characterize the concentrations of cVOCs and other COCs in sediment porewater discharging into Waterway sediments and surface waters. The SQAPP targeted the following data quality objectives:

- Collect data to assess the groundwater/surface water interface for comparison to ambient water quality criteria (AWQC) for metals and volatile organic compounds (VOCs).
  - Determine whether or not there is a pathway between Site groundwater and sediments/surface water in the Waterway that exceed CB N/T SQOs or AWQC at the applicable points of compliance.
  - Define the spatial distribution of VOCs and metals exceeding AWQC at the point of compliance.
  - Collect sufficient samples to understand changes in contaminant discharge to surface water over time.
  - Collect sufficient samples to develop a baseline for future post-remedial action monitoring in order to assess changes in contaminant concentration and flux over time at the point of compliance as it relates to the upland remedial action (e.g., pumping and barrier wall installation).

  - Collect sufficient samples to provide a basis to develop and refine long-term monitoring plans.
  - Collect sufficient porewater data with different methods to inform the development of long-term monitoring plans.

- Collect data necessary to assess natural attenuation of groundwater spatially and over time from the upper portion of the aquifer to the Waterway.
  - As defined in the CB N/T Record of Decision and subsequent Explanations of Significant Differences, the surface sediment point of compliance with SQOs is the top 10-cm biologically active zone.
  - The conditional point of compliance for AWQC values is the sediment/surface water interface.

2 FIELD INVESTIGATION SUMMARY

As discussed above and detailed in the SQAPP (Anchor QEA and GHD 2016), three coordinated and complementary sampling programs at collocated sampling stations in the Waterway were conducted (Figure 7):

- **Surface Sediment Sampling**. Thirty-three surface sediment samples were collected and analyzed for bulk concentrations of Site COCs.
- **Subsurface Porewater Grab Sampling**. Sample collection was attempted at three depths at 33 locations using mini-piezometers deployed at 10-, 30-, and 90-cm depths. Samples were successfully collected from 13 locations at the 10 cm depth (39%), from 15 locations at the 30 cm depth (45%), and 18 locations from the 90 cm depth (52%). No flow was achieved and no samples were collected from the other locations and depths. Figure 8 depicts locations where flow was obtained from the mini-piezometers; grab samples collected from these locations were analyzed for Site COCs.
- **Polyethylene Diffusion Bags.** Figure 9 depicts locations where PDBs were successfully retrieved, including deployments at the surface water interface (2 to 4 cm below mudline), surface water (2 to 4 cm above mudline), and near-surface porewater. Overall 122 of 136 PDBs deployed (90%) were successfully retrieved and analyzed for Site cVOCs. Each of these PBD deployments is summarized below:
  - **Surface Water Interface Porewater Sampling**. Thirty-three PDBs were deployed in surface sediment as close to the sediment/surface water interface as practicable (2 to 4 cm below mudline). Of the 33 PDBs deployed, 29 were successfully retrieved and analyzed for Site cVOCs. Four PDBs were lost, likely due to vandalism and/or vessel disturbance during the deployment period (e.g., dragging chains).
  - **Surface Water Sampling**. Six PDBs were deployed in near-bottom surface water (2 to 4 cm above mudline) at six representative locations. Five of these were successfully retrieved and analyzed for Site cVOCs. One PDB was lost, likely due to vessel disturbance during the deployment period.
  - **Subsurface Porewater Grab Sampling**. Thirty-three near-surface and subsurface sediment porewater samplers were deployed using PDB devices deployed at 10-, 30-, and 90-cm depths (i.e., at the same locations and depths as the

mini-piezometers). Of the 33 PDBs deployed, 30 were successfully retrieved and analyzed for Site cVOCs. Three PDB arrays were lost, likely due to vandalism or vessel disturbance during the deployment period.

2.1 Sampling Locations

Surface sediment, mini-piezometer, and PDB sample collection and processing methods are summarized below.

2.2 Surface Sediment Sample Collection and Processing Methods

Surface sediment samples were collected from 33 locations, and two duplicate stations, between August 3 and 9, 2016 (Figure 7). Surface sediment samples were collected using a pneumatically operated Van Veen grab sampler. Each successful sediment grab was evaluated for acceptability based on the criteria presented in the SQAPP (Anchor QEA and GHD 2016). Upon acceptance of each grab, the overlying water was siphoned off and sediment was collected from within the sampler. In accordance with the SQAPP, sediment was collected from the 0- to 10-cm interval and care was taken not to collect sediment in contact with the sides of the sampler. The characteristics of each sediment grab were recorded in the field and the sample was processed. Aliquots for VOC analyses were collected prior to homogenization and placed in jars without headspace. The remaining sample was then homogenized in a clean stainless steel bowl and distributed into the appropriately labeled sampling containers. Field duplicate samples were obtained by filling additional jars with the same homogenized sample. All samples were stored in an ice-filled cooler at approximately 4°C until transfer to the laboratory.

2.3 Porewater Mini-Piezometer Sample Collection Methods

Piezometer samples were collected between July 3 and August 3, 2016, requiring approximately 300 hours of diver labor and approximately 1,800 hours of field labor, all without a health and safety incident. The collection of sediment porewater samples was attempted at 10 -, 30 -, and 90-cm depths below mudline at each of the 33 collocated sampling locations using a custom designed mini-piezometer apparatus (Figure 8). The mini-piezometers were inserted by divers to each depth after the tubing was charged with water to aid in water conduction. Purge volumes of the mini-piezometer and tubing

apparatus were calculated and once installed, the tubing was connected to a peristaltic pump and water quality meter using a flow-through cell to measure field parameters. The pump was turned on at the lowest setting and flow rates were measured. If no flow was measured, the pump was allowed to continue for at least a half an hour in the event that flow was achieved. If sufficient flow was achieved, field parameters were continuously logged using the water quality meter and manually recorded for every purge volume. If field parameters stabilized after three purge volumes (i.e., relative standard deviation of ± 10%), a sample was collected. If field parameters had not stabilized, the sample was collected after at least five purge volumes were removed.

On the second day of mini-piezometer collection, in consultation with Ecology, the mini-piezometer sampling method was modified when flow was not achieved after at least a half hour of pumping. In this situation, the pump flow was reversed and a purge volume plus 100 milliliters of distilled water were back-flushed into the system in an attempt to clear fines from the mini-piezometer well point and establish connectivity with the porewater.

Of the 99 total sample intervals targeted, 46 of the intervals produced flow, resulting in sample collection (46%). Generally slightly greater flow (and sample success) was achieved at deeper depths (Figure 8), consistent with the slightly greater amount of relatively higher conductive sand present in these near-surface sediments.

2.4 Porewater PDB Sample Deployment and Collection Methods

PDB samples were deployed at each location at the near surface (2 to 4 cm below the sediment surface), 10-, 30-, and 90-cm depths at each location (Figure 9). The near surface samples were placed inside of perforated polyvinyl chloride (PVC) tubes and anchored with fishing weights and landscaping staples. The subsurface PDB samples at 10, 30, and 90 cm were placed inside of screened chambers of a 2-inch square polycarbonate spike, approximately 3.5 feet in length; the spike was inserted into the sediment to the target depths. The samplers were left in place for approximately 5 to 6 weeks (PDBs were deployed June 21 to 25, 2016, and were retrieved and processed August 3 to 9, 2016). Six additional surface water samples were deployed using PDBs suspended in mussel cages at six collocated sampling points. The cages were weighted using bricks and sunk into the sediment so the

samples were suspended approximately 2 to 4 cm above the mudline. Upon retrieval, the PDBs were immediately cut open and transferred into sample vials, with care taken to ensure minimum air entrainment. Vials were sealed with zero headspace, stored in an ice-filled cooler at approximately 4°C until transfer to the laboratory.

2.5 Field Quality Control

QC samples were collected in the field to ensure the appropriateness of the sample collection protocol for maintaining sample integrity and providing data of suitable quality. Field QC samples included field duplicates, rinsate blanks, trip blanks, and a field blank. In addition, extra sample volume or mass was collected to conduct laboratory QC analyses (matrix spike/matrix spike duplicate [MS/MSD] and matrix duplicate). Field duplicates and MS/MSDs were collected or designated at a frequency of at least 5% as required by the SQAPP. Field duplicates were produced by collecting additional sediment from the homogenized bulk chemistry samples or filling additional sample bottles for water samples. A total of eight PDB field duplicates, three mini-piezometer field duplicates, one surface water duplicate, and two sediment field duplicates were collected and analyzed.

One rinse blank each was collected and analyzed in association with the mini-piezometer and sediment sample collection. One field blank was collected in association with the PDB sampling and 20 trip blanks accompanied the samples during collection and transport and were analyzed. To generate the rinsate blanks, laboratory-provided deionized water was run through the sampling equipment in the same manner as if a sample were being collected. The rinsate blanks were analyzed for cVOCs and metals and the field and trip blanks were analyzed for cVOCs. All field, rinse, and trip blanks were free of target analytes with the exception of low-level detections of metals in the mini-piezometer rinse blank.

2.6 Deviations from the SQAPP

Sample collection procedures followed those listed in the SQAPP (Anchor QEA and GHD 2016) with one exception. As discussed in Section 2.3, on the second day of mini-piezometer collection, in consultation with Ecology, the mini-piezometer sampling method was modified in an attempt to clear fines from the mini-piezometer well point and establish connectivity with the porewater.

3 LABORATORY METHODS

This section briefly describes the analytical methods used for the porewater, surface water, and sediment samples discussed in this Report. The analytical methods used are listed and discussed in the SQAPP (Anchor QEA and GHD 2016). This section also summarizes any deviations by the laboratory from the SQAPP.

3.1 Methods for Analysis

This Report includes data from analyses conducted by ALS Environmental (ALS) in Kelso, Washington. Data are presented in Appendix A, B, and C, and laboratory reports are in Appendix D. Eighteen reports were received from the laboratory and were validated. Sediment samples were analyzed for VOCs, metals, total organic carbon, pH, grain size, and total solids. Porewater mini-piezometer samples were analyzed for VOCs and dissolved metals. Porewater PDB samples were analyzed for VOCs.

3.2 Laboratory Quality Control

The validation report indicates the majority of the data results did not require qualification. Some data were qualified as estimated based on data quality objective or method exceedances. No data were rejected. Some porewater dissolved metals results were qualified as non-detects due to detections in the associated method or rinse blanks. Dissolved copper results in eight porewater mini-piezometer samples were qualified due to a serial dilution exceedance. All data are usable for site characterization as reported or qualified.

3.3 Deviations from the SQAPP

The laboratory adhered to the methods and procedures outlined in the SQAPP and listed in SQAPP Table 2 except that some of the non-detected reporting limits were above those listed in the SQAPP. This was because several of the samples required dilutions due to high concentrations of target and non-target analytes or because of the variability due to sample aliquot size used in the analysis and the total solids content. Again, all data are usable for site characterization as reported or qualified.

4 ANALYTICAL DATA VALIDATION

Stage 2B (EPA 2009) data validation was performed on each data set of chemical and physical analyses. Data validation verified the accuracy and precision of chemical and physical determinations performed during this investigation. This section presents the results of the data validation conducted by GHD. Detailed information regarding sample result validation is available in the data validation report in Appendix E.

A review of the validation reports indicate that the overall data quality of the chemistry data generated is acceptable. One-hundred-nineteen PDB porewater samples, forty-six mini-piezometer porewater samples, thirty-three surface sediment samples, and five PDB surface water samples were collected and submitted to ALS for analyses. The data for these analyses were reported under eighteen sample delivery groups, located in Appendix F.

Detailed data quality objectives and quality assurance procedures are provided in the SQAPP (Anchor QEA and GHD 2016). Laboratory data packages were validated by GHD under EPA National Functional Guidelines (EPA 1999, 2004, 2008) and using the data quality objectives described in the SQAPP. The validation report is in Appendix F. Data qualifiers applied to the data during validation have been incorporated into the final database. Data qualifiers assigned as a result of the data validation and their definitions are shown on the analytical results presented in Appendix A, B and C. All data are useable as reported or as qualified and no data were rejected. The data may have been qualified as estimated for a particular analysis based on method or technical criterion as stated in the functional guidelines (EPA 1999, 2004, 2008). Data qualified with a "J" indicates that the associated numerical value is the estimated concentration of the analyte. Data qualified with a "UJ" indicates the estimated reporting limit below which the analyte was not detected. In some cases reporting limits were raised to account for method or field blank contamination or matrix interference.

5 RESULTS AND DISCUSSION

A summary of sediment, mini-piezometer, and PDB samples, locations, and analytes is presented in Table 1. Results of the analyses are summarized in the sections below.

5.1 Surface Sediment Sample Results

A summary of the surface sediment results is presented in Table 2; all results are included in Appendix A.

5.1.1 Conventionals

All surface sediment samples were analyzed for pH, total organic carbon (TOC), and total solids (TS). pH ranged from 7.09 to 7.76, TOC ranged from 0.428% to 2.28%, and TS ranged from 41.9% to 77.4% (Table 2).

5.1.2 VOCs

Most surface sediment sample VOC results were below detection and no results exceeded CB N/T SQO chemical criteria (e.g., tetrachloroethene concentrations were well below the SQO of 57 micrograms per kilogram (µg/kg; Table 2). Two VOC compounds were detected in two samples at concentrations between the method detection limit and the practicable quantitation level. cis-1,2-dichloroethene was detected at 0.40 µg/kg in sample SS08 and trichloroethene was detected at 0.38 µg/kg in sample SS22 (Figure 7). All other results were below detection.

5.1.3 Metals

Surface sediment samples were analyzed for arsenic, copper, nickel, and zinc. All metals were detected in all samples; however, no results exceeded CB N/T SQO chemical criteria (Table 2). Arsenic concentrations ranged from 2.65 to 14.5 milligrams per kilogram (mg/kg); copper concentrations ranged from 15.4 to 112 mg/kg; nickel concentrations ranged from 7.1 to 16.4 mg/kg; and zinc concentrations ranged from 23.2 to 174 mg/kg.

5.2 Mini-Piezometer Sample Results

Forty-nine mini-piezometer samples were collected and analyzed for VOCs and dissolved metals (with duplicates; Table 3). No flow was achieved at the remaining locations and depths. Where no flow was achieved, there is limited potential for porewater conductance and thus very little potential for groundwater discharge to surface water. Recovered sample locations are depicted on Figure 8, a statistical summary of the results is presented in Table 3; all mini-piezometer data are presented in Appendix B.

5.2.1 VOCs

Porewater collected from the mini-piezometer was submitted for cVOC analyses. As summarized in Table 3, five cVOCs were never detected. Of the 49 samples submitted for analysis, the most commonly detected cVOCs were cis-1,2-dichloroethene and trans-1,2-dichloroethene with 12 and 9 detections, respectively. The highest detected concentrations were for cis-1,2-dichloroethene (1.1 µg/L) and vinyl chloride (1.2 µg/L) in the 90-cm interval at locations PZ-10 and PZ-21, respectively (Figure 7). All other detected results were less than 1 µg/L.

The highest detection frequency occurred in the 90-cm interval (7 of 17), followed by the 30-cm interval (5 of 15), with the lowest occurring in the 10-cm interval (1 of 13). As a result of the lack of flow at multiple depth intervals and low overall detection frequency, only location PZ-10 resulted in detected concentrations at all depths for common cVOCs (cis-1,2-dichloroethene and trans-1,2-dichloroethene). As summarized in Figure 10, higher porewater concentrations of these cVOCs were detected at increasing depths below mudline, consistent with the conceptual site model.

5.2.2 Metals

Porewater collected from the mini-piezometers were also analyzed for arsenic, copper, nickel, and zinc. Arsenic was detected in all samples and ranged from 0.07 µg/L to 4.6 µg/L. Copper was detected in 43 samples (86%) and ranged from 0.087 µg/L to 1.01 µg/L. Nickel was detected in 46 samples (92%) and ranged from 0.14 µg/L to 6.54 µg/L. Zinc was also detected in 46 samples and ranged from 0.39 µg/L to 3.46 µg/L. All mini-piezometer porewater sample metals results were below screening levels based on surface water AWQC.

5.3 PDB Sample Results

PDB samples were retrieved from four depths (3, 10, 30, and 90 cm) below the sediment surface and from five surface water locations (collected 2 to 4 cm above mudline). A total of 133 PDB samples were analyzed for cVOCs (with duplicates; Table 4). Recovered sample locations are depicted on Figure 9 and a statistical summary of the results is presented in Table 4; all PDB data are reported in Appendix C.

As summarized in Table 4, five cVOCs were never detected, similar to the mini-piezometer data (Table 3). Also consistent with the mini-piezometer data, the most commonly detected cVOCs were 1,2-dichloroethane and cis-1,2-dichloroethene with 30 and 38 detections, respectively, of 133 samples submitted for analysis. Similar to the mini-piezometer results, the highest detections were in the 90-cm results for cis-1,2-dichloroethene (4,600 µg/L) and vinyl chloride (2,500 µg/L).

One of the five surface water PDBs (PDB-2; Figure 7) detected a single cVOC (cis-1,2-dichloroethene). Of the 29 near-surface (3 cm) deployed PDBs, cVOCs were detected in five (17%) analyses. Of the thirty 10-cm, 30-cm, and 90-cm PDB station samples, cVOCs were detected in nine (30%), seventeen (57%), and eighteen (60%) analyses, respectively (Table 4).

Similar to the mini-piezometer results, there were few stations (e.g., PDB-2, PDB-3, PDB-8) where the same cVOC parameters were detected at each subsurface sampling depth. Station PDB-2, which is closest to the 5106 dredge area (Figure 7), had the highest detected concentrations of cVOCs, and was the only location where cis-1,2-dichloroethene was detected in all subsurface depths and in the surface water PDB. Vinyl chloride was also detected in all subsurface PDBs depths at this station. As summarized in Figures 11 and 12, higher porewater concentrations of these cVOCs were detected at increasing depths below mudline at Stations PDB-2 and PDB-3, respectively, consistent with the conceptual site model. As depicted in Figure 11, between the 90-cm depth and the near-bottom surface water PDB deployment, cVOC concentrations declined consistently by four to five orders of magnitude over this depth interval at PDB-2, again consistent with the conceptual site model of diffusion and dispersion near the surface water interface.

5.4 Comparison of Porewater Sampling Methods

Porewater was collected by both mini-piezometer and PDBs at the 10-, 30-, and 90-cm depths. Paired sample results are compared in Figure 13. While most of the paired results were well correlated, more frequently the PDB sample results were higher in concentration than the corresponding mini-piezometer sample. This result is consistent with the conceptual site model that the predominant groundwater discharge pathways are characterized by relatively lower groundwater cVOC concentrations, compared to pathways with less flow (see Section 1.2). The mini-piezometers sample groundwater discharge pathways, whereas the PDBs sample porewater that may or may not be associated with advective flow. The PDBs as deployed provided a robust data collection solution to the less reliable piezometer sampling methodology and did so with significantly less dive and field time, there-by decreasing the potential for health and safety incidents.

5.5 Porewater Screening Levels

Several screening criteria were evaluated for comparison with porewater results. The evaluation included the AWQC for aquatic life and human health (based on the consumption of organisms), benchmarks identified in Duncan et al. (2007), and porewater benchmarks used to develop Equilibrium Partitioning Sediment Benchmarks for the protection of benthic organisms (EPA 2008). A summary of these prospective screening criteria are listed in Table 5. For screening purposes, the lowest value was used to identify porewater chemicals of potential concern.

5.6 Potential of Exceedances of Applicable Criteria

As defined in the SQAPP (Anchor QEA and GHD 2016), the conditional point of compliance for AWQC is the sediment/surface water interface. Therefore, the determination of compliance with AWQC is based on surface water or near surface porewater samples collected (2 to 4 cm) above and below, respectively, this point of compliance.

Based on the sampling data summarized above, only one sampling location (PDB-2) and one parameter (vinyl chloride) have the potential to exceed the Table 5 screening criteria at the applicable point of compliance. Based on the measured vinyl chloride concentration profile at PDB-2 (Figure 14), the concentration at the interface is equal to the AWQC at this

location. The highly localized areas of potential exceedance of the AWQC are further depicted in Figures 15 and 16 for PDB results collected below the point of compliance (0 to 2 cm, and 0 to 10 cm, respectively).

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TABLES

Table 1
Samples, Locations, and Analyses Summary

Station ID	Station Coordinates (Washington SP NAD 83 South Zone)		Matrix	Collection Method	Sample Depth (cm)	Sample ID	Date Collected	Analyses					
	Easting (ft)	Northing (ft)						VOCs	Metals	TOC	TS	pH	Grain Size
PDB01	1167310.00	716394.00	Porewater	PDB	NS	OXY-PDB01-NS-160803	08/03/16	X					
					10	OXY-PDB01-10-160803	08/03/16	X					
					30	OXY-PDB01-30-160803	08/03/16	X					
					90	OXY-PDB01-90-160803	08/03/16	X					
PZ01				Piezometer	90	OXY-PZ01-90-160718	07/18/16	X	X				
SS01			Sediment	Grab	0 – 10	OXY-SS01-160803	08/03/16	X		X	X	X	X
PDB02	1167564.29	716131.24	Porewater	PDB	NS	OXY-PDB02-NS-160803	08/03/16	X					
					10	OXY-PDB02-10-160803	08/03/16	X					
					30	OXY-PDB02-30-160803	08/03/16	X					
					90	OXY-PDB02-90-160803	08/03/16	X					
PZ02				Piezometer	10	OXY-PZ02-10-160718	07/18/16	X	X				
					30	OXY-PZ02-30-160718	07/18/16	X	X				
					90	OXY-PZ03-30-160724	07/24/16	X	X				
SS02			Sediment	Grab	0 – 10	OXY-SS02-160803	08/03/16	X		X	X	X	X
SW02			Surface Water	PDB	PDB	OXY-SW02-160803	08/03/16	X					
PDB03	1167841.73	715849.09	Porewater	PDB	NS	OXY-PDB03-NS-160803	08/03/16	X					
					10	OXY-PDB03-10-160803	08/03/16	X					
					30	OXY-PDB03-30-160803	08/03/16	X					
					90	OXY-PDB03-90-160803	08/03/16	X					
SS03			Sediment	Grab	0 – 10	OXY-SS03-160803	08/03/16	X		X	X	X	X
PDB04	1168265.27	715498.34	Porewater	PDB	NS	OXY-PDB04-NS-160809	08/09/16	X					
					10	OXY-PDB04-10-160809	08/09/16	X					
					30	OXY-PDB04-30-160809	08/09/16	X					
					90	OXY-PDB04-90-160809	08/09/16	X					
PZ04				Piezometer	90	OXY-PZ04-90-160708	07/08/16	X	X				
SS04			Sediment	Grab	0 – 10	OXY-SS04-160809	08/09/16	X		X	X	X	X
PDB05	1168604.74	715149.20	Porewater	PDB	NS	OXY-PDB05-NS-160809	08/09/16	X					
					10	OXY-PDB05-10-160809	08/09/16	X					
					30	OXY-PDB05-30-160809	08/09/16	X					
					90	OXY-PDB05-90-160809	08/09/16	X					
PZ05				Piezometer	10	OXY-PZ05-10-160708	07/08/16	X	X				
					30	OXY-PZ05-30-160708	07/08/16	X	X				
					90	OXY-PZ05-90-160708	07/08/16	X	X				
SS05			Sediment	Grab	0 – 10	OXY-SS05-160809	08/09/16	X		X	X	X	X
PDB06	1167142.20	716625.36	Porewater	PDB	10	OXY-PDB06-10-160805	08/05/16	X					
					30	OXY-PDB06-30-160805	08/05/16	X					
					90	OXY-PDB06-90-160805	08/05/16	X					
PZ06				Piezometer	30	OXY-PZ06-30-160720	07/20/16	X	X				
					90	OXY-PZ06-90-160720	07/20/16	X	X				
SS06			Sediment	Grab	0 – 10	OXY-SS06-160805	08/05/16	X		X	X	X	X
SW06			Surface Water	PDB	PDB	OXY-SW06-160805	08/05/16	X					

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Station ID	Station Coordinates (Washington SP NAD 83 South Zone)		Matrix	Collection Method	Sample Depth (cm)	Sample ID	Date Collected	Analyses					
	Easting (ft)	Northing (ft)						VOCs	Metals	TOC	TS	pH	Grain Size
PDB07	1167453.24	716331.97	Porewater	PDB	NS	OXY-PDB07-NS-160805	08/05/16	X					
					10	OXY-PDB07-10-160805	08/05/16	X					
					30	OXY-PDB07-30-160805	08/05/16	X					
					90	OXY-PDB07-90-160805	08/05/16	X					
PZ07				Piezometer	30	OXY-PZ07-30-160720	07/20/16	X	X				
					90	OXY-PZ07-90-160720	07/20/16	X	X				
SS07			Sediment	Grab	0 – 10	OXY-SS07-160805	08/05/16	X		X	X	X	X
SW07			Surface Water	PDB	PDB	OXY-SW07-160805	08/05/16	X					
PDB08	1167603.33	716172.55	Porewater	PDB	NS	OXY-PDB08-NS-160808	08/08/16	X					
					10	OXY-PDB08-10-160808	08/08/16	X					
					30	OXY-PDB08-30-160808	08/08/16	X					
					90	OXY-PDB08-90-160808	08/08/16	X					
PZ08				Piezometer	30	OXY-PZ08-30-160722	07/22/16	X	X				
					90	OXY-PZ08-90-160722	07/22/16	X	X				
SS08			Sediment	Grab	0 – 10	OXY-SS08-160808	08/08/16	X		X	X	X	X
SW08			Surface Water	PDB	PDB	OXY-SW08-160808	08/08/16	X					
PDB09	1167747.19	716034.36	Porewater	PDB	NS	OXY-PDB09-NS-160808	08/08/16	X					
					10	OXY-PDB09-10-160808	08/08/16	X					
					30	OXY-PDB09-30-160808	08/08/16	X					
					90	OXY-PDB09-90-160808	08/08/16	X					
					NS	OXY-PDB109-NS-160808	08/08/16	X					
					10	OXY-PDB109-10-160808	08/08/16	X					
					30	OXY-PDB109-30-160808	08/08/16	X					
					90	OXY-PDB109-90-160808	08/08/16	X					
PZ09				Piezometer	90	OXY-PZ09-90-160719	07/19/16	X	X				
						OXY-PZ109-90-160719	07/19/16	X	X				
SS09			Sediment	Grab	0 – 10	OXY-SS09-160808	08/08/16	X		X	X	X	X
SW09			Surface Water	PDB	PDB	OXY-SW09-160808	08/08/16	X					
PZ10	1167763.00	716119.00	Porewater	Piezometer	10	OXY-PZ10-10-160719	07/19/16	X	X				
					30	OXY-PZ10-30-160719	07/19/16	X	X				
					90	OXY-PZ10-90-160719	07/19/16	X	X				
SS10			Sediment	Grab	0 – 10	OXY-SS10-160803	08/03/16	X		X	X	X	X
PDB11	1167437.55	716532.23	Porewater	PDB	NS	OXY-PDB11-NS-160804	08/04/16	X					
					10	OXY-PDB11-10-160804	08/04/16	X					
					30	OXY-PDB11-30-160804	08/04/16	X					
					90	OXY-PDB11-90-160804	08/04/16	X					
SS11			Sediment	Grab	0 – 10	OXY-SS11-160804	08/04/16	X		X	X	X	X

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Samples, Locations, and Analyses Summary

Station ID	Station Coordinates (Washington SP NAD 83 South Zone)		Matrix	Collection Method	Sample Depth (cm)	Sample ID	Date Collected	Analyses					
	Easting (ft)	Northing (ft)						VOCs	Metals	TOC	TS	pH	Grain Size
PDB12	1167814.00	716175.00	Porewater	PDB	NS	OXY-PDB12-NS-160804	08/04/16	X					
					10	OXY-PDB12-10-160804	08/04/16	X					
					30	OXY-PDB12-30-160804	08/04/16	X					
					90	OXY-PDB12-90-160804	08/04/16	X					
SS12			Sediment	Grab	0 – 10	OXY-SS12-160804	08/04/16	X		X	X	X	X
PDB13	1167491.77	716596.59	Porewater	PDB	NS	OXY-PDB13-NS-160804	08/04/16	X					
					10	OXY-PDB13-10-160804	08/04/16	X					
					30	OXY-PDB13-30-160804	08/04/16	X					
					90	OXY-PDB13-90-160804	08/04/16	X					
					NS	OXY-PDB113-NS-160804	08/04/16	X					
					10	OXY-PDB113-10-160804	08/04/16	X					
					30	OXY-PDB113-30-160804	08/04/16	X					
					90	OXY-PDB113-90-160804	08/04/16	X					
PZ13				Piezometer	30	OXY-PZ13-30-160705	07/05/16	X	X				
					90	OXY-PZ13-90-160705	07/05/16	X	X				
					90	OXY-PZ113-90-160705	07/05/16	X	X				
SS13			Sediment	Grab	0 – 10	OXY-SS13-160804	08/04/16	X		X	X	X	X
PDB14	1167611.00	716476.00	Porewater	PDB	NS	OXY-PDB14-NS-160804	08/04/16	X					
					10	OXY-PDB14-10-160804	08/04/16	X					
					30	OXY-PDB14-30-160804	08/04/16	X					
					90	OXY-PDB14-90-160804	08/04/16	X					
PZ14				Piezometer	90	OXY-PZ14-90-160705	07/05/16	X	X				
SS14			Sediment	Grab	0 – 10	OXY-SS14-160804	08/04/16	X		X	X	X	X
PDB15	1167716.00	716369.00	Porewater	PDB	NS	OXY-PDB15-NS-160804	08/04/16	X					
					10	OXY-PDB15-10-160804	08/04/16	X					
					30	OXY-PDB15-30-160804	08/04/16	X					
					90	OXY-PDB15-90-160804	08/04/16	X					
PZ15				Piezometer	10	OXY-PZ15-10-160706	07/06/16	X	X				
					90	OXY-PZ15-90-160706	07/06/16	X	X				
SS15			Sediment	Grab	0 – 10	OXY-SS15-160804	08/04/16	X		X	X	X	X
					0 – 10	OXY-SS15-160804	08/04/16	X		X	X	X	X
PDB16	1167877.40	716215.34	Porewater	PDB	NS	OXY-PDB16-NS-160804	08/04/16	X					
					10	OXY-PDB16-10-160804	08/04/16	X					
					30	OXY-PDB16-30-160804	08/04/16	X					
					90	OXY-PDB16-90-160804	08/04/16	X					
PZ16				Piezometer	10	OXY-PZ16-10-160704	07/04/16	X	X				
					30	OXY-PZ16-30-160704	07/04/16	X	X				
					90	OXY-PZ16-90-160704	07/04/16	X	X				
SS16			Sediment	Grab	0 – 10	OXY-SS16-160804	08/04/16	X		X	X	X	X

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Samples, Locations, and Analyses Summary

Station ID	Station Coordinates (Washington SP NAD 83 South Zone)		Matrix	Collection Method	Sample Depth (cm)	Sample ID	Date Collected	Analyses					
	Easting (ft)	Northing (ft)						VOCs	Metals	TOC	TS	pH	Grain Size
PDB17	1168025.00	716112.00	Porewater	PDB	NS	OXY-PDB17-NS-160803	08/03/16	X					
					10	OXY-PDB17-10-160803	08/03/16	X					
					30	OXY-PDB17-30-160803	08/03/16	X					
					90	OXY-PDB17-90-160803	08/03/16	X					
PZ17				Piezometer	90	OXY-PZ17-90-160803	08/03/16	X	X				
SS17			Sediment	Grab	0 – 10	OXY-SS17-160803	08/03/16	X		X	X	X	X
PDB18	1167498.88	716826.35	Porewater	PDB	NS	OXY-PDB18-NS-160804	08/04/16	X					
					10	OXY-PDB18-10-160804	08/04/16	X					
					30	OXY-PDB18-30-160804	08/04/16	X					
					90	OXY-PDB18-90-160804	08/04/16	X					
SS18			Sediment	Grab	0 – 10	OXY-SS18-160804	08/04/16	X		X	X	X	X
PDB19	1167792.09	716417.09	Porewater	PDB	NS	OXY-PDB19-NS-160804	08/04/16	X					
					10	OXY-PDB19-10-160804	08/04/16	X					
					30	OXY-PDB19-30-160804	08/04/16	X					
					90	OXY-PDB19-90-160804	08/04/16	X					
SS19			Sediment	Grab	0 – 10	OXY-SS19-160804	08/04/16	X		X	X	X	X
PDB20	1168031.23	716316.41	Porewater	PDB	NS	OXY-PDB20-NS-160804	08/04/16	X					
					10	OXY-PDB20-10-160804	08/04/16	X					
					30	OXY-PDB20-30-160804	08/04/16	X					
					90	OXY-PDB20-90-160804	08/04/16	X					
PZ20				Piezometer	10	OXY-PZ20-10-160801	08/01/16	X	X				
					30	OXY-PZ20-30-160801	08/01/16	X	X				
					90	OXY-PZ20-90-160801	08/01/16	X	X				
					90	OXY-PZ120-90-160801	08/01/16	X	X				
SS20			Sediment	Grab	0 – 10	OXY-SS20-160804	08/04/16	X		X	X	X	X
PDB21	1168035.62	716431.45	Porewater	PDB	NS	OXY-PDB21-NS-160808	08/08/16	X					
					10	OXY-PDB21-10-160808	08/08/16	X					
					30	OXY-PDB21-30-160808	08/08/16	X					
					90	OXY-PDB21-90-160808	08/08/16	X					
PZ21				Piezometer	10	OXY-PZ21-10-160724	07/24/16	X	X				
					30	OXY-PZ21-30-160724	07/24/16	X	X				
					90	OXY-PZ21-90-160724	07/24/16	X	X				
SS21			Sediment	Grab	0 – 10	OXY-SS21-160808	08/08/16	X		X	X	X	X
PDB22	1167982.00	716676.00	Porewater	PDB	NS	OXY-PDB22-NS-160808	08/08/16	X					
					10	OXY-PDB22-10-160808	08/08/16	X					
					30	OXY-PDB22-30-160808	08/08/16	X					
					90	OXY-PDB22-90-160808	08/08/16	X					
SS22			Sediment	Grab	0 – 10	OXY-SS22-160808	08/08/16	X		X	X	X	X

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Samples, Locations, and Analyses Summary

Station ID	Station Coordinates (Washington SP NAD 83 South Zone)		Matrix	Collection Method	Sample Depth (cm)	Sample ID	Date Collected	Analyses					
	Easting (ft)	Northing (ft)						VOCs	Metals	TOC	TS	pH	Grain Size
PDB23	1167399.79	716932.32	Porewater	PDB	NS	OXY-PDB23-NS-160805	08/05/16	X					
					10	OXY-PDB23-10-160805	08/05/16	X					
					30	OXY-PDB23-30-160805	08/05/16	X					
					90	OXY-PDB23-90-160805	08/05/16	X					
SS23			Sediment	Grab	0 – 10	OXY-SS23-160805	08/05/16	X		X	X	X	X
PDB24	1167280.64	717014.04	Porewater	PDB	NS	OXY-PDB24-NS-160805	08/05/16	X					
					10	OXY-PDB24-10-160805	08/05/16	X					
					30	OXY-PDB24-30-160805	08/05/16	X					
					90	OXY-PDB24-90-160805	08/05/16	X					
SS24			Sediment	Grab	0 – 10	OXY-SS24-160805	08/05/16	X		X	X	X	X
PDB25	1167252.25	717136.95	Porewater	PDB	NS	OXY-PDB25-NS-160809	08/09/16	X					
					10	OXY-PDB25-10-160809	08/09/16	X					
					30	OXY-PDB25-30-160809	08/09/16	X					
					90	OXY-PDB25-90-160809	08/09/16	X					
PZ25				Piezometer	10	OXY-PZ25-10-160802	08/02/16	X	X				
SS25			Sediment	Grab	0 – 10	OXY-SS25-160809	08/09/16	X		X	X	X	X
SS26	1166840.43	717375.57	Sediment	Grab	0 – 10	OXY-SS26-160805	08/05/16	X		X	X	X	X
PDB27	1166560.78	717096.20	Porewater	PDB	NS	OXY-PDB27-NS-160805	08/05/16	X					
					10	OXY-PDB27-10-160805	08/05/16	X					
					30	OXY-PDB27-30-160805	08/05/16	X					
					90	OXY-PDB27-90-160805	08/05/16	X					
PZ27				Piezometer	10	OXY-PZ27-10-160717	07/17/16	X	X				
					30	OXY-PZ27-30-160717	07/17/16	X	X				
SS27			Sediment	Grab	0 – 10	OXY-SS27-160805	08/05/16	X		X	X	X	X
PDB28	1166024.51	716642.49	Porewater	PDB	NS	OXY-PDB28-NS-160808	08/08/16	X					
					10	OXY-PDB28-10-160808	08/08/16	X					
					30	OXY-PDB28-30-160808	08/08/16	X					
					90	OXY-PDB28-90-160808	08/08/16	X					
PZ28				Piezometer	10	OXY-PZ28-10-160721	07/21/16	X	X				
					30	OXY-PZ28-30-160721	07/21/16	X	X				
					90	OXY-PZ28-90-160721	07/21/16	X	X				
SS28			Sediment	Grab	0 – 10	OXY-SS28-160808	08/08/16	X		X	X	X	X
PDB29	1165894.98	716532.97	Porewater	PDB	NS	OXY-PDB29-NS-160809	08/09/16	X					
					10	OXY-PDB29-10-160809	08/09/16	X					
					30	OXY-PDB29-30-160809	08/09/16	X					
					90	OXY-PDB29-90-160809	08/09/16	X					
SS29			Sediment	Grab	0 – 10	OXY-SS29-160808	08/08/16	X		X	X	X	X

Table 1
Samples, Locations, and Analyses Summary

Station ID	Station Coordinates (Washington SP NAD 83 South Zone)		Matrix	Collection Method	Sample Depth (cm)	Sample ID	Date Collected	Analyses					
	Easting (ft)	Northing (ft)						VOCs	Metals	TOC	TS	pH	Grain Size
PDB30	1165801.87	716419.92	Porewater	PDB	NS	OXY-PDB30-NS-160808	08/08/16	X					
					10	OXY-PDB30-10-160808	08/08/16	X					
					30	OXY-PDB30-30-160808	08/08/16	X					
					90	OXY-PDB30-90-160808	08/08/16	X					
SS30			Sediment	Grab	0 – 10	OXY-SS30-160808	08/08/16	X		X	X	X	X
					0 – 10	OXY-SS130-160808	08/08/16	X		X	X	X	X
PZ31	1166727.84	717506.04	Porewater	Piezometer	10	OXY-PZ31-10-160723	07/23/16	X	X				
					30	OXY-PZ31-30-160723	07/23/16	X	X				
SS31			Sediment	Grab	0 – 10	OXY-SS31-160805	08/05/16	X		X	X	X	X
PDB32	1165741.61	716940.31	Porewater	PDB	NS	OXY-PDB32-NS-160808	08/08/16	X					
					10	OXY-PDB32-10-160808	08/08/16	X					
					30	OXY-PDB32-30-160808	08/08/16	X					
					90	OXY-PDB32-90-160808	08/08/16	X					
PZ32				Piezometer	10	OXY-PZ32-10-160721	07/21/16	X	X				
					90	OXY-PZ32-90-160721	07/21/16	X	X				
SS32			Sediment	Grab	0 – 10	OXY-SS32-160808	08/08/16	X		X	X	X	X
PDB33	1165323.23	717339.36	Porewater	PDB	NS	OXY-PDB33-NS-160808	08/08/16	X					
					10	OXY-PDB33-10-160808	08/08/16	X					
					30	OXY-PDB33-30-160808	08/08/16	X					
					90	OXY-PDB33-90-160808	08/08/16	X					
PZ33				Piezometer	10	OXY-PZ33-10-160703	07/03/16	X	X				
					30	OXY-PZ33-30-160703	07/03/16	X	X				
					90	OXY-PZ33-90-160703	07/03/16	X	X				
SS33			Sediment	Grab	0 – 10	OXY-SS33-160808	08/08/16	X		X	X	X	X

Notes:
cm: centimeter
ID: identification
N/A: not applicable
NS: near surface
PDB: polyethylene diffusion bag
TOC: total organic carbon
TS: total solids
VOA: volatile organic analyte
VOC: volatile organic compound
Washington SP NAD 83: Washington State Plane North American Datum 1983

Table 2
Summary of Sediment Results

	No. of Samples	No. of Detections	Maximum Detected Concentration	Minimum Detected Concentration	Average Detected Result	No. of Non-Detections	Maximum Non-Detect Concentration	Minimum Non-Detect Concentration	Screening Level	No. of Detections > Screening Level
Conventional Parameters (pct)										
Total organic carbon	35	35	2.28	0.428	1.32	0	--	--	--	0
Total solids	35	35	77.4	41.9	59.7	0	--	--	--	0
Conventional Parameters (su)										
pH	35	35	7.76	7.09	7.49	0	--	--	--	0
Grain Size (pct)										
Gravel	35	28	69.28	0.01	3.76	7	0	0	--	0
Sand, very coarse	35	35	7.96	0.01	1.09	0	--	--	--	0
Sand, coarse	35	35	30.36	0.34	3.69	0	--	--	--	0
Sand, medium	35	35	41.22	0.72	10.4	0	--	--	--	0
Sand, fine	35	35	32.35	0.79	13.3	0	--	--	--	0
Sand, very fine	35	35	27.72	1.65	11.1	0	--	--	--	0
Silt	35	35	59.37	3.99	36.8	0	--	--	--	0
Clay	35	35	46.71	4.59	20.8	0	--	--	--	0
Metals (mg/kg)										
Arsenic	35	35	14.5	2.65	8.46	0	--	--	57	0
Copper	35	35	112	15.4	47.2	0	--	--	390	0
Nickel	35	35	16.4	7.1	12.6	0	--	--	140	0
Zinc	35	35	174	23.2	65.1	0	--	--	410	0
Volatile Organics (µg/kg)										
1,1,1-Trichloroethane	35	0	--	--	--	35	0.27	0.138	--	0
1,1,2,2-Tetrachloroethane	35	0	--	--	--	35	0.31	0.163	--	0
1,1,2-Trichloroethane	35	0	--	--	--	35	0.36	0.188	--	0
1,1-Dichloroethane	35	0	--	--	--	35	0.29	0.15	--	0
1,1-Dichloroethene	35	0	--	--	--	35	0.6	0.313	--	0
1,2-Dichloroethane	35	0	--	--	--	35	0.17	0.0875	--	0
1,2-Dichloroethene, cis-	35	1	0.4	0.4	0.4	34	0.29	0.15	--	0
1,2-Dichloroethene, trans-	35	0	--	--	--	35	0.29	0.15	--	0
Chloroethane	35	0	--	--	--	35	1.8	0.925	--	0
Chloromethane	35	0	--	--	--	35	0.43	0.225	--	0
Tetrachloroethene (PCE)	35	0	--	--	--	35	0.38	0.2	57	0
Trichloroethene (TCE)	35	1	0.38	0.38	0.38	34	0.36	0.188	--	0
Vinyl chloride	35	0	--	--	--	35	0.43	0.225	--	0

Notes:
Stats include normal and field duplicates. Stats exclude rejected results.
Stats include prospective screening level only.
--: not available
µg/kg: micrograms per kilogram
mg/kg: milligrams per kilogram
pct: percent
su: standard unit

Table 3
Summary of Piezometer Porewater Results

	No. of Samples	No. of Detections	Maximum Detected Concentration	Minimum Detected Concentration	Average Detected Result	No. of Non-Detections	Maximum Non-Detect Concentration	Minimum Non-Detect Concentration	Frequency of Detection	Screening Level	No. of Detections > Screening Level[a]
Metals, Dissolved (porewater) (µg/L)											
Arsenic	50	50	4.6	0.07	1.07	0	--	--	1	10	0
Copper	50	43	1.01	0.087	0.282	7	0.02	0.02	0.86	3.1	0
Nickel	50	46	6.54	0.14	0.714	4	0.04	0.03	0.92	8.2	0
Zinc	50	46	3.46	0.39	1.29	4	0.07	0.07	0.92	81	0
Volatile Organics (porewater) (µg/L)											
1,1,1-Trichloroethane	50	0	--	--	--	50	0.075	0.075	0	11	0
1,1,2,2-Tetrachloroethane	50	0	--	--	--	50	0.16	0.16	0	0.46	0
1,1,2-Trichloroethane	50	0	--	--	--	50	0.14	0.14	0	1.8	0
1,1-Dichloroethane	50	5	0.13	0.09	0.11	45	0.077	0.077	0.1	--	0
1,1-Dichloroethene	50	1	0.09	0.09	0.09	49	0.08	0.08	0.02	3.2	0
1,2-Dichloroethane	50	3	0.35	0.09	0.213	47	0.08	0.08	0.06	120	0
1,2-Dichloroethene, cis-	50	12	1.1	0.07	0.395	38	0.067	0.067	0.24	224,000	0
1,2-Dichloroethene, trans-	50	9	0.27	0.08	0.188	41	0.072	0.072	0.18	--	0
Chloroethane	50	0	--	--	--	50	0.16	0.16	0	--	0
Chloromethane	50	2	0.11	0.07	0.09	48	0.068	0.068	0.04	--	0
Tetrachloroethene (PCE)	50	0	--	--	--	50	0.099	0.099	0	7.1	0
Trichloroethene (TCE)	50	2	0.16	0.12	0.14	48	0.1	0.1	0.04	0.86	0
Vinyl chloride	50	5	1.2	0.08	0.322	45	0.075	0.075	0.1	0.26	1

Notes:
a. Number of prospective screening level exceedances regardless of sample depth
--: not available
µg/L: micrograms per liter

Table 4
Summary of PDB Porewater Results

	No. of Samples	No. of Detections	Maximum Detected Concentration	Minimum Detected Concentration	Average Detected Result	No. of Non-Detections	Maximum Non-Detect Concentration	Minimum Non-Detect Concentration	Average Non-Detect Result	Frequency of Detection	Screening Level	No. of Detections > Screening Level[a]
Volatile Organics (µg/L)												
1,1,1-Trichloroethane	133	0	--	--	--	133	0.75	0.075	0.0801	0	11	0
1,1,2,2-Tetrachloroethane	133	0	--	--	--	133	1.6	0.16	0.171	0	0.46	0
1,1,2-Trichloroethane	133	0	--	--	--	133	1.4	0.14	0.149	0	1.8	0
1,1-Dichloroethane	133	0	--	--	--	133	0.77	0.077	0.0822	0	--	0
1,1-Dichloroethene	133	2	5.5	0.4	2.95	131	0.08	0.08	0.08	0.02	3.2	1
1,2-Dichloroethane	133	30	0.35	0.08	0.122	103	0.8	0.08	0.087	0.23	120	0
1,2-Dichloroethene, cis-	133	38	4600	0.07	122	95	0.067	0.067	0.067	0.29	224,000	0
1,2-Dichloroethene, trans-	133	14	15	0.08	2.11	119	0.072	0.072	0.072	0.11	--	0
Chloroethane	133	0	--	--	--	133	1.6	0.16	0.171	0	--	0
Chloromethane	133	4	0.88	0.1	0.333	129	3.1	0.068	0.129	0.03	--	0
Tetrachloroethene (PCE)	133	3	3.3	0.2	1.24	130	0.099	0.099	0.099	0.02	7.1	0
Trichloroethene (TCE)	133	13	11	0.1	2.08	120	0.1	0.1	0.1	0.1	0.86	3
Vinyl chloride	133	19	2500	0.09	135	114	0.075	0.075	0.075	0.14	0.26	8

Notes:

a. Number of prospective screening level exceedances regardless of sample depth

--: not available

µg/L: micrograms per liter

Table 5
Summary of Screening Benchmarks

Parameter	Level of Concern; Duncan, et al., 2007	Aquatic Life Criteria (Chronic)	HHC for the Consumption of Organisms; WAC 173- 201A-240	ESB for the Protection of Benthic Organisms
Volatile Organic Compounds (µg/L)				
1,1,1-Trichloroethane	--	--	160,000	11
1,1,2,2-Tetrachloroethane	--	--	0.46	610
1,1,2-Trichloroethane	42	--	1.8	--
1,1-Dichloroethane	--	--	--	--
1,1-Dichloroethene	3.2	--	4100	--
1,2-Dichloroethane	--	--	120	--
Chloroethane	--	--	--	--
Chloromethane	--	--	--	--
cis-1,2-Dichloroethene	224,000	--	--	--
Tetrachloroethene	8.85	--	7.1	98
trans-1,2-Dichloroethene	--	--	--	--
Trichloroethene	81	--	0.86	47
Vinyl chloride	3.69	--	0.26	--
Dissolved Metals (µg/L)				
Arsenic	--	36	10	--
Copper	--	3.1	--	--
Nickel	--	8.2	190	--
Zinc	--	81	2900	--

Notes:
--: not available
µg/L: micrograms per liter
ESB: Equilibrium Partitioning Sediment Benchmark
HHC: human health criteria
WAC: Washington Administrative Code

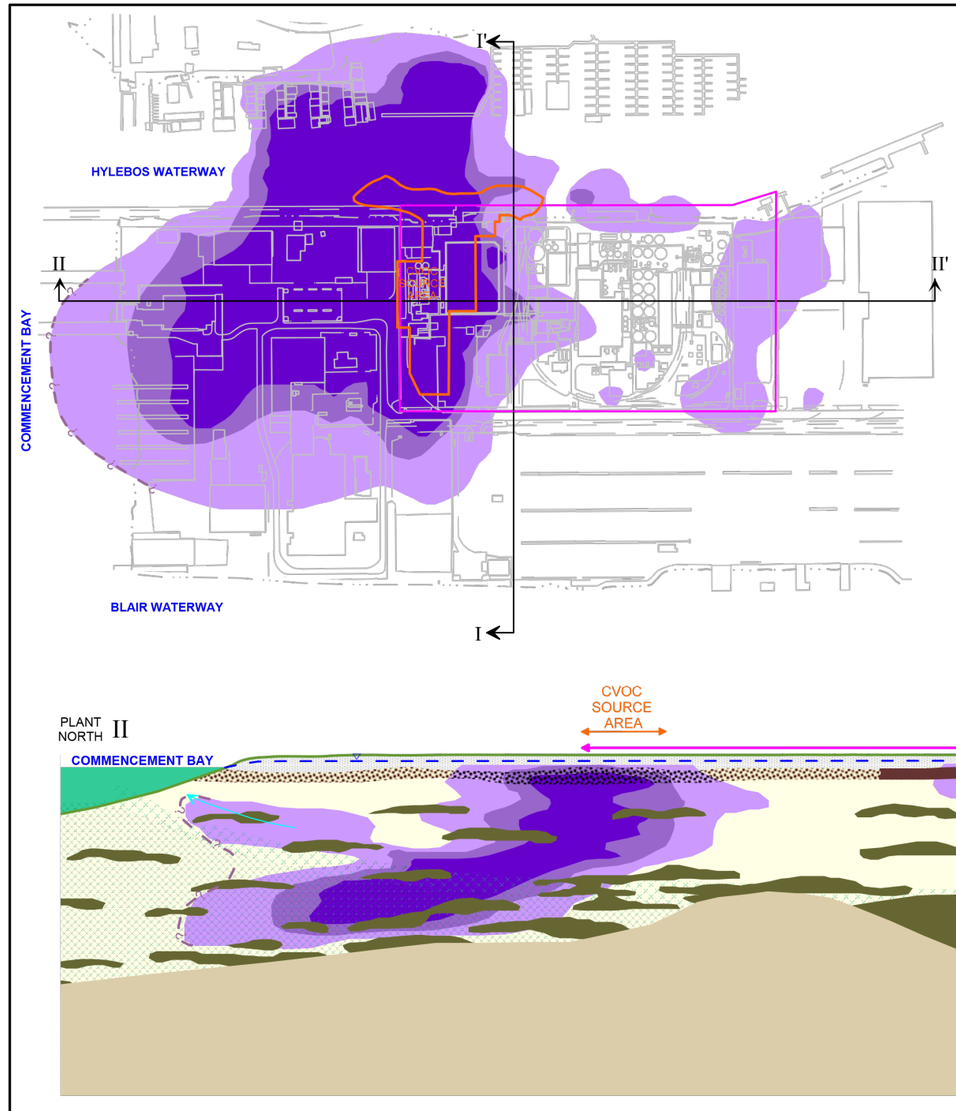
Reference:
Duncan, P.B., M.S. Greenber, S. Leja, J. Williams, C. Black, R.G. Henry, L. Wilhelm, 2007. Case Study of Contaminated Groundwater Discharge: How In Situ Tools Link an Evolving Conceptual Site Model with Management Decisions.
Integrated Environmental Assessment and Management 3(2):279-289.

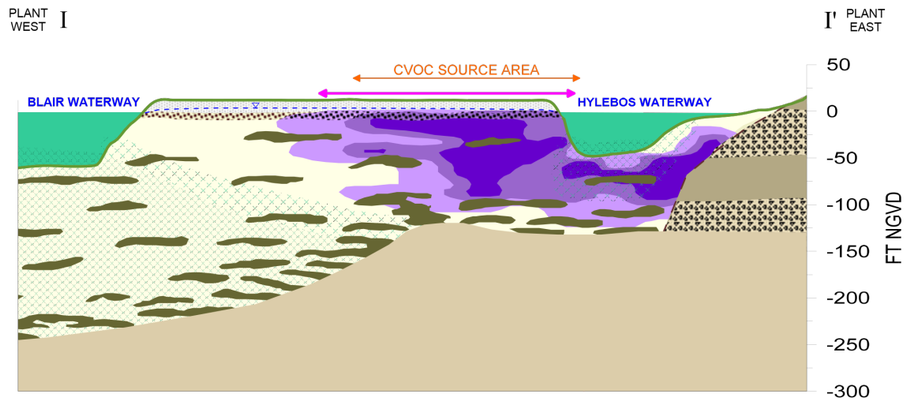
FIGURES

ANCHOR QEA

Feet
0 1,250 2,500

Figure 1
Site Vicinity Map
Occidental Chemical Tacoma Groundwater Site





LEGEND

- FORMER OCC FACILITY (605) AND MARIANA PROPERTIES (709)
- SALT SURFACE WATER
- FRESH GROUNDWATER/ SALT WATER TRANSITION ZONE IN AQUIFER
- SALT WATER IN AQUIFER

TOTAL CVOC PLUME

- > 10 µg/L
- > 1,000 µg/L
- > 10,000 µg/L

PUYALLUP RIVER VALLEY

- FILL
- MUD FLATS(1)
- DELTAIC DEPOSITS
- GLACIAL DEPOSITS
- LOWER PERMEABILITY LENSES

BLUFFS

- BURIED VALLEY WALL
- SAND AND GRAVEL
- SILT AND CLAY

NOTES:
(1) DARK BROWN INDICATES WHERE MUD FLATS ARE OBSERVED TO PROVIDE HYDRAULIC SEPARATION BETWEEN THE FILL AND DELTAIC DEPOSITS; LIGHT BROWN INDICATES WHERE HYDRAULIC SEPARATION BY THE MUD FLATS IS NOT CONFIRMED

figure 17

TOTAL CVOC PLUME IN GROUNDWATER
Occidental Chemical Corporation, Tacoma, Washington

07843-C4D4(MEMO078)GN-WA-HYD (N:\HEG\07843\Memo 78\Figures\Figure 17.srf) FEB 25/2015

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Figure 2
Conceptual Site Model
Occidental Chemical Tacoma Groundwater Site

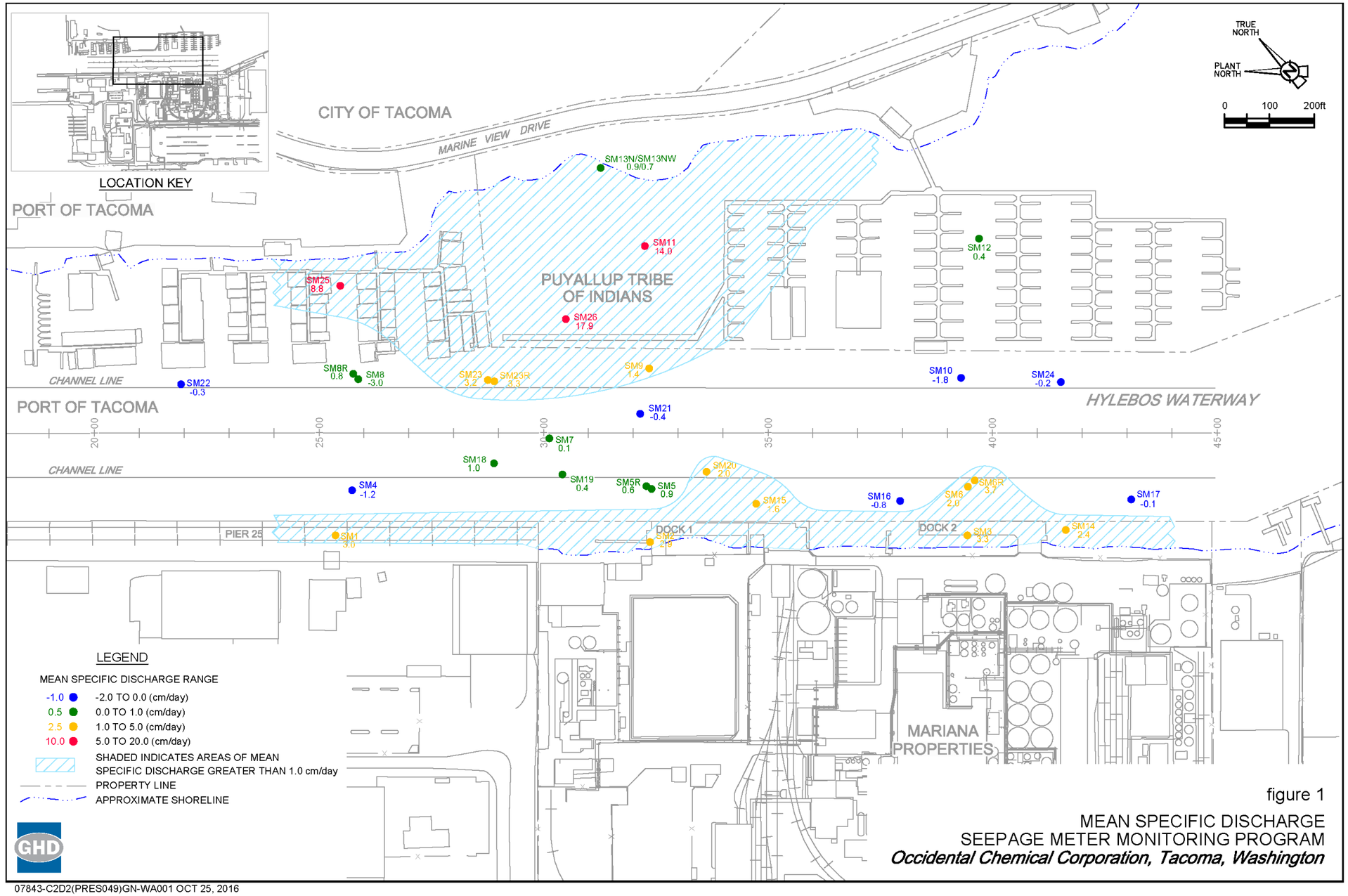

figure 1

MEAN SPECIFIC DISCHARGE
SEEPAGE METER MONITORING PROGRAM
Occidental Chemical Corporation, Tacoma, Washington

07843-C2D2(PRES049)GN-WA001 OCT 25, 2016

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Figure 3
Mean Specific Discharge
Occidental Chemical Tacoma Groundwater Site

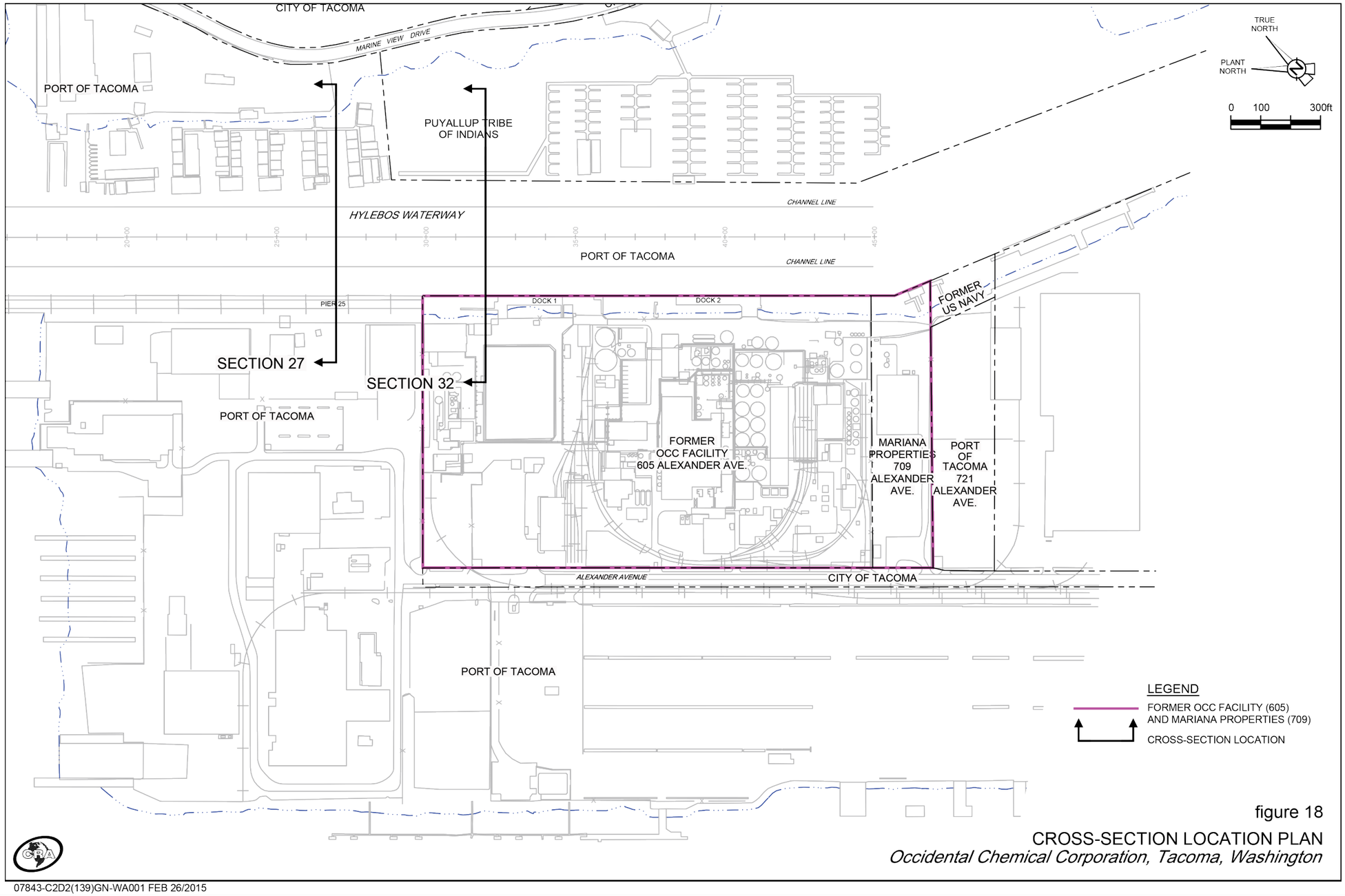

figure 18

CROSS-SECTION LOCATION PLAN

Occidental Chemical Corporation, Tacoma, Washington

07843-C2D2(139)GN-WA001 FEB 26/2015

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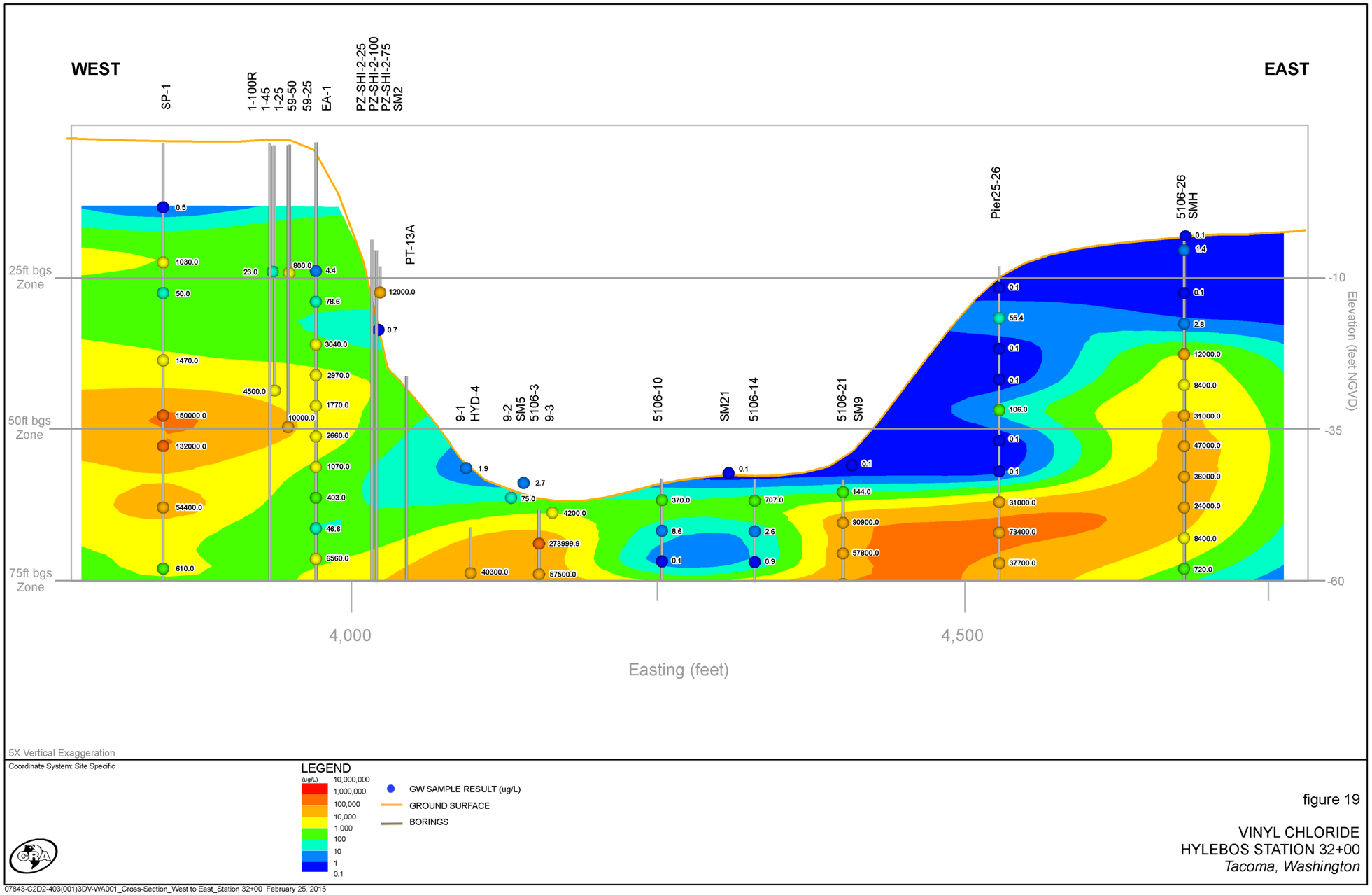
Figure 4
Cross Section Plan View
Occidental Chemical Tacoma Groundwater Site



07843-C2D2-403(001)3DV-WA001_Cross-Section_West to East_Station 32+00 February 25, 2015

figure 19

VINYL CHLORIDE
HYLEBOS STATION 32+00
Tacoma, Washington

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Figure 5
Subsurface Vinyl Chloride Cross Section 32
Occidental Chemical Tacoma Groundwater Site

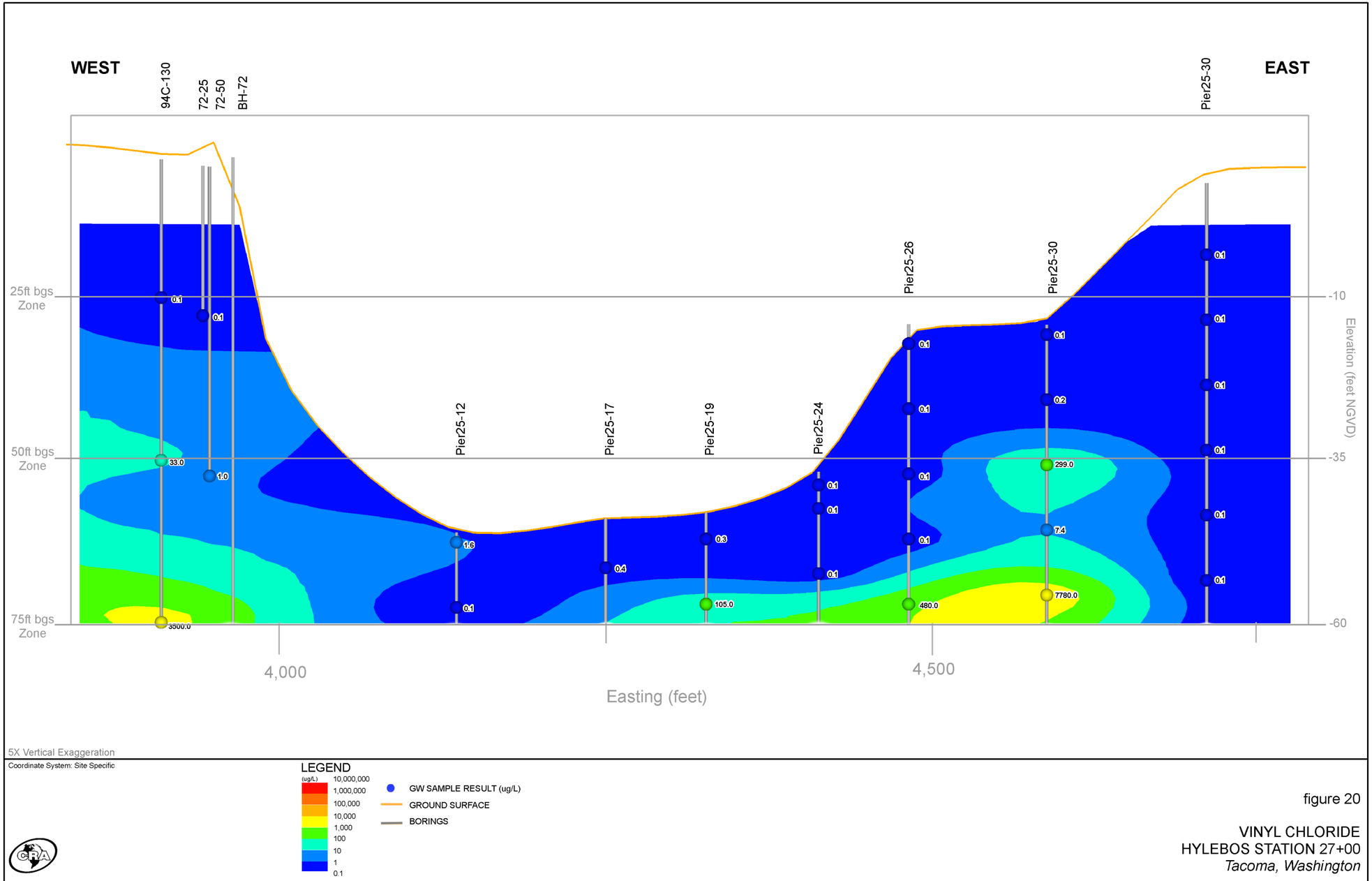

figure 20

VINYL CHLORIDE
HYLEBOS STATION 27+00
Tacoma, Washington

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Figure 6
Subsurface Vinyl Chloride Cross Section 27
Occidental Chemical Tacoma Groundwater Site

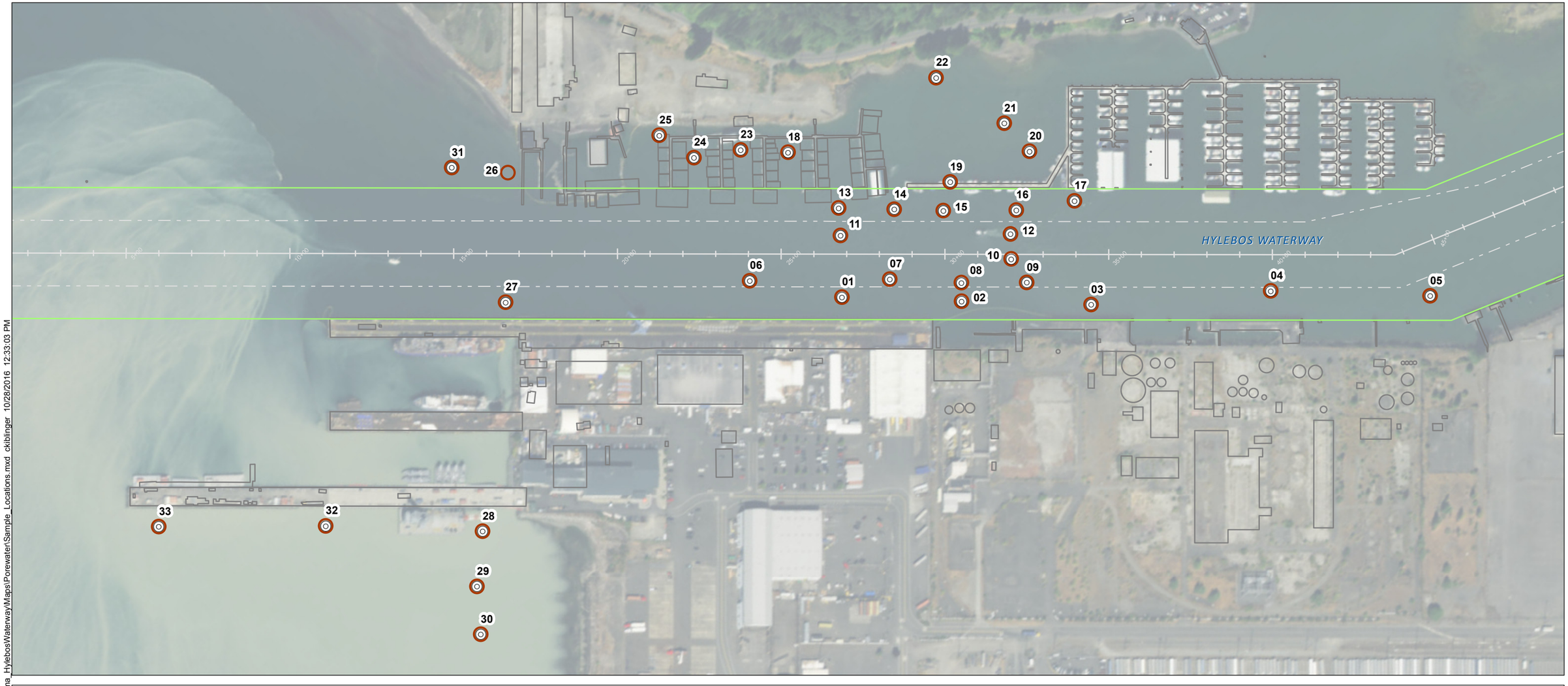

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Figure 7
Sample Locations
Occidental Chemical Tacoma Groundwater Site

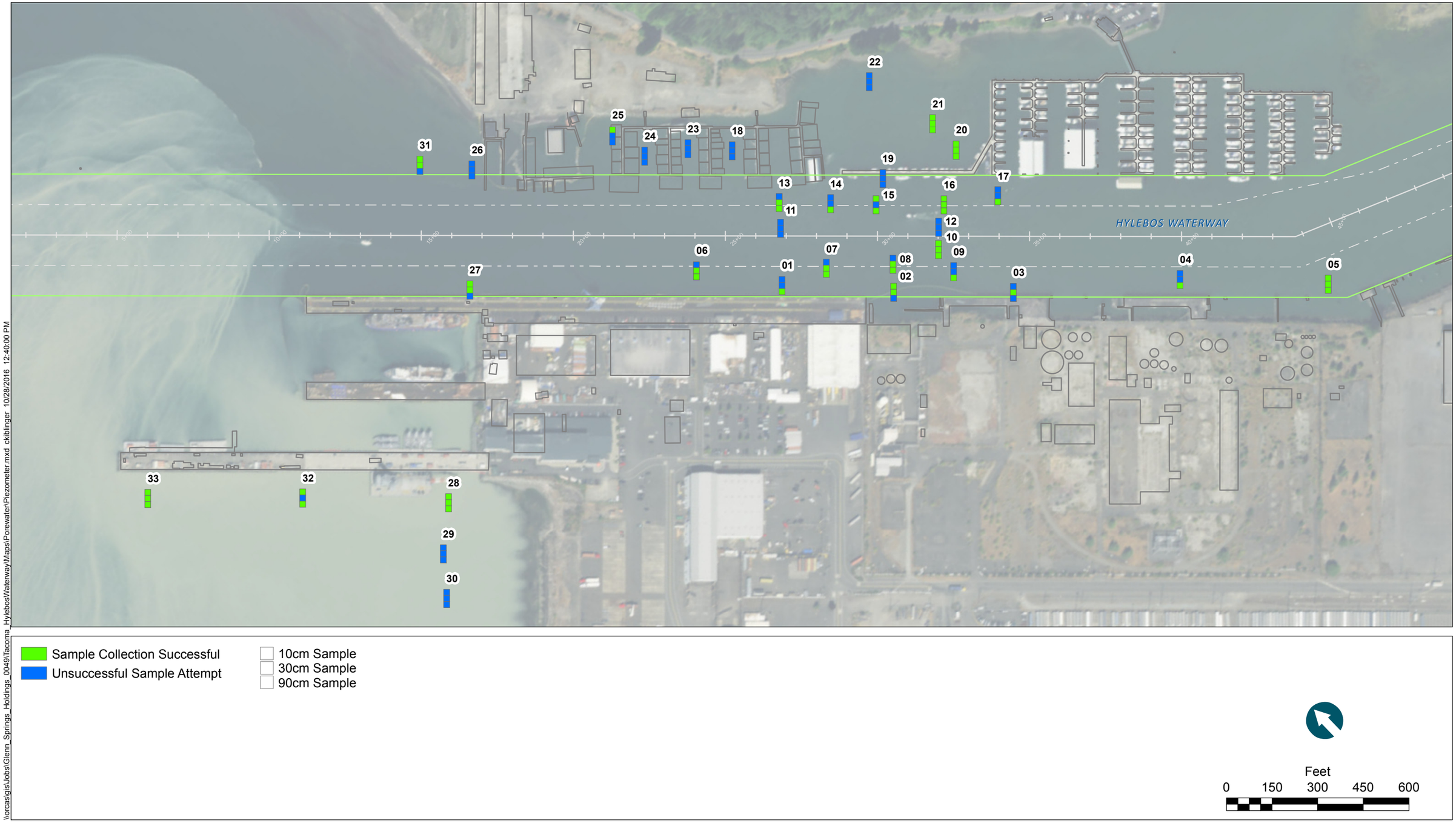

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Figure 8
Piezometer Location Summary
Occidental Chemical Tacoma Groundwater Site

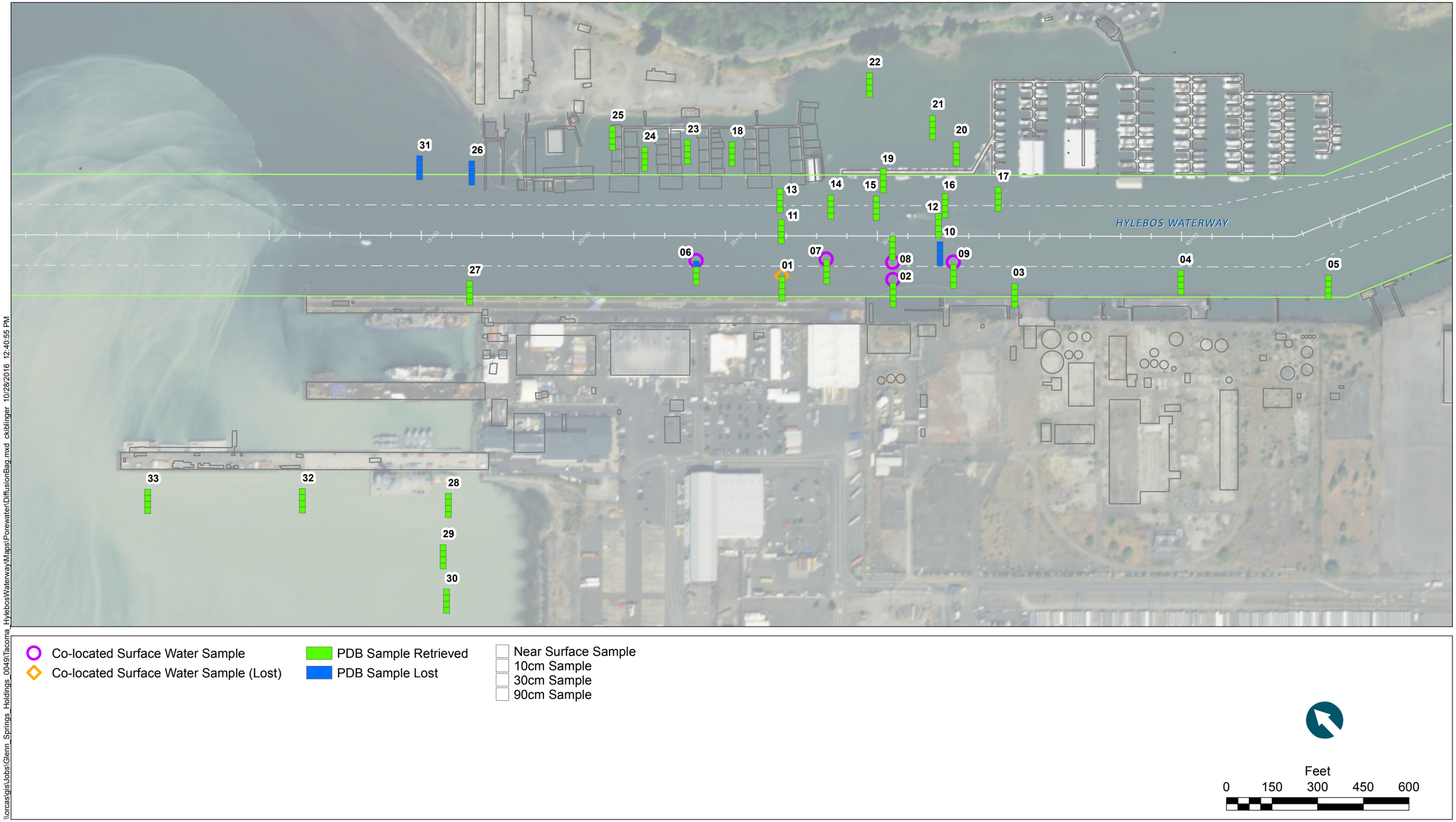

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Figure 9
PDB Location Summary
Occidental Chemical Tacoma Groundwater Site

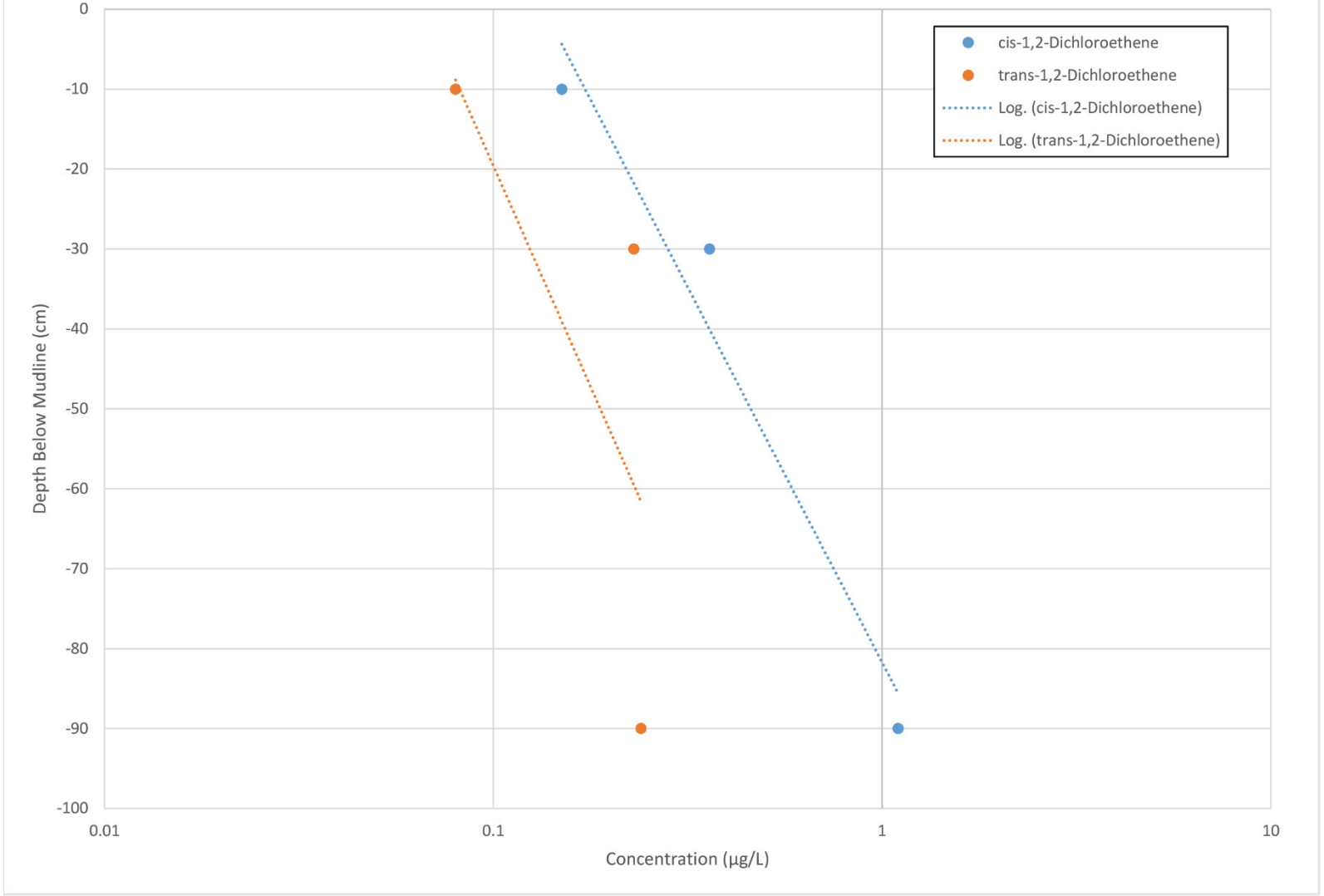

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Figure 10
Station 10 Piezometer Depth Profile
Occidental Chemical Tacoma Groundwater Site

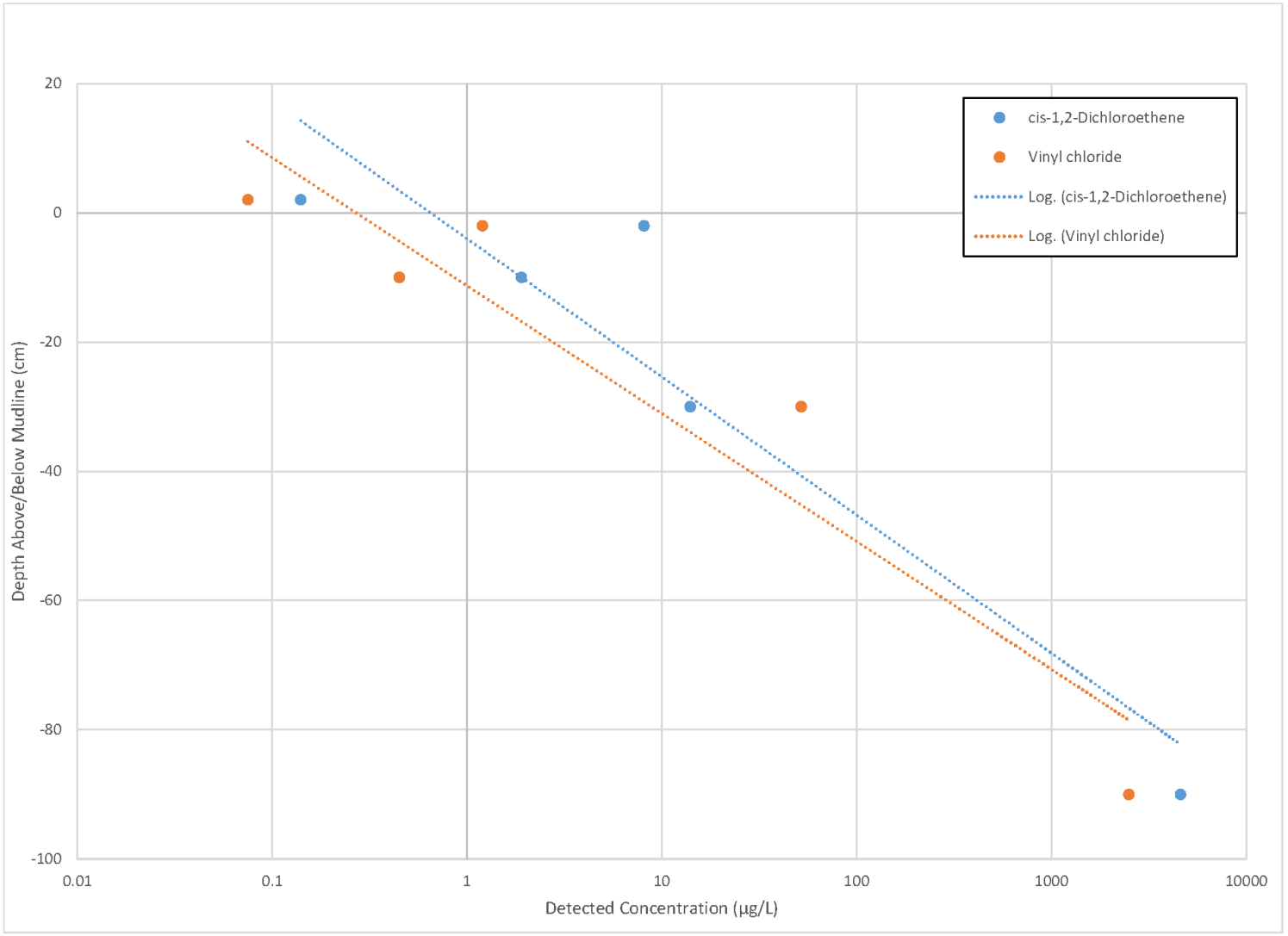

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Figure 11
Station 2 PDB Depth Profile
Occidental Chemical Tacoma Groundwater Site

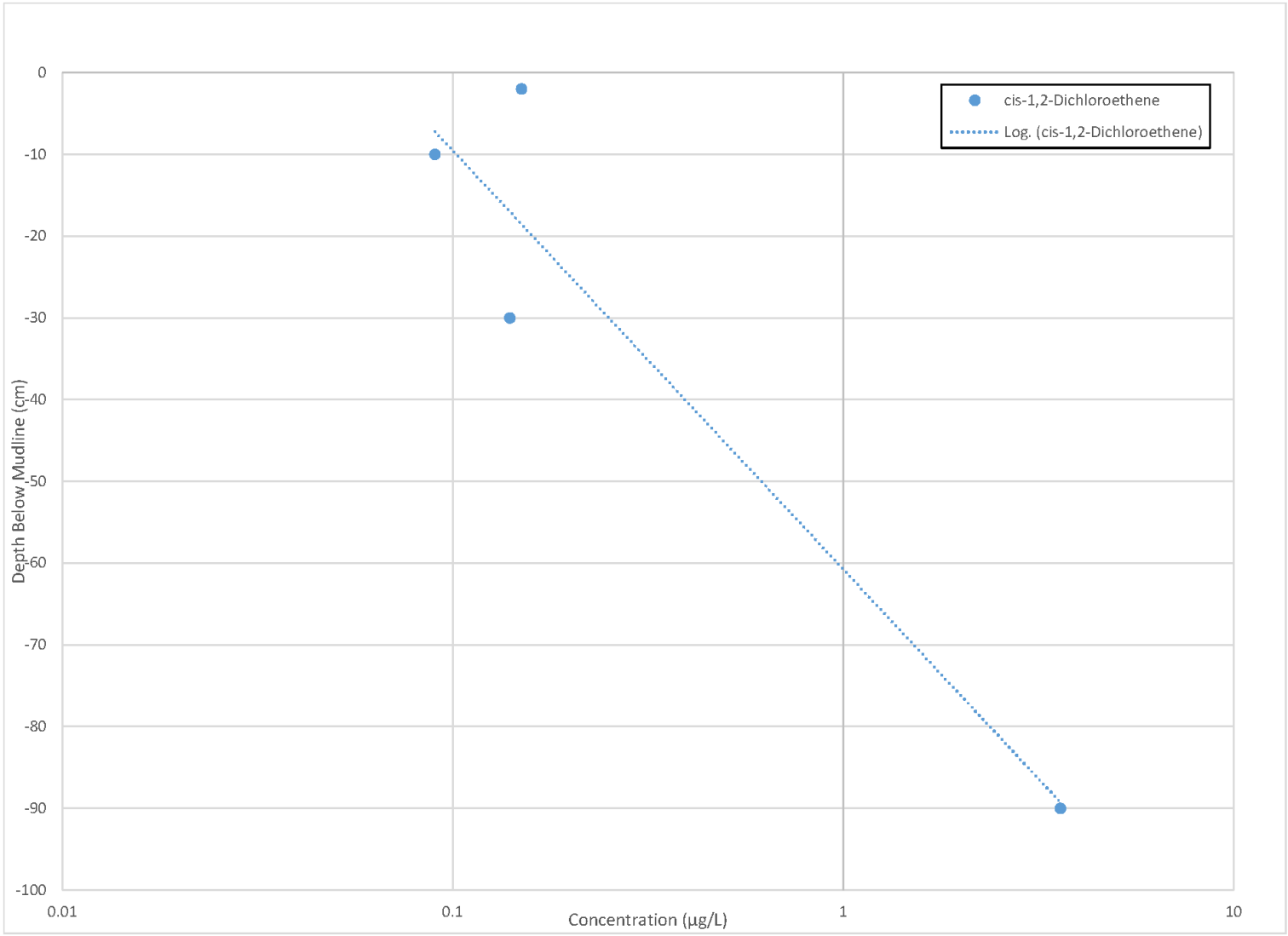

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Figure 12
Station 3 PDB Depth Profile
Occidental Chemical Tacoma Groundwater Site

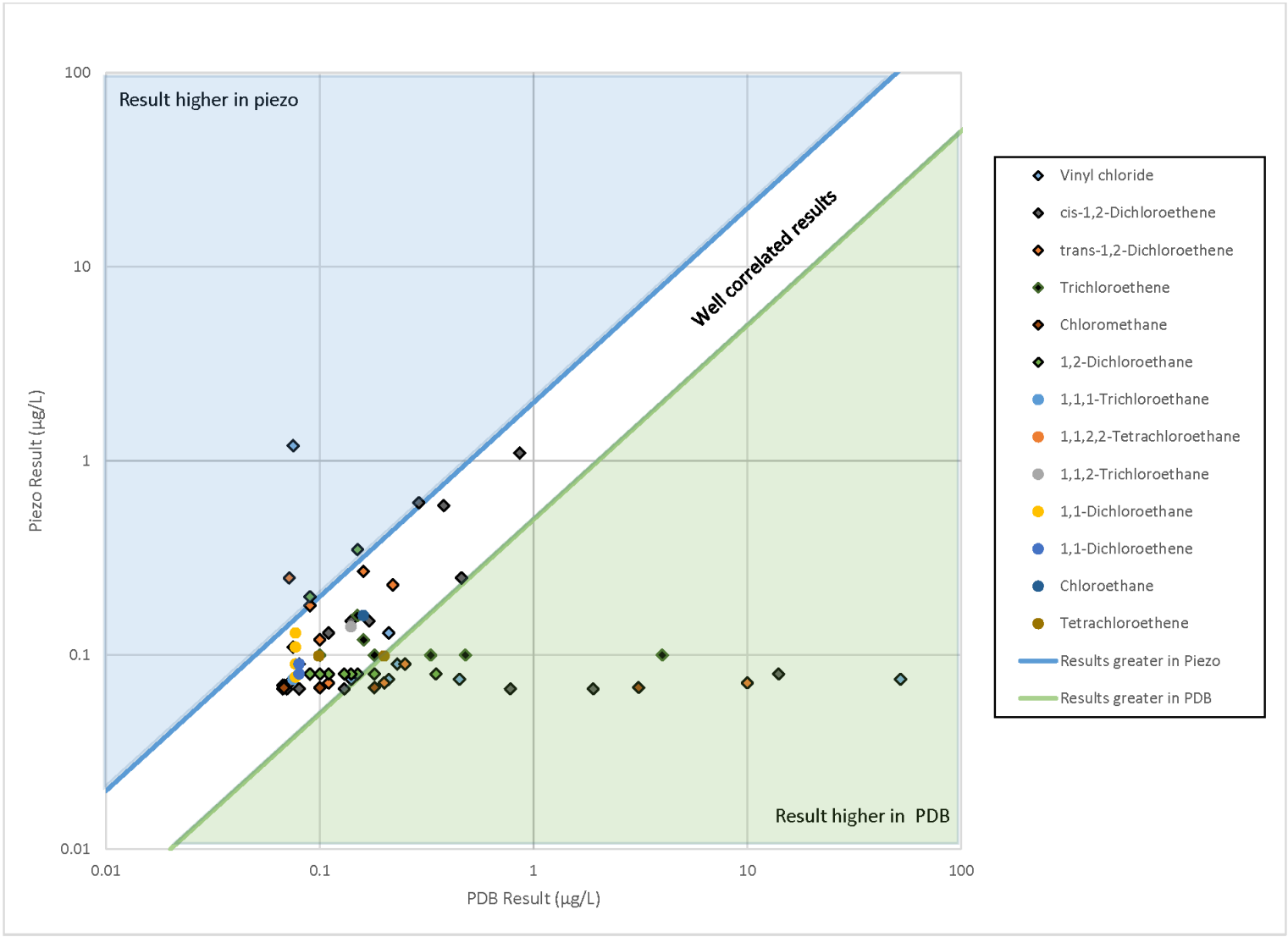

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Figure 13
PDB and Piezometer Paired Result Comparison
Occidental Chemical Tacoma Groundwater Site

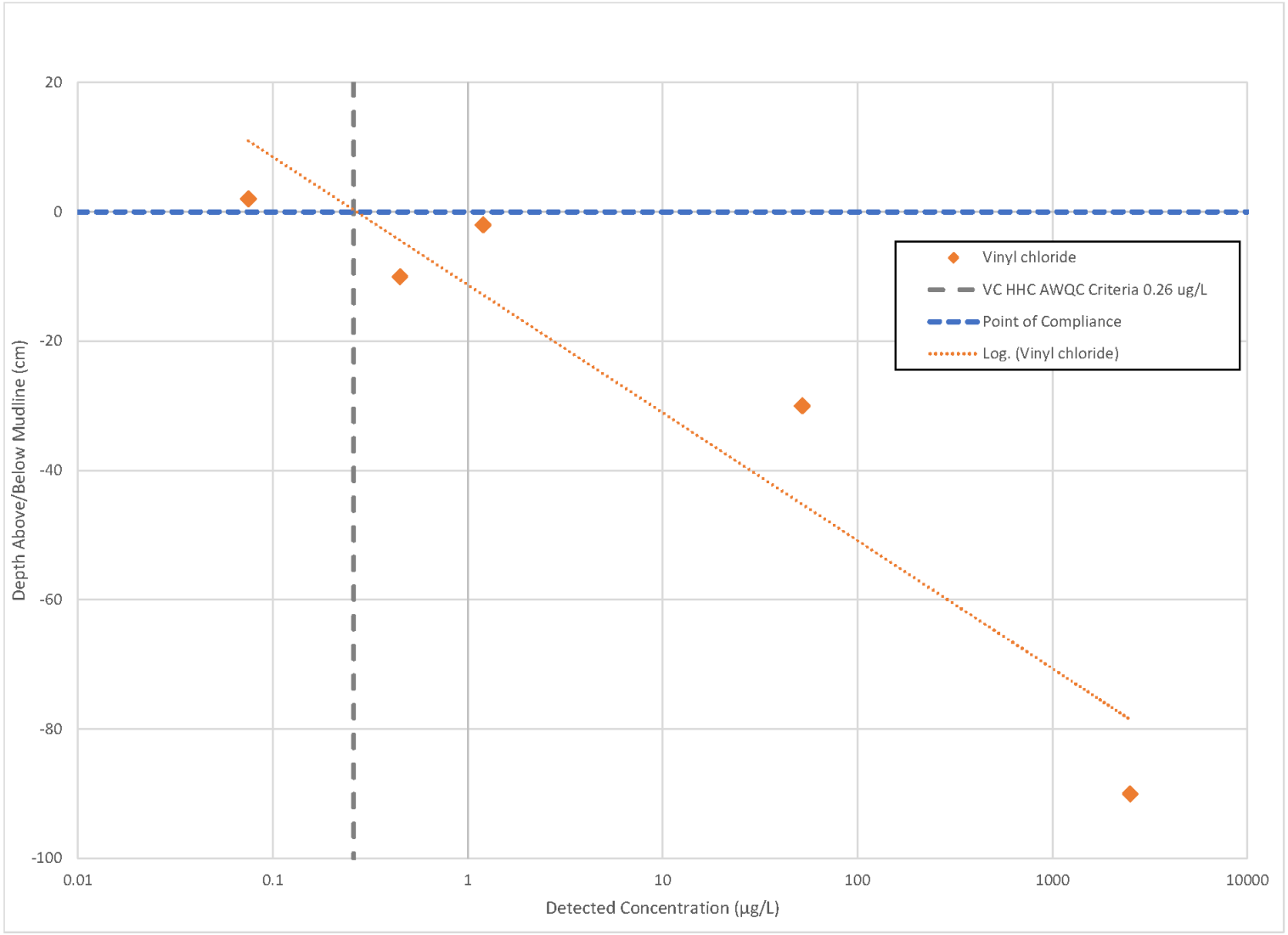

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Figure 14
Station 2 Vinyl Chloride Depth Profile
Occidental Chemical Tacoma Groundwater Site

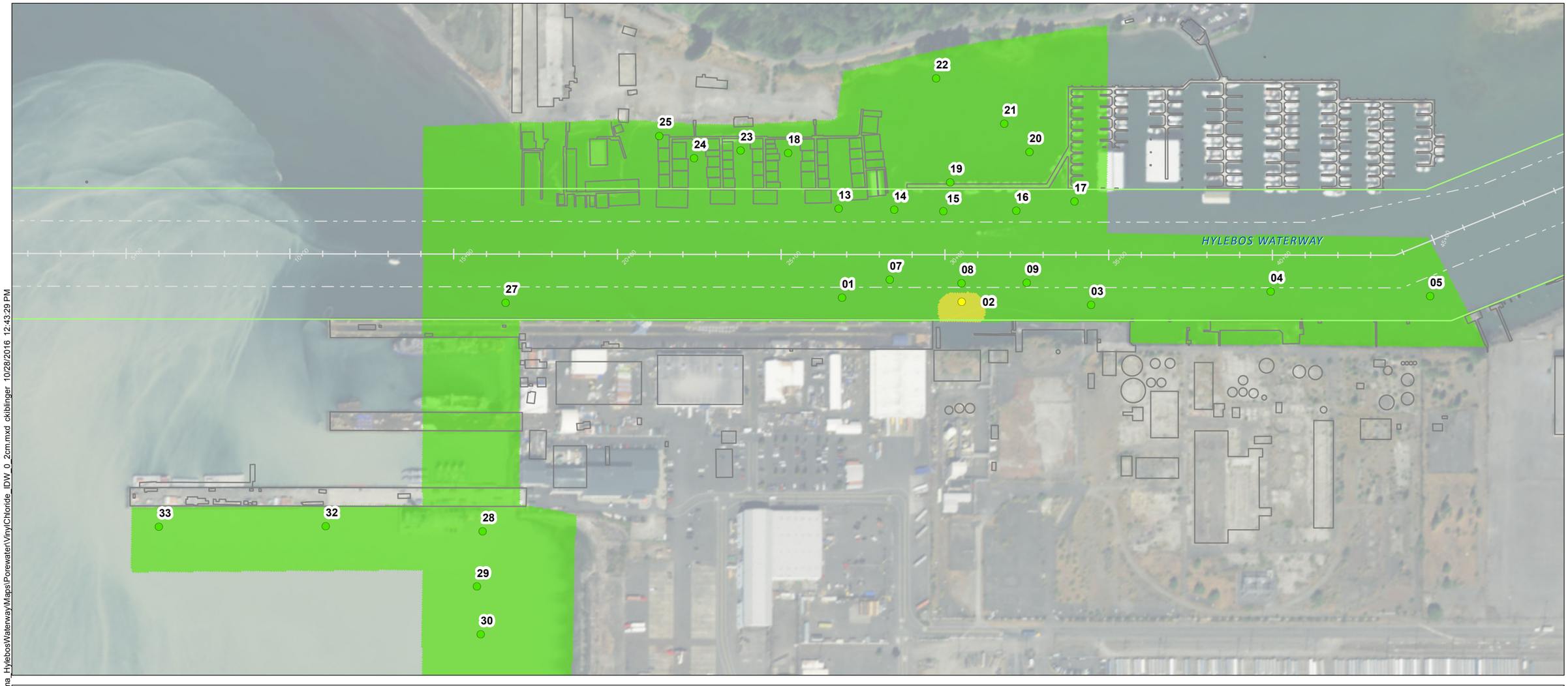

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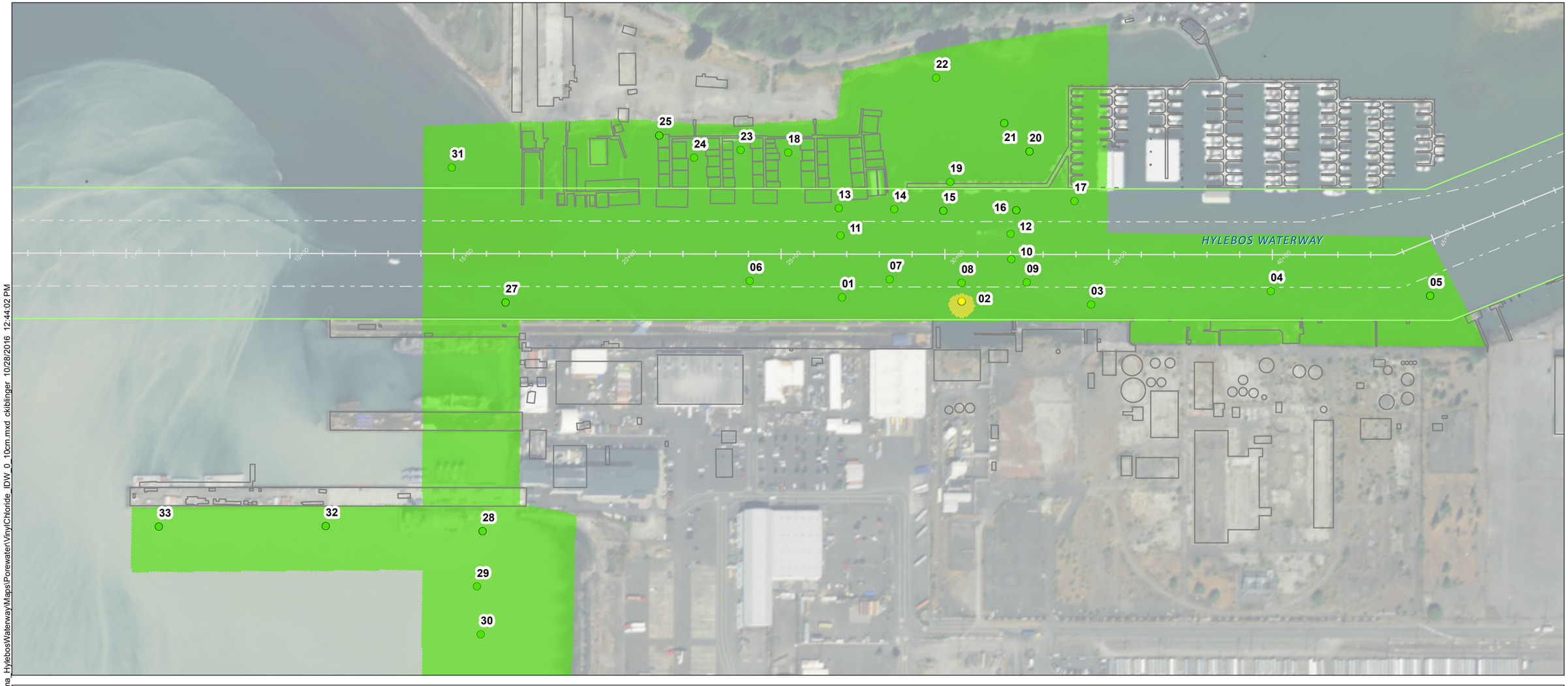
Figure 15
0- to 2-cm Vinyl Chloride Interpolation
Occidental Chemical Tacoma Groundwater Site



Vinyl Chloride (µg/L, 0 - 10 cm)

- 0.075 - 0.26
- 0.27 - 0.45

NOTE:
The piezometer or PDB maximum result at any location was used in the interpolation.

Feet
0 150 300 450 600

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ANCHOR QEA

Figure 16
0- to 10-cm Vinyl Chloride Interpolation
Occidental Chemical Tacoma Groundwater Site

APPENDIX A
SEDIMENT RESULTS

Appendix A
Sediment Results

				Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
				Location ID	OXY-SS01	OXY-SS02	OXY-SS03	OXY-SS04	OXY-SS05	OXY-SS06	OXY-SS07	OXY-SS08	OXY-SS09
				Sample ID	OXY-SS01-160803	OXY-SS02-160803	OXY-SS03-160803	OXY-SS04-160809	OXY-SS05-160809	OXY-SS06-160805	OXY-SS07-160805	OXY-SS08-160808	OXY-SS09-160808
				Sample Date	8/3/2016	8/3/2016	8/3/2016	8/9/2016	8/9/2016	8/5/2016	8/5/2016	8/8/2016	8/8/2016
				Depth	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm
				Sample Type	N	N	N	N	N	N	N	N	N
				Matrix	SE	SE	SE	SE	SE	SE	SE	SE	SE
				X	1167310.00	1167564.29	1167841.73	1168265.27	1168604.74	1167142.20	1167453.24	1167603.33	1167747.19
				Y	716394.00	716131.24	715849.09	715498.34	715149.20	716625.36	716331.97	716172.55	716034.36
	Screening Level[a]	SMS SCO[b]	SMS CSL[b]										
Conventional Parameters (pct)													
Total organic carbon (%)	--	--	--	**1.37**	**1.34**	**1.28**	**1.29**	**1.31**	**0.89**	**1.09**	**1.12**	**1.14**
Total solids (%)	--	--	--	**57.8**	**55.9**	**58**	**59**	**58.9**	**66**	**62**	**60**	**59.8**
pH (SU)	--	--	--	**7.48**	**7.51**	**7.62**	**7.41**	**7.36**	**7.48**	**7.4**	**7.42**	**7.39**
Grain Size (pct)													
Gravel	--	--	--	**0.26**	0 U	**0.31**	**0.05**	0 U	**0.22**	**0.19**	0 U	**0.01**
Sand, very coarse	--	--	--	**0.17**	**0.06**	**0.06**	**0.25**	**0.01**	**0.4**	**0.38**	**0.06**	**0.11**
Sand, coarse	--	--	--	**0.44**	**0.37**	**0.58**	**0.34**	**0.43**	**2.43**	**1.43**	**0.83**	**1.18**
Sand, medium	--	--	--	**2.48**	**2.84**	**3.42**	**1.99**	**4.37**	**15.07**	**7.76**	**6.18**	**8.8**
Sand, fine	--	--	--	**7.54**	**9.79**	**12.19**	**10.77**	**16.42**	**20.82**	**19.27**	**16.28**	**16.59**
Sand, very fine	--	--	--	**8.05**	**12.95**	**11.73**	**14.68**	**9.46**	**13.67**	**17.04**	**16.34**	**13.07**
Silt	--	--	--	**52.57**	**50.16**	**46.94**	**48.82**	**44.12**	**32.2**	**37.04**	**42.99**	**42.77**
Clay	--	--	--	**26.66**	**22.34**	**21.88**	**21.79**	**23.09**	**14.52**	**15.85**	**19.18**	**19.65**
Metals (mg/kg)													
Arsenic	57	57	93	**9.72**	**8.26**	**8.15**	**7.6**	**7.8**	**5.6**	**5.81**	**7.12**	**6.92**
Copper	390	390	390	**56.1**	**45.7**	**48.3**	**43.1**	**44.5**	**33.5**	**30.8**	**36.1**	**39.9**
Nickel	140			**15.7**	**13.7**	**14.6**	**13.1**	**12.9**	**11.5**	**10**	**11.4**	**12.4**
Zinc	410	410	960	**77.6**	**56.6**	**59.7**	**53.1**	**53.6**	**45.8**	**38.4**	**45.2**	**50.5**
Volatile Organics (µg/kg)													
1,1,1-Trichloroethane	--	--	--	0.19 U	0.195 U	0.188 U	0.19 U	0.19 U	0.17 U	0.18 U	0.19 U	0.19 U
1,1,2,2-Tetrachloroethane	--	--	--	0.224 U	0.23 U	0.222 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U	0.22 U
1,1,2-Trichloroethane	--	--	--	0.258 U	0.266 U	0.256 U	0.26 U	0.25 U	0.23 U	0.25 U	0.25 U	0.25 U
1,1-Dichloroethane	--	--	--	0.207 U	0.213 U	0.205 U	0.21 U	0.2 U	0.18 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethene	--	--	--	0.43 U	0.442 U	0.426 U	0.43 U	0.42 U	0.38 U	0.41 U	0.42 U	0.42 U
1,2-Dichloroethane	--	--	--	0.121 U	0.124 U	0.12 U	0.12 U	0.12 U	0.11 U	0.12 U	0.12 U	0.12 U
1,2-Dichloroethene, cis-	--	--	--	0.207 U	0.213 U	0.205 U	0.21 U	0.2 U	0.18 U	0.2 U	**0.4 J**	0.2 U
1,2-Dichloroethene, trans-	--	--	--	0.207 U	0.213 U	0.205 U	0.21 U	0.2 U	0.18 U	0.2 U	0.2 U	0.2 U
Chloroethane	--	--	--	1.28 U	1.31 U	1.27 U	1.3 U	1.3 U	1.2 U	1.2 U	1.3 U	1.3 U
Chloromethane	--	--	--	0.31 U	0.319 U	0.307 U	0.31 U	0.3 U	0.27 U	0.3 U	0.3 U	0.3 U
Tetrachloroethene (PCE)	57	--	--	0.276 U	0.283 U	0.273 U	0.27 U	0.27 U	0.24 U	0.26 U	0.27 U	0.27 U
Trichloroethene (TCE)	--	--	--	0.258 U	0.266 U	0.256 U	0.26 U	0.25 U	0.23 U	0.25 U	0.25 U	0.25 U
Vinyl chloride	--	--	--	0.31 U	0.319 U	0.307 U	0.31 U	0.3 U	0.27 U	0.3 U	0.3 U	0.3 U

Appendix A
Sediment Results

				Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
				Location ID	OXY-SS10	OXY-SS11	OXY-SS12	OXY-SS13	OXY-SS14	OXY-SS15	OXY-SS15	OXY-SS16	OXY-SS17
				Sample ID	OXY-SS10-160803	OXY-SS11-160804	OXY-SS12-160804	OXY-SS13-160804	OXY-SS14-160804	OXY-SS115-160804	OXY-SS15-160804	OXY-SS16-160804	OXY-SS17-160803
				Sample Date	8/3/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/3/2016
				Depth	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm
				Sample Type	N	N	N	N	N	FD	N	N	N
				Matrix	SE	SE	SE	SE	SE	SE	SE	SE	SE
				X	1167763.00	1167437.55	1167814.00	1167491.77	1167611.00	1167716.00	1167716.00	1167877.40	1168025.00
				Y	716119.00	716532.23	716175.00	716596.59	716476.00	716369.00	716369.00	716215.34	716112.00
	Screening Level[a]	SMS SCO[b]	SMS CSL[b]										
Conventional Parameters (pct)													
Total organic carbon (%)	--	--	--	**0.428**	**1.05**	**0.841**	**1.71**	**1.61**	**1.33**	**1.33**	**1.26**	**1.65**
Total solids (%)	--	--	--	**77.4**	**64.4**	**66.9**	**55**	**58.1**	**58.3**	**58.1**	**59.7**	**55**
pH (SU)	--	--	--	**7.76**	**7.7**	**7.72**	**7.69**	**7.67**	**7.53**	**7.56**	**7.5**	**7.48**
Grain Size (pct)													
Gravel	--	--	--	**3.83**	**0.03**	**0.08**	**0.09**	**0.42**	0 U	**0.32**	**0.01**	**0.46**
Sand, very coarse	--	--	--	**0.62**	**0.2**	**0.54**	**0.57**	**0.54**	**0.06**	**0.17**	**0.12**	**0.17**
Sand, coarse	--	--	--	**4.24**	**0.98**	**2.05**	**1.54**	**3.68**	**0.69**	**0.87**	**1.43**	**0.56**
Sand, medium	--	--	--	**27.21**	**9.8**	**15.34**	**5.57**	**12.06**	**7.65**	**7.28**	**10.37**	**4.99**
Sand, fine	--	--	--	**32.35**	**19.62**	**27.02**	**9.53**	**14.6**	**13.3**	**13.29**	**13.45**	**10.87**
Sand, very fine	--	--	--	**12.41**	**15.99**	**13.82**	**10.75**	**11.99**	**10.99**	**10.22**	**9.45**	**9.48**
Silt	--	--	--	**12.36**	**36.55**	**28.43**	**46.26**	**36.99**	**45.18**	**46.88**	**41.76**	**45.49**
Clay	--	--	--	**5.27**	**15.97**	**13.33**	**24.12**	**19.72**	**23.28**	**23.84**	**22.13**	**26.2**
Metals (mg/kg)													
Arsenic	57	57	93	**2.65**	**5.95**	**5.08**	**9.85**	**10.2**	**8.73**	**9.57**	**9.22**	**10.8**
Copper	390	390	390	**15.4**	**35.9**	**29.5**	**49.5**	**48.8**	**45.6**	**47.5**	**45**	**54.8**
Nickel	140			**8.37**	**12**	**10.7**	**14**	**13.8**	**13.3**	**13.6**	**13.3**	**15.1**
Zinc	410	410	960	**23.2**	**45.5**	**38.5**	**62.2**	**61.5**	**56.3**	**59.7**	**54.6**	**68.4**
Volatile Organics (µg/kg)													
1,1,1-Trichloroethane	--	--	--	0.138 U	0.17 U	0.165 U	0.199 U	0.187 U	0.189 U	0.189 U	0.185 U	0.199 U
1,1,2,2-Tetrachloroethane	--	--	--	0.163 U	0.201 U	0.194 U	0.235 U	0.221 U	0.223 U	0.223 U	0.218 U	0.235 U
1,1,2-Trichloroethane	--	--	--	0.188 U	0.232 U	0.224 U	0.271 U	0.255 U	0.257 U	0.257 U	0.252 U	0.272 U
1,1-Dichloroethane	--	--	--	0.15 U	0.186 U	0.18 U	0.217 U	0.204 U	0.206 U	0.206 U	0.201 U	0.217 U
1,1-Dichloroethene	--	--	--	0.313 U	0.387 U	0.373 U	0.451 U	0.425 U	0.429 U	0.428 U	0.419 U	0.452 U
1,2-Dichloroethane	--	--	--	0.0875 U	0.109 U	0.105 U	0.127 U	0.119 U	0.12 U	0.12 U	0.118 U	0.127 U
1,2-Dichloroethene, cis-	--	--	--	0.15 U	0.186 U	0.18 U	0.217 U	0.204 U	0.206 U	0.206 U	0.201 U	0.217 U
1,2-Dichloroethene, trans-	--	--	--	0.15 U	0.186 U	0.18 U	0.217 U	0.204 U	0.206 U	0.206 U	0.201 U	0.217 U
Chloroethane	--	--	--	0.925 U	1.15 U	1.11 U	1.34 U	1.26 U	1.27 U	1.27 U	1.24 U	1.34 U
Chloromethane	--	--	--	0.225 U	0.279 U	0.269 U	0.325 U	0.306 U	0.309 U	0.308 U	0.302 U	0.326 U
Tetrachloroethene (PCE)	57	--	--	0.2 U	0.248 U	0.239 U	0.289 U	0.272 U	0.275 U	0.274 U	0.268 U	0.29 U
Trichloroethene (TCE)	--	--	--	0.188 U	0.232 U	0.224 U	0.271 U	0.255 U	0.257 U	0.257 U	0.252 U	0.272 U
Vinyl chloride	--	--	--	0.225 U	0.279 U	0.269 U	0.325 U	0.306 U	0.309 U	0.308 U	0.302 U	0.326 U

Appendix A
Sediment Results

				Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
				Location ID	OXY-SS18	OXY-SS19	OXY-SS20	OXY-SS21	OXY-SS22	OXY-SS23	OXY-SS24	OXY-SS25	OXY-SS26
				Sample ID	OXY-SS18-160804	OXY-SS19-160804	OXY-SS20-160804	OXY-SS21-160808	OXY-SS22-160808	OXY-SS23-160805	OXY-SS24-160805	OXY-SS25-160809	OXY-SS26-160805
				Sample Date	8/4/2016	8/4/2016	8/4/2016	8/8/2016	8/8/2016	8/5/2016	8/5/2016	8/9/2016	8/5/2016
				Depth	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm
				Sample Type	N	N	N	N	N	N	N	N	N
				Matrix	SE	SE	SE	SE	SE	SE	SE	SE	SE
				X	1167498.88	1167792.088	1168031.230	1168035.616	1167982.00	1167399.79	1167280.64	1167252.25	1166840.433
				Y	716826.35	716417.089	716316.409	716431.454	716676.00	716932.32	717014.04	717136.95	717375.568
	Screening Level[a]	SMS SCO[b]	SMS CSL[b]										
Conventional Parameters (pct)													
Total organic carbon (%)	--	--	--	**2.11**	**0.698**	**1.04**	**0.665**	**0.977**	**2.28**	**2.12**	**2.28**	**0.976**
Total solids (%)	--	--	--	**43.9**	**67.4**	**70**	**64.4**	**67.7**	**43.8**	**43.7**	**41.9**	**67.6**
pH (SU)	--	--	--	**7.68**	**7.76**	**7.69**	**7.09**	**7.45**	**7.27**	**7.36**	**7.41**	**7.44**
Grain Size (pct)													
Gravel	--	--	--	**0.39**	0 U	**1**	**0.66**	**0.42**	**0.03**	**0.74**	**1.42**	**0.01**
Sand, very coarse	--	--	--	**0.64**	**0.67**	**7.93**	**3.59**	**0.48**	**0.38**	**1.29**	**1.71**	**1.17**
Sand, coarse	--	--	--	**1.22**	**9.86**	**30.36**	**26.11**	**2.94**	**0.87**	**1.4**	**1.43**	**8.03**
Sand, medium	--	--	--	**2.31**	**35.4**	**32.86**	**41.22**	**11.24**	**1.59**	**1.7**	**1.78**	**18.91**
Sand, fine	--	--	--	**2.72**	**19.64**	**12.06**	**19.59**	**21.55**	**2.17**	**2.79**	**3.66**	**24.56**
Sand, very fine	--	--	--	**5.61**	**7.81**	**3.31**	**5.08**	**27.72**	**6.87**	**8.69**	**7.47**	**22.37**
Silt	--	--	--	**41.02**	**13.45**	**5.09**	**3.99**	**29.31**	**43.95**	**43.01**	**40.66**	**14.17**
Clay	--	--	--	**44.74**	**13.62**	**5.25**	**4.59**	**5.5**	**46.71**	**41.21**	**41.7**	**8.37**
Metals (mg/kg)													
Arsenic	57	57	93	**11.7**	**6.64**	**8.48**	**7.43**	**6.56**	**11**	**10.5**	**12**	**11**
Copper	390	390	390	**71.6**	**31.3**	**21.2**	**17.4**	**28.2**	**70.1**	**64.7**	**63.9**	**23.3**
Nickel	140			**16.4**	**10.5**	**9.95**	**7.1**	**9.74**	**15.9**	**14.8**	**15.3**	**9.3**
Zinc	410	410	960	**105**	**48**	**37.9**	**28.7**	**48.3**	**98.3**	**122**	**105**	**41.5**
Volatile Organics (µg/kg)													
1,1,1-Trichloroethane	--	--	--	0.249 U	0.162 U	0.157 U	0.17 U	0.17 U	0.25 U	0.25 U	0.27 U	0.16 U
1,1,2,2-Tetrachloroethane	--	--	--	0.294 U	0.192 U	0.185 U	0.2 U	0.2 U	0.3 U	0.3 U	0.31 U	0.19 U
1,1,2-Trichloroethane	--	--	--	0.34 U	0.221 U	0.214 U	0.23 U	0.22 U	0.34 U	0.34 U	0.36 U	0.22 U
1,1-Dichloroethane	--	--	--	0.272 U	0.177 U	0.171 U	0.19 U	0.18 U	0.28 U	0.28 U	0.29 U	0.18 U
1,1-Dichloroethene	--	--	--	0.566 U	0.368 U	0.356 U	0.39 U	0.37 U	0.57 U	0.57 U	0.6 U	0.37 U
1,2-Dichloroethane	--	--	--	0.159 U	0.104 U	0.0995 U	0.11 U	0.11 U	0.16 U	0.16 U	0.17 U	0.11 U
1,2-Dichloroethene, cis-	--	--	--	0.272 U	0.177 U	0.171 U	0.19 U	0.18 U	0.28 U	0.28 U	0.29 U	0.18 U
1,2-Dichloroethene, trans-	--	--	--	0.272 U	0.177 U	0.171 U	0.19 U	0.18 U	0.28 U	0.28 U	0.29 U	0.18 U
Chloroethane	--	--	--	1.68 U	1.09 U	1.06 U	1.2 U	1.1 U	1.7 U	1.7 U	1.8 U	1.1 U
Chloromethane	--	--	--	0.407 U	0.265 U	0.256 U	0.28 U	0.27 U	0.41 U	0.41 U	0.43 U	0.27 U
Tetrachloroethene (PCE)	57	--	--	0.362 U	0.236 U	0.228 U	0.25 U	0.24 U	0.37 U	0.37 U	0.38 U	0.24 U
Trichloroethene (TCE)	--	--	--	0.34 U	0.221 U	0.214 U	**0.38 J**	0.22 U	0.34 U	0.34 U	0.36 U	0.22 U
Vinyl chloride	--	--	--	0.407 U	0.265 U	0.256 U	0.28 U	0.27 U	0.41 U	0.41 U	0.43 U	0.27 U

Appendix A
Sediment Results

			Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
			Location ID	OXY-SS27	OXY-SS28	OXY-SS29	OXY-SS30	OXY-SS30	OXY-SS31	OXY-SS32	OXY-SS33
			Sample ID	OXY-SS27-160805	OXY-SS28-160808	OXY-SS29-160808	OXY-SS130-160808	OXY-SS30-160808	OXY-SS31-160805	OXY-SS32-160808	OXY-SS33-160808
			Sample Date	8/5/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/5/2016	8/8/2016	8/8/2016
			Depth	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm	0 – 10 cm
			Sample Type	N	N	N	FD	N	N	N	N
			Matrix	SE	SE	SE	SE	SE	SE	SE	SE
			X	1166560.78	1166024.51	1165894.980	1165801.87	1165801.87	1166727.84	1165690.99	1165323.23
			Y	717096.20	716642.49	716532.967	716419.92	716419.92	717506.04	716986.76	717339.36
	Screening Level[a]	SMS SCO[b]	SMS CSL[b]								
Conventional Parameters (pct)											
Total organic carbon (%)	--	--	--	**1.41**	**0.756**	**1.93**	**1.89**	**2**	**0.608**	**1.26**	**1.17**
Total solids (%)	--	--	--	**53.9**	**76**	**55.9**	**57.7**	**57.9**	**71.8**	**56.1**	**58.1**
pH (SU)	--	--	--	**7.47**	**7.45**	**7.59**	**7.4**	**7.41**	**7.35**	**7.31**	**7.47**
Grain Size (pct)											
Gravel	--	--	--	0 U	**69.28**	**19.33**	**0.85**	**1.54**	0 U	**2.13**	**1.32**
Sand, very coarse	--	--	--	**0.27**	**3.41**	**7.96**	**0.47**	**0.99**	**0.44**	**1.03**	**1.13**
Sand, coarse	--	--	--	**0.7**	**1.51**	**6.49**	**1.11**	**1.52**	**9.24**	**0.98**	**1.25**
Sand, medium	--	--	--	**3.35**	**0.72**	**10.08**	**5.25**	**6.14**	**33.1**	**2**	**1.85**
Sand, fine	--	--	--	**6.16**	**0.79**	**11.44**	**10.37**	**10.22**	**28.44**	**2.28**	**4.87**
Sand, very fine	--	--	--	**7.96**	**1.65**	**8.39**	**12.09**	**12.54**	**14.19**	**4.76**	**11**
Silt	--	--	--	**50.19**	**17.02**	**23.5**	**51.58**	**47.99**	**9.17**	**59.37**	**55.89**
Clay	--	--	--	**33.03**	**7.37**	**13.24**	**23.18**	**22.45**	**5.12**	**28.06**	**24.44**
Metals (mg/kg)											
Arsenic	57	57	93	**9.15**	**4.52**	**12.9**	**14.5**	**12.5**	**5.01**	**6.88**	**6.16**
Copper	390	390	390	**57.2**	**30.3**	**107**	**112**	**99.8**	**17.1**	**45.4**	**42.1**
Nickel	140			**15.5**	**9.05**	**14.1**	**15.9**	**15.1**	**7.91**	**12.7**	**12.6**
Zinc	410	410	960	**76.6**	**39.6**	**174**	**141**	**121**	**28**	**59.5**	**52.4**
Volatile Organics (µg/kg)											
1,1,1-Trichloroethane	--	--	--	0.21 U	0.15 U	0.2 U	0.19 U	0.19 U	0.16 U	0.2 U	0.19 U
1,1,2,2-Tetrachloroethane	--	--	--	0.24 U	0.17 U	0.24 U	0.23 U	0.23 U	0.18 U	0.23 U	0.23 U
1,1,2-Trichloroethane	--	--	--	0.28 U	0.2 U	0.27 U	0.26 U	0.26 U	0.21 U	0.27 U	0.26 U
1,1-Dichloroethane	--	--	--	0.23 U	0.16 U	0.22 U	0.21 U	0.21 U	0.17 U	0.22 U	0.21 U
1,1-Dichloroethene	--	--	--	0.47 U	0.33 U	0.45 U	0.43 U	0.43 U	0.35 U	0.45 U	0.43 U
1,2-Dichloroethane	--	--	--	0.13 U	0.091 U	0.13 U	0.13 U	0.12 U	0.097 U	0.13 U	0.12 U
1,2-Dichloroethene, cis-	--	--	--	0.23 U	0.16 U	0.22 U	0.21 U	0.21 U	0.17 U	0.22 U	0.21 U
1,2-Dichloroethene, trans-	--	--	--	0.23 U	0.16 U	0.22 U	0.21 U	0.21 U	0.17 U	0.22 U	0.21 U
Chloroethane	--	--	--	1.4 U	0.96 U	1.4 U	1.3 U	1.3 U	1.1 U	1.4 U	1.3 U
Chloromethane	--	--	--	0.34 U	0.24 U	0.33 U	0.31 U	0.31 U	0.25 U	0.32 U	0.31 U
Tetrachloroethene (PCE)	57	--	--	0.3 U	0.21 U	0.29 U	0.28 U	0.28 U	0.23 U	0.29 U	0.28 U
Trichloroethene (TCE)	--	--	--	0.28 U	0.2 U	0.27 U	0.26 U	0.26 U	0.21 U	0.27 U	0.26 U
Vinyl chloride	--	--	--	0.34 U	0.24 U	0.33 U	0.31 U	0.31 U	0.25 U	0.32 U	0.31 U

Appendix A
Sediment Results

Notes:
Bold: detected result
a. From Superfund Record of Decision: Commencement Bay Nearshore/Tideflats, Washington. 1989
b. From Washington State Department of Ecology Sediment Cleanup Users Manual II. Chapter 173-204 WAC. March 2015.
--: Not available
µg/kg: micrograms per kilogram
cm: centimeter
CSL: Cleanup Screening Level
FD: field duplicate
J: estimated value
mg/kg: micrograms per kilogram
N: normal sample
SCO: Sediment Cleanup Objective
SE: sediment
SMS: Sediment Management Standard
SU: standard unit
U: compound analyzed, but not detected above detection limit

APPENDIX B
PIEZOMETER POREWATER RESULTS

Appendix B
Piezometer Porewater Results

		Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
		Location ID	OXY-PDB_PZ_01	OXY-PDB_PZ_02	OXY-PDB_PZ_02	OXY-PDB_PZ_03	OXY-PDB_PZ_04	OXY-PDB_PZ_05	OXY-PDB_PZ_05	OXY-PDB_PZ_05	OXY-PDB_PZ_06
		Sample ID	OXY-PZ01-90-160718	OXY-PZ02-10-160718	OXY-PZ02-30-160718	OXY-PZ03-30-160724	OXY-PZ04-90-160708	OXY-PZ05-10-160708	OXY-PZ05-30-160708	OXY-PZ05-90-160708	OXY-PZ06-30-160720
		Sample Date	7/18/2016	7/18/2016	7/18/2016	7/24/2016	7/8/2016	7/8/2016	7/8/2016	7/8/2016	7/20/2016
		Depth	90 – 90 cm	10 – 10 cm	30 – 30 cm	30 – 30 cm	90 – 90 cm	10 – 10 cm	30 – 30 cm	90 – 90 cm	30 – 30 cm
		Sample Type	N	N	N	N	N	N	N	N	N
		Matrix	WX	WX	WX	WX	WX	WX	WX	WX	WX
		X	1167310	1167564.288	1167564.288	1167841.734	1168265.267	1168604.744	1168604.744	1168604.744	1167142.204
		Y	716394	716131.2393	716131.2393	715849.0903	715498.3384	715149.2034	715149.2034	715149.2034	716625.3578
	Screening Level[a]										
Metals, Dissolved (porewater) (µg/L)											
Arsenic	10	**0.19 J**	**1.21**	**1.68**	**1.32**	**0.2 J**	**1.55**	**0.69**	**0.07 J**	**0.64**
Copper	3.1	**0.144**	**0.419**	**0.306**	**0.087 J**	**0.22**	**0.22**	**0.32**	0.02 U	**0.103 J**
Nickel	8.2	**0.34**	**0.48**	**0.49**	**0.32**	**0.43**	**0.61**	**0.33**	0.03 U	**0.42**
Zinc	81	**0.66**	**0.72**	**1.04**	**0.55**	**1.06**	**1.95**	**0.92**	0.07 U	**0.46 J**
Volatile Organics (porewater)										
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224,000	0.067 U	0.067 U	**0.08 J**	**0.15 J**	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
1,2-Dichloroethene, trans-		0.072 U	0.072 U	0.072 U	**0.12 J**	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	**0.11 J**	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U

Appendix B
Piezometer Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_06	OXY-PDB_PZ_07	OXY-PDB_PZ_07	OXY-PDB_PZ_08	OXY-PDB_PZ_08	OXY-PDB_PZ_09	OXY-PDB_PZ_09	OXY-PDB_PZ_10
	Sample ID	OXY-PZ06-90-160720	OXY-PZ07-30-160720	OXY-PZ07-90-160720	OXY-PZ08-30-160722	OXY-PZ08-90-160722	OXY-PZ09-90-160719	OXY-PZ109-90-160719	OXY-PZ10-10-160719
	Sample Date	7/20/2016	7/20/2016	7/20/2016	7/22/2016	7/22/2016	7/19/2016	7/19/2016	7/19/2016
	Depth	90 – 90 cm	30 – 30 cm	90 – 90 cm	30 – 30 cm	90 – 90 cm	90 – 90 cm	90 – 90 cm	10 – 10 cm
	Sample Type	N	N	N	N	N	N	FD	N
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX
	X	1167142.204	1167453.242	1167453.242	1167603.329	1167603.329	1167747.187	1167747.187	1167763.00
	Y	716625.3578	716331.9748	716331.9748	716172.5547	716172.5547	716034.3583	716034.3583	716119.00
	Screening Level[a]								
Metals, Dissolved (porewater) (µg/L)									
Arsenic	10	**0.1 J**	**1.74**	**0.21 J**	**1.85**	**0.16 J**	**0.15 J**	**0.16 J**	**4.02**
Copper	3.1	**0.107**	**0.247**	**0.138**	**0.274 J**	**0.106 J**	**0.103 J**	**0.135**	**0.231**
Nickel	8.2	0.04 U	**0.32**	**0.54**	**0.28**	**0.25**	**0.38**	**0.38**	**0.65**
Zinc	81	**0.91**	**0.96**	**1.09**	**2.08**	**0.64**	**0.39 J**	**0.69**	**2.64**
Volatile Organics (porewater)									
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	**0.09 J**	0.077 U	**0.13 J**	0.077 U	**0.11 J**	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	**0.09 J**	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	0.08 U	**0.2 J**	0.08 U	**0.35 J**	0.08 U	**0.09 J**	0.08 U
1,2-Dichloroethene, cis-	224,000	0.067 U	**0.13 J**	**0.07 J**	**0.25 J**	**1.1**	**0.59**	**0.61**	**0.15 J**
1,2-Dichloroethene, trans-		0.072 U	0.072 U	**0.18 J**	0.072 U	**0.23 J**	**0.27 J**	**0.25 J**	**0.08 J**
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.16 J**	**0.12 J**	0.1 U
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	**0.13 J**	0.075 U	0.075 U	**0.09 J**	0.075 U

Appendix B
Piezometer Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_10	OXY-PDB_PZ_10	OXY-PDB_PZ_13	OXY-PDB_PZ_13	OXY-PDB_PZ_13	OXY-PDB_PZ_14	OXY-PDB_PZ_15	OXY-PDB_PZ_15
	Sample ID	OXY-PZ10-30-160719	OXY-PZ10-90-160719	OXY-PZ113-90-160705	OXY-PZ13-30-160705	OXY-PZ13-90-160705	OXY-PZ14-90-160705	OXY-PZ15-10-160706	OXY-PZ15-90-160706
	Sample Date	7/19/2016	7/19/2016	7/5/2016	7/5/2016	7/5/2016	7/5/2016	7/6/2016	7/6/2016
	Depth	30 – 30 cm	90 – 90 cm	90 – 90 cm	30 – 30 cm	90 – 90 cm	90 – 90 cm	10 – 10 cm	90 – 90 cm
	Sample Type	N	N	FD	N	N	N	N	N
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX
	X	1167763.00	1167763.00	1167491.767	1167491.767	1167491.767	1167611	1167716	1167716
	Y	716119.00	716119.00	716596.5892	716596.5892	716596.5892	716476	716369	716369
	Screening Level[a]								
Metals, Dissolved (porewater) (µg/L)									
Arsenic	10	**0.23 J**	**0.25 J**	**0.12 J**	**1.82**	**0.12 J**	**0.13 J**	**1.23**	**0.51 J**
Copper	3.1	**0.149**	**0.419**	0.02 U	**0.31**	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	8.2	**0.34**	**0.8**	**0.63**	**0.86**	**0.67**	**0.31**	0.03 U	0.03 U
Zinc	81	**0.61**	**1.32**	**0.81**	**3.46**	**0.79**	**1.64**	0.07 U	0.07 U
Volatile Organics (porewater)									
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	**0.13 J**	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224,000	**0.36 J**	**1.1**	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
1,2-Dichloroethene, trans-		**0.23 J**	**0.24 J**	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	**0.09 J**
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	**0.11 J**	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl chloride	0.26	**0.08 J**	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U

Appendix B
Piezometer Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_16	OXY-PDB_PZ_16	OXY-PDB_PZ_16	OXY-PDB_PZ_17	OXY-PDB_PZ_17	OXY-PDB_PZ_20	OXY-PDB_PZ_20	OXY-PDB_PZ_20
	Sample ID	OXY-PZ16-10-160704	OXY-PZ16-30-160704	OXY-PZ16-90-160704	OXY-PZ17-90-160704	OXY-PZ17-90-160803	OXY-PZ120-90-160801	OXY-PZ20-10-160801	OXY-PZ20-30-160801
	Sample Date	7/4/2016	7/4/2016	7/4/2016	7/4/2016	8/3/2016	8/1/2016	8/1/2016	8/1/2016
	Depth	10 – 10 cm	30 – 30 cm	90 – 90 cm	90 – 90 cm	90 – 90 cm	90 – 90 cm	10 – 10 cm	30 – 30 cm
	Sample Type	N	N	N	N	N	FD	N	N
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX
	X	1167877.404	1167877.404	1167877.404	1168025	1168025	1168031.23	1168031.23	1168031.23
	Y	716215.3419	716215.3419	716215.3419	716112	716112	716316.409	716316.409	716316.409
	Screening Level[a]								
Metals, Dissolved (porewater) (µg/L)									
Arsenic	10	**1.84**	**1.76**	**0.19 J**	**0.08 J**	**0.13 J**	**0.92**	**1.09**	**1.1**
Copper	3.1	**0.27**	**1.01**	**0.18**	0.02 U	**0.235**	**0.236**	**0.237**	**0.268**
Nickel	8.2	**0.56**	**0.48**	**0.37**	**0.36**	**0.14 J**	**0.65**	**1.22**	**0.22**
Zinc	81	**1.45**	**0.93**	0.07 U	**0.82**	**1.39**	**1.57**	**1.53**	**1.54**
Volatile Organics (porewater)									
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	**0.09 J**	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224,000	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
1,2-Dichloroethene, trans-		0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U

Appendix B
Piezometer Porewater Results

		Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
		Location ID	OXY-PDB_PZ_20	OXY-PDB_PZ_21	OXY-PDB_PZ_21	OXY-PDB_PZ_21	OXY-PDB_PZ_25	OXY-PDB_PZ_27	OXY-PDB_PZ_27	OXY-PDB_PZ_28	OXY-PDB_PZ_28
		Sample ID	OXY-PZ20-90-160801	OXY-PZ21-10-160724	OXY-PZ21-30-160724	OXY-PZ21-90-160724	OXY-PZ25-10-160802	OXY-PZ27-10-160717	OXY-PZ27-30-160717	OXY-PZ28-10-160721	OXY-PZ28-30-160721
		Sample Date	8/1/2016	7/24/2016	7/24/2016	7/24/2016	8/2/2016	7/17/2016	7/17/2016	7/21/2016	7/21/2016
		Depth	90 – 90 cm	10 – 10 cm	30 – 30 cm	90 – 90 cm	10 – 10 cm	10 – 10 cm	30 – 30 cm	10 – 10 cm	30 – 30 cm
		Sample Type	N	N	N	N	N	N	N	N	N
		Matrix	WX	WX	WX	WX	WX	WX	WX	WX	WX
		X	1168031.23	1168035.616	1168035.616	1168035.616	1167252.25495353	1166560.77917203	1166560.77917203	1166024.51272058	1166024.51272058
		Y	716316.409	716431.454	716431.454	716431.454	717136.947433293	717096.201547056	717096.201547056	716642.489493385	716642.489493385
	Screening Level[a]										
Metals, Dissolved (porewater) (µg/L)											
Arsenic	10	**0.88**	**1.27**	**0.24 J**	**0.69**	**1**	**1.29**	**2.48**	**1.18**	**1.14**	
Copper	3.1	**0.318**	**0.141 J**	**0.152 J**	**0.268 J**	**0.779**	**0.336**	**0.121**	**0.453**	**0.766**	
Nickel	8.2	**0.61**	**0.25**	**0.42**	**0.35**	**0.54**	**0.9**	**0.66**	**0.68**	**3.12**	
Zinc	81	**1.67**	**0.58**	**0.54**	**2.15**	**3.15**	**1**	**1.04**	**1.06**	**1.89**	
Volatile Organics (porewater)											
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	
1,2-Dichloroethane	120	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	
1,2-Dichloroethene, cis-	224,000	0.067 U	0.067 U	0.067 U	**0.15 J**	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	
1,2-Dichloroethene, trans-		0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	**0.07 J**	0.068 U	0.068 U	0.068 U	
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	**1.2**	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	

Appendix B
Piezometer Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_28	OXY-PDB_PZ_31	OXY-PDB_PZ_31	OXY-PDB_PZ_32	OXY-PDB_PZ_32	OXY-PDB_PZ_33	OXY-PDB_PZ_33	OXY-PDB_PZ_33
	Sample ID	OXY-PZ28-90-160721	OXY-PZ31-10-160723	OXY-PZ31-30-160723	OXY-PZ32-10-160721	OXY-PZ32-90-160721	OXY-PZ33-10-160703	OXY-PZ33-30-160703	OXY-PZ33-90-160703
	Sample Date	7/21/2016	7/23/2016	7/23/2016	7/21/2016	7/21/2016	7/3/2016	7/3/2016	7/3/2016
	Depth	90 – 90 cm	10 – 10 cm	30 – 30 cm	10 – 10 cm	90 – 90 cm	10 – 10 cm	30 – 30 cm	90 – 90 cm
	Sample Type	N	N	N	N	N	N	N	N
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX
	X	1166024.51272058	1166727.84001607	1166727.84001607	1165690.98940043	1165690.98940043	1165323.22759274	1165323.22759274	1165323.22759274
	Y	716642.489493385	717506.0442743	717506.0442743	716986.760528058	716986.760528058	717339.359233424	717339.359233424	717339.359233424
	Screening Level[a]								
Metals, Dissolved (porewater) (µg/L)									
Arsenic	10	**0.73**	**4.15**	**4.6**	**1.23**	**2.03**	**1.11**	**1.03**	**0.81**
Copper	3.1	**0.139**	**0.322 J**	**0.154 J**	**0.389**	**0.296**	**0.39**	**0.36**	**0.26**
Nickel	8.2	**0.77**	**0.34**	**0.64**	**0.48**	**0.84**	**0.64**	**6.54**	**1.24**
Zinc	81	**0.75**	**2.13**	**1.49**	**0.87**	**2.26**	**2.12**	**0.81**	**0.99**
Volatile Organics (porewater)									
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224,000	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
1,2-Dichloroethene, trans-		0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U

Appendix B
Piezometer Porewater Results

Notes:
detected concentration is greater than screening level
Bold: detected result
a. Represents the lowest of the Screening Levels listed in Table 5 of the Data Summary Report.
µg/L: micrograms per liter
cm: centimeter
FD: field duplicate
J: estimated value
N: normal sample
U: compound analyzed, but not detected above detection limit
WX: porewater

APPENDIX C
POLYETHYLENE DIFFUSION BAG POREWATER RESULTS

Appendix C
Polyethylene Diffusion Bag Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_01	OXY-PDB_PZ_01	OXY-PDB_PZ_01	OXY-PDB_PZ_01	OXY-PDB_PZ_02	OXY-PDB_PZ_02	OXY-PDB_PZ_02	OXY-PDB_PZ_02	OXY-PDB_PZ_02
	Sample ID	OXY-PDB01-10-160803	OXY-PDB01-30-160803	OXY-PDB01-90-160803	OXY-PDB01-NS-160803	OXY-PDB02-10-160803	OXY-PDB02-30-160803	OXY-PDB02-90-160803	OXY-PDB02-NS-160803	OXY-SW02-160803
	Sample Date	8/3/2016	8/3/2016	8/3/2016	8/3/2016	8/3/2016	8/3/2016	8/3/2016	8/3/2016	8/3/2016
	Depth	10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm		
	Sample Type	N	N	N	N	N	N	N	N	N
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX	WS
	X	1167310	1167310	1167310	1167310	1167564.288	1167564.288	1167564.288	1167564.288	1167564.288
	Y	716394	716394	716394	716394	716131.2393	716131.2393	716131.2393	716131.2393	716131.2393
	Screening Level[a]									
Volatile Organics (µg/L)										
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.75 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	1.6 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	1.4 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.77 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	**5.5**	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	**0.1 J**	**0.15 J**	0.08 U	0.08 U	**0.18 J**	0.8 U	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224000	0.067 U	**0.08 J**	**0.13 J**	0.067 U	**1.9**	**14**	**4600**	**8.1**	**0.14 J**
1,2-Dichloroethene, trans-		0.072 U	0.072 U	0.072 U	0.072 U	**0.2 J**	**10**	**15**	**0.08 J**	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	1.6 U	0.16 U	0.16 U
Chloromethane		0.068 U	**0.17 J**	**0.18 J**	0.068 U	0.068 U	0.068 U	0.68 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	**0.2 J**	**3.3 J**	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	**0.48 J**	**4**	**11**	**0.46 J**	0.1 U
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	0.075 U	**0.45 J**	**52**	**2500**	**1.2**	0.075 U

Appendix C
Polyethylene Diffusion Bag Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_03	OXY-PDB_PZ_03	OXY-PDB_PZ_03	OXY-PDB_PZ_03	OXY-PDB_PZ_04	OXY-PDB_PZ_04	OXY-PDB_PZ_04	OXY-PDB_PZ_04	OXY-PDB_PZ_05
	Sample ID	OXY-PDB03-10-160803	OXY-PDB03-30-160803	OXY-PDB03-90-160803	OXY-PDB03-NS-160803	OXY-PDB04-10-160809	OXY-PDB04-30-160809	OXY-PDB04-90-160809	OXY-PDB04-NS-160809	OXY-PDB05-10-160809
	Sample Date	8/3/2016	8/3/2016	8/3/2016	8/3/2016	8/9/2016	8/9/2016	8/9/2016	8/9/2016	8/9/2016
	Depth	10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm
	Sample Type	N	N	N	N	N	N	N	N	N
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX	WX
	X	1167841.734	1167841.734	1167841.734	1167841.734	1168265.267	1168265.267	1168265.267	1168265.267	1168604.744
	Y	715849.0903	715849.0903	715849.0903	715849.0903	715498.3384	715498.3384	715498.3384	715498.3384	715149.2034
	Screening Level[a]									
Volatile Organics (µg/L)										
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	**0.4 J**	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	**0.14 J**	**0.11 J**	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224000	**0.09 J**	**0.14 J**	**3.6**	**0.15 J**	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
1,2-Dichloroethene, trans-		0.072 U	**0.1 J**	**2.9**	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	**0.21 J**	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	**9.9**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl chloride	0.26	0.075 U	0.075 U	**2.8**	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U

Appendix C
Polyethylene Diffusion Bag Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_05	OXY-PDB_PZ_05	OXY-PDB_PZ_05	OXY-PDB_PZ_06	OXY-PDB_PZ_06	OXY-PDB_PZ_06	OXY-PDB_PZ_06	OXY-PDB_PZ_06	OXY-PDB_PZ_07
	Sample ID	OXY-PDB05-30-160809	OXY-PDB05-90-160809	OXY-PDB05-NS-160809	OXY-PDB06-10-160805	OXY-PDB06-30-160805	OXY-PDB06-90-160805	OXY-SW06-160805	OXY-SW106-160805	OXY-PDB07-10-160805
	Sample Date	8/9/2016	8/9/2016	8/9/2016	8/5/2016	8/5/2016	8/5/2016	8/5/2016	8/5/2016	8/5/2016
	Depth	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm			10 – 10 cm
	Sample Type	N	N	N	N	N	N	N	FD	N
	Matrix	WX	WX	WX	WX	WX	WX	WS	WS	WX
	X	1168604.744	1168604.744	1168604.744	1167142.204	1167142.204	1167142.204	1167142.204	1167142.204	1167453.242
	Y	715149.2034	715149.2034	715149.2034	716625.3578	716625.3578	716625.3578	716625.3578	716625.3578	716331.9748
	Screening Level[a]									
Volatile Organics (µg/L)										
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	**0.09 J**	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224000	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
1,2-Dichloroethene, trans-		0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U

Appendix C
Polyethylene Diffusion Bag Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_07	OXY-PDB_PZ_07	OXY-PDB_PZ_07	OXY-PDB_PZ_07	OXY-PDB_PZ_08	OXY-PDB_PZ_08	OXY-PDB_PZ_08	OXY-PDB_PZ_08	OXY-PDB_PZ_08
	Sample ID	OXY-PDB07-30-160805	OXY-PDB07-90-160805	OXY-PDB07-NS-160805	OXY-SW07-160805	OXY-PDB08-10-160808	OXY-PDB08-30-160808	OXY-PDB08-90-160808	OXY-PDB08-NS-160808	OXY-SW08-160808
	Sample Date	8/5/2016	8/5/2016	8/5/2016	8/5/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016
	Depth	30 – 30 cm	90 – 90 cm			10 – 10 cm	30 – 30 cm	90 – 90 cm		
	Sample Type	N	N	N	N	N	N	N	N	N
	Matrix	WX	WX	WX	WS	WX	WX	WX	WX	WS
	X	1167453.242	1167453.242	1167453.242	1167453.242	1167603.329	1167603.329	1167603.329	1167603.329	1167603.329
	Y	716331.9748	716331.9748	716331.9748	716331.9748	716172.5547	716172.5547	716172.5547	716172.5547	716172.5547
	Screening Level[a]									
Volatile Organics (µg/L)										
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	**0.09 J**	0.08 U	0.08 U	0.08 U	**0.14 J**	**0.15 J**	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224000	**0.11 J**	0.067 U	**0.07 J**	0.067 U	**0.2 J**	**0.46 J**	**0.86**	**0.19 J**	0.067 U
1,2-Dichloroethene, trans-		0.072 U	**0.09 J**	0.072 U	0.072 U	0.072 U	**0.11 J**	**0.22 J**	0.072 U	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	**0.1 J**	**0.18 J**	**0.33 J**	0.1 U	0.1 U
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	0.075 U	**0.09 J**	**0.21 J**	**0.14 J**	0.075 U	0.075 U

Appendix C
Polyethylene Diffusion Bag Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_09	OXY-PDB_PZ_09	OXY-PDB_PZ_09	OXY-PDB_PZ_09	OXY-PDB_PZ_09	OXY-PDB_PZ_09	OXY-PDB_PZ_09	OXY-PDB_PZ_09	OXY-PDB_PZ_09
	Sample ID	OXY-PDB09-10-160808	OXY-PDB09-30-160808	OXY-PDB09-90-160808	OXY-PDB09-NS-160808	OXY-PDB109-10-160808	OXY-PDB109-30-160808	OXY-PDB109-90-160808	OXY-PDB109-NS-160808	OXY-SW09-160808
	Sample Date	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016
	Depth	10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm		
	Sample Type	N	N	N	N	FD	FD	FD	FD	N
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX	WS
	X	1167747.187	1167747.187	1167747.187	1167747.187	1167747.187	1167747.187	1167747.187	1167747.187	1167747.187
	Y	716034.3583	716034.3583	716034.3583	716034.3583	716034.3583	716034.3583	716034.3583	716034.3583	716034.3583
	Screening Level[a]									
Volatile Organics (µg/L)										
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	**0.09 J**	0.08 U	**0.18 J**	0.08 U	0.08 U	**0.09 J**	0.08 U	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224000	**0.21 J**	**0.28 J**	**0.38 J**	**0.14 J**	**0.16 J**	**0.35 J**	**0.29 J**	**0.07 J**	0.067 U
1,2-Dichloroethene, trans-		0.072 U	0.072 U	**0.16 J**	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	**0.1 J**	**0.15 J**	0.1 U	0.1 U	0.1 U	**0.16 J**	0.1 U	0.1 U
Vinyl chloride	0.26	0.075 U	**0.1 J**	**0.21 J**	0.075 U	0.075 U	**0.18 J**	**0.23 J**	0.075 U	0.075 U

Appendix C
Polyethylene Diffusion Bag Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_11	OXY-PDB_PZ_11	OXY-PDB_PZ_11	OXY-PDB_PZ_11	OXY-PDB_PZ_12	OXY-PDB_PZ_12	OXY-PDB_PZ_12	OXY-PDB_PZ_12	OXY-PDB_PZ_13
	Sample ID	OXY-PDB11-10-160804	OXY-PDB11-30-160804	OXY-PDB11-90-160804	OXY-PDB11-NS-160804	OXY-PDB12-10-160804	OXY-PDB12-30-160804	OXY-PDB12-90-160804	OXY-PDB12-NS-160804	OXY-PDB113-10-160804
	Sample Date	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016
	Depth	10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm
	Sample Type	N	N	N	N	N	N	N	N	FD
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX	WX
	X	1167437.55	1167437.55	1167437.55	1167437.55	1167814.00	1167814.00	1167814.00	1167814.00	1167491.767
	Y	716532.23	716532.23	716532.23	716532.23	716175.00	716175.00	716175.00	716175.00	716596.5892
	Screening Level[a]									
Volatile Organics (µg/L)										
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	0.08 U	0.08 U	0.08 U	**0.08 J**	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224000	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
1,2-Dichloroethene, trans-		0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U

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Polyethylene Diffusion Bag Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_13	OXY-PDB_PZ_13	OXY-PDB_PZ_13	OXY-PDB_PZ_13	OXY-PDB_PZ_13	OXY-PDB_PZ_13	OXY-PDB_PZ_13	OXY-PDB_PZ_14
	Sample ID	OXY-PDB113-30-160804	OXY-PDB113-90-160804	OXY-PDB113-NS-160804	OXY-PDB13-10-160804	OXY-PDB13-30-160804	OXY-PDB13-90-160804	OXY-PDB13-NS-160804	OXY-PDB14-10-160804
	Sample Date	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016
	Depth	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm
	Sample Type	FD	FD	FD	N	N	N	N	N
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX
	X	1167491.767	1167491.767	1167491.767	1167491.767	1167491.767	1167491.767	1167491.767	1167611
	Y	716596.5892	716596.5892	716596.5892	716596.5892	716596.5892	716596.5892	716596.5892	716476
	Screening Level[a]								
Volatile Organics (µg/L)									
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	**0.11 J**	0.08 U	**0.09 J**	0.08 U	**0.09 J**	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224000	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
1,2-Dichloroethene, trans-		0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U

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Polyethylene Diffusion Bag Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_14	OXY-PDB_PZ_14	OXY-PDB_PZ_14	OXY-PDB_PZ_15	OXY-PDB_PZ_15	OXY-PDB_PZ_15	OXY-PDB_PZ_15	OXY-PDB_PZ_16	OXY-PDB_PZ_16
	Sample ID	OXY-PDB14-30-160804	OXY-PDB14-90-160804	OXY-PDB14-NS-160804	OXY-PDB15-10-160804	OXY-PDB15-30-160804	OXY-PDB15-90-160804	OXY-PDB15-NS-160804	OXY-PDB16-10-160804	OXY-PDB16-30-160804
	Sample Date	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016
	Depth	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm
	Sample Type	N	N	N	N	N	N	N	N	N
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX	WX
	X	1167611	1167611	1167611	1167716	1167716	1167716	1167716	1167877.404	1167877.404
	Y	716476	716476	716476	716369	716369	716369	716369	716215.3419	716215.3419
	Screening Level[a]									
Volatile Organics (µg/L)										
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	**0.09 J**
1,2-Dichloroethene, cis-	224000	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	**0.78**	0.067 U	0.067 U	0.067 U
1,2-Dichloroethene, trans-		0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	**0.25 J**	0.072 U	0.072 U	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U

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	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_16	OXY-PDB_PZ_16	OXY-PDB_PZ_17	OXY-PDB_PZ_17	OXY-PDB_PZ_17	OXY-PDB_PZ_17	OXY-PDB_PZ_18	OXY-PDB_PZ_18	OXY-PDB_PZ_18
	Sample ID	OXY-PDB16-90-160804	OXY-PDB16-NS-160804	OXY-PDB17-10-160803	OXY-PDB17-30-160803	OXY-PDB17-90-160803	OXY-PDB17-NS-160803	OXY-PDB18-10-160804	OXY-PDB18-30-160804	OXY-PDB18-90-160804
	Sample Date	8/4/2016	8/4/2016	8/3/2016	8/3/2016	8/3/2016	8/3/2016	8/4/2016	8/4/2016	8/4/2016
	Depth	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm
	Sample Type	N	N	N	N	N	N	N	N	N
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX	WX
	X	1167877.404	1167877.404	1168025	1168025	1168025	1168025	1167498.881	1167498.881	1167498.881
	Y	716215.3419	716215.3419	716112	716112	716112	716112	716826.3514	716826.3514	716826.3514
	Screening Level[a]									
Volatile Organics (µg/L)										
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	0.08 U	0.08 U	0.08 U	**0.35 J**	0.08 U	0.08 U	**0.12 J**	0.08 U
1,2-Dichloroethene, cis-	224000	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	**0.18 J**
1,2-Dichloroethene, trans-		0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	**0.17 J**
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.11 J**
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	**0.11 J**	**0.91**

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	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_18	OXY-PDB_PZ_19	OXY-PDB_PZ_19	OXY-PDB_PZ_19	OXY-PDB_PZ_19	OXY-PDB_PZ_20	OXY-PDB_PZ_20	OXY-PDB_PZ_20	OXY-PDB_PZ_20
	Sample ID	OXY-PDB18-NS-160804	OXY-PDB19-10-160804	OXY-PDB19-30-160804	OXY-PDB19-90-160804	OXY-PDB19-NS-160804	OXY-PDB20-10-160804	OXY-PDB20-30-160804	OXY-PDB20-90-160804	OXY-PDB20-NS-160804
	Sample Date	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016
	Depth		10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm	
	Sample Type	N	N	N	N	N	N	N	N	N
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX	WX
	X	1167498.881	1167792.088	1167792.088	1167792.088	1167792.088	1168031.23	1168031.23	1168031.23	1168031.23
	Y	716826.3514	716417.089	716417.089	716417.089	716417.089	716316.409	716316.409	716316.409	716316.409
	Screening Level[a]									
Volatile Organics (µg/L)										
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	0.08 U	**0.08 J**	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224000	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	**0.08 J**	0.067 U	0.067 U
1,2-Dichloroethene, trans-		0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U

Appendix C
Polyethylene Diffusion Bag Porewater Results

		Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
		Location ID	OXY-PDB_PZ_21	OXY-PDB_PZ_21	OXY-PDB_PZ_21	OXY-PDB_PZ_21	OXY-PDB_PZ_22	OXY-PDB_PZ_22	OXY-PDB_PZ_22	OXY-PDB_PZ_22	OXY-PDB_PZ_23
		Sample ID	OXY-PDB21-10-160808	OXY-PDB21-30-160808	OXY-PDB21-90-160808	OXY-PDB21-NS-160808	OXY-PDB22-10-160808	OXY-PDB22-30-160808	OXY-PDB22-90-160808	OXY-PDB22-NS-160808	OXY-PDB23-10-160805
		Sample Date	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/5/2016
		Depth	10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm
		Sample Type	N	N	N	N	N	N	N	N	N
		Matrix	WX	WX	WX	WX	WX	WX	WX	WX	WX
		X	1168035.616	1168035.616	1168035.616	1168035.616	1167982	1167982	1167982	1167982	1167399.7899712
		Y	716431.454	716431.454	716431.454	716431.454	716676	716676	716676	716676	716932.321212456
	Screening Level[a]										
Volatile Organics (µg/L)											
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	
1,2-Dichloroethane	120	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	
1,2-Dichloroethene, cis-	224000	**0.07 J**	0.067 U	**0.17 J**	0.067 U	**0.07 J**	**0.1 J**	**0.08 J**	0.067 U	0.067 U	
1,2-Dichloroethene, trans-		0.072 U	0.072 U	**0.11 J**	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	
Chloromethane		**0.1 J**	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	**0.22 J**	0.075 U	0.075 U	

Appendix C
Polyethylene Diffusion Bag Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_23	OXY-PDB_PZ_23	OXY-PDB_PZ_23	OXY-PDB_PZ_24	OXY-PDB_PZ_24	OXY-PDB_PZ_24	OXY-PDB_PZ_24	OXY-PDB_PZ_25	OXY-PDB_PZ_25
	Sample ID	OXY-PDB23-30-160805	OXY-PDB23-90-160805	OXY-PDB23-NS-160805	OXY-PDB24-10-160805	OXY-PDB24-30-160805	OXY-PDB24-90-160805	OXY-PDB24-NS-160805	OXY-PDB25-10-160809	OXY-PDB25-30-160809
	Sample Date	8/5/2016	8/5/2016	8/5/2016	8/5/2016	8/5/2016	8/5/2016	8/5/2016	8/9/2016	8/9/2016
	Depth	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm
	Sample Type	N	N	N	N	N	N	N	N	N
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX	WX
	X	1167399.7899712	1167399.7899712	1167399.7899712	1167280.63532658	1167280.63532658	1167280.63532658	1167280.63532658	1167252.25495353	1167252.25495353
	Y	716932.321212456	716932.321212456	716932.321212456	717014.038961202	717014.038961202	717014.038961202	717014.038961202	717136.947433293	717136.947433293
	Screening Level[a]									
Volatile Organics (µg/L)										
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	**0.11 J**	**0.14 J**	0.08 U	0.08 U	0.08 U	**0.12 J**	0.08 U	0.08 U	**0.1 J**
1,2-Dichloroethene, cis-	224000	0.067 U	**0.1 J**	0.067 U	0.067 U	**0.13 J**	**0.33 J**	0.067 U	0.067 U	0.067 U
1,2-Dichloroethene, trans-		0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	**0.21 J**	0.072 U	0.072 U	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	3.1 U	2.3 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.1 J**	0.1 U	0.1 U	0.1 U
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	0.075 U	**0.32 J**	**0.14 J**	0.075 U	0.075 U	0.075 U

Appendix C
Polyethylene Diffusion Bag Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_25	OXY-PDB_PZ_25	OXY-PDB_PZ_27	OXY-PDB_PZ_27	OXY-PDB_PZ_27	OXY-PDB_PZ_27	OXY-PDB_PZ_28	OXY-PDB_PZ_28	OXY-PDB_PZ_28
	Sample ID	OXY-PDB25-90-160809	OXY-PDB25-NS-160809	OXY-PDB27-10-160805	OXY-PDB27-30-160805	OXY-PDB27-90-160805	OXY-PDB27-NS-160805	OXY-PDB28-10-160808	OXY-PDB28-30-160808	OXY-PDB28-90-160808
	Sample Date	8/9/2016	8/9/2016	8/5/2016	8/5/2016	8/5/2016	8/5/2016	8/8/2016	8/8/2016	8/8/2016
	Depth	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm
	Sample Type	N	N	N	N	N	N	N	N	N
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX	WX
	X	1167252.25495353	1167252.25495353	1166560.77917203	1166560.77917203	1166560.77917203	1166560.77917203	1166024.51272058	1166024.51272058	1166024.51272058
	Y	717136.947433293	717136.947433293	717096.201547056	717096.201547056	717096.201547056	717096.201547056	716642.489493385	716642.489493385	716642.489493385
	Screening Level[a]									
Volatile Organics (µg/L)										
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	**0.11 J**	0.08 U	**0.11 J**	**0.1 J**	**0.14 J**	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224000	**0.07 J**	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
1,2-Dichloroethene, trans-		0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl chloride	0.26	**0.14 J**	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U

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Polyethylene Diffusion Bag Porewater Results

	Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
	Location ID	OXY-PDB_PZ_28	OXY-PDB_PZ_29	OXY-PDB_PZ_29	OXY-PDB_PZ_29	OXY-PDB_PZ_29	OXY-PDB_PZ_30	OXY-PDB_PZ_30	OXY-PDB_PZ_30	OXY-PDB_PZ_30
	Sample ID	OXY-PDB28-NS-160808	OXY-PDB29-10-160809	OXY-PDB29-30-160809	OXY-PDB29-90-160809	OXY-PDB29-NS-160809	OXY-PDB30-10-160808	OXY-PDB30-30-160808	OXY-PDB30-90-160808	OXY-PDB30-NS-160808
	Sample Date	8/8/2016	8/9/2016	8/9/2016	8/9/2016	8/9/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016
	Depth		10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm	
	Sample Type	N	N	N	N	N	N	N	N	N
	Matrix	WX	WX	WX	WX	WX	WX	WX	WX	WX
	X	1166024.51272058	1165894.98	1165894.98	1165894.98	1165894.98	1165801.87460074	1165801.87460074	1165801.87460074	1165801.87460074
	Y	716642.489493385	716532.967	716532.967	716532.967	716532.967	716419.915322289	716419.915322289	716419.915322289	716419.915322289
	Screening Level[a]									
Volatile Organics (µg/L)										
1,1,1-Trichloroethane	11	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane		0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224000	0.067 U	0.067 U	0.067 U	**0.17 J**	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
1,2-Dichloroethene, trans-		0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Chloroethane		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	2.1 U	0.068 U	**0.88**
Tetrachloroethene (PCE)	7.1	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl chloride	0.26	0.075 U	0.075 U	0.075 U	**0.61**	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U

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Polyethylene Diffusion Bag Porewater Results

		Task	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC	Hylebos2016_OCC
		Location ID	OXY-PDB_PZ_32	OXY-PDB_PZ_32	OXY-PDB_PZ_32	OXY-PDB_PZ_32	OXY-PDB_PZ_33	OXY-PDB_PZ_33	OXY-PDB_PZ_33	OXY-PDB_PZ_33
		Sample ID	OXY-PDB32-10-160808	OXY-PDB32-30-160808	OXY-PDB32-90-160808	OXY-PDB32-NS-160808	OXY-PDB33-10-160808	OXY-PDB33-30-160808	OXY-PDB33-90-160808	OXY-PDB33-NS-160808
		Sample Date	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016
		Depth	10 – 10 cm	30 – 30 cm	90 – 90 cm		10 – 10 cm	30 – 30 cm	90 – 90 cm	
		Sample Type	N	N	N	N	N	N	N	N
		Matrix	WX	WX	WX	WX	WX	WX	WX	WX
		X	1165690.98940043	1165690.98940043	1165690.98940043	1165690.98940043	1165323.22759274	1165323.22759274	1165323.22759274	1165323.22759274
		Y	716986.760528058	716986.760528058	716986.760528058	716986.760528058	717339.359233424	717339.359233424	717339.359233424	717339.359233424
	Screening Level[a]									
Volatile Organics (µg/L)										
1,1,1-Trichloroethane	11		0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
1,1,2,2-Tetrachloroethane	0.46		0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1,2-Trichloroethane	1.8		0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1-Dichloroethane			0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
1,1-Dichloroethene	3.2		0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloroethane	120		0.08 U	**0.08 J**	0.08 U	0.08 U	0.08 U	**0.13 J**	0.08 U	0.08 U
1,2-Dichloroethene, cis-	224000		0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
1,2-Dichloroethene, trans-			0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
Chloroethane			0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chloromethane			0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
Tetrachloroethene (PCE)	7.1		0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U
Trichloroethene (TCE)	0.86		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl chloride	0.26		0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U

Appendix C
Polyethylene Diffusion Bag Porewater Results

Notes:
detected concentration is greater than screening level
non-detected concentration is above screening level
Bold: detected result
a. Represents the lowest of the Screening Levels listed in Table 5 of the Data Summary Report.
µg/L: micrograms per liter
cm: centimeter
FD: field duplicate
J: estimated value
N: normal sample
PDB: polyethylene diffusion bags
U: compound analyzed, but not detected above detection limit
WS: surface water
WX: porewater

APPENDIX D
FIELD DATA SHEETS
(INCLUDED SEPARATELY)

APPENDIX E
DATA VALIDATION REPORT
(INCLUDED SEPARATELY)

APPENDIX F
LABORATORY REPORTS
(INCLUDED SEPARATELY)