APPENDIX E
DATA VALIDATION REPORT

Memorandum

October 6, 2016

To:	Clay Patmont	Ref. No.:	70203DM
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cc:	Nathan Soccorsy, Delaney Peterson		

Subject: **Analytical Results and Validation of Reports K1607499, K1607628, K1607685, K1608199, K1608309, K1608426, K1608840, K1608908, K1608912, K1608993, K1608997, K1609027, K1609030, K1609111, K1609115, K1609205 and K1609209**
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July – September 2016

1. Introduction

This document details a validation of analytical results for sediment and porewater samples collected in support of the Sediment and Porewater Sampling at the Tacoma Commencement Bay site from July to September 2016. Samples were submitted to ALS Environmental, located in Kelso, Washington. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Tables 3A and 3B.

Full Contract Laboratory Program (CLP) equivalent raw data deliverables were provided by the laboratory. Evaluation of the data was based on information obtained from the finished data sheets, raw data, chain of custody forms, calibration data, blank data, duplicate data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spike (MS) samples. The assessment of analytical and in-house data included checks for: data consistency (by observing comparability of duplicate analyses), adherence to accuracy and precision criteria, and transmittal errors.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

i) Sampling and Quality Assurance Project Plan Occidental Chemical Tacoma Groundwater Site, 120049-04.02 March 2016

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

iii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008

Items ii) and iii) will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times. The laboratory flagged the pH results for holding time exceedances. The holding time criterion for sediment pH is 14 days and the associated sample results would not have been impacted. No qualification of the data was deemed necessary.

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

3. Gas Chromatography/Mass Spectrometer (GC/MS) – Tuning and Mass Calibration (Instrument Performance Check) and Inductively Coupled Plasma/Mass Spectrometer (ICP/MS)

3.1 Organic Analyses

Prior to volatile organic compound (VOC) analysis, GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, methods require the analysis of specific tuning compound bromofluorobenzene (BFB). The resulting spectra must meet the criteria cited in the method before analysis is initiated. Analysis of the tuning compound must then be repeated every 12 hours throughout sample analysis to ensure the continued optimization of the instrument.

The tuning compound was analyzed at the required frequency throughout VOC analysis periods. All tuning criteria were met indicating that proper optimization of the instrumentation was achieved.

3.2 Inorganic Analyses

To ensure adequate mass resolution, identification, and to some degree, sensitivity, the performance of each ICP/MS instrument used for metals analyses is checked prior to calibration and initiating an analysis sequence through the analysis of a tuning solution.

Instrument performance check data were reviewed. The tuning solution was analyzed at the required frequency throughout the analyses. The results of all instrument performance checks were within the method acceptance criteria, indicating that proper optimization of the instrumentation was achieved.

4. Initial Calibration - Organic Analyses

4.1 GC/MS

To quantify VOCs of interest in samples, calibration of the GC/MS over a specific concentration range must be performed. Initially, a five-point calibration curve containing all compounds of interest is analyzed to characterize instrument response for each analyte over a specific concentration range. Linearity of the calibration curve and instrument sensitivity are evaluated against the following criteria:

i) All relative response factors (RRFs) must be greater than or equal to 0.05 (greater than or equal to 0.010 for compounds that exhibit poor response)

ii) The percent relative standard deviation (RSD) values must not exceed 20.0 percent (40.0 percent for compounds that exhibit poor response) or a minimum correlation coefficient (R) and minimum coefficient of determination (R^2) of 0.99 if linear and quadratic equation calibration curves are used The initial calibration data for VOCs were reviewed. All compounds met the above criteria for sensitivity and linearity.

5. Initial Calibration – Inorganic Analyses

Initial calibration of the instruments ensures that they are capable of producing satisfactory quantitative data at the beginning of a series of analyses. For ICP/MS analysis, a calibration blank and at least one standard must be analyzed at each wavelength to establish the analytical curve.

After the analyses of the calibration curves, an initial calibration verification (ICV) standard must be analyzed to verify the analytical accuracy of the calibration curves. All analyte recoveries from the analyses of the ICVs must be within the following control limits:

Analytical Method	Parameter	Control Limits
ICP/AA	Metals	90 - 110%

Upon review of the data, it was determined that the calibration curves and ICVs were analyzed at the proper frequencies and that all of the above-specified criteria were met. The laboratory effectively demonstrated that the instrumentation used for metals analyses were properly calibrated prior to sample analysis.

6. Continuing Calibration - Organic Analyses

6.1 GC/MS

To ensure that instrument calibration for VOC analyses is acceptable throughout the sample analysis period, continuing calibration standards must be analyzed and compared to the initial calibration curve every 12 hours.

The following criteria were employed to evaluate continuing calibration data:

i) All RRF values must be greater than or equal to 0.05 (greater than or equal to 0.010 for compounds that exhibit poor response)

ii) Percent difference (%D) values must not exceed 25.0 percent (40.0 percent for compounds that exhibit poor response)

Calibration standards were analyzed at the required frequency, and the results met the above criteria for instrument sensitivity and stability.

7. Continuing Calibration - Inorganic Analyses

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration verification (CCV) standards are analyzed on a regular basis. Each CCV is deemed acceptable if all analyte recoveries are within the control limits specified above for the ICVs. If some of the CCV analyte recoveries are outside the control limits, samples analyzed before and after the CCV, up until the previous and proceeding CCV analyses, are affected.

For this study, CCVs were analyzed at the proper frequency. All analyte recoveries reported for the CCVs were within the specified limits.

8. Laboratory Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures. Additionally, initial and continuing calibration blanks (ICBs/CCBs) are routinely analyzed after each ICV/CCV for the inorganic parameters.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

8.1 Organic Analyses

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

8.2 Inorganic Analyses

Upon review of the ICBs, CCBs, and method blanks, it was noted that metal concentrations were observed above the method detection limit (MDL). Most investigative samples associated with the low level detections reported either non-detect concentrations or concentrations significantly greater than the associated laboratory blank concentrations for the analytes of interest. These sample results were not impacted by the contamination detected. Associated positive sample results with similar concentrations to the levels reported in the blanks were qualified as non-detect (see Table 4).

9. Surrogate Spike Recoveries

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC) determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against associated control limits. All surrogate recoveries met the laboratory criteria.

10. Internal Standards (IS) Analyses

IS data were evaluated for all VOC and ICP/MS metals sample analyses.

10.1 Organics Analyses

To ensure that changes in the GC/MS sensitivity and response do not affect sample analysis results, IS compounds are added to each sample prior to analysis. All results are then calculated as a ratio of the IS responses.

The sample IS results were evaluated against the following criteria:

i) The retention time of the IS must not vary more than ±30 seconds from the associated calibration standard.

ii) IS area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated calibration standard.

All organic IS recoveries and retention times met the above criteria.

10.2 Inorganic Analyses

IS elements were added to all samples prior to metals analysis by ICP/MS. Overall instrument stability and performance for metals analyses were monitored using the IS intensity data. IS recoveries were assessed using control limits of 60-125 percent.

All inorganic IS recoveries were acceptable, demonstrating adequate analytical performance.

11. Laboratory Control Sample Analyses

LCS and/or laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

11.1 Organic Analyses

The LCS/LCSD contained all compounds of interest. All LCS recoveries and RPDs were within the associated control limits, demonstrating acceptable analytical accuracy and precision.

11.2 Inorganic Analyses

The LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision.

12. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the extraction process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

12.1 Organic Analyses

The MS/MSD samples were spiked with the analytes of interest. All percent recoveries and RPD values were within the associated control limits, demonstrating acceptable analytical accuracy and precision.

12.2 Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits demonstrating acceptable analytical accuracy and precision.

13. Matrix Spike Analyses

To evaluate the effects of sample matrices on the preparation, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS samples.

The MS results were evaluated per the "Guidelines". In accordance with the "Guidelines", MS recoveries for samples with analyte concentrations significantly greater than the spike concentrations could not be assessed.

All MS analyses performed were acceptable, demonstrating acceptable analytical accuracy.

14. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples for metals and total organic carbon (TOC). The duplicate results were evaluated per the "Guidelines".

All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

15. ICP/MS Serial Dilution

The serial dilution determines whether significant physical or chemical interferences exist due to sample matrix. A minimum of 1 per 20 investigative samples or at least 1 per analytical batch must be analyzed at a five-fold dilution. For samples with sufficient analyte concentrations (>100 times the method detection limit), the serial dilution results must agree within 10 percent of the original results.

A serial dilution was performed on each MS/MSD sample. All results met the criteria above with one exception. The associated sample results were qualified as estimated (see Table 5).

16. ICP Interference Check Sample Analysis (ICS)

To verify that the laboratory has established proper inter-element and background correction factors, ICSs are analyzed. These samples contain high concentrations of aluminum, calcium, magnesium, and iron and are analyzed at the beginning and end of each sample analysis period. The ICSs are evaluated against recovery control limits of 80 to 120 percent.

ICS analysis results were evaluated for all samples using the criteria in the "Guidelines". All ICS recoveries and results were acceptable.

17. Field QA/QC Samples

The field QA/QC consisted of 20 trip blank samples, 1 field blank sample, 2 rinse blank samples and 16 field duplicate sample sets.

17.1 Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, 20 trip blanks were submitted to the laboratory for VOC analysis. All results were non-detect for the compounds of interest.

17.2 Field Blank Sample Analysis

To assess field ambient conditions at the site, and cleanliness of sample containers, one field blank was submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

17.3 Rinse Blank Sample Analysis

To assess field decontamination procedures, ambient conditions at the site, and cleanliness of sample containers, two rinse blanks were submitted for analysis, as identified in Table 1. All results were non-detect for the analytes of interest with the exception of a few analytes present at low concentrations. The associated sample results with concentrations similar to the blank were qualified as non-detect due to contamination as evidenced by the blank (see Table 6).

17.4 Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, 16 field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 and 100 percent for water and sediment samples, respectively. If the reported concentration in both the investigative sample and its duplicate are less than five times the reporting limit (RL), the evaluation criteria is one or two times the RL value for water and sediment samples, respectively.

18. Analyte Reporting

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were qualified as estimated (J) in Tables 3A and 3B unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the RL in Tables 3A and 3B.

All sediment results were reported on a dry weight basis.

19. Target Compound Identification

To minimize erroneous compound identification during organic analyses, qualitative criteria including compound retention time and mass spectra were evaluated according to the identification criteria established by the methods. The organic compounds reported adhered to the specified identification criteria.

20. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

							Analysis/Parameters					
Sample Identification	**Location**	**Matrix**	**Initial Sample Depth (ft. bgs.)**	**Final Sample Depth (ft. bgs.)**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**Geotechnical**	**Metals**	**VOCs**	**pH**	**TOC**	**Comments**
OXY-PZ01-90-160718	01	Water	2.95	2.95	07/18/2016	10:52			X			
OXY-PZ01-90-160718	01	Water	2.95	2.95	07/18/2016	10:52		X				
OXY-SS01-160803	01	Sediment	0	0.328	08/03/2016	11:29	X	X	X	X	X	DUP - MS
OXY-PDB01-NS-160803	01	Water	--	--	08/03/2016	11:00			X			
OXY-PDB01-10-160803	01	Water	--	--	08/03/2016	11:05			X			
OXY-PDB01-30-160803	01	Water	--	--	08/03/2016	11:10			X			
OXY-PDB01-90-160803	01	Water	--	--	08/03/2016	11:15			X			
OXY-PZ02-10-160718	02	Water	0.328	0.328	07/18/2016	10:07			X			
OXY-PZ02-10-160718	02	Water	0.328	0.328	07/18/2016	10:07		X				
OXY-PZ02-30-160718	02	Water	0.984	0.984	07/18/2016	10:07			X			
OXY-PZ02-30-160718	02	Water	0.984	0.984	07/18/2016	10:07		X				
OXY-SS02-160803	02	Sediment	0	0.328	08/03/2016	12:57	X	X	X	X	X	
OXY-PDB02-NS-160803	02	Water	--	--	08/03/2016	12:40			X			
OXY-PDB02-10-160803	02	Water	--	--	08/03/2016	12:45			X			
OXY-PDB02-30-160803	02	Water	--	--	08/03/2016	12:50			X			
OXY-PDB02-90-160803	02	Water	--	--	08/03/2016	12:55			X			
OXY-SW02-160803	02	Water	--	--	08/03/2016	13:00			X			
OXY-PZ03-30-160724	03	Water	0.984	0.984	07/24/2016	14:10			X			
OXY-PZ03-30-160724	03	Water	0.984	0.984	07/24/2016	14:10		X				
OXY-SS03-160803	03	Sediment	0	0.328	08/03/2016	13:23	X	X	X	X	X	
OXY-PDB03-NS-160803	03	Water	--	--	08/03/2016	14:00			X			
OXY-PDB03-10-160803	03	Water	--	--	08/03/2016	14:05			X			
OXY-PDB03-30-160803	03	Water	--	--	08/03/2016	14:10			X			
OXY-PDB03-90-160803	03	Water	--	--	08/03/2016	14:15			X			

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							Analysis/Parameters					
Sample Identification	**Location**	**Matrix**	**Initial Sample Depth (ft. bgs.)**	**Final Sample Depth (ft. bgs.)**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**Geotechnical**	**Metals**	**VOCs**	**pH**	**TOC**	**Comments**
OXY-PZ04-90-160708	04	Water	2.95	2.95	07/08/2016	13:40		X	X			
OXY-SS04-160809	04	Sediment	0	0.328	08/09/2016	11:45	X	X	X	X	X	
OXY-PDB04-NS-160809	04	Water	--	--	08/09/2016	12:25			X			
OXY-PDB04-10-160809	04	Water	--	--	08/09/2016	12:30			X			
OXY-PDB04-30-160809	04	Water	--	--	08/09/2016	12:35			X			
OXY-PDB04-90-160809	04	Water	--	--	08/09/2016	12:40			X			
OXY-PZ05-10-160708	05	Water	0.328	0.328	07/08/2016	12:42		X	X			
OXY-PZ05-30-160708	05	Water	0.984	0.984	07/08/2016	12:47		X	X			
OXY-PZ05-90-160708	05	Water	2.95	2.95	07/08/2016	12:58		X	X			
OXY-SS05-160809	05	Sediment	0	0.328	08/09/2016	12:55	X	X	X	X	X	
OXY-PDB05-NS-160809	05	Water	--	--	08/09/2016	13:30			X			
OXY-PDB05-10-160809	05	Water	--	--	08/09/2016	13:35			X			
OXY-PDB05-30-160809	05	Water	--	--	08/09/2016	13:40			X			
OXY-PDB05-90-160809	05	Water	--	--	08/09/2016	13:45			X			
OXY-PZ06-30-160720	06	Water	0.984	0.984	07/20/2016	10:58			X			
OXY-PZ06-30-160720	06	Water	0.984	0.984	07/20/2016	10:58		X				
OXY-PZ06-90-160720	06	Water	2.95	2.95	07/20/2016	10:35			X			
OXY-PZ06-90-160720	06	Water	2.95	2.95	07/20/2016	10:35		X				
OXY-SS06-160805	06	Sediment	0	0.328	08/05/2016	14:08	X	X	X	X	X	DUP - MS/MSD
OXY-SW06-160805	06	Water	--	--	08/05/2016	14:45			X			
OXY-PDB06-10-160805	06	Water	--	--	08/05/2016	14:50			X			
OXY-PDB06-30-160805	06	Water	--	--	08/05/2016	14:55			X			
OXY-PDB06-90-160805	06	Water	--	--	08/05/2016	15:00			X			
OXY-SW106-160805	06	Water	--	--	08/05/2016	15:05			X			FD (OXY-SW06-160805)

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							Analysis/Parameters					
Sample Identification	**Location**	**Matrix**	**Initial Sample Depth (ft. bgs.)**	**Final Sample Depth (ft. bgs.)**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**Geotechnical**	**Metals**	**VOCs**	**pH**	**TOC**	**Comments**
OXY-PZ07-30-160720	07	Water	0.984	0.984	07/20/2016	11:50			X			
OXY-PZ07-30-160720	07	Water	0.984	0.984	07/20/2016	11:50		X				
OXY-PZ07-90-160720	07	Water	2.95	2.95	07/20/2016	12:20			X			
OXY-PZ07-90-160720	07	Water	2.95	2.95	07/20/2016	12:20		X				
OXY-SS07-160805	07	Sediment	0	0.328	08/05/2016	15:02	X	X	X	X	X	
OXY-PDB07-NS-160805	07	Water	--	--	08/05/2016	15:30			X			
OXY-PDB07-10-160805	07	Water	--	--	08/05/2016	15:35			X			
OXY-PDB07-30-160805	07	Water	--	--	08/05/2016	15:40			X			
OXY-PDB07-90-160805	07	Water	--	--	08/05/2016	15:45			X			
OXY-SW07-160805	07	Water	--	--	08/05/2016	15:50			X			MS/MSD
OXY-PZ08-30-160722	08	Water	0.984	0.984	07/22/2016	12:19			X			
OXY-PZ08-30-160722	08	Water	0.984	0.984	07/22/2016	12:19		X				
OXY-PZ08-90-160722	08	Water	2.95	2.95	07/22/2016	11:37			X			
OXY-PZ08-90-160722	08	Water	2.95	2.95	07/22/2016	11:37		X				
OXY-SS08-160808	08	Sediment	0	0.328	08/08/2016	14:30	X	X	X	X	X	
OXY-PDB08-NS-160808	08	Water	--	--	08/08/2016	15:10			X			
OXY-PDB08-10-160808	08	Water	--	--	08/08/2016	15:15			X			
OXY-PDB08-30-160808	08	Water	--	--	08/08/2016	15:20			X			
OXY-PDB08-90-160808	08	Water	--	--	08/08/2016	15:25			X			
OXY-SW08-160808	08	Water	--	--	08/08/2016	15:30			X			MS/MSD
OXY-PZ09-90-160719	09	Water	2.95	2.95	07/19/2016	09:48			X			
OXY-PZ09-90-160719	09	Water	2.95	2.95	07/19/2016	09:48		X				
OXY-PZ109-90-160719	09	Water	2.95	2.95	07/19/2016	09:48			X			FD (OXY-PZ09-90-160719)
OXY-PZ109-90-160719	09	Water	2.95	2.95	07/19/2016	09:48		X				FD (OXY-PZ09-90-160719)

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OXY-SS09-160808	09	Sediment	0	0.328	08/08/2016	15:28	X	X	X	X	X	
OXY-PDB09-NS-160808	09	Water	--	--	08/08/2016	16:15			X			
OXY-PDB09-10-160808	09	Water	--	--	08/08/2016	16:40			X			
OXY-PDB09-30-160808	09	Water	--	--	08/08/2016	16:45			X			
OXY-PDB09-90-160808	09	Water	--	--	08/08/2016	16:50			X			
OXY-SW09-160808	09	Water	--	--	08/08/2016	16:55			X			
OXY-PDB109-NS-160808	09	Water	--	--	08/08/2016	16:20			X			FD (OXY-PDB09-NS-160808)
OXY-PDB109-10-160808	09	Water	--	--	08/08/2016	16:25			X			FD (OXY-PDB09-10-160808)
OXY-PDB109-30-160808	09	Water	--	--	08/08/2016	16:30			X			FD (OXY-PDB09-30-160808)
OXY-PDB109-90-160808	09	Water	--	--	08/08/2016	16:35			X			FD (OXY-PDB09-90-160808)
OXY-PZ10-10-160719	10	Water	0.328	0.328	07/19/2016	10:45			X			
OXY-PZ10-10-160719	10	Water	0.328	0.328	07/19/2016	10:45		X				
OXY-PZ10-30-160719	10	Water	0.984	0.984	07/19/2016	10:15			X			MS/MSD
OXY-PZ10-30-160719	10	Water	0.984	0.984	07/19/2016	10:15		X				
OXY-PZ10-90-160719	10	Water	2.95	2.95	07/19/2016	11:15			X			
OXY-PZ10-90-160719	10	Water	2.95	2.95	07/19/2016	11:15		X				
OXY-SS10-160803	10	Sediment	0	0.328	08/03/2016	14:41	X	X	X	X	X	
OXY-SS11-160804	11	Sediment	0	0.328	08/04/2016	12:48	X	X	X	X	X	DUP - MS/MSD
OXY-PDB11-NS-160804	11	Water	--	--	08/04/2016	13:20			X			
OXY-PDB11-10-160804	11	Water	--	--	08/04/2016	13:25			X			
OXY-PDB11-30-160804	11	Water	--	--	08/04/2016	13:10			X			
OXY-PDB11-90-160804	11	Water	--	--	08/04/2016	13:15			X			
OXY-SS12-160804	12	Sediment	0	0.328	08/04/2016	13:42	X	X	X	X	X	
OXY-PDB12-NS-160804	12	Water	--	--	08/04/2016	14:00			X			

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							Analysis/Parameters					
Sample Identification	**Location**	**Matrix**	**Initial Sample Depth (ft. bgs.)**	**Final Sample Depth (ft. bgs.)**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**Geotechnical**	**Metals**	**VOCs**	**pH**	**TOC**	**Comments**
OXY-PDB12-10-160804	12	Water	--	--	08/04/2016	14:05			X			
OXY-PDB12-30-160804	12	Water	--	--	08/04/2016	14:10			X			
OXY-PDB12-90-160804	12	Water	--	--	08/04/2016	14:15			X			
OXY-PZ13-30-160705	13	Water	0.984	0.984	07/05/2016	10:43		X	X			
OXY-PZ13-90-160705	13	Water	2.95	2.95	07/05/2016	10:40		X	X			
OXY-PZ113-90-160705	13	Water	2.95	2.95	07/05/2016	10:43		X	X			FD (OXY-PZ13-90-160705)
OXY-SS13-160804	13	Sediment	0	0.328	08/04/2016	11:48	X	X	X	X	X	
OXY-PDB13-NS-160804	13	Water	--	--	08/04/2016	12:00			X			
OXY-PDB13-10-160804	13	Water	--	--	08/04/2016	12:05			X			
OXY-PDB13-30-160804	13	Water	--	--	08/04/2016	12:10			X			
OXY-PDB13-90-160804	13	Water	--	--	08/04/2016	12:15			X			
OXY-PDB113-NS-160804	13	Water	--	--	08/04/2016	12:20			X			FD (OXY-PDB13-NS-160804)
OXY-PDB113-10-160804	13	Water	--	--	08/04/2016	12:25			X			FD (OXY-PDB13-10-160804)
OXY-PDB113-30-160804	13	Water	--	--	08/04/2016	12:30			X			FD (OXY-PDB13-30-160804)
OXY-PDB113-90-160804	13	Water	--	--	08/04/2016	12:35			X			FD (OXY-PDB13-90-160804)
OXY-PZ14-90-160705	14	Water	2.95	2.95	07/05/2016	10:45		X	X			MS/MSD
OXY-SS14-160804	14	Sediment	0	0.328	08/04/2016	11:00	X	X	X	X	X	
OXY-PDB14-NS-160804	14	Water	--	--	08/04/2016	11:30			X			
OXY-PDB14-10-160804	14	Water	--	--	08/04/2016	11:35			X			
OXY-PDB14-30-160804	14	Water	--	--	08/04/2016	11:40			X			
OXY-PDB14-90-160804	14	Water	--	--	08/04/2016	11:45			X			
OXY-PZ15-10-160706	15	Water	0.328	0.328	07/06/2016	11:00		X	X			
OXY-PZ15-90-160706	15	Water	2.95	2.95	07/06/2016	11:10		X	X			
OXY-SS15-160804	15	Sediment	0	0.328	08/04/2016	10:16	X	X	X	X	X	

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Sample Collection and Analysis Summary
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Sample Identification	**Location**	**Matrix**	**Initial Sample Depth (ft. bgs.)**	**Final Sample Depth (ft. bgs.)**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**Geotechnical**	**Metals**	**VOCs**	**pH**	**TOC**	**Comments**
OXY-SS115-160804	15	Sediment	0	0.328	08/04/2016	00:00	X	X	X	X	X	FD (OXY-SS15-160804)
OXY-PDB15-NS-160804	15	Water	--	--	08/04/2016	10:40			X			
OXY-PDB15-10-160804	15	Water	--	--	08/04/2016	10:45			X			
OXY-PDB15-30-160804	15	Water	--	--	08/04/2016	10:50			X			
OXY-PDB15-90-160804	15	Water	--	--	08/04/2016	10:55			X			
OXY-PZ16-10-160704	16	Water	0.328	0.328	07/04/2016	10:30		X	X			
OXY-PZ16-30-160704	16	Water	0.984	0.984	07/04/2016	10:40		X	X			
OXY-PZ16-90-160704	16	Water	2.95	2.95	07/04/2016	10:50		X	X			
OXY-SS16-160804	16	Sediment	0	0.328	08/04/2016	14:36	X	X	X	X	X	
OXY-PDB16-NS-160804	16	Water	--	--	08/04/2016	14:55			X			
OXY-PDB16-10-160804	16	Water	--	--	08/04/2016	15:00			X			
OXY-PDB16-30-160804	16	Water	--	--	08/04/2016	15:05			X			
OXY-PDB16-90-160804	16	Water	--	--	08/04/2016	15:10			X			
OXY-PZ17-90-160704	17	Water	2.95	2.95	07/04/2016	09:28		X	X			
OXY-PZ17-90-160803	17	Water	2.95	2.95	08/03/2016	11:00			X			
OXY-PZ17-90-160803	17	Water	2.95	2.95	08/03/2016	11:00		X				
OXY-SS17-160803	17	Sediment	0	0.328	08/03/2016	15:49	X	X	X	X	X	DUP
OXY-PDB17-NS-160803	17	Water	--	--	08/03/2016	08:30			X			
OXY-PDB17-10-160803	17	Water	--	--	08/03/2016	08:40			X			
OXY-PDB17-30-160803	17	Water	--	--	08/03/2016	08:50			X			
OXY-PDB17-90-160803	17	Water	--	--	08/03/2016	09:00			X			
OXY-SS18-160804	18	Sediment	0	0.328	08/04/2016	15:34	X	X	X	X	X	
OXY-PDB18-NS-160804	18	Water	--	--	08/04/2016	15:55			X			MS/MSD
OXY-PDB18-10-160804	18	Water	--	--	08/04/2016	16:00			X			

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Sample Collection and Analysis Summary
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Sample Identification	**Location**	**Matrix**	**Initial Sample Depth (ft. bgs.)**	**Final Sample Depth (ft. bgs.)**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**Geotechnical**	**Metals**	**VOCs**	**pH**	**TOC**	**Comments**
OXY-PDB18-30-160804	18	Water	--	--	08/04/2016	16:05			X			
OXY-PDB18-90-160804	18	Water	--	--	08/04/2016	16:10			X			
OXY-SS19-160804	19	Sediment	0	0.328	08/04/2016	09:18	X	X	X	X	X	
OXY-PDB19-NS-160804	19	Water	--	--	08/04/2016	09:45			X			
OXY-PDB19-10-160804	19	Water	--	--	08/04/2016	09:50			X			
OXY-PDB19-30-160804	19	Water	--	--	08/04/2016	09:55			X			
OXY-PDB19-90-160804	19	Water	--	--	08/04/2016	10:00			X			
OXY-PZ20-10-160801	20	Water	0.328	0.328	08/01/2016	10:57			X			
OXY-PZ20-10-160801	20	Water	0.328	0.328	08/01/2016	10:57		X				
OXY-PZ20-30-160801	20	Water	0.984	0.984	08/01/2016	11:11			X			
OXY-PZ20-30-160801	20	Water	0.984	0.984	08/01/2016	11:11		X				
OXY-PZ20-90-160801	20	Water	2.95	2.95	08/01/2016	10:35			X			MS/MSD
OXY-PZ20-90-160801	20	Water	2.95	2.95	08/01/2016	10:35		X				
OXY-PZ120-90-160801	20	Water	2.95	2.95	08/01/2016	10:35			X			FD (OXY-PZ20-90-160801)
OXY-PZ120-90-160801	20	Water	2.95	2.95	08/01/2016	10:35		X				FD (OXY-PZ20-90-160801)
OXY-SS20-160804	20	Sediment	0	0.328	08/04/2016	08:20	X	X	X	X	X	DUP
OXY-PDB20-NS-160804	20	Water	--	--	08/04/2016	08:55			X			
OXY-PDB20-10-160804	20	Water	--	--	08/04/2016	09:00			X			
OXY-PDB20-30-160804	20	Water	--	--	08/04/2016	09:05			X			
OXY-PDB20-90-160804	20	Water	--	--	08/04/2016	09:10			X			
OXY-PZ21-10-160724	21	Water	0.328	0.328	07/24/2016	13:27			X			
OXY-PZ21-10-160724	21	Water	0.328	0.328	07/24/2016	13:27		X				
OXY-PZ21-30-160724	21	Water	0.984	0.984	07/24/2016	13:53			X			
OXY-PZ21-30-160724	21	Water	0.984	0.984	07/24/2016	13:53		X				

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Sample Identification	**Location**	**Matrix**	**Initial Sample Depth (ft. bgs.)**	**Final Sample Depth (ft. bgs.)**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**Geotechnical**	**Metals**	**VOCs**	**pH**	**TOC**	**Comments**
OXY-PZ21-90-160724	21	Water	2.95	2.95	07/24/2016	14:40			X			
OXY-PZ21-90-160724	21	Water	2.95	2.95	07/24/2016	14:40		X				
OXY-SS21-160808	21	Sediment	0	0.328	08/08/2016	09:31	X	X	X	X	X	
OXY-PDB21-NS-160808	21	Water	--	--	08/08/2016	10:00			X			
OXY-PDB21-10-160808	21	Water	--	--	08/08/2016	10:05			X			
OXY-PDB21-30-160808	21	Water	--	--	08/08/2016	10:15			X			
OXY-PDB21-90-160808	21	Water	--	--	08/08/2016	10:20			X			
OXY-SS22-160808	22	Sediment	0	0.328	08/08/2016	09:00	X	X	X	X	X	
OXY-PDB22-NS-160808	22	Water	--	--	08/08/2016	09:15			X			
OXY-PDB22-10-160808	22	Water	--	--	08/08/2016	09:20			X			
OXY-PDB22-30-160808	22	Water	--	--	08/08/2016	09:25			X			
OXY-PDB22-90-160808	22	Water	--	--	08/08/2016	09:30			X			
OXY-SS23-160805	23	Sediment	0	0.328	08/05/2016	12:45	X	X	X	X	X	
OXY-PDB23-NS-160805	23	Water	--	--	08/05/2016	13:10			X			
OXY-PDB23-10-160805	23	Water	--	--	08/05/2016	13:15			X			
OXY-PDB23-30-160805	23	Water	--	--	08/05/2016	13:20			X			
OXY-PDB23-90-160805	23	Water	--	--	08/05/2016	13:25			X			
OXY-SS24-160805	24	Sediment	0	0.328	08/05/2016	11:45	X	X	X	X	X	
OXY-PDB24-NS-160805	24	Water	--	--	08/05/2016	12:20			X			MS/MSD
OXY-PDB24-10-160805	24	Water	--	--	08/05/2016	12:35			X			
OXY-PDB24-30-160805	24	Water	--	--	08/05/2016	12:40			X			
OXY-PDB24-90-160805	24	Water	--	--	08/05/2016	12:45			X			
OXY-PZ25-10-160802	25	Water	0.328	0.328	08/02/2016	11:10			X			
OXY-PZ25-10-160802	25	Water	0.328	0.328	08/02/2016	11:10		X				

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Sample Collection and Analysis Summary
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OXY-SS25-160809	25	Sediment	0	0.328	08/09/2016	10:05	X	X	X	X	X	DUP - MS - MS/MSD
OXY-PDB25-NS-160809	25	Water	--	--	08/09/2016	11:10			X			
OXY-PDB25-10-160809	25	Water	--	--	08/09/2016	11:15			X			
OXY-PDB25-30-160809	25	Water	--	--	08/09/2016	11:20			X			
OXY-PDB25-90-160809	25	Water	--	--	08/09/2016	11:25			X			
OXY-SS26-160805	26	Sediment	0	0.328	08/05/2016	08:59	X	X	X	X	X	
OXY-PZ27-10-160717	27	Water	0.328	0.328	07/17/2016	09:22			X			
OXY-PZ27-10-160717	27	Water	0.328	0.328	07/17/2016	09:22		X				
OXY-PZ27-30-160717	27	Water	0.984	0.984	07/17/2016	10:42			X			
OXY-PZ27-30-160717	27	Water	0.984	0.984	07/17/2016	10:42		X				
OXY-SS27-160805	27	Sediment	0	0.328	08/05/2016	10:36	X	X	X	X	X	
OXY-PDB27-NS-160805	27	Water	--	--	08/05/2016	11:15			X			MS/MSD
OXY-PDB27-10-160805	27	Water	--	--	08/05/2016	11:40			X			
OXY-PDB27-30-160805	27	Water	--	--	08/05/2016	11:45			X			
OXY-PDB27-90-160805	27	Water	--	--	08/05/2016	11:50			X			
OXY-PZ28-10-160721	28	Water	0.328	0.328	07/21/2016	11:30			X			
OXY-PZ28-10-160721	28	Water	0.328	0.328	07/21/2016	11:30		X				
OXY-PZ28-30-160721	28	Water	0.984	0.984	07/21/2016	11:20			X			
OXY-PZ28-30-160721	28	Water	0.984	0.984	07/21/2016	11:20		X				
OXY-PZ28-90-160721	28	Water	2.95	2.95	07/21/2016	11:50			X			
OXY-PZ28-90-160721	28	Water	2.95	2.95	07/21/2016	11:50		X				
OXY-SS28-160808	28	Sediment	0	0.328	08/08/2016	10:35	X	X	X	X	X	DUP
OXY-PDB28-NS-160808	28	Water	--	--	08/08/2016	10:50			X			
OXY-PDB28-10-160808	28	Water	--	--	08/08/2016	10:55			X			

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OXY-PDB28-30-160808	28	Water	--	--	08/08/2016	11:00			X			
OXY-PDB28-90-160808	28	Water	--	--	08/08/2016	11:05			X			
OXY-SS29-160808	29	Sediment	0	0.328	08/08/2016	11:12	X	X	X	X	X	
OXY-PDB29-NS-160809	29	Water	--	--	08/09/2016	09:15			X			MS/MSD
OXY-PDB29-10-160809	29	Water	--	--	08/09/2016	09:20			X			
OXY-PDB29-30-160809	29	Water	--	--	08/09/2016	09:25			X			
OXY-PDB29-90-160809	29	Water	--	--	08/09/2016	09:30			X			
OXY-SS30-160808	30	Sediment	0	0.328	08/08/2016	12:35	X	X	X	X	X	
OXY-SS130-160808	30	Sediment	0	0.328	08/08/2016	00:00	X	X	X	X	X	FD (OXY-SS30-160808)
OXY-PDB30-NS-160808	30	Water	--	--	08/08/2016	12:45			X			MS/MSD
OXY-PDB30-10-160808	30	Water	--	--	08/08/2016	12:50			X			
OXY-PDB30-30-160808	30	Water	--	--	08/08/2016	12:55			X			
OXY-PDB30-90-160808	30	Water	--	--	08/08/2016	13:00			X			
OXY-PZ31-10-160723	31	Water	0.328	0.328	07/23/2016	13:05			X			
OXY-PZ31-10-160723	31	Water	0.328	0.328	07/23/2016	13:05		X				
OXY-PZ31-30-160723	31	Water	0.984	0.984	07/23/2016	13:00			X			
OXY-PZ31-30-160723	31	Water	0.984	0.984	07/23/2016	13:00		X				
OXY-SS31-160805	31	Sediment	0	0.328	08/05/2016	08:07	X	X	X	X	X	DUP
OXY-PZ32-10-160721	32	Water	0.328	0.328	07/21/2016	11:05			X			
OXY-PZ32-10-160721	32	Water	0.328	0.328	07/21/2016	11:05		X				
OXY-PZ32-90-160721	32	Water	2.95	2.95	07/21/2016	11:44			X			
OXY-PZ32-90-160721	32	Water	2.95	2.95	07/21/2016	11:44		X				
OXY-SS32-160808	32	Sediment	0	0.328	08/08/2016	13:11	X	X	X	X	X	DUP - MS - MS/MSD
OXY-PDB32-NS-160808	32	Water	--	--	08/08/2016	13:45			X			

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OXY-PDB32-10-160808	32	Water	--	--	08/08/2016	13:50			X			
OXY-PDB32-30-160808	32	Water	--	--	08/08/2016	13:55			X			
OXY-PDB32-90-160808	32	Water	--	--	08/08/2016	14:00			X			
OXY-PZ33-10-160703	33	Water	0.328	0.328	07/03/2016	11:35		X	X			
OXY-PZ33-30-160703	33	Water	0.984	0.984	07/03/2016	09:25		X	X			
OXY-PZ33-90-160703	33	Water	2.95	2.95	07/03/2016	09:25		X	X			
OXY-SS33-160808	33	Sediment	0	0.328	08/08/2016	14:01	X	X	X	X	X	
OXY-PDB33-NS-160808	33	Water	--	--	08/08/2016	14:15			X			
OXY-PDB33-10-160808	33	Water	--	--	08/08/2016	14:20			X			
OXY-PDB33-30-160808	33	Water	--	--	08/08/2016	14:25			X			
OXY-PDB33-90-160808	33	Water	--	--	08/08/2016	14:30			X			
OXY-PDB-FB-160705	--	Water	--	--	07/05/2016	14:15			X			Field Blank
OXY-PZ-RB-160706	--	Water	--	--	07/06/2016	09:40		X	X			Rinse Blank
RB-1608081253	--	Water	--	--	08/08/2016	12:53		X	X			Rinse Blank
OXY-TB-160703	--	Water	--	--	07/03/2016	--			X			Trip Blank
OXY-PZ-TB-160706	--	Water	--	--	07/06/2016	--			X			Trip Blank
OXY-PZTB-160708	--	Water	--	--	07/08/2016	--			X			Trip Blank
OXY-PZTB-160717	--	Water	--	--	07/17/2016	--			X			Trip Blank
OXY-PZTB-160720	--	Water	--	--	07/20/2016	--			X			Trip Blank
OXY-PZTB-160724	--	Water	--	--	07/24/2016	--			X			Trip Blank
OXY-PZTB-160801	--	Water	--	--	08/01/2016	--			X			Trip Blank
TB-1608031500	--	Water	--	--	08/03/2016	--			X			Trip Blank
OXY-PDBTB-160803	--	Water	--	--	08/03/2016	--			X			Trip Blank
TB-1608041601	--	Water	--	--	08/04/2016	--			X			Trip Blank

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OXY-PDB-TB1-160804	--	Water	--	--	08/04/2016	--			X			Trip Blank
OXY-PDB-TB2-160804	--	Water	--	--	08/04/2016	--			X			Trip Blank
OXY-PDBTB1-160805	--	Water	--	--	08/05/2016	--			X			Trip Blank
TB-1608051032	--	Water	--	--	08/05/2016	--			X			Trip Blank
OXY-PDBTB1-160808	--	Water	--	--	08/08/2016	--			X			Trip Blank
OXY-PDBTB2-160808	--	Water	--	--	08/08/2016	--			X			Trip Blank
TB-1608080908	--	Water	--	--	08/08/2016	--			X			Trip Blank
TB-1608081526	--	Water	--	--	08/08/2016	--			X			Trip Blank
OXY-PDBTB1-160809	--	Water	--	--	08/09/2016	--			X			Trip Blank
TB-1608091028	--	Water	--	--	08/09/2016	--			X			Trip Blank

Notes:

ft. bgs. - Feet below ground surface
DUP - Laboratory Duplicate
FD - Field Duplicate sample of sample in parenthesis
MS - Matrix Spike
MS/MSD - Matrix Spike/Matrix Spike Duplicate
VOCs - Volatile Organic Compounds
TOC - Total Organic Carbon
-- - Not Applicable

Table 2

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
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Parameter	Method	Matrix
Volatile Organic Compounds (VOCs)	SW-846 8260C[(1)]	Water Sediment
Metals	SW-846 6020A[(1)]	Water Sediment
Total Organic Carbon (TOC)	PSEP[(2)]	Sediment
pH	SW-846 9045D[(1)]	Sediment
Geotechnical	PSEP[(2)]	Sediment

Notes:

(1) - SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions

(2) - Puget Sound Estuary Protocols (PSEP 1997)

Table 3A

Analytical Results Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		01	02	03	04	05
Sample Name:		OXY-SS01-160803	OXY-SS02-160803	OXY-SS03-160803	OXY-SS04-160809	OXY-SS05-160809
Sample Date:		08/03/2016	08/03/2016	08/03/2016	08/09/2016	08/09/2016
Depth:		0-0.328 ft bgs	0-0.328 ft bgs	0-0.328 ft bgs	0-0.328 ft bgs	0-0.328 ft bgs
Parameters	**Unit**					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/kg	8.60 U	8.84 U	8.52 U	8.5 U	8.4 U
1,1,2,2-Tetrachloroethane	µg/kg	8.60 U	8.84 U	8.52 U	8.5 U	8.4 U
1,1,2-Trichloroethane	µg/kg	8.60 U	8.84 U	8.52 U	8.5 U	8.4 U
1,1-Dichloroethane	µg/kg	8.60 U	8.84 U	8.52 U	8.5 U	8.4 U
1,1-Dichloroethene	µg/kg	8.60 U	8.84 U	8.52 U	8.5 U	8.4 U
1,2-Dichloroethane	µg/kg	8.60 U	8.84 U	8.52 U	8.5 U	8.4 U
Chloroethane	µg/kg	8.60 U	8.84 U	8.52 U	8.5 U	8.4 U
Chloromethane (Methyl chloride)	µg/kg	8.60 U	8.84 U	8.52 U	8.5 U	8.4 U
cis-1,2-Dichloroethene	µg/kg	8.60 U	8.84 U	8.52 U	8.5 U	8.4 U
Tetrachloroethene	µg/kg	8.60 U	8.84 U	8.52 U	8.5 U	8.4 U
trans-1,2-Dichloroethene	µg/kg	8.60 U	8.84 U	8.52 U	8.5 U	8.4 U
Trichloroethene	µg/kg	8.60 U	8.84 U	8.52 U	8.5 U	8.4 U
Vinyl chloride	µg/kg	8.60 U	8.84 U	8.52 U	8.5 U	8.4 U
Metals						
Arsenic	mg/kg	9.72	8.26	8.15	7.60	7.80
Copper	mg/kg	56.1	45.7	48.3	43.1	44.5
Nickel	mg/kg	15.7	13.7	14.6	13.1	12.9
Zinc	mg/kg	77.6	56.6	59.7	53.1	53.6
General Chemistry						
Total organic carbon (TOC)	%	1.37	1.34	1.28	1.29	1.31
pH, lab	s.u.	7.48	7.51	7.62	7.41	7.36

Table 3A

Analytical Results Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**01**	**02**	**03**	**04**	**05**
Sample Name:		**OXY-SS01-160803**	**OXY-SS02-160803**	**OXY-SS03-160803**	**OXY-SS04-160809**	**OXY-SS05-160809**
Sample Date:		**08/03/2016**	**08/03/2016**	**08/03/2016**	**08/09/2016**	**08/09/2016**
Depth:		**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**
Parameters	**Unit**					
Geotechnical Parameters						
Clay	%	26.66	22.34	21.88	21.79	23.09
Coarse sand	%	0.44	0.37	0.58	0.34	0.43
Fine sand	%	7.54	9.79	12.19	10.77	16.42
Gravel	%	0.26	0.00	0.31	0.05	0.00
Medium sand	%	2.48	2.84	3.42	1.99	4.37
Silt	%	52.57	50.16	46.94	48.82	44.12
Very coarse sand	%	0.17	0.06	0.06	0.25	0.01
Very fine sand	%	8.05	12.95	11.73	14.68	9.46

Table 3A

Analytical Results Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**06**	**07**	**08**	**09**	**10**
Sample Name:		**OXY-SS06-160805**	**OXY-SS07-160805**	**OXY-SS08-160808**	**OXY-SS09-160808**	**OXY-SS10-160803**
Sample Date:		**08/05/2016**	**08/05/2016**	**08/08/2016**	**08/08/2016**	**08/03/2016**
Depth:		**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**
Parameters	**Unit**					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/kg	7.5 U	8.1 U	8.3 U	8.3 U	6.25 U
1,1,2,2-Tetrachloroethane	µg/kg	7.5 U	8.1 U	8.3 U	8.3 U	6.25 U
1,1,2-Trichloroethane	µg/kg	7.5 U	8.1 U	8.3 U	8.3 U	6.25 U
1,1-Dichloroethane	µg/kg	7.5 U	8.1 U	8.3 U	8.3 U	6.25 U
1,1-Dichloroethene	µg/kg	7.5 U	8.1 U	8.3 U	8.3 U	6.25 U
1,2-Dichloroethane	µg/kg	7.5 U	8.1 U	8.3 U	8.3 U	6.25 U
Chloroethane	µg/kg	7.5 U	8.1 U	8.3 U	8.3 U	6.25 U
Chloromethane (Methyl chloride)	µg/kg	7.5 U	8.1 U	8.3 U	8.3 U	6.25 U
cis-1,2-Dichloroethene	µg/kg	7.5 U	8.1 U	0.40 J	8.3 U	6.25 U
Tetrachloroethene	µg/kg	7.5 U	8.1 U	8.3 U	8.3 U	6.25 U
trans-1,2-Dichloroethene	µg/kg	7.5 U	8.1 U	8.3 U	8.3 U	6.25 U
Trichloroethene	µg/kg	7.5 U	8.1 U	8.3 U	8.3 U	6.25 U
Vinyl chloride	µg/kg	7.5 U	8.1 U	8.3 U	8.3 U	6.25 U
Metals						
Arsenic	mg/kg	5.60	5.81	7.12	6.92	2.65
Copper	mg/kg	33.5	30.8	36.1	39.9	15.4
Nickel	mg/kg	11.5	10.0	11.4	12.4	8.37
Zinc	mg/kg	45.8	38.4	45.2	50.5	23.2
General Chemistry						
Total organic carbon (TOC)	%	0.890	1.09	1.12	1.14	0.428
pH, lab	s.u.	7.48	7.40	7.42	7.39	7.76

Table 3A

Analytical Results Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**06**	**07**	**08**	**09**	**10**
Sample Name:		**OXY-SS06-160805**	**OXY-SS07-160805**	**OXY-SS08-160808**	**OXY-SS09-160808**	**OXY-SS10-160803**
Sample Date:		**08/05/2016**	**08/05/2016**	**08/08/2016**	**08/08/2016**	**08/03/2016**
Depth:		**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**
Parameters	**Unit**					
Geotechnical Parameters						
Clay	%	14.52	15.85	19.18	19.65	5.27
Coarse sand	%	2.43	1.43	0.83	1.18	4.24
Fine sand	%	20.82	19.27	16.28	16.59	32.35
Gravel	%	0.22	0.19	0	0.01	3.83
Medium sand	%	15.07	7.76	6.18	8.80	27.21
Silt	%	32.20	37.04	42.99	42.77	12.36
Very coarse sand	%	0.40	0.38	0.06	0.11	0.62
Very fine sand	%	13.67	17.04	16.34	13.07	12.41

Table 3A

Analytical Results Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**11**	**12**	**13**	**14**	**15**
Sample Name:		**OXY-SS11-160804**	**OXY-SS12-160804**	**OXY-SS13-160804**	**OXY-SS14-160804**	**OXY-SS15-160804**
Sample Date:		**08/04/2016**	**08/04/2016**	**08/04/2016**	**08/04/2016**	**08/04/2016**
Depth:		**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**
Parameters	**Unit**					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/kg	7.73 U	7.46 U	9.02 U	8.50 U	8.55 U
1,1,2,2-Tetrachloroethane	µg/kg	7.73 U	7.46 U	9.02 U	8.50 U	8.55 U
1,1,2-Trichloroethane	µg/kg	7.73 U	7.46 U	9.02 U	8.50 U	8.55 U
1,1-Dichloroethane	µg/kg	7.73 U	7.46 U	9.02 U	8.50 U	8.55 U
1,1-Dichloroethene	µg/kg	7.73 U	7.46 U	9.02 U	8.50 U	8.55 U
1,2-Dichloroethane	µg/kg	7.73 U	7.46 U	9.02 U	8.50 U	8.55 U
Chloroethane	µg/kg	7.73 U	7.46 U	9.02 U	8.50 U	8.55 U
Chloromethane (Methyl chloride)	µg/kg	7.73 U	7.46 U	9.02 U	8.50 U	8.55 U
cis-1,2-Dichloroethene	µg/kg	7.73 U	7.46 U	9.02 U	8.50 U	8.55 U
Tetrachloroethene	µg/kg	7.73 U	7.46 U	9.02 U	8.50 U	8.55 U
trans-1,2-Dichloroethene	µg/kg	7.73 U	7.46 U	9.02 U	8.50 U	8.55 U
Trichloroethene	µg/kg	7.73 U	7.46 U	9.02 U	8.50 U	8.55 U
Vinyl chloride	µg/kg	7.73 U	7.46 U	9.02 U	8.50 U	8.55 U
Metals						
Arsenic	mg/kg	5.95	5.08	9.85	10.2	9.57
Copper	mg/kg	35.9	29.5	49.5	48.8	47.5
Nickel	mg/kg	12.0	10.7	14.0	13.8	13.6
Zinc	mg/kg	45.5	38.5	62.2	61.5	59.7
General Chemistry						
Total organic carbon (TOC)	%	1.05	0.841	1.71	1.61	1.33
pH, lab	s.u.	7.70	7.72	7.69	7.67	7.56

Table 3A

Analytical Results Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**11**	**12**	**13**	**14**	**15**
Sample Name:		**OXY-SS11-160804**	**OXY-SS12-160804**	**OXY-SS13-160804**	**OXY-SS14-160804**	**OXY-SS15-160804**
Sample Date:		**08/04/2016**	**08/04/2016**	**08/04/2016**	**08/04/2016**	**08/04/2016**
Depth:		**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**
Parameters	**Unit**					
Geotechnical Parameters						
Clay	%	15.97	13.33	24.12	19.72	23.84
Coarse sand	%	0.98	2.05	1.54	3.68	0.87
Fine sand	%	19.62	27.02	9.53	14.60	13.29
Gravel	%	0.03	0.08	0.09	0.42	0.32
Medium sand	%	9.80	15.34	5.57	12.06	7.28
Silt	%	36.55	28.43	46.26	36.99	46.88
Very coarse sand	%	0.20	0.54	0.57	0.54	0.17
Very fine sand	%	15.99	13.82	10.75	11.99	10.22

Table 3A

Analytical Results Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**15**	**16**	**17**	**18**	**19**
Sample Name:		**OXY-SS115-160804**	**OXY-SS16-160804**	**OXY-SS17-160803**	**OXY-SS18-160804**	**OXY-SS19-160804**
Sample Date:		**08/04/2016**	**08/04/2016**	**08/03/2016**	**08/04/2016**	**08/04/2016**
Depth:		**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**
		Duplicate				
Parameters	**Unit**					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/kg	8.57 U	8.37 U	9.04 U	11.4 U	7.36 U
1,1,2,2-Tetrachloroethane	µg/kg	8.57 U	8.37 U	9.04 U	11.4 U	7.36 U
1,1,2-Trichloroethane	µg/kg	8.57 U	8.37 U	9.04 U	11.4 U	7.36 U
1,1-Dichloroethane	µg/kg	8.57 U	8.37 U	9.04 U	11.4 U	7.36 U
1,1-Dichloroethene	µg/kg	8.57 U	8.37 U	9.04 U	11.4 U	7.36 U
1,2-Dichloroethane	µg/kg	8.57 U	8.37 U	9.04 U	11.4 U	7.36 U
Chloroethane	µg/kg	8.57 U	8.37 U	9.04 U	11.4 U	7.36 U
Chloromethane (Methyl chloride)	µg/kg	8.57 U	8.37 U	9.04 U	11.4 U	7.36 U
cis-1,2-Dichloroethene	µg/kg	8.57 U	8.37 U	9.04 U	11.4 U	7.36 U
Tetrachloroethene	µg/kg	8.57 U	8.37 U	9.04 U	11.4 U	7.36 U
trans-1,2-Dichloroethene	µg/kg	8.57 U	8.37 U	9.04 U	11.4 U	7.36 U
Trichloroethene	µg/kg	8.57 U	8.37 U	9.04 U	11.4 U	7.36 U
Vinyl chloride	µg/kg	8.57 U	8.37 U	9.04 U	11.4 U	7.36 U
Metals						
Arsenic	mg/kg	8.73	9.22	10.8	11.7	6.64
Copper	mg/kg	45.6	45.0	54.8	71.6	31.3
Nickel	mg/kg	13.3	13.3	15.1	16.4	10.5
Zinc	mg/kg	56.3	54.6	68.4	105	48.0
General Chemistry						
Total organic carbon (TOC)	%	1.33	1.26	1.65	2.11	0.698
pH, lab	s.u.	7.53	7.50	7.48	7.68	7.76

Table 3A

Analytical Results Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**15**	**16**	**17**	**18**	**19**
Sample Name:		**OXY-SS115-160804**	**OXY-SS16-160804**	**OXY-SS17-160803**	**OXY-SS18-160804**	**OXY-SS19-160804**
Sample Date:		**08/04/2016**	**08/04/2016**	**08/03/2016**	**08/04/2016**	**08/04/2016**
Depth:		**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**
		Duplicate				
Parameters	**Unit**					
Geotechnical Parameters						
Clay	%	23.28	22.13	26.20	44.74	13.62
Coarse sand	%	0.69	1.43	0.56	1.22	9.86
Fine sand	%	13.30	13.45	10.87	2.72	19.64
Gravel	%	0.00	0.01	0.46	0.39	0.00
Medium sand	%	7.65	10.37	4.99	2.31	35.40
Silt	%	45.18	41.76	45.49	41.02	13.45
Very coarse sand	%	0.06	0.12	0.17	0.64	0.67
Very fine sand	%	10.99	9.45	9.48	5.61	7.81

Table 3A

Analytical Results Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**20**	**21**	**22**	**23**	**24**
Sample Name:		**OXY-SS20-160804**	**OXY-SS21-160808**	**OXY-SS22-160808**	**OXY-SS23-160805**	**OXY-SS24-160805**
Sample Date:		**08/04/2016**	**08/08/2016**	**08/08/2016**	**08/05/2016**	**08/05/2016**
Depth:		**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**
Parameters	**Unit**					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/kg	7.11 U	7.7 U	7.4 U	12 U	12 U
1,1,2,2-Tetrachloroethane	µg/kg	7.11 U	7.7 U	7.4 U	12 U	12 U
1,1,2-Trichloroethane	µg/kg	7.11 U	7.7 U	7.4 U	12 U	12 U
1,1-Dichloroethane	µg/kg	7.11 U	7.7 U	7.4 U	12 U	12 U
1,1-Dichloroethene	µg/kg	7.11 U	7.7 U	7.4 U	12 U	12 U
1,2-Dichloroethane	µg/kg	7.11 U	7.7 U	7.4 U	12 U	12 U
Chloroethane	µg/kg	7.11 U	7.7 U	7.4 U	12 U	12 U
Chloromethane (Methyl chloride)	µg/kg	7.11 U	7.7 U	7.4 U	12 U	12 U
cis-1,2-Dichloroethene	µg/kg	7.11 U	7.7 U	7.4 U	12 U	12 U
Tetrachloroethene	µg/kg	7.11 U	7.7 U	7.4 U	12 U	12 U
trans-1,2-Dichloroethene	µg/kg	7.11 U	7.7 U	7.4 U	12 U	12 U
Trichloroethene	µg/kg	7.11 U	0.38 J	7.4 U	12 U	12 U
Vinyl chloride	µg/kg	7.11 U	7.7 U	7.4 U	12 U	12 U
Metals						
Arsenic	mg/kg	8.48	7.43	6.56	11.0	10.5
Copper	mg/kg	21.2	17.4	28.2	70.1	64.7
Nickel	mg/kg	9.95	7.10	9.74	15.9	14.8
Zinc	mg/kg	37.9	28.7	48.3	98.3	122
General Chemistry						
Total organic carbon (TOC)	%	1.04	0.665	0.977	2.28	2.12
pH, lab	s.u.	7.69	7.09	7.45	7.27	7.36

Table 3A

Analytical Results Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**20**	**21**	**22**	**23**	**24**
Sample Name:		**OXY-SS20-160804**	**OXY-SS21-160808**	**OXY-SS22-160808**	**OXY-SS23-160805**	**OXY-SS24-160805**
Sample Date:		**08/04/2016**	**08/08/2016**	**08/08/2016**	**08/05/2016**	**08/05/2016**
Depth:		**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**
Parameters	**Unit**					
Geotechnical Parameters						
Clay	%	5.25	4.59	5.50	46.71	41.21
Coarse sand	%	30.36	26.11	2.94	0.87	1.40
Fine sand	%	12.06	19.59	21.55	2.17	2.79
Gravel	%	1.00	0.66	0.42	0.03	0.74
Medium sand	%	32.86	41.22	11.24	1.59	1.70
Silt	%	5.09	3.99	29.31	43.95	43.01
Very coarse sand	%	7.93	3.59	0.48	0.38	1.29
Very fine sand	%	3.31	5.08	27.72	6.87	8.69

Table 3A

Analytical Results Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**25**	**26**	**27**	**28**	**29**
Sample Name:		**OXY-SS25-160809**	**OXY-SS26-160805**	**OXY-SS27-160805**	**OXY-SS28-160808**	**OXY-SS29-160808**
Sample Date:		**08/09/2016**	**08/05/2016**	**08/05/2016**	**08/08/2016**	**08/08/2016**
Depth:		**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**
Parameters	**Unit**					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/kg	12 U	7.3 U	9.3 U	6.5 U	9.0 U
1,1,2,2-Tetrachloroethane	µg/kg	12 U	7.3 U	9.3 U	6.5 U	9.0 U
1,1,2-Trichloroethane	µg/kg	12 U	7.3 U	9.3 U	6.5 U	9.0 U
1,1-Dichloroethane	µg/kg	12 U	7.3 U	9.3 U	6.5 U	9.0 U
1,1-Dichloroethene	µg/kg	12 U	7.3 U	9.3 U	6.5 U	9.0 U
1,2-Dichloroethane	µg/kg	12 U	7.3 U	9.3 U	6.5 U	9.0 U
Chloroethane	µg/kg	12 U	7.3 U	9.3 U	6.5 U	9.0 U
Chloromethane (Methyl chloride)	µg/kg	12 U	7.3 U	9.3 U	6.5 U	9.0 U
cis-1,2-Dichloroethene	µg/kg	12 U	7.3 U	9.3 U	6.5 U	9.0 U
Tetrachloroethene	µg/kg	12 U	7.3 U	9.3 U	6.5 U	9.0 U
trans-1,2-Dichloroethene	µg/kg	12 U	7.3 U	9.3 U	6.5 U	9.0 U
Trichloroethene	µg/kg	12 U	7.3 U	9.3 U	6.5 U	9.0 U
Vinyl chloride	µg/kg	12 U	7.3 U	9.3 U	6.5 U	9.0 U
Metals						
Arsenic	mg/kg	12.0	11.0	9.15	4.52	12.9
Copper	mg/kg	63.9	23.3	57.2	30.3	107
Nickel	mg/kg	15.3	9.30	15.5	9.05	14.1
Zinc	mg/kg	105	41.5	76.6	39.6	174
General Chemistry						
Total organic carbon (TOC)	%	2.28	0.976	1.41	0.756	1.93
pH, lab	s.u.	7.41	7.44	7.47	7.45	7.59

Table 3A

Analytical Results Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**25**	**26**	**27**	**28**	**29**
Sample Name:		**OXY-SS25-160809**	**OXY-SS26-160805**	**OXY-SS27-160805**	**OXY-SS28-160808**	**OXY-SS29-160808**
Sample Date:		**08/09/2016**	**08/05/2016**	**08/05/2016**	**08/08/2016**	**08/08/2016**
Depth:		**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**
Parameters	**Unit**					
Geotechnical Parameters						
Clay	%	41.70	8.37	33.03	7.37	13.24
Coarse sand	%	1.43	8.03	0.70	1.51	6.49
Fine sand	%	3.66	24.56	6.16	0.79	11.44
Gravel	%	1.42	0.01	0.00	69.28	19.33
Medium sand	%	1.78	18.91	3.35	0.72	10.08
Silt	%	40.66	14.17	50.19	17.02	23.50
Very coarse sand	%	1.71	1.17	0.27	3.41	7.96
Very fine sand	%	7.47	22.37	7.96	1.65	8.39

Table 3A

Analytical Results Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**30**	**30**	**31**	**32**	**33**
Sample Name:		**OXY-SS30-160808**	**OXY-SS130-160808**	**OXY-SS31-160805**	**OXY-SS32-160808**	**OXY-SS33-160808**
Sample Date:		**08/08/2016**	**08/08/2016**	**08/05/2016**	**08/08/2016**	**08/08/2016**
Depth:		**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**
			Duplicate			
Parameters	**Unit**					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/kg	8.6 U	8.6 U	7.0 U	8.9 U	8.6 U
1,1,2,2-Tetrachloroethane	µg/kg	8.6 U	8.6 U	7.0 U	8.9 U	8.6 U
1,1,2-Trichloroethane	µg/kg	8.6 U	8.6 U	7.0 U	8.9 U	8.6 U
1,1-Dichloroethane	µg/kg	8.6 U	8.6 U	7.0 U	8.9 U	8.6 U
1,1-Dichloroethene	µg/kg	8.6 U	8.6 U	7.0 U	8.9 U	8.6 U
1,2-Dichloroethane	µg/kg	8.6 U	8.6 U	7.0 U	8.9 U	8.6 U
Chloroethane	µg/kg	8.6 U	8.6 U	7.0 U	8.9 U	8.6 U
Chloromethane (Methyl chloride)	µg/kg	8.6 U	8.6 U	7.0 U	8.9 U	8.6 U
cis-1,2-Dichloroethene	µg/kg	8.6 U	8.6 U	7.0 U	8.9 U	8.6 U
Tetrachloroethene	µg/kg	8.6 U	8.6 U	7.0 U	8.9 U	8.6 U
trans-1,2-Dichloroethene	µg/kg	8.6 U	8.6 U	7.0 U	8.9 U	8.6 U
Trichloroethene	µg/kg	8.6 U	8.6 U	7.0 U	8.9 U	8.6 U
Vinyl chloride	µg/kg	8.6 U	8.6 U	7.0 U	8.9 U	8.6 U
Metals						
Arsenic	mg/kg	12.5	14.5	5.01	6.88	6.16
Copper	mg/kg	99.8	112	17.1	45.4	42.1
Nickel	mg/kg	15.1	15.9	7.91	12.7	12.6
Zinc	mg/kg	121	141	28.0	59.5	52.4
General Chemistry						
Total organic carbon (TOC)	%	2.00	1.89	0.608	1.26	1.17
pH, lab	s.u.	7.41	7.40	7.35	7.31	7.47

Table 3A

Analytical Results Summary
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**30**	**30**	**31**	**32**	**33**
Sample Name:		**OXY-SS30-160808**	**OXY-SS130-160808**	**OXY-SS31-160805**	**OXY-SS32-160808**	**OXY-SS33-160808**
Sample Date:		**08/08/2016**	**08/08/2016**	**08/05/2016**	**08/08/2016**	**08/08/2016**
Depth:		**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**	**0-0.328 ft bgs**
			Duplicate			
Parameters	**Unit**					
Geotechnical Parameters						
Clay	%	22.45	23.18	5.12	28.06	24.44
Coarse sand	%	1.52	1.11	9.24	0.98	1.25
Fine sand	%	10.22	10.37	28.44	2.28	4.87
Gravel	%	1.54	0.85	0.00	2.13	1.32
Medium sand	%	6.14	5.25	33.10	2.00	1.85
Silt	%	47.99	51.58	9.17	59.37	55.89
Very coarse sand	%	0.99	0.47	0.44	1.03	1.13
Very fine sand	%	12.54	12.09	14.19	4.76	11.00

Notes:

J - Estimated concentration
U - Not detected at the associated reporting limit
ft bgs - Feet below ground surface

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**01**	**01**	**01**	**01**	**01**	**02**
Sample Name:		**OXY-PZ01-90-160718**	**OXY-PDB01-10-160803**	**OXY-PDB01-30-160803**	**OXY-PDB01-90-160803**	**OXY-PDB01-NS-160803**	**OXY-PZ02-10-160718**
Sample Date:		**07/18/2016**	**08/03/2016**	**08/03/2016**	**08/03/2016**	**08/03/2016**	**07/18/2016**
Depth:		**2.95-2.95 ft bgs**	**--**	**--**	**--**	**--**	**0.328-0.328 ft bgs**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.10 J	0.15 J	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.17 J	0.18 J	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.080 J	0.13 J	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	0.19 J	--	--	--	--	1.21
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	0.144	--	--	--	--	0.419
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	0.34	--	--	--	--	0.48
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	0.66	--	--	--	--	0.72

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**02**	**02**	**02**	**02**	**02**	**02**
Sample Name:		**OXY-PZ02-30-160718**	**OXY-PDB02-10-160803**	**OXY-PDB02-30-160803**	**OXY-PDB02-90-160803**	**OXY-PDB02-NS-160803**	**OXY-SW02-160803**
Sample Date:		**07/18/2016**	**08/03/2016**	**08/03/2016**	**08/03/2016**	**08/03/2016**	**08/03/2016**
Depth:		**0.984-0.984 ft bgs**	**--**	**--**	**--**	**--**	**--**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	5.5	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.18 J	5.0 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.080 J	1.9	14	4600	8.1	0.14 J
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.20 J	3.3 J	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.20 J	10	15	0.080 J	0.50 U
Trichloroethene	µg/L	0.50 U	0.48 J	4.0	11	0.46 J	0.50 U
Vinyl chloride	µg/L	0.50 U	0.45 J	52	2500	1.2	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	1.68	--	--	--	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	0.306	--	--	--	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	0.49	--	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	1.04	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**03**	**03**	**03**	**03**	**03**	**04**
Sample Name:		**OXY-PZ03-30-160724**	**OXY-PDB03-10-160803**	**OXY-PDB03-30-160803**	**OXY-PDB03-90-160803**	**OXY-PDB03-NS-160803**	**OXY-PZ04-90-160708**
Sample Date:		**07/24/2016**	**08/03/2016**	**08/03/2016**	**08/03/2016**	**08/03/2016**	**07/08/2016**
Depth:		**0.984-0.984 ft bgs**	**--**	**--**	**--**	**--**	**2.95-2.95 ft bgs**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.40 J	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.14 J	0.11 J	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.15 J	0.090 J	0.14 J	3.6	0.15 J	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.21 J	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.12 J	0.50 U	0.10 J	2.9	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	9.9	0.50 U	0.50 U
Vinyl chloride	µg/L	0.11 J	0.50 U	0.50 U	2.8	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	0.20 J
Arsenic (dissolved)	µg/L	1.32	--	--	--	--	--
Copper	µg/L	--	--	--	--	--	0.22
Copper (dissolved)	µg/L	0.087 J	--	--	--	--	--
Nickel	µg/L	--	--	--	--	--	0.43
Nickel (dissolved)	µg/L	0.32	--	--	--	--	--
Zinc	µg/L	--	--	--	--	--	1.06
Zinc (dissolved)	µg/L	0.55	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**04**	**04**	**04**	**04**	**05**	**05**
Sample Name:		**OXY-PDB04-10-160809**	**OXY-PDB04-30-160809**	**OXY-PDB04-90-160809**	**OXY-PDB04-NS-160809**	**OXY-PZ05-10-160708**	**OXY-PZ05-30-160708**
Sample Date:		**08/09/2016**	**08/09/2016**	**08/09/2016**	**08/09/2016**	**07/08/2016**	**07/08/2016**
Depth:		**--**	**--**	**--**	**--**	**0.328-0.328 ft bgs**	**0.984-0.984 ft bgs**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	1.55	0.69
Arsenic (dissolved)	µg/L	--	--	--	--	--	--
Copper	µg/L	--	--	--	--	0.22	0.32
Copper (dissolved)	µg/L	--	--	--	--	--	--
Nickel	µg/L	--	--	--	--	0.61	0.33
Nickel (dissolved)	µg/L	--	--	--	--	--	--
Zinc	µg/L	--	--	--	--	1.95	0.92
Zinc (dissolved)	µg/L	--	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**05**	**05**	**05**	**05**	**05**	**06**
Sample Name:		**OXY-PZ05-90-160708**	**OXY-PDB05-10-160809**	**OXY-PDB05-30-160809**	**OXY-PDB05-90-160809**	**OXY-PDB05-NS-160809**	**OXY-PZ06-30-160720**
Sample Date:		**07/08/2016**	**08/09/2016**	**08/09/2016**	**08/09/2016**	**08/09/2016**	**07/20/2016**
Depth:		**2.95-2.95 ft bgs**	**--**	**--**	**--**	**--**	**0.984-0.984 ft bgs**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.090 J	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	0.07 J	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	--	--	0.64
Copper	µg/L	0.11 U	--	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	--	--	0.103 J
Nickel	µg/L	0.21 U	--	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	--	--	0.42
Zinc	µg/L	0.53 U	--	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	--	--	0.46 J

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		06	06	06	06	06	06
Sample Name:		OXY-PZ06-90-160720	OXY-PDB06-10-160805	OXY-PDB06-30-160805	OXY-PDB06-90-160805	OXY-SW06-160805	OXY-SW106-160805
Sample Date:		07/20/2016	08/05/2016	08/05/2016	08/05/2016	08/05/2016	08/05/2016
Depth:		2.95-2.95 ft bgs	--	--	--	--	--
							Duplicate
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	0.10 J	--	--	--	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	0.107	--	--	--	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	0.20 U	--	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	0.91	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**07**	**07**	**07**	**07**	**07**	**07**
Sample Name:		**OXY-PZ07-30-160720**	**OXY-PZ07-90-160720**	**OXY-PDB07-10-160805**	**OXY-PDB07-30-160805**	**OXY-PDB07-90-160805**	**OXY-PDB07-NS-160805**
Sample Date:		**07/20/2016**	**07/20/2016**	**08/05/2016**	**08/05/2016**	**08/05/2016**	**08/05/2016**
Depth:		**0.984-0.984 ft bgs**	**2.95-2.95 ft bgs**	**--**	**--**	**--**	**--**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.090 J	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.20 J	0.50 U	0.50 U	0.090 J	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.13 J	0.070 J	0.50 U	0.11 J	0.50 U	0.070 J
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.18 J	0.50 U	0.50 U	0.090 J	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	1.74	0.21 J	--	--	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	0.247	0.138	--	--	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	0.32	0.54	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	0.96	1.09	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**07**	**08**	**08**	**08**	**08**	**08**
Sample Name:		**OXY-SW07-160805**	**OXY-PZ08-30-160722**	**OXY-PZ08-90-160722**	**OXY-PDB08-10-160808**	**OXY-PDB08-30-160808**	**OXY-PDB08-90-160808**
Sample Date:		**08/05/2016**	**07/22/2016**	**07/22/2016**	**08/08/2016**	**08/08/2016**	**08/08/2016**
Depth:		**--**	**0.984-0.984 ft bgs**	**2.95-2.95 ft bgs**	**--**	**--**	**--**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.13 J	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.090 J	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.35 J	0.50 U	0.14 J	0.15 J
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.25 J	1.1	0.20 J	0.46 J	0.86
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.23 J	0.50 U	0.11 J	0.22 J
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.10 J	0.18 J	0.33 J
Vinyl chloride	µg/L	0.50 U	0.13 J	0.50 U	0.090 J	0.21 J	0.14 J
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	1.85	0.16 J	--	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	0.274 J	0.106 J	--	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	0.28	0.25	--	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	2.08	0.64	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**08**	**08**	**09**	**09**	**09**	**09**
Sample Name:		**OXY-PDB08-NS-160808**	**OXY-SW08-160808**	**OXY-PZ09-90-160719**	**OXY-PZ109-90-160719**	**OXY-PDB09-10-160808**	**OXY-PDB09-30-160808**
Sample Date:		**08/08/2016**	**08/08/2016**	**07/19/2016**	**07/19/2016**	**08/08/2016**	**08/08/2016**
Depth:		**--**	**--**	**2.95-2.95 ft bgs**	**2.95-2.95 ft bgs Duplicate**	**--**	**--**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.11 J	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.090 J	0.090 J	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.19 J	0.50 U	0.59	0.61	0.21 J	0.28 J
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.27 J	0.25 J	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.16 J	0.12 J	0.50 U	0.10 J
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.090 J	0.50 U	0.10 J
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	0.15 J	0.16 J	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	--	0.103 J	0.135	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	--	0.38	0.38	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	--	0.39 J	0.69	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		09	09	09	09	09	09
Sample Name:		OXY-PDB09-90-160808	OXY-PDB09-NS-160808	OXY-PDB109-10-160808	OXY-PDB109-30-160808	OXY-PDB109-90-160808	OXY-PDB109-NS-160808
Sample Date:		08/08/2016	08/08/2016	08/08/2016	08/08/2016	08/08/2016	08/08/2016
Depth:		--	--	--	--	--	--
				Duplicate	Duplicate	Duplicate	Duplicate
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.18 J	0.50 U	0.50 U	0.090 J	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.38 J	0.14 J	0.16 J	0.35 J	0.29 J	0.070 J
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.16 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.15 J	0.50 U	0.50 U	0.50 U	0.16 J	0.50 U
Vinyl chloride	µg/L	0.21 J	0.50 U	0.50 U	0.18 J	0.23 J	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	--	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	--	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**09**	**10**	**10**	**10**	**11**	**11**
Sample Name:		**OXY-SW09-160808**	**OXY-PZ10-10-160719**	**OXY-PZ10-30-160719**	**OXY-PZ10-90-160719**	**OXY-PDB11-10-160804**	**OXY-PDB11-30-160804**
Sample Date:		**08/08/2016**	**07/19/2016**	**07/19/2016**	**07/19/2016**	**08/04/2016**	**08/04/2016**
Depth:		**--**	**0.328-0.328 ft bgs**	**0.984-0.984 ft bgs**	**2.95-2.95 ft bgs**	**--**	**--**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.13 J	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.11 J	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.15 J	0.36 J	1.1	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.080 J	0.23 J	0.24 J	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.080 J	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	4.02	0.23 J	0.25 J	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	0.231	0.149	0.419	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	0.65	0.34	0.80	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	2.64	0.61	1.32	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**11**	**11**	**12**	**12**	**12**	**12**
Sample Name:		**OXY-PDB11-90-160804**	**OXY-PDB11-NS-160804**	**OXY-PDB12-10-160804**	**OXY-PDB12-30-160804**	**OXY-PDB12-90-160804**	**OXY-PDB12-NS-160804**
Sample Date:		**08/04/2016**	**08/04/2016**	**08/04/2016**	**08/04/2016**	**08/04/2016**	**08/04/2016**
Depth:		**--**	**--**	**--**	**--**	**--**	**--**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.080 J	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	--	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	--	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**13**	**13**	**13**	**13**	**13**	**13**
Sample Name:		**OXY-PZ13-30-160705**	**OXY-PZ13-90-160705**	**OXY-PZ113-90-160705**	**OXY-PDB13-10-160804**	**OXY-PDB13-30-160804**	**OXY-PDB13-90-160804**
Sample Date:		**07/05/2016**	**07/05/2016**	**07/05/2016**	**08/04/2016**	**08/04/2016**	**08/04/2016**
Depth:		**0.984-0.984 ft bgs**	**2.95-2.95 ft bgs**	**2.95-2.95 ft bgs Duplicate**	**--**	**--**	**--**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.090 J	0.50 U	0.090 J
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	1.82	0.12 J	0.12 J	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	--	--	--
Copper	µg/L	0.31	0.11 U	0.11 U	--	--	--
Copper (dissolved)	µg/L	--	--	--	--	--	--
Nickel	µg/L	0.86	0.67	0.63	--	--	--
Nickel (dissolved)	µg/L	--	--	--	--	--	--
Zinc	µg/L	3.46	0.79	0.81	--	--	--
Zinc (dissolved)	µg/L	--	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		13	13	13	13	13	14
Sample Name:		OXY-PDB13-NS-160804	OXY-PDB113-10-160804	OXY-PDB113-30-160804	OXY-PDB113-90-160804	OXY-PDB113-NS-160804	OXY-PZ14-90-160705
Sample Date:		08/04/2016	08/04/2016	08/04/2016	08/04/2016	08/04/2016	07/05/2016
Depth:		--	--	--	--	--	2.95-2.95 ft bgs
			Duplicate	Duplicate	Duplicate	Duplicate	
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.11 J	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	0.13 J
Arsenic (dissolved)	µg/L	--	--	--	--	--	--
Copper	µg/L	--	--	--	--	--	0.10 U
Copper (dissolved)	µg/L	--	--	--	--	--	--
Nickel	µg/L	--	--	--	--	--	0.31
Nickel (dissolved)	µg/L	--	--	--	--	--	--
Zinc	µg/L	--	--	--	--	--	1.64
Zinc (dissolved)	µg/L	--	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		14	14	14	14	15	15
Sample Name:		OXY-PDB14-10-160804	OXY-PDB14-30-160804	OXY-PDB14-90-160804	OXY-PDB14-NS-160804	OXY-PZ15-10-160706	OXY-PZ15-90-160706
Sample Date:		08/04/2016	08/04/2016	08/04/2016	08/04/2016	07/06/2016	07/06/2016
Depth:		--	--	--	--	0.328-0.328 ft bgs	2.95-2.95 ft bgs
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.090 J
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	1.23	0.51 J
Arsenic (dissolved)	µg/L	--	--	--	--	--	--
Copper	µg/L	--	--	--	--	0.13 U	0.11 U
Copper (dissolved)	µg/L	--	--	--	--	--	--
Nickel	µg/L	--	--	--	--	0.36 U	0.21 U
Nickel (dissolved)	µg/L	--	--	--	--	--	--
Zinc	µg/L	--	--	--	--	0.66 U	0.74 U
Zinc (dissolved)	µg/L	--	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		15	15	15	15	16	16
Sample Name:		OXY-PDB15-10-160804	OXY-PDB15-30-160804	OXY-PDB15-90-160804	OXY-PDB15-NS-160804	OXY-PZ16-10-160704	OXY-PZ16-30-160704
Sample Date:		08/04/2016	08/04/2016	08/04/2016	08/04/2016	07/04/2016	07/04/2016
Depth:		--	--	--	--	0.328-0.328 ft bgs	0.984-0.984 ft bgs
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.78	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.25 J	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	1.84	1.76
Arsenic (dissolved)	µg/L	--	--	--	--	--	--
Copper	µg/L	--	--	--	--	0.27	1.01
Copper (dissolved)	µg/L	--	--	--	--	--	--
Nickel	µg/L	--	--	--	--	0.56	0.48
Nickel (dissolved)	µg/L	--	--	--	--	--	--
Zinc	µg/L	--	--	--	--	1.45	0.93
Zinc (dissolved)	µg/L	--	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		16	16	16	16	16	17
Sample Name:		OXY-PZ16-90-160704	OXY-PDB16-10-160804	OXY-PDB16-30-160804	OXY-PDB16-90-160804	OXY-PDB16-NS-160804	OXY-PZ17-90-160704
Sample Date:		07/04/2016	08/04/2016	08/04/2016	08/04/2016	08/04/2016	07/04/2016
Depth:		2.95-2.95 ft bgs	--	--	--	--	2.95-2.95 ft bgs
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.090 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.090 J	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	0.19 J	--	--	--	--	0.08 J
Arsenic (dissolved)	µg/L	--	--	--	--	--	--
Copper	µg/L	0.18	--	--	--	--	0.11 U
Copper (dissolved)	µg/L	--	--	--	--	--	--
Nickel	µg/L	0.37	--	--	--	--	0.36
Nickel (dissolved)	µg/L	--	--	--	--	--	--
Zinc	µg/L	0.69 U	--	--	--	--	0.82
Zinc (dissolved)	µg/L	--	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**17**	**17**	**17**	**17**	**17**	**18**
Sample Name:		**OXY-PZ17-90-160803**	**OXY-PDB17-10-160803**	**OXY-PDB17-30-160803**	**OXY-PDB17-90-160803**	**OXY-PDB17-NS-160803**	**OXY-PDB18-10-160804**
Sample Date:		**08/03/2016**	**08/03/2016**	**08/03/2016**	**08/03/2016**	**08/03/2016**	**08/04/2016**
Depth:		**2.95-2.95 ft bgs**	**--**	**--**	**--**	**--**	**--**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.35 J	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	0.13 J	--	--	--	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	0.235	--	--	--	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	0.14 J	--	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	1.39	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**18**	**18**	**18**	**19**	**19**	**19**
Sample Name:		**OXY-PDB18-30-160804**	**OXY-PDB18-90-160804**	**OXY-PDB18-NS-160804**	**OXY-PDB19-10-160804**	**OXY-PDB19-30-160804**	**OXY-PDB19-90-160804**
Sample Date:		**08/04/2016**	**08/04/2016**	**08/04/2016**	**08/04/2016**	**08/04/2016**	**08/04/2016**
Depth:		**--**	**--**	**--**	**--**	**--**	**--**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.12 J	0.50 U	0.50 U	0.50 U	0.080 J	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.18 J	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.17 J	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.11 J	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.11 J	0.91	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	--	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	--	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		19	20	20	20	20	20
Sample Name:		OXY-PDB19-NS-160804	OXY-PZ20-10-160801	OXY-PZ20-30-160801	OXY-PZ20-90-160801	OXY-PZ120-90-160801	OXY-PDB20-10-160804
Sample Date:		08/04/2016	08/01/2016	08/01/2016	08/01/2016	08/01/2016	08/04/2016
Depth:		--	0.328-0.328 ft bgs	0.984-0.984 ft bgs	2.95-2.95 ft bgs	2.95-2.95 ft bgs Duplicate	--
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	1.09	1.10	0.88	0.92	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	0.237	0.268	0.318	0.236	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	1.22	0.22	0.61	0.65	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	1.53	1.54	1.67	1.57	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**20**	**20**	**20**	**21**	**21**	**21**
Sample Name:		**OXY-PDB20-30-160804**	**OXY-PDB20-90-160804**	**OXY-PDB20-NS-160804**	**OXY-PZ21-10-160724**	**OXY-PZ21-30-160724**	**OXY-PZ21-90-160724**
Sample Date:		**08/04/2016**	**08/04/2016**	**08/04/2016**	**07/24/2016**	**07/24/2016**	**07/24/2016**
Depth:		**--**	**--**	**--**	**0.328-0.328 ft bgs**	**0.984-0.984 ft bgs**	**2.95-2.95 ft bgs**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.080 J	0.50 U	0.50 U	0.50 U	0.50 U	0.15 J
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.2
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	1.27	0.24 J	0.69
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	0.141 J	0.152 J	0.268 J
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	0.25	0.42	0.35
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	0.58	0.54	2.15

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**21**	**21**	**21**	**21**	**22**	**22**
Sample Name:		**OXY-PDB21-10-160808**	**OXY-PDB21-30-160808**	**OXY-PDB21-90-160808**	**OXY-PDB21-NS-160808**	**OXY-PDB22-10-160808**	**OXY-PDB22-30-160808**
Sample Date:		**08/08/2016**	**08/08/2016**	**08/08/2016**	**08/08/2016**	**08/08/2016**	**08/08/2016**
Depth:		**--**	**--**	**--**	**--**	**--**	**--**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.10 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.070 J	0.50 U	0.17 J	0.50 U	0.070 J	0.10 J
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.11 J	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	--	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	--	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		22	22	23	23	23	23
Sample Name:		OXY-PDB22-90-160808	OXY-PDB22-NS-160808	OXY-PDB23-10-160805	OXY-PDB23-30-160805	OXY-PDB23-90-160805	OXY-PDB23-NS-160805
Sample Date:		08/08/2016	08/08/2016	08/05/2016	08/05/2016	08/05/2016	08/05/2016
Depth:		--	--	--	--	--	--
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.11 J	0.14 J	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.080 J	0.50 U	0.50 U	0.50 U	0.10 J	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.22 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	--	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	--	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**24**	**24**	**24**	**24**	**25**	**25**
Sample Name:		**OXY-PDB24-10-160805**	**OXY-PDB24-30-160805**	**OXY-PDB24-90-160805**	**OXY-PDB24-NS-160805**	**OXY-PZ25-10-160802**	**OXY-PDB25-10-160809**
Sample Date:		**08/05/2016**	**08/05/2016**	**08/05/2016**	**08/05/2016**	**08/02/2016**	**08/09/2016**
Depth:		**--**	**--**	**--**	**--**	**0.328-0.328 ft bgs**	**--**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.12 J	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	3.1 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.13 J	0.33 J	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.21 J	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.10 J	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.32 J	0.14 J	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	--	1.00	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	--	0.779	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	--	0.54	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	--	3.15	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		25	25	25	27	27	27
Sample Name:		OXY-PDB25-30-160809	OXY-PDB25-90-160809	OXY-PDB25-NS-160809	OXY-PZ27-10-160717	OXY-PZ27-30-160717	OXY-PDB27-10-160805
Sample Date:		08/09/2016	08/09/2016	08/09/2016	07/17/2016	07/17/2016	08/05/2016
Depth:		--	--	--	0.328-0.328 ft bgs	0.984-0.984 ft bgs	--
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.10 J	0.11 J	0.50 U	0.50 U	0.50 U	0.11 J
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	2.3 U	0.50 U	0.50 U	0.070 J	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.070 J	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.14 J	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	1.29	2.48	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	0.336	0.121	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	0.90	0.66	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	1.00	1.04	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		27	27	27	28	28	28
Sample Name:		OXY-PDB27-30-160805	OXY-PDB27-90-160805	OXY-PDB27-NS-160805	OXY-PZ28-10-160721	OXY-PZ28-30-160721	OXY-PZ28-90-160721
Sample Date:		08/05/2016	08/05/2016	08/05/2016	07/21/2016	07/21/2016	07/21/2016
Depth:		--	--	--	0.328-0.328 ft bgs	0.984-0.984 ft bgs	2.95-2.95 ft bgs
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.10 J	0.14 J	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	1.18	1.14	0.73
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	0.453	0.766	0.139
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	0.68	3.12	0.77
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	1.06	1.89	0.75

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**28**	**28**	**28**	**28**	**29**	**29**
Sample Name:		**OXY-PDB28-10-160808**	**OXY-PDB28-30-160808**	**OXY-PDB28-90-160808**	**OXY-PDB28-NS-160808**	**OXY-PDB29-10-160809**	**OXY-PDB29-30-160809**
Sample Date:		**08/08/2016**	**08/08/2016**	**08/08/2016**	**08/08/2016**	**08/09/2016**	**08/09/2016**
Depth:		**--**	**--**	**--**	**--**	**--**	**--**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	--	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	--	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**29**	**29**	**30**	**30**	**30**	**30**
Sample Name:		**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:		**08/09/2016**	**08/09/2016**	**08/08/2016**	**08/08/2016**	**08/08/2016**	**08/08/2016**
Depth:		**--**	**--**	**--**	**--**	**--**	**--**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	2.1 U	0.50 U	0.88
cis-1,2-Dichloroethene	µg/L	0.17 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.61	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	--	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	--	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**31**	**31**	**32**	**32**	**32**	**32**
Sample Name:		**OXY-PZ31-10-160723**	**OXY-PZ31-30-160723**	**OXY-PZ32-10-160721**	**OXY-PZ32-90-160721**	**OXY-PDB32-10-160808**	**OXY-PDB32-30-160808**
Sample Date:		**07/23/2016**	**07/23/2016**	**07/21/2016**	**07/21/2016**	**08/08/2016**	**08/08/2016**
Depth:		**0.328-0.328 ft bgs**	**0.984-0.984 ft bgs**	**0.328-0.328 ft bgs**	**2.95-2.95 ft bgs**	**--**	**--**
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.080 J
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals							
Arsenic	µg/L	--	--	--	--	--	--
Arsenic (dissolved)	µg/L	4.15	4.60	1.23	2.03	--	--
Copper	µg/L	--	--	--	--	--	--
Copper (dissolved)	µg/L	0.322 J	0.154 J	0.389	0.296	--	--
Nickel	µg/L	--	--	--	--	--	--
Nickel (dissolved)	µg/L	0.34	0.64	0.48	0.84	--	--
Zinc	µg/L	--	--	--	--	--	--
Zinc (dissolved)	µg/L	2.13	1.49	0.87	2.26	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**32**	**32**	**33**	**33**	**33**
Sample Name:		**OXY-PDB32-90-160808**	**OXY-PDB32-NS-160808**	**OXY-PZ33-10-160703**	**OXY-PZ33-30-160703**	**OXY-PZ33-90-160703**
Sample Date:		**08/08/2016**	**08/08/2016**	**07/03/2016**	**07/03/2016**	**07/03/2016**
Depth:		**--**	**--**	**0.328-0.328 ft bgs**	**0.984-0.984 ft bgs**	**2.95-2.95 ft bgs**
Parameters	**Unit**					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Metals						
Arsenic	µg/L	--	--	1.11	1.03	0.81
Arsenic (dissolved)	µg/L	--	--	--	--	--
Copper	µg/L	--	--	0.39	0.36	0.26
Copper (dissolved)	µg/L	--	--	--	--	--
Nickel	µg/L	--	--	0.64	6.54	1.24
Nickel (dissolved)	µg/L	--	--	--	--	--
Zinc	µg/L	--	--	2.12	0.81	0.99
Zinc (dissolved)	µg/L	--	--	--	--	--

Table 3B

Analytical Methods
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Location ID:		**33**	**33**	**33**	**33**
Sample Name:		**OXY-PDB33-10-160808**	**OXY-PDB33-30-160808**	**OXY-PDB33-90-160808**	**OXY-PDB33-NS-160808**
Sample Date:		**08/08/2016**	**08/08/2016**	**08/08/2016**	**08/08/2016**
Depth:		**--**	**--**	**--**	**--**
Parameters	**Unit**				
Volatile Organic Compounds					
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.13 J	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Metals					
Arsenic	µg/L	--	--	--	--
Arsenic (dissolved)	µg/L	--	--	--	--
Copper	µg/L	--	--	--	--
Copper (dissolved)	µg/L	--	--	--	--
Nickel	µg/L	--	--	--	--
Nickel (dissolved)	µg/L	--	--	--	--
Zinc	µg/L	--	--	--	--
Zinc (dissolved)	µg/L	--	--	--	--

Notes:

"--" - Not analyzed
ft bgs - Feet below ground surface
J - Estimated concentration
U - Not detected at the associated reporting limit

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
Metals	Nickel (dissolved)	08/04/2016	0.06	OXY-PZ06-90-160720	0.20 J	0.20 U	µg/L
	Copper	07/24/2016	0.023	OXY-PZ-13-90-160705	0.11	0.11 U	µg/L
				OXY-PZ-113-90-160705	0.11	0.11 U	µg/L
				OXY-PZ-14-90-160705	0.09 J	0.10 U	µg/L
				OXY-PZ15-90-160706	0.09 J	0.11 U	µg/L
				OXY-PZ05-90-160708	0.06 J	0.11 U	µg/L
				OXY-PZ17-90-160704	0.08 J	0.11 U	µg/L
	Nickel	07/24/2016	0.06	OXY-PZ15-90-160706	0.20 J	0.21 U	µg/L
				OXY-PZ05-90-160708	0.16 J	0.21 U	µg/L
	Zinc	07/24/2016	0.14	OXY-PZ16-90-160704	0.69	0.69 U	µg/L
				OXY-PZ15-10-160706	0.66	0.66 U	µg/L
				OXY-PZ05-90-160708	0.29 J	0.53 U	µg/L

Notes:

* - Blank result adjusted for sample factors where applicable
U - Not detected at the associated reporting limit
J - Estimated concentration

Table 5

Qualified Sample Data Due to Outlying ICP Serial Dilution Results
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Parameter	Serial Dilution Sample ID	Analyte	%D	Associated Sample ID	Qualified Result	Units
Metals	OXY-PZ08-30-160722	Copper (dissolved)	11	OXY-PZ08-30-160722	0.274 J	µg/L
				OXY-PZ08-90-160722	0.106 J	µg/L
				OXY-PZ31-10-160723	0.322 J	µg/L
				OXY-PZ31-30-160723	0.154 J	µg/L
				OXY-PZ03-30-160724	0.087 J	µg/L
				OXY-PZ21-10-160724	0.141 J	µg/L
				OXY-PZ21-30-160724	0.152 J	µg/L
				OXY-PZ21-90-160724	0.268 J	µg/L

Notes:

%D - Percent Difference
ICP - Inductively Coupled Plasma
J - Estimated concentration

Table 6

Qualified Sample Data Due to Analyte Concentrations in the Rinse Blanks
Sediment and Porewater Sampling
Glenn Springs Holdings, Inc. – Tacoma Commencement Bay
Tacoma, Washington
July - September 2016

Parameter	Rinse Blank ID	Blank Date (dd/mm/yyyy)	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
Metals	OXY-PZ-RB-160706	07/24/2016	Copper	0.443	OXY-PZ15-10-160706	0.13	0.13 U	µg/L
			Nickel	0.33	OXY-PZ15-10-160706	0.36	0.36 U	µg/L
			Zinc	2.67	OXY-PZ15-90-160706	0.74	0.74 U	µg/L

Notes:

U - Not detected at the associated reporting limit