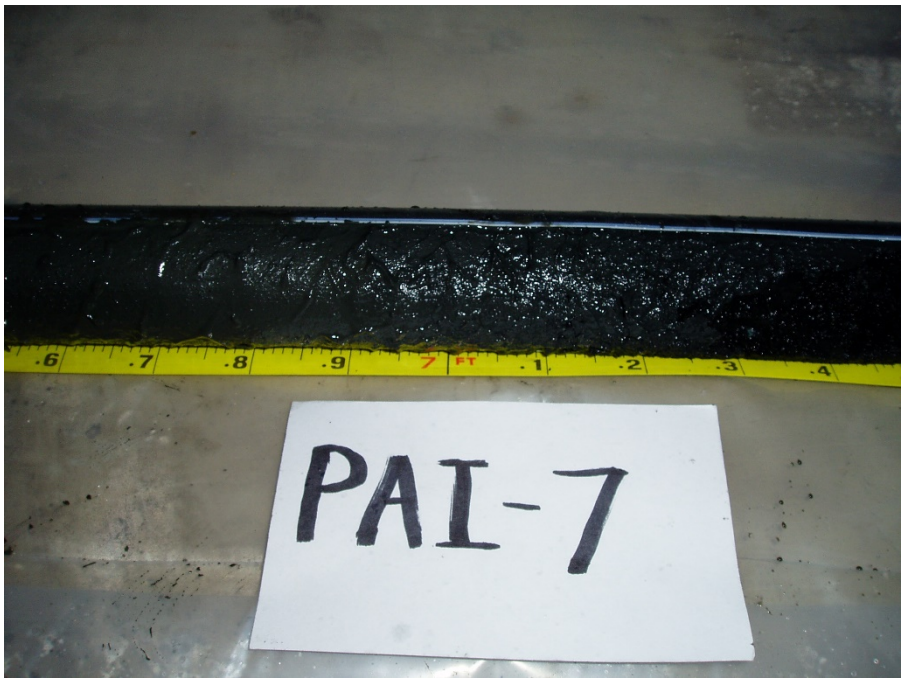
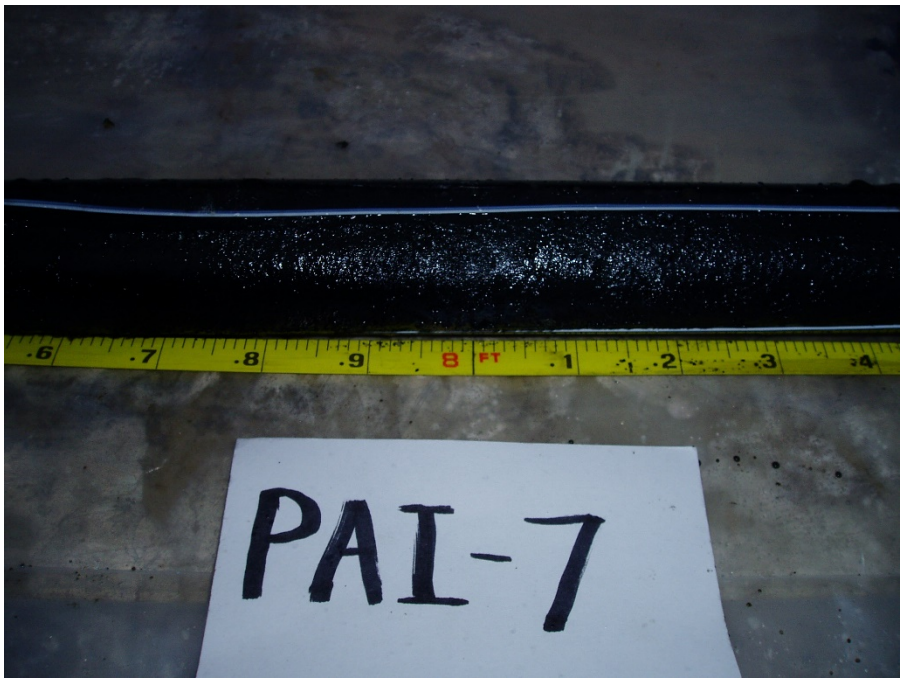
PAI-7 2 to 3 feet

PAI-7 6 feet

Soil Boring Field Photographs PAI-7	
Gas Works Park Site Seattle, Washington	
GeoEngineers	Appendix 2B-1-2



PAI-7 7 feet



PAI-7 8 feet

Soil Boring Field Photographs PAI-7	
Gas Works Park Site Seattle, Washington	
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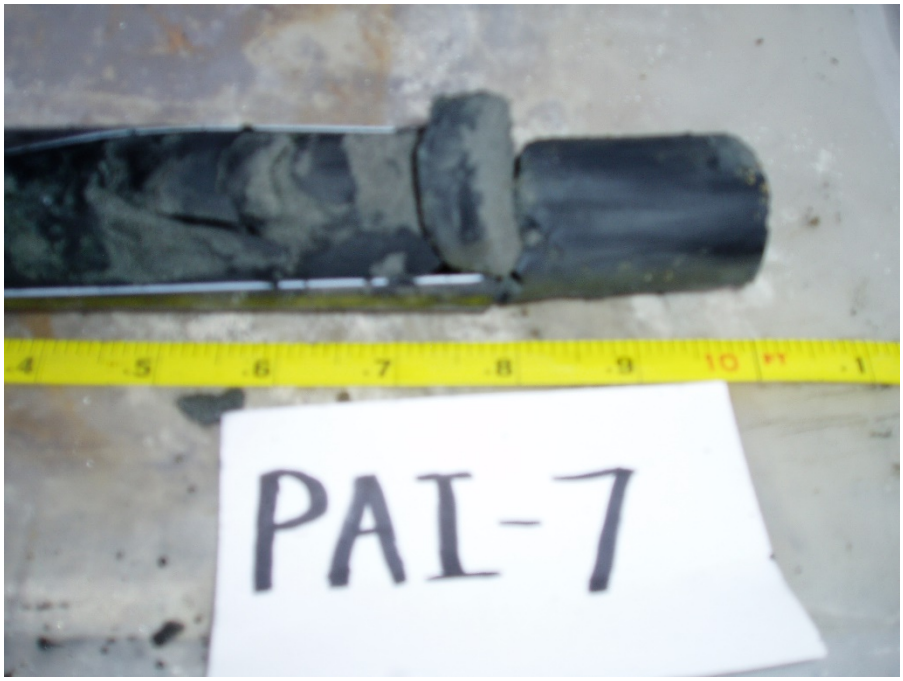
PAI-7 9 feet



PAI-7 10 feet

Soil Boring Field Photographs PAI-7	
Gas Works Park Site Seattle, Washington	
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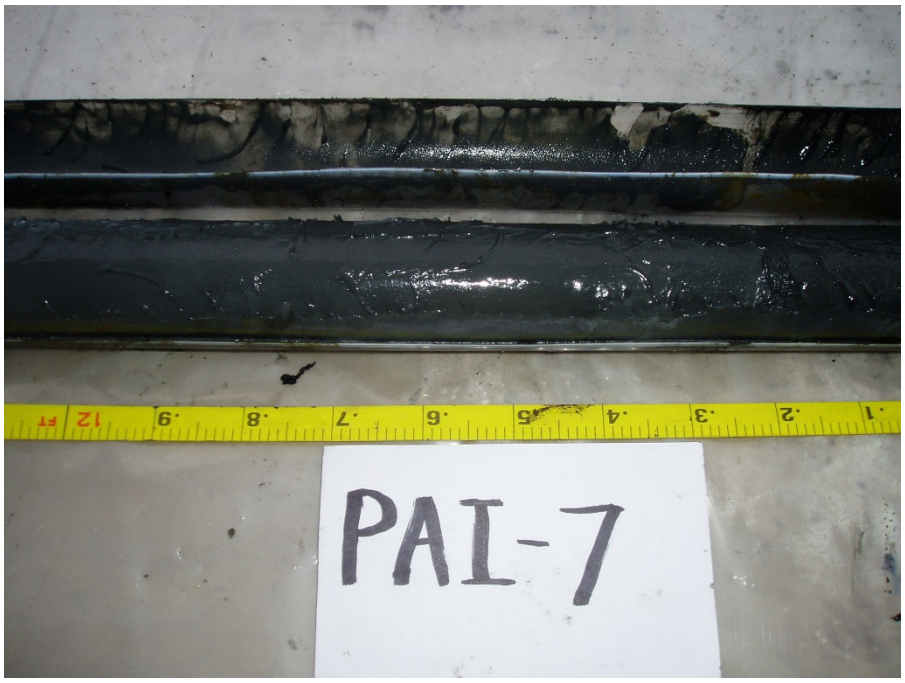
PAI-7 10 to 11 feet



PAI-7 11 to 12 feet

Soil Boring Field Photographs PAI-7

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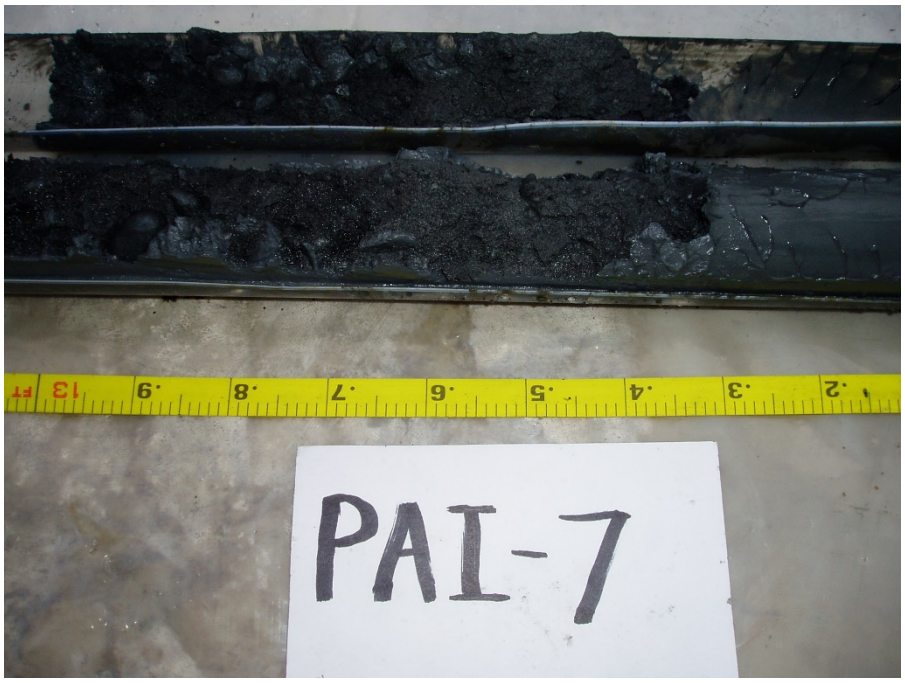
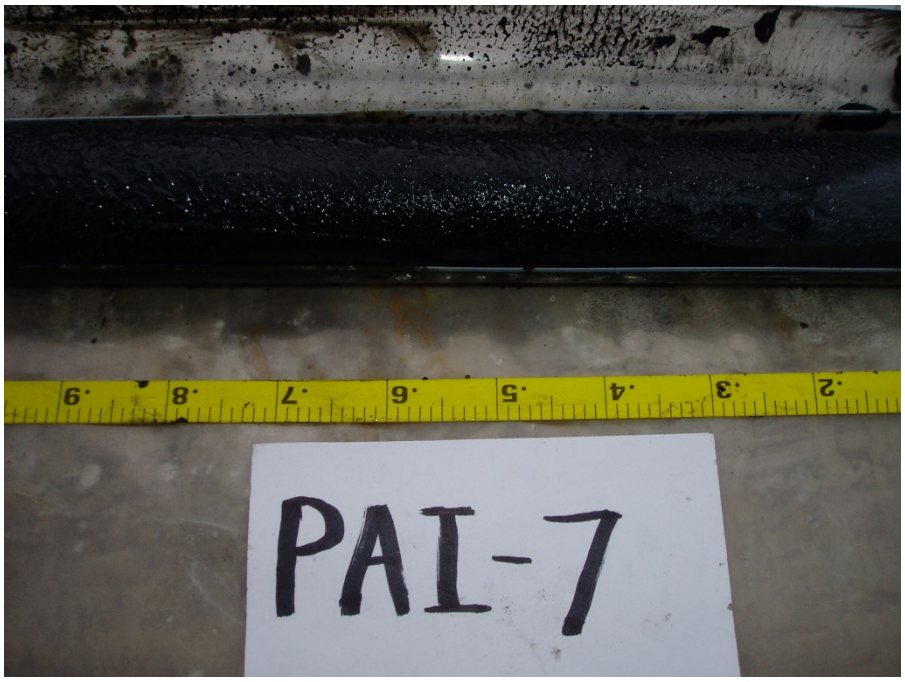


PAI-7 12 to 13 feet



PAI-7 13 to 14 feet

Soil Boring Field Photographs PAI-7	
Gas Works Park Site Seattle, Washington	
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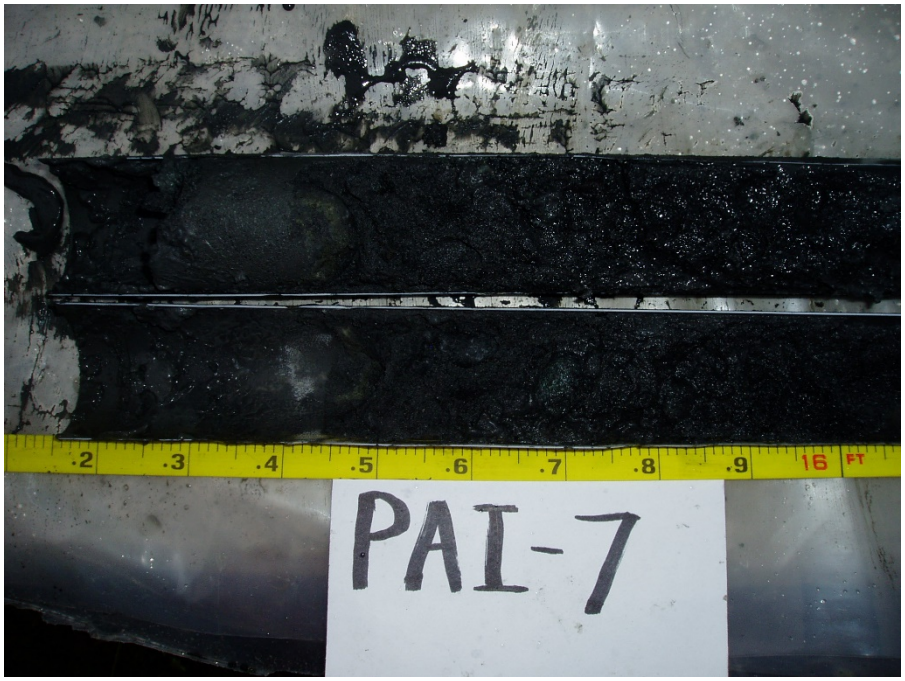
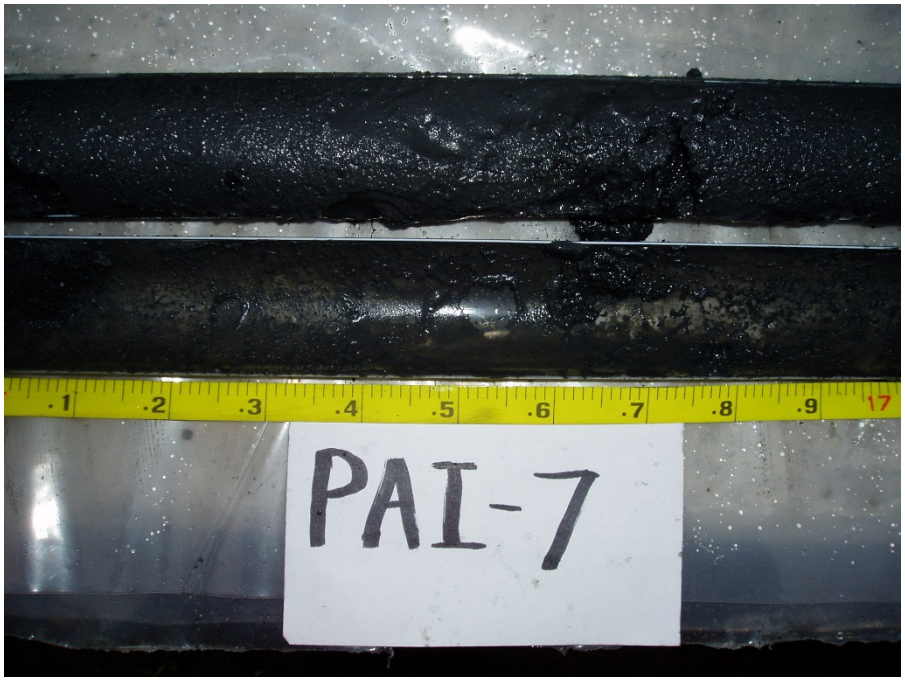
PAI-7 14 to 15 feet



PAI-7 15 to 16 feet

Soil Boring Field Photographs PAI-7	
Gas Works Park Site Seattle, Washington	
GeoEngineers	Appendix 2B-1-2



PAI-7 16 to 17 feet

PAI-7 17 to 18 feet

Soil Boring Field Photographs PAI-7	
Gas Works Park Site Seattle, Washington	
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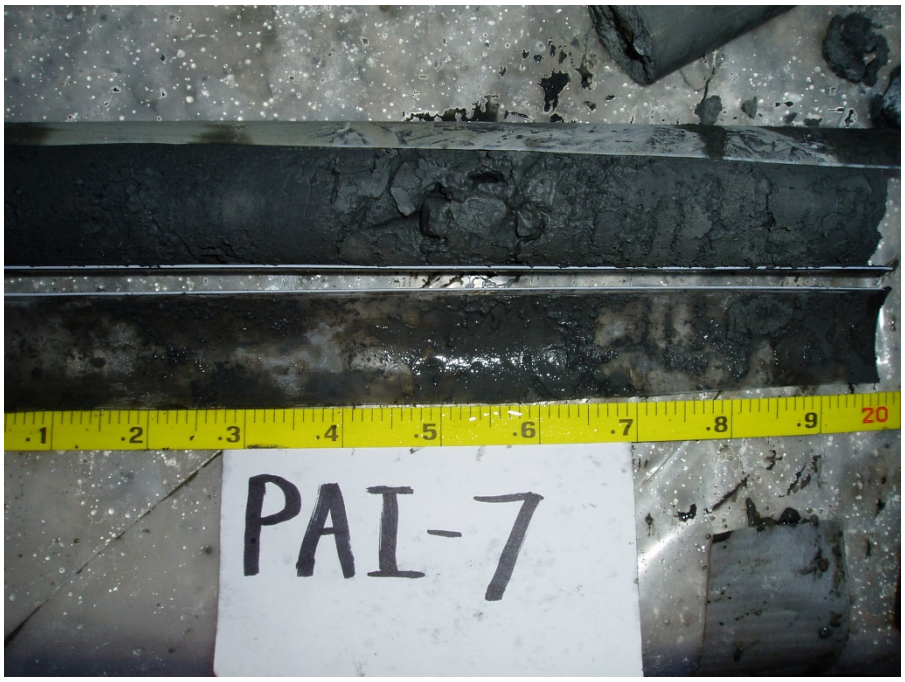
PAI-7 18 to 19 feet



PAI-7 19 to 20 feet

Soil Boring Field Photographs PAI-7	
Gas Works Park Site Seattle, Washington	
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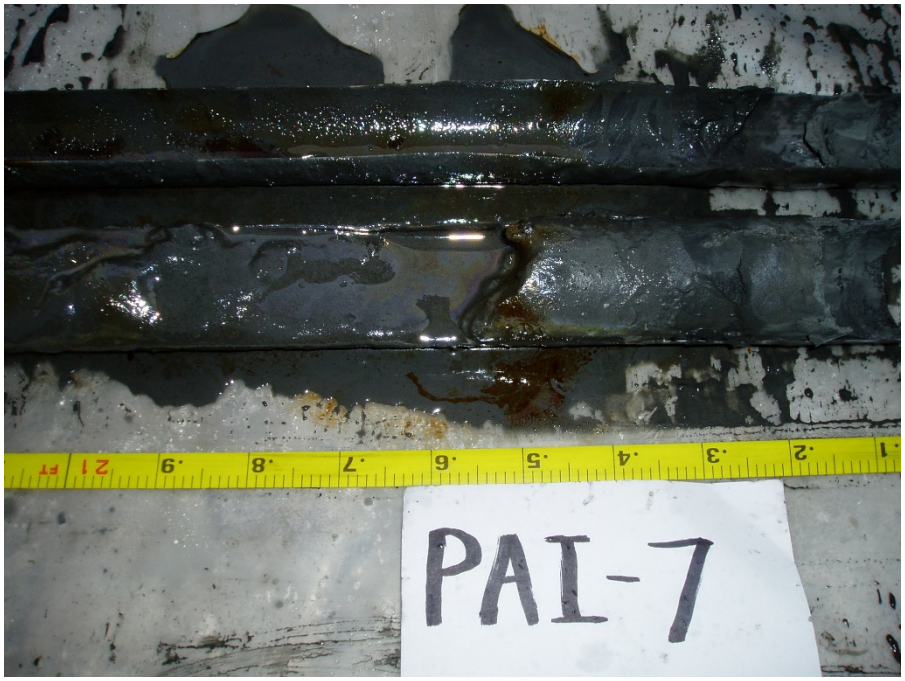
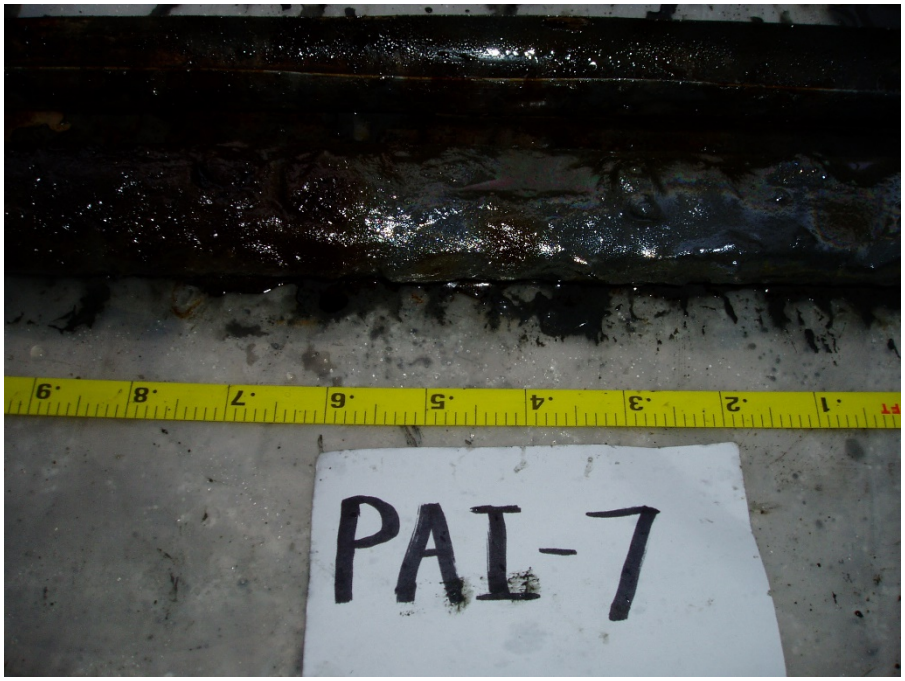


PAI-7 20 to 21 feet



PAI-7 21 to 22 feet

Soil Boring Field Photographs PAI-7	
Gas Works Park Site Seattle, Washington	
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PAI-7 22 to 23 feet

PAI-7 23 to 24 feet

Soil Boring Field Photographs PAI-7	
Gas Works Park Site Seattle, Washington	
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PAI-7 24 to 25 feet

Soil Boring Field Photographs PAI-7	
Gas Works Park Site Seattle, Washington	
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PAI-8 2 to 3 feet

PAI-8 3 to 4 feet

Soil Boring Field Photographs PAI-8

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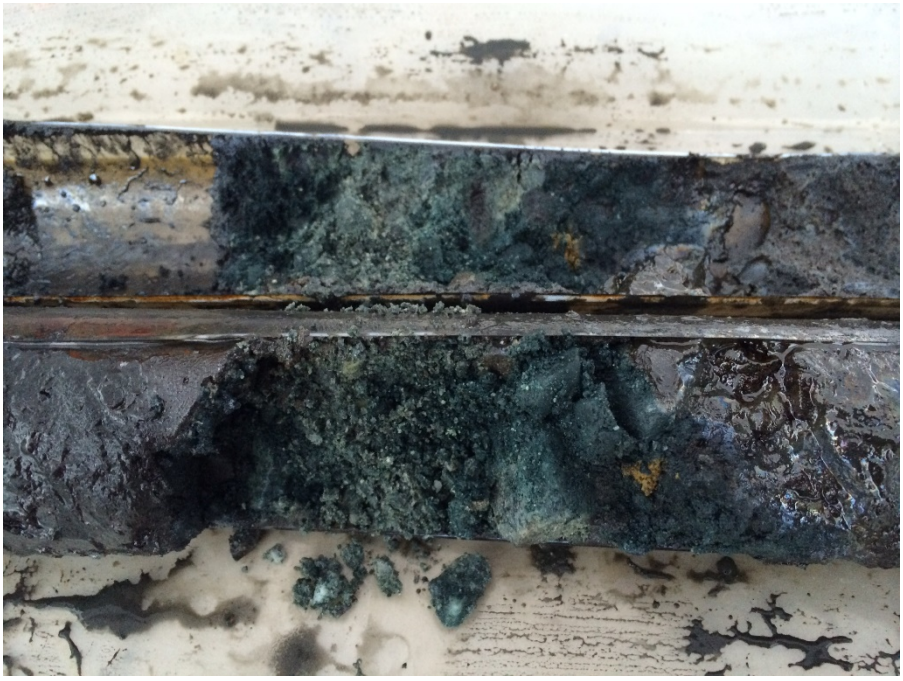
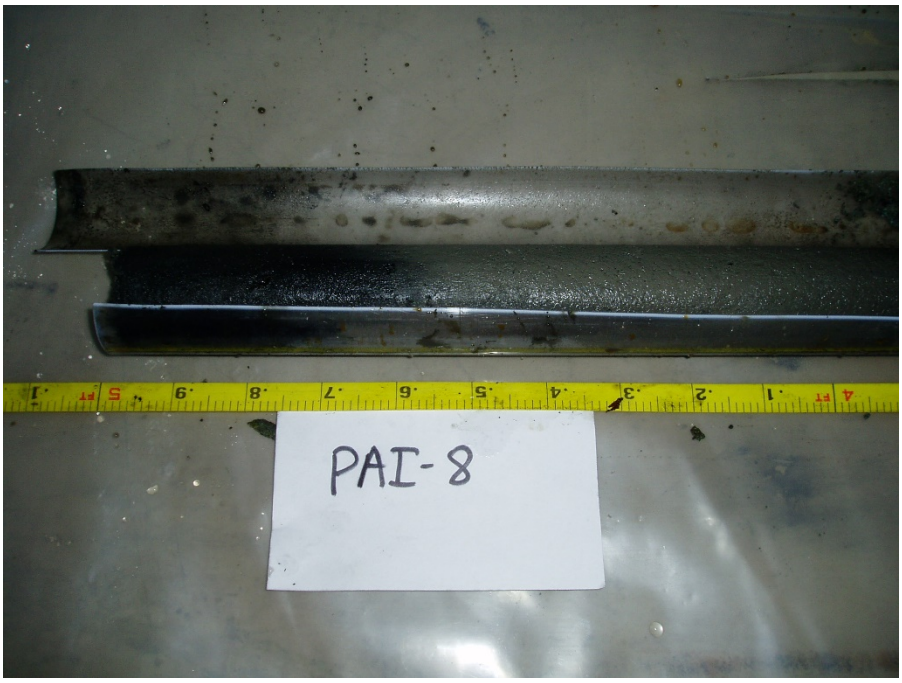


PAI-8 3 to 4 feet (close-up)



PAI-8 4 to 5 feet

Soil Boring Field Photographs PAI-8	
Gas Works Park Site Seattle, Washington	
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PAI-8 5 to 6 feet

PAI-8 6 to 7 feet

Soil Boring Field Photographs PAI-8

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PAI-8 7 to 8 feet

PAI-8 8 to 9 feet

Soil Boring Field Photographs PAI-8	
Gas Works Park Site Seattle, Washington	
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PAI-8 9 to 10 feet

PAI-8 16 to 17 feet

Soil Boring Field Photographs PAI-8	
Gas Works Park Site Seattle, Washington	
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PAI-8 17 to 18 feet

PAI-8 18 to 19 feet

Soil Boring Field Photographs PAI-8

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PAI-8 19 to 20 feet

PAI-8 20 to 21 feet

Soil Boring Field Photographs PAI-8

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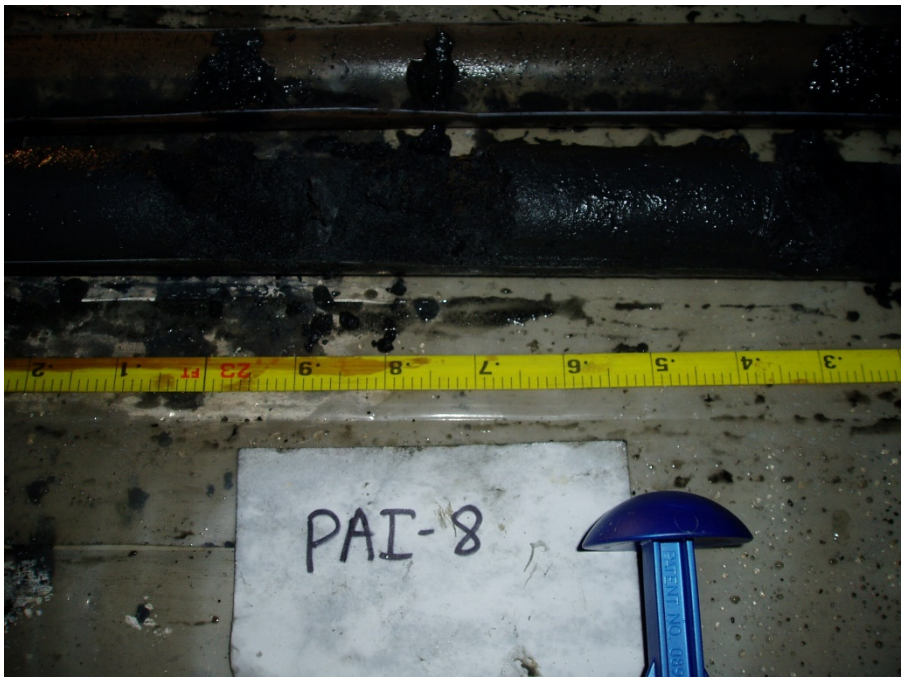
PAI-8 21 to 22 feet



PAI-8 22 to 23 feet

Soil Boring Field Photographs PAI-8

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PAI-8 23 to 24 feet

PAI-8 24 to 25 feet

Soil Boring Field Photographs PAI-8	
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PAI-8 25 to 26 feet

PAI-8 26 to 27 feet

Soil Boring Field Photographs PAI-8

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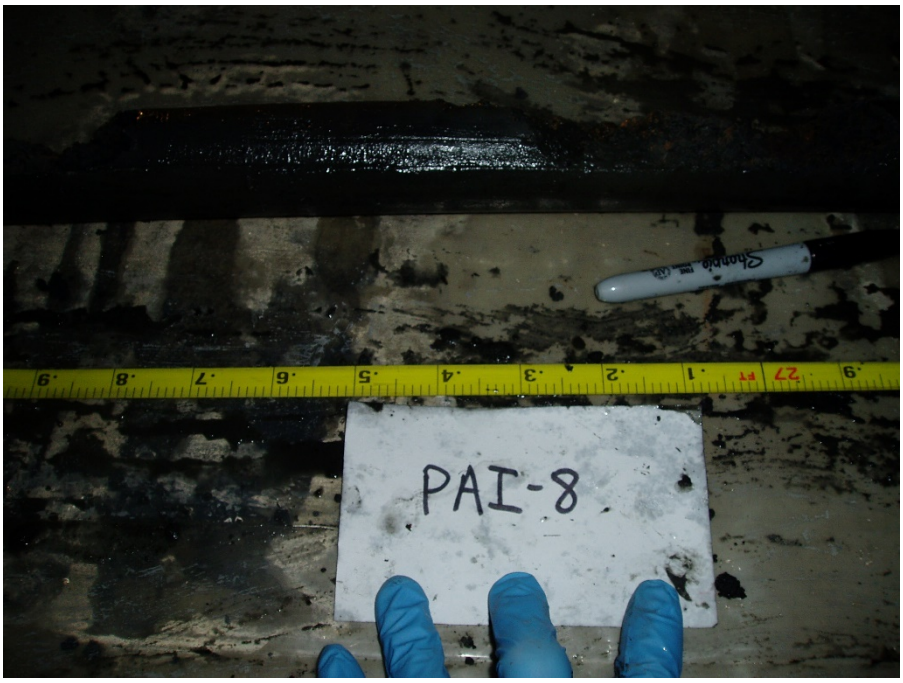
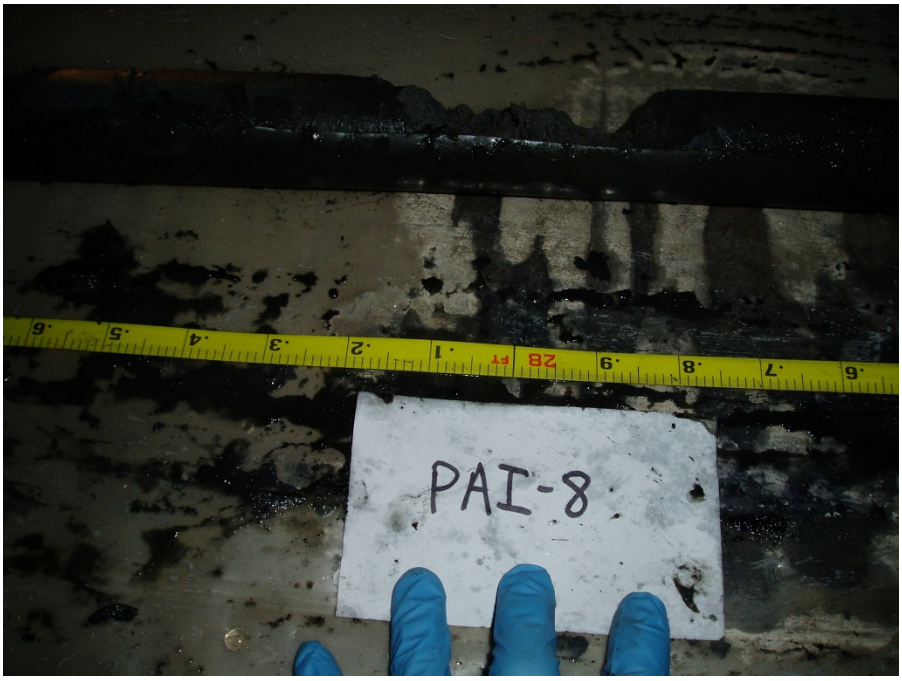


PAI-8 27 to 28 feet



PAI-8 28 feet

Soil Boring Field Photographs PAI-8	
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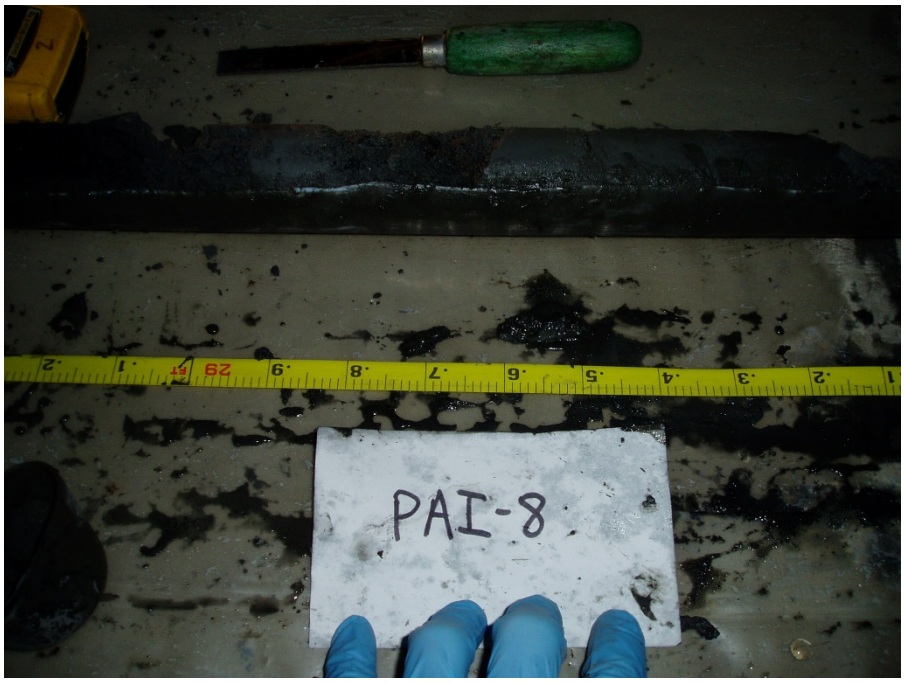

PAI-8 28 to 29 feet

PAI-8 29 to 30 feet

Soil Boring Field Photographs PAI-8	
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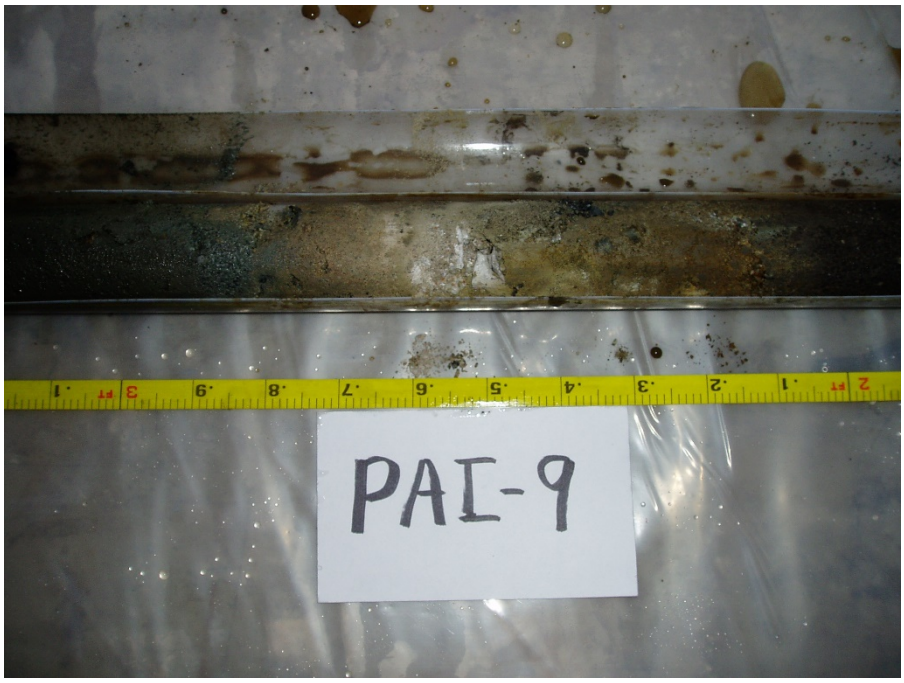
PAI-9 1 to 2 feet



PAI-9 2 to 3 feet

Soil Boring Field Photographs PAI-9	
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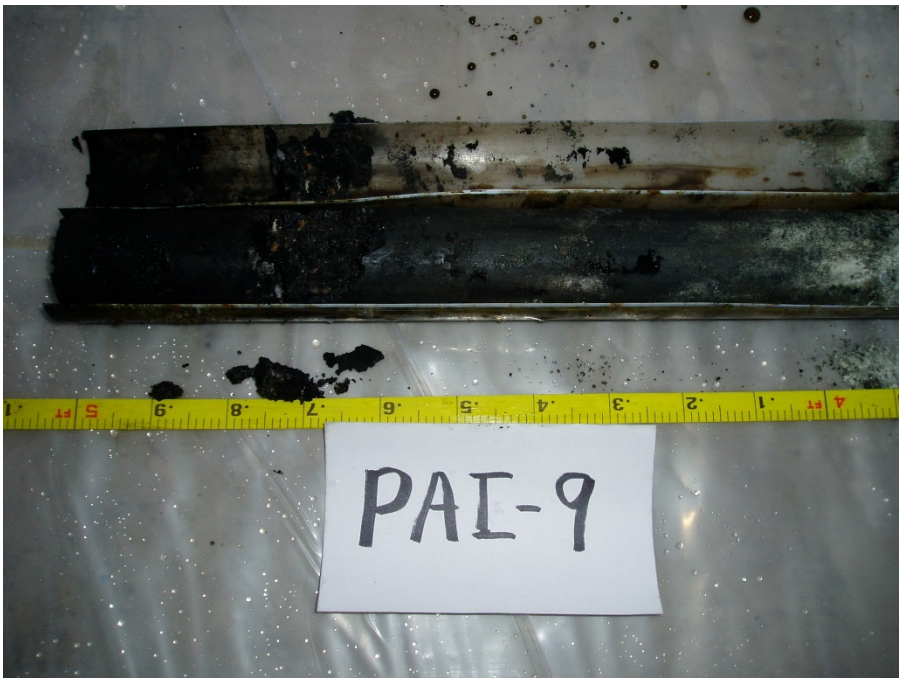
PAI-9 3 to 4 feet



PAI-9 4 to 5 feet

Soil Boring Field Photographs PAI-9

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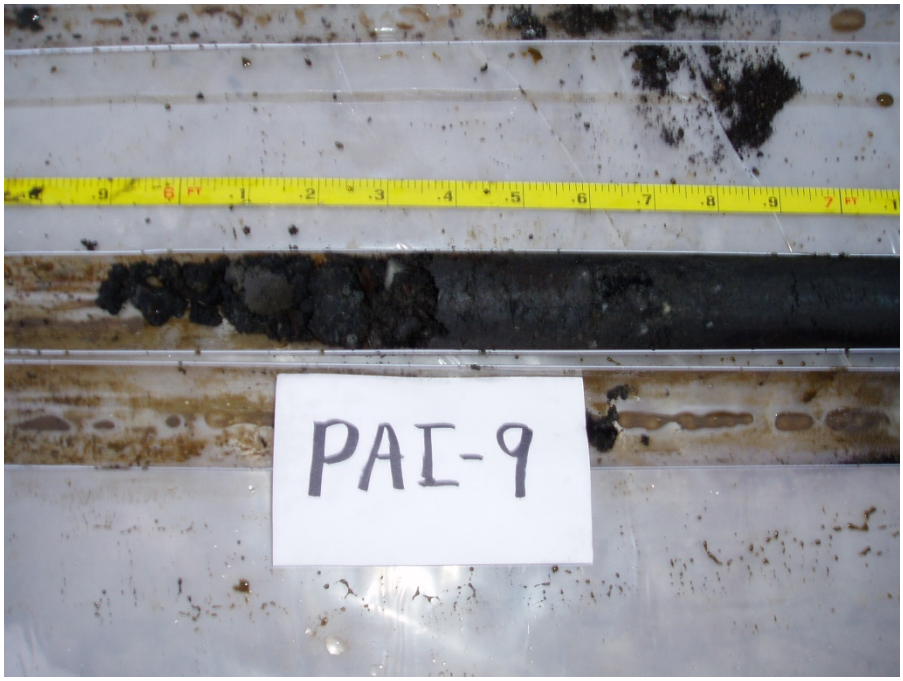
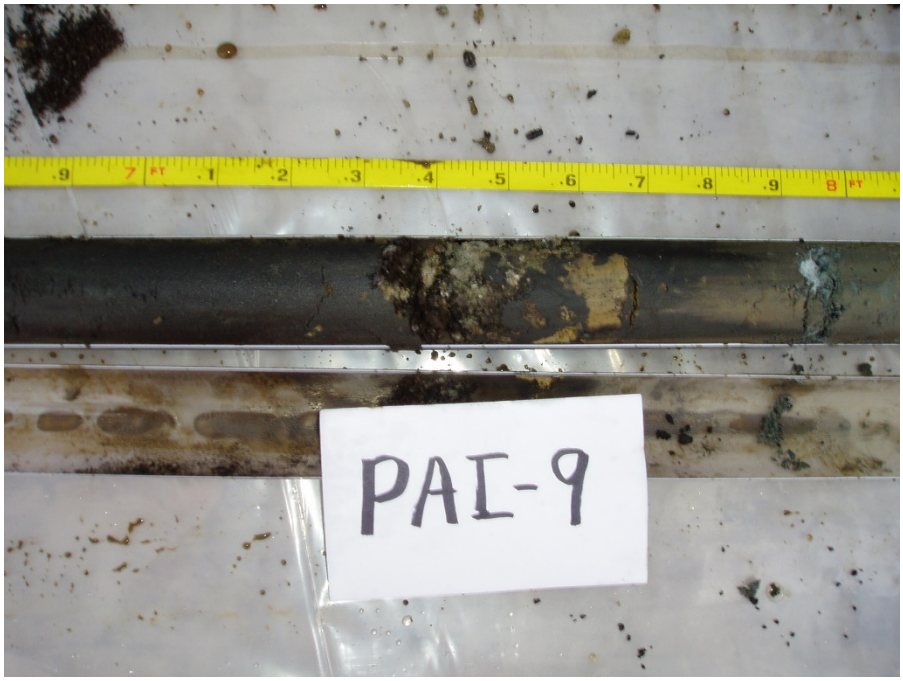
0186-846-01 Date Exported: 01/18/19



PAI-9 6 to 7 feet



PAI-9 7 to 8 feet

Soil Boring Field Photographs PAI-9

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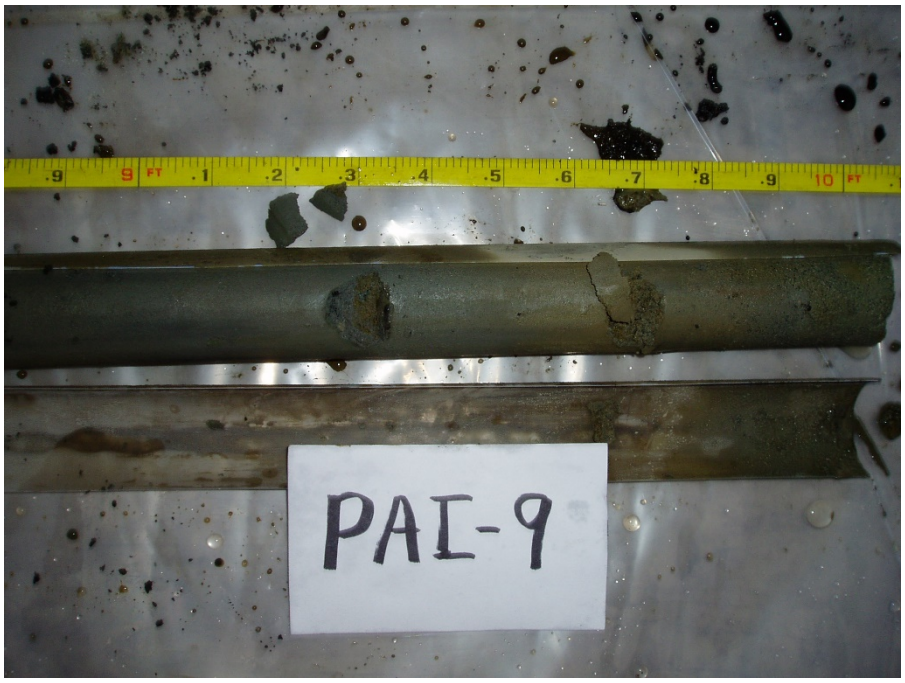
PAI-9 8 to 9 feet



PAI-9 9 to 10 feet

Soil Boring Field Photographs PAI-9	
Gas Works Park Site Seattle, Washington	
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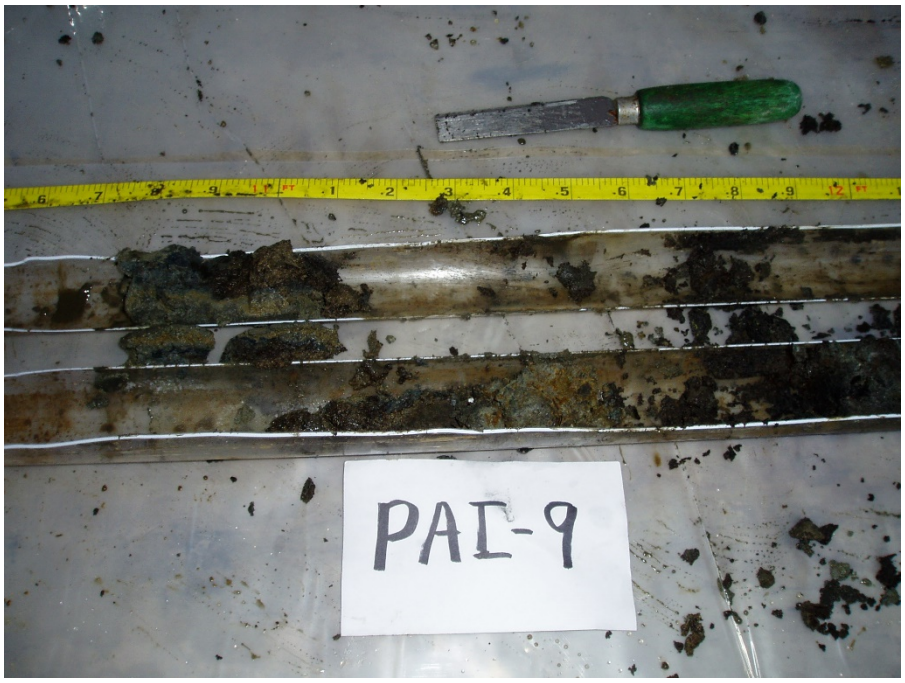
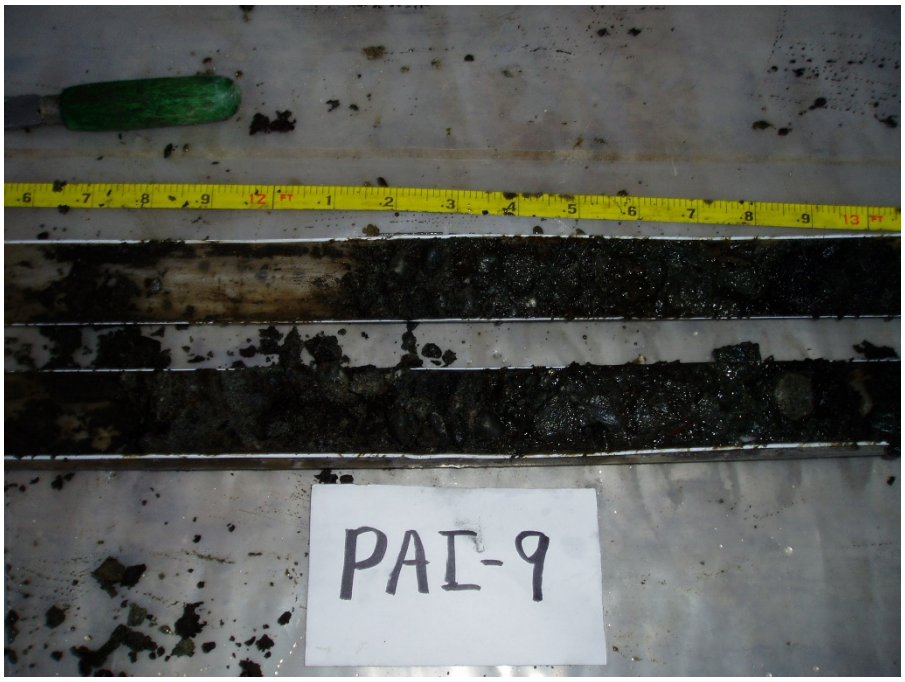


PAI-9 11 to 12 feet



PAI-9 12 to 13 feet

Soil Boring Field Photographs PAI-9	
Gas Works Park Site Seattle, Washington	
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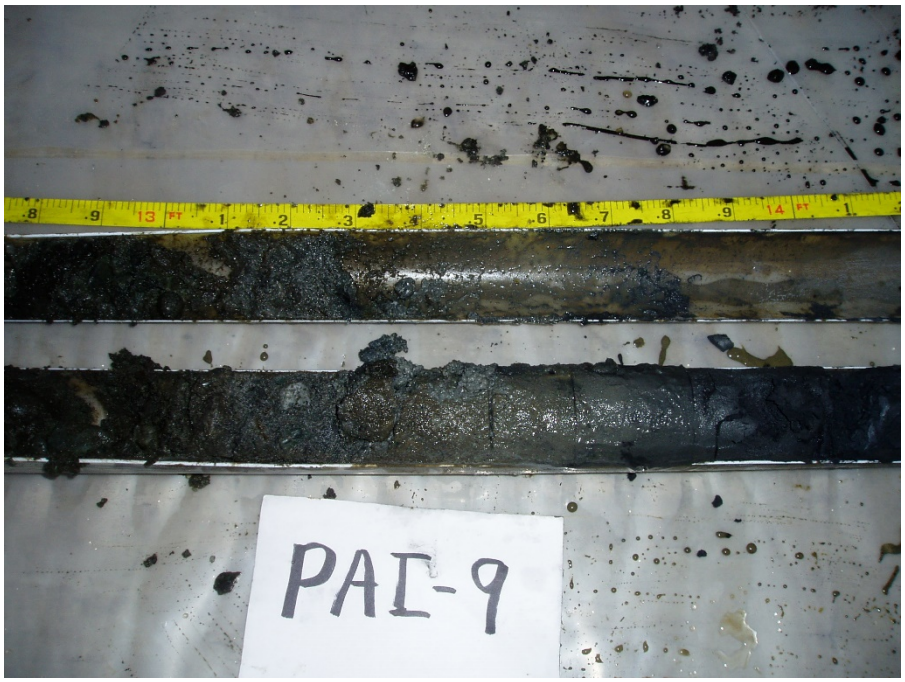

PAI-9 13 to 14 feet

PAI-9 14 to 15 feet

Soil Boring Field Photographs PAI-9	
Gas Works Park Site Seattle, Washington	
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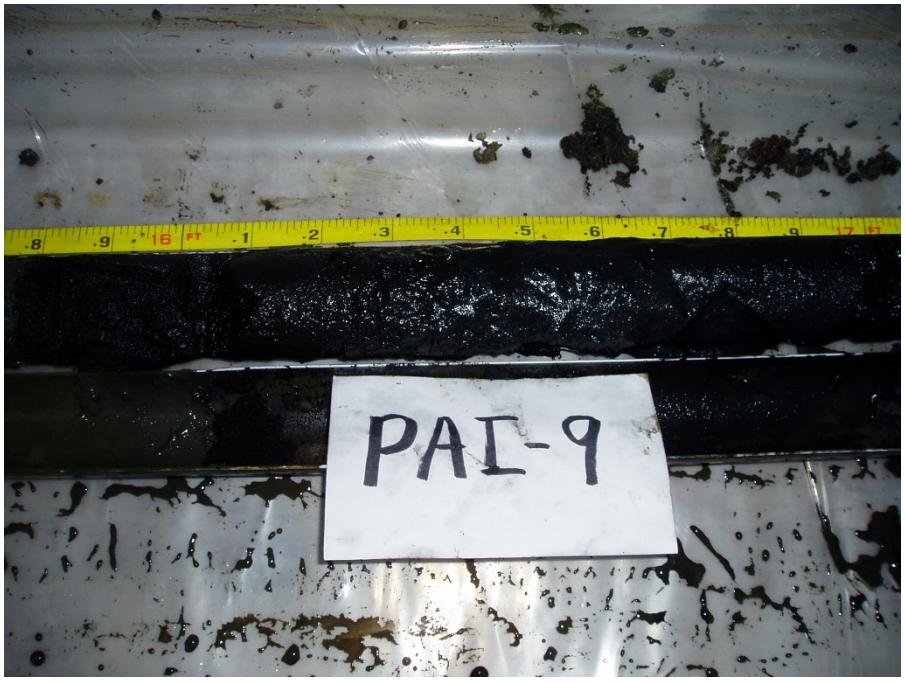

PAI-9 16 to 17 feet

PAI-9 17 to 18 feet

Soil Boring Field Photographs PAI-9

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PAI-9 18 to 19 feet

PAI-9 19 to 20 feet

Soil Boring Field Photographs PAI-9

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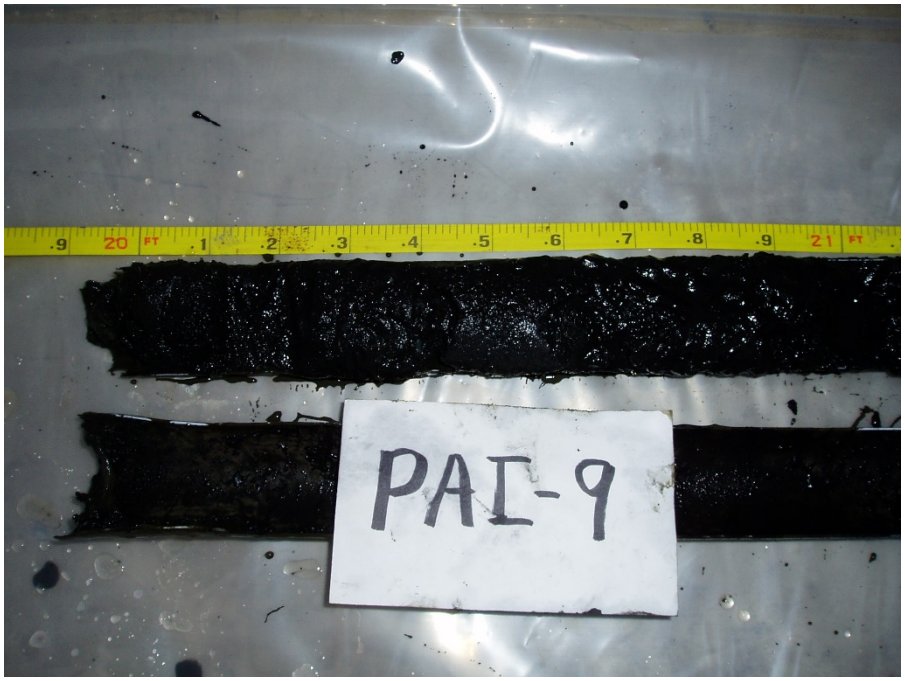
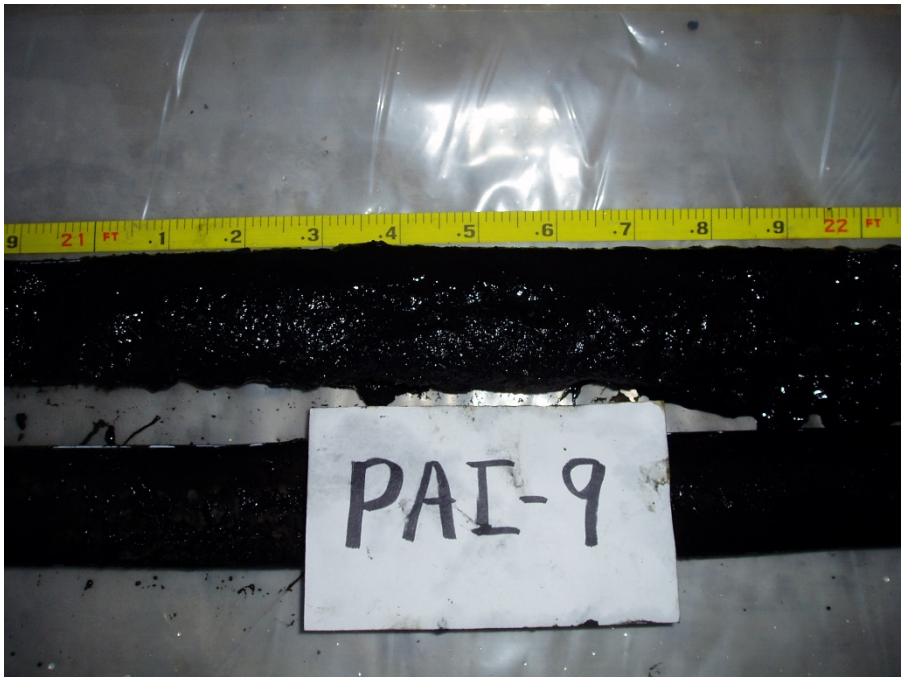


PAI-9 20 to 21 feet



PAI-9 21 to 22 feet

Soil Boring Field Photographs PAI-9	
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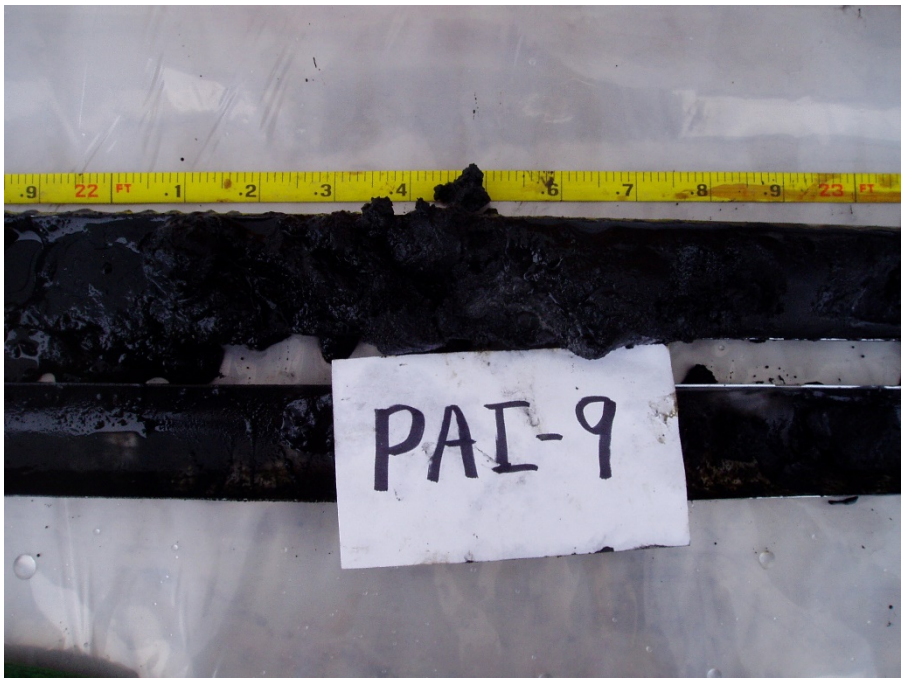

PAI-9 22 to 23 feet

PAI-9 23 to 24 feet

Soil Boring Field Photographs PAI-9	
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PAI-9 24 to 25 feet

Soil Boring Field Photographs PAI-9

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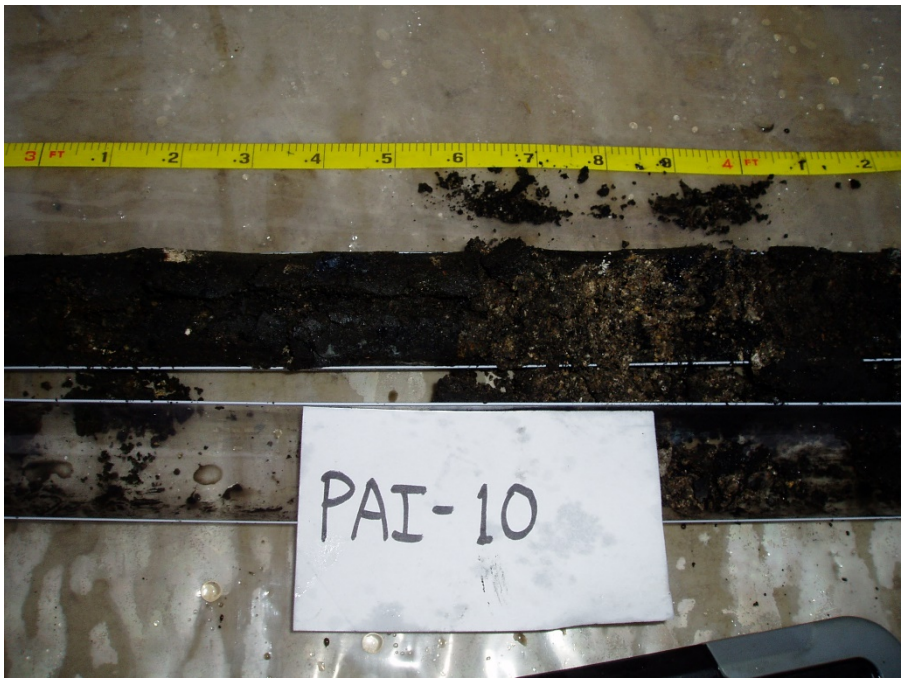
PAI-10 2 to 3 feet



PAI-10 3 to 4 feet

Soil Boring Field Photographs PAI-10

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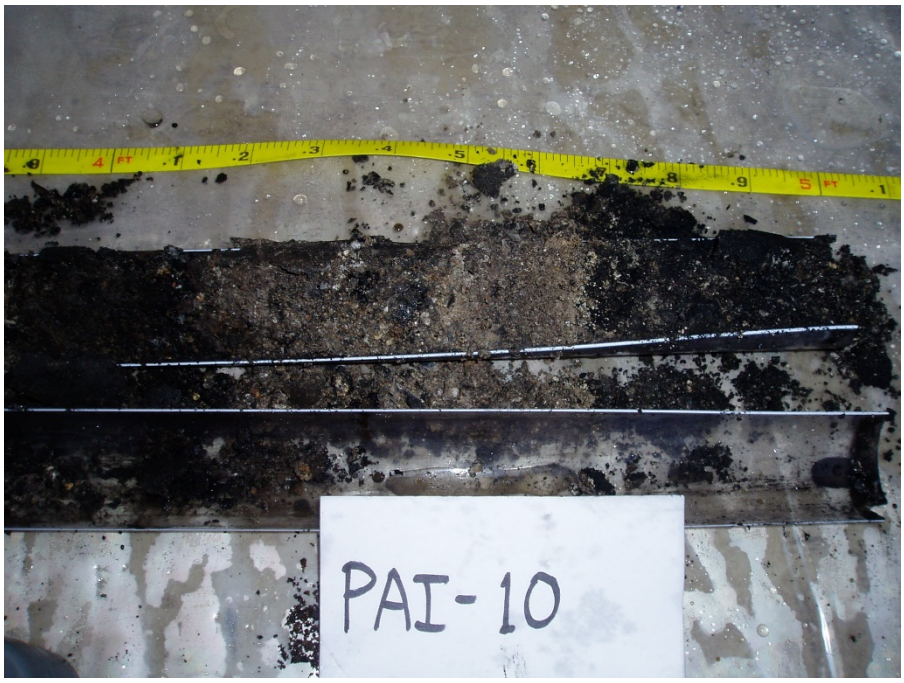
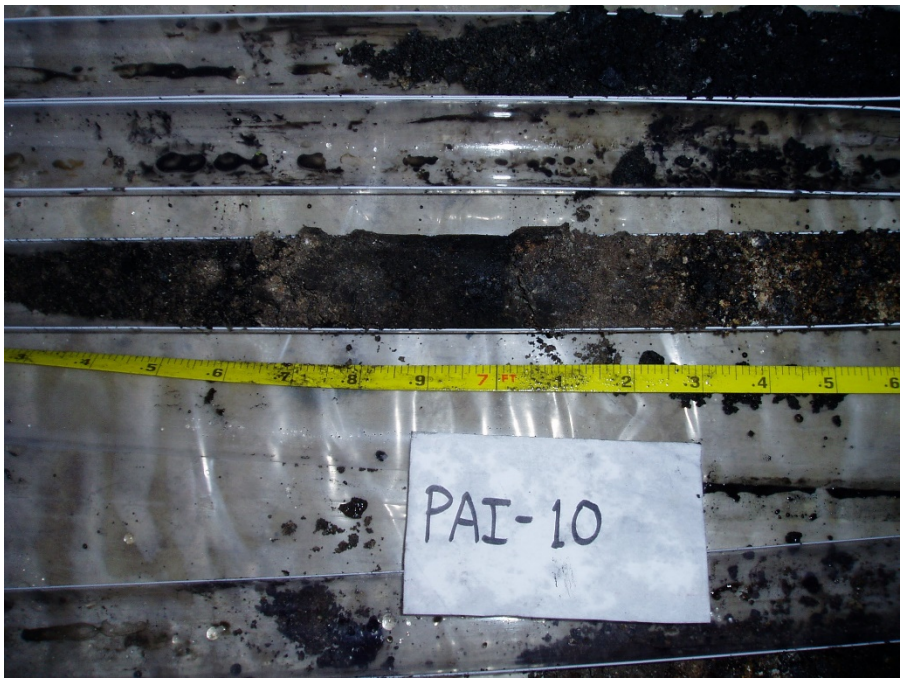
0186-846-01 Date Exported: 01/18/19



PAI-10 4 to 5 feet



PAI-10 7 feet

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PAI-10 8 feet

PAI-10 9 feet

Soil Boring Field Photographs PAI-10

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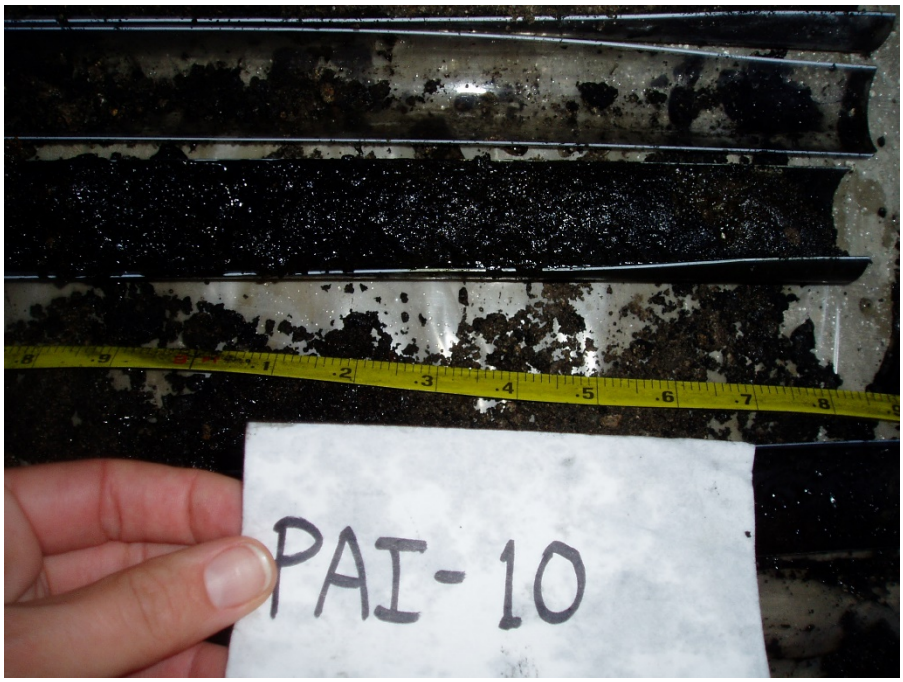
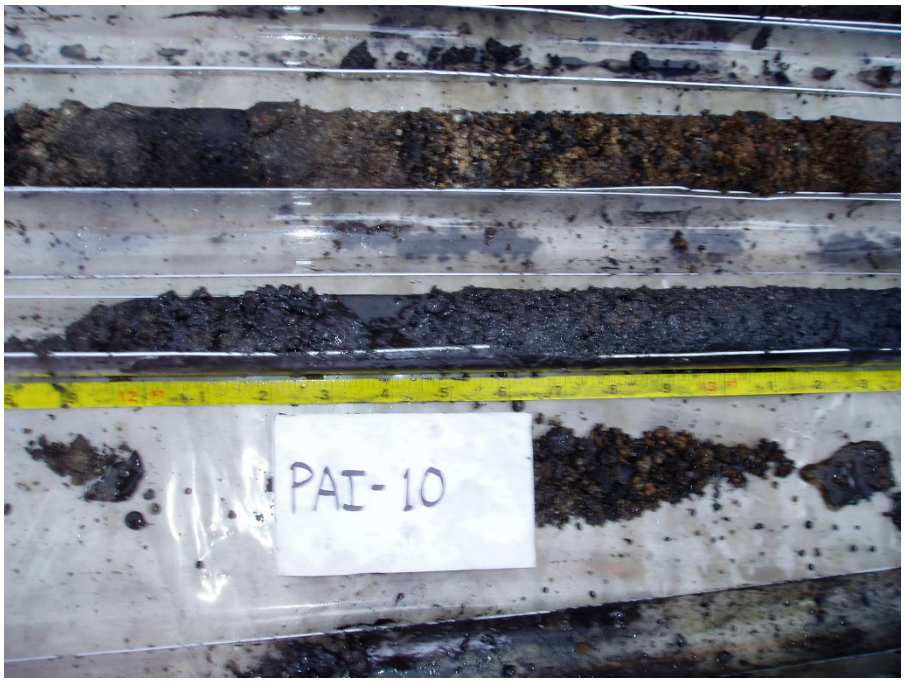


PAI-10 9 to 10 feet



PAI-10 12 to 13 feet

Soil Boring Field Photographs PAI-10

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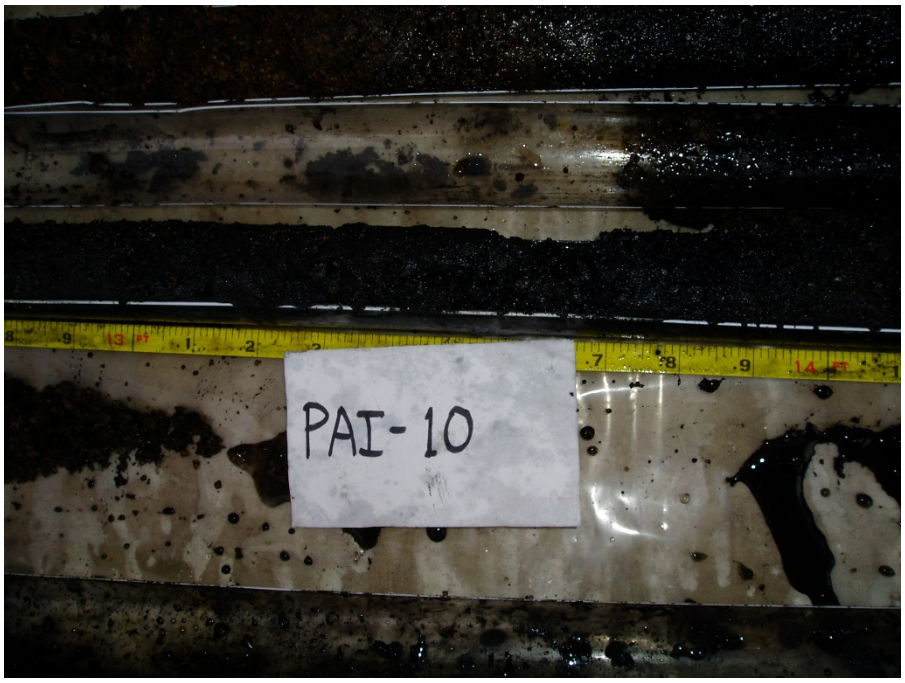
0186-846-01 Date Exported: 01/18/19



PAI-10 13 to 14 feet

PAI-10 14 feet

Soil Boring Field Photographs PAI-10

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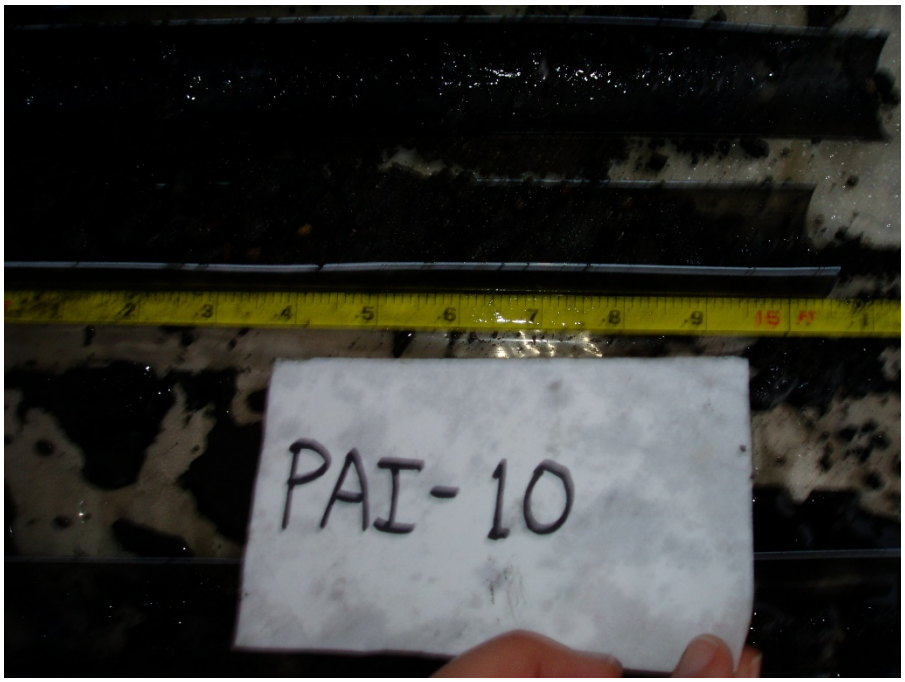
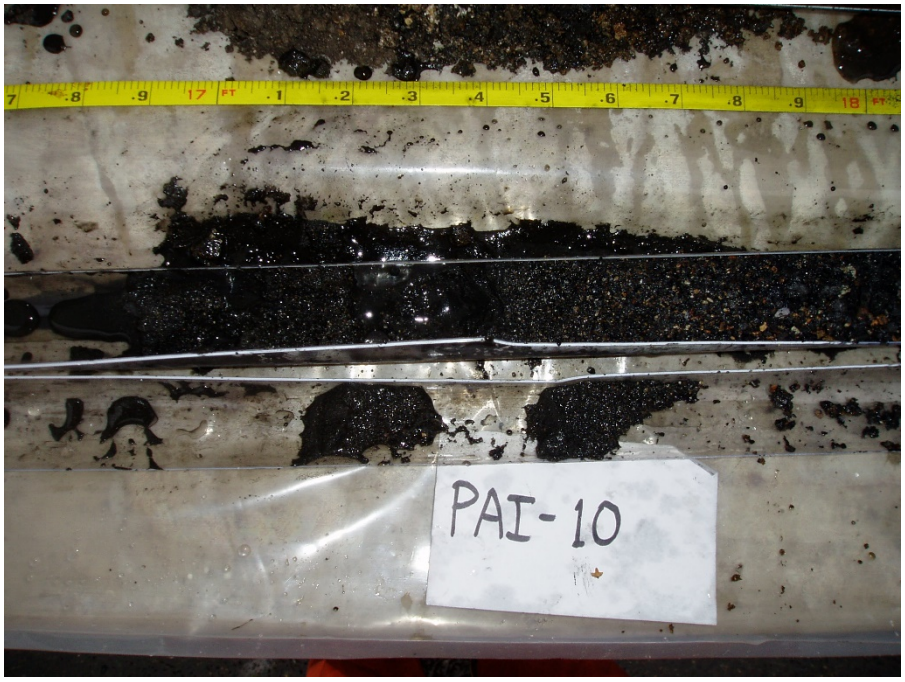


PAI-10 14 to 15 feet



PAI-10 17 to 18 feet

Soil Boring Field Photographs PAI-10	
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PAI-10 18 to 19 feet

PAI-10 19 to 20 feet

Soil Boring Field Photographs PAI-10

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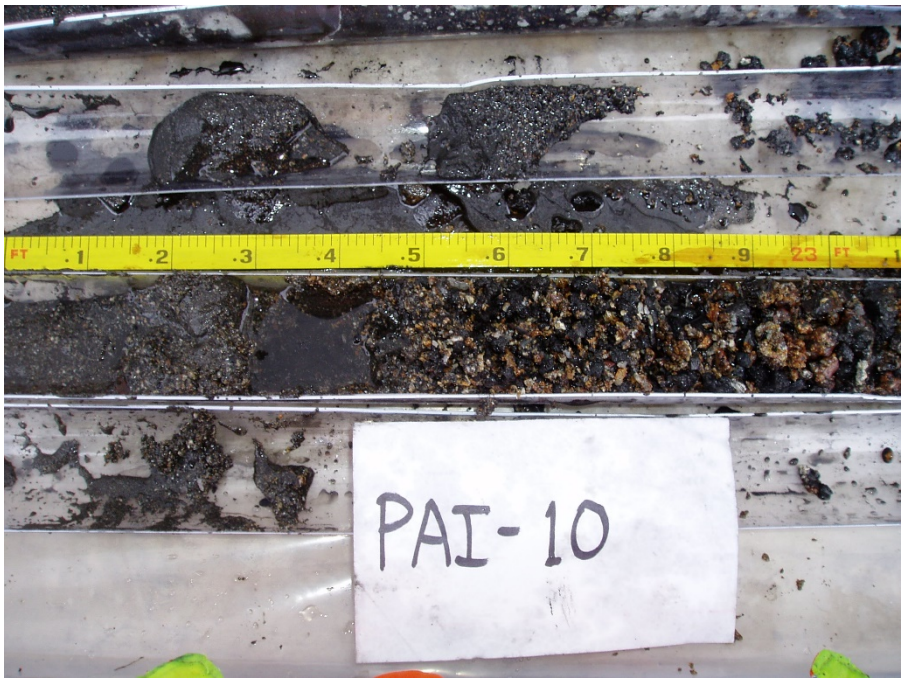
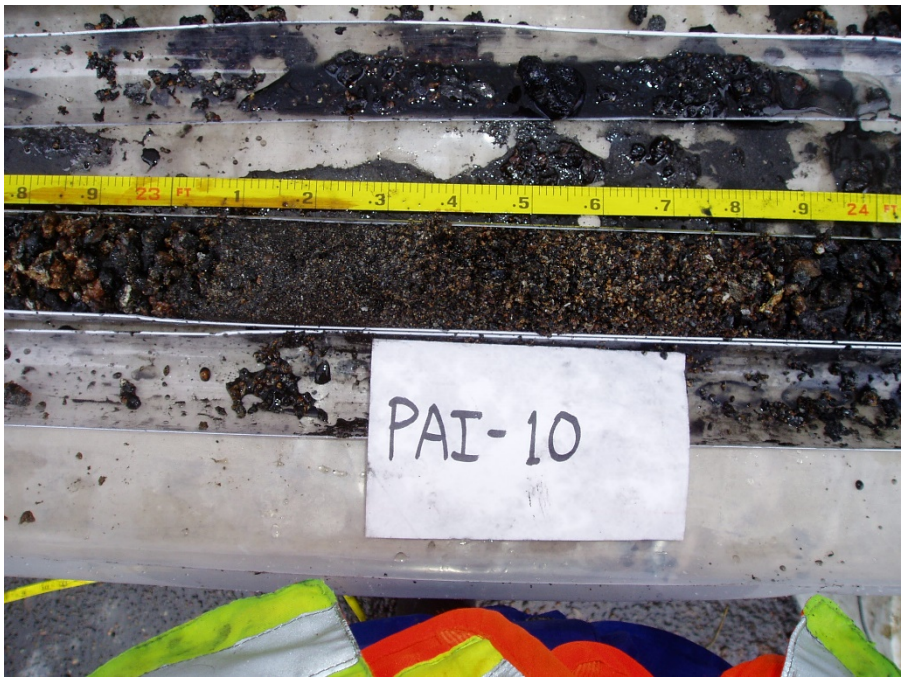


PAI-10 22 to 23 feet



PAI-10 23 to 24 feet

Soil Boring Field Photographs PAI-10

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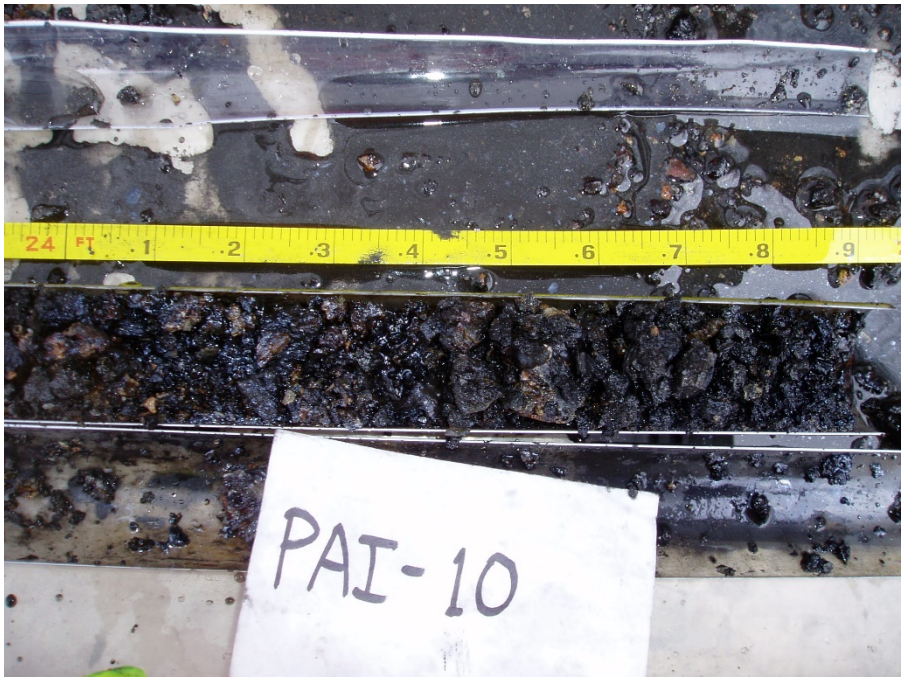
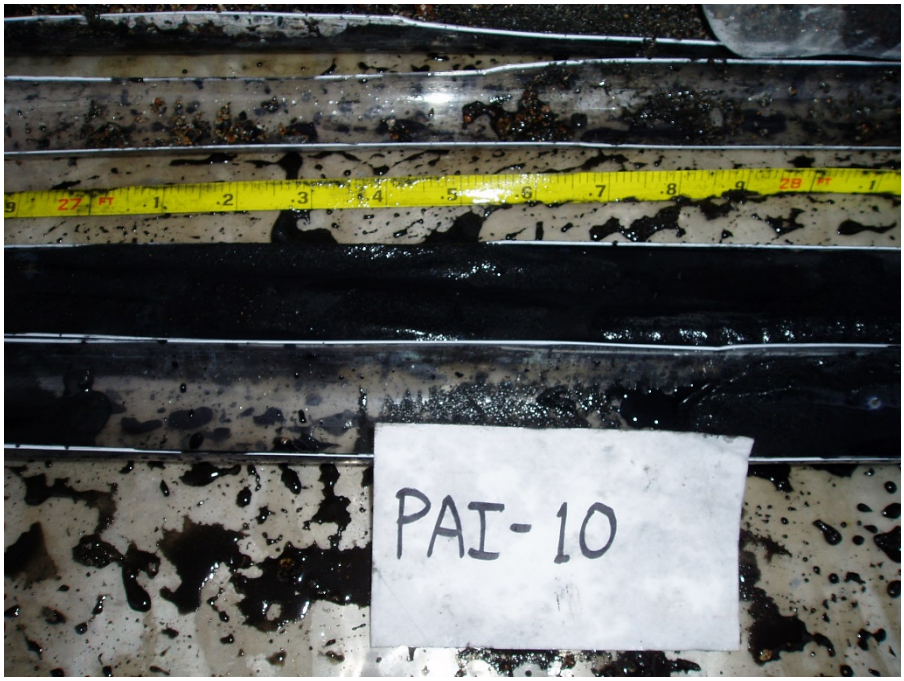


PAI-10 24 to 25 feet



PAI-10 27 to 28 feet

Soil Boring Field Photographs PAI-10	
Gas Works Park Site Seattle, Washington	
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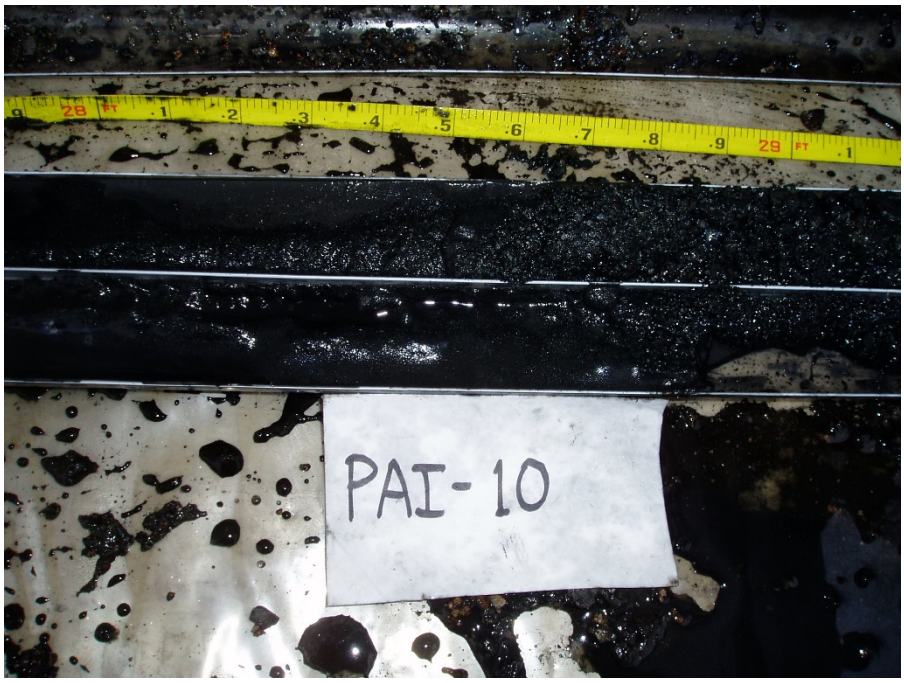

PAI-10 28 to 29 feet

PAI-10 29 to 30 feet

Soil Boring Field Photographs PAI-10

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PAI-10 30 to 31 feet

PAI-10 32 to 33 feet

Soil Boring Field Photographs PAI-10	
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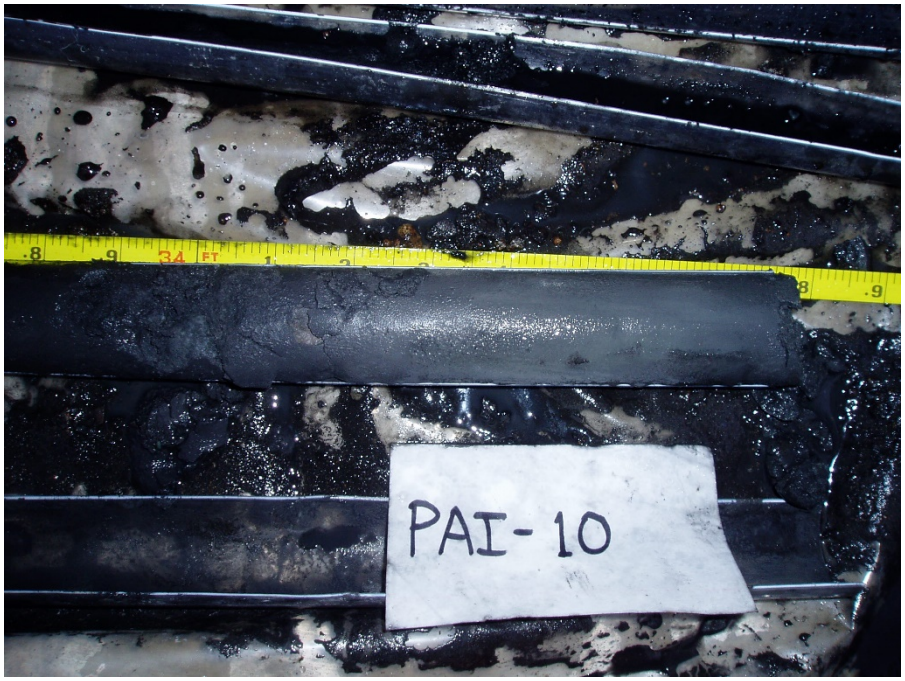
PAI-10 33 to 34 feet



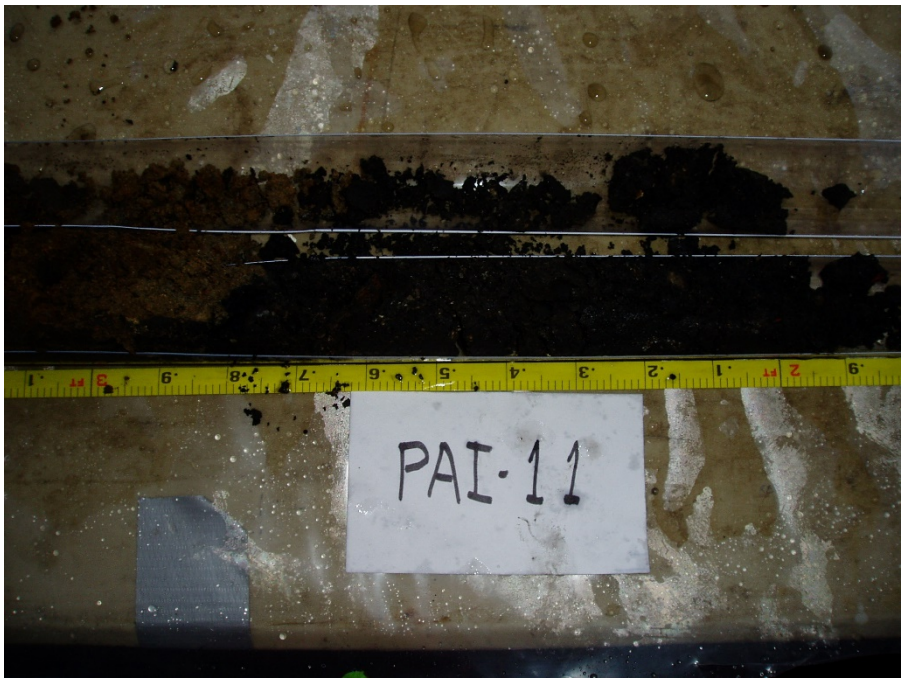
PAI-10 34 to 35 feet

Soil Boring Field Photographs PAI-10

Gas Works Park Site
Seattle, Washington

GeoEngineers

Appendix 2B-1-2

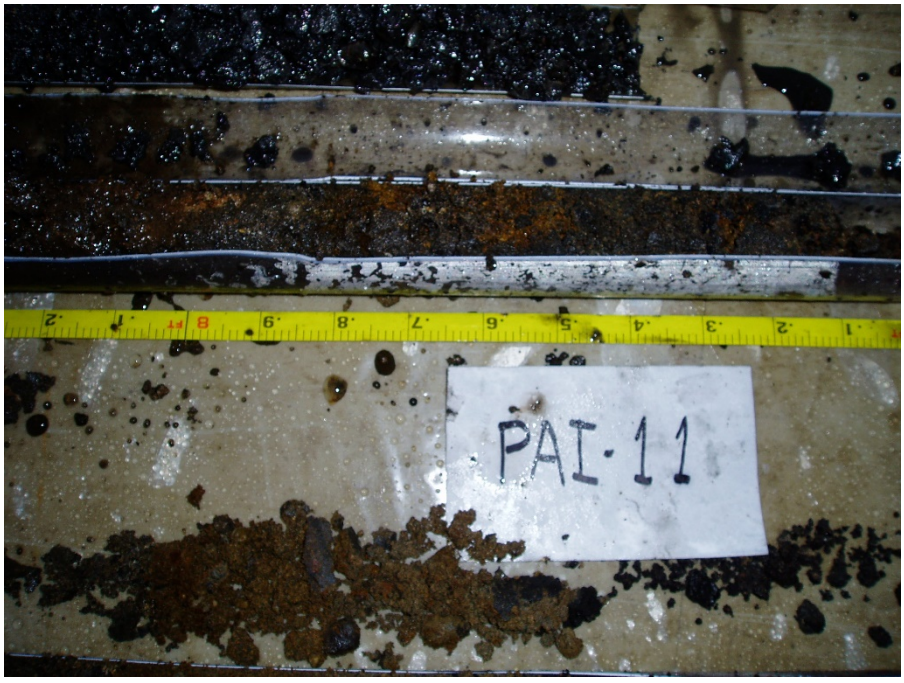


PAI-11 2 to 3 feet

PAI-11 3 to 4 feet

Soil Boring Field Photographs PAI-11	
Gas Works Park Site Seattle, Washington	
GeoEngineers	Appendix 2B-1-2

PAI-11 4 to 5 feet



PAI-11 7 to 8 feet

Soil Boring Field Photographs PAI-11

Gas Works Park Site
Seattle, Washington

GeoEngineers

Appendix 2B-1-2

PAI-11 8 to 9 feet

PAI-11 9 to 10 feet

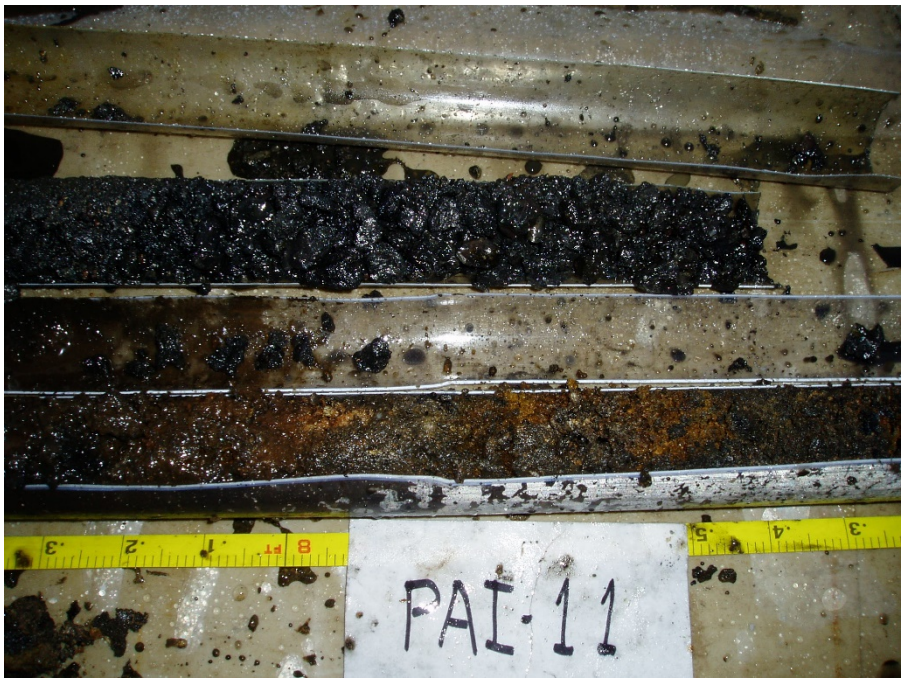
Soil Boring Field Photographs PAI-11

Gas Works Park Site
Seattle, Washington

GeoEngineers

Appendix 2B-1-2

0186-846-01 Date Exported: 01/18/19



PAI-11 11 to 13 feet top (back) liner

PAI-11 11 to 14 feet top (back) liner

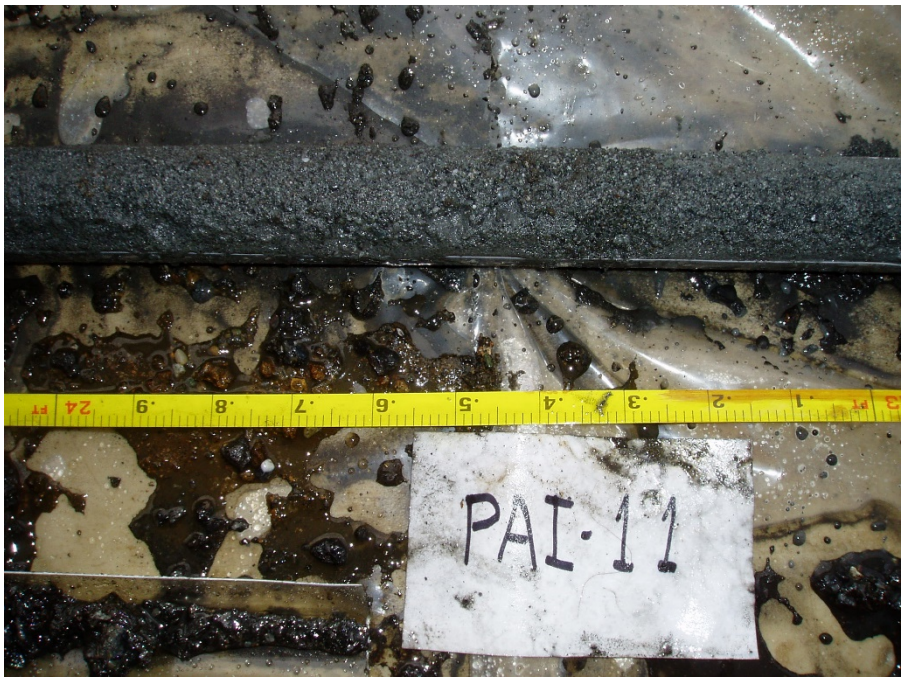
Soil Boring Field Photographs PAI-11	
Gas Works Park Site Seattle, Washington	
GeoEngineers	Appendix 2B-1-2

PAI-11 11 to 15 feet top (back) liner

PAI-11 21 to 22 feet

Soil Boring Field Photographs PAI-11	
Gas Works Park Site Seattle, Washington	
GeoEngineers	Appendix 2B-1-2

PAI-11 22 to 23 feet



PAI-11 23 to 24 feet

Soil Boring Field Photographs PAI-11

Gas Works Park Site
Seattle, Washington

GeoEngineers

Appendix 2B-1-2

0186-846-01 Date Exported: 01/18/19

PAI-11 24 feet

PAI-11 25 feet

Soil Boring Field Photographs PAI-11

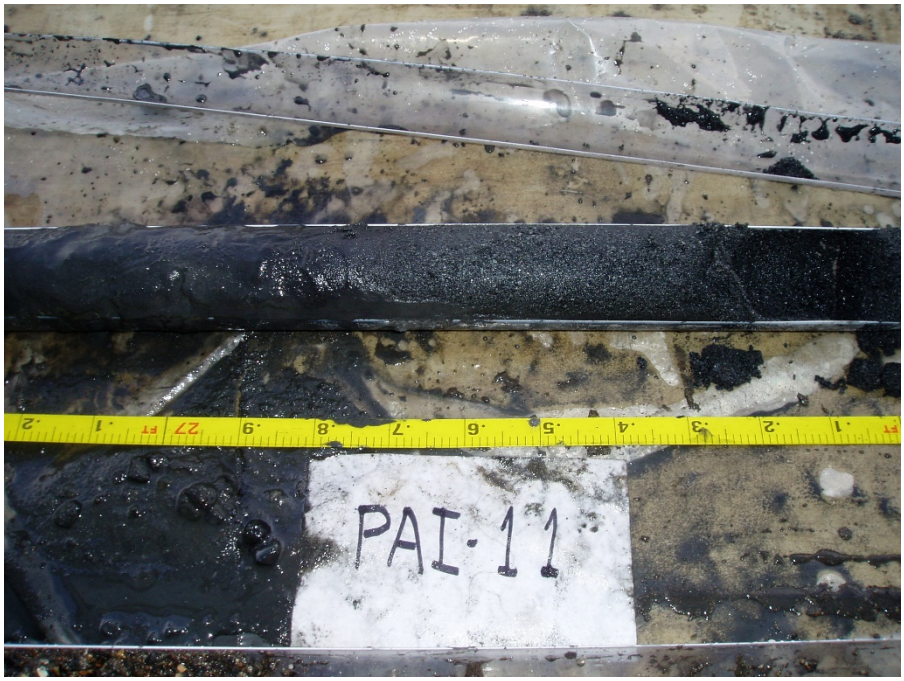
Gas Works Park Site
Seattle, Washington

GeoEngineers

Appendix 2B-1-2

0186-846-01 Date Exported: 01/18/19

PAI-11 25 to 26 feet



PAI-11 26 to 27 feet

Soil Boring Field Photographs PAI-11

Gas Works Park Site
Seattle, Washington

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0186-846-01 Date Exported: 01/18/19

PAI-11 27 to 28 feet

PAI-11 29 feet

Soil Boring Field Photographs PAI-11

Gas Works Park Site
Seattle, Washington

GeoEngineers

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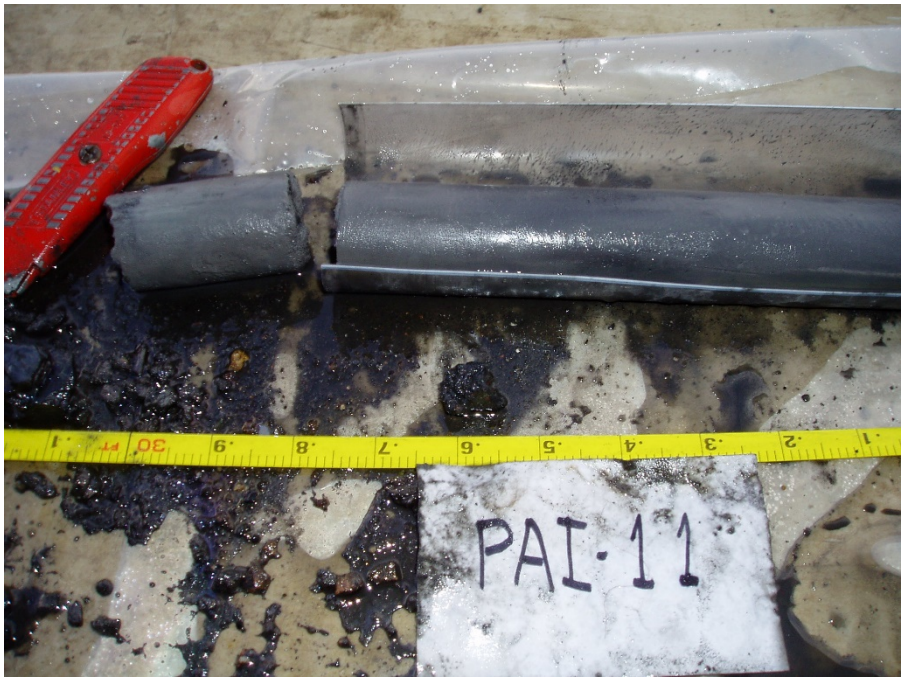
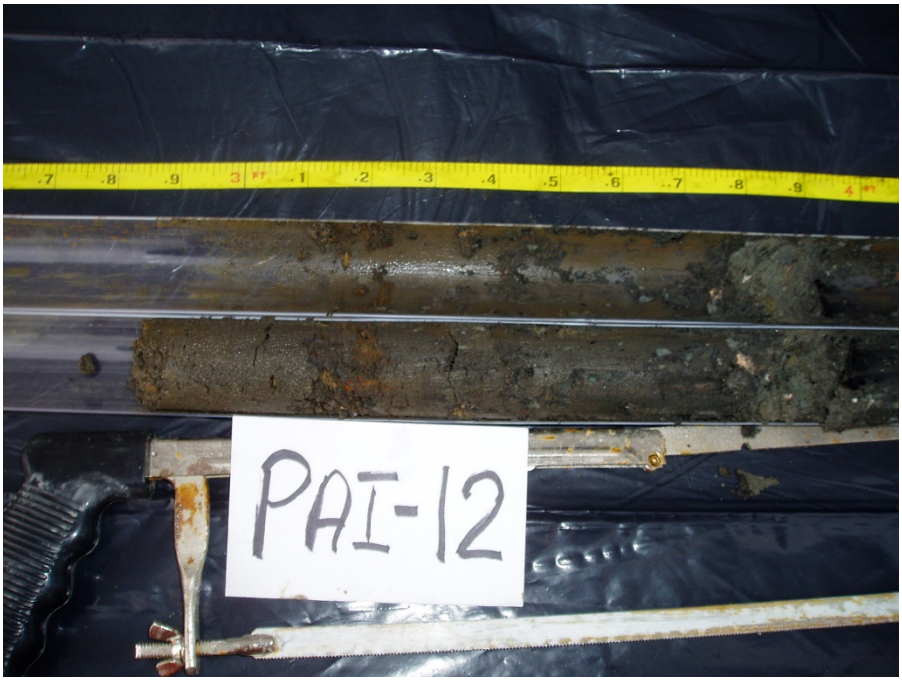


PAI-11 30 feet

Soil Boring Field Photographs PAI-11	
Gas Works Park Site Seattle, Washington	
GeoEngineers	Appendix 2B-1-2

0186-846-01 Date Exported: 01/18/19



PAI-12 3 to 4 feet

PAI-12 4 feet

Soil Boring Field Photographs PAI-12	
Gas Works Park Site Seattle, Washington	
GeoEngineers	Appendix 2B-1-2

PAI-12 4 to 5 feet

PAI-12 11 to 12 feet

Soil Boring Field Photographs PAI-12

Gas Works Park Site
Seattle, Washington

GeoEngineers

Appendix 2B-1-2

0186-846-01 Date Exported: 01/18/19

PAI-12 12 feet

PAI-12 12 to 13 feet

Soil Boring Field Photographs PAI-12	
Gas Works Park Site Seattle, Washington	
GeoEngineers	Appendix 2B-1-2

PAI-12 14 to 15a feet

PAI-12 14 to 15b feet

Soil Boring Field Photographs PAI-12	
Gas Works Park Site Seattle, Washington	
GeoEngineers	Appendix 2B-1-2

ATTACHMENT 2B-1-3
Data Validation Memos and ARI Lab Data Packages

GeoEngineers

Plaza 600 Building, 600 Stewart Street, Suite 1700, Seattle, WA 98101, Telephone: 206.728.2674, Fax: 206.728.2732 www.geoengineers.com

Data Validation Report

Project:	PSE North Lake Union – 2015 Play Area Investigation (Soil)
File:	00186-846-01
Date:	January 30, 2015
Lab Report:	Z041, Z068, Z083, ZP06, ZP11, ZP16, and ZP35

This report presents the results of a United States Environmental Protection Agency (USEPA)-defined Stage 2A validation (USEPA Document 540-R-08-005; USEPA, 2009) of analytical data from the analyses of soil boring samples obtained from the Play Area Investigation at the PSE North Lake Union site. Samples obtained were submitted to Analytical Resources, Incorporated (ARI) of Tukwila, Washington for chemical analysis of benzene, toluene, ethylbenzene, and xylene (BTEX) compounds by EPA method SW8260C, polycyclic aromatic hydrocarbons (PAHs) by EPA method SW8270-SIM, and arsenic by EPA Method 6010C. ARI also conducted conventional parameter analyses including Acid-Extractable Sulfide by Standard Method 4500-S2D[1].

The objective of this data quality assessment was to review laboratory analytical procedures and QC results to evaluate whether the samples were analyzed using well-defined and acceptable methods that provide quantitation limits below applicable regulatory criteria, the precision and accuracy of the data are well defined and sufficient to provide defensible data, and the quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

ARI Sample Delivery Groups (SDGs; noted above) were reviewed for the following quality control (QC) elements:

- Chain of Custody
- Holding Times
- Additional/Follow-up Analyses
- Surrogates/Labeled Compounds
- Method Blanks, Equipment Rinsate Blanks, and Trip Blanks
- Laboratory Control Samples
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory and Field Duplicates

DATA QUALITY ASSESSMENT SUMMARY

The results for each of the QC elements are summarized below. The data assessment was performed using guidance in two USEPA documents: USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (USEPA, 2010) and USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (USEPA, 2008).

[1] Additional analyses of soil samples (acid-insoluble sulfur and sequential extraction testing for arsenic and iron) were subcontracted by ARI to Horizon and Applied Speciation laboratories. These analyses are not included in this data validation report because they are specialized analyses that are not regulatory-driven.

Chain-of-Custody Documentation

Chain-of-custody forms were provided with the laboratory analytical reports. No transcription errors were found, and the appropriate signatures were applied. There were no anomalies mentioned in the sample receipt forms, as the samples were transported to the laboratory at the appropriate temperatures of between 2 and 6 degrees Celsius, except in cases where the samples were transported directly to the laboratory from the field. In these cases, the laboratory recorded temperatures greater than 6 degrees Celsius. No action was taken because the samples were received by the laboratory within 12 hours of sampling.

Holding Times

The holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for all analyses, with the following exceptions:

- **SDG Z083** (Conventionals Chemistry): All soil samples in this SDG were analyzed 3 days outside of the holding time of 7 days for the sulfide analysis because the laboratory needed to re-analyze the sample batch because of failing QC parameters. The positive results for sulfide were qualified as estimated (J) in Samples PAI-12-8.5-9.0, PAI-12-13.5-14.0, PAI-2-17.5-18.0, and PAI-2-19.0-19.5.
- **SDG ZP16** (Conventionals Chemistry): All soil samples in this SDG were analyzed 4 days outside of the holding time of 7 days for the sulfide analysis because the laboratory needed to re-analyze the sample batch because of failing QC parameters. The positive results for sulfide were qualified as estimated (J) in Samples PAI-10-31.5-32.0, PAI-11-12.0-12.5, and PAI-11-22-22.5.

Surrogate Recoveries

A surrogate compound is a compound that is chemically similar to the analytes of interest, but unlikely to be found in any environmental sample. Surrogates are used for organic analyses and are added to all samples, standards, and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added at a known concentration and percent recoveries are calculated following analysis. All surrogate recoveries for field samples were within the laboratory control limits, with the exceptions below:

- **SDGs Z041, Z068** (Regular PAHs): Due to the inherently high concentrations of target analytes in this sampling event, several soil samples had to be diluted by the laboratory. For the purposes of validation, any sample diluted at least 10 fold is considered to have the spiked surrogates diluted to levels which are lower than the calibration range of the instrument used for analysis and should not be relied upon as a measurement of accuracy.

  For this reason, there were no surrogate recoveries reported in the re-analyzed/dilutions of several samples in this sampling event. In each case, the absence of surrogate recoveries was found to be within the realm of normal laboratory procedure for diluted samples in order to accommodate high concentrations of target analytes, and no qualifiers were necessary.

  In almost all cases, the laboratory reported the samples that required dilution multiple times in order to achieve the lowest possible reporting limits for any target analytes that did not require dilution. For this reason, only the target analytes that exceeded the calibration range from each initial analysis

were qualified as Do-Not-Report (DNR). Correspondingly, all other analytes were qualified as Do-Not-Report (DNR) in the more diluted analysis in order to avoid the redundant reporting of data.

- **SDG Z068** (BTEX): The %R values for d4-1,2-dichloroethane exceeded the control limits in Samples PAI-6-9.0-9.5, PAI-7-10.0-10.5, and TRIP BLANK (12/9/14). In all cases, the laboratory reported three other surrogates with %R values within the appropriate control limits. For this reason, no further action was taken for these outliers.
- **SDG ZP16** (PAHs): The %R values for d4-dibenz(a,h)anthracene was lower than the control limit in Sample PAI-10-19.5-20.0. In this case, the laboratory reported two other surrogates with %R values within the appropriate control limits. For this reason, no further action was taken for this outlier.

Method Blanks, Trip Blanks, and Equipment Rinsate Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. Method blanks were analyzed with each batch of samples, at a frequency of one per twenty samples. For all sample batches, method blanks for all applicable methods were analyzed at the required frequency. None of the analytes of interest were detected in any of the method blanks, with the exceptions below:

- **SDG Z068** (PAHs): There was a positive result for naphthalene in the soil method blank extracted on 12/21/14 that was less than the contract required quantitation limit. There were no positive results that were less than contract required quantitation limit in any samples within the same laboratory prep batch. Also, the positive results for all associated field samples were greater than ten times the concentration reported in the method blank. No further action was required.
- **SDG ZP06, ZP16** (PAHs): There was a positive result for naphthalene in the soil method blank extracted on 12/24/14 that was less than the contract required quantitation limit. There were no positive results that were less than contract required quantitation limit in any samples within the same laboratory prep batch. Also, the positive results for all associated field samples were greater than ten times the concentration reported in the method blank. No further action was required.

Trip blanks are analyzed to provide an indication as to whether there has been any cross-contamination in the transportation process. Eight trip blanks were collected for this sampling event: TRIP BLANK_141208, TRIP BLANK_141209, TRIP BLANK_141210, TRIP BLANK_141211, TRIP BLANK_141211(2), TRIP BLANK_141212, TRIP BLANK_141215, and TRIP BLANK_141215(2). There were no positive results for any target analytes in these blanks.

Equipment rinsate blanks are analyzed to provide an indication as to whether field decontamination and sampling procedures effectively prevent cross-contamination in field activities. Four equipment rinsate blanks were collected for this sampling event: RINSATE-141211

- **SDG ZP16** (PAHs): There was a positive result for naphthalene in the equipment blank RINSATE-141211 greater than the contract required quantitation limit. However, all the field sample concentrations were greater than 10 times the concentrations in the field blank when all sample concentrations were normalized to ppb. No further action was required.

Matrix Spikes/Matrix Spike Duplicates

Because the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis. One aliquot of sample is analyzed in the normal manner, and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a %R is calculated. Matrix spike duplicates (MSD) analyses are generally performed for organic analyses as a precision check. For some organic analytical methods, a laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) sample set is performed in lieu of a MS/MSD analysis.

For inorganics methods, the matrix spike (referred to as a "spiked sample") is typically followed by a post spike sample if any element recoveries were outside the control limits in the "spiked sample".

Matrix spike analyses should be performed once per analytical batch or every twenty field samples, whichever is more frequent. The recovery criteria for matrix spikes and laboratory control samples are specified in the laboratory documents as are the relative percent difference (RPD) values. The frequency requirements were met for all analyses and the %R/RPD values were within the proper control limits, with the exceptions below:

- **SDG Z041 and Z068** (Regular PAHs): The laboratory performed an MS/MSD set on Sample PAI-7-10.0-10.5. The %R values for all target analytes could not be reported because the parent sample concentrations were greater than four times the amount spiked into the sample. No action was taken.

  (Arsenic): The laboratory performed an MS/MSD set on Sample PAI-1-13.8-14.3. The %R values for arsenic could not be reported because the parent sample concentration was greater than four times the amount spiked into the sample. No action was taken.

- **SDG ZP06** (Regular PAHs): The laboratory performed an MS/MSD set on Sample PAI-11-18.0-18.5. The %R values for several target analytes could not be reported because the parent sample concentrations were greater than four times the amount spiked into the sample. No action was taken.

- **SDG ZP11** (Regular PAHs): The laboratory performed an MS/MSD set on Sample PAI-8-14.5-15.0. The %R values for several target analytes could not be reported because the parent sample concentration of naphthalene was greater than four times the amount spiked into the sample and the sample exhibited a high amount of background interference. No action was taken.

- **SDG Z083** (Conventionals chemistry): The laboratory performed a matrix spike on Sample PAI-12-8.5-9.0. The %R value for sulfide was less than the control limit of 75% in this matrix spike sample. The positive result for sulfide was qualified as estimated (J) in the parent sample. No action was taken.

- **SDG ZP35** (Regular PAHs): The laboratory performed an MS/MSD set on Sample PAI-10-29.5-30.0. The %R values for naphthalene and phenanthrene could not be reported because the parent sample concentration of naphthalene was greater than four times the amount spiked into the sample and the sample exhibited a high amount of background interference. No action was taken. Also, the fluorene %R value for the MSD was greater than the control limits in the same sample set. No action was taken for this outlier because the %R for the corresponding MS was within the control limits.

Laboratory Control Samples

A laboratory control sample is essentially a blank sample that is spiked with a known amount of analyte concentration and analyzed. It is to be treated much like a matrix spike, without the possibility for matrix interference. As there is no actual sample matrix in the analysis, the analytical expectations for accuracy and precision are usually more rigorous and qualification would apply to all samples in the batch, instead of the parent sample only.

Laboratory control sample analyses should be performed once per analytical batch or every twenty field samples, whichever is more frequent. The recovery criteria for laboratory control samples are specified in the laboratory documents as are the RPD values. The frequency requirements were met for all analyses, and the %R/RPD values were within the proper control limits.

SDG ZP11 (Regular PAHs): The %R values for pyrene and benzo(a)pyrene were less than the control limits of 49% and 36%, respectively, in the LCS/LCSD sample set extracted on 1/18/15. The positive results for these compounds were qualified as estimated (J) in Samples PAI-3-13.0-13.5, PAI-3-33.5-34.0, PAI-4-16.0-16.5, and PAI-8-14.5-15.0. Also, the %R values for benzo(g,h,i)perylene were less than 10% in the same LCS/LCSD sample set. The positive results for this compound were qualified as estimated (J) in the samples above, with the exception of PAI-8-14.5-15.0. In this sample, there was no detection of benzo(g,h,i)perylene, therefore the reporting limit was rejected (R) in this sample.

Laboratory Duplicates (Arsenic only)

Internal laboratory duplicate analyses are performed to monitor the precision of the analyses. Two separate aliquots of a sample are analyzed as distinct samples in the laboratory, and the RPD between the two results is calculated. Duplicate analyses should be performed once per analytical batch. If one or more of the samples used has a concentration greater than five times the reporting limit for that sample, the absolute difference is used instead of the RPD as a measurement of precision.

Laboratory duplicates were analyzed at the proper frequency and the specified acceptance criteria were met, with the following exception:

- **SDG ZP16** (Arsenic): The laboratory performed an internal duplicate on Sample PAI-9-12.5-13.0. The RPD value for arsenic was greater than the control limit of 20%. The positive results for arsenic were qualified as estimated (J) in all associated batched Samples: PAI-9-12.5-13.0, PAI-9-12.5-13.0-DUP, PAI-10-9.5-10.0, PAI-10-24.5-25.0, and PAI-9-23-23.5.

Field Duplicates

Field duplicate samples were collected and analyzed along with the reviewed sample batches. The duplicate samples were analyzed for the same parameters as the associated parent samples. As mentioned above for the laboratory duplicates the RPD is used as the criteria for assessing precision, unless one or more of the samples used has a concentration less than five times the reporting limit for that sample. If either of the sample concentrations were less than this values, the absolute difference is used instead of the RPD as a measurement of precision.

The following field duplicate sample sets were submitted for this sampling event:

- PAI-2-18.0-18.5/PAI-2-18.0-18.5-DUP

  The RPD values for all target analytes were acceptable. For this reason, the sampling precision was assumed to be within acceptable limits. No qualifiers were required.

- PAI-9-12.5-13.0/PAI-9-12.5-13.0-DUP

  (PAHs compounds) The RPD/absolute difference values for all target analytes, with the exception of dibenzo(a,h)anthracene were greater than the control limits above. For this reason, these compounds were qualified as estimated (J) in both samples.

  (BTEX compounds) For the BTEX analysis, the parent sample was diluted 10 times more than the duplicate sample. For this reason, appropriate precision values could not be calculated. In general, field precision was assessed to be acceptable. No qualifiers were required.

OVERALL ASSESSMENT

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogates, LCS/LCSD, and MS/MSD %R values, with the exceptions noted above. Precision was acceptable, as demonstrated by the laboratory duplicate, field duplicates, LCS/LCSD and MS/MSD RPD and absolute difference values, with the exceptions noted above.

Some data were qualified as estimated because of holding time outliers, matrix spike %R outliers, laboratory control sample %R outliers, laboratory and field duplicate precision outliers. See Table 1 for a summary of qualifiers.

One data point was rejected because of a laboratory control sample % being less than 10%.

Based on the data quality review, it is our opinion that the analytical data, including data qualified as noted above, are of acceptable quality for their intended use.

ATTACHMENTS

Table 1 – Summary of Data Qualifiers for December 2014 Soil Sampling

REFERENCES

U.S. Environmental Protection Agency (USEPA). "Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review," OSWER 9240.1-51, EPA 540-R-10-011. January 2010.

U.S. Environmental Protection Agency (USEPA). "Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," EPA-540-R-08-01. June 2008.

U.S. Environmental Protection Agency (USEPA). "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use," EPA-540-R-08-005. January 2009.

Table 1

Summary of Data Qualifiers for December 2014 Soil Sampling

Gas Works Park Site - 2015 Play Area Investigation (Soil) Data Validation Report

Seattle, Washington

Sampling Event	GeoEngineers Sample ID	Laboratory ID	Analyte	Sample Matrix	Result	Unit	Qualifier	Reason
2014_Play Area	PAI-1-14.5-15.0	ZO41B	Naphthalene	SO	430000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Anthracene	SO	21000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Pyrene	SO	69000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Benzo(g,h,i)perylene	SO	14000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Indeno(1,2,3-cd)pyrene	SO	11000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Benzo(b)fluoranthene	SO	13000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Fluoranthene	SO	62000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Benzo(k)fluoranthene	SO	7000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Acenaphthylene	SO	16000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Chrysene	SO	23000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Benzo(a)pyrene	SO	20000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Benzo(a)anthracene	SO	19000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Acenaphthene	SO	7100	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Phenanthrene	SO	85000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Fluorene	SO	17000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-1-14.5-15.0	ZO41BDL	Total benzofluoranthenes (b+k (+j))	SO	28000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16D	Pyrene	SO	980	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16D	Fluoranthene	SO	1100	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16D	Acenaphthylene	SO	570	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16D	Acenaphthene	SO	1900	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16D	Phenanthrene	SO	930	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16D	Fluorene	SO	1100	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16D	Naphthalene	SO	4200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL	Anthracene	SO	530	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL	Benzo(g,h,i)perylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL	Indeno(1,2,3-cd)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL	Benzo(b)fluoranthene	SO	76	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL	Benzo(k)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL	Chrysene	SO	170	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL	Benzo(a)pyrene	SO	76	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL	Benzo(a)anthracene	SO	130	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL	Naphthalene	SO	19000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL	Total benzofluoranthenes (b+k (+j))	SO	120	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Anthracene	SO	550	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Pyrene	SO	1400	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Benzo(g,h,i)perylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Indeno(1,2,3-cd)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Benzo(b)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Fluoranthene	SO	1700	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Benzo(k)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Acenaphthylene	SO	730	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Chrysene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Benzo(a)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Benzo(a)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Acenaphthene	SO	3200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Phenanthrene	SO	1400	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Fluorene	SO	1500	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-19.5-20.0	ZP16DDL2	Total benzofluoranthenes (b+k (+j))	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16E	Arsenic	SO	610	mg/kg	J	Laboratory duplicate Outlier (Precision)
2014_Play Area	PAI-10-24.5-25.0	ZP16E	Phenanthrene	SO	18000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16E	Naphthalene	SO	94000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Anthracene	SO	3700	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Pyrene	SO	6100	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Benzo(g,h,i)perylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Indeno(1,2,3-cd)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Benzo(b)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Fluoranthene	SO	6500	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Benzo(k)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Acenaphthylene	SO	5200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Chrysene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Benzo(a)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions

Table 1

Summary of Data Qualifiers for December 2014 Soil Sampling

Gas Works Park Site - 2015 Play Area Investigation (Soil) Data Validation Report

Seattle, Washington

Sampling Event	GeoEngineers Sample ID	Laboratory ID	Analyte	Sample Matrix	Result	Unit	Qualifier	Reason
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Benzo(a)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Acenaphthene	SO	11000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Fluorene	SO	11000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-24.5-25.0	ZP16EDL	Total benzofluoranthenes (b+k (+j))	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35D	Naphthalene	SO	3300	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Anthracene	SO	83	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Pyrene	SO	270	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Benzo(g,h,i)perylene	SO	150	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Indeno(1,2,3-cd)pyrene	SO	98	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Benzo(b)fluoranthene	SO	100	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Fluoranthene	SO	310	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Benzo(k)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Acenaphthylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Chrysene	SO	120	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Benzo(a)pyrene	SO	120	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Benzo(a)anthracene	SO	110	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Acenaphthene	SO	87	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Phenanthrene	SO	310	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Fluorene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-29.5-30.0	ZP35DDL	Total benzofluoranthenes (b+k (+j))	SO	220	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-31.5-32.0	ZP16F	Sulfide	SO	10.8	mg/kg	J	Holding Time Outlier
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Arsenic	SO	19.3	mg/kg	J	Laboratory duplicate Outlier (Precision)
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Anthracene	SO	47000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Pyrene	SO	120000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Benzo(g,h,i)perylene	SO	110000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Indeno(1,2,3-cd)pyrene	SO	79000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Benzo(b)fluoranthene	SO	70000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Fluoranthene	SO	100000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Benzo(k)fluoranthene	SO	40000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Acenaphthylene	SO	25000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Chrysene	SO	79000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Benzo(a)pyrene	SO	91000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Benzo(a)anthracene	SO	68000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Acenaphthene	SO	79000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Phenanthrene	SO	120000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Fluorene	SO	52000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Naphthalene	SO	530000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16C	Total benzofluoranthenes (b+k (+j))	SO	150000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL	Naphthalene	SO	4800000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Anthracene	SO	76000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Pyrene	SO	260000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Benzo(g,h,i)perylene	SO	100000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Indeno(1,2,3-cd)pyrene	SO	69000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Benzo(b)fluoranthene	SO	67000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Fluoranthene	SO	280000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Benzo(k)fluoranthene	SO	37000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Acenaphthylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Chrysene	SO	85000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Benzo(a)pyrene	SO	100000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Benzo(a)anthracene	SO	79000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Acenaphthene	SO	170000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Phenanthrene	SO	400000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Fluorene	SO	98000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10-9.5-10.0	ZP16CDL2	Total benzofluoranthenes (b+k (+j))	SO	140000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-12.0-12.5	ZP16G	Sulfide	SO	752	mg/kg	J	Holding Time Outlier
2014_Play Area	PAI-11-18.0-18.5	ZP06B	Pyrene	SO	1100	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06B	Fluoranthene	SO	1200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06B	Phenanthrene	SO	920	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06B	Naphthalene	SO	490	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06BDL	Anthracene	SO	500	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions

Table 1

Summary of Data Qualifiers for December 2014 Soil Sampling

Gas Works Park Site - 2015 Play Area Investigation (Soil) Data Validation Report

Seattle, Washington

Sampling Event	GeoEngineers Sample ID	Laboratory ID	Analyte	Sample Matrix	Result	Unit	Qualifier	Reason
2014_Play Area	PAI-11-18.0-18.5	ZP06BDL	Benzo(g,h,i)perylene	SO	240	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06BDL	Indeno(1,2,3-cd)pyrene	SO	150	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06BDL	Benzo(b)fluoranthene	SO	210	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06BDL	Benzo(k)fluoranthene	SO	110	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06BDL	Acenaphthylene	SO	70	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06BDL	Chrysene	SO	410	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06BDL	Benzo(a)pyrene	SO	250	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06BDL	Dibenzo(a,h)anthracene	SO	32	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06BDL	Benzo(a)anthracene	SO	310	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06BDL	Acenaphthene	SO	100	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06BDL	Fluorene	SO	260	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-18.0-18.5	ZP06BDL	Total benzofluoranthenes (b+k (+j))	SO	430	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11-22-22.5	ZP16H	Sulfide	SO	851	mg/kg	J	Holding Time Outlier
2014_Play Area	PAI-12-13.5-14.0	Z083I	Sulfide	SO	5.46	mg/kg	J	Holding Time Outlier
2014_Play Area	PAI-12-19.5-20.0	ZP35E	Phenanthrene	SO	90000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35E	Naphthalene	SO	340000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Anthracene	SO	29000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Pyrene	SO	57000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Benzo(g,h,i)perylene	SO	11000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Indeno(1,2,3-cd)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Benzo(b)fluoranthene	SO	9700	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Fluoranthene	SO	52000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Benzo(k)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Acenaphthylene	SO	14000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Chrysene	SO	19000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Benzo(a)pyrene	SO	16000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Benzo(a)anthracene	SO	16000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Acenaphthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Fluorene	SO	32000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-19.5-20.0	ZP35EDL	Total benzofluoranthenes (b+k (+j))	SO	22000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12-8.5-9.0	Z083H	Sulfide	SO	4.40	mg/kg	J	Holding Time Outlier
2014_Play Area	PAI-2-12.5-13.0	Z068E	Naphthalene	SO	80000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Anthracene	SO	830	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Pyrene	SO	1500	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Benzo(g,h,i)perylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Indeno(1,2,3-cd)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Benzo(b)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Fluoranthene	SO	1600	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Benzo(k)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Acenaphthylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Chrysene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Benzo(a)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Benzo(a)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Acenaphthene	SO	3200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Phenanthrene	SO	3700	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Fluorene	SO	1800	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-12.5-13.0	Z068EDL	Total benzofluoranthenes (b+k (+j))	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-17.5-18.0	Z083J	Sulfide	SO	2880	mg/kg	J	Holding Time Outlier
2014_Play Area	PAI-2-18.0-18.5	ZP35B	Anthracene	SO	5900	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35B	Pyrene	SO	7000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35B	Fluoranthene	SO	8200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35B	Acenaphthene	SO	9600	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35B	Phenanthrene	SO	13000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35B	Fluorene	SO	8300	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35B	Naphthalene	SO	64000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL	Benzo(g,h,i)perylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL	Indeno(1,2,3-cd)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL	Benzo(b)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL	Benzo(k)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL	Acenaphthylene	SO	4200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL	Chrysene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL	Benzo(a)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions

Table 1

Summary of Data Qualifiers for December 2014 Soil Sampling

Gas Works Park Site - 2015 Play Area Investigation (Soil) Data Validation Report

Seattle, Washington

Sampling Event	GeoEngineers Sample ID	Laboratory ID	Analyte	Sample Matrix	Result	Unit	Qualifier	Reason
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL	Benzo(a)anthracene	SO	2400	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL	Naphthalene	SO	620000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL	Total benzofluoranthenes (b+k (+j))	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Anthracene	SO	6900	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Pyrene	SO	8800	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Benzo(g,h,i)perylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Indeno(1,2,3-cd)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Benzo(b)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Fluoranthene	SO	12000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Benzo(k)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Acenaphthylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Chrysene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Benzo(a)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Benzo(a)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Acenaphthene	SO	14000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Phenanthrene	SO	29000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Fluorene	SO	11000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-18.0-18.5	ZP35BDL2	Total benzofluoranthenes (b+k (+j))	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2-19.0-19.5	ZO83K	Sulfide	SO	918	mg/kg	J	Holding Time Outlier
2014_Play Area	PAI-3-13.0-13.5	ZP11D	Pyrene	SO	45000	ug/kg	J	Laboratory Control Sample %R Outlier
2014_Play Area	PAI-3-13.0-13.5	ZP11D	Benzo(g,h,i)perylene	SO	1600	ug/kg	J	Laboratory Control Sample %R Outlier
2014_Play Area	PAI-3-13.0-13.5	ZP11D	Benzo(a)pyrene	SO	12000	ug/kg	J	Laboratory Control Sample %R Outlier
2014_Play Area	PAI-3-13.0-13.5	ZP11D	Naphthalene	SO	420000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Anthracene	SO	20000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Pyrene	SO	52000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Benzo(g,h,i)perylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Indeno(1,2,3-cd)pyrene	SO	9500	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Benzo(b)fluoranthene	SO	16000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Fluoranthene	SO	59000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Benzo(k)fluoranthene	SO	9000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Acenaphthylene	SO	15000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Chrysene	SO	23000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Benzo(a)pyrene	SO	14000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Benzo(a)anthracene	SO	21000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Acenaphthene	SO	25000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Phenanthrene	SO	88000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Fluorene	SO	27000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Naphthalene	SO	920000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL	Total benzofluoranthenes (b+k (+j))	SO	32000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Anthracene	SO	17000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Pyrene	SO	44000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Benzo(g,h,i)perylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Indeno(1,2,3-cd)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Benzo(b)fluoranthene	SO	15000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Fluoranthene	SO	55000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Benzo(k)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Acenaphthylene	SO	12000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Chrysene	SO	21000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Benzo(a)pyrene	SO	15000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Benzo(a)anthracene	SO	19000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Acenaphthene	SO	26000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Phenanthrene	SO	84000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Fluorene	SO	28000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-13.0-13.5	ZP11DDL2	Total benzofluoranthenes (b+k (+j))	SO	31000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZO83L	Sulfide	SO	105	mg/kg	J	Matrix spike %R Outlier
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Pyrene	SO	110	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Benzo(g,h,i)perylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Indeno(1,2,3-cd)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Benzo(b)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions

Table 1

Summary of Data Qualifiers for December 2014 Soil Sampling

Gas Works Park Site - 2015 Play Area Investigation (Soil) Data Validation Report

Seattle, Washington

Sampling Event	GeoEngineers Sample ID	Laboratory ID	Analyte	Sample Matrix	Result	Unit	Qualifier	Reason
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Fluoranthene	SO	38	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Benzo(k)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Acenaphthylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Chrysene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Benzo(a)pyrene	SO	43	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Benzo(a)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Acenaphthene	SO	56	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Phenanthrene	SO	86	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Fluorene	SO	32	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11GDL	Total benzofluoranthenes (b+k (+j))	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-3-33.5-34.0	ZP11G	Pyrene	SO	110	ug/kg	J	Laboratory Control Sample %R Outlier
2014_Play Area	PAI-3-33.5-34.0	ZP11G	Benzo(g,h,i)perylene	SO	11	ug/kg	J	Laboratory Control Sample %R Outlier
2014_Play Area	PAI-3-33.5-34.0	ZP11G	Benzo(a)pyrene	SO	47	ug/kg	J	Laboratory Control Sample %R Outlier
2014_Play Area	PAI-3-33.5-34.0	ZP11G	Naphthalene	SO	1800	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11C	Anthracene	SO	64000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11C	Pyrene	SO	100000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11C	Benzo(g,h,i)perylene	SO	2700	ug/kg	J	Laboratory Control Sample %R Outlier
2014_Play Area	PAI-4-16.0-16.5	ZP11C	Fluoranthene	SO	120000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11C	Acenaphthylene	SO	100000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11C	Chrysene	SO	71000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11C	Benzo(a)pyrene	SO	30000	ug/kg	J	Laboratory Control Sample %R Outlier
2014_Play Area	PAI-4-16.0-16.5	ZP11C	Benzo(a)anthracene	SO	59000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11C	Phenanthrene	SO	190000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11C	Fluorene	SO	98000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11C	Naphthalene	SO	360000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL	Pyrene	SO	160000	ug/kg	J	Laboratory Control Sample %R Outlier
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL	Benzo(g,h,i)perylene	SO	3400	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL	Indeno(1,2,3-cd)pyrene	SO	21000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL	Benzo(b)fluoranthene	SO	38000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL	Benzo(k)fluoranthene	SO	22000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL	Benzo(a)pyrene	SO	36000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL	Dibenzo(a,h)anthracene	SO	9200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL	Acenaphthene	SO	17000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL	Naphthalene	SO	890000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL	Total benzofluoranthenes (b+k (+j))	SO	83000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Anthracene	SO	80000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Pyrene	SO	140000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Benzo(g,h,i)perylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Indeno(1,2,3-cd)pyrene	SO	20000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Benzo(b)fluoranthene	SO	37000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Fluoranthene	SO	190000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Benzo(k)fluoranthene	SO	21000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Acenaphthylene	SO	140000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Chrysene	SO	87000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Benzo(a)pyrene	SO	32000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Dibenzo(a,h)anthracene	SO	8800	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Benzo(a)anthracene	SO	71000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Acenaphthene	SO	17000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Phenanthrene	SO	410000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Fluorene	SO	130000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-4-16.0-16.5	ZP11CDL2	Total benzofluoranthenes (b+k (+j))	SO	82000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	ZO68A	Anthracene	SO	5600	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	ZO68A	Pyrene	SO	13000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	ZO68A	Benzo(g,h,i)perylene	SO	6100	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	ZO68A	Fluoranthene	SO	12000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	ZO68A	Acenaphthylene	SO	5700	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	ZO68A	Chrysene	SO	6300	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	ZO68A	Benzo(a)pyrene	SO	6700	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	ZO68A	Phenanthrene	SO	16000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	ZO68A	Naphthalene	SO	35000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	ZO68ADL	Indeno(1,2,3-cd)pyrene	SO	3000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	ZO68ADL	Benzo(b)fluoranthene	SO	3500	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	ZO68ADL	Benzo(k)fluoranthene	SO	1800	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions

Table 1

Summary of Data Qualifiers for December 2014 Soil Sampling

Gas Works Park Site - 2015 Play Area Investigation (Soil) Data Validation Report

Seattle, Washington

Sampling Event	GeoEngineers Sample ID	Laboratory ID	Analyte	Sample Matrix	Result	Unit	Qualifier	Reason
2014_Play Area	PAI-6-9.0-9.5	Z068ADL	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	Z068ADL	Benzo(a)anthracene	SO	4700	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	Z068ADL	Acenaphthene	SO	1100	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	Z068ADL	Fluorene	SO	4500	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-6-9.0-9.5	Z068ADL	Total benzofluoranthenes (b+k (+j))	SO	7000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Anthracene	SO	2200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Pyrene	SO	6400	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Benzo(g,h,i)perylene	SO	7000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Indeno(1,2,3-cd)pyrene	SO	5100	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Benzo(b)fluoranthene	SO	4300	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Fluoranthene	SO	5800	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Benzo(k)fluoranthene	SO	2100	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Acenaphthylene	SO	3100	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Chrysene	SO	4400	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Benzo(a)pyrene	SO	5600	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Benzo(a)anthracene	SO	3400	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Phenanthrene	SO	5000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Fluorene	SO	1600	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Naphthalene	SO	5400	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068C	Total benzofluoranthenes (b+k (+j))	SO	8800	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL	Pyrene	SO	15000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL	Dibenzo(a,h)anthracene	SO	820	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL	Acenaphthene	SO	360	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Anthracene	SO	3000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Benzo(g,h,i)perylene	SO	7600	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Indeno(1,2,3-cd)pyrene	SO	5300	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Benzo(b)fluoranthene	SO	5200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Fluoranthene	SO	13000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Benzo(k)fluoranthene	SO	2500	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Acenaphthylene	SO	4200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Chrysene	SO	5700	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Benzo(a)pyrene	SO	7600	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Dibenzo(a,h)anthracene	SO	800	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Benzo(a)anthracene	SO	4500	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Acenaphthene	SO	320	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Phenanthrene	SO	12000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Fluorene	SO	1700	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Naphthalene	SO	7200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-10.0-10.5	Z068CDL2	Total benzofluoranthenes (b+k (+j))	SO	10000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	Z068D	Anthracene	SO	12000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	Z068D	Pyrene	SO	19000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	Z068D	Fluoranthene	SO	14000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	Z068D	Acenaphthylene	SO	16000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	Z068D	Chrysene	SO	12000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	Z068D	Benzo(a)pyrene	SO	8800	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	Z068D	Benzo(a)anthracene	SO	11000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	Z068D	Acenaphthene	SO	14000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	Z068D	Phenanthrene	SO	31000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	Z068D	Fluorene	SO	21000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	Z068D	Naphthalene	SO	59000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	ZO68DDL	Benzo(g,h,i)perylene	SO	3900	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	ZO68DDL	Indeno(1,2,3-cd)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	ZO68DDL	Benzo(b)fluoranthene	SO	4900	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	ZO68DDL	Benzo(k)fluoranthene	SO	3000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	ZO68DDL	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-7-22.5-23.0	ZO68DDL	Total benzofluoranthenes (b+k (+j))	SO	11000	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-8-14.5-15.0	ZP11I	Pyrene	SO	150	ug/kg	J	Laboratory Control Sample %R Outlier
2014_Play Area	PAI-8-14.5-15.0	ZP11I	Benzo(g,h,i)perylene	SO		ug/kg	R	Do-not-use; Laboratory Control Sample %R Outlier <10%
2014_Play Area	PAI-8-14.5-15.0	ZP11I	Benzo(a)pyrene	SO	28	ug/kg	J	Laboratory Control Sample %R Outlier
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Arsenic	SO	463	mg/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Anthracene	SO	480	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Pyrene	SO	720	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Benzo(g,h,i)perylene	SO	26	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Indeno(1,2,3-cd)pyrene	SO	19	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions

Table 1

Summary of Data Qualifiers for December 2014 Soil Sampling

Gas Works Park Site - 2015 Play Area Investigation (Soil) Data Validation Report

Seattle, Washington

Sampling Event	GeoEngineers Sample ID	Laboratory ID	Analyte	Sample Matrix	Result	Unit	Qualifier	Reason
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Benzo(b)fluoranthene	SO	23	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Fluoranthene	SO	760	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Benzo(k)fluoranthene	SO	13	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Acenaphthylene	SO	62	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Chrysene	SO	58	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Benzo(a)pyrene	SO	37	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Benzo(a)anthracene	SO	56	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Acenaphthene	SO	160	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Phenanthrene	SO	1500	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Fluorene	SO	560	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Naphthalene	SO	3500	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16B	Total benzofluoranthenes (b+k (+j))	SO	50	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Anthracene	SO	530	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Pyrene	SO	860	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Benzo(g,h,i)perylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Indeno(1,2,3-cd)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Benzo(b)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Fluoranthene	SO	940	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Benzo(k)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Acenaphthylene	SO	69	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Chrysene	SO	55	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Benzo(a)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Benzo(a)anthracene	SO	56	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Acenaphthene	SO	170	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Phenanthrene	SO	2600	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Fluorene	SO	590	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Naphthalene	SO	7600	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13-DUP	ZP16BDL	Total benzofluoranthenes (b+k (+j))	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Arsenic	SO	478	mg/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Anthracene	SO	180	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Pyrene	SO	240	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Benzo(g,h,i)perylene	SO	10	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Indeno(1,2,3-cd)pyrene	SO	7.1	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Benzo(b)fluoranthene	SO	8.6	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Fluoranthene	SO	270	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Benzo(k)fluoranthene	SO	4.9	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Acenaphthylene	SO	37	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Chrysene	SO	18	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Benzo(a)pyrene	SO	14	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Benzo(a)anthracene	SO	17	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Acenaphthene	SO	95	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Phenanthrene	SO	760	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Fluorene	SO	290	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Naphthalene	SO	3300	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16A	Total benzofluoranthenes (b+k (+j))	SO	18	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Anthracene	SO	200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Pyrene	SO	290	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Benzo(g,h,i)perylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Indeno(1,2,3-cd)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Benzo(b)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Fluoranthene	SO	330	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Benzo(k)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Acenaphthylene	SO	50	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Chrysene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Benzo(a)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Benzo(a)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Acenaphthene	SO	100	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Phenanthrene	SO	1100	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Fluorene	SO	320	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Naphthalene	SO	9600	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL	Total benzofluoranthenes (b+k (+j))	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Anthracene	SO	200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions

Table 1

Summary of Data Qualifiers for December 2014 Soil Sampling

Gas Works Park Site - 2015 Play Area Investigation (Soil) Data Validation Report

Seattle, Washington

Sampling Event	GeoEngineers Sample ID	Laboratory ID	Analyte	Sample Matrix	Result	Unit	Qualifier	Reason
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Pyrene	SO	290	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Benzo(g,h,i)perylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Indeno(1,2,3-cd)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Benzo(b)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Fluoranthene	SO	350	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Benzo(k)fluoranthene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Acenaphthylene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Chrysene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Benzo(a)pyrene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Dibenzo(a,h)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Benzo(a)anthracene	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Acenaphthene	SO	120	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Phenanthrene	SO	1200	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Fluorene	SO	350	ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Naphthalene	SO	11000	ug/kg	J	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-12.5-13.0	ZP16ADL2	Total benzofluoranthenes (b+k (+j))	SO		ug/kg	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-9-23-23.5	ZP16I	Arsenic	SO	60	mg/kg	J	Laboratory duplicate Outlier (Precision)

Notes:

SO = soil

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

J = estimated value

GeoEngineers

Data Validation Report

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Project: PSE North Lake Union – 2015 Play Area Investigation (Groundwater)

File: 00186-846-01

Date: January 30, 2015

Lab Report(s): Z053, Z083, ZP06, ZP15

This report presents the results of a United States Environmental Protection Agency (USEPA)-defined Stage 2A validation (USEPA Document 540-R-08-005; USEPA, 2009) of analytical data from the analyses of groundwater samples obtained from the Play Area Investigation at the Gas Works Park Site. Samples obtained were submitted to Analytical Resources, Incorporated (ARI)[1] of Tukwila, Washington for chemical analysis of benzene, toluene, ethylbenzene, and xylene (BTEX) compounds by EPA Method SW8260C, polycyclic aromatic hydrocarbons (PAHs) by EPA Method SW8270-SIM, and metals by EPA Method SW6010C. ARI also conducted conventional parameter analyses including Alkalinity by Standard Method 2320 (reported as carbonate, bicarbonate, hydroxide, and total alkalinity), Total dissolved solids by Standard Method 2540C, Ferrous iron by Standard Method 3500, Chloride, N-Nitrate, and Sulfate by EPA Method 300.0, Sulfide by Standard Method 4500-S2D, and Total and Dissolved Organic Carbon by Standard Method 5310B.

The objective of this data quality assessment was to review laboratory analytical procedures and QC results to evaluate whether the samples were analyzed using well-defined and acceptable methods that provide quantitation limits below applicable regulatory criteria, the precision and accuracy of the data are well defined and sufficient to provide defensible data, and the quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

The ARI Sample Delivery Groups (SDGs) noted above were reviewed for the following quality control (QC) elements:

- Chain of Custody
- Holding Times
- Surrogates/Labeled Compounds
- Method and Trip Blanks
- Laboratory Control Samples
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory Duplicates

DATA QUALITY ASSESSMENT SUMMARY

The results for each of the QC elements are summarized below. The data assessment was performed using guidance in two USEPA documents: USEPA Contract Laboratory Program National Functional Guidelines for

[1] Additional analyses of groundwater samples (arsenic speciation) were subcontracted by ARI to Applied Speciation laboratory. These analyses, as well as ARI SDG ZR94, are not included in this data validation report because they are specialized analyses that are not regulatory-driven.

Inorganic Data Review (USEPA, 2010) and USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (USEPA, 2008).

Chain-of-Custody Documentation

Chain-of-custody forms were provided with the laboratory analytical reports. No transcription errors were found, and the appropriate signatures were applied. There were no anomalies mentioned in the sample receipt forms, as the samples were transported to the laboratory at the appropriate temperatures of between 2 and 6 degrees Celsius, except in cases where the samples were transported directly to the laboratory from the field. In these cases, the laboratory recorded temperatures greater than 6 degrees Celsius. No action was taken because the samples were received by the laboratory within 12 hours of sampling.

Holding Times

The holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for all analyses.

Surrogate Recoveries

A surrogate compound is a compound that is chemically similar to the analytes of interest, but unlikely to be found in any environmental sample. Surrogates are used for organic analyses and are added to all samples, standards, and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added at a known concentration and percent recoveries are calculated following analysis. All surrogate recoveries for field samples were within the laboratory control limits.

Method Blanks and Trip Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. Method blanks were analyzed with each batch of samples, at a frequency of one per twenty samples. For all sample batches, method blanks for all applicable methods were analyzed at the required frequency. Analytes of interest were not detected above the contract required quantitation limits in any of the method blanks, with the exceptions below. If a qualifier was applied due to blank contamination, the effective reporting limit for that compound was elevated to the amount of the positive result.

SDG ZP15 (Conventionals chemistry): There was a positive result for dissolved organic carbon in the method blank extracted on 12/19/14 that was greater than the quantitation limit. The positive results for dissolved organic carbon were qualified as estimated (J) in Samples MW-36S-141215 and MW-36D-141215.

SDG Z083 (Metals): There was a positive result for calcium in the method blank extracted on 12/26/14 that was less than the contract required quantitation limit. There were no positive results that were less than contract required quantitation limit in any samples within the same laboratory prep batch. Also, the positive results for all associated field samples were greater than ten times the concentration reported in the method blank. No further action was required.

Trip blanks are analyzed to provide an indication as to whether there has been any cross-contamination in the transportation process. Eight trip blanks were collected for this sampling event: TRIP BLANK_141208, TRIP BLANK_141209, TRIP BLANK_141210, TRIP BLANK_141211, TRIP BLANK_141211(2), TRIP BLANK_141212, TRIP BLANK_141215, and TRIP BLANK_141215(2). There were no positive results for any target analytes in these blanks.

Matrix Spikes/Matrix Spike Duplicates

Because the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis. One aliquot of sample is analyzed in the normal manner, and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a %R is calculated. Matrix spike duplicates (MSD) analyses are generally performed for organic analyses as a precision check. For some organic analytical methods, a laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) sample set is performed in lieu of a MS/MSD analysis.

For inorganics methods, the matrix spike (referred to as a "spiked sample") is typically followed by a post spike sample if any element recoveries were outside the control limits in the "spiked sample".

Matrix spike analyses should be performed once per analytical batch or every twenty field samples, whichever is more frequent. The recovery criteria for matrix spikes and laboratory control samples are specified in the laboratory documents as are the relative percent difference (RPD) values. The frequency requirements were met for all analyses and the %R/RPD values were within the proper control limits, with the exceptions below:

- **SDG Z053** (METALs): The laboratory performed a matrix spike on Sample PAI-10GW. The %R values for arsenic, calcium, and sodium were greater than the control limits in the matrix spike. The %R values were outside the control limits because the parent sample concentrations were greater than four times the amount spiked into the sample. No action was taken.
- **SDG Z015** (METALs): The laboratory performed a matrix spike on Sample MW-36D-141215. The %R values for arsenic and sodium were greater than the control limits in the matrix spike. The %R values were outside the control limits because the parent sample concentrations were greater than four times the amount spiked into the sample. No action was taken.
- **SDG Z083** (Conventional chemistry): The laboratory performed a matrix spike on Sample PAI-11GW. The %R value for sulfide was greater than the control limits in the matrix spike. The positive result for sulfide was qualified as estimated (J) in the parent sample.

Laboratory Control Samples

A laboratory control sample is essentially a blank sample that is spiked with a known amount of analyte concentration and analyzed. It is to be treated much like a matrix spike, without the possibility for matrix interference. As there is no actual sample matrix in the analysis, the analytical expectations for accuracy and precision are usually more rigorous and qualification would apply to all samples in the batch, instead of the parent sample only.

Laboratory control sample analyses should be performed once per analytical batch or every twenty field samples, whichever is more frequent. The recovery criteria for laboratory control samples are specified in the

laboratory documents as are the RPD values. The frequency requirements were met for all analyses, and the %R/RPD values were within the proper control limits.

Laboratory Duplicates (Arsenic only)

Internal laboratory duplicate analyses are performed to monitor the precision of the analyses. Two separate aliquots of a sample are analyzed as distinct samples in the laboratory, and the RPD between the two results is calculated. Duplicate analyses should be performed once per analytical batch. If one or more of the samples used has a concentration greater than five times the reporting limit for that sample, the absolute difference is used instead of the RPD as a measurement of precision.

Laboratory duplicates were analyzed at the proper frequency and the specified acceptance criteria were met, with the exceptions below.

SDG ZP15 (METALs): The laboratory performed a laboratory duplicate on Sample MW-36D-141215. The RPD value for arsenic was greater than the control limits in the matrix spike. The positive results for this element were qualified as estimated (J) in all associated batched samples (Samples MW-36D-141215 and MW-36S-141215).

OVERALL ASSESSMENT

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogates, LCS/LCSD, and MS/MSD %R values, with the exceptions noted above. Precision was acceptable, as demonstrated by the laboratory duplicate, field duplicates, LCS/LCSD and MS/MSD RPD and absolute difference values, with the exceptions noted above.

Data were qualified as estimated because of matrix spike %R outliers, laboratory duplicate precision outliers, and qualified as not detected because of method blank contamination. See Table 2 for a summary of qualifiers.

No data points were rejected.

Based on the data quality review, it is our opinion that the analytical data, including data qualified as noted above, are of acceptable quality for their intended use.

ATTACHMENTS

Table 1 – Summary of Data Qualifiers for December 2014 Groundwater Sampling

REFERENCES

U.S. Environmental Protection Agency (USEPA). “Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review,” OSWER 9240.1-51, EPA 540-R-10-011. January 2010.

U.S. Environmental Protection Agency (USEPA). "Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," EPA-540-R-08-01. June 2008.

U.S. Environmental Protection Agency (USEPA). "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use," EPA-540-R-08-005. January 2009.

Table 1

Summary of Data Qualifiers for December 2014 Groundwater Sampling

Gas Works Park Site - 2015 Play Area Investigation (Groundwater) Data Validation Report

Seattle, Washington

Sampling Event	GeoEngineers Sample ID	Laboratory ID	fraction	test_type	Analyte	Sample Matrix	Result	Unit	Qualifier	Reason
2014_Play Area	MW-36D-141215	ZP15A	D	INITIAL	Dissolved Organic Carbon	WG	6.85	mg/l	J	Method Blank contamination
2014_Play Area	MW-36D-141215	ZP15A	D	INITIAL	Arsenic	WG	81.8	mg/l	J	Laboratory Duplicate Outlier (precision)
2014_Play Area	MW-36D-141215	ZP15A	T	INITIAL	Naphthalene	WG	800	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15E	D	INITIAL	Naphthalene	WG	780	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Benzo(g,h,i)perylene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Indeno(1,2,3-cd)pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Benzo(b)fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Benzo(k)fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Acenaphthylene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Chrysene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Benzo(a)pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Dibenzo(a,h)anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Benzo(a)anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Acenaphthene	WG	36	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Phenanthrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Fluorene	WG	16	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Naphthalene	WG	6100	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL	T	REANALYSIS	Total benzofluoranthenes (b+k (+j))	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Benzo(g,h,i)perylene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Indeno(1,2,3-cd)pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Benzo(b)fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Benzo(k)fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Acenaphthylene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Chrysene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Benzo(a)pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Dibenzo(a,h)anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Benzo(a)anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Acenaphthene	WG	32	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Phenanthrene	WG	27	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Fluorene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Naphthalene	WG	5600	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL	D	REANALYSIS	Total benzofluoranthenes (b+k (+j))	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Anthracene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Pyrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Benzo(g,h,i)perylene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Indeno(1,2,3-cd)pyrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Benzo(b)fluoranthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Fluoranthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Benzo(k)fluoranthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Acenaphthylene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Chrysene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Benzo(a)pyrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Dibenzo(a,h)anthracene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Benzo(a)anthracene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Acenaphthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Phenanthrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Fluorene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15ADL2	T	REEXTRACT	Total benzofluoranthenes (b+k (+j))	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Anthracene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Pyrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Benzo(g,h,i)perylene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Indeno(1,2,3-cd)pyrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Benzo(b)fluoranthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Fluoranthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Benzo(k)fluoranthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Acenaphthylene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Chrysene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Benzo(a)pyrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions

Table 1

Summary of Data Qualifiers for December 2014 Groundwater Sampling

Gas Works Park Site - 2015 Play Area Investigation (Groundwater) Data Validation Report

Seattle, Washington

Sampling Event	GeoEngineers Sample ID	Laboratory ID	fraction	test_type	Analyte	Sample Matrix	Result	Unit	Qualifier	Reason
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Dibenzo(a,h)anthracene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Benzo(a)anthracene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Acenaphthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Phenanthrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Fluorene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36D-141215	ZP15EDL2	D	REEXTRACT	Total benzofluoranthenes (b+k (+j))	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15B	D	INITIAL	Dissolved Organic Carbon	WG	8.32	mg/l	J	Method Blank contamination
2014_Play Area	MW-36S-141215	ZP15B	D	INITIAL	Arsenic	WG	0.07	mg/l	J	Laboratory Duplicate Outlier (precision)
2014_Play Area	MW-36S-141215	ZP15B	T	INITIAL	Naphthalene	WG	970	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15F	D	INITIAL	Naphthalene	WG	940	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Benzo(g,h,i)perylene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Indeno(1,2,3-cd)pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Benzo(b)fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Benzo(k)fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Acenaphthylene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Chrysene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Benzo(a)pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Dibenzo(a,h)anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Benzo(a)anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Acenaphthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Phenanthrene	WG	23	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Fluorene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Naphthalene	WG	5300	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL	T	REANALYSIS	Total benzofluoranthenes (b+k (+j))	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Benzo(g,h,i)perylene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Indeno(1,2,3-cd)pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Benzo(b)fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Benzo(k)fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Acenaphthylene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Chrysene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Benzo(a)pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Dibenzo(a,h)anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Benzo(a)anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Acenaphthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Phenanthrene	WG	19	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Fluorene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Naphthalene	WG	5200	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL	D	REANALYSIS	Total benzofluoranthenes (b+k (+j))	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Anthracene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Pyrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Benzo(g,h,i)perylene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Indeno(1,2,3-cd)pyrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Benzo(b)fluoranthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Fluoranthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Benzo(k)fluoranthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Acenaphthylene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Chrysene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Benzo(a)pyrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Dibenzo(a,h)anthracene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Benzo(a)anthracene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Acenaphthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Phenanthrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Fluorene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15BDL2	T	REEXTRACT	Total benzofluoranthenes (b+k (+j))	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Anthracene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Pyrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Benzo(g,h,i)perylene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Indeno(1,2,3-cd)pyrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions

Table 1

Summary of Data Qualifiers for December 2014 Groundwater Sampling

Gas Works Park Site - 2015 Play Area Investigation (Groundwater) Data Validation Report

Seattle, Washington

Sampling Event	GeoEngineers Sample ID	Laboratory ID	fraction	test_type	Analyte	Sample Matrix	Result	Unit	Qualifier	Reason
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Benzo(b)fluoranthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Fluoranthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Benzo(k)fluoranthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Acenaphthylene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Chrysene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Benzo(a)pyrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Dibenzo(a,h)anthracene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Benzo(a)anthracene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Acenaphthene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Phenanthrene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Fluorene	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	MW-36S-141215	ZP15FDL2	D	REEXTRACT	Total benzofluoranthenes (b+k (+j))	WG	90	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053A	T	INITIAL	Acenaphthene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053A	T	INITIAL	Naphthalene	WG	130	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053B	D	INITIAL	Acenaphthene	WG	14	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053B	D	INITIAL	Naphthalene	WG	130	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Anthracene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Pyrene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Benzo(g,h,i)perylene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Indeno(1,2,3-cd)pyrene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Benzo(b)fluoranthene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Fluoranthene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Benzo(k)fluoranthene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Acenaphthylene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Chrysene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Benzo(a)pyrene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Dibenzo(a,h)anthracene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Benzo(a)anthracene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Phenanthrene	WG	6.9	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Fluorene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Naphthalene	WG	1800	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL	T	REANALYSIS	Total benzofluoranthenes (b+k (+j))	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Anthracene	WG	5.4	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Pyrene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Benzo(g,h,i)perylene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Indeno(1,2,3-cd)pyrene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Benzo(b)fluoranthene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Fluoranthene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Benzo(k)fluoranthene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Acenaphthylene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Chrysene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Benzo(a)pyrene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Dibenzo(a,h)anthracene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Benzo(a)anthracene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Phenanthrene	WG	5.3	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Fluorene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Naphthalene	WG	1600	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL	D	REANALYSIS	Total benzofluoranthenes (b+k (+j))	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Benzo(g,h,i)perylene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Indeno(1,2,3-cd)pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Benzo(b)fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Benzo(k)fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Acenaphthylene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Chrysene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Benzo(a)pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Dibenzo(a,h)anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Benzo(a)anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Acenaphthene	WG	17	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Phenanthrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Fluorene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053ADL2	T	REEXTRACT	Total benzofluoranthenes (b+k (+j))	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions

Table 1

Summary of Data Qualifiers for December 2014 Groundwater Sampling

Gas Works Park Site - 2015 Play Area Investigation (Groundwater) Data Validation Report

Seattle, Washington

Sampling Event	GeoEngineers Sample ID	Laboratory ID	fraction	test_type	Analyte	Sample Matrix	Result	Unit	Qualifier	Reason
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Benzo(g,h,i)perylene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Indeno(1,2,3-cd)pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Benzo(b)fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Benzo(k)fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Acenaphthylene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Chrysene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Benzo(a)pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Dibenzo(a,h)anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Benzo(a)anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Acenaphthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Phenanthrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Fluorene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-10GW	Z053BDL2	D	REEXTRACT	Total benzofluoranthenes (b+k (+j))	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083A	T	INITIAL	Sulfide	WG	1.66	mg/l	J	Matrix spike %R Outlier
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Anthracene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Pyrene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Benzo(g,h,i)perylene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Indeno(1,2,3-cd)pyrene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Benzo(b)fluoranthene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Fluoranthene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Benzo(k)fluoranthene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Acenaphthylene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Chrysene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Benzo(a)pyrene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Dibenzo(a,h)anthracene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Benzo(a)anthracene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Acenaphthene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Phenanthrene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Fluorene	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083ADL	T	REANALYSIS	Total benzofluoranthenes (b+k (+j))	WG	1.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-11GW	Z083A	T	INITIAL	Naphthalene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083B	T	INITIAL	Naphthalene	WG	100	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083F	D	INITIAL	Naphthalene	WG	550	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Anthracene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Pyrene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Benzo(g,h,i)perylene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Indeno(1,2,3-cd)pyrene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Benzo(b)fluoranthene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Fluoranthene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Benzo(k)fluoranthene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Acenaphthylene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Chrysene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Benzo(a)pyrene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Dibenzo(a,h)anthracene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Benzo(a)anthracene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Acenaphthene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Phenanthrene	WG	8.4	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Fluorene	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083BDL	T	REANALYSIS	Total benzofluoranthenes (b+k (+j))	WG	10	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Anthracene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Pyrene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Benzo(g,h,i)perylene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Indeno(1,2,3-cd)pyrene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Benzo(b)fluoranthene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Fluoranthene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Benzo(k)fluoranthene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Acenaphthylene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Chrysene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Benzo(a)pyrene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Dibenzo(a,h)anthracene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Benzo(a)anthracene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions

Table 1

Summary of Data Qualifiers for December 2014 Groundwater Sampling

Gas Works Park Site - 2015 Play Area Investigation (Groundwater) Data Validation Report

Seattle, Washington

Sampling Event	GeoEngineers Sample ID	Laboratory ID	fraction	test_type	Analyte	Sample Matrix	Result	Unit	Qualifier	Reason
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Acenaphthene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Phenanthrene	WG	8.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Fluorene	WG	5.2	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Naphthalene	WG	890	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL	D	REANALYSIS	Total benzofluoranthenes (b+k (+j))	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Anthracene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Pyrene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Benzo(g,h,i)perylene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Indeno(1,2,3-cd)pyrene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Benzo(b)fluoranthene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Fluoranthene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Benzo(k)fluoranthene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Acenaphthylene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Chrysene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Benzo(a)pyrene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Dibenzo(a,h)anthracene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Benzo(a)anthracene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Acenaphthene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Phenanthrene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Fluorene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-12GW	Z083FDL2	D	REEXTRACT	Total benzofluoranthenes (b+k (+j))	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083G	D	INITIAL	Naphthalene	WG	620	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083C	T	INITIAL	Naphthalene	WG	1600	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Anthracene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Pyrene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Benzo(g,h,i)perylene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Indeno(1,2,3-cd)pyrene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Benzo(b)fluoranthene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Fluoranthene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Benzo(k)fluoranthene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Acenaphthylene	WG	4.6	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Chrysene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Benzo(a)pyrene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Dibenzo(a,h)anthracene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Benzo(a)anthracene	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Acenaphthene	WG	5.8	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Phenanthrene	WG	5.1	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Fluorene	WG	3.2	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Naphthalene	WG	1200	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL	D	REANALYSIS	Total benzofluoranthenes (b+k (+j))	WG	5.0	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Anthracene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Pyrene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Benzo(g,h,i)perylene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Indeno(1,2,3-cd)pyrene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Benzo(b)fluoranthene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Fluoranthene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Benzo(k)fluoranthene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Acenaphthylene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Chrysene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Benzo(a)pyrene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Dibenzo(a,h)anthracene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Benzo(a)anthracene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Acenaphthene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Phenanthrene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Fluorene	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083GDL2	D	REEXTRACT	Total benzofluoranthenes (b+k (+j))	WG	15	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Benzo(g,h,i)perylene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Indeno(1,2,3-cd)pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Benzo(b)fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Benzo(k)fluoranthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Acenaphthylene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions

Table 1

Summary of Data Qualifiers for December 2014 Groundwater Sampling

Gas Works Park Site - 2015 Play Area Investigation (Groundwater) Data Validation Report

Seattle, Washington

Sampling Event	GeoEngineers Sample ID	Laboratory ID	fraction	test_type	Analyte	Sample Matrix	Result	Unit	Qualifier	Reason
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Chrysene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Benzo(a)pyrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Dibenzo(a,h)anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Benzo(a)anthracene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Acenaphthene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Phenanthrene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Fluorene	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions
2014_Play Area	PAI-2GW	Z083CDL	T	REANALYSIS	Total benzofluoranthenes (b+k (+j))	WG	30	ug/l	DNR	Do-Not-Report; typically assigned to samples with analytes that were reported twice or more because of dilutions

Notes:

WG = groundwater

mg/L = milligrams per liter

ug/L = micrograms per liter

J = estimated value

Analytical Resources, Incorporated
Analytical Chemists and Consultants

January 16, 2015

Zanna Satterwhite
GeoEngineers, Inc.
Plaza 600 Building
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Client Project: Gas Works Park-Play Area Investigation, 0186-846-01 Task 1520
ARI Job Nos.: ZO41 & ZO68

Dear Zanna:

Please find enclosed the Chain of Custody records (COCs), sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com
www.arilabs.com

cc: eFile: ZO41_ZO68

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: ZO41, ZO68

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested:	Page: 1 of 2	
ARI Client Company: GeoEngineers	Phone: 206-239-3231	Date: 12/8/14	Ice Present?
Client Contact: Zanna Satterwhite		No. of Coolers:	Cooler Temps:
Client Project Name: Gas Works Park - Play Area Investigation			
Client Project #: 0186-846-01	Samplers: Robert Miyahira + Claudia DeLaVia		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: Hold								Notes/Comments
PAI-1-4.5-5.0	12/8	1025	Soil	6	X								
PAI-1-13.8-14.3	12/8	1045	Soil	6	X								
PAI-1-14.5-15.0	12/8	1105	Soil	6	X								
PAI-1-16.5-17.0	12/8	1135	Soil	6	X								
PAI-1-24.0-24.5	12/8	1210	Soil	6	X								
PAI-1-29.0-29.5	12/8	1230	Soil	6	X								
PAI-5-6.0-6.5	12/8	1422	Soil	6	X								
PAI-5-8.0-8.5	12/8	1430	Soil	6	X								
PAI-5-13.5-14.0	12/8	1455	Soil	6	X								
PAI-5-14.5-15.0	12/8	1500	Soil	6	X								

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: Claudia DeLaVia	Printed Name: Rich Hulse	Printed Name:	Printed Name:
	Company: GeoEngineers	Company: ARI	Company:	Company:
	Date & Time: 12/9/14 1340	Date & Time: 12/9/14 1340	Date & Time:	Date & Time:

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

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ARI Assigned Number:	Turn-around Requested:	Page: 2 of 2	
ARI Client Company: GeoEngineers	Phone: 206-239-3231	Date: 12/8/14	Ice Present?
Client Contact: Zanna Satterwhite		No. of Coolers:	Cooler Temps:
Client Project Name: Gas Works Park - Play Area Investigation			
Client Project #: 0186-846-01	Samplers: Robert Miyahara + Claudia DeLaVia		

Sample ID	Date	Time	Matrix	No Containers	HOLD								Notes/Comments
TRIP-BLANK			W	1	X								

(Analysis Requested columns: HOLD)

Comments/Special Instructions	Relinquished by	Received by	Relinquished by	Received by
	(Signature) [signature]	(Signature) [signature]	(Signature)	(Signature)
	Printed Name: Claudia DeLaVia	Printed Name: Rich Hulen	Printed Name:	Printed Name:
	Company: GeoEngineers	Company: ARI	Company:	Company:
	Date & Time: 12/9/14 1340	Date & Time: 12/9/14 1340	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

ZAS revisions 12-10-14 (O=analyze)

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: Z041	Turn around Requested: Standard	Page 1 of 1	
ARI Client Company: [illegible]	Phone: [illegible]	Date: [illegible]	Ice Present?
Client Contact: [illegible]		No. of Coolers:	Cooler Temps:
Client Project Name: [illegible]			
Client Project #: [illegible] Task 1520	Samplers: [illegible]		

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Sample ID	Date	Time	Matrix	No Containers	HOLD	Arsenic EPA 200.8	PAHs by EPA8270 SIM (low level)	BTEX by EPA 8260 (low level)					Notes/Comments XRF 71000[illegible]
[illegible]-5.0	12/8	1025	Soil	6	X								
PAI-1-13.8-14.2	12/8	1045	Soil	6	~~X~~	O							X
PAI-1-14.5-15.0	12/8	1105	Soil	6	~~X~~		O	O					
[illegible]-1-16.5-17.0	12/8	1135	Soil	6	X								
[illegible]-1-24.0-24.5	12/8	121[illegible]	Soil	6	~~X~~	O							
PAI-1-29.0-29.5	12/8	1230	Soil	6	X								
PAI-5-6.0-6.5	12/8	1422	Soil	6	X								
PAI-5-8.0-8.5	12/8	1430	Soil	6	~~X~~	O							
PAI-5-13.5-14.0	12/8	1455	Soil	6	~~X~~	O							
PAI-5-14.5-15.0	12/8	1500	Soil	6	X								

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
	(Signature) [signature]	(Signature) [signature]	(Signature)	(Signature)
	Printed Name: [illegible]	Printed Name: [illegible]	Printed Name:	Printed Name:
	Company: GeoEngineers	Company: ARI	Company: [illegible]	Company:
	Date & Time: 12/[illegible]/14 1340	Date & Time: 12/[illegible]/14 1340	Date & Time:	Date & Time:

[illegible] to Neil [illegible]

Z041 : 000006