

Appendix B
Laboratory Data Validation Reports

Data Usability Review for NW Pipe

Collected December 11, 2012

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: February 05, 2013

Summary

This memorandum summarizes the review of the QA/QC data associated with the analysis of two samples collected on December 11, 2012 from the NW Pipe site.

Metals including mercury, volatile organic hydrocarbons (VOCs), polycyclic aromatic hydrocarbons (PAHs), total suspended solids (TSS), and total organic carbon (TOC) analyses were performed by the Applied Sciences Group laboratory, located in Corvallis, Oregon. Data was reported in analytical batch ASL L3025.

Chlorinated pesticides and polychlorinated biphenyls (PCBs) analyses were performed by Test America laboratory, located in Tacoma, Washington. Data was reported in analytical batch 580-36357-1

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information were reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by ASL and Test America for all sample analyses. The data set is usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody and Handling

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed.

No exceptions were found on the COC's.

Initial Calibration

Initial calibration data were provided by ASL for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by ASL for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks met QC acceptance criteria, except in the following:

Copper was detected in the blank at 2.20 ug/L. Data was flagged with a "J" as an estimated value.

Nickel was detected in the blank at 0.019 ug/L. The data were not flagged as the samples were positive for nickel.

Surrogate Recovery

Surrogate recovery values met QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Not applicable.

Data Usability Review for NW Pipe

Collected May 22, 2013

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: July 16, 2013

Summary

This memorandum summarizes the review of the QA/QC data associated with the analysis of two samples collected on May 22, 2013 from the NW Pipe site.

Metals including mercury, volatile organic hydrocarbons (VOCs), polycyclic aromatic hydrocarbons (PAHs), total suspended solids (TSS), and total organic carbon (TOC) analyses were performed by the Applied Sciences Group laboratory, located in Corvallis, Oregon. Data was reported in analytical batch ASL M1935.

Chlorinated pesticides and polychlorinated biphenyls (PCBs) analyses were performed by Test America laboratory, located in Tacoma, Washington. Data was reported in analytical batch 580-38690-1

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information were reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by ASL and Test America for all sample analyses. The data set is usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody and Handling

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed.

No exceptions were found on the COC's.

Initial Calibration

Initial calibration data were provided by ASL for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by ASL for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks met QC acceptance criteria, except in the following:

2-Methylnaphthalene was detected in the blank at .0029 ug/L. Data was flagged with a "J" as an estimated value.

Phenanthrene was detected in the blank at .0016 ug/L. Detected data was flagged with a "J" as an estimated value.

Cadmium was detected in the blank at .46 ug/L. Detected data was flagged with a "J" as an estimated value.

Total Organic Carbon was detected in the blank at 0.29 mg/L. The data was flagged with a "J" as an estimated value.

Surrogate Recovery

Surrogate recovery values met QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Not applicable.

Data Evaluation of Pesticide/PCB Results – Northwest Pipe Source Control Stormwater Samples

PREPARED FOR: Patrick Heins/PDX

COPY TO: Ken Shump/PDX

PREPARED BY: Fesler, Mark/RDD

DATE: January 16, 2014

PROJECT NUMBER: 485880.14.RI

This memo summarizes the data evaluation that was performed on laboratory data received from TestAmerica Seattle on June 6, 2013 under Job Number 580-38690-1. The data evaluation was for the pesticide/PCB results received for two samples, SW03-052213-SCE and SW04-0502212-SCE.

Data Evaluation

Samples were collected on May 22, 2013 as indicated on the Chain of Custody Record (COC), and submitted to the laboratory for analysis on May 29, 2013. The laboratory received the samples on May 31, 2013 outside the method recommended holding time. Consistent with the instructions on the COC, the laboratory was instructed to proceed with analysis. Although there were some minor laboratory QC issues, no other significant deviations were observed other than the missed holding time. Two low level detects for gamma-BHC and Aldrin in the samples, while all other analyzed pesticides and PCB Aroclors were not detected (ND).

In accordance with the guidelines specified in the individual method and the USEPA Contract Laboratory National Functional Guidelines (NFG) for Organic Data Review (June 2008), the data should be considered estimated since the holding time was not grossly exceeded (i.e. the extraction occurred at a time less than twice the recommended holding time of 7 days). The two low level pesticide detects were reported at values between the laboratory Method Detection Limit (MDL) and the Reporting Limit (RL) and already were reported as an approximate value. For the analytes reported as non-detected at the MDL, the detection limit should be considered estimated.

Data Usability

Based on the data evaluation above, the sample results that were qualified as estimated are usable to support the decision making process.

Northwest Pipe Company, Portland Facility Supplemental Remedial Investigation Roof Runoff Sampling - November 2009 Data Quality Evaluation Report

Introduction

The objective of this Data Quality Evaluation (DQE) report is to assess the data quality of analytical results for roof runoff samples collected at the Northwest Pipe Company in Portland, Oregon. Individual method requirements, guidelines from the Quality Assurance Project Plan, Supplemental Remedial Investigation – Source Control Evaluation Work Plan, Northwest Pipe Company (CH2M HILL, July 2009) (QAPP), the USEPA Contract Laboratory National Functional Guidelines (NFG) for Organic Data Review (October 1999), and the USEPA Contract Laboratory NFG for Inorganic Data Review (July 2002) were used in this assessment.

This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

This DQE report covers 10 normal samples and one field duplicate (FD). A list of samples and collection dates is included in Attachment A at the end of this report. These sample results were reported under one sample delivery group, PSK0253. Samples were collected on November 7, 2009. Six methods were used to analyze the environmental samples and are provided in Table 1. The analyses were performed by TestAmerica Laboratories located in Beaverton, Oregon. Samples were collected and hand-delivered to the laboratory. Selected samples were analyzed for one or more of the following analytes/methods:

Table 1
Analytical Parameters

<u>Parameter</u>	<u>Method</u>
Polynuclear Aromatic Hydrocarbons and Phthalates	EPA 8270m
Volatile Organic Compounds	EPA 8260B
Polychlorinated Biphenyls	EPA 8082
Metals (Al, Sb, As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn)	EPA 6010B
Mercury	EPA 7470A
Total Suspended Solids	SM 2540D

The assessment of data includes a review of: (1) the chain-of-custody (CoC) documentation; (2) holding-time compliance; (3) the required field and laboratory quality control (QC) samples; (4) flagging for method blanks; (5) laboratory control sample/laboratory control sample duplicates (LCS/LCSD); (6) surrogate spike recoveries for organic analyses; (7) matrix spike/matrix spike duplicate samples (MS/MSD); (8) internal standard recoveries; and, (9) calibration information.

Field samples were also reviewed to ascertain field compliance and data quality issues. This included a review of a FD and a trip blank.

Data flags are assigned according to the NFG. These flags, as well as the reason for each flag, are entered into the electronic database and in Table 2. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will be only one final flag. A final flag is applied to the data and is the most conservative of the applied validation flags. The final flag also includes blank sample impacts.

The data flags are those listed in the QAPP and are defined below:

- J = Analyte was present but reported value may not be accurate or precise.
- R = Analyte was rejected.
- U = Analyte was analyzed for but not detected at the specified detection limit.
- UJ = Analyte was not detected above the detection limit objective. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Findings

The overall summaries of the data validation findings are contained in the following sections and Table 2.

Holding Times

All holding-time criteria were met.

Calibration

All initial and continuing calibration criteria were met with the following exceptions:

The recoveries of naphthalene and 1,2,3-trichlorobenzene were below the lower control limit in the initial calibration verifications (ICV) for Method EPA 8260B, indicating associated sample results are possibly biased low. Twelve associated non-detected results were qualified as estimated and flagged "UJ".

The recovery of 2-butanone was above the upper control limit in a continuing calibration verification (CCV) for Method EPA 8260B, indicating associated sample results are possibly biased high. Six associated detected results were qualified as estimated and flagged "J".

Method Blanks

Method blanks were analyzed at the required frequency and were free of contamination that would affect the data.

Field Blanks

A trip blank was collected and was free of contamination.

Matrix Spike Samples

The results of MS/MSD analyses provide information about the possible influence of the matrix on either accuracy or precision of the measurements. The field crew designated a sample for MS/MSD analysis. All acceptance criteria were met with a couple of exceptions.

The recoveries of trans-1,3-dichloropropene, o-xylene, cis-1,3-dichloropropene, 1,3-dichlorobenzene, and 1,1,1,2-tetrachloroethane were below the lower control limit in the MS of sample DS012-110709 for Method EPA 8260B, indicating the associated parent sample results are possibly biased low. Five associated non-detected results in the parent sample were qualified as estimated and flagged "UJ".

Field Duplicates

One FD set was collected with this dataset. All precision criteria were met with the following exception:

The relative percent difference (RPD) of 2-butanone was above the acceptance criterion in FD set DS120-110709/ DS120-110709-1 for Method EPA 8260B. The associated detected results in the normal and duplicate were qualified as estimated and flagged "J".

Surrogates

Surrogate spikes were analyzed as required. All acceptance criteria were met.

Internal Standards

All internal standard acceptance criteria were met.

Laboratory Control Samples

LCS/LCSDs were analyzed as required. Accuracy and precision criteria were met.

Chain of Custody

All samples were received intact with correct CoC documentation.

Overall Assessment

The final activity in the data quality evaluation is an assessment of whether the data meets the data quality objectives (DQO). The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected and the resulting analytical data can be used to support the decisionmaking process. The following summary highlights the data evaluation findings for the above defined events:

1. No data were rejected and completeness was 100 percent.
2. No data were qualified because of low-level blank contamination.
3. MS/MSD recovery exceedances were observed for Method EPA 8260B; five results were qualified as estimated.
4. A FD RPD exceedance was observed for Method EPA 8260B; two results were qualified as estimated.
5. ICV and CCV recovery exceedances were observed for Method EPA 8260B; 18 results were qualified as estimated.
6. The precision and accuracy of the data, as measured by laboratory QC indicators, suggest that the DQOs were met.

Table 2 – Validation Findings

NativeID	Method	Analyte	Final Result	Units	Final Flag	Validation Reason
DS005-110709	EPA 8260B	1,2,3-Trichlorobenzene	0.1	ug/l	UJ	ICV<LCL
DS005-110709	EPA 8260B	2-Butanone (MEK)	3.56	ug/l	J	CCV>UCL
DS005-110709	EPA 8260B	Naphthalene	0.09	ug/l	UJ	ICV<LCL
DS012-110709	EPA 8260B	1,1,1,2-Tetrachloroethane	0.09	ug/l	UJ	MS<LCL
DS012-110709	EPA 8260B	1,2,3-Trichlorobenzene	0.1	ug/l	UJ	ICV<LCL
DS012-110709	EPA 8260B	1,3-Dichlorobenzene	0.06	ug/l	UJ	MS<LCL
DS012-110709	EPA 8260B	2-Butanone (MEK)	19.7	ug/l	J	CCV>UCL
DS012-110709	EPA 8260B	cis-1,3-Dichloropropene	0.09	ug/l	UJ	MS<LCL
DS012-110709	EPA 8260B	Naphthalene	0.09	ug/l	UJ	ICV<LCL
DS012-110709	EPA 8260B	o-Xylene	0.07	ug/l	UJ	MS<LCL
DS012-110709	EPA 8260B	trans-1,3-Dichloropropene	0.1	ug/l	UJ	MS<LCL
DS120-110709	EPA 8260B	1,2,3-Trichlorobenzene	0.1	ug/l	UJ	ICV<LCL
DS120-110709	EPA 8260B	2-Butanone (MEK)	27.1	ug/l	J	FD>RPD CCV>UCL
DS120-110709	EPA 8260B	Naphthalene	0.09	ug/l	UJ	ICV<LCL
DS120-110709-1	EPA 8260B	1,2,3-Trichlorobenzene	0.1	ug/l	UJ	ICV<LCL
DS120-110709-1	EPA 8260B	2-Butanone (MEK)	52	ug/l	J	FD>RPD CCV>UCL
DS120-110709-1	EPA 8260B	Naphthalene	0.09	ug/l	UJ	ICV<LCL
DS221-110709	EPA 8260B	1,2,3-Trichlorobenzene	0.1	ug/l	UJ	ICV<LCL
DS221-110709	EPA 8260B	2-Butanone (MEK)	3.5	ug/l	J	CCV>UCL
DS221-110709	EPA 8260B	Naphthalene	0.09	ug/l	UJ	ICV<LCL
DS223-110709	EPA 8260B	1,2,3-Trichlorobenzene	0.1	ug/l	UJ	ICV<LCL
DS223-110709	EPA 8260B	2-Butanone (MEK)	5.72	ug/l	J	CCV>UCL
DS223-110709	EPA 8260B	Naphthalene	0.09	ug/l	UJ	ICV<LCL

Notes:

CCV>UCL = Continuing calibration verification recovered above the upper control limit.

FD>RPD = Field duplicate relative percent difference greater than the acceptance criterion.

ICV<LCL = Initial calibration verification recovered below the lower control limit.

MS<LCL = Matrix spike recovery less than the lower control limit.

Attachment A

Samples Associated with DQE		
SampleID	Sample Type	Sample Date
DS120-110709-1	FD	11/07/2009
DS005-110709	N	11/07/2009
DS006--110709	N	11/07/2009
DS012-110709	N	11/07/2009
DS017--110709	N	11/07/2009
DS117--110709	N	11/07/2009
DS120-110709	N	11/07/2009
DS221-110709	N	11/07/2009
DS223-110709	N	11/07/2009
DS224--110709	N	11/07/2009
DS225--110709	N	11/07/2009
Trip Blank	TB	11/07/2009

N = Normal sample
FD = Field duplicate
TB = Trip blank

Northwest Pipe Company, Portland Facility Supplemental Remedial Investigation Soil Sampling October 2009 Data Quality Evaluation Report

Introduction

The objective of this Data Quality Evaluation (DQE) report is to assess the data quality of analytical results for soil samples collected at the Northwest Pipe Company in Portland, Oregon. Individual method requirements, guidelines from the Quality Assurance Project Plan, Supplemental Remedial Investigation – Source Control Evaluation Work Plan, Northwest Pipe Company (CH2M HILL, July 2009) (QAPP), the USEPA Contract Laboratory National Functional Guidelines (NFG) for Organic Data Review (October 1999), and the USEPA Contract Laboratory NFG for Inorganic Data Review (July 2002) were used in this assessment.

This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

This DQE report covers 11 normal samples and two field duplicates (FD). A list of samples and collection dates is included in Attachment A at the end of this report. These sample results were reported under one sample delivery group, PSJ0657. Samples were collected on October 19, 2009. Seven methods were used to analyze the environmental samples and are provided in Table 1. The analyses were performed by TestAmerica Laboratories located in Beaverton, Oregon. Samples were collected and hand-delivered to the laboratory. Selected samples were analyzed for one or more of the following analytes/methods:

Table 1
Analytical Parameters

<u>Parameter</u>	<u>Method</u>
Polynuclear Aromatic Hydrocarbons and Phthalates	EPA 8270m
Pesticides	EPA 8081A
Polychlorinated Biphenyls	EPA 8082
Metals (Al, Sb, As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn)	EPA 6010B
Mercury	EPA 7471A
Total Organic Carbon	EPA 9060
Percent Solids	NCA SOP

The assessment of data includes a review of: (1) the chain-of-custody (CoC) documentation; (2) holding-time compliance; (3) the required field and laboratory quality control (QC) samples; (4) flagging for method blanks; (5) laboratory control sample/laboratory control sample duplicates (LCS/LCSD); (6) surrogate spike recoveries for organic analyses; (7) matrix spike/matrix spike duplicate samples (MS/MSD); (8) internal standard recoveries; and, (9) calibration information.

Field samples were also reviewed to ascertain field compliance and data quality issues. This included a review of FDs.

Data flags are assigned according to the NFG. These flags, as well as the reason for each flag, are entered into the electronic database and in Table 2. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will be only one final flag. A final flag is applied to the data and is the most conservative of the applied validation flags. The final flag also includes blank sample impacts.

The data flags are those listed in the QAPP and are defined below:

- J = Analyte was present but reported value may not be accurate or precise.
- R = Analyte was rejected.
- U = Analyte was analyzed for but not detected at the specified detection limit.
- UJ = Analyte was not detected above the detection limit objective. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Findings

The overall summaries of the data validation findings are contained in the following sections and Table 2.

Holding Times

All holding-time criteria were met.

Calibration

All initial and continuing calibration criteria were met.

Method Blanks

Method blanks were analyzed at the required frequency and were free of contamination that would affect the data.

Field Blanks

Field blanks were not collected with this event.

Matrix Spike Samples

The results of MS/MSD analyses provide information about the possible influence of the matrix on either accuracy or precision of the measurements. The field crew designated a sample for MS/MSD analysis. All acceptance criteria were met with a couple of exceptions.

The recovery of antimony was below the lower control limit in the MS and MSD of sample SS-405-101909-2 for method EPA 6010B, indicating the associated parent sample result is possibly biased low. The associated detected result in the parent sample was qualified as estimated and flagged "J".

The recovery of bis(2-ethylhexyl)phthalate was above the upper control limit in the MSD of sample SS-405-101909-2 for method EPA 8270m, indicating the associated parent sample result is possibly biased high. The associated detected result in the parent sample was qualified as estimated and flagged "J".

Field Duplicates

Two FD sets were collected with this dataset. All precision criteria were met with the following exceptions:

The relative percent difference (RPD) of total organic carbon was above the acceptance criterion in FD set SS-405-101909-0/SS-405-101909-2 for method EPA 9060. The associated detected results in the normal and duplicate were qualified as estimated and flagged "J".

The RPD of copper was above the acceptance criterion in FD set SS-411-101909-0/ SS-411-101909-1 for method EPA 6010B. The associated detected results in the normal and duplicate were qualified as estimated and flagged "J".

The RPD of mercury was above the acceptance criterion in FD set SS-411-101909-0/ SS-411-101909-1 for method EPA 7471A. The associated detected results in the normal and duplicate were qualified as estimated and flagged "J".

The RPD of naphthalene was above the acceptance criterion in FD set SS-411-101909-0/ SS-411-101909-1 for method EPA 8270m. Additionally, the RPDs of chrysene and benzo(a)anthracene were above the acceptance criterion in FD set SS-405-101909-0/SS-405-101909-2. The associated detected results in the normals and duplicates were qualified as estimated and flagged "J".

Laboratory Duplicates

The RPD of mercury was above the acceptance criterion in the laboratory duplicate of sample SS-405-101909-2. The associated detected result was qualified as estimated and flagged "J".

Surrogates

Surrogate spikes were analyzed as required. All acceptance criteria were met with the following exceptions:

Surrogate recovery was above the upper control limit in samples SS-411-101909-0 and SS-402-101909-0 for method EPA 8270m, indicating associated sample results are possibly biased high. Four associated detected results were qualified as estimated and flagged "J".

Internal Standards

All internal standard acceptance criteria were met.

Laboratory Control Samples

LCS/LCSDs were analyzed as required. Accuracy and precision criteria were met.

Chain of Custody

All samples were received intact with correct CoC documentation.

Samples were received at the laboratory at 11.6 degrees Celsius. The samples were delivered to the laboratory the same day as collection and the samples did not have sufficient time to reach 6 degrees Celsius. The temperature of 11.6 degrees Celsius indicates the samples were chilled and no data were qualified.

Overall Assessment

The final activity in the data quality evaluation is an assessment of whether the data meets the data quality objectives (DQO). The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected and the resulting analytical data can be used to support the decisionmaking process. The following summary highlights the data evaluation findings for the above defined events:

1. No data were rejected and completeness was 100 percent.
2. No data were qualified because of low-level blank contamination.
3. MS/MSD recovery exceedances were observed for methods EPA 6010B and EPA 8270m; two results were qualified as estimated.
4. FD RPD exceedances were observed for methods EPA 9060, EPA6010B, EPA 7471A and EPA 8270m; 12 results were qualified as estimated.
5. Surrogate recovery exceedances were observed in two samples for method EPA 8270m; four results were qualified as estimated.
6. A laboratory duplicate RPD exceedances was observed for method EPA 7471A; one result was qualified as estimated.
7. The precision and accuracy of the data, as measured by laboratory QC indicators, suggest that the DQOs were met.

Table 2 - Validation Findings

NativeID	Method	Analyte	Final Result	Units	Final Flag	Validation Reason
SS-402-101909-0	EPA 8270m	Bis(2-ethylhexyl)phthalate	389	ug/kg	J	Sur>UCL
SS-402-101909-0	EPA 8270m	Butyl benzyl phthalate	84.6	ug/kg	J	Sur>UCL
SS-405-101909-0	EPA 9060	Total Organic Carbon	62000	mg/Kg	J	FD>RPD
SS-405-101909-0	EPA 8270m	Benzo (a) anthracene	1670	ug/kg	J	FD>RPD
SS-405-101909-0	EPA 8270m	Chrysene	2090	ug/kg	J	FD>RPD
SS-405-101909-2	EPA 9060	Total Organic Carbon	37000	mg/Kg	J	FD>RPD
SS-405-101909-2	EPA 6010B	Antimony	4.08	mg/kg	J	MS<LCL MSD<LCL
SS-405-101909-2	EPA 7471A	Mercury	0.00846	mg/kg	J	LabDUP>RPD
SS-405-101909-2	EPA 8270m	Benzo (a) anthracene	956	ug/kg	J	FD>RPD
SS-405-101909-2	EPA 8270m	Bis(2-ethylhexyl)phthalate	95.2	ug/kg	J	MSD>UCL
SS-405-101909-2	EPA 8270m	Chrysene	1220	ug/kg	J	FD>RPD
SS-411-101909-0	EPA 6010B	Copper	255	mg/kg	J	FD>RPD
SS-411-101909-0	EPA 7471A	Mercury	0.0944	mg/kg	J	FD>RPD
SS-411-101909-0	EPA 8270m	Bis(2-ethylhexyl)phthalate	1900	ug/kg	J	Sur>UCL
SS-411-101909-0	EPA 8270m	Butyl benzyl phthalate	637	ug/kg	J	Sur>UCL
SS-411-101909-0	EPA 8270m	Naphthalene	631	ug/kg	J	FD>RPD
SS-411-101909-1	EPA 6010B	Copper	139	mg/kg	J	FD>RPD
SS-411-101909-1	EPA 7471A	Mercury	0.203	mg/kg	J	FD>RPD
SS-411-101909-1	EPA 8270m	Naphthalene	135	ug/kg	J	FD>RPD

Notes:

FD>RPD = Field duplicate relative percent difference greater than the acceptance criterion.

LabDUP>RPD = Laboratory duplicate relative percent difference greater than the acceptance criterion.

MS<LCL = Matrix spike recovery less than the lower control limit.

MSD<LCL = Matrix spike duplicate recovery less than the lower control limit.

MSD>UCL = Matrix spike duplicate recovery greater than the upper control limit.

Sur>UCL - Surrogate recovery greater than the upper control limit.

Attachment A

Samples Associated with DQE		
SampleID	Sample Type	Sample Date
SS-411-101909-1	FD	10/19/2009
SS-405-101909-2	FD	10/19/2009
SS-401-101909-0	N	10/19/2009
SS-402-101909-0	N	10/19/2009
SS-403-101909-0	N	10/19/2009
SS-404-101909-0	N	10/19/2009
SS-405-101909-0	N	10/19/2009
SS-406-101909-0	N	10/19/2009
SS-407-101909-0	N	10/19/2009
SS-408-101909-0	N	10/19/2009
SS-409-101909-0	N	10/19/2009
SS-410-101909-0	N	10/19/2009
SS-411-101909-0	N	10/19/2009

N = Normal sample
FD = Field duplicate

Data Usability Review for NW Pipe

Collected May 31, 2012

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: July 26, 2012

Summary

This memorandum summarizes the review of the QA/QC data associated with the analysis of seven samples collected on May 31, 2012 from the NW Pipe site.

Metals including mercury, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and total organic carbon (TOC) analyses were performed by the Applied Sciences Group laboratory, located in Corvallis, Oregon. Data was reported in analytical batch ASL L1754.

Total petroleum hydrocarbons (TPH) for extractable petroleum hydrocarbons (EPH) and volatile petroleum hydrocarbons (VPH) analyses were performed by Test America laboratory, located in Tacoma, Washington. Data was reported in analytical batch 580-33207-1.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information were reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by ASL and Test America for all sample analyses. The data set is usable when used in conjunction with

information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody and Handling

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed. No exceptions were found on the COC's.

Initial Calibration

Initial calibration data were provided were provided by ASL and Test America for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by ASL and Test America for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks met QC acceptance criteria, except in the following:

TPH-Diesel was detected in the blank at 0.84 mg/Kg. The data were not flagged as the samples were positive for TPH-Diesel.

The following NWTPH/VPH analytes were detected in the blank:

C5-C6 Aliphatic 0.363 mg/Kg

C6-C8 Aliphatic 0.256 mg/Kg

C10-C12 Aliphatic 0.147 mg/Kg

C8-C10 Aromatic 0.160 mg/Kg

C10-C12 Aromatic 0.192 mg/Kg

C12-C13 Aromatic 0.454 mg/Kg

The detected results for sample GP301-10'-11' were raised to the LOQ 2.5 mg/Kg and flagged with "U" as non-detect.

The following NWTPH/EPH analytes were detected in the blank:

C10-C12 Aromatics 0.0934 mg/Kg

The detected result for sample GP301-10'-11', analyte C10-C12 Aromatics was raised to the LOQ 6.1 mg/Kg and flagged with a "U" as non-detect.

C21-C34 Aromatics 2.19 mg/Kg

The detected results for sample GP301-10'-11' and GP302-7'-8', analyte C21-C34 Aromatics were not flagged as the samples were positive for this analyte.

Surrogate Recovery

Except for the instances noted below, all surrogate recoveries were within the specified QC control limits.

- NWTPH/EPH: Sample GP302-7'8' had a surrogate recovery (0%) below acceptance criteria. The positive result for analyte C12-C16 Aliphatic 74 mg/Kg was qualified as estimate and flagged with a "J".
- PAHs: Due to dilution, the sample GP301-10'-11' had a surrogate recovery of (0%) below acceptance criteria. The laboratory applied a dilution factor of 20X. The PAH results for the sample were qualified as estimates and flagged with a "J" for positive results or with a "UJ" for non-detect results.
- PAHs: Due to dilution, the sample GP302-7'-8' had a surrogate recovery of (0%) below acceptance criteria. The laboratory applied a dilution factor of 10000X. The PAH results for the sample were qualified as estimates and flagged with a "J" for positive results or with a "UJ" for non-detect results.
- PCBs: Due to dilution and matrix interference, the sample GP302-7'-8' had a surrogate recovery of (0%) below acceptance criteria. The laboratory applied a dilution factor of 20X. The PCB result for the sample is not flagged due to the matrix interference experienced during the sample analyses.
- TPH: Due to dilution, the sample GP302-7'-8' had a surrogate recovery of (0%) below acceptance criteria. The laboratory applied a dilution factor of 50X. The TPH-D results for the sample was qualified as an estimate and flagged with a "J" for positive results.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Not applicable.