

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