Groundwater Data Quality Evaluation for Northwest Pipe Company, Portland, Oregon

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Introduction

The objective of this data quality evaluation (DQE) is to assess the representativeness and usability of data quality for groundwater quality samples collected to monitor the Groundwater at the Northwest Pipe Company. The rationale for monitoring, the data quality objectives (DQOs), and the method for performing this DQE is provided in the *Final Supplemental Groundwater Sampling and Data Quality Evaluation*, Northwest Pipe Company, Oregon, August 2016 (hereafter referred to as the *NWP SAP*).

This DQE report includes evaluation of groundwater quality data from 10 groundwater samples collected in accordance with the *NWP SAP* on October 25 and October 26, 2016. This DQE report is intended as a general data quality assessment designed to summarize data issues, and written in accordance with *National Functional Guidelines (NFGs) for Superfund Organic Methods Data Review* (EPA, 2016) and *National Functional Guidelines (NFGs) for Inorganic Superfund Methods Data Review* (EPA, 2016).

Findings

The overall summaries of the data validation findings are contained in Tables 1 through 6 and summarized in the method sections that follow:

- **Table 1**: Sample Summary by Chain of Custody – Data Summary. Presents the sample identifiers, sampling dates, and SDG sorted by chain-of-custody (COC) number.
- **Table 2**: Sample Chronology – Data Summary. Presents the sample identifiers, methods, sampling dates, received dates, extraction dates, and analysis dates sorted by SDG number.
- **Table 3**: Overall Flagging Summary. Presents the number of occurrences for each data validation reason by method.
- **Table 4:** Temperature – Qualified Data. Presents the data qualified because of temperature exceedances.

- **Table 5:** Field Duplicate Precision – Results. Presents the relative percent differences (RPDs) for all data with FD pair detects above the RL.
- **Table 6**: Site Completeness by Analyte – Qualified Data. Presents the percent completeness by method, analyte, and matrix.

Analytical Data

This DQE report includes 10 normal groundwater samples and one FD collected on October 25 and October 26, 2016. These samples were reported under two sample delivery groups: Q3331 and Q3342. A list of samples included in this DQE are presented in Table 1. Seven methods were used to analyze the groundwater samples and are provided in Table 2. The analyses were performed by Applied Sciences Laboratory, Corvallis, Oregon. Samples were collected and delivered by overnight carrier to the laboratory.

The data were assessed according to the requirements of the *NWP SAP* and included a review of:

1. chain of custody documentation;
2. holding-time compliance;
3. required quality control (QC) samples at the specified frequencies;
4. flagging for method blanks;
5. laboratory control sample/laboratory control sample duplicates (LCS/LCSD);
6. matrix spike/matrix spike duplicate (MS/MSD) recoveries;

and other method-specific criteria as defined by the *NWP SAP*.

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

Data flags were assigned according to the *NFGs*. These flags, as well as the reason for each flag, are entered into the electronic database and can be found in Table 3. 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 matrix and blank sample impacts.

The data flags are defined below:

- J = the analyte was detected, but the associated numerical value is considered an estimated quantity.
- R = the sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified. No associated value is reported.
- U = the analyte was analyzed for but was not detected above the detection limit.
- UJ = the analyte was not detected above the detection limit. However, the 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.

Overall Flagging Summary

The overall summaries of the data validation findings are summarized in the following sections. Table 3 provides a flagging summary of overall occurrences for each data validation reason by method.

Temperature

Temperature requirements were generally met. See Table 4 for the following exceptions:

Four samples for chloride and sulfate were received outside of temperature for Method E300.0A. Eight associated detected results were qualified as estimated and flagged "J".

Four samples for nitrate-N were received outside of temperature for Method E353.2. Four associated detected results were qualified as estimated and flagged "J".

Four samples for carbon dioxide and methane were received outside of temperature for Method RSK-175. Eight associated detected results were qualified as estimated and flagged "J".

Four samples for total organic carbon were received outside of temperature for Method SM5310B. Four associated detected results were qualified as estimated and flagged "J".

Four samples for cis-1,2-dichloroethene and trichloroethene were received outside of temperature for Method SW8260C. Three associated detected results were qualified as estimated and flagged "J". Five associated non-detected results were qualified as estimated and flagged "UJ".

Four samples for tetrachloroethene and vinyl chloride were received outside of temperature for Method SW8260C-SIM. Six associated detected results were qualified as estimated and flagged "J". Two associated non-detected results were qualified as estimated and flagged "UJ".

Method Blanks

Method blanks were analyzed at the required frequency and were free of contamination.

Field Duplicates

In accordance with the *NWP SAP*, one field duplicate (FD) was collected from well MW06, and all precision criteria were met.

Table 5 shows the RPD between the primary (P) sample and FD, and was calculated for detected results above the RL using the following equation:

$$RPD = 100 * [(P1 – FD1) / (P1 + FD1) / 2]$$

Laboratory Control Samples

LCS were analyzed at the required frequency and the accuracy and precision criteria were met.

Holding Times

All holding-time criteria were met.

Chain of Custody

There were no discrepancies.

Overall Assessment

The final activity in the DQE is an assessment of whether the data meets the data quality objectives. 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 decision-making process. The precision, accuracy, representativeness, completeness and comparability are addressed in the *NWP SAP*. The following summary highlights the data evaluation findings for the above defined events:

1. No data were rejected and completeness was 100 percent for all method/matrix/analyte combinations as shown in Table 6.
2. Temperature exceedances were observed for Methods E300.0A, E353.2, RSK-175, SM5310B, SW8260C and SW8260C-SIM; 40 results were qualified as estimated.
3. The precision and accuracy of the data, as measured by field and laboratory QC indicators, suggests that the *NWP SAP* goals for project use were met.
4. The field crew followed the *NWP SAP* and project documents.

Works Cited

CH2M Hill, Inc. 2016. *Final Supplemental Groundwater Sampling and Data Evaluation (referenced herein as the NWP SAP)*, Northwest Pipe Company, Oregon. August.

EPA, 2016. *National Functional Guidelines for Superfund Organic Methods Data Review*. September.

EPA, 2016. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. September.

TABLE 1

Sample Summary by COC - Data Summary

CoC Number	Sample Date	Matrix	Sample ID / QAQC Type	SDG	Laboratory
Q3331					
	25-Oct-16	WATER	T4S1MW03S-102516-0 / N	Q3331	CHMC
			T4S1MW09-102516-0 / N	Q3331	CHMC
			T4S1MW22-102516-0 / N	Q3331	CHMC
			T4S1MW23-102516-0 / N	Q3331	CHMC
			TRIPBLANK_102516 / TB	Q3331	CHMC
Q3342					
	26-Oct-16	WATER	MW01-102616-0 / N	Q3342	CHMC
			MW02-102616-0 / N	Q3342	CHMC
			MW03-102616-0 / N	Q3342	CHMC
			MW04-102616-0 / N	Q3342	CHMC
			MW05-102616-0 / N	Q3342	CHMC
			MW06-102616-0 / N	Q3342	CHMC
			MW06-102616-1 / FD	Q3342	CHMC
			TRIPBLANK_102616 / TB	Q3342	CHMC

QAQC Type

N = normal environmental sample
FD = field duplicate
TB = trip blank

TABLE 2

Sample Chronology - Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
CHMC	Q3331	T4S1MW03S-102516-0	E200.7F	10/25/2016	10/26/2016	11/2/2016	11/4/2016
		T4S1MW03S-102516-0	E300.0A	10/25/2016	10/26/2016		10/30/2016
		T4S1MW03S-102516-0	E300.0A	10/25/2016	10/26/2016		11/3/2016
		T4S1MW03S-102516-0	E353.2	10/25/2016	10/26/2016		10/26/2016
		T4S1MW03S-102516-0	RSK-175	10/25/2016	10/26/2016	10/31/2016	10/31/2016
		T4S1MW03S-102516-0	SM5310B	10/25/2016	10/26/2016		10/31/2016
		T4S1MW03S-102516-0	SW8260C	10/25/2016	10/26/2016	10/27/2016	10/27/2016
		T4S1MW03S-102516-0	SW8260C-SIM	10/25/2016	10/26/2016	11/3/2016	11/3/2016
		T4S1MW09-102516-0	E200.7F	10/25/2016	10/26/2016	11/2/2016	11/4/2016
		T4S1MW09-102516-0	E300.0A	10/25/2016	10/26/2016		10/30/2016
		T4S1MW09-102516-0	E353.2	10/25/2016	10/26/2016		10/26/2016
		T4S1MW09-102516-0	RSK-175	10/25/2016	10/26/2016	10/31/2016	10/31/2016
		T4S1MW09-102516-0	SM5310B	10/25/2016	10/26/2016		10/31/2016
		T4S1MW09-102516-0	SW8260C	10/25/2016	10/26/2016	10/27/2016	10/27/2016
		T4S1MW09-102516-0	SW8260C-SIM	10/25/2016	10/26/2016	11/3/2016	11/3/2016
		T4S1MW22-102516-0	E200.7F	10/25/2016	10/26/2016	11/2/2016	11/4/2016
		T4S1MW22-102516-0	E300.0A	10/25/2016	10/26/2016		10/31/2016
		T4S1MW22-102516-0	E353.2	10/25/2016	10/26/2016		10/26/2016
		T4S1MW22-102516-0	RSK-175	10/25/2016	10/26/2016	10/31/2016	10/31/2016
		T4S1MW22-102516-0	SM5310B	10/25/2016	10/26/2016		10/31/2016
		T4S1MW22-102516-0	SW8260C	10/25/2016	10/26/2016	10/27/2016	10/27/2016
		T4S1MW22-102516-0	SW8260C-SIM	10/25/2016	10/26/2016	11/3/2016	11/3/2016
		T4S1MW23-102516-0	E200.7F	10/25/2016	10/26/2016	11/2/2016	11/4/2016
		T4S1MW23-102516-0	E300.0A	10/25/2016	10/26/2016		10/31/2016
		T4S1MW23-102516-0	E353.2	10/25/2016	10/26/2016		10/26/2016
		T4S1MW23-102516-0	RSK-175	10/25/2016	10/26/2016	10/31/2016	10/31/2016
		T4S1MW23-102516-0	SM5310B	10/25/2016	10/26/2016		10/31/2016
		T4S1MW23-102516-0	SW8260C	10/25/2016	10/26/2016	10/27/2016	10/27/2016
		T4S1MW23-102516-0	SW8260C-SIM	10/25/2016	10/26/2016	11/3/2016	11/3/2016
		TRIPBLANK_102516	SW8260C	10/25/2016	10/26/2016	10/27/2016	10/27/2016
		TRIPBLANK_102516	SW8260C-SIM	10/25/2016	10/26/2016	11/3/2016	11/3/2016
	Q3342	MW01-102616-0	E200.7F	10/26/2016	10/27/2016	11/2/2016	11/4/2016
		MW01-102616-0	E300.0A	10/26/2016	10/27/2016		11/3/2016
		MW01-102616-0	E353.2	10/26/2016	10/27/2016		10/27/2016
		MW01-102616-0	RSK-175	10/26/2016	10/27/2016	10/31/2016	10/31/2016

TABLE 2

Sample Chronology - Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
CHMC	Q3342	MW01-102616-0	SM5310B	10/26/2016	10/27/2016		10/31/2016
		MW01-102616-0	SW8260C	10/26/2016	10/27/2016	10/31/2016	10/31/2016
		MW02-102616-0	E200.7F	10/26/2016	10/27/2016	11/2/2016	11/4/2016
		MW02-102616-0	E300.0A	10/26/2016	10/27/2016		11/3/2016
		MW02-102616-0	E353.2	10/26/2016	10/27/2016		10/27/2016
		MW02-102616-0	RSK-175	10/26/2016	10/27/2016	10/31/2016	10/31/2016
		MW02-102616-0	SM5310B	10/26/2016	10/27/2016		10/31/2016
		MW02-102616-0	SW8260C	10/26/2016	10/27/2016	10/31/2016	10/31/2016
		MW02-102616-0	SW8260C-SIM	10/26/2016	10/27/2016	11/3/2016	11/3/2016
		MW03-102616-0	E200.7F	10/26/2016	10/27/2016	11/2/2016	11/4/2016
		MW03-102616-0	E300.0A	10/26/2016	10/27/2016		11/3/2016
		MW03-102616-0	E353.2	10/26/2016	10/27/2016		10/27/2016
		MW03-102616-0	RSK-175	10/26/2016	10/27/2016	10/31/2016	10/31/2016
		MW03-102616-0	SM5310B	10/26/2016	10/27/2016		10/31/2016
		MW03-102616-0	SW8260C	10/26/2016	10/27/2016	10/31/2016	10/31/2016
		MW04-102616-0	E200.7F	10/26/2016	10/27/2016	11/2/2016	11/4/2016
		MW04-102616-0	E300.0A	10/26/2016	10/27/2016		11/3/2016
		MW04-102616-0	E353.2	10/26/2016	10/27/2016		10/27/2016
		MW04-102616-0	RSK-175	10/26/2016	10/27/2016	10/31/2016	10/31/2016
		MW04-102616-0	SM5310B	10/26/2016	10/27/2016		10/31/2016
		MW04-102616-0	SW8260C	10/26/2016	10/27/2016	10/31/2016	10/31/2016
		MW04-102616-0	SW8260C	10/26/2016	10/27/2016	11/1/2016	11/1/2016
		MW05-102616-0	E200.7F	10/26/2016	10/27/2016	11/2/2016	11/4/2016
		MW05-102616-0	E300.0A	10/26/2016	10/27/2016		11/3/2016
		MW05-102616-0	E300.0A	10/26/2016	10/27/2016		11/4/2016
		MW05-102616-0	E353.2	10/26/2016	10/27/2016		10/27/2016
		MW05-102616-0	RSK-175	10/26/2016	10/27/2016	10/31/2016	10/31/2016
		MW05-102616-0	SM5310B	10/26/2016	10/27/2016		10/31/2016
		MW05-102616-0	SW8260C	10/26/2016	10/27/2016	10/31/2016	10/31/2016
		MW05-102616-0	SW8260C	10/26/2016	10/27/2016	11/1/2016	11/1/2016
		MW06-102616-0	E200.7F	10/26/2016	10/27/2016	11/2/2016	11/4/2016
		MW06-102616-0	E300.0A	10/26/2016	10/27/2016		11/3/2016
		MW06-102616-0	E353.2	10/26/2016	10/27/2016		10/27/2016
		MW06-102616-0	RSK-175	10/26/2016	10/27/2016	10/31/2016	10/31/2016
		MW06-102616-0	SM5310B	10/26/2016	10/27/2016		10/31/2016

TABLE 2

Sample Chronology - Data Summary

Laboratory	SDG	Sample ID	Method	Sample Date	Receive Date	Extract Date	Analysis Date
CHMC	Q3342	MW06-102616-0	SW8260C	10/26/2016	10/27/2016	10/31/2016	10/31/2016
		MW06-102616-0	SW8260C	10/26/2016	10/27/2016	11/1/2016	11/1/2016
		MW06-102616-1	E200.7F	10/26/2016	10/27/2016	11/2/2016	11/4/2016
		MW06-102616-1	E300.0A	10/26/2016	10/27/2016		11/3/2016
		MW06-102616-1	E353.2	10/26/2016	10/27/2016		10/27/2016
		MW06-102616-1	RSK-175	10/26/2016	10/27/2016	10/31/2016	10/31/2016
		MW06-102616-1	SM5310B	10/26/2016	10/27/2016		11/1/2016
		MW06-102616-1	SW8260C	10/26/2016	10/27/2016	10/31/2016	10/31/2016
		MW06-102616-1	SW8260C	10/26/2016	10/27/2016	11/1/2016	11/1/2016
		TRIPBLANK_102616	SW8260C	10/26/2016	10/27/2016	10/31/2016	10/31/2016
		TRIPBLANK_102616	SW8260C-SIM	10/26/2016	10/27/2016	11/3/2016	11/3/2016

TABLE 3

Overall Flagging Summary

Method	Matrix	Validation Reason	Qualifier*	Qualifier Type	Number of Affected Analytes
E300.0A	WATER				
Category = Temperature		Temperature blank > 6 degrees C			
			J	Other	8
E353.2	WATER				
Category = Temperature		Temperature blank > 6 degrees C			
			J	Other	4
RSK-175	WATER				
Category = Temperature		Temperature blank > 6 degrees C			
			J	Other	8
SM5310B	WATER				
Category = Temperature		Temperature blank > 6 degrees C			
			J	Other	4
SW8260C	WATER				
Category = Temperature		Temperature blank > 6 degrees C			
			UJ	Other	5
			J	Other	3
SW8260C-SIM	WATER				
Category = Temperature		Temperature blank > 6 degrees C			
			UJ	Other	2
			J	Other	6

TABLE 3

Overall Flagging Summary

Method	Matrix	Validation Reason	Qualifier*	Qualifier Type	Number of Affected Analytes

* The most severe flag for each analyte becomes the final validation flag.

Qualifier Description:

J = The analyte was positively identified, and the quantitation is an estimation because of discrepancies in meeting certain analyte-specific quality control criteria.

UJ = The analyte was not detected; however, the result is estimated because of discrepancies in meeting certain analyte-specific QC criteria.

Qualifier Type:

Protocol = Flagging due to contractor/laboratory protocol violations.
Other = Flagging due to sample, matrix, or field issues not related to Quality Assurance Project Plan (QAPP) or Sampling and Analysis Plan (SAP) protocol.

TABLE 4

Temperature Exceedance - Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
E300.0A	WATER	**Chloride**				
		T4S1MW03S-102516-0	5.1 MG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW09-102516-0	2.76 MG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW22-102516-0	2.8 MG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW23-102516-0	3.92 MG/L	J	TEMP>6C	Temp = 7.8C
E300.0A	WATER	**Sulfate**				
		T4S1MW03S-102516-0	24.7 MG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW09-102516-0	5.97 MG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW22-102516-0	5.49 MG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW23-102516-0	7.67 MG/L	J	TEMP>6C	Temp = 7.8C
E353.2	WATER	**Nitrate-N**				
		T4S1MW03S-102516-0	5.19 MG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW09-102516-0	1.23 MG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW22-102516-0	0.095 MG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW23-102516-0	0.27 MG/L	J	TEMP>6C	Temp = 7.8C
RSK-175	WATER	**Carbon dioxide**				
		T4S1MW03S-102516-0	26200 UG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW09-102516-0	49100 UG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW22-102516-0	48400 UG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW23-102516-0	52900 UG/L	J	TEMP>6C	Temp = 7.8C
RSK-175	WATER	**Methane**				
		T4S1MW03S-102516-0	29.1 UG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW09-102516-0	2640 UG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW22-102516-0	15.9 UG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW23-102516-0	5.07 UG/L	J	TEMP>6C	Temp = 7.8C
SM5310B	WATER	**Total Organic Carbon**				
		T4S1MW03S-102516-0	0.85 MG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW09-102516-0	1.09 MG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW22-102516-0	1.19 MG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW23-102516-0	0.65 MG/L	J	TEMP>6C	Temp = 7.8C
SW8260C	WATER	**cis-1,2-Dichloroethene**				
		T4S1MW03S-102516-0	0.15 UG/L	UJ	TEMP>6C	Temp = 7.8C
		T4S1MW09-102516-0	0.15 UG/L	UJ	TEMP>6C	Temp = 7.8C

TABLE 4

Temperature Exceedance - Qualified Data

Method	Matrix	Analyte / Sample ID	Result	Blank Contamination Qualifier*	Criteria	Comments
		T4S1MW22-102516-0	2.77 UG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW23-102516-0	0.7 UG/L	J	TEMP>6C	Temp = 7.8C
SW8260C	WATER	**Trichloroethene (TCE)**				
		T4S1MW03S-102516-0	0.15 UG/L	UJ	TEMP>6C	Temp = 7.8C
		T4S1MW09-102516-0	0.15 UG/L	UJ	TEMP>6C	Temp = 7.8C
		T4S1MW22-102516-0	4.6 UG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW23-102516-0	0.15 UG/L	UJ	TEMP>6C	Temp = 7.8C
SW8260C-SIM	WATER	**Tetrachloroethene (PCE)**				
		T4S1MW03S-102516-0	112 NG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW09-102516-0	19.1 NG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW22-102516-0	1460 NG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW23-102516-0	1590 NG/L	J	TEMP>6C	Temp = 7.8C
SW8260C-SIM	WATER	**Vinyl Chloride**				
		T4S1MW03S-102516-0	8 NG/L	UJ	TEMP>6C	Temp = 7.8C
		T4S1MW09-102516-0	19.7 NG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW22-102516-0	49.9 NG/L	J	TEMP>6C	Temp = 7.8C
		T4S1MW23-102516-0	8 NG/L	UJ	TEMP>6C	Temp = 7.8C

* The most severe flag for each analyte becomes the final validation flag.

Qualifier Description:

J = The analyte was positively identified, and the quantitation is an estimation because of discrepancies in meeting certain analyte-specific quality control criteria.

UJ = The analyte was not detected; however, the result is estimated because of discrepancies in meeting certain analyte-specific QC criteria.

Criteria:

TEMP>6C = Temperature blank > 6 degrees C

TABLE 5

Field Duplicate Precision

Sorted by Method and Normal Sample ID

Method	Normal Sample ID	Matrix	Analyte	SDG	Result	Field Duplicate	Result	Calculated RPD	Criteria
E200.7F									
	MW06-102616-0	WATER	Iron, dissolved	Q3342	7290	MW06-102616-1	7400	1.5	50
E300.0A									
	MW06-102616-0	WATER	Chloride	Q3342	5.07	MW06-102616-1	5.05	0.4	30
	MW06-102616-0	WATER	Sulfate	Q3342	5.17	MW06-102616-1	5.36	3.61	30
E353.2									
	MW06-102616-0	WATER	Nitrate-N	Q3342	0.016	MW06-102616-1	0.017	6.06	30
RSK-175									
	MW06-102616-0	WATER	Carbon dioxide	Q3342	57100	MW06-102616-1	59500	4.12	30
	MW06-102616-0	WATER	Methane	Q3342	2280	MW06-102616-1	2040	11.11	30
SM5310B									
	MW06-102616-0	WATER	Total Organic Carbon	Q3342	1.25	MW06-102616-1	1.15	8.33	30
SW8260C									
	MW06-102616-0	WATER	Trichloroethene (TCE)	Q3342	60.4	MW06-102616-1	70.9	15.99	30

RPDs for actual validation may be calculated differently.

TABLE 6

Site Completeness by Analyte - Qualified Data

Method	Analyte	Units	Number of Occurrences						Completeness (%)	
			Analyses	Detects	Non-detects	Blank Flags	J-Flags	Contractor Total R-Flags	Contractor	Overall
E200.7F	Iron, dissolved	UG/L	11	10	1		1		100	100
E300.0A	Chloride	MG/L	11	11			4		100	100
E300.0A	Sulfate	MG/L	11	11			4		100	100
E353.2	Nitrate-N	MG/L	11	11			4		100	100
RSK-175	Carbon dioxide	UG/L	11	11			4		100	100
RSK-175	Methane	UG/L	11	11			4		100	100
SM5310B	Total Organic Carbon	MG/L	11	11			4		100	100
SW8260C	cis-1,2-Dichloroethene	UG/L	11	8	3		4		100	100
SW8260C	Tetrachloroethene (PCE)	UG/L	6	6					100	100
SW8260C	Trichloroethene (TCE)	UG/L	11	7	4		4		100	100
SW8260C	Vinyl Chloride	UG/L	6	6					100	100
SW8260C-SIM	Tetrachloroethene (PCE)	NG/L	5	5			4		100	100
SW8260C-SIM	Vinyl Chloride	NG/L	5	3	2		4		100	100