

US EPA ARCHIVE DOCUMENT

Former General Latex and Chemical Corporation Site, Ashland, Ohio

Groundwater Investigation - May 2009

Data Quality Evaluation

Introduction

This data quality evaluation (DQE) report assesses the data quality of analytical results for groundwater samples collected from the former General Latex and Chemical Corporation Facility (facility) located in Ashland, Ohio. CH2M HILL collected samples May 4 through May 6, 2009. Guidance for this DQE report came from the *Quality Assurance Project Plan (QAPP), Former General Latex and Chemical Corporation Site, Ashland, Ohio, RCRA Facility Investigation (August 2008)*; the U.S. Environmental Protection Agency (EPA) *Contract Laboratory National Functional Guidelines for Organic Review (October 1999)*; and individual method requirements.

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness (PARCC) as presented in the QAPP. This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

This DQE report covers 12 groundwater samples, two field duplicates (FDs) and two trip blanks (TBs). A list of samples included in this DQE is included as Attachment A. The samples were reported in two sample delivery groups identified as L09050144 and L09050146. The analyses were performed by Microbac Laboratories, Inc. (MCBM) in Marietta, Ohio. Samples were collected and shipped by overnight carrier to the laboratory for analysis. The samples were analyzed by the method listed in Table 1.

TABLE 1
Analytical Parameters
Groundwater Investigation, Former General Latex and Chemical Corporation Site, Ashland, Ohio

Parameter	Method	Laboratory
Volatile Organic Compounds	SW8260B	MCBM

The sample delivery groups were assessed by reviewing the following: (1) the chain-of-custody documentation; (2) holding time compliance; (3) initial and continuing calibration criteria; (4) method blanks/field blanks; (5) laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries; (6) matrix spike (MS)/matrix spike duplicate (MSD) recoveries; (7) surrogate spike recoveries; (8) FD precision; (9) internal standard recoveries; and, (10) the required quality control (QC) samples at the specified frequencies.

Data flags were assigned according to the QAPP. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will only be 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 those listed in the QAPP and are defined below:

- J = The identification of the analyte was acceptable, but the quality assurance criteria indicate that the quantitative values may be outside the normal expected range of precision (that is, the quantitative value is considered estimated).
- R = The result was rejected. This flag denotes the failure of QC criteria such that it cannot be determined if the analyte is present or absent in the sample.
- U = The analyte was analyzed for but not detected.
- UJ = The analyte was not detected; 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 are contained in the following sections and Table 2.

Holding Time/Preservation

All acceptance criteria were met.

Calibration

Initial and continuing calibration analyses were performed as required by the methods and all acceptance criteria were met with the following exceptions:

- The recovery of chloromethane was below the lower control limit in a continuing calibration verification (CCV), indicating associated sample results are possibly biased low. Seven associated nondetected results were qualified as estimated and flagged "UJ".
- The recovery of bromomethane was above the upper control limit in a CCV, indicating associated sample results are possibly biased high. Associated samples were not qualified because they did not contain reportable levels of bromomethane.

Method Blanks

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

Field Blanks

TBs were collected, analyzed, and were free of contamination.

Laboratory Control Samples

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

Matrix Spike

MS/MSD samples were analyzed as required and all accuracy and precision criteria were met.

Internal Standards

All internal standard acceptance criteria were met.

Surrogates

All surrogate acceptance criteria were met.

Field Duplicates

FDs were collected at the required frequency, analyzed and all precision criteria were met.

Chain-of-Custody

Required procedures were followed and were free of errors.

Overall Assessment

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 following summary highlights the PARCC findings for the above-defined events:

- Precision of the data was verified through the review of the field and laboratory data quality indicators that include FD, LCS/LCSD, and MS/MSD precision. Precision was acceptable.
- Accuracy of the data was verified through the review of the calibration data, LCS/LCSD, MS/MSD, internal standards, and surrogate standard recoveries. Accuracy was acceptable with seven nondetected results being qualified as estimated because of a CCV exceedance.
- Representativeness of the data was verified through the samples' collection, storage and preservation procedures, verification of holding time compliance, and evaluation of method/field blank data. The laboratory did not note any issues related to sample preservation or storage of the samples. All samples were analyzed within the USEPA-recommended holding time.
- Comparability of the data was verified using standard USEPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.

- Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as all data that are not rejected for project use. All data were considered valid. The completeness goal was met for all compounds.

TABLE 2
Validation Flags

NativeID	Method	Analyte	Final Result	Units	Final Flag	Validation Reason
FD01-050509	SW8260B	Chloromethane	0.25	ug/L	UJ	CCV<LCL
MW09GW1424-050509	SW8260B	Chloromethane	0.25	ug/L	UJ	CCV<LCL
MW10GW1732-050509	SW8260B	Chloromethane	0.25	ug/L	UJ	CCV<LCL
MW11GW0919-050409	SW8260B	Chloromethane	6.25	ug/L	UJ	CCV<LCL
MW16GW1020-050409	SW8260B	Chloromethane	625	ug/L	UJ	CCV<LCL
MW18GW3035-050409	SW8260B	Chloromethane	0.25	ug/L	UJ	CCV<LCL
MW22GW2535-050509	SW8260B	Chloromethane	0.25	ug/L	UJ	CCV<LCL

Validation Reasons:

CCV<LCL = Continuing calibration verification was recovered below the lower control limit.

Attachment A

Samples Associated with DQE		
Field ID	Sample Date	QAQC Type
FD01-050509	5/5/2009	FD
FD02-050609	5/6/2009	FD
MW18GW3035-050409	5/4/2009	N
MW11GW0919-050409	5/4/2009	N
MW16GW1020-050409	5/4/2009	N
MW19GW1828-050509	5/5/2009	N
MW22GW2535-050509	5/5/2009	N
MW10GW1732-050509	5/5/2009	N
MW09GW1424-050509	5/5/2009	N
MW06GW1020-050509	5/5/2009	N
MW20GW2333-050609	5/6/2009	N
MW21GW2434-050609	5/6/2009	N
MW23GW3040-050609	5/6/2009	N
MW12GW1424-050609	5/6/2009	N
TRIP BLANK_050508	5/5/2009	TB
TRIP BLANK_050909	5/6/2009	TB