Appendix E

Analytical Data Review and Validation Report Summaries

GENERAL MOTORS CORPORATION
NORTH AMERICAN OPERATIONS
FLINT OPERATIONS SITE

FLINT, MICHIGAN

TIER II
DATA VALIDATION REPORT

SDG# 3040442

VOLATILE, SEMIVOLATILE,
PCB AND INORGANIC ANALYSES

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Summary

The following is an assessment of data package 3040442 for sampling in support of the RCRA Facility Investigation at the GM-NAO Flint Operations Site in Flint, Michigan. Included in this assessment are checklists used in the review of the samples and a summary of non-conformances and their impact on the reported data. Analyses were performed on the following samples:

Sample ID	Laboratory ID	Matrix	Sample Date	Analyses				
				VOC	SVOC	PCB	TAL	MISC[1]
Outfall 004 NL	3040442001	NL	02/03/04	X	X	X	X	X

1 Miscellaneous analyses include Viscosity Kinematics, Interfacial Tension and Specific Gravity.

Sample Analysis: Volatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)		X	
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)			X
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

The initial calibration RSD was above control limits for acetone and bromomethane. Data for acetone and bromomethane have been qualified as estimated based on the deviation.

The continuing calibration %D were above control limits due to a decrease in response by several compounds. Based on the %D, data have been qualified as estimated for acetone, methyl acetate, methylene chloride, 2-butanone, bromomethane and 4-methyl-2-pentanone.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Semivolatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)			X
	Blank spike (%Recovery)			X
	Control sample (%Recovery)			X
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

The continuing calibration %D were above the acceptable limit due to a decrease in response by 3&4-methylphenol, hexachlorocyclopentadiene, 2,4-dinitrophenol, 4-nitrophenol and atrazine. Data have been qualified as estimated for the listed compounds based on the deviations.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: PCBs

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)	X		
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)	X		
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

All data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Metals

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%R, R2)	X		
	Continuing calibration (%D)	X		
	Matrix spike (%Recovery)		X	
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	CRDL standard (%R)			X
	Serial dilution (%D)	X		
	Internal standard (Response)			X
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

The MS/MSD %R were below the acceptable limit for arsenic, mercury and cyanide. Data have been qualified as estimated for the listed analytes based on the deviations.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Analyses performed by:	SGS, Inc. Luddington, Michigan
Date of Report:	February 27, 2004
Validation performed by:	(Melissa Cash)
Date of Validation:	April 13, 2004

GENERAL MOTORS CORPORATION
NORTH AMERICAN OPERATIONS
FLINT OPERATIONS SITE

FLINT, MICHIGAN

TIER II
DATA VALIDATION REPORT

SDG# 3041603

VOLATILE, SEMIVOLATILE,
PCB AND INORGANIC ANALYSES

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Summary

The following is an assessment of data package 3040442 for sampling in support of the RCRA Facility Investigation at the GM-NAO Flint Operations Site in Flint, Michigan. Included in this assessment are checklists used in the review of the samples and a summary of non-conformances and their impact on the reported data. Analyses were performed on the following samples:

Sample ID	Laboratory ID	Matrix	Sample Date	Analyses				
				VOC	SVOC	PCB	TAL	MISC
RFI-12-38 (042104)NL	3041603001	NL	04/21/04	X	X	X	X	

Sample Analysis: Volatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)			X
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

The continuing calibration %D were above control limits due to a decrease in response by several compounds. Based on the %D, data have been qualified as estimated for bromomethane, methyl acetate and 2-butanone.

The result for methyl cyclohexane exceeded the linear range in sample 12-38 (042104)NL. Data for methyl cyclohexane have been reported from the dilution analysis.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Semivolatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)			X
	Blank spike (%Recovery)			X
	Control sample (%Recovery)			X
	Internal standard (Response, RT)		X	
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

The continuing calibration %D were above the acceptable limit due to a decrease in response by benzaldehyde. Data have been qualified as estimated for benzaldehyde based on the deviations.

The internal standard responses were below control limits for three internal standards and below 25% for one of the internal standards. Based on the deviations, data have been reported from the dilution analyses.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: PCBs

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)	X		
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)	X		
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

All data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Metals

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%R, R2)	X		
	Continuing calibration (%D)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	CRDL standard (%R)			X
	Serial dilution (%D)	X		
	Internal standard (Response)			X
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples		X	

Notes

Zinc was detected in the method blank. Based on the blank content, data for zinc have been qualified as non-detect in sample 12-38 (042104)NL.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Analyses performed by:	SGS, Inc. Luddington, Michigan
Date of Report:	May 12, 2004
Validation performed by:	(Melissa Cash)
Date of Validation:	June 11, 2004

GENERAL MOTORS CORPORATION
NORTH AMERICAN OPERATIONS
FLINT OPERATIONS SITE

FLINT, MICHIGAN

TIER II
DATA VALIDATION REPORT

SDG# 18519

SVOC AND MISC ANALYSES

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Summary

The following is an assessment of data package 18519 for sampling in support of the RCRA Facility Investigation at the GM-NAO Flint Operations Site in Flint, Michigan. Included in this assessment are checklists used in the review of the samples and a summary of non-conformances and their impact on the reported data. Analyses were performed on the following samples:

Sample ID	Laboratory ID	Matrix	Sample Date	Analyses				
				VOC	SVOC	PCB	TAL	MISC
RFI-40-16 (0-2) 082404	S18519.01	Soil	08/23/2004		X			X
RFI-40-17 (0-2) 082404	S18519.02	Soil	08/23/2004		X			X
RFI-40-18 (0-2) 082404	S18519.03	Soil	08/23/2004		X			X

1 MS/MSD performed on sample.
2 Sample ID DUPE-1 (112204) is the field duplicate of parent sample location MW-101 (112204)

Sample Analysis: Semivolatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)	X		
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)			X
	Blank spike (%Recovery)	X		
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Analyses performed by:	Merit Laboratories, Inc. East Lansing, MI
Date of Report:	October 1, 2004
Validation performed by:	(Todd A Church)
Date of Validation:	February 4, 2005

GENERAL MOTORS CORPORATION
NORTH AMERICAN OPERATIONS
FLINT OPERATIONS SITE

FLINT, MICHIGAN

TIER II
DATA VALIDATION REPORT

SDG# 19168

VOLATILE, SEMIVOLATILE
AND INORGANIC ANALYSES

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Summary

The following is an assessment of data package 19168 for sampling in support of the RCRA Facility Investigation at the GM-NAO Flint Operations Site in Flint, Michigan. Included in this assessment are checklists used in the review of the samples and a summary of non-conformances and their impact on the reported data. Analyses were performed on the following samples:

Sample ID	Laboratory ID	Matrix	Sample Date	Analyses				
				VOC	SVOC	PCB	TAL	MISC
RFI-23-02R (100404)	S19168.01	Water	10/04/04		X		X	X
RFI-23-01R (100404)	S19168.02	Water	10/04/04		X		X	X
30-140 (100404)	S19168.03	Water	10/04/04	X			X	
MW-23 (100404)	S19168.04	Water	10/04/04	X			X	
RFI-09-13 (100404)	S19168.05	Water	10/04/04	X			X	
RFI-05-30 (100404)	S19168.06	Water	10/04/04	X			X	
55-5 (100404)	S19168.07	Water	10/04/04	X				
04-160 (100404)	S19168.08	Water	10/04/04	X				
RFI-12-32 (100404)	S19168.09	Water	10/04/04	X				
40-6R (100404)[1]	S19168.10	Water	10/04/04	X			X	
TB-1 (100404)	S19168.13	Water	10/04/04	X				

1 MS/MSD performed on sample.

Sample Analysis: Volatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)		X	
	Continuing calibration (%D, RF)	X		
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples		X	

Notes

The compound di-n-butyl phthalate was detected in the method blank. Associated sample data results have been qualified as non-detect for di-n-butyl phthalate.

The initial calibration was outside control limit for several compounds. Associated sample results have been qualified as estimated based on the deviation.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Semivolatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)		X	
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)			X
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples		X	

Notes

The compound Di-n-butyl-phthalate was detected in the method blank. Sample locations RFI-23-02R (100404) and RFI-23-01R (100404) have been qualified as non-detect for Di-n-butyl-phthalate.

The initial calibration %RSD were above control limits for 3-, 4-Methylphenol and Pentachlorophenol. Based on the deviations, all associated positive sample data for these compounds have been qualified as estimated in sample locations RFI-23-02R (100404) and RFI-23-01R (100404).

The continuing calibration %D was outside control limits due to a decrease in response by 4-Chloroaniline. Data for compounds with decreasing responses have been qualified as estimated based on the %D in sample locations RFI-23-02R (100404) and RFI-23-01R (100404).

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Metals

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%R, R2)	X		
	Continuing calibration (%D)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	CRDL standard (%R)			X
	Serial dilution (%D)			X
	Internal standard (Response)			X
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Analyses performed by:	Merit Laboratories, Inc. East Lansing, MI
Date of Report:	October 26, 2004
Validation performed by:	(Todd A Church)
Date of Validation:	December 16, 2004

GENERAL MOTORS CORPORATION
NORTH AMERICAN OPERATIONS
FLINT OPERATIONS SITE

FLINT, MICHIGAN

TIER II
DATA VALIDATION REPORT

SDG# 19200

VOLATILE, SEMIVOLATILE,
PCB AND INORGANIC ANALYSES

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Summary

The following is an assessment of data package 19200 for sampling in support of the RCRA Facility Investigation at the GM-NAO Flint Operations Site in Flint, Michigan. Included in this assessment are checklists used in the review of the samples and a summary of non-conformances and their impact on the reported data. Analyses were performed on the following samples:

Sample ID	Laboratory ID	Matrix	Sample Date	Analyses				
				VOC	SVOC	PCB	TAL	MISC
RFI-02-12 (100504)[1]	S19200.01	Water	10/05/04	X				
RFI-09-07 (100504)	S19200.02	Water	10/05/04	X				
DUPE-01 (100504)	S19200.03	Water	10/05/04	X				
RFI-09-44 (100504)	S19200.04	Water	10/05/04	X			X	
RFI-09-14 (100404)	S19200.05	Water	10/04/04	X			X	
RFI-09-49R (100504)	S19200.06	Water	10/05/04	X			X	
BD01-2R (100504)	S19200.07	Water	10/05/04	X				
40-303R (100504)	S19200.08	Water	10/05/04	X			X	
GM-11 (100604)[2]	S19200.09	Water	10/06/04	X	X	X	X	
RFI-09-48R (100604)	S19200.10	Water	10/06/04	X			X	
MW-26 (100504)	S19200.11	Water	10/05/04	X				
MW-25 (100504)	S19200.12	Water	10/05/04	X				
TB-2 (100604)	S19200.13	Water	10/06/04	X				

1 Sample location RFI-02-12 (100504) is the parent sample for field duplicate sample ID# DUPE-01 (100504).
2 MS performed on sample

Sample Analysis: Volatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)		X	
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)			X
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)	X		
8.	Target analyte concentrations below detection limit in all blank samples		X	

Notes

The compounds methyl cyclohexane and methylene chloride were detected in the method blank. Several associated sample data results have been qualified as non-detect based on deviations.

The initial calibration was outside control limit for several compounds. Associated sample results have been qualified as estimated based on the deviation.

The continuing calibrations %D were outside control limits due to a decreasing response by Methyl acetate and Dichlorodifluoromethane and an increase in response by Isopropylbenzene, o-Xylene and p,m-Xylene. Positive data for compounds with increasing responses and all data for compounds with decreasing responses have been qualified as estimated based on the %D.

The sample data result for Acetone in sample location DUP-01 (100504) was above the calibration range in the initial and re-analysis result. Acetone was qualified as estimated due to concentration outside calibration range in sample location DUP-01 (100504).

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Semivolatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)		X	
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)			X
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

The initial calibration %RSD was above control limits for Acenaphthene, Phenanthrene and Pyrene for low level polynuclear aromatics. Based on the deviations, all associated sample data for these compounds have been qualified as estimated in sample location GM-11 (100604).

The continuing calibration %D was above the acceptable limit due to a decrease in response by 4-chloroaniline in sample location GM-11 (100604). Data has been qualified as estimated for 4-chloroaniline in sample location GM-11 (100604) based on the deviation.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: PCBs

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)	X		
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)			X
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

All data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Metals

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%R, R2)	X		
	Continuing calibration (%D)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	CRDL standard (%R)			X
	Serial dilution (%D)			X
	Internal standard (Response)			X
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)	X		
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Analyses performed by:	Merit Laboratories, Inc. East Lansing, MI
Date of Report:	October 26, 2004
Validation performed by:	(Todd A Church)
Date of Validation:	December 16, 2004

GENERAL MOTORS CORPORATION
NORTH AMERICAN OPERATIONS
FLINT OPERATIONS SITE

FLINT, MICHIGAN

TIER II
DATA VALIDATION REPORT

SDG# 19226

VOLATILE, SEMIVOLATILE,
PCB AND INORGANIC ANALYSES

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Summary

The following is an assessment of data package 19226 for sampling in support of the RCRA Facility Investigation at the GM-NAO Flint Operations Site in Flint, Michigan. Included in this assessment are checklists used in the review of the samples and a summary of non-conformances and their impact on the reported data. Analyses were performed on the following samples:

Sample ID	Laboratory ID	Matrix	Sample Date	Analyses				
				VOC	SVOC	PCB	TAL	MISC
RFI-40-14R (100604)	S19226.01	Oil	10/06/04	X	X	X	X	

Sample Analysis: Volatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)		X	
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)			X
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

The initial calibration was outside control limit for several compounds. Associated sample results have been qualified as estimated based on the deviation.

The continuing calibrations %D were outside control limits due to a decreasing response by Bromomethane and Dichlorodifluoromethane. All data for compounds with decreasing responses have been qualified as estimated based on the %D.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Semivolatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)	X		
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)			X
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: PCBs

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)	X		
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)			X
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

All data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Metals

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%R, R2)	X		
	Continuing calibration (%D)	X		
	Matrix spike (%Recovery)			X
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	CRDL standard (%R)			X
	Serial dilution (%D)			X
	Internal standard (Response)			X
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)	X		
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples		X	

Notes

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Analyses performed by:	Merit Laboratories, Inc. East Lansing, MI
Date of Report:	October 26, 2004
Validation performed by:	(Todd A Church)
Date of Validation:	December 17, 2004

GENERAL MOTORS CORPORATION
NORTH AMERICAN OPERATIONS
FLINT OPERATIONS SITE

FLINT, MICHIGAN

TIER II
DATA VALIDATION REPORT

SDG# 19227

VOLATILE, SEMIVOLATILE,
PCB AND INORGANIC ANALYSES

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Summary

The following is an assessment of data package 19227 for sampling in support of the RCRA Facility Investigation at the GM-NAO Flint Operations Site in Flint, Michigan. Included in this assessment are checklists used in the review of the samples and a summary of non-conformances and their impact on the reported data. Analyses were performed on the following samples:

Sample ID	Laboratory ID	Matrix	Sample Date	Analyses				
				VOC	SVOC	PCB	TAL	MISC
84-6RZ (100504)	S19227.01	Water	10/05/04	X			X	
RFI-94-02R (100604)	S19227.02	Water	10/06/04	X				
RFI-81-33 (100604)	S19227.03	Water	10/06/04	X			X	
RFI-07-08 (100604)	S19227.04	Water	10/06/04	X			X	
87-FP4 (100604)	S19227.05	Water	10/06/04	X				
RFI-36-20 (100604)	S19227.06	Water	10/06/04	X				
RFI-10-28 (100604)[2]	S19227.07	Water	10/06/04	X				
DUP-02 (100604)	S19227.08	Water	10/06/04	X				
RFI-17-02 (100504)	S19227.09	Water	10/05/04				X	
RFI-83/84-27 (100704)	S19227.10	Water	10/07/04	X			X	
TB03 (100704)	S19227.11	Water	10/07/04	X				
GM-1(100604)[1]	S19227.12	Water	10/06/04	X	X	X	X	
RFI-44-05 (100504)	S19227.15	Water	10/05/04	X			X	
RFI-10-15 (100604)	S19227.16	Water	10/06/04	X				
40-304 (100604)	S19227.17	Water	10/06/04	X			X	
RFI-10-25 (100604)	S19227.18	Water	10/06/04	X				
RFI-09-04R (100504)	S19227.19	Water	10/05/04	X			X	
RFI-86-16R (100604)	S19227.20	Water	10/06/04	X				
RFI-81-21 (100604)	S19227.21	Water	10/06/04	X				
RFI-36-19 (100604)	S19227.22	Water	10/06/04	X				
RFI-10-24 (100604)	S19227.23	Water	10/06/04	X				
RFI-09-46 (100504)	S19227.24	Water	10/05/04	X			X	

1 MS/MSD performed on sample.
2 Sample location RFI-10-28 (100604) is the parent sample of field duplicate sample ID DUP-02 (100604)

Sample Analysis: Volatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)		X	
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)		X	
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)	X		
8.	Target analyte concentrations below detection limit in all blank samples		X	

Notes

The compound methylene chloride was detected in the method blanks. Several samples have been qualified as non-detect for methylene chloride.

The initial calibration was outside control limit for several compounds. Associated sample results have been qualified as estimated based on the deviation.

The continuing calibrations %D were outside control limits due to a decrease in response by methyl acetate and 2-hexanone and an increase in response by Tetrachloroethene. Positive data for compounds with increasing responses and all associated data for compounds with decreasing responses have been qualified as estimated based on the %D.

The MS/MSD recoveries were below control limits for methyl acetate and Trichlorofluoromethane for sample location GM-1(100604). Data sample results for sample location GM-1(100604) have been qualified as estimated based on the MS/MSD recoveries.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Semivolatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)		X	
	Continuing calibration (%D, RF)	X		
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

The initial calibrations %RSD were above control limits for acenaphthene, phenanthrene and pyrene in sample location GM-1(100604) for TCL low-level polynuclear aromatics. Based on the deviations, all associated sample data for these compounds have been qualified as estimated in sample location GM-1(100604).

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: PCBs

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)	X		
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

All data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Metals

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%R, R2)	X		
	Continuing calibration (%D)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	CRDL standard (%R)			X
	Serial dilution (%D)			X
	Internal standard (Response)			X
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Analyses performed by:	Merit Laboratories, Inc. East Lansing, MI
Date of Report:	October 26, 2004
Validation performed by:	(Todd A Church)
Date of Validation:	December 17, 2004

GENERAL MOTORS CORPORATION
NORTH AMERICAN OPERATIONS
FLINT OPERATIONS SITE

FLINT, MICHIGAN

TIER II
DATA VALIDATION REPORT

SDG# 19250

VOLATILE, SEMIVOLATILE
AND INORGANIC ANALYSES

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Summary

The following is an assessment of data package 19250 for sampling in support of the RCRA Facility Investigation at the GM-NAO Flint Operations Site in Flint, Michigan. Included in this assessment are checklists used in the review of the samples and a summary of non-conformances and their impact on the reported data. Analyses were performed on the following samples:

Sample ID	Laboratory ID	Matrix	Sample Date	Analyses				
				VOC	SVOC	PCB	TAL	MISC
RFI-55-12 (100804)	S19250.01	Water	10/08/04	X			X	
RFI-86-01R (100704)	S19250.02	Water	10/07/04	X				
RFI-36-44 (100704)	S19250.03	Water	10/07/04	X				
RFI-55-11 (100804)	S19250.04	Water	10/08/04	X	X		X	
RFI-81-08 (100704)	S19250.05	Water	10/07/04	X			X	
86-100 (100704)	S19250.06	Water	10/07/04	X			X	
RFI-10-30 (100704)	S19250.07	Water	10/07/04	X				
RFI-36-17 (100704)	S19250.08	Water	10/07/04	X				
RFI-36-18 (100704)	S19250.09	Water	10/07/04	X				
RFI-94-10 (100804)	S19250.10	Water	10/08/04	X				
RFI-83/84-11 (100704)	S19250.11	Water	10/07/04	X				
RFI-10-11 (100804)	S19250.12	Water	10/08/04	X				
RFI-21-04 (100704)	S19250.13	Water	10/07/04	X			X	
70-165 (100704)	S19250.14	Water	10/07/04	X			X	
RFI-10-31 (100704)	S19250.15	Water	10/07/04	X				
RFI-02-13 (100704)	S19250.16	Water	10/07/04	X			X	
RFI-55-02 (100804)[2]	S19250.17	Water	10/08/04	X			X	
DUP-03 (100804)	S19250.18	Water	10/08/04	X			X	
RFI-36-08 (100804)	S19250.19	Water	10/08/04	X				
55-3 (100804)[1]	S19250.20	Water	10/08/04	X			X	
TB-04 (100804)	S19250.23	Water	10/08/04	X				
55-4 (100804)	S19250.24	Water	10/08/04	X	X		X	

1 MS/MSD performed on sample.
2 Sample location RFI-55-02 (100804) is the parent sample of field duplicate sample ID DUP-03 (100804)

Sample Analysis: Volatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)		X	
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)		X	
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)		X	
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)		X	
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)	X		
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

The initial calibration was outside control limit for cyclohexane. Associated sample results have been qualified as estimated based on the deviation.

The continuing calibrations %D were outside control limits due to a decrease in response by 1,2-dibromo-3-chloropropane, acetone, methyl acetate, bromomethane, chloroethane and dichlorodifluoromethane. Associated data results for compounds with decreasing responses have been qualified as estimated based on the %D.

The MS/MSD %RPD was above control limits for bromomethane and chloroethane in sample location 55-3 (100804). Associated sample result for sample location 55-3 (100804) has been qualified as estimated based on %RPD.

The MS/MSD recovery was below control limits for methyl acetate for sample location 55-3 (100804). Data sample result for sample location 55-3 (100804) have been qualified as estimated based on the MS/MSD recoveries.

The internal standards for sample location RFI-21-04 (100704) was below control limits for 1,4-Dichlorobenzene. All associated data results have been qualified as estimated based on internal standard deviation for sample location RFI-21-04 (100704).

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Semivolatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)		X	
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples		X	

Notes

The initial calibration %RSD was above control limits for bis(2-chloroisoprpyl)ether. Based on the deviations, all associated sample data for bis(2-chloroisoprpyl)ether has been qualified as estimated in sample locations RFI-55-11 (100804) and 55-4 (100804).

The continuing calibrations %D were outside control limits due to a decrease in response by 4-chloroanaline. Associated data results for 4-chloroanaline have been qualified as estimated based on the %D in sample locations RFI-55-11 (100804) and 55-4 (100804).

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Metals

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%R, R2)	X		
	Continuing calibration (%D)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	CRDL standard (%R)			X
	Serial dilution (%D)			X
	Internal standard (Response)			X
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)	X		
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Analyses performed by:	Merit Laboratories, Inc. East Lansing, MI
Date of Report:	October 26, 2004
Validation performed by:	(Todd A Church)
Date of Validation:	December 17, 2004

GENERAL MOTORS CORPORATION
NORTH AMERICAN OPERATIONS
FLINT OPERATIONS SITE

FLINT, MICHIGAN

TIER II
DATA VALIDATION REPORT

SDG# 19298

VOLATILE AND INORGANIC ANALYSES

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Summary

The following is an assessment of data package 19298 for sampling in support of the RCRA Facility Investigation at the GM-NAO Flint Operations Site in Flint, Michigan. Included in this assessment are checklists used in the review of the samples and a summary of non-conformances and their impact on the reported data. Analyses were performed on the following samples:

Sample ID	Laboratory ID	Matrix	Sample Date	Analyses				
				VOC	SVOC	PCB	TAL	MISC
RFI-81-39R (101104)	S19298.01	Water	10/11/04	X				
20-101R (101104)	S19298.02	Water	10/11/04	X				
20-101RD (101104)	S19298.03	Water	10/11/04	X				
20-140 (101104)	S19298.04	Water	10/11/04	X			X	
RFI-36-14 (101104)	S19298.05	Water	10/11/04	X			X	
RFI-36-46 (101104)[1]	S19298.06	Water	10/11/04	X				
20-143 (101204)	S19298.09	Water	10/12/04	X				
43-140 (101204)	S19298.10	Water	10/12/04	X				
RFI-05-10 (101204)	S19298.11	Water	10/12/04	X			X	
RFI-36-02 (101304)[1]	S19298.12	Water	10/13/04	X			X	
TB-1 (101304)	S19298.15	Water	10/13/04	X				
RFI-36-08 (101304)	S19298.16	Water	10/13/04				X	

1 MS/MSD performed on sample.

Sample Analysis: Volatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)		X	
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)		X	
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)	X		
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

The initial calibration was outside control limit for several compounds. Associated sample results have been qualified as estimated based on the deviation.

The continuing calibrations %D were outside control limits due to an increase in response by acetone and isopropylbenzene. Positive data for compounds with increasing responses have been qualified as estimated based on the %D.

The MS/MSD %RPD was above control limits for methyl acetate in sample location RFI-36-02 (101304). Methyl acetate has been qualified as estimated in sample location RFI-36-02 (101304).

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Metals

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%R, R2)	X		
	Continuing calibration (%D)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	CRDL standard (%R)			X
	Serial dilution (%D)			X
	Internal standard (Response)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)	X		
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Analyses performed by:	Merit Laboratories, Inc. East Lansing, MI
Date of Report:	October 26, 2004
Validation performed by:	(Todd A Church)
Date of Validation:	December 20, 2004