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Racer Trust Lansing-Plant 2

Data Review

LANSING, MICHIGAN

Volatiles, Semivolatiles, PCBs, Metals and Miscellaneous Analyses

SDG# S50425

Analyses Performed By:
Merit Laboratories, Inc.
East Lansing, MI

Report: #15024R
Review Level: Tier II
Project: B0064479.2011.21GWS

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) # S50425 for samples collected in association with the Racer Trust Plant 2 Site. The review was conducted as a Tier II evaluation and included review of data package completeness as required under Region III M2 validation. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	PCB	MET	MISC
MW-1 (10/18/11)	S50425.01	Water	10/18/2011		X	X	X	X	
MW-2 (10/18/11)	S50425.02	Water	10/18/2011		X	X	X	X	
MW-3 (10/18/11)	S50425.03	Water	10/18/2011		X	X	X	X	
Trip Blank	S50425.04	Water	10/18/2011		X				

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8260B, 8260B-SIM, 8270C, 8270C-SIM and 8082. All samples in this data set were subjected to M-2 (Tier I) level data validation for organic compounds, as defined in the *USEPA Region III Innovative Approaches to Data Validation (June 1995)*. Validation was performed following the procedures specified in *Region III Modifications to National Functional Guidelines for Organic Data Review (September 1994) and* USEPA National Functional Guidelines of October 1999*.* Modifications to the procedures were necessary to accommodate method and reporting differences for samples analyzed using non-CLP methods (i.e., USEPA SW-846 methods). The Tier I was completed as defined in the MLC Buick City work plan (August 13, 2010). The quality indicators of this limited data review are included in the checklist.

The quality indicators of this data review were limited to the forms/data supplied by the laboratory which included: holding times, associated blanks, laboratory control samples, matrix spike/matrix spike duplicate samples, field duplicates and surrogate recoveries.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only..

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  UL The compound was not detected, quantitation limit is probably higher.

JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

UB Compound considered non-detect at the listed value due to associated blank contamination.

N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

K The compound was positively identified; however, the associated numerical value is an estimated concentration only and the reported value may be biased high. Actual concentration is expected lower.

L The compound was positively identified; however, the associated numerical value is an estimated concentration only and the reported value may be biased low. Actual concentration is expected to be higher.

R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260	Water	14 days from collection to analysis	Cool to 4°C±2°C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to 4°C±2°C.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
MW-1 (10/18/11) MW-2 (10/18/11) MW-3 (10/18/11)	CCV %D	Chloroethane	26.4%
		Bromomethane	28.4%
Trip Blank (10/18/11)	CCV %D	Chloroethane	22.3%
		Bromomethane	23.6%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD analysis was not performed on a sample location within this SDG.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 50% for water matrices and 100% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not included with this SDG.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS)					X
Matrix Spike Duplicate(MSD)					X
MS/MSD Precision (RPD)					X
Field/Lab Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cooled @ 4°C ± 2°C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cooled @ 4°C ± 2°C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
MW-1 (10/18/11) MW-2 (10/18/11) MW-3 (10/18/11)	CCV %D	Benzaldehyde	21.7%
		Dibenz(a,h)anthracene	24.0%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the SVOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD analysis was not performed on a sample location within this SDG.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 50% for water matrices and 100% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not included with this SDG.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
D. Method blanks		X		X	
E. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field/Lab Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
F. Reconstructed ion chromatograms		X		X	
G. Quantitation Reports		X		X	
H. RT of sample compounds within the established RT windows		X		X	
I. Transcription/calculation errors present		X		X	
J. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

POLYCHLORINATED BIPHENYLS (PCBs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8082	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to 4°C±2°C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to 4°C±2°C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. System Performance

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

A maximum RSD of 20% is allowed or a correlation coefficient greater than 0.99. Multiple-point calibrations were performed for Aroclor 1016 and 1260 only. Single-point calibrations were performed for the remaining Aroclors.

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (15%).

All calibration criteria were within the control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. PCB analysis requires that one of the two PCB surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD analysis was not performed on a sample location within this SDG.

7. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

8. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 50% for water matrices and 100% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not included with this SDG.

9. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the relative percent difference (%RPD) of detected sample results must be less than 40%.

The dual column analysis exhibited an acceptable %RPD between columns.

10. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR PCBs

PCBs; SW-846 8082	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field/Lab Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Column (RPD) (If dual column is performed-not confirmation purposes only)		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
Initial calibration %RSDs		X		X	
Continuing calibration %Ds		X		X	
System performance and column resolution		X		X	
Compound identification and quantitation					
A. Quantitation Reports		X		X	
B. RT of sample compounds within the established RT windows		X		X	
C. Pattern identification		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference, %D – difference

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method 6020, 7470 and 3500-CR B. All samples in this data set were subjected to IM-1 (Tier I) level data validation for inorganic compounds, as defined in the *USEPA Region III Innovative Approaches to Data Validation (June 1995)*. Validation was performed following the procedures specified in *Region III Modifications to the Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses (April 1993)* and USEPA *National Functional Guidelines for Inorganic Data Review (July 2002).* Modifications to the procedures were necessary to accommodate method and reporting differences for samples analyzed using non-CLP methods (i.e., USEPA SW-846 methods). The Tier I was completed as defined in the MLC Buick City work plan (August 13, 2010). The quality indicators of this limited data review are included in the checklist.

The quality indicators of this data review were limited to the forms/data supplied by the laboratory which included: holding times, associated blanks, laboratory control samples, matrix spike/matrix spike duplicate samples, and field duplicates.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

    U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.

    B The reported value was obtained from a reading less than the contract-required detection limit (CRDL), but greater than or equal to the instrument detection limit (IDL).

- Quantitation (Q) Qualifiers

    E The reported value is estimated due to the presence of interference.

    N Spiked sample recovery is not within control limits.

    * Duplicate analysis is not within control limits.

- Validation Qualifiers

    J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

    UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.

    UL The analyte was not detected, quantitation limit is probably higher.

JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

UB Analyte considered non-detect at the listed value due to associated blank contamination.

N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

K The analyte was positively identified; however, the associated numerical value is an estimated concentration only and the reported value may be biased high. Actual concentration is expected lower.

L The analyte was positively identified; however, the associated numerical value is an estimated concentration only and the reported value may be biased low. Actual concentration is expected to be higher.

R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6020	Water	180 days from collection to analysis	Cooled @ Cooled @ 4°C +/- 2; preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cooled @ 4°C +/- 2
SW-846 7470	Water	28 days from collection to analysis	Cool to 4°C±2°C; preserved to a pH of less than 2.
SW-846 7471	Soil	28 days from collection to analysis	Cool to 4°C±2°C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the instrument detection limit (IDL. The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Calibration

Satisfactory instrument calibration is established to provide that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument's continuing performance is satisfactory.

3.1 Initial Calibration and Continuing Calibration

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 for all non-ICP analytes and all initial calibration verification standard recoveries were within control limits.

All continuing calibration verification standard recoveries were within the control limit.

3.2 CRDL Check Standard

The CRDL check standard serves to verify the linearity of calibration of the analysis at the CRDL. The CRDL standard is not required for the analysis of aluminum (Al), barium (Ba), calcium (Ca), iron (Fe), magnesium (Mg), sodium (Na), and potassium (K). The criteria used to evaluate the CRDL standard analysis are presented below in the CRDL standards evaluation table.

All CRDL standard recoveries were within control limits.

3.3 ICP Interference Control Sample (ICS)

The ICS verifies the laboratories interelement and background correction factors.

All ICS exhibited recoveries within the control limits.

4. Matrix Spike (MS)/Laboratory Duplicate Analysis

MS and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS recovery control limits do not apply for MS performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory qualifier "N" will be removed.

A MS/MSD analysis was not performed on a sample location within this SDG.

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices and two times the CRDL for soil matrices.

A laboratory duplicate analysis was not performed on a sample location within this SDG.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 50% for water matrices and 100% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not included with this SDG.

6. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

7. Serial Dilution

The serial dilution analysis is used to assess if a significant physical or chemical interference exists due to sample matrix. Analytes exhibiting concentrations greater than 50 times the MDL in the undiluted sample are evaluated to determine if matrix interference exists. These analytes are required to have less than a 10% difference (%D) between sample results from the undiluted (parent) sample and results associated with the same sample analyzed with a five-fold dilution.

A serial dilution was not performed on a sample location within this SDG.

8. Furnace Analysis QC

No furnace analyses were performed on the samples.

9. Method of Standard Additions (MSA)

No samples were analyzed following the method of standard additions.

10. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW-846 6000/7000	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP) Atomic Absorption – Manual Cold Vapor (CV)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Instrument Blanks		X		X	
B. Method Blanks		X		X	
C. Equipment/Field Blanks					X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R					X
Matrix Spike Duplicate (MSD) %R					X
MS/MSD Precision (RPD)					X
Field/Lab Duplicate (RPD)					X
ICP Serial Dilution					X
Reporting Limit Verification		X		X	
Raw Data		X		X	
Tier III Validation					
Initial Calibration Verification		X		X	
Continuing Calibration Verification		X		X	
CRDL Standard		X		X	
ICP Interference Check		X		X	
Transcription/calculation errors present		X		X	
Reporting limits adjusted to reflect sample dilutions		X		X	

%R Percent recovery
RPD Relative percent difference

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Hexavalent Chromium by 3500-CR B	Water	24 Hours from collection to analysis	Cooled @ 4 ± 2°C

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 and all initial calibration verification standard recoveries were within control limits.

All calibration standard recoveries were within the control limit.

4. Matrix Spike (MS)/Laboratory Duplicate Analysis

MS and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS recovery control limits do not apply for MS performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where

this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory qualifier “N” will be removed.

A MS/MSD analysis was not performed on a sample location within this SDG.

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices and two times the CRDL for soil matrices.

A Laboratory Duplicate analysis was not performed on a sample location within this SDG.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 50% for water matrices and 100% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not included with this SDG.

6. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

7. System Performance and Overall Assessment

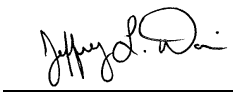
Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 3500-CR B	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
F. Method blanks		X		X	
G. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field/Lab Duplicate (RPD)					X
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
Initial calibration %RSD or correlation coefficient		X		X	
Continuing calibration %R		X		X	
Raw Data					
Transcription/calculation errors present		X		X	
Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference, %D – difference

VALIDATION PERFORMED BY: Jeffrey L. Davin

SIGNATURE: 

DATE: November 9, 2011

PEER REVIEW BY: Dennis Capria

DATE: November 29, 2011

CORRECTED SAMPLE ANALYSIS DATA SHEETS AND COCs

Analytical Laboratory Report

Lab Sample ID: S50425.01
Sample Tag: MW-1 (10/18/11)
Collected Date/Time: 10/18/2011 10:25
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	1L Amber	None	Yes	4.3	IR
2	40ml Glass	HCL	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
1	125ml Plastic	None	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	10/20/11 23:59	EMR		
Extraction, PCB	Completed			3510C	10/19/11 14:51	CCM		
Mercury Digestion	Completed			7471A	10/24/11 10:55	JRH		
Metal Digestion	Completed			3015A	10/24/11 01:00	SLR		
Inorganics								
Chromium VI	Not detected	mg/L	0.02	3500-Cr B	10/18/11 16:50	JKB	18540-29-9	
Metals								
Antimony	Not detected	mg/L	0.002	6020	10/24/11 13:57	SLS	7440-36-0	
Arsenic	Not detected	mg/L	0.002	6020	10/24/11 13:57	SLS	7440-38-2	
Barium	0.337	mg/L	0.010	6020	10/24/11 13:57	SLS	7440-39-3	
Beryllium	Not detected	mg/L	0.001	6020	10/24/11 14:25	SLS	7440-41-7	
Boron	0.06	mg/L	0.04	6020	10/24/11 14:25	SLS	7440-42-8	
Cadmium	Not detected	mg/L	0.001	6020	10/24/11 13:57	SLS	7440-43-9	
Chromium	Not detected	mg/L	0.010	6020	10/24/11 13:57	SLS	7440-47-3	
Cobalt	Not detected	mg/L	0.010	6020	10/24/11 13:57	SLS	7440-48-4	
Copper	0.032	mg/L	0.002	6020	10/24/11 13:57	SLS	7440-50-8	
Lead	Not detected	mg/L	0.002	6020	10/24/11 13:57	SLS	7439-92-1	
Manganese	0.074	mg/L	0.010	6020	10/24/11 13:57	SLS	7439-96-5	
Mercury	Not detected	mg/L	0.0001	7471A	10/24/11 15:18	JRT	7439-97-6	
Nickel	0.010	mg/L	0.010	6020	10/24/11 13:57	SLS	7440-02-0	
Selenium	Not detected	mg/L	0.002	6020	10/24/11 13:57	SLS	7782-49-2	
Silver	0.0005	mg/L	0.0002	6020	10/24/11 13:57	SLS	7440-22-4	
Thallium	Not detected	mg/L	0.002	6020	10/24/11 13:57	SLS	7440-28-0	
Vanadium	Not detected	mg/L	0.002	6020	10/24/11 13:57	SLS	7440-62-2	
Zinc	0.086	mg/L	0.010	6020	10/24/11 13:57	SLS	7440-66-6	
Organics - PCBs/Pesticides								
TCL PCB List (Column 1)								
PCB-1016	Not detected	ug/L	0.05	8082A	10/19/11 18:23	JANB	12674-11-2	
PCB-1242	Not detected	ug/L	0.05	8082A	10/19/11 18:23	JANB	53469-21-9	
PCB-1221	Not detected	ug/L	0.05	8082A	10/19/11 18:23	JANB	11104-28-2	
PCB-1232	Not detected	ug/L	0.05	8082A	10/19/11 18:23	JANB	11141-16-5	
PCB-1248	Not detected	ug/L	0.05	8082A	10/19/11 18:23	JANB	12672-29-6	
PCB-1254	Not detected	ug/L	0.05	8082A	10/19/11 18:23	JANB	11097-69-1	
PCB-1260	Not detected	ug/L	0.05	8082A	10/19/11 18:23	JANB	11096-82-5	

Lab Sample ID: S50425.01 (continued)
Sample Tag: MW-1 (10/18/11)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - PCBs/Pesticides (continued)								
TCL PCB List (Column 2)								
PCB-1016	Not detected	ug/L	0.05	8082A	10/19/11 18:23	JANB	12674-11-2	
PCB-1242	Not detected	ug/L	0.05	8082A	10/19/11 18:23	JANB	53469-21-9	
PCB-1221	Not detected	ug/L	0.05	8082A	10/19/11 18:23	JANB	11104-28-2	
PCB-1232	Not detected	ug/L	0.05	8082A	10/19/11 18:23	JANB	11141-16-5	
PCB-1248	Not detected	ug/L	0.05	8082A	10/19/11 18:23	JANB	12672-29-6	
PCB-1254	Not detected	ug/L	0.05	8082A	10/19/11 18:23	JANB	11097-69-1	
PCB-1260	Not detected	ug/L	0.05	8082A	10/19/11 18:23	JANB	11096-82-5	
Organics - Semi-Volatiles								
3,3'-Dichlorobenzidine	Not detected	ug/L	0.05	8270C	10/27/11 16:36	PL	91-94-1	
Hexachlorobenzene	Not detected	ug/L	0.05	8270C	10/27/11 16:36	PL	118-74-1	
TCL Semi-Volatile Organics								
Acenaphthene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	208-96-8	
Acetophenone	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	98-86-2	
Anthracene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	120-12-7	
Atrazine	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	1912-24-9	
1,1'-Biphenyl	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	92-52-4	
4-Bromophenyl phenyl ether	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	101-55-3	
di-n-Butyl phthalate	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	84-74-2	
Benzaldehyde	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	100-52-7	
Benzo(a)anthracene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	56-55-3	
Benzo(a)pyrene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	205-99-2	
Benzo(ghi)perylene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	191-24-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	207-08-9	
Butyl benzyl phthalate	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	85-68-7	
2-Chloronaphthalene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	91-58-7	
2-Chlorophenol	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	95-57-8	
4-Chloro-3-methylphenol	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	59-50-7	
4-Chloroaniline	Not detected	ug/L	2	8270C	10/25/11 17:43	PL	106-47-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	7005-72-3	
Caprolactam	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	105-60-2	
Carbazole	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	86-74-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	108-60-1	
Chrysene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	218-01-9	
2,4-Dichlorophenol	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	120-83-2	
2,4-Dimethylphenol	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	105-67-9	
2,4-Dinitrophenol	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	606-20-2	
4,6-Dinitro-2-methylphenol	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	534-52-1	
Dibenzo(ah)anthracene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	132-64-9	
Diethyl phthalate	Not detected	ug/L	2	8270C	10/25/11 17:43	PL	84-66-2	
Dimethyl phthalate	Not detected	ug/L	2	8270C	10/25/11 17:43	PL	131-11-3	

Lab Sample ID: S50425.01 (continued)
Sample Tag: MW-1 (10/18/11)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
TCL Semi-Volatile Organics (continued)								
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	2	8270C	10/25/11 17:43	PL	117-81-7	
Fluoranthene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	206-44-0	
Fluorene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	86-73-7	
Hexachlorobutadiene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	193-39-5	
Isophorone	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	91-57-6	
2-Methylphenol	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	95-48-7	
3-, 4-Methylphenol	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	3/4-Cresol	
2-Nitroaniline	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	88-74-4	
2-Nitrophenol	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	88-75-5	
3-Nitroaniline	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	100-01-6	
4-Nitrophenol	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	100-02-7	
N-Nitrosodi-n-propylamine	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	621-64-7	
N-Nitrosodiphenylamine	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	86-30-6	
Naphthalene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	91-20-3	
Nitrobenzene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	98-95-3	
di-n-Octyl phthalate	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	117-84-0	
Pentachlorophenol	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	87-86-5	
Phenanthrene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	85-01-8	
Phenol	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	108-95-2	
Pyrene	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	129-00-0	
2,4,5-Trichlorophenol	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	1	8270C	10/25/11 17:43	PL	88-06-2	
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	0.05	8260B - SIM	10/24/11 04:50	WAT	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	0.02	8260B - SIM	10/24/11 04:50	WAT	106-93-4	
1,4-Dioxane	Not detected	ug/L	5	8260B - SIM	10/24/11 04:50	WAT	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	76-13-1	
Acetone	Not detected	ug/L	10	8260B	10/24/11 23:07	WAT	67-64-1	
Carbon disulfide	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	75-15-0	
Methyl Acetate	Not detected	ug/L	10	8260B	10/24/11 23:07	WAT	79-20-9	
tert-Methyl butyl ether (MTBE)	12	ug/L	1	8260B	10/24/11 23:07	WAT	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	8260B	10/24/11 23:07	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	75-71-8	
Chloromethane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	75-01-4	
Bromomethane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	74-83-9	
Chloroethane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	156-60-5	

Lab Sample ID: S50425.01 (continued)
Sample Tag: MW-1 (10/18/11)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1-Dichloroethane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	156-59-2	
Chloroform	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	71-55-6	
Cyclohexane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	8260B	10/24/11 23:07	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	10	8260B	10/24/11 23:07	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	56-23-5	
Benzene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	124-48-1	
Chlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	79-34-5	
Ethylbenzene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	8260B	10/24/11 23:07	WAT		
o-Xylene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	95-47-6	
Styrene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:07	WAT	120-82-1	

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S50425.02
Sample Tag: MW-2 (10/18/11)
Collected Date/Time: 10/18/2011 11:40
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	1L Amber	None	Yes	4.3	IR
2	40ml Glass	HCL	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
1	125ml Plastic	None	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	10/20/11 23:59	EMR		
Extraction, PCB	Completed			3510C	10/19/11 14:51	CCM		
Mercury Digestion	Completed			7471A	10/24/11 10:55	JRH		
Metal Digestion	Completed			3015A	10/24/11 01:00	SLR		
Inorganics								
Chromium VI	Not detected	mg/L	0.02	3500-Cr B	10/18/11 17:00	JKB	18540-29-9	
Metals								
Antimony	Not detected	mg/L	0.002	6020	10/24/11 14:16	SLS	7440-36-0	
Arsenic	Not detected	mg/L	0.002	6020	10/24/11 14:16	SLS	7440-38-2	
Barium	0.125	mg/L	0.010	6020	10/24/11 14:16	SLS	7440-39-3	
Beryllium	Not detected	mg/L	0.001	6020	10/24/11 14:27	SLS	7440-41-7	
Boron	0.15	mg/L	0.04	6020	10/24/11 14:27	SLS	7440-42-8	
Cadmium	Not detected	mg/L	0.001	6020	10/24/11 14:16	SLS	7440-43-9	
Chromium	Not detected	mg/L	0.010	6020	10/24/11 14:16	SLS	7440-47-3	
Cobalt	Not detected	mg/L	0.010	6020	10/24/11 14:16	SLS	7440-48-4	
Copper	0.002	mg/L	0.002	6020	10/24/11 14:16	SLS	7440-50-8	
Lead	Not detected	mg/L	0.002	6020	10/24/11 14:16	SLS	7439-92-1	
Manganese	0.020	mg/L	0.010	6020	10/24/11 14:16	SLS	7439-96-5	
Mercury	Not detected	mg/L	0.0001	7471A	10/24/11 15:20	JRT	7439-97-6	
Nickel	Not detected	mg/L	0.010	6020	10/24/11 14:16	SLS	7440-02-0	
Selenium	Not detected	mg/L	0.002	6020	10/24/11 14:16	SLS	7782-49-2	
Silver	Not detected	mg/L	0.0002	6020	10/24/11 14:16	SLS	7440-22-4	
Thallium	Not detected	mg/L	0.002	6020	10/24/11 14:16	SLS	7440-28-0	
Vanadium	Not detected	mg/L	0.002	6020	10/24/11 14:16	SLS	7440-62-2	
Zinc	Not detected	mg/L	0.010	6020	10/24/11 14:16	SLS	7440-66-6	
Organics - PCBs/Pesticides								
TCL PCB List (Column 1)								
PCB-1016	Not detected	ug/L	0.05	8082A	10/19/11 18:33	JANB	12674-11-2	
PCB-1242	Not detected	ug/L	0.05	8082A	10/19/11 18:33	JANB	53469-21-9	
PCB-1221	Not detected	ug/L	0.05	8082A	10/19/11 18:33	JANB	11104-28-2	
PCB-1232	Not detected	ug/L	0.05	8082A	10/19/11 18:33	JANB	11141-16-5	
PCB-1248	Not detected	ug/L	0.05	8082A	10/19/11 18:33	JANB	12672-29-6	
PCB-1254	Not detected	ug/L	0.05	8082A	10/19/11 18:33	JANB	11097-69-1	
PCB-1260	Not detected	ug/L	0.05	8082A	10/19/11 18:33	JANB	11096-82-5	

Lab Sample ID: S50425.02 (continued)
Sample Tag: MW-2 (10/18/11)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - PCBs/Pesticides (continued)								
TCL PCB List (Column 2)								
PCB-1016	Not detected	ug/L	0.05	8082A	10/19/11 18:33	JANB	12674-11-2	
PCB-1242	Not detected	ug/L	0.05	8082A	10/19/11 18:33	JANB	53469-21-9	
PCB-1221	Not detected	ug/L	0.05	8082A	10/19/11 18:33	JANB	11104-28-2	
PCB-1232	Not detected	ug/L	0.05	8082A	10/19/11 18:33	JANB	11141-16-5	
PCB-1248	Not detected	ug/L	0.05	8082A	10/19/11 18:33	JANB	12672-29-6	
PCB-1254	Not detected	ug/L	0.05	8082A	10/19/11 18:33	JANB	11097-69-1	
PCB-1260	Not detected	ug/L	0.05	8082A	10/19/11 18:33	JANB	11096-82-5	
Organics - Semi-Volatiles								
3,3'-Dichlorobenzidine	Not detected	ug/L	0.05	8270C	10/27/11 17:05	PL	91-94-1	
Hexachlorobenzene	Not detected	ug/L	0.05	8270C	10/27/11 17:05	PL	118-74-1	
TCL Semi-Volatile Organics								
Acenaphthene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	208-96-8	
Acetophenone	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	98-86-2	
Anthracene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	120-12-7	
Atrazine	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	1912-24-9	
1,1'-Biphenyl	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	92-52-4	
4-Bromophenyl phenyl ether	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	101-55-3	
di-n-Butyl phthalate	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	84-74-2	
Benzaldehyde	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	100-52-7	
Benzo(a)anthracene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	56-55-3	
Benzo(a)pyrene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	205-99-2	
Benzo(ghi)perylene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	191-24-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	207-08-9	
Butyl benzyl phthalate	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	85-68-7	
2-Chloronaphthalene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	91-58-7	
2-Chlorophenol	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	95-57-8	
4-Chloro-3-methylphenol	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	59-50-7	
4-Chloroaniline	Not detected	ug/L	2	8270C	10/25/11 18:16	PL	106-47-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	7005-72-3	
Caprolactam	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	105-60-2	
Carbazole	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	86-74-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	108-60-1	
Chrysene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	218-01-9	
2,4-Dichlorophenol	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	120-83-2	
2,4-Dimethylphenol	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	105-67-9	
2,4-Dinitrophenol	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	606-20-2	
4,6-Dinitro-2-methylphenol	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	534-52-1	
Dibenzo(ah)anthracene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	132-64-9	
Diethyl phthalate	Not detected	ug/L	2	8270C	10/25/11 18:16	PL	84-66-2	
Dimethyl phthalate	Not detected	ug/L	2	8270C	10/25/11 18:16	PL	131-11-3	

Lab Sample ID: S50425.02 (continued)
Sample Tag: MW-2 (10/18/11)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
TCL Semi-Volatile Organics (continued)								
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	2	8270C	10/25/11 18:16	PL	117-81-7	
Fluoranthene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	206-44-0	
Fluorene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	86-73-7	
Hexachlorobutadiene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	193-39-5	
Isophorone	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	91-57-6	
2-Methylphenol	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	95-48-7	
3-, 4-Methylphenol	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	3/4-Cresol	
2-Nitroaniline	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	88-74-4	
2-Nitrophenol	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	88-75-5	
3-Nitroaniline	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	100-01-6	
4-Nitrophenol	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	100-02-7	
N-Nitrosodi-n-propylamine	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	621-64-7	
N-Nitrosodiphenylamine	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	86-30-6	
Naphthalene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	91-20-3	
Nitrobenzene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	98-95-3	
di-n-Octyl phthalate	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	117-84-0	
Pentachlorophenol	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	87-86-5	
Phenanthrene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	85-01-8	
Phenol	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	108-95-2	
Pyrene	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	129-00-0	
2,4,5-Trichlorophenol	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	1	8270C	10/25/11 18:16	PL	88-06-2	
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	0.05	8260B - SIM	10/24/11 05:09	WAT	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	0.02	8260B - SIM	10/24/11 05:09	WAT	106-93-4	
1,4-Dioxane	Not detected	ug/L	5	8260B - SIM	10/24/11 05:09	WAT	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	76-13-1	
Acetone	Not detected	ug/L	10	8260B	10/24/11 23:27	WAT	67-64-1	
Carbon disulfide	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	75-15-0	
Methyl Acetate	Not detected	ug/L	10	8260B	10/24/11 23:27	WAT	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	8260B	10/24/11 23:27	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	75-71-8	
Chloromethane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	75-01-4	
Bromomethane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	74-83-9	
Chloroethane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	156-60-5	

Lab Sample ID: S50425.02 (continued)
Sample Tag: MW-2 (10/18/11)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1-Dichloroethane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	156-59-2	
Chloroform	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	71-55-6	
Cyclohexane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	8260B	10/24/11 23:27	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	10	8260B	10/24/11 23:27	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	56-23-5	
Benzene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	124-48-1	
Chlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	79-34-5	
Ethylbenzene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	8260B	10/24/11 23:27	WAT		
o-Xylene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	95-47-6	
Styrene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:27	WAT	120-82-1	

Analytical Laboratory Report

Lab Sample ID: S50425.03
Sample Tag: MW-3 (10/18/11)
Collected Date/Time: 10/18/2011 12:45
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	1L Amber	None	Yes	4.3	IR
2	40ml Glass	HCL	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
1	125ml Plastic	None	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	10/20/11 23:59	EMR		
Extraction, PCB	Completed			3510C	10/19/11 14:51	CCM		
Mercury Digestion	Completed			7471A	10/24/11 10:55	JRH		
Metal Digestion	Completed			3015A	10/24/11 01:00	SLR		
Inorganics								
Chromium VI	Not detected	mg/L	0.02	3500-Cr B	10/18/11 17:15	JKB	18540-29-9	
Metals								
Antimony	Not detected	mg/L	0.002	6020	10/24/11 16:14	SLS	7440-36-0	
Arsenic	Not detected	mg/L	0.002	6020	10/24/11 16:14	SLS	7440-38-2	
Barium	0.618	mg/L	0.010	6020	10/24/11 16:14	SLS	7440-39-3	
Beryllium	Not detected	mg/L	0.001	6020	10/24/11 16:14	SLS	7440-41-7	
Boron	0.17	mg/L	0.04	6020	10/24/11 16:14	SLS	7440-42-8	
Cadmium	Not detected	mg/L	0.001	6020	10/24/11 16:14	SLS	7440-43-9	
Chromium	Not detected	mg/L	0.010	6020	10/24/11 16:14	SLS	7440-47-3	
Cobalt	0.012	mg/L	0.010	6020	10/24/11 16:14	SLS	7440-48-4	
Copper	0.006	mg/L	0.002	6020	10/24/11 16:14	SLS	7440-50-8	
Lead	Not detected	mg/L	0.002	6020	10/24/11 16:14	SLS	7439-92-1	
Manganese	2.14	mg/L	0.010	6020	10/24/11 16:14	SLS	7439-96-5	
Mercury	Not detected	mg/L	0.0001	7471A	10/24/11 15:23	JRT	7439-97-6	
Nickel	0.049	mg/L	0.010	6020	10/24/11 16:14	SLS	7440-02-0	
Selenium	Not detected	mg/L	0.002	6020	10/24/11 16:14	SLS	7782-49-2	
Silver	0.0005	mg/L	0.0002	6020	10/24/11 16:14	SLS	7440-22-4	
Thallium	Not detected	mg/L	0.002	6020	10/24/11 16:14	SLS	7440-28-0	
Vanadium	Not detected	mg/L	0.002	6020	10/24/11 16:14	SLS	7440-62-2	
Zinc	0.018	mg/L	0.010	6020	10/24/11 16:14	SLS	7440-66-6	
Organics - PCBs/Pesticides								
TCL PCB List (Column 1)								
PCB-1016	Not detected	ug/L	0.05	8082A	10/19/11 18:44	JANB	12674-11-2	
PCB-1242	Not detected	ug/L	0.05	8082A	10/19/11 18:44	JANB	53469-21-9	
PCB-1221	Not detected	ug/L	0.05	8082A	10/19/11 18:44	JANB	11104-28-2	
PCB-1232	Not detected	ug/L	0.05	8082A	10/19/11 18:44	JANB	11141-16-5	
PCB-1248	Not detected	ug/L	0.05	8082A	10/19/11 18:44	JANB	12672-29-6	
PCB-1254	Not detected	ug/L	0.05	8082A	10/19/11 18:44	JANB	11097-69-1	
PCB-1260	Not detected	ug/L	0.05	8082A	10/19/11 18:44	JANB	11096-82-5	

Lab Sample ID: S50425.03 (continued)
Sample Tag: MW-3 (10/18/11)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - PCBs/Pesticides (continued)								
TCL PCB List (Column 2)								
PCB-1016	Not detected	ug/L	0.05	8082A	10/19/11 18:44	JANB	12674-11-2	
PCB-1242	Not detected	ug/L	0.05	8082A	10/19/11 18:44	JANB	53469-21-9	
PCB-1221	Not detected	ug/L	0.05	8082A	10/19/11 18:44	JANB	11104-28-2	
PCB-1232	Not detected	ug/L	0.05	8082A	10/19/11 18:44	JANB	11141-16-5	
PCB-1248	Not detected	ug/L	0.05	8082A	10/19/11 18:44	JANB	12672-29-6	
PCB-1254	Not detected	ug/L	0.05	8082A	10/19/11 18:44	JANB	11097-69-1	
PCB-1260	Not detected	ug/L	0.05	8082A	10/19/11 18:44	JANB	11096-82-5	
Organics - Semi-Volatiles								
3,3'-Dichlorobenzidine	Not detected	ug/L	0.05	8270C	10/27/11 17:34	PL	91-94-1	
Hexachlorobenzene	Not detected	ug/L	0.05	8270C	10/27/11 17:34	PL	118-74-1	
TCL Semi-Volatile Organics								
Acenaphthene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	208-96-8	
Acetophenone	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	98-86-2	
Anthracene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	120-12-7	
Atrazine	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	1912-24-9	
1,1'-Biphenyl	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	92-52-4	
4-Bromophenyl phenyl ether	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	101-55-3	
di-n-Butyl phthalate	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	84-74-2	
Benzaldehyde	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	100-52-7	
Benzo(a)anthracene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	56-55-3	
Benzo(a)pyrene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	205-99-2	
Benzo(ghi)perylene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	191-24-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	207-08-9	
Butyl benzyl phthalate	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	85-68-7	
2-Chloronaphthalene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	91-58-7	
2-Chlorophenol	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	95-57-8	
4-Chloro-3-methylphenol	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	59-50-7	
4-Chloroaniline	Not detected	ug/L	2	8270C	10/25/11 18:50	PL	106-47-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	7005-72-3	
Caprolactam	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	105-60-2	
Carbazole	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	86-74-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	108-60-1	
Chrysene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	218-01-9	
2,4-Dichlorophenol	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	120-83-2	
2,4-Dimethylphenol	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	105-67-9	
2,4-Dinitrophenol	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	606-20-2	
4,6-Dinitro-2-methylphenol	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	534-52-1	
Dibenzo(ah)anthracene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	132-64-9	
Diethyl phthalate	Not detected	ug/L	2	8270C	10/25/11 18:50	PL	84-66-2	
Dimethyl phthalate	Not detected	ug/L	2	8270C	10/25/11 18:50	PL	131-11-3	

Lab Sample ID: S50425.03 (continued)
Sample Tag: MW-3 (10/18/11)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
TCL Semi-Volatile Organics (continued)								
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	2	8270C	10/25/11 18:50	PL	117-81-7	
Fluoranthene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	206-44-0	
Fluorene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	86-73-7	
Hexachlorobutadiene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	193-39-5	
Isophorone	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	91-57-6	
2-Methylphenol	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	95-48-7	
3-, 4-Methylphenol	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	3/4-Cresol	
2-Nitroaniline	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	88-74-4	
2-Nitrophenol	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	88-75-5	
3-Nitroaniline	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	100-01-6	
4-Nitrophenol	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	100-02-7	
N-Nitrosodi-n-propylamine	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	621-64-7	
N-Nitrosodiphenylamine	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	86-30-6	
Naphthalene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	91-20-3	
Nitrobenzene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	98-95-3	
di-n-Octyl phthalate	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	117-84-0	
Pentachlorophenol	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	87-86-5	
Phenanthrene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	85-01-8	
Phenol	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	108-95-2	
Pyrene	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	129-00-0	
2,4,5-Trichlorophenol	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	1	8270C	10/25/11 18:50	PL	88-06-2	
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	0.05	8260B - SIM	10/24/11 05:27	WAT	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	0.02	8260B - SIM	10/24/11 05:27	WAT	106-93-4	
1,4-Dioxane	Not detected	ug/L	5	8260B - SIM	10/24/11 05:27	WAT	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	76-13-1	
Acetone	Not detected	ug/L	10	8260B	10/24/11 23:46	WAT	67-64-1	
Carbon disulfide	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	75-15-0	
Methyl Acetate	Not detected	ug/L	10	8260B	10/24/11 23:46	WAT	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	8260B	10/24/11 23:46	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	75-71-8	
Chloromethane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	75-01-4	
Bromomethane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	74-83-9	
Chloroethane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	156-60-5	

Lab Sample ID: S50425.03 (continued)
Sample Tag: MW-3 (10/18/11)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
1,1-Dichloroethane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	156-59-2	
Chloroform	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	71-55-6	
Cyclohexane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	8260B	10/24/11 23:46	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	10	8260B	10/24/11 23:46	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	56-23-5	
Benzene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	124-48-1	
Chlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	79-34-5	
Ethylbenzene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	8260B	10/24/11 23:46	WAT		
o-Xylene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	95-47-6	
Styrene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	8260B	10/24/11 23:46	WAT	120-82-1	

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S50425.04
Sample Tag: Trip Blank
Collected Date/Time: 10/18/2011 00:01
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles								
1,2-Dibromo-3-chloropropane	Not detected	ug/L	0.05	8260B - SIM	10/25/11 16:44	JGH	96-12-8	
1,2-Dibromoethane	Not detected	ug/L	0.02	8260B - SIM	10/25/11 16:44	JGH	106-93-4	
1,4-Dioxane	Not detected	ug/L	5	8260B - SIM	10/25/11 16:44	JGH	123-91-1	
TCL Volatile Organics 8260								
1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	76-13-1	
Acetone	Not detected	ug/L	10	8260B	10/26/11 01:24	WAT	67-64-1	
Carbon disulfide	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	75-15-0	
Methyl Acetate	Not detected	ug/L	10	8260B	10/26/11 01:24	WAT	79-20-9	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	1634-04-4	
2-Butanone (MEK)	Not detected	ug/L	10	8260B	10/26/11 01:24	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	75-71-8	
Chloromethane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	75-01-4	
Bromomethane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	74-83-9	
Chloroethane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	156-59-2	
Chloroform	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	67-66-3	
1,1,1-Trichloroethane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	71-55-6	
Cyclohexane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	110-82-7	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	10	8260B	10/26/11 01:24	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	10	8260B	10/26/11 01:24	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	56-23-5	
Benzene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	75-27-4	
Methyl cyclohexane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	108-87-2	
cis-1,3-Dichloropropene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	127-18-4	
Dibromochloromethane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	124-48-1	
Chlorobenzene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	108-90-7	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	79-34-5	
Ethylbenzene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	100-41-4	

Lab Sample ID: S50425.04 (continued)
Sample Tag: Trip Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
TCL Volatile Organics 8260 (continued)								
p,m-Xylene	Not detected	ug/L	2	8260B	10/26/11 01:24	WAT		
o-Xylene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	95-47-6	
Styrene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	75-25-2	
1,3-Dichlorobenzene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	95-50-1	
1,2,4-Trichlorobenzene	Not detected	ug/L	1	8260B	10/26/11 01:24	WAT	120-82-1	

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Plant 2

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page ___ of ___

Lab Work Order #:

Send Results to:

Contact & Company Name: Randy Christensen/ Arcadis
Telephone: 810-225-1940
Address: 10559 Citation Dr, Suite 100
Fax:
City: Brighton, State: MI, Zip: 48116
Email Address: Randy.Christensen@arcadis-us.com
Project Name/Location (City, State): RACER Trust Lansing, MI
Project #: B0064479.2011.216WS
Sampler's Printed Name: Austin Westhuis
Sampler's Signature:

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	TCL VOCs	TCL SVOCs	TAL Metals	Dissolved TAL Metals	PCBs	Chromium VI	Preservative	Filtered (✓)	# of Containers	Container Information
												B	E	C	C	E	E	
50425.01 MW-1 (10/18/11)	10/18/11	1035		✓	W	✓	✓	✓		✓	✓							
.02 MW-2 (10/18/11)	10/18/11	1140		✓	W	✓	✓	✓		✓	✓							
.03 MW-3 (10/18/11)	10/18/11	1345		✓	W	✓	✓	✓		✓	✓							

PARAMETER ANALYSIS & METHOD

Keys

Preservation Key: A. H_2SO_4; B. HCL; C. HNO_3; D. NaOH; E. None; F. Other: ___; G. Other: ___; H. Other: ___

Container Information Key: 1. 40 ml Vial; 2. 1 L Amber; 3. 250 ml Plastic; 4. 500 ml Plastic; 5. Encore; 6. 2 oz. Glass; 7. 4 oz. Glass; 8. 8 oz. Glass; 9. Other ___; 10. Other ___

Matrix Key: SO - Soil; SE - Sediment; NL - NAPL/Oil; W - Water; SL - Sludge; SW - Sample Wipe; T - Tissue; A - Air; Other: ___

REMARKS

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt		Relinquished By	Received By	Relinquished By	Laboratory Received By
Lab Name: Merit	Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact	Printed Name: Austin Westhuis	Printed Name:	Printed Name:	Printed Name: Paula Shaw
☒ Cooler packed with ice (✓)		Signature:	Signature:	Signature:	Signature:
Specify Turnaround Requirements: Standard	Sample Receipt	Firm: Arcadis	Firm/Courier:	Firm/Courier:	Firm: Merit
Shipping Tracking #:	Condition/Cooler Temp: ___	Date/Time: 10/18/11 1600	Date/Time:	Date/Time:	Date/Time: 10-18-11 1610