ECOCHEM
Data Quality

DATA USABILITY SUMMARY REPORT

KINGS/STORAGE DELUXE IAQ INVESTIGATION

APRIL 16, 2014 Sampling Event

Prepared for:

Environmental Management, Ltd.
56 West Gate Road
Suffern, New York 10901

Prepared by:

EcoChem, Inc.
1011 Western Avenue, Suite 1011
Seattle, Washington 98104

EcoChem Project: C23903-1

June 20, 2014

Approved for Release:

Christina Mott Frans
Senior Project Chemist
EcoChem, Inc.

DATA USABILITY SUMMARY REPORT
KINGS/STORAGE DELUXE IAQ INVESTIGATION

This report documents the review of analytical data from the analyses of five aqueous samples, one trip blank, one field blank and the associated laboratory quality control (QC) samples. A full (USEPA Level IV) validation was performed. Samples were analyzed by EMSL Analytical, Inc., Cinnaminson, New Jersey. **Table 1** provides a cross reference of sample identifiers and collection date.

TABLE 1: Sample Index

Field ID	Lab ID	Date Collected	SDG
MW-6S	011401866-0001	4/16/2014	011401866
MW-9S	011401866-0002	4/16/2014	011401866
MW-9S Dup	011401866-0005	4/16/2014	011401866
MW-13R	011401866-0006	4/16/2014	011401866
DP-103R	011401866-0007	4/16/2014	011401866
FB(041614)	011401866-0008	4/16/2014	011401866
TB(041614)	011401866-0009	4/16/2014	011401866

BASIS OF DATA EVALUATION

The data were validated using guidance and QC criteria documented in *USEPA Region II Data Review Standard Operating Procedure (SOP) Number HW-24, Revision 2, August 2008: Validating Volatile Organic Compounds –by Gas Chromatography/Mass Spectrometry; SW-846 Method 8260B* and the analytical method, *SW-846 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Method 8260B Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 2, December 1996, New York State Department of Environmental Conservation, DEC Program Policy DER-10, Technical Guidance for Site Investigation and Remediation.*

The technical findings and qualifiers assigned are organized by method and immediately follow this introduction. Data Validation Qualifier Code definitions are provided as **Appendix A**. The sample result summary forms are included as **Appendix B.** The data validation worksheets are included as **Appendix C.**

PROCESS FOR DATA VALIDATION

A full data validation equivalent to an USEPA CLP "QA Level IV" level of effort was performed. **Table 2** lists the quality control (QC) elements that were reviewed.

TABLE 2: Full (USEPA Level IV) Quality Control Elements

Quality Control Elements
• Data Completeness • Cover letter, Narrative, and Data Reporting Forms • Analytical holding times • Chain of custody and sample handling/preservation • Instrument performance: GC/MS tune (from summary forms) • Method blank contamination (from summary forms) • Initial and continuing calibration (from summary forms) • Field and Trip blank contamination (from sample result summaries) • Analytical accuracy: surrogate %R for organic analyses, matrix spike sample %R, and laboratory control sample %R (from summary forms) • Analytical precision: matrix spike duplicate sample RPD (from summary forms) • Field precision: field duplicate RPD (if analyzed) • Internal standard areas (from summary forms) • Reported detection limits (from sample result summaries) • Compound identification evaluated from raw data • Compound quantitation, transcription and calculation checks performed at a frequency of 10 percent from raw data. If an error was noted, 100 percent of the calculations and transcriptions for that data package were verified.

Laboratory QC samples were used to assess the effectiveness of extraction/preparation procedures and to evaluate laboratory method performance, potential contamination during the analytical process, and sample matrix effects. Quality control samples included method blanks, laboratory control samples (LCS), matrix spike (MS) samples, and laboratory duplicate samples. Surrogates were added to each sample analyzed for organic compounds to further assess the effects of sample matrix on accuracy.

During validation, the results of the QC samples and instrument calibration and tuning are compared to the measurement quality objectives (MQO) initially established during project planning. Validation also provides a quantitative and qualitative evaluation of the data and identifies potential sources of error, uncertainty, and bias that may affect the overall data usability.

Data were qualified when associated QC sample and instrument performance results were outside the laboratory QC sample control limits. **Table 3** shows the qualifiers that have been applied to the results for the Kings/Storage Deluxe IAQ Investigation samples.

TABLE 3: Qualified Data Summary

SDG	Method	Analyte	Result	Units	Validation Qualifier	Reason Code
11401866	8260C	2-Chloroethyl vinyl ether	ND	µg/L	R	1
		Acetonitrile	ND	µg/L	UJ	5B
		Acrolein	ND	µg/L	UJ	5B
		tert-Butyl Alcohol	ND	µg/L	UJ	5A,5B
		Tetrachloroethene	5.1	µg/L	J	10H
11401866	8260C	2-Chloroethyl vinyl ether	ND	µg/L	R	1,8L

TABLE 3: Qualified Data Summary

SDG	Method	Analyte	Result	Units	Validation Qualifier	Reason Code
		Acetonitrile	ND	µg/L	UJ	5B, 8L
		Acrolein	ND	µg/L	UJ	5B
		tert-Butyl Alcohol	ND	µg/L	UJ	5A,5B
		Vinyl chloride	ND	µg/L	UJ	8L
		2-Chloroethyl vinyl ether	ND	µg/L	R	1
		Acetonitrile	ND	µg/L	UJ	5B
		Acrolein	ND	µg/L	UJ	5B
		tert-Butyl Alcohol	ND	µg/L	UJ	5A,5B
		2-Chloroethyl vinyl ether	ND	µg/L	R	1
		Acetonitrile	ND	µg/L	UJ	5B
		Acrolein	ND	µg/L	UJ	5B
		tert-Butyl Alcohol	ND	µg/L	UJ	5A,5B
		2-Chloroethyl vinyl ether	ND	µg/L	R	1
		Acetonitrile	ND	µg/L	UJ	5B
		Acrolein	ND	µg/L	UJ	5B
		tert-Butyl Alcohol	ND	µg/L	UJ	5A,5B
		2-Chloroethyl vinyl ether	ND	µg/L	R	1
		Acetonitrile	ND	µg/L	UJ	5B
		Acrolein	ND	µg/L	UJ	5B
		tert-Butyl Alcohol	ND	µg/L	UJ	5A,5B
		2-Chloroethyl vinyl ether	ND	µg/L	R	1
		Acetonitrile	ND	µg/L	UJ	5B
		Acrolein	ND	µg/L	UJ	5B
		tert-Butyl Alcohol	ND	µg/L	UJ	5A,5B

TECHNICAL SUMMARY

Overall, the data are acceptable for the intended purposes. Data were qualified for initial and continuing calibration outliers and laboratory control sample and matrix spike sample accuracy outliers. Results for the analyte 2-chloro ethyl vinyl ether were rejected because the samples analyzed were preserved with acid in the field. All other data meet all the criteria for the parameter tested.

Data that have been rejected should not be used for any purpose. All other data, as qualified, are acceptable for use.

DATA USABILITY SUMMARY REPORT
Kings-Storage Deluxe IAQ Investigation
Volatile Organic Compounds – EPA Method 8260C

This report documents the review of analytical data from the analyses of aqueous samples and the associated laboratory and field quality control (QC) samples. EMSL Analytical, Inc., Cinnaminson, New Jersey, analyzed the samples.

SDG	Number of Samples	Validation Level
011401866	5 Aqueous, 1 Trip Blank & 1 Field Blank	Full

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all deliverables as required by ASP Category B. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are summarized in the following table. All requirements were met for each QC element, unless noted below.

2	Holding Times, Sample Receipt, and Sample Preservation	2	Matrix Spike/Matrix Spike Duplicate (MS/MSD)
	GC/MS Instrument Performance Check	1	Laboratory Replicates
2	Initial Calibration (ICAL)		Internal Standards
2	Continuing Calibration (CCAL)		Target Analyte List
1	Method Blanks		Reporting Limits
1	Field and Trip Blanks		Compound Identification
	Surrogate Compounds	1	Calculation Verification (Full validation only)
2	Laboratory Control Sample (LCS)		

[1] Quality control results are discussed below, but no data were qualified.
[2] Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Holding Times, Sample Receipt, and Preservation

The aqueous samples were collected in VOA vials preserved with HCl. The target analyte list for this project included 2-chloroethyl vinyl ether. Since no unpreserved sample was available for analysis, all reporting limits for 2-chloroethyl vinyl ether were rejected (R-1) based on loss of the analyte in an acidic matrix.

Initial Calibration

Initial calibration (ICAL) relative response factor (RRF) values were greater than the control limit of 0.05 and the percent relative standard deviation (%RSD) values were within the control limit of 30%, with the following exceptions.

The %RSD values for several analytes were greater than the control limit. The laboratory

performed quadratic regression for these analytes. All correlation coefficient (r^2) values for these analytes were greater than the minimum control limit of 0.995.

The RRF value for tert-butyl alcohol was less than the control limit of 0.05. tert-Butyl alcohol was not detected in any sample and all reporting limits were estimated (UJ-5A).

Continuing Calibration

A continuing calibration verification standard was analyzed at the required frequency. With the following exceptions, the percent difference (%D) values were within the criteria of ± 25% and the RRF values were greater than the control limit of 0.05.

The %D value for dichlorodifluoromethane from the continuing calibration on 4/25/2014 at 15:47 was greater than the upper control limit, at 28.7%, and was indicative of a potential high bias. Dichlorodifluoromethane was not detected in any sample. No qualifiers were applied. The RRF values for acrolein, acetonitrile, and tert-butyl alcohol less than the lower control limit of 0.05 in the same continuing calibration. The reporting limits for these analytes were estimated (UJ-5B) in the associated samples.

Method Blanks

Laboratory blanks were analyzed at the required frequency. No target analytes were detected in the method blank.

Blanks (Field and Trip)

One trip blank was submitted with the samples in this data set. No target analytes were detected in Sample TB.

One field blank sample was submitted with the samples in this data set. No target analytes were detected in Sample FB.

Laboratory Control Sample

One laboratory control sample (LCS) was analyzed with the samples in this data set. With the following exceptions, all percent recovery (%R) values were within control limits.

BS/BSD ID	Analyte	BS %R	Potential Bias
LCS	Carbon disulfide	139	High
	Tetrachloroethene	118	

The %R values indicated a potential high bias, only the positive results in all associated samples were estimated (J-10H).

Matrix Spike/Matrix Spike Duplicate

Matrix spike/matrix spike duplicate (MS/MSD) analyses were performed using Sample MW-9S.

With the following exceptions, all percent recovery (%R) and relative percent difference (RPD) values were within method specified control limits.

With the exceptions noted below, the %R values were within the control limits.

MS/MSD Parent Sample ID	Analyte	MS %R	MSD %R	Potential Bias
MW-9S	Vinyl chloride	54	59	Low
	Carbon disulfide	132	138	High
	Acetonitrile	74	77	Low
	Bromochloromethane	--	120	High
	Carbon tetrachloride	125	129	High
	2-Chloroethyl vinyl ether	0	0	Very Low
	1,2-Dibromomethane	--	124	High

If the MS/MSD %R values indicate a potential low bias, the positive results and detection limits in the parent sample were estimated (J/UJ-8L), except for 2-chloroethyl vinyl ether which was rejected (R-8L). If the %R values indicate a potential high bias, only the associated positive results in the parent sample were estimated (J-8H). Qualifiers were not applied for the single outliers.

The RPD values were less than the control limit of 30%.

Laboratory Replicates

The following acceptance criteria were applied for sample replicates: the relative percent difference (RPD) control limit is 35% for results greater than five times the reporting limit (RL). For results less than five times the RL, the difference between the sample and replicate must be less than the RL. Samples MW-9S and MW-9S Dup were submitted as laboratory replicates. There were no target analytes detected in either sample. Precision was acceptable.

Calculation Verification

Calculation verifications were performed. No calculation errors were found.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the surrogate, LCS, and MS/MSD percent recovery values, with the exceptions noted above. Precision was also acceptable as demonstrated by the matrix spike/matrix spike duplicate and laboratory duplicate relative percent difference values.

Results were estimated due to laboratory control sample and matrix spike/matrix spike duplicate accuracy outliers. Reporting limits were also estimated based on initial and continuing calibration outliers.

The reporting limits for 2-chloroethyl vinyl ether were rejected because sample analyses were performed on acidified samples. The reporting limit for 2-chloroethyl vinyl ether was rejected in

parent Sample MW-9S because the analyte was not recovered in the matrix spike/matrix spike duplicate sample. Data that have been rejected are not useable for any purpose.

All other data, as qualified, are acceptable for use.

ECOCHEM
Data Quality

APPENDIX A

DATA QUALIFIER DEFINITIONS
REASON CODES
AND CRITERIA TABLES

DATA VALIDATION QUALIFIER CODES
Based on National Functional Guidelines

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents the approximate concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

The following is an EcoChem qualifier that may also be assigned during the data review process:

DNR	Do not report; a more appropriate result is reported from another analysis or dilution.

DATA QUALIFIER REASON CODES

Group	Code	Reason for Qualification
Sample Handling	1	Improper Sample Handling or Sample Preservation (i.e., headspace, cooler temperature, pH, summa canister pressure); Exceeded Holding Times
Instrument Performance	24	Instrument Performance (i.e., tune, resolution, retention time window, endrin breakdown, lock-mass)
	5A	Initial Calibration (RF, %RSD, r^2)
	5B	Calibration Verification (ICV, CCV, CCAL; RF, %D, %R) Use bias flags (H,L)[1] where appropriate
Blank Contamination	6	Field Blank Contamination (Equipment Rinsate, Trip Blank, etc.)
	7	Lab Blank Contamination (i.e., method blank, instrument blank, etc.) Use low bias flag (L)[1] for negative instrument blanks
Precision and Accuracy	8	Matrix Spike (MS &/or MSD) Recoveries Use bias flags (H,L)[1] where appropriate
	9	Precision (all replicates: LCS/LCSD, MS/MSD, Lab Replicate, Field Replicate)
	10	Laboratory Control Sample Recoveries (a.k.a. Blank Spikes) Use bias flags (H,L)[1] where appropriate
	12	Reference Material Use bias flags (H,L)[1] where appropriate
	13	Surrogate Spike Recoveries (a.k.a. labeled compounds, recovery standards) Use bias flags (H,L)[1] where appropriate
Interferences	16	ICP/ICP-MS Serial Dilution Percent Difference
	17	ICP/ICP-MS Interference Check Standard Recovery Use bias flags (H,L)[1] where appropriate
	19	Internal Standard Performance (i.e., area, retention time, recovery)
	22	Elevated Detection Limit due to Interference (i.e., chemical and/or matrix)
	23	Bias from Matrix Interference (i.e. diphenyl ether, PCB/pesticides)
Identification and Quantitation	2	Chromatographic pattern in sample does not match pattern of calibration standard
	3	2nd column confirmation (RPD or %D)
	4	Tentatively Identified Compound (TIC) (associated with NJ only)
	20	Calibration Range or Linear Range Exceeded
	25	Compound Identification (i.e., ion ratio, retention time, relative abundance, etc.)
Miscellaneous	11	A more appropriate result is reported (multiple reported analyses i.e., dilutions, re-extractions, etc. Associated with "R" and "DNR" only)
	14	Other (See DV report for details)
	26	Method QC information not provided

[1] H = high bias indicated
L = low bias indicated

EcoChem Validation Guidelines for Volatile Analysis by GC/MS (Based on Organic NFG 1999)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler Temperature	4°C±2°C Water: HCl to pH < 2	J(+)/UJ(-) if greater than 6 deg. C (EcoChem PJ) (see TM-11)	1
Hold Time	Waters: 14 days preserved 7 Days: unpreserved (for aromatics) Solids: 14 Days	J(+)/UJ(-) if hold times exceeded If exceeded by > 3X HT: J(+)/R(-) (EcoChem PJ) For acid preserved samples analyzed for 2-chloro ethyl vinyl ether, refer to TM-11 for guidance.	1
Tuning	BFB Beginning of each 12 hour period Method acceptance criteria	R(+/-) all analytes in all samples associated with the tune	5A
Initial Calibration (Minimum 5 stds.)	RRF > 0.05	(EcoChem PJ, see TM-06) If MDL= reporting limit: J(+)/R(-) if RRF < 0.05 If reporting limit > MDL: note in worksheet if RRF <0.05	5A
	%RSD < 30%	(EcoChem PJ, see TM-06) J(+) if %RSD > 30%	5A
Continuing Calibration (Prior to each 12 hr. shift)	RRF > 0.05	(EcoChem PJ, see TM-06) If MDL= reporting limit: J(+)/R(-) if RRF < 0.05 If reporting limit > MDL: note in worksheet if RRF <0.05	5B
	%D <25%	(EcoChem PJ, see TM-06) If > +/-90%: J+/R- If -90% to -26%: J+ (high bias) If 26% to 90%: J+/UJ- (low bias)	5B
Method Blank	One per matrix per batch No results > CRQL	U(+) if sample (+) result is less than CRQL and less than appropriate 5X or 10X rule (raise sample value to CRQL)	7
		U(+) if sample (+) result is greater than or equal to CRQL and less than appropriate 5X and 10X rule (at reported sample value)	7
	No TICs present	R(+) TICs using 10X rule	7
Storage Blank	One per SDG <CRQL	U(+) the specific analyte(s) results in all assoc.samples using the 5x or 10x rule	7
Trip Blank	Frequency as per project QAPP	Same as method blank for positive results remaining in trip blank after method blank qualifiers are assigned	18
Field Blanks (if required in QAPP)	No results > CRQL	Apply 5X/10X rule; U(+) < action level	6
MS/MSD (recovery)	One per matrix per batch Use method acceptance criteria	Qualify parent only unless other QC indicates systematic problems: J(+) if both %R > UCL J(+)/UJ(-) if both %R < LCL J(+)/R(-) if both %R < 10% PJ if only one %R outlier	8

EcoChem Validation Guidelines for Volatile Analysis by GC/MS (Based on Organic NFG 1999)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
MS/MSD (RPD)	One per matrix per batch Use method acceptance criteria	J(+) in parent sample if RPD > CL	9
LCS *low conc. H2O VOA*	One per lab batch Within method control limits	J(+) assoc. cmpd if > UCL J(+)/R(-) assoc. cmpd if < LCL J(+)/R(-) all cmpds if half are < LCL	10
LCS *regular VOA (H2O & solid)*	One per lab batch Lab or method control limits	J(+) if %R > UCL J(+)/UJ(-) if %R <LCL J(+)/R(-) if %R < 10% (EcoChem PJ)	10
LCS/LCSD *(if required)*	One set per matrix and batch of 20 samples RPD < 35%	J(+)/UJ(-) assoc. cmpd. in all samples	9
Surrogates	Added to all samples Within method control limits	J(+) if %R >UCL J(+)/UJ(-) if %R <LCL but >10% (see PJ[1]) J(+)/R(-) if <10%	13
Internal Standard (IS)	Added to all samples Acceptable Range: IS area 50% to 200% of CCAL area RT within 30 seconds of CC RT	J(+) if > 200% J(+)/UJ(-) if < 50% J(+)/R(-) if < 25% RT>30 seconds, narrate and Notify PM	19
Field Duplicates	Use QAPP limits. If no QAPP: Solids: RPD <50% OR absolute diff. < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR absolute diff. < 1X RL (if either result < 5X RL)	Narrate and qualify if required by project (EcoChem PJ)	9
TICs	Major ions (>10%) in reference must be present in sample; intensities agree within 20%; check identification	NJ the TIC unless: R(+) common laboratory contaminants See Technical Director for ID issues	4
Quantitation/ Identification	RRT within 0.06 of standard RRT Ion relative intensity within 20% of standard All ions in std. at > 10% intensity must be present in sample	See Technical Director if outliers	14 21 (false +)

PJ[1] No action if there are 4+ surrogates and only 1 outlier.

ECOCHEM
Data Quality

APPENDIX B
SAMPLE RESULT SUMMARY FORMS

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-6S
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0001**	**Project:**	
Lab File ID:	T4986.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 6:37:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-71-8	Dichlorodifluoromethane	1.0		U
74-87-3	Chloromethane	5.0		U
75-01-4	Vinyl chloride	5.0		U
74-83-9	Bromomethane	5.0		U
75-00-3	Chloroethane	5.0		U
75-69-4	Trichlorofluoromethane	1.0		U
107-02-8	Acrolein	20		U
76-13-1	Freon 113(1,1,2-Trichlorofluoroethane)	5.0		U
75-35-4	1,1-Dichloroethene	5.0		U
67-64-1	Acetone	10		U
75-15-0	Carbon disulfide	1.0		U
75-05-8	Acetonitrile	50		U
75-09-2	Methylene chloride	5.0		U
75-65-0	tert-Butyl Alcohol	20		U
156-60-5	trans-1,2-Dichloroethene	5.0		U
1634-04-4	Methyl-tert butyl ether	5.0		U
107-13-1	Acrylonitrile	10		U
75-34-3	1,1-Dichloroethane	1.0		U
108-05-4	Vinyl acetate	2.0		U
594-20-7	2,2-Dichloropropane	1.0		U
156-59-2	cis-1,2-Dichloroethene	5.0		U
78-93-3	2-Butanone	10		U
74-97-5	Bromochloromethane	5.0		U
109-99-9	Tetrahydrofuran	10		U
67-66-3	Chloroform	1.0		U
71-55-6	1,1,1-Trichloroethane	1.0	2.3	
56-23-5	Carbon tetrachloride	5.0		U
563-58-6	1,1-Dichloropropene	1.0		U
71-43-2	Benzene	1.0		U
107-06-2	1,2-Dichloroethane	1.0		U
79-01-6	Trichloroethene	1.0	30	
78-87-5	1,2-Dichloropropane	1.0		U
74-95-3	Dibromomethane	5.0		U

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-6S
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0001**	**Project:**	
Lab File ID:	T4986.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 6:37:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-27-4	Bromodichloromethane	1.0		U
110-75-8	2-Chloroethyl vinyl ether	10		U
10061-01-5	cis-1,3-Dichloropropene	1.0		U
108-10-1	4-Methyl-2-pentanone	2.0		U
108-88-3	Toluene	1.0		U
10061-02-6	trans-1,3-Dichloropropene	1.0		U
79-00-5	1,1,2-Trichloroethane	5.0		U
127-18-4	Tetrachloroethene	1.0	5.1	
142-28-9	1,3-Dichloropropane	1.0		U
591-78-6	2-Hexanone	2.0		U
124-48-1	Dibromochloromethane	1.0		U
106-93-4	1,2-Dibromoethane	1.0		U
108-90-7	Chlorobenzene	1.0		U
630-20-6	1,1,1,2-Tetrachloroethane	1.0		U
100-41-4	Ethylbenzene	1.0		U
179601-23-1	Xylene (para & meta)	2.0		U
95-47-6	Xylene (Ortho)	1.0		U
100-42-5	Styrene	1.0		U
75-25-2	Bromoform	1.0		U
98-82-8	Isopropylbenzene	1.0		U
108-86-1	Bromobenzene	1.0		U
79-34-5	1,1,2,2-Tetrachloroethane	1.0		U
96-18-4	1,2,3-Trichloropropane	5.0		U
103-65-1	n-Propylbenzene	1.0		U
110-57-6	trans-1,4-Dichloro-2-butene	2.0		U
95-49-8	2-Chlorotoluene	1.0		U
106-43-4	4-Chlorotoluene	1.0		U
108-67-8	1,3,5-Trimethylbenzene	1.0		U
98-06-6	tert-Butylbenzene	1.0		U
95-63-6	1,2,4-Trimethylbenzene	1.0		U
135-98-8	sec-Butylbenzene	1.0		U
541-73-1	1,3-Dichlorobenzene	1.0		U
99-87-6	4-Isopropyltoluene	1.0		U

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-6S
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0001**	**Project:**	
Lab File ID:	T4986.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 6:37:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
106-46-7	1,4-Dichlorobenzene	1.0		U
95-50-1	1,2-Dichlorobenzene	1.0		U
104-51-8	n-Butylbenzene	1.0		U
67-72-1	Hexachloroethane	1.0		U
96-12-8	1,2-Dibromo-3-chloropropane	5.0		U
98-95-3	Nitrobenzene	50		U
120-82-1	1,2,4-Trichlorobenzene	1.0		U
87-68-3	Hexachlorobutadiene	1.0		U
91-20-3	Naphthalene	1.0		U
87-61-6	1,2,3-Trichlorobenzene	1.0		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
J = Estimated concentration.
D = Dilution

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-9S
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0002**	**Project:**	
Lab File ID:	T4987.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 7:11:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-71-8	Dichlorodifluoromethane	1.0		U
74-87-3	Chloromethane	5.0		U
75-01-4	Vinyl chloride	5.0		U
74-83-9	Bromomethane	5.0		U
75-00-3	Chloroethane	5.0		U
75-69-4	Trichlorofluoromethane	1.0		U
107-02-8	Acrolein	20		U
76-13-1	Freon 113(1,1,2-Trichlorofluoroethane)	5.0		U
75-35-4	1,1-Dichloroethene	5.0		U
67-64-1	Acetone	10		U
75-15-0	Carbon disulfide	1.0		U
75-05-8	Acetonitrile	50		U
75-09-2	Methylene chloride	5.0		U
75-65-0	tert-Butyl Alcohol	20		U
156-60-5	trans-1,2-Dichloroethene	5.0		U
1634-04-4	Methyl-tert butyl ether	5.0		U
107-13-1	Acrylonitrile	10		U
75-34-3	1,1-Dichloroethane	1.0		U
108-05-4	Vinyl acetate	2.0		U
594-20-7	2,2-Dichloropropane	1.0		U
156-59-2	cis-1,2-Dichloroethene	5.0		U
78-93-3	2-Butanone	10		U
74-97-5	Bromochloromethane	5.0		U
109-99-9	Tetrahydrofuran	10		U
67-66-3	Chloroform	1.0		U
71-55-6	1,1,1-Trichloroethane	1.0		U
56-23-5	Carbon tetrachloride	5.0		U
563-58-6	1,1-Dichloropropene	1.0		U
71-43-2	Benzene	1.0		U
107-06-2	1,2-Dichloroethane	1.0		U
79-01-6	Trichloroethene	1.0		U
78-87-5	1,2-Dichloropropane	1.0		U
74-95-3	Dibromomethane	5.0		U

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-9S
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0002**	**Project:**	
Lab File ID:	T4987.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 7:11:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-27-4	Bromodichloromethane	1.0		U
110-75-8	2-Chloroethyl vinyl ether	10		U
10061-01-5	cis-1,3-Dichloropropene	1.0		U
108-10-1	4-Methyl-2-pentanone	2.0		U
108-88-3	Toluene	1.0		U
10061-02-6	trans-1,3-Dichloropropene	1.0		U
79-00-5	1,1,2-Trichloroethane	5.0		U
127-18-4	Tetrachloroethene	1.0		U
142-28-9	1,3-Dichloropropane	1.0		U
591-78-6	2-Hexanone	2.0		U
124-48-1	Dibromochloromethane	1.0		U
106-93-4	1,2-Dibromoethane	1.0		U
108-90-7	Chlorobenzene	1.0		U
630-20-6	1,1,1,2-Tetrachloroethane	1.0		U
100-41-4	Ethylbenzene	1.0		U
179601-23-1	Xylene (para & meta)	2.0		U
95-47-6	Xylene (Ortho)	1.0		U
100-42-5	Styrene	1.0		U
75-25-2	Bromoform	1.0		U
98-82-8	Isopropylbenzene	1.0		U
108-86-1	Bromobenzene	1.0		U
79-34-5	1,1,2,2-Tetrachloroethane	1.0		U
96-18-4	1,2,3-Trichloropropane	5.0		U
103-65-1	n-Propylbenzene	1.0		U
110-57-6	trans-1,4-Dichloro-2-butene	2.0		U
95-49-8	2-Chlorotoluene	1.0		U
106-43-4	4-Chlorotoluene	1.0		U
108-67-8	1,3,5-Trimethylbenzene	1.0		U
98-06-6	tert-Butylbenzene	1.0		U
95-63-6	1,2,4-Trimethylbenzene	1.0		U
135-98-8	sec-Butylbenzene	1.0		U
541-73-1	1,3-Dichlorobenzene	1.0		U
99-87-6	4-Isopropyltoluene	1.0		U

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-9S
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0002**	**Project:**	
Lab File ID:	T4987.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 7:11:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
106-46-7	1,4-Dichlorobenzene	1.0		U
95-50-1	1,2-Dichlorobenzene	1.0		U
104-51-8	n-Butylbenzene	1.0		U
67-72-1	Hexachloroethane	1.0		U
96-12-8	1,2-Dibromo-3-chloropropane	5.0		U
98-95-3	Nitrobenzene	50		U
120-82-1	1,2,4-Trichlorobenzene	1.0		U
87-68-3	Hexachlorobutadiene	1.0		U
91-20-3	Naphthalene	1.0		U
87-61-6	1,2,3-Trichlorobenzene	1.0		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
J = Estimated concentration.
D = Dilution

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-9S MS
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0003**	**Project:**	
Lab File ID:	T4991.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 9:27:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-71-8	Dichlorodifluoromethane	1.0	57	
74-87-3	Chloromethane	5.0	49	
75-01-4	Vinyl chloride	5.0	28	
74-83-9	Bromomethane	5.0	38	
75-00-3	Chloroethane	5.0	54	
75-69-4	Trichlorofluoromethane	1.0	54	
107-02-8	Acrolein	20	180	
76-13-1	Freon 113(1,1,2-Trichlorofluoroethane)	5.0	52	
75-35-4	1,1-Dichloroethene	5.0	57	
67-64-1	Acetone	10	79	
75-15-0	Carbon disulfide	1.0	67	
75-05-8	Acetonitrile	50	370	
75-09-2	Methylene chloride	5.0	52	
75-65-0	tert-Butyl Alcohol	20	90	
156-60-5	trans-1,2-Dichloroethene	5.0	58	
1634-04-4	Methyl-tert butyl ether	5.0	51	
107-13-1	Acrylonitrile	10	90	
75-34-3	1,1-Dichloroethane	1.0	50	
108-05-4	Vinyl acetate	2.0	80	
594-20-7	2,2-Dichloropropane	1.0	53	
156-59-2	cis-1,2-Dichloroethene	5.0	56	
78-93-3	2-Butanone	10	76	
74-97-5	Bromochloromethane	5.0	54	
109-99-9	Tetrahydrofuran	10	78	
67-66-3	Chloroform	1.0	52	
71-55-6	1,1,1-Trichloroethane	1.0	55	
56-23-5	Carbon tetrachloride	5.0	63	
563-58-6	1,1-Dichloropropene	1.0	51	
71-43-2	Benzene	1.0	46	
107-06-2	1,2-Dichloroethane	1.0	55	
79-01-6	Trichloroethene	1.0	52	
78-87-5	1,2-Dichloropropane	1.0	45	
74-95-3	Dibromomethane	5.0	54	

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-9S MS
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0003**	**Project:**	
Lab File ID:	T4991.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 9:27:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-27-4	Bromodichloromethane	1.0	52	
110-75-8	2-Chloroethyl vinyl ether	10		U
10061-01-5	cis-1,3-Dichloropropene	1.0	43	
108-10-1	4-Methyl-2-pentanone	2.0	82	
108-88-3	Toluene	1.0	48	
10061-02-6	trans-1,3-Dichloropropene	1.0	48	
79-00-5	1,1,2-Trichloroethane	5.0	45	
127-18-4	Tetrachloroethene	1.0	56	
142-28-9	1,3-Dichloropropane	1.0	46	
591-78-6	2-Hexanone	2.0	80	
124-48-1	Dibromochloromethane	1.0	54	
106-93-4	1,2-Dibromoethane	1.0	52	
108-90-7	Chlorobenzene	1.0	48	
630-20-6	1,1,1,2-Tetrachloroethane	1.0	54	
100-41-4	Ethylbenzene	1.0	47	
179601-23-1	Xylene (para & meta)	2.0	96	
95-47-6	Xylene (Ortho)	1.0	50	
100-42-5	Styrene	1.0	45	
75-25-2	Bromoform	1.0	50	
98-82-8	Isopropylbenzene	1.0	48	
108-86-1	Bromobenzene	1.0	53	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	45	
96-18-4	1,2,3-Trichloropropane	5.0	52	
103-65-1	n-Propylbenzene	1.0	45	
110-57-6	trans-1,4-Dichloro-2-butene	2.0	44	
95-49-8	2-Chlorotoluene	1.0	46	
106-43-4	4-Chlorotoluene	1.0	47	
108-67-8	1,3,5-Trimethylbenzene	1.0	49	
98-06-6	tert-Butylbenzene	1.0	48	
95-63-6	1,2,4-Trimethylbenzene	1.0	49	
135-98-8	sec-Butylbenzene	1.0	47	
541-73-1	1,3-Dichlorobenzene	1.0	50	
99-87-6	4-Isopropyltoluene	1.0	47	

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-9S MS
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0003**	**Project:**	
Lab File ID:	T4991.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 9:27:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
106-46-7	1,4-Dichlorobenzene	1.0	51	
95-50-1	1,2-Dichlorobenzene	1.0	50	
104-51-8	n-Butylbenzene	1.0	41	
67-72-1	Hexachloroethane	1.0	56	
96-12-8	1,2-Dibromo-3-chloropropane	5.0	48	
98-95-3	Nitrobenzene	50	460	
120-82-1	1,2,4-Trichlorobenzene	1.0	50	
87-68-3	Hexachlorobutadiene	1.0	51	
91-20-3	Naphthalene	1.0	52	
87-61-6	1,2,3-Trichlorobenzene	1.0	51	

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
J = Estimated concentration.
D = Dilution

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-9S MSD
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0004**	**Project:**	
Lab File ID:	T4992.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 10:01:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-71-8	Dichlorodifluoromethane	1.0	58	
74-87-3	Chloromethane	5.0	51	
75-01-4	Vinyl chloride	5.0	31	
74-83-9	Bromomethane	5.0	41	
75-00-3	Chloroethane	5.0	54	
75-69-4	Trichlorofluoromethane	1.0	56	
107-02-8	Acrolein	20	210	
76-13-1	Freon 113(1,1,2-Trichlorofluoroethane)	5.0	57	
75-35-4	1,1-Dichloroethene	5.0	59	
67-64-1	Acetone	10	87	
75-15-0	Carbon disulfide	1.0	71	
75-05-8	Acetonitrile	50	390	
75-09-2	Methylene chloride	5.0	55	
75-65-0	tert-Butyl Alcohol	20	100	
156-60-5	trans-1,2-Dichloroethene	5.0	58	
1634-04-4	Methyl-tert butyl ether	5.0	57	
107-13-1	Acrylonitrile	10	93	
75-34-3	1,1-Dichloroethane	1.0	52	
108-05-4	Vinyl acetate	2.0	83	
594-20-7	2,2-Dichloropropane	1.0	55	
156-59-2	cis-1,2-Dichloroethene	5.0	57	
78-93-3	2-Butanone	10	82	
74-97-5	Bromochloromethane	5.0	57	
109-99-9	Tetrahydrofuran	10	83	
67-66-3	Chloroform	1.0	55	
71-55-6	1,1,1-Trichloroethane	1.0	58	
56-23-5	Carbon tetrachloride	5.0	65	
563-58-6	1,1-Dichloropropene	1.0	53	
71-43-2	Benzene	1.0	48	
107-06-2	1,2-Dichloroethane	1.0	59	
79-01-6	Trichloroethene	1.0	53	
78-87-5	1,2-Dichloropropane	1.0	45	
74-95-3	Dibromomethane	5.0	58	

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-9S MSD
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0004**	**Project:**	
Lab File ID:	T4992.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 10:01:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-27-4	Bromodichloromethane	1.0	58	
110-75-8	2-Chloroethyl vinyl ether	10		U
10061-01-5	cis-1,3-Dichloropropene	1.0	50	
108-10-1	4-Methyl-2-pentanone	2.0	85	
108-88-3	Toluene	1.0	51	
10061-02-6	trans-1,3-Dichloropropene	1.0	53	
79-00-5	1,1,2-Trichloroethane	5.0	51	
127-18-4	Tetrachloroethene	1.0	58	
142-28-9	1,3-Dichloropropane	1.0	52	
591-78-6	2-Hexanone	2.0	87	
124-48-1	Dibromochloromethane	1.0	61	
106-93-4	1,2-Dibromoethane	1.0	59	
108-90-7	Chlorobenzene	1.0	46	
630-20-6	1,1,1,2-Tetrachloroethane	1.0	53	
100-41-4	Ethylbenzene	1.0	45	
179601-23-1	Xylene (para & meta)	2.0	91	
95-47-6	Xylene (Ortho)	1.0	47	
100-42-5	Styrene	1.0	43	
75-25-2	Bromoform	1.0	54	
98-82-8	Isopropylbenzene	1.0	47	
108-86-1	Bromobenzene	1.0	52	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	46	
96-18-4	1,2,3-Trichloropropane	5.0	54	
103-65-1	n-Propylbenzene	1.0	44	
110-57-6	trans-1,4-Dichloro-2-butene	2.0	46	
95-49-8	2-Chlorotoluene	1.0	44	
106-43-4	4-Chlorotoluene	1.0	44	
108-67-8	1,3,5-Trimethylbenzene	1.0	46	
98-06-6	tert-Butylbenzene	1.0	47	
95-63-6	1,2,4-Trimethylbenzene	1.0	46	
135-98-8	sec-Butylbenzene	1.0	45	
541-73-1	1,3-Dichlorobenzene	1.0	50	
99-87-6	4-Isopropyltoluene	1.0	45	

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-9S MSD
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0004**	**Project:**	
Lab File ID:	T4992.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 10:01:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
106-46-7	1,4-Dichlorobenzene	1.0	50	
95-50-1	1,2-Dichlorobenzene	1.0	50	
104-51-8	n-Butylbenzene	1.0	42	
67-72-1	Hexachloroethane	1.0	57	
96-12-8	1,2-Dibromo-3-chloropropane	5.0	51	
98-95-3	Nitrobenzene	50	510	
120-82-1	1,2,4-Trichlorobenzene	1.0	51	
87-68-3	Hexachlorobutadiene	1.0	52	
91-20-3	Naphthalene	1.0	55	
87-61-6	1,2,3-Trichlorobenzene	1.0	54	

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
J = Estimated concentration.
D = Dilution

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-9 Dup
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0005**	**Project:**	
Lab File ID:	T4988.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 7:45:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-71-8	Dichlorodifluoromethane	1.0		U
74-87-3	Chloromethane	5.0		U
75-01-4	Vinyl chloride	5.0		U
74-83-9	Bromomethane	5.0		U
75-00-3	Chloroethane	5.0		U
75-69-4	Trichlorofluoromethane	1.0		U
107-02-8	Acrolein	20		U
76-13-1	Freon 113(1,1,2-Trichlorofluoroethane)	5.0		U
75-35-4	1,1-Dichloroethene	5.0		U
67-64-1	Acetone	10		U
75-15-0	Carbon disulfide	1.0		U
75-05-8	Acetonitrile	50		U
75-09-2	Methylene chloride	5.0		U
75-65-0	tert-Butyl Alcohol	20		U
156-60-5	trans-1,2-Dichloroethene	5.0		U
1634-04-4	Methyl-tert butyl ether	5.0		U
107-13-1	Acrylonitrile	10		U
75-34-3	1,1-Dichloroethane	1.0		U
108-05-4	Vinyl acetate	2.0		U
594-20-7	2,2-Dichloropropane	1.0		U
156-59-2	cis-1,2-Dichloroethene	5.0		U
78-93-3	2-Butanone	10		U
74-97-5	Bromochloromethane	5.0		U
109-99-9	Tetrahydrofuran	10		U
67-66-3	Chloroform	1.0		U
71-55-6	1,1,1-Trichloroethane	1.0		U
56-23-5	Carbon tetrachloride	5.0		U
563-58-6	1,1-Dichloropropene	1.0		U
71-43-2	Benzene	1.0		U
107-06-2	1,2-Dichloroethane	1.0		U
79-01-6	Trichloroethene	1.0		U
78-87-5	1,2-Dichloropropane	1.0		U
74-95-3	Dibromomethane	5.0		U

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-9 Dup
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0005**	**Project:**	
Lab File ID:	T4988.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 7:45:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-27-4	Bromodichloromethane	1.0		U
110-75-8	2-Chloroethyl vinyl ether	10		U
10061-01-5	cis-1,3-Dichloropropene	1.0		U
108-10-1	4-Methyl-2-pentanone	2.0		U
108-88-3	Toluene	1.0		U
10061-02-6	trans-1,3-Dichloropropene	1.0		U
79-00-5	1,1,2-Trichloroethane	5.0		U
127-18-4	Tetrachloroethene	1.0		U
142-28-9	1,3-Dichloropropane	1.0		U
591-78-6	2-Hexanone	2.0		U
124-48-1	Dibromochloromethane	1.0		U
106-93-4	1,2-Dibromoethane	1.0		U
108-90-7	Chlorobenzene	1.0		U
630-20-6	1,1,1,2-Tetrachloroethane	1.0		U
100-41-4	Ethylbenzene	1.0		U
179601-23-1	Xylene (para & meta)	2.0		U
95-47-6	Xylene (Ortho)	1.0		U
100-42-5	Styrene	1.0		U
75-25-2	Bromoform	1.0		U
98-82-8	Isopropylbenzene	1.0		U
108-86-1	Bromobenzene	1.0		U
79-34-5	1,1,2,2-Tetrachloroethane	1.0		U
96-18-4	1,2,3-Trichloropropane	5.0		U
103-65-1	n-Propylbenzene	1.0		U
110-57-6	trans-1,4-Dichloro-2-butene	2.0		U
95-49-8	2-Chlorotoluene	1.0		U
106-43-4	4-Chlorotoluene	1.0		U
108-67-8	1,3,5-Trimethylbenzene	1.0		U
98-06-6	tert-Butylbenzene	1.0		U
95-63-6	1,2,4-Trimethylbenzene	1.0		U
135-98-8	sec-Butylbenzene	1.0		U
541-73-1	1,3-Dichlorobenzene	1.0		U
99-87-6	4-Isopropyltoluene	1.0		U

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-9 Dup
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0005**	**Project:**	
Lab File ID:	T4988.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 7:45:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
106-46-7	1,4-Dichlorobenzene	1.0		U
95-50-1	1,2-Dichlorobenzene	1.0		U
104-51-8	n-Butylbenzene	1.0		U
67-72-1	Hexachloroethane	1.0		U
96-12-8	1,2-Dibromo-3-chloropropane	5.0		U
98-95-3	Nitrobenzene	50		U
120-82-1	1,2,4-Trichlorobenzene	1.0		U
87-68-3	Hexachlorobutadiene	1.0		U
91-20-3	Naphthalene	1.0		U
87-61-6	1,2,3-Trichlorobenzene	1.0		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
J = Estimated concentration.
D = Dilution

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-13R
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0006**	**Project:**	
Lab File ID:	T4989.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 8:19:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-71-8	Dichlorodifluoromethane	1.0		U
74-87-3	Chloromethane	5.0		U
75-01-4	Vinyl chloride	5.0		U
74-83-9	Bromomethane	5.0		U
75-00-3	Chloroethane	5.0		U
75-69-4	Trichlorofluoromethane	1.0		U
107-02-8	Acrolein	20		U
76-13-1	Freon 113(1,1,2-Trichlorofluoroethane)	5.0		U
75-35-4	1,1-Dichloroethene	5.0		U
67-64-1	Acetone	10		U
75-15-0	Carbon disulfide	1.0		U
75-05-8	Acetonitrile	50		U
75-09-2	Methylene chloride	5.0		U
75-65-0	tert-Butyl Alcohol	20		U
156-60-5	trans-1,2-Dichloroethene	5.0		U
1634-04-4	Methyl-tert butyl ether	5.0		U
107-13-1	Acrylonitrile	10		U
75-34-3	1,1-Dichloroethane	1.0		U
108-05-4	Vinyl acetate	2.0		U
594-20-7	2,2-Dichloropropane	1.0		U
156-59-2	cis-1,2-Dichloroethene	5.0		U
78-93-3	2-Butanone	10		U
74-97-5	Bromochloromethane	5.0		U
109-99-9	Tetrahydrofuran	10		U
67-66-3	Chloroform	1.0		U
71-55-6	1,1,1-Trichloroethane	1.0		U
56-23-5	Carbon tetrachloride	5.0		U
563-58-6	1,1-Dichloropropene	1.0		U
71-43-2	Benzene	1.0		U
107-06-2	1,2-Dichloroethane	1.0		U
79-01-6	Trichloroethene	1.0		U
78-87-5	1,2-Dichloropropane	1.0		U
74-95-3	Dibromomethane	5.0		U

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-13R
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0006**	**Project:**	
Lab File ID:	T4989.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 8:19:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-27-4	Bromodichloromethane	1.0		U
110-75-8	2-Chloroethyl vinyl ether	10		U
10061-01-5	cis-1,3-Dichloropropene	1.0		U
108-10-1	4-Methyl-2-pentanone	2.0		U
108-88-3	Toluene	1.0		U
10061-02-6	trans-1,3-Dichloropropene	1.0		U
79-00-5	1,1,2-Trichloroethane	5.0		U
127-18-4	Tetrachloroethene	1.0		U
142-28-9	1,3-Dichloropropane	1.0		U
591-78-6	2-Hexanone	2.0		U
124-48-1	Dibromochloromethane	1.0		U
106-93-4	1,2-Dibromoethane	1.0		U
108-90-7	Chlorobenzene	1.0		U
630-20-6	1,1,1,2-Tetrachloroethane	1.0		U
100-41-4	Ethylbenzene	1.0		U
179601-23-1	Xylene (para & meta)	2.0		U
95-47-6	Xylene (Ortho)	1.0		U
100-42-5	Styrene	1.0		U
75-25-2	Bromoform	1.0		U
98-82-8	Isopropylbenzene	1.0		U
108-86-1	Bromobenzene	1.0		U
79-34-5	1,1,2,2-Tetrachloroethane	1.0		U
96-18-4	1,2,3-Trichloropropane	5.0		U
103-65-1	n-Propylbenzene	1.0		U
110-57-6	trans-1,4-Dichloro-2-butene	2.0		U
95-49-8	2-Chlorotoluene	1.0		U
106-43-4	4-Chlorotoluene	1.0		U
108-67-8	1,3,5-Trimethylbenzene	1.0		U
98-06-6	tert-Butylbenzene	1.0		U
95-63-6	1,2,4-Trimethylbenzene	1.0		U
135-98-8	sec-Butylbenzene	1.0		U
541-73-1	1,3-Dichlorobenzene	1.0		U
99-87-6	4-Isopropyltoluene	1.0		U

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	MW-13R
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0006**	**Project:**	
Lab File ID:	T4989.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 8:19:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
106-46-7	1,4-Dichlorobenzene	1.0		U
95-50-1	1,2-Dichlorobenzene	1.0		U
104-51-8	n-Butylbenzene	1.0		U
67-72-1	Hexachloroethane	1.0		U
96-12-8	1,2-Dibromo-3-chloropropane	5.0		U
98-95-3	Nitrobenzene	50		U
120-82-1	1,2,4-Trichlorobenzene	1.0		U
87-68-3	Hexachlorobutadiene	1.0		U
91-20-3	Naphthalene	1.0		U
87-61-6	1,2,3-Trichlorobenzene	1.0		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
J = Estimated concentration.
D = Dilution

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	DP-103R
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0007**	**Project:**	
Lab File ID:	T4990.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 8:53:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-71-8	Dichlorodifluoromethane	1.0		U
74-87-3	Chloromethane	5.0		U
75-01-4	Vinyl chloride	5.0		U
74-83-9	Bromomethane	5.0		U
75-00-3	Chloroethane	5.0		U
75-69-4	Trichlorofluoromethane	1.0		U
107-02-8	Acrolein	20		U
76-13-1	Freon 113(1,1,2-Trichlorofluoroethane)	5.0		U
75-35-4	1,1-Dichloroethene	5.0		U
67-64-1	Acetone	10	11	
75-15-0	Carbon disulfide	1.0		U
75-05-8	Acetonitrile	50		U
75-09-2	Methylene chloride	5.0		U
75-65-0	tert-Butyl Alcohol	20		U
156-60-5	trans-1,2-Dichloroethene	5.0		U
1634-04-4	Methyl-tert butyl ether	5.0		U
107-13-1	Acrylonitrile	10		U
75-34-3	1,1-Dichloroethane	1.0		U
108-05-4	Vinyl acetate	2.0		U
594-20-7	2,2-Dichloropropane	1.0		U
156-59-2	cis-1,2-Dichloroethene	5.0	11	
78-93-3	2-Butanone	10		U
74-97-5	Bromochloromethane	5.0		U
109-99-9	Tetrahydrofuran	10		U
67-66-3	Chloroform	1.0		U
71-55-6	1,1,1-Trichloroethane	1.0		U
56-23-5	Carbon tetrachloride	5.0		U
563-58-6	1,1-Dichloropropene	1.0		U
71-43-2	Benzene	1.0		U
107-06-2	1,2-Dichloroethane	1.0		U
79-01-6	Trichloroethene	1.0	3.1	
78-87-5	1,2-Dichloropropane	1.0		U
74-95-3	Dibromomethane	5.0		U

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	DP-103R
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0007**	**Project:**	
Lab File ID:	T4990.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 8:53:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-27-4	Bromodichloromethane	1.0		U
110-75-8	2-Chloroethyl vinyl ether	10		U
10061-01-5	cis-1,3-Dichloropropene	1.0		U
108-10-1	4-Methyl-2-pentanone	2.0		U
108-88-3	Toluene	1.0		U
10061-02-6	trans-1,3-Dichloropropene	1.0		U
79-00-5	1,1,2-Trichloroethane	5.0		U
127-18-4	Tetrachloroethene	1.0		U
142-28-9	1,3-Dichloropropane	1.0		U
591-78-6	2-Hexanone	2.0		U
124-48-1	Dibromochloromethane	1.0		U
106-93-4	1,2-Dibromoethane	1.0		U
108-90-7	Chlorobenzene	1.0		U
630-20-6	1,1,1,2-Tetrachloroethane	1.0		U
100-41-4	Ethylbenzene	1.0		U
179601-23-1	Xylene (para & meta)	2.0		U
95-47-6	Xylene (Ortho)	1.0		U
100-42-5	Styrene	1.0		U
75-25-2	Bromoform	1.0		U
98-82-8	Isopropylbenzene	1.0		U
108-86-1	Bromobenzene	1.0		U
79-34-5	1,1,2,2-Tetrachloroethane	1.0		U
96-18-4	1,2,3-Trichloropropane	5.0		U
103-65-1	n-Propylbenzene	1.0		U
110-57-6	trans-1,4-Dichloro-2-butene	2.0		U
95-49-8	2-Chlorotoluene	1.0		U
106-43-4	4-Chlorotoluene	1.0		U
108-67-8	1,3,5-Trimethylbenzene	1.0		U
98-06-6	tert-Butylbenzene	1.0		U
95-63-6	1,2,4-Trimethylbenzene	1.0		U
135-98-8	sec-Butylbenzene	1.0		U
541-73-1	1,3-Dichlorobenzene	1.0		U
99-87-6	4-Isopropyltoluene	1.0		U

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	DP-103R
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0007**	**Project:**	
Lab File ID:	T4990.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 8:53:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
106-46-7	1,4-Dichlorobenzene	1.0		U
95-50-1	1,2-Dichlorobenzene	1.0		U
104-51-8	n-Butylbenzene	1.0		U
67-72-1	Hexachloroethane	1.0		U
96-12-8	1,2-Dibromo-3-chloropropane	5.0		U
98-95-3	Nitrobenzene	50		U
120-82-1	1,2,4-Trichlorobenzene	1.0		U
87-68-3	Hexachlorobutadiene	1.0		U
91-20-3	Naphthalene	1.0		U
87-61-6	1,2,3-Trichlorobenzene	1.0		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
J = Estimated concentration.
D = Dilution

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	FB
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0008**	**Project:**	
Lab File ID:	T4985.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 6:03:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-71-8	Dichlorodifluoromethane	1.0		U
74-87-3	Chloromethane	5.0		U
75-01-4	Vinyl chloride	5.0		U
74-83-9	Bromomethane	5.0		U
75-00-3	Chloroethane	5.0		U
75-69-4	Trichlorofluoromethane	1.0		U
107-02-8	Acrolein	20		U
76-13-1	Freon 113(1,1,2-Trichlorofluoroethane)	5.0		U
75-35-4	1,1-Dichloroethene	5.0		U
67-64-1	Acetone	10		U
75-15-0	Carbon disulfide	1.0		U
75-05-8	Acetonitrile	50		U
75-09-2	Methylene chloride	5.0		U
75-65-0	tert-Butyl Alcohol	20		U
156-60-5	trans-1,2-Dichloroethene	5.0		U
1634-04-4	Methyl-tert butyl ether	5.0		U
107-13-1	Acrylonitrile	10		U
75-34-3	1,1-Dichloroethane	1.0		U
108-05-4	Vinyl acetate	2.0		U
594-20-7	2,2-Dichloropropane	1.0		U
156-59-2	cis-1,2-Dichloroethene	5.0		U
78-93-3	2-Butanone	10		U
74-97-5	Bromochloromethane	5.0		U
109-99-9	Tetrahydrofuran	10		U
67-66-3	Chloroform	1.0		U
71-55-6	1,1,1-Trichloroethane	1.0		U
56-23-5	Carbon tetrachloride	5.0		U
563-58-6	1,1-Dichloropropene	1.0		U
71-43-2	Benzene	1.0		U
107-06-2	1,2-Dichloroethane	1.0		U
79-01-6	Trichloroethene	1.0		U
78-87-5	1,2-Dichloropropane	1.0		U
74-95-3	Dibromomethane	5.0		U

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	FB
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0008**	**Project:**	
Lab File ID:	T4985.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 6:03:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-27-4	Bromodichloromethane	1.0		U
110-75-8	2-Chloroethyl vinyl ether	10		U
10061-01-5	cis-1,3-Dichloropropene	1.0		U
108-10-1	4-Methyl-2-pentanone	2.0		U
108-88-3	Toluene	1.0		U
10061-02-6	trans-1,3-Dichloropropene	1.0		U
79-00-5	1,1,2-Trichloroethane	5.0		U
127-18-4	Tetrachloroethene	1.0		U
142-28-9	1,3-Dichloropropane	1.0		U
591-78-6	2-Hexanone	2.0		U
124-48-1	Dibromochloromethane	1.0		U
106-93-4	1,2-Dibromoethane	1.0		U
108-90-7	Chlorobenzene	1.0		U
630-20-6	1,1,1,2-Tetrachloroethane	1.0		U
100-41-4	Ethylbenzene	1.0		U
179601-23-1	Xylene (para & meta)	2.0		U
95-47-6	Xylene (Ortho)	1.0		U
100-42-5	Styrene	1.0		U
75-25-2	Bromoform	1.0		U
98-82-8	Isopropylbenzene	1.0		U
108-86-1	Bromobenzene	1.0		U
79-34-5	1,1,2,2-Tetrachloroethane	1.0		U
96-18-4	1,2,3-Trichloropropane	5.0		U
103-65-1	n-Propylbenzene	1.0		U
110-57-6	trans-1,4-Dichloro-2-butene	2.0		U
95-49-8	2-Chlorotoluene	1.0		U
106-43-4	4-Chlorotoluene	1.0		U
108-67-8	1,3,5-Trimethylbenzene	1.0		U
98-06-6	tert-Butylbenzene	1.0		U
95-63-6	1,2,4-Trimethylbenzene	1.0		U
135-98-8	sec-Butylbenzene	1.0		U
541-73-1	1,3-Dichlorobenzene	1.0		U
99-87-6	4-Isopropyltoluene	1.0		U

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	FB
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0008**	**Project:**	
Lab File ID:	T4985.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 6:03:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
106-46-7	1,4-Dichlorobenzene	1.0		U
95-50-1	1,2-Dichlorobenzene	1.0		U
104-51-8	n-Butylbenzene	1.0		U
67-72-1	Hexachloroethane	1.0		U
96-12-8	1,2-Dibromo-3-chloropropane	5.0		U
98-95-3	Nitrobenzene	50		U
120-82-1	1,2,4-Trichlorobenzene	1.0		U
87-68-3	Hexachlorobutadiene	1.0		U
91-20-3	Naphthalene	1.0		U
87-61-6	1,2,3-Trichlorobenzene	1.0		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
J = Estimated concentration.
D = Dilution

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	TB
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0009**	**Project:**	
Lab File ID:	T4984.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 5:29:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-71-8	Dichlorodifluoromethane	1.0		U
74-87-3	Chloromethane	5.0		U
75-01-4	Vinyl chloride	5.0		U
74-83-9	Bromomethane	5.0		U
75-00-3	Chloroethane	5.0		U
75-69-4	Trichlorofluoromethane	1.0		U
107-02-8	Acrolein	20		U
76-13-1	Freon 113(1,1,2-Trichlorofluoroethane)	5.0		U
75-35-4	1,1-Dichloroethene	5.0		U
67-64-1	Acetone	10		U
75-15-0	Carbon disulfide	1.0		U
75-05-8	Acetonitrile	50		U
75-09-2	Methylene chloride	5.0		U
75-65-0	tert-Butyl Alcohol	20		U
156-60-5	trans-1,2-Dichloroethene	5.0		U
1634-04-4	Methyl-tert butyl ether	5.0		U
107-13-1	Acrylonitrile	10		U
75-34-3	1,1-Dichloroethane	1.0		U
108-05-4	Vinyl acetate	2.0		U
594-20-7	2,2-Dichloropropane	1.0		U
156-59-2	cis-1,2-Dichloroethene	5.0		U
78-93-3	2-Butanone	10		U
74-97-5	Bromochloromethane	5.0		U
109-99-9	Tetrahydrofuran	10		U
67-66-3	Chloroform	1.0		U
71-55-6	1,1,1-Trichloroethane	1.0		U
56-23-5	Carbon tetrachloride	5.0		U
563-58-6	1,1-Dichloropropene	1.0		U
71-43-2	Benzene	1.0		U
107-06-2	1,2-Dichloroethane	1.0		U
79-01-6	Trichloroethene	1.0		U
78-87-5	1,2-Dichloropropane	1.0		U
74-95-3	Dibromomethane	5.0		U

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	TB
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0009**	**Project:**	
Lab File ID:	T4984.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 5:29:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
75-27-4	Bromodichloromethane	1.0		U
110-75-8	2-Chloroethyl vinyl ether	10		U
10061-01-5	cis-1,3-Dichloropropene	1.0		U
108-10-1	4-Methyl-2-pentanone	2.0		U
108-88-3	Toluene	1.0		U
10061-02-6	trans-1,3-Dichloropropene	1.0		U
79-00-5	1,1,2-Trichloroethane	5.0		U
127-18-4	Tetrachloroethene	1.0		U
142-28-9	1,3-Dichloropropane	1.0		U
591-78-6	2-Hexanone	2.0		U
124-48-1	Dibromochloromethane	1.0		U
106-93-4	1,2-Dibromoethane	1.0		U
108-90-7	Chlorobenzene	1.0		U
630-20-6	1,1,1,2-Tetrachloroethane	1.0		U
100-41-4	Ethylbenzene	1.0		U
179601-23-1	Xylene (para & meta)	2.0		U
95-47-6	Xylene (Ortho)	1.0		U
100-42-5	Styrene	1.0		U
75-25-2	Bromoform	1.0		U
98-82-8	Isopropylbenzene	1.0		U
108-86-1	Bromobenzene	1.0		U
79-34-5	1,1,2,2-Tetrachloroethane	1.0		U
96-18-4	1,2,3-Trichloropropane	5.0		U
103-65-1	n-Propylbenzene	1.0		U
110-57-6	trans-1,4-Dichloro-2-butene	2.0		U
95-49-8	2-Chlorotoluene	1.0		U
106-43-4	4-Chlorotoluene	1.0		U
108-67-8	1,3,5-Trimethylbenzene	1.0		U
98-06-6	tert-Butylbenzene	1.0		U
95-63-6	1,2,4-Trimethylbenzene	1.0		U
135-98-8	sec-Butylbenzene	1.0		U
541-73-1	1,3-Dichlorobenzene	1.0		U
99-87-6	4-Isopropyltoluene	1.0		U

EMSL Analytical Inc.

VOLATILE ORGANICS ANALYSIS DATA SHEET

		Customer Sample#:	TB
Lab Name:	EMSL ANALYTICAL		
EMSL Sample ID:	**011401866-0009**	**Project:**	
Lab File ID:	T4984.D	**Sample Matrix:**	Waste Water
Instrument ID:	VOA MSD-T	**Sampling Date:**	4/16/2014
Analyst:	WRF	**Analysis Date**	4/25/2014 5:29:00 PM
GC Column:	RTX-VMS (0.25 mm)	**Level (low/med):**	LOW
Sample wt/vol:	5 ML	**Nominal Amount:**	5 ML
Dilution Factor:	1	**Method:**	SW846 8260C
Heated Purge (Y/N):	N		

CAS NO	COMPOUND	Report Limit (µg/L)	CONC. (µg/L)	Q
106-46-7	1,4-Dichlorobenzene	1.0		U
95-50-1	1,2-Dichlorobenzene	1.0		U
104-51-8	n-Butylbenzene	1.0		U
67-72-1	Hexachloroethane	1.0		U
96-12-8	1,2-Dibromo-3-chloropropane	5.0		U
98-95-3	Nitrobenzene	50		U
120-82-1	1,2,4-Trichlorobenzene	1.0		U
87-68-3	Hexachlorobutadiene	1.0		U
91-20-3	Naphthalene	1.0		U
87-61-6	1,2,3-Trichlorobenzene	1.0		U

Qualifier Definitions
U = Undetected
B = Compound detected in method blank
E = Estimated value
J = Estimated concentration.
D = Dilution

ECOCHEM
Data Quality

APPENDIX C
DATA VALIDATION WORKSHEETS

n=5 water

Project No.: C239022	Screener: MTB Date: 5/15/2014
Project Name: Kings/EML	Reviewer: CMF Date: 6.19.14
SDG/Package: 01147018666	

MODULE A: COMPLETENESS AND HOLDING TIME CHECKLIST

MTB 6/17/2014

1.0 Chain-of-Custody

	Y	N	N/A
1.1 Are all Chain-of-Custody (COC) forms included in data package?	✓		
1.2 Were COC forms properly signed and dated?	✓	X	
1.3 Was sample container temperature recorded on COC form (or other appropriate form) by laboratory?	✓		
1.4 Is the recorded temperature within control limits (4°C ±2°C) Temperature(s): _____ _____ 4.0°C	✓		

Comments: The chain-of-custody form was not signed and dated by EMSL for receipt of samples at the laboratory. Completed C-of-C was submitted.

2.0 Completeness Check

p.42

2.1 Is a case narrative present and does it describe analytical problems, discrepancies and corrective actions?	✓		
2.2 Are all required summary forms present (see attached list)?	✓		
2.3 Are data present for all samples listed on COC form?	✓		
2.4 Are all required raw data sections present (see attached list)? (PRELIMINARY CHECK ONLY; detailed review of raw data will be documented on Module B Checklist).	✓		

Comments:

3.0 Holding Times/Preservation (Technical Criteria: ☐CFR40; ☑QAPP; ☐Other _____)

3.1 Were all samples properly preserved?	✓		
3.2 Complete the Holding Time Tables. (Documented in Comments or in worksheets attached to Module B; qualifiers assigned during Module B review)	✓		

Comments:

Completeness and Holding Time Check Complete?

Table	Parameters (✓)	Completed	Location (attached or filename)
Sample Index		Y	
Holding Time Tables (list):			
Volatiles	✓	(Y) / NA	see attached
Semivolatile		Y / NA	
Pest/PCBs		Y / NA	
Metals		Y / NA	
Dioxins/Furans		Y / NA	
Conventionals		Y / NA	
PAH-8270SIM		Y / NA	
Herbicides		Y / NA	
TBT/Krone		Y / NA	
Phthalates-525.2		Y / NA	
Fuels		Y / NA	
Phenols			

☐ See attached.

Client: Environmental Management, Ltd.
Project Name: Kings/EML
Project No. C23902-2

Reviewer: MTB
Date: 5/15/14
SDG: 011401866

HOLDING TIME Evaluation

VOA by 8260C

Sample ID	Lab ID	Sample Type	Matrix	Date Collected	Prep Date	Last Date Analyzed	Holding Time (days)		Qualifier		Dilution Factor
							Prep	analyzed	Prep	Analysis	
MW-6S	011401866-0001	N	W	4/16/2014	4/25/2014	4/25/2014	9	0			
MW-9S	011401866-0002	N	W	4/16/2014	4/25/2014	4/25/2014	9	0			
MW-9S MS	011401866-0003	MS	W	4/16/2014	4/25/2014	4/25/2014	9	0			
MW-9S MSD	011401866-0004	MSD	W	4/16/2014	4/25/2014	4/25/2014	9	0			
MW-9S DUP	011401866-0005	LD	W	4/16/2014	4/25/2014	4/25/2014	9	0			
MW-13R	011401866-0006	N	W	4/16/2014	4/25/2014	4/25/2014	9	0			
DP-103R	011401866-0007	N	W	4/16/2014	4/25/2014	4/25/2014	9	0			
FB	011401866-0008	FB	W	4/16/2014	4/25/2014	4/25/2014	9	0			
TB	011401866-0009	TB	W	4/16/2014	4/25/2014	4/25/2014	9	0			

Hold Time (days)	VOA	
Matrix	Extraction	Analysis
Aqueous (Preserved)	14	40

N=Sample, FD=Field Duplicate, MS=Matrix Spike, MSD=Matrix Spike Duplicate
TB=Trip Blank, RB=Rinse Blank, LD=Lab Duplicate, EB=Equipment Blank
W=Water, SE=Sediment, SE=Sediment, S = Soil, GW=Ground Water

EcoChem, Inc.

Environmental Science and Chemistry

PROJECT NO.: C23902-2 SDG: 0114018G6

SCREENED BY: MTB DATE: 5/15/2014

REVIEWED BY: _____ DATE: _____

DATA PACKAGE COMPLETENESS
VOLATILE ORGANIC COMPOUNDS ANALYSIS

1 = MODULE A + B-1 (No calibration; summary forms only) (Screening or data verification; Stage 1 or 2A)

2 = MODULE A + B1 & B-2 (Sample, QC and calibration results; no raw data) (Summary; Stage 2B; Level III)

(3) = MODULE A + B1 & B-2 + C (Sample and QC results; raw data; trans/calc. Checks) (Full; Stage 4; Level IV)

Deliverable Requirement	Equivalent EPA Form	Required	Present	Comments
Copies of Shipping Documents (Fed-Ex Airbills)		1, 2, 3	no	
Case Narrative		1, 2, 3	yes	
Table of Contents		3	yes	
Cross reference of Field Sample No., Lab Sample No., and Analytical Batch	IV	1, 2, 3	yes	
Chain-of-Custody Form (including Sample Receipt Checklist)		1, 2, 3	↓	
Results Summary for Each Sample and Blank	I	1, 2, 3	↓	
Tentatively Identified Compounds in Each Sample and Blank	I, TIC	3*	N/A	* Not required for all packages
Blank Spike Results		1, 2, 3	yes	
Surrogates Recovery	II	1, 2, 3	↓	
Matrix Spike/Duplicate Matrix Spike Recoveries	III	1, 2, 3	↓	
Instrument Performance Check (Tuning)	V	2, 3	↓	
Initial Calibration Data	VI	2, 3	↓	
Continuing Calibration Data	VII	2, 3	↓	
Internal Standards Areas and Retention Times	VIII	2, 3	↓	
MDL Study		3	N/A	
Reconstructed Ion Chromatograms for Each Sample, Blank, and Standard		3	yes	
Quantitation List		3	↓	
Raw and Background-Subtracted Mass Spectra for Each Reported Target Analyte (not for MS/MSD)		3	↓	
Mass Spectra of TICs with Library Spectra of Three Best-Fit Matches (not for MS/MSD)		3	N/A	
Copies of Sample Preparation Work Sheets		3	yes	
Copies of Run Logs		3	yes	

Project No.: C23902-2	
Project Name: Kings/EML	Reviewer: MTB Date: 5/15/2014
SDG/Package: 0114018666	Secondary: CMF Date: 6.19.14
Laboratory: EMSL Analytical	

NFG-VOC

Parameter/Method: Volatiles 8260C Data Validation Criteria Table: Rev. 8 8/16/2012

MODULE B: TECHNICAL EVALUATION CHECKLIST- ORGANICS

☑ MODULE B-1 (Summaries of sample results; accuracy; precision; blanks)

☑ MODULE B-2 (Summaries of calibration, instrument performance & compound ID)

☑ B-2 Org ☐ B-2 HRMS ☐ B-2 Other _____(name)

Yes Qualifiers Issued. See Sample Summary forms or other: _____

1.0 Technical Holding Times and Sample Handling (B-1)

	Y	N	N/A
1.1 Is Module A Checklist (COC, package completeness, Holding Time Table) complete?	✓		
1.2 Are all holding times within the technical criteria from ☐ CFR40; ☑ QAPP; ☐ Other _____)? ____ no outliers ____ see attached Holding Time worksheet or data package page ____ see below	✓		
1.3 Are all cooler temperatures within the control limits? (temperature outliers listed on HT table) ____ no outliers ____ see attached Holding Time worksheet or data package page ____ see below	✓		

Comments: ____ Data judged as not significantly affected by outliers; no qualifiers assigned

preserved ≤ HCl HT = 14 days from collection

2.0 Surrogates/Labeled Compounds (B-1)

2.1 Are all recovery values within the control limits? ✓ no outliers ____ see attached Surrogate Summary Form or data package page ____ see below	✓		

Comments: ____ No positive results; no qualifiers as all outliers were > UCL (high bias)

____ No qualifiers assigned; one outlier per fraction/column acceptable (if > 10%)

dibromofluoromethane	77-120%
1,2-dichloroethane-d4	58-127%
toluene-d8	68-125%
4-bromofluorobenzene	49-140%

Project No.: C23902-2 SDG: 011401866

3.0 Method/Field Blank (B-1)

	Y	N	N/A
3.1 Are Method Blanks free from contamination? ✓ no outliers ____ see attached Blank Summary Form or data package page ____ see below	✓		
3.2 Are there any trip/equipment/field blanks included in the data package (list below)?	✓		
3.3 Are trip/equipment/field blanks free from contamination? ✓ no outliers ____ see attached Blank Summary Form or data package page ____ see below	✓		

Comments: ____ No positive results in associated samples; no action required for method / trip / equip. / other

____10X action level established for common lab cont.; 5X action level for others

VBLK01 no contaminants
FB (field blank) ↓
TB (trip blank) ↓

4.0 Laboratory Control Sample (Blank Spike/OPR Sample) (B-1) p. 164

4.1 Are all %R-values within the control limits? ____ no outliers ✓ see attached Summary Form or data package page ✓ see below		✓	
4.2 Are all RPD values within control limits (if duplicate analyzed)? ____ no outliers ____ see attached Summary Form or data package page ____ see below			✓

Comments for LCS: ____ No positive results in associated samples; no qualifiers as all outliers were > UCL (high bias)

Chloromethane	124%	46-124%	OK
Carbon disulfide	139%	64-136%	J-10H → No positive results
tetrachloroethene	118%	83-117%	J-10H Sample MW-6S, only ✓

5.0 Performance Evaluation (PE)/Standard Reference Material (SRM) (B-1)

PE/SRM Sample ID(s):

5.1 Was PE/SRM sample(s) analyzed?		✓	
5.2 Are all values within control limits? ____ no outliers ____ see below			✓

Comments: ____ No qualifiers assigned based on PE/SRM outliers

Project No.: C23902-2 SDG: 011401866

6.0 Matrix Spike/Matrix Spike Duplicate or Sample and Lab Duplicate (B-1)

Parent Sample ID: MW-9S p. 169

	Y	N	N/A
6.1 Are all %R-values within the control limits? ____ no outliers ✓ see attached MS/MSD Summary Form or data package page ____ see below		✓	
6.2 Are all RPD values within control limits? ____ no outliers ✓ see attached MS/MSD Summary Form or data package page ____ see below		✓	

Comments: ____ No positive results in parent sample; no qualifiers as all outliers were > UCL (high bias)

Lab Lab

7.0 Field Duplicate (B-1) Field Duplicate Sample ID(s): MW-9S & MW-9S DUP

	Y	N	N/A
7.1 Were field duplicates collected and analyzed?	✓		
7.2 Are all RPD values within control limits? ✓ lab ____ no outliers ____ see attached Field Dup. Summary Form or data package page ____ see below	✓		

Comments: ____ No qualifiers assigned based on field duplicate outliers

No positive results were reported in the parent sample or duplicate sample. Laboratory precision was acceptable.

8.0 Sample Results (B-1)

8.1 Are there results for all analytes on the client required target compound list(s) **see SAP/QAPP for lists.**			
8.2a Were TIC requested for this project?		✓	
8.2b If "yes", were TIC reported as required?			✓
8.3 Are reporting limits and sample results adjusted for sample size, % moisture (solid samples), etc.?			
8.4 Are concentrations reported on the appropriate basis? _____Dry weight ✓ Wet weight			
8.5 Do detection limits meet project-specific or method-specific limits?			

Comments: _____Qualify TIC "NJ" unless already qualified "U" due to blank contamination

All aqueous samples were preserved with hydrochloric acid. No unpreserved samples were collected. The target analyte list included 2-chloroethyl vinyl ether. No positive results for 2-chloroethyl vinyl ether were reported in the field samples, field blank, or trip blank. All detection limits for 2-chloroethyl vinyl ether were rejected (R-1), as per EcoChem TM-11. ✓

General Notes and Information:

Project No.: C23902-2 SDG: 0114O1866

MODULE: B-2-Org (calibration, instrument performance & compound identification)

9.0 Internal Standards (B-2) p. 168

	Y	N	N/A
9.1 Are all internal standard values within the control limits? ✓ no outliers ____ see attached Int. Std. Summary Form or data package page ____ see below	✓		

Comments:

10.0 Initial Calibration (B-2) p. 112

10.1 Are ICALs analyzed on all instruments on which samples are analyzed?	✓		
10.2 Are response factors / calibration factors stable (≤30 %RSD 0.995 correlation coefficients ____ other)? ____ no outliers ____ see attached ICAL Summary Form or data package page ____ see below		✓	
10.3 Are response factors greater than the required minimum control limit? >0.05		✓	

Comments: ____ No positive results assoc. w/ outliers; RL judged as not affected – no qualifiers assigned

____ RF historically low; no qualifiers assigned since response is stable

Reported from Quadratic Regression

4/23/2014 ICAL on VOA MSD-T

	r^2
Vinyl chloride	0.999
Trichlorofluoromethane	0.999
Acetone	0.998
Bromochloromethane	1.000
Carbon tetrachloride	1.000
1,2,3-Trichloropropane	0.999

%RSD values >20%

tert-butyl alcohol RRF 0.028057 UJ-R-5A ✓ MTB 6/18/14

11.0 Continuing Calibration (B-2)

11.1 Are CCALs analyzed at the proper frequency? ✓ no outliers ____ see attached CCAL Summary Form or data package page ____ see below	✓		
11.2 Are CCALs acceptable (±25 %D ____ %R ____ other)? ____ no outliers ____ see attached CCAL Summary Form or data package page ✓ see below		✓	
11.3 Are response factors greater than the required minimum control limit? >0.05 ____ no outliers ____ see attached CCAL Summary Form or data package page ✓ see below		✓	

Comments: ____ No positive results assoc. w/ outliers; RL judged as not affected – no qualifiers assigned

____ RF historically low; no qualifiers assigned since response is stable

4/25/14 3:47 raw data p. 165

Dichlorodifluoromethane		28.7%D	J(+)-5B	No positive results - No quals.
Acrolein	RRF	0.04850	UJ-5B ✓	
Acetonitrile	RRF	0.04960	UJ-5B ✓	
tert Butyl alcohol	RRF	0.02810	UJ-5B ✓	

Project No.: C23902-2 SDG: 011401866

12.0 Instrument Tune (B-2)

	Y	N	N/A
12.1 Were instruments tuned at the required frequency?	✓		
12.2 Are all instrument tune criteria within the required control limits? ✓ no outliers ____ see attached data package page ____ see below	✓		

Comments: 4/23/2014 4:14
4/25/2014 3:15

13.0 Breakdown (Pesticides only) (B-2)

13.1 Are breakdown products less than the required control limit (if applicable)? ____ no outliers ____ see attached Breakdown Summary Form or data package page ____ see below			✓
13.2 Are breakdown check standards analyzed at the proper frequency?			✓

Comments: ____ No positive results assoc. w/ outliers; RL judged as not affected – no qualifiers assigned

See Summary Forms (attached) for other outliers and qualifiers.

General Notes and Information:

Client: Environmental Management, Ltd. **Reviewer:** MTB
Project Name: Kings/EML **Date:** 5/15/14
Project No. C23902-2 **SDG:** 011401866

FIELD DUPLICATE Or LAB DUPLICATE RECALCULATION CHECK

VOA by 8260C

RPD Control Limit: 30% **Calculated Difference Control Limit:** 1

Analyte	Sample Results			Duplicate Results			Calculated RPD	Calculated Difference**	Suggested Qualifier
	ClientID	MW-9S		ClientID	MW-9S DUP				
	LabID	011401866-0002		LabID	011401866-0005				
	Result	RL	Flag	Result	RL	Flag			
No positive results								0.000	
in parent sample or								0.000	
duplicate sample								0.000	

Flags: B = Analyte was detected in the method blank.
J = Estimated concentration less than the reporting limit.
U = Not detected at the stated concentration.

** Calculated Difference:
The RPD > CL and the result for either the parent or the duplicate are <5 X RL
If the above statement is true and either the parent or result is zero (in the EDD); then **MDL** value is subtracted from the result and the resulting value is used for evaluation.

Internal Standard Recalculation Spreadsheet

Recalculation Setup

Project Information:

Client:	Environmental Management, Ltd.
Project Name:	Kings/EML
Project No.:	C23902-2
Reviewer:	MTB
Date:	5/15/14
SDG:	011401866

Analysis:	VOA
Method:	8260C
Matrix:	Aqueous (Preserved)
Reported Units:	ug/L
On Column Units:	mg/L

Duplicate Control Limits:

RPD:	30.00%
Difference:	1

Holding Time

Prep (days):	14
Analysis (days):	40

EMSL Analytical Inc.

WATER VOLATILE LCS/QCS/ LFB RECOVERY

Lab Name: EMSL ANALYTICAL **Original File ID:** VSTD050 T4983.D/T4981.D

*** : Values outside of QC**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED	LCS CONC.	LCS REC%
1	Dichlorodifluoromethane	75-71-8	48	152	54.000	64.340	119
2	Chloromethane	74-87-3	46	124	49.000	60.990	124 *
3	Vinyl chloride	75-01-4	78	122	52.000	50.210	97
4	Bromomethane	74-83-9	50	150	53.000	41.930	79
5	Chloroethane	75-00-3	61	139	52.000	56.650	109
6	Trichlorofluoromethane	75-69-4	79	121	52.000	56.650	109
7	Acrolein	107-02-8	69	131	208.00	186.67	90
8	1,1-Dichloroethene	75-35-4	64	136	52.000	59.160	114
9	Acetone	67-64-1	15	185	81.000	92.110	114
10	Carbon disulfide	75-15-0	64	136	51.000	70.910	139 *
11	Acetonitrile	75-05-8	77	123	490.00	429.35	88
12	Methylene chloride	75-09-2	64	136	49.000	56.320	115
13	tert-Butyl Alcohol	75-65-0	61	139	102.00	100.24	98
14	trans-1,2-Dichloroethene	156-60-5	74	126	51.000	58.320	114
15	Methyl-tert butyl ether	1634-04-4	84	116	48.000	51.720	108
16	Acrylonitrile	107-13-1	80	120	100.00	97.970	98
17	1,1-Dichloroethane	75-34-3	86	114	51.000	51.070	100
18	Vinyl acetate	108-05-4	90	110	97.000	91.230	94
19	2,2-Dichloropropane	594-20-7	83	117	52.000	53.040	102
20	cis-1,2-Dichloroethene	156-59-2	85	115	52.000	56.310	108
21	2-Butanone	78-93-3	76	124	96.000	86.850	90
22	Bromochloromethane	74-97-5	74	126	48.000	52.820	110
23	Chloroform	67-66-3	87	113	50.000	52.210	104
24	1,1,1-Trichloroethane	71-55-6	82	118	49.000	53.180	109
25	Carbon tetrachloride	56-23-5	80	120	50.000	53.100	106
26	1,1-Dichloropropene	563-58-6	78	122	49.000	53.160	108
27	Benzene	71-43-2	85	115	48.000	49.820	104
28	1,2-Dichloroethane	107-06-2	80	120	50.000	51.360	103
29	Trichloroethene	79-01-6	83	117	48.000	53.800	112
30	1,2-Dichloropropane	78-87-5	87	113	49.000	46.060	94
31	Dibromomethane	74-95-3	84	116	50.000	53.170	106
32	Bromodichloromethane	75-27-4	84	116	49.000	51.870	106
33	2-Chloroethyl vinyl ether	110-75-8	35	165	99.000	98.200	99
34	cis-1,3-Dichloropropene	10061-01-5	92	108	48.000	49.250	103
35	4-Methyl-2-pentanone	108-10-1	82	118	98.000	91.370	93
36	Toluene	108-88-3	82	118	48.000	51.950	108
37	trans-1,3-Dichloropropene	10061-02-6	82	118	49.000	48.760	100
38	1,1,2-Trichloroethane	79-00-5	88	112	49.000	49.390	101
39	Tetrachloroethene	127-18-4	83	117	50.000	58.800	118 *

OK No qualifier

J(+)-10H no hits/noquals

J(+)-10H ✓

EMSL Analytical Inc.

WATER VOLATILE LCS/QCS/ LFB RECOVERY

Lab Name: EMSL ANALYTICAL **Original** VSTD050
File ID: T4983.D/T4981.D

*** : Values outside of QC**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	SPIKE ADDED	LCS CONC.	LCS REC%
40	1,3-Dichloropropane	142-28-9	81	119	48.000	48.910	102
41	2-Hexanone	591-78-6	73	127	97.000	89.150	92
42	Dibromochloromethane	124-48-1	80	120	49.000	54.810	112
43	1,2-Dibromoethane	106-93-4	78	122	48.000	53.300	111
44	Chlorobenzene	108-90-7	86	114	49.000	49.890	102
45	1,1,1,2-Tetrachloroethane	630-20-6	80	120	49.000	51.200	104
46	Ethylbenzene	100-41-4	90	110	49.000	47.460	97
47	Xylene (para & meta)	179601-23-	88	112	98.000	99.680	102
48	Xylene (Ortho)	95-47-6	84	116	47.000	50.400	107
49	Styrene	100-42-5	86	114	49.000	49.620	101
50	Bromoform	75-25-2	87	113	49.000	50.990	104
51	Isopropylbenzene	98-82-8	84	116	49.000	48.130	98
52	Bromobenzene	108-86-1	77	123	47.000	52.430	112
53	1,1,2,2-Tetrachloroethane	79-34-5	83	117	47.000	45.560	97
54	1,2,3-Trichloropropane	96-18-4	82	118	48.000	49.870	104
55	n-Propylbenzene	103-65-1	88	112	49.000	48.030	98
56	trans-1,4-Dichloro-2-buten	110-57-6	86	114	51.000	46.020	90
57	2-Chlorotoluene	95-49-8	87	113	49.000	48.120	98
58	4-Chlorotoluene	106-43-4	85	115	49.000	47.150	96
59	1,3,5-Trimethylbenzene	108-67-8	89	111	49.000	48.690	99
60	tert-Butylbenzene	98-06-6	86	114	47.000	49.400	105
61	1,2,4-Trimethylbenzene	95-63-6	82	118	49.000	49.310	101
62	sec-Butylbenzene	135-98-8	90	110	49.000	48.320	99
63	1,3-Dichlorobenzene	541-73-1	87	113	48.000	53.010	110
64	4-Isopropyltoluene	99-87-6	89	111	49.000	49.120	100
65	1,4-Dichlorobenzene	106-46-7	80	120	49.000	52.370	107
66	1,2-Dichlorobenzene	95-50-1	76	124	48.000	50.490	105
67	n-Butylbenzene	104-51-8	85	115	51.000	45.870	90
68	Hexachloroethane	67-72-1	71	129	50.000	48.600	97
69	1,2-Dibromo-3-chloroprop	96-12-8	84	116	50.000	47.500	95
70	Nitrobenzene	98-95-3	71	129	475.00	472.13	99
71	1,2,4-Trichlorobenzene	120-82-1	75	125	49.000	55.190	113
72	Hexachlorobutadiene	87-68-3	78	122	50.000	51.370	103
73	Naphthalene	91-20-3	77	123	48.000	52.330	109
74	1,2,3-Trichlorobenzene	87-61-6	76	124	48.000	53.540	112
75	Methyl Acetate	79-20-9	73	127	102.00	81.890	80
				Total Out			3 of 75

2

EMSL Analytical Inc.

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Parent Sample MW-9S

Lab Name: EMSL ANALYTICAL **Original** 401866-3MS
File ID: T4987.D/T4991.D/T4992.D

*** : Values outside of QC**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	RPD LIMIT	SAMPLE CONC.	MS SPIKE ADDED	MS CONC.	MS REC%	MSD SPIKE ADDED	MSD CONC.	MSD REC%	RPD %	
1	Dichlorodifluoromethane	75-71-8	63	120	20	0.0000	54.000	56.870	105	54.000	57.520	107	1	
2	Chloromethane	74-87-3	66	127	20	0.0000	49.000	49.440	101	49.000	50.790	104	3	
3	Vinyl chloride	75-01-4	74	122	20	0.0000	52.000	28.120	54 *	52.000	30.580	59 *	8	UJ-8L ✓
4	Bromomethane	74-83-9	69	133	20	0.0000	53.000	37.610	71	53.000	41.430	78	10	
5	Chloroethane	75-00-3	66	151	20	0.0000	52.000	54.200	104	52.000	54.130	104	0	
6	Trichlorofluoromethane	75-69-4	74	123	20	0.0000	52.000	54.000	104	52.000	55.990	108	4	
7	Acrolein	107-02-8	69	156	20	0.0000	208.00	180.71	87	208.00	206.65	99	13	
8	1,1-Dichloroethene	75-35-4	81	122	14	0.0000	52.000	57.170	110	52.000	59.130	114	3	
9	Acetone	67-64-1	50	113	20	0.0000	81.000	79.210	98	81.000	87.100	108	9	
10	Carbon disulfide	75-15-0	60	126	20	0.0000	51.000	67.090	132 *	51.000	70.610	138 *	5	● no qual
11	Acetonitrile	75-05-8	80	120	20	0.0000	500.00	368.02	74 *	500.00	385.76	77 *	5	UJ-8L ✓
12	Methylene chloride	75-09-2	77	114	20	0.0000	49.000	52.190	107	49.000	54.710	112	5	
13	tert-Butyl Alcohol	75-65-0	74	132	20	0.0000	102.00	90.350	89	102.00	100.52	99	11	
14	trans-1,2-Dichloroethene	156-60-5	80	119	20	0.0000	51.000	57.830	113	51.000	58.090	114	0	
15	Methyl-tert butyl ether	1634-04-4	81	122	20	0.0000	48.000	50.970	106	48.000	56.630	118	11	
16	Acrylonitrile	107-13-1	82	124	20	0.0000	100.00	90.330	90	100.00	93.480	93	3	
17	1,1-Dichloroethane	75-34-3	85	120	20	0.0000	51.000	50.170	98	51.000	52.010	102	4	
18	Vinyl acetate	108-05-4	71	161	20	0.0000	97.000	80.130	83	97.000	83.100	86	4	
19	2,2-Dichloropropane	594-20-7	83	124	20	0.0000	52.000	53.440	103	52.000	54.630	105	2	
20	cis-1,2-Dichloroethene	156-59-2	85	119	20	0.0000	52.000	55.530	107	52.000	57.340	110	3	
21	2-Butanone	78-93-3	52	128	20	0.0000	96.000	75.690	79	96.000	81.810	85	8	
22	Bromochloromethane	74-97-5	81	119	20	0.0000	48.000	54.210	113	48.000	57.360	120 *	6	* no qual
23	Chloroform	67-66-3	86	119	20	0.0000	50.000	51.870	104	50.000	54.750	110	5	
24	1,1,1-Trichloroethane	71-55-6	86	120	20	0.0000	49.000	55.240	113	49.000	57.890	118	5	
25	Carbon tetrachloride	56-23-5	86	125	20	0.0000	50.000	62.720	125 *	50.000	64.740	129 *	3	● no qual
26	1,1-Dichloropropene	563-58-6	82	121	20	0.0000	49.000	50.900	104	49.000	52.990	108	4	

● high bias – no positive result in parent sample → No qualifiers were required

* No qualifier applied for single outliers

EMSL Analytical Inc.

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EMSL ANALYTICAL **Original** 401866-3MS

File ID: T4987.D/T4991.D/T4992.D

*** : Values outside of QC**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	RPD LIMIT	SAMPLE CONC.	MS SPIKE ADDED	MS CONC.	MS REC%	MSD SPIKE ADDED	MSD CONC.	MSD REC%	RPD %
27	Benzene	71-43-2	82	117	11	0.0000	48.000	46.280	96	48.000	48.260	101	4
28	1,2-Dichloroethane	107-06-2	84	121	20	0.0000	50.000	55.100	110	50.000	58.580	117	6
29	Trichloroethene	79-01-6	85	118	14	0.0000	48.000	52.090	109	48.000	53.120	111	2
30	1,2-Dichloropropane	78-87-5	86	121	20	0.0000	49.000	44.560	91	49.000	44.990	92	1
31	Dibromomethane	74-95-3	86	118	20	0.0000	50.000	53.930	108	50.000	58.210	116	8
32	Bromodichloromethane	75-27-4	90	123	20	0.0000	49.000	52.210	107	49.000	58.100	119	11
33	2-Chloroethyl vinyl ether	110-75-8	87	124	20	0.0000	99.000	0.0000	0 *	99.000	0.0000	0 *	0
34	cis-1,3-Dichloropropene	10061-01-5	88	125	20	0.0000	48.000	43.430	90	48.000	49.670	103	13
35	4-Methyl-2-pentanone	108-10-1	71	128	20	0.0000	98.000	81.790	83	98.000	85.440	87	4
36	Toluene	108-88-3	74	116	13	0.0000	48.000	48.170	100	48.000	50.790	106	5
37	trans-1,3-Dichloropropene	10061-02-6	71	127	20	0.0000	49.000	47.700	97	49.000	53.300	109	11
38	1,1,2-Trichloroethane	79-00-5	72	121	14	0.0000	49.000	45.280	92	49.000	51.100	104	12
39	Tetrachloroethene	127-18-4	66	119	20	0.0000	50.000	56.150	112	50.000	57.780	116	3
40	1,3-Dichloropropane	142-28-9	67	120	20	0.0000	48.000	45.600	95	48.000	51.550	107	12
41	2-Hexanone	591-78-6	77	127	20	0.0000	97.000	80.080	83	97.000	87.320	90	9
42	Dibromochloromethane	124-48-1	74	128	20	0.0000	49.000	53.840	110	49.000	61.400	125	13
43	1,2-Dibromoethane	106-93-4	62	121	20	0.0000	48.000	51.660	108	48.000	59.340	124 *	14
44	Chlorobenzene	108-90-7	72	120	13	0.0000	49.000	48.420	99	49.000	45.690	93	6
45	1,1,1,2-Tetrachloroethane	630-20-6	77	125	20	0.0000	49.000	53.540	109	49.000	53.370	109	0
46	Ethylbenzene	100-41-4	77	121	20	0.0000	49.000	46.670	95	49.000	45.420	93	3
47	Xylene (para & meta)	179601-23-	73	127	20	0.0000	98.000	95.890	98	98.000	90.510	92	6
48	Xylene (Ortho)	95-47-6	79	126	20	0.0000	47.000	50.410	107	47.000	47.340	101	6
49	Styrene	100-42-5	74	132	20	0.0000	49.000	45.220	92	49.000	43.400	89	4
50	Bromoform	75-25-2	71	131	20	0.0000	49.000	50.430	103	49.000	53.940	110	7
51	Isopropylbenzene	98-82-8	72	121	20	0.0000	49.000	47.750	97	49.000	46.750	95	2
52	Bromobenzene	108-86-1	73	122	20	0.0000	47.000	53.460	114	47.000	52.370	111	2

R-8L ✓

* noqual

Printed: 06/04/14 10:32:56 AM FORM III VOA_1 2 of

SampleList: 042514T8

ERM: K:\EMSL_ENV\ERMs\VOAERMS\8260ERMS\AQQA2014.erm

* No qualifier applied for single outlier

EMSL Analytical Inc.

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EMSL ANALYTICAL **Original** 401866-3MS
File ID: T4987.D/T4991.D/T4992.D

*** : Values outside of QC**

	COMPOUND	CAS NO	LOW LIMIT	HIGH LIMIT	RPD LIMIT	SAMPLE CONC.	MS SPIKE ADDED	MS CONC.	MS REC%	MSD SPIKE ADDED	MSD CONC.	MSD REC%	RPD %
53	1,1,2,2-Tetrachloroethane	79-34-5	77	123	20	0.0000	47.000	44.900	96	47.000	45.720	97	2
54	1,2,3-Trichloropropane	96-18-4	75	128	20	0.0000	48.000	51.960	108	48.000	53.630	112	3
55	n-Propylbenzene	103-65-1	77	127	20	0.0000	49.000	45.390	93	49.000	43.740	89	4
56	trans-1,4-Dichloro-2-buten	110-57-6	71	135	20	0.0000	51.000	43.980	86	51.000	46.090	90	5
57	2-Chlorotoluene	95-49-8	63	124	20	0.0000	49.000	46.040	94	49.000	44.400	91	4
58	4-Chlorotoluene	106-43-4	61	126	20	0.0000	49.000	46.640	95	49.000	44.120	90	6
59	1,3,5-Trimethylbenzene	108-67-8	68	128	20	0.0000	49.000	48.960	100	49.000	45.550	93	7
60	tert-Butylbenzene	98-06-6	66	119	20	0.0000	47.000	47.540	101	47.000	46.930	100	1
61	1,2,4-Trimethylbenzene	95-63-6	68	128	20	0.0000	49.000	48.500	99	49.000	45.520	93	6
62	sec-Butylbenzene	135-98-8	68	128	20	0.0000	49.000	46.920	96	49.000	45.360	93	3
63	1,3-Dichlorobenzene	541-73-1	60	127	20	0.0000	48.000	50.130	104	48.000	49.850	104	1
64	4-Isopropyltoluene	99-87-6	64	131	20	0.0000	49.000	46.670	95	49.000	45.360	93	3
65	1,4-Dichlorobenzene	106-46-7	60	126	20	0.0000	49.000	51.250	105	49.000	50.490	103	1
66	1,2-Dichlorobenzene	95-50-1	66	119	20	0.0000	48.000	50.270	105	48.000	49.860	104	1
67	n-Butylbenzene	104-51-8	60	128	20	0.0000	51.000	41.230	81	51.000	42.100	83	2
68	Hexachloroethane	67-72-1	66	136	20	0.0000	50.000	56.300	113	50.000	56.940	114	1
69	1,2-Dibromo-3-chloroprop	96-12-8	68	137	20	0.0000	50.000	47.840	96	50.000	50.840	102	6
70	Nitrobenzene	98-95-3	80	120	20	0.0000	475.00	463.08	97	475.00	514.80	108	11
71	1,2,4-Trichlorobenzene	120-82-1	65	126	20	0.0000	49.000	49.770	102	49.000	51.330	105	3
72	Hexachlorobutadiene	87-68-3	66	127	20	0.0000	50.000	51.030	102	50.000	52.280	105	2
73	Naphthalene	91-20-3	67	121	20	0.0000	48.000	51.940	108	48.000	54.650	114	5
74	1,2,3-Trichlorobenzene	87-61-6	67	122	20	0.0000	48.000	51.430	107	48.000	53.530	112	4
75	Methyl Acetate	79-20-9	74	126	20	0.0000	102.00	70.720	69 *	102.00	70.140	69 *	1
				Total Out					6 of 75			8 of 75	0 of 75

UJ-8L NTC

Project No.: C23902-2	Reviewer: MTB Date: 6/17/2014
SDG/Package: 01140186	Secondary: CMF Date: 6.19.14
Parameter/Method: VOC / 8260C	Equation List: ____ Attached
Laboratory: EMSL	✓ See Calculation Worksheets

MODULE C: CALCULATION AND TRANSCRIPTION CHECKLIST

(As per project specific requirements and/or ***Summary of Recalculation Requirements***)

	Chromatograms Checked (✓/ NA / *) * see comments	Calculations Attached (✓/ NA)	Transcriptions		
			OK (✓)	See Below (✓)	NA (✓)
Tunes	✓	N/A	✓		
Initial calibration # points for curve? 6 ☑ checked averaging formula	✓	✓	✓		
Continuing Calibration	✓	✓	✓		
Blanks (method & instrument)	✓	N/A	✓		
Samples	✓	✓	✓		
Surrogates	✓	✓	✓		
LCS or OPR	✓	✓	✓		
MS/MSD or Matrix Spike	✓	✓	✓		
Laboratory Duplicate	✓	✓	✓		
Internal Standards	✓	N/A	✓		
Serial Dilutions	N/A	N/A	N/A		
Other:					

Comments: (attach additional page if needed)

Client: Environmental Management, Ltd.
Project Name: Kings/EML
Project No. C23902-2

Reviewer: MTB
Date: 6/17/14
SDG: 011401866

INITIAL CALIBRATION CALCULATION CHECK

VOA by 8260C

Instrument Information:		Internal standard (IS)	IS conc.	units	Analytes
Instrument name:	VOA MSD-T	*fluorobenzene*	50	ug/L	cyclohexane
Calibration Date:	4/23/2014	*fluorobenzene*	50	ug/L	chloroform
Calibration ID:		*fluorobenzene*	50	ug/L	benzene
				ug/L	
				ug/L	

Analytes	Conc Analyte	Analyte Area	IS Area	Reported RF	Reported %RSD	Calc. RF	Calc. %RSD
fluorobenzene							
cyclohexane	1	4,598	469,679	**0.489**		0.4895	
	5	26,023	483,182	**0.539**		0.5386	
	20	105,443	515,245	**0.512**		0.5116	
	10	54,343	485,867	**0.559**		0.5592	
	100	426,388	455,004	**0.469**		0.4686	
	200	742,912	439,295	**0.423**		0.4228	
Average RRF				***0.491***	**10.07%**	**0.4984**	**9.90%**
fluorobenzene							
chloroform	1	4,627	469,679	**0.493**		0.4926	
	5	24,493	483,182	**0.507**		0.5069	
	20	107,558	515,245	**0.522**		0.5219	
	10	51,188	485,867	**0.527**		0.5268	
	100	445,491	455,004	**0.490**		0.4895	
	200	781,994	439,295	**0.445**		0.4450	
Average RRF				***0.494***	**5.93%**	**0.4971**	**5.95%**
fluorobenzene							
benzene	1	9,333	469,679	**0.994**		0.9936	
	5	46,141	483,182	**0.955**		0.9549	
	20	191,329	515,245	**0.928**		0.9283	
	10	95,563	485,867	**0.983**		0.9834	
	100	796,988	455,004	**0.876**		0.8758	
	200	1,336,351	439,295	**0.761**		0.7605	
Average RRF				***0.900***	**9.48%**	**0.9161**	**9.52%**

RF=([Area Analyte] x[Concentration IS]) / ([Area IS] x [Concentration Analyte])
%RSD = [Std Deviation of RFs] / [Average RRF]*100

Client: Environmental Management, Ltd. **Reviewer:** MTB
Project Name: Kings/EML **Date:** 6/17/14
Project No. C23902-2 **SDG:** 011401866

CONTINUING CALIBRATION CALCULATION CHECK

VOA by 8260C

CCV Date: *4/25/2014* **Time:** 3:47 PM **Inst ID:** VOA MSD-T **ICAL ID:** T4981.D

Analyte	Area Analyte	Area IS	CCV Conc.	Average RF from ICAL	Reported CCV RF	Reported %D	Calc RF from CCV	Calc %D
cyclohexane (IS=fluorobenzene)	198,119	396,701	50	0.4984	*0.499*	*-1.60%*	**0.499**	**0.21%**
chloroform (IS=fluorobenzene)	204,519	396,701	50	0.4971	*0.516*	*-4.50%*	**0.516**	**3.71%**
benzene (IS=fluorobenzene)	355,634	396,701	50	0.9161	*0.896*	*0.40%*	**0.896**	**-2.14%**

CCV RF = ([Area of Compound] x [IS Concentration]) / [Area of IS] x [CCAL Concentration]
%D = [Average RF]-[Calc RF]) / ([Ave RF])

Client: Environmental Management, Ltd.
Project Name: Kings/EML
Project No. C23902-2

Reviewer: MTB
Date: 6/17/14
SDG: 011401866

MATRIX SPIKE / MATRIX SPIKE DUPLICATE ANALYSES RECALCULATION CHECK

VOA by 8260C

Parent SampleID:	MW-9S

Compound	MS Spike Added (ug/L)	MSD Spike Added (ug/L)	Amount Found in Parent Sample	MS Reported Amount	MSD Reported Amount	Reported MS % Recovery	Reported MSD % Recovery	Reported RPD (%)	Calculated MS % Recovery	Calculated MSD % Recovery	Calculated RPD
vinyl chloride	52	52	0	28.12	30.58	*54%*	*59%*	*8.0%*	54.1%	58.8%	8.38%
chloroform	50	50	0	51.87	54.75	*104%*	*110%*	*5.0%*	103.7%	109.5%	5.40%
benzene	48	48	0	46.28	48.06	*96%*	*101%*	*4.0%*	96.4%	100.1%	3.77%

MS Calc. Recovery = [Calc.Amt]-[Amt in Parent] * (100) /[Spike Added]
Calc.RPD = (100) * [MS Amt] - [MSD Amt]| / [MS Amt] + [MSD Amt] /2)

LABORATORY CONTROL SAMPLE RECALCULATION CHECK

VOA by 8260C
LCS

LCS LabID:	T4981.D			
Analyte	LCS Spike Added (ug/L)	LCS Reported Amount	LCS Reported % Recovery	Calculated % Recovery
vinyl chloride	52	50.21	*97%*	96.6%
chloroform	50	52.21	*104%*	104.4%
benzene	48	49.82	*104%*	103.8%

LCS Calc. Recovery = [Calc.Amt] * (100) / [Spike Added]

Client: Environmental Management, Ltd. **Reviewer:** MTB
Project Name: Kings/EML **Date:** 6/17/14
Project No. C23902-2 **SDG:** 011401866

LIQUID

SAMPLE & SURROGATE RECALCULATION CHECK

VOA by 8260C

Sample ID	MW-6S
Client ID	011401866-0001
Initial Volume (ml)	5
Final Volume (ml)	5
Dilution Factor	1

Analyte	Area of Analyte	Area of IS	ICAL RRF	IS Conc	Reported On Column (ug/L)	Reported Conc (ug/L)	Calc On Column (ug/L)	Calc. Conc (ug/L)	Surr. Spike	Reported % R	Calc. % R
Manul entry											
1,1,1-Trichloroethane	7,196	366,245	0.4340	50	*2.26*	*2.3*	**2.264**	**2.264**			
Trichloroethene	60,836	366,245	0.2760	50	*30.1*	*30*	**30.092**	**30.092**			
Tetrachloroethene	12,096	366,245	0.3230	50	*5.11*	*5.1*	**5.113**	**5.113**			
Surrogates											
Dibromofluoromethane	*126,737*	*366,245*	*0.3650*	*50*	*47.39*	*47.39*		*47.40*	*50*	*95%*	*94.81%*
1,2-Dichloroehane-d4	*98,406*	*366,245*	*0.333*	*50*	*40.38*	*40.38*		*40.34*	*50*	*81%*	*80.69%*
Toluene-d8	*330,458*	*366,245*	*0.891*	*50*	*50.65*	*50.65*		*50.63*	*50*	*101%*	*101.27%*
4-Bromofluorobenzene	*128,090*	*307,242*	*0.481*	*50*	*43.35*	*43.35*		*43.34*	*50*	*87%*	*86.67%*

Water Conc. = ([Area Analyte] x [IS Conc]) / ([Area IS] x [ICAL RRF]) x ([Final Vol]/[Initial Volume])x [Dilution Factor]

Surrogates: Calculated %Rec = [Calc. Conc.] / [Spike Conc.] Reported conc. is the 'final' conc. From quantitation page.

Surrogate Conc =([Area Analyte] x [IS Conc])/([Area IS] X [ICAL RRF])

raw data
p. 52

Client: Environmental Management, Ltd. **Reviewer:** MTB
Project Name: Kings/EML **Date:** 6/17/14
Project No. C23902-2 **SDG:** 011401866

LIQUID

SAMPLE & SURROGATE RECALCULATION CHECK

VOA by 8260C

Sample ID	DP-103R
Client ID	011401866-0007
Initial Volume (ml)	5
Final Volume (ml)	5
Dilution Factor	1

Analyte	Area of Analyte	Area of IS	ICAL RRF	IS Conc	Reported On Column (ug/L)	Reported Conc (ug/L)	Calc On Column (ug/L)	Calc. Conc (ug/L)	Surr. Spike	Reported % R	Calc. % R
Manul entry											
cis-1,2-Dichloroethene	21,414	349,373	0.2840	50	*10.79*	*11*	**10.791**	**10.791**			
Trichloroethene	6,035	349,373	0.2760	50	*3.13*	*3.1*	**3.129**	**3.129**			
Surrogates											
Dibromofluoromethane	*134,834*	*349,373*	*0.3650*	*50*	*52.85*	*52.85*		*52.87*	*50*	*106%*	*105.73%*
1,2-Dichloroehane-d4	*122,909*	*349,373*	*0.333*	*50*	*52.88*	*52.88*		*52.82*	*50*	*106%*	*105.65%*
Toluene-d8	*308,163*	*349,373*	*0.891*	*50*	*49.51*	*49.51*		*49.50*	*50*	*99%*	*99.00%*
4-Bromofluorobenzene	*130,171*	*300,940*	*0.481*	*50*	*44.97*	*44.97*		*44.96*	*50*	*90%*	*89.93%*

Water Conc. = ([Area Analyte] x [IS Conc]) / ([Area IS] x [ICAL RRF]) x ([Final Vol]/[Initial Volume])x [Dilution Factor]
Surrogates: Calculated %Rec = [Calc. Conc.] / [Spike Conc.] Reported conc. is the 'final' conc. From quantitation page.
Surrogate Conc =([Area Analyte] x [IS Conc])/([Area IS] X [ICAL RRF])