N00158.AR.000297
NAS WILLOW GROVE
5090.3a

TETRA TECH NUS

PHIL- 22096

TO:	**RUSS TURNER**	**DATE:**	**MAY 2, 2008**
FROM:	**MEGAN RITCHIE**	**COPIES:**	**FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC AND 1,4-DIOXANE**
NAS JRB WILLOW GROVE SITE 3, WILLOW GROVE, PENNSYLVANIA
SDG NO. TWK-003

SAMPLES: **3/Aqueous/**

03MW01SI TB-20080320 FB-20080320

*The sample date was truncated for clarity for the environmental sample.

OVERVIEW

The sample set for the NAS JRB Willow Grove Site 3 Interim Groundwater Monitoring (IGWM) – Willow Grove, PA, SDG TWK-003 consists of 1 aqueous environmental samples (designated 03MW-) and two field quality control (QC) blanks (designated FB- and TB-). No samples were designated as the matrix spike and matrix spike duplicate (MS/MSD) for this sample set. No field duplicate pairs were included in this sample set. All samples were analyzed for Volatile Organic Compounds (VOCs) and 1,4-Dioxane except for the trip blank. The trip blank was analyzed for VOCs only.

The samples were collected by Tetra Tech NUS on March 20, 2008 and analyzed by Analytical Laboratory Services, Inc. (ALSI) of Middletown, Pennsylvania.

All analyses were conducted using EPA SW-846 Methods. VOCs were analyzed by 8260B and 1,4-Dioxane by 8270D.

SUMMARY

Most analytes were successfully analyzed in all samples. The findings offered in this report are based upon a general review of all available data including data completeness, holding times until analysis, GC/MS tuning and calibration data, laboratory and field quality control blank results, system monitoring compound recoveries, matrix spike/matrix spike duplicate (MS/MSD) results, laboratory control spike (LCS) results, internal standards performance, compound identification, compound quantitation, and field duplicate results.

MAJOR PROBLEMS

- The initial calibration relative response factors (RRFs) for 2-butanone and acetone were below the QC criterion of 0.05. The non-detected results for 2-butanone and acetone were qualified as unusable (UR).

MINOR PROBLEMS

- The continuing calibration percent difference (%D) exceeded the QC criteria of 25% for tetrachloroethene. The associated positive tetrachloroethene result in sample 03MW01SI was qualified as estimated (J).

Notes

The continuing calibration %Ds exceeded the QC criteria of 25% for several VOC compounds. No action was taken because there were no detections of these compounds in the associated samples.

The LCS recoveries exceeded the QC criteria for chloromethane, Freon 113, and methyl acetate. No action was taken because there were no positive detections of these compounds in the associated samples.

There were no contaminants present in the laboratory and field QC blanks.

The 1,4-dioxane data were acceptable as reported by the laboratory.

EXECUTIVE SUMMARY

Laboratory Performance: Two VOC compounds had initial calibration RRFs below QC criteria. Several VOC compounds exceeded the continuing calibration %D criteria. Three VOC compound recoveries exceeded LCS QC limits.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the Tetra Tech NUS Standard Operating Procedure DV-02 (8/01) "Data Validation for Non-CLP Organics for Solid Matrices" and EPA "Functional Guidelines for Organic Data Review", as amended for use within EPA Region 3 (9/94).

The text of this report has been formatted to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the Functional Guidelines and the Quality Assurance Project Plan (QAPjP)."

Megan Ritchie

Megan N. Ritchie
Chemist

Tetra Tech NUS, Inc.
Russell Sloboda
Data Validation Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Laboratory Analytical Results
3. Appendix C – Support Documentation

APPENDIX A

Qualified Analytical Results

PROJ_NO: 00845

SDG: TWK003 MEDIA: WATER DATA FRACTION: OV

nsample	03MW01SI-20080320	nsample	03MW01SI-20080320	nsample	FB-20080320
samp_date	3/20/2008	samp_date	3/20/2008	samp_date	3/20/2008
lab_id	9728539003	lab_id	9728539003	lab_id	9728539002
qc_type	NM	qc_type	NM	qc_type	FB
units	UG/L	units	UG/L	units	UG/L
Pct_Solids		Pct_Solids		Pct_Solids	
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2,3-TRICHLOROBENZENE	2	U	
1,2,4-TRICHLOROBENZENE	2	U	
1,2-DIBROMO-3-CHLOROPROPANE	7	U	
1,2-DIBROMOETHANE	1	U	
1,2-DICHLOROBENZENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
1,3-DICHLOROBENZENE	1	U	
1,4-DICHLOROBENZENE	1	U	
2-BUTANONE	10	UR	C
2-HEXANONE	5	U	
4-METHYL-2-PENTANONE	5	U	
ACETONE	10	UR	C
BENZENE	1	U	
BROMOCHLOROMETHANE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	1	U	
CARBON DISULFIDE	1	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	1	U	
CHLOROFORM	1	U	
CHLOROMETHANE	1	U	
CIS-1,2-DICHLOROETHENE	1	U	

Parameter	Result	Val Qual	Qual Code
CIS-1,3-DICHLOROPROPENE	1	U	
CYCLOHEXANE	1	U	
DICHLORODIFLUOROMETHANE	1	U	
ETHYLBENZENE	1	U	
ISOPROPYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL ACETATE	2	U	
METHYL CYCLOHEXANE	1	U	
METHYL TERT-BUTYL ETHER	1	U	
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
STYRENE	1	U	
TETRACHLOROETHENE	8.8	J	C
TOLUENE	1	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
TRICHLOROFLUOROMETHANE	1	U	
VINYL CHLORIDE	1	U	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2,3-TRICHLOROBENZENE	2	U	
1,2,4-TRICHLOROBENZENE	2	U	
1,2-DIBROMO-3-CHLOROPROPANE	7	U	
1,2-DIBROMOETHANE	1	U	
1,2-DICHLOROBENZENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
1,3-DICHLOROBENZENE	1	U	
1,4-DICHLOROBENZENE	1	U	
2-BUTANONE	10	UR	C
2-HEXANONE	5	U	
4-METHYL-2-PENTANONE	5	U	
ACETONE	10	UR	C
BENZENE	1	U	
BROMOCHLOROMETHANE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	1	U	
CARBON DISULFIDE	1	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	1	U	
CHLOROFORM	1	U	
CHLOROMETHANE	1	U	
CIS-1,2-DICHLOROETHENE	1	U	

PROJ_NO: 00845

SDG: TWK003 MEDIA: WATER DATA FRACTION: OV

nsample	FB-20080320
samp_date	3/20/2008
lab_id	9728539002
qc_type	FB
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
CIS-1,3-DICHLOROPROPENE	1	U	
CYCLOHEXANE	1	U	
DICHLORODIFLUOROMETHANE	1	U	
ETHYLBENZENE	1	U	
ISOPROPYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL ACETATE	2	U	
METHYL CYCLOHEXANE	1	U	
METHYL TERT-BUTYL ETHER	1	U	
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
STYRENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
TRICHLOROFLUOROMETHANE	1	U	
VINYL CHLORIDE	1	U	

nsample	TB-20080320
samp_date	3/20/2008
lab_id	9728539001
qc_type	TB
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2,3-TRICHLOROBENZENE	2	U	
1,2,4-TRICHLOROBENZENE	2	U	
1,2-DIBROMO-3-CHLOROPROPANE	7	U	
1,2-DIBROMOETHANE	1	U	
1,2-DICHLOROBENZENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
1,3-DICHLOROBENZENE	1	U	
1,4-DICHLOROBENZENE	1	U	
2-BUTANONE	10	UR	C
2-HEXANONE	5	U	
4-METHYL-2-PENTANONE	5	U	
ACETONE	10	UR	C
BENZENE	1	U	
BROMOCHLOROMETHANE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	1	U	
CARBON DISULFIDE	1	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	1	U	
CHLOROFORM	1	U	
CHLOROMETHANE	1	U	
CIS-1,2-DICHLOROETHENE	1	U	

nsample	TB-20080320
samp_date	3/20/2008
lab_id	9728539001
qc_type	TB
units	UG/L
Pct_Solids	
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
CIS-1,3-DICHLOROPROPENE	1	U	
CYCLOHEXANE	1	U	
DICHLORODIFLUOROMETHANE	1	U	
ETHYLBENZENE	1	U	
ISOPROPYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL ACETATE	2	U	
METHYL CYCLOHEXANE	1	U	
METHYL TERT-BUTYL ETHER	1	U	
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
STYRENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
TRICHLOROFLUOROMETHANE	1	U	
VINYL CHLORIDE	1	U	

PROJ_NO: 00845

SDG: TWK003 MEDIA: WATER DATA FRACTION: OS

nsample	03MW01SI-20080320	nsample	FB-20080320
samp_date	3/20/2008	samp_date	3/20/2008
lab_id	9728539003	lab_id	9728539002
qc_type	NM	qc_type	FB
units	UG/L	units	UG/L
Pct_Solids		Pct_Solids	
DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,4-DIOXANE	2.9	U	

Parameter	Result	Val Qual	Qual Code
1,4-DIOXANE	2.9	U	

Qualifier Codes:

a	=	Lab Blank Contamination
b	=	Field Blank Contamination
c	=	Calibration (i.e., %RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
d	=	MS/MSD Noncompliance
e	=	LSC/LSCD Noncompliance
f	=	Laboratory Duplicate Imprecision
g	=	Field Duplicate Imprecision
h	=	Holding Time Exceedance
i	=	ICP Serial Dilution Noncompliance
j	=	GFAA PDS – GFAA MSA's r<0.995 (correlation coefficient)
k	=	ICP Interference – include ICSAB %Rs
l	=	Instrument Calibration Range Exceedance
m	=	Sample Preservation
n	=	Internal Standard Noncompliance
n01	=	Internal Standard Recovery Noncompliance Dioxins
n02	=	Recovery Standard Noncompliance Dioxins
n03	=	Clean-up Standard Noncompliance Dioxins
o	=	Poor Instrument Performance (i.e. baseline drifting)
p	=	Uncertainty Near Detection Limit (<2 x IDL for inorganics and < CRQL for organics)
q	=	Other Problems (can encompass of number of issues)
r	=	Surrogates Recovery Noncompliance
s	=	Pesticide/PCB Resolution
t	=	% Breakdown Noncompliance for DDT and Endrin
u	=	Pesticide/PCB % Difference Between Columns for Positive Results
v	=	Non-linear Calibrations, Tuning r <0.995 (correlation coefficient)
w	=	Ratios of primary monitored ions outside of theoretical +/-15 %, within +/- 25 %
x	=	Signal to noise response drop
y	=	Percent solids <30%
z	=	Uncertainty at 2 sigma deviation is greater than sample activity

Data Qualifier Key:

B	- Positive result is considered to be an artifact of blank contamination and should not be considered present.
J	- Value is considered estimated due to exceedance of technical quality control or because result is less than the Contract Required Quantitation Limit (CRQL).
K	- Positive result is considered biased high due to exceedance of technical quality control criteria.
L	- Positive result is considered biased low due to exceedance of technical quality control criteria.
U	- Value is a non-detected result as reported by the laboratory.
UL	- Non-detected result is considered biased low due to exceedance of technical quality control criteria.
UR	- Non-detected result is considered unusable due to exceedance of technical quality control criteria.

APPENDIX B

Laboratory Analytical Results

FORM 1 Tetra Tech NUS, Inc SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

03MW01SI
-20080320

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Matrix: (soil/water) WATER Lab Sample ID: 9728539003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 5040109

Level: (low/med) LOW Date Received: 03/21/08

% Moisture: not dec. _____ Date Analyzed: 04/01/08

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
71-43-2	Benzene	1.0	U
75-25-2	Bromoform	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
124-48-1	Chlorodibromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
100-41-4	Ethylbenzene	1.0	U
74-83-9	Bromomethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-09-2	Methylene Chloride	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	8.8	
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-01-4	Vinyl Chloride	1.0	U
76-13-1	Freon 113	1.0	U
95-47-6	o-Xylene	1.0	U
108383/106423	mp-Xylene	2.0	U
78-93-3	2-Butanone	10.0	U
75-69-4	Trichlorofluoromethane	1.0	U
108-10-1	4-Methyl-2-Pentanone(MIBK)	5.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U

FORM 1 Tetra Tech NUS, Inc SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

03MW01SI -20080320

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Matrix: (soil/water) WATER Lab Sample ID: 9728539003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 5040109

Level: (low/med) LOW Date Received: 03/21/08

% Moisture: not dec. _____ Date Analyzed: 04/01/08

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
120-82-1	1,2,4-Trichlorobenzene	2.0	U
1330-20-7	Total Xylenes	3.0	U
79-20-9	Methyl acetate	2.0	U
67-64-1	Acetone	10.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
96-18-4	1,2,3-Trichloropropane	2.0	U
108-87-2	Methyl cyclohexane	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
110-82-7	Cyclohexane	1.0	U
100-42-5	Styrene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	7.0	U
1634-04-4	Methyl t-Butyl Ether	1.0	U
75-15-0	Carbon Disulfide	1.0	U
591-78-6	2-Hexanone	5.0	U
74-97-5	Bromochloromethane	1.0	U
98-82-8	Isopropylbenzene	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U

FORM 1 Tetra Tech NUS, Inc SAMPLE NO.
VOLATILE ORGANICS ANALYSIS DATA SHEET

TB-20080320

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Matrix: (soil/water) WATER Lab Sample ID: 9728539001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 5040107

Level: (low/med) LOW Date Received: 03/21/08

% Moisture: not dec. _____ Date Analyzed: 04/01/08

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
71-43-2	Benzene	1.0	U
75-25-2	Bromoform	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
124-48-1	Chlorodibromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
100-41-4	Ethylbenzene	1.0	U
74-83-9	Bromomethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-09-2	Methylene Chloride	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-01-4	Vinyl Chloride	1.0	U
76-13-1	Freon 113	1.0	U
95-47-6	o-Xylene	1.0	U
108383/106423	mp-Xylene	2.0	U
78-93-3	2-Butanone	10.0	U
75-69-4	Trichlorofluoromethane	1.0	U
108-10-1	4-Methyl-2-Pentanone(MIBK)	5.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U

FORM 1 Tetra Tech NUS, Inc SAMPLE NO.
VOLATILE ORGANICS ANALYSIS DATA SHEET

TB-20080320

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Matrix: (soil/water) WATER Lab Sample ID: 9728539001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 5040107

Level: (low/med) LOW Date Received: 03/21/08

% Moisture: not dec. _____ Date Analyzed: 04/01/08

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
120-82-1	1,2,4-Trichlorobenzene	2.0	U
1330-20-7	Total Xylenes	3.0	U
79-20-9	Methyl acetate	2.0	U
67-64-1	Acetone	10.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
96-18-4	1,2,3-Trichloropropane	2.0	U
108-87-2	Methyl cyclohexane	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
110-82-7	Cyclohexane	1.0	U
100-42-5	Styrene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	7.0	U
1634-04-4	Methyl t-Butyl Ether	1.0	U
75-15-0	Carbon Disulfide	1.0	U
591-78-6	2-Hexanone	5.0	U
74-97-5	Bromochloromethane	1.0	U
98-82-8	Isopropylbenzene	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U

FORM 1 Tetra Tech NUS, Inc SAMPLE NO.
VOLATILE ORGANICS ANALYSIS DATA SHEET

FB-20080320

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Matrix: (soil/water) WATER Lab Sample ID: 9728539002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 5040108

Level: (low/med) LOW Date Received: 03/21/08

% Moisture: not dec. _____ Date Analyzed: 04/01/08

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
71-43-2	Benzene	1.0	U
75-25-2	Bromoform	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
124-48-1	Chlorodibromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
100-41-4	Ethylbenzene	1.0	U
74-83-9	Bromomethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-09-2	Methylene Chloride	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-01-4	Vinyl Chloride	1.0	U
76-13-1	Freon 113	1.0	U
95-47-6	o-Xylene	1.0	U
108383/106423	mp-Xylene	2.0	U
78-93-3	2-Butanone	10.0	U
75-69-4	Trichlorofluoromethane	1.0	U
108-10-1	4-Methyl-2-Pentanone(MIBK)	5.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U

FORM 1 Tetra Tech NUS, Inc SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

FB-20080320

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Matrix: (soil/water) WATER Lab Sample ID: 9728539002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 5040108

Level: (low/med) LOW Date Received: 03/21/08

% Moisture: not dec. _____ Date Analyzed: 04/01/08

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
120-82-1	1,2,4-Trichlorobenzene	2.0	U
1330-20-7	Total Xylenes	3.0	U
79-20-9	Methyl acetate	2.0	U
67-64-1	Acetone	10.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
96-18-4	1,2,3-Trichloropropane	2.0	U
108-87-2	Methyl cyclohexane	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
110-82-7	Cyclohexane	1.0	U
100-42-5	Styrene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	7.0	U
1634-04-4	Methyl t-Butyl Ether	1.0	U
75-15-0	Carbon Disulfide	1.0	U
591-78-6	2-Hexanone	5.0	U
74-97-5	Bromochloromethane	1.0	U
98-82-8	Isopropylbenzene	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U

FORM 1 Tetra Tech NUS, Inc SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

03MW01SI -20080320

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Matrix: (soil/water) WATER Lab Sample ID: 9728539003

Sample wt/vol: 1050 (g/mL) ML Lab File ID: 20331A16

Level: (low/med) LOW Date Received: 03/21/08

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/27/08

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/01/08

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
123-91-1	1,4-Dioxane	2.8	U

FORM 1 Tetra Tech NUS, Inc SAMPLE NO.
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

FB-20080320

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Matrix: (soil/water) WATER Lab Sample ID: 9728539002

Sample wt/vol: 1030 (g/mL) ML Lab File ID: 2033107

Level: (low/med) LOW Date Received: 03/21/08

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/27/08

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/31/08

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
123-91-1	1,4-Dioxane	2.9	U

FORM I SV

0084

APPENDIX C

Support Documentation

Tetra Tech NUS, Inc.
NASJRB Willow Grove, PA
CTO-0412

Analytical Laboratory Services Inc.
Analytical Narrative
TWK-003

Sample Management

This report contains the results of the analysis of three (3) water samples collected on March 20, 2008. Analytical results and quality control information are summarized in this data package.

Sample Receipt

Samples arrived at ALSI via courier on March 21, 2008. Upon receipt, the samples were inspected and compared to the enclosed chain of custody. All sample bottles were preserved properly. Each sample was assigned a unique identification number (see Certificates of Analysis). The sample information was entered into the computer system and the samples were released for analysis.

Volatile Organics by SW-846 Method 8260

Sample Handling. Three (3) water samples were analyzed by SW-846 Method 8260 for volatile organic compounds on MS05. All analyses were performed within the holding time.

Initial Calibrations. A six-point calibration was analyzed on MS05 on March 11, 2008. This calibration was used to quantitate the samples, blank and spikes. The initial calibration met method criteria for all target analytes.

Continuing Calibration Checks. A continuing calibration check standard was analyzed on MS05 April 1, 2008. The continuing calibration check met method criteria for all target analytes.

Blanks. One method blank, identified as 454433, was analyzed with the samples and included in this deliverable group. No target analytes were detected in the method blank.

Surrogates. A four-component surrogate mix was added to each sample, blank and spike. All samples, blanks and spikes had surrogate recoveries within QC limits.

Internal Standards. A three-component internal standard mix was added to each sample, blank and spike. The internal standards were recovered within QC limits in all of the samples and associated QC.

Spiked Blanks. One spiked blank, identified as 454434, was analyzed with the samples. All target analyte recoveries were within QC limits in the spiked blanks with the exception of Chloromethane, Freon 113, and Methyl acetate which were recovered above QC limits in the spiked blank. These analytes were not detected in the project samples at any level, indicating no impact from the apparent high bias.

Semi-volatile Organic Chemicals by Method 8270

Sample Handling. Two (2) water samples were extracted by SW-846 Method 3510 and the extract was analyzed by SW-846 Method 8270 for semi-volatile organic chemicals. The samples,

extraction blanks and spikes were analyzed on MS02. All extractions and analyses were performed within holding time.

Initial Calibrations. An eight-point calibration for SW-846 Method 8270 was analyzed on MS02 on March 6, 2008. This calibration was used for the analyses of the samples, blank and spikes. The initial calibration met method criteria for the target analyte.

Calibration Checks. Calibration check standards for SW-846 Method 8270 were analyzed properly. The calibration checks met method criteria for the target analyte.

Blanks. One method blank, identified as 453008, was extracted and analyzed with the samples. The target compound was not detected in the method blank.

Surrogates. An eight-component surrogate mix was added to the sample, blank and spikes. All surrogate recoveries were within QC limits in the sample, blank and spikes.

Internal Standards. A six-component internal standard mix was added to each sample, blank and spike for SW-846 Method 8270. All internal standards had recoveries within QC limits.

Blank Spikes. One blank spike, identified as 453009, was spiked at 100 ug/L and was extracted and analyzed with the samples by method 8270. All target analyte recoveries were within QC limits for the spiked blank.

Total Metals by EPA Method 6010C

Sample handling. Two (2) water samples were analyzed for total metals on the TJA TRACE ICP using EPA Method 6010C. The samples were analyzed within the six-month holding time established for the method.

Calibration. The day that the samples were analyzed, an initial four-point calibration was properly established and verified through the analysis of a second source calibration verification standard (QCS), an initial calibration blank (S0), an initial performance check (IPC), a reporting limit standard, an interference check standard (ICSA), and an interference check standard (ICSAB). Calibration checks were analyzed every ten samples and at the conclusion of the run. All criteria associated with the calibration and check standards were within the control limits for this method. Please note that the reporting limit standard was recovered outside of DOD recovery limits, but met method criteria. Data were not impacted.

Blanks. Reagent (calibration) blanks were analyzed following the calibrations, after every ten samples, and at the conclusion of each run. Metals were not present in any of the reagent blanks at a detectable level. A method blank, identified as sample 454457-MB, was digested and analyzed with the samples in this deliverable group. Metals were not found at detectable levels in the method blank.

Laboratory Control Sample. A laboratory control sample, identified as 454458-LCS, was digested and analyzed with the samples in this deliverable group. All LCS spike recoveries were within the control limits of 80-120%.

Total Sodium and Potassium by EPA Method 6010C

Sample handling. Two (2) water samples were analyzed for total sodium and potassium on the TJA IRIS ICP using EPA Method 6010C. The samples were analyzed within the six-month holding time established for the method.

Calibration. Each day that the samples were analyzed, an initial four-point calibration was properly established and verified through the analysis of a second source calibration verification

Analytical Laboratory Services, Inc.
Environmental • Industrial Hygiene • Field Services
34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 1 of 1
Courier: Federal Exp
Tracking #: 8646 0967 0

* 9 7 2 8 5 3 9 *

Co. Name: Tetra Tech NUS
Contact (Report to): Russ Turner
Phone: 610 491 9688
Address: 234 Mall Boulevard
Suite 260
King of Prussia PA 19406

Bill to (if different than Report to): Tetra Tech NUS
Foster Plaza 7
666 Andersen Drive
Pittsburgh, PA
PO#:
Project Name/#:
ALSI Quote #:

TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALSI approval and surcharges.
Date Required:
Approved By:

Email? [ ] -Y
Fax? [ ] -Y No:

***Container Type	CG	AG	Poly	Poly	Poly											
***Container Size	40ml	1Liter	500ml	500ml	1Liter											
Preservative	HCl	4°C	HNO3	HNO3	4°C											

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TCL VOC 8260B	1,4-Dioxane 8270C	Total TAL Metals	Dissolved TAL Metals	Hexavalent Chromium					
1 TB 20080320	3/21/08 1114 DLS 3/21	3/20/08	0925	G	AQ	2									
2 FB-20080320		3/20/08	1123	G	AQ	2	2	1	1	1					
3 03MW01SE-20080320		3/20/08	1425	G	GW	2	2	1	1						
4															
5															
6															
7															
8															

Enter Number of Containers Per Analysis

Internal COC Required!

	Sample Description/Location	Sample Date	Military Time	Sample Description/Location	Sample Date	Military Time
1	TB 20080320	3/21/08	1114	3/20/08	0925	
2	FB-20080320	3/20/08	1123	3/20/08	1123	
3	03MW01SE-20080320	3/20/08	1425	3/20/08	1425	
4						
5						
6						
7						
8						

Correct containers? Y N
Correct sample volume? Y N
Correct preservation? Y N
Headspace/Volatiles? Y N
Circle appropriate Y or N.
Custody seals Present? Y N
(If present) Seals intact? Y N
Received on Ice? Y N
COC/Labels complete/accurate? Y N
Container in good condition? Y N

SAMPLED BY (Please Print): Charles Meyer
LOGGED BY (signature): [signature] 3/21/08 1148
REVIEWED BY (signature): [signature] 03/24/08 1507

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] T+NUS	3/20/08	1700	2		
3			4 [signature]	3/21/08	1114
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] If yes, format type: Other
EDDs Required?
Sites Forms? yes [ ] yes [ ] yes [ ] yes [ ]
State Samples Collected In? MD [ ] NJ [ ] NY [ ] PA [ ]
Enter PWSID No.
DOD Criteria Required?

ALSI FIELD SERVICES: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite
**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY
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0016

ANALYTICAL LABORATORY SERVICES, INC.
www.analyticallab.com
NELAP Accredited
PA 22-293 NJ PA010
34 Dogwood Lane - Middletown, PA 17057 Phone: 717-944-5541 Fax: 717-944-1430
ACCREDITED IN ACCORDANCE WITH nelac

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Instrument ID: MS05 Calibration Date(s): 03/11/08 03/11/08

Column: RTX-VMS ID: 0.25 (mm) Calibration Time(s): 0415 0703

LAB FILE ID: RF1: 5031103 RF5: 5031104 RF20: 5031105
RF50: 5031106 RF100: 5031107

COMPOUND	RF1	RF5	RF20	RF50	RF100
Acrolein	0.040	0.039	0.039	0.038	0.034
Acrylonitrile	0.084	0.081	0.089	0.086	0.079
Benzene	1.288	1.121	1.083	1.004	0.879
Bromoform	0.418	0.418	0.454	0.439	0.447
Carbon Tetrachloride	0.294	0.295	0.295	0.269	0.219
Chlorobenzene	1.165	0.951	1.023	0.927	0.825
Chlorodibromomethane	0.422	0.353	0.378	0.363	0.351
Chloroethane	0.197	0.184	0.184	0.202	0.175
2-Chloroethylvinyl ether	157.778	69.655	30.375	17.305	12.742
Chloroform	1.520	1.839	1.902	2.098	2.318
Bromodichloromethane	0.411	0.378	0.392	0.363	0.328
1,1-Dichloroethane	0.608	0.548	0.517	0.496	0.433
1,2-Dichloroethane	0.454	0.434	0.442	0.404	0.370
1,1-Dichloroethene	0.519	0.435	0.442	0.422	0.338
1,2-Dichloropropane	0.317	0.280	0.265	0.256	0.236
1,3-Dichloropropene, Total	0.678	0.626	0.669	0.616	0.579
Ethylbenzene	1.640	2.106	2.037	2.140	2.547
Bromomethane	4.442	8.485	7.244	5.303	5.797
Chloromethane	0.478	0.373	0.363	0.407	0.338
Methylene Chloride	0.388	0.339	0.314	0.305	0.266
1,1,2,2-Tetrachloroethane	1.105	0.952	1.001	0.948	0.871
Tetrachloroethene	0.263	0.256	0.250	0.225	0.192
Toluene	1.162	0.996	1.005	0.948	0.834
trans-1,2-Dichloroethene	0.457	0.431	0.431	0.405	0.342
1,1,1-Trichloroethane	0.439	0.403	0.386	0.365	0.298
Chloroprene	0.487	0.511	0.492	0.469	0.385
1,1,2-Trichloroethane	0.294	0.291	0.296	0.270	0.261
Trichloroethene	0.304	0.276	0.280	0.253	0.215
Vinyl Chloride	0.409	0.341	0.362	0.386	0.323
Freon 113	3.054	3.893	3.928	4.330	5.360
o-Xylene	0.682	0.618	0.673	0.633	0.561
mp-Xylene	0.687	0.637	0.662	0.608	0.519
2-Butanone	0.023	0.025	0.023	0.024	0.023
Trichlorofluoromethane	0.355	0.344	0.380	0.381	0.316
Tetrahydrofuran	0.070	0.063	0.061	0.056	0.051
4-Methyl-2-Pentanone(MIBK)	0.389	0.338	0.348	0.312	0.284
Pentane	3.300	5.244	5.411	6.033	7.738

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Instrument ID: MS05 Calibration Date(s): 03/11/08 03/11/08

Column: RTX-VMS ID: 0.25 (mm) Calibration Time(s): 0415 0703

LAB FILE ID: RF1: 5031103 RF5: 5031104 RF20: 5031105
RF50: 5031106 RF100: 5031107

COMPOUND	RF1	RF5	RF20	RF50	RF100
1,2-Dichlorobenzene	1.476	1.309	1.366	1.287	1.125
1,3-Dichlorobenzene	1.647	1.391	1.490	1.357	1.201
1,4-Dichlorobenzene	0.540	0.705	0.696	0.722	0.831
Hexachlorobutadiene	0.210	0.228	0.228	0.224	0.178
Naphthalene	2.058	1.859	2.056	2.026	1.858
1,2,4-Trichlorobenzene	0.698	0.644	0.716	0.681	0.585
Methyl methacrylate	0.254	0.220	0.240	0.234	0.226
Ethyl Methacrylate	0.415	0.476	0.501	0.488	0.474
Hexachloroethane	0.565	0.523	0.522	0.522	0.428
Propionitrile	0.024	0.030	0.030	0.030	0.027
Methacrylonitrile	0.174	0.166	0.159	0.152	0.148
Total Xylenes	0.685	0.630	0.665	0.617	0.533
Isopropyl Alcohol	0.013	0.011	0.012	0.012	0.012
Acetonitrile	0.032	0.029	0.028	0.028	0.027
Acetone	0.017	0.017	0.020	0.019	0.019
Methyl acetate	0.215	0.181	0.184	0.176	0.165
n-Propanol	0.018	0.018	0.018	0.017	0.015
Diisopropyl ether	1.092	1.013	0.996	0.952	0.874
Hexane	0.275	0.268	0.278	0.266	0.214
Ethyl Acetate	0.226	0.233	0.255	0.254	0.237
Isobutyl alcohol	N	2332.487	907.745	1027.822	1036.704
Methyl acrylate	0.166	0.210	0.219	0.208	0.206
Ethyl tert-butyl ether	1.031	0.943	0.924	0.883	0.810
Chloroacetonitrile	429.014	86.837	84.644	83.111	85.933
1-Chlorobutane	2.446	2.640	2.750	3.070	3.738
tert-Amyl methyl ether	0.892	0.751	0.771	0.737	0.672
Dichlorodifluoromethane	1.879	2.310	2.250	2.216	2.758
1,2,3-Trichloropropane	0.260	0.275	0.288	0.268	0.254
Methyl cyclohexane	1.757	2.134	2.144	2.318	2.978
1,1-Dichloro-2-Propanone	472.003	190.720	134.216	153.905	139.878
trans-1,3-Dichloropropene	0.646	0.605	0.643	0.587	0.555
Pentachloroethane	0.753	0.628	0.655	0.615	0.542
cis-1,3-Dichloropropene	0.710	0.646	0.695	0.645	0.602
Cyclohexane	0.451	0.358	0.369	0.360	0.286
Heptane	0.143	0.130	0.137	0.127	0.099
Octane	0.168	0.173	0.185	0.178	0.141
Styrene	2.717	2.417	2.519	2.449	2.216

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Instrument ID: MS05 Calibration Date(s): 03/11/08 03/11/08

Column: RTX-VMS ID: 0.25 (mm) Calibration Time(s): 0415 0703

RF200: 5031108

COMPOUND	RF200
Acrolein	0.034
Acrylonitrile	0.087
Benzene	0.896
Bromoform	0.493
Carbon Tetrachloride	0.246
Chlorobenzene	0.828
Chlorodibromomethane	0.372
Chloroethane	0.179
2-Chloroethylvinyl ether	8.457
Chloroform	2.218
Bromodichloromethane	0.336
1,1-Dichloroethane	0.460
1,2-Dichloroethane	0.377
1,1-Dichloroethene	0.382
1,2-Dichloropropane	0.248
1,3-Dichloropropene, Total	0.594
Ethylbenzene	2.387
Bromomethane	4.936
Chloromethane	0.359
Methylene Chloride	0.286
1,1,2,2-Tetrachloroethane	0.913
Tetrachloroethene	0.212
Toluene	0.893
trans-1,2-Dichloroethene	0.367
1,1,1-Trichloroethane	0.330
Chloroprene	0.425
1,1,2-Trichloroethane	0.265
Trichloroethene	0.224
Vinyl Chloride	0.318
Freon 113	4.510
o-Xylene	0.583
mp-Xylene	0.521
2-Butanone	0.026
Trichlorofluoromethane	0.302
Tetrahydrofuran	0.053
4-Methyl-2-Pentanone(MIBK)	0.271
Pentane	6.484

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Instrument ID: MS05 Calibration Date(s): 03/11/08 03/11/08

Column: RTX-VMS ID: 0.25 (mm) Calibration Time(s): 0415 0703

RF200: 5031108

COMPOUND	RF200
1,2-Dichlorobenzene	1.182
1,3-Dichlorobenzene	1.271
1,4-Dichlorobenzene	0.784
Hexachlorobutadiene	0.213
Naphthalene	1.995
1,2,4-Trichlorobenzene	0.637
Methyl methacrylate	0.234
Ethyl Methacrylate	0.494
Hexachloroethane	0.491
Propionitrile	0.028
Methacrylonitrile	0.154
Total Xylenes	0.542
Isopropyl Alcohol	0.013
Acetonitrile	0.030
Acetone	0.020
Methyl acetate	0.173
n-Propanol	0.016
Diisopropyl ether	0.896
Hexane	0.237
Ethyl Acetate	0.254
Isobutyl alcohol	874.786
Methyl acrylate	0.223
Ethyl tert-butyl ether	0.837
Chloroacetonitrile	77.972
1-Chlorobutane	3.377
tert-Amyl methyl ether	0.694
Dichlorodifluoromethane	2.975
1,2,3-Trichloropropane	0.280
Methyl cyclohexane	2.539
1,1-Dichloro-2-Propanone	134.319
trans-1,3-Dichloropropene	0.567
Pentachloroethane	0.586
cis-1,3-Dichloropropene	0.620
Cyclohexane	0.336
Heptane	0.121
Octane	0.168
Styrene	2.374

FORM 7
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Instrument ID: MS05 Calibration Date: 04/01/08 Time: 0553

Lab File ID: 5040101 Init. Calib. Date(s): 03/11/08 03/11/08

Heated Purge: (Y/N) N Init. Calib. Times: 0415 0703

GC Column: RTX-VMS ID: 0.25 (mm)

COMPOUND	SAMPLE AMOUNT	CAL50 AMOUNT	CURVE	%D	MAX %d
Acrolein	1500	1250	AVRG	20.0	100
Acrylonitrile	308	250	AVRG	23.2	100
Benzene	45.7	50.0	AVRG	8.6	100
Bromoform	47.6	50.0	AVRG	4.8	100
Carbon Tetrachloride	37.6	50.0	AVRG	24.8	100
Chlorobenzene	41.5	50.0	AVRG	17.0	100
Chlorodibromomethane	43.4	50.0	AVRG	13.2	100
Chloroethane	49.6	50.0	AVRG	0.8	100
2-Chloroethylvinyl ether	55.4	50.0	2ORDR	10.8	100
Chloroform	47.6	50.0	LINR	4.8	20.0
Bromodichloromethane	43.7	50.0	AVRG	12.6	100
1,1-Dichloroethane	47.1	50.0	AVRG	5.8	100
1,2-Dichloroethane	42.7	50.0	AVRG	14.6	100
1,1-Dichloroethene	41.5	50.0	AVRG	17.0	20.0
1,2-Dichloropropane	51.3	50.0	AVRG	2.6	20.0
1,3-Dichloropropene, Total	96.2 ~~0.00~~	100	AVRG	4/8 ~~100.0~~	100
Ethylbenzene	43.8	50.0	LINR	12.4	20.0
Bromomethane	57.9	50.0	2ORDR	15.8	100
Chloromethane	69.2	50.0	AVRG	38.4	100
Methylene Chloride	45.5	50.0	AVRG	9.0	100
1,1,2,2-Tetrachloroethane	52.9	50.0	AVRG	5.8	100
Tetrachloroethene	37.1	50.0	AVRG	25.8	100
Toluene	42.4	50.0	AVRG	15.2	20.0
trans-1,2-Dichloroethene	46.1	50.0	AVRG	7.8	100
1,1,1-Trichloroethane	38.3	50.0	AVRG	23.4	100
Chloroprene	42.1	50.0	AVRG	15.8	100
1,1,2-Trichloroethane	49.9	50.0	AVRG	0.2	100
Trichloroethene	41.9	50.0	AVRG	16.2	100
Vinyl Chloride	50.6	50.0	AVRG	1.2	20.0
Freon 113	45.4	50.0	2ORDR	9.2	100
o-Xylene	40.8	50.0	AVRG	18.4	100
mp-Xylene	80.3	100	AVRG	19.7	100
2-Butanone	272	250	AVRG	8.8	100
Trichlorofluoromethane	41.0	50.0	AVRG	18.0	100
Tetrahydrofuran	316	250	AVRG	26.4	100
4-Methyl-2-Pentanone(MIBK)	291	250	AVRG	16.4	100
Pentane	43.4	50.0	LINR	13.2	100

SM 4/18/08

FORM 7
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Instrument ID: MS05 Calibration Date: 04/01/08 Time: 0553

Lab File ID: 5040101 Init. Calib. Date(s): 03/11/08 03/11/08

Heated Purge: (Y/N) N Init. Calib. Times: 0415 0703

GC Column: RTX-VMS ID: 0.25 (mm)

COMPOUND	SAMPLE AMOUNT	CAL50 AMOUNT	CURVE	%D	MAX %d
1,2-Dichlorobenzene	42.3	50.0	AVRG	15.4	100
1,3-Dichlorobenzene	41.4	50.0	AVRG	17.2	100
1,4-Dichlorobenzene	44.0	50.0	LINR	12.0	100
Hexachlorobutadiene	39.3	50.0	AVRG	21.4	100
Naphthalene	45.4	50.0	AVRG	9.2	100
1,2,4-Trichlorobenzene	41.0	50.0	AVRG	18.0	100
Methyl methacrylate	56.0	50.0	AVRG	12.0	100
Ethyl Methacrylate	55.6	50.0	AVRG	11.2	100
Hexachloroethane	36.8	50.0	AVRG	26.4	100
Propionitrile	316	250	AVRG	26.4	100
Methacrylonitrile	57.4	50.0	AVRG	14.8	100
Total Xylenes	121.1 ~~0.00~~	150	AVRG	MB ~~100.0~~	100
Isopropyl Alcohol	326	250	AVRG	30.4	100
Acetonitrile	359	250	AVRG	43.6	100
Acetone	318	250	AVRG	27.2	100
Methyl acetate	62.2	50.0	AVRG	24.4	100
n-Propanol	535	500	AVRG	7.0	100
Diisopropyl ether	57.2	50.0	AVRG	14.4	100
Hexane	42.3	50.0	AVRG	15.4	100
Ethyl Acetate	63.0	50.0	AVRG	26.0	100
Isobutyl alcohol	448	500	LINR	10.4	100
Methyl acrylate	60.2	50.0	AVRG	20.4	100
Ethyl tert-butyl ether	49.7	50.0	AVRG	0.6	100
Chloroacetonitrile	324	250	LINR	29.6	100
1-Chlorobutane	49.5	50.0	LINR	1.0	100
tert-Amyl methyl ether	47.3	50.0	AVRG	5.4	100
Dichlorodifluoromethane	51.2	50.0	2ORDR	2.4	100
1,2,3-Trichloropropane	49.6	50.0	AVRG	0.8	100
Methyl cyclohexane	40.7	50.0	LINR	18.6	100
1,1-Dichloro-2-Propanone	253	250	LINR	1.2	100
trans-1,3-Dichloropropene	47.1	50.0	AVRG	5.8	100
Pentachloroethane	43.2	50.0	AVRG	13.6	100
~~cis-1,3-Dichloropropene~~	~~48.1~~	~~50.0~~	~~AVRG~~	~~3.8~~	~~100~~
Cyclohexane	37.4	50.0	AVRG	25.2	100
Heptane	38.9	50.0	AVRG	22.2	100
Octane	39.5	50.0	AVRG	21.0	100
Styrene	44.5	50.0	AVRG	11.0	100

gmw 4/18/08

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Matrix Spike - In-house QC Sample No.: 454434

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Benzene	20.0	0.00	21.9	110	80-120
Bromoform	20.0	0.00	19.5	98	70-130
Carbon Tetrachloride	20.0	0.00	18.8	94	65-140
Chlorobenzene	20.0	0.00	20.2	101	80-120
Chlorodibromomethane	20.0	0.00	18.9	94	60-135
Chloroethane	20.0	0.00	21.4	107	60-135
Chloroform	20.0	0.00	22.0	110	65-135
Bromodichloromethane	20.0	0.00	19.6	98	75-120
1,1-Dichloroethane	20.0	0.00	22.9	114	70-135
1,2-Dichloroethane	20.0	0.00	19.7	98	70-130
1,1-Dichloroethene	20.0	0.00	22.0	110	70-130
1,2-Dichloropropane	20.0	0.00	23.7	118	75-125
Ethylbenzene	20.0	0.00	20.4	102	75-125
Bromomethane	20.0	0.00	26.8	134	30-145
Chloromethane	20.0	0.00	33.0	165*	40-125
Methylene Chloride	20.0	0.00	20.9	104	55-140
1,1,2,2-Tetrachloroetha	20.0	0.00	22.3	112	65-130
Tetrachloroethene	20.0	0.00	18.5	92	45-150
Toluene	20.0	0.00	20.3	102	75-125
trans-1,2-Dichloroethen	20.0	0.00	23.6	118	60-140
1,1,1-Trichloroethane	20.0	0.00	18.9	94	65-130
1,1,2-Trichloroethane	20.0	0.00	23.3	116	75-125
Trichloroethene	20.0	0.00	20.6	103	70-125
Vinyl Chloride	20.0	0.00	26.4	132	50-145
Freon 113	20.0	0.00	23.8	119*	0-100
o-Xylene	20.0	0.00	19.1	96	80-120
mp-Xylene	40.0	0.00	39.7	99	0-100
2-Butanone	100	0.00	117	117	30-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: TWK003

Matrix Spike - In-house QC Sample No.: 454434

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Trichlorofluoromethane	20.0	0.00	19.0	95	60-145
1,2-Dichlorobenzene	20.0	0.00	19.9	100	70-120
1,3-Dichlorobenzene	20.0	0.00	19.2	96	75-125
1,4-Dichlorobenzene	20.0	0.00	20.0	100	75-125
1,2,4-Trichlorobenzene	20.0	0.00	18.3	92	65-135
Total Xylenes	60.0	0.00	58.8	98	80-120
Methyl acetate	20.0	0.00	27.3	136*	70-130
Acetone	100	0.00	133	133	40-140
Dichlorodifluoromethane	20.0	0.00	23.2	116	30-155
1,2,3-Trichloropropane	20.0	0.00	20.4	102	75-125
Methyl cyclohexane	20.0	0.00	22.0	110	70-130
trans-1,3-Dichloroprope	20.0	0.00	20.5	102	55-140
cis-1,3-Dichloropropene	20.0	0.00	22.4	112	70-130
Cyclohexane	20.0	0.00	21.1	106	66-130
Styrene	20.0	0.00	20.1	100	65-135
cis-1,2-Dichloroethene	20.0	0.00	22.5	112	70-125
1,2-Dibromo-3-chloropro	20.0	0.00	17.6	88	50-130
Methyl t-Butyl Ether	20.0	0.00	20.5	102	65-125
Carbon Disulfide	20.0	0.00	25.9	130	35-160
2-Hexanone	100	0.00	129	129	55-130
Bromochloromethane	20.0	0.00	19.1	96	65-130
1,2-Dibromoethane	20.0	0.00	20.6	103	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 3 out of 50 outside limits

COMMENTS: _____