



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE : July 5, 2011

SUBJECT: Region III Data QA Review

FROM: Colleen Walling *Colleen K. Walling*
Region III ESAT RPO (3EA20)

TO: Christine Wagner
Remedial Project Manager (3HS32)

Attached is the organic data validation report for the Louisa Acme Well (Case #: 41392 SDG#: C00N7 and C00L3) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2763.

Attachment

cc: Gene Nance (Tech Law)

TO: #0037 TDF: #06079

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE

Lockheed Martin IS & GS-Civil
Energy & Environment
ESAT Region 3
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-530
Telephone 410-305-3037 Facsimile 410-305-3597

LOCKHEED MARTIN
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DATE: June 30, 2011

SUBJECT: Organic Data Validation (M3 Level)
Case: 41392
SDG: C00L3 and C00N7
Site: Louisa Acme Well

FROM: Habteab Ghebreyesus *HG*
Organic Data Reviewer

Mahboobeh Mecanic *hm*
Senior Oversight Chemist

TO: Colleen Walling
ESAT Region 3 Project Officer

OVERVIEW

Case 41392, Sample Delivery Groups (SDGs) C00L3 and C00N7, consisted of thirteen (13) aqueous samples and one (1) trip blank analyzed for trace volatile compounds and one (1) aqueous sample analyzed for herbicide compounds only. The sample set included two (2) field duplicate pairs. All samples were submitted to A4 Scientific, Inc. (A4) for analyses. Samples were analyzed according to Contract Laboratory Program (CLP) Statement of Work (SOW) SOM01.2 (with modification 1675.2) through the Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to Region 3 Modifications to the National Functional Guidelines for Organic Data Review, Level M3, and is assigned the Superfund Data Validation label S4VM (Stage_4_Validation_manual). Areas of concern with respect to data usability are listed below.

MAJOR PROBLEM

- Relative Response Factor (RRF) was less than 0.05 for acetone in the trace volatiles continuing calibration. The "L" qualifier for positive results reported for this compound was superseded by "J" on the DSFs. Quantitation limits were rejected and qualified "R" on the Data Summary Forms (DSFs).

MINOR PROBLEMS

- Trace volatile sample C00N3 had recoveries of Deuterated Monitoring Compounds (DMCs) 2-butanone-d5 and trans-1,3-dichloropropene-d4 outside the lower QC limits. The “L” qualifier for positive result reported for acetone associated with DMC 2-butanone-d5 in this sample was superseded by “J” on the DSF. Quantitation limits for compounds associated with these DMCs were qualified “UL” on the DSFs.
- Several compounds failed precision criteria [percent relative standard deviation (%RSD) or percent difference (%D)] in the trace volatile initial and/or continuing calibrations. Positive results reported for these compounds in affected samples were qualified “J” on the DSFs. The precision did not exceed the fifty percent (50%) criteria; therefore, quantitation limits were not qualified.

NOTES

- Tentatively identified compounds (TICs) were reviewed during data validation. TIC Form 1s for samples with reported TICs are included in Appendix E.
- Concentrations of target compounds found in the trace volatile analysis of the method and trip blanks are listed below. Samples with concentrations of common laboratory contaminants (*) less than ten times (<10X) the blank concentrations or with concentration of other contaminants less than five times (<5X) the blank concentrations have been qualified “B” on the DSFs.

<u>Blanks</u>	<u>Compound</u>	<u>Concentration</u>	<u>Affected Samples</u>
Method (VBLK23V)	Methylene Chloride*	0.21J ug/L	All samples except C00L4, C00M8, C00M9, C00N3
Trip (C00N5)	Toluene	0.45 J ug/L	C00N0, C00N3, C00N4

- The concentration of tetrachloroethene in sample C00M8 exceeded the calibration range in the initial trace volatile analysis. This sample was reanalyzed at a two fold (2X) dilution to bring the concentration of this compound within the calibration range. The result for this compound in this sample is reported from the diluted analysis and annotated with a (+) symbol on the DSF by the reviewer.
- Compounds detected below the Contract Required Quantitation Limits (CRQLs) were qualified “J” on the DSFs unless superseded by “B”.
- Reported recoveries for herbicides in Laboratory Control Sample (LCS) analyses were within QC limits on both columns.
- Results for field duplicate pairs C00L5/C00N6 and C00N0/C00N4 were comparable.

- In the herbicide analysis, opening standards INDC03M8 and INDC03N8 for dalapon on both columns and MCPP on column RTX-Pest2 and closing standard INDC03M9 for dalapon on column RTX-Pest had a percent difference (%D) greater than 25% but less than 50%. No positive results were reported for these compounds in this sample. No data were qualified based on these findings.
- In the trace volatile analyses, recoveries of DMCs vinyl chloride-d3 and chloroethane-d5 were outside the upper control limits for several samples. There were no positive results reported for compounds associated with these DMCs in these samples and no data were qualified based on these findings.
- In the trace volatile analyses, recovery of DMC 2-hexanone-d5 in sample C00M8DL was outside the upper control limit. No data were qualified based on this finding, since compounds associated with this DMC were reported from the undiluted analysis of this sample.

ATTACHMENTS

- 1) Appendix A Glossary of Data Qualifier Terms
- 2) Appendix B Data Summary Forms
- 3) Appendix C Chain-of-Custody Records
- 4) Appendix D Laboratory Case Narrative
- 5) Appendix E Tentatively Identified Compounds (TICs)

DCN: 41392_C00L3 and C00N4

Appendix A

Glossary of Data Qualifier Codes

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

NO CODE = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unusable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

N = Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = Analyte present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

NJ = Qualitative identification questionable due to poor resolution. Presumptively present at approximate quantity.

Q = No analytical result.

Appendix B

Data Summary Forms

Page 1 of 7

Number of Soil Samples : 0

Number of Water Samples : 15

Number of Sediment Samples : 0

[illegible]

DATA SUMMARY FORM: Trace Volatiles

Page 2 of 7

Case #: 41392

SDG : C00L3

Site :

LOUISA ACME WELL

Lab. :

A4

Sample Number :		C00L3		C00L4		C00L5		C00M6		C00M7	
Sampling Location :		RW05		RW06		RW07		SW09		SW10	
Field QC:						Dup of C00N6					
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		6/1/2011		6/1/2011		6/1/2011		6/1/2011		6/1/2011	
Time Sampled :		15:53		18:34		19:05		10:00		10:08	
pH :		≤ 2		≤ 2		≤ 2		≤ 2		≤ 2	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
*Tetrachloroethene	0.50										
2-Hexanone	5.0										
Dibromochloromethane	0.50										
1,2-Dibromoethane	0.50										
*Chlorobenzene	0.50										
*Ethylbenzene	0.50										
o-Xylene	0.50										
m,p-Xylene	0.50										
*Styrene	0.50										
Bromofom	0.50										
Isopropylbenzene	0.50										
1,1,2,2-Tetrachloroethane	0.50										
*1,3-Dichlorobenzene	0.50										
*1,4-Dichlorobenzene	0.50										
1,2-Dichlorobenzene	0.50										
1,2-Dibromo-3-chloropropane	0.50										
1,2,4-Trichlorobenzene	0.50										
1,2,3-Trichlorobenzene	0.50										

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor)

Revised 09/99

DATA SUMMARY FORM: Trace Volatiles

Page 3 of 7

Case #: 41392

SDG : C00L3

Site :

LOUISA ACME WELL

Lab. :

A4

[illegible]

DATA SUMMARY FORM: Trace Volatiles

Page 4 of 7

Case #: 41392

SDG : C00L3

Site :

LOUISA ACME WELL

Lab. :

A4

Sample Number :		C00M8	C00M9		C00N0		C00N1		C00N2		
Sampling Location :		SW11	SW12		SW13		SW14		SW15		
Field QC:					Dup of C00N4						
Matrix :		Water	Water		Water		Water		Water		
Units :		ug/L	ug/L		ug/L		ug/L		ug/L		
Date Sampled :		6/1/2011	6/1/2011		6/1/2011		6/1/2011		6/1/2011		
Time Sampled :		10:58	11:10		11:50		12:15		13:38		
pH :		≤ 2	≤ 2		≤ 2		≤ 2		≤ 2		
Dilution Factor :		1.0/2.0	1.0		1.0		1.0		1.0		
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
*Tetrachloroethene	0.50	26 +		0.63	J	0.92	J	0.74	J		
2-Hexanone	5.0										
Dibromochloromethane	0.50										
1,2-Dibromoethane	0.50										
*Chlorobenzene	0.50										
*Ethylbenzene	0.50										
o-Xylene	0.50										
m,p-Xylene	0.50										
*Styrene	0.50										
Bromoform	0.50										
Isopropylbenzene	0.50										
1,1,2,2-Tetrachloroethane	0.50										
*1,3-Dichlorobenzene	0.50										
*1,4-Dichlorobenzene	0.50										
1,2-Dichlorobenzene	0.50										
1,2-Dibromo-3-chloropropane	0.50										
1,2,4-Trichlorobenzene	0.50										
1,2,3-Trichlorobenzene	0.50										

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor)

Revised 09/99

+ = Reported from dilution

DATA SUMMARY FORM: Trace Volatiles

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Case #: 41392

SDG : C00L3

Site :

LOUISA ACME WELL

Lab. :

A4

Sample Number :		C00N3		C00N4		C00N5		C00N6			
Sampling Location :		SW16		SW17		TB02		RW08			
Field QC:						Trip Blank		Dup of C00L5			
Matrix :		Water		Water		Water		Water			
Units :		ug/L		ug/L		ug/L		ug/L			
Date Sampled :		6/1/2011		6/1/2011		5/31/2011		6/1/2011			
Time Sampled :		13:55		11:55		22:00		19:08			
pH :		≤ 2		≤ 2		≤ 2		≤ 2			
Dilution Factor :		1.0		1.0		1.0		1.0			
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag		
Dichlorodifluoromethane	0.50										
Chloromethane	0.50										
*Vinyl chloride	0.50										
Bromomethane	0.50										
Chloroethane	0.50										
Trichlorofluoromethane	0.50										
*1,1-Dichloroethene	0.50										
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50										
Acetone	5.0	6.8	J	5.1	J		R		R		
Carbon Disulfide	0.50										
Methyl acetate	0.50										
*Methylene chloride	0.50			0.22	B	0.28	B	0.22	B		
trans-1,2-Dichloroethene	0.50										
Methyl tert-butyl ether	0.50							0.27	J		
1,1-Dichloroethane	0.50										
cis-1,2-Dichloroethene	0.50			8.4							
*2-Butanone	5.0		UL								
Bromochloromethane	0.50										
Chloroform	0.50										
*1,1,1-Trichloroethane	0.50										
Cyclohexane	0.50										
*Carbon tetrachloride	0.50										
*Benzene	0.50										
*1,2-Dichloroethane	0.50										
Trichloroethene	0.50			4.8							
Methylcyclohexane	0.50										
*1,2-Dichloropropane	0.50										
Bromodichloromethane	0.50										
cis-1,3-Dichloropropene	0.50		UL								
4-Methyl-2-pentanone	5.0										
*Toluene	0.50	0.20	B	0.26	B	0.45	J				
trans-1,3-Dichloropropene	0.50		UL								
1,1,2-Trichloroethane	0.50		UL								

DATA SUMMARY FORM: Trace Volatiles

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Case #: 41392

SDG : C00L3

Site :

LOUISA ACME WELL

Lab. :

A4

Sample Number :		C00N3		C00N4		C00N5		C00N6			
Sampling Location :		SW16		SW17		TB02		RW08			
Field QC:						Trip Blank		Dup of C00L5			
Matrix :		Water		Water		Water		Water			
Units :		ug/L		ug/L		ug/L		ug/L			
Date Sampled :		6/1/2011		6/1/2011		5/31/2011		6/1/2011			
Time Sampled :		13:55		11:55		22:00		19:08			
pH :		≤ 2		≤ 2		≤ 2		≤ 2			
Dilution Factor :		1.0		1.0		1.0		1.0			
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
*Tetrachloroethene	0.50			1.2	J						
2-Hexanone	5.0										
Dibromochloromethane	0.50										
1,2-Dibromoethane	0.50										
*Chlorobenzene	0.50										
*Ethylbenzene	0.50										
o-Xylene	0.50										
m,p-Xylene	0.50										
*Styrene	0.50										
Bromoform	0.50										
Isopropylbenzene	0.50										
1,1,2,2-Tetrachloroethane	0.50										
*1,3-Dichlorobenzene	0.50										
*1,4-Dichlorobenzene	0.50										
1,2-Dichlorobenzene	0.50										
1,2-Dibromo-3-chloropropane	0.50										
1,2,4-Trichlorobenzene	0.50										
1,2,3-Trichlorobenzene	0.50										

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor)

Revised 09/99

DATA SUMMARY FORM: Herbicides

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Case #: 41392

SDG : C00N7

Number of Soil Samples : 0

Site :

LOUISA ACME WELL

Number of Water Samples : 1

Lab. :

A4

Number of Sediment Samples : 0

Sample Number :		C00N7							
Sampling Location :		IDW-01							
Matrix :		Water							
Units :		ug/L							
Date Sampled :		6/2/2011							
Time Sampled :		14:05							
Dilution Factor :		1.0							
Pesticide Compound	CRQL	Result	Flag						
2,4,5-T	0.050								
2,4,5-TP (Silvex)	0.050								
2,4-D	0.50								
2,4-DB	0.50								
Dalapon	1.3								
Dicamba	0.050								
Dichloroprop	0.50								
Dinoseb	0.25								
MCPA	5.0								
MCPP	5.0								
Pentachlorophenol	0.050								
4-Nitrophenol	0.50								

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor)

Revised 09/99

Appendix C

Chain-of-Custody Records



EPA USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 41392

R

Region: 3		Date Shipped: 6/2/2011		Chain of Custody Record	
Project Code: CT5510-1		Carrier Name: FedEx		Sampler Signature:	
Account Code: 11TO3N302DC6CA3RCRS00		Airbill: 8746 4335 5188		Relinquished By (Date / Time)	
CERCLUS ID: VAN000306728		Shipped to: A4 Scientific 1544 Sawdust Road Suite 505 The Woodlands TX 77380 (281) 292-5277		Received By (Date / Time)	
Spill ID: A3RC				1	
Site Name/State: Louisiana Acme Well Site/VA				2	
Project Leader: Gene Nance				3	
Action: Removal Site Evaluation				4	
Sampling Co: TechLaw, Inc.					

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	QC Type
C00L3	Ground Water/ Gene Nance	L/G	TVOA (21)	3976 (HCL), 3977 (HCL), 3978 (HCL) (3)	RW05	S: 6/1/2011 15:53		
C00L4	Ground Water/ Gene Nance	L/G	TVOA (21)	3979 (HCL), 3980 (HCL), 3981 (HCL) (3)	RW06	S: 6/1/2011 18:34		
C00L5	Ground Water/ Gene Nance	L/G	TVOA (21)	3982 (HCL), 3983 (HCL), 3984 (HCL) (3)	RW07	S: 6/1/2011 19:05		
C00M6	Surface Water/ Gene Nance	L/G	TVOA (21)	31015 (HCL), 31016 (HCL), 31017 (HCL) (3)	SW09	S: 6/1/2011 10:00		
C00M7	Surface Water/ Gene Nance	L/G	TVOA (21)	31018 (HCL), 31019 (HCL), 31020 (HCL) (3)	SW10	S: 6/1/2011 10:08		
C00M8	Surface Water/ Brian Burris	L/G	TVOA (21)	31021 (HCL), 31022 (HCL), 31023 (HCL) (3)	SW11	S: 6/1/2011 10:58		
C00M9	Surface Water/ Gene Nance	L/G	TVOA (21)	31024 (HCL), 31025 (HCL), 31026 (HCL) (3)	SW12	S: 6/1/2011 11:10		
C00N0	Surface Water/ Gene Nance	L/G	TVOA (21)	31027 (HCL), 31028 (HCL), 31029 (HCL) (3)	SW13	S: 6/1/2011 11:50		
C00N1	Surface Water/ Brian Burris	L/G	TVOA (21)	31030 (HCL), 31031 (HCL), 31032 (HCL) (3)	SW14	S: 6/1/2011 12:15		
C00N2	Surface Water/ Brian Burris	L/G	TVOA (21)	31033 (HCL), 31034 (HCL), 31035 (HCL) (3)	SW15	S: 6/1/2011 13:38		
C00N3	Surface Water/ Brian Burris	L/G	TVOA (21)	31036 (HCL), 31037 (HCL), 31038 (HCL) (3)	SW16	S: 6/1/2011 13:55		

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key: TVOA = CLP TCL Trace VOA	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced?

TR Number: 3-122305740-060211-0004

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

REGION COPY



USEPA Contract Laboratory Program Organic Traffic Report & Chain of Custody Record

Case No: 41392
DAS No:

R

Region: 3	Date Shipped: 6/2/2011	Chain of Custody Record	
Project Code: CT5510-1	Carrier Name: FedEx	Relinquished By	Sampler Signature
Account Code: 11T03N302DC6CA3RCRS00	Airbill: 8746 4335 5188	(Date / Time)	Received By (Date / Time)
CERCLUS ID: VAN000306728	Shipped to: A4 Scientific	1	
Spill ID: A3RC	1544 Sawdust Road	2	
Site Name/State: Louisa Acme Well Site/VA	Suite 505	3	
Project Leader: Gene Nance	The Woodlands TX 77380	4	
Action: Removal Site Evaluation	(281) 292-5277		
Sampling Co: TechLaw, Inc.			

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNOVER	PRESERVATIVE/ Bottles	TAG No./	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	QC Type
C00N4	Surface Water/ Gene Nance	L/G	TVOA (21)	31039 (HCL), 31040 (HCL), 31041 (HCL) (3)		SW17	S: 6/1/2011 11:55		Field Duplicate of SW13
C00N5	Field QC/ Gene Nance	L/G	TVOA (21)	31042 (HCL), 31043 (HCL), 31044 (HCL) (3)		TB02	S: 5/31/2011 22:00		Trip Blank
C00N6	Ground Water/ Gene Nance	L/G	TVOA (21)	31045 (HCL), 31046 (HCL), 31047 (HCL) (3)		RW08	S: 6/1/2011 19:08		Field Duplicate of RW07

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key: TVOA = CLP TCL Trace VOA	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 3-122305740-060211-0004

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

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USEPA Contract Laboratory Program Organic Traffic Report & Chain of Custody Record

Case No: 41392

DAS No:

R

Region: 3	Date Shipped: 6/2/2011	Carrier Name: FedEx	Shipped to: A4 Scientific 1544 Sawdust Road Suite 505 The Woodlands TX 77380 (281) 292-5277
Project Code: CT5510-1	Altrill: 8748 4335 5236		
Account Code: 11TO3N302DC6CA3RRCRS00			
CERCLIS ID: VAN000306728			
Spill ID: A3RC			
Site Name/State: Louisiana Acme Well Site/VA			
Project Leader: Gene Nance			
Action: Removal Site Evaluation			
Sampling Co: TechLaw, Inc.			

Chain of Custody Record

Relinquished By	(Date / Time)	Sampler Signature:	(Date / Time)
1			
2			
3			
4			

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	QC Type
C00N7	Wastewater/ Gene Nance	L/G	TCLP Org (21), VOA (H2O) (21)	31048 (HCL), 31049 (HCL), 31050 (HCL), 31051 (Ice Only), 31052 (Ice Only), 31053 (Ice Only), 31054 (Ice Only), 31055 (Ice Only), 31056 (Ice Only) (9)	IDW-01	S: 6/2/2011 14:05	MC00N7	
C00N8	Field QC/ Brian Burris	L/G	VOA (H2O) (21)	31064 (HCL), 31065 (HCL), 31066 (HCL) (3)	TB03	S: 6/2/2011 14:15		Trip Blank

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key: TCLP Org = TCLP (H2O) SV/Pest/Herb-MA 1723.0/1689.; VOA (H2O) = CLP TCL Volatiles (water)	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 3-122305740-060211-0005

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

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U.S EPA Region III Analytical Request Form

Revision 11.09

973 5-23-11

Control #	CT5510-1	OASQA USE ONLY
DAS#		RAS # 41392
PES #		NSF #
		Analytical TAT 21 days

41392

Date: 5/17/11		Site Activity: Removal Site Evaluation	
Site Name: Louisa Acme Well Site		Street Address: Near US Rt. 33 and Hwy 208	
City: Louisa	State: VA	Latitude:	Longitude:
Program: Superfund	Acct. #: 2011TO3N302DC6CA3RCRS00	CERCLIS #: VAN000306728	
Site ID: A3RC	Spill ID:	Operable Unit:	
Site Specific QA Plan Submitted: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Title: Sampling QA/QC Work Plan - Phase II		
EPA Project Leader: Christine Wagner	Phone#: 804-337-3049	Cell Phone #: 804-337-3049	E-mail: wagner.christine@epa.gov
Request Preparer: Gene Nance	Phone#: 740-867-0968	Cell Phone #: 304-830-1442	E-mail: gnance@techlawinc.com
Site Leader: Gene Nance	Phone#: 740-867-0968	Cell Phone #: 304-830-1442	E-mail: gnance@techlawinc.com
Contractor: TechLaw, Inc.			
#Samples 5	Matrix: groundwater	Parameter: TCL trace VOA	Method: SOM01.2
#Samples 9	Matrix: surface water	Parameter: TCL trace VOA	Method: SOM01.2
#Samples 9	Matrix: sediment	Parameter: TCL VOCs	Method: SOM01.2
#Samples 2	Matrix: water (field QC trip blk)	Parameter: TCL VOCs	Method: SOM01.2
#Samples 1	Matrix: IDW water	Parameter: TCLP SVOA, Pest, Herb	Method: SW846 1311: 8270D/8081B/ 8151A or SOM01.2 M.A.'s
#Samples 1	Matrix: IDW water	Parameter: TCLP RCRA Metals+Hg	Method: SW846 1311: 6010C/7470A or ISM01.2 M.A. 33833
Ship Date From: June 1, 2011	Ship Date To: June 3, 2011	Org. Validation Level M3	Inorg. Validation Level IM2
Unvalidated Data Requested: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If Yes, TAT Needed: <input type="checkbox"/> 14days <input type="checkbox"/> 7days <input type="checkbox"/> 48hrs <input type="checkbox"/> 24hrs <input checked="" type="checkbox"/> Other (Specify) 21 days			
Validated Data Package Due: <input type="checkbox"/> 42 days <input checked="" type="checkbox"/> 30 days <input type="checkbox"/> 21days <input type="checkbox"/> 14 days <input type="checkbox"/> Other (Specify) 21/9			
Electronic Data Deliverables Required: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes (EDDs will be provided in Region 3 EDD Format)			
Special Instructions: IDW water consists of residential well purge water and is to be analyzed for full TCLP parameters except for VOCs.			

Request for Quote (RFQ) for Modified Analysis

Date: May 3, 2011

Subject: Modification Reference Number: 1675.2
Title: Herbicide Analysis by SW-846 8151A
Sample Matrix: Soil, Water and/or Waste
Fraction Affected: PEST
Statement of Work: SOM01.2

Purpose:

The Contractor Laboratory is requested to perform the following modified analyses under the Organic Statement of Work (SOW) SOM01.2, based on the additional specifications listed below. Unless specifically modified by this modification, all analyses, Quality Control (QC), and reporting requirements specified in SOW SOM01.2 remain unchanged and in full force and effect. The number of samples requested in this modification is not guaranteed.

Please note that accepting a modified analysis request is voluntary, and that the Laboratory is not required to accept the modified analysis. There will be no adverse effect to the Laboratory for not accepting the modified analysis request. However, once the Laboratory accepts the request for modified analysis, it shall perform the analysis in accordance with this modification and as specified in SOW SOM01.2.

The Laboratory is requested to review the modification described herein, determine whether or not it shall accept the requested modified analyses, and complete the attached response form. The Laboratory shall provide comments in response to the required changes in the designated area, in order to ensure that the modified analysis can be completed in accordance with the specifications described herein.

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Modification to the SOW Specifications:

In this modified analysis (MA) request, the contract Laboratory will prepare samples according to Method SW-846 8151A. The Laboratory will perform any necessary cleanup derivatization as recommended in the method, and proceed with dual column GC-ECD analysis for the compounds listed in Table 1. The Laboratory shall use the surrogate 2,4-Dichlorophenylacetic acid (DCAA) specified in the method. The final concentrated extract volume must be the same as specified in Exhibit D, Analytical Method for the Analysis of Pesticides, of SOW SOM01.2, that is, the final concentrated extract volume shall be 10 mL for all samples including soil and waste samples. *Note: Gel Permeation Cleanup (GPC) is not required for this modified analysis request.*

Table 1

Compound	CAS Number	Soil CRQL (ug/kg)	Water CRQL (ug/L)
2,4,5-T	93-76-5	1.7	0.05
2,4,5-TP (Silvex)	93-72-1	1.7	0.05
2,4-D	94-75-7	17	0.5
2,4-DB	94-82-6	17	0.5
Dalapon	75-99-0	42	1.3
Dicamba	1918-00-9	1.7	0.05
Dichloroprop	120-36-5	17	0.5
Dinoseb	88-85-7	8.3	0.25
MCPA	94-74-6	170	5
MCP	93-65-2	170	5
Pentachlorophenol	87-86-5	1.7	0.05
4-Nitrophenol	100-02-7	17	0.5

**Waste samples shall be analyzed as either soil or water samples.*

Note: The Laboratory shall achieve each CRQL in Table 1 as part of the MA technical requirement.

If Matrix Spike and Matrix Spike Duplicate (MS/MSD) analyses are requested, the Laboratory shall spike with all compounds in Table 1 at the same concentration as the mid-point calibration standard and report in the appropriate modified forms as specified for Pesticides in Exhibit B of the SOW. The MS/MSD spike concentrations shall be documented in the SDG Narrative. The MS/MSD Percent Recoveries (%R) and RPD shall be 30%-150% and 50%, respectively. These limits are advisory.

A Laboratory Control Sample (LCS) is required, spiked with the same compounds in Table 1 at the same concentration as the MS/MSD samples. The %R of the compounds must be 30%-150%, ***except for 2,4,5-TP (%R for this compound is advisory)***. If the LCS fails to meet the %R criteria, all samples prepared with the LCS must be re-extracted and reanalyzed at no additional cost. The LCS spike concentrations shall be documented in the SDG Narrative. The Laboratory shall report the LCS information on the appropriate forms as specified for Pesticides in Exhibit B of the SOW.

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Method blanks and LCS must be prepared at the same frequency as specified in SOW SOM01.2, Exhibit D, Analytical Method for the Analysis of Pesticides. ***Dilutions are required as specified in SOW SOM01.2.*** The Laboratory shall proceed with GC/MS confirmation if necessary.

If the surrogate percent recovery of 40%-120%, are exceeded, the Laboratory shall perform re-extractions and reanalyses for surrogate recovery failures and report any re-extracted and reanalyzed samples using the RX suffix (refer to the SOW SOM01.2, Exhibit B, Section 3.3.7.1). If the surrogate failures are reproduced, these samples shall be billable.

A five-point initial calibration shall be performed, with the lowest calibration spiked at the same concentration as the required CRQLs in Table 1, using 'External Standard Calibration Procedure'. ***Sample quantitation must be based on the mean calibration factor derived from the multipoint calibration standards.*** The Laboratory shall include the acid herbicide compounds (not the methyl ester compounds) in the initial calibration standards. The calibration standards must be analyzed in the same manner as the samples (e.g. undergo hydrolysis and esterification, no correction factor).

The Laboratory should use the following EPA Sample Numbers to identify the five initial calibration standards:

- *INDC01##, INDC02##, INDC03##, INDC04## and INDC05##*
- For example, the lowest calibration standard shall be identified as INDC01## and the mid-range calibration standard shall be INDC03##. Where ## can be alpha numeric characters.

Opening and closing Continuing Calibration Verification (CCV) shall consist of an instrument blank (PIBLK##) and a mid-range concentration standard that must be performed at the same frequency as specified in SOW SOM01.2. Technical acceptance criteria of the initial calibration Percent Relative Standard Deviation (%RSD) shall not exceed $\pm 50\%$, and CCV Percent Difference (%D) technical acceptance criteria shall not exceed $\pm 25\%$.

Special Reporting Requirements:

The Laboratory shall provide all relevant raw data (laboratory bench sheets, logs, notebook pages) for the herbicide preparation procedure. These items shall also be included in the SMO hardcopy deliverable.

Reporting Requirements:

Hardcopy data reporting are required as specified per SOW SOM01.2, *where possible*. All hardcopy data shall be adjusted to incorporate modified specifications. This includes attaching a copy of the requirements for modified analysis to the SDG Narrative. **Electronic Deliverable in Stage 3 SEDD is required for this MA request.**

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If specific problems occur with incorporation of the modified analysis into the hardcopy and/or electronic deliverable, the Laboratory shall contact the DASS Manager within the Sample Management Office (SMO) at (703) 818-4233 or via email at CCSSUPPORT@fedcsc.com for resolution.

All samples analyzed for the same fraction within an SDG must be analyzed under the same fractional requirements. The Laboratory shall not include data for the same fraction with different requirements in the same SDG.

The Laboratory shall include the Modification Reference Number 1675.2 on each hardcopy data form under the "Mod. Ref. No." header appearing on each form as well as the data element "ServicesID" under the "SamplePlusMethod" node of the EDD. This should be done for the fractions affected by the modified analysis only. The "ServicesID" field should remain blank for all other fractions reported in the SDG. The Laboratory shall also document the Modification Reference Number and the Solicitation Number on the SDG Coversheet.

Clarifications/Revisions to the RFQ for Modified Analysis:

Laboratory Name:

Laboratory Comments:

000000007

Appendix D

Laboratory Case Narrative

A4 SCIENTIFIC, INC.
1544 Sawdust Road, Suite 505 • The Woodlands, TX 77380 • Phone (281) 292-5277

Contract #: EPW10018	Case #: 41392	SDG #: C00L3
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SDG NARRATIVE

SAMPLE RECEIPT & LOGIN

The following samples were received on the dates listed against them. The samples were logged in for analysis as listed.

<u>Client Sample</u>	<u>Lab Sample</u>	<u>Matrix</u>	<u>#Cont.</u>	<u>Received</u>	<u>Analysis</u>	<u>Comments</u>
C00L3	0014248-01	Water	3	06/03/11 10:10	SOM01.2 VOA TRACE	
C00L4	0014248-02	Water	3	06/03/11 10:10	SOM01.2 VOA TRACE	
C00L5	0014248-03	Water	3	06/03/11 10:10	SOM01.2 VOA TRACE	
C00M6	0014248-04	Water	3	06/03/11 10:10	SOM01.2 VOA TRACE	
C00M7	0014248-05	Water	3	06/03/11 10:10	SOM01.2 VOA TRACE	
C00M8	0014248-06	Water	3	06/03/11 10:10	SOM01.2 VOA TRACE	
C00M9	0014248-07	Water	3	06/03/11 10:10	SOM01.2 VOA TRACE	
C00N0	0014248-08	Water	3	06/03/11 10:10	SOM01.2 VOA TRACE	
C00N1	0014248-09	Water	3	06/03/11 10:10	SOM01.2 VOA TRACE	
C00N2	0014248-10	Water	3	06/03/11 10:10	SOM01.2 VOA TRACE	
C00N3	0014248-11	Water	3	06/03/11 10:10	SOM01.2 VOA TRACE	
C00N4	0014248-12	Water	3	06/03/11 10:10	SOM01.2 VOA TRACE	
C00N5	0014248-13	Water	3	06/03/11 10:10	SOM01.2 VOA TRACE	FIELD QC, TRIP BLANK
C00N6	0014248-14	Water	3	06/03/11 10:10	SOM01.2 VOA TRACE	Last Sx
VHBLK23X	0014248-15	Water	2	06/03/11 10:10	SOM01.2 VOA TRACE	STORAGE BLANK

The cooler temperatures are listed against the coolers.

DATE RECEIVED	COOLER NO.	Temp (in °C)	Air bill No.
06/03/11	1	4.0	874643355188

No issues were noted during sample receipt and login.

0000000001

Contract #: EPW10018	Case #: 41392	SDG #: C00L3
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VOLATILES TRACE

Samples were analyzed using instrument H-5975.

Instrument H-5975 consisted of an Agilent 5975 GC/MS with a 25-meter long DB-624 (Agilent cat#128-1324) column having a 0.2mm ID and 1.12µm film thickness, OI Purge and Trap Model 4560 with an Archon auto sampler. The trap used was a #10 trap (OI Cat# 228122) having an approximate composition of 40% Tenax, 30% Silica gel and 30% CMS.

All VOA samples had the pH characteristics verified. The reading is listed below.

EPA SAMPLE #	LAB SAMPLE #	pH
C00L3	0014248-01	≤ 2
C00L4	0014248-02	≤ 2
C00L5	0014248-03	≤ 2
C00M6	0014248-04	≤ 2
C00M7	0014248-05	≤ 2
C00M8	0014248-06	≤ 2
C00M9	0014248-07	≤ 2
C00N0	0014248-08	≤ 2
C00N1	0014248-09	≤ 2
C00N2	0014248-10	≤ 2
C00N3	0014248-11	≤ 2
C00N4	0014248-12	≤ 2
C00N5	0014248-13	≤ 2
C00N6	0014248-14	≤ 2

The following samples were run at dilution, listed against them to get all the compounds within range.

EPA SAMPLE ID	DILUTION
C00M8DL	2x

Manual integrations were performed for the following samples for the compounds listed against them.

Compound	EPA Sample ID
Dichlorodifluoromethane	VSTD0.523F, VSTD00523F
Acetone	VSTD00523F
Bromomethane	VSTD02023Y, VSTD0.523Y

These manual integrations were necessary because the software failed to accurately integrate the entire peak. In all the above instances, the quantitation reports are flagged with "m". A hard copy printout of the manual integration, the scan ranges, and initials of the analyst or manager is included in the data package.

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Contract #: EPW10018	Case #: 41392	SDG #: C00L3
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The following equations were used for calculation of the sample results from raw instrument output data:

VOLATILES

Water (Low/Med, Trace & SIM):

$$\text{Concentration } (\mu\text{g/L}) = \frac{(A_x)(I_s)(Df)}{(A_{is})(\overline{RRF})(V_o)}$$

A_x = Area of the characteristic ion (EICP) for the compound to be measured.

A_{is} = Area of the characteristic ion (EICP) for the internal standard.

I_s = Amount of internal standard added in nanograms (ng).

\overline{RRF} = Mean relative response factor from the initial calibration.

V_o = Total volume of water purged, in milliliters (mL).

Df = Dilution factor.

I certify that this Sample Data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy Sample Data Package and in the electronic data deliverable has been authorized by the laboratory Manager or Manager's designee, as verified by the following signature.

Kighn L QC Specialist
Signature and Title

6/20/11
Date of Signature

000000003

Contract #: EPW10018	Case #: 41392	SDG #: C00N7
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SDG NARRATIVE

SAMPLE RECEIPT & LOGIN

The following samples were received on the dates listed against them. The samples were logged in for analysis as listed.

<u>Client Sample</u>	<u>Lab Sample</u>	<u>Matrix</u>	<u>#Cont.</u>	<u>Received</u>	<u>Analysis</u>	<u>Comments</u>
C00N7	0014251- 01	Water	6	06/03/11 10:10	SOM01.2 PEST_HERB+1675.2	

The cooler temperatures are listed against the coolers.

DATE RECEIVED	COOLER NO.	Temp (in °C)	Airbill No.
06/03/11	1	4.0	874643355236

The following issues were noted:

-Insufficient/inappropriate designation of laboratory QC-

Issue 1: The TR/COC does not designate a sample for laboratory QC; however, per scheduling laboratory QC is required for PEST by MA 1689.5. The lab would like to choose sample C00N7 as QC for PEST by MA 1689.5 analysis for SDG C00M5.

Resolution 1: In accordance with previous direction for Region 3, the laboratory will select a sample for laboratory QC as long as the sample is not a PE, blank, or rinsate sample. The laboratory will note the issue in the SDG Narrative, notify the SMO coordinator of the sample selected for laboratory QC, and proceed with the analysis of the samples.

-Insufficient volume-

Issue 2: The TR/COC does not designate a sample for laboratory QC; however, per scheduling laboratory QC is required for Herbicides by MA 1675.2 analyses. However, the lab does not have enough volume to perform QC for Herbicides by MA 1675.2 analysis for SDG C00N7. There is insufficient volume for reduced volume QC as well.

Resolution 2: Per Region 3, lab QC is canceled for Herbicides by MA 1675.2 analysis for SDG C00N7 due to insufficient volume. The lab must report in the SDG narrative that they did not receive sufficient volume for herbicide QC.

Directive (email) is enclosed. No other discrepancies or issues were noted during sample receipt and login.

000000001

Contract #: EPW10018

Case #: 41392

SDG #: C00N7

PESTICIDES

1) Extractions

Water samples were extracted using separatory funnel extraction method followed by Florisil cleanup. No problems were encountered during extraction.

2) Analysis

Samples were analyzed using instrument G-6890.

Instrument G-6890 consisted of a dual inlet, dual ECD Agilent 6890 GC/ECD instrument with the following two columns manufactured by Restek. A 1 µL injection was used on each column.

Column 1= RTX-PEST: Cat # 11140, 30m long, 0.53mm ID, 0.5 µm film thickness (Instrument ID: G-6890A).

Column 2= RTX-PEST2: Cat # 111340, 30m long, 0.53mm ID, 0.42 µm film thickness (Instrument ID: G-6890B).

All samples were analyzed as per MA 1675.2 instructions.

The following equations were used for calculation of the sample results from raw instrument output data:

Pesticides:

Water:

$$\text{Concentration } (\mu\text{g/L}) = \frac{(A_x)(V_t)(Df)(GPC)}{(CF)(V_o)(V_i)}$$

A_x = Area of the peak for the compound to be measured.

\overline{CF} = Mean Calibration factor from the initial calibration standard (area/ng).

V_t = Volume of concentrated extract in microliters (µL).

V_i = Volume of extract injected in microliters (µL).

V_o = Volume of water extracted in milliliters (mL).

Df = Dilution Factor.

$$GPC = \frac{V_{in}}{V_{out}} = \text{GPC Factor. (If no GPC is performed, GPC=1).}$$

V_{in} = Volume of extract loaded onto GPC column.

V_{out} = Volume of extract collected after the GPC cleanup.

000000002

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Contract #: EPW10018	Case #: 41392	SDG #: C00N7
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I certify that this Sample Data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy Sample Data Package and in the electronic data deliverable has been authorized by the laboratory Manager or Manager's designee, as verified by the following signature.

Kighn + QC Specialist

Signature and Title

6/21/10

Date of Signature

000000003

Appendix E

Tentatively Identified Compounds (TICs)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

C00M8

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW10018
Lab Code: A4 Case No.: 41392 Mod. Ref No.: SDG No.: C00L3
Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0014248-06
Sample wt/vol: 25.0 (g/mL) mL Lab File ID: H7300.D
Level: (TRACE or LOW/MED) TRACE Date Received: 06/03/2011
% Moisture: not dec. Date Analyzed: 06/08/2011
GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)
CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01 (9.339)	8.46	0.60	J
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796 ¹	Total Alkanes	N/A		

¹EPA-designated Registry Number.

000000080

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

C00N3

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW10018
Lab Code: A4 Case No.: 41392 Mod. Ref No.: SDG No.: C00L3
Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0014248-11
Sample wt/vol: 25.0 (g/mL) mL Lab File ID: H7282.D
Level: (TRACE or LOW/MED) TRACE Date Received: 06/03/2011
% Moisture: not dec. Date Analyzed: 06/08/2011
GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)
CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01 (9.342)	8.46	0.88	J
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796 ¹	Total Alkanes	N/A		

¹EPA-designated Registry Number.

000000158