VERTICAL PROFILE BORING (VPB) – 133 OU 2 OFF-SITE GROUNDWATER INVESTIGATION NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP) BETHPAGE, NEW YORK

GROUNDWATER ANALYTICAL DATA GROUPS

- SDG D1061
- SDG D1108
- SDG D1148
- SDG D1208
- SDG D1280
- SDG D1320
- SDG D1365
- SDG D1436

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NUMBER Nº 1190 PAGE OF / PHONE NUMBER LABORATORY NAME AND CONTACT: 757461 3768 [HEAN DECI (K. Helmingel) PHONE NUMBER ADDRESS 417-456-9383 384 SHEPFICEUR STREET CITY, STATE MULLIPHINGLE NT	No. OF CONTAINER TYPE CONTAINER TYPE CONTAINER TYPE PLASTIC (P) or GLASS (G) (G- (G- PRESERVATIVE WW (V) U USED MMERIS COMMENTS		1							1. RECEIVED BY Sputter Aby BOCO 4355 Bales 03/13 TIME 2. RECEIVED BY DATE TIME DOCO 4355 Bales 03/07/13 16:25
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Tetra Tech INC

INTERNAL CORRESPONDENCE

TO:	D. BRAYACK	DATE:	FEBRUARY 20, 2012
FROM:	JOSEPH KALINYAK	COPIES:	DV FILE
SUBJECT:	ORGANIC DATA VALIDATION – VOC NWIRP BETHPAGE, CTO 066 SDG D1061		
SAMPLES:	6 / Aqueous / VOC		

BP-VPB-TB-010412 BP-VPB133-GW-148 BP-VPB133-GW-058 BP-VPB133-GW-150 BP-VPB133-GW-114 BP-VPB133-GW-194

<u>Overview</u>

The sample set for NWIRP Calverton, CTO 066, SDG D1061 consisted of six (6) aqueous samples including one (1) aqueous trip blank sample. All aqueous samples were analyzed for a select list of volatile organic compounds (VOC). No field duplicate sample pairs were included in this Sample Delivery Group (SDG).

The samples were collected by Tetra Tech on January 4, 5, and 6, 2012 and analyzed by ChemTech laboratory. All analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
- Hold times
- GC/MS System Tuning and Performance
 - Initial/continuing calibrations
- Laboratory Blank Results
 - Laboratory Control Sample
 - Matrix Spike/Matrix Spike Duplicate Recoveries
 - Surrogate Spike Recoveries
- Internal Standard Recoveries
- Compound Identification
 - Compound Quantitation
 - Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

VOC

An email from the laboratory indicated that four (4) of the samples had air bubbles in some of the sample vials. The email indicated that sample BP-VPB-TB-010412 had one vial with a medium air bubble. Since

TO: D. BRAYACK SDG: D1061

PAGE: 2

two vials were sent for this sample no validation action was taken as the alternate vial was available for sample analysis. According to the laboratory, sample BP-VPB133-GW-114 had two (2) of two (2) sample vials with big air bubbles in both vials, sample BP-VPB133-GW-150 had two (2) of two (2) sample vials with medium air bubbles, and sample BP-VPB133-GW-148 had one (1) of one (1) sample vial with small multiple air bubbles. Samples BP-VPB133-GW-114 and BP-VPB133-GW-150 VOC sample positive results were qualified estimated, (J), and the non-detected sample results were qualified rejected, (UR), per the Region 2 data validation guidelines. Sample BP-VPB133-GW-148 VOC results were not qualified for the sample vial small air bubble content identified in the email.

The continuing calibration verification (CCV) percent differences (%D) were greater than the 20% quality control limit for dichlorodifluoromethane, chloromethane, vinyl chloride, 1,1,2-trichlorotrifluoroethane, acetone, and methylene acetate for instrument MSVOAG on 01/10/12 @ 13:13.

Affected samples:

BP-VPB-TB-010412 BP-VPB133-GW-058 BP-VPB133-GW-148 BP-VPB133-GW-194

Action: The aforementioned sample positive and non-detected results for dichlorodifluoromethane, chloromethane, vinyl chloride, 1,1,2-trichlorotrifluoroethane, acetone, and methylene acetate were qualified estimated, (J) and (UJ), respectively.

The laboratory control sample (LCS) percent recoveries (%R) were greater than the quality control limit for chloromethane and 1,2-dibromo-3-chloropropane for batch VBG0110W2.

Affected samples:

BP-VPB-TB-010412BP-VPB133-GW-058BP-VPB133-GW-148BP-VPB133-GW-194Action: The positive results for chloromethane for samples BP-VPB133-GW-058 and BP-VPB133-GW-058

GW-148 were qualified estimated, (J). The non-detected chloromethane and 1,2-dibromo-3-chloropropane sample results were not qualified.

The surrogate %R for toluene-d8 was less than the quality control limits for sample BP-VPB133-GW-058. Action: Sample BP-VPB133-GW-058 positive and non-detected results were qualified estimated, (J) and (UJ), respectively.

Positive results below the limit of quantitation (LOQ) and above the method detection limit (MDL) were qualified as estimated, (J), due to uncertainty near the detection limit.

Additional Comments

The Matrix Spike (MS) and MS duplicate (MSD) %Rs were greater than the quality control limit for chloromethane, methyl tert-butyl ether, and 2-hexanone for a spiked sample from another SDG.

Affected samples: None

Action: No validation action was taken as the sample was not from this SDG.

Forty-nine (49) analytes were reported for VOCs.

Non-detected sample results were reported to the LOD.

Sample BP-VPB133-GW-148 had the analytes octanal and 1,2,3-trichloropropane identified as present in the tentatively identified compound page of the laboratory sample results. This was identified for report completeness and no validation action was necessary.

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EXECUTIVE SUMMARY

Laboratory Performance Issues: Sample VOC results were qualified for CCV %D, LCS %R, and surrogate %R quality control limit non-compliances.

Other Factors Affecting Data Quality: Sample BP-VPB133-GW-114 and BP-VPB133-GW-150 VOC positive results were qualified and non-detected VOC results rejected for significant air bubble content in the sample vials. Positive results below the LOQ and above the MDL were qualified as estimated, (J), due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to the USEPA SW-846 Method 8260B, USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B SOP HW-24 Revision #2 August 2008 and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

'n Joseph Kalinyak Chemist/Data Validator

TetraTech Joseph A. Samchuck Data Validation Quality Assurance Officer

Attachments: Appendix A - Qualified Analytical Results Appendix B - Results as Reported by the Laboratory Appendix C – Region II Data Validation Forms Appendix D - Support Documentation

Appendix A

Qualified Analytical Results

Value Qualifier Key (Val Qual) J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ - The result is an estimated non-detected quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U - Value is a non-detect as reported by the laboratory.

UR - Non-detected result is considered rejected, (UR), as a result of technical non-compliances.

DATA QUALIFICATION CODE (QUAL CODE)

Qualifier Codes:

- = Lab Blank Contamination Δ
- в = Field Blank Contamination
- С = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- = MS/MSD Recovery Noncompliance D
- Ε = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- = Holding Time Exceedance н
- ICP Serial Dilution Noncompliance L =
- = ICP PDS Recovery Noncompliance; MSA's r < 0.995 J
- = ICP Interference includes ICS % R Noncompliance κ
- = Instrument Calibration Range Exceedance L
- Sample Preservation Noncompliance М =
- = Internal Standard Noncompliance N
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- 0 = Poor Instrument Performance (i.e., base-time drifting)
- = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics) Ρ
- = Other problems (can encompass a number of issues; i.e.chromatography, interferences, etc.) Q
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- Т = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient r < 0.995
- W = EMPC result
- Х = Signal to noise response drop
- Y = Percent solids <30%
- = Uncertainty at 2 sigma deviation is less than sample activity Ζ
- **Z**1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed

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		2.5 UR	٥	4.9 J	٩	2.5 UR	ø																																																																																																																																																																																																																																																																																																																
		2.5 UR	٥	2.5 U		2.5 UR	σ																																																																																																																																																																																																																																																																																																																
METHANE METHANE CORIDE METHANE METHANE METHANE METHANE		2.5 UR	σ	2.5 U		2.5 UR	a																																																																																																																																																																																																																																																																																																																
METHANE METHANE ELORIDE METHANE ELORIDE ELORIDE ELORIDE ELORIDE ELORIDE ETHENE	J	5.5 J	σ	27 J	ပ	3.8 J	ğ																																																																																																																																																																																																																																																																																																																
METHANE E LORIDE METHANE ETHENE		0.5 UR	a	0.5 U		0.5 UR	σ																																																																																																																																																																																																																																																																																																																
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LORIDE METHANE ETHENE		0.5 UR	σ	0.5 U		0.5 UR	σ																																																																																																																																																																																																																																																																																																																
METHANE		0.5 UR	σ	0.5 U		0.5 UR	σ																																																																																																																																																																																																																																																																																																																
METHANE		0.5 UR	σ	0.5 U		0.5 UR	σ																																																																																																																																																																																																																																																																																																																
		0.5 UR	σ	0.5 U		0.5 UR	σ																																																																																																																																																																																																																																																																																																																
ETHENE	L	0.5 UR	a	0.5 U		0.5 UR	σ																																																																																																																																																																																																																																																																																																																
ETHENE	Г Г	0.5 UR	a	0.5 U		0.42 J	g																																																																																																																																																																																																																																																																																																																
	- Г	0.5 UR	a	4 J	СE	0.5 UR	a																																																																																																																																																																																																																																																																																																																
		0.5 UR	a	0.5 U		0.5 UR	σ																																																																																																																																																																																																																																																																																																																
CIS-1,3-DICHLOROPROPENE 0.5 UJ		0.5 UR	σ	0.5 U		0.5 UR	σ																																																																																																																																																																																																																																																																																																																
CYCLOHEXANE 0.5 UJ		0.5 UR	a	0.5 U		0.5 UR	a																																																																																																																																																																																																																																																																																																																
DICHLORODIFLUOROMETHANE 0.5 UJ		0.5 UR	ø	0.5 UJ	с	0.5 UR	ø																																																																																																																																																																																																																																																																																																																
		0.5 UR	σ	0.5 U			σ																																																																																																																																																																																																																																																																																																																
ISOPROPYLBENZENE 0.5 UJ		0.5 UR	a	0.5 U		0.5 UR	σ																																																																																																																																																																																																																																																																																																																

PROJ NO: 00622	NSAMPLE	BP-VPB133-GW-194	-194		BP-VPB-TB-010412	0412	
SDG: D1061	LAB_ID	D1061-06			D1061-02		
FRACTION: OV	SAMP_DATE	1/6/2012			1/4/2012		
MEDIA: WATER	QC_TYPE	MN			MN		
	UNITS	UG/L			NG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	Val	arcd	RESULT	٨d	alcd
1,1,1-TRICHLOROETHANE		0.5 U			0.5 U	5	
1,1,2,2-TETRACHLOROETHANE	HANE	0.5 U			0.5	Ъ	
1,1,2-TRICHLOROETHANE		0.5 U			0.5 U	5	
1,1,2-TRICHLOROTRIFLUOROETHANE	DROETHANE	0.5 UJ	-	U	0.5 UJ	З	v
1,1-DICHLOROETHANE		0.5 U			0.5 U	5	
1,1-DICHLOROETHENE		0.5 U		-	0.5 U	D	
1,2,4-TRICHLOROBENZENE	Ш	0.5 U			0.5 U	n	
1,2-DIBROMO-3-CHLOROPROPANE	PROPANE	0.5 U			0.5 U	Л	
1,2-DIBROMOETHANE	_	0.5 U			0.5 U	Ъ	
1,2-DICHLOROBENZENE		0.5 U			0.5	n	
1,2-DICHLOROETHANE		0.5 U			0.5 U	D	
1,2-DICHLOROPROPANE		0.5 U			0.5 U	D	
1,3-DICHLOROBENZENE		0.5 U			0.5 U	n	
1,4-DICHLOROBENZENE		0.5 U			0.5 U	р	
2-BUTANONE		2.5 U			2.5 U	D	
2-HEXANONE		2.5 U			2.5 U	Ъ	
4-METHYL-2-PENTANONE		2.5 U			2.5 U	5	
ACETONE		2.5 UJ	2	с	2.5 UJ	۲ŋ	v
BENZENE		0.5 U			0.5 U	5	
BROMODICHLOROMETHANE	NE	0.5 U			0.5 U	5	
BROMOFORM		0.5 U			0.5 U	5	
BROMOMETHANE		0.5 U	_		0.5 U	D	
CARBON DISULFIDE		0.5 U	_		0.5 U	5	
CARBON TETRACHLORIDE	ш	0.5 U			0.5 U	Ъ	
CHLOROBENZENE		0.5 U	_		0.5 U	5	
CHLORODIBROMOMETHANE	NE	0.5 U			0.5 U	5	
CHLOROETHANE		0.5 U	_		0.5 U	5	
CHLOROFORM		0.5 U			0.5 U	5	
CHLOROMETHANE		0.5 UJ	<u>ر</u>	v	0.5	3	v
CIS-1,2-DICHLOROETHENE	Е	0.5 U			0.5	5	
CIS-1,3-DICHLOROPROPENE	:NE	0.5 U			0.5 U	5	
CYCLOHEXANE		0.5 U			0.5	5	
DICHLORODIFLUOROMETHANE	'HANE	0.5 UJ	<u>ر</u>	с	0.5	З	v
ETHYLBENZENE		0.5 U	_		0.5	5	
ISOPROPYLBENZENE		0.5 U			0.5	5	
							£

	NSAMPLE	BP-VPB133-GW-058	3W-058		BP-VPB133-GW-114	3W-114		BP-VPB133-GW-148	GW-148		BP-VPB133-GW-150	3W-15 0		
SDG: D1061		D1061-01			D1061-03			D1061-04			D1061-05			
FRACTION: OV	SAMP_DATE	1/4/2012			1/4/2012			1/5/2012			1/5/2012			
MEDIA: WATER	QC_TYPE	WN			NM			MN			MN			
	UNITS	NG/L			UG/L			UG/L			NG/L			
	PCT_SOLIDS	0.0			0.0			0.0			0.0			
	DUP_OF													
PARAMETER		RESULT	VaL	arcd	RESULT	VaL	arcd	RESULT	VaL	alcd	RESULT	ğ	arcd	
M+P-XYLENES			1 UJ	Я	-	1 UR	a		1 U			1 UR	a	
METHYL ACETATE		0.5	0.5 UJ	CR	0.5	0.5 UR	۵	0	0.5 UJ	с	0.6	0.5 UR	σ	
METHYL CYCLOHEXANE		0.5	0.5 UJ	Я	0.5	0.5 UR	a	0.5	5 U		0	0.5 UR	σ	
METHYL TERT-BUTYL ETHER	ER	2.6 J	٦ ۲	Ľ	0.5	0.5 UR	٥	2.2	2		2.3	٦	ø	
METHYLENE CHLORIDE		0.5	0.5 UJ	Я	0.5	0.5 UR	٥	0	0.5 U		0	0.5 UR	a	
O-XYLENE		0.5	0.5 UJ	Я	0.6	0.5 UR	۵	0	0.5 U		0.	0.5 UR	ø	
STYRENE		0.5	0.5 UJ	Я	0.6	0.5 UR	a	0	0.5 U		0	0.5 UR	a	
TETRACHLOROETHENE		0.5	0.5 UJ	R	0.5	0.5 UR	a	ō	0.5 U		1.4	4 ر	ø	
TOLUENE	-	0.5	0.5 UJ	٣	0.6	0.5 UR	a	0	0.5 U		ö	0.5 UR	σ	
TRANS-1,2-DICHLOROETHENE	ENE	0.5	0.5 UJ	R	0.6	0.5 UR	a	o.	0.5 U		0.	0.5 UR	a	
TRANS-1, 3-DICHLOROPROPENE	DENE	0.5	0.5 UJ	Я	0.5	0.5 UR	٥	0	0.5 U		ö	0.5 UR	ø	
TRICHLOROETHENE		0.5	0.5 UJ	R	0.6	0.5 UR	a	0.79 J	٦ ا	٩	1.4	4 ر	a	
TRICHLOROFLUOROMETHANE	IANE	0.5	0.5 UJ	R	0.6	0.5 UR	٥	Ö	0.5 U		0	0.5 UR	ø	
VINYL CHLORIDE		0.5	0.5 UJ	CR	0.5	0.5 UR	a		0.5 UJ	<u>о</u>	0	0.5 UR	σ	

PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-194	W-194		BP-VPB-TB-010412	0412	
SDG: D1061	LAB_ID	D1061-06			D1061-02		
FRACTION: OV	SAMP_DATE	1/6/2012			1/4/2012		
MEDIA: WATER	QC_TYPE	MN			NN		
	UNITS	NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	NaL	arcp	RESULT	VaL	arcd
M+P-XYLENES		1	n		1	D	
METHYL ACETATE		0.5	0.5 UJ	с U	0.5 UJ	З	c
METHYL CYCLOHEXANE		0.5 U	Ъ		0.5	D	
METHYL TERT-BUTYL ETHER	HER	0.5	Ъ		0.5 U	n	
METHYLENE CHLORIDE		0.5 U	D		0.5 U	Ъ	
O-XYLENE		0.5	n		0.5 U	n	
STYRENE		0.5	n		0.5	5	
TETRACHLOROETHENE		0.5 U	n		0.5	С	
TOLUENE		0.5	С		0.5	5	
TRANS-1,2-DICHLOROETHENE	HENE	0.5	D		0.5 U	n	
TRANS-1,3-DICHLOROPROPENE	OPENE	0.5	D		0.5	D	
TRICHLOROETHENE		0.5	n		0.5	5	
TRICHLOROFLUOROMETHANE	HANE	0.5 U	n		0.5 U	n	
VINYL CHLORIDE		0.5	0.5 UJ	с U	0.5 UJ	n	с С

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TO:

Tetra Tech

D. BRAYACK

INTERNAL CORRESPONDENCE

FEBRUARY 21, 2012

BP-VPB133-GW-374

FROM:	A. COGNETTI	COPIES:	DV FILE	
SUBJECT:	ORGANIC DATA VALIDATI NWIRP BETHPAGE CTO W SAMPLE DELIVERY GROU	E 066		
SAMPLES:	9/Aqueous/VOC			
	BP-VPB-TB-010912 BP-VPB133-GW-274	BP-VPB133-GW-23 BP-VPB133-GW-29		BP-VPB133-GW-254 BP-VPB133-GW-314

DATE:

BP-VPB133-GW-354

Overview

The sample set for NWIRP Bethpage, CTO WE 066, SDG D1108 consists of eight (8) environmental aqueous samples and a trip blank analyzed for volatile organic compounds (VOCs). There was no field duplicate contained in this SDG.

The samples were collected on January 9, 10 and 11, 2012 by Tetra Tech and analyzed by Chemtech. VOC analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocol. The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
- Holding times
- GC/MS Tuning
 - Initial/continuing calibrations
- Laboratory Method Blank Results

BP-VPB133-GW-334

- Surrogate Recoveries
 - Laboratory Control Sample Recoveries
- Internal Standard Recoveries
- **Compound Quantitation**
- **Compound Identification**
- **Detection Limits**

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

VOC

The initial calibration relative standard deviations (%RSDs) were greater than the 15% quality control limit for several target analytes on January 3, 2012 on instrument MSVOA R. The analytes were dichlorodifluoromethane, carbon disulfide, methylene chloride, cyclohexane, carbon tetrachloride, bromodichloromethane, trans-1,3-dichloropropene, 1,1,1-trichloroethane, cis-1,3chloroform. dichloropropene, 2-hexanone, dibromochloromethane, styrene, bromoform, isopropyl benzene and 1,2dibromo-3-chloropropane. The positive and nondetected results of the aforementioned analytes were qualified as estimated (J) and (UJ), respectively in the affected samples BP-VPB133-GW-234, BP-VPB133-GW-254, BP-VPB133-GW-274, BP-VPB133-GW-294, BP-VPB133-GW-314, BP-VPB133-GW-334, BP-VPB133-GW-354 and BP-VPB133-GW-374.

TO: D. Brayack FROM: A. Cognetti SDG: D1108 DATE: February 21, 2012 PAGE: 2

The continuing calibration percent differences (%Ds) for several target analytes were greater than the 20% quality control limit On January 13, 2012 @ 16:35 on instrument MSVOA R. The analytes were carbon tetrachlonde, chloroform, trans- 1,3-dichloropropene, dibromochloromethane and bromoform. The nondetected bromoform results were qualified as estimated (UJ) in the affected samples BP-VPB133-GW-234, BP-VPB133-GW-274, BP-VPB133-GW-294, BP-VPB133-GW-314, BP-VPB133-GW-334, BP-VPB133-GW-354 and BP-VPB133-GW-374.

The initial calibration %RSDs for several target analytes were greater than the 15% quality control limit on January 17, 2012 on instrument MSVOA G. The analytes were bromomethane, chloroethane, acetone, methyl acetate, methylene chloride, 2-butanone, 4-methyl-2-pentanone, 2-hexanone and tetrachloroethene. The nondetected bromomethane, chloroethane, acetone, methyl acetate, methylene chloride, 2-butanone, 4-methyl-2-pentanone, 2-hexanone and tetrachloroethene, 4-methyl-2-pentanone, 2-hexanone and tetrachloroethene results were qualified as estimated (UJ) in the affected sample BP-VPB-TB-010912.

The laboratory control sample (LCS) percent recoveries (%Rs) of 2-butanone and cis-1,2-dichloroethene were greater than the upper quality control limit in batch BSR0113W1. The positive 2-butanone and cis-1,2-dichloroethene results were qualified as estimated (J) in the affected samples BP-VPB133-GW-234, BP-VPB133-GW-254, BP-VPB133-GW-274, BP-VPB133-GW-294, BP-VPB133-GW-314, BP-VPB133-GW-334, BP-VPB133-GW-354 and BP-VPB133-GW-374.

Additional Comments

The matrix spike/matrix spike duplicate (MS/MSD) %Rs for cis-1,2-dichloroethene, methyl cyclohexane, trichloroethene, chlorobenzene and o-xylene were outside quality control limits in a sample not included in this SDG. No action was taken on the for cis-1,2-dichloroethene, methyl cyclohexane, trichloroethene, chlorobenzene and o-xylene results. In addition, the %R of ethyl benzene was greater than the upper quality control limit. No action was taken.

Nondetected results are reported to the limit of detection (LOD).

Positive results below the Reporting Limit (RL) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

EXECUTIVE SUMMARY

Laboratory Performance Issues: The continuing calibration %Ds and % drifts for several analytes exceeded quality control limits. The %RSDs exceeded the quality control limit for several analytes resulting in the qualification of data. The LCS %Rs of 2-butanone and cis-1,2-dichloroethene were greater than the upper quality control limit.

Other Factors Affecting Data Quality: None.

TO: D. Brayack FROM: A. Cognetti SDG: D1108 DATE: February 21, 2012 PAGE: 3

The data for these analyses were reviewed with reference to SOP # HW-24 Revision #2, August 2008, USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846/8260B, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories", April 2009. The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech

Ann Cognetti Chemist/Data Validator

61 Tetra Tech

Joseph A. Samchuck Data Validation Quality Assurance Officer

Attachments:

- 1. Appendix A Qualified Analytical Results
- 2. Appendix B Results as Reported by the Laboratory
- 3. Appendix C Region II Data Validation Forms
- 4. Appendix D Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's r < 0.995
- K = ICP Interference includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- 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., base-time drifting)
- P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient r < 0.995
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids <30%
- Z = Uncertainty at 2 sigma deviation is less than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed

PROJ NO: 00622	NSAMPLE	BP-VPB133-GW-234	GW-23	t	BP-VPB133-GW-254	3W-254		BP-VPB133-GW-274	3W-274		BP-VPB133-GW-294	3-GW-294	
	LAB_ID	D1108-02			D1108-03			D1108-04			D1108-05		
FRACTION: OV	SAMP_DATE	1/9/2012			1/9/2012	V		1/10/2012			1/10/2012		
MEDIA: WATER	QC_TYPE	MN			WN			WN			Σ		
	UNITS	NG/L		-	NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
PARAMETER	5	RESULT	ZaL	arcd	RESULT	VaL	arcp	RESULT	VaL	arcD	RESULT	VaL	arcp
1,1,1-TRICHLOROETHANE			0.5 UJ	U	0.5		o	0.5	5 UJ	U		0.5 UJ	υ
1,1,2,2-TETRACHLOROETHANE	ANE	Ő	0.5 U		0.5	C 2		0.5	5 U			0.5 U	
1,1,2-TRICHLOROETHANE		Ö	0.5 U	a	0.5	0.5 U		0.	0.5 U			0.5 U	
1,1,2-TRICHLOROTRIFLUOROETHANE	ROETHANE	Ö	0.5 U		0.5	0.5 U		ö	0.5 U			0.5 U	
1,1-DICHLOROETHANE			3		 0.	0.5 U		ö	0.5 U		5		
1,1-DICHLOROETHENE		0.68	٦ ھ	٩	0.4	0.5 U	-	0.1	0.5 U		5	0.5 U	
1,2,4-TRICHLOROBENZENE		0.46	ر 9	٩	0.1	0.5 U		ö	0.5 U		-	0.5 U	
1,2-DIBROMO-3-CHLOROPROPANE	tOPANE	Ö	0.5 UJ	U	0.1	0.5 UJ	U	0.	0.5 UJ	с U		0.5 UJ	υ
1,2-DIBROMOETHANE		Ö	0.5 U		0.	0.5 U		ö	0.5 U			0.5 U	
1,2-DICHLOROBENZENE		ō	0.5 U		0.4	0.5 U		ö	0.5 U			0.5 U	
1,2-DICHLOROETHANE		0.5	0.51 J	٩	0.1	0.5 U		0.1	0.5 U		5	0.5 U	
1,2-DICHLOROPROPANE	-	2.2	2		0.1	0.5 U		ö	0.5 U	-	5	0.5 U	
1,3-DICHLOROBENZENE		ö	0.5 U		0.1	0.5 U		ö	0.5 U		5	0.5 U	
1,4-DICHLOROBENZENE		Ö	0.5 U		0'1	0.5 U		0.	0.5 U			0.5 U	
2-BUTANONE		2.7	7 J	Eb		13 J	ш	2,1	2.5 U			2.5 U	
2-HEXANONE		5	2.5 UJ	o	2.1	2.5 UJ	U	2.	2.5 UJ	υ		2.5 UJ	U
4-METHYL-2-PENTANONE		й	2.5 U		2.4	2.5 U		2.1	2.5 U			2.5 U	
ACETONE	_		5 J	Р	9.1	-		4	4.7 J	٩			
BENZENE		0.5	5 U		.0	0.5 U		0.5	5 U		5		
BROMODICHLOROMETHANE	ш	Ö	0.5 UJ	<u>0</u>	0.{	0.5 UJ	U	0.1	0.5 UJ	v	5	0.5 UJ	U
BROMOFORM		ō	0.5 UJ	<u>ں</u>	0.1	0.5 UJ	U	0	0.5 UJ	υ	-	0.5 UJ	U
BROMOMETHANE		Ö	0.5 U		0.1	0.5 U		0.1	0.5 U			0.5 U	
CARBON DISULFIDE		Ö	0.5 UJ	<u>ں</u>	1.1	1.8 J	U	0.1	0.5 UJ	o		2 J	U
CARBON TETRACHLORIDE		Ö	0.5 UJ	U	0.1	0.5 UJ	U	0.	0.5 UJ	U			о
CHLOROBENZENE		0.5	5 U		0.1	0.5 U		0.	0.5 U			0.5 U	
CHLORODIBROMOMETHANE	Щ	Ö	0.5 UJ	o	.0	0.5 UJ	v	0.5	5 UJ	v		0.5 UJ	o
CHLOROETHANE		Ö	0.5 U		0.1	0.5 U		0.5	5 U			0.5 U	
CHLOROFORM		3.1	1 ا	o	0.5	0.5 UJ	υ	0	0.5 UJ	U		0.5 UJ	ы
CHLOROMETHANE		Ö	0.5 U		0.5	0.5 U		ö	0.5 U		_	0.5 U	
CIS-1,2-DICHLOROETHENE		÷.	1.8 J	ш	řo	0.5 U		0	5 U		-	0.5 U	
CIS-1,3-DICHLOROPROPENE	ш	Ö	0.5 UJ	υ	7.0	0.5 UJ	v	ö	0.5 UJ	U			U
CYCLOHEXANE		Ö	0.5 UJ	o	.0	0.5 UJ	v	0.5	5 UJ	U		0.5 UJ	с
DICHLORODIFLUOROMETHANE	ANE	5	2.1 J	v		2 J	U	0.5	5 UJ	v		0.5 UJ	U
ETHYLBENZENE		Ö	0.5 U		0.5	C 2		0.5	5 U		5	0.5 U	
ISOPROPYLBENZENE		Ö	0.5 UJ	U	0.1	0.5 UJ	o	0.	0.5 UJ	о		0.5 UJ	o

2/21/2012

PROJ_NO: 00622 NSAMPLE	IPLE	BP-VPB133-GW-314		BP-VPB133-GW-334	N-334	BP-VPB133-GW-354	4	BP-VPB133-GW-374	W-374	
SDG: D1108 LAB_ID	0	D1108-06		D1108-07		D1108-08		D1108-09		
FRACTION: OV SAMP	SAMP_DATE	1/10/2012		1/11/2012		1/11/2012		1/11/2012		
~	үре	WN		WN		MN		MN		
UNITS		UG/L	-	NG/L		UG/L		NG/L		
	PCT_SOLIDS	0.0		0.0		0.0		0.0		
PARAMETER	5	RESULT VOL	arcD	RESULT	Val alco	RESULT VOL	arcp	RESULT	VaL	arcD
1,1,1-TRICHLOROETHANE		0.5	v	0.5		0.5 UJ	U	0.5	ß	v
1,1,2,2-TETRACHLOROETHANE		0.5 U		0.5	Л	0.5 U		0.5	n	
1,1,2-TRICHLOROETHANE		0.5 U		0.5	n	0.5 U		0.5	D	
1,1,2-TRICHLOROTRIFLUOROETHANE	HANE	0.5 U		0.5	D	0.5 U		0.5 U	D	
1,1-DICHLOROETHANE		0.5 U		0.5	D	0.5 U		0.5 U	D	
1,1-DICHLOROETHENE		0.5 U		0.5 U	D	0.5 U		0.5 U	Ъ	
1,2,4-TRICHLOROBENZENE		0.5 U		0.5 U	n	0.5 U		0.5 U	Ъ	
1,2-DIBROMO-3-CHLOROPROPANE	NE	0.5 UJ	U U	0.5 UJ	u c	0.5 UJ	o	0.5	0.5 UJ	v
1,2-DIBROMOETHANE		0.5 U		0.5	n	0.5 U		0.5	_	
1,2-DICHLOROBENZENE		0.5 U		0.5 U	D	0.5 U		0.5	D	
1,2-DICHLOROETHANE		0.5 U		0.5 U	D	0.5 U		0.5 U	5	
1,2-DICHLOROPROPANE		0.5 U		0.5 U	D	0.5 U		0.5 U	<u> </u>	
1,3-DICHLOROBENZENE		0.5 U		0.5 U	D	0.5 U		0.5 U	5	
1,4-DICHLOROBENZENE		0.5 U		0.5 U	D	0.5 U	-	0.5 U	Ъ	
2-BUTANONE		2.5 U		5.5		5.5 J	ш	2.5 U	5	
2-HEXANONE		2.5 UJ	<u>ں</u>	2.5 UJ	C N	2.5 UJ	o	2.5	2.5 UJ	с
4-METHYL-2-PENTANONE		2.5 U		2.5 U	р	2.5 U		2.5	<u>⊃</u>	
ACETONE		6.2		7.3		10		8.6		
BENZENE		0.5 U		0.5	р	0.5 U	-	0.5	D	
BROMODICHLOROMETHANE		0.5 UJ	v	0.5 UJ		0.5 UJ	U	0.5	0.5 UJ	υ
BROMOFORM		0.5 UJ	U	0.5 UJ	о Л	0.5 UJ	U	- 0.5 UJ	n	U
BROMOMETHANE		0.5 U		0.5		0.5 U		0.5 U	n	
CARBON DISULFIDE		0.5 UJ	o	2.4	<u>ט</u>	1.6 J	o	0.5	0.5 UJ	с
CARBON TETRACHLORIDE		0.5 UJ	<u>ں</u>	0.5 UJ		0.5 UJ	U	0.5	0.5 UJ	υ
CHLOROBENZENE		0.5 U		0.5 U	D	0.5 U		0.5 U	<u> </u>	
CHLORODIBROMOMETHANE		0.5 UJ	U	0.5 UJ	c M	0.5 UJ	o	0.5	0.5 UJ	с
CHLOROETHANE		0.5 U		0.5 U	D	0.5 U		0.5	D	
CHLOROFORM		0.5 UJ	c	0.5	UJ C	0.5 UJ	o	0.5	0.5 UJ	v
CHLOROMETHANE		0.5 U		0.5	D	0.5 U		0.5	⊃	
CIS-1,2-DICHLOROETHENE		0.5 U		0.5 U	D	0.5 U		0.5	<u> </u>	
CIS-1,3-DICHLOROPROPENE		0.5 UJ	c	0.5		0.5 UJ	<u>ں</u>	0.5	0.5 UJ	с
CYCLOHEXANE		0.5 UJ	S	0.5 UJ		0.5 UJ	с	0.5	Ŋ	с
DICHLORODIFLUOROMETHANE		0.5 UJ	v	0.5	0 M	0.5 UJ	υ	0.5	З	с
ETHYLBENZENE		0.5 U		0.5	n	0.5 U		0.5	n	
ISOPROPYLBENZENE		0.5 UJ	o	0.5	c M	0.5 UJ	U	0.5	ß	с U

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PROJ_NO: 00622	NSAMPLE	BP-VPB-TB-010912	10912	
SDG: D1108	LAB_ID	D1108-01		
FRACTION: OV	SAMP_DATE	1/9/2012		*
MEDIA: WATER	ac_TYPE	MM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT		arcp
1,1,1-TRICHLOROETHANE		0.5		
1,1,2,2-TETRACHLOROETHANE	HANE	0.5	∍	
1,1,2-TRICHLOROETHANE		0.5	n	
1,1,2-TRICHLOROTRIFLUOROETHANE	DROETHANE	0.5	n	
1,1-DICHLOROETHANE		0.5	n	
1,1-DICHLOROETHENE		0.5		
1,2,4-TRICHLOROBENZENE	Щ	0.5		
1,2-DIBROMO-3-CHLOROPROPANE	PROPANE	0.5		
1,2-DIBROMOETHANE		0.5	5	
1,2-DICHLOROBENZENE	· · · · · · · · · · · · · · · · · · ·	0.5 U	5	
1,2-DICHLOROETHANE		0.5	5	
1,2-DICHLOROPROPANE		0.5	5	
1,3-DICHLOROBENZENE		0.5	5	
1,4-DICHLOROBENZENE		0.5	5	
2-BUTANONE		2.5	3	U
2-HEXANONE	A MA A M	2.5	ß	v
4-METHYL-2-PENTANONE		2.5	3	U
ACETONE		2.5	3	o
BENZENE		0.5	5	
BROMODICHLOROMETHANE	NE	0.5		
BROMOFORM		0.5	5	
BROMOMETHANE		0.5	З	υ
CARBON DISULFIDE		0.5	5	
CARBON TETRACHLORIDE	Ш	0.5	c	
CHLOROBENZENE		0.5	<u> </u>	
CHLORODIBROMOMETHANE	NE	0.5	5	
CHLOROETHANE		0.5	3	U U
CHLOROFORM		0.5		
CHLOROMETHANE		0.5	с С	
CIS-1,2-DICHLOROETHENE	ш	0.5	D	
CIS-1,3-DICHLOROPROPENE	ENE	0.5	D	
CYCLOHEXANE		0.5	n	
DICHLORODIFLUOROMETHANE	THANE	0.5	D	
ETHYLBENZENE		0.5		
ISOPROPYLBENZENE		0.5	<u> </u>	
	-			

PROJ NO: 00622	NSAMPLE	BP-VPB133-GW-234	GW-234		BP-VPB133-GW-254	sW-254		BP-VPB133-GW-274		BP-VPB133-GW-294	W-294	
SDG: D1108		D1108-02			D1108-03			D1108-04		D1108-05		
FRACTION: OV	SAMP_DATE	1/9/2012		· ·	1/9/2012			1/10/2012		1/10/2012		
MEDIA: WATER	QC_TYPE	MN			MN			NM		MN		
	UNITS	NG/L			NG/L			NG/L		NG/L		
	PCT_SOLIDS	0.0			0.0			0.0		0.0		
	DUP_OF											
PARAMETER		RESULT	۲ø۲	arcd	RESULT	Val	alcd	RESULT VQL	arcD	RESULT	ğ	arcp
M+P-XYLENES		•	u I		-	D		1 U	1	-	<u> </u>	
METHYL ACETATE		0.6	0.5 U		0.5 U	n		0.5 U		0.5	D	
METHYL CYCLOHEXANE		0.5	D 2		0.5	n		0.5 U		0.5	∍	
METHYL TERT-BUTYL ETHER	HER	8.8	8		5.4			0.5 U		0.5 U	∍	
METHYLENE CHLORIDE		0.6	0.5 UJ	c	0.5	0.5 UJ	c	0.5 UJ	U		0.5 UJ	с
O-XYLENE		0.6	0.5 U		0.5	0.5 U		0.5 U		0.5	0.5 U	
STYRENE		0	0.5 UJ	S	0.5	0.5 UJ	С	0.5 UJ	o	0.5	0.5 UJ	с
TETRACHLOROETHENE		0.5	0.5 U		0.5	0.5 U		0.5 U		9.0	0.5 U	
TOLUENE		0.5	0.5 U		0.5	D		0.5 U		0.5	_	
TRANS-1,2-DICHLOROETHENE	HENE	0.5	0.5 U		0.5	0.5 U		0.5 U		0.5 U	∍	
TRANS-1,3-DICHLOROPROPENE	OPENE	0.6	0.5 UJ	o	0.5	0.5 UJ	v	0.5 UJ	v	0.5	0.5 UJ	U
TRICHLOROETHENE		0.5	5 U		0.5	n		0.5 U		0.5	∍	
TRICHLOROFLUOROMETHANE	HANE	0.5	0.5 U		0.5	0.5 U		0.5 U		0.5 U	D	
VINYL CHLORIDE		.0	0.5 U		0.5 U	n		0.5 U		0.5 U	D	

2/21/2012

SDG: D1108 LAB_ID FRACTION: OV SAMP_DATE MEDIA: WATER QC_TYPE		BP-VPB133-GW-314	W-314		BP-VPB133-GW-334	:W-334		BP-VPB133-GW-354	GW-354		BP-VPB133-GW-374	W-374	
V R		D1108-06			D1108-07			D1108-08			D1108-09		
J		1/10/2012			1/11/2012			1/11/2012			1/11/2012		
	T	MN			NM			MN			ŴN		
UNITS		NG/L			UG/L			NG/L			UG/L		
PCT_S		0.0			0.0			0.0			0.0		
DUP_OF	Ъ									r.			
PARAMETER		RESULT	Val	arcd	RESULT	۲a۲	alcd	RESULT	VaL	alcD	RESULT	۲a۲	arcp
M+P-XYLENES		-	1 U		-	<u> </u>			- L	4	-	- -	
METHYL ACETATE		0.5 U	n		0.5	0.5 U		Ö	0.5 U		0.5	0.5 U	
METHYL CYCLOHEXANE		0.5 U	n		0.5	<u> </u>		ō	0.5 U		0.5	0.5 U	
METHYL TERT-BUTYL ETHER		0.5 U	D		0.5	0.5 U		0.	0.5 U		0.5	0.5 U	
METHYLENE CHLORIDE		0.5 UJ	ß	U	0.5	0.5 UJ	v	Ö	0.5 UJ	o	0.5	0.5 UJ	U
O-XYLENE		0.5 U	5		0.5	D		ō	0.5 U		0.5	0.5 U	
STYRENE		0.5 UU	Б	U	0.5	0.5 UJ	v	Ö	0.5 UJ	с	0.5	0.5 UJ	U
TETRACHLOROETHENE		0.5 U	Ъ		0.5 U	Ŋ		O	0.5 U		0.5	0.5 U	
TOLUENE		0.5	n		0.5 U	D		Ö	0.5 U		0	0.5 U	
TRANS-1,2-DICHLOROETHENE		0.5 U	n		0.5	0.5 U		0.	0.5 U		0.5	0.5 U	
TRANS-1,3-DICHLOROPROPENE		0.5	0.5 UJ	c	0.5	0.5 UJ	o	Ö	0.5 UJ	U	0.5	0.5 UJ	ы
TRICHLOROETHENE		0.5	Л		0.5	0.5 U		Ö	0.5 U		0.5	0.5 U	
TRICHLOROFLUOROMETHANE		0.5 U	D		0.5	0.5 U		Ö	0.5 U		0.5	0.5 U	
VINYL CHLORIDE		0.5 U	D		0.5	0.5 U		Ö	0.5 U		0.5	0.5 U	

2/21/2012

PROJ_NO: 00622	NSAMPLE	BP-VPB-TB-010912	10912	
SDG: D1108		D1108-01		
FRACTION: OV	SAMP_DATE	1/9/2012		
MEDIA: WATER	QC_TYPE	MN		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	Val	alcD
M+P-XYLENES		*	1 U	
METHYL ACETATE		0.5 UJ	S	с
METHYL CYCLOHEXANE		0.5	D	
МЕТНҮЦ ТЕКТ-ВИТҮЦ ЕТНЕК	IER	0.5	U	
METHYLENE CHLORIDE		0.5 UJ	Ŋ	U
O-XYLENE		0.5	n	
STYRENE		0.5	n	
TETRACHLOROETHENE		0.5 UJ	n	c
TOLUENE		0.5	U	
TRANS-1,2-DICHLOROETHENE	IENE	0.5 U	D	
TRANS-1,3-DICHLOROPROPENE	OPENE	0.5 U	U	
TRICHLOROETHENE		0.5 U	U	
TRICHLOROFLUOROMETHANE	HANE	0.5 U	U	
VINYL CHLORIDE		0.5 U	D	



Tetra Tech

INTERNAL CORRESPONDENCE

то:	D. BRAYACK	DATE:	FEBRUARY 21, 2012
FROM:	A. COGNETTI	COPIES:	DV FILE
SUBJECT:	ORGANIC DATA VALIDATION NWIRP BETHPAGE CTO WE O SAMPLE DELIVERY GROUP ()66	
SAMPLES:	7/Aqueous/VOC		
	BP-VPB-TB-011212 BP-VPB133-GW-434 BP-VPB133-GW-494	BP-VPB133-GW-394 BP-VPB133-GW-454	

<u>Overview</u>

The sample set for NWIRP Bethpage, CTO WE 066, SDG D1148 consists of six (6) environmental aqueous samples and a trip blank analyzed for volatile organic compounds (VOCs). There was no field duplicate contained in this SDG.

The samples were collected on January 12 and 13, 2012 by Tetra Tech and analyzed by Chemtech. VOC analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocol. The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
- Holding times
- GC/MS Tuning
 - Initial/continuing calibrations
 - Laboratory Method Blank Results
- Surrogate Recoveries
- Laboratory Control Sample Recoveries
- Internal Standard Recoveries
- Compound Quantitation
 - Compound Identification
 - Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

VOC

The initial calibration relative standard deviations (%RSDs) for chloroethane and 1,2-dibromo-3chloropropane were greater than the 15% quality control limit on January 19, 2012 on instrument MSVOA F. The nondetected chloroethane and 1,2-dibromo-3-chloropropane results were qualified as estimated (UJ) in the affected samples BP-VPB133-GW394 and BP-VPB133-GW-414.

The initial calibration %RSDs for several target analytes were greater than the 15% quality control limit on January 17, 2012 on instrument MSVOA G. The analytes were chloroethane, acetone, methyl acetate, methylene chloride, 2-butanone, 4-methyl-2-pentanone, 2-hexanone and tetrachloroethene. The nondetected chloroethane, acetone, methyl acetate, methylene chloride, 2-butanone, 4-methyl-2-

TO: D. Brayack FROM: A. Cognetti SDG: D1148 DATE: February 21, 2012 PAGE: 2

pentanone, 2-hexanone and tetrachloroethene results were qualified as estimated (UJ) in the affected samples BP-VPB-TB-0112122, BP-VPB133-GW-434, BP-VPB133-GW-454, BP-VPB133-GW-474 and BP-VPB133-GW-494.

The continuing calibration percent differences and/or percent drifts were greater than the 20% quality control limit for several target analytes on January 18, 2012 @ 5:41 on instrument MSVOAG. The analytes were acetone, methyl acetate and tetrachloroethane. The nondetected acetone, methyl acetate and tetrachloroethane is estimated (UJ) in the affected samples BP-VPB-TB-0112122, BP-VPB133-GW-434, BP-VPB133-GW-454, BP-VPB133-GW-474 and BP-VPB133-GW-494.

Due to sediment in samples BP-VPB133-GW-394 and BP-VPB133-GW-414, the laboratory had to analyze them as soil after decanting the top portion of liquid. No validation action was taken.

Additional Comments

The percent recovery (%R) of surrogate 1,2-dichloroethane-d4 was greater than the upper quality control limit in samples BP-VPB-TB-011212, BP-VPB133-GW-434, BP-VPB133-GW-454, BP-VPB133-GW-474 and BP-VPB133-GW-494. No action was taken on the nondetected results in the affected samples.

The matrix spike/matrix spike duplicate (MS/MSD) %Rs for cis-1,2-dichloroethene, methyl cyclohexane, trichloroethene, chlorobenzene and o-xylene were outside quality control limits in a sample not included in this SDG. No action was taken on the for cis-1,2-dichloroethene, methyl cyclohexane, trichloroethene, chlorobenzene and o-xylene results. In addition, the %R of ethyl benzene was greater than the upper quality control limit. No action was taken.

The MS/MSD %Rs of 1,1,2,2-tetrachloroethane was greater than the upper quality control limit in a sample not included in this SDG. No action was taken on the 1,1,2,2-tetrachloroethane results. In addition, the MSD %Rs of isopropylbenzene and 1,2,4-trichlorobenzene were outside quality control limits. No action was taken.

The laboratory control sample %R of methyl tert-butyl ether was greater than the upper quality control limit in batch BSG0117W3. No action was taken on the nondetected methyl tert-butyl ether results in the affected samples.

Nondetected results are reported to the limit of detection (LOD).

Positive results below the Reporting Limit (RL) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

EXECUTIVE SUMMARY

Laboratory Performance Issues: The continuing calibration %Ds and % drifts for several analytes exceeded quality control limits. The %RSDs exceeded the quality control limit for several analytes resulting in the qualification of data.

Other Factors Affecting Data Quality: Due to sediment in samples BP-VPB133-GW-394 and BP-VPB133-GW-414, the laboratory had to analyzed them as soil after decanting the top portion of liquid.

TO: D. Brayack FROM: A. Cognetti SDG: D1148 DATE: February 21, 2012 PAGE: 3

The data for these analyses were reviewed with reference to SOP # HW-24 Revision #2, August 2008, USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846/8260B, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories", April 2009. The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech

Ann Cognetti Chemist/Data Validator

1

Tetra Tech Joseph A. Samchuck Data Validation Quality Assurance Officer

Attachments:

- 1. Appendix A Qualified Analytical Results
- 2. Appendix B Results as Reported by the Laboratory
- 3. Appendix C Region II Data Validation Forms
- 4. Appendix D Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's r < 0.995
- K = ICP Interference includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- 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., base-time drifting)
- P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e.chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient r < 0.995</p>
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids <30%
- Z = Uncertainty at 2 sigma deviation is less than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed

PROJ NO: 00622	NSAMPLE	BP-VPB133-GW-434	SW-434		BP-VPB133-GW-454	GW-454		BP-VPB1	BP-VPB133-GW-474		BP-VPB13	BP-VPB133-GW-494	
SDG: D1148	LAB_ID	D1148-04			D1148-05			D1148-06			D1148-07		
FRACTION: OV	SAMP_DATE	1/12/2012			1/13/2012			1/13/2012			1/13/2012		
MEDIA: WATER	QC_TYPE	WN			MZ			MN			MN		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
											DESIII T		
1 1 1-TRICHI OROFTHANE				ALCU			arco		0.5 U	ערכר		0.5 U	
	HANF	0.51	, =		0.5								
1,1,2-TRICHLOROETHANE		0.5	0.5 U		0.5	2 C				-			
1.1.2-TRICHLOROTRIFLUOROETHANE	DROETHANE	0.5	<u> </u>		0	0.5 U							
1,1-DICHLOROETHANE		0.5	0.5 U		Ö	0.5 U			0.5 U			0.5 U	
1,1-DICHLOROETHENE		0.5	D		0.5	5 U			0.5 U			0.5 U	
1,2,4-TRICHLOROBENZENE	ш	0.5	n		0	0.5 U			0.5 U			0.5 U	
1,2-DIBROMO-3-CHLOROPROPANE	PROPANE	0.5	0.5 U		Ö.	0.5 U			0.5 U			0.5 U	
1,2-DIBROMOETHANE		0.5	0.5 U		0	0.5 U			0.5 U			0.5 U	
1,2-DICHLOROBENZENE		0.5	0.5 U		Ö	0.5 U			0.5 U			0.5 U	
1,2-DICHLOROETHANE	-	9.0	0.5 U		Ö	0.5 U			0.5 U			0.5 U	
1,2-DICHLOROPROPANE		0.5	0.5 U		Ö	0.5 U			0.5 U			0.5 U	
1,3-DICHLOROBENZENE		0.5	0.5 U		ö	0.5 U			0.5 U			0.5 U	
1,4-DICHLOROBENZENE		0.5	0.5 U		Ö	0.5 U			0.5 U			0.5 U	
2-BUTANONE	-	2.5	2.5 UJ	с U	5	2.5 UJ	c		2.5 UJ	<u>ں</u>		2.5 UJ	о
2-HEXANONE		2.5	2.5 UJ	с v	2.	2.5 UJ	c		2.5 UJ	ల		2.5 UJ	<u>ပ</u>
4-METHYL-2-PENTANONE		2.5	2.5 UJ	c	5	2.5 UJ	o		2.5 UJ	с U		2.5 UJ	с
ACETONE		2.5	2.5 UJ	v	3.	2.5 UJ	o		2.5 UJ	<u>ں</u>		2.5 UJ	о
BENZENE		0.5			Ö	0.5 U			0.5 U			0.5 U	
BROMODICHLOROMETHANE	NE	0.5	0.5 U		°	0.5 U			0.5 U			0.5 U	
BROMOFORM		0.5	n 1		0	0.5 U			0.5 U			0.5 U	
BROMOMETHANE		9.0 2	0.5 U		ō	0.5 U			0.5 U			0.5 U	-
CARBON DISULFIDE		9.0	0.5 U		Ö	0.5 U			0.5 U			0.5 U	
CARBON TETRACHLORIDE	ш	0.5	U 1		ö	0.5 U			0.5 U			0.5 U	
CHLOROBENZENE		9.0	0.5 U		O	0.5 U			0.5 U			0.5 U	
CHLORODIBROMOMETHANE	INE	0.5	D		0	0.5 U			0.5 U			0.5 U	
CHLOROETHANE		0.5	i UJ	c	Ö	0.5 UJ	v		0.5 UJ	v		0.5 UJ	o
CHLOROFORM		0.5	i U		0.5	5 U			0.5 U			0.5 U	
CHLOROMETHANE		9.0	0.5 U		ō	0.5 U			0.5 U			0.5 U	
CIS-1,2-DICHLOROETHENE	Ш	0.5	n		0.5	5 U			0.5 U				
CIS-1,3-DICHLOROPROPENE	INE	0.5	U I		0	5 U			0.5 U			0.5 U	
CYCLOHEXANE		0.5	0.5 U		0	5 U			0.5 U			0.5 U	
DICHLORODIFLUOROMETHANE	THANE	0.5			0.5	5 U			0.5 U			0.5 U	
ETHYLBENZENE		0.5	s U		0.5	5 U			0.5 U			0.5 U	
ISOPROPYLBENZENE		0.5	U S		Ö	0.5 U			0.5 U			0.5 U	

2/21/2012

PROJ NO: 00622	NSAMPLE	BP-VPB-TB-011212	1212	
SDG: D1148		D1148-01		
FRACTION: OV	SAMP_DATE	1/12/2012		
MEDIA: WATER	QC_TYPE	MM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT		arcd
1,1,1-TRICHLOROETHANE		0.5	_ ح	
1,1,2,2-TETRACHLOROETHANE	HANE	0.5	D	
1,1,2-TRICHLOROETHANE		0.5	D	
1,1,2-TRICHLOROTRIFLUOROETHANE	ROETHANE	0.5 U	5	
1,1-DICHLOROETHANE		0.5	n	
1,1-DICHLOROETHENE		0.5 U	D	
1,2,4-TRICHLOROBENZENE	Ш	0.5 U	n	
1,2-DIBROMO-3-CHLOROPROPANE	ROPANE	0.5	n	
1,2-DIBROMOETHANE		0.5	D	
1,2-DICHLOROBENZENE		0.5 U	D	
1,2-DICHLOROETHANE		0.5	D	
1,2-DICHLOROPROPANE		0.5	Л	
1,3-DICHLOROBENZENE		0.5 U	D	
1,4-DICHLOROBENZENE		0.5	С	
2-BUTANONE		2.5	Ŋ	v
2-HEXANONE		2.5	G	v
4-METHYL-2-PENTANONE		2.5	ß	v
ACETONE		2.5	IJ	v
BENZENE		0.5	D	
BROMODICHLOROMETHANE	NE	0.5		
BROMOFORM	-	0.5	D	
BROMOMETHANE		0.5	5	
CARBON DISULFIDE	and a second	0.5		
CARBON TETRACHLORIDE	Ш	0.5		
CHLOROBENZENE		0.5		
CHLORODIBROMOMETHANE	ШN	0.5		
CHLOROETHANE		0.5	S	с U
CHLOROFORM		0.5	<u> </u>	
CHLOROMETHANE		0.5	5	
CIS-1,2-DICHLOROETHENE	Ш	0.5	5	
CIS-1,3-DICHLOROPROPENE	NE	0.5	D	
CYCLOHEXANE		0.5	5	
DICHLORODIFLUOROMETHANE	HANE	0.5 U	5	
ETHYLBENZENE		0.5		
ISOPROPYLBENZENE		0.5	5	

2/21/2012

PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-434	GW-434		BP-VPB133-GW-454	W-454		BP-VPB133-GW-474	SW-474		BP-VPB133-GW-494	3W-494	
SDG: D1148		D1148-04			D1148-05			D1148-06			D1148-07		
FRACTION: OV	SAMP_DATE	1/12/2012			1/13/2012			1/13/2012			1/13/2012		
MEDIA: WATER	QC_TYPE	MN			WN			NM			NM		
	UNITS	UG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VaL	arcp	RESULT	VaL	alcd	RESULT	VaL	arcd	RESULT	Val	alcd
M+P-XYLENES		•	1 U		•	n		•	1 U		-	1 U	
METHYL ACETATE	:	0.5	0.5 UJ	с U	0.5	0.5 UJ	C	0.5	0.5 UJ	c	0.5	0.5 UJ	с U
METHYL CYCLOHEXANE		0.5 1	s U		0.5	n		0.5	D		0.5 (C	
METHYL TERT-BUTYL ETHER	ler	i.0	0.5 U		0.5 U	D		0.5	0.5 U		0.5	0.5 U	
METHYLENE CHLORIDE		70	0.5 UJ	c	0.5	0.5 UJ	c	0.5	0.5 UJ	c	0.5	0.5 UJ	c
O-XYLENE		0.5 1	n S		0.5 U	D		0.5	n		0.5	0.5 U	
STYRENE		0.6	0.5 U		0.5 U	D		0.6	0.5 U		0.5	0.5 U	
TETRACHLOROETHENE		0.1	0.5 UJ	ల	0.5	0.5 UJ	v	0.6	0.5 UJ	c	0.5	0.5 UJ	c
TOLUENE		0.	0.5 U	;	0.5 U	n		0.5	0.5 U		0.5	0.5 U	
TRANS-1,2-DICHLOROETHENE	IENE	0.5	د د ر		0.5 U	D		0.5	۱U		0.5	0.5 U	
TRANS-1, 3-DICHLOROPROPENE	DPENE	0.1	0.5 U		0.5 U	D		0.5	n		0.5	n	
TRICHLOROETHENE		0.1	0.5 U		0.5 U	n		0.5	i U		0.5	i U	
TRICHLOROFLUOROMETHANE	IANE	0.1	0.5 U		0.5 U	U		0.5	D		0.5	0.5 U	
VINYL CHLORIDE		0.1	0.5 U		0.5 U	D		0.5	n		0.5 1	<u> </u>	

SDG: D1148 FRACTION: OV SA MEDIA: WATER QC				
		D1148-01		
	SAMP_DATE	1/12/2012		
UN	ac_TYPE	WN		
	UNITS	NG/L		
PC	PCT_SOLIDS	0.0		
na	DUP_OF			
PARAMETER		RESULT	Val	arcp
M+P-XYLENES		-	1 U	
METHYL ACETATE		0.5	0.5 UJ	c
METHYL CYCLOHEXANE		0.5	5	
METHYL TERT-BUTYL ETHER		0.5	D	
METHYLENE CHLORIDE		0.5	0.5 UJ	o
O-XYLENE		0.5	n	
STYRENE		0.5	n	
TETRACHLOROETHENE		0.5	0.5 UJ	c
TOLUENE		0.5	D	
TRANS-1,2-DICHLOROETHENE	E	0.5 U	D	
TRANS-1,3-DICHLOROPROPENE	ENE'	0.5	D	
TRICHLOROETHENE		0.5	n	
TRICHLOROFLUOROMETHANE	JE	0.5 U	D	
VINYL CHLORIDE		0.5 U	n	

SDG: D1148	-				BP-VPB133-GW-414	± †2	
TO LOTION OV	LAB_ID	D1148-08			D1148-09		
FRACTION: OV	SAMP_DATE	1/12/2012			1/12/2012		
MEDIA: SOIL	ac_TYPE	WN			WN		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	100.0			100.0		
	DUP_OF						
PARAMETER		RESULT	VaL	arcD	RESULT	٨۵۲	alcd
1,1,1-TRICHLOROETHANE		2.5	D		2.5	5	
1,1,2,2-TETRACHLOROETHANE	'HANE	2.5 U	D		2.5 U	5	
1,1,2-TRICHLOROETHANE		2.5 U	n		2.5 U	5	
1,1,2-TRICHLOROTRIFLUOROETHANE	OROETHANE	2.5 U	N		2.5 U	C	
1,1-DICHLOROETHANE		2.5 U	U		2.5 U	5	
1,1-DICHLOROETHENE		2.5 U	U		2.5 U	5	
1,2,4-TRICHLOROBENZENE	ШZ	2.5 U	n		2.5 U	5	
1,2-DIBROMO-3-CHLOROPROPANE	PROPANE	2.5 UJ	Ŋ	v	2.5 UJ	3	ა
1,2-DIBROMOETHANE		2.5 U	Ъ		2.5 U	_	
1,2-DICHLOROBENZENE		2.5 U	Л		2.5 U	5	
1,2-DICHLOROETHANE		2.5 U	D		2.5 U	5	
1,2-DICHLOROPROPANE		2.5 U	D		2.5 U	5	
1,3-DICHLOROBENZENE		2.5 U	n		2.5 U	5	
1,4-DICHLOROBENZENE		2.5 U	D		2.5 U	5	
2-BUTANONE		23 J	-	4	5.4 J	_	٩
2-HEXANONE		12.5	D		12.5 U	D	
4-METHYL-2-PENTANONE		12.5 U	5		12.5 U	_	
ACETONE		72			22 ,	->	Ъ
BENZENE		2.5 U	5		2.5 U	5	
BROMODICHLOROMETHANE	ANE	2.5 U	5		2.5 U	_	
BROMOFORM		2.5 U	5		2.5 U	_	
BROMOMETHANE		2.5 U	D		2.5 U	_	
CARBON DISULFIDE		2.5 U	5		18		
CARBON TETRACHLORIDE	Ē	2.5 U	5		2.5 U		
CHLOROBENZENE		2.5 U	5		2.5 1	5	
CHLORODIBROMOMETHANE	ANE	2.5 U	5		2.5 U	_	
CHLOROETHANE		2.5 UJ	ß	с	2.5 UJ	3	с
CHLOROFORM		2.5 U	D		2.5 1	D	
CHLOROMETHANE		2.5 U	D		2.5 U	5	
CIS-1,2-DICHLOROETHENE	Щ	2.5 U	D		2.5 U		
CIS-1,3-DICHLOROPROPENE	ENE	2.5 U	D			5	
CYCLOHEXANE		2.5	n		2.5 1	∍	
DICHLORODIFLUOROMETHANE	THANE	2.5	D		2.5 U	5	
ETHYLBENZENE		2.5 U	D			5	
ISOPROPYLBENZENE		2.5	D		2.5	5	

PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-394	W-394		BP-VPB133-GW-414	W-414	
SDG: D1148		D1148-08			D1148-09		
FRACTION: OV	SAMP_DATE	1/12/2012			1/12/2012		
MEDIA: SOIL	QC_TYPE	MN			MN		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	100.0			100.0		
	DUP_OF						
PARAMETER		RESULT	Val	alcd	RESULT	۲a۲	alcd
M+P-XYLENES		S	5 U		5	5 U	
METHYL ACETATE		2.5 U	n		2.5	n	
METHYL CYCLOHEXANE		2.5 U	5		2.5	n	
METHYL TERT-BUTYL ETHER	HER	2.5 U	D		2.5	D	
METHYLENE CHLORIDE		2.5 U	n		2.5 U	D	
O-XYLENE		2.5 U	n		2.5 U	Ъ	
STYRENE		2.5 U	n		2.5	D	
TETRACHLOROETHENE		2.5 U	U		2.5	_	
TOLUENE		2.5 U	n		2.5	∍	
TRANS-1,2-DICHLOROETHENE	JENE	2.5 U	n		2.5 U	Ъ	
TRANS-1,3-DICHLOROPROPENE	OPENE	2.5 U	n		2.5	D	
TRICHLOROETHENE		2.5 U	U		2.5	ъ	
TRICHLOROFLUOROMETHANE	HANE	2.5 U	n		2.5	_	
VINYL CHLORIDE		2.5 U	n		2.5 U	D	

3/29/2012



Tetra Tech

INTERNAL CORRESPONDENCE

DV FILE

TO: D. BRAYACK

NWIRP BETHPAGE CTO WE 066

SAMPLE DELIVERY GROUP (SDG) - D1208

DATE: FEBRUARY 21, 2012

FROM: A. COGNETTI

SUBJECT:

ORGANIC DATA VALIDATION - VOC

COPIES:

SAMPLES: 9/Aqueous/VOC

BP-VPB-TB-011612	BP-VPB133-GW-514	BP-VPB133-GW-534
BP-VPB133-GW-554	BP-VPB133-GW-574	BP-VPB133-GW-594
BP-VPB133-GW-614	BP-VPB133-GW-634	BP-VPB133-GW-654

<u>Overview</u>

The sample set for NWIRP Bethpage, CTO WE 066, SDG D1208 consists of eight (8) environmental aqueous samples and a trip blank analyzed for volatile organic compounds (VOCs). There was no field duplicate contained in this SDG.

The samples were collected on January 16, 17 and 18, 2012 by Tetra Tech and analyzed by Chemtech. VOC analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocol. The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
- Holding times
- GC/MS Tuning
- Initial/continuing calibrations
- Laboratory Method Blank Results
- Surrogate Recoveries
- Laboratory Control Sample Recoveries
- Internal Standard Recoveries
- Compound Quantitation
- Compound Identification
- Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

<u>VOC</u>

The initial calibration relative standard deviations (%RSDs) for chloroethane and 1,2-dibromo-3chloropropane were greater than the 15% quality control limit on January 19, 2012 on instrument MSVOA F. The nondetected chloroethane and 1,2-dibromo-3-chloropropane results were qualified as estimated (UJ) in the affected samples BP-VPB133-GW-614, BP-VPB133-GW-654, BP-VPB133-GW-574 and BP-VPB133-GW-594.

The initial calibration %RSDs were greater than the 15% quality control limit for several target analytes on January 17, 2012 on instrument MSVOA R. The analytes were methylene chloride, cis-1,3-dichloropropene, dibromochloromethane, tetrachloroethane, ethyl benzene, bromoform and isopropylbenzene, The

TO: D. Brayack FROM: A. Cognetti SDG: D1208 DATE: February 21, 2012 PAGE: 2

nondetected results of the aforementioned analytes were qualified as estimated (UJ) in the affected samples BP-VPB-TB-011612, BP-VPB133-GW-514, BP-VPB133-GW-534, BP-VPB133-GW-554 and BP-VPB133-GW-634.

The continuing calibration %Ds for trans-1,2-dichloroethene carbon tetrachloride and bromoform were greater than the 20% quality control limit on January 19, 2012 @ 13:24 on instrument MSVOA R. The nondetected trans-1,2-dichloroethene carbon tetrachloride and bromoform results were qualified as estimated (UJ) in the affected samples BP-VPB-TB-011612, BP-VPB133-GW-514, BP-VPB133-GW-534, BP-VPB133-GW-554 and BP-VPB133-GW-634.

Due to sediment in samples BP-VPB133-GW-574, BP-VPB133-GW-594, BP-VPB133-GW-614 and BP-VPB133-GW-654, the laboratory had to analyze them as soil after decanting the top portion of liquid. No action was taken.

It was noted by the laboratory that samples BP-VPB133-GW-534, BP-VPB133-GW-554 and BP-VPB133-GW-634 contained air bubbles. The positive results in these samples were qualified as estimated (J) and the nondetected results were rejected (UR).

Additional Comments

The matrix spike (MS) percent recovery (%R) for 1,2,4-trichlorobenzene was less than the lower quality control limit in a sample not included in this SDG. No action was taken on the for 1,2,4-trichlorobenzene results. In addition, the MSD %R of 1,1,2,2-tetrachloroethane was greater than the upper quality control limit. No action was taken.

The relative percent difference (RPD) for trans-1,2-dichloroethene was outside quality control limits in the MS/MSD of sample D1165-03 which is not included in this SDG. No action was taken.

Nondetected results are reported to the limit of detection (LOD).

Positive results below the Reporting Limit (RL) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

EXECUTIVE SUMMARY

Laboratory Performance Issues: The continuing calibration %Ds and % drifts for several analytes exceeded quality control limits. The %RSDs exceeded the quality control limit for several analytes resulting in the qualification of data.

Other Factors Affecting Data Quality: Due to sediment in samples BP-VPB133-GW-574, BP-VPB133-GW-594, BP-VPB133-GW-614 and BP-VPB133-GW-654, the laboratory had to analyzed them as soil after decanting the top portion of liquid. Samples BP-VPB133-GW-534, BP-VPB133-GW-554 and BP-VPB133-GW-634 contained air bubbles

TO: D. Brayack FROM: A. Cognetti SDG: D1208 DATE: February 21, 2012 PAGE: 3

The data for these analyses were reviewed with reference to SOP # HW-24 Revision #2, August 2008, USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846/8260B, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories", April 2009. The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech

Ann Cognetti Chemist/Data Validator

arc Tetra tech

Joseph A. Samchuck Data Validation Quality Assurance Officer

Attachments:

- 1. Appendix A Qualified Analytical Results
- 2. Appendix B Results as Reported by the Laboratory
- 3. Appendix C Region II Data Validation Forms
- 4. Appendix D Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's r < 0.995</p>
- K = ICP Interference includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- 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., base-time drifting)
- P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient r < 0.995
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids <30%
- Z = Uncertainty at 2 sigma deviation is less than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed

SDG: D1208-05 FRACTION: OV D1208-05 FRACTION: OV NIT AME DATE 1/17/2012 AME DATE 1/17/2012 AME DATE 1/17/2012 AND UNITS UG/KG PARAMETER RESULT VQL 1,1,1-TRICHLOROETHANE Z.5 U 1,1,2.2-TETRACHLOROETHANE Z.5 U 1,1,2.2-TETRACHLOROETHANE Z.5 U 1,1,2.2-TRICHLOROETHANE Z.5 U 1,1,2.DICHLOROETHANE Z.5 U 1,1,2.DICHLOROETHANE Z.5 U 1,2.2.DIBROMOETHANE Z.5 U 1,2.2.DICHLOROENENE Z.5<	Val. al.cb 2.5 U 2.5 U	D1208-06 1/17/2012 NM UG/KG UG/KG 2.55 U 2.55 U 2.55 U 2.55 U 2.55 U		D1208-07 1/18/2012		D1208-09 1/18/2012	
MP_DATE 1/17/2012 TYPE NM UG/KG UG/KG TSOLIDS PP_OF RESULT RESULT PPANE PPANE	VaL aLCD 2.5 U 2.5 U	12 7 2.55 2.55 2.55 2.55 2.55		1/18/2012		1/18/2012	
LTYPE NM IITS UG/KG UG/KG DP_OF RESULT RESULT P_OF P_OF RESULT		2.55 2.55 2.55 2.55 2.55					
ITS UG/KG		2.55 2.55 2.55 2.55 2.55		MN		MM	
P_OF R_OF RESULT RESULT RESULT RESULT		2.55 2.55 2.55 2.55 2.55		UG/KG		NG/KG	
		2.55 2.55 2.55 2.55 2.55 2.55					
		2.55 2.55 2.55 2.55 2.55	QLCD	RESULT VOL	arcd	RESULT VQL	arcd
		2.55 U 2.55 U 2.55 U 2.55 U		2.45 U		2.5 U	
ETHANE PPANE		2.55 U 2.55 U 2.55 U		2.45 U		2.5 U	
PANE		2.55 U 2.55 U		2.45 U		2.5 U	
		2.55 U		2.45 U		2.5 U	
PANE				2.45 U		2.5 U	
PPANE		2.55 U		2.45 U		2.5 U	
PANE		2.55 U		2.45 U		2.5 U	
	2.5 U 2.5 U 2.5 U 2.5 U	2.55 UJ	v	2.45 UJ	o	2.5 UJ	<u>ပ</u>
	2.5 U 2.5 U 2.5 II	2.55 U		2.45 U		2.5 U	
	2.5 U 2.5 II	2.55 U		2.45 U		2.5 U	
	2511	2.55 U	-	2.45 U		2.5 U	
	2	2.55 U		2.45 U		2.5 U	
	2.5 U	2.55 U		2.45 U		2.5 U	
	2.5 U	2.55 U		2.45 U		2.5 U	
	12.5 U	12.5 U		12.5 U		12.5 U	
	12.5 U	12.5 U		12.5 U		12.5 U	
	12.5 U	12.5 U		12.5 U		12.5 U	
	32	38		34			
	2.5 U	2.55 U	- -	2.45 U		2.5 U	
	2.5 U	2.55 U		2.45 U		2.5 U	
	2.5 U	2.55 U		2.45 U		2.5 U	
	2.5 U	2.55 U		2.45 U		2.5 U	
	2.5 U	2.55 U		2.45 U		2.5 U	
	2.5 U	2.55 U		2.45 U		2.5 U	
	2.5 U	2.55 U		2.45 U		2.5 U	
	2.5 U	2.55 U		2.45 U		2.5 U	
	2.5 UJ C	2.55 UJ	o	2.45 UJ	U	2.5 UJ	<u>0</u>
CHLOROFORM 2	2.5 U	2.55 U		2.45 U		2.5 U	-
ANE	2.5 U	2.55 U		2.45 U		2.5 U	
CIS-1,2-DICHLOROETHENE	2.5 U	2.55 U		2.45 U		2.5 U	
CIS-1, 3-DICHLOROPROPENE	2.5 U	2.55 U		2.45 U		2.5 U	
	2.5 U	2.55 U		2.45 U		2.5 U	
JOROMETHANE	2.5 U	2.55 U		2.45 U		2.5 U	
ETHYLBENZENE	2.5 U	2.55 U		2.45 U			
(SOPROPYLBENZENE	2.5 U	2.55 U		2.45 U		2.5 U	

3/29/2012

PROJ NO: 00622	NSAMPLE	BP-VPB133-GW-574	W-574		BP-VPB133-GW-594	GW-594		BP-VPB133-GW-614	14	BP-VPB133-GW-654	GW-654		
SDG: D1208	LAB ID	D1208-05			D1208-06			D1208-07		D1208-09			
FRACTION: OV	SAMP DATE	1/17/2012			1/17/2012			1/18/2012		1/18/2012			
MEDIA: SEDIMENT	QC TYPE	MN			MN			NM		MM			
	UNITS	UG/KG			NG/KG			UG/KG		UG/KG			
	PCT_SOLIDS												Τ
	DUP_OF							-					
PARAMETER		RESULT	Val	alcd	RESULT	Val	QLCD	RESULT VOL	- alcd	RESULT	۲aL	alco	
M+P-XYLENES		4,95 U	n		"	5 U		4.9 U			5 U		
METHYL ACETATE		2.5 U	2		2.55 1	۶U		2.45 U		· 7	2.5 U		
METHYL CYCLOHEXANE		2.5 U	∍		2.55	5 U		2.45 U		2.5	5 U		~
METHYL TERT-BUTYL ETHER	HER	2.5 U	5		2.55 U	5 U		2.45 U		2.5	5 U		
METHYLENE CHLORIDE		2.5 U	<u>⊃</u>		2.55 L	s U		6.1			9		
O-XYLENE		2.5 U	2		2.55 U	۶U		2.45 U		5	2.5 U		
STYRENE		2.5 U	5		2.55 U	5 U		2.45 U		5	2.5 U		
TETRACHLOROETHENE		2.5 U	5		2.55 U	s U		2.45 U		5	2.5 U		
TOLUENE		2.5 U	D		2.55	n S		2.45 U		5	2.5 U		
TRANS-1,2-DICHLOROETHENE	HENE	2.5	2.5 U		2.55	5 U		2.45 U		5	2.5 U		
TRANS-1,3-DICHLOROPROPENE	OPENE	2.5 U	D		2.55	5 U		2.45 U		5	2.5 U		
TRICHLOROETHENE		2.5 U	D		2.55	5 U		2.45 U		'n	2.5 U		
TRICHLOROFLUOROMETHANE	HANE	2.5 U	р		2.55 U	5 U		2.45 U		N	2.5 U		
VINYL CHLORIDE		2.5 U	D		2.55	5 U		2.45 U			2.5 U		

3/29/2012

PROJ NO: 00622 N	NSAMPLE	BP-VPB133-GW-514	514	BP-VPB133-GW-534	-534	ä	BP-VPB133-GW-554	-554		BP-VPB133-GW-634	3-GW-634		Γ
	LAB ID	D1208-01		D1208-03			D1208-04			D1208-08			
0	SAMP_DATE	1/16/2012		1/16/2012		1/	1/17/2012			1/18/2012			
MEDIA: WATER	ac_TYPE	MN		MN		WN	×			WN			T
	UNITS	NG/L		NG/L		Ď	UG/L			NG/L			
<u> </u>	PCT_SOLIDS	0.0		0.0		0.0	0			0.0			
								NOI	orcn	RESULT	NoL	arcp	
1,1,1-TRICHLOROETHANE		0.5		0.5			0.5	1	σ		0.5 UR	σ	
1,1,2,2-TETRACHLOROETHANE	\NE	0.5 U					0.5 L	UR	a		0.5 UR	ø	
1,1,2-TRICHLOROETHANE		0.5 U		0.5 U	UR Q		0.5 L	UR	a		0.5 UR	a	
1,1,2-TRICHLOROTRIFLUOROETHANE	OETHANE	0.5 U		0.5 U	UR Q		0.5 ר	ЛR	a		0.5 UR	ø	**
1,1-DICHLOROETHANE		0.5 U		0.5 UR				R	g			σ	
1,1-DICHLOROETHENE		0.5 U		0.5 UR	в		0.5 L	ЛR	a		0.5 UR	ø	
1,2,4-TRICHLOROBENZENE		0.5 U		0.5 UR	-		0.5 ר	ЛR	a		0.5 UR	ø	
1,2-DIBROMO-3-CHLOROPROPANE	OPANE	0.5 U		0.5 U	ur a		0.5 L	UR	ø		0.5 UR	σ	Ĩ
1,2-DIBROMOETHANE		0.5 U		0.5 UR			0.5 L	R	σ		0.5 UR	σ	
1,2-DICHLOROBENZENE		0.5 U		0.5 U	UR Q		0.5 L		σ		0.5 UR	σ	
1,2-DICHLOROETHANE		0.5 U		0.5 U					σ		0.5 UR	σ	
1,2-DICHLOROPROPANE		0.5 U	•						σ		0.5 UR	σ	
1,3-DICHLOROBENZENE		0.5 U		0.5 U	UR α		0.5 L	R	σ		0.5 UR	σ	
1,4-DICHLOROBENZENE		0.5 U		0.5 UR			0.5 L	ЛR	σ		0.5 UR	σ	
2-BUTANONE		2.5 U		2.5 U	UR a		2.5 L	UR	σ		2.5 UR	σ	
2-HEXANONE		2.5 U		2.5 U			2.5 L		σ		2.5 UR	σ	
4-METHYL-2-PENTANONE		2.5 U		2.5 UR	о х		2.5 L	R	σ		2.5 UR	σ	
ACETONE		7.6		4.2 J			4 .8 J		PQ		8.2 J	σ	
BENZENE		0.5 U		0.5 UR					σ			σ	
BROMODICHLOROMETHANE	Ш	0.5 U		0.5 UR				ЛR	a		0.5 UR	σ	1
BROMOFORM		0.5 UJ	v	0.5 UR			0.5 L		a	~		σ	
BROMOMETHANE		0.5 U		0.5 UR	ъ В				ø		0.5 UR	σ	
CARBON DISULFIDE		0.5 U		0.5 UR			0.5 L		a		0.5 UR	σ	
CARBON TETRACHLORIDE		0.5 UJ	U	0.5 UR			0.5 L		a		0.5 UR	σ	
CHLOROBENZENE		0.5 U		0.5 U					σ		0.5 UR	σ	
CHLORODIBROMOMETHANE	ш	0.5 UJ	U	0.5 UR			0.5 L	R	σ			σ	
CHLOROETHANE		0.5 U		0.5 UR			0.5 L		ø		0.5 UR	σ	
CHLOROFORM		0.5 U		0.5 UR			0.5 ר		σ			σ	
CHLOROMETHANE		0.5 U		0.5 UR	R Q				σ			σ	
CIS-1,2-DICHLOROETHENE		0.5 U		0.5 U	UR Q		0.5 L	R	σ		0.5 UR	σ	
CIS-1,3-DICHLOROPROPENE	Ш	0.5 UJ	С	0.5 UR					ø		0.5 UR	σ	
CYCLOHEXANE		0.5 U		0.5 U	UR Q			UR	σ		0.5 UR	σ	
DICHLORODIFLUOROMETHANE	ANE	0.5 U		0.5 U	UR a		0.5 L	UR	σ		0.5 UR	σ	
ETHYLBENZENE		0.5 UJ	С	0.5 U	UR Q			UR	a		0.5 UR	σ	
ISOPROPYLBENZENE		0.5 UJ		0.5 U	ur a		0.5 ו	UR	σ		0.5 UR	a	

PROJ_NO: 00622	NSAMPLE	BP-VPB-TB-011612	312	
SDG: D1208	LAB_ID	D1208-02		
FRACTION: OV	SAMP_DATE	1/16/2012		,
MEDIA: WATER	QC_TYPE	MN		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT VC	رم دم	arco
1,1,1-TRICHLOROETHANE		0.5 U		
1,1,2,2-TETRACHLOROETHANE	HANE	0.5 U		
1,1,2-TRICHLOROETHANE		0.5 U		
1,1,2-TRICHLOROTRIFLUOROETHANE	DROETHANE	0.5 U		
1,1-DICHLOROETHANE		0.5 U		
1,1-DICHLOROETHENE		0.5 U		
1,2,4-TRICHLOROBENZENE	Ш	0.5 U		
1,2-DIBROMO-3-CHLOROPROPANE	PROPANE	0.5 U		
1,2-DIBROMOETHANE		0.5 U		
1,2-DICHLOROBENZENE		0.5 U		
1,2-DICHLOROETHANE				
1,2-DICHLOROPROPANE		0.5 U		
1,3-DICHLOROBENZENE		0.5 U		
1,4-DICHLOROBENZENE		0.5 U		
2-BUTANONE		2.5 U		
2-HEXANONE		2.5 U		
4-METHYL-2-PENTANONE		2.5 U		
ACETONE		2.5 U		
BENZENE		0.5 U		
BROMODICHLOROMETHANE	NE	0.5 U	·	
BROMOFORM		0.5 UJ		U
BROMOMETHANE		0.5 U		
CARBON DISULFIDE		0.5 U		
CARBON TETRACHLORIDE	Ш	0.5 UJ		υ
CHLOROBENZENE		0.5 U		
CHLORODIBROMOMETHANE	ŇĒ	0.5 UJ		U
CHLOROETHANE				
CHLOROFORM		0.5 U		
CHLOROMETHANE		0.5 U		
CIS-1,2-DICHLOROETHENE	ш	0.5 U		
CIS-1, 3-DICHLOROPROPENE	INE	0.5 UJ		v
CYCLOHEXANE		0.5 U		5
DICHLORODIFLUOROMETHANE	THANE	0.5 U		
ETHYLBENZENE		0.5 UJ		o
ISOPROPYLBENZENE		0.5 UJ		с

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-514	GW-514		BP-VPB133-GW-534	3W-534		BP-VPB133-GW-554	3W-554		BP-VPB133-GW-634	W-634		
	SDG: D1208		D1208-01			D1208-03			D1208-04			D1208-08			
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	FRACTION: OV	SAMP_DATE	1/16/2012		*	1/16/2012			1/17/2012			1/18/2012			
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	MEDIA: WATER	QC_TYPE	MN			MN	:		MN			NM			
$ \begin{array}{ $		UNITS	NG/L			ng/L			NG/L			UG/L			
DUP_OF RESULT Val. ducto RESULT Val. Guto RESULT Mal. RESULT Val. RESULT RESULT		PCT_SOLIDS	0.0			0.0			0.0			0.0			
RESULT Val. alcdb alcdb <t< td=""><td>-</td><td>DUP_OF</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	-	DUP_OF													
1 1	PARAMETER		RESULT	VaL	arcD	RESULT	VaL	alcD	RESULT	VaL	arcp	RESULT	Val	arcp	
EXANE 0.5 U U U U<	M+P-XYLENES			1 U			I UR	σ		1 UR	٥		1 UR	ø	
EXANE 0.5 U	METHYL ACETATE		0	5 U		0.6	5 UR	σ	0.	5 UR	a	0.5	UR	ø	
TYLETHER 0.5 U <	METHYL CYCLOHEXANE		0	5 U		0 .£	5 UR	۵	0.1	5 UR	٥	0.5	UR	ø	
DRIDE 0.5 UJ C 0.5 UR Q	METHYL TERT-BUTYL ETH	ter	0.1	5 U		0.5	5 UR	Ø	0.	5 UR	ø	0.5	UR	ø	
0.5 0.5 0.5 0.6 0.5 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 <td>METHYLENE CHLORIDE</td> <td></td> <td>0.1</td> <td>5 UJ</td> <td>c</td> <td>0.5</td> <td>5 UR</td> <td>a</td> <td>0.1</td> <td>5 UR</td> <td>٥</td> <td>0.5</td> <td>UR</td> <td>σ</td> <td></td>	METHYLENE CHLORIDE		0.1	5 UJ	c	0.5	5 UR	a	0.1	5 UR	٥	0.5	UR	σ	
HENE 0.5 U 0	O-XYLENE		0.			0.5	5 UR	σ	0.1	5 UR	a	0.5	UR	ø	
IHENE 0.5 UJ C 0.5 UR Q 0.5 UR Q OROETHENE 0.5 U 0.5 U 0.5 UR Q 0.5 UR Q OROETHENE 0.5 U C 0.5 UR Q UR Q </td <td>STYRENE</td> <td></td> <td>ö</td> <td>5 U</td> <td></td> <td>0.5</td> <td>5 UR</td> <td>٥</td> <td>0.5</td> <td>5 UR</td> <td>٥</td> <td>0.5</td> <td>UR</td> <td>σ</td> <td></td>	STYRENE		ö	5 U		0.5	5 UR	٥	0.5	5 UR	٥	0.5	UR	σ	
OROETHENE 0.5 U 0.5 U 0.5 UR 0 0.5 UR 0<	TETRACHLOROETHENE		0.	5 UJ	c	0.5	i UR	σ	0.5	5 UR	o	0.5	UR	ø	
OROETHENE 0.5 UJ C 0.5 UR Q 0.5 UR Q OROPROPENE 0.5 U 0.5 U 0.5 UR Q 0.5 UR Q OROPROPENE 0.5 U 0.5 UR Q 0.5 UR Q 0.5 UR Q UR	TOLUENE		0.	5 U		<u>9</u> .0	5 UR	σ	ö	5 UR	٥	0.5	UR	ø	
OROPROPENE 0.5 U 0.5 U 0.5 U Q NE 0.5 U 0.5 U 0.5 U Q	TRANS-1,2-DICHLOROETH	IENE	0.	5 UJ	c	3.0	5 UR	٥	0.5	5 UR	ø	0.5	UR	ø	
NE 0.5 U 0.5 U 0.5 UR 0.5 UR 0 ROMETHANE 0.5 U 0.5 UR 0 0.5 UR 0 0.5 U 0.5 U 0.5 UR 0 0.5 UR 0	TRANS-1,3-DICHLOROPRC	OPENE	0.	5 U		0.5	5 UR	σ	0.1	5 UR	٥	0.5	UR	ø	
ROMETHANE 0.5 U 0.5 U 0.5 UR 0 0.5 UR 0 0.5 U 0.5 U 0.5 UR 0.5 UR 0 0.5 UR 0	TRICHLOROETHENE		0.	5 U		3.0	5 UR	σ	0.1	5 UR	a	0.5	UR	ø	
	TRICHLOROFLUOROMET	HANE	0.	5 U		3.0	5 UR	٥	0.1	5 UR	٥	0.5	UR	ø	
	VINYL CHLORIDE		0.	5 U		0.5	i UR	σ	0.5	5 UR	σ	0.5	0.5 UR	σ	

PROJ_NO: 00622	NSAMPLE	BP-VPB-TB-011612	1612	
SDG: D1208	LAB_ID	D1208-02		
FRACTION: OV	SAMP_DATE	1/16/2012		
MEDIA: WATER	ac_TYPE	MN		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	Val	arcd
M+P-XYLENES		÷	D	
METHYL ACETATE		0.5 U	n	
METHYL CYCLOHEXANE		0.5 U	n	
METHYL TERT-BUTYL ETHER	HER	0.5	n	
METHYLENE CHLORIDE		0.5 UJ	n	c
O-XYLENE		0.5 U	n	
STYRENE		0.5 U	n	
TETRACHLOROETHENE		0.5 UJ	n	c
TOLUENE		0.5 U	D	
TRANS-1,2-DICHLOROETHENE	HENE	0.5	0.5 UJ	C
TRANS-1,3-DICHLOROPROPENE	OPENE	0.5 U	n	
TRICHLOROETHENE		0.5	D	
TRICHLOROFLUOROMETHANE	HANE	0.5 U	n	
VINYL CHLORIDE		0.5 U	D	

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то:	D. BRAYACK	DATE:	MARCH 20, 2012
FROM:	TERRI L. SOLOMON	COPIES:	DV FILE
SUBJECT:	ORGANIC DATA VALIDATION VOO NWIRP BETHPAGE CTO WE 066 SAMPLE DELIVERY GROUP (SDG) ·	-	
SAMPLES:	8/Aqueous/VOC		

BP-VPB133-GW-754BP-VPB-TB-011912BP-VPB133-GW-694BP-VPB133-GW-703BP-VPB133-GW-714BP-VPB133-GW-734BP-VPB133-GW-744BP-VPB133-GW-764

<u>Overview</u>

The sample set for NWIRP Bethpage, CTO WE 066, SDG D1280 consists of seven (7) environmental aqueous samples and a trip blank analyzed for volatile organic compounds (VOCs). There was no field duplicate contained in this SDG.

The samples were collected on January 19, 20, 23 and 24, 2012 by Tetra Tech and analyzed by Chemtech. VOC analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocol. The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
- Holding times
- * GC/MS Tuning
 - Initial/continuing calibrations
- Laboratory Method Blank Results
 - Surrogate Recoveries
 - Laboratory Control Sample Recoveries
 - Internal Standard Recoveries
- Compound Quantitation
- Compound Identification
- Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

<u>voc</u>

The initial calibration relative standard deviations (%RSDs) for bromomethane, methyl acetate, methylene chloride, cyclohexane, trans-1,3-dichloropropene and cis-1,3-dichloropropene were greater than the 15% quality control limit on 01/26/2012 on instrument MSVOA R. The nondetected results for bromomethane, methyl acetate, methylene chloride, cyclohexane, trans-1,3-dichloropropene and cis-1,3-dichloropropene were qualified as estimated "UJ" in the affected samples BP-VPB133-GW-754 and BP-VPB-TB-011912.

MEMO TO: D. BRAYACK - PAGE 2 DATE: MARCH 20, 2012

The continuing calibration percent differences and/or percent drifts were greater than the 20% quality control limit for chloromethane and bromomethane on 01/26/2012 at 18:20 on instrument MSVOA R. The nondetected results for chloromethane and bromomethane were qualified as estimated "UJ" in the affected samples BP-VPB133-GW-754 and BP-VPB-TB-011912.

The initial calibration %RSDs for bromomethane, styrene and bromoform were greater than the 15% quality control limit on 01/24/2012 on instrument MSVOA T. The nondetected results for bromomethane, styrene and bromoform were qualified as estimated "UJ" in the affected samples BP-VPB133-GW-694, BP-VPB133-GW-703, BP-VPB133-GW-714, BP-VPB133-GW-734, BP-VPB133-GW-744 and BP-VPB133-GW-764.

The continuing calibration percent differences and/or percent drifts were greater than the 20% quality control limit for bromomethane, chloroethane and carbon disulfide on 01/26/2012 at 11:48 on instrument MSVOA T. The nondetected results for bromomethane, chloroethane and carbon disulfide were qualified as estimated "UJ" in the affected samples BP-VPB133-GW-694, BP-VPB133-GW-703, BP-VPB133-GW-714, BP-VPB133-GW-734, BP-VPB133-GW-744 and BP-VPB133-GW-764.

Sample BP-VPB133-GW-694 had a surrogate recovery less than the quality control limit for 4bromofluorobenzene and internal standards recoveries below the quality control limits for pentafluorobenzene, chlorobenzene-d5 and 1,4-dichlorobenzene-d4. The sample was reanalyzed and had surrogate recoveries for 4-bromofluorobenzene and toluene-d8 less than the quality control limits and an internal standard recovery for 1,4-dichlorobenzene-d4 below the quality control limit. The reanalyses was chosen for validation purposes. The positive and nondetected results reported for sample BP-VPB133-GW-694 were qualified as estimated, "J" and "UJ", respectively, as a result of surrogate noncompliances. The nondetected results reported for sample BP-VPB133-GW-694 for the affected compounds were qualified as estimated, "UJ", as a result of internal standard noncompliances..

Samples BP-VPB133-GW-703, BP-VPB133-GW-714, BP-VPB133-GW-734, BP-VPB133-GW-744 and BP-VPB133-GW-764 had surrogate recoveries less than the quality control limits for 4-bromofluorobenzene. The samples were reanalyzed and had surrogate recoveries for 4-bromofluorobenzene and/or toluene-d8 less than the quality control limits. The original analyses were chosen for validation purposes. The positive and nondetected results reported for samples BP-VPB133-GW-703, BP-VPB133-GW-714, BP-VPB133-GW-734, BP-VPB133-GW-744 and BP-VPB133-GW-764 were qualified as estimated, "J" and "UJ", respectively.

Samples BP-VPB133-GW-703, BP-VPB133-GW-714, BP-VPB133-GW-734, BP-VPB133-GW-744, BP-VPB133-GW-764 had internal standard recoveries less than the quality control limits for 1,4-dichlorobenzene-d4. The samples were reanalyzed and had internal standard recoveries for 1,4-dichlorobenzene-d4 less than the quality control limits. The original analyses were chosen for validation purposes. The nondetected results reported for samples BP-VPB133-GW-703, BP-VPB133-GW-714, BP-VPB133-GW-734, BP-VPB133-GW-744 and BP-VPB133-GW-764 for the affected compounds were qualified as estimated, "UJ".

Positive results below the Reporting Limit (RL) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

Additional Comments

Groundwater samples BP-VPB133-GW-694, BP-VPB133-GW-703, BP-VPB133-GW-714, BP-VPB133-GW-734, BP-VPB133-GW-744 and BP-VPB133-GW-764 were analyzed as soil samples due to the amount of sediment in the samples. The sample results were reported as ug/kg on a wet weight basis.

MEMO TO: D. BRAYACK - PAGE 3 DATE: MARCH 20, 2012

The laboratory control sample duplicate (LCSD) percent recovery for chloromethane was greater than the upper quality control limit affecting samples BP-VPB133-GW-754 and BP-VPB-TB-011912. No validation actions were required as all sample results for chloromethane were nondetects.

The laboratory control sample (LCS) / laboratory control sample duplicate (LCSD) relative percent difference was outside the quality control limits for methyl acetate affecting samples BP-VPB133-GW-754 and BP-VPB-TB-011912. No validation actions were required as the LCS and LCSD percent recoveries for methyl acetate were within the quality control limits.

Nondetected results are reported to the limit of detection (LOD).

EXECUTIVE SUMMARY

Laboratory Performance Issues: Several initial %RSDs and continuing calibration %Ds / % drifts for several compounds exceeded the quality control limits.

Other Factors Affecting Data Quality: Several surrogate and internal standards were below the quality control limits. Positive results below the RL and above the detection limit were qualified as estimated.

The data for these analyses were reviewed with reference to SOP # HW-24 Revision #2, August 2008, USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846/8260B, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories", April 2009. The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech

Terri L. Solomon Chemist/Data Validator

Petra Tech

Joseph A. Samchuck Data Validation Quality Assurance Officer

Attachments:

- 1. Appendix A Qualified Analytical Results
- 2. Appendix B Results as Reported by the Laboratory
- 3. Appendix C Region II Data Validation Forms
- 4. Appendix D Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's r < 0.995
- K = ICP Interference includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- 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., base-time drifting)
- P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient r < 0.995</p>
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids <30%
- Z = Uncertainty at 2 sigma deviation is less than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-754	W-754		BP-VPB-TB-011912	11912	
SDG: D1280	LAB_ID	D1280-08			D1280-02		
FRACTION: OV	SAMP_DATE	1/24/2012			1/19/2012		
MEDIA: WATER	ac_TYPE	WN			NM		
	UNITS	NG/L			NG/L		
	PCT_SOLIDS	100.0			100.0		
	DUP_OF						
PARAMETER		RESULT	VaL	alcd	RESULT	VaL	alcD
1,1,1-TRICHLOROETHANE		0.5	n		0.5 U	S	
1,1,2,2-TETRACHLOROETHANE	HANE	0.5	n		0.5 U	D	
1,1,2-TRICHLOROETHANE		0.5 U	n		0.5 U	С	
1,1,2-TRICHLOROTRIFLUOROETHANE	ROETHANE	0.5 U	D		0.5	D	
1,1-DICHLOROETHANE		0.5 U	D		0.5	с С	
1,1-DICHLOROETHENE		0.5 U	D		0.5 U	Ъ	
1,2,4-TRICHLOROBENZENE	ш	0.5 U	n		0.5 U	2	
1,2-DIBROMO-3-CHLOROPROPANE	ROPANE	0.5 U	Ъ		0.5 U	2	
1,2-DIBROMOETHANE		0.5 U	n		0.5 U	D	
1,2-DICHLOROBENZENE		0.5 U	U		0.5 U	D	
1,2-DICHLOROETHANE	-	0.5 U	c		0.5 U	<u> </u>	
1,2-DICHLOROPROPANE		0.5 U	n		0.5 U	<u> </u>	
1,3-DICHLOROBENZENE		0.5 U	D		0.5 U	D	
1,4-DICHLOROBENZENE		0.5 U	D		0.5 U	5	
2-BUTANONE		2.5 U	n		2.5 U	2	
2-HEXANONE		2.5 U	n		2.5 U	5	
4-METHYL-2-PENTANONE		2.5 U	ح		2.5 U	C	
ACETONE		6.8			2.5 U	Þ	
BENZENE		0.5 U	D		0.5 U	J	
BROMODICHLOROMETHANE	NE	0.5 U	n		0.5 U	<u> </u>	
BROMOFORM		0.5 U	C		0.5 U	Þ	
BROMOMETHANE		0.5	0.5 UJ	c	0.5	0.5 UJ	U
CARBON DISULFIDE		0.5 U	D		0.5 U	D	
CARBON TETRACHLORIDE	Ш	0.5 U	D		0.5	_	
CHLOROBENZENE		0.5 U	D		0.5	5	
CHLORODIBROMOMETHANE	NE	0.5 U	c		0.5 U	5	
CHLOROETHANE		0.5 U	р		0.5 U	<u> </u>	
CHLOROFORM		0.5 U	D		0.5	5	
CHLOROMETHANE		0.5	0.5 UJ	С	0.5	0.5 UJ	U
CIS-1,2-DICHLOROETHENE	ш	0.5 U	Ъ		0.5	-	
CIS-1,3-DICHLOROPROPENE	NE	0.5	0.5 UJ	с	0.5	3	U
CYCLOHEXANE		0.5	0.5 UJ	o	0.5	З	U
DICHLORODIFLUOROMETHANE	'HANE	0.5 U	D		0.5		
ETHYLBENZENE		0.5 U	∍		0.5		
ISOPROPYLBENZENE		0.5 U	D		0.5	2	

PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-754	W-754		BP-VPB-TB-011912	912	
SDG: D1280	LAB_ID	D1280-08			D1280-02		
FRACTION: OV	SAMP_DATE	1/24/2012			1/19/2012		
MEDIA: WATER	QC_TYPE	WN			MN		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	100.0			100.0		
	DUP_OF						
PARAMETER		RESULT	Val	arcd	RESULT V	Val	alcd
M+P-XYLENES		L .	<u>ح</u>		1 U	-	
METHYL ACETATE		9.0	0.5 UJ	c	0.5 UJ	Ľ	с
METHYL CYCLOHEXANE		0.5 U	D		0.5 U	_	
МЕТНҮL ТЕRT-ВUTYL ETHER	fER	0.5 U	D		0.5 U	ĺ	
METHYLENE CHLORIDE		0.5	0.5 UJ	c	0.5 UJ	T	v
O-XYLENE		0.5 U	n		0.5 U	-	
STYRENE		0.5 U	n		0.5 U	Ĺ	
TETRACHLOROETHENE		0.5 U	U		0.5 L	D	
TOLUENE		0.5 U	D		0.5 L	ſ	
TRANS-1,2-DICHLOROETHENE	HENE	0.5 U	n		0.5 U	-	
TRANS-1,3-DICHLOROPROPENE	OPENE	0.5	0.5 UJ	C	0.5 UJ	ſ	c
TRICHLOROETHENE		0.5 U	n		0.5 U	ſ	
TRICHLOROFLUOROMETHANE	HANE	0.5 U	n		0.5 U	_	
VINYL CHLORIDE		0.5 U	n		0.5 U	_	

PROJ NO: 00622	NSAMPLE	BP-VPB133-GW-694RE	4RE	BP-VPB133-GW-703	V-703		BP-VPB133-GW-714		BP-VPB133-GW-734	W-734	
	LAB_ID	D1280-01RE		D1280-04			D1280-05		D1280-03		
FRACTION: OV	SAMP_DATE	1/20/2012		1/20/2012			1/23/2012		1/23/2012		
MEDIA: SEDIMENT	QC_TYPE	MN		WN			WN		MM		
	UNITS	UG/KG		UG/KG			NG/KG		NG/KG		
	PCT_SOLIDS	0.0		0.0			0.0		0.0		
DARAMETER		RESULT VOI	OI CD	RESULT	ION	alcn	RESULT VOL	orco	RESULT	VoL	OLCD
1,1,1-TRICHLOROETHANE		2.5	e e e	2.5		R	2.45	۲ ۲	2.45		۲ ۲
1,1,2,2-TETRACHLOROETHANE	ANE	2.5 UJ	NR	2.5 UJ		NR	2.45 UJ	NR	2.45	З	NR
1,1,2-TRICHLOROETHANE		2.5 UJ	R	2.5 UJ		Я	2.45 UJ	Ľ	2.45 UJ	n	æ
1,1,2-TRICHLOROTRIFLUOROETHANE	ROETHANE	2.5 UJ	R	2.5 UJ	Б	Я	2.45 UJ	۲	2.45 UJ	n	æ
1,1-DICHLOROETHANE		2.5 UJ	R	2.5 UJ	Ŋ	Я	2.45 UJ	Ъ	2.45 UJ	ß	Ж
1,1-DICHLOROETHENE		2.5 UJ	R	2.5 UJ		Я	2.45 UJ	Ľ	2.45 UJ	IJ	ш
1,2,4-TRICHLOROBENZENE	ш	2.5 UJ	NR	2.5 UJ		NR	2.45 UJ	NR	2.45 UJ	ß	NR
1,2-DIBROMO-3-CHLOROPROPANE	ROPANE	2.5 UJ	NR	2.5 UJ		NR	2.45 UJ	NR	2.45 UJ	ß	NR
1,2-DIBROMOETHANE		2.5 UJ	R	2.5 UJ		R	2.45 UJ	Я	2.45 UJ	З	ч
1,2-DICHLOROBENZENE		2.5 UJ	NR	2.5 UJ		NR	2.45 UJ	NR	2.45 UJ	З	R
1,2-DICHLOROETHANE	-	2.5 UJ	R	2.5 UJ		8	2.45 UJ	٣	2.45 UJ	З	£
1,2-DICHLOROPROPANE		2.5 UJ	R	2.5 UJ		æ	2.45 UJ	Я	2.45 UJ	ß	ч
1,3-DICHLOROBENZENE		2.5 UJ	NR	2.5 UJ		NR	2.45 UJ	NR	2.45 UJ	С	R
1,4-DICHLOROBENZENE		2.5 UJ	R	2.5 UJ		NR	2.45 UJ	NR	2.45 UJ	n	R
2-BUTANONE		12.5 UJ	Ł	12.5 UJ		æ	12.5 UJ	Я	12.5 UJ	З	R
2-HEXANONE		12.5 UJ	٣	12.5 UJ		R	12.5 UJ	R	12.5 UJ	3	ъ
4-METHYL-2-PENTANONE		12.5 UJ	Я	12.5 UJ		В	12.5 UJ	٣	12.5 UJ	З	R
ACETONE		29 J	٣	35 J		Я	19 J	PR	16	J	PR
BENZENE		2.5 UJ	٣	2.5 UJ		R	2.45 UJ	Я	2.45 UJ	З	Ъ
BROMODICHLOROMETHANE	NE	2.5 UJ	Я	2.5 UJ		ъ	2.45 UJ	٣	2.45 UJ	ß	£
BROMOFORM		2.5 UJ	CR	2.5 UJ		CR	2.45 UJ	CR	2.45 UJ	ß	CR
BROMOMETHANE		2.5 UJ	CR	2.5 UJ		CR	2.45 UJ	CR	2.45 UJ	n	СR
CARBON DISULFIDE		2.5 UJ	СR	2.5 UJ		CR	2.45 UJ	CR	2.45 UJ	ß	СR
CARBON TETRACHLORIDE	61	2.5 UJ	R	2.5 UJ		£	2.45 UJ	۲	2.45 UJ	З	Я
CHLOROBENZENE		2.5 UJ	R	2.5 UJ		Я	2.45 UJ	Я	2.45 UJ	З	ч
CHLORODIBROMOMETHANE	ШZ	2.5 UJ	R	2.5 UJ		æ	2.45 UJ	۲	2.45 UJ	ß	R
CHLOROETHANE		2.5 UJ	CR	2.5 UJ		сR	2.45 UJ	ся	2.45 UJ	ß	сR
CHLOROFORM		2.5 UJ	R	2.5 UJ	n N	R	2.45 UJ	R	2.45 UJ	ß	۲
CHLOROMETHANE		2.5 UJ	R	2.5 UJ	n.	ч	2.45 UJ	Я	2.45 UJ	З	R
CIS-1,2-DICHLOROETHENE	1	2.5 UJ	R	2.5 UJ	IJ	Я	2.45 UJ	ж	2.45 UJ	n	Я
CIS-1,3-DICHLOROPROPENE	P	2.5 UJ	R	2.5	UJ	Я	2.45 UJ	Я	2.45 UJ	З	ч
CYCLOHEXANE		2.5 UJ	Я	2.5 UJ	UJ	R	2.45 UJ	Я	2.45 UJ	З	Я
DICHLORODIFLUOROMETHANE	HANE	2.5 UJ	٣	2.5 UJ	n	Я	2.45 UJ	Я	2.45 UJ	n	Я
ETHYLBENZENE		2.5 UJ	R	2.5	n	Я	2.45 UJ	Я	2.45 UJ	n	ч
ISOPROPYLBENZENE		2.5 UJ	NR	2.5 UJ	З	NR	2.45 UJ	R	2.45 UJ	ß	NR

PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-694RE	GW-694	RE	BP-VPB133-GW-703	W-703		BP-VPB133-GW-714	sW-714		BP-VPB133-GW-734	W-734	
SDG: D1280		D1280-01RE			D1280-04	,		D1280-05			D1280-03		
FRACTION: OV	SAMP_DATE	1/20/2012			1/20/2012			1/23/2012			1/23/2012		
MEDIA: SEDIMENT	QC_TYPE	WN			MN			WN			MN		
	UNITS	UG/KG			NG/KG			NG/KG			NG/KG		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	۲a۲	arcD	RESULT	VaL	arcd	RESULT	VaL	arcd	RESULT	VaL	arcd
M+P-XYLENES			5 UJ	R	5	5 UJ	R	4.95 UJ	Ŋ	R	4.9	4.9 UJ	R
METHYL ACETATE		2.1	2.5 UJ	R	2.5	2.5 UJ	R	2.45	2.45 UJ	Я	2.45 UJ	З	Ъ
METHYL CYCLOHEXANE		5	2.5 UJ	æ	2.5	2.5 UJ	R	2.45 UJ	n	R	2.45 UJ	۲Ŋ	R
METHYL TERT-BUTYL ETHER	JER	2.1	2.5 UJ	R	2.5	2.5 UJ	R	2.45	2.45 UJ	R	2.45 UJ	ß	ч
METHYLENE CHLORIDE		2.	2.7 J	PR	2.7 J	ſ	РК	2.7 J	L.	РК	2.45 UJ	З	۳
O-XYLENE		2.	2.5 UJ	R	2.5	2.5 UJ	R	2.45	2.45 UJ	R	2.45 UJ	n	R
STYRENE		2.	2.5 UJ	CR	2.5	2.5 UJ	CR	2.45	2.45 UJ	CR	2.45 UJ	۲Ŋ	CR
TETRACHLOROETHENE		2	2.5 UJ	R	2.5	2.5 UJ	R	2.45	2.45 UJ	R	2.45 UJ	Ŋ	В
TOLUENE		2.	2.5 UJ	Я	2.5	2.5 UJ	R	2.45	2.45 UJ	R	2.45 UJ	Ŋ	R
TRANS-1,2-DICHLOROETHENE	HENE	2.	2.5 UJ	Я	2.5	2.5 UJ	R	2.45	2.45 UJ	R	2.45 UJ	Ŋ	R
TRANS-1,3-DICHLOROPROPENE	OPENE	2	2.5 UJ	Ľ	2.5	2.5 UJ	Я	2.45	2.45 UJ	R	2.45 UJ	Ŋ	R
TRICHLOROETHENE		2.	2.5 UJ	R	2.5	2.5 UJ	R	2.45	2.45 UJ	R	2.45 UJ	З	R
TRICHLOROFLUOROMETHANE	HANE	2.1	2.5 UJ	R	2.5	2.5 UJ	R	2.45	2.45 UJ	R	2.45 UJ	3	۲
VINYL CHLORIDE		5	2.5 UJ	٣	2.5	2.5 UJ	Я	2.45	2.45 UJ	۲	2.45 UJ	З	Я

PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-744		BP-VPB133-GW-764	N-764	
SDG: D1280		D1280-06		D1280-07		
FRACTION: OV	SAMP_DATE	1/24/2012		1/24/2012		
MEDIA: SEDIMENT	QC_TYPE	WN		ŴN		
	UNITS	NG/KG		UG/KG		
	PCT_SOLIDS	0.0		0.0		
	DUP_OF					
PARAMETER		RESULT VQL	arcD	RESULT	٨d٢	arcd
1,1,1-TRICHLOROETHANE	111	2.5 UJ	Я	2.5	З	R
1,1,2,2-TETRACHLOROETHANE	HANE	2.5 UJ	NR	2.5	ß	NR .
1,1,2-TRICHLOROETHANE		2.5 UJ	R	2.5 UJ	Ŋ	Я
1,1,2-TRICHLOROTRIFLUOROETHANE	DROETHANE	2.5 UJ	R	2.5	n	ĸ
1,1-DICHLOROETHANE		2.5 UJ	R	2.5	'n	R
1,1-DICHLOROETHENE		2.5 UJ	R	2.5 UJ	n	R
1,2,4-TRICHLOROBENZENE	Ę	2.5 UJ	NR	2.5 UJ	ß	NR
1,2-DIBROMO-3-CHLOROPROPANE	PROPANE	2.5 UJ	NR	2.5 UJ	З	NR
1,2-DIBROMOETHANE		2.5 UJ	R	2.5 UJ	3	R
1,2-DICHLOROBENZENE		2.5 UJ	NR	2.5 UJ	З	NR
1,2-DICHLOROETHANE	-	2.5 UJ	Ľ	2.5 UJ	З	Я
1,2-DICHLOROPROPANE		2.5 UJ	R	2.5 UJ	n	R
1,3-DICHLOROBENZENE		2.5 UJ	NR	2.5 UJ	З	NR
1,4-DICHLOROBENZENE		2.5 UJ	NR	2.5 UJ	З	NR
2-BUTANONE		12.5 UJ	٣	12.5	ſ	ч
2-HEXANONE	- - - - - - - - - - - - - - - - - - -	12.5 UJ	Я	12.5 UJ	З	R
4-METHYL-2-PENTANONE		12.5 UJ	R	12.5	3	R
ACETONE		24 J	PR	35	۔ _	R
BENZENE		2.5 UJ	٣	2.5 UJ	З	Я
BROMODICHLOROMETHANE	ANE	2.5 UJ	R	2.5 UJ	З	R
BROMOFORM		2.5 UJ	ся	2.5 UJ	3	СR
BROMOMETHANE		2.5 UJ	сR	2.5 UJ	G	CR
CARBON DISULFIDE		2.5 UJ	CR	2.5 UJ	3	CR
CARBON TETRACHLORIDE	Ε	2.5 UJ	۲	2.5	З	R
CHLOROBENZENE		2.5 UJ	٣	2.5	З	R
CHLORODIBROMOMETHANE	ANE	2.5 UJ	ĸ	2.5 UJ	G	æ
CHLOROETHANE		2.5 UJ	CR	2.5 UJ	З	CR
CHLOROFORM		2.5 UJ	Я	2.5	З	В
CHLOROMETHANE		2.5 UJ	В	2.5 UJ	Ŋ	R
CIS-1,2-DICHLOROETHENE	Ē	2.5 UJ	R	2.5 UJ	ß	٣
CIS-1,3-DICHLOROPROPENE	ENE	2.5 UJ	R	2.5	ß	R
CYCLOHEXANE		2.5 UJ	٣	2.5	ſŊ	Ľ
DICHLORODIFLUOROMETHANE	THANE	2.5 UJ	R	2.5 UJ	n	R
ETHYLBENZENE		2.5 UJ	R	2.5	3	۲
ISOPROPYLBENZENE		2.5 UJ	NR	2.5	3	NR

PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-744	W-744		BP-VPB133-GW-764	W-764	
SDG: D1280		D1280-06			D1280-07		
FRACTION: OV	SAMP_DATE	1/24/2012			1/24/2012		
MEDIA: SEDIMENT	QC_TYPE	MN			MN		
	UNITS	NG/KG			NG/KG		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	Val	alcd	RESULT	Val	alcD
M+P-XYLENES		4.95 UJ	n	R	5	5 UJ	R
METHYL ACETATE		2.5	2.5 UJ	R	2.5 UJ	٢Ŋ	R
METHYL CYCLOHEXANE		2.5	2.5 UJ	æ	2.5 UJ	Ŋ	R
METHYL TERT-BUTYL ETHER	IER	2.5	2.5 UJ	£	2.5 UJ	ſŊ	R
METHYLENE CHLORIDE		2.5	2.5 UJ	R	3.1 J	ſ	PR
O-XYLENE		2.5	2.5 UJ	В	2.5 UJ	n	Я
STYRENE		2.5	2.5 UJ	CR	2.5 UJ	Ŋ	CR
TETRACHLOROETHENE		2.5	2.5 UJ	R	2.5	ß	R
TOLUENE		2.5	2.5 UJ	Я	2.5 UJ	n	R
TRANS-1,2-DICHLOROETHENE	HENE	2.5	2.5 UJ	ደ	2.5	2.5 UJ	Я
TRANS-1,3-DICHLOROPROPENE	OPENE	2.5	2.5 UJ	Я	2.5 UJ	ß	R
TRICHLOROETHENE		2.5	2.5 UJ	R	2.5 UJ	ß	۲
TRICHLOROFLUOROMETHANE	HANE	2.5	2.5 UJ	R	2.5	2.5 UJ	Я
VINYL CHLORIDE		2.5	2.5 UJ	R	2.5 UJ	G	R



Tetra Tech, Inc.

TO:	D. BRAYACK	DATE:	MARCH 21, 2011
FROM:	MICHELLE L. ALLEN	COPIES:	DV FILE
SUBJECT:	ORGANIC & INORGANIC DATA VALID NAVAL WEAPONS INDUSTRIAL RESE		

NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP), BET CTO 066 SAMPLE DELIVERY GROUP (SDG) D1320

SAMPLES: 1/Solid/VOC

BP-VPB133-DM

8/Aqueous/VOC

 BP-VPB-TB-012512
 BP-VPB133-834
 BP-VPB133-DW

 BP-VPB133-GW-784
 BP-VPB133-GW-794
 BP-VPB133-GW-808

 BP-VPB133-GW-814
 BP-VPB133-GW-824
 BP-VPB133-GW-808

<u>Overview</u>

The sample set for NWIRP Bethpage SDG D1320 consisted of one (1) drill mud sample, seven (7) aqueous environmental samples, and one (1) trip blank. All nine (9) samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOC). No field duplicate sample pair was associated with this sample data group (SDG).

The samples were collected by Tetra Tech, Inc. on January 25-27, 2012 and analyzed by Chemtech. All analyses were conducted in accordance with EPA Method SW-846 8260C analytical and reporting protocols. The data contained in this SDG was validated with regard to the following parameters:

- Data completeness
- * Hold times
- * GC/MS System Tuning and Performance
- *
 Initial/continuing calibrations
- * Laboratory Method and Field Blank Results
- Surrogate Spike Recoveries
- Internal Standard Results
 - Laboratory Control Sample/Laboratory Control Sample Duplicate Results
 - Matrix Spike/Matrix Spike Duplicate Sample Results
- Compound Identification
- Compound Quantitation
- Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

PAGE: 2

TO: D. BRAYACK SDG: D1320

Volatiles (VOC)

Due to the nature of the matrices, the environmental groundwater samples, BP-VPB133-834, BP-VPB133-GW-784, BP-VPB133-GW-808, BP-VPB133-GW-814, and BP-VPB133-GW-824, were analyzed as soils. The sample results were reported in μ g/Kg based on the dry weight of the sample.

Positive results reported below the LOQ but above the Method Detection Limit (MDL) were qualified as estimated, (J).

Additional Comments

The aqueous Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD), BSR0103W1 and BSR0103W2G0216W1, had a Percent Recoveries (%Rs) for dichlorodifluoromethane chloride above the upper quality control limit. No action necessary because no positive results were reported for this compound in the affected samples.

The soil Matrix Spike Duplicate (MS/MSD) analysis yielded a %R for 1,2,4-trichlorobenzene below the lower quality control limit. No action was taken because the Matrix Spike (MS) %R was acceptable and the MS/MSD parent sample was not a sample from this SDG.

Non-detected results are reported to the Limit of Detection (LOD).

EXECUTIVE SUMMARY

Laboratory Performance Issues: The aqueous LCS/LCSD had high %Rs for a target compound.

Other Factors Affecting Data Quality: A MSD %R was low. Positive results reported below the LOQ but above the MDL were qualified as estimated.

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The data for these analyses were reviewed with reference to the SOP #HW-24 Revision #2, USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B (August 2008), EPA Method SW-846 8260C analytical and reporting protocols, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

Tetra Tech, Inc.

Michelle L. Allen Chemist/Data Validator

Tetra Tech, Inc. Joseph A. Samchuck Data Validation Quality Assurance Officer

Attachments:

- 1. Appendix A Qualified Analytical Results
- 2. Appendix B Results as Reported by the Laboratory
- 3. Appendix C Region II Data Validation Forms

4. Appendix D - Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

L

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
 - = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's r < 0.995
- K = ICP Interference includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- 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., base-time drifting)
- P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e.chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient r < 0.995
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids <30%
- Z = Uncertainty at 2 sigma deviation is less than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 00622 NSAMPLE		BP-VPB133-834		BP-VPB133-DM		BP-VPB133-GW-784	W-784	BP-VPB133-GW-808	GW-808	
SDG: D1320 LAB_ID		D1320-09		D1320-08		D1320-02		D1320-04		
FRACTION: OV SAMP	SAMP_DATE	1/27/2012		1/27/2012		1/25/2012		1/26/2012		
MEDIA: SOIL QC_TYPE		NN		NM		NM		WN		
UNITS		UG/KG		UG/KG		UG/KG		NG/KG		
	LIDS	0.0		0.0		0.0		0.0		
PARAMETER		RESULT VOI	0 CD		VOL OLCD	RFSUI T	VOL OLCD	RESULT	NOT	OLCD
1,1,1-TRICHLOROETHANE		2.5		2.5		2.5		2.5	5 U	
1,1,2,2-TETRACHLOROETHANE		2.5 U		2.5 U		2.5		2.5	5 U	
1,1,2-TRICHLOROETHANE		2.5 U		2.5 U		2.5	Ъ	2.1	2.5 U	
1,1,2-TRICHLOROTRIFLUOROETHANE	HANE	2.5 U		2.5 U		2.5	n	2.1	2.5 U	
1,1-DICHLOROETHANE		2.5 U		2.5 U		2.5 U	n	2.1	2.5 U	
1,1-DICHLOROETHENE		2.5 U		2.5 U		2.5 U	n	2.1	2.5 U	
1,2,4-TRICHLOROBENZENE		2.5 U		2.5 U		2.5	n	2.1	2.5 U	
1,2-DIBROMO-3-CHLOROPROPANE	NE	2.5 U		2.5 U		2.5 U	n	2.1	2.5 U	
1,2-DIBROMOETHANE		2.5 U		2.5 U		2.5 U	n	2.1	2.5 U	
1,2-DICHLOROBENZENE		2.5 U		2.5 U		2.5 U	n	2.1	2.5 U	
1,2-DICHLOROETHANE		2.5 U		2.5 U		2.5 U	n	2.1	2.5 U	
1,2-DICHLOROPROPANE		2.5 U		2.5 U		2.5 U	n	2.5	5 U	
1,3-DICHLOROBENZENE		2.5 U		2.5 U		2.5	- D	2.1	2.5 U	
1,4-DICHLOROBENZENE		2.5 U		2.5 U		2.5 U	- D	2.1	2.5 U	
2-BUTANONE		12.5 U		12.5 U		12.5 U	n	12.1	12.5 U	
2-HEXANONE		12.5 U		12.5 U		12.5		12.5	5 U	
4-METHYL-2-PENTANONE		12.5 U		12.5 U		12.5		12.5	12.5 U	
ACETONE		73		51		53		5	24 J	٩.
BENZENE		2.5 U		2.5 U		2.5	D	2.5	5 U	
BROMODICHLOROMETHANE		2.5 U		2.5 U		2.5	<u>с</u>	2.5	5 U	
BROMOFORM		2.5 U		2.5 U		2.5 U	D	2.5	2.5 U	
BROMOMETHANE		2.5 U		2.5 U		2.5 U	–	2.5	2.5 U	
CARBON DISULFIDE		2.5 U		2.5 U		2.5 U		2.5	2.5 U	
CARBON TETRACHLORIDE		2.5 U		2.5 U		2.5 U	C	2.5	2.5 U	
CHLOROBENZENE		2.5 U		2.5 U		2.5 U	n	2.5	2.5 U	
CHLORODIBROMOMETHANE		2.5 U		2.5 U		2.5 U		2.5	5 U	
CHLOROETHANE		2.5 U		2.5 U		2.5 U	D	2.5	5 U	
CHLOROFORM		2.5 U		2.5 U		2.5 U	n	2.4	2.5 U	
CHLOROMETHANE		2.5 U		2.5 U		2.5 U	n	2.5	5 U	
CIS-1,2-DICHLOROETHENE		2.5 U		2.5 U		2.5	n	2.5	5 U	
CIS-1,3-DICHLOROPROPENE		2.5 U		2.5 U		2.5 U	D	2.5	5 U	
CYCLOHEXANE		2.5 U		2.5 U	,	2.5 U	D	2.5	5 U	
DICHLORODIFLUOROMETHANE		2.5 U		2.5 U		2.5		2.5	5 U	
ETHYLBENZENE		2.5 U		2.5 U		2.5 U	D	2.5	5 U	
ISOPROPYLBENZENE		2.5 U		2.5 U		2.5	n	2.5	5 U	

000 NO. 00633		DD 1/10122 CM 014	1 014			PCO IV	
PROJ_NU: UU622 SDG: D1320	LAB ID	D1320-05	4 0 4		D1320-06	VV-024	
FRACTION: OV	SAMP_DATE	1/26/2012			1/27/2012		
MEDIA: SOIL	QC_TYPE	WN			WN		
	UNITS	NG/KG			NG/KG		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF	ſ	Γ				
PARAMETER		RESULT /	Val	alcd	RESULT	۲ø۲	alcd
1,1,1-TRICHLOROETHANE		2.5 L	D		2.55	р	
1,1,2,2-TETRACHLOROETHANE	HANE	2.5) D		2.55 U	D	
1,1,2-TRICHLOROETHANE		2.5	- D		2.55 U	5	
1,1,2-TRICHLOROTRIFLUOROETHANE	OROETHANE	2.5 L	Ъ		2.55 U	5	
1,1-DICHLOROETHANE		2.5 U			2.55 U	D	
1,1-DICHLOROETHENE		2.5 L	n		2.55	D	
1,2,4-TRICHLOROBENZENE	٨E	2.5 L	n		2.55 U	D	
1,2-DIBROMO-3-CHLOROPROPANE	PROPANE	2.5 U	_		2.55 U	Ъ	
1,2-DIBROMOETHANE		2.5 U			2.55 U	Ъ	
1,2-DICHLOROBENZENE	-	2.5 U			2.55 U	Ъ	
1,2-DICHLOROETHANE		2.5 U	- -		2.55 U	5	
1,2-DICHLOROPROPANE		2.5 U			2.55 U	D	
1,3-DICHLOROBENZENE		2.5 U			2.55 U	Ъ	
1,4-DICHLOROBENZENE		2.5 U	_		2.55 U	5	
2-BUTANONE		12.5 U	_		12.5 U	_	
2-HEXANONE		12.5 U			12.5 U	5	
4-METHYL-2-PENTANONE		12.5 U	_		12.5 U	5	
ACETONE		27			28		
BENZENE		2.5 U	_		2.55	Ъ	
BROMODICHLOROMETHANE	ANE	2.5 U	1		2.55 U	С	
BROMOFORM		2.5 U	_		2.55	Ъ	
BROMOMETHANE		2.5 U	_		2.55	D	
CARBON DISULFIDE		2.5 U	_		2.55	D	
CARBON TETRACHLORIDE	ų	2.5 U	_		2.55 U	Ъ	
CHLOROBENZENE		2.5 U	_		2.55	D	
CHLORODIBROMOMETHANE	ANE	2.5 U	_		2.55	D	
CHLOROETHANE		2.5 U	_		2.55 U	5	
CHLOROFORM		2.5 U			2.55 U	Ъ	
CHLOROMETHANE		2.5 U	_		2.55	D	
CIS-1,2-DICHLOROETHENE	Ш	2.5 U	_		2.55 U	D	
CIS-1,3-DICHLOROPROPENE	ENE	2.5 U			2.55 U	D	
CYCLOHEXANE		2.5 U	_		2.55 U	S	
DICHLORODIFLUOROMETHANE	THANE	2.5 U			2.55	D	
ETHYLBENZENE		2.5 U	_		2.55 U	D D	
ISOPROPYLBENZENE		2.5 U			2.55	D	

PROJ_NO: 00622	NSAMPLE	BP-VPB133-834	34		BP-VPB133-DM	Σ		BP-VPB133-GW-784	3W-784		BP-VPB133-G	N-808		BP-VPB133-GW-808
SDG: D1320		D1320-09			D1320-08			D1320-02			D1320-04			D1320-04
FRACTION: OV	SAMP_DATE	1/27/2012			1/27/2012			1/25/2012			1/26/2012			1/26/2012
MEDIA: SOIL	QC_TYPE	MN			MN			MN			MN			MM
	UNITS	NG/KG			UG/KG			UG/KG			UG/KG			UG/KG
	PCT_SOLIDS	0.0			0.0			0.0			0.0			0.0
	DUP_OF													
PARAMETER		RESULT	٨QL	arcd	RESULT	VaL	arcd	RESULT	٨۵۲	arcd	RESULT		arcd	RESULT VOL QLCD
M+P-XYLENES		2	5 U	-	2	5 U		2	þ		4.95	n		4.95 U
METHYL ACETATE		2.5	2.5 U		2.5 U	D		2.5	D		2.5	D		2.5 U
METHYL CYCLOHEXANE		2.5	n		2.5 U	n		2.5	П		2.5	D		
METHYL TERT-BUTYL ETHER	IER	2.5	2.5 U		2.5 U	D		2.5	n		2.5	U		2.5 U
METHYLENE CHLORIDE		2.5	2.5 U		2.5 U	n		2.5	n		2.5	U		2.5 U
O-XYLENE		2.5	n		2.5	D		2.5	2.5 U		2.5	D		2.5 U
STYRENE		2.5	2.5 U		2.5 U	D		2.5	2.5 U		2.5	n		2.5 U
TETRACHLOROETHENE		2.5	D		2.5	Л		2.5	2.5 U		2.5	U		2.5 U
TOLUENE		2.5	П		2.5	D		2.5 U	D		2.5	U		2.5 U
TRANS-1,2-DICHLOROETHENE	IENE	2.5	D		2.5	∍		2.5 U	D		2.5	U		2.5 U
TRANS-1,3-DICHLOROPROPENE	DPENE	2.5	D		2.5	n		2.5	n		2.5	U		2.5 U
TRICHLOROETHENE		2.5	2.5 U		2.5 U	D		2.5	п		2.5	D		2.5 U
TRICHLOROFLUOROMETHANE	HANE	2.5	D		2.5 U	D		2.5	D		2.5	с		2.5 U
VINYL CHLORIDE		2.5	<u> </u>		2.5 U	D		2.5	D		2.5	Ъ		2.5 U

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PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-814	W-814		BP-VPB133-GW-824	V-824	
SDG: D1320	LAB_ID	D1320-05			D1320-06		
FRACTION: OV	SAMP_DATE	1/26/2012		- - - -	1/27/2012		
MEDIA: SOIL	QC_TYPE	ΝN			MN		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VaL	QLCD	RESULT	Val	alcD
M+P-XYLENES		5	D		5	_	
METHYL ACETATE		2.5 U	n		2.55	Ъ	
METHYL CYCLOHEXANE		2.5	5		2.55	D	
METHYL TERT-BUTYL ETHER	HER	2.5	n		2.55 1	D	
METHYLENE CHLORIDE		2.5 U	n		2.55 U	_	
O-XYLENE		2.5	n		2.55	n	
STYRENE		2.5	n		2.55	D	
TETRACHLOROETHENE		2.5 U	n		2.55 U	D	
TOLUENE		2.5	N		2.55 U	D	
TRANS-1,2-DICHLOROETHENE	HENE	2.5	U		2.55	5	
TRANS-1,3-DICHLOROPROPENE	OPENE	2.5	D		2.55 1	D	
TRICHLOROETHENE		2.5	n		2.55 1	D	
TRICHLOROFLUOROMETHANE	HANE	2.5 U	n		2.55 U	Ъ	
VINYL CHLORIDE		2.5 U	5		2.55 U	_	

PROJ NO: 00622	NSAMPLE	BP-VPB133-DW	MC		BP-VPB133-GW-794	-GW-794		BP-VPB-TB-012512	512	
SDG: D1320		D1320-07			D1320-03			D1320-01		
FRACTION: OV	SAMP_DATE	1/27/2012			1/25/2012			1/25/2012		
MEDIA: WATER	QC_TYPE	WN			WN			MN		
	UNITS	UG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF						r		Ì	
PARAMETER		RESULT	٨g٢	alcd	RESULT	۲a۲	alcd	RESULT VC	Val	alcd
1,1,1-TRICHLOROETHANE		0.5	5 U		ō	0.5 U		0.5 U		
1,1,2,2-TETRACHLOROETH	HANE	0.5	5 U		°	0.5 U		0.5 U		
1,1,2-TRICHLOROETHANE		0.1	0.5 U		0.	0.5 U		0.5 U		
1,1,2-TRICHLOROTRIFLUOROETHANE	DROETHANE	0.1	0.5 U		ō	0.5 U		0.5 U		
1,1-DICHLOROETHANE		0.	0.5 U		ō	0.5 U		0.5 U		
1,1-DICHLOROETHENE		0.	0.5 U		0	0.5 U		0.5 U		
1,2,4-TRICHLOROBENZENE	Ш	0.1	0.5 U		Ö	0.5 U		0.5 U		
1,2-DIBROMO-3-CHLOROPR	ROPANE	ö	0.5 U		ō	0.5 U		0.5 U		
1,2-DIBROMOETHANE		0.5	5 U		0.	0.5 U		0.5 U		
1,2-DICHLOROBENZENE	-	0.	0.5 U		ō	0.5 U		0.5 U		
1,2-DICHLOROETHANE		0.1	0.5 U		ō	0.5 U		0.5 U		
1,2-DICHLOROPROPANE		0.1	0.5 U		0.	0.5 U		0.5 U		
1,3-DICHLOROBENZENE		0.	0.5 U		0.	0.5 U		0.5 U		
1,4-DICHLOROBENZENE		0.5	0.5 U		0.	0.5 U		0.5 U		
2-BUTANONE		2.(5 U		ē	3.9 J	٩	2.5 U		
2-HEXANONE		2.{	2.5 U		5	2.5 U		2.5 U		
4-METHYL-2-PENTANONE		2.5	2.5 U		2.	2.5 U		2.5 U		
ACETONE		1.6	Г	Ъ	~	15		2.5 U		
BENZENE		0.5	D 19		ò	0.5 U		0.5 U		
BROMODICHLOROMETHANE	NE	1.1			Ö	0.5 U		0.5 U		
BROMOFORM		0.5	١		ō	0.5 U		0.5 U		
BROMOMETHANE		0.5	۶U		ö	0.5 U		0.5 U		
CARBON DISULFIDE		.0	0.5 U		ō	0.5 U		0.5 U		
CARBON TETRACHLORIDE	Ш	0.5	5 U		Ö	0.5 U		0.5 U		
CHLOROBENZENE		0.5	0.5 U		ö	0.5 U		0.5 U		
CHLORODIBROMOMETHANE	NE	1.7	~		0.	0.5 U		0.5 U		
CHLOROETHANE		0.5	5 U		o	0.5 U		0.5 U		
CHLOROFORM		0.63	ر	٩	ö	0.5 U		0.5 U		
CHLOROMETHANE		0.{	0.5 U		0.5	5 U		0.5 U		
CIS-1, 2-DICHLOROETHENE	ш	3-0	0.5 U		0.1	0.5 U		0.5 U		
CIS-1, 3-DICHLOROPROPENE	NE	0.5	0.5 U		0.	0.5 U		0.5 U		
CYCLOHEXANE		0.5	0.5 U		0.5	5 U		0.5 U		
DICHLORODIFLUOROMETHANE	HANE	0.5	0.5 U		0.5	5 U		0.5 U		
ETHYLBENZENE		3.0	0.5 U		ö	0.5 U		0.5 U		
ISOPROPYLBENZENE		0.	D		0	0.5 U		0.5 U		

PROJ_NO: 00622	NSAMPLE	BP-VPB133-DW		BP-VPB133-GW-794	W-794		BP-VPB-TB-012512	
SDG: D1320		D1320-07		D1320-03			D1320-01	
FRACTION: OV	SAMP_DATE	1/27/2012		1/25/2012			1/25/2012	
MEDIA: WATER	QC_TYPE	NM		NM			NM	
	UNITS	NG/L		NG/L			NG/L	
	PCT_SOLIDS	0.0		0.0			0.0	
	DUP_OF							
PARAMETER		RESULT VOL	arcd	RESULT	Val	arcd	RESULT VOL	arcd
M+P-XYLENES		10		-	n		1 U	
METHYL ACETATE		0.5 U		0.5 U	n		0.5 U	
METHYL CYCLOHEXANE		0.5 U		0.5 U	n		0.5 U	
МЕТНҮЦ ТЕRT-ВUTYL ETHE	HER	0.5 U		0.5 U	n		0.5 U	
METHYLENE CHLORIDE		0.5 U		0.5 U	D		0.5 U	
O-XYLENE		0.5 U		0.5	n		0.5 U	
STYRENE		0.5 U		0.5 U	D		0.5 U	
TETRACHLOROETHENE		0.5 U		0.5 U	n		0.5 U	
TOLUENE		0.5 U		0.5	n		0.5 U	
TRANS-1,2-DICHLOROETHENE	HENE	0.5 U		0.5 U	D		0.5 U	
TRANS-1,3-DICHLOROPROPENE	OPENE	0.5 U		0.5	D		0.5 U	
TRICHLOROETHENE		0.5 U		0.5	n		0.5 U	
TRICHLOROFLUOROMETHAI	'HANE	0.5 U		0.5 U	D		0.5 U	
VINYL CHLORIDE		0.5 U		0.5 [D		0.5 U	



TO:	D. BRAYACK	DATE:	MARCH 21, 2012
FROM:	TERRI L. SOLOMON	COPIES:	DV FILE
SUBJECT:	ORGANIC DATA VALIDATION - VOC NWIRP BETHPAGE CTO WE 066 SAMPLE DELIVERY GROUP (SDG) -	D1365	

SAMPLES: 8/Aqueous/VOC

 BP-VPB133-GW-844
 BP

 BP-VPB133-GW-864
 BP

 BP-VPB133-GW-884
 BP

 BP-VPB133-TB-013012-JF
 BP

BP-VPB133-GW-854 BP-VPB133-GW-874 BP-VPB133-GW-904

<u>Overview</u>

The sample set for NWIRP Bethpage, CTO WE 066, SDG D1365 consists of six (6) environmental aqueous samples and a trip blank analyzed for volatile organic compounds (VOCs). There was no field duplicate contained in this SDG.

The samples were collected on January 30 and 31 and February 1, 2012 by Tetra Tech and analyzed by Chemtech. VOC analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocol. The data contained in this SDG were validated with regard to the following parameters:

- * Data completeness
- Holding times
- GC/MS Tuning
- Initial/continuing calibrations
- Laboratory Method Blank Results
- *

 Surrogate Recoveries
- Laboratory Control Sample Recoveries
- Internal Standard Recoveries
- Compound Quantitation
- Compound Identification
- Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

VOC

The initial calibration relative standard deviations (%RSDs) for bromomethane, methyl acetate, methylene chloride, cyclohexane, trans-1,3-dichloropropene and cis-1,3-dichloropropene were greater than the 15% quality control limit on 01/26/2012 on instrument MSVOA R. The nondetected results for bromomethane, methyl acetate, methylene chloride, cyclohexane, trans-1,3-dichloropropene and cis-1,3-dichloropropene were qualified as estimated "UJ" in the affected sample BP-VPB133-TB-013012-JF.

MEMO TO: D. BRAYACK - PAGE 2 DATE: MARCH 21, 2012

The continuing calibration percent differences and/or percent drifts were greater than the 20% quality control limit for methyl acetate on 02/02/2012 at 18:11 on instrument MSVOA R. The nondetected result for methyl acetate was qualified as estimated "UJ" in the affected sample BP-VPB133-TB-013012-JF

The continuing calibration percent differences and/or percent drifts were greater than the 20% quality control limit for chloroethane and trichlorofluoromethane on 02/02/2012 at 12:12 on instrument MSVOA F. The nondetected results for chloroethane and trichlorofluoromethane were qualified as estimated "UJ" in the affected samples BP-VPB133-GW-844, BP-VPB133-GW-854, BP-VPB133-GW-864, BP-VPB133-GW-874, BP-VPB133-GW-884 and BP-VPB133-GW-904.

Positive results below the Reporting Limit (RL) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

Additional Comments

Groundwater samples BP-VPB133-GW-844, BP-VPB133-GW-854, BP-VPB133-GW-864, BP-VPB133-GW-874, BP-VPB133-GW-884 and BP-VPB133-GW-904 were analyzed as soil samples due to the amount of sediment in the samples. The sample results were reported as ug/kg on a wet weight basis.

Nondetected results are reported to the limit of detection (LOD).

EXECUTIVE SUMMARY

Laboratory Performance Issues: Several initial %RSDs and continuing calibration %Ds / % drifts for several compounds exceeded the quality control limits.

Other Factors Affecting Data Quality: Positive results below the RL and above the detection limit were qualified as estimated.

The data for these analyses were reviewed with reference to SOP # HW-24 Revision #2, August 2008, USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846/8260B, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories", April 2009. The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech Terri L. Solomon Chemist/Data Validator

MEMO TO: D. BRAYACK - PAGE 3 DATE: MARCH 21, 2012

Jetra Tech

Joseph A. Samchuck Data Validation Quality Assurance Officer

Attachments:

- 1.
- Appendix A Qualified Analytical Results Appendix B Results as Reported by the Laboratory Appendix C Region II Data Validation Forms Appendix D Support Documentation 2.
- З.
- 4.

Appendix A

Qualified Analytical Results

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's r < 0.995
- K = ICP Interference includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- 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., base-time drifting)
- P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e.chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient r < 0.995
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids <30%
- Z = Uncertainty at 2 sigma deviation is less than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 00622	NSAMPLE	BP-VPB133-TB-013012-JF	B-01301	2-JF
SDG: D1365	LAB_ID	D1365-03		
FRACTION: OV	SAMP_DATE	1/30/2012		
Media: Water	QC_TYPE	MN		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	힝	orco
1,1,1-TRICHLOROETHANE	μ	0.5	5	
1,1,2,2-TETRACHLOROETHANE	ETHANE	0.5	5	
1,1,2-TRICHLOROETHANE	NE	0.5 U	С	
1,1,2-TRICHLOROTRIFLUOROETHANE	UOROETHANE	0.5 U	5	
1,1-DICHLOROETHANE		0.5	D	
1,1-DICHLOROETHENE		0.5 U	∍	
1,2,4-TRICHLOROBENZENE	ENE	0.5 U	D	
1,2-DIBROMO-3-CHLOROPROPANE	OPROPANE	0.5 U	D	
1,2-DIBROMOETHANE	_	0.5 U	n	
1,2-DICHLOROBENZENE	111	0.5 U	Ъ	
1,2-DICHLOROETHANE		0.5 U	N	
1,2-DICHLOROPROPANE	Ш	0.5	Э	
1,3-DICHLOROBENZENE		0.5	n	
1,4-DICHLOROBENZENE		0.5 U	Ъ	
2-BUTANONE	-	2.5	5	
2-HEXANONE		2.5	⊐	
4-METHYL-2-PENTANONE	ų	2.5 U	∍	
ACETONE		2.5	∍	
BENZENE		0.5	_	
BROMODICHLOROMETHANE	HANE	0.5 U	5	
BROMOFORM		0.5	5	
BROMOMETHANE		0.5	З	с
CARBON DISULFIDE		0.5	5	
CARBON TETRACHLORIDE	IDE	0.5 U	5	
CHLOROBENZENE		0.5	_	
CHLORODIBROMOMETHANE	HANE	0.5	5	
CHLOROETHANE		0.5	∍	
CHLOROFORM		0.5	D	
CHLOROMETHANE		0.5	U	
CIS-1,2-DICHLOROETHENE	INE	0.5	n	
CIS-1,3-DICHLOROPROPENE	PENE	0.5	٢Ŋ	с
CYCLOHEXANE		0.5	З	с
DICHLORODIFLUOROMETHANE	ETHANE	0.5	5	
ETHYLBENZENE		0.5 U	5	
ISOPROPYI RENZENE		0.5	D	

PROJ_NO: 00622	NSAMPLE	BP-VPB133-TB-013012-JF	B-01301	2-JF
SDG: D1365		D1365-03		
FRACTION: OV	SAMP_DATE	1/30/2012		
Media: Water	ac_TYPE	MN		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VaL	alcd
M+P-XYLENES		4	n	
METHYL ACETATE		0.5 UJ	n	c
METHYL CYCLOHEXANE		0.5	n	
METHYL TERT-BUTYL ETHER	HER	0.5	n	
METHYLENE CHLORIDE		0.5 UJ	n	c
O-XYLENE		0.5	n	
STYRENE		0.5	n	
TETRACHLOROETHENE		0.5	5	
TOLUENE	-	0.5	<u>с</u>	
TRANS-1,2-DICHLOROETHENE	HENE	0.5	<u> </u>	
TRANS-1,3-DICHLOROPROPENE	OPENE	0.5 UJ	З	с
TRICHLOROETHENE		0.5	n	
TRICHLCROFLUOROMETHANE	HANE	0.5 U	n	
VINYL CHLORIDE		0.5 U	D	

2 of 2

3/29/2012

-		1014			A 10 1414			1004	NO 0100 001 00	114
PRUJ_NU: UU522 NSAMPLE SDG: D1365	D1365-01	V-044		D1365-02	+CO-AA6		D1365-04	100	D1365-05	r S
2	1			1/30/2012			1/31/2012		1/31/2012	
				MN			WN		WN	
UNITS	UG/KG			NG/KG			UG/KG	-	UG/KG	
PCT_SOLIDS	DS 0.0			0.0			0.0		0.0	
	DECLIIT			DESULT	۲ ۲				RESULT VOI	
1.1.1-TRICHLOROETHANE	2.5			2.5			2.55		2.45	
1,1,2,2-TETRACHLOROETHANE	2.5	D		2.5	5		2.55 U		2.45 U	
1,1,2-TRICHLOROETHANE	2.5	5		2.5	2.5 U		2.55 U		2.45 U	
1,1,2-TRICHLOROTRIFLUOROETHANE	IE 2.5 U	Л		2.5	2.5 U		2.55 U		2.45 U	
1,1-DICHLOROETHANE	2.5 U	D		2.5	n		2.55 U		2.45 U	
1,1-DICHLOROETHENE	2.5 U	n		2.5	D		2.55 U		2.45 U	
1,2,4-TRICHLOROBENZENE	2.5 U	n		2.5	2.5 U		2.55 U		2.45 U	
1,2-DIBROMO-3-CHLOROPROPANE	2.5 U	D		2.5	2.5 U		2.55 U		2.45 U	
1,2-DIBROMOETHANE	2.5 U	D		2.5	2.5 U		2.55 U	-	2.45 U	
1,2-DICHLOROBENZENE	2.5 U	n		2.5	2.5 U		2.55 U		2,45 U	
1,2-DICHLOROETHANE	2.5 U	n		2.5	2.5 U		2.55 U		2.45 U	
1,2-DICHLOROPROPANE	2.5 U	U -		2.5	2.5 U		2.55 U		2.45 U	
1,3-DICHLOROBENZENE	2.5 U	n		2.5	2.5 U		2.55 U		2.45 U	
1,4-DICHLOROBENZENE	2.5 U	С		2.5	2.5 U		2.55 U		2.45 U	
2-BUTANONE	12.5 U	n		12.5 U	D		13 U		12.5 U	
2-HEXANONE	12.5 U	U		12.5 U	כ		13 U		12.5 U	
4-METHYL-2-PENTANONE	12.5 U	D		12.5 U	D		13 U		12.5 U	
ACETONE	12.5 U	D		18	_	٩	13 U		20 J	<u>a</u>
BENZENE	2.5 U	כ		2.5	2.5 U		2.55 U		2.45 U	
BROMODICHLOROMETHANE	2.5 U	с Л		2.5	2.5 U		2.55 U		2.45 U	
BROMOFORM	2.5 U	n		2.5	2.5 U		2.55 U		2.45 U	
BROMOMETHANE	2.5 U	С		2.5	2.5 U		2.55 U		2.45 U	
CARBON DISULFIDE	2.5 U	<u></u>		2.5	2.5 U		2.55 U		2.45 U	
CARBON TETRACHLORIDE	2.5 U	Ъ		2.5	2.5 U		2.55 U		2.45 U	
CHLOROBENZENE	2.5 U	D		2.5	D		2.55 U		2.45 U	
CHLORODIBROMOMETHANE	2.5 U	D		2.5			2.55 U		2.45 U	
CHLOROETHANE	2.5 UJ	n	с	2.5	ŝ	С	2.55 UJ	с Г	2.45 UJ	υ
CHLOROFORM	2.5 U	D		2.5	U S		2.55 U		2.45 U	
CHLOROMETHANE	2.5 U	Л		2.5	n		2.55 U		2.45 U	
CIS-1,2-DICHLOROETHENE	2.5 U	D		2.5	i U		2.55 U		2.45 U	
CIS-1,3-DICHLOROPROPENE	2.5 U	_		2.5	U 1		2.55 U		2.45 U	
CYCLOHEXANE	2.5 U	D		2.5	n 1		2.55 U		2.45 U	
DICHLORODIFLUOROMETHANE	2.5	n		2.5	D		2.55 U		2.45 U	
ETHYLBENZENE	2.5 U	_		2.5	D		2.55 U		2.45 U	
ISOPROPYLBENZENE	2.5	n		2.5	n		2.55 U		2.45 U	

1 of 4

PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-844	3W-844		BP-VPB133-GW-854	SW-854		BP-VPB133-GW-864	864		BP-VPB133-GW-874	W-874	
SDG: D1365	LAB_ID	D1365-01			D1365-02			D1365-04			D1365-05		
FRACTION: OV	SAMP_DATE	1/30/2012			1/30/2012			1/31/2012			1/31/2012		
MEDIA: SOIL	ac_TYPE	MN			MN			NM			WN		
	UNITS	NG/KG			NG/KG			UG/KG			UG/KG	And a second	
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF							•					
PARAMETER		RESULT	VaL	alcd	RESULT	VaL	QLCD	RESULT VQL	ar alcd	٥	RESULT	VaL	QLCD
M+P-XYLENES			5 U		4.95 U	U S		5 U			4.9 U	D	
METHYL ACETATE		2.5			2.6	2.5 U		2.55 U			2.45 U	n	
METHYL CYCLOHEXANE		2.5	i U		2.5	2.5 U		2.55 U			2.45	c	
METHYL TERT-BUTYL ETHER	HER	2.5	2.5 U		2.1	2.5 U		2.55 U			2.45 U	5	
METHYLENE CHLORIDE		2.5	s U		2.4	2.5 U		2.55 U			2.45 U	5	
O-XYLENE		2.5	D S		2.5	5 U		2.55 U			2.45 U	D	
STYRENE		5	2.5 U		2.1	2.5 U		2.55 U			2.45	Ъ	
TETRACHLOROETHENE		2.5	2.5 U		2.1	2.5 U		2.55 U			2.45 U	<u> </u>	
TOLUENE		2.5	2.5 U		2.1	5 U		2.55 U			2.45 U	Ъ	
TRANS-1,2-DICHLOROETHENE	JENE	2.5	2.5 U		2.1	2.5 U		2.55 U			2.45 U	D	
TRANS-1,3-DICHLOROPROPENE	OPENE	2.5	U S		2.1	2.5 U		2.55 U			2.45 U	Ъ	
TRICHLOROETHENE		2.1	2.5 U		2.5	D		2.55 U			2.45 U	р	
TRICHLOROFLUOROMETHANE	HANE	2.5	2.5 UJ	с	2.1	2.5 UJ	o	2.55 UJ	0		2.45 UJ	З	с
VINYL CHLORIDE		2.4	2.5 U		2,	2.5 U		2.55 U			2.45	5	-

2001. 21265							
SUG. 11303		D1365-06			D1365-07		
FRACTION: OV	SAMP_DATE	1/31/2012			2/1/2012		
MEDIA: SOIL	QC_TYPE	WN			MN		
	UNITS	UG/KG			NG/KG		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF	1				Ċ	
PARAMEIER		RESULI		arco	RESULI		arcn
1,1,1-TRICHLOROETHANE	ш	2.5	∍			2.5 U	
1,1,2,2-TETRACHLOROETHANE	HANE	2.5	2.5 U			2.5 U	
1,1,2-TRICHLOROETHANE	ш	2.5	2.5 U			2.5 U	
1,1,2-TRICHLOROTRIFLUOROETHANE	OROETHANE	2.5	2.5 U			2.5 U	
1,1-DICHLOROETHANE		2.5	2.5 U			2.5 U	
1,1-DICHLOROETHENE		2.5	2.5 U			2.5 U	
1,2,4-TRICHLOROBENZENE	NE	2.5	2.5 U			2.5 U	
1,2-DIBROMO-3-CHLOROPROPANE	PROPANE	2.5	5			2.5 U	
1,2-DIBROMOETHANE		2.5	2.5 U			2.5 U	
1,2-DICHLOROBENZENE		2.5	2.5 U			2.5 U	
1,2-DICHLOROETHANE	-	2.5 U	D			2.5 U	
1,2-DICHLOROPROPANE		2.5	2.5 U			2.5 U	
1,3-DICHLOROBENZENE		2.5	2.5 U			2.5 U	
1,4-DICHLOROBENZENE		2.5 U	D			2.5 U	
2-BUTANONE		12.5 U	D			12.5 U	
2-HEXANONE		12.5 U	∍		1	12.5 U	
4-METHYL-2-PENTANONE		12.5 U	þ		1	12.5 U	
ACETONE		20	20 J	Ь		33	
BENZENE		2.5 U	n			2.5 U	
BROMODICHLOROMETHANE	ANE	2.5 U	D			2.5 U	
BROMOFORM		2.5 U	D			2.5 U	
BROMOMETHANE		2.5 U	D			2.5 U	
CARBON DISULFIDE		2.5	2.5 U			2.5 U	
CARBON TETRACHLORIDE	E	2.5 U	<u> </u>			2.5 U	
CHLOROBENZENE		2.5	2.5 U			2.5 U	
CHLORODIBROMOMETHANE	ANE	2.5	2.5 U			2.5 U	
CHLOROETHANE		2.5	2.5 UJ	С		2.5 UJ	<u>ပ</u>
CHLOROFORM		2.5	U			2.5 U	
CHLOROMETHANE		2.5 U	D			2.5 U	
CIS-1,2-DICHLOROETHENE	Ш	2.5	D			2.5 U	
CIS-1,3-DICHLOROPROPENE	ENE	2.5 U	ъ			2.5 U	
CYCLOHEXANE		2.5 U	D			2.5 U	
DICHLORODIFLUOROMETHANE	THANE	2.5 U	n			2.5 U	
ETHYLBENZENE		2.5 U	Ъ			2.5 U	
SOPROPYLBENZENE		2.5 U	Þ			2.5 U	

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PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-884	W-884		BP-VPB133-GW-904	W-904	
SDG: D1365		D1365-06			D1365-07		
FRACTION: OV	SAMP_DATE	1/31/2012			2/1/2012		
MEDIA: SOIL	QC_TYPE	MN			NM		
	UNITS	UG/KG			NG/KG		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VaL	alcd	RESULT	۲aL	arcd
M+P-XYLENES		5	5 U		5	5 U	
METHYL ACETATE		2.5 U	n		2.5 U	D	
METHYL CYCLOHEXANE		2.5 U	n		2.5	n	
METHYL TERT-BUTYL ETHER	ER	2.5 U	D		2.5 U	C	
METHYLENE CHLORIDE		D.5.5	n		2.6	J	Ь
O-XYLENE		2.5 U	U		2.5 U	С	
STYRENE		2.5 U	n		2.5 U	D	
TETRACHLOROETHENE		2.5 U	n		2.5 U	Ъ	
TOLUENE		2.5 U	р		2.5	>	
TRANS-1,2-DICHLOROETHENE	IENE	2.5 U	n		2.5 U	D	
TRANS-1, 3-DICHLOROPROPENE	DPENE	2.5	n		2.5	n	
TRICHLOROETHENE		2.5 U	n		2.5	С	
TRICHLOROFLUOROMETHANE	IANE	2.5	2.5 UJ	c	2.5	2.5 UJ	v
VINYL CHLORIDE		2.5 U	D		2.5 U	5	



Tetra Tech, Inc.

TO:D. BRAYACKDATE:MARCH 22, 2011

FROM: MICHELLE L. ALLEN COPIES: DV FILE

SUBJECT: ORGANIC DATA VALIDATION – VOC NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP), BETHPAGE CTO 066 SAMPLE DELIVERY GROUP (SDG) D1436

SAMPLES: 4Aqueous/VOC

BP-VPB133-GW-939 BP-VPB133-GW-959 BP-VPB133-GW-974 BP-VPB133-TB-020212-JRF

<u>Overview</u>

The sample set for NWIRP Bethpage SDG D1436 consisted of three (3) aqueous environmental samples and one (1) trip blank. All four (4) samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOC). No field duplicate sample pair was associated with this sample data group (SDG).

The samples were collected by Tetra Tech, Inc. on February 2-3, 2012 and analyzed by Chemtech. All analyses were conducted in accordance with EPA Method SW-846 8260C analytical and reporting protocols. The data contained in this SDG was validated with regard to the following parameters:

- * Data completeness
- * Hold times
- * GC/MS System Tuning and Performance
- Initial/continuing calibrations
- * Laboratory Method and Field Blank Results
- Surrogate Spike Recoveries
- * Internal Standard Results
- * Laboratory Control Sample/Laboratory Control Sample Duplicate Results
- * Matrix Spike/Matrix Spike Duplicate Sample Results
- * Compound Identification
- * Compound Quantitation
- * Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

Volatiles (VOC)

Due to the nature of the matrices, the environmental groundwater samples, BP-VPB133-GW-939 and BP-VPB133-GW-959, were analyzed as soils. The sample results were reported in μ g/Kg based on the dry weight of the sample.

TO: D. BRAYACK SDG: D1436

The continuing calibration performed on instrument MSVOAG on 02/08/12 @ 11:29 had Percent Differences (%Ds) for 2-butanone, bromoform, and bromomethane, and Percent Drifts (%Drifts) for chloroethane and methyl acetate above the 20% guality control criterion. Only non-detected results were reported for these compounds in the affected samples, BP-VPB133-GW-974 and BP-VPB133-TB-020212-JRF, and these non-detects were gualified as estimated, (UJ).

The Percent Recovery (%R) for the surrogate spike compound, 4-bromofluorobenzene, was below the lower quality control limit in sample BP-VPB133-GW-959. The sample was reanalyzed with similar results. The results from the initial analysis were used in the data validation. The non-detected results reported for the target compounds in this sample were qualified as estimated, (UJ).

Additional Comments

Non-detected results are reported to the Limit of Detection (LOD).

EXECUTIVE SUMMARY

Laboratory Performance Issues: Some continuing calibration %Ds and %Drifts exceeded 20%. One sample had a low surrogate %R.

Other Factors Affecting Data Quality: None.

TO: D. BRAYACK SDG: D1436 PAGE: 3

The data for these analyses were reviewed with reference to the SOP #HW-24 Revision #2, USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B (August 2008), EPA Method SW-846 8260C analytical and reporting protocols, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

Tetra Tech, Inc. Michelle L. Allen Chemist/Data Validator

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Tetra Tech, Inc. Joseph A. Samchuck Data Validation Quality Assurance Officer

Attachments:

- 1. Appendix A Qualified Analytical Results
- 2. Appendix B Results as Reported by the Laboratory
- 3. Appendix C Region II Data Validation Forms
- 4. Appendix D Support Documentation

Appendix A

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Qualified Analytical Results

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's r < 0.995
- K = ICP Interference includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- 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., base-time drifting)
- P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
- Q = Other problems (can encompass a number of issues; i.e.chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient r < 0.995
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids <30%
- Z = Uncertainty at 2 sigma deviation is less than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-939	SW-939		BP-VPB133-GW-959	959
SDG: D1436	LAB_ID	D1436-02			D1436-03	
FRACTION: OV	SAMP_DATE	2/2/2012			2/2/2012	
MEDIA: SOIL	QC_TYPE	NM			MM	
	UNITS	UG/KG			NG/KG	
	PCT_SOLIDS	0.0			0.0	
	DUP_OF			141.41		T
PARAMETER		RESULT	Val	arcd	RESULT VOL	_
1,1,1-TRICHLOROETHANE	NE	2.5	2.5 U		2.5 UJ	
1,1,2,2-TETRACHLOROETHANE	ETHANE	2.5	2.5 U		2.5 UJ	i.
1,1,2-TRICHLOROETHANE	NE	2.5	2.5 U		2.5 UJ	R
1,1,2-TRICHLOROTRIFLUOROETHANE	UOROETHANE	2.5	2.5 U		2.5 UJ	æ
1,1-DICHLOROETHANE		2.5	2.5 U		2.5 UJ	
1,1-DICHLOROETHENE		2.5	2.5 U		2.5 UJ	æ
1,2,4-TRICHLOROBENZENE	ENE	2.5	2.5 U		2.5 UJ	æ
1,2-DIBROMO-3-CHLOROPROPANE	OPROPANE	2.5	2.5 U		2.5 UJ	œ
1,2-DIBROMOETHANE		2.5	D		2.5 UJ	
1,2-DICHLOROBENZENE	w	2.5	2.5 U		2.5 UJ	
1,2-DICHLOROETHANE		2.5	2.5 U		2.5 UJ	æ
1,2-DICHLOROPROPANE	u	2.5	2.5 U		2.5 UJ	
1,3-DICHLOROBENZENE	ш	2.5	2.5 U		2.5 UJ	æ
1,4-DICHLOROBENZENE	ш	2.5	2.5 U		2.5 UJ	
2-BUTANONE		12.5 U	n		12.5 UJ	æ
2-HEXANONE		12.5 U	n	-	12.5 UJ	
4-METHYL-2-PENTANONE	ų	12.5 U	2		12.5 UJ	
ACETONE		12.5 U	D		12.5 UJ	
BENZENE		2.5	2.5 U	l	2.5 UJ	ĸ
BROMODICHLOROMETHANE	HANE	2.5	2.5 U		2.5 UJ	
BROMOFORM		2.5	2.5 U		2.5 UJ	œ
BROMOMETHANE		2.5	2.5 U		2.5 UJ	
CARBON DISULFIDE		2.5	2.5 U			œ
CARBON TETRACHLORIDE	IDE	2.5	2.5 U		2.5 UJ	
CHLOROBENZENE		2.5	2.5 U		2.5 UJ	1
CHLORODIBROMOMETHANE	HANE	2.5	2.5 U		2.5 UJ	œ
CHLOROETHANE		2.5	2.5 U		2.5 UJ	
CHLOROFORM		2.5	2.5 U		2.5 UJ	
CHLOROMETHANE		2.5	2.5 U		2.5 UJ	
CIS-1,2-DICHLOROETHENE	ENE	2.5	2.5 U		2.5 UJ	
CIS-1,3-DICHLOROPROPENE	PENE	2.5	2.5 U		2.5 UJ	
CYCLOHEXANE		2.5	2.5 U		2.5 UJ	
DICHLORODIFLUOROMETHANE	ETHANE	2.5	2.5 U		2.5 UJ	
ETHYLBENZENE		2.5	2.5 U		2.5 UJ	œ
ISOPRODVI REN7FNF		2.5	2.5 U		2.5 UJ	

PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-939	-939	BP-VPB133-GW-959	
SDG: D1436	LAB_ID	D1436-02		D1436-03	
FRACTION: OV	SAMP_DATE	2/2/2012		2/2/2012	
MEDIA: SOIL	QC_TYPE	NM		NM	
	UNITS	UG/KG		UG/KG	
	PCT_SOLIDS	0.0		0.0	
	DUP_OF				
PARAMETER		RESULT V	VOL QLCD	RESULT VOL	QLCD
M+P-XYLENES		5 U		5 UJ	œ
METHYL ACETATE		2.5 U		2.5 UJ	æ
METHYL CYCLOHEXANE	ш	2.5 U		2.5 UJ	R
METHYL TERT-BUTYL ETHER	ETHER	2.5 U		2.5 UJ	ĸ
METHYLENE CHLORIDE	ш	2.5 U		2.5 UJ	×
O-XYLENE		2.5 U		2.5 UJ	æ
STYRENE		2.5 U		2.5 UJ	æ
TETRACHLOROETHENE	ш	2.5 U		2.5 UJ	æ
TOLUENE		2.5 U		2.5 UJ	R
TRANS-1,2-DICHLOROETHENE	ETHENE	2.5 U		2.5 UJ	Я
TRANS-1,3-DICHLOROPROPENE	ROPENE	2.5 U		2.5 UJ	Я
TRICHLOROETHENE		2.5 U		2.5 UJ	Я
TRICHLOROFLUOROMETHANE	ETHANE	2.5 U		2.5 UJ	Я
VINYL CHLORIDE		2.5 U		2.5 UJ	æ

PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-974	4	BP-VPB133-TB-020212-JRF	212-JRF
SDG: D1436	LAB_ID	D1436-04		D1436-01	
FRACTION: OV	SAMP_DATE	2/3/2012		2/2/2012	
MEDIA: WATER	QC_TYPE	NM		NM	
	UNITS	NG/L		NG/L	
	PCT_SOLIDS	0.0		0.0	
DADAMETED	DUPOF		1010	DECLIT VIOL	500
PARAME LEK	-		arco	RESULI VUL	arco
1,1,1-TRICHLOROETHANE	NE	0.5 U		0.5 U	
1,1,2,2-TETRACHLOROETHANE	ETHANE	0.5 U			
1,1,2-TRICHLOROETHANE	NE	0.5 U		0.5 U	
1,1,2-TRICHLOROTRIFLUOROETHANE	UOROETHANE	0.5 U		0.5 U	
1,1-DICHLOROETHANE		0.5 U		0.5 U	
1,1-DICHLOROETHENE		0.5 U		0.5 U	
1,2,4-TRICHLOROBENZENE	ENE	0.5 U		0.5 U	
1,2-DIBROMO-3-CHLOROPROPANE	OPROPANE	0.5 U		0.5 U	
1,2-DIBROMOETHANE		0.5 U		0.5 U	
1,2-DICHLOROBENZENE	ш	0.5 U		0.5 U	
1,2-DICHLOROETHANE		0.5 U		0.5 U	
1,2-DICHLOROPROPANE	ш	0.5 U		0.5 U	
1,3-DICHLOROBENZENE	ш	0.5 U		0.5 U	
1,4-DICHLOROBENZENE	Ш	0.5 U		0.5 U	
2-BUTANONE		2.5 UJ	C	2.5 UJ	υ
2-HEXANONE		2.5 U		2.5 U	
4-METHYL-2-PENTANONE	NE	2.5 U		2.5 U	
ACETONE		2.5 U		2.5 U	
BENZENE		0.5 U	7	0.5 U	
BROMODICHLOROMETHANE	HANE	0.5 U		0.5 U	
BROMOFORM		0.5 UJ	С	0.5 UJ	U
BROMOMETHANE		0.5 UJ	c	0.5 UJ	o
CARBON DISULFIDE		0.5 U		0.5 U	
CARBON TETRACHLORIDE	RIDE	0.5 U		0.5 U	
CHLOROBENZENE		0.5 U		0.5 U	
CHLORODIBROMOMETHANE	HANE	0.5 U		0.5 U	
CHLOROETHANE		0.5 UJ	c	0.5 UJ	U
CHLOROFORM		0.5 U		0.5 U	
CHLOROMETHANE		0.5 U		0.5 U	
CIS-1,2-DICHLOROETHENE	ENE	0.5 U		0.5 U	
CIS-1,3-DICHLOROPROPENE	PENE	0.5 U		0.5 U	
CYCLOHEXANE		0.5 U		0.5 U	
DICHLORODIFLUOROMETHANE	IETHANE	0.5 U		0.5 U	
ETHYLBENZENE		0.5 U		0.5 U	
ICODDON DENIZENIE		0.5 U		0.5 U	

PROJ_NO: 00622	NSAMPLE	BP-VPB133-GW-974	-974		BP-VPB133-TB-020212-JRF	B-0202	12-JRF
SDG: D1436	LAB_ID	D1436-04			D1436-01		
FRACTION: OV	SAMP_DATE	2/3/2012			2/2/2012	II,	
MEDIA: WATER	QC_TYPE	MM			WN		
	UNITS	NG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT VI	VQL QLCD	0	RESULT	VQL	QLCD
M+P-XYLENES		10			F	1 U	
METHYL ACETATE		0.5 UJ	D C		0.5	0.5 UJ	U
METHYL CYCLOHEXANE	Ш	0.5 U			0.5 U	n	
METHYL TERT-BUTYL ETHER	ETHER	0.5 U			0.5	0.5 U	
METHYLENE CHLORIDE	ш	0.5 U			0.5 U	n	
O-XYLENE		0.5 U			0.5	2	
STYRENE		0.5 U			0.5 U	D	
TETRACHLOROETHENE	ш	0.5 U	-		0.5 U	5	
TOLUENE		0.5 U			0.5 U	D	
TRANS-1,2-DICHLOROETHENE	ETHENE	0.5 U			0.5 U		
TRANS-1,3-DICHLOROPROPENE	PROPENE	0.5 U			0.5 U)	
TRICHLOROETHENE		0.5 U			0.5 U	5	
TRICHLOROFLUOROMETHANE	ETHANE	0.5 U			0.5 U	D	
VINYL CHLORIDE		0.5 U			0.5 U	D	