ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

June 09, 2014

Project: DelDot Bridge I-831

Submittal Date: 06/05/2014
Group Number: 1479781
SDG: BRG02
PO Number: 1106428
State of Sample Origin: DE

Client Sample Description	Lancaster Labs (LL) #
SS-01 Grab Soil	7489152
SS-02 Grab Soil	7489153
SS-03 Grab Soil	7489154
SS-04 Grab Soil	7489155
SS-05 Grab Soil	7489156
SS-06 Grab Soil	7489157
SS-07 Grab Soil	7489158
SS-08 Grab Soil	7489159
SS-09 Grab Soil	7489160
SS-10 Grab Soil	7489161
Trip Blank Water	7489162
Storage Blank Grab Water	7489163

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO Tetra Tech, Inc. Attn: Chris Geiger

Respectfully Submitted,

Megan A. Moeller
Senior Specialist

(717) 556-7261

Sample Description: SS-01 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489152
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:40 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB01 SDG#: BRG02-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	N.D.	630	1,800	78.99
10237	Benzene	71-43-2	N.D.	45	450	78.99
10237	Bromodichloromethane	75-27-4	N.D.	91	450	78.99
10237	Bromoform	75-25-2	N.D.	91	450	78.99
10237	Bromomethane	74-83-9	N.D.	180	450	78.99
10237	2-Butanone	78-93-3	N.D.	360	910	78.99
10237	Carbon Disulfide	75-15-0	N.D.	91	450	78.99
10237	Carbon Tetrachloride	56-23-5	N.D.	91	450	78.99
10237	Chlorobenzene	108-90-7	N.D.	91	450	78.99
10237	Chloroethane	75-00-3	N.D.	180	450	78.99
10237	Chloroform	67-66-3	N.D.	91	450	78.99
10237	Chloromethane	74-87-3	N.D.	180	450	78.99
10237	Cyclohexane	110-82-7	N.D.	91	450	78.99
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	180	450	78.99
10237	Dibromochloromethane	124-48-1	N.D.	91	450	78.99
10237	1,2-Dibromoethane	106-93-4	N.D.	91	450	78.99
10237	1,2-Dichlorobenzene	95-50-1	N.D.	91	450	78.99
10237	1,3-Dichlorobenzene	541-73-1	N.D.	91	450	78.99
10237	1,4-Dichlorobenzene	106-46-7	N.D.	91	450	78.99
10237	Dichlorodifluoromethane	75-71-8	N.D.	180	450	78.99
10237	1,1-Dichloroethane	75-34-3	N.D.	91	450	78.99
10237	1,2-Dichloroethane	107-06-2	N.D.	91	450	78.99
10237	1,1-Dichloroethene	75-35-4	N.D.	91	450	78.99
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	91	450	78.99
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	91	450	78.99
10237	1,2-Dichloropropane	78-87-5	N.D.	91	450	78.99
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	91	450	78.99
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	91	450	78.99
10237	Ethylbenzene	100-41-4	N.D.	91	450	78.99
10237	Freon 113	76-13-1	N.D.	180	910	78.99
10237	2-Hexanone	591-78-6	N.D.	270	910	78.99
10237	Isopropylbenzene	98-82-8	N.D.	91	450	78.99
10237	Methyl Acetate	79-20-9	N.D.	180	450	78.99
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	45	450	78.99
10237	4-Methyl-2-pentanone	108-10-1	N.D.	270	910	78.99
10237	Methylcyclohexane	108-87-2	N.D.	91	450	78.99
10237	Methylene Chloride	75-09-2	N.D.	180	450	78.99
10237	Styrene	100-42-5	N.D.	91	450	78.99
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	91	450	78.99
10237	Tetrachloroethene	127-18-4	N.D.	91	450	78.99
10237	Toluene	108-88-3	N.D.	91	450	78.99
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	91	450	78.99
10237	1,1,1-Trichloroethane	71-55-6	N.D.	91	450	78.99
10237	1,1,2-Trichloroethane	79-00-5	N.D.	91	450	78.99
10237	Trichloroethene	79-01-6	N.D.	91	450	78.99
10237	Trichlorofluoromethane	75-69-4	N.D.	180	450	78.99
10237	Vinyl Chloride	75-01-4	N.D.	91	450	78.99
10237	Xylene (Total)	1330-20-7	N.D.	91	450	78.99

00880 VOA Library Search (15)

*=This limit was used in the evaluation of the final result

Sample Description: SS-01 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489152
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:40 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB01 SDG#: BRG02-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles		**SW-846 8270C**	**ug/kg**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	7	J	4	20	1
10727	Acenaphthylene	208-96-8	9	J	4	20	1
10727	Acetophenone	98-86-2	N.D.		19	38	1
10727	Anthracene	120-12-7	20		4	20	1
10727	Atrazine	1912-24-9	N.D.		38	190	1
10727	Benzaldehyde	100-52-7	N.D.		77	190	1
10727	Benzo(a)anthracene	56-55-3	43		4	20	1
10727	Benzo(a)pyrene	50-32-8	55		4	20	1
10727	Benzo(b)fluoranthene	205-99-2	72		4	20	1
10727	Benzo(g,h,i)perylene	191-24-2	38		4	20	1
10727	Benzo(k)fluoranthene	207-08-9	30		4	20	1
10727	1,1'-Biphenyl	92-52-4	N.D.		19	38	1
10727	4-Bromophenyl-phenylether	101-55-3	N.D.		19	38	1
10727	Butylbenzylphthalate	85-68-7	N.D.		77	190	1
10727	Di-n-butylphthalate	84-74-2	N.D.		77	190	1
10727	Caprolactam	105-60-2	N.D.		38	190	1
10727	Carbazole	86-74-8	N.D.		19	38	1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.		19	38	1
10727	4-Chloroaniline	106-47-8	N.D.		19	38	1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.		19	38	1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.		19	38	1
10727	2-Chloronaphthalene	91-58-7	N.D.		8	38	1
10727	2-Chlorophenol	95-57-8	N.D.		19	38	1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.		19	38	1
10727	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.		19	38	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	Chrysene	218-01-9	55		4	20	1
10727	Dibenz(a,h)anthracene	53-70-3	11	J	4	20	1
10727	Dibenzofuran	132-64-9	N.D.		19	38	1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.		110	380	1
10727	2,4-Dichlorophenol	120-83-2	N.D.		19	38	1
10727	Diethylphthalate	84-66-2	N.D.		77	190	1
10727	2,4-Dimethylphenol	105-67-9	N.D.		19	38	1
10727	Dimethylphthalate	131-11-3	N.D.		77	190	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.		190	570	1
10727	2,4-Dinitrophenol	51-28-5	N.D.		340	1,100	1
10727	2,4-Dinitrotoluene	121-14-2	N.D.		77	190	1
10727	2,6-Dinitrotoluene	606-20-2	N.D.		19	38	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.		77	200	1
10727	Fluoranthene	206-44-0	76		4	20	1
10727	Fluorene	86-73-7	9	J	4	20	1
10727	Hexachlorobenzene	118-74-1	N.D.		4	20	1
10727	Hexachlorobutadiene	87-68-3	N.D.		19	38	1
10727	Hexachlorocyclopentadiene	77-47-4	N.D.		190	570	1
10727	Hexachloroethane	67-72-1	N.D.		38	190	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-01 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489152
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:40 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB01 SDG#: BRG02-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Indeno(1,2,3-cd)pyrene	193-39-5	37		4	20	1
10727	Isophorone	78-59-1	N.D.		19	38	1
10727	2-Methylnaphthalene	91-57-6	13	J	4	20	1
10727	2-Methylphenol	95-48-7	N.D.		19	38	1
10727	4-Methylphenol	106-44-5	N.D.		19	38	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10727	Naphthalene	91-20-3	20		4	20	1
10727	2-Nitroaniline	88-74-4	N.D.		19	38	1
10727	3-Nitroaniline	99-09-2	N.D.		77	190	1
10727	4-Nitroaniline	100-01-6	N.D.		77	190	1
10727	Nitrobenzene	98-95-3	N.D.		19	38	1
10727	2-Nitrophenol	88-75-5	N.D.		19	38	1
10727	4-Nitrophenol	100-02-7	N.D.		190	570	1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		19	38	1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		19	38	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10727	Di-n-octylphthalate	117-84-0	N.D.		77	190	1
10727	Pentachlorophenol	87-86-5	N.D.		38	200	1
10727	Phenanthrene	85-01-8	51		4	20	1
10727	Phenol	108-95-2	N.D.		19	38	1
10727	Pyrene	129-00-0	81		4	20	1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		19	38	1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		19	38	1

00893 Semivolatile Library Search

The results from the semivolatile library search are listed on the attached FORM 1 - SV-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.

Pesticides/PCBs	**SW-846 8081A**		**ug/kg**		**ug/kg**	**ug/kg**	
10738	Aldrin	309-00-2	N.D.		0.19	0.95	1
10738	Alpha BHC	319-84-6	N.D.		0.19	0.95	1
10738	Beta BHC	319-85-7	N.D.		0.34	1.1	1
10738	Gamma BHC - Lindane	58-89-9	N.D.		0.19	0.95	1
10738	Alpha Chlordane	5103-71-9	0.36	J	0.19	0.95	1
10738	Gamma Chlordane	5103-74-2	N.D.		0.62	0.95	1
10738	p,p-DDD	72-54-8	8.9		0.38	1.9	1
10738	p,p-DDE	72-55-9	6.1		0.38	1.9	1
10738	p,p-DDT	50-29-3	13		2.0	9.7	5
10738	Delta BHC	319-86-8	N.D.		0.51	0.95	1
10738	Dieldrin	60-57-1	1.0	J	0.38	1.9	1
10738	Endosulfan I	959-98-8	N.D.		0.25	0.95	1
10738	Endosulfan II	33213-65-9	N.D.		0.38	1.9	1
10738	Endosulfan Sulfate	1031-07-8	N.D.		0.38	1.9	1
10738	Endrin	72-20-8	N.D.		0.38	1.9	1
10738	Endrin Aldehyde	7421-93-4	N.D.		0.38	1.9	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-01 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489152
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:40 by JC

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Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB01 SDG#: BRG02-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8081A**		**ug/kg**	**ug/kg**	**ug/kg**	
10738	Endrin Ketone	53494-70-5	N.D.	0.69	2.1	1
10738	Heptachlor	76-44-8	N.D.	0.19	0.95	1
10738	Heptachlor Epoxide	1024-57-3	N.D.	0.19	0.95	1
10738	Methoxychlor	72-43-5	N.D.	1.9	7.7	1
10738	Toxaphene	8001-35-2	N.D.	16	38	1

The 4,4-DDT breakdown evaluated after the sample injection is above the SW-846 8081A method limit of 15% at 56% and 54% (primary and confirmation columns). The 4,4-DDT %difference in the continuing calibration verification injected after the sample is outside the DRNEC 2010 SOP limits of +/-25% at -35%. The 4,4-DDT breakdown and continuing calibration standards evaluated before the sample are compliant.
Reporting limits were raised due to interference from the sample matrix.

Pesticides/PCBs	**SW-846 8082**		**ug/kg**	**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.	4.1	19	1
10736	PCB-1221	11104-28-2	N.D.	5.3	19	1
10736	PCB-1232	11141-16-5	N.D.	9.2	19	1
10736	PCB-1242	53469-21-9	N.D.	3.8	19	1
10736	PCB-1248	12672-29-6	N.D.	3.8	19	1
10736	PCB-1254	11097-69-1	N.D.	3.8	19	1
10736	PCB-1260	11096-82-5	N.D.	5.6	19	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	Aluminum	7429-90-5	16,900	8.04	22.3	1
06944	Antimony	7440-36-0	N.D.	0.825	2.23	1
06935	Arsenic	7440-38-2	3.71	0.780	2.23	1
06946	Barium	7440-39-3	86.2	0.0368	0.557	1
06947	Beryllium	7440-41-7	0.723	0.0747	0.557	1
06949	Cadmium	7440-43-9	N.D.	0.0847	0.557	1
01650	Calcium	7440-70-2	2,850	3.72	22.3	1
06951	Chromium	7440-47-3	28.6	0.178	1.67	1
06952	Cobalt	7440-48-4	10.9	0.110	0.557	1
06953	Copper	7440-50-8	16.7	0.323	1.11	1
01654	Iron	7439-89-6	29,900	4.04	22.3	1
06955	Lead	7439-92-1	17.4	0.557	1.67	1
01657	Magnesium	7439-95-4	3,680	1.86	11.1	1
06958	Manganese	7439-96-5	361	0.0925	0.557	1
06961	Nickel	7440-02-0	15.0	0.145	1.11	1
01662	Potassium	7440-09-7	2,290	9.30	55.7	1
06936	Selenium	7782-49-2	N.D.	0.892	2.23	1
06966	Silver	7440-22-4	N.D.	0.189	0.557	1
01667	Sodium	7440-23-5	732	18.6	111	1
06925	Thallium	7440-28-0	0.809 J	0.580	3.34	1
06971	Vanadium	7440-62-2	48.8	0.145	0.557	1
06972	Zinc	7440-66-6	59.6	0.223	2.23	1
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0145 J	0.0109	0.109	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	

*=This limit was used in the evaluation of the final result

eurofins
Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SS-01 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489152
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:40 by JC

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DDB01 SDG#: BRG02-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	12.9	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	8260 VOCs	SW-846 8260B	1	R141571AA	06/06/2014 03:07	Stephanie A Selis	78.99
06172	GC/MS - Field Preserved (DE)	SW-846 5035	1	201415634722	06/05/2014 11:40	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	14156SLC026	06/06/2014 11:02	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	14156SLC026	06/05/2014 23:30	Sherry L Morrow	1
10738	Pesticides in Soil (microwave)	SW-846 8081A	1	141560028A	06/06/2014 09:42	Jamie L Brillhart	1
10738	Pesticides in Soil (microwave)	SW-846 8081A	1	141560028A	06/06/2014 09:55	Jamie L Brillhart	5
10736	PCBs in Soil (microwave)	SW-846 8082	1	141560029A	06/06/2014 09:30	Monica M Souders	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	141560029A	06/05/2014 23:30	Sherry L Morrow	1
10496	PPL Pest. Microwave Extraction	SW-846 3546	1	141560028A	06/05/2014 23:30	Sherry L Morrow	1
01643	Aluminum	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06944	Antimony	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06935	Arsenic	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06947	Beryllium	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
01650	Calcium	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06952	Cobalt	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06953	Copper	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
01654	Iron	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
01657	Magnesium	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06958	Manganese	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06961	Nickel	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
01662	Potassium	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
01667	Sodium	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06925	Thallium	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: SS-01 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489152
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:40 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB01 SDG#: BRG02-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06971	Vanadium	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
06972	Zinc	SW-846 6010B	1	141565708001	06/06/2014 05:18	Tara L Snyder	1
00159	Mercury	SW-846 7471A	1	141565711001	06/06/2014 09:16	Katlin N Cataldi	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	141565708001	06/05/2014 19:49	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	141565711001	06/05/2014 20:25	James L Mertz	1
00111	Moisture	SM 2540 G-1997	1	14157820001B	06/06/2014 07:03	William C Schwebel	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DDB01

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) SOIL Lab Sample ID: 7489152
Sample wt/vol: 6.33 (g/mL) g Lab File ID: HP07566.i/14jun06a.b/ru06s01.d
Level: (low/med) MED Date Received: 06/05/14
% Moisture: not dec. 13 Date Analyzed: 06/06/14
Column: (pack/cap) CAP Dilution Factor: 79.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. VOCTIC	Total VOC TICs		0	U
2.				
3.				
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page 1 of 1

FORM I VOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB01

Lab Name: Lancaster Laboratories Contract: _____
Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
Matrix: (soil/water) SOIL Lab Sample ID: 7489152
Sample wt/vol: 30.0 (g/mL) g Lab File ID: ef0333a.d
Level: (low/med) LOW Date Received: 06/05/14
% Moisture: 13 Decanted: (Y/N) Date Extracted: 06/05/14
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/06/14
Injection Volume: 1 (uL) Dilution Factor: 1
GPC Cleanup: N pH: Extraction: Mic

CONCENTRATION UNITS:
Number TICs found: 25 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.897	2300	JB
2.	Unknown	10.441	590	J
3.	Unknown	10.716	560	J
4.	Unknown	10.764	610	J
5.	Unknown	10.896	370	J
6.	Unknown	11.003	290	J
7.	Unknown	11.051	350	J
8.	Unknown	11.189	580	J
9.	Unknown	11.290	350	J
10.	Unknown	11.392	300	J
11.	Unknown	11.464	310	J
12.	Unknown	11.518	300	J
13.	Unknown	11.643	460	J
14.	Unknown	11.793	340	J
15.	Unknown	12.086	330	J
16.	Unknown	12.224	320	J
17.	Unknown	12.295	280	J
18.	Unknown	12.385	280	J
19.	Unknown	12.487	310	J
20.	Unknown	12.565	320	J
21.	Unknown	12.613	510	J
22.	Unknown	12.894	360	J
23.	Unknown	13.306	270	J
24.	Unknown	13.570	430	J
25.	Unknown	13.982	300	J
26.				
27. SVOCTIC	Total SVOC TICs		11000	JB
28.				
29.				
30.				

page 1 of 1

FORM I SV-1

Sample Description: SS-02 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489153
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:50 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB02 SDG#: BRG02-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	N.D.	940	2,700	116.55
10237	Benzene	71-43-2	N.D.	67	670	116.55
10237	Bromodichloromethane	75-27-4	N.D.	130	670	116.55
10237	Bromoform	75-25-2	N.D.	130	670	116.55
10237	Bromomethane	74-83-9	N.D.	270	670	116.55
10237	2-Butanone	78-93-3	N.D.	540	1,300	116.55
10237	Carbon Disulfide	75-15-0	N.D.	130	670	116.55
10237	Carbon Tetrachloride	56-23-5	N.D.	130	670	116.55
10237	Chlorobenzene	108-90-7	N.D.	130	670	116.55
10237	Chloroethane	75-00-3	N.D.	270	670	116.55
10237	Chloroform	67-66-3	N.D.	130	670	116.55
10237	Chloromethane	74-87-3	N.D.	270	670	116.55
10237	Cyclohexane	110-82-7	N.D.	130	670	116.55
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	270	670	116.55
10237	Dibromochloromethane	124-48-1	N.D.	130	670	116.55
10237	1,2-Dibromoethane	106-93-4	N.D.	130	670	116.55
10237	1,2-Dichlorobenzene	95-50-1	N.D.	130	670	116.55
10237	1,3-Dichlorobenzene	541-73-1	N.D.	130	670	116.55
10237	1,4-Dichlorobenzene	106-46-7	N.D.	130	670	116.55
10237	Dichlorodifluoromethane	75-71-8	N.D.	270	670	116.55
10237	1,1-Dichloroethane	75-34-3	N.D.	130	670	116.55
10237	1,2-Dichloroethane	107-06-2	N.D.	130	670	116.55
10237	1,1-Dichloroethene	75-35-4	N.D.	130	670	116.55
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	130	670	116.55
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	130	670	116.55
10237	1,2-Dichloropropane	78-87-5	N.D.	130	670	116.55
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	130	670	116.55
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	130	670	116.55
10237	Ethylbenzene	100-41-4	N.D.	130	670	116.55
10237	Freon 113	76-13-1	N.D.	270	1,300	116.55
10237	2-Hexanone	591-78-6	N.D.	400	1,300	116.55
10237	Isopropylbenzene	98-82-8	N.D.	130	670	116.55
10237	Methyl Acetate	79-20-9	N.D.	270	670	116.55
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	67	670	116.55
10237	4-Methyl-2-pentanone	108-10-1	N.D.	400	1,300	116.55
10237	Methylcyclohexane	108-87-2	N.D.	130	670	116.55
10237	Methylene Chloride	75-09-2	N.D.	270	670	116.55
10237	Styrene	100-42-5	N.D.	130	670	116.55
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	130	670	116.55
10237	Tetrachloroethene	127-18-4	N.D.	130	670	116.55
10237	Toluene	108-88-3	N.D.	130	670	116.55
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	130	670	116.55
10237	1,1,1-Trichloroethane	71-55-6	N.D.	130	670	116.55
10237	1,1,2-Trichloroethane	79-00-5	N.D.	130	670	116.55
10237	Trichloroethene	79-01-6	N.D.	130	670	116.55
10237	Trichlorofluoromethane	75-69-4	N.D.	270	670	116.55
10237	Vinyl Chloride	75-01-4	N.D.	130	670	116.55
10237	Xylene (Total)	1330-20-7	N.D.	130	670	116.55

00880 VOA Library Search (15)

*=This limit was used in the evaluation of the final result

Sample Description: SS-02 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489153
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:50 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB02 SDG#: BRG02-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles		**SW-846 8270C**	**ug/kg**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	5	J	4	20	1
10727	Acenaphthylene	208-96-8	N.D.		4	20	1
10727	Acetophenone	98-86-2	N.D.		19	38	1
10727	Anthracene	120-12-7	12	J	4	20	1
10727	Atrazine	1912-24-9	N.D.		38	190	1
10727	Benzaldehyde	100-52-7	N.D.		77	190	1
10727	Benzo(a)anthracene	56-55-3	39		4	20	1
10727	Benzo(a)pyrene	50-32-8	41		4	20	1
10727	Benzo(b)fluoranthene	205-99-2	52		4	20	1
10727	Benzo(g,h,i)perylene	191-24-2	27		4	20	1
10727	Benzo(k)fluoranthene	207-08-9	33		4	20	1
10727	1,1'-Biphenyl	92-52-4	N.D.		19	38	1
10727	4-Bromophenyl-phenylether	101-55-3	N.D.		19	38	1
10727	Butylbenzylphthalate	85-68-7	N.D.		77	190	1
10727	Di-n-butylphthalate	84-74-2	N.D.		77	190	1
10727	Caprolactam	105-60-2	N.D.		38	190	1
10727	Carbazole	86-74-8	N.D.		19	38	1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.		19	38	1
10727	4-Chloroaniline	106-47-8	N.D.		19	38	1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.		19	38	1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.		19	38	1
10727	2-Chloronaphthalene	91-58-7	N.D.		8	38	1
10727	2-Chlorophenol	95-57-8	N.D.		19	38	1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.		19	38	1
10727	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.		19	38	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	Chrysene	218-01-9	36		4	20	1
10727	Dibenz(a,h)anthracene	53-70-3	9	J	4	20	1
10727	Dibenzofuran	132-64-9	N.D.		19	38	1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.		110	380	1
10727	2,4-Dichlorophenol	120-83-2	N.D.		19	38	1
10727	Diethylphthalate	84-66-2	N.D.		77	190	1
10727	2,4-Dimethylphenol	105-67-9	N.D.		19	38	1
10727	Dimethylphthalate	131-11-3	N.D.		77	190	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.		190	570	1
10727	2,4-Dinitrophenol	51-28-5	N.D.		340	1,100	1
10727	2,4-Dinitrotoluene	121-14-2	N.D.		77	190	1
10727	2,6-Dinitrotoluene	606-20-2	N.D.		19	38	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.		77	200	1
10727	Fluoranthene	206-44-0	72		4	20	1
10727	Fluorene	86-73-7	5	J	4	20	1
10727	Hexachlorobenzene	118-74-1	N.D.		4	20	1
10727	Hexachlorobutadiene	87-68-3	N.D.		19	38	1
10727	Hexachlorocyclopentadiene	77-47-4	N.D.		190	570	1
10727	Hexachloroethane	67-72-1	N.D.		38	190	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-02 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489153
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:50 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB02 SDG#: BRG02-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Indeno(1,2,3-cd)pyrene	193-39-5	25		4	20	1
10727	Isophorone	78-59-1	N.D.		19	38	1
10727	2-Methylnaphthalene	91-57-6	N.D.		4	20	1
10727	2-Methylphenol	95-48-7	N.D.		19	38	1
10727	4-Methylphenol	106-44-5	N.D.		19	38	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10727	Naphthalene	91-20-3	4	J	4	20	1
10727	2-Nitroaniline	88-74-4	N.D.		19	38	1
10727	3-Nitroaniline	99-09-2	N.D.		77	190	1
10727	4-Nitroaniline	100-01-6	N.D.		77	190	1
10727	Nitrobenzene	98-95-3	N.D.		19	38	1
10727	2-Nitrophenol	88-75-5	N.D.		19	38	1
10727	4-Nitrophenol	100-02-7	N.D.		190	570	1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		19	38	1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		19	38	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10727	Di-n-octylphthalate	117-84-0	N.D.		77	190	1
10727	Pentachlorophenol	87-86-5	N.D.		38	200	1
10727	Phenanthrene	85-01-8	40		4	20	1
10727	Phenol	108-95-2	N.D.		19	38	1
10727	Pyrene	129-00-0	78		4	20	1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		19	38	1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		19	38	1

00893 Semivolatile Library Search

The results from the semivolatile library search are listed on the attached FORM 1 - SV-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.

Pesticides/PCBs	**SW-846 8081A**		**ug/kg**		**ug/kg**	**ug/kg**	
10738	Aldrin	309-00-2	N.D.		0.20	0.95	1
10738	Alpha BHC	319-84-6	N.D.		0.20	0.95	1
10738	Beta BHC	319-85-7	N.D.		0.34	1.1	1
10738	Gamma BHC - Lindane	58-89-9	N.D.		0.20	0.95	1
10738	Alpha Chlordane	5103-71-9	N.D.		0.20	0.95	1
10738	Gamma Chlordane	5103-74-2	N.D.		0.20	0.95	1
10738	p,p-DDD	72-54-8	N.D.		0.38	2.0	1
10738	p,p-DDE	72-55-9	N.D.		0.38	2.0	1
10738	p,p-DDT	50-29-3	N.D.		0.40	2.0	1
10738	Delta BHC	319-86-8	N.D.		0.52	0.95	1
10738	Dieldrin	60-57-1	N.D.		0.38	2.0	1
10738	Endosulfan I	959-98-8	N.D.		0.25	0.95	1
10738	Endosulfan II	33213-65-9	N.D.		0.38	2.0	1
10738	Endosulfan Sulfate	1031-07-8	N.D.		0.38	2.0	1
10738	Endrin	72-20-8	N.D.		0.38	2.0	1
10738	Endrin Aldehyde	7421-93-4	N.D.		0.38	2.0	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-02 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489153
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:50 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB02 SDG#: BRG02-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8081A**		**ug/kg**	**ug/kg**	**ug/kg**	
10738	Endrin Ketone	53494-70-5	N.D.	0.69	2.1	1
10738	Heptachlor	76-44-8	N.D.	0.20	0.95	1
10738	Heptachlor Epoxide	1024-57-3	N.D.	0.20	0.95	1
10738	Methoxychlor	72-43-5	N.D.	2.0	7.7	1
10738	Toxaphene	8001-35-2	N.D.	16	38	1

The 4,4-DDT breakdown evaluated after the sample injection is above the SW-846 8081A method limit of 15% at 56% and 54% (primary and confirmation columns). The 4,4-DDT %difference in the continuing calibration verification injected after the sample is outside the DRNEC 2010 SOP limits of +/-25% at -35%. The 4,4-DDT breakdown and continuing calibration standards evaluated before the sample are compliant.

Pesticides/PCBs	**SW-846 8082**		**ug/kg**	**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.	4.1	19	1
10736	PCB-1221	11104-28-2	N.D.	5.3	19	1
10736	PCB-1232	11141-16-5	N.D.	9.2	19	1
10736	PCB-1242	53469-21-9	N.D.	3.8	19	1
10736	PCB-1248	12672-29-6	N.D.	3.8	19	1
10736	PCB-1254	11097-69-1	N.D.	3.8	19	1
10736	PCB-1260	11096-82-5	N.D.	5.6	19	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	Aluminum	7429-90-5	17,700	7.96	22.1	1
06944	Antimony	7440-36-0	N.D.	0.817	2.21	1
06935	Arsenic	7440-38-2	N.D.	0.773	2.21	1
06946	Barium	7440-39-3	135	0.0364	0.552	1
06947	Beryllium	7440-41-7	0.800	0.0740	0.552	1
06949	Cadmium	7440-43-9	N.D.	0.0839	0.552	1
01650	Calcium	7440-70-2	1,810	3.69	22.1	1
06951	Chromium	7440-47-3	29.5	0.177	1.66	1
06952	Cobalt	7440-48-4	11.3	0.109	0.552	1
06953	Copper	7440-50-8	17.3	0.320	1.10	1
01654	Iron	7439-89-6	26,500	4.00	22.1	1
06955	Lead	7439-92-1	9.05	0.552	1.66	1
01657	Magnesium	7439-95-4	9,290	1.84	11.0	1
06958	Manganese	7439-96-5	517	0.0916	0.552	1
06961	Nickel	7440-02-0	24.2	0.144	1.10	1
01662	Potassium	7440-09-7	9,800	9.21	55.2	1
06936	Selenium	7782-49-2	N.D.	0.883	2.21	1
06966	Silver	7440-22-4	N.D.	0.188	0.552	1
01667	Sodium	7440-23-5	219	18.4	110	1
06925	Thallium	7440-28-0	1.13 J	0.574	3.31	1
06971	Vanadium	7440-62-2	36.3	0.144	0.552	1
06972	Zinc	7440-66-6	74.1	0.221	2.21	1
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	N.D.	0.0108	0.108	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	12.9	0.50	0.50	1

*=This limit was used in the evaluation of the final result

eurofins
Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SS-02 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489153
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:50 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB02 SDG#: BRG02-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2540 G-1997**		%	%	%	

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	8260 VOCs	SW-846 8260B	1	R141571AA	06/06/2014 03:30	Stephanie A Selis	116.55
06172	GC/MS - Field Preserved (DE)	SW-846 5035	1	201415634722	06/05/2014 11:50	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	14156SLC026	06/06/2014 07:15	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	14156SLC026	06/05/2014 23:30	Sherry L Morrow	1
10738	Pesticides in Soil (microwave)	SW-846 8081A	1	141560028A	06/06/2014 10:36	Jamie L Brillhart	1
10736	PCBs in Soil (microwave)	SW-846 8082	1	141560029A	06/06/2014 09:41	Monica M Souders	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	141560029A	06/05/2014 23:30	Sherry L Morrow	1
10496	PPL Pest. Microwave Extraction	SW-846 3546	1	141560028A	06/05/2014 23:30	Sherry L Morrow	1
01643	Aluminum	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06944	Antimony	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06935	Arsenic	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06947	Beryllium	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
01650	Calcium	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06952	Cobalt	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06953	Copper	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
01654	Iron	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
01657	Magnesium	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06958	Manganese	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06961	Nickel	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
01662	Potassium	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
01667	Sodium	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06925	Thallium	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06971	Vanadium	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
06972	Zinc	SW-846 6010B	1	141565708001	06/06/2014 05:42	Tara L Snyder	1
00159	Mercury	SW-846 7471A	1	141565711001	06/06/2014 09:18	Katlin N Cataldi	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: SS-02 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489153
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:50 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB02 SDG#: BRG02-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	141565708001	06/05/2014 19:49	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	141565711001	06/05/2014 20:25	James L Mertz	1
00111	Moisture	SM 2540 G-1997	1	14157820001B	06/06/2014 07:03	William C Schwebel	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DDB02

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) SOIL Lab Sample ID: 7489153
Sample wt/vol: 4.29 (g/mL) g Lab File ID: HP07566.i/14jun06a.b/ru06s02.d
Level: (low/med) MED Date Received: 06/05/14
% Moisture: not dec. 13 Date Analyzed: 06/06/14
Column: (pack/cap) CAP Dilution Factor: 116.6

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB02

Lab Name: Lancaster Laboratories Contract: _____
Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
Matrix: (soil/water) SOIL Lab Sample ID: 7489153
Sample wt/vol: 30.0 (g/mL) g Lab File ID: ef0336.d
Level: (low/med) LOW Date Received: 06/05/14
% Moisture: 13 Decanted: (Y/N) Date Extracted: 06/05/14
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/06/14
Injection Volume: 1 (uL) Dilution Factor: 1
GPC Cleanup: N pH: Extraction: Mic
CONCENTRATION UNITS:
Number TICs found: 2 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.897	3600	JB
2.	Unknown	8.616	270	J
3.				
4. SVOCTIC	Total SVOC TICs		3900	JB
5.				
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page 1 of 1

FORM I SV-1

Sample Description: SS-03 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489154
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:55 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB03 SDG#: BRG02-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	N.D.	780	2,200	98.43
10237	Benzene	71-43-2	N.D.	55	550	98.43
10237	Bromodichloromethane	75-27-4	N.D.	110	550	98.43
10237	Bromoform	75-25-2	N.D.	110	550	98.43
10237	Bromomethane	74-83-9	N.D.	220	550	98.43
10237	2-Butanone	78-93-3	N.D.	440	1,100	98.43
10237	Carbon Disulfide	75-15-0	N.D.	110	550	98.43
10237	Carbon Tetrachloride	56-23-5	N.D.	110	550	98.43
10237	Chlorobenzene	108-90-7	N.D.	110	550	98.43
10237	Chloroethane	75-00-3	N.D.	220	550	98.43
10237	Chloroform	67-66-3	N.D.	110	550	98.43
10237	Chloromethane	74-87-3	N.D.	220	550	98.43
10237	Cyclohexane	110-82-7	N.D.	110	550	98.43
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	220	550	98.43
10237	Dibromochloromethane	124-48-1	N.D.	110	550	98.43
10237	1,2-Dibromoethane	106-93-4	N.D.	110	550	98.43
10237	1,2-Dichlorobenzene	95-50-1	N.D.	110	550	98.43
10237	1,3-Dichlorobenzene	541-73-1	N.D.	110	550	98.43
10237	1,4-Dichlorobenzene	106-46-7	N.D.	110	550	98.43
10237	Dichlorodifluoromethane	75-71-8	N.D.	220	550	98.43
10237	1,1-Dichloroethane	75-34-3	N.D.	110	550	98.43
10237	1,2-Dichloroethane	107-06-2	N.D.	110	550	98.43
10237	1,1-Dichloroethene	75-35-4	N.D.	110	550	98.43
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	110	550	98.43
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	110	550	98.43
10237	1,2-Dichloropropane	78-87-5	N.D.	110	550	98.43
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	110	550	98.43
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	110	550	98.43
10237	Ethylbenzene	100-41-4	N.D.	110	550	98.43
10237	Freon 113	76-13-1	N.D.	220	1,100	98.43
10237	2-Hexanone	591-78-6	N.D.	330	1,100	98.43
10237	Isopropylbenzene	98-82-8	N.D.	110	550	98.43
10237	Methyl Acetate	79-20-9	N.D.	220	550	98.43
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	55	550	98.43
10237	4-Methyl-2-pentanone	108-10-1	N.D.	330	1,100	98.43
10237	Methylcyclohexane	108-87-2	N.D.	110	550	98.43
10237	Methylene Chloride	75-09-2	N.D.	220	550	98.43
10237	Styrene	100-42-5	N.D.	110	550	98.43
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	110	550	98.43
10237	Tetrachloroethene	127-18-4	N.D.	110	550	98.43
10237	Toluene	108-88-3	N.D.	110	550	98.43
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	110	550	98.43
10237	1,1,1-Trichloroethane	71-55-6	N.D.	110	550	98.43
10237	1,1,2-Trichloroethane	79-00-5	N.D.	110	550	98.43
10237	Trichloroethene	79-01-6	N.D.	110	550	98.43
10237	Trichlorofluoromethane	75-69-4	N.D.	220	550	98.43
10237	Vinyl Chloride	75-01-4	N.D.	110	550	98.43
10237	Xylene (Total)	1330-20-7	N.D.	110	550	98.43

00880 VOA Library Search (15)

*=This limit was used in the evaluation of the final result

Sample Description: SS-03 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489154
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:55 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB03 SDG#: BRG02-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles		**SW-846 8270C**	**ug/kg**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	5	J	4	19	1
10727	Acenaphthylene	208-96-8	N.D.		4	19	1
10727	Acetophenone	98-86-2	N.D.		19	37	1
10727	Anthracene	120-12-7	17	J	4	19	1
10727	Atrazine	1912-24-9	N.D.		37	190	1
10727	Benzaldehyde	100-52-7	N.D.		75	190	1
10727	Benzo(a)anthracene	56-55-3	53		4	19	1
10727	Benzo(a)pyrene	50-32-8	54		4	19	1
10727	Benzo(b)fluoranthene	205-99-2	75		4	19	1
10727	Benzo(g,h,i)perylene	191-24-2	39		4	19	1
10727	Benzo(k)fluoranthene	207-08-9	41		4	19	1
10727	1,1'-Biphenyl	92-52-4	N.D.		19	37	1
10727	4-Bromophenyl-phenylether	101-55-3	N.D.		19	37	1
10727	Butylbenzylphthalate	85-68-7	N.D.		75	190	1
10727	Di-n-butylphthalate	84-74-2	N.D.		75	190	1
10727	Caprolactam	105-60-2	N.D.		37	190	1
10727	Carbazole	86-74-8	N.D.		19	37	1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.		19	37	1
10727	4-Chloroaniline	106-47-8	N.D.		19	37	1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.		19	37	1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.		19	37	1
10727	2-Chloronaphthalene	91-58-7	N.D.		8	37	1
10727	2-Chlorophenol	95-57-8	N.D.		19	37	1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.		19	37	1
10727	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.		19	37	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	Chrysene	218-01-9	65		4	19	1
10727	Dibenz(a,h)anthracene	53-70-3	10	J	4	19	1
10727	Dibenzofuran	132-64-9	N.D.		19	37	1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.		110	370	1
10727	2,4-Dichlorophenol	120-83-2	N.D.		19	37	1
10727	Diethylphthalate	84-66-2	N.D.		75	190	1
10727	2,4-Dimethylphenol	105-67-9	N.D.		19	37	1
10727	Dimethylphthalate	131-11-3	N.D.		75	190	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.		190	560	1
10727	2,4-Dinitrophenol	51-28-5	N.D.		340	1,100	1
10727	2,4-Dinitrotoluene	121-14-2	N.D.		75	190	1
10727	2,6-Dinitrotoluene	606-20-2	N.D.		19	37	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.		75	190	1
10727	Fluoranthene	206-44-0	100		4	19	1
10727	Fluorene	86-73-7	5	J	4	19	1
10727	Hexachlorobenzene	118-74-1	N.D.		4	19	1
10727	Hexachlorobutadiene	87-68-3	N.D.		19	37	1
10727	Hexachlorocyclopentadiene	77-47-4	N.D.		190	560	1
10727	Hexachloroethane	67-72-1	N.D.		37	190	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-03 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489154
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:55 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB03 SDG#: BRG02-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Indeno(1,2,3-cd)pyrene	193-39-5	39		4	19	1
10727	Isophorone	78-59-1	N.D.		19	37	1
10727	2-Methylnaphthalene	91-57-6	4	J	4	19	1
10727	2-Methylphenol	95-48-7	N.D.		19	37	1
10727	4-Methylphenol	106-44-5	N.D.		19	37	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10727	Naphthalene	91-20-3	5	J	4	19	1
10727	2-Nitroaniline	88-74-4	N.D.		19	37	1
10727	3-Nitroaniline	99-09-2	N.D.		75	190	1
10727	4-Nitroaniline	100-01-6	N.D.		75	190	1
10727	Nitrobenzene	98-95-3	N.D.		19	37	1
10727	2-Nitrophenol	88-75-5	N.D.		19	37	1
10727	4-Nitrophenol	100-02-7	N.D.		190	560	1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		19	37	1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		19	37	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10727	Di-n-octylphthalate	117-84-0	N.D.		75	190	1
10727	Pentachlorophenol	87-86-5	N.D.		37	190	1
10727	Phenanthrene	85-01-8	61		4	19	1
10727	Phenol	108-95-2	N.D.		19	37	1
10727	Pyrene	129-00-0	110		4	19	1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		19	37	1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		19	37	1

00893 Semivolatile Library Search

The results from the semivolatile library search are listed on the attached FORM 1 - SV-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.

Pesticides/PCBs	**SW-846 8081A**		**ug/kg**		**ug/kg**	**ug/kg**	
10738	Aldrin	309-00-2	N.D.		0.19	0.93	1
10738	Alpha BHC	319-84-6	N.D.		0.19	0.93	1
10738	Beta BHC	319-85-7	N.D.		0.34	1.1	1
10738	Gamma BHC - Lindane	58-89-9	N.D.		0.19	0.93	1
10738	Alpha Chlordane	5103-71-9	N.D.		0.19	0.93	1
10738	Gamma Chlordane	5103-74-2	N.D.		0.34	0.93	1
10738	p,p-DDD	72-54-8	N.D.		0.37	1.9	1
10738	p,p-DDE	72-55-9	N.D.		0.37	1.9	1
10738	p,p-DDT	50-29-3	N.D.		0.39	1.9	1
10738	Delta BHC	319-86-8	N.D.		0.51	0.93	1
10738	Dieldrin	60-57-1	N.D.		0.37	1.9	1
10738	Endosulfan I	959-98-8	N.D.		0.25	0.93	1
10738	Endosulfan II	33213-65-9	N.D.		0.37	1.9	1
10738	Endosulfan Sulfate	1031-07-8	N.D.		0.37	1.9	1
10738	Endrin	72-20-8	N.D.		0.37	1.9	1
10738	Endrin Aldehyde	7421-93-4	N.D.		0.37	1.9	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-03 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489154
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:55 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB03 SDG#: BRG02-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8081A**		**ug/kg**	**ug/kg**	**ug/kg**	
10738	Endrin Ketone	53494-70-5	N.D.	0.68	2.0	1
10738	Heptachlor	76-44-8	N.D.	0.19	0.93	1
10738	Heptachlor Epoxide	1024-57-3	N.D.	0.19	0.93	1
10738	Methoxychlor	72-43-5	N.D.	1.9	7.5	1
10738	Toxaphene	8001-35-2	N.D.	16	37	1
	The 4,4-DDT breakdown evaluated after the sample injection is above the SW-846 8081A method limit of 15% at 56% and 54% (primary and confirmation columns). The 4,4-DDT %difference in the continuing calibration verification injected after the sample is outside the DRNEC 2010 SOP limits of +/-25% at -35%. The 4,4-DDT breakdown and continuing calibration standards evaluated before the sample are compliant.					
	Reporting limits were raised due to interference from the sample matrix.					
Pesticides/PCBs	**SW-846 8082**		**ug/kg**	**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.	4.0	19	1
10736	PCB-1221	11104-28-2	N.D.	5.1	19	1
10736	PCB-1232	11141-16-5	N.D.	8.9	19	1
10736	PCB-1242	53469-21-9	N.D.	3.7	19	1
10736	PCB-1248	12672-29-6	N.D.	3.7	19	1
10736	PCB-1254	11097-69-1	9.6 J	3.7	19	1
10736	PCB-1260	11096-82-5	N.D.	5.5	19	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	Aluminum	7429-90-5	22,200	7.66	21.2	1
06944	Antimony	7440-36-0	N.D.	0.786	2.12	1
06935	Arsenic	7440-38-2	N.D.	0.744	2.12	1
06946	Barium	7440-39-3	172	0.0351	0.531	1
06947	Beryllium	7440-41-7	0.837	0.0712	0.531	1
06949	Cadmium	7440-43-9	N.D.	0.0807	0.531	1
01650	Calcium	7440-70-2	3,100	3.55	21.2	1
06951	Chromium	7440-47-3	36.0	0.170	1.59	1
06952	Cobalt	7440-48-4	18.0	0.105	0.531	1
06953	Copper	7440-50-8	54.9	0.308	1.06	1
01654	Iron	7439-89-6	33,700	7.69	42.5	2
06955	Lead	7439-92-1	14.5	0.531	1.59	1
01657	Magnesium	7439-95-4	13,100	1.77	10.6	1
06958	Manganese	7439-96-5	687	0.0882	0.531	1
06961	Nickel	7440-02-0	38.1	0.138	1.06	1
01662	Potassium	7440-09-7	13,400	17.7	106	2
06936	Selenium	7782-49-2	N.D.	1.70	4.25	2
	Reporting limits were raised due to interference from the sample matrix.					
06966	Silver	7440-22-4	0.251 J	0.181	0.531	1
01667	Sodium	7440-23-5	367	17.7	106	1
06925	Thallium	7440-28-0	1.28 J	0.552	3.19	1
06971	Vanadium	7440-62-2	41.9	0.138	0.531	1
06972	Zinc	7440-66-6	107	0.212	2.12	1
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0132 J	0.0110	0.110	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SS-03 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489154
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:55 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB03 SDG#: BRG02-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	11.2	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	8260 VOCs	SW-846 8260B	1	R141571AA	06/06/2014 03:53	Stephanie A Selis	98.43
06172	GC/MS - Field Preserved (DE)	SW-846 5035	1	201415634722	06/05/2014 11:55	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	14156SLC026	06/06/2014 07:40	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	14156SLC026	06/05/2014 23:30	Sherry L Morrow	1
10738	Pesticides in Soil (microwave)	SW-846 8081A	1	141560028A	06/06/2014 10:50	Jamie L Brillhart	1
10736	PCBs in Soil (microwave)	SW-846 8082	1	141560029A	06/06/2014 10:16	Monica M Souders	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	141560029A	06/05/2014 23:30	Sherry L Morrow	1
10496	PPL Pest. Microwave Extraction	SW-846 3546	1	141560028A	06/05/2014 23:30	Sherry L Morrow	1
01643	Aluminum	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
06944	Antimony	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
06935	Arsenic	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
06947	Beryllium	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
01650	Calcium	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
06952	Cobalt	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
06953	Copper	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
01654	Iron	SW-846 6010B	1	141565708001	06/06/2014 06:46	Tara L Snyder	2
06955	Lead	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
01657	Magnesium	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
06958	Manganese	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
06961	Nickel	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
01662	Potassium	SW-846 6010B	1	141565708001	06/06/2014 06:46	Tara L Snyder	2
06936	Selenium	SW-846 6010B	1	141565708001	06/06/2014 06:46	Tara L Snyder	2
06966	Silver	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
01667	Sodium	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
06925	Thallium	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
06971	Vanadium	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1
06972	Zinc	SW-846 6010B	1	141565708001	06/06/2014 05:46	Tara L Snyder	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SS-03 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489154
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 11:55 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB03 SDG#: BRG02-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00159	Mercury	SW-846 7471A	1	141565711001	06/06/2014 09:24	Katlin N Cataldi	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	141565708001	06/05/2014 19:49	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	141565711001	06/05/2014 20:25	James L Mertz	1
00111	Moisture	SM 2540 G-1997	1	14157820001B	06/06/2014 07:03	William C Schwebel	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DDB03

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) SOIL Lab Sample ID: 7489154
Sample wt/vol: 5.08 (g/mL) g Lab File ID: HP07566.i/14jun06a.b/ru06s03.d
Level: (low/med) MED Date Received: 06/05/14
% Moisture: not dec. 11 Date Analyzed: 06/06/14
Column: (pack/cap) CAP Dilution Factor: 98.4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB03

Lab Name: Lancaster Laboratories Contract: _____
Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
Matrix: (soil/water) SOIL Lab Sample ID: 7489154
Sample wt/vol: 30.2 (g/mL) g Lab File ID: ef0337.d
Level: (low/med) LOW Date Received: 06/05/14
% Moisture: 11 Decanted: (Y/N) Date Extracted: 06/05/14
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/06/14
Injection Volume: 1 (uL) Dilution Factor: 1
GPC Cleanup: N pH: Extraction: Mic

CONCENTRATION UNITS:
Number TICs found: 3 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.897	2900	JB
2.	Unknown	8.616	210	J
3.	Unknown	9.011	160	J
4.				
5. SVOCTIC	Total SVOC TICs		3300	JB
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page 1 of 1

FORM I SV-1

Sample Description: SS-04 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489155
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:00 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB04 SDG#: BRG02-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	N.D.	1,100	3,100	143.27
10237	Benzene	71-43-2	N.D.	79	790	143.27
10237	Bromodichloromethane	75-27-4	N.D.	160	790	143.27
10237	Bromoform	75-25-2	N.D.	160	790	143.27
10237	Bromomethane	74-83-9	N.D.	310	790	143.27
10237	2-Butanone	78-93-3	N.D.	630	1,600	143.27
10237	Carbon Disulfide	75-15-0	N.D.	160	790	143.27
10237	Carbon Tetrachloride	56-23-5	N.D.	160	790	143.27
10237	Chlorobenzene	108-90-7	N.D.	160	790	143.27
10237	Chloroethane	75-00-3	N.D.	310	790	143.27
10237	Chloroform	67-66-3	N.D.	160	790	143.27
10237	Chloromethane	74-87-3	N.D.	310	790	143.27
10237	Cyclohexane	110-82-7	N.D.	160	790	143.27
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	310	790	143.27
10237	Dibromochloromethane	124-48-1	N.D.	160	790	143.27
10237	1,2-Dibromoethane	106-93-4	N.D.	160	790	143.27
10237	1,2-Dichlorobenzene	95-50-1	N.D.	160	790	143.27
10237	1,3-Dichlorobenzene	541-73-1	N.D.	160	790	143.27
10237	1,4-Dichlorobenzene	106-46-7	N.D.	160	790	143.27
10237	Dichlorodifluoromethane	75-71-8	N.D.	310	790	143.27
10237	1,1-Dichloroethane	75-34-3	N.D.	160	790	143.27
10237	1,2-Dichloroethane	107-06-2	N.D.	160	790	143.27
10237	1,1-Dichloroethene	75-35-4	N.D.	160	790	143.27
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	160	790	143.27
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	160	790	143.27
10237	1,2-Dichloropropane	78-87-5	N.D.	160	790	143.27
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	160	790	143.27
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	160	790	143.27
10237	Ethylbenzene	100-41-4	N.D.	160	790	143.27
10237	Freon 113	76-13-1	N.D.	310	1,600	143.27
10237	2-Hexanone	591-78-6	N.D.	470	1,600	143.27
10237	Isopropylbenzene	98-82-8	N.D.	160	790	143.27
10237	Methyl Acetate	79-20-9	N.D.	310	790	143.27
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	79	790	143.27
10237	4-Methyl-2-pentanone	108-10-1	N.D.	470	1,600	143.27
10237	Methylcyclohexane	108-87-2	N.D.	160	790	143.27
10237	Methylene Chloride	75-09-2	N.D.	310	790	143.27
10237	Styrene	100-42-5	N.D.	160	790	143.27
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	160	790	143.27
10237	Tetrachloroethene	127-18-4	N.D.	160	790	143.27
10237	Toluene	108-88-3	N.D.	160	790	143.27
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	160	790	143.27
10237	1,1,1-Trichloroethane	71-55-6	N.D.	160	790	143.27
10237	1,1,2-Trichloroethane	79-00-5	N.D.	160	790	143.27
10237	Trichloroethene	79-01-6	N.D.	160	790	143.27
10237	Trichlorofluoromethane	75-69-4	N.D.	310	790	143.27
10237	Vinyl Chloride	75-01-4	N.D.	160	790	143.27
10237	Xylene (Total)	1330-20-7	N.D.	160	790	143.27

00880 VOA Library Search (15)

*=This limit was used in the evaluation of the final result

Sample Description: SS-04 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489155
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:00 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB04 SDG#: BRG02-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles		**SW-846 8270C**	**ug/kg**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	18	J	4	19	1
10727	Acenaphthylene	208-96-8	6	J	4	19	1
10727	Acetophenone	98-86-2	N.D.		18	37	1
10727	Anthracene	120-12-7	44		4	19	1
10727	Atrazine	1912-24-9	N.D.		37	180	1
10727	Benzaldehyde	100-52-7	N.D.		73	180	1
10727	Benzo(a)anthracene	56-55-3	97		4	19	1
10727	Benzo(a)pyrene	50-32-8	110		4	19	1
10727	Benzo(b)fluoranthene	205-99-2	150		4	19	1
10727	Benzo(g,h,i)perylene	191-24-2	76		4	19	1
10727	Benzo(k)fluoranthene	207-08-9	55		4	19	1
10727	1,1'-Biphenyl	92-52-4	N.D.		18	37	1
10727	4-Bromophenyl-phenylether	101-55-3	N.D.		18	37	1
10727	Butylbenzylphthalate	85-68-7	N.D.		73	180	1
10727	Di-n-butylphthalate	84-74-2	N.D.		73	180	1
10727	Caprolactam	105-60-2	N.D.		37	180	1
10727	Carbazole	86-74-8	21	J	18	37	1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.		18	37	1
10727	4-Chloroaniline	106-47-8	N.D.		18	37	1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.		18	37	1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.		18	37	1
10727	2-Chloronaphthalene	91-58-7	N.D.		8	36	1
10727	2-Chlorophenol	95-57-8	N.D.		18	37	1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.		18	37	1
10727	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.		18	37	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	Chrysene	218-01-9	91		4	19	1
10727	Dibenz(a,h)anthracene	53-70-3	17	J	4	19	1
10727	Dibenzofuran	132-64-9	N.D.		18	37	1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.		110	370	1
10727	2,4-Dichlorophenol	120-83-2	N.D.		18	37	1
10727	Diethylphthalate	84-66-2	N.D.		73	180	1
10727	2,4-Dimethylphenol	105-67-9	N.D.		18	37	1
10727	Dimethylphthalate	131-11-3	N.D.		73	180	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.		180	550	1
10727	2,4-Dinitrophenol	51-28-5	N.D.		330	1,100	1
10727	2,4-Dinitrotoluene	121-14-2	N.D.		73	180	1
10727	2,6-Dinitrotoluene	606-20-2	N.D.		18	37	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.		73	190	1
10727	Fluoranthene	206-44-0	210		4	19	1
10727	Fluorene	86-73-7	16	J	4	19	1
10727	Hexachlorobenzene	118-74-1	N.D.		4	19	1
10727	Hexachlorobutadiene	87-68-3	N.D.		18	37	1
10727	Hexachlorocyclopentadiene	77-47-4	N.D.		180	550	1
10727	Hexachloroethane	67-72-1	N.D.		37	180	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-04 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489155
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:00 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB04 SDG#: BRG02-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Indeno(1,2,3-cd)pyrene	193-39-5	61		4	19	1
10727	Isophorone	78-59-1	N.D.		18	37	1
10727	2-Methylnaphthalene	91-57-6	6	J	4	19	1
10727	2-Methylphenol	95-48-7	N.D.		18	37	1
10727	4-Methylphenol	106-44-5	N.D.		18	37	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10727	Naphthalene	91-20-3	11	J	4	19	1
10727	2-Nitroaniline	88-74-4	N.D.		18	37	1
10727	3-Nitroaniline	99-09-2	N.D.		73	180	1
10727	4-Nitroaniline	100-01-6	N.D.		73	180	1
10727	Nitrobenzene	98-95-3	N.D.		18	37	1
10727	2-Nitrophenol	88-75-5	N.D.		18	37	1
10727	4-Nitrophenol	100-02-7	N.D.		180	550	1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		18	37	1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		18	37	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10727	Di-n-octylphthalate	117-84-0	N.D.		73	180	1
10727	Pentachlorophenol	87-86-5	N.D.		37	190	1
10727	Phenanthrene	85-01-8	200		4	19	1
10727	Phenol	108-95-2	N.D.		18	37	1
10727	Pyrene	129-00-0	200		4	19	1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		18	37	1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		18	37	1

00893 Semivolatile Library Search

The results from the semivolatile library search are listed on the attached FORM 1 - SV-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.

Pesticides/PCBs	**SW-846 8081A**		**ug/kg**		**ug/kg**	**ug/kg**	
10738	Aldrin	309-00-2	N.D.		0.19	0.91	1
10738	Alpha BHC	319-84-6	N.D.		0.19	0.91	1
10738	Beta BHC	319-85-7	N.D.		0.33	1.1	1
10738	Gamma BHC - Lindane	58-89-9	N.D.		0.19	0.91	1
10738	Alpha Chlordane	5103-71-9	0.22	J	0.19	0.91	1
10738	Gamma Chlordane	5103-74-2	N.D.		0.32	0.91	1
10738	p,p-DDD	72-54-8	N.D.		0.79	1.9	1
10738	p,p-DDE	72-55-9	N.D.		0.36	1.9	1
10738	p,p-DDT	50-29-3	0.81	J	0.38	1.9	1
10738	Delta BHC	319-86-8	N.D.		0.49	0.91	1
10738	Dieldrin	60-57-1	N.D.		0.36	1.9	1
10738	Endosulfan I	959-98-8	N.D.		0.24	0.91	1
10738	Endosulfan II	33213-65-9	N.D.		0.36	1.9	1
10738	Endosulfan Sulfate	1031-07-8	N.D.		0.57	1.9	1
10738	Endrin	72-20-8	N.D.		0.36	1.9	1
10738	Endrin Aldehyde	7421-93-4	N.D.		0.36	1.9	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-04 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489155
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:00 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB04 SDG#: BRG02-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8081A**		**ug/kg**		**ug/kg**	**ug/kg**	
10738	Endrin Ketone	53494-70-5	N.D.		0.66	2.0	1
10738	Heptachlor	76-44-8	N.D.		0.19	0.91	1
10738	Heptachlor Epoxide	1024-57-3	N.D.		0.19	0.91	1
10738	Methoxychlor	72-43-5	N.D.		1.9	7.4	1
10738	Toxaphene	8001-35-2	N.D.		15	36	1

The 4,4-DDT breakdown evaluated after the sample injection is above the SW-846 8081A method limit of 15% at 56% and 54% (primary and confirmation columns). The 4,4-DDT %difference in the continuing calibration verification injected after the sample is outside the DRNEC 2010 SOP limits of +/-25% at -35%. The 4,4-DDT breakdown and continuing calibration standards evaluated before the sample are compliant.
Reporting limits were raised due to interference from the sample matrix.

Pesticides/PCBs	**SW-846 8082**		**ug/kg**		**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.		4.0	19	1
10736	PCB-1221	11104-28-2	N.D.		5.1	19	1
10736	PCB-1232	11141-16-5	N.D.		8.8	19	1
10736	PCB-1242	53469-21-9	N.D.		3.6	19	1
10736	PCB-1248	12672-29-6	N.D.		3.6	19	1
10736	PCB-1254	11097-69-1	9.3	J	3.6	19	1
10736	PCB-1260	11096-82-5	N.D.		5.4	19	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	Aluminum	7429-90-5	18,600		7.69	21.3	1
06944	Antimony	7440-36-0	N.D.		0.790	2.13	1
06935	Arsenic	7440-38-2	1.08	J	0.747	2.13	1
06946	Barium	7440-39-3	133		0.0352	0.533	1
06947	Beryllium	7440-41-7	0.861		0.0715	0.533	1
06949	Cadmium	7440-43-9	N.D.		0.0811	0.533	1
01650	Calcium	7440-70-2	3,490		3.56	21.3	1
06951	Chromium	7440-47-3	29.6		0.171	1.60	1
06952	Cobalt	7440-48-4	11.7		0.106	0.533	1
06953	Copper	7440-50-8	21.5		0.309	1.07	1
01654	Iron	7439-89-6	27,400		3.86	21.3	1
06955	Lead	7439-92-1	12.7		0.533	1.60	1
01657	Magnesium	7439-95-4	9,860		1.78	10.7	1
06958	Manganese	7439-96-5	529		0.0886	0.533	1
06961	Nickel	7440-02-0	24.8		0.139	1.07	1
01662	Potassium	7440-09-7	9,160		8.90	53.3	1
06936	Selenium	7782-49-2	N.D.		0.854	2.13	1
06966	Silver	7440-22-4	N.D.		0.181	0.533	1
01667	Sodium	7440-23-5	233		17.8	107	1
06925	Thallium	7440-28-0	1.00	J	0.555	3.20	1
06971	Vanadium	7440-62-2	36.9		0.139	0.533	1
06972	Zinc	7440-66-6	78.4		0.213	2.13	1
	SW-846 7471A		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0297	J	0.0109	0.109	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SS-04 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489155
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:00 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB04 SDG#: BRG02-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	9.0	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	8260 VOCs	SW-846 8260B	1	R141571AA	06/06/2014 04:17	Stephanie A Selis	143.27
06172	GC/MS - Field Preserved (DE)	SW-846 5035	1	201415634722	06/05/2014 12:00	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	14156SLC026	06/06/2014 08:05	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	14156SLC026	06/05/2014 23:30	Sherry L Morrow	1
10738	Pesticides in Soil (microwave)	SW-846 8081A	1	141560028A	06/06/2014 11:04	Jamie L Brillhart	1
10736	PCBs in Soil (microwave)	SW-846 8082	1	141560029A	06/06/2014 10:27	Monica M Souders	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	141560029A	06/05/2014 23:30	Sherry L Morrow	1
10496	PPL Pest. Microwave Extraction	SW-846 3546	1	141560028A	06/05/2014 23:30	Sherry L Morrow	1
01643	Aluminum	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06944	Antimony	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06935	Arsenic	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06947	Beryllium	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
01650	Calcium	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06952	Cobalt	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06953	Copper	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
01654	Iron	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
01657	Magnesium	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06958	Manganese	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06961	Nickel	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
01662	Potassium	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
01667	Sodium	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06925	Thallium	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06971	Vanadium	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1
06972	Zinc	SW-846 6010B	1	141565708001	06/06/2014 05:58	Tara L Snyder	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: SS-04 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489155
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:00 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB04 SDG#: BRG02-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00159	Mercury	SW-846 7471A	1	141565711001	06/06/2014 09:26	Katlin N Cataldi	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	141565708001	06/05/2014 19:49	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	141565711001	06/05/2014 20:25	James L Mertz	1
00111	Moisture	SM 2540 G-1997	1	14157820001B	06/06/2014 07:03	William C Schwebel	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DDB04

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) SOIL Lab Sample ID: 7489155
Sample wt/vol: 3.49 (g/mL) g Lab File ID: HP07566.i/14jun06a.b/ru06s04.d
Level: (low/med) MED Date Received: 06/05/14
% Moisture: not dec. 9 Date Analyzed: 06/06/14
Column: (pack/cap) CAP Dilution Factor: 143.3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB04

Lab Name: Lancaster Laboratories Contract: _____
Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
Matrix: (soil/water) SOIL Lab Sample ID: 7489155
Sample wt/vol: 30.0 (g/mL) g Lab File ID: ef0338.d
Level: (low/med) LOW Date Received: 06/05/14
% Moisture: 9 Decanted: (Y/N) Date Extracted: 06/05/14
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/06/14
Injection Volume: 1 (uL) Dilution Factor: 1
GPC Cleanup: N pH: Extraction: Mic

CONCENTRATION UNITS:
Number TICs found: 6 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.903	5400	JB
2.	Unknown	8.616	150	J
3.	Unknown	10.782	150	J
4.	Unknown	10.818	150	J
5.	Unknown	10.896	200	J
6.	Unknown	11.189	150	J
7.				
8.SVOCTIC	Total SVOC TICs		6200	JB
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page 1 of 1

FORM I SV-1

Sample Description: SS-05 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489156
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:05 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB05 SDG#: BRG02-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	N.D.	640	1,800	77.16
10237	Benzene	71-43-2	N.D.	46	460	77.16
10237	Bromodichloromethane	75-27-4	N.D.	91	460	77.16
10237	Bromoform	75-25-2	N.D.	91	460	77.16
10237	Bromomethane	74-83-9	N.D.	180	460	77.16
10237	2-Butanone	78-93-3	N.D.	360	910	77.16
10237	Carbon Disulfide	75-15-0	N.D.	91	460	77.16
10237	Carbon Tetrachloride	56-23-5	N.D.	91	460	77.16
10237	Chlorobenzene	108-90-7	N.D.	91	460	77.16
10237	Chloroethane	75-00-3	N.D.	180	460	77.16
10237	Chloroform	67-66-3	N.D.	91	460	77.16
10237	Chloromethane	74-87-3	N.D.	180	460	77.16
10237	Cyclohexane	110-82-7	N.D.	91	460	77.16
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	180	460	77.16
10237	Dibromochloromethane	124-48-1	N.D.	91	460	77.16
10237	1,2-Dibromoethane	106-93-4	N.D.	91	460	77.16
10237	1,2-Dichlorobenzene	95-50-1	N.D.	91	460	77.16
10237	1,3-Dichlorobenzene	541-73-1	N.D.	91	460	77.16
10237	1,4-Dichlorobenzene	106-46-7	N.D.	91	460	77.16
10237	Dichlorodifluoromethane	75-71-8	N.D.	180	460	77.16
10237	1,1-Dichloroethane	75-34-3	N.D.	91	460	77.16
10237	1,2-Dichloroethane	107-06-2	N.D.	91	460	77.16
10237	1,1-Dichloroethene	75-35-4	N.D.	91	460	77.16
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	91	460	77.16
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	91	460	77.16
10237	1,2-Dichloropropane	78-87-5	N.D.	91	460	77.16
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	91	460	77.16
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	91	460	77.16
10237	Ethylbenzene	100-41-4	N.D.	91	460	77.16
10237	Freon 113	76-13-1	N.D.	180	910	77.16
10237	2-Hexanone	591-78-6	N.D.	270	910	77.16
10237	Isopropylbenzene	98-82-8	N.D.	91	460	77.16
10237	Methyl Acetate	79-20-9	N.D.	180	460	77.16
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	46	460	77.16
10237	4-Methyl-2-pentanone	108-10-1	N.D.	270	910	77.16
10237	Methylcyclohexane	108-87-2	N.D.	91	460	77.16
10237	Methylene Chloride	75-09-2	N.D.	180	460	77.16
10237	Styrene	100-42-5	N.D.	91	460	77.16
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	91	460	77.16
10237	Tetrachloroethene	127-18-4	N.D.	91	460	77.16
10237	Toluene	108-88-3	N.D.	91	460	77.16
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	91	460	77.16
10237	1,1,1-Trichloroethane	71-55-6	N.D.	91	460	77.16
10237	1,1,2-Trichloroethane	79-00-5	N.D.	91	460	77.16
10237	Trichloroethene	79-01-6	N.D.	91	460	77.16
10237	Trichlorofluoromethane	75-69-4	N.D.	180	460	77.16
10237	Vinyl Chloride	75-01-4	N.D.	91	460	77.16
10237	Xylene (Total)	1330-20-7	N.D.	91	460	77.16

00880 VOA Library Search (15)

*=This limit was used in the evaluation of the final result

Sample Description: SS-05 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489156
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:05 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB05 SDG#: BRG02-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.					
GC/MS Semivolatiles		**SW-846 8270C**	**ug/kg**	**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	61	4	20	1
10727	Acenaphthylene	208-96-8	25	4	20	1
10727	Acetophenone	98-86-2	N.D.	20	39	1
10727	Anthracene	120-12-7	140	4	20	1
10727	Atrazine	1912-24-9	N.D.	39	200	1
10727	Benzaldehyde	100-52-7	N.D.	79	200	1
10727	Benzo(a)anthracene	56-55-3	340	4	20	1
10727	Benzo(a)pyrene	50-32-8	330	4	20	1
10727	Benzo(b)fluoranthene	205-99-2	410	4	20	1
10727	Benzo(g,h,i)perylene	191-24-2	190	4	20	1
10727	Benzo(k)fluoranthene	207-08-9	200	4	20	1
10727	1,1'-Biphenyl	92-52-4	N.D.	20	39	1
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	20	39	1
10727	Butylbenzylphthalate	85-68-7	N.D.	79	200	1
10727	Di-n-butylphthalate	84-74-2	N.D.	79	200	1
10727	Caprolactam	105-60-2	N.D.	39	200	1
10727	Carbazole	86-74-8	59	20	39	1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	20	39	1
10727	4-Chloroaniline	106-47-8	N.D.	20	39	1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	20	39	1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	20	39	1
10727	2-Chloronaphthalene	91-58-7	N.D.	8	39	1
10727	2-Chlorophenol	95-57-8	N.D.	20	39	1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	20	39	1
10727	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	20	39	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.					
10727	Chrysene	218-01-9	320	4	20	1
10727	Dibenz(a,h)anthracene	53-70-3	45	4	20	1
10727	Dibenzofuran	132-64-9	53	20	39	1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	120	390	1
10727	2,4-Dichlorophenol	120-83-2	N.D.	20	39	1
10727	Diethylphthalate	84-66-2	N.D.	79	200	1
10727	2,4-Dimethylphenol	105-67-9	N.D.	20	39	1
10727	Dimethylphthalate	131-11-3	N.D.	79	200	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	200	590	1
10727	2,4-Dinitrophenol	51-28-5	N.D.	350	1,200	1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	79	200	1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	20	39	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	79	200	1
10727	Fluoranthene	206-44-0	450	4	20	1
10727	Fluorene	86-73-7	66	4	20	1
10727	Hexachlorobenzene	118-74-1	N.D.	4	20	1
10727	Hexachlorobutadiene	87-68-3	N.D.	20	39	1
10727	Hexachlorocyclopentadiene	77-47-4	N.D.	200	590	1
10727	Hexachloroethane	67-72-1	N.D.	39	200	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-05 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489156
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:05 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB05 SDG#: BRG02-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	ug/kg	
10727	Indeno(1,2,3-cd)pyrene	193-39-5	190		4	20	1
10727	Isophorone	78-59-1	N.D.		20	39	1
10727	2-Methylnaphthalene	91-57-6	46		4	20	1
10727	2-Methylphenol	95-48-7	N.D.		20	39	1
10727	4-Methylphenol	106-44-5	N.D.		20	39	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10727	Naphthalene	91-20-3	40		4	20	1
10727	2-Nitroaniline	88-74-4	N.D.		20	39	1
10727	3-Nitroaniline	99-09-2	N.D.		79	200	1
10727	4-Nitroaniline	100-01-6	N.D.		79	200	1
10727	Nitrobenzene	98-95-3	N.D.		20	39	1
10727	2-Nitrophenol	88-75-5	N.D.		20	39	1
10727	4-Nitrophenol	100-02-7	N.D.		200	590	1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		20	39	1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		20	39	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10727	Di-n-octylphthalate	117-84-0	N.D.		79	200	1
10727	Pentachlorophenol	87-86-5	N.D.		39	200	1
10727	Phenanthrene	85-01-8	430		4	20	1
10727	Phenol	108-95-2	N.D.		20	39	1
10727	Pyrene	129-00-0	470		4	20	1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		20	39	1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		20	39	1

00893 Semivolatile Library Search

The results from the semivolatile library search are listed on the attached FORM 1 - SV-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.

Pesticides/PCBs	**SW-846 8081A**		ug/kg		ug/kg	ug/kg	
10738	Aldrin	309-00-2	N.D.		0.20	0.98	1
10738	Alpha BHC	319-84-6	N.D.		0.20	0.98	1
10738	Beta BHC	319-85-7	N.D.		0.35	1.2	1
10738	Gamma BHC - Lindane	58-89-9	N.D.		0.20	0.98	1
10738	Alpha Chlordane	5103-71-9	0.34	J	0.20	0.98	1
10738	Gamma Chlordane	5103-74-2	N.D.		0.46	0.98	1
10738	p,p-DDD	72-54-8	1.6	J	0.39	2.0	1
10738	p,p-DDE	72-55-9	2.6		0.39	2.0	1
10738	p,p-DDT	50-29-3	2.9		0.41	2.0	1
10738	Delta BHC	319-86-8	N.D.		0.53	0.98	1
10738	Dieldrin	60-57-1	0.71	J	0.39	2.0	1
10738	Endosulfan I	959-98-8	N.D.		0.26	0.98	1
10738	Endosulfan II	33213-65-9	N.D.		0.39	2.0	1
10738	Endosulfan Sulfate	1031-07-8	N.D.		0.40	2.0	1
10738	Endrin	72-20-8	N.D.		0.39	2.0	1
10738	Endrin Aldehyde	7421-93-4	N.D.		0.39	2.0	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-05 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489156
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:05 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB05 SDG#: BRG02-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8081A**		**ug/kg**	**ug/kg**	**ug/kg**	
10738	Endrin Ketone	53494-70-5	N.D.	0.71	2.1	1
10738	Heptachlor	76-44-8	N.D.	0.20	0.98	1
10738	Heptachlor Epoxide	1024-57-3	N.D.	0.25	0.98	1
10738	Methoxychlor	72-43-5	N.D.	2.0	7.9	1
10738	Toxaphene	8001-35-2	N.D.	17	39	1

The 4,4-DDT breakdown evaluated after the sample injection is above the SW-846 8081A method limit of 15% at 56% and 54% (primary and confirmation columns). The 4,4-DDT %difference in the continuing calibration verification injected after the sample is outside the DRNEC 2010 SOP limits of +/-25% at -35%. The 4,4-DDT breakdown and continuing calibration standards evaluated before the sample are compliant.
Reporting limits were raised due to interference from the sample matrix.

Pesticides/PCBs	**SW-846 8082**		**ug/kg**	**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.	4.3	20	1
10736	PCB-1221	11104-28-2	N.D.	5.4	20	1
10736	PCB-1232	11141-16-5	N.D.	9.5	20	1
10736	PCB-1242	53469-21-9	N.D.	3.9	20	1
10736	PCB-1248	12672-29-6	N.D.	3.9	20	1
10736	PCB-1254	11097-69-1	11 J	3.9	20	1
10736	PCB-1260	11096-82-5	N.D.	5.8	20	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	Aluminum	7429-90-5	17,900	8.36	23.2	1
06944	Antimony	7440-36-0	N.D.	0.858	2.32	1
06935	Arsenic	7440-38-2	1.68 J	0.811	2.32	1
06946	Barium	7440-39-3	116	0.0382	0.579	1
06947	Beryllium	7440-41-7	0.925	0.0776	0.579	1
06949	Cadmium	7440-43-9	N.D.	0.0881	0.579	1
01650	Calcium	7440-70-2	2,760	3.87	23.2	1
06951	Chromium	7440-47-3	28.8	0.185	1.74	1
06952	Cobalt	7440-48-4	11.0	0.115	0.579	1
06953	Copper	7440-50-8	22.1	0.336	1.16	1
01654	Iron	7439-89-6	26,000	4.20	23.2	1
06955	Lead	7439-92-1	18.1	0.579	1.74	1
01657	Magnesium	7439-95-4	7,280	1.94	11.6	1
06958	Manganese	7439-96-5	491	0.0962	0.579	1
06961	Nickel	7440-02-0	28.2	0.151	1.16	1
01662	Potassium	7440-09-7	7,190	9.66	57.9	1
06936	Selenium	7782-49-2	N.D.	0.927	2.32	1
06966	Silver	7440-22-4	N.D.	0.197	0.579	1
01667	Sodium	7440-23-5	273	19.4	116	1
06925	Thallium	7440-28-0	1.26 J	0.603	3.48	1
06971	Vanadium	7440-62-2	42.5	0.151	0.579	1
06972	Zinc	7440-66-6	78.3	0.232	2.32	1
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0345 J	0.0111	0.111	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SS-05 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489156
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:05 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB05 SDG#: BRG02-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	15.4	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	8260 VOCs	SW-846 8260B	1	R141571AA	06/06/2014 04:40	Stephanie A Selis	77.16
06172	GC/MS - Field Preserved (DE)	SW-846 5035	1	201415634722	06/05/2014 12:05	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	14156SLC026	06/06/2014 09:21	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	14156SLC026	06/05/2014 23:30	Sherry L Morrow	1
10738	Pesticides in Soil (microwave)	SW-846 8081A	1	141560028A	06/06/2014 11:17	Jamie L Brillhart	1
10736	PCBs in Soil (microwave)	SW-846 8082	1	141560029A	06/06/2014 10:38	Monica M Souders	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	141560029A	06/05/2014 23:30	Sherry L Morrow	1
10496	PPL Pest. Microwave Extraction	SW-846 3546	1	141560028A	06/05/2014 23:30	Sherry L Morrow	1
01643	Aluminum	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06944	Antimony	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06935	Arsenic	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06947	Beryllium	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
01650	Calcium	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06952	Cobalt	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06953	Copper	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
01654	Iron	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
01657	Magnesium	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06958	Manganese	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06961	Nickel	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
01662	Potassium	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
01667	Sodium	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06925	Thallium	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06971	Vanadium	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1
06972	Zinc	SW-846 6010B	1	141565708001	06/06/2014 06:02	Tara L Snyder	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: SS-05 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489156
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:05 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB05 SDG#: BRG02-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00159	Mercury	SW-846 7471A	1	141565711001	06/06/2014 09:28	Katlin N Cataldi	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	141565708001	06/05/2014 19:49	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	141565711001	06/05/2014 20:25	James L Mertz	1
00111	Moisture	SM 2540 G-1997	1	14157820001B	06/06/2014 07:03	William C Schwebel	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DDB05

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) SOIL Lab Sample ID: 7489156
Sample wt/vol: 6.48 (g/mL) g Lab File ID: HP07566.i/14jun06a.b/ru06s05.d
Level: (low/med) MED Date Received: 06/05/14
% Moisture: not dec. 15 Date Analyzed: 06/06/14
Column: (pack/cap) CAP Dilution Factor: 77.2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. VOCTIC	Total VOC TICs		0	U
2.				
3.				
4.				
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25.				
26.				
27.				
28.				
29.				
30.				

page 1 of 1

FORM I VOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB05

Lab Name: Lancaster Laboratories Contract: _____
Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
Matrix: (soil/water) SOIL Lab Sample ID: 7489156
Sample wt/vol: 30.1 (g/mL) g Lab File ID: ef0339.d
Level: (low/med) LOW Date Received: 06/05/14
% Moisture: 15 Decanted: (Y/N) Date Extracted: 06/05/14
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/06/14
Injection Volume: 1 (uL) Dilution Factor: 1
GPC Cleanup: N pH: Extraction: Mic

CONCENTRATION UNITS:
Number TICs found: 22 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.138	940	J
2.	Unknown	2.897	5300	JB
3.	Unknown	8.616	260	J
4.	Unknown	9.023	1400	J
5.	Unknown	9.586	350	J
6.	Unknown	9.657	370	J
7.	Unknown	10.034	230	J
8.	Unknown	10.896	300	J
9.	Unknown	11.195	660	J
10.	Unknown	11.512	240	J
11.	Unknown	11.644	230	J
12.	Unknown	12.218	180	J
13.	Unknown	12.385	170	J
14.	Unknown	12.613	280	J
15.	Unknown	12.637	380	J
16.	Unknown	12.756	230	J
17.	Unknown	13.217	190	J
18.	Unknown	13.480	160	J
19.	Unknown	13.576	470	J
20.	Unknown	13.636	180	J
21.	Unknown	13.989	270	J
22.	Unknown	14.593	230	J
23.				
24. SVOCTIC	Total SVOC TICs		13000	JB
25.				
26.				
27.				
28.				
29.				
30.				

page 1 of 1

FORM I SV-1

Sample Description: SS-06 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489157
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:10 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB06 SDG#: BRG02-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	
10237	Acetone	67-64-1	N.D.	1,100	3,100	124.38
10237	Benzene	71-43-2	N.D.	77	770	124.38
10237	Bromodichloromethane	75-27-4	N.D.	150	770	124.38
10237	Bromoform	75-25-2	N.D.	150	770	124.38
10237	Bromomethane	74-83-9	N.D.	310	770	124.38
10237	2-Butanone	78-93-3	N.D.	620	1,500	124.38
10237	Carbon Disulfide	75-15-0	N.D.	150	770	124.38
10237	Carbon Tetrachloride	56-23-5	N.D.	150	770	124.38
10237	Chlorobenzene	108-90-7	N.D.	150	770	124.38
10237	Chloroethane	75-00-3	N.D.	310	770	124.38
10237	Chloroform	67-66-3	N.D.	150	770	124.38
10237	Chloromethane	74-87-3	N.D.	310	770	124.38
10237	Cyclohexane	110-82-7	N.D.	150	770	124.38
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	310	770	124.38
10237	Dibromochloromethane	124-48-1	N.D.	150	770	124.38
10237	1,2-Dibromoethane	106-93-4	N.D.	150	770	124.38
10237	1,2-Dichlorobenzene	95-50-1	N.D.	150	770	124.38
10237	1,3-Dichlorobenzene	541-73-1	N.D.	150	770	124.38
10237	1,4-Dichlorobenzene	106-46-7	N.D.	150	770	124.38
10237	Dichlorodifluoromethane	75-71-8	N.D.	310	770	124.38
10237	1,1-Dichloroethane	75-34-3	N.D.	150	770	124.38
10237	1,2-Dichloroethane	107-06-2	N.D.	150	770	124.38
10237	1,1-Dichloroethene	75-35-4	N.D.	150	770	124.38
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	150	770	124.38
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	150	770	124.38
10237	1,2-Dichloropropane	78-87-5	N.D.	150	770	124.38
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	150	770	124.38
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	150	770	124.38
10237	Ethylbenzene	100-41-4	N.D.	150	770	124.38
10237	Freon 113	76-13-1	N.D.	310	1,500	124.38
10237	2-Hexanone	591-78-6	N.D.	460	1,500	124.38
10237	Isopropylbenzene	98-82-8	N.D.	150	770	124.38
10237	Methyl Acetate	79-20-9	N.D.	310	770	124.38
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	77	770	124.38
10237	4-Methyl-2-pentanone	108-10-1	N.D.	460	1,500	124.38
10237	Methylcyclohexane	108-87-2	N.D.	150	770	124.38
10237	Methylene Chloride	75-09-2	N.D.	310	770	124.38
10237	Styrene	100-42-5	N.D.	150	770	124.38
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	150	770	124.38
10237	Tetrachloroethene	127-18-4	N.D.	150	770	124.38
10237	Toluene	108-88-3	N.D.	150	770	124.38
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	150	770	124.38
10237	1,1,1-Trichloroethane	71-55-6	N.D.	150	770	124.38
10237	1,1,2-Trichloroethane	79-00-5	N.D.	150	770	124.38
10237	Trichloroethene	79-01-6	N.D.	150	770	124.38
10237	Trichlorofluoromethane	75-69-4	N.D.	310	770	124.38
10237	Vinyl Chloride	75-01-4	N.D.	150	770	124.38
10237	Xylene (Total)	1330-20-7	N.D.	150	770	124.38

00880 VOA Library Search (15)

*=This limit was used in the evaluation of the final result

Sample Description: SS-06 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489157
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:10 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB06 SDG#: BRG02-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles		**SW-846 8270C**	**ug/kg**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	12	J	4	21	1
10727	Acenaphthylene	208-96-8	9	J	4	21	1
10727	Acetophenone	98-86-2	N.D.		21	41	1
10727	Anthracene	120-12-7	38		4	21	1
10727	Atrazine	1912-24-9	N.D.		41	210	1
10727	Benzaldehyde	100-52-7	N.D.		83	210	1
10727	Benzo(a)anthracene	56-55-3	88		4	21	1
10727	Benzo(a)pyrene	50-32-8	90		4	21	1
10727	Benzo(b)fluoranthene	205-99-2	120		4	21	1
10727	Benzo(g,h,i)perylene	191-24-2	57		4	21	1
10727	Benzo(k)fluoranthene	207-08-9	54		4	21	1
10727	1,1'-Biphenyl	92-52-4	N.D.		21	41	1
10727	4-Bromophenyl-phenylether	101-55-3	N.D.		21	41	1
10727	Butylbenzylphthalate	85-68-7	N.D.		83	210	1
10727	Di-n-butylphthalate	84-74-2	N.D.		83	210	1
10727	Caprolactam	105-60-2	N.D.		41	210	1
10727	Carbazole	86-74-8	N.D.		21	41	1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.		21	41	1
10727	4-Chloroaniline	106-47-8	N.D.		21	41	1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.		21	41	1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.		21	41	1
10727	2-Chloronaphthalene	91-58-7	N.D.		9	41	1
10727	2-Chlorophenol	95-57-8	N.D.		21	41	1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.		21	41	1
10727	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.		21	41	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	Chrysene	218-01-9	87		4	21	1
10727	Dibenz(a,h)anthracene	53-70-3	15	J	4	21	1
10727	Dibenzofuran	132-64-9	N.D.		21	41	1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.		120	410	1
10727	2,4-Dichlorophenol	120-83-2	N.D.		21	41	1
10727	Diethylphthalate	84-66-2	N.D.		83	210	1
10727	2,4-Dimethylphenol	105-67-9	N.D.		21	41	1
10727	Dimethylphthalate	131-11-3	N.D.		83	210	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.		210	620	1
10727	2,4-Dinitrophenol	51-28-5	N.D.		370	1,200	1
10727	2,4-Dinitrotoluene	121-14-2	N.D.		83	210	1
10727	2,6-Dinitrotoluene	606-20-2	N.D.		21	41	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.		83	210	1
10727	Fluoranthene	206-44-0	150		4	21	1
10727	Fluorene	86-73-7	17	J	4	21	1
10727	Hexachlorobenzene	118-74-1	N.D.		4	21	1
10727	Hexachlorobutadiene	87-68-3	N.D.		21	41	1
10727	Hexachlorocyclopentadiene	77-47-4	N.D.		210	620	1
10727	Hexachloroethane	67-72-1	N.D.		41	210	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-06 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489157
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:10 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB06 SDG#: BRG02-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Indeno(1,2,3-cd)pyrene	193-39-5	56		4	21	1
10727	Isophorone	78-59-1	N.D.		21	41	1
10727	2-Methylnaphthalene	91-57-6	5	J	4	21	1
10727	2-Methylphenol	95-48-7	N.D.		21	41	1
10727	4-Methylphenol	106-44-5	N.D.		21	41	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10727	Naphthalene	91-20-3	9	J	4	21	1
10727	2-Nitroaniline	88-74-4	N.D.		21	41	1
10727	3-Nitroaniline	99-09-2	N.D.		83	210	1
10727	4-Nitroaniline	100-01-6	N.D.		83	210	1
10727	Nitrobenzene	98-95-3	N.D.		21	41	1
10727	2-Nitrophenol	88-75-5	N.D.		21	41	1
10727	4-Nitrophenol	100-02-7	N.D.		210	620	1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		21	41	1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		21	41	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10727	Di-n-octylphthalate	117-84-0	N.D.		83	210	1
10727	Pentachlorophenol	87-86-5	N.D.		41	210	1
10727	Phenanthrene	85-01-8	130		4	21	1
10727	Phenol	108-95-2	N.D.		21	41	1
10727	Pyrene	129-00-0	150		4	21	1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		21	41	1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		21	41	1

00893 Semivolatile Library Search

The results from the semivolatile library search are listed on the attached FORM 1 - SV-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.

Pesticides/PCBs	**SW-846 8081A**		**ug/kg**		**ug/kg**	**ug/kg**	
10738	Aldrin	309-00-2	N.D.		0.21	1.0	1
10738	Alpha BHC	319-84-6	N.D.		0.21	1.0	1
10738	Beta BHC	319-85-7	N.D.		0.37	1.2	1
10738	Gamma BHC - Lindane	58-89-9	N.D.		0.21	1.0	1
10738	Alpha Chlordane	5103-71-9	0.43	J	0.21	1.0	1
10738	Gamma Chlordane	5103-74-2	N.D.		0.40	1.0	1
10738	p,p-DDD	72-54-8	0.65	J	0.41	2.1	1
10738	p,p-DDE	72-55-9	0.98	J	0.41	2.1	1
10738	p,p-DDT	50-29-3	1.2	J	0.43	2.1	1
10738	Delta BHC	319-86-8	N.D.		0.56	1.0	1
10738	Dieldrin	60-57-1	N.D.		0.41	2.1	1
10738	Endosulfan I	959-98-8	N.D.		0.27	1.0	1
10738	Endosulfan II	33213-65-9	N.D.		0.41	2.1	1
10738	Endosulfan Sulfate	1031-07-8	N.D.		0.41	2.1	1
10738	Endrin	72-20-8	N.D.		0.41	2.1	1
10738	Endrin Aldehyde	7421-93-4	N.D.		0.41	2.1	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-06 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489157
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:10 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB06 SDG#: BRG02-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8081A**		**ug/kg**	**ug/kg**	**ug/kg**	
10738	Endrin Ketone	53494-70-5	N.D.	0.75	2.2	1
10738	Heptachlor	76-44-8	N.D.	0.21	1.0	1
10738	Heptachlor Epoxide	1024-57-3	N.D.	0.21	1.0	1
10738	Methoxychlor	72-43-5	N.D.	2.1	8.3	1
10738	Toxaphene	8001-35-2	N.D.	17	41	1
	The 4,4-DDT breakdown evaluated after the sample injection is above the SW-846 8081A method limit of 15% at 56% and 54% (primary and confirmation columns). The 4,4-DDT %difference in the continuing calibration verification injected after the sample is outside the DRNEC 2010 SOP limits of +/-25% at -35%. The 4,4-DDT breakdown and continuing calibration standards evaluated before the sample are compliant.					
	Reporting limits were raised due to interference from the sample matrix.					
Pesticides/PCBs	**SW-846 8082**		**ug/kg**	**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.	4.5	21	1
10736	PCB-1221	11104-28-2	N.D.	5.7	21	1
10736	PCB-1232	11141-16-5	N.D.	9.9	21	1
10736	PCB-1242	53469-21-9	N.D.	4.1	21	1
10736	PCB-1248	12672-29-6	N.D.	4.1	21	1
10736	PCB-1254	11097-69-1	8.6 J	4.1	21	1
10736	PCB-1260	11096-82-5	N.D.	6.1	21	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	Aluminum	7429-90-5	24,000	8.53	23.7	1
06944	Antimony	7440-36-0	N.D.	0.875	2.37	1
06935	Arsenic	7440-38-2	0.862 J	0.828	2.37	1
06946	Barium	7440-39-3	183	0.0390	0.592	1
06947	Beryllium	7440-41-7	1.08	0.0793	0.592	1
06949	Cadmium	7440-43-9	0.250 J	0.0899	0.592	1
01650	Calcium	7440-70-2	2,610	3.95	23.7	1
06951	Chromium	7440-47-3	38.4	0.189	1.77	1
06952	Cobalt	7440-48-4	23.0	0.117	0.592	1
06953	Copper	7440-50-8	38.5	0.343	1.18	1
01654	Iron	7439-89-6	35,300	8.57	47.3	2
06955	Lead	7439-92-1	22.4	0.592	1.77	1
01657	Magnesium	7439-95-4	12,200	1.98	11.8	1
06958	Manganese	7439-96-5	976	0.0982	0.592	1
06961	Nickel	7440-02-0	36.2	0.154	1.18	1
01662	Potassium	7440-09-7	12,700	19.7	118	2
06936	Selenium	7782-49-2	N.D.	1.89	4.73	2
	Reporting limits were raised due to interference from the sample matrix.					
06966	Silver	7440-22-4	0.253 J	0.201	0.592	1
01667	Sodium	7440-23-5	386	19.8	118	1
06925	Thallium	7440-28-0	1.61 J	0.615	3.55	1
06971	Vanadium	7440-62-2	53.3	0.154	0.592	1
06972	Zinc	7440-66-6	105	0.237	2.37	1
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0969 J	0.0119	0.119	1

*=This limit was used in the evaluation of the final result

eurofins
Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SS-06 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489157
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:10 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB06 SDG#: BRG02-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	19.5	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	8260 VOCs	SW-846 8260B	1	R141571AA	06/06/2014 05:03	Stephanie A Selis	124.38
06172	GC/MS - Field Preserved (DE)	SW-846 5035	1	201415634722	06/05/2014 12:10	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	14156SLC026	06/06/2014 08:30	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	14156SLC026	06/05/2014 23:30	Sherry L Morrow	1
10738	Pesticides in Soil (microwave)	SW-846 8081A	1	141560028A	06/06/2014 11:31	Jamie L Brillhart	1
10736	PCBs in Soil (microwave)	SW-846 8082	1	141560029A	06/06/2014 10:50	Monica M Souders	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	141560029A	06/05/2014 23:30	Sherry L Morrow	1
10496	PPL Pest. Microwave Extraction	SW-846 3546	1	141560028A	06/05/2014 23:30	Sherry L Morrow	1
01643	Aluminum	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
06944	Antimony	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
06935	Arsenic	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
06947	Beryllium	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
01650	Calcium	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
06952	Cobalt	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
06953	Copper	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
01654	Iron	SW-846 6010B	1	141565708001	06/06/2014 06:50	Tara L Snyder	2
06955	Lead	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
01657	Magnesium	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
06958	Manganese	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
06961	Nickel	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
01662	Potassium	SW-846 6010B	1	141565708001	06/06/2014 06:50	Tara L Snyder	2
06936	Selenium	SW-846 6010B	1	141565708001	06/06/2014 06:50	Tara L Snyder	2
06966	Silver	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
01667	Sodium	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
06925	Thallium	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
06971	Vanadium	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1
06972	Zinc	SW-846 6010B	1	141565708001	06/06/2014 06:06	Tara L Snyder	1

*=This limit was used in the evaluation of the final result

eurofins
Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SS-06 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489157
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:10 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB06 SDG#: BRG02-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00159	Mercury	SW-846 7471A	1	141565711001	06/06/2014 09:42	Katlin N Cataldi	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	141565708001	06/05/2014 19:49	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	141565711001	06/05/2014 20:25	James L Mertz	1
00111	Moisture	SM 2540 G-1997	1	14157820001B	06/06/2014 07:03	William C Schwebel	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB06

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) SOIL Lab Sample ID: 7489157
Sample wt/vol: 4.02 (g/mL) g Lab File ID: HP07566.i/14jun06a.b/ru06s06.d
Level: (low/med) MED Date Received: 06/05/14
% Moisture: not dec. 19 Date Analyzed: 06/06/14
Column: (pack/cap) CAP Dilution Factor: 124.4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. VOCTIC	Total VOC TICs		0	U
2.				
3.				
4.				
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30.				

page 1 of 1

FORM I VOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB06

Lab Name: Lancaster Laboratories Contract: _____
Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
Matrix: (soil/water) SOIL Lab Sample ID: 7489157
Sample wt/vol: 30.1 (g/mL) g Lab File ID: ef0340.d
Level: (low/med) LOW Date Received: 06/05/14
% Moisture: 19 Decanted: (Y/N) Date Extracted: 06/05/14
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/06/14
Injection Volume: 1 (uL) Dilution Factor: 1
GPC Cleanup: N pH: Extraction: Mic

CONCENTRATION UNITS:
Number TICs found: 15 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.897	4000	JB
2.	Unknown	9.017	1300	J
3.	Unknown	9.585	550	J
4.	Unknown	9.657	400	J
5.	Unknown	10.710	180	J
6.	Unknown	10.824	220	J
7.	Unknown	10.896	280	J
8.	Unknown	11.195	540	J
9.	Unknown	11.512	260	J
10.	Unknown	11.643	190	J
11.	Unknown	12.218	240	J
12.	Unknown	12.612	240	J
13.	Unknown	12.762	180	J
14.	Unknown	13.450	190	J
15.	Unknown	13.582	190	J
16.				
17. SVOCTIC	Total SVOC TICs		9000	JB
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19.				
20.				
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26.				
27.				
28.				
29.				
30.				

page 1 of 1

FORM I SV-1

Sample Description: SS-07 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489158
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:15 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB07 SDG#: BRG02-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	N.D.	900	2,600	117.92
10237	Benzene	71-43-2	N.D.	65	650	117.92
10237	Bromodichloromethane	75-27-4	N.D.	130	650	117.92
10237	Bromoform	75-25-2	N.D.	130	650	117.92
10237	Bromomethane	74-83-9	N.D.	260	650	117.92
10237	2-Butanone	78-93-3	N.D.	520	1,300	117.92
10237	Carbon Disulfide	75-15-0	N.D.	130	650	117.92
10237	Carbon Tetrachloride	56-23-5	N.D.	130	650	117.92
10237	Chlorobenzene	108-90-7	N.D.	130	650	117.92
10237	Chloroethane	75-00-3	N.D.	260	650	117.92
10237	Chloroform	67-66-3	N.D.	130	650	117.92
10237	Chloromethane	74-87-3	N.D.	260	650	117.92
10237	Cyclohexane	110-82-7	N.D.	130	650	117.92
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	260	650	117.92
10237	Dibromochloromethane	124-48-1	N.D.	130	650	117.92
10237	1,2-Dibromoethane	106-93-4	N.D.	130	650	117.92
10237	1,2-Dichlorobenzene	95-50-1	N.D.	130	650	117.92
10237	1,3-Dichlorobenzene	541-73-1	N.D.	130	650	117.92
10237	1,4-Dichlorobenzene	106-46-7	N.D.	130	650	117.92
10237	Dichlorodifluoromethane	75-71-8	N.D.	260	650	117.92
10237	1,1-Dichloroethane	75-34-3	N.D.	130	650	117.92
10237	1,2-Dichloroethane	107-06-2	N.D.	130	650	117.92
10237	1,1-Dichloroethene	75-35-4	N.D.	130	650	117.92
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	130	650	117.92
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	130	650	117.92
10237	1,2-Dichloropropane	78-87-5	N.D.	130	650	117.92
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	130	650	117.92
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	130	650	117.92
10237	Ethylbenzene	100-41-4	N.D.	130	650	117.92
10237	Freon 113	76-13-1	N.D.	260	1,300	117.92
10237	2-Hexanone	591-78-6	N.D.	390	1,300	117.92
10237	Isopropylbenzene	98-82-8	N.D.	130	650	117.92
10237	Methyl Acetate	79-20-9	N.D.	260	650	117.92
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	65	650	117.92
10237	4-Methyl-2-pentanone	108-10-1	N.D.	390	1,300	117.92
10237	Methylcyclohexane	108-87-2	N.D.	130	650	117.92
10237	Methylene Chloride	75-09-2	N.D.	260	650	117.92
10237	Styrene	100-42-5	N.D.	130	650	117.92
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	130	650	117.92
10237	Tetrachloroethene	127-18-4	N.D.	130	650	117.92
10237	Toluene	108-88-3	N.D.	130	650	117.92
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	130	650	117.92
10237	1,1,1-Trichloroethane	71-55-6	N.D.	130	650	117.92
10237	1,1,2-Trichloroethane	79-00-5	N.D.	130	650	117.92
10237	Trichloroethene	79-01-6	N.D.	130	650	117.92
10237	Trichlorofluoromethane	75-69-4	N.D.	260	650	117.92
10237	Vinyl Chloride	75-01-4	N.D.	130	650	117.92
10237	Xylene (Total)	1330-20-7	N.D.	130	650	117.92

00880 VOA Library Search (15)

*=This limit was used in the evaluation of the final result

Sample Description: SS-07 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489158
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:15 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB07 SDG#: BRG02-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles		**SW-846 8270C**	**ug/kg**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	26		4	19	1
10727	Acenaphthylene	208-96-8	24		4	19	1
10727	Acetophenone	98-86-2	N.D.		18	36	1
10727	Anthracene	120-12-7	71		4	19	1
10727	Atrazine	1912-24-9	N.D.		36	180	1
10727	Benzaldehyde	100-52-7	N.D.		73	180	1
10727	Benzo(a)anthracene	56-55-3	170		4	19	1
10727	Benzo(a)pyrene	50-32-8	180		4	19	1
10727	Benzo(b)fluoranthene	205-99-2	210		4	19	1
10727	Benzo(g,h,i)perylene	191-24-2	120		4	19	1
10727	Benzo(k)fluoranthene	207-08-9	92		4	19	1
10727	1,1'-Biphenyl	92-52-4	N.D.		18	36	1
10727	4-Bromophenyl-phenylether	101-55-3	N.D.		18	36	1
10727	Butylbenzylphthalate	85-68-7	N.D.		73	180	1
10727	Di-n-butylphthalate	84-74-2	N.D.		73	180	1
10727	Caprolactam	105-60-2	N.D.		36	180	1
10727	Carbazole	86-74-8	30	J	18	36	1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.		18	36	1
10727	4-Chloroaniline	106-47-8	N.D.		18	36	1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.		18	36	1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.		18	36	1
10727	2-Chloronaphthalene	91-58-7	N.D.		8	36	1
10727	2-Chlorophenol	95-57-8	N.D.		18	36	1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.		18	36	1
10727	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.		18	36	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	Chrysene	218-01-9	170		4	19	1
10727	Dibenz(a,h)anthracene	53-70-3	27		4	19	1
10727	Dibenzofuran	132-64-9	19	J	18	36	1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.		110	360	1
10727	2,4-Dichlorophenol	120-83-2	N.D.		18	36	1
10727	Diethylphthalate	84-66-2	N.D.		73	180	1
10727	2,4-Dimethylphenol	105-67-9	N.D.		18	36	1
10727	Dimethylphthalate	131-11-3	N.D.		73	180	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.		180	550	1
10727	2,4-Dinitrophenol	51-28-5	N.D.		330	1,100	1
10727	2,4-Dinitrotoluene	121-14-2	N.D.		73	180	1
10727	2,6-Dinitrotoluene	606-20-2	N.D.		18	36	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.		73	190	1
10727	Fluoranthene	206-44-0	310		4	19	1
10727	Fluorene	86-73-7	29		4	19	1
10727	Hexachlorobenzene	118-74-1	N.D.		4	19	1
10727	Hexachlorobutadiene	87-68-3	N.D.		18	36	1
10727	Hexachlorocyclopentadiene	77-47-4	N.D.		180	550	1
10727	Hexachloroethane	67-72-1	N.D.		36	180	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-07 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489158
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:15 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB07 SDG#: BRG02-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Indeno(1,2,3-cd)pyrene	193-39-5	110		4	19	1
10727	Isophorone	78-59-1	N.D.		18	36	1
10727	2-Methylnaphthalene	91-57-6	11	J	4	19	1
10727	2-Methylphenol	95-48-7	N.D.		18	36	1
10727	4-Methylphenol	106-44-5	N.D.		18	36	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10727	Naphthalene	91-20-3	16	J	4	19	1
10727	2-Nitroaniline	88-74-4	N.D.		18	36	1
10727	3-Nitroaniline	99-09-2	N.D.		73	180	1
10727	4-Nitroaniline	100-01-6	N.D.		73	180	1
10727	Nitrobenzene	98-95-3	N.D.		18	36	1
10727	2-Nitrophenol	88-75-5	N.D.		18	36	1
10727	4-Nitrophenol	100-02-7	N.D.		180	550	1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		18	36	1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		18	36	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10727	Di-n-octylphthalate	117-84-0	N.D.		73	180	1
10727	Pentachlorophenol	87-86-5	N.D.		36	190	1
10727	Phenanthrene	85-01-8	240		4	19	1
10727	Phenol	108-95-2	N.D.		18	36	1
10727	Pyrene	129-00-0	370		4	19	1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		18	36	1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		18	36	1

00893 Semivolatile Library Search

The results from the semivolatile library search are listed on the attached FORM 1 - SV-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.

Pesticides/PCBs	**SW-846 8081A**		**ug/kg**		**ug/kg**	**ug/kg**	
10738	Aldrin	309-00-2	N.D.		0.19	0.91	1
10738	Alpha BHC	319-84-6	N.D.		0.19	0.91	1
10738	Beta BHC	319-85-7	N.D.		0.33	1.1	1
10738	Gamma BHC - Lindane	58-89-9	N.D.		0.19	0.91	1
10738	Alpha Chlordane	5103-71-9	0.44	J	0.19	0.91	1
10738	Gamma Chlordane	5103-74-2	N.D.		0.49	0.91	1
10738	p,p-DDD	72-54-8	0.83	J	0.36	1.9	1
10738	p,p-DDE	72-55-9	1.1	J	0.36	1.9	1
10738	p,p-DDT	50-29-3	1.2	J	0.38	1.9	1
10738	Delta BHC	319-86-8	N.D.		0.49	0.91	1
10738	Dieldrin	60-57-1	0.38	J	0.36	1.9	1
10738	Endosulfan I	959-98-8	N.D.		0.24	0.91	1
10738	Endosulfan II	33213-65-9	N.D.		0.36	1.9	1
10738	Endosulfan Sulfate	1031-07-8	N.D.		1.0	1.9	1
10738	Endrin	72-20-8	N.D.		0.36	1.9	1
10738	Endrin Aldehyde	7421-93-4	N.D.		0.36	1.9	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-07 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489158
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:15 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB07 SDG#: BRG02-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8081A**		**ug/kg**		**ug/kg**	**ug/kg**	
10738	Endrin Ketone	53494-70-5	N.D.		0.65	2.0	1
10738	Heptachlor	76-44-8	N.D.		0.19	0.91	1
10738	Heptachlor Epoxide	1024-57-3	N.D.		0.19	0.91	1
10738	Methoxychlor	72-43-5	N.D.		1.9	7.3	1
10738	Toxaphene	8001-35-2	N.D.		15	36	1

The 4,4-DDT breakdown evaluated after the sample injection is above the SW-846 8081A method limit of 15% at 56% and 54% (primary and confirmation columns). The 4,4-DDT %difference in the continuing calibration verification injected after the sample is outside the DRNEC 2010 SOP limits of +/-25% at -35%. The 4,4-DDT breakdown and continuing calibration standards evaluated before the sample are compliant.
Reporting limits were raised due to interference from the sample matrix.

Pesticides/PCBs	**SW-846 8082**		**ug/kg**		**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.		3.9	19	1
10736	PCB-1221	11104-28-2	N.D.		5.0	19	1
10736	PCB-1232	11141-16-5	N.D.		8.7	19	1
10736	PCB-1242	53469-21-9	N.D.		3.6	19	1
10736	PCB-1248	12672-29-6	N.D.		3.6	19	1
10736	PCB-1254	11097-69-1	9.3	J	3.6	19	1
10736	PCB-1260	11096-82-5	N.D.		5.3	19	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	Aluminum	7429-90-5	17,100		7.59	21.0	1
06944	Antimony	7440-36-0	N.D.		0.778	2.10	1
06935	Arsenic	7440-38-2	1.63	J	0.736	2.10	1
06946	Barium	7440-39-3	121		0.0347	0.526	1
06947	Beryllium	7440-41-7	0.908		0.0705	0.526	1
06949	Cadmium	7440-43-9	0.126	J	0.0800	0.526	1
01650	Calcium	7440-70-2	6,090		3.51	21.0	1
06951	Chromium	7440-47-3	27.4		0.168	1.58	1
06952	Cobalt	7440-48-4	11.1		0.104	0.526	1
06953	Copper	7440-50-8	20.6		0.305	1.05	1
01654	Iron	7439-89-6	24,700		3.81	21.0	1
06955	Lead	7439-92-1	15.7		0.526	1.58	1
01657	Magnesium	7439-95-4	8,600		1.76	10.5	1
06958	Manganese	7439-96-5	518		0.0873	0.526	1
06961	Nickel	7440-02-0	24.3		0.137	1.05	1
01662	Potassium	7440-09-7	7,330		8.77	52.6	1
06936	Selenium	7782-49-2	N.D.		0.842	2.10	1
06966	Silver	7440-22-4	N.D.		0.179	0.526	1
01667	Sodium	7440-23-5	327		17.6	105	1
06925	Thallium	7440-28-0	1.00	J	0.547	3.16	1
06971	Vanadium	7440-62-2	52.7		0.137	0.526	1
06972	Zinc	7440-66-6	74.6		0.210	2.10	1
	SW-846 7471A		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0380	J	0.0102	0.102	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SS-07 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489158
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:15 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB07 SDG#: BRG02-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	8.6	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	8260 VOCs	SW-846 8260B	1	R141571AA	06/06/2014 05:26	Stephanie A Selis	117.92
06172	GC/MS - Field Preserved (DE)	SW-846 5035	1	201415634722	06/05/2014 12:15	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	14156SLC026	06/06/2014 08:55	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	14156SLC026	06/05/2014 23:30	Sherry L Morrow	1
10738	Pesticides in Soil (microwave)	SW-846 8081A	1	141560028A	06/06/2014 11:45	Jamie L Brillhart	1
10736	PCBs in Soil (microwave)	SW-846 8082	1	141560029A	06/06/2014 11:24	Monica M Souders	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	141560029A	06/05/2014 23:30	Sherry L Morrow	1
10496	PPL Pest. Microwave Extraction	SW-846 3546	1	141560028A	06/05/2014 23:30	Sherry L Morrow	1
01643	Aluminum	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06944	Antimony	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06935	Arsenic	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06947	Beryllium	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
01650	Calcium	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06952	Cobalt	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06953	Copper	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
01654	Iron	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
01657	Magnesium	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06958	Manganese	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06961	Nickel	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
01662	Potassium	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
01667	Sodium	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06925	Thallium	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06971	Vanadium	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1
06972	Zinc	SW-846 6010B	1	141565708001	06/06/2014 06:10	Tara L Snyder	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: SS-07 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489158
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:15 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB07 SDG#: BRG02-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00159	Mercury	SW-846 7471A	1	141565711001	06/06/2014 09:44	Katlin N Cataldi	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	141565708001	06/05/2014 19:49	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	141565711001	06/05/2014 20:25	James L Mertz	1
00111	Moisture	SM 2540 G-1997	1	14157820001B	06/06/2014 07:03	William C Schwebel	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB07

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) SOIL Lab Sample ID: 7489158
Sample wt/vol: 4.24 (g/mL) g Lab File ID: HP07566.i/14jun06a.b/ru06s07.d
Level: (low/med) MED Date Received: 06/05/14
% Moisture: not dec. 9 Date Analyzed: 06/06/14
Column: (pack/cap) CAP Dilution Factor: 117.9

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. VOCTIC	Total VOC TICs		0	U
2.				
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page 1 of 1

FORM I VOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB07

Lab Name: Lancaster Laboratories Contract: _____
Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
Matrix: (soil/water) SOIL Lab Sample ID: 7489158
Sample wt/vol: 30.0 (g/mL) g Lab File ID: ef0341.d
Level: (low/med) LOW Date Received: 06/05/14
% Moisture: 8.6 Decanted: (Y/N) Date Extracted: 06/05/14
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/06/14
Injection Volume: 1 (uL) Dilution Factor: 1
GPC Cleanup: N pH: Extraction: Mic

CONCENTRATION UNITS:
Number TICs found: 10 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.897	2700	JB
2.	Unknown	9.011	480	J
3.	Unknown	10.070	180	J
4.	Unknown	10.896	340	J
5.	Unknown	11.195	450	J
6.	Unknown	11.512	220	J
7.	Unknown	12.218	150	J
8.	Unknown	12.612	200	J
9.	Unknown	12.642	180	J
10.	Unknown	13.450	170	J
11.				
12. SVOCTIC	Total SVOC TICs		5100	JB
13.				
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page 1 of 1

FORM I SV-1

Sample Description: SS-08 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489159
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:20 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB08 SDG#: BRG02-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	
10237	Acetone	67-64-1	N.D.	860	2,400	104.6
10237	Benzene	71-43-2	N.D.	61	610	104.6
10237	Bromodichloromethane	75-27-4	N.D.	120	610	104.6
10237	Bromoform	75-25-2	N.D.	120	610	104.6
10237	Bromomethane	74-83-9	N.D.	240	610	104.6
10237	2-Butanone	78-93-3	N.D.	490	1,200	104.6
10237	Carbon Disulfide	75-15-0	N.D.	120	610	104.6
10237	Carbon Tetrachloride	56-23-5	N.D.	120	610	104.6
10237	Chlorobenzene	108-90-7	N.D.	120	610	104.6
10237	Chloroethane	75-00-3	N.D.	240	610	104.6
10237	Chloroform	67-66-3	N.D.	120	610	104.6
10237	Chloromethane	74-87-3	N.D.	240	610	104.6
10237	Cyclohexane	110-82-7	N.D.	120	610	104.6
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	240	610	104.6
10237	Dibromochloromethane	124-48-1	N.D.	120	610	104.6
10237	1,2-Dibromoethane	106-93-4	N.D.	120	610	104.6
10237	1,2-Dichlorobenzene	95-50-1	N.D.	120	610	104.6
10237	1,3-Dichlorobenzene	541-73-1	N.D.	120	610	104.6
10237	1,4-Dichlorobenzene	106-46-7	N.D.	120	610	104.6
10237	Dichlorodifluoromethane	75-71-8	N.D.	240	610	104.6
10237	1,1-Dichloroethane	75-34-3	N.D.	120	610	104.6
10237	1,2-Dichloroethane	107-06-2	N.D.	120	610	104.6
10237	1,1-Dichloroethene	75-35-4	N.D.	120	610	104.6
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	120	610	104.6
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	120	610	104.6
10237	1,2-Dichloropropane	78-87-5	N.D.	120	610	104.6
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	120	610	104.6
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	120	610	104.6
10237	Ethylbenzene	100-41-4	N.D.	120	610	104.6
10237	Freon 113	76-13-1	N.D.	240	1,200	104.6
10237	2-Hexanone	591-78-6	N.D.	370	1,200	104.6
10237	Isopropylbenzene	98-82-8	N.D.	120	610	104.6
10237	Methyl Acetate	79-20-9	N.D.	240	610	104.6
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	61	610	104.6
10237	4-Methyl-2-pentanone	108-10-1	N.D.	370	1,200	104.6
10237	Methylcyclohexane	108-87-2	N.D.	120	610	104.6
10237	Methylene Chloride	75-09-2	N.D.	240	610	104.6
10237	Styrene	100-42-5	N.D.	120	610	104.6
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	120	610	104.6
10237	Tetrachloroethene	127-18-4	N.D.	120	610	104.6
10237	Toluene	108-88-3	N.D.	120	610	104.6
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	120	610	104.6
10237	1,1,1-Trichloroethane	71-55-6	N.D.	120	610	104.6
10237	1,1,2-Trichloroethane	79-00-5	N.D.	120	610	104.6
10237	Trichloroethene	79-01-6	N.D.	120	610	104.6
10237	Trichlorofluoromethane	75-69-4	N.D.	240	610	104.6
10237	Vinyl Chloride	75-01-4	N.D.	120	610	104.6
10237	Xylene (Total)	1330-20-7	N.D.	120	610	104.6

00880 VOA Library Search (15)

*=This limit was used in the evaluation of the final result

Sample Description: SS-08 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489159
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:20 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB08 SDG#: BRG02-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles		**SW-846 8270C**	**ug/kg**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	15	J	4	20	1
10727	Acenaphthylene	208-96-8	17	J	4	20	1
10727	Acetophenone	98-86-2	N.D.		19	39	1
10727	Anthracene	120-12-7	52		4	20	1
10727	Atrazine	1912-24-9	N.D.		39	190	1
10727	Benzaldehyde	100-52-7	N.D.		78	190	1
10727	Benzo(a)anthracene	56-55-3	150		4	20	1
10727	Benzo(a)pyrene	50-32-8	170		4	20	1
10727	Benzo(b)fluoranthene	205-99-2	200		4	20	1
10727	Benzo(g,h,i)perylene	191-24-2	110		4	20	1
10727	Benzo(k)fluoranthene	207-08-9	96		4	20	1
10727	1,1'-Biphenyl	92-52-4	N.D.		19	39	1
10727	4-Bromophenyl-phenylether	101-55-3	N.D.		19	39	1
10727	Butylbenzylphthalate	85-68-7	N.D.		78	190	1
10727	Di-n-butylphthalate	84-74-2	N.D.		78	190	1
10727	Caprolactam	105-60-2	N.D.		39	190	1
10727	Carbazole	86-74-8	N.D.		19	39	1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.		19	39	1
10727	4-Chloroaniline	106-47-8	N.D.		19	39	1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.		19	39	1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.		19	39	1
10727	2-Chloronaphthalene	91-58-7	N.D.		8	38	1
10727	2-Chlorophenol	95-57-8	N.D.		19	39	1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.		19	39	1
10727	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.		19	39	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	Chrysene	218-01-9	160		4	20	1
10727	Dibenz(a,h)anthracene	53-70-3	28		4	20	1
10727	Dibenzofuran	132-64-9	N.D.		19	39	1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.		120	390	1
10727	2,4-Dichlorophenol	120-83-2	N.D.		19	39	1
10727	Diethylphthalate	84-66-2	N.D.		78	190	1
10727	2,4-Dimethylphenol	105-67-9	N.D.		19	39	1
10727	Dimethylphthalate	131-11-3	N.D.		78	190	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.		190	580	1
10727	2,4-Dinitrophenol	51-28-5	N.D.		350	1,200	1
10727	2,4-Dinitrotoluene	121-14-2	N.D.		78	190	1
10727	2,6-Dinitrotoluene	606-20-2	N.D.		19	39	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.		78	200	1
10727	Fluoranthene	206-44-0	230		4	20	1
10727	Fluorene	86-73-7	18	J	4	20	1
10727	Hexachlorobenzene	118-74-1	N.D.		4	20	1
10727	Hexachlorobutadiene	87-68-3	N.D.		19	39	1
10727	Hexachlorocyclopentadiene	77-47-4	N.D.		190	580	1
10727	Hexachloroethane	67-72-1	N.D.		39	190	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-08 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489159
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:20 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB08 SDG#: BRG02-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Indeno(1,2,3-cd)pyrene	193-39-5	100		4	20	1
10727	Isophorone	78-59-1	N.D.		19	39	1
10727	2-Methylnaphthalene	91-57-6	13	J	4	20	1
10727	2-Methylphenol	95-48-7	N.D.		19	39	1
10727	4-Methylphenol	106-44-5	N.D.		19	39	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10727	Naphthalene	91-20-3	20		4	20	1
10727	2-Nitroaniline	88-74-4	N.D.		19	39	1
10727	3-Nitroaniline	99-09-2	N.D.		78	190	1
10727	4-Nitroaniline	100-01-6	N.D.		78	190	1
10727	Nitrobenzene	98-95-3	N.D.		19	39	1
10727	2-Nitrophenol	88-75-5	N.D.		19	39	1
10727	4-Nitrophenol	100-02-7	N.D.		190	580	1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		19	39	1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		19	39	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10727	Di-n-octylphthalate	117-84-0	N.D.		78	190	1
10727	Pentachlorophenol	87-86-5	N.D.		39	200	1
10727	Phenanthrene	85-01-8	150		4	20	1
10727	Phenol	108-95-2	N.D.		19	39	1
10727	Pyrene	129-00-0	260		4	20	1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		19	39	1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		19	39	1

00893 Semivolatile Library Search

The results from the semivolatile library search are listed on the attached FORM 1 - SV-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.

Pesticides/PCBs	**SW-846 8081A**		**ug/kg**		**ug/kg**	**ug/kg**	
10738	Aldrin	309-00-2	1.0		0.20	0.97	1
10738	Alpha BHC	319-84-6	N.D.		0.20	0.97	1
10738	Beta BHC	319-85-7	N.D.		0.35	1.2	1
10738	Gamma BHC - Lindane	58-89-9	N.D.		0.20	0.97	1
10738	Alpha Chlordane	5103-71-9	0.98		0.20	0.97	1
10738	Gamma Chlordane	5103-74-2	N.D.		1.0	1.0	1
10738	p,p-DDD	72-54-8	0.73	J	0.38	2.0	1
10738	p,p-DDE	72-55-9	0.92	J	0.38	2.0	1
10738	p,p-DDT	50-29-3	1.3	J	0.41	2.0	1
10738	Delta BHC	319-86-8	N.D.		0.52	0.97	1
10738	Dieldrin	60-57-1	1.7	J	0.38	2.0	1
10738	Endosulfan I	959-98-8	N.D.		0.26	0.97	1
10738	Endosulfan II	33213-65-9	N.D.		0.38	2.0	1
10738	Endosulfan Sulfate	1031-07-8	N.D.		0.38	2.0	1
10738	Endrin	72-20-8	N.D.		0.38	2.0	1
10738	Endrin Aldehyde	7421-93-4	N.D.		0.38	2.0	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-08 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489159
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:20 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB08 SDG#: BRG02-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8081A**		**ug/kg**	**ug/kg**	**ug/kg**	
10738	Endrin Ketone	53494-70-5	N.D.	0.70	2.1	1
10738	Heptachlor	76-44-8	N.D.	0.20	0.97	1
10738	Heptachlor Epoxide	1024-57-3	N.D.	0.20	0.97	1
10738	Methoxychlor	72-43-5	N.D.	2.0	7.8	1
10738	Toxaphene	8001-35-2	N.D.	16	38	1

The 4,4-DDT breakdown evaluated after the sample injection is above the SW-846 8081A method limit of 15% at 56% and 54% (primary and confirmation columns). The 4,4-DDT %difference in the continuing calibration verification injected after the sample is outside the DRNEC 2010 SOP limits of +/-25% at -35%. The 4,4-DDT breakdown and continuing calibration standards evaluated before the sample are compliant.
Reporting limits were raised due to interference from the sample matrix.

Pesticides/PCBs	**SW-846 8082**		**ug/kg**	**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.	4.2	20	1
10736	PCB-1221	11104-28-2	N.D.	5.4	20	1
10736	PCB-1232	11141-16-5	N.D.	9.4	20	1
10736	PCB-1242	53469-21-9	N.D.	3.9	20	1
10736	PCB-1248	12672-29-6	N.D.	3.9	20	1
10736	PCB-1254	11097-69-1	12 J	3.9	20	1
10736	PCB-1260	11096-82-5	N.D.	5.7	20	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	Aluminum	7429-90-5	19,700	8.19	22.7	1
06944	Antimony	7440-36-0	N.D.	0.840	2.27	1
06935	Arsenic	7440-38-2	N.D.	0.795	2.27	1
06946	Barium	7440-39-3	149	0.0375	0.568	1
06947	Beryllium	7440-41-7	0.886	0.0761	0.568	1
06949	Cadmium	7440-43-9	0.129 J	0.0863	0.568	1
01650	Calcium	7440-70-2	3,480	3.79	22.7	1
06951	Chromium	7440-47-3	32.7	0.182	1.70	1
06952	Cobalt	7440-48-4	13.0	0.112	0.568	1
06953	Copper	7440-50-8	22.0	0.329	1.14	1
01654	Iron	7439-89-6	29,500	4.11	22.7	1
06955	Lead	7439-92-1	18.9	0.568	1.70	1
01657	Magnesium	7439-95-4	10,200	1.90	11.4	1
06958	Manganese	7439-96-5	596	0.0942	0.568	1
06961	Nickel	7440-02-0	27.2	0.148	1.14	1
01662	Potassium	7440-09-7	10,600	18.9	114	2
06936	Selenium	7782-49-2	N.D.	0.908	2.27	1
06966	Silver	7440-22-4	N.D.	0.193	0.568	1
01667	Sodium	7440-23-5	484	19.0	114	1
06925	Thallium	7440-28-0	1.18 J	0.590	3.41	1
06971	Vanadium	7440-62-2	39.9	0.148	0.568	1
06972	Zinc	7440-66-6	90.0	0.227	2.27	1
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0362 J	0.0114	0.114	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	

*=This limit was used in the evaluation of the final result

eurofins
Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SS-08 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489159
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:20 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB08 SDG#: BRG02-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	14.5	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	8260 VOCs	SW-846 8260B	1	R141571AA	06/06/2014 05:49	Stephanie A Selis	104.6
06172	GC/MS - Field Preserved (DE)	SW-846 5035	1	201415634722	06/05/2014 12:20	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	14156SLC026	06/06/2014 09:47	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	14156SLC026	06/05/2014 23:30	Sherry L Morrow	1
10738	Pesticides in Soil (microwave)	SW-846 8081A	1	141560028A	06/06/2014 11:58	Jamie L Brillhart	1
10736	PCBs in Soil (microwave)	SW-846 8082	1	141560029A	06/06/2014 11:36	Monica M Souders	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	141560029A	06/05/2014 23:30	Sherry L Morrow	1
10496	PPL Pest. Microwave Extraction	SW-846 3546	1	141560028A	06/05/2014 23:30	Sherry L Morrow	1
01643	Aluminum	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06944	Antimony	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06935	Arsenic	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06947	Beryllium	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
01650	Calcium	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06952	Cobalt	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06953	Copper	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
01654	Iron	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
01657	Magnesium	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06958	Manganese	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06961	Nickel	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
01662	Potassium	SW-846 6010B	1	141565708001	06/06/2014 06:54	Tara L Snyder	2
06936	Selenium	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
01667	Sodium	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06925	Thallium	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06971	Vanadium	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1
06972	Zinc	SW-846 6010B	1	141565708001	06/06/2014 06:15	Tara L Snyder	1

*=This limit was used in the evaluation of the final result

eurofins
Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SS-08 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489159
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:20 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB08 SDG#: BRG02-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00159	Mercury	SW-846 7471A	1	141565711001	06/06/2014 09:46	Katlin N Cataldi	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	141565708001	06/05/2014 19:49	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	141565711001	06/05/2014 20:25	James L Mertz	1
00111	Moisture	SM 2540 G-1997	1	14157820001B	06/06/2014 07:03	William C Schwebel	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DDB08

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) SOIL Lab Sample ID: 7489159
Sample wt/vol: 4.78 (g/mL) g Lab File ID: HP07566.i/14jun06a.b/ru06s08.d
Level: (low/med) MED Date Received: 06/05/14
% Moisture: not dec. 15 Date Analyzed: 06/06/14
Column: (pack/cap) CAP Dilution Factor: 104.6

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. VOCTIC	Total VOC TICs		0	U
2.				
3.				
4.				
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page 1 of 1

FORM I VOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB08

Lab Name: Lancaster Laboratories Contract: _____
Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
Matrix: (soil/water) SOIL Lab Sample ID: 7489159
Sample wt/vol: 30.1 (g/mL) g Lab File ID: ef0342.d
Level: (low/med) LOW Date Received: 06/05/14
% Moisture: 15 Decanted: (Y/N) Date Extracted: 06/05/14
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/06/14
Injection Volume: 1 (uL) Dilution Factor: 1
GPC Cleanup: N pH: Extraction: Mic
CONCENTRATION UNITS:
Number TICs found: 23 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.144	720	J
2.	Unknown	2.909	6300	JB
3.	Unknown	4.572	300	J
4.	Unknown	8.622	490	J
5.	Unknown	9.017	820	J
6.	Unknown	9.496	260	J
7.	Unknown	9.586	320	J
8.	Unknown	9.657	230	J
9.	Unknown	10.034	240	J
10.	Unknown	10.896	240	J
11.	Unknown	11.195	440	J
12.	Unknown	11.512	250	J
13.	Unknown	12.218	230	J
14.	Unknown	12.613	380	J
15.	Unknown	12.750	180	J
16.	Unknown	13.456	240	J
17.	Unknown	13.570	380	J
18.	Unknown	13.977	200	J
19.	Unknown	14.144	310	J
20.	Unknown	14.359	160	J
21.	Unknown	14.521	240	J
22.	Unknown	14.587	300	J
23.	Unknown	14.826	180	J
24.				
25. SVOCTIC	Total SVOC TICs		13000	JB
26.				
27.				
28.				
29.				
30.				

page 1 of 1

FORM I SV-1

Sample Description: SS-09 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489160
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:25 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB09 SDG#: BRG02-09

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	N.D.	760	2,200	91.58
10237	Benzene	71-43-2	N.D.	54	540	91.58
10237	Bromodichloromethane	75-27-4	N.D.	110	540	91.58
10237	Bromoform	75-25-2	N.D.	110	540	91.58
10237	Bromomethane	74-83-9	N.D.	220	540	91.58
10237	2-Butanone	78-93-3	N.D.	430	1,100	91.58
10237	Carbon Disulfide	75-15-0	N.D.	110	540	91.58
10237	Carbon Tetrachloride	56-23-5	N.D.	110	540	91.58
10237	Chlorobenzene	108-90-7	N.D.	110	540	91.58
10237	Chloroethane	75-00-3	N.D.	220	540	91.58
10237	Chloroform	67-66-3	N.D.	110	540	91.58
10237	Chloromethane	74-87-3	N.D.	220	540	91.58
10237	Cyclohexane	110-82-7	N.D.	110	540	91.58
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	220	540	91.58
10237	Dibromochloromethane	124-48-1	N.D.	110	540	91.58
10237	1,2-Dibromoethane	106-93-4	N.D.	110	540	91.58
10237	1,2-Dichlorobenzene	95-50-1	N.D.	110	540	91.58
10237	1,3-Dichlorobenzene	541-73-1	N.D.	110	540	91.58
10237	1,4-Dichlorobenzene	106-46-7	N.D.	110	540	91.58
10237	Dichlorodifluoromethane	75-71-8	N.D.	220	540	91.58
10237	1,1-Dichloroethane	75-34-3	N.D.	110	540	91.58
10237	1,2-Dichloroethane	107-06-2	N.D.	110	540	91.58
10237	1,1-Dichloroethene	75-35-4	N.D.	110	540	91.58
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	110	540	91.58
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	110	540	91.58
10237	1,2-Dichloropropane	78-87-5	N.D.	110	540	91.58
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	110	540	91.58
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	110	540	91.58
10237	Ethylbenzene	100-41-4	N.D.	110	540	91.58
10237	Freon 113	76-13-1	N.D.	220	1,100	91.58
10237	2-Hexanone	591-78-6	N.D.	320	1,100	91.58
10237	Isopropylbenzene	98-82-8	N.D.	110	540	91.58
10237	Methyl Acetate	79-20-9	N.D.	220	540	91.58
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	54	540	91.58
10237	4-Methyl-2-pentanone	108-10-1	N.D.	320	1,100	91.58
10237	Methylcyclohexane	108-87-2	N.D.	110	540	91.58
10237	Methylene Chloride	75-09-2	N.D.	220	540	91.58
10237	Styrene	100-42-5	N.D.	110	540	91.58
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	110	540	91.58
10237	Tetrachloroethene	127-18-4	N.D.	110	540	91.58
10237	Toluene	108-88-3	N.D.	110	540	91.58
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	110	540	91.58
10237	1,1,1-Trichloroethane	71-55-6	N.D.	110	540	91.58
10237	1,1,2-Trichloroethane	79-00-5	N.D.	110	540	91.58
10237	Trichloroethene	79-01-6	N.D.	110	540	91.58
10237	Trichlorofluoromethane	75-69-4	N.D.	220	540	91.58
10237	Vinyl Chloride	75-01-4	N.D.	110	540	91.58
10237	Xylene (Total)	1330-20-7	N.D.	110	540	91.58

00880 VOA Library Search (15)

*=This limit was used in the evaluation of the final result

Sample Description: SS-09 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489160
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:25 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB09 SDG#: BRG02-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles		**SW-846 8270C**	**ug/kg**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	150		4	20	1
10727	Acenaphthylene	208-96-8	53		4	20	1
10727	Acetophenone	98-86-2	42		20	39	1
10727	Anthracene	120-12-7	300		4	20	1
10727	Atrazine	1912-24-9	N.D.		39	200	1
10727	Benzaldehyde	100-52-7	N.D.		79	200	1
10727	Benzo(a)anthracene	56-55-3	630		4	20	1
10727	Benzo(a)pyrene	50-32-8	530		4	20	1
10727	Benzo(b)fluoranthene	205-99-2	710		4	20	1
10727	Benzo(g,h,i)perylene	191-24-2	370		4	20	1
10727	Benzo(k)fluoranthene	207-08-9	350		4	20	1
10727	1,1'-Biphenyl	92-52-4	N.D.		20	39	1
10727	4-Bromophenyl-phenylether	101-55-3	N.D.		20	39	1
10727	Butylbenzylphthalate	85-68-7	N.D.		79	200	1
10727	Di-n-butylphthalate	84-74-2	N.D.		79	200	1
10727	Caprolactam	105-60-2	N.D.		39	200	1
10727	Carbazole	86-74-8	130		20	39	1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.		20	39	1
10727	4-Chloroaniline	106-47-8	N.D.		20	39	1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.		20	39	1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.		20	39	1
10727	2-Chloronaphthalene	91-58-7	N.D.		8	39	1
10727	2-Chlorophenol	95-57-8	N.D.		20	39	1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.		20	39	1
10727	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.		20	39	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	Chrysene	218-01-9	620		4	20	1
10727	Dibenz(a,h)anthracene	53-70-3	80		4	20	1
10727	Dibenzofuran	132-64-9	130		20	39	1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.		120	390	1
10727	2,4-Dichlorophenol	120-83-2	N.D.		20	39	1
10727	Diethylphthalate	84-66-2	N.D.		79	200	1
10727	2,4-Dimethylphenol	105-67-9	N.D.		20	39	1
10727	Dimethylphthalate	131-11-3	N.D.		79	200	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.		200	590	1
10727	2,4-Dinitrophenol	51-28-5	N.D.		350	1,200	1
10727	2,4-Dinitrotoluene	121-14-2	N.D.		79	200	1
10727	2,6-Dinitrotoluene	606-20-2	N.D.		20	39	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	170	J	79	200	1
10727	Fluoranthene	206-44-0	1,200		4	20	1
10727	Fluorene	86-73-7	150		4	20	1
10727	Hexachlorobenzene	118-74-1	N.D.		4	20	1
10727	Hexachlorobutadiene	87-68-3	N.D.		20	39	1
10727	Hexachlorocyclopentadiene	77-47-4	N.D.		200	590	1
10727	Hexachloroethane	67-72-1	N.D.		39	200	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-09 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489160
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:25 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB09 SDG#: BRG02-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Indeno(1,2,3-cd)pyrene	193-39-5	340		4	20	1
10727	Isophorone	78-59-1	N.D.		20	39	1
10727	2-Methylnaphthalene	91-57-6	58		4	20	1
10727	2-Methylphenol	95-48-7	N.D.		20	39	1
10727	4-Methylphenol	106-44-5	39	J	20	39	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10727	Naphthalene	91-20-3	110		4	20	1
10727	2-Nitroaniline	88-74-4	N.D.		20	39	1
10727	3-Nitroaniline	99-09-2	N.D.		79	200	1
10727	4-Nitroaniline	100-01-6	N.D.		79	200	1
10727	Nitrobenzene	98-95-3	N.D.		20	39	1
10727	2-Nitrophenol	88-75-5	N.D.		20	39	1
10727	4-Nitrophenol	100-02-7	N.D.		200	590	1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		20	39	1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		20	39	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10727	Di-n-octylphthalate	117-84-0	N.D.		79	200	1
10727	Pentachlorophenol	87-86-5	N.D.		39	200	1
10727	Phenanthrene	85-01-8	1,100		4	20	1
10727	Phenol	108-95-2	N.D.		20	39	1
10727	Pyrene	129-00-0	1,100		4	20	1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		20	39	1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		20	39	1

00893 Semivolatile Library Search

The results from the semivolatile library search are listed on the attached FORM 1 - SV-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.

Pesticides/PCBs	**SW-846 8081A**		**ug/kg**		**ug/kg**	**ug/kg**	
10738	Aldrin	309-00-2	0.59	J	0.20	0.98	1
10738	Alpha BHC	319-84-6	N.D.		0.20	0.98	1
10738	Beta BHC	319-85-7	N.D.		0.35	1.2	1
10738	Gamma BHC - Lindane	58-89-9	N.D.		0.20	0.98	1
10738	Alpha Chlordane	5103-71-9	0.58	J	0.20	0.98	1
10738	Gamma Chlordane	5103-74-2	N.D.		0.71	0.98	1
10738	p,p-DDD	72-54-8	1.4	J	0.39	2.0	1
10738	p,p-DDE	72-55-9	1.7	J	0.39	2.0	1
10738	p,p-DDT	50-29-3	2.5		0.41	2.0	1
10738	Delta BHC	319-86-8	N.D.		0.53	0.98	1
10738	Dieldrin	60-57-1	1.5	J	0.39	2.0	1
10738	Endosulfan I	959-98-8	0.51	J	0.26	0.98	1
10738	Endosulfan II	33213-65-9	0.49	J	0.39	2.0	1
10738	Endosulfan Sulfate	1031-07-8	N.D.		0.67	2.0	1
10738	Endrin	72-20-8	0.71	J	0.39	2.0	1
10738	Endrin Aldehyde	7421-93-4	N.D.		0.39	2.0	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-09 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489160
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:25 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB09 SDG#: BRG02-09

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8081A**		**ug/kg**	**ug/kg**	**ug/kg**	
10738	Endrin Ketone	53494-70-5	N.D.	0.71	2.1	1
10738	Heptachlor	76-44-8	N.D.	0.20	0.98	1
10738	Heptachlor Epoxide	1024-57-3	N.D.	0.26	0.98	1
10738	Methoxychlor	72-43-5	N.D.	2.0	7.9	1
10738	Toxaphene	8001-35-2	N.D.	16	39	1

The 4,4-DDT breakdown evaluated after the sample injection is above the SW-846 8081A method limit of 15% at 56% and 54% (primary and confirmation columns). The 4,4-DDT %difference in the continuing calibration verification injected after the sample is outside the DRNEC 2010 SOP limits of +/-25% at -35%. The 4,4-DDT breakdown and continuing calibration standards evaluated before the sample are compliant.
Reporting limits were raised due to interference from the sample matrix.

Pesticides/PCBs	**SW-846 8082**		**ug/kg**	**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.	4.3	20	1
10736	PCB-1221	11104-28-2	N.D.	5.4	20	1
10736	PCB-1232	11141-16-5	N.D.	9.5	20	1
10736	PCB-1242	53469-21-9	N.D.	3.9	20	1
10736	PCB-1248	12672-29-6	N.D.	3.9	20	1
10736	PCB-1254	11097-69-1	15 J	3.9	20	1
10736	PCB-1260	11096-82-5	N.D.	5.8	20	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	Aluminum	7429-90-5	16,700	8.36	23.2	1
06944	Antimony	7440-36-0	N.D.	0.858	2.32	1
06935	Arsenic	7440-38-2	1.82 J	0.811	2.32	1
06946	Barium	7440-39-3	120	0.0382	0.579	1
06947	Beryllium	7440-41-7	0.739	0.0776	0.579	1
06949	Cadmium	7440-43-9	0.108 J	0.0881	0.579	1
01650	Calcium	7440-70-2	4,600	3.87	23.2	1
06951	Chromium	7440-47-3	28.3	0.185	1.74	1
06952	Cobalt	7440-48-4	11.1	0.115	0.579	1
06953	Copper	7440-50-8	25.8	0.336	1.16	1
01654	Iron	7439-89-6	23,800	4.20	23.2	1
06955	Lead	7439-92-1	18.9	0.579	1.74	1
01657	Magnesium	7439-95-4	8,100	1.94	11.6	1
06958	Manganese	7439-96-5	475	0.0962	0.579	1
06961	Nickel	7440-02-0	23.3	0.151	1.16	1
01662	Potassium	7440-09-7	8,080	9.66	57.9	1
06936	Selenium	7782-49-2	N.D.	0.927	2.32	1
06966	Silver	7440-22-4	N.D.	0.197	0.579	1
01667	Sodium	7440-23-5	827	19.4	116	1
06925	Thallium	7440-28-0	1.08 J	0.603	3.48	1
06971	Vanadium	7440-62-2	35.5	0.151	0.579	1
06972	Zinc	7440-66-6	84.4	0.232	2.32	1
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0344 J	0.0117	0.117	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SS-09 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489160
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:25 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB09 SDG#: BRG02-09

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	15.4	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	8260 VOCs	SW-846 8260B	1	R141571AA	06/06/2014 06:12	Stephanie A Selis	91.58
06172	GC/MS - Field Preserved (DE)	SW-846 5035	1	201415634722	06/05/2014 12:25	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	14156SLC026	06/06/2014 10:12	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	14156SLC026	06/05/2014 23:30	Sherry L Morrow	1
10738	Pesticides in Soil (microwave)	SW-846 8081A	1	141560028A	06/06/2014 12:12	Jamie L Brillhart	1
10736	PCBs in Soil (microwave)	SW-846 8082	1	141560029A	06/06/2014 11:47	Monica M Souders	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	141560029A	06/05/2014 23:30	Sherry L Morrow	1
10496	PPL Pest. Microwave Extraction	SW-846 3546	1	141560028A	06/05/2014 23:30	Sherry L Morrow	1
01643	Aluminum	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06944	Antimony	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06935	Arsenic	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06947	Beryllium	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
01650	Calcium	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06952	Cobalt	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06953	Copper	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
01654	Iron	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
01657	Magnesium	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06958	Manganese	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06961	Nickel	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
01662	Potassium	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
01667	Sodium	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06925	Thallium	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06971	Vanadium	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1
06972	Zinc	SW-846 6010B	1	141565708001	06/06/2014 06:19	Tara L Snyder	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: SS-09 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489160
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:25 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB09 SDG#: BRG02-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00159	Mercury	SW-846 7471A	1	141565711001	06/06/2014 09:48	Katlin N Cataldi	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	141565708001	06/05/2014 19:49	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	141565711001	06/05/2014 20:25	James L Mertz	1
00111	Moisture	SM 2540 G-1997	1	14157820001B	06/06/2014 07:03	William C Schwebel	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB09

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) SOIL Lab Sample ID: 7489160
Sample wt/vol: 5.46 (g/mL) g Lab File ID: HP07566.i/14jun06a.b/ru06s09.d
Level: (low/med) MED Date Received: 06/05/14
% Moisture: not dec. 15 Date Analyzed: 06/06/14
Column: (pack/cap) CAP Dilution Factor: 91.6

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. VOCTIC	Total VOC TICs		0	U
2.				
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page 1 of 1

FORM I VOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB09

Lab Name: Lancaster Laboratories Contract:
Lab Code: LANCAS Case No.: SAS No.: SDG No.:
Matrix: (soil/water) SOIL Lab Sample ID: 7489160
Sample wt/vol: 30.0 (g/mL) g Lab File ID: ef0343.d
Level: (low/med) LOW Date Received: 06/05/14
% Moisture: 15 Decanted: (Y/N) Date Extracted: 06/05/14
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/06/14
Injection Volume: 1 (uL) Dilution Factor: 1
GPC Cleanup: N pH: Extraction: Mic

CONCENTRATION UNITS:
Number TICs found: 19 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.203	9000	J
2.	Unknown	2.939	17000	JB
3.	Unknown	8.323	2100	J
4.	Unknown	8.622	1600	J
5.	Unknown	9.065	760	J
6.	Unknown	9.508	330	J
7.	Unknown	9.693	310	J
8.	Unknown	10.040	360	J
9.	Unknown	10.112	170	J
10.	Unknown	10.824	480	J
11.	Unknown	10.901	1100	J
12.	Unknown	11.057	590	J
13.	Unknown	11.117	440	J
14.	Unknown	11.195	1400	J
15.	Unknown	11.512	940	J
16.	Unknown	12.224	680	J
17.	Unknown	12.612	770	J
18.	Unknown	12.756	450	J
19.	Unknown	13.576	590	J
20.				
21. SVOCTIC	Total SVOC TICs		48000	JB
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

page 1 of 1

FORM I SV-1

Sample Description: SS-10 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489161
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:35 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB10 SDG#: BRG02-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	N.D.	860	2,400	104.17
10237	Benzene	71-43-2	N.D.	61	610	104.17
10237	Bromodichloromethane	75-27-4	N.D.	120	610	104.17
10237	Bromoform	75-25-2	N.D.	120	610	104.17
10237	Bromomethane	74-83-9	N.D.	240	610	104.17
10237	2-Butanone	78-93-3	N.D.	490	1,200	104.17
10237	Carbon Disulfide	75-15-0	N.D.	120	610	104.17
10237	Carbon Tetrachloride	56-23-5	N.D.	120	610	104.17
10237	Chlorobenzene	108-90-7	N.D.	120	610	104.17
10237	Chloroethane	75-00-3	N.D.	240	610	104.17
10237	Chloroform	67-66-3	N.D.	120	610	104.17
10237	Chloromethane	74-87-3	N.D.	240	610	104.17
10237	Cyclohexane	110-82-7	N.D.	120	610	104.17
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	240	610	104.17
10237	Dibromochloromethane	124-48-1	N.D.	120	610	104.17
10237	1,2-Dibromoethane	106-93-4	N.D.	120	610	104.17
10237	1,2-Dichlorobenzene	95-50-1	N.D.	120	610	104.17
10237	1,3-Dichlorobenzene	541-73-1	N.D.	120	610	104.17
10237	1,4-Dichlorobenzene	106-46-7	N.D.	120	610	104.17
10237	Dichlorodifluoromethane	75-71-8	N.D.	240	610	104.17
10237	1,1-Dichloroethane	75-34-3	N.D.	120	610	104.17
10237	1,2-Dichloroethane	107-06-2	N.D.	120	610	104.17
10237	1,1-Dichloroethene	75-35-4	N.D.	120	610	104.17
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	120	610	104.17
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	120	610	104.17
10237	1,2-Dichloropropane	78-87-5	N.D.	120	610	104.17
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	120	610	104.17
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	120	610	104.17
10237	Ethylbenzene	100-41-4	N.D.	120	610	104.17
10237	Freon 113	76-13-1	N.D.	240	1,200	104.17
10237	2-Hexanone	591-78-6	N.D.	370	1,200	104.17
10237	Isopropylbenzene	98-82-8	N.D.	120	610	104.17
10237	Methyl Acetate	79-20-9	N.D.	240	610	104.17
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	61	610	104.17
10237	4-Methyl-2-pentanone	108-10-1	N.D.	370	1,200	104.17
10237	Methylcyclohexane	108-87-2	N.D.	120	610	104.17
10237	Methylene Chloride	75-09-2	N.D.	240	610	104.17
10237	Styrene	100-42-5	N.D.	120	610	104.17
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	120	610	104.17
10237	Tetrachloroethene	127-18-4	N.D.	120	610	104.17
10237	Toluene	108-88-3	N.D.	120	610	104.17
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	120	610	104.17
10237	1,1,1-Trichloroethane	71-55-6	N.D.	120	610	104.17
10237	1,1,2-Trichloroethane	79-00-5	N.D.	120	610	104.17
10237	Trichloroethene	79-01-6	N.D.	120	610	104.17
10237	Trichlorofluoromethane	75-69-4	N.D.	240	610	104.17
10237	Vinyl Chloride	75-01-4	N.D.	120	610	104.17
10237	Xylene (Total)	1330-20-7	N.D.	120	610	104.17

00880 VOA Library Search (15)

*=This limit was used in the evaluation of the final result

Sample Description: SS-10 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489161
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:35 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB10 SDG#: BRG02-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles		**SW-846 8270C**	**ug/kg**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	N.D.		4	20	1
10727	Acenaphthylene	208-96-8	N.D.		4	20	1
10727	Acetophenone	98-86-2	N.D.		19	39	1
10727	Anthracene	120-12-7	4	J	4	20	1
10727	Atrazine	1912-24-9	N.D.		39	190	1
10727	Benzaldehyde	100-52-7	N.D.		78	190	1
10727	Benzo(a)anthracene	56-55-3	13	J	4	20	1
10727	Benzo(a)pyrene	50-32-8	19	J	4	20	1
10727	Benzo(b)fluoranthene	205-99-2	24		4	20	1
10727	Benzo(g,h,i)perylene	191-24-2	11	J	4	20	1
10727	Benzo(k)fluoranthene	207-08-9	10	J	4	20	1
10727	1,1'-Biphenyl	92-52-4	N.D.		19	39	1
10727	4-Bromophenyl-phenylether	101-55-3	N.D.		19	39	1
10727	Butylbenzylphthalate	85-68-7	N.D.		78	190	1
10727	Di-n-butylphthalate	84-74-2	N.D.		78	190	1
10727	Caprolactam	105-60-2	N.D.		39	190	1
10727	Carbazole	86-74-8	N.D.		19	39	1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.		19	39	1
10727	4-Chloroaniline	106-47-8	N.D.		19	39	1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.		19	39	1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.		19	39	1
10727	2-Chloronaphthalene	91-58-7	N.D.		8	38	1
10727	2-Chlorophenol	95-57-8	N.D.		19	39	1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.		19	39	1
10727	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.		19	39	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	Chrysene	218-01-9	19	J	4	20	1
10727	Dibenz(a,h)anthracene	53-70-3	5	J	4	20	1
10727	Dibenzofuran	132-64-9	N.D.		19	39	1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.		120	390	1
10727	2,4-Dichlorophenol	120-83-2	N.D.		19	39	1
10727	Diethylphthalate	84-66-2	N.D.		78	190	1
10727	2,4-Dimethylphenol	105-67-9	N.D.		19	39	1
10727	Dimethylphthalate	131-11-3	N.D.		78	190	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.		190	580	1
10727	2,4-Dinitrophenol	51-28-5	N.D.		350	1,200	1
10727	2,4-Dinitrotoluene	121-14-2	N.D.		78	190	1
10727	2,6-Dinitrotoluene	606-20-2	N.D.		19	39	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.		78	200	1
10727	Fluoranthene	206-44-0	23		4	20	1
10727	Fluorene	86-73-7	N.D.		4	20	1
10727	Hexachlorobenzene	118-74-1	N.D.		4	20	1
10727	Hexachlorobutadiene	87-68-3	N.D.		19	39	1
10727	Hexachlorocyclopentadiene	77-47-4	N.D.		190	580	1
10727	Hexachloroethane	67-72-1	N.D.		39	190	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-10 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489161
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:35 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB10 SDG#: BRG02-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Indeno(1,2,3-cd)pyrene	193-39-5	11	J	4	20	1
10727	Isophorone	78-59-1	N.D.		19	39	1
10727	2-Methylnaphthalene	91-57-6	N.D.		4	20	1
10727	2-Methylphenol	95-48-7	N.D.		19	39	1
10727	4-Methylphenol	106-44-5	100		19	39	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10727	Naphthalene	91-20-3	6	J	4	20	1
10727	2-Nitroaniline	88-74-4	N.D.		19	39	1
10727	3-Nitroaniline	99-09-2	N.D.		78	190	1
10727	4-Nitroaniline	100-01-6	N.D.		78	190	1
10727	Nitrobenzene	98-95-3	N.D.		19	39	1
10727	2-Nitrophenol	88-75-5	N.D.		19	39	1
10727	4-Nitrophenol	100-02-7	N.D.		190	580	1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		19	39	1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		19	39	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10727	Di-n-octylphthalate	117-84-0	N.D.		78	190	1
10727	Pentachlorophenol	87-86-5	N.D.		39	200	1
10727	Phenanthrene	85-01-8	18	J	4	20	1
10727	Phenol	108-95-2	N.D.		19	39	1
10727	Pyrene	129-00-0	24		4	20	1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		19	39	1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		19	39	1

00893 Semivolatile Library Search

The results from the semivolatile library search are listed on the attached FORM 1 - SV-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.

Pesticides/PCBs	**SW-846 8081A**		**ug/kg**		**ug/kg**	**ug/kg**	
10738	Aldrin	309-00-2	N.D.		0.20	0.98	1
10738	Alpha BHC	319-84-6	N.D.		0.20	0.98	1
10738	Beta BHC	319-85-7	N.D.		0.35	1.2	1
10738	Gamma BHC - Lindane	58-89-9	N.D.		0.20	0.98	1
10738	Alpha Chlordane	5103-71-9	6.0		0.20	0.98	1
10738	Gamma Chlordane	5103-74-2	N.D.		4.2	4.2	1
10738	p,p-DDD	72-54-8	6.7		0.39	2.0	1
10738	p,p-DDE	72-55-9	12		0.39	2.0	1
10738	p,p-DDT	50-29-3	7.2		0.41	2.0	1
10738	Delta BHC	319-86-8	17		2.6	4.9	5
10738	Dieldrin	60-57-1	1.2	J	0.39	2.0	1
10738	Endosulfan I	959-98-8	N.D.		0.26	0.98	1
10738	Endosulfan II	33213-65-9	N.D.		0.39	2.0	1
10738	Endosulfan Sulfate	1031-07-8	N.D.		0.39	2.0	1
10738	Endrin	72-20-8	N.D.		1.3	2.0	1
10738	Endrin Aldehyde	7421-93-4	0.83	J	0.39	2.0	1

*=This limit was used in the evaluation of the final result

Sample Description: SS-10 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489161
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:35 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB10 SDG#: BRG02-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8081A**		**ug/kg**		**ug/kg**	**ug/kg**	
10738	Endrin Ketone	53494-70-5	N.D.		0.71	2.1	1
10738	Heptachlor	76-44-8	N.D.		0.20	0.98	1
10738	Heptachlor Epoxide	1024-57-3	0.76	J	0.20	0.98	1
10738	Methoxychlor	72-43-5	N.D.		2.0	7.9	1
10738	Toxaphene	8001-35-2	N.D.		16	39	1

The 4,4-DDT breakdown evaluated after the sample injection is above the SW-846 8081A method limit of 15% at 56% and 54% (primary and confirmation columns). The 4,4-DDT %difference in the continuing calibration verification injected after the sample is outside the DRNEC 2010 SOP limits of +/-25% at -35%. The 4,4-DDT breakdown and continuing calibration standards evaluated before the sample are compliant.
Reporting limits were raised due to interference from the sample matrix.

Pesticides/PCBs	**SW-846 8082**		**ug/kg**		**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.		4.2	20	1
10736	PCB-1221	11104-28-2	N.D.		5.4	20	1
10736	PCB-1232	11141-16-5	N.D.		9.4	20	1
10736	PCB-1242	53469-21-9	N.D.		3.9	20	1
10736	PCB-1248	12672-29-6	N.D.		3.9	20	1
10736	PCB-1254	11097-69-1	12	J	3.9	20	1
10736	PCB-1260	11096-82-5	N.D.		5.8	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	Aluminum	7429-90-5	13,200		8.15	22.6	1
06944	Antimony	7440-36-0	N.D.		0.836	2.26	1
06935	Arsenic	7440-38-2	9.22		0.791	2.26	1
06946	Barium	7440-39-3	56.8		0.0373	0.565	1
06947	Beryllium	7440-41-7	0.576		0.0757	0.565	1
06949	Cadmium	7440-43-9	0.0881	J	0.0859	0.565	1
01650	Calcium	7440-70-2	983		3.77	22.6	1
06951	Chromium	7440-47-3	18.0		0.181	1.69	1
06952	Cobalt	7440-48-4	5.53		0.112	0.565	1
06953	Copper	7440-50-8	9.43		0.328	1.13	1
01654	Iron	7439-89-6	12,500		4.09	22.6	1
06955	Lead	7439-92-1	20.0		0.565	1.69	1
01657	Magnesium	7439-95-4	1,150		1.89	11.3	1
06958	Manganese	7439-96-5	123		0.0938	0.565	1
06961	Nickel	7440-02-0	10.3		0.147	1.13	1
01662	Potassium	7440-09-7	741		9.42	56.5	1
06936	Selenium	7782-49-2	N.D.		0.904	2.26	1
06966	Silver	7440-22-4	N.D.		0.192	0.565	1
01667	Sodium	7440-23-5	85.2	J	18.9	113	1
06925	Thallium	7440-28-0	N.D.		0.588	3.39	1
06971	Vanadium	7440-62-2	30.5		0.147	0.565	1
06972	Zinc	7440-66-6	37.2		0.226	2.26	1
	SW-846 7471A		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.360		0.0116	0.116	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SS-10 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489161
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:35 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB10 SDG#: BRG02-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	14.9	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	8260 VOCs	SW-846 8260B	1	R141571AA	06/06/2014 06:36	Stephanie A Selis	104.17
06172	GC/MS - Field Preserved (DE)	SW-846 5035	1	201415634722	06/05/2014 12:35	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	14156SLC026	06/06/2014 10:37	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	14156SLC026	06/05/2014 23:30	Sherry L Morrow	1
10738	Pesticides in Soil (microwave)	SW-846 8081A	1	141560028A	06/06/2014 12:26	Jamie L Brillhart	1
10738	Pesticides in Soil (microwave)	SW-846 8081A	1	141560028A	06/06/2014 12:39	Jamie L Brillhart	5
10736	PCBs in Soil (microwave)	SW-846 8082	1	141560029A	06/06/2014 11:59	Monica M Souders	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	141560029A	06/05/2014 23:30	Sherry L Morrow	1
10496	PPL Pest. Microwave Extraction	SW-846 3546	1	141560028A	06/05/2014 23:30	Sherry L Morrow	1
01643	Aluminum	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06944	Antimony	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06935	Arsenic	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06947	Beryllium	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
01650	Calcium	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06952	Cobalt	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06953	Copper	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
01654	Iron	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
01657	Magnesium	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06958	Manganese	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06961	Nickel	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
01662	Potassium	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
01667	Sodium	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06925	Thallium	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: SS-10 Grab Soil
DelDOT Bridge I-831

LL Sample # SW 7489161
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 12:35 by JC

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB10 SDG#: BRG02-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06971	Vanadium	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
06972	Zinc	SW-846 6010B	1	141565708001	06/06/2014 06:23	Tara L Snyder	1
00159	Mercury	SW-846 7471A	1	141565711001	06/06/2014 09:50	Katlin N Cataldi	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	141565708001	06/05/2014 19:49	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	141565711001	06/05/2014 20:25	James L Mertz	1
00111	Moisture	SM 2540 G-1997	1	14157820001B	06/06/2014 07:03	William C Schwebel	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DDB10

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) SOIL Lab Sample ID: 7489161
Sample wt/vol: 4.8 (g/mL) g Lab File ID: HP07566.i/14jun06a.b/ru06s10.d
Level: (low/med) MED Date Received: 06/05/14
% Moisture: not dec. 15 Date Analyzed: 06/06/14
Column: (pack/cap) CAP Dilution Factor: 104.2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB10

Lab Name: Lancaster Laboratories Contract: _____
Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
Matrix: (soil/water) SOIL Lab Sample ID: 7489161
Sample wt/vol: 30.3 (g/mL) g Lab File ID: ef0344.d
Level: (low/med) LOW Date Received: 06/05/14
% Moisture: 15 Decanted: (Y/N) Date Extracted: 06/05/14
Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/06/14
Injection Volume: 1 (uL) Dilution Factor: 1
GPC Cleanup: N pH: Extraction: Mic

CONCENTRATION UNITS:
Number TICs found: 25 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.903	4600	JB
2.	Unknown	9.023	1300	J
3.	Unknown	9.586	1000	J
4.	Unknown	11.195	3000	J
5.	Unknown	12.290	740	J
6.	Unknown	12.391	850	J
7.	Unknown	12.619	990	J
8.	Unknown	12.643	670	J
9.	Unknown	12.702	570	J
10.	Unknown	12.750	600	J
11.	Unknown	13.223	1500	J
12.	Unknown	13.504	1000	J
13.	Unknown	13.582	2200	J
14.	Unknown	13.642	550	J
15.	Unknown	13.713	800	J
16.	Unknown	13.791	1600	J
17.	Unknown	13.857	560	J
18.	Unknown	13.989	1500	J
19.	Unknown	14.156	1000	J
20.	Unknown	14.371	910	J
21.	Unknown	14.527	880	J
22.	Unknown	14.629	6800	J
23.	Unknown	14.730	850	J
24.	Unknown	14.892	580	J
25.	Unknown	15.400	2200	J
26.				
27. SVOCTIC	Total SVOC TICs		37000	JB
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page 1 of 1

FORM I SV-1

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: Trip Blank Water
DelDOT Bridge I-831

LL Sample # WW 7489162
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB11 SDG#: BRG02-11TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	**ug/l**	
10335	Acetone	67-64-1	N.D.	6	20	1
10335	Benzene	71-43-2	N.D.	0.5	1	1
10335	Bromodichloromethane	75-27-4	N.D.	0.5	1	1
10335	Bromoform	75-25-2	N.D.	0.5	4	1
10335	Bromomethane	74-83-9	N.D.	0.5	1	1
10335	2-Butanone	78-93-3	N.D.	3	10	1
10335	Carbon Disulfide	75-15-0	N.D.	1	5	1
10335	Carbon Tetrachloride	56-23-5	N.D.	0.5	1	1
10335	Chlorobenzene	108-90-7	N.D.	0.5	1	1
10335	Chloroethane	75-00-3	N.D.	0.5	1	1
10335	Chloroform	67-66-3	N.D.	0.5	1	1
10335	Chloromethane	74-87-3	N.D.	0.5	1	1
10335	Cyclohexane	110-82-7	N.D.	2	5	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	2	5	1
10335	Dibromochloromethane	124-48-1	N.D.	0.5	1	1
10335	1,2-Dibromoethane	106-93-4	N.D.	0.5	1	1
10335	1,2-Dichlorobenzene	95-50-1	N.D.	1	5	1
10335	1,3-Dichlorobenzene	541-73-1	N.D.	1	5	1
10335	1,4-Dichlorobenzene	106-46-7	N.D.	1	5	1
10335	Dichlorodifluoromethane	75-71-8	N.D.	0.5	1	1
10335	1,1-Dichloroethane	75-34-3	N.D.	0.5	1	1
10335	1,2-Dichloroethane	107-06-2	N.D.	0.5	1	1
10335	1,1-Dichloroethene	75-35-4	N.D.	0.5	1	1
10335	cis-1,2-Dichloroethene	156-59-2	N.D.	0.5	1	1
10335	trans-1,2-Dichloroethene	156-60-5	N.D.	0.5	1	1
10335	1,2-Dichloropropane	78-87-5	N.D.	0.5	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.5	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.5	1	1
10335	Ethylbenzene	100-41-4	N.D.	0.5	1	1
10335	Freon 113	76-13-1	N.D.	2	10	1
10335	2-Hexanone	591-78-6	N.D.	3	10	1
10335	Isopropylbenzene	98-82-8	N.D.	1	5	1
10335	Methyl Acetate	79-20-9	N.D.	1	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	1	1
10335	4-Methyl-2-pentanone	108-10-1	N.D.	3	10	1
10335	Methylcyclohexane	108-87-2	N.D.	1	5	1
10335	Methylene Chloride	75-09-2	N.D.	2	3	1
10335	Styrene	100-42-5	N.D.	1	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.5	1	1
10335	Tetrachloroethene	127-18-4	N.D.	0.5	1	1
10335	Toluene	108-88-3	N.D.	0.5	1	1
10335	1,2,4-Trichlorobenzene	120-82-1	N.D.	1	5	1
10335	1,1,1-Trichloroethane	71-55-6	N.D.	0.5	1	1
10335	1,1,2-Trichloroethane	79-00-5	N.D.	0.5	1	1
10335	Trichloroethene	79-01-6	N.D.	0.5	1	1
10335	Trichlorofluoromethane	75-69-4	N.D.	0.5	1	1
10335	Vinyl Chloride	75-01-4	N.D.	0.5	1	1
10335	Xylene (Total)	1330-20-7	N.D.	0.5	1	1

00880 VOA Library Search (15)

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: Trip Blank Water
DelDOT Bridge I-831

LL Sample # WW 7489162
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB11 SDG#: BRG02-11TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor

The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	8260 VOCs	SW-846 8260B	1	W141563AA	06/06/2014 01:48	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W141563AA	06/06/2014 01:48	Stephanie A Selis	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB11

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 7489162
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09137.i/14jun05b.b/wu05s61.d
Level: (low/med) LOW Date Received: 06/05/14
% Moisture: not dec. Date Analyzed: 06/06/14
Column: (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: Storage Blank Grab Water
DelDOT Bridge I-831

LL Sample # WW 7489163
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 17:00 by LAB

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB12 SDG#: BRG02-12SB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	**ug/l**	
10335	Acetone	67-64-1	N.D.	6	20	1
10335	Benzene	71-43-2	N.D.	0.5	1	1
10335	Bromodichloromethane	75-27-4	N.D.	0.5	1	1
10335	Bromoform	75-25-2	N.D.	0.5	4	1
10335	Bromomethane	74-83-9	N.D.	0.5	1	1
10335	2-Butanone	78-93-3	N.D.	3	10	1
10335	Carbon Disulfide	75-15-0	N.D.	1	5	1
10335	Carbon Tetrachloride	56-23-5	N.D.	0.5	1	1
10335	Chlorobenzene	108-90-7	N.D.	0.5	1	1
10335	Chloroethane	75-00-3	N.D.	0.5	1	1
10335	Chloroform	67-66-3	N.D.	0.5	1	1
10335	Chloromethane	74-87-3	N.D.	0.5	1	1
10335	Cyclohexane	110-82-7	N.D.	2	5	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	2	5	1
10335	Dibromochloromethane	124-48-1	N.D.	0.5	1	1
10335	1,2-Dibromoethane	106-93-4	N.D.	0.5	1	1
10335	1,2-Dichlorobenzene	95-50-1	N.D.	1	5	1
10335	1,3-Dichlorobenzene	541-73-1	N.D.	1	5	1
10335	1,4-Dichlorobenzene	106-46-7	N.D.	1	5	1
10335	Dichlorodifluoromethane	75-71-8	N.D.	0.5	1	1
10335	1,1-Dichloroethane	75-34-3	N.D.	0.5	1	1
10335	1,2-Dichloroethane	107-06-2	N.D.	0.5	1	1
10335	1,1-Dichloroethene	75-35-4	N.D.	0.5	1	1
10335	cis-1,2-Dichloroethene	156-59-2	N.D.	0.5	1	1
10335	trans-1,2-Dichloroethene	156-60-5	N.D.	0.5	1	1
10335	1,2-Dichloropropane	78-87-5	N.D.	0.5	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.5	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.5	1	1
10335	Ethylbenzene	100-41-4	N.D.	0.5	1	1
10335	Freon 113	76-13-1	N.D.	2	10	1
10335	2-Hexanone	591-78-6	N.D.	3	10	1
10335	Isopropylbenzene	98-82-8	N.D.	1	5	1
10335	Methyl Acetate	79-20-9	N.D.	1	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	1	1
10335	4-Methyl-2-pentanone	108-10-1	N.D.	3	10	1
10335	Methylcyclohexane	108-87-2	N.D.	1	5	1
10335	Methylene Chloride	75-09-2	N.D.	2	3	1
10335	Styrene	100-42-5	N.D.	1	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.5	1	1
10335	Tetrachloroethene	127-18-4	N.D.	0.5	1	1
10335	Toluene	108-88-3	N.D.	0.5	1	1
10335	1,2,4-Trichlorobenzene	120-82-1	N.D.	1	5	1
10335	1,1,1-Trichloroethane	71-55-6	N.D.	0.5	1	1
10335	1,1,2-Trichloroethane	79-00-5	N.D.	0.5	1	1
10335	Trichloroethene	79-01-6	N.D.	0.5	1	1
10335	Trichlorofluoromethane	75-69-4	N.D.	0.5	1	1
10335	Vinyl Chloride	75-01-4	N.D.	0.5	1	1
10335	Xylene (Total)	1330-20-7	N.D.	0.5	1	1

00880 VOA Library Search (15)

*=This limit was used in the evaluation of the final result

eurofins
Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: Storage Blank Grab Water
DelDOT Bridge I-831

LL Sample # WW 7489163
LL Group # 1479781
Account # 02600

Project Name: DelDot Bridge I-831

Collected: 06/05/2014 17:00 by LAB

Submitted: 06/05/2014 18:10
Reported: 06/09/2014 10:47

Tetra Tech, Inc.
240 Continental Dr
Suite 200
Newark DE 19713

DDB12 SDG#: BRG02-12SB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.					

General Sample Comments

This sample was collected following the protocol specified by each method listed in the Laboratory Sample Analysis Record.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	8260 VOCs	SW-846 8260B	1	W141563AA	06/06/2014 02:11	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W141563AA	06/06/2014 02:11	Stephanie A Selis	1

*=This limit was used in the evaluation of the final result

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
DDB12

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 7489163
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09137.i/14jun05b.b/wu05s62.d
Level: (low/med) LOW Date Received: 06/05/14
% Moisture: not dec. Date Analyzed: 06/06/14
Column: (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

Quality Control Summary

Client Name: Tetra Tech, Inc. Group Number: 1479781
Reported: 06/09/14 at 10:47 AM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: R141571AA	Sample number(s): 7489152-7489161								
Acetone	N.D.	350.	1,000	ug/kg	102	95	41-149	7	30
Benzene	N.D.	25.	250	ug/kg	106	97	80-120	8	30
Bromodichloromethane	N.D.	50.	250	ug/kg	107	95	75-120	12	30
Bromoform	N.D.	50.	250	ug/kg	102	96	70-126	6	30
Bromomethane	N.D.	100.	250	ug/kg	128	127	32-162	1	30
2-Butanone	N.D.	200.	500	ug/kg	93	89	47-136	4	30
Carbon Disulfide	N.D.	50.	250	ug/kg	102	93	63-128	9	30
Carbon Tetrachloride	N.D.	50.	250	ug/kg	108	99	69-130	9	30
Chlorobenzene	N.D.	50.	250	ug/kg	111	105	80-120	6	30
Chloroethane	N.D.	100.	250	ug/kg	97	95	17-171	2	30
Chloroform	N.D.	50.	250	ug/kg	110	103	80-120	7	30
Chloromethane	N.D.	100.	250	ug/kg	91	80	56-120	13	30
Cyclohexane	N.D.	50.	250	ug/kg	89	79	55-125	12	30
1,2-Dibromo-3-chloropropane	N.D.	100.	250	ug/kg	98	93	50-132	5	30
Dibromochloromethane	N.D.	50.	250	ug/kg	107	99	77-120	8	30
1,2-Dibromoethane	N.D.	50.	250	ug/kg	108	100	80-120	8	30
1,2-Dichlorobenzene	N.D.	50.	250	ug/kg	108	100	80-120	8	30
1,3-Dichlorobenzene	N.D.	50.	250	ug/kg	106	101	80-120	5	30
1,4-Dichlorobenzene	N.D.	50.	250	ug/kg	106	100	80-120	6	30
Dichlorodifluoromethane	N.D.	100.	250	ug/kg	70	53	26-137	27	30
1,1-Dichloroethane	N.D.	50.	250	ug/kg	108	100	71-122	8	30
1,2-Dichloroethane	N.D.	50.	250	ug/kg	108	102	66-136	5	30
1,1-Dichloroethene	N.D.	50.	250	ug/kg	109	99	73-129	10	30
cis-1,2-Dichloroethene	N.D.	50.	250	ug/kg	108	102	80-120	6	30
trans-1,2-Dichloroethene	N.D.	50.	250	ug/kg	113	104	79-120	9	30
1,2-Dichloropropane	N.D.	50.	250	ug/kg	110	100	77-120	10	30
cis-1,3-Dichloropropene	N.D.	50.	250	ug/kg	108	99	74-120	9	30
trans-1,3-Dichloropropene	N.D.	50.	250	ug/kg	107	98	69-120	9	30
Ethylbenzene	N.D.	50.	250	ug/kg	104	97	80-120	7	30
Freon 113	N.D.	100.	500	ug/kg	92	79	64-137	14	30
2-Hexanone	N.D.	150.	500	ug/kg	76	72	40-129	6	30
Isopropylbenzene	N.D.	50.	250	ug/kg	103	96	76-120	7	30
Methyl Acetate	N.D.	100.	250	ug/kg	101	95	55-149	7	30
Methyl Tertiary Butyl Ether	N.D.	25.	250	ug/kg	104	97	69-126	7	30
4-Methyl-2-pentanone	N.D.	150.	500	ug/kg	81	74	43-133	9	30
Methylcyclohexane	N.D.	50.	250	ug/kg	94	81	58-134	14	30
Methylene Chloride	N.D.	100.	250	ug/kg	109	102	80-124	7	30
Styrene	N.D.	50.	250	ug/kg	106	96	76-120	10	30
1,1,2,2-Tetrachloroethane	N.D.	50.	250	ug/kg	107	98	71-123	9	30
Tetrachloroethene	N.D.	50.	250	ug/kg	110	98	78-120	11	30
Toluene	N.D.	50.	250	ug/kg	110	99	80-120	10	30
1,2,4-Trichlorobenzene	N.D.	50.	250	ug/kg	95	93	68-120	2	30
1,1,1-Trichloroethane	N.D.	50.	250	ug/kg	111	102	63-135	8	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Tetra Tech, Inc. Group Number: 1479781
Reported: 06/09/14 at 10:47 AM

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,2-Trichloroethane	N.D.	50.	250	ug/kg	109	100	80-120	9	30
Trichloroethene	N.D.	50.	250	ug/kg	111	99	80-120	11	30
Trichlorofluoromethane	N.D.	100.	250	ug/kg	91	78	58-133	16	30
Vinyl Chloride	N.D.	50.	250	ug/kg	93	82	59-120	13	30
Xylene (Total)	N.D.	50.	250	ug/kg	107	99	80-120	7	30
Batch number: W141563AA	Sample number(s): 7489162-7489163								
Acetone	N.D.	6.	20	ug/l	75		43-149		
Benzene	N.D.	0.5	1	ug/l	102		78-120		
Bromodichloromethane	N.D.	0.5	1	ug/l	92		73-120		
Bromoform	N.D.	0.5	4	ug/l	81		61-120		
Bromomethane	N.D.	0.5	1	ug/l	102		58-120		
2-Butanone	N.D.	3.	10	ug/l	76		54-133		
Carbon Disulfide	N.D.	1.	5	ug/l	90		58-126		
Carbon Tetrachloride	N.D.	0.5	1	ug/l	97		74-130		
Chlorobenzene	N.D.	0.5	1	ug/l	104		80-120		
Chloroethane	N.D.	0.5	1	ug/l	96		56-120		
Chloroform	N.D.	0.5	1	ug/l	101		80-122		
Chloromethane	N.D.	0.5	1	ug/l	91		63-120		
Cyclohexane	N.D.	2.	5	ug/l	96		62-121		
1,2-Dibromo-3-chloropropane	N.D.	2.	5	ug/l	83		56-120		
Dibromochloromethane	N.D.	0.5	1	ug/l	92		72-120		
1,2-Dibromoethane	N.D.	0.5	1	ug/l	101		76-120		
1,2-Dichlorobenzene	N.D.	1.	5	ug/l	98		80-120		
1,3-Dichlorobenzene	N.D.	1.	5	ug/l	99		80-120		
1,4-Dichlorobenzene	N.D.	1.	5	ug/l	99		80-120		
Dichlorodifluoromethane	N.D.	0.5	1	ug/l	82		48-132		
1,1-Dichloroethane	N.D.	0.5	1	ug/l	98		80-120		
1,2-Dichloroethane	N.D.	0.5	1	ug/l	102		65-135		
1,1-Dichloroethene	N.D.	0.5	1	ug/l	100		76-124		
cis-1,2-Dichloroethene	N.D.	0.5	1	ug/l	101		80-120		
trans-1,2-Dichloroethene	N.D.	0.5	1	ug/l	104		80-120		
1,2-Dichloropropane	N.D.	0.5	1	ug/l	95		80-120		
cis-1,3-Dichloropropene	N.D.	0.5	1	ug/l	92		80-120		
trans-1,3-Dichloropropene	N.D.	0.5	1	ug/l	93		76-120		
Ethylbenzene	N.D.	0.5	1	ug/l	98		79-120		
Freon 113	N.D.	2.	10	ug/l	82		67-127		
2-Hexanone	N.D.	3.	10	ug/l	78		44-126		
Isopropylbenzene	N.D.	1.	5	ug/l	99		77-120		
Methyl Acetate	N.D.	1.	5	ug/l	86		54-138		
Methyl Tertiary Butyl Ether	N.D.	0.5	1	ug/l	95		75-120		
4-Methyl-2-pentanone	N.D.	3.	10	ug/l	78		51-124		
Methylcyclohexane	N.D.	1.	5	ug/l	84		66-126		
Methylene Chloride	N.D.	2.	3	ug/l	100		80-120		
Styrene	N.D.	1.	5	ug/l	98		80-120		
1,1,2,2-Tetrachloroethane	N.D.	0.5	1	ug/l	90		70-120		
Tetrachloroethene	N.D.	0.5	1	ug/l	104		80-120		
Toluene	N.D.	0.5	1	ug/l	103		80-120		
1,2,4-Trichlorobenzene	N.D.	1.	5	ug/l	93		65-120		
1,1,1-Trichloroethane	N.D.	0.5	1	ug/l	99		66-126		
1,1,2-Trichloroethane	N.D.	0.5	1	ug/l	97		80-120		
Trichloroethene	N.D.	0.5	1	ug/l	103		80-120		
Trichlorofluoromethane	N.D.	0.5	1	ug/l	99		65-130		
Vinyl Chloride	N.D.	0.5	1	ug/l	95		63-120		
Xylene (Total)	N.D.	0.5	1	ug/l	100		80-120		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Tetra Tech, Inc. Group Number: 1479781
Reported: 06/09/14 at 10:47 AM

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 14156SLC026	Sample number(s): 7489152-7489161								
Acenaphthene	N.D.	3.	17	ug/kg	96		83-111		
Acenaphthylene	N.D.	3.	17	ug/kg	100		83-127		
Acetophenone	N.D.	17.	33	ug/kg	92		70-116		
Anthracene	N.D.	3.	17	ug/kg	97		82-118		
Atrazine	N.D.	33.	170	ug/kg	92		69-145		
Benzaldehyde	N.D.	67.	170	ug/kg	41		10-82		
Benzo(a)anthracene	N.D.	3.	17	ug/kg	88		81-117		
Benzo(a)pyrene	N.D.	3.	17	ug/kg	102		84-122		
Benzo(b)fluoranthene	N.D.	3.	17	ug/kg	110		83-124		
Benzo(g,h,i)perylene	N.D.	3.	17	ug/kg	107		82-120		
Benzo(k)fluoranthene	N.D.	3.	17	ug/kg	107		80-125		
1,1'-Biphenyl	N.D.	17.	33	ug/kg	93		76-117		
4-Bromophenyl-phenylether	N.D.	17.	33	ug/kg	105		84-120		
Butylbenzylphthalate	N.D.	67.	170	ug/kg	95		80-118		
Di-n-butylphthalate	N.D.	67.	170	ug/kg	93		84-120		
Caprolactam	N.D.	33.	170	ug/kg	100		75-118		
Carbazole	N.D.	17.	33	ug/kg	95		84-119		
4-Chloro-3-methylphenol	N.D.	17.	33	ug/kg	106		86-128		
4-Chloroaniline	N.D.	17.	33	ug/kg	75		10-105		
bis(2-Chloroethoxy)methane	N.D.	17.	33	ug/kg	93		71-121		
bis(2-Chloroethyl)ether	N.D.	17.	33	ug/kg	96		77-115		
2-Chloronaphthalene	N.D.	7.	33	ug/kg	97		63-146		
2-Chlorophenol	N.D.	17.	33	ug/kg	98		80-122		
4-Chlorophenyl-phenylether	N.D.	17.	33	ug/kg	102		83-115		
2,2'-oxybis(1-Chloropropane)	N.D.	17.	33	ug/kg	90		56-120		
Chrysene	N.D.	3.	17	ug/kg	90		77-116		
Dibenz(a,h)anthracene	N.D.	3.	17	ug/kg	116		81-123		
Dibenzofuran	N.D.	17.	33	ug/kg	99		85-115		
3,3'-Dichlorobenzidine	N.D.	100.	330	ug/kg	62		10-125		
2,4-Dichlorophenol	N.D.	17.	33	ug/kg	109		81-123		
Diethylphthalate	N.D.	67.	170	ug/kg	101		82-113		
2,4-Dimethylphenol	N.D.	17.	33	ug/kg	101		83-120		
Dimethylphthalate	N.D.	67.	170	ug/kg	101		82-113		
4,6-Dinitro-2-methylphenol	N.D.	170.	500	ug/kg	98		67-131		
2,4-Dinitrophenol	N.D.	300.	1,000	ug/kg	95		35-141		
2,4-Dinitrotoluene	N.D.	67.	170	ug/kg	106		81-122		
2,6-Dinitrotoluene	N.D.	17.	33	ug/kg	109		83-120		
bis(2-Ethylhexyl)phthalate	N.D.	67.	170	ug/kg	92		81-121		
Fluoranthene	N.D.	3.	17	ug/kg	89		79-123		
Fluorene	N.D.	3.	17	ug/kg	102		86-118		
Hexachlorobenzene	N.D.	3.	17	ug/kg	101		80-121		
Hexachlorobutadiene	N.D.	17.	33	ug/kg	99		78-121		
Hexachlorocyclopentadiene	N.D.	170.	500	ug/kg	105		66-159		
Hexachloroethane	N.D.	33.	170	ug/kg	92		78-114		
Indeno(1,2,3-cd)pyrene	N.D.	3.	17	ug/kg	108		84-121		
Isophorone	N.D.	17.	33	ug/kg	105		77-119		
2-Methylnaphthalene	N.D.	3.	17	ug/kg	99		83-109		
2-Methylphenol	N.D.	17.	33	ug/kg	102		82-125		
4-Methylphenol	N.D.	17.	33	ug/kg	92		78-126		
Naphthalene	N.D.	3.	17	ug/kg	96		83-112		
2-Nitroaniline	N.D.	17.	33	ug/kg	113		84-126		
3-Nitroaniline	N.D.	67.	170	ug/kg	103		66-128		
4-Nitroaniline	N.D.	67.	170	ug/kg	79		57-106		
Nitrobenzene	N.D.	17.	33	ug/kg	99		73-118		
2-Nitrophenol	N.D.	17.	33	ug/kg	104		83-125		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Tetra Tech, Inc. Group Number: 1479781
Reported: 06/09/14 at 10:47 AM

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
4-Nitrophenol	N.D.	170.	500	ug/kg	95		58-128		
N-Nitroso-di-n-propylamine	N.D.	17.	33	ug/kg	98		70-119		
N-Nitrosodiphenylamine	N.D.	17.	33	ug/kg	99		83-118		
Di-n-octylphthalate	N.D.	67.	170	ug/kg	108		82-134		
Pentachlorophenol	N.D.	33.	170	ug/kg	87		57-128		
Phenanthrene	N.D.	3.	17	ug/kg	95		85-116		
Phenol	N.D.	17.	33	ug/kg	95		76-124		
Pyrene	N.D.	3.	17	ug/kg	93		81-114		
2,4,5-Trichlorophenol	N.D.	17.	33	ug/kg	102		86-123		
2,4,6-Trichlorophenol	N.D.	17.	33	ug/kg	101		81-123		
Batch number: 141560028A	Sample number(s): 7489152-7489161								
Aldrin	N.D.	0.17	0.83	ug/kg	99		60-118		
Alpha BHC	N.D.	0.17	0.83	ug/kg	102		55-135		
Beta BHC	N.D.	0.30	1.0	ug/kg	99		67-129		
Gamma BHC - Lindane	N.D.	0.17	0.83	ug/kg	100		56-138		
Alpha Chlordane	N.D.	0.17	0.83	ug/kg	99		71-124		
Gamma Chlordane	N.D.	0.17	0.83	ug/kg	101		64-142		
p,p-DDD	N.D.	0.33	1.7	ug/kg	97		69-141		
p,p-DDE	N.D.	0.33	1.7	ug/kg	99		69-130		
p,p-DDT	N.D.	0.35	1.7	ug/kg	95		64-139		
Delta BHC	N.D.	0.45	0.83	ug/kg	105		59-137		
Dieldrin	N.D.	0.33	1.7	ug/kg	101		68-134		
Endosulfan I	N.D.	0.22	0.83	ug/kg	84		56-128		
Endosulfan II	N.D.	0.33	1.7	ug/kg	93		68-128		
Endosulfan Sulfate	N.D.	0.33	1.7	ug/kg	99		71-132		
Endrin	N.D.	0.33	1.7	ug/kg	89		70-132		
Endrin Aldehyde	N.D.	0.33	1.7	ug/kg	89		61-125		
Endrin Ketone	N.D.	0.60	1.8	ug/kg	97		69-126		
Heptachlor	N.D.	0.17	0.83	ug/kg	93		57-130		
Heptachlor Epoxide	N.D.	0.17	0.83	ug/kg	101		69-125		
Methoxychlor	N.D.	1.7	6.7	ug/kg	95		67-136		
Toxaphene	N.D.	14.	33	ug/kg					
Batch number: 141560029A	Sample number(s): 7489152-7489161								
PCB-1016	N.D.	3.6	17	ug/kg	82		82-116		
PCB-1221	N.D.	4.6	17	ug/kg					
PCB-1232	N.D.	8.0	17	ug/kg					
PCB-1242	N.D.	3.3	17	ug/kg					
PCB-1248	N.D.	3.3	17	ug/kg					
PCB-1254	N.D.	3.3	17	ug/kg					
PCB-1260	N.D.	4.9	17	ug/kg	89		84-125		
Batch number: 141565708001	Sample number(s): 7489152-7489161								
Aluminum	13.1 J	7.21	20.0	mg/kg	108		80-120		
Antimony	N.D.	0.740	2.00	mg/kg	105		80-120		
Arsenic	N.D.	0.700	2.00	mg/kg	110		80-120		
Barium	N.D.	0.0330	0.500	mg/kg	104		80-120		
Beryllium	N.D.	0.0670	0.500	mg/kg	103		80-120		
Cadmium	N.D.	0.0760	0.500	mg/kg	104		80-120		
Calcium	21.6	3.34	20.0	mg/kg	105		80-120		
Chromium	N.D.	0.160	1.50	mg/kg	102		80-120		
Cobalt	N.D.	0.0990	0.500	mg/kg	104		80-120		
Copper	N.D.	0.290	1.00	mg/kg	105		80-120		
Iron	N.D.	3.62	20.0	mg/kg	106		80-120		
Lead	N.D.	0.500	1.50	mg/kg	105		80-120		

*- Outside of specification
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Quality Control Summary

Client Name: Tetra Tech, Inc. Group Number: 1479781
Reported: 06/09/14 at 10:47 AM

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Magnesium	N.D.	1.67	10.0	mg/kg	102		80-120		
Manganese	N.D.	0.0830	0.500	mg/kg	104		80-120		
Nickel	N.D.	0.130	1.00	mg/kg	107		80-120		
Potassium	N.D.	8.34	50.0	mg/kg	103		80-120		
Selenium	N.D.	0.800	2.00	mg/kg	104		80-120		
Silver	N.D.	0.170	0.500	mg/kg	102		80-120		
Sodium	N.D.	16.7	100	mg/kg	102		80-120		
Thallium	N.D.	0.520	3.00	mg/kg	107		80-120		
Vanadium	N.D.	0.130	0.500	mg/kg	106		80-120		
Zinc	0.614 J	0.200	2.00	mg/kg	103		80-120		
Batch number: 141565711001	Sample number(s): 7489152-7489161								
Mercury	N.D.	0.0100	0.100	mg/kg	87		80-120		
Batch number: 14157820001B	Sample number(s): 7489152-7489161								
Moisture					100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: W141563AA	Sample number(s): 7489162-7489163 UNSPK: P487317								
Acetone	77	75	35-144	3	30				
Benzene	111	108	72-134	3	30				
Bromodichloromethane	98	96	73-125	2	30				
Bromoform	82	81	48-118	1	30				
Bromomethane	110	107	47-129	3	30				
2-Butanone	77	77	44-135	0	30				
Carbon Disulfide	103	100	53-149	2	30				
Carbon Tetrachloride	121	117	75-148	4	30				
Chlorobenzene	110	109	87-124	1	30				
Chloroethane	107	107	55-130	0	30				
Chloroform	110	106	81-134	4	30				
Chloromethane	104	98	61-125	6	30				
Cyclohexane	136	131	63-151	4	30				
1,2-Dibromo-3-chloropropane	82	82	50-123	0	30				
Dibromochloromethane	96	95	74-116	1	30				
1,2-Dibromoethane	102	100	77-116	1	30				
1,2-Dichlorobenzene	102	100	84-119	1	30				
1,3-Dichlorobenzene	100	102	86-121	2	30				
1,4-Dichlorobenzene	102	102	85-121	0	30				
Dichlorodifluoromethane	130	125	58-156	4	30				
1,1-Dichloroethane	107	104	84-129	2	30				
1,2-Dichloroethane	111	106	63-142	5	30				
1,1-Dichloroethene	121	113	79-137	6	30				
cis-1,2-Dichloroethene	112	108	80-141	3	30				
trans-1,2-Dichloroethene	118	114	86-131	3	30				
1,2-Dichloropropane	102	99	83-124	3	30				
cis-1,3-Dichloropropene	97	95	70-116	3	30				
trans-1,3-Dichloropropene	95	95	74-119	0	30				

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Quality Control Summary

Client Name: Tetra Tech, Inc. Group Number: 1479781
Reported: 06/09/14 at 10:47 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Ethylbenzene	106	107	71-134	0	30				
Freon 113	128	125	89-148	2	30				
2-Hexanone	79	78	38-131	1	30				
Isopropylbenzene	109	107	75-128	1	30				
Methyl Acetate	87	80	51-137	8	30				
Methyl Tertiary Butyl Ether	102	98	72-126	4	30				
4-Methyl-2-pentanone	81	79	45-128	3	30				
Methylcyclohexane	128	124	80-156	4	30				
Methylene Chloride	109	104	78-133	5	30				
Styrene	102	104	78-125	1	30				
1,1,2,2-Tetrachloroethane	90	92	72-128	2	30				
Tetrachloroethene	115	113	80-128	2	30				
Toluene	113	111	80-125	1	30				
1,2,4-Trichlorobenzene	97	95	56-137	2	30				
1,1,1-Trichloroethane	113	111	69-140	2	30				
1,1,2-Trichloroethane	100	101	71-141	2	30				
Trichloroethene	117	115	88-133	2	30				
Trichlorofluoromethane	138	133	63-163	4	30				
Vinyl Chloride	114	109	66-133	4	30				
Xylene (Total)	107	106	79-125	1	30				
Batch number: 14156SLC026	Sample number(s): 7489152-7489161 UNSPK: 7489152								
Acenaphthene	99	96	61-128	4	30				
Acenaphthylene	102	101	67-130	2	30				
Acetophenone	89	90	57-118	1	30				
Anthracene	99	98	41-142	2	30				
Atrazine	87	90	34-152	3	30				
Benzaldehyde	65	60	10-85	8	30				
Benzo(a)anthracene	98	96	32-150	3	30				
Benzo(a)pyrene	94	99	36-151	4	30				
Benzo(b)fluoranthene	109	111	29-150	1	30				
Benzo(g,h,i)perylene	103	111	41-147	7	30				
Benzo(k)fluoranthene	91	94	44-145	3	30				
1,1'-Biphenyl	101	100	64-120	1	30				
4-Bromophenyl-phenylether	114	114	66-122	1	30				
Butylbenzylphthalate	102	101	67-126	2	30				
Di-n-butylphthalate	94	95	70-124	0	30				
Caprolactam	84	83	34-131	2	30				
Carbazole	93	92	63-126	2	30				
4-Chloro-3-methylphenol	97	96	61-131	2	30				
4-Chloroaniline	49	36	11-114	31*	30				
bis(2-Chloroethoxy)methane	92	91	58-122	1	30				
bis(2-Chloroethyl)ether	95	95	66-122	1	30				
2-Chloronaphthalene	126	126	50-140	1	30				
2-Chlorophenol	95	99	71-130	3	30				
4-Chlorophenyl-phenylether	102	100	65-117	2	30				
2,2'-oxybis(1-Chloropropane)	89	91	47-120	1	30				
Chrysene	96	100	28-146	3	30				
Dibenz(a,h)anthracene	114	115	54-142	0	30				
Dibenzofuran	102	100	65-124	2	30				
3,3'-Dichlorobenzidine	83	70	10-143	17	30				
2,4-Dichlorophenol	105	107	54-135	1	30				

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Quality Control Summary

Client Name: Tetra Tech, Inc. Group Number: 1479781
Reported: 06/09/14 at 10:47 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Diethylphthalate	97	97	66-120	1	30				
2,4-Dimethylphenol	95	95	62-132	0	30				
Dimethylphthalate	101	99	69-119	2	30				
4,6-Dinitro-2-methylphenol	73	77	10-148	4	30				
2,4-Dinitrophenol	50	55	20-143	9	30				
2,4-Dinitrotoluene	99	97	39-144	2	30				
2,6-Dinitrotoluene	108	102	54-134	7	30				
bis(2-Ethylhexyl)phthalate	101	100	60-134	1	30				
Fluoranthene	86	84	30-151	3	30				
Fluorene	100	99	55-128	1	30				
Hexachlorobenzene	106	104	46-132	2	30				
Hexachlorobutadiene	107	108	65-125	0	30				
Hexachlorocyclopentadiene	15	15	10-153	0	30				
Hexachloroethane	88	92	24-138	4	30				
Indeno(1,2,3-cd)pyrene	104	109	44-147	4	30				
Isophorone	104	102	68-119	2	30				
2-Methylnaphthalene	99	98	39-140	1	30				
2-Methylphenol	96	97	62-133	0	30				
4-Methylphenol	86	88	59-132	2	30				
Naphthalene	99	100	44-142	0	30				
2-Nitroaniline	115	113	64-131	2	30				
3-Nitroaniline	88	88	31-145	0	30				
4-Nitroaniline	74	74	30-131	1	30				
Nitrobenzene	103	102	63-125	1	30				
2-Nitrophenol	104	103	45-146	1	30				
4-Nitrophenol	91	87	25-142	5	30				
N-Nitroso-di-n-propylamine	93	95	58-126	2	30				
N-Nitrosodiphenylamine	106	104	59-135	1	30				
Di-n-octylphthalate	97	101	48-155	4	30				
Pentachlorophenol	84	85	23-145	2	30				
Phenanthrene	97	96	34-147	2	30				
Phenol	93	94	61-130	1	30				
Pyrene	98	94	29-148	4	30				
2,4,5-Trichlorophenol	107	103	64-131	3	30				
2,4,6-Trichlorophenol	107	105	60-136	2	30				

Batch number: 141560028A Sample number(s): 7489152-7489161 UNSPK: 7489152

Aldrin	108	92	18-138	16	50
Alpha BHC	92	83	14-140	10	50
Beta BHC	105	97	42-133	7	50
Gamma BHC - Lindane	87	79	30-137	9	50
Alpha Chlordane	101	90	10-173	11	50
Gamma Chlordane	100	88	27-143	13	50
p,p-DDD	120	203*	43-149	31	50
p,p-DDE	138	155*	35-152	8	50
p,p-DDT	145	170	12-193	8	50
Delta BHC	88	118	13-153	29	50
Dieldrin	82	72	41-153	11	50
Endosulfan I	83	72	26-146	14	50
Endosulfan II	78	83	34-141	6	50
Endosulfan Sulfate	82	75	10-181	9	50
Endrin	85	78	30-152	9	50

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Quality Control Summary

Client Name: Tetra Tech, Inc. Group Number: 1479781
Reported: 06/09/14 at 10:47 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Endrin Aldehyde	78	68	23-138	14	35				
Endrin Ketone	78	84	30-148	7	50				
Heptachlor	98	84	16-152	15	50				
Heptachlor Epoxide	112	98	33-144	13	50				
Methoxychlor	81	72	41-161	12	50				
Batch number: 141560029A	Sample number(s): 7489152-7489161 UNSPK: 7489153								
PCB-1016	86	83	41-135	4	50				
PCB-1260	96	95	38-148	1	50				
Batch number: 141565708001	Sample number(s): 7489152-7489161 UNSPK: 7489152 BKG: 7489152								
Aluminum	993 (2)	2929 (2)	75-125	21*	20	14,700	13,000	12	20
Antimony	54*	44*	75-125	19	20	N.D.	N.D.	0 (1)	20
Arsenic	97	102	75-125	6	20	3.23	2.79	15 (1)	20
Barium	98	100	75-125	3	20	75.1	65.0	14	20
Beryllium	101	101	83-119	2	20	0.630	0.546	14 (1)	20
Cadmium	99	95	75-120	2	20	N.D.	N.D.	0 (1)	20
Calcium	411 (2)	185 (2)	75-125	24*	20	2,480	2,750	10	20
Chromium	60*	86	75-125	14	20	24.9	19.2	26*	20
Cobalt	97	98	78-113	2	20	9.46	8.72	8	20
Copper	112	97	75-125	8	20	14.5	14.0	4	20
Iron	-7045 (2)	-1634 (2)	75-125	24*	20	26,100	20,800	22*	20
Lead	76	110	75-125	18	20	15.2	12.1	22*	20
Magnesium	605 (2)	608 (2)	75-125	1	20	3,200	3,410	6	20
Manganese	8 (2)	115 (2)	75-125	16	20	315	295	7	20
Nickel	92	94	75-125	3	20	13.0	10.4	23*	20
Potassium	167*	196*	75-125	9	20	2,000	2,160	8	20
Selenium	92	88	75-125	3	20	N.D.	N.D.	0 (1)	20
Silver	104	100	75-125	2	20	N.D.	N.D.	0 (1)	20
Sodium	96	114	75-125	12	20	638	798	22*	20
Thallium	95	92	78-119	1	20	0.705 J	0.625 J	12 (1)	20
Vanadium	97	112	75-125	9	20	42.5	39.3	8	20
Zinc	74*	89	75-125	9	20	51.9	39.8	26*	20
Batch number: 141565711001	Sample number(s): 7489152-7489161 UNSPK: 7489156 BKG: 7489156								
Mercury	96	92	80-120	7	20	0.0292 J	0.0208 J	34* (1)	20
Batch number: 14157820001B	Sample number(s): 7489152-7489161 BKG: P488436								
Moisture						18.4	18.6	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: R141571AA

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Quality Control Summary

Client Name: Tetra Tech, Inc. Group Number: 1479781
Reported: 06/09/14 at 10:47 AM

Surrogate Quality Control

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7489152	89	90	91	81
7489153	83	82	82	75
7489154	85	85	82	75
7489155	94	93	92	82
7489156	82	83	81	74
7489157	84	84	84	76
7489158	91	91	90	82
7489159	80	82	81	72
7489160	78	75	78	69
7489161	90	90	88	78
Blank	92	94	92	84
LCS	96	98	100	92
LCSD	92	91	91	87
Limits:	50-141	54-135	52-141	50-131

Analysis Name: 8260 VOCs
Batch number: W141563AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7489162	99	103	98	98
7489163	100	102	99	99
Blank	100	99	99	98
LCS	100	102	101	99
MS	102	99	99	101
MSD	98	99	100	101
Limits:	80-116	77-113	80-113	78-113

Analysis Name: TCL 8270 (microwave)
Batch number: 14156SLC026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7489152	97	99	104	99	107	109
7489153	102	104	104	95	99	107
7489154	97	98	98	96	97	106
7489155	95	96	96	93	99	108
7489156	98	100	85	96	104	110
7489157	98	100	98	93	99	105
7489158	94	95	100	97	102	106
7489159	81	83	62	82	90	92
7489160	95	97	46	98	104	112
7489161	94	97	98	97	101	103
Blank	87	90	118	93	94	108
LCS	101	101	118	102	102	109
MS	92	96	102	102	107	111
MSD	94	98	101	102	106	111
Limits:	52-129	51-139	36-142	60-120	69-120	66-137

Analysis Name: Pesticides in Soil (microwave)
Batch number: 141560028A

	Tetrachloro-m-xylene	Decachlorobiphenyl

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Tetra Tech, Inc. Group Number: 1479781
Reported: 06/09/14 at 10:47 AM

Surrogate Quality Control

7489152	96	89
7489153	95	83
7489154	89	83
7489155	81	90
7489156	109	90
7489157	92	87
7489158	78	93
7489159	83	87
7489160	73	92
7489161	83	78
Blank	92	100
LCS	104	112
MS	99	87
MSD	81	51*
Limits:	43-127	54-143

Analysis Name: PCBs in Soil (microwave)
Batch number: 141560029A

	Tetrachloro-m-xylene	Decachlorobiphenyl
7489152	91	89
7489153	103	106
7489154	96	103
7489155	97	100
7489156	91	100
7489157	96	101
7489158	90	99
7489159	87	98
7489160	84	101
7489161	87	101
Blank	107	100
LCS	95	96
MS	92	93
MSD	94	92
Limits:	41-146	48-151

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Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # 2600 — For Eurofins Lancaster Laboratories Environmental use only: Group # 1479781 Sample # 7489152-63
Instructions on reverse side correspond with circled numbers.

COC # 354199

1 Client Information

Client: Tetra Tech
Acct. #:
Project Name/#: Del DOT Bridge 1-831/1035297213
PWSID #:
Project Manager: Chris Geiger
P.O. #:
Sampler: Jake Costello
Quote #:
Name of state where samples were collected: Delaware

For Lab Use Only
FSC:
SCR#: 154866

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

6 Remarks

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	4 Matrix: Soil ☒	Sediment ☐	Water: Potable ☐	Ground ☐	NPDES ☐	Surface ☐	Other:	Total # of Containers	5 Analysis Requested (Preservation Codes: –, –, –, –, –, O) 8270 SVOCs	Moisture	PCBs in Soil	Pesticides in Soil	TAL Metals	8260 VOCs					Remarks
SS-01	6/5/14	11:40	X		X							2	X	X	X	X	X	X					
SS-02		11:50	X		X							2	X	X	X	X	X	X					
SS-03		11:55	X		X							2	X	X	X	X	X	X					
SS-04		12:00	X		X							2	X	X	X	X	X	X					
SS-05		12:05	X		X							2	X	X	X	X	X	X					
SS-06		12:10	X		X							2	X	X	X	X	X	X					
SS-07		12:15	X		X							2	X	X	X	X	X	X					
SS-08		12:20	X		X							2	X	X	X	X	X	X					
SS-09		12:25	X		X							2	X	X	X	X	X	X					
SS-10		12:35	X		X							2	X	X	X	X	X	X					

7 Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ~~6/9/14~~ 6/6/14

E-mail address: Chris.Geiger@tetratech.com

8 Data Package Options (circle if required)
Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	6-4-14	1410	[signature]	6/5/14	10:30
[signature]	6/5/14	1615	[signature]	6/5/14	1615
[signature]	6/5/14	1810			
			[signature]	6/5/14	1810

EDD Required? Yes No
If yes, format: EPA Region 2

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt 9.5 °C

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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