January 25, 2016

Ms. Diane McDaniel
Department of Environmental Protection
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, PA 1522

Mr. Griff Miller
USEPA Region 3
RCRA Corrective Action (3LC30)
1650 Arch St
Philadelphia, PA 19103

Re: Raccoon Creek Groundwater Sampling Report
Former Lyondell Beaver Valley Site
Lyondell Environmental Custodial Trust
Potter Township, Pennsylvania

Dear Ms. McDaniel and Mr. Miller:

On behalf of the Lyondell Custodial Trust (Trust), Tetra Tech, Inc. (Tetra Tech) has prepared this letter to summarize the results of the 2015 Raccoon Creek Area groundwater sampling event at the Former Lyondell Beaver Valley Site (Site) in Potter Township, Pennsylvania. The sampling event was conducted at the request of the Pennsylvania Department of Environmental Protection (PADEP) and the United States Environmental Protection Agency (USEPA). This work was conducted in accordance with the PADEP and USEPA approved 2015 Sampling Work Plan submitted August 3, 2015.

GROUNDWATER SAMPLING SUMMARY AND RESULTS

Tetra Tech mobilized to the Site on November 9, 2015, to conduct the groundwater sampling event. At the beginning of the sampling event each well was inspected for damage. Upon inspection, MW-501D and MW-502 were determined to be damaged, preventing the sampling of those wells. Figure 1 shows the locations of all the existing wells in the Raccoon Creek Area.

After inspection, groundwater levels were measured with an interface probe and each well was checked for the presence of light non-aqueous phase liquid (LNAPL). Water levels were recorded to the nearest 0.01 foot. The depth to groundwater ranged from 7.42 feet below the top of casing (btc) in MW-163S to 48.10 feet btc in MW-501D. LNAPL was present in MW-161 at a thickness of 0.01 feet. Table 1 summarizes the condition of each well and presents the gauging data.

From November 9 through 11, 2015, groundwater samples were collected from MW-120, MW-159, MW-160, MW-162, and MW-163S with the use of a bladder pump utilizing low-flow techniques. The sample was collected using a peristaltic pump from MW-501S due to the bent casing prohibiting the use of a bladder pump. Field parameters were measured and recorded during purging and at the time of sample collection. Groundwater field parameters (pH, specific conductance, temperature, turbidity, and dissolved oxygen) were measured using a Horiba Model #U-52. A well was considered stabilized and ready to sample once three consecutive readings were within the following criteria:

Field Parameter	Stabilization Criteria
pH	+/- 0.1 standard pH unit
Temperature	+/- 3%
Specific Conductance	+/- 3%
Dissolved Oxygen	+/- 10%
Turbidity	+/- 10%
Oxidation-Reduction Potential	+/- 10 mV

The final field parameter readings are summarized in Table 2. Field data sheets from the groundwater samples collected are presented in Attachment 1.

The samples were analyzed for:

- Volatile organic compounds (VOCs) using EPA Method 8260
- Semi-volatile organic compounds (SVOCs) using EPA Method 8270
- Target Analyte List (TAL) total and dissolved metals plus manganese using EPA Method 6010 (7470 for mercury)

The samples were sent to TestAmerica Laboratories, Inc. in Pittsburgh, PA for analysis.

A summary of the analytical results is described below. The analytical results are tabulated in Table 3 for chemical compounds detected in at least one well, and Figure 2 depicts the chemicals of concern above Medium Specific Concentrations (MSCs). The laboratory analytical reports are presented in Attachment 2. Attachment 3 contains a table that summarizes all chemical analyses conducted at the Site.

Four VOCs (benzene, ethylbenzene, toluene, and total xylenes) were detected above laboratory detection limits; however, only two (benzene and toluene) were over the Pennsylvania Act 2 - Residential groundwater MSCs for used aquifers with <2,500 mg/l TDS. Benzene exceeded the MSC criteria in all wells sampled, ranging in concentration from 770 µg/L in MW-160 to 95,000 µg/L in MW-501S. Toluene was only detected in one well above its MSC in MW-501S with a concentration of 1,300 µg/L. In general, VOC groundwater concentrations detected in this sampling event are consistent with historical concentrations and field observations.

Twelve SVOCs (1,1-biphenyl, 2,4-dimethylphenol, 2-methylnaphthalene, 3&4-methylphenol, acetophenone, benzaldehyde, bis(2-ethylhexyl)phthalate, diethyl phthalate, fluorene, naphthalene, phenanthrene, and phenol) were detected above laboratory detection limits; however, only bis(2-ethylhexyl)phthalate was detected over its MSC, in MW-160 at 13 µg/L, and in MW-501S at 6.1 µg/L.

Twenty-one dissolved metals (aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc) were detected at concentrations above the laboratory detection limits; however, only ten metals (arsenic, beryllium, chromium, cobalt, lead, manganese, nickel, thallium, vanadium, and zinc) were detected over MSCs.

Purge water was containerized in 55-gallon drums and was disposed of at an appropriate facility.

CONCLUSION

Tetra Tech is pleased to have the opportunity to continue to serve the Trust, PADEP, and USEPA on this project. Please contact me at 412-921-8398 or Keith.Henn@tetratech.com if you have any questions.

Sincerely,

Keith Henn, PG
Senior Project Manager

Attachments:
Tables 1 through 3
Figures 1 and 2
Attachments 1 through 3

cc: Lyondell Environmental Custodial Trust (w/attachments)
Oscar Vazquez-Martinez, PADEP (w/attachments)
Michael Kovacich, Tetra Tech, Inc. (w/attachments)
Jonathan Aglio, Tetra Tech, Inc. (w/attachments)
Derek Amidon, Tetra Tech, Inc. (w/attachments)

TABLES

Table 1
Groundwater Elevations
November 2015 Sampling Event
Former Lyondell Beaver Valley Site
Potter Township, Pennsylvania

Location	*Depth to LNAPL (1)(2) (ft)*	*Depth to Water (2) (ft)*	*Condition of Well*
	11/9/2015		
MW-120	NM	25.80	Well was in good shape. Sample was able to be collected.
MW-159	NM	24.45	Well was in good shape. Sample was able to be collected.
MW-160	NM	17.29	Well was in good shape. Sample was able to be collected.
MW-161	19.25	19.26	Well was in good shape. No sample collected due to presence of LNAPL.
MW-162	NM	22.44	Well was in good shape. Sample was able to be collected.
MW-163S	NM	7.42	Well was in good shape. Sample was able to be collected.
MW-501S	NM	17.78	Well was in poor shape, casing was bent. Sample was able to be collected.
MW-501D	NM	48.10	Well was in poor shape, casing was bent. Sample was not able to be collected.
MW-502	NM	18.23	Well was in poor shape, casing was broken. Depth to bottom was 18.95'. Sample was not able to be collected.

Notes:
1 - Light Non-Aqueous Phase Liquid
2- Measured Depth Below Top of Casing
NM = No Measurable LNAPL

Table 2
Groundwater Chemistry Field Measurements
November 2015 Sampling Event
Former Lyondell Beaver Valley Site
Potter Township, Pennsylvania

Well ID	Date	Temperature (^oC) (1)	pH (SU) (2)	Specific Conductivity (mS/cm) (3)	Turbidity (NTUs) (4)	ORP (mvolts) (5)	DO (mg/L) (6)
MW-120	11/09/15	12.19	6.17	2.550	1	-35.0	0.51
MW-159	11/10/15	11.94	6.04	2.020	19	-23.0	1.19
MW-160	11/11/15	12.45	6.70	1.260	13.3	-61.0	3.36
MW-162	11/09/15	12.62	6.41	1.94	6	-109.0	0.00
MW-163S	11/10/15	13.45	5.54	1.930	10	33.0	0.00
MW-501S	11/11/15	12.65	2.82	8.590	1	247.0	0.00

Notes:
Field parameters measured at the conclusion of purging with a Horiba water quality instrument.
(1) ^oC = degrees celcius
(2) SU = Standard Unit
(3) mS/cm = millisiemens/centimeter
(4) NTUs = Nephelometric Turbidity Units
(5) mvolts = millivolts
(6) mg/l = milligrams/liter

Table 3
Groundwater Analytical Results
November 2015 Sampling Event
Former Lyondell Beaver Valley Site
Potter Township, Pennsylvania

LOCATION:	PADEP Residential Used Aquifer MSC (1)	MW120	MW120	MW120	MW159	MW160	MW162	MW163S	MW501S
SAMPLE ID:		MW120	MW120-AVG	MW120-D	MW159	MW160	MW162	MW163S	MW501S
SAMPLE DATE:		20151109	20151109	20151109	20151110	20151111	20151109	20151110	20151111
SAMPLE CODE:		ORIG	AVG	DUP	ORIG	ORIG	ORIG	ORIG	ORIG
MATRIX:		GW	GW	GW	GW	GW	GW	GW	GW
DISSOLVED METALS (UG/L)									
ALUMINUM	NC	37 J	38.5	40 J	200 U	200 U	200 U	6200	940000
ARSENIC	10	50 U	30 U	10 U	10 U	4.7 J	10 U	10 U	**50**
BARIUM	2000	60 J	60.5	61 J	42 J	62 JB	110 J	22 J	6.6 JB
BERYLLIUM	4	4 U	0.24 J	0.24 J	4 U	4 U	0.16 JB	1.7 J	**43 B**
CADMIUM	5	5 U	5 U	5 U	0.29 J	5 U	5 U	5 U	25 U
CALCIUM	NC	370000 B	375000	380000 B	220000 B	130000	290000	120000 B	390000
CHROMIUM	100	30	34	38	30	5 U	1.6 J	40	**380**
COBALT	11	**130**	**130**	**130**	**27 J**	0.98 J	1.6 J	**74**	**500**
COPPER	1000	4.2 J	4.45	4.7 J	3.4 J	1.4 JB	3.2 JB	25 U	220 B
IRON	NC	91000	91000	91000	39000	30000 B	87000	210000	1300000 B
LEAD	5	4.1 J	4.05	4 J	3.8 J	10 U	10 U	2.1 J	**30 J**
MAGNESIUM	NC	80000	80500	81000	43000	26000	77000	26000	200000
MANGANESE	300	**98000 B**	**97500**	**97000 B**	**78000 B**	**4800 B**	**14000 B**	**25000 B**	**21000 B**
NICKEL	100	80	80	80	55	14 J	2.2 J	**130**	**1300**
POTASSIUM	NC	2100 JB	2150	2200 JB	2200 JB	3400 J	4800 JB	2100 JB	130000
SELENIUM	50	50 U	13 J	13 J	12 J	4.5 J	10 U	5.3 J	50 U
SILVER	100	25 U	25 U	25 U	3.6 J	5 U	5 U	5 U	25 U
SODIUM	NC	83000 B	83500	84000 B	110000 B	110000	41000 B	78000 B	53000
THALLIUM	2	**26 J**	**28**	**30 J**	**21 J**	20 U	20 U	**7.5 J**	100 U
VANADIUM	260	9.5 J	10.25	11 J	5.1 J	50 U	50 U	5.5 J	**830**
ZINC	2000	22 B	22	22 B	8.1 JB	20 U	3.5 J	19 JB	**3500 B**
TOTAL METALS (UG/L)									
ALUMINUM	NC	47 J	47 J	200 U	60 J	81 J	130 J	7600	960000
ARSENIC	NC	50 U	50 U	50 U	10 U	5.2 J	10 U	10 U	32 J
BARIUM	NC	61 J	60	59 J	43 J	66 JB	99 J	24 J	6.3 JB
BERYLLIUM	NC	4 U	4 U	4 U	0.18 J	4 U	4 U	1.8 J	44 B
CALCIUM	NC	370000 B	365000	360000 B	230000 B	130000	270000 B	120000 B	400000
CHROMIUM	NC	29	29	29	31	5 U	5.2	44	390
COBALT	NC	130	130	130	28 J	0.99 J	0.91 J	69	510
COPPER	NC	3.6 J	3.85	4.1 J	3.7 J	1.2 JB	1.9 J	25 U	230 B
IRON	NC	91000	90500	90000	43000	35000 B	79000	200000	1300000 B
LEAD	NC	3.8 J	3.4	3 J	5.4 J	10 U	10 U	3.3 J	21 J
MAGNESIUM	NC	81000	79500	78000	45000	26000	71000	26000	200000
MANGANESE	NC	96000 B	97500	99000 B	77000 B	4900 B	12000 B	19000 B	21000 B
NICKEL	NC	78	79.5	81	57	14 J	1.8 J	120	1400
POTASSIUM	NC	2200 JB	2150	2100 JB	2300 JB	3500 J	4500 JB	2100 JB	130000
SELENIUM	NC	18 J	18 J	50 U	50 U	5.6 J	5.1 J	4 J	23 J
SILVER	NC	25 U	3.8 J	3.8 J	25 U	5 U	5 U	5 U	25 U
SODIUM	NC	84000 B	83000	82000 B	120000 B	110000	40000 B	79000 B	54000
THALLIUM	NC	27 J	28.5	30 J	17 J	20 U	2.6 J	3.9 J	100 U
VANADIUM	NC	7.6 J	9.3	11 J	7.3 J	50 U	50 U	6.8 J	860
ZINC	NC	23 B	22.5	22 B	14 JB	20 U	4.3 JB	13 JB	3600 B
SEMIVOLATILES (UG/L)									
1,1-BIPHENYL	1800	8.1 U	8.2 U	8.3 U	13	2 J	7.6 U	8.9 U	1.3 J
2,4-DIMETHYLPHENOL	730	3.3 J	3.45	3.6 J	2.4 J	4.5 J	2.9 J	8.9 U	5.2 J
2-METHYLNAPHTHALENE	150	1.6 U	1.65 U	1.7 U	1.2 J	1.7 U	1.5 U	1.8 U	1.8 U
3&4-METHYLPHENOL	NC	3.1 J	3.2	3.3 J	2.7 J	2.6 J	7.6 U	8.9 U	8.9 U
ACETOPHENONE	3700	16	16	16 J	14 J	19	9.5 J	1.8 J	610
BENZALDEHYDE	NC	16 U	16.5 U	17 U	3.2 J	17 U	15 U	18 U	18 U
BIS(2-ETHYLHEXYL)PHTHALATE	6	16 U	16.5 U	17 U	16 U	**13 J**	15 U	18 U	**6.1 J**
DIETHYL PHTHALATE	29000	3.2 J	3.2 J	8.3 U	7.6 J	3 J	4.5 J	8.9 U	4 J
FLUORENE	1500	1.6 U	1.65 U	1.7 U	3.1	0.66 J	1.5 U	1.8 U	1.8 U
NAPHTHALENE	100	0.98 J	0.925	0.87 J	26	1.7 U	3.7	2.4	20
PHENANTHRENE	1100	1.6 U	1.65 U	1.7 U	5.1	1.7 U	1.5 U	1.8 U	1.8 U
PHENOL	2000	22	21	20	13	3.6 J	150 F1	8.9 U	100
VOLATILES (UG/L)									
BENZENE	5	**4100**	**4000**	**3900**	**25000**	**770**	**16000**	**3000**	**95000**
ETHYLBENZENE	700	500 U	500 U	500 U	500 U	100 U	100 J	500 U	420 J
TOLUENE	1000	500 U	500 U	500 U	500 U	100 U	170 J	500 U	**1300**
TOTAL XYLENES	10000	1000 U	1000 U	1000 U	1000 U	200 U	1000 U	1000 U	590 J

(1) Pennsylvania Department of Environmental Protection's Statewide Health Standard, Residential, Used Aquifer, TDS ≤ 2500 Medium -Specific Concentration (MSC)
4100 =Exceeds MSC
ug/L = micrograms per liter
U = Below Reporting Limit
B = Detected in Method Blank
J = Estimated Result
GW = Groundwater
ORIG = Original or Parent Sample
AVG = Average of Original and Duplicate Sample
DUP = Duplicate Sample
NC = No Criteria

FIGURES

PGH P:\GIS\LYONDELL\MAPDOCS\LYONDELL_RACCOON_CREEK_MW.MXD 12/08/15 JEE

TETRA TECH

LYONDELL ENVIRONMENTAL
CUSTODIAL TRUST PROPERTY
RACCOON CREEK AREA WELL LOCATION
BEAVER VALLEY, PENNSYLVANIA

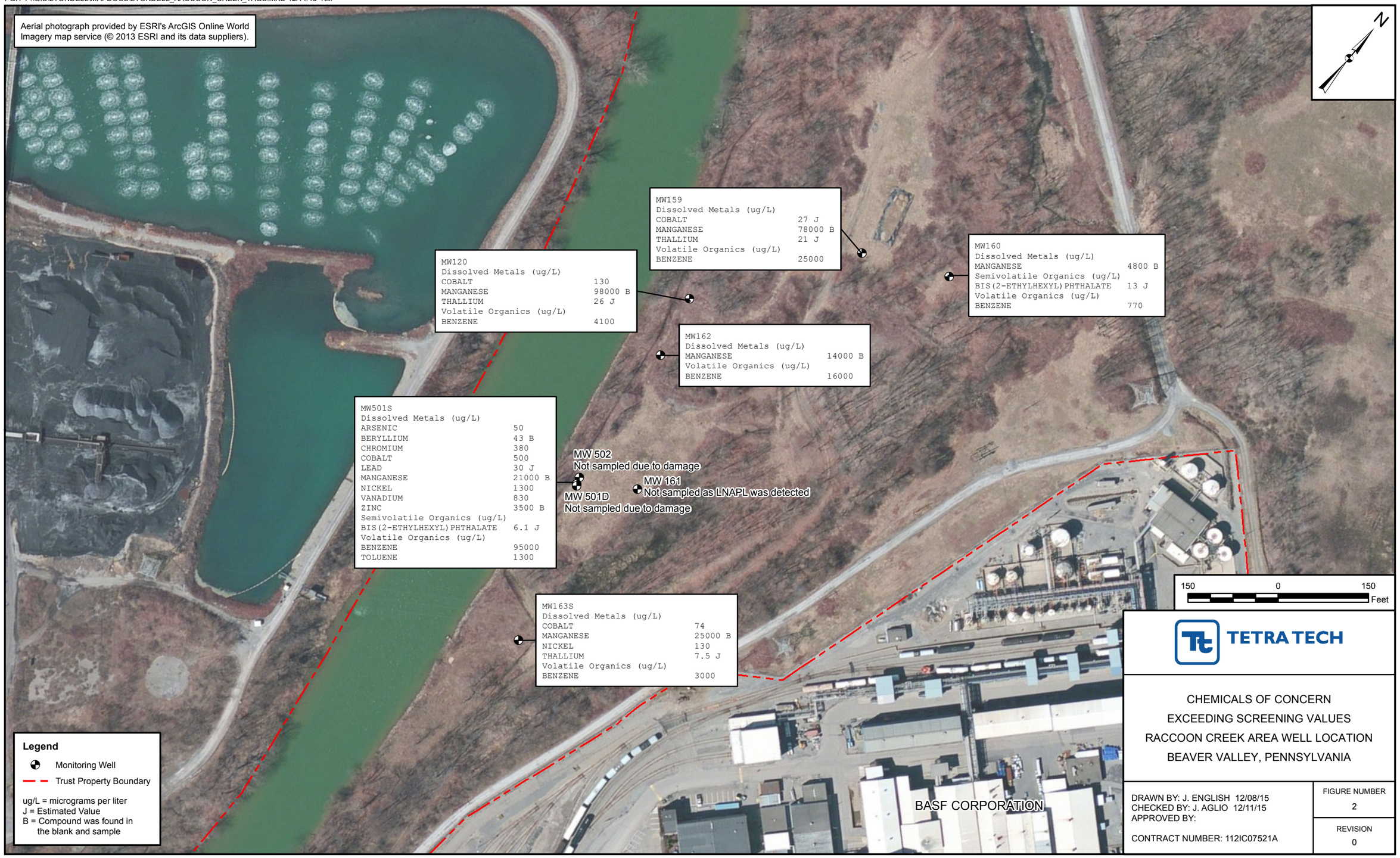
DRAWN BY: K. MOORE 07/13/15
CHECKED BY: J. AGLIO 12/08/15
APPROVED BY:

CONTRACT NUMBER: 112IC07521A

FIGURE NUMBER
1

REVISION
0

PGH P:\GIS\LYONDELL\MAPDOCS\LYONDELL_RACCOON_CREEK_TAGS.MXD 12/11/15 KM



TETRA TECH

CHEMICALS OF CONCERN
EXCEEDING SCREENING VALUES
RACCOON CREEK AREA WELL LOCATION
BEAVER VALLEY, PENNSYLVANIA

DRAWN BY: J. ENGLISH 12/08/15
CHECKED BY: J. AGLIO 12/11/15
APPROVED BY:

CONTRACT NUMBER: 112IC07521A

FIGURE NUMBER
2

REVISION
0

ATTACHMENT 1
GROUNDWATER FIELD DATA SHEETS

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Lyondell Beaver Valley Site
Project No.: 112IC07521A

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MW-120
Sample Location: MW120
Sampled By: Gerdt
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	~~Other~~ ORP
Date: 11-9-15								
Time: 1435								
Method: Bladder	Clear	6.17	2.55	12.19	1.01	0.51	—	-35

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 11-9-15								
Method: Bladder		See associated						
Monitor Reading (ppm): —		purge data sheet						
Well Casing Diameter & Material								
Type: 4" PVC steel								
Total Well Depth (TD): 46.63								
Static Water Level (WL): 25.78								
One Casing Volume(gal/L):								
Start Purge (hrs): 1218								
End Purge (hrs): 1430								
Total Purge Time (min): 132								
Total Vol. Purged (~~gal~~/L): ~44								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Metals - Total	HNO_3	(1) 250 ml - Plastic	✓
Metals - Dissolved	HNO_3	(1) 250 ml - Plastic	✓
SVOCs	None	(2) 250 ml - Amber	✓
VOAs	HCl	(3) 40 ml - vials	✓

OBSERVATIONS / NOTES:

Duplicate collected.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	DUP-01

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Former Lyondell Beaver Valley Site
PROJECT NUMBER: 112IC07521A
WELL ID.: MW-120
DATE: 11-9-15

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1218	25.78	300		Start Purge					—	—
1223	26.12	500	7.23	1.35	—	0.85	12.05	-130	—	—
1228	27.45	400	7.26	1.37	15.1	0.79	11.94	-134	—	Sl. Yellow
1232	27.75	400	7.23	1.36	10.6	0.75	11.79	-138	—	Clear
1237	28.12	350	7.23	1.36	2.37	0.69	11.76	-143	—	Clear
1242	28.52	"	7.22	1.36	2.27	0.67	11.80	-145	—	"
~~1247~~										No readings
~~1252~~										No readings
1257	28.97	"	7.25	1.38	2.36	0.61	11.77	-147	—	Clear
1302	29.12	"	7.25	1.48	—	0.61	11.88	-142	—	Clear
1312	29.10	325	7.17	1.59	1.39	0.59	11.84	-128	—	Clear
1320	29.09	"	6.70	1.93	1.47	1.01	12.26	-81	—	"
1337	29.01	"	6.47	2.20	1.22	0.62	12.10	-61	—	"
1350	29.01	"	6.35	2.31	—	0.54	12.19	-52	—	—
1357	29.01	"	6.29	2.39	1.22	0.72	12.21	-45	—	Clear
1410	28.95	"	6.21	2.48	1.08	0.52	12.24	-41	—	"
1425	29.00	"	6.19	2.51	1.03	0.50	12.25	-37	—	"
1430	29.01	"	6.17	2.55	1.01	0.51	12.19	-35	—	Clear
1435		Begin Sample								

SIGNATURE(S):

159

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Lyondell Beaver Valley Site
Project No.: 112IC07521A

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MW-159
Sample Location: MW 159
Sampled By: Goeyat
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 11-10-15								
Time: 1110								
Method: Bladder	Clear	6.04	2.02	11.94	18.5	1.19	-	-23

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 11-10-15								
Method: Bladder		See associated						
Monitor Reading (ppm): -		purge data sheet						
Well Casing Diameter & Material								
Type: 4" PVC Steel								
Total Well Depth (TD): 54.27								
Static Water Level (WL): 25.42								
One Casing Volume(gal/L):								
Start Purge (hrs): 0910								
End Purge (hrs): 1105								
Total Purge Time (min): 115								
Total Vol. Purged (~~gal~~/L): 37								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Metals - Total	HNO3	(1) 250 ml - Plastic	✓
Metals - Dissolved	HNO3	(1) 250 ml - Plastic	✓
SVOCs	None	(2) 250 ml - Amber	✓
VOAs	HCl	(3) 40 ml - vial	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Former Lyondell Beaver Valley Site
PROJECT NUMBER: 112IC07521A

WELL ID.: MW-159
DATE: 11-10-15

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0910	25.42	325		Start Purge						—
0920	"	"	6.61	1.17	—	1.61	11.93	-72	—	—
0930	"	"	6.59	1.26	44.6	2.66	11.89	-76	—	Sl. yellow
0935	"	"	6.58	1.33	40.0	2.44	11.91	-75	—	"
0945	"	"	6.52	1.40	—	2.26	11.92	-70	—	—
0955	"	"	6.27	1.66	27.9	2.14	11.92	-50	—	clear
1005	"	"	6.16	1.82	—	2.01	11.95	-37	—	—
1015	"	"	6.12	1.86	27.3	1.77	12.03	-32	—	clear
1025	"	"	6.13	1.88	—	1.59	12.01	-34	—	—
1035	"	"	6.13	1.91	20.3	1.98	11.94	-30	—	clear
1045	"	"	6.11	1.93	—	1.56	11.94	-29	—	"
1055	"	"	6.08	1.97	20.3	1.25	11.90	-25	—	
1105	"	"	6.04	2.02	18.5	1.19	11.94	-23	—	clear
1110				End Purge/Begin Sample						

SIGNATURE(S): [illegible]

PAGE 1 OF 1

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Lyondell Beaver Valley Site
Project No.: 112IC07521A

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MW160
Sample Location: MW-160
Sampled By: GOEVAT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	~~Other~~ ORP
Date: 11-11-15								
Time: 1100								
Method: Bladder	Clear	6.70	1.26	12.45	13.3	3.36	—	-61

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 11-11-15								
Method: Bladder	See	Purge	Data	Sheet				
Monitor Reading (ppm): -								
Well Casing Diameter & Material								
Type: 4" steel								
Total Well Depth (TD): 47.78								
Static Water Level (WL): 27.02								
One Casing Volume(gal/L):								
Start Purge (hrs): 0855								
End Purge (hrs): 1055								
Total Purge Time (min): 120								
Total Vol. Purged (~~gal~~/L): 42								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Metals - Total	HNO_3	(1) 250 ml - plastic	✓
Metals - Dissolved	HNO_3	(1) 250 ml - plastic	✓
SVOCs	None	(2) 250 ml - amber	✓
VOAs	HCl	(3) 40 ml - vial	✓

OBSERVATIONS / NOTES:

Very slight yellow ~~to~~ shade of yellow.
Slight odor -

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Former Lyondell Beaver Valley Site
PROJECT NUMBER: 112IC07521A

WELL ID.: MW-160
DATE: 11-11-15

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0855	17.20	350		Start	Purge					
0905	"	"	6.64	1.47	8.40	1.51	11.88	-82	-	Clear
0920	"	"	6.65	1.35	8.02	2.29	11.98	-78	-	"
0930	"	"	6.66	1.32	8.32	2.97	12.01	-75	-	"
0940	"	"	6.69	1.31	8.91	3.39	12.05	-71	-	"
0950	"	"			-					"
1000	"	"	6.73	1.28	11.3	3.19	12.12	-67	-	"
	"	"	6.72	1.28	-	3.21	12.22	-66	-	"
1020	"	"	6.72	1.26	15.2	3.29	12.30	-62	-	"
1035	"	"	6.71	1.26	13.9	3.51	12.32	-62	-	"
1045	"	"	6.73	1.26	14.1	3.46	12.40	-61	-	"
1055	"	"	6.70	1.26	13.3	3.36	12.45	-61	-	"
1100		Start	Sampling							

SIGNATURE(S):

PAGE 1 OF 1

Tetra Tech, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Lyondell Beaver Valley Site
Project No.: 112IC07521A

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MW-162
Sample Location: MW 162
Sampled By: FWR
C.O.C. No.: 0508
Type of Sample:
[] Low Concentration
[X] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Date: 11-9-15	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	ppt
Time: 1430								
Method: LOW FLOW	YELLOW	6.41	1.94	12.62	6	0.00	-109	—

PURGE DATA:

Date: 11-9-15	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: BLADDER PUMP								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 41.85								
Static Water Level (WL): 22.38'								
One Casing Volume(gal/L): 47.0L								
Start Purge (hrs): 12:13								
End Purge (hrs): 1430								
Total Purge Time (min): 137								
Total Vol. Purged (gal/L): ~45L								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3 X 40 ml vial	✓
SVOCS	none	2 x 1 amb jars 250 ml	✓
Total Metals plus Mn	HNO3	HDPE bottle 250 ml	✓
Dissolved Metals plus Mn (field filtered)	HNO3	HDPE bottle 250 ml	✓

OBSERVATIONS / NOTES:

41.85
- 22.38
19.47

37.1 L
9.9
47.0 L

Circle if Applicable:

MS/MSD YES

Duplicate ID No.: —

Signature(s): [signature]

Tetra Tech, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: FORMER LYONDELL BEAVER VALLEY SITE **WELL ID.:** MW 162
PROJECT NUMBER: 112IC07521A **DATE:** 11-9-15

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1222	22.43	275	6.34	1.85	30	0.53	12.30	-117	
1227	22.40	325	6.43	1.88	21	0.04	12.36	-120	
1240	22.40	325	6.48	1.91	15	0.00	12.31	-119	
1248	22.40	325	6.49	1.92	11	0.00	12.42	-118	
1300	22.40	380	6.50	1.93	6	0.00	12.36	-118	
1308	22.40	380	6.50	1.93	16	0.00	12.36	-117	
1313	22.40	380	6.49	1.93	16	0.00	12.39	-116	
1322	22.40	380	6.49	1.94	14	0.00	12.44	-115	
1328	22.40	380	6.49	1.94	14	0.00	12.61	-115	
1335	22.40	380	6.49	1.94	14	0.00	12.58	-115	
1347	22.40	380	6.49	1.94	8	0.00	12.58	-114	
1356	22.40	380	6.45	1.94	7	0.00	12.58	-111	
1404	22.40	380	6.43	1.95	6	0.00	12.69	-111	
1411	22.40	380	6.41	1.94	7	0.00	12.66	-109	
1421	22.40	380	6.41	1.94	6	0.00	12.64	-109	
1430	22.40	380	6.41	1.94	6	0.00	12.64	-109	COMPLETED PURGE

SIGNATURE(S): Gerald W Ramser

Tetra Tech, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Lyondell Beaver Valley Site
Project No.: 112IC07521A

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MW-163
Sample Location: MW-163
Sampled By: FWR
C.O.C. No.: 0508
Type of Sample:
[] Low Concentration
[X] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Date: 11-10-15	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	ppt
Time: 1115								
Method: LOW FLOW	CLEAR/YEL	5.54	1.93	13.45	10	0.00	33	—

PURGE DATA:

Date: 11-10-15	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: BLADDER PUMP								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 33.58								
Static Water Level (WL): 7.43								
One Casing Volume(gal/L): 6.5 l								
Start Purge (hrs): 0910								
End Purge (hrs): 1115								
Total Purge Time (min): 125								
Total Vol. Purged (gal/L): ~45 l								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3 X 40 ml vial	✓
SVOCS	none	2 x 1 amb jars 250 ml	✓
Total Metals plus Mn	HNO3	HDPE bottle 250 ml	✓
Dissolved Metals plus Mn (field filtered)	HNO3	HDPE bottle 250 ml	✓

OBSERVATIONS / NOTES:

26.15' x 2.5 l ~ 65 l

Circle if Applicable:

MS/MSD	Duplicate ID No.:
NO	NO

Signature(s):

Tetra Tech, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: FORMER LYONDELL BEAVER VALLEY
PROJECT NUMBER: 112IC07521A
WELL ID.: MW - 163
DATE: 11-10-15

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
0915	7.50	200	5.42	228	190	4.32	13.60	91	
0920	7.48	380	4.87	2.59	121	0.14	13.58	91	
0925	7.55	380	4.91	2.59	63	0.00	13.44	106	
0930	7.55	380	4.93	2.56	42	0.00	13.44	102	
0935	7.55	380	4.99	2.51	30	0.00	13.43	97	
0940	7.55	380	5.09	2.42	21	0.00	13.44	86	
0945	7.55	380	5.17	2.36	16	0.00	13.45	78	
0950	7.55	380	5.29	2.26	50	0.00	13.45	66	
0955	7.55	380	5.42	2.16	40	0.00	13.47	52	
1005	7.55	380	5.55	2.06	31	0.00	13.47	37	
1015	755	380	5.59	2.03	28	0.00	13.50	32	
1025	755	380	5.62	2.02	26	0.00	13.50	30	
1035	755	380	5.59	2.01	24	0.00	13.48	31	
1045	755	380	5.58	1.98	18	0.00	13.46	32	
1055	755	380	5.57	1.97	14	0.00	13.46	33	
1105	755	380	5.56	1.95	12	0.00	13.45	33	
1115	755	380	5.54	1.93	10	0.00	13.45	33	COMPLETED PURGE
									BEGIN TO FILL CONT.

SIGNATURE(S): Fred W Romer

Tetra Tech, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Lyondell Beaver Valley Site
Project No.: 112IC07521A

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MW501S
Sample Location: MW501S
Sampled By: FWRAMSER
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 11-11-15	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Sal
Time: 1055	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	ppt
Method: LOW FLOW	YEL/CLR	2.82	8.59	12.65	1	0.00	247	—

PURGE DATA:

Date: 11-11-15	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	TDS
Method: PERISTALTIC								
Monitor Reading (ppm):								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 42.56								
Static Water Level (WL): 17.68								
One Casing Volume(gal/L): ~~62.22~~ PR <14.93l								
Start Purge (hrs): 849								
End Purge (hrs): 1055								
Total Purge Time (min): 126								
Total Vol. Purged (gal/L): ~25l								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3 X 40 ml vial	✓
SVOCS	none	2 x ~~1~~ amb jars 250ml	✓
Total Metals plus Mn	HNO3	HDPE bottle 250ml	✓
Dissolved Metals plus Mn (field filtered)	HNO3	HDPE bottle 250ml	✓

OBSERVATIONS / NOTES:

42.56
-17.68 .6l 14.93l PR
24.88 x ~~2.5~~l = ~~62.22~~l

Circle if Applicable:

MS/MSD	Duplicate ID No.:
NO	NO

Signature(s): [signature]

FB01
@ 0915 HRS

Tetra Tech, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: FORMER LYONDELL BEAVER VALLEY
PROJECT NUMBER: 112IC07521A

WELL ID.: MW501S
DATE: 11-11-15

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
855	18.35	200	3.66	6.97	25	0.93	11.83	232	
900	18.25	175	3.36	8.16	17	0.00	11.88	241	
905	18.22	175	3.25	8.45	10	0.00	11.86	240	INC. FLOW TO 200
910	18.26	200	3.22	8.44	1	0.00	11.91	227	
925	18.27	200	3.20	8.43	1	0.00	11.96	226	
935	18.27	200	3.01	8.50	1	0.00	11.98	237	
945	18.27	200	2.87	8.75	1	0.00	11.99	243	
955	18.27	200	2.85	8.79	1	0.00	12.04	244	
1005	18.27	200	2.84	8.76	1	0.00	12.20	244	BECOMING SUNNY
1015	18.28	200	2.83	8.72	1	0.00	12.25	245	
1025	18.28	200	2.83	8.64	1	0.00	12.30	245	
1035	18.28	200	2.83	8.64	1	0.00	12.40	245	
1045	18.28	200	2.82	8.60	1	0.00	12.54	247	
1055	18.28	200	2.82	8.59	1	0.00	12.65	247	

SIGNATURE(S): [illegible]

ATTACHMENT 2
TESTAMERICA ANALYTICAL REPORT

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-49694-1
TestAmerica Sample Delivery Group: 112IC07521A
Client Project/Site: Lyondell Beaver Valley Plant Groundwater

For:
Tetra Tech, Inc.
Foster Plaza 7
661 Anderson Drive
Pittsburgh, Pennsylvania 15220-2745

Attn: Mr. Jonathon Aglio

Authorized for release by:
11/27/2015 1:28:11 PM

Jill Colussy, Project Manager I
(412)963-2444
jill.colussy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Receipt Checklists 92

Job ID: 180-49694-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-49694-1

Receipt
The samples were received on 11/11/2015 1:45 PM and 11/12/2015 2:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.5º C and 2.8º C.

The chain of custody listed sample MW129 and MW129-F. The containers for these samples were labeled MW120 and MW120-F respectively. The samples were logged in off of the chain of custody.

GC/MS VOA
Due to the concentration of target compounds detected, several samples were analyzed at a dilution Elevated reporting limits (RLs) are provided.

The 10X of sample MW162 (180-49694-1) had surrogate 1,2-dichloroethane-d4 recover outside of the control limits due to matrix interference. The 100X of this sample had all surrogates recover within the control limits.

The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch 180-160703 recovered outside control limits for the following analytes: Chlorodibromomethane and Bromoform. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

The continuing calibration verification (CCV) analyzed in batch 180-160340 was outside the method criteria for the following analyte: 2-Butanone , 2-Hexanone, Acetone, 4-Methyl-2-pentanone, Bromoform, Chlorodibromomethane and Chloroethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte is considered estimated.

The continuing calibration verification (CCV) analyzed in batch 160559 was outside the method criteria for the following analyte(s): 1,2-Dibromo-3-Chloropropane and Methyl acetate. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in batch 160703 was outside the method criteria for the following analyte(s): 1,2-Dibromo-3-Chloropropane, 2-Butanone , 2-Hexanone, 4-Methyl-2-pentanone, Bromoform, Chlorodibromomethane, Acetone and Methyl acetate. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

GC/MS Semi VOA
Due to the concentration of target compounds detected, sample MW501S (180-49761-2) was analyzed at a dilution. Elevated reporting limits (RLs) are provided.

The continuing calibration verification (CCV) associated with batch 180-160738 recovered above the upper control limit for 2-Nitroaniline. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

The continuing calibration verification (CCV) associated with batch 180-160873 recovered above the upper control limit for 2,2'-oxybis[1-chloropropane], N-Nitrosodi-n-propylamine, 2-Nitroaniline and Benzaldehyde. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Metals
Sample MW501S (180-49761-2) and MW501S-F (180-49761-3) was analyzed at a 5X dilution due to matrix/color. Elevated reporting limits (RLs) are provided.

The following samples were diluted due to the presence of manganese which interferes with silver, selenium and thallium: MW129 (180-49694-3), MW129-F (180-49694-4), DUP01 (180-49694-5), MW159 (180-49694-6) and MW159-F (180-49694-7). Elevated reporting

Job ID: 180-49694-1 (Continued)

Laboratory: TestAmerica Pittsburgh (Continued)

limits (RLs) are provided.

Sample MW129 (180-49694-3), MW129-F (180-49694-4) and DUP01 (180-49694-5) was less than the negative reporting limit for arsenic and required dilution.

The serial dilution performed for the following sample was outside the control limits for manganese: MW162 (180-49694-1)

The serial dilution performed for the following sample was outside the control limits for manganese: MW162-F (180-49694-2)

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
^c	CCV Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits
E	Result exceeded calibration range.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
*	LCS or LCSD is outside acceptance limits.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.
^c	CCV Recovery is outside acceptance limits.
E	Result exceeded calibration range.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Pennsylvania	NELAP	3	02-00416	04-30-16

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-49694-1	MW162	Water	11/09/15 14:30	11/11/15 13:45
180-49694-2	MW162-F	Water	11/09/15 14:30	11/11/15 13:45
180-49694-3	MW129	Water	11/09/15 14:35	11/11/15 13:45
180-49694-4	MW129-F	Water	11/09/15 14:35	11/11/15 13:45
180-49694-5	DUP01	Water	11/09/15 00:00	11/11/15 13:45
180-49694-6	MW159	Water	11/10/15 11:15	11/11/15 13:45
180-49694-7	MW159-F	Water	11/10/15 11:15	11/11/15 13:45
180-49694-8	MW163	Water	11/10/15 11:15	11/11/15 13:45
180-49694-9	MW163-F	Water	11/10/15 11:15	11/11/15 13:45
180-49694-10	TRIP BLANK	Water	11/10/15 00:00	11/11/15 13:45
180-49761-1	FB01	Water	11/11/15 09:15	11/12/15 14:30
180-49761-2	MW501S	Water	11/11/15 10:55	11/12/15 14:30
180-49761-3	MW501S-F	Water	11/11/15 10:55	11/12/15 14:30
180-49761-4	MW160	Water	11/11/15 11:00	11/12/15 14:30
180-49761-5	MW160-F	Water	11/11/15 11:00	11/12/15 14:30
180-49761-6	TRIP BLANK	Water	11/11/15 00:00	11/12/15 14:30

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL PIT
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL PIT
6010C	Metals (ICP)	SW846	TAL PIT
7470A	Mercury (CVAA)	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW162
Date Collected: 11/09/15 14:30
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C	RA	10	5 mL	5 mL	160340	11/13/15 12:22	PJJ	TAL PIT
	Instrument ID: CHHP4									
Total/NA	Analysis	8260C		100	5 mL	5 mL	160340	11/13/15 13:39	PJJ	TAL PIT
	Instrument ID: CHHP4									
Total/NA	Prep	3520C			330 mL	2.5 mL	160397	11/13/15 11:28	BJT	TAL PIT
Total/NA	Analysis	8270D		1	330 mL	2.5 mL	160579	11/16/15 17:40	VVP	TAL PIT
	Instrument ID: CH733									
Total Recoverable	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Total Recoverable	Analysis	6010C		1	50 mL	50 mL	161463	11/23/15 17:58	RJR	TAL PIT
	Instrument ID: C									
Total Recoverable	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Total Recoverable	Analysis	6010C		1	50 mL	50 mL	161766	11/25/15 17:33	RJR	TAL PIT
	Instrument ID: Q									
Total/NA	Prep	7470A			50 mL	50 mL	160188	11/12/15 07:05	EVR	TAL PIT
Total/NA	Analysis	7470A		1	50 mL	50 mL	160287	11/12/15 11:53	EVR	TAL PIT
	Instrument ID: K									

Client Sample ID: MW162-F
Date Collected: 11/09/15 14:30
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	160854	11/18/15 08:14	BMH	TAL PIT
Dissolved	Analysis	6010C		1	50 mL	50 mL	161610	11/24/15 18:08	RJR	TAL PIT
	Instrument ID: C									
Dissolved	Prep	7470A			50 mL	50 mL	160188	11/12/15 07:05	EVR	TAL PIT
Dissolved	Analysis	7470A		1	50 mL	50 mL	160287	11/12/15 11:59	EVR	TAL PIT
	Instrument ID: K									

Client Sample ID: MW129
Date Collected: 11/09/15 14:35
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		100	5 mL	5 mL	160340	11/13/15 14:05	PJJ	TAL PIT
	Instrument ID: CHHP4									
Total/NA	Prep	3520C			310 mL	2.5 mL	160397	11/13/15 11:28	BJT	TAL PIT
Total/NA	Analysis	8270D		1	310 mL	2.5 mL	160579	11/16/15 19:00	VVP	TAL PIT
	Instrument ID: CH733									
Total Recoverable	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Total Recoverable	Analysis	6010C		1	50 mL	50 mL	161463	11/23/15 18:19	RJR	TAL PIT
	Instrument ID: C									
Total Recoverable	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW129
Date Collected: 11/09/15 14:35
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Analysis	6010C		5	50 mL	50 mL	161611	11/24/15 12:53	RJR	TAL PIT
	Instrument ID: Q									
Total/NA	Prep	7470A			50 mL	50 mL	160188	11/12/15 07:05	EVR	TAL PIT
Total/NA	Analysis	7470A		1	50 mL	50 mL	160287	11/12/15 12:05	EVR	TAL PIT
	Instrument ID: K									

Client Sample ID: MW129-F
Date Collected: 11/09/15 14:35
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Dissolved	Analysis	6010C		1	50 mL	50 mL	161463	11/23/15 18:25	RJR	TAL PIT
	Instrument ID: C									
Dissolved	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Dissolved	Analysis	6010C		5	50 mL	50 mL	161611	11/24/15 12:58	RJR	TAL PIT
	Instrument ID: Q									
Dissolved	Prep	7470A			50 mL	50 mL	160188	11/12/15 07:05	EVR	TAL PIT
Dissolved	Analysis	7470A		1	50 mL	50 mL	160287	11/12/15 12:07	EVR	TAL PIT
	Instrument ID: K									

Client Sample ID: DUP01
Date Collected: 11/09/15 00:00
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		100	5 mL	5 mL	160340	11/13/15 18:46	PJJ	TAL PIT
	Instrument ID: CHHP4									
Total/NA	Prep	3520C			300 mL	2.5 mL	160397	11/13/15 11:28	BJT	TAL PIT
Total/NA	Analysis	8270D		1	300 mL	2.5 mL	160579	11/16/15 19:27	VVP	TAL PIT
	Instrument ID: CH733									
Dissolved	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Dissolved	Analysis	6010C		1	50 mL	50 mL	161463	11/23/15 18:45	RJR	TAL PIT
	Instrument ID: C									
Dissolved	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Dissolved	Analysis	6010C		1	50 mL	50 mL	161611	11/24/15 13:08	RJR	TAL PIT
	Instrument ID: Q									
Dissolved	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Dissolved	Analysis	6010C		5	50 mL	50 mL	161611	11/24/15 13:14	RJR	TAL PIT
	Instrument ID: Q									
Total Recoverable	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Total Recoverable	Analysis	6010C		1	50 mL	50 mL	161463	11/23/15 18:30	RJR	TAL PIT
	Instrument ID: C									
Total Recoverable	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: DUP01

Lab Sample ID: 180-49694-5
Date Collected: 11/09/15 00:00
Matrix: Water
Date Received: 11/11/15 13:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Analysis	6010C		5	50 mL	50 mL	161611	11/24/15 13:03	RJR	TAL PIT
	Instrument ID: Q									
Dissolved	Prep	7470A			50 mL	50 mL	160188	11/12/15 07:05	EVR	TAL PIT
Dissolved	Analysis	7470A		1	50 mL	50 mL	160288	11/12/15 14:02	EVR	TAL PIT
	Instrument ID: K									
Total/NA	Prep	7470A			50 mL	50 mL	160188	11/12/15 07:05	EVR	TAL PIT
Total/NA	Analysis	7470A		1	50 mL	50 mL	160287	11/12/15 12:09	EVR	TAL PIT
	Instrument ID: K									

Client Sample ID: MW159

Lab Sample ID: 180-49694-6
Date Collected: 11/10/15 11:15
Matrix: Water
Date Received: 11/11/15 13:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		100	5 mL	5 mL	160340	11/13/15 19:12	PJJ	TAL PIT
	Instrument ID: CHHP4									
Total/NA	Prep	3520C			320 mL	2.5 mL	160397	11/13/15 11:28	BJT	TAL PIT
Total/NA	Analysis	8270D		1	320 mL	2.5 mL	160579	11/16/15 19:53	VVP	TAL PIT
	Instrument ID: CH733									
Total Recoverable	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Total Recoverable	Analysis	6010C		1	50 mL	50 mL	161463	11/23/15 18:51	RJR	TAL PIT
	Instrument ID: C									
Total Recoverable	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Total Recoverable	Analysis	6010C		1	50 mL	50 mL	161611	11/24/15 13:29	RJR	TAL PIT
	Instrument ID: Q									
Total Recoverable	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Total Recoverable	Analysis	6010C		5	50 mL	50 mL	161611	11/24/15 13:34	RJR	TAL PIT
	Instrument ID: Q									
Total/NA	Prep	7470A			50 mL	50 mL	160188	11/12/15 07:05	EVR	TAL PIT
Total/NA	Analysis	7470A		1	50 mL	50 mL	160288	11/12/15 14:04	EVR	TAL PIT
	Instrument ID: K									

Client Sample ID: MW159-F

Lab Sample ID: 180-49694-7
Date Collected: 11/10/15 11:15
Matrix: Water
Date Received: 11/11/15 13:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Dissolved	Analysis	6010C		1	50 mL	50 mL	161463	11/23/15 18:56	RJR	TAL PIT
	Instrument ID: C									
Dissolved	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Dissolved	Analysis	6010C		1	50 mL	50 mL	161611	11/24/15 13:40	RJR	TAL PIT
	Instrument ID: Q									
Dissolved	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW159-F
Date Collected: 11/10/15 11:15
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6010C		5	50 mL	50 mL	161611	11/24/15 13:45	RJR	TAL PIT
	Instrument ID: Q									
Dissolved	Prep	7470A			50 mL	50 mL	160188	11/12/15 07:05	EVR	TAL PIT
Dissolved	Analysis	7470A		1	50 mL	50 mL	160288	11/12/15 14:05	EVR	TAL PIT
	Instrument ID: K									

Client Sample ID: MW163
Date Collected: 11/10/15 11:15
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		100	5 mL	5 mL	160340	11/13/15 19:37	PJJ	TAL PIT
	Instrument ID: CHHP4									
Total/NA	Prep	3520C			280 mL	2.5 mL	160397	11/13/15 11:28	BJT	TAL PIT
Total/NA	Analysis	8270D		1	280 mL	2.5 mL	160579	11/16/15 20:20	VVP	TAL PIT
	Instrument ID: CH733									
Total Recoverable	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Total Recoverable	Analysis	6010C		1	50 mL	50 mL	161463	11/23/15 19:02	RJR	TAL PIT
	Instrument ID: C									
Total Recoverable	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Total Recoverable	Analysis	6010C		1	50 mL	50 mL	161611	11/24/15 13:50	RJR	TAL PIT
	Instrument ID: Q									
Total/NA	Prep	7470A			50 mL	50 mL	160188	11/12/15 07:05	EVR	TAL PIT
Total/NA	Analysis	7470A		1	50 mL	50 mL	160288	11/12/15 14:07	EVR	TAL PIT
	Instrument ID: K									

Client Sample ID: MW163-F
Date Collected: 11/10/15 11:15
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Dissolved	Analysis	6010C		1	50 mL	50 mL	161463	11/23/15 19:07	RJR	TAL PIT
	Instrument ID: C									
Dissolved	Prep	3005A			50 mL	50 mL	160850	11/18/15 08:00	BMH	TAL PIT
Dissolved	Analysis	6010C		1	50 mL	50 mL	161611	11/24/15 13:55	RJR	TAL PIT
	Instrument ID: Q									
Dissolved	Prep	7470A			50 mL	50 mL	160188	11/12/15 07:05	EVR	TAL PIT
Dissolved	Analysis	7470A		1	50 mL	50 mL	160288	11/12/15 14:09	EVR	TAL PIT
	Instrument ID: K									

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: TRIP BLANK — Lab Sample ID: 180-49694-10

Date Collected: 11/10/15 00:00 — **Matrix: Water**
Date Received: 11/11/15 13:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	160559	11/16/15 17:28	PJJ	TAL PIT
	Instrument ID: CHHP4									

Client Sample ID: FB01 — Lab Sample ID: 180-49761-1

Date Collected: 11/11/15 09:15 — **Matrix: Water**
Date Received: 11/12/15 14:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	160559	11/16/15 17:53	PJJ	TAL PIT
	Instrument ID: CHHP4									
Total/NA	Prep	3520C			300 mL	2.5 mL	160577	11/16/15 09:27	BJT	TAL PIT
Total/NA	Analysis	8270D		1	300 mL	2.5 mL	160738	11/17/15 16:14	VVP	TAL PIT
	Instrument ID: CH732									
Dissolved	Prep	3005A			50 mL	50 mL	160854	11/18/15 08:14	BMH	TAL PIT
Dissolved	Analysis	6010C		1	50 mL	50 mL	161610	11/24/15 18:34	RJR	TAL PIT
	Instrument ID: C									
Total Recoverable	Prep	3005A			50 mL	50 mL	160854	11/18/15 08:14	BMH	TAL PIT
Total Recoverable	Analysis	6010C		1	50 mL	50 mL	161610	11/24/15 18:29	RJR	TAL PIT
	Instrument ID: C									
Dissolved	Prep	7470A			50 mL	50 mL	160351	11/13/15 08:17	EVR	TAL PIT
Dissolved	Analysis	7470A		1	50 mL	50 mL	160415	11/13/15 12:16	EVR	TAL PIT
	Instrument ID: K									
Total/NA	Prep	7470A			50 mL	50 mL	160351	11/13/15 08:17	EVR	TAL PIT
Total/NA	Analysis	7470A		1	50 mL	50 mL	160415	11/13/15 12:14	EVR	TAL PIT
	Instrument ID: K									

Client Sample ID: MW501S — Lab Sample ID: 180-49761-2

Date Collected: 11/11/15 10:55 — **Matrix: Water**
Date Received: 11/12/15 14:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		100	5 mL	5 mL	160559	11/16/15 19:10	PJJ	TAL PIT
	Instrument ID: CHHP4									
Total/NA	Analysis	8260C	DL	500	5 mL	5 mL	160703	11/17/15 15:40	PJJ	TAL PIT
	Instrument ID: CHHP4									
Total/NA	Prep	3520C			280 mL	2.5 mL	160577	11/16/15 09:27	BJT	TAL PIT
Total/NA	Analysis	8270D		1	280 mL	2.5 mL	160738	11/17/15 16:40	VVP	TAL PIT
	Instrument ID: CH732									
Total/NA	Prep	3520C	DL		280 mL	2.5 mL	160577	11/16/15 09:27	BJT	TAL PIT
Total/NA	Analysis	8270D	DL	5	280 mL	2.5 mL	160873	11/18/15 17:00	VVP	TAL PIT
	Instrument ID: CH732									
Total Recoverable	Prep	3005A			50 mL	50 mL	160853	11/18/15 08:05	BMH	TAL PIT
Total Recoverable	Analysis	6010C		5	50 mL	50 mL	161610	11/24/15 15:30	RJR	TAL PIT
	Instrument ID: C									

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW501S
Date Collected: 11/11/15 10:55
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			50 mL	50 mL	160351	11/13/15 08:17	EVR	TAL PIT
Total/NA	Analysis	7470A		1	50 mL	50 mL	160425	11/13/15 13:09	EVR	TAL PIT
	Instrument ID: K									

Client Sample ID: MW501S-F
Date Collected: 11/11/15 10:55
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	160853	11/18/15 08:05	BMH	TAL PIT
Dissolved	Analysis	6010C		5	50 mL	50 mL	161610	11/24/15 15:35	RJR	TAL PIT
	Instrument ID: C									
Dissolved	Prep	7470A			50 mL	50 mL	160351	11/13/15 08:17	EVR	TAL PIT
Dissolved	Analysis	7470A		1	50 mL	50 mL	160425	11/13/15 13:11	EVR	TAL PIT
	Instrument ID: K									

Client Sample ID: MW160
Date Collected: 11/11/15 11:00
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		20	5 mL	5 mL	160703	11/17/15 17:23	PJJ	TAL PIT
	Instrument ID: CHHP4									
Total/NA	Prep	3520C			300 mL	2.5 mL	160577	11/16/15 09:27	BJT	TAL PIT
Total/NA	Analysis	8270D		1	300 mL	2.5 mL	160738	11/17/15 17:07	VVP	TAL PIT
	Instrument ID: CH732									
Total Recoverable	Prep	3005A			50 mL	50 mL	160853	11/18/15 08:05	BMH	TAL PIT
Total Recoverable	Analysis	6010C		1	50 mL	50 mL	161610	11/24/15 15:40	RJR	TAL PIT
	Instrument ID: C									
Total/NA	Prep	7470A			50 mL	50 mL	160351	11/13/15 08:17	EVR	TAL PIT
Total/NA	Analysis	7470A		1	50 mL	50 mL	160425	11/13/15 13:13	EVR	TAL PIT
	Instrument ID: K									

Client Sample ID: MW160-F
Date Collected: 11/11/15 11:00
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	160853	11/18/15 08:05	BMH	TAL PIT
Dissolved	Analysis	6010C		1	50 mL	50 mL	161610	11/24/15 15:46	RJR	TAL PIT
	Instrument ID: C									
Dissolved	Prep	7470A			50 mL	50 mL	160351	11/13/15 08:17	EVR	TAL PIT
Dissolved	Analysis	7470A		1	50 mL	50 mL	160425	11/13/15 13:15	EVR	TAL PIT
	Instrument ID: K									

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: TRIP BLANK

Date Collected: 11/11/15 00:00
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	160559	11/16/15 18:19	PJJ	TAL PIT
	Instrument ID: CHHP4									

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

BJT = Bill Trout

BMH = Bobbi Hartsock

EVR = Emilie Reichenbach

Batch Type: Analysis

EVR = Emilie Reichenbach

PJJ = Patrick Journet

RJR = Ron Rosenbaum

VVP = Vincent Piccolino

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW162

Date Collected: 11/09/15 14:30
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-1

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		500	100	ug/L			11/13/15 13:39	100
1,1,2,2-Tetrachloroethane	ND		500	93	ug/L			11/13/15 13:39	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		500	33	ug/L			11/13/15 13:39	100
1,1,2-Trichloroethane	ND		500	120	ug/L			11/13/15 13:39	100
1,1-Dichloroethane	ND		500	100	ug/L			11/13/15 13:39	100
1,1-Dichloroethene	ND		500	110	ug/L			11/13/15 13:39	100
1,2-Dibromo-3-Chloropropane	ND		500	35	ug/L			11/13/15 13:39	100
1,2-Dichlorobenzene	ND		500	68	ug/L			11/13/15 13:39	100
1,2-Dichloroethane	ND		500	96	ug/L			11/13/15 13:39	100
1,2-Dichloropropane	ND		500	130	ug/L			11/13/15 13:39	100
1,2,4-Trichlorobenzene	ND		500	38	ug/L			11/13/15 13:39	100
1,3-Dichlorobenzene	ND		500	51	ug/L			11/13/15 13:39	100
1,4-Dichlorobenzene	ND		500	53	ug/L			11/13/15 13:39	100
2-Butanone (MEK)	ND	^c	500	110	ug/L			11/13/15 13:39	100
2-Hexanone	ND	^c	500	57	ug/L			11/13/15 13:39	100
4-Methyl-2-pentanone (MIBK)	ND	^c	500	59	ug/L			11/13/15 13:39	100
Acetone	ND	^c	2000	500	ug/L			11/13/15 13:39	100
Benzene	**16000**		500	99	ug/L			11/13/15 13:39	100
Bromoform	ND	^c	500	110	ug/L			11/13/15 13:39	100
Bromomethane	ND		500	160	ug/L			11/13/15 13:39	100
Carbon disulfide	ND		500	110	ug/L			11/13/15 13:39	100
Carbon tetrachloride	ND		500	110	ug/L			11/13/15 13:39	100
Chlorobenzene	ND		500	53	ug/L			11/13/15 13:39	100
Chlorodibromomethane	ND	^c	500	65	ug/L			11/13/15 13:39	100
Chloroform	ND		500	100	ug/L			11/13/15 13:39	100
Chloromethane	ND		500	140	ug/L			11/13/15 13:39	100
Chloroethane	ND	^c	500	75	ug/L			11/13/15 13:39	100
cis-1,2-Dichloroethene	ND		500	67	ug/L			11/13/15 13:39	100
cis-1,3-Dichloropropene	ND		500	73	ug/L			11/13/15 13:39	100
Dichlorobromomethane	ND		500	93	ug/L			11/13/15 13:39	100
Dichlorodifluoromethane	ND		500	64	ug/L			11/13/15 13:39	100
Ethylbenzene	**100**	**J**	500	62	ug/L			11/13/15 13:39	100
1,2-Dibromoethane	ND		500	61	ug/L			11/13/15 13:39	100
Cyclohexane	ND		500	60	ug/L			11/13/15 13:39	100
Isopropylbenzene	ND		500	53	ug/L			11/13/15 13:39	100
Methyl acetate	ND		2500	300	ug/L			11/13/15 13:39	100
Methyl tert-butyl ether	ND		500	100	ug/L			11/13/15 13:39	100
Methylcyclohexane	ND		500	56	ug/L			11/13/15 13:39	100
Methylene Chloride	ND		500	110	ug/L			11/13/15 13:39	100
Styrene	ND		500	64	ug/L			11/13/15 13:39	100
Tetrachloroethene	ND		500	82	ug/L			11/13/15 13:39	100
Toluene	**170**	**J**	500	85	ug/L			11/13/15 13:39	100
trans-1,2-Dichloroethene	ND		500	75	ug/L			11/13/15 13:39	100
trans-1,3-Dichloropropene	ND		500	58	ug/L			11/13/15 13:39	100
Trichloroethene	ND		500	80	ug/L			11/13/15 13:39	100
Trichlorofluoromethane	ND		500	110	ug/L			11/13/15 13:39	100
Vinyl chloride	ND		500	130	ug/L			11/13/15 13:39	100
Xylenes, Total	ND		1000	170	ug/L			11/13/15 13:39	100

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW162

Date Collected: 11/09/15 14:30
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-1

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*77*		*62 - 123*		*11/13/15 13:39*	*100*
4-Bromofluorobenzene (Surr)	*81*		*75 - 120*		*11/13/15 13:39*	*100*
Dibromofluoromethane (Surr)	*83*		*80 - 120*		*11/13/15 13:39*	*100*
Toluene-d8 (Surr)	*92*		*80 - 120*		*11/13/15 13:39*	*100*

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		50	10	ug/L			11/13/15 12:22	10
1,1,2,2-Tetrachloroethane	ND		50	9.3	ug/L			11/13/15 12:22	10
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		50	3.3	ug/L			11/13/15 12:22	10
1,1,2-Trichloroethane	ND		50	12	ug/L			11/13/15 12:22	10
1,1-Dichloroethane	ND		50	10	ug/L			11/13/15 12:22	10
1,1-Dichloroethene	ND		50	11	ug/L			11/13/15 12:22	10
1,2-Dibromo-3-Chloropropane	ND		50	3.5	ug/L			11/13/15 12:22	10
1,2-Dichlorobenzene	ND		50	6.8	ug/L			11/13/15 12:22	10
1,2-Dichloroethane	ND		50	9.6	ug/L			11/13/15 12:22	10
1,2-Dichloropropane	ND		50	13	ug/L			11/13/15 12:22	10
1,2,4-Trichlorobenzene	ND		50	3.8	ug/L			11/13/15 12:22	10
1,3-Dichlorobenzene	ND		50	5.1	ug/L			11/13/15 12:22	10
1,4-Dichlorobenzene	ND		50	5.3	ug/L			11/13/15 12:22	10
2-Butanone (MEK)	ND	^c	50	11	ug/L			11/13/15 12:22	10
2-Hexanone	ND	^c	50	5.7	ug/L			11/13/15 12:22	10
4-Methyl-2-pentanone (MIBK)	ND	^c	50	5.9	ug/L			11/13/15 12:22	10
Acetone	ND	^c	200	50	ug/L			11/13/15 12:22	10
Benzene	**6000**	**E**	50	9.9	ug/L			11/13/15 12:22	10
Bromoform	ND	^c	50	11	ug/L			11/13/15 12:22	10
Bromomethane	ND		50	16	ug/L			11/13/15 12:22	10
Carbon disulfide	ND		50	11	ug/L			11/13/15 12:22	10
Carbon tetrachloride	ND		50	11	ug/L			11/13/15 12:22	10
Chlorobenzene	ND		50	5.3	ug/L			11/13/15 12:22	10
Chlorodibromomethane	ND	^c	50	6.5	ug/L			11/13/15 12:22	10
Chloroform	ND		50	10	ug/L			11/13/15 12:22	10
Chloromethane	ND		50	14	ug/L			11/13/15 12:22	10
Chloroethane	**13**	**J ^c**	50	7.5	ug/L			11/13/15 12:22	10
cis-1,2-Dichloroethene	ND		50	6.7	ug/L			11/13/15 12:22	10
cis-1,3-Dichloropropene	ND		50	7.3	ug/L			11/13/15 12:22	10
Dichlorobromomethane	ND		50	9.3	ug/L			11/13/15 12:22	10
Dichlorodifluoromethane	ND		50	6.4	ug/L			11/13/15 12:22	10
Ethylbenzene	**200**		50	6.2	ug/L			11/13/15 12:22	10
1,2-Dibromoethane	ND		50	6.1	ug/L			11/13/15 12:22	10
Cyclohexane	ND		50	6.0	ug/L			11/13/15 12:22	10
Isopropylbenzene	**5.5**	**J**	50	5.3	ug/L			11/13/15 12:22	10
Methyl acetate	ND		250	30	ug/L			11/13/15 12:22	10
Methyl tert-butyl ether	ND		50	10	ug/L			11/13/15 12:22	10
Methylcyclohexane	ND		50	5.6	ug/L			11/13/15 12:22	10
Methylene Chloride	ND		50	11	ug/L			11/13/15 12:22	10
Styrene	**8.4**	**J**	50	6.4	ug/L			11/13/15 12:22	10
Tetrachloroethene	ND		50	8.2	ug/L			11/13/15 12:22	10
Toluene	**75**		50	8.5	ug/L			11/13/15 12:22	10
trans-1,2-Dichloroethene	ND		50	7.5	ug/L			11/13/15 12:22	10

Client Sample ID: MW162

Date Collected: 11/09/15 14:30
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-1

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS - RA (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,3-Dichloropropene	ND		50	5.8	ug/L			11/13/15 12:22	10
Trichloroethene	ND		50	8.0	ug/L			11/13/15 12:22	10
Trichlorofluoromethane	ND		50	11	ug/L			11/13/15 12:22	10
Vinyl chloride	ND		50	13	ug/L			11/13/15 12:22	10
Xylenes, Total	**130**		100	17	ug/L			11/13/15 12:22	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*48*	*X*	*62 - 123*		*11/13/15 12:22*	*10*
4-Bromofluorobenzene (Surr)	*101*		*75 - 120*		*11/13/15 12:22*	*10*
Dibromofluoromethane (Surr)	*87*		*80 - 120*		*11/13/15 12:22*	*10*
Toluene-d8 (Surr)	*90*		*80 - 120*		*11/13/15 12:22*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		1.5	0.22	ug/L		11/13/15 11:28	11/16/15 17:40	1
Acenaphthylene	ND		1.5	0.16	ug/L		11/13/15 11:28	11/16/15 17:40	1
Anthracene	ND		1.5	0.14	ug/L		11/13/15 11:28	11/16/15 17:40	1
Benzo[a]anthracene	ND		1.5	0.28	ug/L		11/13/15 11:28	11/16/15 17:40	1
Benzo[a]pyrene	ND		1.5	0.21	ug/L		11/13/15 11:28	11/16/15 17:40	1
Benzo[b]fluoranthene	ND		1.5	0.37	ug/L		11/13/15 11:28	11/16/15 17:40	1
Benzo[g,h,i]perylene	ND		1.5	0.22	ug/L		11/13/15 11:28	11/16/15 17:40	1
Benzo[k]fluoranthene	ND		1.5	0.23	ug/L		11/13/15 11:28	11/16/15 17:40	1
Bis(2-ethylhexyl) phthalate	ND		15	3.3	ug/L		11/13/15 11:28	11/16/15 17:40	1
2,2'-oxybis[1-chloropropane]	ND		7.6	0.18	ug/L		11/13/15 11:28	11/16/15 17:40	1
4-Bromophenyl phenyl ether	ND		7.6	0.89	ug/L		11/13/15 11:28	11/16/15 17:40	1
Butyl benzyl phthalate	ND		7.6	1.6	ug/L		11/13/15 11:28	11/16/15 17:40	1
Carbazole	ND		7.6	0.20	ug/L		11/13/15 11:28	11/16/15 17:40	1
4-Chloroaniline	ND		7.6	2.2	ug/L		11/13/15 11:28	11/16/15 17:40	1
2-Chloronaphthalene	ND		1.5	0.23	ug/L		11/13/15 11:28	11/16/15 17:40	1
4-Chlorophenyl phenyl ether	ND		7.6	0.61	ug/L		11/13/15 11:28	11/16/15 17:40	1
Chrysene	ND		1.5	0.23	ug/L		11/13/15 11:28	11/16/15 17:40	1
Dibenz(a,h)anthracene	ND		1.5	0.20	ug/L		11/13/15 11:28	11/16/15 17:40	1
Dibenzofuran	ND		7.6	0.73	ug/L		11/13/15 11:28	11/16/15 17:40	1
Di-n-butyl phthalate	ND		7.6	1.8	ug/L		11/13/15 11:28	11/16/15 17:40	1
3,3'-Dichlorobenzidine	ND	F1	7.6	1.1	ug/L		11/13/15 11:28	11/16/15 17:40	1
Diethyl phthalate	**4.5**	**J**	7.6	2.2	ug/L		11/13/15 11:28	11/16/15 17:40	1
Dimethyl phthalate	ND		7.6	1.4	ug/L		11/13/15 11:28	11/16/15 17:40	1
2,4-Dinitrotoluene	ND		7.6	1.6	ug/L		11/13/15 11:28	11/16/15 17:40	1
2,6-Dinitrotoluene	ND		7.6	1.0	ug/L		11/13/15 11:28	11/16/15 17:40	1
Di-n-octyl phthalate	ND		7.6	1.5	ug/L		11/13/15 11:28	11/16/15 17:40	1
Fluoranthene	ND		1.5	0.16	ug/L		11/13/15 11:28	11/16/15 17:40	1
Fluorene	ND		1.5	0.18	ug/L		11/13/15 11:28	11/16/15 17:40	1
Hexachlorobenzene	ND		7.6	0.46	ug/L		11/13/15 11:28	11/16/15 17:40	1
Hexachlorobutadiene	ND		7.6	0.71	ug/L		11/13/15 11:28	11/16/15 17:40	1
Hexachlorocyclopentadiene	ND	F1	7.6	1.0	ug/L		11/13/15 11:28	11/16/15 17:40	1
Hexachloroethane	ND		7.6	1.0	ug/L		11/13/15 11:28	11/16/15 17:40	1
Indeno[1,2,3-cd]pyrene	ND		1.5	0.33	ug/L		11/13/15 11:28	11/16/15 17:40	1
Isophorone	ND		7.6	0.56	ug/L		11/13/15 11:28	11/16/15 17:40	1
2-Methylnaphthalene	ND		1.5	0.15	ug/L		11/13/15 11:28	11/16/15 17:40	1
Naphthalene	**3.7**		1.5	0.17	ug/L		11/13/15 11:28	11/16/15 17:40	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW162

Date Collected: 11/09/15 14:30
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-1

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Nitroaniline	ND		38	5.1	ug/L		11/13/15 11:28	11/16/15 17:40	1
3-Nitroaniline	ND		38	6.1	ug/L		11/13/15 11:28	11/16/15 17:40	1
4-Nitroaniline	ND		38	5.9	ug/L		11/13/15 11:28	11/16/15 17:40	1
4-Nitrophenol	ND		38	6.1	ug/L		11/13/15 11:28	11/16/15 17:40	1
Nitrobenzene	ND		15	1.1	ug/L		11/13/15 11:28	11/16/15 17:40	1
N-Nitrosodi-n-propylamine	ND		7.6	0.38	ug/L		11/13/15 11:28	11/16/15 17:40	1
N-Nitrosodiphenylamine	ND		7.6	0.92	ug/L		11/13/15 11:28	11/16/15 17:40	1
Phenanthrene	ND		1.5	0.31	ug/L		11/13/15 11:28	11/16/15 17:40	1
Pyrene	ND		1.5	0.17	ug/L		11/13/15 11:28	11/16/15 17:40	1
4-Chloro-3-methylphenol	ND		7.6	1.3	ug/L		11/13/15 11:28	11/16/15 17:40	1
2-Chlorophenol	ND		7.6	1.7	ug/L		11/13/15 11:28	11/16/15 17:40	1
2-Methylphenol	ND		7.6	1.4	ug/L		11/13/15 11:28	11/16/15 17:40	1
Methylphenol, 3 & 4	ND		7.6	1.6	ug/L		11/13/15 11:28	11/16/15 17:40	1
2,4-Dichlorophenol	ND		7.6	0.51	ug/L		11/13/15 11:28	11/16/15 17:40	1
2,4-Dimethylphenol	**2.9**	**J**	7.6	1.3	ug/L		11/13/15 11:28	11/16/15 17:40	1
2,4-Dinitrophenol	ND		38	19	ug/L		11/13/15 11:28	11/16/15 17:40	1
4,6-Dinitro-2-methylphenol	ND		38	12	ug/L		11/13/15 11:28	11/16/15 17:40	1
2-Nitrophenol	ND		7.6	0.85	ug/L		11/13/15 11:28	11/16/15 17:40	1
Pentachlorophenol	ND		7.6	3.8	ug/L		11/13/15 11:28	11/16/15 17:40	1
Phenol	**150**	**F1**	7.6	0.42	ug/L		11/13/15 11:28	11/16/15 17:40	1
2,4,5-Trichlorophenol	ND		7.6	0.92	ug/L		11/13/15 11:28	11/16/15 17:40	1
2,4,6-Trichlorophenol	ND		7.6	2.3	ug/L		11/13/15 11:28	11/16/15 17:40	1
Acetophenone	**9.5**	**J**	15	0.85	ug/L		11/13/15 11:28	11/16/15 17:40	1
Atrazine	ND		15	1.7	ug/L		11/13/15 11:28	11/16/15 17:40	1
Benzaldehyde	ND		15	0.80	ug/L		11/13/15 11:28	11/16/15 17:40	1
1,1'-Biphenyl	ND		7.6	0.80	ug/L		11/13/15 11:28	11/16/15 17:40	1
Caprolactam	ND		38	11	ug/L		11/13/15 11:28	11/16/15 17:40	1
Bis(2-chloroethoxy)methane	ND		7.6	1.0	ug/L		11/13/15 11:28	11/16/15 17:40	1
Bis(2-chloroethyl)ether	ND		7.6	0.24	ug/L		11/13/15 11:28	11/16/15 17:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*63*		*27 - 110*	*11/13/15 11:28*	*11/16/15 17:40*	*1*
Phenol-d5 (Surr)	*63*		*23 - 111*	*11/13/15 11:28*	*11/16/15 17:40*	*1*
2-Fluorobiphenyl	*59*		*28 - 106*	*11/13/15 11:28*	*11/16/15 17:40*	*1*
2,4,6-Tribromophenol (Surr)	*83*		*25 - 118*	*11/13/15 11:28*	*11/16/15 17:40*	*1*
2-Fluorophenol (Surr)	*57*		*20 - 108*	*11/13/15 11:28*	*11/16/15 17:40*	*1*
Terphenyl-d14 (Surr)	*49*		*20 - 109*	*11/13/15 11:28*	*11/16/15 17:40*	*1*

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.69	ug/L		11/18/15 08:00	11/23/15 17:58	1
Aluminum	**130**	**J**	200	37	ug/L		11/18/15 08:00	11/23/15 17:58	1
Arsenic	ND		10	3.7	ug/L		11/18/15 08:00	11/23/15 17:58	1
Antimony	ND		10	3.5	ug/L		11/18/15 08:00	11/23/15 17:58	1
Barium	**99**	**J**	200	0.14	ug/L		11/18/15 08:00	11/23/15 17:58	1
Beryllium	ND		4.0	0.15	ug/L		11/18/15 08:00	11/23/15 17:58	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:00	11/23/15 17:58	1
Calcium	**270000**	**B**	5000	84	ug/L		11/18/15 08:00	11/23/15 17:58	1
Chromium	**5.2**		5.0	0.97	ug/L		11/18/15 08:00	11/23/15 17:58	1
Cobalt	**0.91**	**J**	50	0.55	ug/L		11/18/15 08:00	11/23/15 17:58	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW162

Date Collected: 11/09/15 14:30
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-1
Matrix: Water

Method: 6010C - Metals (ICP) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	1.9	J	25	0.97	ug/L		11/18/15 08:00	11/23/15 17:58	1
Iron	79000		100	15	ug/L		11/18/15 08:00	11/23/15 17:58	1
Lead	ND		10	2.1	ug/L		11/18/15 08:00	11/23/15 17:58	1
Magnesium	71000		5000	25	ug/L		11/18/15 08:00	11/23/15 17:58	1
Manganese	12000	B	15	0.19	ug/L		11/18/15 08:00	11/23/15 17:58	1
Nickel	1.8	J	40	0.89	ug/L		11/18/15 08:00	11/23/15 17:58	1
Potassium	4500	J B	5000	79	ug/L		11/18/15 08:00	11/23/15 17:58	1
Selenium	5.1	J	10	2.5	ug/L		11/18/15 08:00	11/25/15 17:33	1
Sodium	40000	B	5000	43	ug/L		11/18/15 08:00	11/23/15 17:58	1
Thallium	2.6	J	20	1.4	ug/L		11/18/15 08:00	11/23/15 17:58	1
Vanadium	ND		50	4.7	ug/L		11/18/15 08:00	11/23/15 17:58	1
Zinc	4.3	J B	20	2.9	ug/L		11/18/15 08:00	11/23/15 17:58	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/12/15 07:05	11/12/15 11:53	1

Client Sample ID: MW162-F

Date Collected: 11/09/15 14:30
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-2
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.69	ug/L		11/18/15 08:14	11/24/15 18:08	1
Aluminum	ND		200	37	ug/L		11/18/15 08:14	11/24/15 18:08	1
Arsenic	ND		10	3.7	ug/L		11/18/15 08:14	11/24/15 18:08	1
Antimony	ND		10	3.5	ug/L		11/18/15 08:14	11/24/15 18:08	1
Barium	110	J	200	0.14	ug/L		11/18/15 08:14	11/24/15 18:08	1
Beryllium	0.16	J B	4.0	0.15	ug/L		11/18/15 08:14	11/24/15 18:08	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:14	11/24/15 18:08	1
Calcium	290000		5000	84	ug/L		11/18/15 08:14	11/24/15 18:08	1
Chromium	1.6	J	5.0	0.97	ug/L		11/18/15 08:14	11/24/15 18:08	1
Cobalt	1.6	J	50	0.55	ug/L		11/18/15 08:14	11/24/15 18:08	1
Copper	3.2	J B	25	0.97	ug/L		11/18/15 08:14	11/24/15 18:08	1
Iron	87000		100	15	ug/L		11/18/15 08:14	11/24/15 18:08	1
Lead	ND		10	2.1	ug/L		11/18/15 08:14	11/24/15 18:08	1
Magnesium	77000		5000	25	ug/L		11/18/15 08:14	11/24/15 18:08	1
Manganese	14000	B	15	0.19	ug/L		11/18/15 08:14	11/24/15 18:08	1
Nickel	2.2	J	40	0.89	ug/L		11/18/15 08:14	11/24/15 18:08	1
Potassium	4800	J B	5000	79	ug/L		11/18/15 08:14	11/24/15 18:08	1
Selenium	ND		10	2.5	ug/L		11/18/15 08:14	11/24/15 18:08	1
Sodium	41000	B	5000	43	ug/L		11/18/15 08:14	11/24/15 18:08	1
Thallium	ND		20	1.4	ug/L		11/18/15 08:14	11/24/15 18:08	1
Vanadium	ND		50	4.7	ug/L		11/18/15 08:14	11/24/15 18:08	1
Zinc	3.5	J	20	2.9	ug/L		11/18/15 08:14	11/24/15 18:08	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/12/15 07:05	11/12/15 11:59	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW129

Date Collected: 11/09/15 14:35
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-3

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		500	100	ug/L			11/13/15 14:05	100
1,1,2,2-Tetrachloroethane	ND		500	93	ug/L			11/13/15 14:05	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		500	33	ug/L			11/13/15 14:05	100
1,1,2-Trichloroethane	ND		500	120	ug/L			11/13/15 14:05	100
1,1-Dichloroethane	ND		500	100	ug/L			11/13/15 14:05	100
1,1-Dichloroethene	ND		500	110	ug/L			11/13/15 14:05	100
1,2-Dibromo-3-Chloropropane	ND		500	35	ug/L			11/13/15 14:05	100
1,2-Dichlorobenzene	ND		500	68	ug/L			11/13/15 14:05	100
1,2-Dichloroethane	ND		500	96	ug/L			11/13/15 14:05	100
1,2-Dichloropropane	ND		500	130	ug/L			11/13/15 14:05	100
1,2,4-Trichlorobenzene	ND		500	38	ug/L			11/13/15 14:05	100
1,3-Dichlorobenzene	ND		500	51	ug/L			11/13/15 14:05	100
1,4-Dichlorobenzene	ND		500	53	ug/L			11/13/15 14:05	100
2-Butanone (MEK)	ND	^c	500	110	ug/L			11/13/15 14:05	100
2-Hexanone	ND	^c	500	57	ug/L			11/13/15 14:05	100
4-Methyl-2-pentanone (MIBK)	ND	^c	500	59	ug/L			11/13/15 14:05	100
Acetone	ND	^c	2000	500	ug/L			11/13/15 14:05	100
Benzene	**4100**		500	99	ug/L			11/13/15 14:05	100
Bromoform	ND	^c	500	110	ug/L			11/13/15 14:05	100
Bromomethane	ND		500	160	ug/L			11/13/15 14:05	100
Carbon disulfide	ND		500	110	ug/L			11/13/15 14:05	100
Carbon tetrachloride	ND		500	110	ug/L			11/13/15 14:05	100
Chlorobenzene	ND		500	53	ug/L			11/13/15 14:05	100
Chlorodibromomethane	ND	^c	500	65	ug/L			11/13/15 14:05	100
Chloroform	ND		500	100	ug/L			11/13/15 14:05	100
Chloromethane	ND		500	140	ug/L			11/13/15 14:05	100
Chloroethane	ND	^c	500	75	ug/L			11/13/15 14:05	100
cis-1,2-Dichloroethene	ND		500	67	ug/L			11/13/15 14:05	100
cis-1,3-Dichloropropene	ND		500	73	ug/L			11/13/15 14:05	100
Dichlorobromomethane	ND		500	93	ug/L			11/13/15 14:05	100
Dichlorodifluoromethane	ND		500	64	ug/L			11/13/15 14:05	100
Ethylbenzene	ND		500	62	ug/L			11/13/15 14:05	100
1,2-Dibromoethane	ND		500	61	ug/L			11/13/15 14:05	100
Cyclohexane	ND		500	60	ug/L			11/13/15 14:05	100
Isopropylbenzene	ND		500	53	ug/L			11/13/15 14:05	100
Methyl acetate	ND		2500	300	ug/L			11/13/15 14:05	100
Methyl tert-butyl ether	ND		500	100	ug/L			11/13/15 14:05	100
Methylcyclohexane	ND		500	56	ug/L			11/13/15 14:05	100
Methylene Chloride	ND		500	110	ug/L			11/13/15 14:05	100
Styrene	ND		500	64	ug/L			11/13/15 14:05	100
Tetrachloroethene	ND		500	82	ug/L			11/13/15 14:05	100
Toluene	ND		500	85	ug/L			11/13/15 14:05	100
trans-1,2-Dichloroethene	ND		500	75	ug/L			11/13/15 14:05	100
trans-1,3-Dichloropropene	ND		500	58	ug/L			11/13/15 14:05	100
Trichloroethene	ND		500	80	ug/L			11/13/15 14:05	100
Trichlorofluoromethane	ND		500	110	ug/L			11/13/15 14:05	100
Vinyl chloride	ND		500	130	ug/L			11/13/15 14:05	100
Xylenes, Total	ND		1000	170	ug/L			11/13/15 14:05	100

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW129

Date Collected: 11/09/15 14:35
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-3

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*78*		*62 - 123*		*11/13/15 14:05*	*100*
4-Bromofluorobenzene (Surr)	*84*		*75 - 120*		*11/13/15 14:05*	*100*
Dibromofluoromethane (Surr)	*89*		*80 - 120*		*11/13/15 14:05*	*100*
Toluene-d8 (Surr)	*96*		*80 - 120*		*11/13/15 14:05*	*100*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		1.6	0.23	ug/L		11/13/15 11:28	11/16/15 19:00	1
Acenaphthylene	ND		1.6	0.17	ug/L		11/13/15 11:28	11/16/15 19:00	1
Anthracene	ND		1.6	0.15	ug/L		11/13/15 11:28	11/16/15 19:00	1
Benzo[a]anthracene	ND		1.6	0.30	ug/L		11/13/15 11:28	11/16/15 19:00	1
Benzo[a]pyrene	ND		1.6	0.23	ug/L		11/13/15 11:28	11/16/15 19:00	1
Benzo[b]fluoranthene	ND		1.6	0.39	ug/L		11/13/15 11:28	11/16/15 19:00	1
Benzo[g,h,i]perylene	ND		1.6	0.23	ug/L		11/13/15 11:28	11/16/15 19:00	1
Benzo[k]fluoranthene	ND		1.6	0.24	ug/L		11/13/15 11:28	11/16/15 19:00	1
Bis(2-ethylhexyl) phthalate	ND		16	3.5	ug/L		11/13/15 11:28	11/16/15 19:00	1
2,2'-oxybis[1-chloropropane]	ND		8.1	0.19	ug/L		11/13/15 11:28	11/16/15 19:00	1
4-Bromophenyl phenyl ether	ND		8.1	0.94	ug/L		11/13/15 11:28	11/16/15 19:00	1
Butyl benzyl phthalate	ND		8.1	1.7	ug/L		11/13/15 11:28	11/16/15 19:00	1
Carbazole	ND		8.1	0.22	ug/L		11/13/15 11:28	11/16/15 19:00	1
4-Chloroaniline	ND		8.1	2.3	ug/L		11/13/15 11:28	11/16/15 19:00	1
2-Chloronaphthalene	ND		1.6	0.25	ug/L		11/13/15 11:28	11/16/15 19:00	1
4-Chlorophenyl phenyl ether	ND		8.1	0.64	ug/L		11/13/15 11:28	11/16/15 19:00	1
Chrysene	ND		1.6	0.25	ug/L		11/13/15 11:28	11/16/15 19:00	1
Dibenz(a,h)anthracene	ND		1.6	0.22	ug/L		11/13/15 11:28	11/16/15 19:00	1
Dibenzofuran	ND		8.1	0.78	ug/L		11/13/15 11:28	11/16/15 19:00	1
Di-n-butyl phthalate	ND		8.1	2.0	ug/L		11/13/15 11:28	11/16/15 19:00	1
3,3'-Dichlorobenzidine	ND		8.1	1.2	ug/L		11/13/15 11:28	11/16/15 19:00	1
Diethyl phthalate	**3.2**	**J**	8.1	2.4	ug/L		11/13/15 11:28	11/16/15 19:00	1
Dimethyl phthalate	ND		8.1	1.5	ug/L		11/13/15 11:28	11/16/15 19:00	1
2,4-Dinitrotoluene	ND		8.1	1.7	ug/L		11/13/15 11:28	11/16/15 19:00	1
2,6-Dinitrotoluene	ND		8.1	1.1	ug/L		11/13/15 11:28	11/16/15 19:00	1
Di-n-octyl phthalate	ND		8.1	1.6	ug/L		11/13/15 11:28	11/16/15 19:00	1
Fluoranthene	ND		1.6	0.17	ug/L		11/13/15 11:28	11/16/15 19:00	1
Fluorene	ND		1.6	0.19	ug/L		11/13/15 11:28	11/16/15 19:00	1
Hexachlorobenzene	ND		8.1	0.49	ug/L		11/13/15 11:28	11/16/15 19:00	1
Hexachlorobutadiene	ND		8.1	0.76	ug/L		11/13/15 11:28	11/16/15 19:00	1
Hexachlorocyclopentadiene	ND		8.1	1.1	ug/L		11/13/15 11:28	11/16/15 19:00	1
Hexachloroethane	ND		8.1	1.1	ug/L		11/13/15 11:28	11/16/15 19:00	1
Indeno[1,2,3-cd]pyrene	ND		1.6	0.35	ug/L		11/13/15 11:28	11/16/15 19:00	1
Isophorone	ND		8.1	0.60	ug/L		11/13/15 11:28	11/16/15 19:00	1
2-Methylnaphthalene	ND		1.6	0.15	ug/L		11/13/15 11:28	11/16/15 19:00	1
Naphthalene	**0.98**	**J**	1.6	0.18	ug/L		11/13/15 11:28	11/16/15 19:00	1
2-Nitroaniline	ND		40	5.4	ug/L		11/13/15 11:28	11/16/15 19:00	1
3-Nitroaniline	ND		40	6.5	ug/L		11/13/15 11:28	11/16/15 19:00	1
4-Nitroaniline	ND		40	6.2	ug/L		11/13/15 11:28	11/16/15 19:00	1
4-Nitrophenol	ND		40	6.5	ug/L		11/13/15 11:28	11/16/15 19:00	1
Nitrobenzene	ND		16	1.2	ug/L		11/13/15 11:28	11/16/15 19:00	1
N-Nitrosodi-n-propylamine	ND		8.1	0.40	ug/L		11/13/15 11:28	11/16/15 19:00	1
N-Nitrosodiphenylamine	ND		8.1	0.98	ug/L		11/13/15 11:28	11/16/15 19:00	1

Client Sample ID: MW129

Date Collected: 11/09/15 14:35
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-3

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	ND		1.6	0.33	ug/L		11/13/15 11:28	11/16/15 19:00	1
Pyrene	ND		1.6	0.18	ug/L		11/13/15 11:28	11/16/15 19:00	1
4-Chloro-3-methylphenol	ND		8.1	1.4	ug/L		11/13/15 11:28	11/16/15 19:00	1
2-Chlorophenol	ND		8.1	1.8	ug/L		11/13/15 11:28	11/16/15 19:00	1
2-Methylphenol	ND		8.1	1.5	ug/L		11/13/15 11:28	11/16/15 19:00	1
Methylphenol, 3 & 4	**3.1**	**J**	8.1	1.7	ug/L		11/13/15 11:28	11/16/15 19:00	1
2,4-Dichlorophenol	ND		8.1	0.54	ug/L		11/13/15 11:28	11/16/15 19:00	1
2,4-Dimethylphenol	**3.3**	**J**	8.1	1.4	ug/L		11/13/15 11:28	11/16/15 19:00	1
2,4-Dinitrophenol	ND		40	20	ug/L		11/13/15 11:28	11/16/15 19:00	1
4,6-Dinitro-2-methylphenol	ND		40	13	ug/L		11/13/15 11:28	11/16/15 19:00	1
2-Nitrophenol	ND		8.1	0.90	ug/L		11/13/15 11:28	11/16/15 19:00	1
Pentachlorophenol	ND		8.1	4.0	ug/L		11/13/15 11:28	11/16/15 19:00	1
Phenol	**22**		8.1	0.45	ug/L		11/13/15 11:28	11/16/15 19:00	1
2,4,5-Trichlorophenol	ND		8.1	0.98	ug/L		11/13/15 11:28	11/16/15 19:00	1
2,4,6-Trichlorophenol	ND		8.1	2.4	ug/L		11/13/15 11:28	11/16/15 19:00	1
Acetophenone	**16**		16	0.90	ug/L		11/13/15 11:28	11/16/15 19:00	1
Atrazine	ND		16	1.8	ug/L		11/13/15 11:28	11/16/15 19:00	1
Benzaldehyde	ND		16	0.85	ug/L		11/13/15 11:28	11/16/15 19:00	1
1,1'-Biphenyl	ND		8.1	0.85	ug/L		11/13/15 11:28	11/16/15 19:00	1
Caprolactam	ND		40	12	ug/L		11/13/15 11:28	11/16/15 19:00	1
Bis(2-chloroethoxy)methane	ND		8.1	1.1	ug/L		11/13/15 11:28	11/16/15 19:00	1
Bis(2-chloroethyl)ether	ND		8.1	0.26	ug/L		11/13/15 11:28	11/16/15 19:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*70*		*27 - 110*	*11/13/15 11:28*	*11/16/15 19:00*	*1*
Phenol-d5 (Surr)	*73*		*23 - 111*	*11/13/15 11:28*	*11/16/15 19:00*	*1*
2-Fluorobiphenyl	*65*		*28 - 106*	*11/13/15 11:28*	*11/16/15 19:00*	*1*
2,4,6-Tribromophenol (Surr)	*87*		*25 - 118*	*11/13/15 11:28*	*11/16/15 19:00*	*1*
2-Fluorophenol (Surr)	*64*		*20 - 108*	*11/13/15 11:28*	*11/16/15 19:00*	*1*
Terphenyl-d14 (Surr)	*59*		*20 - 109*	*11/13/15 11:28*	*11/16/15 19:00*	*1*

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		25	3.5	ug/L		11/18/15 08:00	11/24/15 12:53	5
Aluminum	**47**	**J**	200	37	ug/L		11/18/15 08:00	11/23/15 18:19	1
Arsenic	ND		50	19	ug/L		11/18/15 08:00	11/24/15 12:53	5
Antimony	ND		10	3.5	ug/L		11/18/15 08:00	11/23/15 18:19	1
Barium	**61**	**J**	200	0.14	ug/L		11/18/15 08:00	11/23/15 18:19	1
Beryllium	ND		4.0	0.15	ug/L		11/18/15 08:00	11/23/15 18:19	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:00	11/23/15 18:19	1
Calcium	**370000**	**B**	5000	84	ug/L		11/18/15 08:00	11/23/15 18:19	1
Chromium	**29**		5.0	0.97	ug/L		11/18/15 08:00	11/23/15 18:19	1
Cobalt	**130**		50	0.55	ug/L		11/18/15 08:00	11/23/15 18:19	1
Copper	**3.6**	**J**	25	0.97	ug/L		11/18/15 08:00	11/23/15 18:19	1
Iron	**91000**		100	15	ug/L		11/18/15 08:00	11/23/15 18:19	1
Lead	**3.8**	**J**	10	2.1	ug/L		11/18/15 08:00	11/23/15 18:19	1
Magnesium	**81000**		5000	25	ug/L		11/18/15 08:00	11/23/15 18:19	1
Manganese	**96000**	**B**	75	0.97	ug/L		11/18/15 08:00	11/24/15 12:53	5
Nickel	**78**		40	0.89	ug/L		11/18/15 08:00	11/23/15 18:19	1
Potassium	**2200**	**J B**	5000	79	ug/L		11/18/15 08:00	11/23/15 18:19	1

Client Sample ID: MW129

Lab Sample ID: 180-49694-3
Date Collected: 11/09/15 14:35
Matrix: Water
Date Received: 11/11/15 13:45

Method: 6010C - Metals (ICP) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	18	J	50	12	ug/L		11/18/15 08:00	11/24/15 12:53	5
Sodium	84000	B	5000	43	ug/L		11/18/15 08:00	11/23/15 18:19	1
Thallium	27	J	100	7.2	ug/L		11/18/15 08:00	11/24/15 12:53	5
Vanadium	7.6	J	50	4.7	ug/L		11/18/15 08:00	11/23/15 18:19	1
Zinc	23	B	20	2.9	ug/L		11/18/15 08:00	11/23/15 18:19	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/12/15 07:05	11/12/15 12:05	1

Client Sample ID: MW129-F

Lab Sample ID: 180-49694-4
Date Collected: 11/09/15 14:35
Matrix: Water
Date Received: 11/11/15 13:45

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		25	3.5	ug/L		11/18/15 08:00	11/24/15 12:58	5
Aluminum	37	J	200	37	ug/L		11/18/15 08:00	11/23/15 18:25	1
Arsenic	ND		50	19	ug/L		11/18/15 08:00	11/24/15 12:58	5
Antimony	ND		10	3.5	ug/L		11/18/15 08:00	11/23/15 18:25	1
Barium	60	J	200	0.14	ug/L		11/18/15 08:00	11/23/15 18:25	1
Beryllium	ND		4.0	0.15	ug/L		11/18/15 08:00	11/23/15 18:25	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:00	11/23/15 18:25	1
Calcium	370000	B	5000	84	ug/L		11/18/15 08:00	11/23/15 18:25	1
Chromium	30		5.0	0.97	ug/L		11/18/15 08:00	11/23/15 18:25	1
Cobalt	130		50	0.55	ug/L		11/18/15 08:00	11/23/15 18:25	1
Copper	4.2	J	25	0.97	ug/L		11/18/15 08:00	11/23/15 18:25	1
Iron	91000		100	15	ug/L		11/18/15 08:00	11/23/15 18:25	1
Lead	4.1	J	10	2.1	ug/L		11/18/15 08:00	11/23/15 18:25	1
Magnesium	80000		5000	25	ug/L		11/18/15 08:00	11/23/15 18:25	1
Manganese	98000	B	75	0.97	ug/L		11/18/15 08:00	11/24/15 12:58	5
Nickel	80		40	0.89	ug/L		11/18/15 08:00	11/23/15 18:25	1
Potassium	2100	J B	5000	79	ug/L		11/18/15 08:00	11/23/15 18:25	1
Selenium	ND		50	12	ug/L		11/18/15 08:00	11/24/15 12:58	5
Sodium	83000	B	5000	43	ug/L		11/18/15 08:00	11/23/15 18:25	1
Thallium	26	J	100	7.2	ug/L		11/18/15 08:00	11/24/15 12:58	5
Vanadium	9.5	J	50	4.7	ug/L		11/18/15 08:00	11/23/15 18:25	1
Zinc	22	B	20	2.9	ug/L		11/18/15 08:00	11/23/15 18:25	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/12/15 07:05	11/12/15 12:07	1

Client Sample ID: DUP01

Lab Sample ID: 180-49694-5
Date Collected: 11/09/15 00:00
Matrix: Water
Date Received: 11/11/15 13:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		500	100	ug/L			11/13/15 18:46	100

Client Sample ID: DUP01

Date Collected: 11/09/15 00:00
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-5

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		500	93	ug/L			11/13/15 18:46	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		500	33	ug/L			11/13/15 18:46	100
1,1,2-Trichloroethane	ND		500	120	ug/L			11/13/15 18:46	100
1,1-Dichloroethane	ND		500	100	ug/L			11/13/15 18:46	100
1,1-Dichloroethene	ND		500	110	ug/L			11/13/15 18:46	100
1,2-Dibromo-3-Chloropropane	ND		500	35	ug/L			11/13/15 18:46	100
1,2-Dichlorobenzene	ND		500	68	ug/L			11/13/15 18:46	100
1,2-Dichloroethane	ND		500	96	ug/L			11/13/15 18:46	100
1,2-Dichloropropane	ND		500	130	ug/L			11/13/15 18:46	100
1,2,4-Trichlorobenzene	ND		500	38	ug/L			11/13/15 18:46	100
1,3-Dichlorobenzene	ND		500	51	ug/L			11/13/15 18:46	100
1,4-Dichlorobenzene	ND		500	53	ug/L			11/13/15 18:46	100
2-Butanone (MEK)	ND	^c	500	110	ug/L			11/13/15 18:46	100
2-Hexanone	ND	^c	500	57	ug/L			11/13/15 18:46	100
4-Methyl-2-pentanone (MIBK)	ND	^c	500	59	ug/L			11/13/15 18:46	100
Acetone	ND	^c	2000	500	ug/L			11/13/15 18:46	100
Benzene	**3900**		500	99	ug/L			11/13/15 18:46	100
Bromoform	ND	^c	500	110	ug/L			11/13/15 18:46	100
Bromomethane	ND		500	160	ug/L			11/13/15 18:46	100
Carbon disulfide	ND		500	110	ug/L			11/13/15 18:46	100
Carbon tetrachloride	ND		500	110	ug/L			11/13/15 18:46	100
Chlorobenzene	ND		500	53	ug/L			11/13/15 18:46	100
Chlorodibromomethane	ND	^c	500	65	ug/L			11/13/15 18:46	100
Chloroform	ND		500	100	ug/L			11/13/15 18:46	100
Chloromethane	ND		500	140	ug/L			11/13/15 18:46	100
Chloroethane	ND	^c	500	75	ug/L			11/13/15 18:46	100
cis-1,2-Dichloroethene	ND		500	67	ug/L			11/13/15 18:46	100
cis-1,3-Dichloropropene	ND		500	73	ug/L			11/13/15 18:46	100
Dichlorobromomethane	ND		500	93	ug/L			11/13/15 18:46	100
Dichlorodifluoromethane	ND		500	64	ug/L			11/13/15 18:46	100
Ethylbenzene	ND		500	62	ug/L			11/13/15 18:46	100
1,2-Dibromoethane	ND		500	61	ug/L			11/13/15 18:46	100
Cyclohexane	ND		500	60	ug/L			11/13/15 18:46	100
Isopropylbenzene	ND		500	53	ug/L			11/13/15 18:46	100
Methyl acetate	ND		2500	300	ug/L			11/13/15 18:46	100
Methyl tert-butyl ether	ND		500	100	ug/L			11/13/15 18:46	100
Methylcyclohexane	ND		500	56	ug/L			11/13/15 18:46	100
Methylene Chloride	ND		500	110	ug/L			11/13/15 18:46	100
Styrene	ND		500	64	ug/L			11/13/15 18:46	100
Tetrachloroethene	ND		500	82	ug/L			11/13/15 18:46	100
Toluene	ND		500	85	ug/L			11/13/15 18:46	100
trans-1,2-Dichloroethene	ND		500	75	ug/L			11/13/15 18:46	100
trans-1,3-Dichloropropene	ND		500	58	ug/L			11/13/15 18:46	100
Trichloroethene	ND		500	80	ug/L			11/13/15 18:46	100
Trichlorofluoromethane	ND		500	110	ug/L			11/13/15 18:46	100
Vinyl chloride	ND		500	130	ug/L			11/13/15 18:46	100
Xylenes, Total	ND		1000	170	ug/L			11/13/15 18:46	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*81*		*62 - 123*		*11/13/15 18:46*	*100*

Client Sample ID: DUP01

Date Collected: 11/09/15 00:00
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-5

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*75 - 120*		*11/13/15 18:46*	*100*
Dibromofluoromethane (Surr)	*92*		*80 - 120*		*11/13/15 18:46*	*100*
Toluene-d8 (Surr)	*96*		*80 - 120*		*11/13/15 18:46*	*100*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		1.7	0.24	ug/L		11/13/15 11:28	11/16/15 19:27	1
Acenaphthylene	ND		1.7	0.18	ug/L		11/13/15 11:28	11/16/15 19:27	1
Anthracene	ND		1.7	0.16	ug/L		11/13/15 11:28	11/16/15 19:27	1
Benzo[a]anthracene	ND		1.7	0.31	ug/L		11/13/15 11:28	11/16/15 19:27	1
Benzo[a]pyrene	ND		1.7	0.24	ug/L		11/13/15 11:28	11/16/15 19:27	1
Benzo[b]fluoranthene	ND		1.7	0.41	ug/L		11/13/15 11:28	11/16/15 19:27	1
Benzo[g,h,i]perylene	ND		1.7	0.24	ug/L		11/13/15 11:28	11/16/15 19:27	1
Benzo[k]fluoranthene	ND		1.7	0.25	ug/L		11/13/15 11:28	11/16/15 19:27	1
Bis(2-ethylhexyl) phthalate	ND		17	3.7	ug/L		11/13/15 11:28	11/16/15 19:27	1
2,2'-oxybis[1-chloropropane]	ND		8.3	0.20	ug/L		11/13/15 11:28	11/16/15 19:27	1
4-Bromophenyl phenyl ether	ND		8.3	0.97	ug/L		11/13/15 11:28	11/16/15 19:27	1
Butyl benzyl phthalate	ND		8.3	1.8	ug/L		11/13/15 11:28	11/16/15 19:27	1
Carbazole	ND		8.3	0.22	ug/L		11/13/15 11:28	11/16/15 19:27	1
4-Chloroaniline	ND		8.3	2.4	ug/L		11/13/15 11:28	11/16/15 19:27	1
2-Chloronaphthalene	ND		1.7	0.26	ug/L		11/13/15 11:28	11/16/15 19:27	1
4-Chlorophenyl phenyl ether	ND		8.3	0.67	ug/L		11/13/15 11:28	11/16/15 19:27	1
Chrysene	ND		1.7	0.26	ug/L		11/13/15 11:28	11/16/15 19:27	1
Dibenz(a,h)anthracene	ND		1.7	0.22	ug/L		11/13/15 11:28	11/16/15 19:27	1
Dibenzofuran	ND		8.3	0.80	ug/L		11/13/15 11:28	11/16/15 19:27	1
Di-n-butyl phthalate	ND		8.3	2.0	ug/L		11/13/15 11:28	11/16/15 19:27	1
3,3'-Dichlorobenzidine	ND		8.3	1.2	ug/L		11/13/15 11:28	11/16/15 19:27	1
Diethyl phthalate	ND		8.3	2.5	ug/L		11/13/15 11:28	11/16/15 19:27	1
Dimethyl phthalate	ND		8.3	1.5	ug/L		11/13/15 11:28	11/16/15 19:27	1
2,4-Dinitrotoluene	ND		8.3	1.8	ug/L		11/13/15 11:28	11/16/15 19:27	1
2,6-Dinitrotoluene	ND		8.3	1.1	ug/L		11/13/15 11:28	11/16/15 19:27	1
Di-n-octyl phthalate	ND		8.3	1.7	ug/L		11/13/15 11:28	11/16/15 19:27	1
Fluoranthene	ND		1.7	0.18	ug/L		11/13/15 11:28	11/16/15 19:27	1
Fluorene	ND		1.7	0.20	ug/L		11/13/15 11:28	11/16/15 19:27	1
Hexachlorobenzene	ND		8.3	0.51	ug/L		11/13/15 11:28	11/16/15 19:27	1
Hexachlorobutadiene	ND		8.3	0.78	ug/L		11/13/15 11:28	11/16/15 19:27	1
Hexachlorocyclopentadiene	ND		8.3	1.1	ug/L		11/13/15 11:28	11/16/15 19:27	1
Hexachloroethane	ND		8.3	1.2	ug/L		11/13/15 11:28	11/16/15 19:27	1
Indeno[1,2,3-cd]pyrene	ND		1.7	0.36	ug/L		11/13/15 11:28	11/16/15 19:27	1
Isophorone	ND		8.3	0.62	ug/L		11/13/15 11:28	11/16/15 19:27	1
2-Methylnaphthalene	ND		1.7	0.16	ug/L		11/13/15 11:28	11/16/15 19:27	1
Naphthalene	**0.87**	**J**	1.7	0.19	ug/L		11/13/15 11:28	11/16/15 19:27	1
2-Nitroaniline	ND		42	5.6	ug/L		11/13/15 11:28	11/16/15 19:27	1
3-Nitroaniline	ND		42	6.7	ug/L		11/13/15 11:28	11/16/15 19:27	1
4-Nitroaniline	ND		42	6.4	ug/L		11/13/15 11:28	11/16/15 19:27	1
4-Nitrophenol	ND		42	6.7	ug/L		11/13/15 11:28	11/16/15 19:27	1
Nitrobenzene	ND		17	1.2	ug/L		11/13/15 11:28	11/16/15 19:27	1
N-Nitrosodi-n-propylamine	ND		8.3	0.42	ug/L		11/13/15 11:28	11/16/15 19:27	1
N-Nitrosodiphenylamine	ND		8.3	1.0	ug/L		11/13/15 11:28	11/16/15 19:27	1

Client Sample ID: DUP01

Date Collected: 11/09/15 00:00
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-5

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	ND		1.7	0.35	ug/L		11/13/15 11:28	11/16/15 19:27	1
Pyrene	ND		1.7	0.19	ug/L		11/13/15 11:28	11/16/15 19:27	1
4-Chloro-3-methylphenol	ND		8.3	1.4	ug/L		11/13/15 11:28	11/16/15 19:27	1
2-Chlorophenol	ND		8.3	1.9	ug/L		11/13/15 11:28	11/16/15 19:27	1
2-Methylphenol	ND		8.3	1.6	ug/L		11/13/15 11:28	11/16/15 19:27	1
Methylphenol, 3 & 4	**3.3**	**J**	8.3	1.7	ug/L		11/13/15 11:28	11/16/15 19:27	1
2,4-Dichlorophenol	ND		8.3	0.56	ug/L		11/13/15 11:28	11/16/15 19:27	1
2,4-Dimethylphenol	**3.6**	**J**	8.3	1.4	ug/L		11/13/15 11:28	11/16/15 19:27	1
2,4-Dinitrophenol	ND		42	21	ug/L		11/13/15 11:28	11/16/15 19:27	1
4,6-Dinitro-2-methylphenol	ND		42	13	ug/L		11/13/15 11:28	11/16/15 19:27	1
2-Nitrophenol	ND		8.3	0.93	ug/L		11/13/15 11:28	11/16/15 19:27	1
Pentachlorophenol	ND		8.3	4.2	ug/L		11/13/15 11:28	11/16/15 19:27	1
Phenol	**20**		8.3	0.46	ug/L		11/13/15 11:28	11/16/15 19:27	1
2,4,5-Trichlorophenol	ND		8.3	1.0	ug/L		11/13/15 11:28	11/16/15 19:27	1
2,4,6-Trichlorophenol	ND		8.3	2.5	ug/L		11/13/15 11:28	11/16/15 19:27	1
Acetophenone	**16**	**J**	17	0.94	ug/L		11/13/15 11:28	11/16/15 19:27	1
Atrazine	ND		17	1.9	ug/L		11/13/15 11:28	11/16/15 19:27	1
Benzaldehyde	ND		17	0.88	ug/L		11/13/15 11:28	11/16/15 19:27	1
1,1'-Biphenyl	ND		8.3	0.88	ug/L		11/13/15 11:28	11/16/15 19:27	1
Caprolactam	ND		42	12	ug/L		11/13/15 11:28	11/16/15 19:27	1
Bis(2-chloroethoxy)methane	ND		8.3	1.1	ug/L		11/13/15 11:28	11/16/15 19:27	1
Bis(2-chloroethyl)ether	ND		8.3	0.26	ug/L		11/13/15 11:28	11/16/15 19:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*65*		*27 - 110*	*11/13/15 11:28*	*11/16/15 19:27*	*1*
Phenol-d5 (Surr)	*65*		*23 - 111*	*11/13/15 11:28*	*11/16/15 19:27*	*1*
2-Fluorobiphenyl	*60*		*28 - 106*	*11/13/15 11:28*	*11/16/15 19:27*	*1*
2,4,6-Tribromophenol (Surr)	*81*		*25 - 118*	*11/13/15 11:28*	*11/16/15 19:27*	*1*
2-Fluorophenol (Surr)	*58*		*20 - 108*	*11/13/15 11:28*	*11/16/15 19:27*	*1*
Terphenyl-d14 (Surr)	*54*		*20 - 109*	*11/13/15 11:28*	*11/16/15 19:27*	*1*

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	**3.8**	**J**	25	3.5	ug/L		11/18/15 08:00	11/24/15 13:03	5
Aluminum	ND		200	37	ug/L		11/18/15 08:00	11/23/15 18:30	1
Arsenic	ND		50	19	ug/L		11/18/15 08:00	11/24/15 13:03	5
Antimony	ND		10	3.5	ug/L		11/18/15 08:00	11/23/15 18:30	1
Barium	**59**	**J**	200	0.14	ug/L		11/18/15 08:00	11/23/15 18:30	1
Beryllium	ND		4.0	0.15	ug/L		11/18/15 08:00	11/23/15 18:30	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:00	11/23/15 18:30	1
Calcium	**360000**	**B**	5000	84	ug/L		11/18/15 08:00	11/23/15 18:30	1
Chromium	**29**		5.0	0.97	ug/L		11/18/15 08:00	11/23/15 18:30	1
Cobalt	**130**		50	0.55	ug/L		11/18/15 08:00	11/23/15 18:30	1
Copper	**4.1**	**J**	25	0.97	ug/L		11/18/15 08:00	11/23/15 18:30	1
Iron	**90000**		100	15	ug/L		11/18/15 08:00	11/23/15 18:30	1
Lead	**3.0**	**J**	10	2.1	ug/L		11/18/15 08:00	11/23/15 18:30	1
Magnesium	**78000**		5000	25	ug/L		11/18/15 08:00	11/23/15 18:30	1
Manganese	**99000**	**B**	75	0.97	ug/L		11/18/15 08:00	11/24/15 13:03	5
Nickel	**81**		40	0.89	ug/L		11/18/15 08:00	11/23/15 18:30	1
Potassium	**2100**	**J B**	5000	79	ug/L		11/18/15 08:00	11/23/15 18:30	1

Client Sample ID: DUP01

Lab Sample ID: 180-49694-5

Date Collected: 11/09/15 00:00
Matrix: Water
Date Received: 11/11/15 13:45

Method: 6010C - Metals (ICP) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		50	12	ug/L		11/18/15 08:00	11/24/15 13:03	5
Sodium	**82000**	**B**	5000	43	ug/L		11/18/15 08:00	11/23/15 18:30	1
Thallium	**30**	**J**	100	7.2	ug/L		11/18/15 08:00	11/24/15 13:03	5
Vanadium	**11**	**J**	50	4.7	ug/L		11/18/15 08:00	11/23/15 18:30	1
Zinc	**22**	**B**	20	2.9	ug/L		11/18/15 08:00	11/23/15 18:30	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		25	3.5	ug/L		11/18/15 08:00	11/24/15 13:14	5
Aluminum	**40**	**J**	200	37	ug/L		11/18/15 08:00	11/23/15 18:45	1
Arsenic	ND		10	3.7	ug/L		11/18/15 08:00	11/24/15 13:08	1
Antimony	ND		10	3.5	ug/L		11/18/15 08:00	11/23/15 18:45	1
Barium	**61**	**J**	200	0.14	ug/L		11/18/15 08:00	11/23/15 18:45	1
Beryllium	**0.24**	**J**	4.0	0.15	ug/L		11/18/15 08:00	11/23/15 18:45	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:00	11/23/15 18:45	1
Calcium	**380000**	**B**	5000	84	ug/L		11/18/15 08:00	11/23/15 18:45	1
Chromium	**38**		5.0	0.97	ug/L		11/18/15 08:00	11/24/15 13:08	1
Cobalt	**130**		50	0.55	ug/L		11/18/15 08:00	11/23/15 18:45	1
Copper	**4.7**	**J**	25	0.97	ug/L		11/18/15 08:00	11/23/15 18:45	1
Iron	**91000**		100	15	ug/L		11/18/15 08:00	11/23/15 18:45	1
Lead	**4.0**	**J**	10	2.1	ug/L		11/18/15 08:00	11/23/15 18:45	1
Magnesium	**81000**		5000	25	ug/L		11/18/15 08:00	11/23/15 18:45	1
Manganese	**97000**	**B**	75	0.97	ug/L		11/18/15 08:00	11/24/15 13:14	5
Nickel	**80**		40	0.89	ug/L		11/18/15 08:00	11/23/15 18:45	1
Potassium	**2200**	**J B**	5000	79	ug/L		11/18/15 08:00	11/23/15 18:45	1
Selenium	**13**	**J**	50	12	ug/L		11/18/15 08:00	11/24/15 13:14	5
Sodium	**84000**	**B**	5000	43	ug/L		11/18/15 08:00	11/23/15 18:45	1
Thallium	**30**	**J**	100	7.2	ug/L		11/18/15 08:00	11/24/15 13:14	5
Vanadium	**11**	**J**	50	4.7	ug/L		11/18/15 08:00	11/23/15 18:45	1
Zinc	**22**	**B**	20	2.9	ug/L		11/18/15 08:00	11/23/15 18:45	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/12/15 07:05	11/12/15 12:09	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/12/15 07:05	11/12/15 14:02	1

Client Sample ID: MW159

Lab Sample ID: 180-49694-6

Date Collected: 11/10/15 11:15
Matrix: Water
Date Received: 11/11/15 13:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		500	100	ug/L			11/13/15 19:12	100
1,1,2,2-Tetrachloroethane	ND		500	93	ug/L			11/13/15 19:12	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		500	33	ug/L			11/13/15 19:12	100
1,1,2-Trichloroethane	ND		500	120	ug/L			11/13/15 19:12	100
1,1-Dichloroethane	ND		500	100	ug/L			11/13/15 19:12	100

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW159

Date Collected: 11/10/15 11:15
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-6

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		500	110	ug/L			11/13/15 19:12	100
1,2-Dibromo-3-Chloropropane	ND		500	35	ug/L			11/13/15 19:12	100
1,2-Dichlorobenzene	ND		500	68	ug/L			11/13/15 19:12	100
1,2-Dichloroethane	ND		500	96	ug/L			11/13/15 19:12	100
1,2-Dichloropropane	ND		500	130	ug/L			11/13/15 19:12	100
1,2,4-Trichlorobenzene	ND		500	38	ug/L			11/13/15 19:12	100
1,3-Dichlorobenzene	ND		500	51	ug/L			11/13/15 19:12	100
1,4-Dichlorobenzene	ND		500	53	ug/L			11/13/15 19:12	100
2-Butanone (MEK)	ND	^c	500	110	ug/L			11/13/15 19:12	100
2-Hexanone	ND	^c	500	57	ug/L			11/13/15 19:12	100
4-Methyl-2-pentanone (MIBK)	ND	^c	500	59	ug/L			11/13/15 19:12	100
Acetone	ND	^c	2000	500	ug/L			11/13/15 19:12	100
Benzene	**25000**		500	99	ug/L			11/13/15 19:12	100
Bromoform	ND	^c	500	110	ug/L			11/13/15 19:12	100
Bromomethane	ND		500	160	ug/L			11/13/15 19:12	100
Carbon disulfide	ND		500	110	ug/L			11/13/15 19:12	100
Carbon tetrachloride	ND		500	110	ug/L			11/13/15 19:12	100
Chlorobenzene	ND		500	53	ug/L			11/13/15 19:12	100
Chlorodibromomethane	ND	^c	500	65	ug/L			11/13/15 19:12	100
Chloroform	ND		500	100	ug/L			11/13/15 19:12	100
Chloromethane	ND		500	140	ug/L			11/13/15 19:12	100
Chloroethane	ND	^c	500	75	ug/L			11/13/15 19:12	100
cis-1,2-Dichloroethene	ND		500	67	ug/L			11/13/15 19:12	100
cis-1,3-Dichloropropene	ND		500	73	ug/L			11/13/15 19:12	100
Dichlorobromomethane	ND		500	93	ug/L			11/13/15 19:12	100
Dichlorodifluoromethane	ND		500	64	ug/L			11/13/15 19:12	100
Ethylbenzene	ND		500	62	ug/L			11/13/15 19:12	100
1,2-Dibromoethane	ND		500	61	ug/L			11/13/15 19:12	100
Cyclohexane	ND		500	60	ug/L			11/13/15 19:12	100
Isopropylbenzene	ND		500	53	ug/L			11/13/15 19:12	100
Methyl acetate	ND		2500	300	ug/L			11/13/15 19:12	100
Methyl tert-butyl ether	ND		500	100	ug/L			11/13/15 19:12	100
Methylcyclohexane	ND		500	56	ug/L			11/13/15 19:12	100
Methylene Chloride	ND		500	110	ug/L			11/13/15 19:12	100
Styrene	ND		500	64	ug/L			11/13/15 19:12	100
Tetrachloroethene	ND		500	82	ug/L			11/13/15 19:12	100
Toluene	ND		500	85	ug/L			11/13/15 19:12	100
trans-1,2-Dichloroethene	ND		500	75	ug/L			11/13/15 19:12	100
trans-1,3-Dichloropropene	ND		500	58	ug/L			11/13/15 19:12	100
Trichloroethene	ND		500	80	ug/L			11/13/15 19:12	100
Trichlorofluoromethane	ND		500	110	ug/L			11/13/15 19:12	100
Vinyl chloride	ND		500	130	ug/L			11/13/15 19:12	100
Xylenes, Total	ND		1000	170	ug/L			11/13/15 19:12	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*62 - 123*		*11/13/15 19:12*	*100*
4-Bromofluorobenzene (Surr)	*83*		*75 - 120*		*11/13/15 19:12*	*100*
Dibromofluoromethane (Surr)	*88*		*80 - 120*		*11/13/15 19:12*	*100*
Toluene-d8 (Surr)	*93*		*80 - 120*		*11/13/15 19:12*	*100*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW159

Date Collected: 11/10/15 11:15
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-6

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		1.6	0.23	ug/L		11/13/15 11:28	11/16/15 19:53	1
Acenaphthylene	ND		1.6	0.17	ug/L		11/13/15 11:28	11/16/15 19:53	1
Anthracene	ND		1.6	0.15	ug/L		11/13/15 11:28	11/16/15 19:53	1
Benzo[a]anthracene	ND		1.6	0.29	ug/L		11/13/15 11:28	11/16/15 19:53	1
Benzo[a]pyrene	ND		1.6	0.22	ug/L		11/13/15 11:28	11/16/15 19:53	1
Benzo[b]fluoranthene	ND		1.6	0.38	ug/L		11/13/15 11:28	11/16/15 19:53	1
Benzo[g,h,i]perylene	ND		1.6	0.23	ug/L		11/13/15 11:28	11/16/15 19:53	1
Benzo[k]fluoranthene	ND		1.6	0.24	ug/L		11/13/15 11:28	11/16/15 19:53	1
Bis(2-ethylhexyl) phthalate	ND		16	3.4	ug/L		11/13/15 11:28	11/16/15 19:53	1
2,2'-oxybis[1-chloropropane]	ND		7.8	0.19	ug/L		11/13/15 11:28	11/16/15 19:53	1
4-Bromophenyl phenyl ether	ND		7.8	0.91	ug/L		11/13/15 11:28	11/16/15 19:53	1
Butyl benzyl phthalate	ND		7.8	1.7	ug/L		11/13/15 11:28	11/16/15 19:53	1
Carbazole	ND		7.8	0.21	ug/L		11/13/15 11:28	11/16/15 19:53	1
4-Chloroaniline	ND		7.8	2.3	ug/L		11/13/15 11:28	11/16/15 19:53	1
2-Chloronaphthalene	ND		1.6	0.24	ug/L		11/13/15 11:28	11/16/15 19:53	1
4-Chlorophenyl phenyl ether	ND		7.8	0.62	ug/L		11/13/15 11:28	11/16/15 19:53	1
Chrysene	ND		1.6	0.24	ug/L		11/13/15 11:28	11/16/15 19:53	1
Dibenz(a,h)anthracene	ND		1.6	0.21	ug/L		11/13/15 11:28	11/16/15 19:53	1
Dibenzofuran	ND		7.8	0.75	ug/L		11/13/15 11:28	11/16/15 19:53	1
Di-n-butyl phthalate	ND		7.8	1.9	ug/L		11/13/15 11:28	11/16/15 19:53	1
3,3'-Dichlorobenzidine	ND		7.8	1.1	ug/L		11/13/15 11:28	11/16/15 19:53	1
Diethyl phthalate	**7.6**	**J**	7.8	2.3	ug/L		11/13/15 11:28	11/16/15 19:53	1
Dimethyl phthalate	ND		7.8	1.4	ug/L		11/13/15 11:28	11/16/15 19:53	1
2,4-Dinitrotoluene	ND		7.8	1.7	ug/L		11/13/15 11:28	11/16/15 19:53	1
2,6-Dinitrotoluene	ND		7.8	1.1	ug/L		11/13/15 11:28	11/16/15 19:53	1
Di-n-octyl phthalate	ND		7.8	1.6	ug/L		11/13/15 11:28	11/16/15 19:53	1
Fluoranthene	ND		1.6	0.16	ug/L		11/13/15 11:28	11/16/15 19:53	1
Fluorene	**3.1**		1.6	0.19	ug/L		11/13/15 11:28	11/16/15 19:53	1
Hexachlorobenzene	ND		7.8	0.48	ug/L		11/13/15 11:28	11/16/15 19:53	1
Hexachlorobutadiene	ND		7.8	0.73	ug/L		11/13/15 11:28	11/16/15 19:53	1
Hexachlorocyclopentadiene	ND		7.8	1.1	ug/L		11/13/15 11:28	11/16/15 19:53	1
Hexachloroethane	ND		7.8	1.1	ug/L		11/13/15 11:28	11/16/15 19:53	1
Indeno[1,2,3-cd]pyrene	ND		1.6	0.34	ug/L		11/13/15 11:28	11/16/15 19:53	1
Isophorone	ND		7.8	0.58	ug/L		11/13/15 11:28	11/16/15 19:53	1
2-Methylnaphthalene	**1.2**	**J**	1.6	0.15	ug/L		11/13/15 11:28	11/16/15 19:53	1
Naphthalene	**26**		1.6	0.18	ug/L		11/13/15 11:28	11/16/15 19:53	1
2-Nitroaniline	ND		39	5.3	ug/L		11/13/15 11:28	11/16/15 19:53	1
3-Nitroaniline	ND		39	6.3	ug/L		11/13/15 11:28	11/16/15 19:53	1
4-Nitroaniline	ND		39	6.0	ug/L		11/13/15 11:28	11/16/15 19:53	1
4-Nitrophenol	ND		39	6.3	ug/L		11/13/15 11:28	11/16/15 19:53	1
Nitrobenzene	ND		16	1.2	ug/L		11/13/15 11:28	11/16/15 19:53	1
N-Nitrosodi-n-propylamine	ND		7.8	0.39	ug/L		11/13/15 11:28	11/16/15 19:53	1
N-Nitrosodiphenylamine	ND		7.8	0.95	ug/L		11/13/15 11:28	11/16/15 19:53	1
Phenanthrene	**5.1**		1.6	0.32	ug/L		11/13/15 11:28	11/16/15 19:53	1
Pyrene	ND		1.6	0.18	ug/L		11/13/15 11:28	11/16/15 19:53	1
4-Chloro-3-methylphenol	ND		7.8	1.3	ug/L		11/13/15 11:28	11/16/15 19:53	1
2-Chlorophenol	ND		7.8	1.8	ug/L		11/13/15 11:28	11/16/15 19:53	1
2-Methylphenol	ND		7.8	1.5	ug/L		11/13/15 11:28	11/16/15 19:53	1
Methylphenol, 3 & 4	**2.7**	**J**	7.8	1.6	ug/L		11/13/15 11:28	11/16/15 19:53	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW159

Date Collected: 11/10/15 11:15
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-6

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	ND		7.8	0.52	ug/L		11/13/15 11:28	11/16/15 19:53	1
2,4-Dimethylphenol	**2.4**	**J**	7.8	1.3	ug/L		11/13/15 11:28	11/16/15 19:53	1
2,4-Dinitrophenol	ND		39	20	ug/L		11/13/15 11:28	11/16/15 19:53	1
4,6-Dinitro-2-methylphenol	ND		39	12	ug/L		11/13/15 11:28	11/16/15 19:53	1
2-Nitrophenol	ND		7.8	0.87	ug/L		11/13/15 11:28	11/16/15 19:53	1
Pentachlorophenol	ND		7.8	3.9	ug/L		11/13/15 11:28	11/16/15 19:53	1
Phenol	**13**		7.8	0.43	ug/L		11/13/15 11:28	11/16/15 19:53	1
2,4,5-Trichlorophenol	ND		7.8	0.95	ug/L		11/13/15 11:28	11/16/15 19:53	1
2,4,6-Trichlorophenol	ND		7.8	2.3	ug/L		11/13/15 11:28	11/16/15 19:53	1
Acetophenone	**14**	**J**	16	0.88	ug/L		11/13/15 11:28	11/16/15 19:53	1
Atrazine	ND		16	1.7	ug/L		11/13/15 11:28	11/16/15 19:53	1
Benzaldehyde	**3.2**	**J**	16	0.82	ug/L		11/13/15 11:28	11/16/15 19:53	1
1,1'-Biphenyl	**13**		7.8	0.82	ug/L		11/13/15 11:28	11/16/15 19:53	1
Caprolactam	ND		39	12	ug/L		11/13/15 11:28	11/16/15 19:53	1
Bis(2-chloroethoxy)methane	ND		7.8	1.0	ug/L		11/13/15 11:28	11/16/15 19:53	1
Bis(2-chloroethyl)ether	ND		7.8	0.25	ug/L		11/13/15 11:28	11/16/15 19:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*66*		*27 - 110*	*11/13/15 11:28*	*11/16/15 19:53*	*1*
Phenol-d5 (Surr)	*66*		*23 - 111*	*11/13/15 11:28*	*11/16/15 19:53*	*1*
2-Fluorobiphenyl	*61*		*28 - 106*	*11/13/15 11:28*	*11/16/15 19:53*	*1*
2,4,6-Tribromophenol (Surr)	*84*		*25 - 118*	*11/13/15 11:28*	*11/16/15 19:53*	*1*
2-Fluorophenol (Surr)	*58*		*20 - 108*	*11/13/15 11:28*	*11/16/15 19:53*	*1*
Terphenyl-d14 (Surr)	*39*		*20 - 109*	*11/13/15 11:28*	*11/16/15 19:53*	*1*

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		25	3.5	ug/L		11/18/15 08:00	11/24/15 13:34	5
Aluminum	**60**	**J**	200	37	ug/L		11/18/15 08:00	11/23/15 18:51	1
Arsenic	ND		10	3.7	ug/L		11/18/15 08:00	11/24/15 13:29	1
Antimony	ND		10	3.5	ug/L		11/18/15 08:00	11/23/15 18:51	1
Barium	**43**	**J**	200	0.14	ug/L		11/18/15 08:00	11/23/15 18:51	1
Beryllium	**0.18**	**J**	4.0	0.15	ug/L		11/18/15 08:00	11/23/15 18:51	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:00	11/23/15 18:51	1
Calcium	**230000**	**B**	5000	84	ug/L		11/18/15 08:00	11/23/15 18:51	1
Chromium	**31**		5.0	0.97	ug/L		11/18/15 08:00	11/24/15 13:29	1
Cobalt	**28**	**J**	50	0.55	ug/L		11/18/15 08:00	11/23/15 18:51	1
Copper	**3.7**	**J**	25	0.97	ug/L		11/18/15 08:00	11/23/15 18:51	1
Iron	**43000**		100	15	ug/L		11/18/15 08:00	11/23/15 18:51	1
Lead	**5.4**	**J**	10	2.1	ug/L		11/18/15 08:00	11/23/15 18:51	1
Magnesium	**45000**		5000	25	ug/L		11/18/15 08:00	11/23/15 18:51	1
Manganese	**77000**	**B**	75	0.97	ug/L		11/18/15 08:00	11/24/15 13:34	5
Nickel	**57**		40	0.89	ug/L		11/18/15 08:00	11/23/15 18:51	1
Potassium	**2300**	**J B**	5000	79	ug/L		11/18/15 08:00	11/23/15 18:51	1
Selenium	ND		50	12	ug/L		11/18/15 08:00	11/24/15 13:34	5
Sodium	**120000**	**B**	5000	43	ug/L		11/18/15 08:00	11/23/15 18:51	1
Thallium	**17**	**J**	100	7.2	ug/L		11/18/15 08:00	11/24/15 13:34	5
Vanadium	**7.3**	**J**	50	4.7	ug/L		11/18/15 08:00	11/23/15 18:51	1
Zinc	**14**	**J B**	20	2.9	ug/L		11/18/15 08:00	11/23/15 18:51	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW159

Lab Sample ID: 180-49694-6
Date Collected: 11/10/15 11:15
Matrix: Water
Date Received: 11/11/15 13:45

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/12/15 07:05	11/12/15 14:04	1

Client Sample ID: MW159-F

Lab Sample ID: 180-49694-7
Date Collected: 11/10/15 11:15
Matrix: Water
Date Received: 11/11/15 13:45

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	**3.6**	**J**	25	3.5	ug/L		11/18/15 08:00	11/24/15 13:45	5
Aluminum	ND		200	37	ug/L		11/18/15 08:00	11/23/15 18:56	1
Arsenic	ND		10	3.7	ug/L		11/18/15 08:00	11/24/15 13:40	1
Antimony	ND		10	3.5	ug/L		11/18/15 08:00	11/23/15 18:56	1
Barium	**42**	**J**	200	0.14	ug/L		11/18/15 08:00	11/23/15 18:56	1
Beryllium	ND		4.0	0.15	ug/L		11/18/15 08:00	11/23/15 18:56	1
Cadmium	**0.29**	**J**	5.0	0.26	ug/L		11/18/15 08:00	11/23/15 18:56	1
Calcium	**220000**	**B**	5000	84	ug/L		11/18/15 08:00	11/23/15 18:56	1
Chromium	**30**		5.0	0.97	ug/L		11/18/15 08:00	11/24/15 13:40	1
Cobalt	**27**	**J**	50	0.55	ug/L		11/18/15 08:00	11/23/15 18:56	1
Copper	**3.4**	**J**	25	0.97	ug/L		11/18/15 08:00	11/23/15 18:56	1
Iron	**39000**		100	15	ug/L		11/18/15 08:00	11/23/15 18:56	1
Lead	**3.8**	**J**	10	2.1	ug/L		11/18/15 08:00	11/23/15 18:56	1
Magnesium	**43000**		5000	25	ug/L		11/18/15 08:00	11/23/15 18:56	1
Manganese	**78000**	**B**	75	0.97	ug/L		11/18/15 08:00	11/24/15 13:45	5
Nickel	**55**		40	0.89	ug/L		11/18/15 08:00	11/23/15 18:56	1
Potassium	**2200**	**J B**	5000	79	ug/L		11/18/15 08:00	11/23/15 18:56	1
Selenium	**12**	**J**	50	12	ug/L		11/18/15 08:00	11/24/15 13:45	5
Sodium	**110000**	**B**	5000	43	ug/L		11/18/15 08:00	11/23/15 18:56	1
Thallium	**21**	**J**	100	7.2	ug/L		11/18/15 08:00	11/24/15 13:45	5
Vanadium	**5.1**	**J**	50	4.7	ug/L		11/18/15 08:00	11/23/15 18:56	1
Zinc	**8.1**	**J B**	20	2.9	ug/L		11/18/15 08:00	11/23/15 18:56	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/12/15 07:05	11/12/15 14:05	1

Client Sample ID: MW163

Lab Sample ID: 180-49694-8
Date Collected: 11/10/15 11:15
Matrix: Water
Date Received: 11/11/15 13:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		500	100	ug/L			11/13/15 19:37	100
1,1,2,2-Tetrachloroethane	ND		500	93	ug/L			11/13/15 19:37	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		500	33	ug/L			11/13/15 19:37	100
1,1,2-Trichloroethane	ND		500	120	ug/L			11/13/15 19:37	100
1,1-Dichloroethane	ND		500	100	ug/L			11/13/15 19:37	100
1,1-Dichloroethene	ND		500	110	ug/L			11/13/15 19:37	100
1,2-Dibromo-3-Chloropropane	ND		500	35	ug/L			11/13/15 19:37	100
1,2-Dichlorobenzene	ND		500	68	ug/L			11/13/15 19:37	100
1,2-Dichloroethane	ND		500	96	ug/L			11/13/15 19:37	100

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW163

Date Collected: 11/10/15 11:15
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-8

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	ND		500	130	ug/L			11/13/15 19:37	100
1,2,4-Trichlorobenzene	ND		500	38	ug/L			11/13/15 19:37	100
1,3-Dichlorobenzene	ND		500	51	ug/L			11/13/15 19:37	100
1,4-Dichlorobenzene	ND		500	53	ug/L			11/13/15 19:37	100
2-Butanone (MEK)	ND	^c	500	110	ug/L			11/13/15 19:37	100
2-Hexanone	ND	^c	500	57	ug/L			11/13/15 19:37	100
4-Methyl-2-pentanone (MIBK)	ND	^c	500	59	ug/L			11/13/15 19:37	100
Acetone	ND	^c	2000	500	ug/L			11/13/15 19:37	100
Benzene	**3000**		500	99	ug/L			11/13/15 19:37	100
Bromoform	ND	^c	500	110	ug/L			11/13/15 19:37	100
Bromomethane	ND		500	160	ug/L			11/13/15 19:37	100
Carbon disulfide	ND		500	110	ug/L			11/13/15 19:37	100
Carbon tetrachloride	ND		500	110	ug/L			11/13/15 19:37	100
Chlorobenzene	ND		500	53	ug/L			11/13/15 19:37	100
Chlorodibromomethane	ND	^c	500	65	ug/L			11/13/15 19:37	100
Chloroform	ND		500	100	ug/L			11/13/15 19:37	100
Chloromethane	ND		500	140	ug/L			11/13/15 19:37	100
Chloroethane	ND	^c	500	75	ug/L			11/13/15 19:37	100
cis-1,2-Dichloroethene	ND		500	67	ug/L			11/13/15 19:37	100
cis-1,3-Dichloropropene	ND		500	73	ug/L			11/13/15 19:37	100
Dichlorobromomethane	ND		500	93	ug/L			11/13/15 19:37	100
Dichlorodifluoromethane	ND		500	64	ug/L			11/13/15 19:37	100
Ethylbenzene	ND		500	62	ug/L			11/13/15 19:37	100
1,2-Dibromoethane	ND		500	61	ug/L			11/13/15 19:37	100
Cyclohexane	ND		500	60	ug/L			11/13/15 19:37	100
Isopropylbenzene	ND		500	53	ug/L			11/13/15 19:37	100
Methyl acetate	ND		2500	300	ug/L			11/13/15 19:37	100
Methyl tert-butyl ether	ND		500	100	ug/L			11/13/15 19:37	100
Methylcyclohexane	ND		500	56	ug/L			11/13/15 19:37	100
Methylene Chloride	ND		500	110	ug/L			11/13/15 19:37	100
Styrene	ND		500	64	ug/L			11/13/15 19:37	100
Tetrachloroethene	ND		500	82	ug/L			11/13/15 19:37	100
Toluene	ND		500	85	ug/L			11/13/15 19:37	100
trans-1,2-Dichloroethene	ND		500	75	ug/L			11/13/15 19:37	100
trans-1,3-Dichloropropene	ND		500	58	ug/L			11/13/15 19:37	100
Trichloroethene	ND		500	80	ug/L			11/13/15 19:37	100
Trichlorofluoromethane	ND		500	110	ug/L			11/13/15 19:37	100
Vinyl chloride	ND		500	130	ug/L			11/13/15 19:37	100
Xylenes, Total	ND		1000	170	ug/L			11/13/15 19:37	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*82*		*62 - 123*		*11/13/15 19:37*	*100*
4-Bromofluorobenzene (Surr)	*88*		*75 - 120*		*11/13/15 19:37*	*100*
Dibromofluoromethane (Surr)	*89*		*80 - 120*		*11/13/15 19:37*	*100*
Toluene-d8 (Surr)	*99*		*80 - 120*		*11/13/15 19:37*	*100*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		1.8	0.26	ug/L		11/13/15 11:28	11/16/15 20:20	1
Acenaphthylene	ND		1.8	0.19	ug/L		11/13/15 11:28	11/16/15 20:20	1

Client Sample ID: MW163

Date Collected: 11/10/15 11:15
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-8

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		1.8	0.17	ug/L		11/13/15 11:28	11/16/15 20:20	1
Benzo[a]anthracene	ND		1.8	0.33	ug/L		11/13/15 11:28	11/16/15 20:20	1
Benzo[a]pyrene	ND		1.8	0.25	ug/L		11/13/15 11:28	11/16/15 20:20	1
Benzo[b]fluoranthene	ND		1.8	0.43	ug/L		11/13/15 11:28	11/16/15 20:20	1
Benzo[g,h,i]perylene	ND		1.8	0.26	ug/L		11/13/15 11:28	11/16/15 20:20	1
Benzo[k]fluoranthene	ND		1.8	0.27	ug/L		11/13/15 11:28	11/16/15 20:20	1
Bis(2-ethylhexyl) phthalate	ND		18	3.9	ug/L		11/13/15 11:28	11/16/15 20:20	1
2,2'-oxybis[1-chloropropane]	ND		8.9	0.21	ug/L		11/13/15 11:28	11/16/15 20:20	1
4-Bromophenyl phenyl ether	ND		8.9	1.0	ug/L		11/13/15 11:28	11/16/15 20:20	1
Butyl benzyl phthalate	ND		8.9	1.9	ug/L		11/13/15 11:28	11/16/15 20:20	1
Carbazole	ND		8.9	0.24	ug/L		11/13/15 11:28	11/16/15 20:20	1
4-Chloroaniline	ND		8.9	2.6	ug/L		11/13/15 11:28	11/16/15 20:20	1
2-Chloronaphthalene	ND		1.8	0.27	ug/L		11/13/15 11:28	11/16/15 20:20	1
4-Chlorophenyl phenyl ether	ND		8.9	0.71	ug/L		11/13/15 11:28	11/16/15 20:20	1
Chrysene	ND		1.8	0.28	ug/L		11/13/15 11:28	11/16/15 20:20	1
Dibenz(a,h)anthracene	ND		1.8	0.24	ug/L		11/13/15 11:28	11/16/15 20:20	1
Dibenzofuran	ND		8.9	0.86	ug/L		11/13/15 11:28	11/16/15 20:20	1
Di-n-butyl phthalate	ND		8.9	2.2	ug/L		11/13/15 11:28	11/16/15 20:20	1
3,3'-Dichlorobenzidine	ND		8.9	1.3	ug/L		11/13/15 11:28	11/16/15 20:20	1
Diethyl phthalate	ND		8.9	2.6	ug/L		11/13/15 11:28	11/16/15 20:20	1
Dimethyl phthalate	ND		8.9	1.6	ug/L		11/13/15 11:28	11/16/15 20:20	1
2,4-Dinitrotoluene	ND		8.9	1.9	ug/L		11/13/15 11:28	11/16/15 20:20	1
2,6-Dinitrotoluene	ND		8.9	1.2	ug/L		11/13/15 11:28	11/16/15 20:20	1
Di-n-octyl phthalate	ND		8.9	1.8	ug/L		11/13/15 11:28	11/16/15 20:20	1
Fluoranthene	ND		1.8	0.19	ug/L		11/13/15 11:28	11/16/15 20:20	1
Fluorene	ND		1.8	0.21	ug/L		11/13/15 11:28	11/16/15 20:20	1
Hexachlorobenzene	ND		8.9	0.54	ug/L		11/13/15 11:28	11/16/15 20:20	1
Hexachlorobutadiene	ND		8.9	0.84	ug/L		11/13/15 11:28	11/16/15 20:20	1
Hexachlorocyclopentadiene	ND		8.9	1.2	ug/L		11/13/15 11:28	11/16/15 20:20	1
Hexachloroethane	ND		8.9	1.2	ug/L		11/13/15 11:28	11/16/15 20:20	1
Indeno[1,2,3-cd]pyrene	ND		1.8	0.39	ug/L		11/13/15 11:28	11/16/15 20:20	1
Isophorone	ND		8.9	0.66	ug/L		11/13/15 11:28	11/16/15 20:20	1
2-Methylnaphthalene	ND		1.8	0.17	ug/L		11/13/15 11:28	11/16/15 20:20	1
Naphthalene	**2.4**		1.8	0.20	ug/L		11/13/15 11:28	11/16/15 20:20	1
2-Nitroaniline	ND		45	6.0	ug/L		11/13/15 11:28	11/16/15 20:20	1
3-Nitroaniline	ND		45	7.2	ug/L		11/13/15 11:28	11/16/15 20:20	1
4-Nitroaniline	ND		45	6.9	ug/L		11/13/15 11:28	11/16/15 20:20	1
4-Nitrophenol	ND		45	7.2	ug/L		11/13/15 11:28	11/16/15 20:20	1
Nitrobenzene	ND		18	1.3	ug/L		11/13/15 11:28	11/16/15 20:20	1
N-Nitrosodi-n-propylamine	ND		8.9	0.45	ug/L		11/13/15 11:28	11/16/15 20:20	1
N-Nitrosodiphenylamine	ND		8.9	1.1	ug/L		11/13/15 11:28	11/16/15 20:20	1
Phenanthrene	ND		1.8	0.37	ug/L		11/13/15 11:28	11/16/15 20:20	1
Pyrene	ND		1.8	0.20	ug/L		11/13/15 11:28	11/16/15 20:20	1
4-Chloro-3-methylphenol	ND		8.9	1.5	ug/L		11/13/15 11:28	11/16/15 20:20	1
2-Chlorophenol	ND		8.9	2.0	ug/L		11/13/15 11:28	11/16/15 20:20	1
2-Methylphenol	ND		8.9	1.7	ug/L		11/13/15 11:28	11/16/15 20:20	1
Methylphenol, 3 & 4	ND		8.9	1.9	ug/L		11/13/15 11:28	11/16/15 20:20	1
2,4-Dichlorophenol	ND		8.9	0.60	ug/L		11/13/15 11:28	11/16/15 20:20	1
2,4-Dimethylphenol	ND		8.9	1.5	ug/L		11/13/15 11:28	11/16/15 20:20	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW163

Date Collected: 11/10/15 11:15
Date Received: 11/11/15 13:45

Lab Sample ID: 180-49694-8

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrophenol	ND		45	22	ug/L		11/13/15 11:28	11/16/15 20:20	1
4,6-Dinitro-2-methylphenol	ND		45	14	ug/L		11/13/15 11:28	11/16/15 20:20	1
2-Nitrophenol	ND		8.9	1.0	ug/L		11/13/15 11:28	11/16/15 20:20	1
Pentachlorophenol	ND		8.9	4.5	ug/L		11/13/15 11:28	11/16/15 20:20	1
Phenol	ND		8.9	0.49	ug/L		11/13/15 11:28	11/16/15 20:20	1
2,4,5-Trichlorophenol	ND		8.9	1.1	ug/L		11/13/15 11:28	11/16/15 20:20	1
2,4,6-Trichlorophenol	ND		8.9	2.7	ug/L		11/13/15 11:28	11/16/15 20:20	1
Acetophenone	**1.8**	**J**	18	1.0	ug/L		11/13/15 11:28	11/16/15 20:20	1
Atrazine	ND		18	2.0	ug/L		11/13/15 11:28	11/16/15 20:20	1
Benzaldehyde	ND		18	0.94	ug/L		11/13/15 11:28	11/16/15 20:20	1
1,1'-Biphenyl	ND		8.9	0.94	ug/L		11/13/15 11:28	11/16/15 20:20	1
Caprolactam	ND		45	13	ug/L		11/13/15 11:28	11/16/15 20:20	1
Bis(2-chloroethoxy)methane	ND		8.9	1.2	ug/L		11/13/15 11:28	11/16/15 20:20	1
Bis(2-chloroethyl)ether	ND		8.9	0.28	ug/L		11/13/15 11:28	11/16/15 20:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*63*		*27 - 110*	*11/13/15 11:28*	*11/16/15 20:20*	*1*
Phenol-d5 (Surr)	*60*		*23 - 111*	*11/13/15 11:28*	*11/16/15 20:20*	*1*
2-Fluorobiphenyl	*57*		*28 - 106*	*11/13/15 11:28*	*11/16/15 20:20*	*1*
2,4,6-Tribromophenol (Surr)	*72*		*25 - 118*	*11/13/15 11:28*	*11/16/15 20:20*	*1*
2-Fluorophenol (Surr)	*55*		*20 - 108*	*11/13/15 11:28*	*11/16/15 20:20*	*1*
Terphenyl-d14 (Surr)	*63*		*20 - 109*	*11/13/15 11:28*	*11/16/15 20:20*	*1*

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.69	ug/L		11/18/15 08:00	11/23/15 19:02	1
Aluminum	**7600**		200	37	ug/L		11/18/15 08:00	11/23/15 19:02	1
Arsenic	ND		10	3.7	ug/L		11/18/15 08:00	11/23/15 19:02	1
Antimony	ND		10	3.5	ug/L		11/18/15 08:00	11/23/15 19:02	1
Barium	**24**	**J**	200	0.14	ug/L		11/18/15 08:00	11/23/15 19:02	1
Beryllium	**1.8**	**J**	4.0	0.15	ug/L		11/18/15 08:00	11/23/15 19:02	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:00	11/23/15 19:02	1
Calcium	**120000**	**B**	5000	84	ug/L		11/18/15 08:00	11/23/15 19:02	1
Chromium	**44**		5.0	0.97	ug/L		11/18/15 08:00	11/24/15 13:50	1
Cobalt	**69**		50	0.55	ug/L		11/18/15 08:00	11/23/15 19:02	1
Copper	ND		25	0.97	ug/L		11/18/15 08:00	11/23/15 19:02	1
Iron	**200000**		100	15	ug/L		11/18/15 08:00	11/23/15 19:02	1
Lead	**3.3**	**J**	10	2.1	ug/L		11/18/15 08:00	11/23/15 19:02	1
Magnesium	**26000**		5000	25	ug/L		11/18/15 08:00	11/23/15 19:02	1
Manganese	**19000**	**B**	15	0.19	ug/L		11/18/15 08:00	11/23/15 19:02	1
Nickel	**120**		40	0.89	ug/L		11/18/15 08:00	11/23/15 19:02	1
Potassium	**2100**	**J B**	5000	79	ug/L		11/18/15 08:00	11/23/15 19:02	1
Selenium	**4.0**	**J**	10	2.5	ug/L		11/18/15 08:00	11/24/15 13:50	1
Sodium	**79000**	**B**	5000	43	ug/L		11/18/15 08:00	11/23/15 19:02	1
Thallium	**3.9**	**J**	20	1.4	ug/L		11/18/15 08:00	11/23/15 19:02	1
Vanadium	**6.8**	**J**	50	4.7	ug/L		11/18/15 08:00	11/23/15 19:02	1
Zinc	**13**	**J B**	20	2.9	ug/L		11/18/15 08:00	11/23/15 19:02	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW163

Lab Sample ID: 180-49694-8
Date Collected: 11/10/15 11:15
Matrix: Water
Date Received: 11/11/15 13:45

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/12/15 07:05	11/12/15 14:07	1

Client Sample ID: MW163-F

Lab Sample ID: 180-49694-9
Date Collected: 11/10/15 11:15
Matrix: Water
Date Received: 11/11/15 13:45

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.69	ug/L		11/18/15 08:00	11/24/15 13:55	1
Aluminum	**6200**		200	37	ug/L		11/18/15 08:00	11/23/15 19:07	1
Arsenic	ND		10	3.7	ug/L		11/18/15 08:00	11/23/15 19:07	1
Antimony	ND		10	3.5	ug/L		11/18/15 08:00	11/23/15 19:07	1
Barium	**22**	**J**	200	0.14	ug/L		11/18/15 08:00	11/23/15 19:07	1
Beryllium	**1.7**	**J**	4.0	0.15	ug/L		11/18/15 08:00	11/23/15 19:07	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:00	11/23/15 19:07	1
Calcium	**120000**	**B**	5000	84	ug/L		11/18/15 08:00	11/23/15 19:07	1
Chromium	**40**		5.0	0.97	ug/L		11/18/15 08:00	11/24/15 13:55	1
Cobalt	**74**		50	0.55	ug/L		11/18/15 08:00	11/23/15 19:07	1
Copper	ND		25	0.97	ug/L		11/18/15 08:00	11/23/15 19:07	1
Iron	**210000**		100	15	ug/L		11/18/15 08:00	11/23/15 19:07	1
Lead	**2.1**	**J**	10	2.1	ug/L		11/18/15 08:00	11/23/15 19:07	1
Magnesium	**26000**		5000	25	ug/L		11/18/15 08:00	11/23/15 19:07	1
Manganese	**25000**	**B**	15	0.19	ug/L		11/18/15 08:00	11/24/15 13:55	1
Nickel	**130**		40	0.89	ug/L		11/18/15 08:00	11/23/15 19:07	1
Potassium	**2100**	**J B**	5000	79	ug/L		11/18/15 08:00	11/23/15 19:07	1
Selenium	**5.3**	**J**	10	2.5	ug/L		11/18/15 08:00	11/24/15 13:55	1
Sodium	**78000**	**B**	5000	43	ug/L		11/18/15 08:00	11/23/15 19:07	1
Thallium	**7.5**	**J**	20	1.4	ug/L		11/18/15 08:00	11/24/15 13:55	1
Vanadium	**5.5**	**J**	50	4.7	ug/L		11/18/15 08:00	11/23/15 19:07	1
Zinc	**19**	**J B**	20	2.9	ug/L		11/18/15 08:00	11/23/15 19:07	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/12/15 07:05	11/12/15 14:09	1

Client Sample ID: TRIP BLANK

Lab Sample ID: 180-49694-10
Date Collected: 11/10/15 00:00
Matrix: Water
Date Received: 11/11/15 13:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	1.0	ug/L			11/16/15 17:28	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.93	ug/L			11/16/15 17:28	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.33	ug/L			11/16/15 17:28	1
1,1,2-Trichloroethane	ND		5.0	1.2	ug/L			11/16/15 17:28	1
1,1-Dichloroethane	ND		5.0	1.0	ug/L			11/16/15 17:28	1
1,1-Dichloroethene	ND		5.0	1.1	ug/L			11/16/15 17:28	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.35	ug/L			11/16/15 17:28	1
1,2-Dichlorobenzene	ND		5.0	0.68	ug/L			11/16/15 17:28	1
1,2-Dichloroethane	ND		5.0	0.96	ug/L			11/16/15 17:28	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: TRIP BLANK

Lab Sample ID: 180-49694-10

Date Collected: 11/10/15 00:00
Matrix: Water
Date Received: 11/11/15 13:45

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	ND		5.0	1.3	ug/L			11/16/15 17:28	1
1,2,4-Trichlorobenzene	ND		5.0	0.38	ug/L			11/16/15 17:28	1
1,3-Dichlorobenzene	ND		5.0	0.51	ug/L			11/16/15 17:28	1
1,4-Dichlorobenzene	ND		5.0	0.53	ug/L			11/16/15 17:28	1
2-Butanone (MEK)	ND		5.0	1.1	ug/L			11/16/15 17:28	1
2-Hexanone	ND		5.0	0.57	ug/L			11/16/15 17:28	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.59	ug/L			11/16/15 17:28	1
Acetone	ND		20	5.0	ug/L			11/16/15 17:28	1
Benzene	ND		5.0	0.99	ug/L			11/16/15 17:28	1
Bromoform	ND		5.0	1.1	ug/L			11/16/15 17:28	1
Bromomethane	ND		5.0	1.6	ug/L			11/16/15 17:28	1
Carbon disulfide	ND		5.0	1.1	ug/L			11/16/15 17:28	1
Carbon tetrachloride	ND		5.0	1.1	ug/L			11/16/15 17:28	1
Chlorobenzene	ND		5.0	0.53	ug/L			11/16/15 17:28	1
Chlorodibromomethane	ND		5.0	0.65	ug/L			11/16/15 17:28	1
Chloroform	ND		5.0	1.0	ug/L			11/16/15 17:28	1
Chloromethane	ND		5.0	1.4	ug/L			11/16/15 17:28	1
Chloroethane	ND		5.0	0.75	ug/L			11/16/15 17:28	1
cis-1,2-Dichloroethene	ND		5.0	0.67	ug/L			11/16/15 17:28	1
cis-1,3-Dichloropropene	ND		5.0	0.73	ug/L			11/16/15 17:28	1
Dichlorobromomethane	ND		5.0	0.93	ug/L			11/16/15 17:28	1
Dichlorodifluoromethane	ND		5.0	0.64	ug/L			11/16/15 17:28	1
Ethylbenzene	ND		5.0	0.62	ug/L			11/16/15 17:28	1
1,2-Dibromoethane	ND		5.0	0.61	ug/L			11/16/15 17:28	1
Cyclohexane	ND		5.0	0.60	ug/L			11/16/15 17:28	1
Isopropylbenzene	ND		5.0	0.53	ug/L			11/16/15 17:28	1
Methyl acetate	ND		25	3.0	ug/L			11/16/15 17:28	1
Methyl tert-butyl ether	ND		5.0	1.0	ug/L			11/16/15 17:28	1
Methylcyclohexane	ND		5.0	0.56	ug/L			11/16/15 17:28	1
Methylene Chloride	ND		5.0	1.1	ug/L			11/16/15 17:28	1
Styrene	ND		5.0	0.64	ug/L			11/16/15 17:28	1
Tetrachloroethene	ND		5.0	0.82	ug/L			11/16/15 17:28	1
Toluene	ND		5.0	0.85	ug/L			11/16/15 17:28	1
trans-1,2-Dichloroethene	ND		5.0	0.75	ug/L			11/16/15 17:28	1
trans-1,3-Dichloropropene	ND		5.0	0.58	ug/L			11/16/15 17:28	1
Trichloroethene	ND		5.0	0.80	ug/L			11/16/15 17:28	1
Trichlorofluoromethane	ND		5.0	1.1	ug/L			11/16/15 17:28	1
Vinyl chloride	ND		5.0	1.3	ug/L			11/16/15 17:28	1
Xylenes, Total	ND		10	1.7	ug/L			11/16/15 17:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*62 - 123*		*11/16/15 17:28*	*1*
4-Bromofluorobenzene (Surr)	*88*		*75 - 120*		*11/16/15 17:28*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*11/16/15 17:28*	*1*
Toluene-d8 (Surr)	*90*		*80 - 120*		*11/16/15 17:28*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: FB01

Date Collected: 11/11/15 09:15
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-1

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	1.0	ug/L			11/16/15 17:53	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.93	ug/L			11/16/15 17:53	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.33	ug/L			11/16/15 17:53	1
1,1,2-Trichloroethane	ND		5.0	1.2	ug/L			11/16/15 17:53	1
1,1-Dichloroethane	ND		5.0	1.0	ug/L			11/16/15 17:53	1
1,1-Dichloroethene	ND		5.0	1.1	ug/L			11/16/15 17:53	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.35	ug/L			11/16/15 17:53	1
1,2-Dichlorobenzene	ND		5.0	0.68	ug/L			11/16/15 17:53	1
1,2-Dichloroethane	ND		5.0	0.96	ug/L			11/16/15 17:53	1
1,2-Dichloropropane	ND		5.0	1.3	ug/L			11/16/15 17:53	1
1,2,4-Trichlorobenzene	ND		5.0	0.38	ug/L			11/16/15 17:53	1
1,3-Dichlorobenzene	ND		5.0	0.51	ug/L			11/16/15 17:53	1
1,4-Dichlorobenzene	ND		5.0	0.53	ug/L			11/16/15 17:53	1
2-Butanone (MEK)	ND		5.0	1.1	ug/L			11/16/15 17:53	1
2-Hexanone	ND		5.0	0.57	ug/L			11/16/15 17:53	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.59	ug/L			11/16/15 17:53	1
Acetone	ND		20	5.0	ug/L			11/16/15 17:53	1
Benzene	ND		5.0	0.99	ug/L			11/16/15 17:53	1
Bromoform	ND		5.0	1.1	ug/L			11/16/15 17:53	1
Bromomethane	ND		5.0	1.6	ug/L			11/16/15 17:53	1
Carbon disulfide	ND		5.0	1.1	ug/L			11/16/15 17:53	1
Carbon tetrachloride	ND		5.0	1.1	ug/L			11/16/15 17:53	1
Chlorobenzene	ND		5.0	0.53	ug/L			11/16/15 17:53	1
Chlorodibromomethane	ND		5.0	0.65	ug/L			11/16/15 17:53	1
Chloroform	ND		5.0	1.0	ug/L			11/16/15 17:53	1
Chloromethane	ND		5.0	1.4	ug/L			11/16/15 17:53	1
Chloroethane	ND		5.0	0.75	ug/L			11/16/15 17:53	1
cis-1,2-Dichloroethene	ND		5.0	0.67	ug/L			11/16/15 17:53	1
cis-1,3-Dichloropropene	ND		5.0	0.73	ug/L			11/16/15 17:53	1
Dichlorobromomethane	ND		5.0	0.93	ug/L			11/16/15 17:53	1
Dichlorodifluoromethane	ND		5.0	0.64	ug/L			11/16/15 17:53	1
Ethylbenzene	ND		5.0	0.62	ug/L			11/16/15 17:53	1
1,2-Dibromoethane	ND		5.0	0.61	ug/L			11/16/15 17:53	1
Cyclohexane	ND		5.0	0.60	ug/L			11/16/15 17:53	1
Isopropylbenzene	ND		5.0	0.53	ug/L			11/16/15 17:53	1
Methyl acetate	ND		25	3.0	ug/L			11/16/15 17:53	1
Methyl tert-butyl ether	ND		5.0	1.0	ug/L			11/16/15 17:53	1
Methylcyclohexane	ND		5.0	0.56	ug/L			11/16/15 17:53	1
Methylene Chloride	ND		5.0	1.1	ug/L			11/16/15 17:53	1
Styrene	ND		5.0	0.64	ug/L			11/16/15 17:53	1
Tetrachloroethene	ND		5.0	0.82	ug/L			11/16/15 17:53	1
Toluene	ND		5.0	0.85	ug/L			11/16/15 17:53	1
trans-1,2-Dichloroethene	ND		5.0	0.75	ug/L			11/16/15 17:53	1
trans-1,3-Dichloropropene	ND		5.0	0.58	ug/L			11/16/15 17:53	1
Trichloroethene	ND		5.0	0.80	ug/L			11/16/15 17:53	1
Trichlorofluoromethane	ND		5.0	1.1	ug/L			11/16/15 17:53	1
Vinyl chloride	ND		5.0	1.3	ug/L			11/16/15 17:53	1
Xylenes, Total	ND		10	1.7	ug/L			11/16/15 17:53	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: FB01

Date Collected: 11/11/15 09:15
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-1

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*62 - 123*		*11/16/15 17:53*	*1*
4-Bromofluorobenzene (Surr)	*90*		*75 - 120*		*11/16/15 17:53*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*11/16/15 17:53*	*1*
Toluene-d8 (Surr)	*89*		*80 - 120*		*11/16/15 17:53*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		1.7	0.24	ug/L		11/16/15 09:27	11/17/15 16:14	1
Acenaphthylene	ND		1.7	0.18	ug/L		11/16/15 09:27	11/17/15 16:14	1
Anthracene	ND		1.7	0.16	ug/L		11/16/15 09:27	11/17/15 16:14	1
Benzo[a]anthracene	ND		1.7	0.31	ug/L		11/16/15 09:27	11/17/15 16:14	1
Benzo[a]pyrene	ND		1.7	0.24	ug/L		11/16/15 09:27	11/17/15 16:14	1
Benzo[b]fluoranthene	ND		1.7	0.41	ug/L		11/16/15 09:27	11/17/15 16:14	1
Benzo[g,h,i]perylene	ND		1.7	0.24	ug/L		11/16/15 09:27	11/17/15 16:14	1
Benzo[k]fluoranthene	ND		1.7	0.25	ug/L		11/16/15 09:27	11/17/15 16:14	1
Bis(2-ethylhexyl) phthalate	**12**	**J**	17	3.7	ug/L		11/16/15 09:27	11/17/15 16:14	1
2,2'-oxybis[1-chloropropane]	ND		8.3	0.20	ug/L		11/16/15 09:27	11/17/15 16:14	1
4-Bromophenyl phenyl ether	ND		8.3	0.97	ug/L		11/16/15 09:27	11/17/15 16:14	1
Butyl benzyl phthalate	ND		8.3	1.8	ug/L		11/16/15 09:27	11/17/15 16:14	1
Carbazole	ND		8.3	0.22	ug/L		11/16/15 09:27	11/17/15 16:14	1
4-Chloroaniline	ND		8.3	2.4	ug/L		11/16/15 09:27	11/17/15 16:14	1
2-Chloronaphthalene	ND		1.7	0.26	ug/L		11/16/15 09:27	11/17/15 16:14	1
4-Chlorophenyl phenyl ether	ND		8.3	0.67	ug/L		11/16/15 09:27	11/17/15 16:14	1
Chrysene	ND		1.7	0.26	ug/L		11/16/15 09:27	11/17/15 16:14	1
Dibenz(a,h)anthracene	ND		1.7	0.22	ug/L		11/16/15 09:27	11/17/15 16:14	1
Dibenzofuran	ND		8.3	0.80	ug/L		11/16/15 09:27	11/17/15 16:14	1
Di-n-butyl phthalate	ND		8.3	2.0	ug/L		11/16/15 09:27	11/17/15 16:14	1
3,3'-Dichlorobenzidine	ND		8.3	1.2	ug/L		11/16/15 09:27	11/17/15 16:14	1
Diethyl phthalate	ND		8.3	2.5	ug/L		11/16/15 09:27	11/17/15 16:14	1
Dimethyl phthalate	ND		8.3	1.5	ug/L		11/16/15 09:27	11/17/15 16:14	1
2,4-Dinitrotoluene	ND		8.3	1.8	ug/L		11/16/15 09:27	11/17/15 16:14	1
2,6-Dinitrotoluene	ND		8.3	1.1	ug/L		11/16/15 09:27	11/17/15 16:14	1
Di-n-octyl phthalate	ND		8.3	1.7	ug/L		11/16/15 09:27	11/17/15 16:14	1
Fluoranthene	ND		1.7	0.18	ug/L		11/16/15 09:27	11/17/15 16:14	1
Fluorene	ND		1.7	0.20	ug/L		11/16/15 09:27	11/17/15 16:14	1
Hexachlorobenzene	ND		8.3	0.51	ug/L		11/16/15 09:27	11/17/15 16:14	1
Hexachlorobutadiene	ND		8.3	0.78	ug/L		11/16/15 09:27	11/17/15 16:14	1
Hexachlorocyclopentadiene	ND		8.3	1.1	ug/L		11/16/15 09:27	11/17/15 16:14	1
Hexachloroethane	ND		8.3	1.2	ug/L		11/16/15 09:27	11/17/15 16:14	1
Indeno[1,2,3-cd]pyrene	ND		1.7	0.36	ug/L		11/16/15 09:27	11/17/15 16:14	1
Isophorone	ND		8.3	0.62	ug/L		11/16/15 09:27	11/17/15 16:14	1
2-Methylnaphthalene	ND		1.7	0.16	ug/L		11/16/15 09:27	11/17/15 16:14	1
Naphthalene	ND		1.7	0.19	ug/L		11/16/15 09:27	11/17/15 16:14	1
2-Nitroaniline	ND	^c	42	5.6	ug/L		11/16/15 09:27	11/17/15 16:14	1
3-Nitroaniline	ND		42	6.7	ug/L		11/16/15 09:27	11/17/15 16:14	1
4-Nitroaniline	ND		42	6.4	ug/L		11/16/15 09:27	11/17/15 16:14	1
4-Nitrophenol	ND		42	6.7	ug/L		11/16/15 09:27	11/17/15 16:14	1
Nitrobenzene	ND		17	1.2	ug/L		11/16/15 09:27	11/17/15 16:14	1
N-Nitrosodi-n-propylamine	ND		8.3	0.42	ug/L		11/16/15 09:27	11/17/15 16:14	1
N-Nitrosodiphenylamine	ND		8.3	1.0	ug/L		11/16/15 09:27	11/17/15 16:14	1

Client Sample ID: FB01

Date Collected: 11/11/15 09:15
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-1

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	ND		1.7	0.35	ug/L		11/16/15 09:27	11/17/15 16:14	1
Pyrene	ND		1.7	0.19	ug/L		11/16/15 09:27	11/17/15 16:14	1
4-Chloro-3-methylphenol	ND		8.3	1.4	ug/L		11/16/15 09:27	11/17/15 16:14	1
2-Chlorophenol	ND		8.3	1.9	ug/L		11/16/15 09:27	11/17/15 16:14	1
2-Methylphenol	ND		8.3	1.6	ug/L		11/16/15 09:27	11/17/15 16:14	1
Methylphenol, 3 & 4	ND		8.3	1.7	ug/L		11/16/15 09:27	11/17/15 16:14	1
2,4-Dichlorophenol	ND		8.3	0.56	ug/L		11/16/15 09:27	11/17/15 16:14	1
2,4-Dimethylphenol	ND		8.3	1.4	ug/L		11/16/15 09:27	11/17/15 16:14	1
2,4-Dinitrophenol	ND		42	21	ug/L		11/16/15 09:27	11/17/15 16:14	1
4,6-Dinitro-2-methylphenol	ND		42	13	ug/L		11/16/15 09:27	11/17/15 16:14	1
2-Nitrophenol	ND		8.3	0.93	ug/L		11/16/15 09:27	11/17/15 16:14	1
Pentachlorophenol	ND		8.3	4.2	ug/L		11/16/15 09:27	11/17/15 16:14	1
Phenol	ND		8.3	0.46	ug/L		11/16/15 09:27	11/17/15 16:14	1
2,4,5-Trichlorophenol	ND		8.3	1.0	ug/L		11/16/15 09:27	11/17/15 16:14	1
2,4,6-Trichlorophenol	ND		8.3	2.5	ug/L		11/16/15 09:27	11/17/15 16:14	1
Acetophenone	ND		17	0.94	ug/L		11/16/15 09:27	11/17/15 16:14	1
Atrazine	ND		17	1.9	ug/L		11/16/15 09:27	11/17/15 16:14	1
Benzaldehyde	ND		17	0.88	ug/L		11/16/15 09:27	11/17/15 16:14	1
1,1'-Biphenyl	ND		8.3	0.88	ug/L		11/16/15 09:27	11/17/15 16:14	1
Caprolactam	ND		42	12	ug/L		11/16/15 09:27	11/17/15 16:14	1
Bis(2-chloroethoxy)methane	ND		8.3	1.1	ug/L		11/16/15 09:27	11/17/15 16:14	1
Bis(2-chloroethyl)ether	ND		8.3	0.26	ug/L		11/16/15 09:27	11/17/15 16:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*83*		*27 - 110*	*11/16/15 09:27*	*11/17/15 16:14*	*1*
Phenol-d5 (Surr)	*73*		*23 - 111*	*11/16/15 09:27*	*11/17/15 16:14*	*1*
2-Fluorobiphenyl	*71*		*28 - 106*	*11/16/15 09:27*	*11/17/15 16:14*	*1*
2,4,6-Tribromophenol (Surr)	*76*		*25 - 118*	*11/16/15 09:27*	*11/17/15 16:14*	*1*
2-Fluorophenol (Surr)	*67*		*20 - 108*	*11/16/15 09:27*	*11/17/15 16:14*	*1*
Terphenyl-d14 (Surr)	*81*		*20 - 109*	*11/16/15 09:27*	*11/17/15 16:14*	*1*

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.69	ug/L		11/18/15 08:14	11/24/15 18:29	1
Aluminum	ND		200	37	ug/L		11/18/15 08:14	11/24/15 18:29	1
Arsenic	ND		10	3.7	ug/L		11/18/15 08:14	11/24/15 18:29	1
Antimony	ND		10	3.5	ug/L		11/18/15 08:14	11/24/15 18:29	1
Barium	**0.75**	**J**	200	0.14	ug/L		11/18/15 08:14	11/24/15 18:29	1
Beryllium	ND		4.0	0.15	ug/L		11/18/15 08:14	11/24/15 18:29	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:14	11/24/15 18:29	1
Calcium	**150**	**J**	5000	84	ug/L		11/18/15 08:14	11/24/15 18:29	1
Chromium	ND		5.0	0.97	ug/L		11/18/15 08:14	11/24/15 18:29	1
Cobalt	ND		50	0.55	ug/L		11/18/15 08:14	11/24/15 18:29	1
Copper	**1.6**	**J B**	25	0.97	ug/L		11/18/15 08:14	11/24/15 18:29	1
Iron	**36**	**J**	100	15	ug/L		11/18/15 08:14	11/24/15 18:29	1
Lead	ND		10	2.1	ug/L		11/18/15 08:14	11/24/15 18:29	1
Magnesium	**38**	**J**	5000	25	ug/L		11/18/15 08:14	11/24/15 18:29	1
Manganese	**5.2**	**J B**	15	0.19	ug/L		11/18/15 08:14	11/24/15 18:29	1
Nickel	ND		40	0.89	ug/L		11/18/15 08:14	11/24/15 18:29	1
Potassium	**120**	**J B**	5000	79	ug/L		11/18/15 08:14	11/24/15 18:29	1

Client Sample ID: FB01

Lab Sample ID: 180-49761-1
Date Collected: 11/11/15 09:15
Matrix: Water
Date Received: 11/12/15 14:30

Method: 6010C - Metals (ICP) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		10	2.5	ug/L		11/18/15 08:14	11/24/15 18:29	1
Sodium	**790**	**J B**	5000	43	ug/L		11/18/15 08:14	11/24/15 18:29	1
Thallium	ND		20	1.4	ug/L		11/18/15 08:14	11/24/15 18:29	1
Vanadium	ND		50	4.7	ug/L		11/18/15 08:14	11/24/15 18:29	1
Zinc	ND		20	2.9	ug/L		11/18/15 08:14	11/24/15 18:29	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.69	ug/L		11/18/15 08:14	11/24/15 18:34	1
Aluminum	ND		200	37	ug/L		11/18/15 08:14	11/24/15 18:34	1
Arsenic	ND		10	3.7	ug/L		11/18/15 08:14	11/24/15 18:34	1
Antimony	ND		10	3.5	ug/L		11/18/15 08:14	11/24/15 18:34	1
Barium	**0.47**	**J**	200	0.14	ug/L		11/18/15 08:14	11/24/15 18:34	1
Beryllium	ND		4.0	0.15	ug/L		11/18/15 08:14	11/24/15 18:34	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:14	11/24/15 18:34	1
Calcium	ND		5000	84	ug/L		11/18/15 08:14	11/24/15 18:34	1
Chromium	ND		5.0	0.97	ug/L		11/18/15 08:14	11/24/15 18:34	1
Cobalt	ND		50	0.55	ug/L		11/18/15 08:14	11/24/15 18:34	1
Copper	**1.3**	**J B**	25	0.97	ug/L		11/18/15 08:14	11/24/15 18:34	1
Iron	ND		100	15	ug/L		11/18/15 08:14	11/24/15 18:34	1
Lead	ND		10	2.1	ug/L		11/18/15 08:14	11/24/15 18:34	1
Magnesium	ND		5000	25	ug/L		11/18/15 08:14	11/24/15 18:34	1
Manganese	**1.8**	**J B**	15	0.19	ug/L		11/18/15 08:14	11/24/15 18:34	1
Nickel	ND		40	0.89	ug/L		11/18/15 08:14	11/24/15 18:34	1
Potassium	**120**	**J B**	5000	79	ug/L		11/18/15 08:14	11/24/15 18:34	1
Selenium	ND		10	2.5	ug/L		11/18/15 08:14	11/24/15 18:34	1
Sodium	**740**	**J B**	5000	43	ug/L		11/18/15 08:14	11/24/15 18:34	1
Thallium	**1.5**	**J**	20	1.4	ug/L		11/18/15 08:14	11/24/15 18:34	1
Vanadium	ND		50	4.7	ug/L		11/18/15 08:14	11/24/15 18:34	1
Zinc	ND		20	2.9	ug/L		11/18/15 08:14	11/24/15 18:34	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/13/15 08:17	11/13/15 12:14	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/13/15 08:17	11/13/15 12:16	1

Client Sample ID: MW501S

Lab Sample ID: 180-49761-2
Date Collected: 11/11/15 10:55
Matrix: Water
Date Received: 11/12/15 14:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		500	100	ug/L			11/16/15 19:10	100
1,1,2,2-Tetrachloroethane	ND		500	93	ug/L			11/16/15 19:10	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		500	33	ug/L			11/16/15 19:10	100
1,1,2-Trichloroethane	ND		500	120	ug/L			11/16/15 19:10	100
1,1-Dichloroethane	ND		500	100	ug/L			11/16/15 19:10	100

Client Sample ID: MW501S

Date Collected: 11/11/15 10:55
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-2

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		500	110	ug/L			11/16/15 19:10	100
1,2-Dibromo-3-Chloropropane	ND		500	35	ug/L			11/16/15 19:10	100
1,2-Dichlorobenzene	ND		500	68	ug/L			11/16/15 19:10	100
1,2-Dichloroethane	ND		500	96	ug/L			11/16/15 19:10	100
1,2-Dichloropropane	ND		500	130	ug/L			11/16/15 19:10	100
1,2,4-Trichlorobenzene	ND		500	38	ug/L			11/16/15 19:10	100
1,3-Dichlorobenzene	ND		500	51	ug/L			11/16/15 19:10	100
1,4-Dichlorobenzene	ND		500	53	ug/L			11/16/15 19:10	100
2-Butanone (MEK)	ND		500	110	ug/L			11/16/15 19:10	100
2-Hexanone	ND		500	57	ug/L			11/16/15 19:10	100
4-Methyl-2-pentanone (MIBK)	ND		500	59	ug/L			11/16/15 19:10	100
Acetone	ND		2000	500	ug/L			11/16/15 19:10	100
Benzene	**34000**	**E**	500	99	ug/L			11/16/15 19:10	100
Bromoform	ND		500	110	ug/L			11/16/15 19:10	100
Bromomethane	ND		500	160	ug/L			11/16/15 19:10	100
Carbon disulfide	ND		500	110	ug/L			11/16/15 19:10	100
Carbon tetrachloride	ND		500	110	ug/L			11/16/15 19:10	100
Chlorobenzene	ND		500	53	ug/L			11/16/15 19:10	100
Chlorodibromomethane	ND		500	65	ug/L			11/16/15 19:10	100
Chloroform	ND		500	100	ug/L			11/16/15 19:10	100
Chloromethane	ND		500	140	ug/L			11/16/15 19:10	100
Chloroethane	ND		500	75	ug/L			11/16/15 19:10	100
cis-1,2-Dichloroethene	ND		500	67	ug/L			11/16/15 19:10	100
cis-1,3-Dichloropropene	ND		500	73	ug/L			11/16/15 19:10	100
Dichlorobromomethane	ND		500	93	ug/L			11/16/15 19:10	100
Dichlorodifluoromethane	ND		500	64	ug/L			11/16/15 19:10	100
Ethylbenzene	**420**	**J**	500	62	ug/L			11/16/15 19:10	100
1,2-Dibromoethane	ND		500	61	ug/L			11/16/15 19:10	100
Cyclohexane	ND		500	60	ug/L			11/16/15 19:10	100
Isopropylbenzene	ND		500	53	ug/L			11/16/15 19:10	100
Methyl acetate	ND		2500	300	ug/L			11/16/15 19:10	100
Methyl tert-butyl ether	ND		500	100	ug/L			11/16/15 19:10	100
Methylcyclohexane	ND		500	56	ug/L			11/16/15 19:10	100
Methylene Chloride	ND		500	110	ug/L			11/16/15 19:10	100
Styrene	ND		500	64	ug/L			11/16/15 19:10	100
Tetrachloroethene	ND		500	82	ug/L			11/16/15 19:10	100
Toluene	**1300**		500	85	ug/L			11/16/15 19:10	100
trans-1,2-Dichloroethene	ND		500	75	ug/L			11/16/15 19:10	100
trans-1,3-Dichloropropene	ND		500	58	ug/L			11/16/15 19:10	100
Trichloroethene	ND		500	80	ug/L			11/16/15 19:10	100
Trichlorofluoromethane	ND		500	110	ug/L			11/16/15 19:10	100
Vinyl chloride	ND		500	130	ug/L			11/16/15 19:10	100
Xylenes, Total	**590**	**J**	1000	170	ug/L			11/16/15 19:10	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*62 - 123*		*11/16/15 19:10*	*100*
4-Bromofluorobenzene (Surr)	*87*		*75 - 120*		*11/16/15 19:10*	*100*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*11/16/15 19:10*	*100*
Toluene-d8 (Surr)	*90*		*80 - 120*		*11/16/15 19:10*	*100*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW501S

Date Collected: 11/11/15 10:55
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-2

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2500	510	ug/L			11/17/15 15:40	500
1,1,2,2-Tetrachloroethane	ND		2500	470	ug/L			11/17/15 15:40	500
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2500	170	ug/L			11/17/15 15:40	500
1,1,2-Trichloroethane	ND		2500	580	ug/L			11/17/15 15:40	500
1,1-Dichloroethane	ND		2500	510	ug/L			11/17/15 15:40	500
1,1-Dichloroethene	ND		2500	530	ug/L			11/17/15 15:40	500
1,2-Dibromo-3-Chloropropane	ND	^c	2500	180	ug/L			11/17/15 15:40	500
1,2-Dichlorobenzene	ND		2500	340	ug/L			11/17/15 15:40	500
1,2-Dichloroethane	ND		2500	480	ug/L			11/17/15 15:40	500
1,2-Dichloropropane	ND		2500	640	ug/L			11/17/15 15:40	500
1,2,4-Trichlorobenzene	ND		2500	190	ug/L			11/17/15 15:40	500
1,3-Dichlorobenzene	ND		2500	250	ug/L			11/17/15 15:40	500
1,4-Dichlorobenzene	ND		2500	260	ug/L			11/17/15 15:40	500
2-Butanone (MEK)	ND	^c	2500	540	ug/L			11/17/15 15:40	500
2-Hexanone	ND	^c	2500	280	ug/L			11/17/15 15:40	500
4-Methyl-2-pentanone (MIBK)	ND	^c	2500	300	ug/L			11/17/15 15:40	500
Acetone	ND		10000	2500	ug/L			11/17/15 15:40	500
Benzene	**95000**		2500	490	ug/L			11/17/15 15:40	500
Bromoform	ND	^c *	2500	530	ug/L			11/17/15 15:40	500
Bromomethane	ND		2500	790	ug/L			11/17/15 15:40	500
Carbon disulfide	ND		2500	540	ug/L			11/17/15 15:40	500
Carbon tetrachloride	ND		2500	540	ug/L			11/17/15 15:40	500
Chlorobenzene	ND		2500	260	ug/L			11/17/15 15:40	500
Chlorodibromomethane	ND	^c *	2500	320	ug/L			11/17/15 15:40	500
Chloroform	ND		2500	500	ug/L			11/17/15 15:40	500
Chloromethane	ND		2500	700	ug/L			11/17/15 15:40	500
Chloroethane	ND		2500	370	ug/L			11/17/15 15:40	500
cis-1,2-Dichloroethene	ND		2500	330	ug/L			11/17/15 15:40	500
cis-1,3-Dichloropropene	ND		2500	360	ug/L			11/17/15 15:40	500
Dichlorobromomethane	ND		2500	470	ug/L			11/17/15 15:40	500
Dichlorodifluoromethane	ND		2500	320	ug/L			11/17/15 15:40	500
Ethylbenzene	**710**	**J**	2500	310	ug/L			11/17/15 15:40	500
1,2-Dibromoethane	ND		2500	310	ug/L			11/17/15 15:40	500
Cyclohexane	ND		2500	300	ug/L			11/17/15 15:40	500
Isopropylbenzene	ND		2500	270	ug/L			11/17/15 15:40	500
Methyl acetate	ND		13000	1500	ug/L			11/17/15 15:40	500
Methyl tert-butyl ether	ND		2500	510	ug/L			11/17/15 15:40	500
Methylcyclohexane	ND		2500	280	ug/L			11/17/15 15:40	500
Methylene Chloride	ND		2500	540	ug/L			11/17/15 15:40	500
Styrene	ND		2500	320	ug/L			11/17/15 15:40	500
Tetrachloroethene	ND		2500	410	ug/L			11/17/15 15:40	500
Toluene	**2400**	**J**	2500	420	ug/L			11/17/15 15:40	500
trans-1,2-Dichloroethene	ND		2500	380	ug/L			11/17/15 15:40	500
trans-1,3-Dichloropropene	ND		2500	290	ug/L			11/17/15 15:40	500
Trichloroethene	ND		2500	400	ug/L			11/17/15 15:40	500
Trichlorofluoromethane	ND		2500	560	ug/L			11/17/15 15:40	500
Vinyl chloride	ND		2500	650	ug/L			11/17/15 15:40	500
Xylenes, Total	**1200**	**J**	5000	840	ug/L			11/17/15 15:40	500

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW501S

Date Collected: 11/11/15 10:55
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-2

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*62 - 123*		*11/17/15 15:40*	*500*
4-Bromofluorobenzene (Surr)	*87*		*75 - 120*		*11/17/15 15:40*	*500*
Dibromofluoromethane (Surr)	*93*		*80 - 120*		*11/17/15 15:40*	*500*
Toluene-d8 (Surr)	*92*		*80 - 120*		*11/17/15 15:40*	*500*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		1.8	0.26	ug/L		11/16/15 09:27	11/17/15 16:40	1
Acenaphthylene	ND		1.8	0.19	ug/L		11/16/15 09:27	11/17/15 16:40	1
Anthracene	ND		1.8	0.17	ug/L		11/16/15 09:27	11/17/15 16:40	1
Benzo[a]anthracene	ND		1.8	0.33	ug/L		11/16/15 09:27	11/17/15 16:40	1
Benzo[a]pyrene	ND		1.8	0.25	ug/L		11/16/15 09:27	11/17/15 16:40	1
Benzo[b]fluoranthene	ND		1.8	0.43	ug/L		11/16/15 09:27	11/17/15 16:40	1
Benzo[g,h,i]perylene	ND		1.8	0.26	ug/L		11/16/15 09:27	11/17/15 16:40	1
Benzo[k]fluoranthene	ND		1.8	0.27	ug/L		11/16/15 09:27	11/17/15 16:40	1
Bis(2-ethylhexyl) phthalate	**6.1**	**J**	18	3.9	ug/L		11/16/15 09:27	11/17/15 16:40	1
2,2'-oxybis[1-chloropropane]	ND		8.9	0.21	ug/L		11/16/15 09:27	11/17/15 16:40	1
4-Bromophenyl phenyl ether	ND		8.9	1.0	ug/L		11/16/15 09:27	11/17/15 16:40	1
Butyl benzyl phthalate	ND		8.9	1.9	ug/L		11/16/15 09:27	11/17/15 16:40	1
Carbazole	ND		8.9	0.24	ug/L		11/16/15 09:27	11/17/15 16:40	1
4-Chloroaniline	ND		8.9	2.6	ug/L		11/16/15 09:27	11/17/15 16:40	1
2-Chloronaphthalene	ND		1.8	0.27	ug/L		11/16/15 09:27	11/17/15 16:40	1
4-Chlorophenyl phenyl ether	ND		8.9	0.71	ug/L		11/16/15 09:27	11/17/15 16:40	1
Chrysene	ND		1.8	0.28	ug/L		11/16/15 09:27	11/17/15 16:40	1
Dibenz(a,h)anthracene	ND		1.8	0.24	ug/L		11/16/15 09:27	11/17/15 16:40	1
Dibenzofuran	ND		8.9	0.86	ug/L		11/16/15 09:27	11/17/15 16:40	1
Di-n-butyl phthalate	ND		8.9	2.2	ug/L		11/16/15 09:27	11/17/15 16:40	1
3,3'-Dichlorobenzidine	ND		8.9	1.3	ug/L		11/16/15 09:27	11/17/15 16:40	1
Diethyl phthalate	**4.0**	**J**	8.9	2.6	ug/L		11/16/15 09:27	11/17/15 16:40	1
Dimethyl phthalate	ND		8.9	1.6	ug/L		11/16/15 09:27	11/17/15 16:40	1
2,4-Dinitrotoluene	ND		8.9	1.9	ug/L		11/16/15 09:27	11/17/15 16:40	1
2,6-Dinitrotoluene	ND		8.9	1.2	ug/L		11/16/15 09:27	11/17/15 16:40	1
Di-n-octyl phthalate	ND		8.9	1.8	ug/L		11/16/15 09:27	11/17/15 16:40	1
Fluoranthene	ND		1.8	0.19	ug/L		11/16/15 09:27	11/17/15 16:40	1
Fluorene	ND		1.8	0.21	ug/L		11/16/15 09:27	11/17/15 16:40	1
Hexachlorobenzene	ND		8.9	0.54	ug/L		11/16/15 09:27	11/17/15 16:40	1
Hexachlorobutadiene	ND		8.9	0.84	ug/L		11/16/15 09:27	11/17/15 16:40	1
Hexachlorocyclopentadiene	ND		8.9	1.2	ug/L		11/16/15 09:27	11/17/15 16:40	1
Hexachloroethane	ND		8.9	1.2	ug/L		11/16/15 09:27	11/17/15 16:40	1
Indeno[1,2,3-cd]pyrene	ND		1.8	0.39	ug/L		11/16/15 09:27	11/17/15 16:40	1
Isophorone	ND		8.9	0.66	ug/L		11/16/15 09:27	11/17/15 16:40	1
2-Methylnaphthalene	ND		1.8	0.17	ug/L		11/16/15 09:27	11/17/15 16:40	1
Naphthalene	**20**		1.8	0.20	ug/L		11/16/15 09:27	11/17/15 16:40	1
2-Nitroaniline	ND	^c	45	6.0	ug/L		11/16/15 09:27	11/17/15 16:40	1
3-Nitroaniline	ND		45	7.2	ug/L		11/16/15 09:27	11/17/15 16:40	1
4-Nitroaniline	ND		45	6.9	ug/L		11/16/15 09:27	11/17/15 16:40	1
4-Nitrophenol	ND		45	7.2	ug/L		11/16/15 09:27	11/17/15 16:40	1
Nitrobenzene	ND		18	1.3	ug/L		11/16/15 09:27	11/17/15 16:40	1
N-Nitrosodi-n-propylamine	ND		8.9	0.45	ug/L		11/16/15 09:27	11/17/15 16:40	1
N-Nitrosodiphenylamine	ND		8.9	1.1	ug/L		11/16/15 09:27	11/17/15 16:40	1

Client Sample ID: MW501S

Date Collected: 11/11/15 10:55
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-2

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	ND		1.8	0.37	ug/L		11/16/15 09:27	11/17/15 16:40	1
Pyrene	ND		1.8	0.20	ug/L		11/16/15 09:27	11/17/15 16:40	1
4-Chloro-3-methylphenol	ND		8.9	1.5	ug/L		11/16/15 09:27	11/17/15 16:40	1
2-Chlorophenol	ND		8.9	2.0	ug/L		11/16/15 09:27	11/17/15 16:40	1
2-Methylphenol	ND		8.9	1.7	ug/L		11/16/15 09:27	11/17/15 16:40	1
Methylphenol, 3 & 4	ND		8.9	1.9	ug/L		11/16/15 09:27	11/17/15 16:40	1
2,4-Dichlorophenol	ND		8.9	0.60	ug/L		11/16/15 09:27	11/17/15 16:40	1
2,4-Dimethylphenol	**5.2**	**J**	8.9	1.5	ug/L		11/16/15 09:27	11/17/15 16:40	1
2,4-Dinitrophenol	ND		45	22	ug/L		11/16/15 09:27	11/17/15 16:40	1
4,6-Dinitro-2-methylphenol	ND		45	14	ug/L		11/16/15 09:27	11/17/15 16:40	1
2-Nitrophenol	ND		8.9	1.0	ug/L		11/16/15 09:27	11/17/15 16:40	1
Pentachlorophenol	ND		8.9	4.5	ug/L		11/16/15 09:27	11/17/15 16:40	1
Phenol	**100**		8.9	0.49	ug/L		11/16/15 09:27	11/17/15 16:40	1
2,4,5-Trichlorophenol	ND		8.9	1.1	ug/L		11/16/15 09:27	11/17/15 16:40	1
2,4,6-Trichlorophenol	ND		8.9	2.7	ug/L		11/16/15 09:27	11/17/15 16:40	1
Acetophenone	**630**	**E**	18	1.0	ug/L		11/16/15 09:27	11/17/15 16:40	1
Atrazine	ND		18	2.0	ug/L		11/16/15 09:27	11/17/15 16:40	1
Benzaldehyde	ND		18	0.94	ug/L		11/16/15 09:27	11/17/15 16:40	1
1,1'-Biphenyl	**1.3**	**J**	8.9	0.94	ug/L		11/16/15 09:27	11/17/15 16:40	1
Caprolactam	ND		45	13	ug/L		11/16/15 09:27	11/17/15 16:40	1
Bis(2-chloroethoxy)methane	ND		8.9	1.2	ug/L		11/16/15 09:27	11/17/15 16:40	1
Bis(2-chloroethyl)ether	ND		8.9	0.28	ug/L		11/16/15 09:27	11/17/15 16:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*79*		*27 - 110*	*11/16/15 09:27*	*11/17/15 16:40*	*1*
Phenol-d5 (Surr)	*67*		*23 - 111*	*11/16/15 09:27*	*11/17/15 16:40*	*1*
2-Fluorobiphenyl	*69*		*28 - 106*	*11/16/15 09:27*	*11/17/15 16:40*	*1*
2,4,6-Tribromophenol (Surr)	*86*		*25 - 118*	*11/16/15 09:27*	*11/17/15 16:40*	*1*
2-Fluorophenol (Surr)	*64*		*20 - 108*	*11/16/15 09:27*	*11/17/15 16:40*	*1*
Terphenyl-d14 (Surr)	*61*		*20 - 109*	*11/16/15 09:27*	*11/17/15 16:40*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		8.9	1.3	ug/L		11/16/15 09:27	11/18/15 17:00	5
Acenaphthylene	ND		8.9	0.96	ug/L		11/16/15 09:27	11/18/15 17:00	5
Anthracene	ND		8.9	0.84	ug/L		11/16/15 09:27	11/18/15 17:00	5
Benzo[a]anthracene	ND		8.9	1.6	ug/L		11/16/15 09:27	11/18/15 17:00	5
Benzo[a]pyrene	ND		8.9	1.3	ug/L		11/16/15 09:27	11/18/15 17:00	5
Benzo[b]fluoranthene	ND		8.9	2.2	ug/L		11/16/15 09:27	11/18/15 17:00	5
Benzo[g,h,i]perylene	ND		8.9	1.3	ug/L		11/16/15 09:27	11/18/15 17:00	5
Benzo[k]fluoranthene	ND		8.9	1.3	ug/L		11/16/15 09:27	11/18/15 17:00	5
Bis(2-ethylhexyl) phthalate	ND		89	20	ug/L		11/16/15 09:27	11/18/15 17:00	5
2,2'-oxybis[1-chloropropane]	ND	^c	45	1.1	ug/L		11/16/15 09:27	11/18/15 17:00	5
4-Bromophenyl phenyl ether	ND		45	5.2	ug/L		11/16/15 09:27	11/18/15 17:00	5
Butyl benzyl phthalate	ND		45	9.5	ug/L		11/16/15 09:27	11/18/15 17:00	5
Carbazole	ND		45	1.2	ug/L		11/16/15 09:27	11/18/15 17:00	5
4-Chloroaniline	ND		45	13	ug/L		11/16/15 09:27	11/18/15 17:00	5
2-Chloronaphthalene	ND		8.9	1.4	ug/L		11/16/15 09:27	11/18/15 17:00	5
4-Chlorophenyl phenyl ether	ND		45	3.6	ug/L		11/16/15 09:27	11/18/15 17:00	5
Chrysene	ND		8.9	1.4	ug/L		11/16/15 09:27	11/18/15 17:00	5

Client Sample ID: MW501S

Date Collected: 11/11/15 10:55
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-2

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		8.9	1.2	ug/L		11/16/15 09:27	11/18/15 17:00	5
Dibenzofuran	ND		45	4.3	ug/L		11/16/15 09:27	11/18/15 17:00	5
Di-n-butyl phthalate	ND		45	11	ug/L		11/16/15 09:27	11/18/15 17:00	5
3,3'-Dichlorobenzidine	ND		45	6.6	ug/L		11/16/15 09:27	11/18/15 17:00	5
Diethyl phthalate	ND		45	13	ug/L		11/16/15 09:27	11/18/15 17:00	5
Dimethyl phthalate	ND		45	8.2	ug/L		11/16/15 09:27	11/18/15 17:00	5
2,4-Dinitrotoluene	ND		45	9.5	ug/L		11/16/15 09:27	11/18/15 17:00	5
2,6-Dinitrotoluene	ND		45	6.1	ug/L		11/16/15 09:27	11/18/15 17:00	5
Di-n-octyl phthalate	ND		45	9.1	ug/L		11/16/15 09:27	11/18/15 17:00	5
Fluoranthene	ND		8.9	0.94	ug/L		11/16/15 09:27	11/18/15 17:00	5
Fluorene	ND		8.9	1.1	ug/L		11/16/15 09:27	11/18/15 17:00	5
Hexachlorobenzene	ND		45	2.7	ug/L		11/16/15 09:27	11/18/15 17:00	5
Hexachlorobutadiene	ND		45	4.2	ug/L		11/16/15 09:27	11/18/15 17:00	5
Hexachlorocyclopentadiene	ND		45	6.0	ug/L		11/16/15 09:27	11/18/15 17:00	5
Hexachloroethane	ND		45	6.2	ug/L		11/16/15 09:27	11/18/15 17:00	5
Indeno[1,2,3-cd]pyrene	ND		8.9	1.9	ug/L		11/16/15 09:27	11/18/15 17:00	5
Isophorone	ND		45	3.3	ug/L		11/16/15 09:27	11/18/15 17:00	5
2-Methylnaphthalene	ND		8.9	0.86	ug/L		11/16/15 09:27	11/18/15 17:00	5
Naphthalene	**17**		8.9	1.0	ug/L		11/16/15 09:27	11/18/15 17:00	5
2-Nitroaniline	ND	^c	220	30	ug/L		11/16/15 09:27	11/18/15 17:00	5
3-Nitroaniline	ND		220	36	ug/L		11/16/15 09:27	11/18/15 17:00	5
4-Nitroaniline	ND		220	35	ug/L		11/16/15 09:27	11/18/15 17:00	5
4-Nitrophenol	ND		220	36	ug/L		11/16/15 09:27	11/18/15 17:00	5
Nitrobenzene	ND		89	6.6	ug/L		11/16/15 09:27	11/18/15 17:00	5
N-Nitrosodi-n-propylamine	ND	^c	45	2.2	ug/L		11/16/15 09:27	11/18/15 17:00	5
N-Nitrosodiphenylamine	ND		45	5.4	ug/L		11/16/15 09:27	11/18/15 17:00	5
Phenanthrene	ND		8.9	1.9	ug/L		11/16/15 09:27	11/18/15 17:00	5
Pyrene	ND		8.9	1.0	ug/L		11/16/15 09:27	11/18/15 17:00	5
4-Chloro-3-methylphenol	ND		45	7.6	ug/L		11/16/15 09:27	11/18/15 17:00	5
2-Chlorophenol	ND		45	10	ug/L		11/16/15 09:27	11/18/15 17:00	5
2-Methylphenol	ND		45	8.3	ug/L		11/16/15 09:27	11/18/15 17:00	5
Methylphenol, 3 & 4	ND		45	9.3	ug/L		11/16/15 09:27	11/18/15 17:00	5
2,4-Dichlorophenol	ND		45	3.0	ug/L		11/16/15 09:27	11/18/15 17:00	5
2,4-Dimethylphenol	ND		45	7.6	ug/L		11/16/15 09:27	11/18/15 17:00	5
2,4-Dinitrophenol	ND		220	110	ug/L		11/16/15 09:27	11/18/15 17:00	5
4,6-Dinitro-2-methylphenol	ND		220	69	ug/L		11/16/15 09:27	11/18/15 17:00	5
2-Nitrophenol	ND		45	5.0	ug/L		11/16/15 09:27	11/18/15 17:00	5
Pentachlorophenol	ND		45	22	ug/L		11/16/15 09:27	11/18/15 17:00	5
Phenol	**110**		45	2.5	ug/L		11/16/15 09:27	11/18/15 17:00	5
2,4,5-Trichlorophenol	ND		45	5.4	ug/L		11/16/15 09:27	11/18/15 17:00	5
2,4,6-Trichlorophenol	ND		45	13	ug/L		11/16/15 09:27	11/18/15 17:00	5
Acetophenone	**610**		89	5.0	ug/L		11/16/15 09:27	11/18/15 17:00	5
Atrazine	ND		89	10	ug/L		11/16/15 09:27	11/18/15 17:00	5
Benzaldehyde	ND	^c	89	4.7	ug/L		11/16/15 09:27	11/18/15 17:00	5
1,1'-Biphenyl	ND		45	4.7	ug/L		11/16/15 09:27	11/18/15 17:00	5
Caprolactam	ND		220	66	ug/L		11/16/15 09:27	11/18/15 17:00	5
Bis(2-chloroethoxy)methane	ND		45	6.0	ug/L		11/16/15 09:27	11/18/15 17:00	5
Bis(2-chloroethyl)ether	ND		45	1.4	ug/L		11/16/15 09:27	11/18/15 17:00	5

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW501S

Lab Sample ID: 180-49761-2
Matrix: Water

Date Collected: 11/11/15 10:55
Date Received: 11/12/15 14:30

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5 (Surr)	80		27 - 110	11/16/15 09:27	11/18/15 17:00	5
Phenol-d5 (Surr)	69		23 - 111	11/16/15 09:27	11/18/15 17:00	5
2-Fluorobiphenyl	66		28 - 106	11/16/15 09:27	11/18/15 17:00	5
2,4,6-Tribromophenol (Surr)	78		25 - 118	11/16/15 09:27	11/18/15 17:00	5
2-Fluorophenol (Surr)	60		20 - 108	11/16/15 09:27	11/18/15 17:00	5
Terphenyl-d14 (Surr)	58		20 - 109	11/16/15 09:27	11/18/15 17:00	5

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		25	3.5	ug/L		11/18/15 08:05	11/24/15 15:30	5
Aluminum	**960000**		1000	190	ug/L		11/18/15 08:05	11/24/15 15:30	5
Arsenic	**32**	**J**	50	19	ug/L		11/18/15 08:05	11/24/15 15:30	5
Antimony	ND		50	18	ug/L		11/18/15 08:05	11/24/15 15:30	5
Barium	**6.3**	**J B**	1000	0.71	ug/L		11/18/15 08:05	11/24/15 15:30	5
Beryllium	**44**	**B**	20	0.75	ug/L		11/18/15 08:05	11/24/15 15:30	5
Cadmium	ND		25	1.3	ug/L		11/18/15 08:05	11/24/15 15:30	5
Calcium	**400000**		25000	420	ug/L		11/18/15 08:05	11/24/15 15:30	5
Chromium	**390**		25	4.9	ug/L		11/18/15 08:05	11/24/15 15:30	5
Cobalt	**510**		250	2.8	ug/L		11/18/15 08:05	11/24/15 15:30	5
Copper	**230**	**B**	130	4.9	ug/L		11/18/15 08:05	11/24/15 15:30	5
Iron	**1300000**	**B**	500	74	ug/L		11/18/15 08:05	11/24/15 15:30	5
Lead	**21**	**J**	50	11	ug/L		11/18/15 08:05	11/24/15 15:30	5
Magnesium	**200000**		25000	120	ug/L		11/18/15 08:05	11/24/15 15:30	5
Manganese	**21000**	**B**	75	0.97	ug/L		11/18/15 08:05	11/24/15 15:30	5
Nickel	**1400**		200	4.4	ug/L		11/18/15 08:05	11/24/15 15:30	5
Potassium	**130000**		25000	400	ug/L		11/18/15 08:05	11/24/15 15:30	5
Selenium	**23**	**J**	50	12	ug/L		11/18/15 08:05	11/24/15 15:30	5
Sodium	**54000**		25000	210	ug/L		11/18/15 08:05	11/24/15 15:30	5
Thallium	ND		100	7.2	ug/L		11/18/15 08:05	11/24/15 15:30	5
Vanadium	**860**		250	24	ug/L		11/18/15 08:05	11/24/15 15:30	5
Zinc	**3600**	**B**	100	15	ug/L		11/18/15 08:05	11/24/15 15:30	5

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/13/15 08:17	11/13/15 13:09	1

Client Sample ID: MW501S-F

Lab Sample ID: 180-49761-3
Matrix: Water

Date Collected: 11/11/15 10:55
Date Received: 11/12/15 14:30

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		25	3.5	ug/L		11/18/15 08:05	11/24/15 15:35	5
Aluminum	**940000**		1000	190	ug/L		11/18/15 08:05	11/24/15 15:35	5
Arsenic	**50**		50	19	ug/L		11/18/15 08:05	11/24/15 15:35	5
Antimony	ND		50	18	ug/L		11/18/15 08:05	11/24/15 15:35	5
Barium	**6.6**	**J B**	1000	0.71	ug/L		11/18/15 08:05	11/24/15 15:35	5
Beryllium	**43**	**B**	20	0.75	ug/L		11/18/15 08:05	11/24/15 15:35	5
Cadmium	ND		25	1.3	ug/L		11/18/15 08:05	11/24/15 15:35	5
Calcium	**390000**		25000	420	ug/L		11/18/15 08:05	11/24/15 15:35	5
Chromium	**380**		25	4.9	ug/L		11/18/15 08:05	11/24/15 15:35	5

Client Sample ID: MW501S-F

Lab Sample ID: 180-49761-3
Date Collected: 11/11/15 10:55
Matrix: Water
Date Received: 11/12/15 14:30

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	**500**		250	2.8	ug/L		11/18/15 08:05	11/24/15 15:35	5
Copper	**220**	**B**	130	4.9	ug/L		11/18/15 08:05	11/24/15 15:35	5
Iron	**1300000**	**B**	500	74	ug/L		11/18/15 08:05	11/24/15 15:35	5
Lead	**30**	**J**	50	11	ug/L		11/18/15 08:05	11/24/15 15:35	5
Magnesium	**200000**		25000	120	ug/L		11/18/15 08:05	11/24/15 15:35	5
Manganese	**21000**	**B**	75	0.97	ug/L		11/18/15 08:05	11/24/15 15:35	5
Nickel	**1300**		200	4.4	ug/L		11/18/15 08:05	11/24/15 15:35	5
Potassium	**130000**		25000	400	ug/L		11/18/15 08:05	11/24/15 15:35	5
Selenium	ND		50	12	ug/L		11/18/15 08:05	11/24/15 15:35	5
Sodium	**53000**		25000	210	ug/L		11/18/15 08:05	11/24/15 15:35	5
Thallium	ND		100	7.2	ug/L		11/18/15 08:05	11/24/15 15:35	5
Vanadium	**830**		250	24	ug/L		11/18/15 08:05	11/24/15 15:35	5
Zinc	**3500**	**B**	100	15	ug/L		11/18/15 08:05	11/24/15 15:35	5

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/13/15 08:17	11/13/15 13:11	1

Client Sample ID: MW160

Lab Sample ID: 180-49761-4
Date Collected: 11/11/15 11:00
Matrix: Water
Date Received: 11/12/15 14:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		100	21	ug/L			11/17/15 17:23	20
1,1,2,2-Tetrachloroethane	ND		100	19	ug/L			11/17/15 17:23	20
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		100	6.6	ug/L			11/17/15 17:23	20
1,1,2-Trichloroethane	ND		100	23	ug/L			11/17/15 17:23	20
1,1-Dichloroethane	ND		100	20	ug/L			11/17/15 17:23	20
1,1-Dichloroethene	ND		100	21	ug/L			11/17/15 17:23	20
1,2-Dibromo-3-Chloropropane	ND	^c	100	7.0	ug/L			11/17/15 17:23	20
1,2-Dichlorobenzene	ND		100	14	ug/L			11/17/15 17:23	20
1,2-Dichloroethane	ND		100	19	ug/L			11/17/15 17:23	20
1,2-Dichloropropane	ND		100	26	ug/L			11/17/15 17:23	20
1,2,4-Trichlorobenzene	ND		100	7.5	ug/L			11/17/15 17:23	20
1,3-Dichlorobenzene	ND		100	10	ug/L			11/17/15 17:23	20
1,4-Dichlorobenzene	ND		100	11	ug/L			11/17/15 17:23	20
2-Butanone (MEK)	ND	^c	100	22	ug/L			11/17/15 17:23	20
2-Hexanone	ND	^c	100	11	ug/L			11/17/15 17:23	20
4-Methyl-2-pentanone (MIBK)	ND	^c	100	12	ug/L			11/17/15 17:23	20
Acetone	ND		400	100	ug/L			11/17/15 17:23	20
Benzene	**770**		100	20	ug/L			11/17/15 17:23	20
Bromoform	ND	* ^c	100	21	ug/L			11/17/15 17:23	20
Bromomethane	ND		100	32	ug/L			11/17/15 17:23	20
Carbon disulfide	ND		100	21	ug/L			11/17/15 17:23	20
Carbon tetrachloride	ND		100	22	ug/L			11/17/15 17:23	20
Chlorobenzene	ND		100	11	ug/L			11/17/15 17:23	20
Chlorodibromomethane	ND	* ^c	100	13	ug/L			11/17/15 17:23	20
Chloroform	ND		100	20	ug/L			11/17/15 17:23	20
Chloromethane	ND		100	28	ug/L			11/17/15 17:23	20

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW160

Date Collected: 11/11/15 11:00
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-4

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	ND		100	15	ug/L			11/17/15 17:23	20
cis-1,2-Dichloroethene	ND		100	13	ug/L			11/17/15 17:23	20
cis-1,3-Dichloropropene	ND		100	15	ug/L			11/17/15 17:23	20
Dichlorobromomethane	ND		100	19	ug/L			11/17/15 17:23	20
Dichlorodifluoromethane	ND		100	13	ug/L			11/17/15 17:23	20
Ethylbenzene	ND		100	12	ug/L			11/17/15 17:23	20
1,2-Dibromoethane	ND		100	12	ug/L			11/17/15 17:23	20
Cyclohexane	ND		100	12	ug/L			11/17/15 17:23	20
Isopropylbenzene	ND		100	11	ug/L			11/17/15 17:23	20
Methyl acetate	ND		500	60	ug/L			11/17/15 17:23	20
Methyl tert-butyl ether	ND		100	21	ug/L			11/17/15 17:23	20
Methylcyclohexane	ND		100	11	ug/L			11/17/15 17:23	20
Methylene Chloride	ND		100	22	ug/L			11/17/15 17:23	20
Styrene	ND		100	13	ug/L			11/17/15 17:23	20
Tetrachloroethene	ND		100	16	ug/L			11/17/15 17:23	20
Toluene	ND		100	17	ug/L			11/17/15 17:23	20
trans-1,2-Dichloroethene	ND		100	15	ug/L			11/17/15 17:23	20
trans-1,3-Dichloropropene	ND		100	12	ug/L			11/17/15 17:23	20
Trichloroethene	ND		100	16	ug/L			11/17/15 17:23	20
Trichlorofluoromethane	ND		100	22	ug/L			11/17/15 17:23	20
Vinyl chloride	ND		100	26	ug/L			11/17/15 17:23	20
Xylenes, Total	ND		200	34	ug/L			11/17/15 17:23	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*62 - 123*		*11/17/15 17:23*	*20*
4-Bromofluorobenzene (Surr)	*88*		*75 - 120*		*11/17/15 17:23*	*20*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*11/17/15 17:23*	*20*
Toluene-d8 (Surr)	*90*		*80 - 120*		*11/17/15 17:23*	*20*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		1.7	0.24	ug/L		11/16/15 09:27	11/17/15 17:07	1
Acenaphthylene	ND		1.7	0.18	ug/L		11/16/15 09:27	11/17/15 17:07	1
Anthracene	ND		1.7	0.16	ug/L		11/16/15 09:27	11/17/15 17:07	1
Benzo[a]anthracene	ND		1.7	0.31	ug/L		11/16/15 09:27	11/17/15 17:07	1
Benzo[a]pyrene	ND		1.7	0.24	ug/L		11/16/15 09:27	11/17/15 17:07	1
Benzo[b]fluoranthene	ND		1.7	0.41	ug/L		11/16/15 09:27	11/17/15 17:07	1
Benzo[g,h,i]perylene	ND		1.7	0.24	ug/L		11/16/15 09:27	11/17/15 17:07	1
Benzo[k]fluoranthene	ND		1.7	0.25	ug/L		11/16/15 09:27	11/17/15 17:07	1
Bis(2-ethylhexyl) phthalate	**13**	**J**	17	3.7	ug/L		11/16/15 09:27	11/17/15 17:07	1
2,2'-oxybis[1-chloropropane]	ND		8.3	0.20	ug/L		11/16/15 09:27	11/17/15 17:07	1
4-Bromophenyl phenyl ether	ND		8.3	0.97	ug/L		11/16/15 09:27	11/17/15 17:07	1
Butyl benzyl phthalate	ND		8.3	1.8	ug/L		11/16/15 09:27	11/17/15 17:07	1
Carbazole	ND		8.3	0.22	ug/L		11/16/15 09:27	11/17/15 17:07	1
4-Chloroaniline	ND		8.3	2.4	ug/L		11/16/15 09:27	11/17/15 17:07	1
2-Chloronaphthalene	ND		1.7	0.26	ug/L		11/16/15 09:27	11/17/15 17:07	1
4-Chlorophenyl phenyl ether	ND		8.3	0.67	ug/L		11/16/15 09:27	11/17/15 17:07	1
Chrysene	ND		1.7	0.26	ug/L		11/16/15 09:27	11/17/15 17:07	1
Dibenz(a,h)anthracene	ND		1.7	0.22	ug/L		11/16/15 09:27	11/17/15 17:07	1
Dibenzofuran	ND		8.3	0.80	ug/L		11/16/15 09:27	11/17/15 17:07	1

Client Sample ID: MW160

Date Collected: 11/11/15 11:00
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-4

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-butyl phthalate	ND		8.3	2.0	ug/L		11/16/15 09:27	11/17/15 17:07	1
3,3'-Dichlorobenzidine	ND		8.3	1.2	ug/L		11/16/15 09:27	11/17/15 17:07	1
Diethyl phthalate	**3.0**	**J**	8.3	2.5	ug/L		11/16/15 09:27	11/17/15 17:07	1
Dimethyl phthalate	ND		8.3	1.5	ug/L		11/16/15 09:27	11/17/15 17:07	1
2,4-Dinitrotoluene	ND		8.3	1.8	ug/L		11/16/15 09:27	11/17/15 17:07	1
2,6-Dinitrotoluene	ND		8.3	1.1	ug/L		11/16/15 09:27	11/17/15 17:07	1
Di-n-octyl phthalate	ND		8.3	1.7	ug/L		11/16/15 09:27	11/17/15 17:07	1
Fluoranthene	ND		1.7	0.18	ug/L		11/16/15 09:27	11/17/15 17:07	1
Fluorene	**0.66**	**J**	1.7	0.20	ug/L		11/16/15 09:27	11/17/15 17:07	1
Hexachlorobenzene	ND		8.3	0.51	ug/L		11/16/15 09:27	11/17/15 17:07	1
Hexachlorobutadiene	ND		8.3	0.78	ug/L		11/16/15 09:27	11/17/15 17:07	1
Hexachlorocyclopentadiene	ND		8.3	1.1	ug/L		11/16/15 09:27	11/17/15 17:07	1
Hexachloroethane	ND		8.3	1.2	ug/L		11/16/15 09:27	11/17/15 17:07	1
Indeno[1,2,3-cd]pyrene	ND		1.7	0.36	ug/L		11/16/15 09:27	11/17/15 17:07	1
Isophorone	ND		8.3	0.62	ug/L		11/16/15 09:27	11/17/15 17:07	1
2-Methylnaphthalene	ND		1.7	0.16	ug/L		11/16/15 09:27	11/17/15 17:07	1
Naphthalene	ND		1.7	0.19	ug/L		11/16/15 09:27	11/17/15 17:07	1
2-Nitroaniline	ND	^c	42	5.6	ug/L		11/16/15 09:27	11/17/15 17:07	1
3-Nitroaniline	ND		42	6.7	ug/L		11/16/15 09:27	11/17/15 17:07	1
4-Nitroaniline	ND		42	6.4	ug/L		11/16/15 09:27	11/17/15 17:07	1
4-Nitrophenol	ND		42	6.7	ug/L		11/16/15 09:27	11/17/15 17:07	1
Nitrobenzene	ND		17	1.2	ug/L		11/16/15 09:27	11/17/15 17:07	1
N-Nitrosodi-n-propylamine	ND		8.3	0.42	ug/L		11/16/15 09:27	11/17/15 17:07	1
N-Nitrosodiphenylamine	ND		8.3	1.0	ug/L		11/16/15 09:27	11/17/15 17:07	1
Phenanthrene	ND		1.7	0.35	ug/L		11/16/15 09:27	11/17/15 17:07	1
Pyrene	ND		1.7	0.19	ug/L		11/16/15 09:27	11/17/15 17:07	1
4-Chloro-3-methylphenol	ND		8.3	1.4	ug/L		11/16/15 09:27	11/17/15 17:07	1
2-Chlorophenol	ND		8.3	1.9	ug/L		11/16/15 09:27	11/17/15 17:07	1
2-Methylphenol	ND		8.3	1.6	ug/L		11/16/15 09:27	11/17/15 17:07	1
Methylphenol, 3 & 4	**2.6**	**J**	8.3	1.7	ug/L		11/16/15 09:27	11/17/15 17:07	1
2,4-Dichlorophenol	ND		8.3	0.56	ug/L		11/16/15 09:27	11/17/15 17:07	1
2,4-Dimethylphenol	**4.5**	**J**	8.3	1.4	ug/L		11/16/15 09:27	11/17/15 17:07	1
2,4-Dinitrophenol	ND		42	21	ug/L		11/16/15 09:27	11/17/15 17:07	1
4,6-Dinitro-2-methylphenol	ND		42	13	ug/L		11/16/15 09:27	11/17/15 17:07	1
2-Nitrophenol	ND		8.3	0.93	ug/L		11/16/15 09:27	11/17/15 17:07	1
Pentachlorophenol	ND		8.3	4.2	ug/L		11/16/15 09:27	11/17/15 17:07	1
Phenol	**3.6**	**J**	8.3	0.46	ug/L		11/16/15 09:27	11/17/15 17:07	1
2,4,5-Trichlorophenol	ND		8.3	1.0	ug/L		11/16/15 09:27	11/17/15 17:07	1
2,4,6-Trichlorophenol	ND		8.3	2.5	ug/L		11/16/15 09:27	11/17/15 17:07	1
Acetophenone	**19**		17	0.94	ug/L		11/16/15 09:27	11/17/15 17:07	1
Atrazine	ND		17	1.9	ug/L		11/16/15 09:27	11/17/15 17:07	1
Benzaldehyde	ND		17	0.88	ug/L		11/16/15 09:27	11/17/15 17:07	1
1,1'-Biphenyl	**2.0**	**J**	8.3	0.88	ug/L		11/16/15 09:27	11/17/15 17:07	1
Caprolactam	ND		42	12	ug/L		11/16/15 09:27	11/17/15 17:07	1
Bis(2-chloroethoxy)methane	ND		8.3	1.1	ug/L		11/16/15 09:27	11/17/15 17:07	1
Bis(2-chloroethyl)ether	ND		8.3	0.26	ug/L		11/16/15 09:27	11/17/15 17:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*63*		*27 - 110*	*11/16/15 09:27*	*11/17/15 17:07*	*1*
Phenol-d5 (Surr)	*51*		*23 - 111*	*11/16/15 09:27*	*11/17/15 17:07*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW160

Lab Sample ID: 180-49761-4
Matrix: Water

Date Collected: 11/11/15 11:00
Date Received: 11/12/15 14:30

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*55*		*28 - 106*	*11/16/15 09:27*	*11/17/15 17:07*	*1*
2,4,6-Tribromophenol (Surr)	*73*		*25 - 118*	*11/16/15 09:27*	*11/17/15 17:07*	*1*
2-Fluorophenol (Surr)	*47*		*20 - 108*	*11/16/15 09:27*	*11/17/15 17:07*	*1*
Terphenyl-d14 (Surr)	*40*		*20 - 109*	*11/16/15 09:27*	*11/17/15 17:07*	*1*

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.69	ug/L		11/18/15 08:05	11/24/15 15:40	1
Aluminum	**81**	**J**	200	37	ug/L		11/18/15 08:05	11/24/15 15:40	1
Arsenic	**5.2**	**J**	10	3.7	ug/L		11/18/15 08:05	11/24/15 15:40	1
Antimony	ND		10	3.5	ug/L		11/18/15 08:05	11/24/15 15:40	1
Barium	**66**	**J B**	200	0.14	ug/L		11/18/15 08:05	11/24/15 15:40	1
Beryllium	ND		4.0	0.15	ug/L		11/18/15 08:05	11/24/15 15:40	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:05	11/24/15 15:40	1
Calcium	**130000**		5000	84	ug/L		11/18/15 08:05	11/24/15 15:40	1
Chromium	ND		5.0	0.97	ug/L		11/18/15 08:05	11/24/15 15:40	1
Cobalt	**0.99**	**J**	50	0.55	ug/L		11/18/15 08:05	11/24/15 15:40	1
Copper	**1.2**	**J B**	25	0.97	ug/L		11/18/15 08:05	11/24/15 15:40	1
Iron	**35000**	**B**	100	15	ug/L		11/18/15 08:05	11/24/15 15:40	1
Lead	ND		10	2.1	ug/L		11/18/15 08:05	11/24/15 15:40	1
Magnesium	**26000**		5000	25	ug/L		11/18/15 08:05	11/24/15 15:40	1
Manganese	**4900**	**B**	15	0.19	ug/L		11/18/15 08:05	11/24/15 15:40	1
Nickel	**14**	**J**	40	0.89	ug/L		11/18/15 08:05	11/24/15 15:40	1
Potassium	**3500**	**J**	5000	79	ug/L		11/18/15 08:05	11/24/15 15:40	1
Selenium	**5.6**	**J**	10	2.5	ug/L		11/18/15 08:05	11/24/15 15:40	1
Sodium	**110000**		5000	43	ug/L		11/18/15 08:05	11/24/15 15:40	1
Thallium	ND		20	1.4	ug/L		11/18/15 08:05	11/24/15 15:40	1
Vanadium	ND		50	4.7	ug/L		11/18/15 08:05	11/24/15 15:40	1
Zinc	ND		20	2.9	ug/L		11/18/15 08:05	11/24/15 15:40	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/13/15 08:17	11/13/15 13:13	1

Client Sample ID: MW160-F

Lab Sample ID: 180-49761-5
Matrix: Water

Date Collected: 11/11/15 11:00
Date Received: 11/12/15 14:30

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.69	ug/L		11/18/15 08:05	11/24/15 15:46	1
Aluminum	ND		200	37	ug/L		11/18/15 08:05	11/24/15 15:46	1
Arsenic	**4.7**	**J**	10	3.7	ug/L		11/18/15 08:05	11/24/15 15:46	1
Antimony	ND		10	3.5	ug/L		11/18/15 08:05	11/24/15 15:46	1
Barium	**62**	**J B**	200	0.14	ug/L		11/18/15 08:05	11/24/15 15:46	1
Beryllium	ND		4.0	0.15	ug/L		11/18/15 08:05	11/24/15 15:46	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:05	11/24/15 15:46	1
Calcium	**130000**		5000	84	ug/L		11/18/15 08:05	11/24/15 15:46	1
Chromium	ND		5.0	0.97	ug/L		11/18/15 08:05	11/24/15 15:46	1
Cobalt	**0.98**	**J**	50	0.55	ug/L		11/18/15 08:05	11/24/15 15:46	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: MW160-F

Lab Sample ID: 180-49761-5
Date Collected: 11/11/15 11:00
Matrix: Water
Date Received: 11/12/15 14:30

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	1.4	J B	25	0.97	ug/L		11/18/15 08:05	11/24/15 15:46	1
Iron	30000	B	100	15	ug/L		11/18/15 08:05	11/24/15 15:46	1
Lead	ND		10	2.1	ug/L		11/18/15 08:05	11/24/15 15:46	1
Magnesium	26000		5000	25	ug/L		11/18/15 08:05	11/24/15 15:46	1
Manganese	4800	B	15	0.19	ug/L		11/18/15 08:05	11/24/15 15:46	1
Nickel	14	J	40	0.89	ug/L		11/18/15 08:05	11/24/15 15:46	1
Potassium	3400	J	5000	79	ug/L		11/18/15 08:05	11/24/15 15:46	1
Selenium	4.5	J	10	2.5	ug/L		11/18/15 08:05	11/24/15 15:46	1
Sodium	110000		5000	43	ug/L		11/18/15 08:05	11/24/15 15:46	1
Thallium	ND		20	1.4	ug/L		11/18/15 08:05	11/24/15 15:46	1
Vanadium	ND		50	4.7	ug/L		11/18/15 08:05	11/24/15 15:46	1
Zinc	ND		20	2.9	ug/L		11/18/15 08:05	11/24/15 15:46	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/13/15 08:17	11/13/15 13:15	1

Client Sample ID: TRIP BLANK

Lab Sample ID: 180-49761-6
Date Collected: 11/11/15 00:00
Matrix: Water
Date Received: 11/12/15 14:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	1.0	ug/L			11/16/15 18:19	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.93	ug/L			11/16/15 18:19	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.33	ug/L			11/16/15 18:19	1
1,1,2-Trichloroethane	ND		5.0	1.2	ug/L			11/16/15 18:19	1
1,1-Dichloroethane	ND		5.0	1.0	ug/L			11/16/15 18:19	1
1,1-Dichloroethene	ND		5.0	1.1	ug/L			11/16/15 18:19	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.35	ug/L			11/16/15 18:19	1
1,2-Dichlorobenzene	ND		5.0	0.68	ug/L			11/16/15 18:19	1
1,2-Dichloroethane	ND		5.0	0.96	ug/L			11/16/15 18:19	1
1,2-Dichloropropane	ND		5.0	1.3	ug/L			11/16/15 18:19	1
1,2,4-Trichlorobenzene	ND		5.0	0.38	ug/L			11/16/15 18:19	1
1,3-Dichlorobenzene	ND		5.0	0.51	ug/L			11/16/15 18:19	1
1,4-Dichlorobenzene	ND		5.0	0.53	ug/L			11/16/15 18:19	1
2-Butanone (MEK)	ND		5.0	1.1	ug/L			11/16/15 18:19	1
2-Hexanone	ND		5.0	0.57	ug/L			11/16/15 18:19	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.59	ug/L			11/16/15 18:19	1
Acetone	ND		20	5.0	ug/L			11/16/15 18:19	1
Benzene	ND		5.0	0.99	ug/L			11/16/15 18:19	1
Bromoform	ND		5.0	1.1	ug/L			11/16/15 18:19	1
Bromomethane	ND		5.0	1.6	ug/L			11/16/15 18:19	1
Carbon disulfide	ND		5.0	1.1	ug/L			11/16/15 18:19	1
Carbon tetrachloride	ND		5.0	1.1	ug/L			11/16/15 18:19	1
Chlorobenzene	ND		5.0	0.53	ug/L			11/16/15 18:19	1
Chlorodibromomethane	ND		5.0	0.65	ug/L			11/16/15 18:19	1
Chloroform	ND		5.0	1.0	ug/L			11/16/15 18:19	1
Chloromethane	ND		5.0	1.4	ug/L			11/16/15 18:19	1
Chloroethane	ND		5.0	0.75	ug/L			11/16/15 18:19	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Client Sample ID: TRIP BLANK

Date Collected: 11/11/15 00:00
Date Received: 11/12/15 14:30

Lab Sample ID: 180-49761-6

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		5.0	0.67	ug/L			11/16/15 18:19	1
cis-1,3-Dichloropropene	ND		5.0	0.73	ug/L			11/16/15 18:19	1
Dichlorobromomethane	ND		5.0	0.93	ug/L			11/16/15 18:19	1
Dichlorodifluoromethane	ND		5.0	0.64	ug/L			11/16/15 18:19	1
Ethylbenzene	ND		5.0	0.62	ug/L			11/16/15 18:19	1
1,2-Dibromoethane	ND		5.0	0.61	ug/L			11/16/15 18:19	1
Cyclohexane	ND		5.0	0.60	ug/L			11/16/15 18:19	1
Isopropylbenzene	ND		5.0	0.53	ug/L			11/16/15 18:19	1
Methyl acetate	ND		25	3.0	ug/L			11/16/15 18:19	1
Methyl tert-butyl ether	ND		5.0	1.0	ug/L			11/16/15 18:19	1
Methylcyclohexane	ND		5.0	0.56	ug/L			11/16/15 18:19	1
Methylene Chloride	ND		5.0	1.1	ug/L			11/16/15 18:19	1
Styrene	ND		5.0	0.64	ug/L			11/16/15 18:19	1
Tetrachloroethene	ND		5.0	0.82	ug/L			11/16/15 18:19	1
Toluene	ND		5.0	0.85	ug/L			11/16/15 18:19	1
trans-1,2-Dichloroethene	ND		5.0	0.75	ug/L			11/16/15 18:19	1
trans-1,3-Dichloropropene	ND		5.0	0.58	ug/L			11/16/15 18:19	1
Trichloroethene	ND		5.0	0.80	ug/L			11/16/15 18:19	1
Trichlorofluoromethane	ND		5.0	1.1	ug/L			11/16/15 18:19	1
Vinyl chloride	ND		5.0	1.3	ug/L			11/16/15 18:19	1
Xylenes, Total	ND		10	1.7	ug/L			11/16/15 18:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*62 - 123*		*11/16/15 18:19*	*1*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*		*11/16/15 18:19*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*		*11/16/15 18:19*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*11/16/15 18:19*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 180-160340/6
Matrix: Water
Analysis Batch: 160340

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	1.0	ug/L			11/13/15 11:31	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.93	ug/L			11/13/15 11:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.33	ug/L			11/13/15 11:31	1
1,1,2-Trichloroethane	ND		5.0	1.2	ug/L			11/13/15 11:31	1
1,1-Dichloroethane	ND		5.0	1.0	ug/L			11/13/15 11:31	1
1,1-Dichloroethene	ND		5.0	1.1	ug/L			11/13/15 11:31	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.35	ug/L			11/13/15 11:31	1
1,2-Dichlorobenzene	ND		5.0	0.68	ug/L			11/13/15 11:31	1
1,2-Dichloroethane	ND		5.0	0.96	ug/L			11/13/15 11:31	1
1,2-Dichloropropane	ND		5.0	1.3	ug/L			11/13/15 11:31	1
1,2,4-Trichlorobenzene	ND		5.0	0.38	ug/L			11/13/15 11:31	1
1,3-Dichlorobenzene	ND		5.0	0.51	ug/L			11/13/15 11:31	1
1,4-Dichlorobenzene	ND		5.0	0.53	ug/L			11/13/15 11:31	1
2-Butanone (MEK)	ND		5.0	1.1	ug/L			11/13/15 11:31	1
2-Hexanone	ND		5.0	0.57	ug/L			11/13/15 11:31	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.59	ug/L			11/13/15 11:31	1
Acetone	ND		20	5.0	ug/L			11/13/15 11:31	1
Benzene	ND		5.0	0.99	ug/L			11/13/15 11:31	1
Bromoform	ND		5.0	1.1	ug/L			11/13/15 11:31	1
Bromomethane	ND		5.0	1.6	ug/L			11/13/15 11:31	1
Carbon disulfide	ND		5.0	1.1	ug/L			11/13/15 11:31	1
Carbon tetrachloride	ND		5.0	1.1	ug/L			11/13/15 11:31	1
Chlorobenzene	ND		5.0	0.53	ug/L			11/13/15 11:31	1
Chlorodibromomethane	ND		5.0	0.65	ug/L			11/13/15 11:31	1
Chloroform	ND		5.0	1.0	ug/L			11/13/15 11:31	1
Chloromethane	ND		5.0	1.4	ug/L			11/13/15 11:31	1
Chloroethane	ND		5.0	0.75	ug/L			11/13/15 11:31	1
cis-1,2-Dichloroethene	ND		5.0	0.67	ug/L			11/13/15 11:31	1
cis-1,3-Dichloropropene	ND		5.0	0.73	ug/L			11/13/15 11:31	1
Dichlorobromomethane	ND		5.0	0.93	ug/L			11/13/15 11:31	1
Dichlorodifluoromethane	ND		5.0	0.64	ug/L			11/13/15 11:31	1
Ethylbenzene	ND		5.0	0.62	ug/L			11/13/15 11:31	1
1,2-Dibromoethane	ND		5.0	0.61	ug/L			11/13/15 11:31	1
Cyclohexane	ND		5.0	0.60	ug/L			11/13/15 11:31	1
Isopropylbenzene	ND		5.0	0.53	ug/L			11/13/15 11:31	1
Methyl acetate	ND		25	3.0	ug/L			11/13/15 11:31	1
Methyl tert-butyl ether	ND		5.0	1.0	ug/L			11/13/15 11:31	1
Methylcyclohexane	ND		5.0	0.56	ug/L			11/13/15 11:31	1
Methylene Chloride	ND		5.0	1.1	ug/L			11/13/15 11:31	1
Styrene	ND		5.0	0.64	ug/L			11/13/15 11:31	1
Tetrachloroethene	ND		5.0	0.82	ug/L			11/13/15 11:31	1
Toluene	ND		5.0	0.85	ug/L			11/13/15 11:31	1
trans-1,2-Dichloroethene	ND		5.0	0.75	ug/L			11/13/15 11:31	1
trans-1,3-Dichloropropene	ND		5.0	0.58	ug/L			11/13/15 11:31	1
Trichloroethene	ND		5.0	0.80	ug/L			11/13/15 11:31	1
Trichlorofluoromethane	ND		5.0	1.1	ug/L			11/13/15 11:31	1
Vinyl chloride	ND		5.0	1.3	ug/L			11/13/15 11:31	1
Xylenes, Total	ND		10	1.7	ug/L			11/13/15 11:31	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		62 - 123		11/13/15 11:31	1
4-Bromofluorobenzene (Surr)	99		75 - 120		11/13/15 11:31	1
Dibromofluoromethane (Surr)	95		80 - 120		11/13/15 11:31	1
Toluene-d8 (Surr)	100		80 - 120		11/13/15 11:31	1

Lab Sample ID: LCS 180-160340/13
Matrix: Water
Analysis Batch: 160340

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	40.0	43.9		ug/L		110	69 - 134
1,1,2,2-Tetrachloroethane	40.0	38.2		ug/L		95	59 - 136
1,1,2-Trichloro-1,2,2-trifluoroethane	40.0	37.8		ug/L		95	70 - 131
1,1,2-Trichloroethane	40.0	41.8		ug/L		105	75 - 126
1,1-Dichloroethane	40.0	42.3		ug/L		106	77 - 122
1,1-Dichloroethene	40.0	40.9		ug/L		102	69 - 127
1,2-Dibromo-3-Chloropropane	40.0	35.0		ug/L		87	28 - 150
1,2-Dichlorobenzene	40.0	42.5		ug/L		106	75 - 125
1,2-Dichloroethane	40.0	40.5		ug/L		101	63 - 140
1,2-Dichloropropane	40.0	41.9		ug/L		105	75 - 114
1,2,4-Trichlorobenzene	40.0	43.3		ug/L		108	35 - 150
1,3-Dichlorobenzene	40.0	44.5		ug/L		111	76 - 125
1,4-Dichlorobenzene	40.0	42.9		ug/L		107	76 - 123
2-Butanone (MEK)	40.0	39.8		ug/L		100	31 - 139
2-Hexanone	40.0	37.7		ug/L		94	35 - 129
4-Methyl-2-pentanone (MIBK)	40.0	41.3		ug/L		103	33 - 135
Acetone	40.0	33.5		ug/L		84	10 - 141
Benzene	40.0	44.3		ug/L		111	80 - 120
Bromoform	40.0	49.0		ug/L		122	49 - 137
Bromomethane	40.0	32.0		ug/L		80	45 - 150
Carbon disulfide	40.0	41.6		ug/L		104	62 - 126
Carbon tetrachloride	40.0	45.2		ug/L		113	63 - 139
Chlorobenzene	40.0	43.1		ug/L		108	83 - 120
Chlorodibromomethane	40.0	45.1		ug/L		113	64 - 124
Chloroform	40.0	44.0		ug/L		110	77 - 119
Chloromethane	40.0	34.7		ug/L		87	49 - 133
Chloroethane	40.0	33.5		ug/L		84	33 - 150
cis-1,2-Dichloroethene	40.0	44.7		ug/L		112	82 - 116
cis-1,3-Dichloropropene	40.0	42.2		ug/L		105	74 - 123
Dichlorobromomethane	40.0	45.0		ug/L		112	71 - 119
Dichlorodifluoromethane	40.0	38.8		ug/L		97	28 - 140
Ethylbenzene	40.0	44.4		ug/L		111	79 - 124
1,2-Dibromoethane	40.0	43.9		ug/L		110	57 - 124
Cyclohexane	40.0	42.7		ug/L		107	69 - 124
Isopropylbenzene	40.0	40.5		ug/L		101	73 - 130
Methyl acetate	200	187		ug/L		94	34 - 127
Methyl tert-butyl ether	40.0	39.3		ug/L		98	53 - 122
Methylcyclohexane	40.0	44.5		ug/L		111	67 - 120
Methylene Chloride	40.0	40.4		ug/L		101	75 - 120
m-Xylene & p-Xylene	40.0	44.8		ug/L		112	78 - 124
o-Xylene	40.0	44.2		ug/L		111	78 - 124
Styrene	40.0	45.6		ug/L		114	78 - 124
Tetrachloroethene	40.0	46.7		ug/L		117	78 - 126

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-160340/13
Matrix: Water
Analysis Batch: 160340

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	40.0	42.6		ug/L		107	80 - 124
trans-1,2-Dichloroethene	40.0	44.1		ug/L		110	78 - 120
trans-1,3-Dichloropropene	40.0	40.1		ug/L		100	63 - 122
Trichloroethene	40.0	45.0		ug/L		113	80 - 120
Trichlorofluoromethane	40.0	39.6		ug/L		99	14 - 150
Vinyl chloride	40.0	35.3		ug/L		88	57 - 128
Xylenes, Total	80.0	89.0		ug/L		111	81 - 121

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*62 - 123*
4-Bromofluorobenzene (Surr)	*96*		*75 - 120*
Dibromofluoromethane (Surr)	*96*		*80 - 120*
Toluene-d8 (Surr)	*91*		*80 - 120*

Lab Sample ID: 180-49694-1 MS
Matrix: Water
Analysis Batch: 160340

Client Sample ID: MW162
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		4000	4020		ug/L		100	69 - 134
1,1,2,2-Tetrachloroethane	ND		4000	3550		ug/L		89	59 - 136
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		4000	3480		ug/L		87	70 - 131
1,1,2-Trichloroethane	ND		4000	4020		ug/L		101	75 - 126
1,1-Dichloroethane	ND		4000	3890		ug/L		97	77 - 122
1,1-Dichloroethene	ND		4000	3750		ug/L		94	69 - 127
1,2-Dibromo-3-Chloropropane	ND		4000	3260		ug/L		81	28 - 150
1,2-Dichlorobenzene	ND		4000	4120		ug/L		103	75 - 125
1,2-Dichloroethane	ND		4000	3840		ug/L		96	63 - 140
1,2-Dichloropropane	ND		4000	4120		ug/L		103	75 - 114
1,2,4-Trichlorobenzene	ND		4000	4030		ug/L		101	35 - 150
1,3-Dichlorobenzene	ND		4000	4290		ug/L		107	76 - 125
1,4-Dichlorobenzene	ND		4000	4120		ug/L		103	76 - 123
2-Butanone (MEK)	ND	^c	4000	3100		ug/L		78	31 - 139
2-Hexanone	ND	^c	4000	3910		ug/L		98	35 - 129
4-Methyl-2-pentanone (MIBK)	ND	^c	4000	4600		ug/L		115	33 - 135
Acetone	ND	^c	4000	2530		ug/L		63	10 - 141
Benzene	16000		4000	21700	4	ug/L		140	80 - 120
Bromoform	ND	^c	4000	4470		ug/L		112	49 - 137
Bromomethane	ND		4000	2980		ug/L		75	45 - 150
Carbon disulfide	ND		4000	3620		ug/L		90	62 - 126
Carbon tetrachloride	ND		4000	4170		ug/L		104	63 - 139
Chlorobenzene	ND		4000	4100		ug/L		102	83 - 120
Chlorodibromomethane	ND	^c	4000	4220		ug/L		106	64 - 124
Chloroform	ND		4000	4050		ug/L		101	77 - 119
Chloromethane	ND		4000	3130		ug/L		78	49 - 133
Chloroethane	ND	^c	4000	3230		ug/L		81	33 - 150
cis-1,2-Dichloroethene	ND		4000	4080		ug/L		102	82 - 116

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-49694-1 MS
Matrix: Water
Analysis Batch: 160340

Client Sample ID: MW162
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,3-Dichloropropene	ND		4000	3880		ug/L		97	74 - 123
Dichlorobromomethane	ND		4000	4180		ug/L		104	71 - 119
Dichlorodifluoromethane	ND		4000	3570		ug/L		89	28 - 140
Ethylbenzene	100	J	4000	4340		ug/L		106	79 - 124
1,2-Dibromoethane	ND		4000	4230		ug/L		106	57 - 124
Cyclohexane	ND		4000	3880		ug/L		97	69 - 124
Isopropylbenzene	ND		4000	3770		ug/L		94	73 - 130
Methyl acetate	ND		20000	17400		ug/L		87	34 - 127
Methyl tert-butyl ether	ND		4000	3610		ug/L		90	53 - 122
Methylcyclohexane	ND		4000	4130		ug/L		103	67 - 120
Methylene Chloride	ND		4000	3640		ug/L		91	75 - 120
m-Xylene & p-Xylene	ND		4000	4230		ug/L		106	78 - 124
o-Xylene	ND		4000	4230		ug/L		106	78 - 124
Styrene	ND		4000	4230		ug/L		106	78 - 124
Tetrachloroethene	ND		4000	4560		ug/L		114	78 - 126
Toluene	170	J	4000	4070		ug/L		97	80 - 124
trans-1,2-Dichloroethene	ND		4000	3980		ug/L		100	78 - 120
trans-1,3-Dichloropropene	ND		4000	3680		ug/L		92	63 - 122
Trichloroethene	ND		4000	4190		ug/L		105	80 - 120
Trichlorofluoromethane	ND		4000	3650		ug/L		91	14 - 150
Vinyl chloride	ND		4000	3230		ug/L		81	57 - 128
Xylenes, Total	ND		8000	8460		ug/L		106	81 - 121

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*80*		*62 - 123*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*
Dibromofluoromethane (Surr)	*89*		*80 - 120*
Toluene-d8 (Surr)	*89*		*80 - 120*

Lab Sample ID: 180-49694-1 MSD
Matrix: Water
Analysis Batch: 160340

Client Sample ID: MW162
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		4000	4140		ug/L		104	69 - 134	3	24
1,1,2,2-Tetrachloroethane	ND		4000	3890		ug/L		97	59 - 136	9	20
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		4000	3610		ug/L		90	70 - 131	4	30
1,1,2-Trichloroethane	ND		4000	4330		ug/L		108	75 - 126	7	23
1,1-Dichloroethane	ND		4000	4070		ug/L		102	77 - 122	5	22
1,1-Dichloroethene	ND		4000	3800		ug/L		95	69 - 127	1	20
1,2-Dibromo-3-Chloropropane	ND		4000	3910		ug/L		98	28 - 150	18	20
1,2-Dichlorobenzene	ND		4000	4240		ug/L		106	75 - 125	3	20
1,2-Dichloroethane	ND		4000	3990		ug/L		100	63 - 140	4	25
1,2-Dichloropropane	ND		4000	4230		ug/L		106	75 - 114	3	20
1,2,4-Trichlorobenzene	ND		4000	4130		ug/L		103	35 - 150	3	30
1,3-Dichlorobenzene	ND		4000	4340		ug/L		109	76 - 125	1	21
1,4-Dichlorobenzene	ND		4000	4220		ug/L		106	76 - 123	3	20

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-49694-1 MSD
Matrix: Water
Analysis Batch: 160340

Client Sample ID: MW162
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Butanone (MEK)	ND	^c	4000	3910		ug/L		98	31 - 139	23	35
2-Hexanone	ND	^c	4000	4070		ug/L		102	35 - 129	4	24
4-Methyl-2-pentanone (MIBK)	ND	^c	4000	4830		ug/L		121	33 - 135	5	29
Acetone	ND	^c	4000	2620		ug/L		65	10 - 141	3	32
Benzene	16000		4000	22100	4	ug/L		149	80 - 120	2	20
Bromoform	ND	^c	4000	4920		ug/L		123	49 - 137	10	20
Bromomethane	ND		4000	2820		ug/L		71	45 - 150	5	23
Carbon disulfide	ND		4000	3740		ug/L		93	62 - 126	3	20
Carbon tetrachloride	ND		4000	4220		ug/L		105	63 - 139	1	25
Chlorobenzene	ND		4000	4260		ug/L		107	83 - 120	4	20
Chlorodibromomethane	ND	^c	4000	4600		ug/L		115	64 - 124	9	20
Chloroform	ND		4000	4090		ug/L		102	77 - 119	1	20
Chloromethane	ND		4000	3230		ug/L		81	49 - 133	3	20
Chloroethane	ND	^c	4000	3140		ug/L		78	33 - 150	3	24
cis-1,2-Dichloroethene	ND		4000	4200		ug/L		105	82 - 116	3	20
cis-1,3-Dichloropropene	ND		4000	4020		ug/L		100	74 - 123	3	20
Dichlorobromomethane	ND		4000	4230		ug/L		106	71 - 119	1	20
Dichlorodifluoromethane	ND		4000	3590		ug/L		90	28 - 140	1	20
Ethylbenzene	100	J	4000	4500		ug/L		110	79 - 124	4	25
1,2-Dibromoethane	ND		4000	4420		ug/L		111	57 - 124	4	20
Cyclohexane	ND		4000	4000		ug/L		100	69 - 124	3	20
Isopropylbenzene	ND		4000	3840		ug/L		96	73 - 130	2	20
Methyl acetate	ND		20000	18400		ug/L		92	34 - 127	6	29
Methyl tert-butyl ether	ND		4000	3900		ug/L		98	53 - 122	8	20
Methylcyclohexane	ND		4000	4250		ug/L		106	67 - 120	3	20
Methylene Chloride	ND		4000	3950		ug/L		99	75 - 120	8	20
m-Xylene & p-Xylene	ND		4000	4320		ug/L		108	78 - 124	2	24
o-Xylene	ND		4000	4330		ug/L		108	78 - 124	3	22
Styrene	ND		4000	4450		ug/L		111	78 - 124	5	22
Tetrachloroethene	ND		4000	4510		ug/L		113	78 - 126	1	25
Toluene	170	J	4000	4190		ug/L		101	80 - 124	3	20
trans-1,2-Dichloroethene	ND		4000	4100		ug/L		103	78 - 120	3	20
trans-1,3-Dichloropropene	ND		4000	3980		ug/L		99	63 - 122	8	20
Trichloroethene	ND		4000	4220		ug/L		106	80 - 120	1	20
Trichlorofluoromethane	ND		4000	3620		ug/L		90	14 - 150	1	20
Vinyl chloride	ND		4000	3320		ug/L		83	57 - 128	3	26
Xylenes, Total	ND		8000	8650		ug/L		108	81 - 121	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*82*		*62 - 123*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*
Dibromofluoromethane (Surr)	*92*		*80 - 120*
Toluene-d8 (Surr)	*89*		*80 - 120*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-160559/6
Matrix: Water
Analysis Batch: 160559

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	1.0	ug/L			11/16/15 12:46	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.93	ug/L			11/16/15 12:46	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.33	ug/L			11/16/15 12:46	1
1,1,2-Trichloroethane	ND		5.0	1.2	ug/L			11/16/15 12:46	1
1,1-Dichloroethane	ND		5.0	1.0	ug/L			11/16/15 12:46	1
1,1-Dichloroethene	ND		5.0	1.1	ug/L			11/16/15 12:46	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.35	ug/L			11/16/15 12:46	1
1,2-Dichlorobenzene	ND		5.0	0.68	ug/L			11/16/15 12:46	1
1,2-Dichloroethane	ND		5.0	0.96	ug/L			11/16/15 12:46	1
1,2-Dichloropropane	ND		5.0	1.3	ug/L			11/16/15 12:46	1
1,2,4-Trichlorobenzene	ND		5.0	0.38	ug/L			11/16/15 12:46	1
1,3-Dichlorobenzene	ND		5.0	0.51	ug/L			11/16/15 12:46	1
1,4-Dichlorobenzene	ND		5.0	0.53	ug/L			11/16/15 12:46	1
2-Butanone (MEK)	ND		5.0	1.1	ug/L			11/16/15 12:46	1
2-Hexanone	ND		5.0	0.57	ug/L			11/16/15 12:46	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.59	ug/L			11/16/15 12:46	1
Acetone	ND		20	5.0	ug/L			11/16/15 12:46	1
Benzene	ND		5.0	0.99	ug/L			11/16/15 12:46	1
Bromoform	ND		5.0	1.1	ug/L			11/16/15 12:46	1
Bromomethane	ND		5.0	1.6	ug/L			11/16/15 12:46	1
Carbon disulfide	ND		5.0	1.1	ug/L			11/16/15 12:46	1
Carbon tetrachloride	ND		5.0	1.1	ug/L			11/16/15 12:46	1
Chlorobenzene	ND		5.0	0.53	ug/L			11/16/15 12:46	1
Chlorodibromomethane	ND		5.0	0.65	ug/L			11/16/15 12:46	1
Chloroform	ND		5.0	1.0	ug/L			11/16/15 12:46	1
Chloromethane	ND		5.0	1.4	ug/L			11/16/15 12:46	1
Chloroethane	ND		5.0	0.75	ug/L			11/16/15 12:46	1
cis-1,2-Dichloroethene	ND		5.0	0.67	ug/L			11/16/15 12:46	1
cis-1,3-Dichloropropene	ND		5.0	0.73	ug/L			11/16/15 12:46	1
Dichlorobromomethane	ND		5.0	0.93	ug/L			11/16/15 12:46	1
Dichlorodifluoromethane	ND		5.0	0.64	ug/L			11/16/15 12:46	1
Ethylbenzene	ND		5.0	0.62	ug/L			11/16/15 12:46	1
1,2-Dibromoethane	ND		5.0	0.61	ug/L			11/16/15 12:46	1
Cyclohexane	ND		5.0	0.60	ug/L			11/16/15 12:46	1
Isopropylbenzene	ND		5.0	0.53	ug/L			11/16/15 12:46	1
Methyl acetate	ND		25	3.0	ug/L			11/16/15 12:46	1
Methyl tert-butyl ether	ND		5.0	1.0	ug/L			11/16/15 12:46	1
Methylcyclohexane	ND		5.0	0.56	ug/L			11/16/15 12:46	1
Methylene Chloride	1.20	J	5.0	1.1	ug/L			11/16/15 12:46	1
Styrene	ND		5.0	0.64	ug/L			11/16/15 12:46	1
Tetrachloroethene	ND		5.0	0.82	ug/L			11/16/15 12:46	1
Toluene	ND		5.0	0.85	ug/L			11/16/15 12:46	1
trans-1,2-Dichloroethene	ND		5.0	0.75	ug/L			11/16/15 12:46	1
trans-1,3-Dichloropropene	ND		5.0	0.58	ug/L			11/16/15 12:46	1
Trichloroethene	ND		5.0	0.80	ug/L			11/16/15 12:46	1
Trichlorofluoromethane	ND		5.0	1.1	ug/L			11/16/15 12:46	1
Vinyl chloride	ND		5.0	1.3	ug/L			11/16/15 12:46	1
Xylenes, Total	ND		10	1.7	ug/L			11/16/15 12:46	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 123		11/16/15 12:46	1
4-Bromofluorobenzene (Surr)	87		75 - 120		11/16/15 12:46	1
Dibromofluoromethane (Surr)	100		80 - 120		11/16/15 12:46	1
Toluene-d8 (Surr)	83		80 - 120		11/16/15 12:46	1

Lab Sample ID: LCS 180-160559/10
Matrix: Water
Analysis Batch: 160559

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	40.0	39.3		ug/L		98	69 - 134
1,1,2,2-Tetrachloroethane	40.0	34.6		ug/L		86	59 - 136
1,1,2-Trichloro-1,2,2-trifluoroethane	40.0	39.1		ug/L		98	70 - 131
1,1,2-Trichloroethane	40.0	34.7		ug/L		87	75 - 126
1,1-Dichloroethane	40.0	37.3		ug/L		93	77 - 122
1,1-Dichloroethene	40.0	37.5		ug/L		94	69 - 127
1,2-Dibromo-3-Chloropropane	40.0	39.1		ug/L		98	28 - 150
1,2-Dichlorobenzene	40.0	37.5		ug/L		94	75 - 125
1,2-Dichloroethane	40.0	37.0		ug/L		92	63 - 140
1,2-Dichloropropane	40.0	35.8		ug/L		90	75 - 114
1,2,4-Trichlorobenzene	40.0	41.2		ug/L		103	35 - 150
1,3-Dichlorobenzene	40.0	37.5		ug/L		94	76 - 125
1,4-Dichlorobenzene	40.0	37.6		ug/L		94	76 - 123
2-Butanone (MEK)	40.0	33.1		ug/L		83	31 - 139
2-Hexanone	40.0	35.0		ug/L		88	35 - 129
4-Methyl-2-pentanone (MIBK)	40.0	36.3		ug/L		91	33 - 135
Acetone	40.0	40.8		ug/L		102	10 - 141
Benzene	40.0	38.5		ug/L		96	80 - 120
Bromoform	40.0	40.0		ug/L		100	49 - 137
Bromomethane	40.0	31.5		ug/L		79	45 - 150
Carbon disulfide	40.0	38.6		ug/L		96	62 - 126
Carbon tetrachloride	40.0	40.0		ug/L		100	63 - 139
Chlorobenzene	40.0	34.4		ug/L		86	83 - 120
Chlorodibromomethane	40.0	39.0		ug/L		98	64 - 124
Chloroform	40.0	37.2		ug/L		93	77 - 119
Chloromethane	40.0	34.2		ug/L		85	49 - 133
Chloroethane	40.0	35.6		ug/L		89	33 - 150
cis-1,2-Dichloroethene	40.0	36.8		ug/L		92	82 - 116
cis-1,3-Dichloropropene	40.0	37.5		ug/L		94	74 - 123
Dichlorobromomethane	40.0	35.8		ug/L		90	71 - 119
Dichlorodifluoromethane	40.0	36.8		ug/L		92	28 - 140
Ethylbenzene	40.0	35.8		ug/L		90	79 - 124
1,2-Dibromoethane	40.0	36.3		ug/L		91	57 - 124
Cyclohexane	40.0	40.8		ug/L		102	69 - 124
Isopropylbenzene	40.0	33.3		ug/L		83	73 - 130
Methyl acetate	200	173		ug/L		87	34 - 127
Methyl tert-butyl ether	40.0	36.8		ug/L		92	53 - 122
Methylcyclohexane	40.0	40.8		ug/L		102	67 - 120
Methylene Chloride	40.0	35.8		ug/L		89	75 - 120
m-Xylene & p-Xylene	40.0	39.0		ug/L		97	78 - 124
o-Xylene	40.0	37.5		ug/L		94	78 - 124
Styrene	40.0	38.0		ug/L		95	78 - 124
Tetrachloroethene	40.0	38.2		ug/L		95	78 - 126

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-160559/10
Matrix: Water
Analysis Batch: 160559

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	40.0	34.6		ug/L		86	80 - 124
trans-1,2-Dichloroethene	40.0	38.3		ug/L		96	78 - 120
trans-1,3-Dichloropropene	40.0	37.2		ug/L		93	63 - 122
Trichloroethene	40.0	38.9		ug/L		97	80 - 120
Trichlorofluoromethane	40.0	38.0		ug/L		95	14 - 150
Vinyl chloride	40.0	37.1		ug/L		93	57 - 128
Xylenes, Total	80.0	76.5		ug/L		96	81 - 121

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*87*		*62 - 123*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*
Dibromofluoromethane (Surr)	*90*		*80 - 120*
Toluene-d8 (Surr)	*81*		*80 - 120*

Lab Sample ID: MB 180-160703/10
Matrix: Water
Analysis Batch: 160703

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	1.0	ug/L			11/17/15 12:56	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.93	ug/L			11/17/15 12:56	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.33	ug/L			11/17/15 12:56	1
1,1,2-Trichloroethane	ND		5.0	1.2	ug/L			11/17/15 12:56	1
1,1-Dichloroethane	ND		5.0	1.0	ug/L			11/17/15 12:56	1
1,1-Dichloroethene	ND		5.0	1.1	ug/L			11/17/15 12:56	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.35	ug/L			11/17/15 12:56	1
1,2-Dichlorobenzene	ND		5.0	0.68	ug/L			11/17/15 12:56	1
1,2-Dichloroethane	ND		5.0	0.96	ug/L			11/17/15 12:56	1
1,2-Dichloropropane	ND		5.0	1.3	ug/L			11/17/15 12:56	1
1,2,4-Trichlorobenzene	ND		5.0	0.38	ug/L			11/17/15 12:56	1
1,3-Dichlorobenzene	ND		5.0	0.51	ug/L			11/17/15 12:56	1
1,4-Dichlorobenzene	ND		5.0	0.53	ug/L			11/17/15 12:56	1
2-Butanone (MEK)	ND		5.0	1.1	ug/L			11/17/15 12:56	1
2-Hexanone	ND		5.0	0.57	ug/L			11/17/15 12:56	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	0.59	ug/L			11/17/15 12:56	1
Acetone	ND		20	5.0	ug/L			11/17/15 12:56	1
Benzene	ND		5.0	0.99	ug/L			11/17/15 12:56	1
Bromoform	ND		5.0	1.1	ug/L			11/17/15 12:56	1
Bromomethane	ND		5.0	1.6	ug/L			11/17/15 12:56	1
Carbon disulfide	ND		5.0	1.1	ug/L			11/17/15 12:56	1
Carbon tetrachloride	ND		5.0	1.1	ug/L			11/17/15 12:56	1
Chlorobenzene	ND		5.0	0.53	ug/L			11/17/15 12:56	1
Chlorodibromomethane	ND		5.0	0.65	ug/L			11/17/15 12:56	1
Chloroform	ND		5.0	1.0	ug/L			11/17/15 12:56	1
Chloromethane	ND		5.0	1.4	ug/L			11/17/15 12:56	1
Chloroethane	ND		5.0	0.75	ug/L			11/17/15 12:56	1
cis-1,2-Dichloroethene	ND		5.0	0.67	ug/L			11/17/15 12:56	1
cis-1,3-Dichloropropene	ND		5.0	0.73	ug/L			11/17/15 12:56	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-160703/10
Matrix: Water
Analysis Batch: 160703

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorobromomethane	ND		5.0	0.93	ug/L			11/17/15 12:56	1
Dichlorodifluoromethane	ND		5.0	0.64	ug/L			11/17/15 12:56	1
Ethylbenzene	ND		5.0	0.62	ug/L			11/17/15 12:56	1
1,2-Dibromoethane	ND		5.0	0.61	ug/L			11/17/15 12:56	1
Cyclohexane	ND		5.0	0.60	ug/L			11/17/15 12:56	1
Isopropylbenzene	ND		5.0	0.53	ug/L			11/17/15 12:56	1
Methyl acetate	ND		25	3.0	ug/L			11/17/15 12:56	1
Methyl tert-butyl ether	ND		5.0	1.0	ug/L			11/17/15 12:56	1
Methylcyclohexane	ND		5.0	0.56	ug/L			11/17/15 12:56	1
Methylene Chloride	1.59	J	5.0	1.1	ug/L			11/17/15 12:56	1
Styrene	ND		5.0	0.64	ug/L			11/17/15 12:56	1
Tetrachloroethene	ND		5.0	0.82	ug/L			11/17/15 12:56	1
Toluene	ND		5.0	0.85	ug/L			11/17/15 12:56	1
trans-1,2-Dichloroethene	ND		5.0	0.75	ug/L			11/17/15 12:56	1
trans-1,3-Dichloropropene	ND		5.0	0.58	ug/L			11/17/15 12:56	1
Trichloroethene	ND		5.0	0.80	ug/L			11/17/15 12:56	1
Trichlorofluoromethane	ND		5.0	1.1	ug/L			11/17/15 12:56	1
Vinyl chloride	ND		5.0	1.3	ug/L			11/17/15 12:56	1
Xylenes, Total	ND		10	1.7	ug/L			11/17/15 12:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*77*		*62 - 123*		*11/17/15 12:56*	*1*
4-Bromofluorobenzene (Surr)	*82*		*75 - 120*		*11/17/15 12:56*	*1*
Dibromofluoromethane (Surr)	*87*		*80 - 120*		*11/17/15 12:56*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*11/17/15 12:56*	*1*

Lab Sample ID: LCS 180-160703/4
Matrix: Water
Analysis Batch: 160703

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	40.0	41.1		ug/L		103	69 - 134
1,1,2,2-Tetrachloroethane	40.0	39.3		ug/L		98	59 - 136
1,1,2-Trichloro-1,2,2-trifluoroetha ne	40.0	40.3		ug/L		101	70 - 131
1,1,2-Trichloroethane	40.0	39.7		ug/L		99	75 - 126
1,1-Dichloroethane	40.0	39.5		ug/L		99	77 - 122
1,1-Dichloroethene	40.0	39.1		ug/L		98	69 - 127
1,2-Dibromo-3-Chloropropane	40.0	55.8		ug/L		139	28 - 150
1,2-Dichlorobenzene	40.0	38.2		ug/L		96	75 - 125
1,2-Dichloroethane	40.0	38.9		ug/L		97	63 - 140
1,2-Dichloropropane	40.0	37.5		ug/L		94	75 - 114
1,2,4-Trichlorobenzene	40.0	37.8		ug/L		95	35 - 150
1,3-Dichlorobenzene	40.0	38.5		ug/L		96	76 - 125
1,4-Dichlorobenzene	40.0	37.9		ug/L		95	76 - 123
2-Butanone (MEK)	40.0	33.5		ug/L		84	31 - 139
2-Hexanone	40.0	35.1		ug/L		88	35 - 129
4-Methyl-2-pentanone (MIBK)	40.0	35.2		ug/L		88	33 - 135

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-160703/4
Matrix: Water
Analysis Batch: 160703

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	40.0	36.8		ug/L		92	10 - 141
Benzene	40.0	39.9		ug/L		100	80 - 120
Bromoform	40.0	61.5	*	ug/L		154	49 - 137
Bromomethane	40.0	36.1		ug/L		90	45 - 150
Carbon disulfide	40.0	43.0		ug/L		108	62 - 126
Carbon tetrachloride	40.0	43.2		ug/L		108	63 - 139
Chlorobenzene	40.0	37.2		ug/L		93	83 - 120
Chlorodibromomethane	40.0	52.7	*	ug/L		132	64 - 124
Chloroform	40.0	39.1		ug/L		98	77 - 119
Chloromethane	40.0	32.9		ug/L		82	49 - 133
Chloroethane	40.0	38.7		ug/L		97	33 - 150
cis-1,2-Dichloroethene	40.0	38.3		ug/L		96	82 - 116
cis-1,3-Dichloropropene	40.0	41.9		ug/L		105	74 - 123
Dichlorobromomethane	40.0	43.7		ug/L		109	71 - 119
Dichlorodifluoromethane	40.0	33.8		ug/L		85	28 - 140
Ethylbenzene	40.0	38.2		ug/L		96	79 - 124
1,2-Dibromoethane	40.0	37.2		ug/L		93	57 - 124
Cyclohexane	40.0	40.0		ug/L		100	69 - 124
Isopropylbenzene	40.0	36.2		ug/L		91	73 - 130
Methyl acetate	200	196		ug/L		98	34 - 127
Methyl tert-butyl ether	40.0	39.1		ug/L		98	53 - 122
Methylcyclohexane	40.0	40.8		ug/L		102	67 - 120
Methylene Chloride	40.0	39.1		ug/L		98	75 - 120
m-Xylene & p-Xylene	40.0	40.6		ug/L		101	78 - 124
o-Xylene	40.0	40.7		ug/L		102	78 - 124
Styrene	40.0	40.3		ug/L		101	78 - 124
Tetrachloroethene	40.0	39.1		ug/L		98	78 - 126
Toluene	40.0	37.4		ug/L		93	80 - 124
trans-1,2-Dichloroethene	40.0	37.5		ug/L		94	78 - 120
trans-1,3-Dichloropropene	40.0	43.7		ug/L		109	63 - 122
Trichloroethene	40.0	38.7		ug/L		97	80 - 120
Trichlorofluoromethane	40.0	41.0		ug/L		103	14 - 150
Vinyl chloride	40.0	35.9		ug/L		90	57 - 128
Xylenes, Total	80.0	81.3		ug/L		102	81 - 121

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*94*		*62 - 123*
4-Bromofluorobenzene (Surr)	*96*		*75 - 120*
Dibromofluoromethane (Surr)	*96*		*80 - 120*
Toluene-d8 (Surr)	*87*		*80 - 120*

Lab Sample ID: LCSD 180-160703/5
Matrix: Water
Analysis Batch: 160703

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	40.0	42.5		ug/L		106	69 - 134	3	24
1,1,2,2-Tetrachloroethane	40.0	41.6		ug/L		104	59 - 136	6	20

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 180-160703/5
Matrix: Water
Analysis Batch: 160703

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,2-Trichloro-1,2,2-trifluoroethane	40.0	39.0		ug/L		97	70 - 131	3	30
1,1,2-Trichloroethane	40.0	41.0		ug/L		103	75 - 126	3	23
1,1-Dichloroethane	40.0	40.1		ug/L		100	77 - 122	2	22
1,1-Dichloroethene	40.0	38.2		ug/L		96	69 - 127	2	20
1,2-Dibromo-3-Chloropropane	40.0	52.0		ug/L		130	28 - 150	7	20
1,2-Dichlorobenzene	40.0	39.2		ug/L		98	75 - 125	3	20
1,2-Dichloroethane	40.0	41.3		ug/L		103	63 - 140	6	25
1,2-Dichloropropane	40.0	40.3		ug/L		101	75 - 114	7	20
1,2,4-Trichlorobenzene	40.0	40.5		ug/L		101	35 - 150	7	30
1,3-Dichlorobenzene	40.0	39.3		ug/L		98	76 - 125	2	21
1,4-Dichlorobenzene	40.0	39.5		ug/L		99	76 - 123	4	20
2-Butanone (MEK)	40.0	31.4		ug/L		79	31 - 139	7	35
2-Hexanone	40.0	32.0		ug/L		80	35 - 129	9	24
4-Methyl-2-pentanone (MIBK)	40.0	35.4		ug/L		89	33 - 135	1	29
Acetone	40.0	32.2		ug/L		81	10 - 141	13	32
Benzene	40.0	41.5		ug/L		104	80 - 120	4	20
Bromoform	40.0	60.2	*	ug/L		151	49 - 137	2	20
Bromomethane	40.0	39.1		ug/L		98	45 - 150	8	23
Carbon disulfide	40.0	45.1		ug/L		113	62 - 126	5	20
Carbon tetrachloride	40.0	44.5		ug/L		111	63 - 139	3	25
Chlorobenzene	40.0	38.5		ug/L		96	83 - 120	4	20
Chlorodibromomethane	40.0	55.5	*	ug/L		139	64 - 124	5	20
Chloroform	40.0	41.0		ug/L		102	77 - 119	5	20
Chloromethane	40.0	35.3		ug/L		88	49 - 133	7	20
Chloroethane	40.0	40.0		ug/L		100	33 - 150	3	24
cis-1,2-Dichloroethene	40.0	40.7		ug/L		102	82 - 116	6	20
cis-1,3-Dichloropropene	40.0	44.8		ug/L		112	74 - 123	7	20
Dichlorobromomethane	40.0	45.0		ug/L		113	71 - 119	3	20
Dichlorodifluoromethane	40.0	34.6		ug/L		87	28 - 140	2	20
Ethylbenzene	40.0	39.1		ug/L		98	79 - 124	2	25
1,2-Dibromoethane	40.0	41.2		ug/L		103	57 - 124	10	20
Cyclohexane	40.0	40.5		ug/L		101	69 - 124	1	20
Isopropylbenzene	40.0	36.4		ug/L		91	73 - 130	1	20
Methyl acetate	200	206		ug/L		103	34 - 127	5	29
Methyl tert-butyl ether	40.0	43.1		ug/L		108	53 - 122	10	20
Methylcyclohexane	40.0	41.5		ug/L		104	67 - 120	2	20
Methylene Chloride	40.0	43.0		ug/L		107	75 - 120	9	20
m-Xylene & p-Xylene	40.0	41.8		ug/L		104	78 - 124	3	24
o-Xylene	40.0	40.8		ug/L		102	78 - 124	0	22
Styrene	40.0	41.9		ug/L		105	78 - 124	4	22
Tetrachloroethene	40.0	39.8		ug/L		99	78 - 126	2	25
Toluene	40.0	38.0		ug/L		95	80 - 124	2	20
trans-1,2-Dichloroethene	40.0	38.1		ug/L		95	78 - 120	2	20
trans-1,3-Dichloropropene	40.0	45.2		ug/L		113	63 - 122	3	20
Trichloroethene	40.0	39.1		ug/L		98	80 - 120	1	20
Trichlorofluoromethane	40.0	41.5		ug/L		104	14 - 150	1	20
Vinyl chloride	40.0	37.9		ug/L		95	57 - 128	5	26

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 180-160703/5
Matrix: Water
Analysis Batch: 160703

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Xylenes, Total			80.0	82.6		ug/L		103	81 - 121	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*62 - 123*
4-Bromofluorobenzene (Surr)	*100*		*75 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*87*		*80 - 120*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-160397/1-A
Matrix: Water
Analysis Batch: 160579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 160397

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2.0	0.29	ug/L		11/13/15 11:28	11/16/15 12:01	1
Acenaphthylene	ND		2.0	0.22	ug/L		11/13/15 11:28	11/16/15 12:01	1
Anthracene	ND		2.0	0.19	ug/L		11/13/15 11:28	11/16/15 12:01	1
Benzo[a]anthracene	ND		2.0	0.37	ug/L		11/13/15 11:28	11/16/15 12:01	1
Benzo[a]pyrene	ND		2.0	0.28	ug/L		11/13/15 11:28	11/16/15 12:01	1
Benzo[b]fluoranthene	ND		2.0	0.49	ug/L		11/13/15 11:28	11/16/15 12:01	1
Benzo[g,h,i]perylene	ND		2.0	0.29	ug/L		11/13/15 11:28	11/16/15 12:01	1
Benzo[k]fluoranthene	ND		2.0	0.30	ug/L		11/13/15 11:28	11/16/15 12:01	1
Bis(2-ethylhexyl) phthalate	ND		20	4.4	ug/L		11/13/15 11:28	11/16/15 12:01	1
2,2'-oxybis[1-chloropropane]	ND		10	0.24	ug/L		11/13/15 11:28	11/16/15 12:01	1
4-Bromophenyl phenyl ether	ND		10	1.2	ug/L		11/13/15 11:28	11/16/15 12:01	1
Butyl benzyl phthalate	ND		10	2.1	ug/L		11/13/15 11:28	11/16/15 12:01	1
Carbazole	ND		10	0.27	ug/L		11/13/15 11:28	11/16/15 12:01	1
4-Chloroaniline	ND		10	2.9	ug/L		11/13/15 11:28	11/16/15 12:01	1
2-Chloronaphthalene	ND		2.0	0.31	ug/L		11/13/15 11:28	11/16/15 12:01	1
4-Chlorophenyl phenyl ether	ND		10	0.80	ug/L		11/13/15 11:28	11/16/15 12:01	1
Chrysene	ND		2.0	0.31	ug/L		11/13/15 11:28	11/16/15 12:01	1
Dibenz(a,h)anthracene	ND		2.0	0.27	ug/L		11/13/15 11:28	11/16/15 12:01	1
Dibenzofuran	ND		10	0.97	ug/L		11/13/15 11:28	11/16/15 12:01	1
Di-n-butyl phthalate	ND		10	2.4	ug/L		11/13/15 11:28	11/16/15 12:01	1
3,3'-Dichlorobenzidine	ND		10	1.5	ug/L		11/13/15 11:28	11/16/15 12:01	1
Diethyl phthalate	ND		10	3.0	ug/L		11/13/15 11:28	11/16/15 12:01	1
Dimethyl phthalate	ND		10	1.8	ug/L		11/13/15 11:28	11/16/15 12:01	1
2,4-Dinitrotoluene	ND		10	2.1	ug/L		11/13/15 11:28	11/16/15 12:01	1
2,6-Dinitrotoluene	ND		10	1.4	ug/L		11/13/15 11:28	11/16/15 12:01	1
Di-n-octyl phthalate	ND		10	2.0	ug/L		11/13/15 11:28	11/16/15 12:01	1
Fluoranthene	ND		2.0	0.21	ug/L		11/13/15 11:28	11/16/15 12:01	1
Fluorene	ND		2.0	0.24	ug/L		11/13/15 11:28	11/16/15 12:01	1
Hexachlorobenzene	ND		10	0.61	ug/L		11/13/15 11:28	11/16/15 12:01	1
Hexachlorobutadiene	ND		10	0.94	ug/L		11/13/15 11:28	11/16/15 12:01	1
Hexachlorocyclopentadiene	ND		10	1.4	ug/L		11/13/15 11:28	11/16/15 12:01	1
Hexachloroethane	ND		10	1.4	ug/L		11/13/15 11:28	11/16/15 12:01	1
Indeno[1,2,3-cd]pyrene	ND		2.0	0.43	ug/L		11/13/15 11:28	11/16/15 12:01	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-160397/1-A
Matrix: Water
Analysis Batch: 160579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 160397

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isophorone	ND		10	0.74	ug/L		11/13/15 11:28	11/16/15 12:01	1
2-Methylnaphthalene	ND		2.0	0.19	ug/L		11/13/15 11:28	11/16/15 12:01	1
Naphthalene	ND		2.0	0.23	ug/L		11/13/15 11:28	11/16/15 12:01	1
2-Nitroaniline	ND		50	6.7	ug/L		11/13/15 11:28	11/16/15 12:01	1
3-Nitroaniline	ND		50	8.1	ug/L		11/13/15 11:28	11/16/15 12:01	1
4-Nitroaniline	ND		50	7.7	ug/L		11/13/15 11:28	11/16/15 12:01	1
4-Nitrophenol	ND		50	8.0	ug/L		11/13/15 11:28	11/16/15 12:01	1
Nitrobenzene	ND		20	1.5	ug/L		11/13/15 11:28	11/16/15 12:01	1
N-Nitrosodi-n-propylamine	ND		10	0.50	ug/L		11/13/15 11:28	11/16/15 12:01	1
N-Nitrosodiphenylamine	ND		10	1.2	ug/L		11/13/15 11:28	11/16/15 12:01	1
Phenanthrene	ND		2.0	0.42	ug/L		11/13/15 11:28	11/16/15 12:01	1
Pyrene	ND		2.0	0.23	ug/L		11/13/15 11:28	11/16/15 12:01	1
4-Chloro-3-methylphenol	ND		10	1.7	ug/L		11/13/15 11:28	11/16/15 12:01	1
2-Chlorophenol	ND		10	2.3	ug/L		11/13/15 11:28	11/16/15 12:01	1
2-Methylphenol	ND		10	1.9	ug/L		11/13/15 11:28	11/16/15 12:01	1
Methylphenol, 3 & 4	ND		10	2.1	ug/L		11/13/15 11:28	11/16/15 12:01	1
2,4-Dichlorophenol	ND		10	0.67	ug/L		11/13/15 11:28	11/16/15 12:01	1
2,4-Dimethylphenol	ND		10	1.7	ug/L		11/13/15 11:28	11/16/15 12:01	1
2,4-Dinitrophenol	ND		50	25	ug/L		11/13/15 11:28	11/16/15 12:01	1
4,6-Dinitro-2-methylphenol	ND		50	16	ug/L		11/13/15 11:28	11/16/15 12:01	1
2-Nitrophenol	ND		10	1.1	ug/L		11/13/15 11:28	11/16/15 12:01	1
Pentachlorophenol	ND		10	5.0	ug/L		11/13/15 11:28	11/16/15 12:01	1
Phenol	ND		10	0.55	ug/L		11/13/15 11:28	11/16/15 12:01	1
2,4,5-Trichlorophenol	ND		10	1.2	ug/L		11/13/15 11:28	11/16/15 12:01	1
2,4,6-Trichlorophenol	ND		10	3.0	ug/L		11/13/15 11:28	11/16/15 12:01	1
Acetophenone	ND		20	1.1	ug/L		11/13/15 11:28	11/16/15 12:01	1
Atrazine	ND		20	2.2	ug/L		11/13/15 11:28	11/16/15 12:01	1
Benzaldehyde	ND		20	1.1	ug/L		11/13/15 11:28	11/16/15 12:01	1
1,1'-Biphenyl	ND		10	1.1	ug/L		11/13/15 11:28	11/16/15 12:01	1
Caprolactam	ND		50	15	ug/L		11/13/15 11:28	11/16/15 12:01	1
Bis(2-chloroethoxy)methane	ND		10	1.3	ug/L		11/13/15 11:28	11/16/15 12:01	1
Bis(2-chloroethyl)ether	ND		10	0.32	ug/L		11/13/15 11:28	11/16/15 12:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*56*		*27 - 110*	*11/13/15 11:28*	*11/16/15 12:01*	*1*
Phenol-d5 (Surr)	*59*		*23 - 111*	*11/13/15 11:28*	*11/16/15 12:01*	*1*
2-Fluorobiphenyl	*52*		*28 - 106*	*11/13/15 11:28*	*11/16/15 12:01*	*1*
2,4,6-Tribromophenol (Surr)	*58*		*25 - 118*	*11/13/15 11:28*	*11/16/15 12:01*	*1*
2-Fluorophenol (Surr)	*55*		*20 - 108*	*11/13/15 11:28*	*11/16/15 12:01*	*1*
Terphenyl-d14 (Surr)	*61*		*20 - 109*	*11/13/15 11:28*	*11/16/15 12:01*	*1*

Lab Sample ID: LCS 180-160397/2-A
Matrix: Water
Analysis Batch: 160579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160397

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	200	117		ug/L		59	48 - 100
Acenaphthylene	200	125		ug/L		62	43 - 100

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-160397/2-A
Matrix: Water
Analysis Batch: 160579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160397

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Anthracene	200	126		ug/L		63	47 - 100
Benzo[a]anthracene	200	126		ug/L		63	46 - 100
Benzo[a]pyrene	200	127		ug/L		63	46 - 100
Benzo[b]fluoranthene	200	121		ug/L		61	41 - 100
Benzo[g,h,i]perylene	200	128		ug/L		64	49 - 100
Benzo[k]fluoranthene	200	126		ug/L		63	46 - 100
Bis(2-ethylhexyl) phthalate	200	140		ug/L		70	36 - 109
2,2'-oxybis[1-chloropropane]	200	136		ug/L		68	37 - 100
4-Bromophenyl phenyl ether	200	130		ug/L		65	50 - 100
Butyl benzyl phthalate	200	140		ug/L		70	38 - 107
Carbazole	200	129		ug/L		65	45 - 100
4-Chloroaniline	200	130		ug/L		65	44 - 100
2-Chloronaphthalene	200	120		ug/L		60	44 - 100
4-Chlorophenyl phenyl ether	200	128		ug/L		64	47 - 100
Chrysene	200	128		ug/L		64	48 - 100
Dibenz(a,h)anthracene	200	127		ug/L		64	48 - 100
Dibenzofuran	200	123		ug/L		61	45 - 100
Di-n-butyl phthalate	200	138		ug/L		69	44 - 103
3,3'-Dichlorobenzidine	200	121		ug/L		60	40 - 100
Diethyl phthalate	200	128		ug/L		64	46 - 100
Dimethyl phthalate	200	131		ug/L		66	47 - 100
2,4-Dinitrotoluene	200	139		ug/L		70	30 - 130
2,6-Dinitrotoluene	200	136		ug/L		68	48 - 100
Di-n-octyl phthalate	200	127		ug/L		63	33 - 108
Fluoranthene	200	136		ug/L		68	47 - 100
Fluorene	200	126		ug/L		63	45 - 100
Hexachlorobenzene	200	123		ug/L		61	50 - 100
Hexachlorobutadiene	200	125		ug/L		62	49 - 100
Hexachlorocyclopentadiene	200	130		ug/L		65	47 - 102
Hexachloroethane	200	128		ug/L		64	46 - 100
Indeno[1,2,3-cd]pyrene	200	128		ug/L		64	47 - 100
Isophorone	200	138		ug/L		69	48 - 100
2-Methylnaphthalene	200	132		ug/L		66	45 - 100
Naphthalene	200	124		ug/L		62	45 - 100
2-Nitroaniline	200	150		ug/L		75	48 - 107
3-Nitroaniline	200	141		ug/L		70	42 - 100
4-Nitroaniline	200	144		ug/L		72	42 - 100
4-Nitrophenol	400	305		ug/L		76	40 - 133
Nitrobenzene	200	131		ug/L		65	48 - 100
N-Nitrosodi-n-propylamine	200	139		ug/L		69	42 - 100
N-Nitrosodiphenylamine	400	234		ug/L		59	20 - 130
Phenanthrene	200	122		ug/L		61	46 - 100
Pyrene	200	121		ug/L		61	39 - 100
4-Chloro-3-methylphenol	200	147		ug/L		74	44 - 100
2-Chlorophenol	200	130		ug/L		65	42 - 100
2-Methylphenol	200	134		ug/L		67	42 - 100
Methylphenol, 3 & 4	200	133		ug/L		67	42 - 100
2,4-Dichlorophenol	200	131		ug/L		66	45 - 100

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-160397/2-A
Matrix: Water
Analysis Batch: 160579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160397

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-Dimethylphenol	200	131		ug/L		66	46 - 100
2,4-Dinitrophenol	400	252		ug/L		63	39 - 100
4,6-Dinitro-2-methylphenol	400	272		ug/L		68	47 - 100
2-Nitrophenol	200	137		ug/L		69	45 - 100
Pentachlorophenol	400	263		ug/L		66	46 - 100
Phenol	200	129		ug/L		65	44 - 100
2,4,5-Trichlorophenol	200	132		ug/L		66	50 - 100
2,4,6-Trichlorophenol	200	137		ug/L		68	50 - 100
Acetophenone	200	125		ug/L		63	41 - 100
Atrazine	200	126		ug/L		63	30 - 130
Benzaldehyde	200	120		ug/L		60	10 - 117
1,1'-Biphenyl	200	120		ug/L		60	46 - 100
Caprolactam	200	153		ug/L		77	43 - 101
Bis(2-chloroethoxy)methane	200	126		ug/L		63	45 - 100
Bis(2-chloroethyl)ether	200	129		ug/L		64	42 - 100

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*66*		*27 - 110*
Phenol-d5 (Surr)	*67*		*23 - 111*
2-Fluorobiphenyl	*60*		*28 - 106*
2,4,6-Tribromophenol (Surr)	*68*		*25 - 118*
2-Fluorophenol (Surr)	*64*		*20 - 108*
Terphenyl-d14 (Surr)	*62*		*20 - 109*

Lab Sample ID: 180-49694-1 MS
Matrix: Water
Analysis Batch: 160579

Client Sample ID: MW162
Prep Type: Total/NA
Prep Batch: 160397

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	ND		152	93.0		ug/L		61	48 - 100
Acenaphthylene	ND		152	104		ug/L		69	43 - 100
Anthracene	ND		152	95.9		ug/L		63	47 - 100
Benzo[a]anthracene	ND		152	93.4		ug/L		62	46 - 100
Benzo[a]pyrene	ND		152	86.2		ug/L		57	46 - 100
Benzo[b]fluoranthene	ND		152	86.6		ug/L		57	41 - 100
Benzo[g,h,i]perylene	ND		152	92.0		ug/L		61	49 - 100
Benzo[k]fluoranthene	ND		152	84.8		ug/L		56	46 - 100
Bis(2-ethylhexyl) phthalate	ND		152	107		ug/L		70	36 - 109
2,2'-oxybis[1-chloropropane]	ND		152	115		ug/L		76	37 - 100
4-Bromophenyl phenyl ether	ND		152	101		ug/L		67	50 - 100
Butyl benzyl phthalate	ND		152	108		ug/L		71	38 - 107
Carbazole	ND		152	123		ug/L		81	45 - 100
4-Chloroaniline	ND		152	95.7		ug/L		63	44 - 100
2-Chloronaphthalene	ND		152	100		ug/L		66	44 - 100
4-Chlorophenyl phenyl ether	ND		152	101		ug/L		67	47 - 100
Chrysene	ND		152	96.8		ug/L		64	48 - 100
Dibenz(a,h)anthracene	ND		152	91.6		ug/L		60	48 - 100
Dibenzofuran	ND		152	106		ug/L		70	45 - 100

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-49694-1 MS
Matrix: Water
Analysis Batch: 160579

Client Sample ID: MW162
Prep Type: Total/NA
Prep Batch: 160397

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Di-n-butyl phthalate	ND		152	104		ug/L		69	44 - 103
3,3'-Dichlorobenzidine	ND	F1	152	2.50	J F1	ug/L		2	40 - 100
Diethyl phthalate	4.5	J	152	125		ug/L		79	46 - 100
Dimethyl phthalate	ND		152	124		ug/L		82	47 - 100
2,4-Dinitrotoluene	ND		152	133		ug/L		88	30 - 130
2,6-Dinitrotoluene	ND		152	130		ug/L		86	48 - 100
Di-n-octyl phthalate	ND		152	91.7		ug/L		60	33 - 108
Fluoranthene	ND		152	102		ug/L		67	47 - 100
Fluorene	ND		152	105		ug/L		69	45 - 100
Hexachlorobenzene	ND		152	88.8		ug/L		59	50 - 100
Hexachlorobutadiene	ND		152	89.9		ug/L		59	49 - 100
Hexachlorocyclopentadiene	ND	F1	152	37.2	F1	ug/L		25	47 - 102
Hexachloroethane	ND		152	115		ug/L		76	46 - 100
Indeno[1,2,3-cd]pyrene	ND		152	91.5		ug/L		60	47 - 100
Isophorone	ND		152	122		ug/L		81	48 - 100
2-Methylnaphthalene	ND		152	109		ug/L		72	45 - 100
Naphthalene	3.7		152	107		ug/L		69	45 - 100
2-Nitroaniline	ND		152	142		ug/L		94	48 - 107
3-Nitroaniline	ND		152	119		ug/L		78	42 - 100
4-Nitroaniline	ND		152	128		ug/L		85	42 - 100
4-Nitrophenol	ND		303	297		ug/L		98	40 - 133
Nitrobenzene	ND		152	111		ug/L		74	48 - 100
N-Nitrosodi-n-propylamine	ND		152	122		ug/L		81	42 - 100
N-Nitrosodiphenylamine	ND		303	215		ug/L		71	20 - 130
Phenanthrene	ND		152	102		ug/L		67	46 - 100
Pyrene	ND		152	92.3		ug/L		61	39 - 100
4-Chloro-3-methylphenol	ND		152	139		ug/L		91	44 - 100
2-Chlorophenol	ND		152	110		ug/L		72	42 - 100
2-Methylphenol	ND		152	118		ug/L		78	42 - 100
Methylphenol, 3 & 4	ND		152	121		ug/L		80	42 - 100
2,4-Dichlorophenol	ND		152	113		ug/L		75	45 - 100
2,4-Dimethylphenol	2.9	J	152	114		ug/L		73	46 - 100
2,4-Dinitrophenol	ND		303	288		ug/L		95	39 - 100
4,6-Dinitro-2-methylphenol	ND		303	279		ug/L		92	47 - 100
2-Nitrophenol	ND		152	119		ug/L		79	45 - 100
Pentachlorophenol	ND		303	264		ug/L		87	46 - 100
Phenol	150	F1	152	148	F1	ug/L		-0.9	44 - 100
2,4,5-Trichlorophenol	ND		152	121		ug/L		80	50 - 100
2,4,6-Trichlorophenol	ND		152	121		ug/L		80	50 - 100
Acetophenone	9.5	J	152	119		ug/L		72	41 - 100
Atrazine	ND		152	97.3		ug/L		64	30 - 130
Benzaldehyde	ND		152	130		ug/L		86	10 - 117
1,1'-Biphenyl	ND		152	99.7		ug/L		66	46 - 100
Caprolactam	ND		152	140		ug/L		93	43 - 101
Bis(2-chloroethoxy)methane	ND		152	107		ug/L		70	45 - 100
Bis(2-chloroethyl)ether	ND		152	110		ug/L		72	42 - 100

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-49694-1 MS
Matrix: Water
Analysis Batch: 160579

Client Sample ID: MW162
Prep Type: Total/NA
Prep Batch: 160397

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*72*		*27 - 110*
Phenol-d5 (Surr)	*73*		*23 - 111*
2-Fluorobiphenyl	*64*		*28 - 106*
2,4,6-Tribromophenol (Surr)	*88*		*25 - 118*
2-Fluorophenol (Surr)	*66*		*20 - 108*
Terphenyl-d14 (Surr)	*49*		*20 - 109*

Lab Sample ID: 180-49694-1 MSD
Matrix: Water
Analysis Batch: 160579

Client Sample ID: MW162
Prep Type: Total/NA
Prep Batch: 160397

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		152	93.2		ug/L		61	48 - 100	0	15
Acenaphthylene	ND		152	103		ug/L		68	43 - 100	1	15
Anthracene	ND		152	97.5		ug/L		64	47 - 100	2	15
Benzo[a]anthracene	ND		152	92.2		ug/L		61	46 - 100	1	15
Benzo[a]pyrene	ND		152	86.5		ug/L		57	46 - 100	0	15
Benzo[b]fluoranthene	ND		152	86.2		ug/L		57	41 - 100	0	15
Benzo[g,h,i]perylene	ND		152	92.7		ug/L		61	49 - 100	1	15
Benzo[k]fluoranthene	ND		152	85.5		ug/L		56	46 - 100	1	15
Bis(2-ethylhexyl) phthalate	ND		152	105		ug/L		69	36 - 109	2	15
2,2'-oxybis[1-chloropropane]	ND		152	114		ug/L		75	37 - 100	2	15
4-Bromophenyl phenyl ether	ND		152	101		ug/L		66	50 - 100	1	15
Butyl benzyl phthalate	ND		152	106		ug/L		70	38 - 107	1	15
Carbazole	ND		152	123		ug/L		81	45 - 100	0	15
4-Chloroaniline	ND		152	94.3		ug/L		62	44 - 100	1	15
2-Chloronaphthalene	ND		152	98.7		ug/L		65	44 - 100	1	15
4-Chlorophenyl phenyl ether	ND		152	103		ug/L		68	47 - 100	1	15
Chrysene	ND		152	95.3		ug/L		63	48 - 100	2	15
Dibenz(a,h)anthracene	ND		152	92.4		ug/L		61	48 - 100	1	15
Dibenzofuran	ND		152	105		ug/L		69	45 - 100	1	15
Di-n-butyl phthalate	ND		152	103		ug/L		68	44 - 103	1	15
3,3'-Dichlorobenzidine	ND	F1	152	2.81	J F1	ug/L		2	40 - 100	12	15
Diethyl phthalate	4.5	J	152	126		ug/L		80	46 - 100	1	15
Dimethyl phthalate	ND		152	125		ug/L		82	47 - 100	1	15
2,4-Dinitrotoluene	ND		152	137		ug/L		91	30 - 130	3	35
2,6-Dinitrotoluene	ND		152	129		ug/L		85	48 - 100	0	15
Di-n-octyl phthalate	ND		152	91.2		ug/L		60	33 - 108	0	15
Fluoranthene	ND		152	102		ug/L		67	47 - 100	0	15
Fluorene	ND		152	105		ug/L		70	45 - 100	0	15
Hexachlorobenzene	ND		152	87.3		ug/L		58	50 - 100	2	15
Hexachlorobutadiene	ND		152	88.5		ug/L		58	49 - 100	2	15
Hexachlorocyclopentadiene	ND	F1	152	36.3	F1	ug/L		24	47 - 102	3	15
Hexachloroethane	ND		152	112		ug/L		74	46 - 100	3	15
Indeno[1,2,3-cd]pyrene	ND		152	92.2		ug/L		61	47 - 100	1	15
Isophorone	ND		152	120		ug/L		80	48 - 100	2	15
2-Methylnaphthalene	ND		152	107		ug/L		71	45 - 100	1	15
Naphthalene	3.7		152	106		ug/L		67	45 - 100	2	15

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-49694-1 MSD
Matrix: Water
Analysis Batch: 160579

Client Sample ID: MW162
Prep Type: Total/NA
Prep Batch: 160397

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Nitroaniline	ND		152	143		ug/L		94	48 - 107	0	15
3-Nitroaniline	ND		152	120		ug/L		79	42 - 100	1	15
4-Nitroaniline	ND		152	130		ug/L		86	42 - 100	1	15
4-Nitrophenol	ND		303	304		ug/L		100	40 - 133	2	15
Nitrobenzene	ND		152	111		ug/L		73	48 - 100	0	15
N-Nitrosodi-n-propylamine	ND		152	122		ug/L		80	42 - 100	0	15
N-Nitrosodiphenylamine	ND		303	214		ug/L		71	20 - 130	0	15
Phenanthrene	ND		152	101		ug/L		67	46 - 100	1	15
Pyrene	ND		152	93.2		ug/L		62	39 - 100	1	15
4-Chloro-3-methylphenol	ND		152	137		ug/L		90	44 - 100	1	15
2-Chlorophenol	ND		152	108		ug/L		71	42 - 100	1	15
2-Methylphenol	ND		152	116		ug/L		77	42 - 100	2	15
Methylphenol, 3 & 4	ND		152	119		ug/L		78	42 - 100	1	15
2,4-Dichlorophenol	ND		152	112		ug/L		74	45 - 100	1	15
2,4-Dimethylphenol	2.9	J	152	114		ug/L		74	46 - 100	1	15
2,4-Dinitrophenol	ND		303	297		ug/L		98	39 - 100	3	15
4,6-Dinitro-2-methylphenol	ND		303	278		ug/L		92	47 - 100	0	15
2-Nitrophenol	ND		152	116		ug/L		77	45 - 100	3	15
Pentachlorophenol	ND		303	263		ug/L		87	46 - 100	0	15
Phenol	150	F1	152	148	F1	ug/L		-1	44 - 100	0	15
2,4,5-Trichlorophenol	ND		152	122		ug/L		80	50 - 100	1	15
2,4,6-Trichlorophenol	ND		152	123		ug/L		81	50 - 100	1	15
Acetophenone	9.5	J	152	117		ug/L		71	41 - 100	1	15
Atrazine	ND		152	96.5		ug/L		64	30 - 130	1	15
Benzaldehyde	ND		152	129		ug/L		85	10 - 117	1	19
1,1'-Biphenyl	ND		152	99.3		ug/L		66	46 - 100	0	15
Caprolactam	ND		152	141		ug/L		93	43 - 101	1	16
Bis(2-chloroethoxy)methane	ND		152	107		ug/L		70	45 - 100	0	15
Bis(2-chloroethyl)ether	ND		152	109		ug/L		72	42 - 100	0	15

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*71*		*27 - 110*
Phenol-d5 (Surr)	*72*		*23 - 111*
2-Fluorobiphenyl	*63*		*28 - 106*
2,4,6-Tribromophenol (Surr)	*89*		*25 - 118*
2-Fluorophenol (Surr)	*66*		*20 - 108*
Terphenyl-d14 (Surr)	*50*		*20 - 109*

Lab Sample ID: MB 180-160577/1-A
Matrix: Water
Analysis Batch: 160738

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 160577

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2.0	0.29	ug/L		11/16/15 09:27	11/17/15 13:08	1
Acenaphthylene	ND		2.0	0.22	ug/L		11/16/15 09:27	11/17/15 13:08	1
Anthracene	ND		2.0	0.19	ug/L		11/16/15 09:27	11/17/15 13:08	1
Benzo[a]anthracene	ND		2.0	0.37	ug/L		11/16/15 09:27	11/17/15 13:08	1
Benzo[a]pyrene	ND		2.0	0.28	ug/L		11/16/15 09:27	11/17/15 13:08	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-160577/1-A
Matrix: Water
Analysis Batch: 160738

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 160577

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		2.0	0.49	ug/L		11/16/15 09:27	11/17/15 13:08	1
Benzo[g,h,i]perylene	ND		2.0	0.29	ug/L		11/16/15 09:27	11/17/15 13:08	1
Benzo[k]fluoranthene	ND		2.0	0.30	ug/L		11/16/15 09:27	11/17/15 13:08	1
Bis(2-ethylhexyl) phthalate	ND		20	4.4	ug/L		11/16/15 09:27	11/17/15 13:08	1
2,2'-oxybis[1-chloropropane]	ND		10	0.24	ug/L		11/16/15 09:27	11/17/15 13:08	1
4-Bromophenyl phenyl ether	ND		10	1.2	ug/L		11/16/15 09:27	11/17/15 13:08	1
Butyl benzyl phthalate	ND		10	2.1	ug/L		11/16/15 09:27	11/17/15 13:08	1
Carbazole	ND		10	0.27	ug/L		11/16/15 09:27	11/17/15 13:08	1
4-Chloroaniline	ND		10	2.9	ug/L		11/16/15 09:27	11/17/15 13:08	1
2-Chloronaphthalene	ND		2.0	0.31	ug/L		11/16/15 09:27	11/17/15 13:08	1
4-Chlorophenyl phenyl ether	ND		10	0.80	ug/L		11/16/15 09:27	11/17/15 13:08	1
Chrysene	ND		2.0	0.31	ug/L		11/16/15 09:27	11/17/15 13:08	1
Dibenz(a,h)anthracene	ND		2.0	0.27	ug/L		11/16/15 09:27	11/17/15 13:08	1
Dibenzofuran	ND		10	0.97	ug/L		11/16/15 09:27	11/17/15 13:08	1
Di-n-butyl phthalate	ND		10	2.4	ug/L		11/16/15 09:27	11/17/15 13:08	1
3,3'-Dichlorobenzidine	ND		10	1.5	ug/L		11/16/15 09:27	11/17/15 13:08	1
Diethyl phthalate	ND		10	3.0	ug/L		11/16/15 09:27	11/17/15 13:08	1
Dimethyl phthalate	ND		10	1.8	ug/L		11/16/15 09:27	11/17/15 13:08	1
2,4-Dinitrotoluene	ND		10	2.1	ug/L		11/16/15 09:27	11/17/15 13:08	1
2,6-Dinitrotoluene	ND		10	1.4	ug/L		11/16/15 09:27	11/17/15 13:08	1
Di-n-octyl phthalate	ND		10	2.0	ug/L		11/16/15 09:27	11/17/15 13:08	1
Fluoranthene	ND		2.0	0.21	ug/L		11/16/15 09:27	11/17/15 13:08	1
Fluorene	ND		2.0	0.24	ug/L		11/16/15 09:27	11/17/15 13:08	1
Hexachlorobenzene	ND		10	0.61	ug/L		11/16/15 09:27	11/17/15 13:08	1
Hexachlorobutadiene	ND		10	0.94	ug/L		11/16/15 09:27	11/17/15 13:08	1
Hexachlorocyclopentadiene	ND		10	1.4	ug/L		11/16/15 09:27	11/17/15 13:08	1
Hexachloroethane	ND		10	1.4	ug/L		11/16/15 09:27	11/17/15 13:08	1
Indeno[1,2,3-cd]pyrene	ND		2.0	0.43	ug/L		11/16/15 09:27	11/17/15 13:08	1
Isophorone	ND		10	0.74	ug/L		11/16/15 09:27	11/17/15 13:08	1
2-Methylnaphthalene	ND		2.0	0.19	ug/L		11/16/15 09:27	11/17/15 13:08	1
Naphthalene	ND		2.0	0.23	ug/L		11/16/15 09:27	11/17/15 13:08	1
2-Nitroaniline	ND		50	6.7	ug/L		11/16/15 09:27	11/17/15 13:08	1
3-Nitroaniline	ND		50	8.1	ug/L		11/16/15 09:27	11/17/15 13:08	1
4-Nitroaniline	ND		50	7.7	ug/L		11/16/15 09:27	11/17/15 13:08	1
4-Nitrophenol	ND		50	8.0	ug/L		11/16/15 09:27	11/17/15 13:08	1
Nitrobenzene	ND		20	1.5	ug/L		11/16/15 09:27	11/17/15 13:08	1
N-Nitrosodi-n-propylamine	ND		10	0.50	ug/L		11/16/15 09:27	11/17/15 13:08	1
N-Nitrosodiphenylamine	ND		10	1.2	ug/L		11/16/15 09:27	11/17/15 13:08	1
Phenanthrene	ND		2.0	0.42	ug/L		11/16/15 09:27	11/17/15 13:08	1
Pyrene	ND		2.0	0.23	ug/L		11/16/15 09:27	11/17/15 13:08	1
4-Chloro-3-methylphenol	ND		10	1.7	ug/L		11/16/15 09:27	11/17/15 13:08	1
2-Chlorophenol	ND		10	2.3	ug/L		11/16/15 09:27	11/17/15 13:08	1
2-Methylphenol	ND		10	1.9	ug/L		11/16/15 09:27	11/17/15 13:08	1
Methylphenol, 3 & 4	ND		10	2.1	ug/L		11/16/15 09:27	11/17/15 13:08	1
2,4-Dichlorophenol	ND		10	0.67	ug/L		11/16/15 09:27	11/17/15 13:08	1
2,4-Dimethylphenol	ND		10	1.7	ug/L		11/16/15 09:27	11/17/15 13:08	1
2,4-Dinitrophenol	ND		50	25	ug/L		11/16/15 09:27	11/17/15 13:08	1
4,6-Dinitro-2-methylphenol	ND		50	16	ug/L		11/16/15 09:27	11/17/15 13:08	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-160577/1-A
Matrix: Water
Analysis Batch: 160738

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 160577

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Nitrophenol	ND		10	1.1	ug/L		11/16/15 09:27	11/17/15 13:08	1
Pentachlorophenol	ND		10	5.0	ug/L		11/16/15 09:27	11/17/15 13:08	1
Phenol	ND		10	0.55	ug/L		11/16/15 09:27	11/17/15 13:08	1
2,4,5-Trichlorophenol	ND		10	1.2	ug/L		11/16/15 09:27	11/17/15 13:08	1
2,4,6-Trichlorophenol	ND		10	3.0	ug/L		11/16/15 09:27	11/17/15 13:08	1
Acetophenone	ND		20	1.1	ug/L		11/16/15 09:27	11/17/15 13:08	1
Atrazine	ND		20	2.2	ug/L		11/16/15 09:27	11/17/15 13:08	1
Benzaldehyde	ND		20	1.1	ug/L		11/16/15 09:27	11/17/15 13:08	1
1,1'-Biphenyl	ND		10	1.1	ug/L		11/16/15 09:27	11/17/15 13:08	1
Caprolactam	ND		50	15	ug/L		11/16/15 09:27	11/17/15 13:08	1
Bis(2-chloroethoxy)methane	ND		10	1.3	ug/L		11/16/15 09:27	11/17/15 13:08	1
Bis(2-chloroethyl)ether	ND		10	0.32	ug/L		11/16/15 09:27	11/17/15 13:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*71*		*27 - 110*	*11/16/15 09:27*	*11/17/15 13:08*	*1*
Phenol-d5 (Surr)	*63*		*23 - 111*	*11/16/15 09:27*	*11/17/15 13:08*	*1*
2-Fluorobiphenyl	*62*		*28 - 106*	*11/16/15 09:27*	*11/17/15 13:08*	*1*
2,4,6-Tribromophenol (Surr)	*63*		*25 - 118*	*11/16/15 09:27*	*11/17/15 13:08*	*1*
2-Fluorophenol (Surr)	*60*		*20 - 108*	*11/16/15 09:27*	*11/17/15 13:08*	*1*
Terphenyl-d14 (Surr)	*67*		*20 - 109*	*11/16/15 09:27*	*11/17/15 13:08*	*1*

Lab Sample ID: LCS 180-160577/2-A
Matrix: Water
Analysis Batch: 160738

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160577

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	200	139		ug/L		70	48 - 100
Acenaphthylene	200	144		ug/L		72	43 - 100
Anthracene	200	143		ug/L		72	47 - 100
Benzo[a]anthracene	200	133		ug/L		66	46 - 100
Benzo[a]pyrene	200	140		ug/L		70	46 - 100
Benzo[b]fluoranthene	200	137		ug/L		69	41 - 100
Benzo[g,h,i]perylene	200	148		ug/L		74	49 - 100
Benzo[k]fluoranthene	200	135		ug/L		68	46 - 100
Bis(2-ethylhexyl) phthalate	200	157		ug/L		79	36 - 109
2,2'-oxybis[1-chloropropane]	200	164		ug/L		82	37 - 100
4-Bromophenyl phenyl ether	200	145		ug/L		72	50 - 100
Butyl benzyl phthalate	200	171		ug/L		85	38 - 107
Carbazole	200	147		ug/L		74	45 - 100
4-Chloroaniline	200	142		ug/L		71	44 - 100
2-Chloronaphthalene	200	138		ug/L		69	44 - 100
4-Chlorophenyl phenyl ether	200	144		ug/L		72	47 - 100
Chrysene	200	136		ug/L		68	48 - 100
Dibenz(a,h)anthracene	200	150		ug/L		75	48 - 100
Dibenzofuran	200	140		ug/L		70	45 - 100
Di-n-butyl phthalate	200	160		ug/L		80	44 - 103
3,3'-Dichlorobenzidine	200	129		ug/L		64	40 - 100
Diethyl phthalate	200	158		ug/L		79	46 - 100

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-160577/2-A
Matrix: Water
Analysis Batch: 160738

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160577

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dimethyl phthalate	200	153		ug/L		76	47 - 100
2,4-Dinitrotoluene	200	156		ug/L		78	30 - 130
2,6-Dinitrotoluene	200	158		ug/L		79	48 - 100
Di-n-octyl phthalate	200	155		ug/L		78	33 - 108
Fluoranthene	200	149		ug/L		74	47 - 100
Fluorene	200	142		ug/L		71	45 - 100
Hexachlorobenzene	200	142		ug/L		71	50 - 100
Hexachlorobutadiene	200	144		ug/L		72	49 - 100
Hexachlorocyclopentadiene	200	131		ug/L		65	47 - 102
Hexachloroethane	200	131		ug/L		65	46 - 100
Indeno[1,2,3-cd]pyrene	200	150		ug/L		75	47 - 100
Isophorone	200	156		ug/L		78	48 - 100
2-Methylnaphthalene	200	140		ug/L		70	45 - 100
Naphthalene	200	134		ug/L		67	45 - 100
2-Nitroaniline	200	178		ug/L		89	48 - 107
3-Nitroaniline	200	159		ug/L		79	42 - 100
4-Nitroaniline	200	152		ug/L		76	42 - 100
4-Nitrophenol	400	345		ug/L		86	40 - 133
Nitrobenzene	200	151		ug/L		75	48 - 100
N-Nitrosodi-n-propylamine	200	158		ug/L		79	42 - 100
N-Nitrosodiphenylamine	400	278		ug/L		70	20 - 130
Phenanthrene	200	138		ug/L		69	46 - 100
Pyrene	200	138		ug/L		69	39 - 100
4-Chloro-3-methylphenol	200	162		ug/L		81	44 - 100
2-Chlorophenol	200	131		ug/L		66	42 - 100
2-Methylphenol	200	139		ug/L		70	42 - 100
Methylphenol, 3 & 4	200	141		ug/L		70	42 - 100
2,4-Dichlorophenol	200	146		ug/L		73	45 - 100
2,4-Dimethylphenol	200	148		ug/L		74	46 - 100
2,4-Dinitrophenol	400	232		ug/L		58	39 - 100
4,6-Dinitro-2-methylphenol	400	297		ug/L		74	47 - 100
2-Nitrophenol	200	153		ug/L		77	45 - 100
Pentachlorophenol	400	229		ug/L		57	46 - 100
Phenol	200	127		ug/L		64	44 - 100
2,4,5-Trichlorophenol	200	144		ug/L		72	50 - 100
2,4,6-Trichlorophenol	200	153		ug/L		76	50 - 100
Acetophenone	200	125		ug/L		62	41 - 100
Atrazine	200	127		ug/L		63	30 - 130
Benzaldehyde	200	120		ug/L		60	10 - 117
1,1'-Biphenyl	200	135		ug/L		67	46 - 100
Caprolactam	200	160		ug/L		80	43 - 101
Bis(2-chloroethoxy)methane	200	138		ug/L		69	45 - 100
Bis(2-chloroethyl)ether	200	126		ug/L		63	42 - 100

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*78*		*27 - 110*
Phenol-d5 (Surr)	*68*		*23 - 111*
2-Fluorobiphenyl	*70*		*28 - 106*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-160577/2-A
Matrix: Water
Analysis Batch: 160738

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 160577

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*79*		*25 - 118*
2-Fluorophenol (Surr)	*65*		*20 - 108*
Terphenyl-d14 (Surr)	*73*		*20 - 109*

Lab Sample ID: LCSD 180-160577/3-A
Matrix: Water
Analysis Batch: 160738

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 160577

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	200	131		ug/L		65	48 - 100	6	15
Acenaphthylene	200	136		ug/L		68	43 - 100	6	15
Anthracene	200	134		ug/L		67	47 - 100	7	15
Benzo[a]anthracene	200	127		ug/L		63	46 - 100	5	15
Benzo[a]pyrene	200	134		ug/L		67	46 - 100	5	15
Benzo[b]fluoranthene	200	130		ug/L		65	41 - 100	5	15
Benzo[g,h,i]perylene	200	139		ug/L		69	49 - 100	7	15
Benzo[k]fluoranthene	200	131		ug/L		66	46 - 100	3	15
Bis(2-ethylhexyl) phthalate	200	150		ug/L		75	36 - 109	5	15
2,2'-oxybis[1-chloropropane]	200	161		ug/L		81	37 - 100	2	15
4-Bromophenyl phenyl ether	200	135		ug/L		67	50 - 100	7	15
Butyl benzyl phthalate	200	160		ug/L		80	38 - 107	7	15
Carbazole	200	139		ug/L		70	45 - 100	5	15
4-Chloroaniline	200	135		ug/L		67	44 - 100	5	15
2-Chloronaphthalene	200	131		ug/L		65	44 - 100	5	15
4-Chlorophenyl phenyl ether	200	133		ug/L		66	47 - 100	8	15
Chrysene	200	129		ug/L		65	48 - 100	5	15
Dibenz(a,h)anthracene	200	140		ug/L		70	48 - 100	7	15
Dibenzofuran	200	132		ug/L		66	45 - 100	6	15
Di-n-butyl phthalate	200	151		ug/L		75	44 - 103	6	15
3,3'-Dichlorobenzidine	200	121		ug/L		61	40 - 100	6	15
Diethyl phthalate	200	153		ug/L		76	46 - 100	4	15
Dimethyl phthalate	200	144		ug/L		72	47 - 100	6	15
2,4-Dinitrotoluene	200	149		ug/L		75	30 - 130	5	35
2,6-Dinitrotoluene	200	146		ug/L		73	48 - 100	8	15
Di-n-octyl phthalate	200	150		ug/L		75	33 - 108	3	15
Fluoranthene	200	140		ug/L		70	47 - 100	6	15
Fluorene	200	135		ug/L		68	45 - 100	5	15
Hexachlorobenzene	200	134		ug/L		67	50 - 100	6	15
Hexachlorobutadiene	200	135		ug/L		67	49 - 100	7	15
Hexachlorocyclopentadiene	200	126		ug/L		63	47 - 102	4	15
Hexachloroethane	200	133		ug/L		67	46 - 100	2	15
Indeno[1,2,3-cd]pyrene	200	140		ug/L		70	47 - 100	7	15
Isophorone	200	150		ug/L		75	48 - 100	4	15
2-Methylnaphthalene	200	131		ug/L		66	45 - 100	7	15
Naphthalene	200	127		ug/L		64	45 - 100	5	15
2-Nitroaniline	200	168		ug/L		84	48 - 107	6	15
3-Nitroaniline	200	153		ug/L		76	42 - 100	4	15
4-Nitroaniline	200	145		ug/L		72	42 - 100	5	15

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 180-160577/3-A
Matrix: Water
Analysis Batch: 160738

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 160577

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Nitrophenol	400	332		ug/L		83	40 - 133	4	15
Nitrobenzene	200	142		ug/L		71	48 - 100	6	15
N-Nitrosodi-n-propylamine	200	154		ug/L		77	42 - 100	2	15
N-Nitrosodiphenylamine	400	263		ug/L		66	20 - 130	5	15
Phenanthrene	200	131		ug/L		65	46 - 100	5	15
Pyrene	200	128		ug/L		64	39 - 100	7	15
4-Chloro-3-methylphenol	200	151		ug/L		76	44 - 100	7	15
2-Chlorophenol	200	132		ug/L		66	42 - 100	1	15
2-Methylphenol	200	137		ug/L		68	42 - 100	2	15
Methylphenol, 3 & 4	200	138		ug/L		69	42 - 100	2	15
2,4-Dichlorophenol	200	137		ug/L		68	45 - 100	7	15
2,4-Dimethylphenol	200	141		ug/L		71	46 - 100	5	15
2,4-Dinitrophenol	400	225		ug/L		56	39 - 100	3	15
4,6-Dinitro-2-methylphenol	400	283		ug/L		71	47 - 100	5	15
2-Nitrophenol	200	144		ug/L		72	45 - 100	6	15
Pentachlorophenol	400	222		ug/L		56	46 - 100	3	15
Phenol	200	128		ug/L		64	44 - 100	1	15
2,4,5-Trichlorophenol	200	135		ug/L		67	50 - 100	7	15
2,4,6-Trichlorophenol	200	143		ug/L		71	50 - 100	7	15
Acetophenone	200	124		ug/L		62	41 - 100	0	15
Atrazine	200	116		ug/L		58	30 - 130	9	15
Benzaldehyde	200	115		ug/L		58	10 - 117	5	19
1,1'-Biphenyl	200	127		ug/L		64	46 - 100	5	15
Caprolactam	200	154		ug/L		77	43 - 101	4	16
Bis(2-chloroethoxy)methane	200	130		ug/L		65	45 - 100	6	15
Bis(2-chloroethyl)ether	200	124		ug/L		62	42 - 100	1	15

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*71*		*27 - 110*
Phenol-d5 (Surr)	*67*		*23 - 111*
2-Fluorobiphenyl	*63*		*28 - 106*
2,4,6-Tribromophenol (Surr)	*71*		*25 - 118*
2-Fluorophenol (Surr)	*64*		*20 - 108*
Terphenyl-d14 (Surr)	*67*		*20 - 109*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-160850/1-A
Matrix: Water
Analysis Batch: 161463

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 160850

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.69	ug/L		11/18/15 08:00	11/23/15 17:12	1
Aluminum	ND		200	37	ug/L		11/18/15 08:00	11/23/15 17:12	1
Arsenic	ND		10	3.7	ug/L		11/18/15 08:00	11/23/15 17:12	1
Antimony	ND		10	3.5	ug/L		11/18/15 08:00	11/23/15 17:12	1
Barium	ND		200	0.14	ug/L		11/18/15 08:00	11/23/15 17:12	1
Beryllium	ND		4.0	0.15	ug/L		11/18/15 08:00	11/23/15 17:12	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 180-160850/1-A
Matrix: Water
Analysis Batch: 161463

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 160850

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:00	11/23/15 17:12	1
Calcium	211	J	5000	84	ug/L		11/18/15 08:00	11/23/15 17:12	1
Chromium	ND		5.0	0.97	ug/L		11/18/15 08:00	11/23/15 17:12	1
Cobalt	ND		50	0.55	ug/L		11/18/15 08:00	11/23/15 17:12	1
Copper	ND		25	0.97	ug/L		11/18/15 08:00	11/23/15 17:12	1
Iron	ND		100	15	ug/L		11/18/15 08:00	11/23/15 17:12	1
Lead	ND		10	2.1	ug/L		11/18/15 08:00	11/23/15 17:12	1
Magnesium	ND		5000	25	ug/L		11/18/15 08:00	11/23/15 17:12	1
Manganese	0.240	J	15	0.19	ug/L		11/18/15 08:00	11/23/15 17:12	1
Nickel	ND		40	0.89	ug/L		11/18/15 08:00	11/23/15 17:12	1
Potassium	93.6	J	5000	79	ug/L		11/18/15 08:00	11/23/15 17:12	1
Sodium	1930	J	5000	43	ug/L		11/18/15 08:00	11/23/15 17:12	1
Thallium	ND		20	1.4	ug/L		11/18/15 08:00	11/23/15 17:12	1
Vanadium	ND		50	4.7	ug/L		11/18/15 08:00	11/23/15 17:12	1
Zinc	3.38	J	20	2.9	ug/L		11/18/15 08:00	11/23/15 17:12	1

Lab Sample ID: MB 180-160850/1-A
Matrix: Water
Analysis Batch: 161766

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 160850

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		10	2.5	ug/L		11/18/15 08:00	11/25/15 16:56	1

Lab Sample ID: LCS 180-160850/2-A
Matrix: Water
Analysis Batch: 161463

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 160850

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	50.0	50.4		ug/L		101	80 - 120
Aluminum	2000	1900		ug/L		95	80 - 120
Arsenic	500	490		ug/L		98	80 - 120
Antimony	500	496		ug/L		99	80 - 120
Barium	2000	1950		ug/L		97	80 - 120
Beryllium	50.0	49.9		ug/L		100	80 - 120
Cadmium	50.0	48.5		ug/L		97	80 - 120
Calcium	50000	47900		ug/L		96	80 - 120
Chromium	200	186		ug/L		93	80 - 120
Cobalt	500	471		ug/L		94	80 - 120
Copper	250	231		ug/L		92	80 - 120
Iron	1000	965		ug/L		96	80 - 120
Lead	500	476		ug/L		95	80 - 120
Magnesium	50000	47700		ug/L		95	80 - 120
Manganese	500	444		ug/L		89	80 - 120
Nickel	500	477		ug/L		95	80 - 120
Potassium	50000	48600		ug/L		97	80 - 120
Sodium	50000	50600		ug/L		101	80 - 120
Thallium	500	477		ug/L		95	80 - 120
Vanadium	500	512		ug/L		102	80 - 120
Zinc	500	459		ug/L		92	80 - 120

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Lab Sample ID: LCS 180-160850/2-A
Matrix: Water
Analysis Batch: 161766

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 160850

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	500	516		ug/L		103	80 - 120

Lab Sample ID: 180-49694-1 MS
Matrix: Water
Analysis Batch: 161463

Client Sample ID: MW162
Prep Type: Total Recoverable
Prep Batch: 160850

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		50.0	52.4		ug/L		105	75 - 125
Aluminum	130	J	2000	2040		ug/L		96	75 - 125
Arsenic	ND		500	506		ug/L		101	75 - 125
Antimony	ND		500	497		ug/L		99	75 - 125
Barium	99	J	2000	2050		ug/L		97	75 - 125
Beryllium	ND		50.0	48.5		ug/L		97	75 - 125
Cadmium	ND		50.0	49.3		ug/L		99	75 - 125
Calcium	270000	B	50000	320000	4	ug/L		103	75 - 125
Chromium	5.2		200	188		ug/L		91	75 - 125
Cobalt	0.91	J	500	476		ug/L		95	75 - 125
Copper	1.9	J	250	229		ug/L		91	75 - 125
Iron	79000		1000	81700	4	ug/L		296	75 - 125
Lead	ND		500	474		ug/L		95	75 - 125
Magnesium	71000		50000	121000		ug/L		100	75 - 125
Manganese	12000	B	500	13000	4	ug/L		106	75 - 125
Nickel	1.8	J	500	482		ug/L		96	75 - 125
Potassium	4500	J B	50000	54100		ug/L		99	75 - 125
Sodium	40000	B	50000	91200		ug/L		102	75 - 125
Thallium	2.6	J	500	464		ug/L		92	75 - 125
Vanadium	ND		500	520		ug/L		104	75 - 125
Zinc	4.3	J B	500	447		ug/L		88	75 - 125

Lab Sample ID: 180-49694-1 MS
Matrix: Water
Analysis Batch: 161766

Client Sample ID: MW162
Prep Type: Total Recoverable
Prep Batch: 160850

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	5.1	J	500	552		ug/L		109	75 - 125

Lab Sample ID: 180-49694-1 MSD
Matrix: Water
Analysis Batch: 161463

Client Sample ID: MW162
Prep Type: Total Recoverable
Prep Batch: 160850

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		50.0	51.9		ug/L		104	75 - 125	1	20
Aluminum	130	J	2000	2060		ug/L		97	75 - 125	1	20
Arsenic	ND		500	508		ug/L		102	75 - 125	0	20
Antimony	ND		500	500		ug/L		100	75 - 125	1	20
Barium	99	J	2000	2030		ug/L		96	75 - 125	1	20
Beryllium	ND		50.0	48.1		ug/L		96	75 - 125	1	20
Cadmium	ND		50.0	49.9		ug/L		100	75 - 125	1	20
Calcium	270000	B	50000	309000	4	ug/L		82	75 - 125	3	20
Chromium	5.2		200	186		ug/L		90	75 - 125	1	20
Cobalt	0.91	J	500	479		ug/L		96	75 - 125	1	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 180-49694-1 MSD — **Client Sample ID: MW162**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 161463 — **Prep Batch: 160850**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Copper	1.9	J	250	228		ug/L		90	75 - 125	1	20
Iron	79000		1000	79200	4	ug/L		44	75 - 125	3	20
Lead	ND		500	479		ug/L		96	75 - 125	1	20
Magnesium	71000		50000	117000		ug/L		92	75 - 125	3	20
Manganese	12000	B	500	12500	4	ug/L		-0.8	75 - 125	4	20
Nickel	1.8	J	500	485		ug/L		97	75 - 125	0	20
Potassium	4500	J B	50000	53100		ug/L		97	75 - 125	2	20
Sodium	40000	B	50000	89200		ug/L		98	75 - 125	2	20
Thallium	2.6	J	500	464		ug/L		92	75 - 125	0	20
Vanadium	ND		500	513		ug/L		103	75 - 125	1	20
Zinc	4.3	J B	500	448		ug/L		89	75 - 125	0	20

Lab Sample ID: 180-49694-1 MSD — **Client Sample ID: MW162**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 161766 — **Prep Batch: 160850**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium	5.1	J	500	545		ug/L		108	75 - 125	1	20

Lab Sample ID: MB 180-160853/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 161610 — **Prep Batch: 160853**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.69	ug/L		11/18/15 08:05	11/24/15 15:19	1
Aluminum	ND		200	37	ug/L		11/18/15 08:05	11/24/15 15:19	1
Arsenic	ND		10	3.7	ug/L		11/18/15 08:05	11/24/15 15:19	1
Antimony	ND		10	3.5	ug/L		11/18/15 08:05	11/24/15 15:19	1
Barium	0.260	J	200	0.14	ug/L		11/18/15 08:05	11/24/15 15:19	1
Beryllium	0.170	J	4.0	0.15	ug/L		11/18/15 08:05	11/24/15 15:19	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:05	11/24/15 15:19	1
Calcium	ND		5000	84	ug/L		11/18/15 08:05	11/24/15 15:19	1
Chromium	ND		5.0	0.97	ug/L		11/18/15 08:05	11/24/15 15:19	1
Cobalt	ND		50	0.55	ug/L		11/18/15 08:05	11/24/15 15:19	1
Copper	1.42	J	25	0.97	ug/L		11/18/15 08:05	11/24/15 15:19	1
Iron	16.1	J	100	15	ug/L		11/18/15 08:05	11/24/15 15:19	1
Lead	ND		10	2.1	ug/L		11/18/15 08:05	11/24/15 15:19	1
Magnesium	ND		5000	25	ug/L		11/18/15 08:05	11/24/15 15:19	1
Manganese	0.480	J	15	0.19	ug/L		11/18/15 08:05	11/24/15 15:19	1
Nickel	ND		40	0.89	ug/L		11/18/15 08:05	11/24/15 15:19	1
Potassium	ND		5000	79	ug/L		11/18/15 08:05	11/24/15 15:19	1
Selenium	ND		10	2.5	ug/L		11/18/15 08:05	11/24/15 15:19	1
Sodium	ND		5000	43	ug/L		11/18/15 08:05	11/24/15 15:19	1
Thallium	1.40	J	20	1.4	ug/L		11/18/15 08:05	11/24/15 15:19	1
Vanadium	ND		50	4.7	ug/L		11/18/15 08:05	11/24/15 15:19	1
Zinc	4.40	J	20	2.9	ug/L		11/18/15 08:05	11/24/15 15:19	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 180-160853/2-A
Matrix: Water
Analysis Batch: 161610

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 160853

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	50.0	51.6		ug/L		103	80 - 120
Aluminum	2000	1950		ug/L		98	80 - 120
Arsenic	500	533		ug/L		107	80 - 120
Antimony	500	522		ug/L		104	80 - 120
Barium	2000	1980		ug/L		99	80 - 120
Beryllium	50.0	50.9		ug/L		102	80 - 120
Cadmium	50.0	51.7		ug/L		103	80 - 120
Calcium	50000	50000		ug/L		100	80 - 120
Chromium	200	197		ug/L		99	80 - 120
Cobalt	500	506		ug/L		101	80 - 120
Copper	250	240		ug/L		96	80 - 120
Iron	1000	1030		ug/L		103	80 - 120
Lead	500	500		ug/L		100	80 - 120
Magnesium	50000	49700		ug/L		99	80 - 120
Manganese	500	465		ug/L		93	80 - 120
Nickel	500	504		ug/L		101	80 - 120
Potassium	50000	49900		ug/L		100	80 - 120
Selenium	500	538		ug/L		108	80 - 120
Sodium	50000	50200		ug/L		100	80 - 120
Thallium	500	500		ug/L		100	80 - 120
Vanadium	500	525		ug/L		105	80 - 120
Zinc	500	496		ug/L		99	80 - 120

Lab Sample ID: MB 180-160854/1-A
Matrix: Water
Analysis Batch: 161610

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 160854

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.69	ug/L		11/18/15 08:14	11/24/15 17:58	1
Aluminum	ND		200	37	ug/L		11/18/15 08:14	11/24/15 17:58	1
Arsenic	ND		10	3.7	ug/L		11/18/15 08:14	11/24/15 17:58	1
Antimony	ND		10	3.5	ug/L		11/18/15 08:14	11/24/15 17:58	1
Barium	ND		200	0.14	ug/L		11/18/15 08:14	11/24/15 17:58	1
Beryllium	0.250	J	4.0	0.15	ug/L		11/18/15 08:14	11/24/15 17:58	1
Cadmium	ND		5.0	0.26	ug/L		11/18/15 08:14	11/24/15 17:58	1
Calcium	ND		5000	84	ug/L		11/18/15 08:14	11/24/15 17:58	1
Chromium	ND		5.0	0.97	ug/L		11/18/15 08:14	11/24/15 17:58	1
Cobalt	ND		50	0.55	ug/L		11/18/15 08:14	11/24/15 17:58	1
Copper	1.67	J	25	0.97	ug/L		11/18/15 08:14	11/24/15 17:58	1
Iron	ND		100	15	ug/L		11/18/15 08:14	11/24/15 17:58	1
Lead	ND		10	2.1	ug/L		11/18/15 08:14	11/24/15 17:58	1
Magnesium	ND		5000	25	ug/L		11/18/15 08:14	11/24/15 17:58	1
Manganese	0.250	J	15	0.19	ug/L		11/18/15 08:14	11/24/15 17:58	1
Nickel	ND		40	0.89	ug/L		11/18/15 08:14	11/24/15 17:58	1
Potassium	152	J	5000	79	ug/L		11/18/15 08:14	11/24/15 17:58	1
Selenium	ND		10	2.5	ug/L		11/18/15 08:14	11/24/15 17:58	1
Sodium	236	J	5000	43	ug/L		11/18/15 08:14	11/24/15 17:58	1
Thallium	ND		20	1.4	ug/L		11/18/15 08:14	11/24/15 17:58	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 180-160854/1-A
Matrix: Water
Analysis Batch: 161610

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 160854

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	ND		50	4.7	ug/L		11/18/15 08:14	11/24/15 17:58	1
Zinc	ND		20	2.9	ug/L		11/18/15 08:14	11/24/15 17:58	1

Lab Sample ID: LCS 180-160854/2-A
Matrix: Water
Analysis Batch: 161610

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 160854

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	50.0	50.1		ug/L		100	80 - 120
Aluminum	2000	1940		ug/L		97	80 - 120
Arsenic	500	527		ug/L		105	80 - 120
Antimony	500	504		ug/L		101	80 - 120
Barium	2000	1970		ug/L		98	80 - 120
Beryllium	50.0	50.7		ug/L		101	80 - 120
Cadmium	50.0	51.1		ug/L		102	80 - 120
Calcium	50000	50000		ug/L		100	80 - 120
Chromium	200	201		ug/L		101	80 - 120
Cobalt	500	508		ug/L		102	80 - 120
Copper	250	242		ug/L		97	80 - 120
Iron	1000	1040		ug/L		104	80 - 120
Lead	500	503		ug/L		101	80 - 120
Magnesium	50000	49800		ug/L		100	80 - 120
Manganese	500	468		ug/L		94	80 - 120
Nickel	500	503		ug/L		101	80 - 120
Potassium	50000	49700		ug/L		99	80 - 120
Selenium	500	526		ug/L		105	80 - 120
Sodium	50000	49700		ug/L		99	80 - 120
Thallium	500	499		ug/L		100	80 - 120
Vanadium	500	526		ug/L		105	80 - 120
Zinc	500	503		ug/L		101	80 - 120

Lab Sample ID: 180-49694-2 MS
Matrix: Water
Analysis Batch: 161610

Client Sample ID: MW162-F
Prep Type: Dissolved
Prep Batch: 160854

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		50.0	54.5		ug/L		109	75 - 125
Aluminum	ND		2000	2060		ug/L		103	75 - 125
Arsenic	ND		500	570		ug/L		114	75 - 125
Antimony	ND		500	532		ug/L		106	75 - 125
Barium	110	J	2000	2160		ug/L		103	75 - 125
Beryllium	0.16	J B	50.0	51.5		ug/L		103	75 - 125
Cadmium	ND		50.0	53.7		ug/L		107	75 - 125
Calcium	290000		50000	340000	4	ug/L		97	75 - 125
Chromium	1.6	J	200	209		ug/L		104	75 - 125
Cobalt	1.6	J	500	539		ug/L		108	75 - 125
Copper	3.2	J B	250	249		ug/L		99	75 - 125
Iron	87000		1000	91500	4	ug/L		453	75 - 125
Lead	ND		500	519		ug/L		104	75 - 125

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 180-49694-2 MS — **Client Sample ID: MW162-F**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 161610 — **Prep Batch: 160854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Magnesium	77000		50000	127000		ug/L		100	75 - 125
Manganese	14000	B	500	13800	4	ug/L		27	75 - 125
Nickel	2.2	J	500	531		ug/L		106	75 - 125
Potassium	4800	J B	50000	57400		ug/L		105	75 - 125
Selenium	ND		500	561		ug/L		112	75 - 125
Sodium	41000	B	50000	96200		ug/L		109	75 - 125
Thallium	ND		500	500		ug/L		100	75 - 125
Vanadium	ND		500	568		ug/L		114	75 - 125
Zinc	3.5	J	500	508		ug/L		101	75 - 125

Lab Sample ID: 180-49694-2 MSD — **Client Sample ID: MW162-F**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 161610 — **Prep Batch: 160854**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		50.0	54.8		ug/L		110	75 - 125	1	20
Aluminum	ND		2000	2090		ug/L		104	75 - 125	1	20
Arsenic	ND		500	568		ug/L		114	75 - 125	0	20
Antimony	ND		500	535		ug/L		107	75 - 125	1	20
Barium	110	J	2000	2180		ug/L		104	75 - 125	1	20
Beryllium	0.16	J B	50.0	52.0		ug/L		104	75 - 125	1	20
Cadmium	ND		50.0	53.7		ug/L		107	75 - 125	0	20
Calcium	290000		50000	342000	4	ug/L		99	75 - 125	0	20
Chromium	1.6	J	200	210		ug/L		104	75 - 125	0	20
Cobalt	1.6	J	500	541		ug/L		108	75 - 125	0	20
Copper	3.2	J B	250	253		ug/L		100	75 - 125	1	20
Iron	87000		1000	88900	4	ug/L		194	75 - 125	3	20
Lead	ND		500	521		ug/L		104	75 - 125	0	20
Magnesium	77000		50000	129000		ug/L		104	75 - 125	1	20
Manganese	14000	B	500	13900	4	ug/L		42	75 - 125	1	20
Nickel	2.2	J	500	533		ug/L		106	75 - 125	0	20
Potassium	4800	J B	50000	57600		ug/L		106	75 - 125	0	20
Selenium	ND		500	566		ug/L		113	75 - 125	1	20
Sodium	41000	B	50000	95000		ug/L		107	75 - 125	1	20
Thallium	ND		500	500		ug/L		100	75 - 125	0	20
Vanadium	ND		500	567		ug/L		113	75 - 125	0	20
Zinc	3.5	J	500	507		ug/L		101	75 - 125	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-160188/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160288 — **Prep Batch: 160188**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/12/15 07:05	11/12/15 14:00	1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 180-160188/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160287 — **Prep Batch: 160188**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			2.50	2.27		ug/L		91	80 - 120		

Lab Sample ID: 180-49694-1 MS — **Client Sample ID: MW162**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160287 — **Prep Batch: 160188**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		1.00	0.753		ug/L		75	75 - 125		

Lab Sample ID: 180-49694-1 MSD — **Client Sample ID: MW162**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160287 — **Prep Batch: 160188**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		1.00	0.661		ug/L		66	75 - 125	13	20

Lab Sample ID: MB 180-160351/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160415 — **Prep Batch: 160351**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.078	ug/L		11/13/15 08:17	11/13/15 12:10	1

Lab Sample ID: LCS 180-160351/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 160415 — **Prep Batch: 160351**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			2.50	2.56		ug/L		102	80 - 120		

Lab Sample ID: 180-49694-2 MS — **Client Sample ID: MW162-F**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 160287 — **Prep Batch: 160188**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		1.00	0.786		ug/L		79	75 - 125		

Lab Sample ID: 180-49694-2 MSD — **Client Sample ID: MW162-F**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 160287 — **Prep Batch: 160188**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		1.00	0.669		ug/L		67	75 - 125	16	20

Lab Sample ID: 180-49761-5 MS — **Client Sample ID: MW160-F**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 160425 — **Prep Batch: 160351**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		1.00	0.839		ug/L		84	75 - 125		

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

Lab Sample ID: 180-49761-5 MSD
Matrix: Water
Analysis Batch: 160425

Client Sample ID: MW160-F
Prep Type: Dissolved
Prep Batch: 160351

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		1.00	0.714		ug/L		71	75 - 125	16	20

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Lyondell Beaver Valley Plant Groundwater

TestAmerica Job ID: 180-49694-1
SDG: 112IC07521A

GC/MS VOA

Analysis Batch: 160340

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49694-1 - RA	MW162	Total/NA	Water	8260C	
180-49694-1	MW162	Total/NA	Water	8260C	
180-49694-1 MS	MW162	Total/NA	Water	8260C	
180-49694-1 MSD	MW162	Total/NA	Water	8260C	
180-49694-3	MW129	Total/NA	Water	8260C	
180-49694-5	DUP01	Total/NA	Water	8260C	
180-49694-6	MW159	Total/NA	Water	8260C	
180-49694-8	MW163	Total/NA	Water	8260C	
LCS 180-160340/13	Lab Control Sample	Total/NA	Water	8260C	
MB 180-160340/6	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 160559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49694-10	TRIP BLANK	Total/NA	Water	8260C	
180-49761-1	FB01	Total/NA	Water	8260C	
180-49761-2	MW501S	Total/NA	Water	8260C	
180-49761-6	TRIP BLANK	Total/NA	Water	8260C	
LCS 180-160559/10	Lab Control Sample	Total/NA	Water	8260C	
MB 180-160559/6	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 160703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49761-2 - DL	MW501S	Total/NA	Water	8260C	
180-49761-4	MW160	Total/NA	Water	8260C	
LCS 180-160703/4	Lab Control Sample	Total/NA	Water	8260C	
LCSD 180-160703/5	Lab Control Sample Dup	Total/NA	Water	8260C	
MB 180-160703/10	Method Blank	Total/NA	Water	8260C	

GC/MS Semi VOA

Prep Batch: 160397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49694-1	MW162	Total/NA	Water	3520C	
180-49694-1 MS	MW162	Total/NA	Water	3520C	
180-49694-1 MSD	MW162	Total/NA	Water	3520C	
180-49694-3	MW129	Total/NA	Water	3520C	
180-49694-5	DUP01	Total/NA	Water	3520C	
180-49694-6	MW159	Total/NA	Water	3520C	
180-49694-8	MW163	Total/NA	Water	3520C	
LCS 180-160397/2-A	Lab Control Sample	Total/NA	Water	3520C	
MB 180-160397/1-A	Method Blank	Total/NA	Water	3520C	

Prep Batch: 160577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49761-1	FB01	Total/NA	Water	3520C	
180-49761-2	MW501S	Total/NA	Water	3520C	
180-49761-2 - DL	MW501S	Total/NA	Water	3520C	
180-49761-4	MW160	Total/NA	Water	3520C	
LCS 180-160577/2-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 180-160577/3-A	Lab Control Sample Dup	Total/NA	Water	3520C	

GC/MS Semi VOA (Continued)

Prep Batch: 160577 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-160577/1-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 160579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49694-1	MW162	Total/NA	Water	8270D	160397
180-49694-1 MS	MW162	Total/NA	Water	8270D	160397
180-49694-1 MSD	MW162	Total/NA	Water	8270D	160397
180-49694-3	MW129	Total/NA	Water	8270D	160397
180-49694-5	DUP01	Total/NA	Water	8270D	160397
180-49694-6	MW159	Total/NA	Water	8270D	160397
180-49694-8	MW163	Total/NA	Water	8270D	160397
LCS 180-160397/2-A	Lab Control Sample	Total/NA	Water	8270D	160397
MB 180-160397/1-A	Method Blank	Total/NA	Water	8270D	160397

Analysis Batch: 160738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49761-1	FB01	Total/NA	Water	8270D	160577
180-49761-2	MW501S	Total/NA	Water	8270D	160577
180-49761-4	MW160	Total/NA	Water	8270D	160577
LCS 180-160577/2-A	Lab Control Sample	Total/NA	Water	8270D	160577
LCSD 180-160577/3-A	Lab Control Sample Dup	Total/NA	Water	8270D	160577
MB 180-160577/1-A	Method Blank	Total/NA	Water	8270D	160577

Analysis Batch: 160873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49761-2 - DL	MW501S	Total/NA	Water	8270D	160577

Metals

Prep Batch: 160188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49694-1	MW162	Total/NA	Water	7470A	
180-49694-1 MS	MW162	Total/NA	Water	7470A	
180-49694-1 MSD	MW162	Total/NA	Water	7470A	
180-49694-2	MW162-F	Dissolved	Water	7470A	
180-49694-2 MS	MW162-F	Dissolved	Water	7470A	
180-49694-2 MSD	MW162-F	Dissolved	Water	7470A	
180-49694-3	MW129	Total/NA	Water	7470A	
180-49694-4	MW129-F	Dissolved	Water	7470A	
180-49694-5	DUP01	Dissolved	Water	7470A	
180-49694-5	DUP01	Total/NA	Water	7470A	
180-49694-6	MW159	Total/NA	Water	7470A	
180-49694-7	MW159-F	Dissolved	Water	7470A	
180-49694-8	MW163	Total/NA	Water	7470A	
180-49694-9	MW163-F	Dissolved	Water	7470A	
LCS 180-160188/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 180-160188/1-A	Method Blank	Total/NA	Water	7470A	

Metals (Continued)

Analysis Batch: 160287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49694-1	MW162	Total/NA	Water	7470A	160188
180-49694-1 MS	MW162	Total/NA	Water	7470A	160188
180-49694-1 MSD	MW162	Total/NA	Water	7470A	160188
180-49694-2	MW162-F	Dissolved	Water	7470A	160188
180-49694-2 MS	MW162-F	Dissolved	Water	7470A	160188
180-49694-2 MSD	MW162-F	Dissolved	Water	7470A	160188
180-49694-3	MW129	Total/NA	Water	7470A	160188
180-49694-4	MW129-F	Dissolved	Water	7470A	160188
180-49694-5	DUP01	Total/NA	Water	7470A	160188
LCS 180-160188/2-A	Lab Control Sample	Total/NA	Water	7470A	160188

Analysis Batch: 160288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49694-5	DUP01	Dissolved	Water	7470A	160188
180-49694-6	MW159	Total/NA	Water	7470A	160188
180-49694-7	MW159-F	Dissolved	Water	7470A	160188
180-49694-8	MW163	Total/NA	Water	7470A	160188
180-49694-9	MW163-F	Dissolved	Water	7470A	160188
MB 180-160188/1-A	Method Blank	Total/NA	Water	7470A	160188

Prep Batch: 160351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49761-1	FB01	Dissolved	Water	7470A	
180-49761-1	FB01	Total/NA	Water	7470A	
180-49761-2	MW501S	Total/NA	Water	7470A	
180-49761-3	MW501S-F	Dissolved	Water	7470A	
180-49761-4	MW160	Total/NA	Water	7470A	
180-49761-5	MW160-F	Dissolved	Water	7470A	
180-49761-5 MS	MW160-F	Dissolved	Water	7470A	
180-49761-5 MSD	MW160-F	Dissolved	Water	7470A	
LCS 180-160351/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 180-160351/1-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 160415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49761-1	FB01	Dissolved	Water	7470A	160351
180-49761-1	FB01	Total/NA	Water	7470A	160351
LCS 180-160351/2-A	Lab Control Sample	Total/NA	Water	7470A	160351
MB 180-160351/1-A	Method Blank	Total/NA	Water	7470A	160351

Analysis Batch: 160425

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49761-2	MW501S	Total/NA	Water	7470A	160351
180-49761-3	MW501S-F	Dissolved	Water	7470A	160351
180-49761-4	MW160	Total/NA	Water	7470A	160351
180-49761-5	MW160-F	Dissolved	Water	7470A	160351
180-49761-5 MS	MW160-F	Dissolved	Water	7470A	160351
180-49761-5 MSD	MW160-F	Dissolved	Water	7470A	160351

Metals (Continued)

Prep Batch: 160850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49694-1	MW162	Total Recoverable	Water	3005A	
180-49694-1 MS	MW162	Total Recoverable	Water	3005A	
180-49694-1 MSD	MW162	Total Recoverable	Water	3005A	
180-49694-3	MW129	Total Recoverable	Water	3005A	
180-49694-4	MW129-F	Dissolved	Water	3005A	
180-49694-5	DUP01	Dissolved	Water	3005A	
180-49694-5	DUP01	Total Recoverable	Water	3005A	
180-49694-6	MW159	Total Recoverable	Water	3005A	
180-49694-7	MW159-F	Dissolved	Water	3005A	
180-49694-8	MW163	Total Recoverable	Water	3005A	
180-49694-9	MW163-F	Dissolved	Water	3005A	
LCS 180-160850/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 180-160850/1-A	Method Blank	Total Recoverable	Water	3005A	

Prep Batch: 160853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49761-2	MW501S	Total Recoverable	Water	3005A	
180-49761-3	MW501S-F	Dissolved	Water	3005A	
180-49761-4	MW160	Total Recoverable	Water	3005A	
180-49761-5	MW160-F	Dissolved	Water	3005A	
LCS 180-160853/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 180-160853/1-A	Method Blank	Total Recoverable	Water	3005A	

Prep Batch: 160854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49694-2	MW162-F	Dissolved	Water	3005A	
180-49694-2 MS	MW162-F	Dissolved	Water	3005A	
180-49694-2 MSD	MW162-F	Dissolved	Water	3005A	
180-49761-1	FB01	Dissolved	Water	3005A	
180-49761-1	FB01	Total Recoverable	Water	3005A	
LCS 180-160854/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 180-160854/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 161463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49694-1	MW162	Total Recoverable	Water	6010C	160850
180-49694-1 MS	MW162	Total Recoverable	Water	6010C	160850
180-49694-1 MSD	MW162	Total Recoverable	Water	6010C	160850
180-49694-3	MW129	Total Recoverable	Water	6010C	160850
180-49694-4	MW129-F	Dissolved	Water	6010C	160850
180-49694-5	DUP01	Dissolved	Water	6010C	160850
180-49694-5	DUP01	Total Recoverable	Water	6010C	160850
180-49694-6	MW159	Total Recoverable	Water	6010C	160850
180-49694-7	MW159-F	Dissolved	Water	6010C	160850
180-49694-8	MW163	Total Recoverable	Water	6010C	160850
180-49694-9	MW163-F	Dissolved	Water	6010C	160850
LCS 180-160850/2-A	Lab Control Sample	Total Recoverable	Water	6010C	160850
MB 180-160850/1-A	Method Blank	Total Recoverable	Water	6010C	160850

Metals (Continued)

Analysis Batch: 161610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49694-2	MW162-F	Dissolved	Water	6010C	160854
180-49694-2 MS	MW162-F	Dissolved	Water	6010C	160854
180-49694-2 MSD	MW162-F	Dissolved	Water	6010C	160854
180-49761-1	FB01	Dissolved	Water	6010C	160854
180-49761-1	FB01	Total Recoverable	Water	6010C	160854
180-49761-2	MW501S	Total Recoverable	Water	6010C	160853
180-49761-3	MW501S-F	Dissolved	Water	6010C	160853
180-49761-4	MW160	Total Recoverable	Water	6010C	160853
180-49761-5	MW160-F	Dissolved	Water	6010C	160853
LCS 180-160853/2-A	Lab Control Sample	Total Recoverable	Water	6010C	160853
LCS 180-160854/2-A	Lab Control Sample	Total Recoverable	Water	6010C	160854
MB 180-160853/1-A	Method Blank	Total Recoverable	Water	6010C	160853
MB 180-160854/1-A	Method Blank	Total Recoverable	Water	6010C	160854

Analysis Batch: 161611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49694-3	MW129	Total Recoverable	Water	6010C	160850
180-49694-4	MW129-F	Dissolved	Water	6010C	160850
180-49694-5	DUP01	Dissolved	Water	6010C	160850
180-49694-5	DUP01	Dissolved	Water	6010C	160850
180-49694-5	DUP01	Total Recoverable	Water	6010C	160850
180-49694-6	MW159	Total Recoverable	Water	6010C	160850
180-49694-6	MW159	Total Recoverable	Water	6010C	160850
180-49694-7	MW159-F	Dissolved	Water	6010C	160850
180-49694-7	MW159-F	Dissolved	Water	6010C	160850
180-49694-8	MW163	Total Recoverable	Water	6010C	160850
180-49694-9	MW163-F	Dissolved	Water	6010C	160850

Analysis Batch: 161766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-49694-1	MW162	Total Recoverable	Water	6010C	160850
180-49694-1 MS	MW162	Total Recoverable	Water	6010C	160850
180-49694-1 MSD	MW162	Total Recoverable	Water	6010C	160850
LCS 180-160850/2-A	Lab Control Sample	Total Recoverable	Water	6010C	160850
MB 180-160850/1-A	Method Blank	Total Recoverable	Water	6010C	160850

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 0508 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112IC07521A	FORMER LYONDELL B.V. SITE	JON AGLIO	412-721-7090	412-963-7058 TEST AMERICA JILL COLUSSY
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Fred W. Ramser		FRED W. RAMSER	412-921-8838	301 ALPHA DR
		CARRIER/WAYBILL NUMBER		CITY, STATE
		PICK UP BY LAB CARRIER		PITTSBURGH PA

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G)

PRESERVATIVE USED

TYPE OF ANALYSIS

DATE YEAR 2015	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TCL VOAs (HCL)	TCL SVOAs (NONE)	TAL METALS (TOTAL) (HNO3)	TAL METALS (DISS) (HNO3)					COMMENTS
11/9	1430	MW162	MW 162	—	—	GW	G	18	9*	6*	3*	—					*RUN MS/MSD
	1430	MW162-F	MW 162	—	—	GW	G	3	—	—	—	3*					FIELD FILTERED
↓	1435	MW129	MW 129	—	—	GW	G	6	3	2	1	—					
11/9	1435	MW129-F	MW 129	—	—	GW	G	1	—	—	—	1					FIELD FILTERED
11/9	0000	DUP01	—	—	—	GW	G	7	3	2	1	1					DISS METAL FIELD FILTERED
11/10	1115	MW159	MW 159	—	—	GW	G	6	3	2	1	—					
	1115	MW159-F	↓	—	—	GW	G	1	—	—	—	1					FIELD FILTERED
↓	1115	MW163	MW 163	—	—	GW	G	6	3	2	1	—					
11/10	1115	MW163-F	↓	—	—	GW	G	1	—	—	—	1					FIELD FILTERED
		TRIP BLANK	FROM LAB	—	—	QC	—	2	✓								

180-49694 Chain of Custody

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY: Fred W. Ramser	11/11/15	0715	1. RECEIVED BY: TEST AMERICA		
2. RELINQUISHED BY: [signature]	11-11-15	1530	2. RECEIVED BY: [signature] TA BIT	11-11-15	1345
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

TR #7 ∩ 11/F 2 0°/-

4/02R
FORM NO. TtNUS-001

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 0566 | PAGE ___ OF ___

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112IC07521A	FORMER LYONDELL BV. SITE	JON AGLIO	412-921-7090	412-963-7058 TEST AMERICA/JILL COLUSSY
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Fred W Ramser		FRED W RAMSER	412-921-8838	301 ALPHA DR
		CARRIER/WAYBILL NUMBER		CITY, STATE
		PICK-UP BY LAB CARRIER		PITTSBURGH PA

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G)
PRESERVATIVE USED

DATE YEAR 2015	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TCL VOCs (HCL)	TCL SVOAs (NONE)	TAL METALS (DISS) (HNO3)	TAL METALS (TOTAL) (HNO3)					COMMENTS
11/11	0915	FB01	FIELD BLANK	—	—	QC	G	7	3	2	1*	1					*1
11/11	1055	MW 501S	MW 501S	—	—	GW	G	6	3	2	—	1					
11/11	1055	MW 501S-F	MW 501S	—	—	GW	G	1	—	—	1	—					FIELD FILTERED
11/11	1100	MW 160	MW 160	—	—	GW	G	6	3	2	—	1					
11/11	1100	MW 160-F	MW 160	—	—	GW	G	1	—	—	1	—					

180-49761 Chain of Custody

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY Fred W Ramser	11-12-15	1345	1. RECEIVED BY TAPIA	11-12-15	1345
2. RELINQUISHED BY	11-12-15	1430	2. RECEIVED BY TAPIA	11/12/15	1430
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

IR#7 0.0°C F 2.5°C

11/27/2015

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 180-49694-1
SDG Number: 112IC07521A

Login Number: 49694
List Number: 1
Creator: Kovitch, Christina M

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 180-49694-1
SDG Number: 112IC07521A

Login Number: 49761
List Number: 1
Creator: Kovitch, Christina M

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ATTACHMENT 3
RACCOON CREEK FULL DATA SUMMARY TABLE

Attachment 3
Full Appendix Groundwater Analytical Results
Former Lyondell Beaver Valley Site
Potter Township, Pennsylvania

LOCATION	MW120	MW120	MW120	MW159	MW160	MW162	MW163S	MW501S	QC	QC	QC
SAMPLE ID	MW120	MW120-AVG	MW120-D	MW159	MW160	MW162	MW163S	MW501S	FB-20151111	TB-20151110	TB-20151111
SAMPLE DATE	20151109	20151109	20151109	20151110	20151111	20151109	20151110	20151111	20151111	20151110	20151111
SAMPLE CODE	ORIG	AVG	DUP	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
MATRIX	GW	GW	GW	GW	GW	GW	GW	GW	QC	QC	QC
DISSOLVED METALS (UG/L)											
ALUMINUM	37 J	38.5	40 J	200 U	200 U	200 U	6200	940000	200 U	--	--
ANTIMONY	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	10 U	--	--
ARSENIC	50 U	30 U	10 U	10 U	4.7 J	10 U	10 U	50	10 U	--	--
BARIUM	60 J	60.5	61 J	42 J	62 JB	110 J	22 J	6.6 JB	0.47 J	--	--
BERYLLIUM	4 U	0.24 J	0.24 J	4 U	4 U	0.16 JB	1.7 J	43 B	4 U	--	--
CADMIUM	5 U	5 U	5 U	0.29 J	5 U	5 U	5 U	25 U	5 U	--	--
CALCIUM	370000 B	375000	380000 B	220000 B	130000	290000	120000 B	390000	5000 U	--	--
CHROMIUM	30	34	38	30	5 U	1.6 J	40	380	5 U	--	--
COBALT	130	130	130	27 J	0.98 J	1.6 J	74	500	50 U	--	--
COPPER	4.2 J	4.45	4.7 J	3.4 J	1.4 JB	3.2 JB	25 U	220 B	1.3 JB	--	--
IRON	91000	91000	91000	39000	30000 B	87000	210000	1300000 B	100 U	--	--
LEAD	4.1 J	4.05	4 J	3.8 J	10 U	10 U	2.1 J	30 J	10 U	--	--
MAGNESIUM	80000	80500	81000	43000	26000	77000	26000	200000	5000 U	--	--
MANGANESE	98000 B	97500	97000 B	78000 B	4800 B	14000 B	25000 B	21000 B	1.8 JB	--	--
MERCURY	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
NICKEL	80	80	80	55	14 J	2.2 J	130	1300	40 U	--	--
POTASSIUM	2100 JB	2150	2200 JB	2200 JB	3400 J	4800 JB	2100 JB	130000	120 JB	--	--
SELENIUM	50 U	13 J	13 J	12 J	4.5 J	10 U	5.3 J	50 U	10 U	--	--
SILVER	25 U	25 U	25 U	3.6 J	5 U	5 U	5 U	25 U	5 U	--	--
SODIUM	83000 B	83500	84000 B	110000 B	110000	41000 B	78000 B	53000	740 JB	--	--
THALLIUM	26 J	28	30 J	21 J	20 U	20 U	7.5 J	100 U	1.5 J	--	--
VANADIUM	9.5 J	10.25	11 J	5.1 J	50 U	50 U	5.5 J	830	50 U	--	--
ZINC	22 B	22	22 B	8.1 JB	20 U	3.5 J	19 JB	3500 B	20 U	--	--
TOTAL METALS (UG/L)											
ALUMINUM	47 J	47 J	200 U	60 J	81 J	130 J	7600	960000	200 U	--	--
ANTIMONY	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	10 U	--	--
ARSENIC	50 U	50 U	50 U	10 U	5.2 J	10 U	10 U	32 J	10 U	--	--
BARIUM	61 J	60	59 J	43 J	66 JB	99 J	24 J	6.3 JB	0.75 J	--	--
BERYLLIUM	4 U	4 U	4 U	0.18 J	4 U	4 U	1.8 J	44 B	4 U	--	--
CADMIUM	5 U	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U	--	--
CALCIUM	370000 B	365000	360000 B	230000 B	130000	270000 B	120000 B	400000	150 J	--	--
CHROMIUM	29	29	29	31	5 U	5.2	44	390	5 U	--	--
COBALT	130	130	130	28 J	0.99 J	0.91 J	69	510	50 U	--	--
COPPER	3.6 J	3.85	4.1 J	3.7 J	1.2 JB	1.9 J	25 U	230 B	1.6 JB	--	--
IRON	91000	90500	90000	43000	35000 B	79000	200000	1300000 B	36 J	--	--
LEAD	3.8 J	3.4	3 J	5.4 J	10 U	10 U	3.3 J	21 J	10 U	--	--
MAGNESIUM	81000	79500	78000	45000	26000	71000	26000	200000	38 J	--	--
MANGANESE	96000 B	97500	99000 B	77000 B	4900 B	12000 B	19000 B	21000 B	5.2 JB	--	--
MERCURY	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
NICKEL	78	79.5	81	57	14 J	1.8 J	120	1400	40 U	--	--
POTASSIUM	2200 JB	2150	2100 JB	2300 JB	3500 J	4500 JB	2100 JB	130000	120 JB	--	--
SELENIUM	18 J	18 J	50 U	50 U	5.6 J	5.1 J	4 J	23 J	10 U	--	--
SILVER	25 U	3.8 J	3.8 J	25 U	5 U	5 U	5 U	25 U	5 U	--	--
SODIUM	84000 B	83000	82000 B	120000 B	110000	40000 B	79000 B	54000	790 JB	--	--
THALLIUM	27 J	28.5	30 J	17 J	20 U	2.6 J	3.9 J	100 U	20 U	--	--
VANADIUM	7.6 J	9.3	11 J	7.3 J	50 U	50 U	6.8 J	860	50 U	--	--
ZINC	23 B	22.5	22 B	14 JB	20 U	4.3 JB	13 JB	3600 B	20 U	--	--
SEMIVOLATILES (UG/L)											
1,1-BIPHENYL	8.1 U	8.2 U	8.3 U	13	2 J	7.6 U	8.9 U	1.3 J	8.3 U	--	--
2,2'-OXYBIS(1-CHLOROPROPANE)	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
2,4,5-TRICHLOROPHENOL	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
2,4,6-TRICHLOROPHENOL	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
2,4-DICHLOROPHENOL	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
2,4-DIMETHYLPHENOL	3.3 J	3.45	3.6 J	2.4 J	4.5 J	2.9 J	8.9 U	5.2 J	8.3 U	--	--
2,4-DINITROPHENOL	40 U	41 U	42 U	39 U	42 U	38 U	45 U	45 U	42 U	--	--
2,4-DINITROTOLUENE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
2,6-DINITROTOLUENE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
2-CHLORONAPHTHALENE	1.6 U	1.65 U	1.7 U	1.6 U	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
2-CHLOROPHENOL	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
2-METHYLNAPHTHALENE	1.6 U	1.65 U	1.7 U	1.2 J	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
2-METHYLPHENOL	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
2-NITROANILINE	40 U	41 U	42 U	39 U	42 U^c	38 U	45 U	45 U^c	42 U^c	--	--
2-NITROPHENOL	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
3&4-METHYLPHENOL	3.1 J	3.2	3.3 J	2.7 J	2.6 J	7.6 U	8.9 U	8.9 U	8.3 U	--	--
3,3'-DICHLOROBENZIDINE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 UF1	8.9 U	8.9 U	8.3 U	--	--
3-NITROANILINE	40 U	41 U	42 U	39 U	42 U	38 U	45 U	45 U	42 U	--	--
4,6-DINITRO-2-METHYLPHENOL	40 U	41 U	42 U	39 U	42 U	38 U	45 U	45 U	42 U	--	--
4-BROMOPHENYL PHENYL ETHER	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
4-CHLORO-3-METHYLPHENOL	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
4-CHLOROANILINE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
4-CHLOROPHENYL PHENYL ETHER	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
4-NITROANILINE	40 U	41 U	42 U	39 U	42 U	38 U	45 U	45 U	42 U	--	--
4-NITROPHENOL	40 U	41 U	42 U	39 U	42 U	38 U	45 U	45 U	42 U	--	--
ACENAPHTHENE	1.6 U	1.65 U	1.7 U	1.6 U	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
ACENAPHTHYLENE	1.6 U	1.65 U	1.7 U	1.6 U	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
ACETOPHENONE	16	16	16 J	14 J	19	9.5 J	1.8 J	610	17 U	--	--
ANTHRACENE	1.6 U	1.65 U	1.7 U	1.6 U	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
ATRAZINE	16 U	16.5 U	17 U	16 U	17 U	15 U	18 U	18 U	17 U	--	--
BENZALDEHYDE	16 U	16.5 U	17 U	3.2 J	17 U	15 U	18 U	18 U	17 U	--	--
BENZO(A)ANTHRACENE	1.6 U	1.65 U	1.7 U	1.6 U	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
BENZO(A)PYRENE	1.6 U	1.65 U	1.7 U	1.6 U	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
BENZO(B)FLUORANTHENE	1.6 U	1.65 U	1.7 U	1.6 U	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
BENZO(G,H,I)PERYLENE	1.6 U	1.65 U	1.7 U	1.6 U	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
BENZO(K)FLUORANTHENE	1.6 U	1.65 U	1.7 U	1.6 U	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
BIS(2-CHLOROETHOXY)METHANE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
BIS(2-CHLOROETHYL)ETHER	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
BIS(2-ETHYLHEXYL)PHTHALATE	16 U	16.5 U	17 U	16 U	13 J	15 U	18 U	6.1 J	12 J	--	--
BUTYL BENZYL PHTHALATE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
CAPROLACTAM	40 U	41 U	42 U	39 U	42 U	38 U	45 U	45 U	42 U	--	--
CARBAZOLE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
CHRYSENE	1.6 U	1.65 U	1.7 U	1.6 U	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
DIBENZO(A,H)ANTHRACENE	1.6 U	1.65 U	1.7 U	1.6 U	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
DIBENZOFURAN	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
DIETHYL PHTHALATE	3.2 J	3.2 J	8.3 U	7.6 J	3 J	4.5 J	8.9 U	4 J	8.3 U	--	--
DIMETHYL PHTHALATE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
DI-N-BUTYL PHTHALATE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
DI-N-OCTYL PHTHALATE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
FLUORANTHENE	1.6 U	1.65 U	1.7 U	1.6 U	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
FLUORENE	1.6 U	1.65 U	1.7 U	3.1	0.66 J	1.5 U	1.8 U	1.8 U	1.7 U	--	--
HEXACHLOROBENZENE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
HEXACHLOROBUTADIENE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
HEXACHLOROCYCLOPENTADIENE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 UF1	8.9 U	8.9 U	8.3 U	--	--
HEXACHLOROETHANE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
INDENO(1,2,3-CD)PYRENE	1.6 U	1.65 U	1.7 U	1.6 U	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
ISOPHORONE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
NAPHTHALENE	0.98 J	0.925	0.87 J	26	1.7 U	3.7	2.4	20	1.7 U	--	--
NITROBENZENE	16 U	16.5 U	17 U	16 U	17 U	15 U	18 U	18 U	17 U	--	--
N-NITROSO-DI-N-PROPYLAMINE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
N-NITROSODIPHENYLAMINE	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
PENTACHLOROPHENOL	8.1 U	8.2 U	8.3 U	7.8 U	8.3 U	7.6 U	8.9 U	8.9 U	8.3 U	--	--
PHENANTHRENE	1.6 U	1.65 U	1.7 U	5.1	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
PHENOL	22	21	20	13	3.6 J	150 F1	8.9 U	100	8.3 U	--	--
PYRENE	1.6 U	1.65 U	1.7 U	1.6 U	1.7 U	1.5 U	1.8 U	1.8 U	1.7 U	--	--
VOLATILES (UG/L)											
1,1,1-TRICHLOROETHANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
1,1,2,2-TETRACHLOROETHANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
1,1,2-TRICHLOROETHANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
1,1,2-TRICHLOROTRIFLUOROETHANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
1,1-DICHLOROETHANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
1,1-DICHLOROETHENE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
1,2,4-TRICHLOROBENZENE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
1,2-DIBROMO-3-CHLOROPROPANE	500 U	500 U	500 U	500 U	100 U^c	500 U	500 U	500 U	5 U	5 U	5 U
1,2-DIBROMOETHANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
1,2-DICHLOROBENZENE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
1,2-DICHLOROETHANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
1,2-DICHLOROPROPANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
2-BUTANONE	500 U^c	500 U	500 U^c	500 U^c	100 U^c	500 U^c	500 U^c	500 U	5 U	5 U	5 U
2-HEXANONE	500 U^c	500 U	500 U^c	500 U^c	100 U^c	500 U^c	500 U^c	500 U	5 U	5 U	5 U
4-METHYL-2-PENTANONE	500 U^c	500 U	500 U^c	500 U^c	100 U^c	500 U^c	500 U^c	500 U	5 U	5 U	5 U
ACETONE	2000 U^c	2000 U	2000 U^c	2000 U^c	400 U	2000 U^c	2000 U^c	2000 U	20 U	20 U	20 U
BENZENE	4100	4000	3900	25000	770	16000	3000	95000	5 U	5 U	5 U
BROMODICHLOROMETHANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
BROMOFORM	500 U^c	500 U	500 U^c	500 U^c	100 U*^c	500 U^c	500 U^c	500 U	5 U	5 U	5 U
BROMOMETHANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
CARBON DISULFIDE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
CARBON TETRACHLORIDE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
CHLOROBENZENE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
CHLORODIBROMOMETHANE	500 U^c	500 U	500 U^c	500 U^c	100 U*^c	500 U^c	500 U^c	500 U	5 U	5 U	5 U

Attachment 3
Full Appendix Groundwater Analytical Results
Former Lyondell Beaver Valley Site
Potter Township, Pennsylvania

LOCATION	MW120	MW120	MW120	MW159	MW160	MW162	MW163S	MW501S	QC	QC	QC
SAMPLE ID	MW120	MW120-AVG	MW120-D	MW159	MW160	MW162	MW163S	MW501S	FB-20151111	TB-20151110	TB-20151111
SAMPLE DATE	20151109	20151109	20151109	20151110	20151111	20151109	20151110	20151111	20151111	20151110	20151111
SAMPLE CODE	ORIG	AVG	DUP	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG	ORIG
MATRIX	GW	GW	GW	GW	GW	GW	GW	GW	QC	QC	QC
CHLOROETHANE	500 U^c	500 U	500 U^c	500 U^c	100 U	500 U^c	500 U^c	500 U	5 U	5 U	5 U
CHLOROFORM	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
CHLOROMETHANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
CIS-1,2-DICHLOROETHENE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
CIS-1,3-DICHLOROPROPENE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
CYCLOHEXANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
DICHLORODIFLUOROMETHANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
ETHYLBENZENE	500 U	500 U	500 U	500 U	100 U	100 J	500 U	420 J	5 U	5 U	5 U
ISOPROPYLBENZENE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
METHYL ACETATE	2500 U	2500 U	2500 U	2500 U	500 U	2500 U	2500 U	2500 U	25 U	25 U	25 U
METHYL CYCLOHEXANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
METHYL TERT-BUTYL ETHER	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
METHYLENE CHLORIDE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
STYRENE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
TETRACHLOROETHENE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
TOLUENE	500 U	500 U	500 U	500 U	100 U	170 J	500 U	1300	5 U	5 U	5 U
TOTAL XYLENES	1000 U	1000 U	1000 U	1000 U	200 U	1000 U	1000 U	590 J	10 U	10 U	10 U
TRANS-1,2-DICHLOROETHENE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
TRANS-1,3-DICHLOROPROPENE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
TRICHLOROETHENE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
TRICHLOROFLUOROMETHANE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U
VINYL CHLORIDE	500 U	500 U	500 U	500 U	100 U	500 U	500 U	500 U	5 U	5 U	5 U

ug/L = micrograms per liter
U = Below Reporting Limit
B = Detected in Method Blank
J = Estimated Result
GW = Groundwater
ORIG = Original or Parent Sample
AVG = Average of Original and Duplicate Sample
DUP = Duplicate Sample