ACER ASSOCIATES, LLC

June 11, 2024

Mr. Sean Dukes
Archdiocese of Philadelphia
222 N. 17th Street
Philadelphia, PA 19103

RE: Basement Stairwell - Soil and Groundwater Investigation

Site: Conwell Egan High School, 611 Wistar Rd, Fairless Hills, PA 19030
ACER Project #: 20240076

Dear Mr. Dukes:

ACER Associates, LLC (ACER) was retained to conduct soil investigation activities at the above mentioned facility to evaluate the discharge of heating oil from a 20,000-gallon underground storage tank (UST).

SOIL AND GROUNDWATER INVESTIGATION

The intent of the investigation was to classify subsurface conditions beneath the concrete floor of the boiler room stairway landing and within the transformer vault sidewall. Product was previously observed to be seeping through the sidewall and staircase. Additionally, product has been continuously collected in sump located in the basement level boiler room. ACER's sampling plan included installing borings within the flooring of the stairwell (approximately 15 feet below ground surface (bgs)) and within the sidewall of the transformer vault.

On May 16, 2024, ACER installed three (3) borings (B-12 through B-14) using hand tools. Soils were continuously screened for visual and olfactory signs of impact as well as through the use of a field calibrated photoionization detector (PID). Samples collected from borings advanced within the concrete floor of the boiler room stairway (SS-12 and SS-13) were collected from the 6-inch interval located immediately beneath the concrete slab. Groundwater and product was observed approximately 0.5 to 1.0 feet below the concrete flooring (approximately 15 – 16 feet bgs). PID readings in B-12 and B-13 ranged from 317 parts per million (ppm) to 597 ppm and a strong fuel like odor was observed throughout the soil.

The third boring, B-14, was advanced into the sidewall of the staircase approximately 2 feet above the concrete flooring (approximately 13 feet bgs). Fill material (e.g., wood chips) were observed in the soils of B-14. PID readings in B-14 reached a maximum of 14.9 ppm and a moderate organic odor was noted. Perched groundwater seeped from the borehole and soils were observed to be in a saturated state. Product was not observed in B-14.

Soil samples were collected from each bore hole and placed into laboratory prepared bottle ware and shipped on ice, under chain-of-custody procedures, to Hampton Clark Laboratories of Mount Laurel, New Jersey, a PADEP certified laboratory. The soil samples were analyzed in accordance with PADEP Table III-5: Short List of Petroleum Products and compared to PADEP Statewide Health Standards. Table 1, below, summarizes the soil sample depth, analytical methods, and analytical results for soil samples SS-12 through SS-14.

Table 1: Soil Analytical Results

						BORING #:	B-12	B-13	B-14
						SAMPLE ID:	SS-12	SS-13	SS-14
						LAB ID:	AD44575-003	AD44575-004	AD44575-005
						COLLECTION DATE:	5/16/2024	5/16/2024	5/16/2024
						SAMPLE DEPTH:	15.5-16'	15.5-16'	13-13.5'
						SAMPLE UNITS:	mg/Kg	mg/Kg	mg/Kg
Constituent	**Table 3A&4A PA MSC 0-15ft Res Soil**	**Table 3A&4A PA MSC 0-2ft Non- Res Soil**	**Table 3A&4A PA MSC 2-15ft Non- Res Soil**	**CFCL's Cean Fill Concentration Limits 11/20/2021**	**Table 3B&4B PA MSC Generic TDS <2500 Non Res Soil**	**Table 3B&4B PA MSC Generic TDS <2500 Res Soil**	**Result**	**Result**	**Result**
1,2,4-Trimethylbenzene	1100	4700	5400	73	300	73	5.0	24	0.0035
1,3,5-Trimethylbenzene	1100	4700	5400	23	93	23	1.4	7.6	0.0018
Benzene	57	280	330	0.13	0.13	0.13	ND	ND	ND
Ethylbenzene	180	880	1000	46	46	46	0.57	2.6	ND
Isopropylbenzene	7600	10000	10000	600	2500	600	0.33	1.6	ND
Methyl-t-butyl ether	1700	8500	9800	0.28	0.28	0.28	ND	ND	ND
Naphthalene	13	66	77	13	25	25	0.46	3.3	0.0018
Toluene	10000	10000	10000	44	44	44	0.11	0.53	ND
Xylenes (Total)	1900	7900	9100	990	990	990	3.1	14	ND

Laboratory analytical results revealed the following:

- Targeted compounds of concern were detected in each soil sample at concentrations below the PADEP Statewide Standards.

Upon completion of soil sampling activities, B-12 was converted into a temporary well point for groundwater sampling. A groundwater sample (TWP-2) was collected using a dedicated bailer. Additionally, a sample was collected (SUMP-2) from the basement level boiler room sump using a dedicated bailer. Groundwater samples were collected from each bore hole and placed into laboratory prepared bottle ware and shipped on ice, under chain-of-custody procedures, to Hampton Clark Laboratories of Mount Laurel, New Jersey, a PADEP certified laboratory. The groundwater samples were analyzed in accordance with PADEP Table III-5: Short List of Petroleum Products and compared to PADEP Statewide Health Standards. Table 1, below, summarizes the groundwater analytical results.

Table 2: Groundwater Analytical Results

		BORING #:	B-12	--
		SAMPLE ID:	TWP-2	SUMP-2
		LAB ID:	AD43125-001	AD43125-002
		COLLECTION DATE:	5/16/2024	5/16/2024
		SAMPLE UNITS:	µg/L	µg/L
Constituent	**Table 1&2 PA MSC Generic TDS <2500 Non-Res GW**	**Table 1&2 PA MSC TDS <2500 Res**	**Result**	**Result**
1,2,4-Trimethylbenzene	530	130	**310**	**240**
1,3,5-Trimethylbenzene	530	130	**82**	**94**
Benzene	5	5	**47**	ND
Ethylbenzene	700	700	140	19
Isopropylbenzene	3500	840	23	7.7
Methyl-t-butyl ether	20	20	ND	ND
Naphthalene	100	100	39	24
Toluene	1000	1000	110	ND
Xylenes (Total)	10000	10000	720	330

Laboratory analytical results revealed the following:

- 1,2,4-Trimethylbenzene was detected at concentrations in excess of the PADEP Medium Specific Concentrations for Organic Regulated Substances in Groundwater in TWP-2 and SUMP-2.
- Benzene was detected at concentrations in excess of the PADEP Medium Specific Concentrations for Organic Regulated Substances in Groundwater in TWP-2.
- The remaining contaminants of concern were either not detected or were detected at concentrations below the PADEP Medium Specific Concentrations for Organic Regulated Substances in Groundwater.

Boring logs are included as Attachment A, a sample location map is included as Attachment B and the analytical data package is included as Attachment C.

CONCLUSIONS AND RECOMMENDATIONS

ACER confirmed the presence of fuel oil beneath the stairwell flooring; however, fuel oil was not observed in the transformer sidewall samples located approximately 2 foot above the stairwell flooring or approximately 13 feet below ground surface. Benzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were detected at concentrations above the PADEP Medium Specific Concentrations for Organic Regulated Substances in Groundwater. Targeted compounds of concern were detected in site soils at concentrations below their applicable PADEP Statewide Health Standards.

Based on the presence of fuel oil free-product in bore holes beneath the stairwell flooring and exceedances of the applicable PADEP Medium Specific Concentrations for Organic Regulated Substances in Groundwater for Benzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene, ACER recommends the UST be removed. Potentially contaminated soils and groundwater encountered during UST removal activities should excavated/removed to the extent possible to reduce/eliminate any ongoing source of fuel oil. This will require temporary cutoff and/or rerouting of multiple underground utilities in the vicinity of the UST and vault.

Should you have any questions or wish to discuss, please contact us at your earliest convenience at (856) 809-1202.

Sincerely,
Acer Associates, LLC

Prepared By:

John Cavalucci
Project Manager

Reviewed By:

J. Scott Horn, PG, CHMM, LSRP
President

Attachments:

A- Boring Logs
B- Boring Location and Sample Location Maps
C- Analytical Data Package

Attachment A

Boring Logs

SOIL BORING LOG

PROJECT: Conwell Egan High School **PROJECT #:** 20240076

DATE: 5/17/2024 **BORING NUMBER:** B-12

DRILLER: ACER **RIG TYPE:** Hand Auger

GROUNDWATER DEPTH: 1.0' **ASPHALT/CONCRETE/TOPSOIL DEPTH** 0.5'

Sample Depth	Soil Description	PID Reading
0 – 0.5'	Concrete Flooring	0.0
0.5' – 2.0'	Yellow stand, trace silt, wet at 1.0', strong fuel like odor throughout, product within borehole	498
	END BORING	
	SS-12 Collected at 0.5' – 1.0'	
	Note: Borehole began in bottom of stairwell approximately 15' below ground surface	

SOIL BORING LOG

PROJECT: Conwell Egan High School **PROJECT #:** 20240076

DATE: 5/17/2024 **BORING NUMBER:** B-13

DRILLER: ACER **RIG TYPE:** Hand Auger

GROUNDWATER DEPTH: 1.0' **ASPHALT/CONCRETE/TOPSOIL DEPTH** 0.5'

Sample Depth	Soil Description	PID Reading
0 – 0.5'	Concrete Flooring	0.0
0.5' – 2.0'	Yellow stand, trace silt, wet at 1.0', strong fuel like odor throughout, product within borehole	376
	END BORING	
	SS-13 Collected at 0.5' – 1.0'	
	Note: Borehole began in bottom of stairwell approximately 15' below ground surface	

SOIL BORING LOG

PROJECT: Conwell Egan High School **PROJECT #: 20240076**

DATE: 5/17/2024 **BORING NUMBER: B-14**

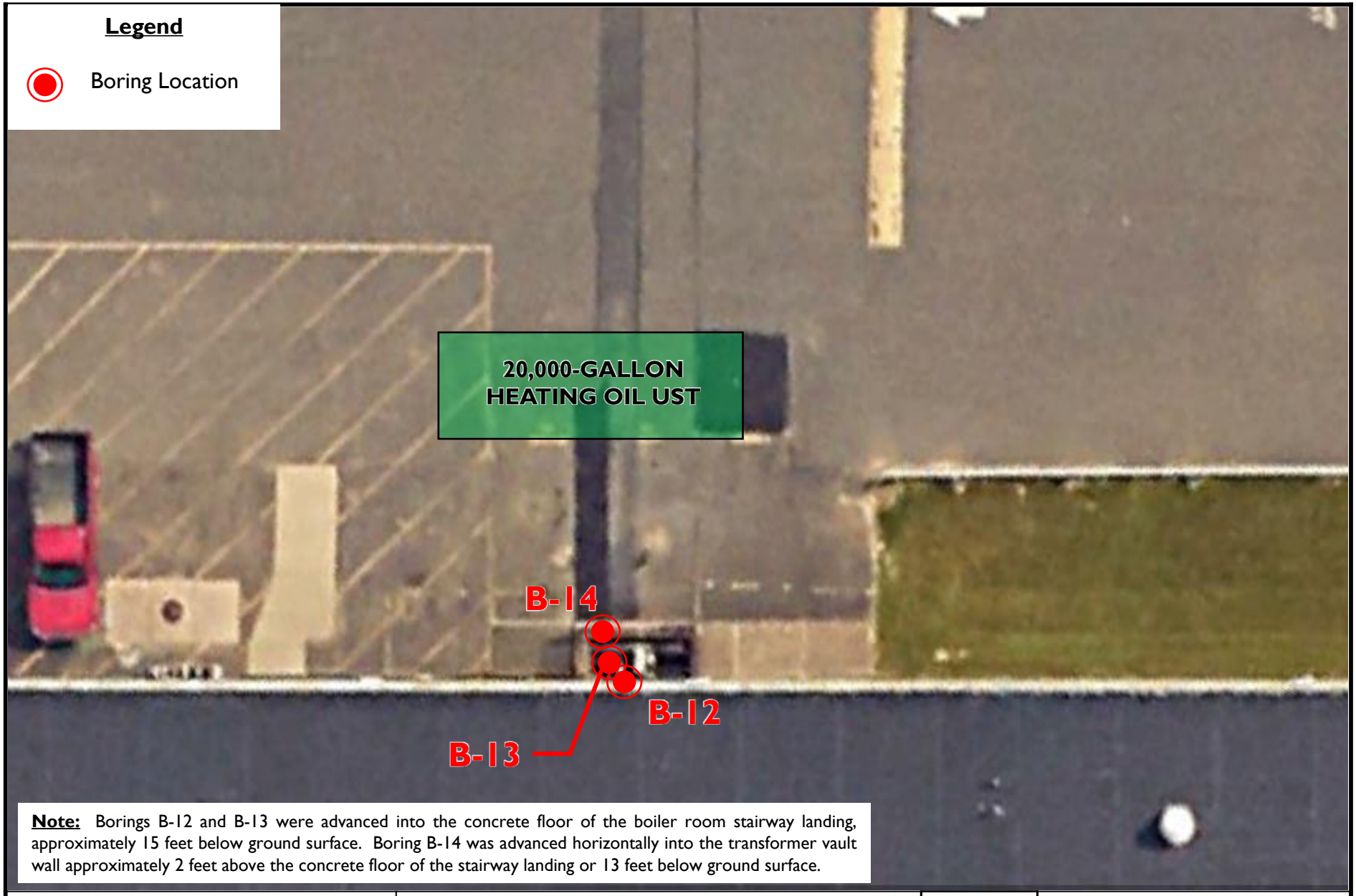
DRILLER: ACER **RIG TYPE: Hand Auger**

GROUNDWATER DEPTH: N/A **ASPHALT/CONCRETE/TOPSOIL DEPTH 1.5'**

Sample Depth	Soil Description	PID Reading
0 – 1.5'	Concrete	0.0
1.5' – 2.5'	Medium gray-yellow silty sand; trace gravel throughout; wood chips; moist	0.0
	END BORING	
	SS-13 collected at 1.5' – 2.0'	
	Note: Boring was installed horizontally into concrete sidewall of stairwell approximately 13 feet below grade.	

Attachment B

Boring Location and Sample Location Maps



Note: Borings B-12 and B-13 were advanced into the concrete floor of the boiler room stairway landing, approximately 15 feet below ground surface. Boring B-14 was advanced horizontally into the transformer vault wall approximately 2 feet above the concrete floor of the stairway landing or 13 feet below ground surface.

Conwell Egan High School
611 Wistar Road
Fairless Hills, Bucks County, PA 19030
ACER Project #20240076

ACER Associates, LLC

1012 Industrial Drive, West Berlin, New Jersey 08091
Telephone: (856) 809-1202 Fax: (856) 809-1203

N

Boring Location Map

Attachment C

Analytical Data Packages

Report Of Analysis
Hampton-Clarke

CT#:PH-0671
NY#:11408
KY#:90124

PA#:68-00463
NJ#:07071

To:
Acer Associates LLC
1012 Industrial Drive
West Berlin
NJ
08091

Attention: V.Krisak/J. Cavalucc

Date Submitted: May, 17 2024
Date Reported: Jun, 11 2024

Lab#	Sample ID			Date Collected
Test Group/Analyte		Units	RL	Result
AD44575-001	INF5162024			May/16/2024
BTEX & Extra Compunds (8260)				
1,2,4-Trimethylbenzene		ug/L	1.0	9.8
1,3,5-Trimethylbenzene		ug/L	1.0	5.0
Benzene		ug/L	0.50	0.51
Ethylbenzene		ug/L	1.0	ND
Isopropylbenzene		ug/L	1.0	ND
m&p-Xylenes		ug/L	1.0	9.5
Methyl-t-butyl ether		ug/L	0.87	ND
Naphthalene		ug/L	1.0	1.4
o-Xylene		ug/L	1.0	9.1
Toluene		ug/L	1.0	ND
Xylenes (Total)		ug/L	1.0	19
pH (SM4500-H+ B-11)				
pH		pH		6.9
Temperature		C		23.7
Total Suspended Solids (SM2540D-15)				
Total Suspended Solids @ 103-105 C		mg/l	4.0	ND
AD44575-002	EFF5162024			May/16/2024
BTEX & Extra Compunds (8260)				
1,2,4-Trimethylbenzene		ug/L	1.0	ND
1,3,5-Trimethylbenzene		ug/L	1.0	ND
Benzene		ug/L	0.50	ND
Ethylbenzene		ug/L	1.0	ND
Isopropylbenzene		ug/L	1.0	ND
m&p-Xylenes		ug/L	1.0	ND
Methyl-t-butyl ether		ug/L	0.87	ND

Naphthalene		ug/L	1.0	ND
o-Xylene		ug/L	1.0	ND
Toluene		ug/L	1.0	ND
Xylenes (Total)		ug/L	1.0	ND
pH (SM4500-H+ B-11)				
pH		pH		7.2
Temperature		C		23.9
Total Suspended Solids (SM2540D-15)				
Total Suspended Solids @ 103-105 C		mg/l	4.0	4.0
AD44575-003	SS-12			May/16/2024
% Solids SM2540G				
% Solids		Percent		79
BTEX & Extra Compunds (8260)				
1,2,4-Trimethylbenzene		mg/Kg	0.065	5.0
1,3,5-Trimethylbenzene		mg/Kg	0.065	1.4
Benzene		mg/Kg	0.032	ND
Ethylbenzene		mg/Kg	0.065	0.57
Isopropylbenzene		mg/Kg	0.065	0.33
m&p-Xylenes		mg/Kg	0.065	2.1
Methyl-t-butyl ether		mg/Kg	0.056	ND
Naphthalene		mg/Kg	0.065	0.46
o-Xylene		mg/Kg	0.065	0.99
Toluene		mg/Kg	0.065	0.11
Xylenes (Total)		mg/Kg	0.065	3.1
AD44575-004	SS-13			May/16/2024
% Solids SM2540G				
% Solids		Percent		80
BTEX & Extra Compunds (8260)				
1,2,4-Trimethylbenzene		mg/Kg	0.17	24
1,3,5-Trimethylbenzene		mg/Kg	0.17	7.6
Benzene		mg/Kg	0.087	ND
Ethylbenzene		mg/Kg	0.17	2.6
Isopropylbenzene		mg/Kg	0.17	1.6
m&p-Xylenes		mg/Kg	0.17	9.2
Methyl-t-butyl ether		mg/Kg	0.15	ND
Naphthalene		mg/Kg	0.17	3.3
o-Xylene		mg/Kg	0.17	4.5
Toluene		mg/Kg	0.17	0.53
Xylenes (Total)		mg/Kg	0.17	14
AD44575-005	SS-14			May/16/2024

% Solids SM2540G				
% Solids		Percent		79
BTEX & Extra Compunds (8260)				
1,2,4-Trimethylbenzene		mg/Kg	0.00095	0.0035
1,3,5-Trimethylbenzene		mg/Kg	0.00095	0.0018
Benzene		mg/Kg	0.00095	ND
Ethylbenzene		mg/Kg	0.00095	ND
Isopropylbenzene		mg/Kg	0.00095	ND
m&p-Xylenes		mg/Kg	0.0014	ND
Methyl-t-butyl ether		mg/Kg	0.00095	ND
Naphthalene		mg/Kg	0.00095	0.0018
o-Xylene		mg/Kg	0.00095	ND
Toluene		mg/Kg	0.00095	ND
Xylenes (Total)		mg/Kg	0.00095	ND
AD44575-006	Sump-02			May/16/2024
VO PA Fuel Oil Compounds 8260				
1,2,4-Trimethylbenzene		ug/L	5.0	240
1,3,5-Trimethylbenzene		ug/L	5.0	94
Benzene		ug/L	2.5	ND
Ethylbenzene		ug/L	5.0	19
Isopropylbenzene		ug/L	5.0	7.7
m&p-Xylenes		ug/L	5.0	190
Methyl-t-butyl ether		ug/L	4.4	ND
Naphthalene		ug/L	5.0	24
o-Xylene		ug/L	5.0	140
Toluene		ug/L	5.0	ND
Xylenes (Total)		ug/L	5.0	330
AD44575-007	Trip Blank			May/16/2024
BTEX & Extra Compunds (8260)				
1,2,4-Trimethylbenzene		ug/L	1.0	ND
1,3,5-Trimethylbenzene		ug/L	1.0	ND
Benzene		ug/L	0.50	ND
Ethylbenzene		ug/L	1.0	ND
Isopropylbenzene		ug/L	1.0	ND
m&p-Xylenes		ug/L	1.0	ND
Methyl-t-butyl ether		ug/L	0.87	ND
Naphthalene		ug/L	1.0	ND
o-Xylene		ug/L	1.0	ND
Toluene		ug/L	1.0	ND
Xylenes (Total)		ug/L	1.0	ND

AD44575-008	TWP-02			May/16/2024
VO PA Fuel Oil Compounds 8260				
1,2,4-Trimethylbenzene		ug/L	10	310
1,3,5-Trimethylbenzene		ug/L	10	82
Benzene		ug/L	5.0	47
Ethylbenzene		ug/L	10	140
Isopropylbenzene		ug/L	10	23
m&p-Xylenes		ug/L	10	470
Methyl-t-butyl ether		ug/L	8.7	ND
Naphthalene		ug/L	10	39
o-Xylene		ug/L	10	250
Toluene		ug/L	10	110
Xylenes (Total)		ug/L	10	720

ND = Not Detected RL = Reporting Limit