



October 22, 2014

Mr. Bryan Duzak  
Bureau of Underground Storage Tank Regulations  
8895 East Main Street  
P.O. Box 687  
Reynoldsburg, Ohio 43068

RE: Tier 1 Investigation Results for the South Tank Farm  
RACER Trust Moraine Facilities, Moraine, Ohio  
BUSTR Release # 57000002-N00004

Dear Mr. Duzak:

In response to the BUSTR request, RACER Trust completed Tier 1 source investigation activities at the South Tank Farm (STF) including the installation of 3 borings (SSB-1 to SSB-3) on June 10, 2014 that were converted to 3 monitoring wells (SMW-1 to SMW-3), respectively. Soil samples were submitted to TestAmerica in North Canton, Ohio for analysis of target compound list (TCL) semi-volatile organic compounds (SVOCs), and Total Petroleum Hydrocarbons (TPH) carbon ranges C<sub>10</sub> to C<sub>20</sub>, and C<sub>20</sub> to C<sub>34</sub>. Groundwater elevations and samples were collected on June 16, 2014 and submitted to TestAmerica for analysis of TCL SVOCs.

Analytical results indicated all soil and groundwater parameters were below comparison standards with the exception of TPH C<sub>10</sub> to C<sub>20</sub> (21,000 milligrams per kilogram [mg/kg]) and TPH C<sub>20</sub> to C<sub>34</sub> (12,000 mg/kg), which exceeded the soil saturation standards of 2,000 mg/kg and 5,000 mg/kg, respectively, in SSB-3 from 0 to 2 feet. In groundwater, only Bis (2-ethylhexyl) phthalate in SMW-1 (0.016 B milligrams per liter [mg/L]), SMW-2 (0.013 B mg/L), and SMW-3 (0.015 B mg/L) slightly exceeded the ingestion standard of 0.006 mg/L. Attached are Tables, Figures, and Appendices related to the BUSTR investigation completed at the STF.

On September 24, 2014, RACER Trust submitted a letter to BUSTR requesting a deadline extension to provide a further extensive review of the data prior to submittal of the Tier 1 investigation results.

Based on further review, the exceedances may be unrelated to the historic operations associated with the STF as the soil in this area was excavated during closure and are more likely related to a localized surficial release(s) due to other historic site activities. Additionally, the TPH concentrations in the deeper soil sample from SSB-3 were below detection and 5.4J mg/kg, respectively, confirming that TPH concentrations above action levels are not present at depth because previously impacted soil was removed during closure. Further the groundwater exceedances were slightly above the standard and were flagged by the laboratory for their detection within the method blanks. Bis (2-ethylhexyl) phthalate is a common laboratory contaminant. For these reasons, RACER Trust respectfully requests BUSTR provide the United States Environmental Protection

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Agency (US EPA) with authority to negotiate the appropriate action to address the TPH and Bis (2-ethylhexyl) phthalate exceedances under Resource Conservation and Recovery Act (RCRA) Corrective Action.

On September 29, 2011, the US EPA Administrative Order on Consent (AOC) for the RACER Trust Moraine Facilities Site was fully executed proceeding under Section 3008(h) of RCRA, as amended, 42 U.S. C. Section 6928(h), U.S. EPA Docket No: RCRA-05-2011-0016. The performance-based AOC covers corrective action for past releases of hazardous contaminants at or from the Site. As indicated, RACER Trust believes the exceedances of the BUSTR comparison standards observed at the STF were unlikely to be related to the historic BUSTR release and therefore are best addressed under the US EPA RCRA AOC. Further, it should be noted that as part of the final site-wide remedy, RACER Trust will implement on-site property deed restrictions and groundwater use restrictions through completion of an Environmental Covenant.

If you have any questions, please contact me at (937) 751-8635.

Sincerely,



Pamela L. Barnett, PG  
Assembly Region Cleanup Manager (DE, LA, MA, OH, PA, VA)  
RACER Trust

cc: Mirtha Cápiro, U.S. EPA  
Brian Gitzinger, Ohio EPA

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Table 1. Soil Analytical Results, South Tank Farm RACER Trust Moraine, OH.

	BUSTR Action Levels - Soil Class I, Residential Land Use				Location ID	SSB-1	SSB-1	SSB-2	SSB-2	SSB-3	SSB-3	
	Direct Contact <sup>2</sup>	Soil to Indoor Air	Soil to Outdoor Air	Soil to Drinking Water Leaching	Depth (ft)	10 - 12	18 - 20	12 - 14	18 - 20	0 - 2	16 - 18	
					Date Collected	6/10/2014	6/10/2014	6/10/2014	6/10/2014	6/10/2014	6/10/2014	
Semi-Volatile Organic Compounds (SVOCs)	Acenaphthene <sup>1</sup>	3,500	--	--	77.5	mg/kg	<0.007	<0.0071	<0.007	<0.007	2.0	<0.007
	Acenaphthylene	--	--	--	--	mg/kg	<0.007	<0.0071	<0.007	<0.007	<0.370	<0.007
	Acetophenon	6,300	--	--	--	mg/kg	<0.100	<0.110	<0.100	<0.110	<5.6	<0.110
	Anthracene <sup>1</sup>	18,000	--	--	1,410	mg/kg	<0.007	<0.0071	<0.007	<0.007	<0.370	<0.007
	Atrazine	--	--	--	--	mg/kg	<0.210	<0.210	<0.210	<0.210	<11	<0.210
	Benzaldehyde	--	--	--	--	mg/kg	<0.100	<0.110	<0.100	<0.110	<5.6	<0.110
	Benzo(a)anthracene	11	476,000	1,000,000	22.2	mg/kg	<0.007	<0.0071	<0.007	<0.007	<0.370	<0.007
	Benzo(a)pyrene	1.1	245,000	1,000,000	50.6	mg/kg	<0.007	<0.0071	<0.007	<0.007	0.64	<0.007
	Benzo(b)fluoranthene	11	165,000	1,000,000	55.3	mg/kg	<0.007	<0.0071	0.0038 J	<0.007	0.95	<0.007
	Benzo(g,h,i)perylene	--	--	--	372	mg/kg	<0.007	<0.0071	<0.007	<0.007	0.39	<0.007
	Benzo(k)fluoranthene	110	1,000,000	1,000,000	501	mg/kg	<0.007	<0.0071	<0.007	<0.007	<0.370	<0.007
	1,1'-Biphenyl	--	--	--	--	mg/kg	<0.052	<0.053	<0.052	<0.053	<2.8	<0.053
	Bis (2-chloroethoxy) methane	--	--	--	--	mg/kg	<0.100	<0.110	<0.100	<0.110	<5.6	<0.110
	Bis (2-chloroethyl) ether	--	--	--	--	mg/kg	<0.100	<0.110	<0.100	<0.110	<5.6	<0.110
	bis (2-chloroisopropyl) ether	--	--	--	--	mg/kg	<0.100	<0.110	<0.100	<0.110	<5.6	<0.110
	Bis (2-ethylhexyl) phthalate	190	--	--	--	mg/kg	0.031 JB	0.210 B	0.270 B	0.120 B	<3.9	0.26 B
	4-Bromophenyl phenyl ether	--	--	--	--	mg/kg	<0.052	<0.053	<0.052	<0.053	<2.8	<0.053
	Butyl benzyl phthalate	58	--	--	--	mg/kg	<0.073	<0.074	<0.073	<0.074	<3.9	<0.074
	Caprolactam	--	--	--	--	mg/kg	<0.350	<0.350	<0.350	<0.350	<18	<0.350
	Carbazole	430	--	--	--	mg/kg	<0.052	<0.053	<0.052	<0.053	<2.8	<0.053
	4-Chloroaniline	--	--	--	--	mg/kg	<0.160	<0.160	<0.160	<0.160	<8.4	<0.160
	4-Chloro-3-methylphenol	--	--	--	--	mg/kg	<0.160	<0.160	<0.160	<0.160	<8.4	<0.160
	2-Chloronaphthalene	--	--	--	--	mg/kg	<0.052	<0.053	<0.052	<0.053	<2.8	<0.053
	2-Chlorophenol	--	--	--	--	mg/kg	<0.052	<0.053	<0.052	<0.053	<2.8	<0.053
	4-Chlorophenyl phenyl ether	--	--	--	--	mg/kg	<0.052	<0.053	<0.052	<0.053	<2.8	<0.053
	Chrysene	1,100	1,000,000	1,000,000	4,410	mg/kg	<0.007	<0.0071	<0.007	<0.007	<0.370	<0.007
Dibenzo(a,h)anthracene	1.1	1,000,000	1,000,000	94	mg/kg	<0.007	<0.0071	<0.007	<0.007	<0.370	<0.007	
SVOCs Continued	Dibenzofuran	--	--	--	--	mg/kg	<0.052	<0.053	<0.052	<0.053	<2.8	<0.053
	3,3'-Dichlorobenzidine	110	--	--	--	mg/kg	<0.100	<0.110	<0.100	<0.110	<5.6	<0.110
	2,4-Dichlorophenol	--	--	--	--	mg/kg	<0.160	<0.160	<0.160	<0.160	<8.4	<0.160
	Diethyl phthalate	590	--	--	--	mg/kg	<0.073	<0.074	<0.073	<0.074	<3.9	<0.074
	2,4-Dimethylphenol	1,300	--	--	--	mg/kg	<0.160	<0.160	<0.160	<0.160	<8.4	<0.160
	Dimethyl phthalate	--	--	--	--	mg/kg	<0.073	<0.074	<0.073	<0.074	<3.9	<0.074
	Di-n-butyl phthalate	110	--	--	--	mg/kg	<0.073	<0.074	0.024 JB	<0.074	1.4 JB	0.022 JB
	4,6-Dinitro-2-methylphenol	--	--	--	--	mg/kg	<0.160	<0.160	<0.160	<0.160	<8.4	<0.160
	2,4-Dinitrophenol	--	--	--	--	mg/kg	<0.350	<0.350	<0.350	<0.350	<18	<0.350
	2,4-Dinitrotoluene	13	--	--	--	mg/kg	<0.210	<0.210	<0.210	<0.210	<11	<0.210
	2,6-Dinitrotoluene	13	--	--	--	mg/kg	<0.210	<0.210	<0.210	<0.210	<11	<0.210
	Di-n-octyl phthalate	--	--	--	--	mg/kg	<0.073	<0.074	<0.073	<0.074	<3.9	<0.074
	Fluoranthene <sup>1</sup>	2,400	--	--	421	mg/kg	<0.007	<0.0071	0.0046 J	<0.007	1.6	<0.007
	Fluorene <sup>1</sup>	2,400	--	--	89.9	mg/kg	<0.007	<0.0071	<0.007	<0.007	<0.370	<0.007
	Hexachlorobenzene	5.2	--	--	--	mg/kg	<0.007	<0.0071	<0.007	<0.007	<0.370	<0.007
	Hexachlorobutadiene	13	--	--	--	mg/kg	<0.052	<0.053	<0.052	<0.053	<2.8	<0.053
	Hexachlorocyclopentadiene	--	--	--	--	mg/kg	<0.350	<0.350	<0.350	<0.350	<18	<0.350
	Hexachloroethane	63	--	--	--	mg/kg	<0.052	<0.053	<0.052	<0.053	<2.8	<0.053
	Indeno(1,2,3-cd)pyrene	11	1,000,000	1,000,000	244	mg/kg	<0.007	<0.0071	<0.007	<0.007	0.54	<0.007
	Isophorone	4,600	--	--	--	mg/kg	<0.052	<0.053	<0.052	<0.053	<2.8	<0.053
	2-Methyl naphthalene	--	--	--	--	mg/kg	<0.007	<0.0071	<0.007	<0.007	3.2	<0.007
	2-Methylphenol	--	--	--	--	mg/kg	<0.210	<0.210	<0.210	<0.210	<11	<0.210
	3 & 4 Methylphenol	--	--	--	--	mg/kg	<0.420	<0.420	<0.420	<0.420	<22	<0.420
	Naphthalene	54	54	1,710	39.8	mg/kg	<0.007	<0.0071	<0.007	<0.007	1.5	<0.007
	2-Nitroaniline	--	--	--	--	mg/kg	<0.210	<0.210	<0.210	<0.210	<11	<0.210
	3-Nitroaniline	--	--	--	--	mg/kg	<0.210	<0.210	<0.210	<0.210	<11	<0.210
4-Nitroaniline	--	--	--	--	mg/kg	<0.210	<0.210	<0.210	<0.210	<11	<0.210	
SVOCs Continued	Nitrobenzene	27	--	--	--	mg/kg	<0.100	<0.110	<0.100	<0.110	<5.6	<0.110
	2-Nitrophenol	--	--	--	--	mg/kg	<0.052	<0.053	<0.052	<0.053	<2.8	<0.053
	4-Nitrophenol	--	--	--	--	mg/kg	<0.350	<0.350	<0.350	<0.350	<18	<0.350
	N-Nitrosodi-n-propylamine	--	--	--	--	mg/kg	<0.052	<0.053	<0.052	<0.053	<2.8	<0.053
	N-Nitrosodiphenylamine	10,000	--	--	--	mg/kg	<0.052	<0.053	<0.052	<0.053	<2.8	<0.053
	Pentachlorophenol	280	--	--	--	mg/kg	<0.160	<0.160	<0.160	<0.160	<8.4	<0.160
	Phenanthrene	--	--	--	--	mg/kg	<0.007	<0.0071	0.0049 J	<0.007	1.5	<0.007
	Phenol	66,000	--	--	--	mg/kg	<0.052	<0.053	<0.052	<0.053	3.4	<0.053
	Pyrene <sup>1</sup>	28,000	--	--	439	mg/kg	<0.007	<0.0071	0.0059 J	<0.007	2.7	<0.007
	2,4,5-Trichlorophenol	110,000	--	--	--	mg/kg	<0.160	<0.160	<0.160	<0.160	<8.4	<0.160
TPH	2,4,6-Trichlorophenol	4,400	--	--	--	mg/kg	<0.160	<0.160	<0.160	<0.160	<8.4	<0.160
	C10-C20	2,000	--	--	--	mg/kg	<17	<18	<17	<17	21,000	<17
	C20-C34	5,000	--	--	--	mg/kg	5.8 J	<18	5.8 J	<17	12,000	5.4 J

1 - Action levels derived from 2005 BUSTR spreadsheets using default values. Residential land use assumed at Tier 1 stage as required by BUSTR.

2 - Direct contact action levels for SVOCs were obtained from the Ohio Voluntary Action Program Generic Direct Contact Soil Standards for a Single Chemical with the exception of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene, and Naphthalene.

-- No applicable action level.

ft. - feet.

mg/kg - milligram per kilogram.

TPH - Total petroleum hydrocarbons.

J - Estimated value.

< - Constituent not detected above laboratory reporting limit shown.

B - Compound was detected in method blank and sample.

Bold - Value exceeds action level.

Table 2. Groundwater Analytical Results, South Tank Farm RACER Trust Moraine, OH.

	BUSTR Action Levels - Residential land use, Depth to Groundwater 15-30 Feet			Location ID	SMW-1	SMW-2	SMW-3	
	Groundwater Ingestion <sup>1</sup>	Groundwater to Indoor Air	Groundwater to Outdoor Air					
Semi-Volatile Organic Compounds (SVOCs)	Acenaphthene	0.95	--	--	mg/L	<0.00020	<0.00020	<0.00020
	Acenaphthylene	--	--	--	mg/L	<0.00020	<0.00020	<0.00020
	Acetophenon	1.6	--	--	mg/L	0.00036 JB	0.00037 JB	0.00025 JB
	Anthracene	4.7	--	--	mg/L	<0.00020	<0.00020	<0.00020
	Atrazine	0.003	--	--	mg/L	<0.001	<0.001	<0.001
	Benzaldehyde	--	--	--	mg/L	<0.001	<0.001	<0.001
	Benzo(a)anthracene	0.00026	668	24,800	mg/L	<0.00020	<0.00020	<0.00020
	Benzo(a)pyrene	0.0002	127	7,680	mg/L	<0.00020	<0.00020	<0.00020
	Benzo(b)fluoranthene	0.00017	67.3	2,020	mg/L	<0.00020	<0.00020	<0.00020
	Benzo(g,h,i)perylene	--	--	--	mg/L	<0.00020	<0.00020	<0.00020
	Benzo(k)fluoranthene	0.0017	23,900	1,000,000	mg/L	<0.00020	<0.00020	<0.00020
	1,1'-Biphenyl	--	--	--	mg/L	<0.001	<0.001	<0.001
	Bis (2-chloroethoxy) methane	--	--	--	mg/L	<0.001	<0.001	<0.001
	Bis (2-chloroethyl) ether	--	--	--	mg/L	<0.001	<0.001	<0.001
	bis (2-chloroisopropyl) ether	--	--	--	mg/L	<0.001	<0.001	<0.001
	Bis (2-ethylhexyl) phthalate	0.006	--	--	mg/L	<b>0.016 B</b>	<b>0.013 B</b>	<b>0.015 B</b>
	4-Bromophenyl phenyl ether	--	--	--	mg/L	<0.002	<0.002	<0.002
	Butyl benzyl phthalate	0.11	--	--	mg/L	0.00047 J	<0.001	<0.001
	Caprolactam	--	--	--	mg/L	0.0011 JB	0.0011 JB	0.00083 JB
	Carbazole	0.079	--	--	mg/L	<0.001	<0.001	<0.001
	4-Chloroaniline	--	--	--	mg/L	<0.002	<0.002	<0.002
	4-Chloro-3-methylphenol	--	--	--	mg/L	<0.002	<0.002	<0.002
	2-Chloronaphthalene	--	--	--	mg/L	<0.001	<0.001	<0.001
	2-Chlorophenol	--	--	--	mg/L	<0.001	<0.001	<0.001
	4-Chlorophenyl phenyl ether	--	--	--	mg/L	<0.002	<0.002	<0.002
	Chrysene	0.047	7,160	212,000	mg/L	<0.00020	<0.00020	<0.00020
	Dibenzo(a,h)anthracene	0.0002	356	78,400	mg/L	<0.00020	<0.00020	<0.00020
	Dibenzofuran	--	--	--	mg/L	<0.001	<0.001	<0.001
	3,3'-Dichlorobenzidine	--	--	--	mg/L	<0.005	<0.005	<0.005
	2,4-Dichlorophenol	--	--	--	mg/L	<0.002	<0.002	<0.002
SVOCs Continued	Diethyl phthalate	13	--	--	mg/L	0.0003 J	0.00026 J	0.00025 J
	2,4-Dimethylphenol	0.31	--	--	mg/L	<0.002	<0.002	<0.002
	Dimethyl phthalate	--	--	--	mg/L	<0.001	<0.001	<0.001
	Di-n-butyl phthalate	1.5	--	--	mg/L	0.0022 B	0.0021 B	0.0018 B
	4,6-Dinitro-2-methylphenol	--	--	--	mg/L	<0.005	<0.005	<0.005
	2,4-Dinitrophenol	--	--	--	mg/L	<0.040	<0.040	<0.040
	2,4-Dinitrotoluene	--	--	--	mg/L	<0.005	<0.005	<0.005
	2,6-Dinitrotoluene	--	--	--	mg/L	<0.005	<0.005	<0.005
	Di-n-octyl phthalate	--	--	--	mg/L	<0.001	<0.001	<0.001
	Fluoranthene	0.42	--	--	mg/L	<0.00020	<0.00020	<0.00020
	Fluorene	0.63	--	--	mg/L	<0.00020	<0.00020	<0.00020
	Hexachlorobenzene	--	--	--	mg/L	<0.001	<0.001	<0.001
	Hexachlorobutadiene	--	--	--	mg/L	<0.001*	<0.001*	<0.001*
	Hexachlorocyclopentadiene	--	--	--	mg/L	<0.010*	<0.010*	<0.010*
	Hexachloroethane	0.015	--	--	mg/L	<0.001*	<0.001*	<0.001*
	Indeno(1,2,3-cd)pyrene	0.00022	2,030	123,000	mg/L	<0.00020	<0.00020	<0.00020
	Isophorone	1.7	--	--	mg/L	<0.001	<0.001	<0.001
	2-Methyl naphthalene	--	--	--	mg/L	<0.00020	<0.00020	<0.00020
	2-Methylphenol	--	--	--	mg/L	<0.001	<0.001	<0.001
	3 & 4 Methylphenol	--	--	--	mg/L	<0.002	<0.002	<0.002
	Naphthalene	0.14	22.2	1,200	mg/L	<0.00020	<0.00020	<0.00020
	2-Nitroaniline	--	--	--	mg/L	<0.002	<0.002	<0.002
	3-Nitroaniline	--	--	--	mg/L	<0.002	<0.002	<0.002
	4-Nitroaniline	--	--	--	mg/L	<0.002	<0.002	<0.002
	Nitrobenzene	--	--	--	mg/L	<0.001	<0.001	<0.001
	2-Nitrophenol	--	--	--	mg/L	<0.002	<0.002	<0.002
	4-Nitrophenol	--	--	--	mg/L	<0.005	<0.005	<0.005
	N-Nitrosodi-n-propylamine	--	--	--	mg/L	<0.001	<0.001	<0.001
N-Nitrosodiphenylamine	0.3	--	--	mg/L	<0.001	<0.001	<0.001	
SVOCs Continued	Pentachlorophenol	0.001	--	--	mg/L	<0.040	<0.040	<0.040
	Phenanthrene	--	--	--	mg/L	<0.00020	<0.00020	<0.00020
	Phenol	4.7	--	--	mg/L	<0.001	0.00033 JB	<0.001
	Pyrene	0.47	--	--	mg/L	<0.00020	<0.00020	<0.00020
	2,4,5-Trichlorophenol	1.6	--	--	mg/L	<0.005	<0.005	<0.005
2,4,6-Trichlorophenol	0.12	--	--	mg/L	<0.005	<0.005	<0.005	

1 - Groundwater ingestion action levels for SVOCs were obtained from the Ohio Voluntary Action Program Generic Unrestricted Potable Use Standards for a Single Chemical with the exception of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene, and

-- No applicable action level.

mg/L - milligrams per liter.

B - Compound was detected in method blank and sample.

J - Estimated value.

< - Compound not detected above laboratory reporting limit.

**BOLD** - Value exceeds action level.



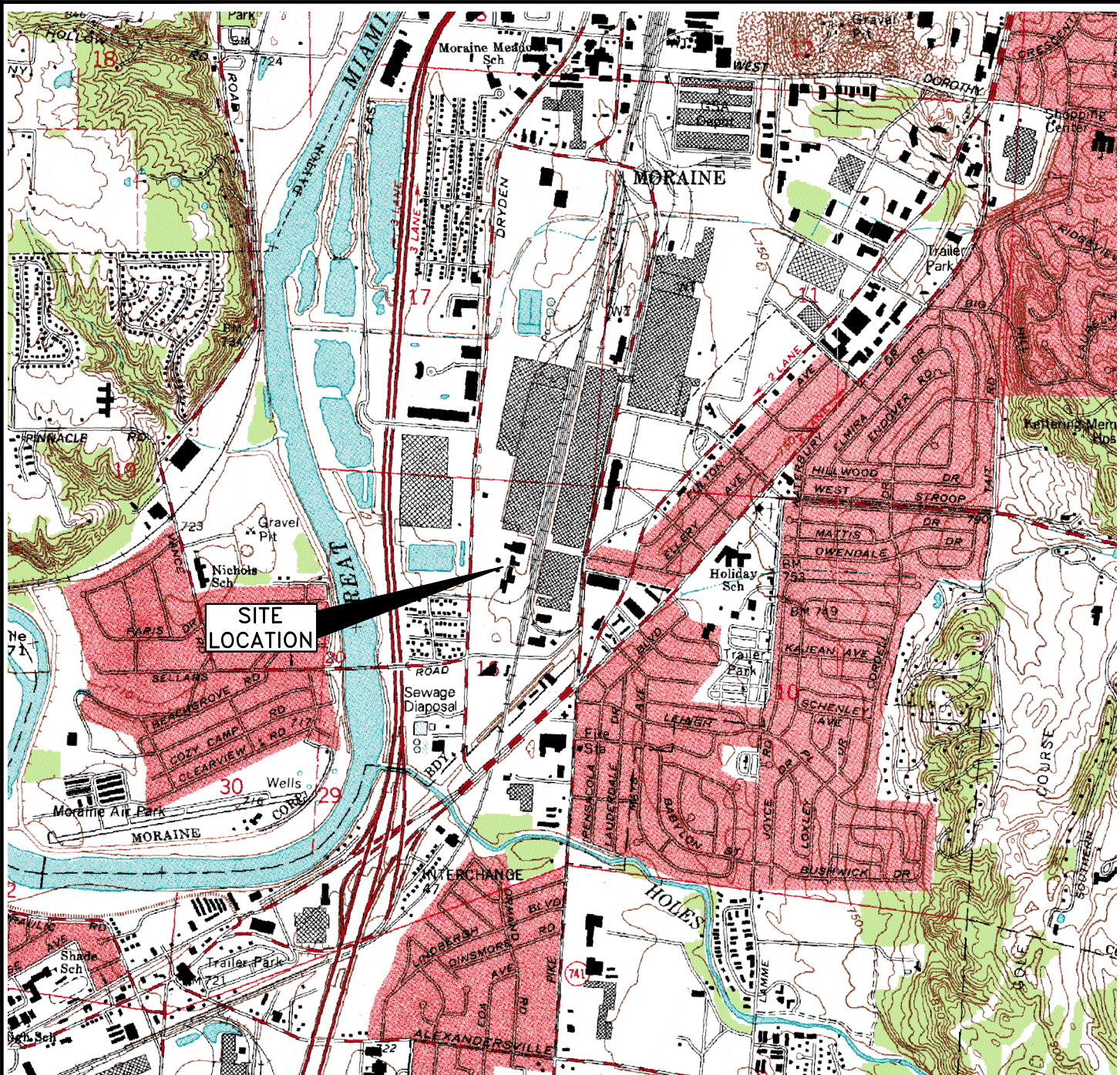
**Table 3. Groundwater Elevation Data, South Tank Farm, RACER Trust, Moraine, Ohio.**

Well ID	TOC Elevation (feet AMSL)	Date Installed	Total Well Depth (feet bgl)	Screen Length (feet)	Bottom of Screen (feet bgl)	Top of Screen (feet bgl)	Depth to Water (6/16/14) (feet TOC)	Groundwater Elevation (6/16/14) (feet AMSL)
STF, Ohio BUSTR Release #57000002-N00004								
SMW-1	728.92	6/10/14	25.0	10	25.0	15.0	19.22	709.70
SMW-2	729.68	6/10/14	26.0	10	26.0	16.0	19.98	709.70
SMW-3	728.05	6/10/14	24.0	10	24.0	14.0	18.32	709.73

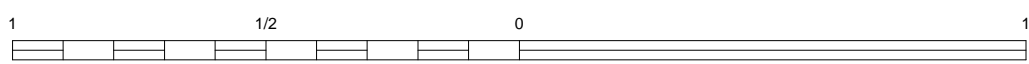
**NOTES:**

- bgl = below grade level.
- TOC = Top of PVC Casing (surveyed measuring point).
- AMSL = Above Mean Sea Level.
- Survey vertical elevations presented North American Vertical Datum of 1988 (NAVD 88)

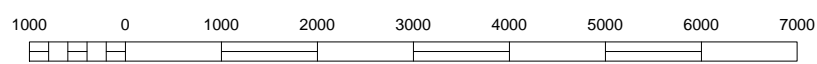
CITY: COLUMBUS, OH; DIV: GROUP/IM/DV; DB: R/ SMITH; LD: (Opt) PIC: (Opt) PM: (N, GILLOTTI); TM: (Opt) Lyr: (Option) - OFF - REF;  
 G: IENVCAD/Columbus-OR/ACTOR/000294 - RACER/294-2014-02F-TOPO.dwg; LAYOUT: SOUTH-TANK FARM; SAVER: 9/2/2014 9:20 AM; ACADVER: 18.1S (LMS TECH); PAGES: 18.1S (LMS TECH); PLOTSTYLE: ACAD.CTB; PLOTTED: 9/3/2014 9:20 AM; BY: SMITH, BOB  
 XREFS: IMAGES: PROJECTNAME: dayton\_south.tif



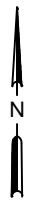
SCALE 1:24 000



SCALE IN MILE



SCALE IN FEET: 1" = 2000'



OHIO QUADRANGLE LOCATION

REFERENCE: USGS 7.5 MINUTE QUADRANGLE; DAYTON SOUTH, OHIO 1966, PHOTO REVISED 1991.

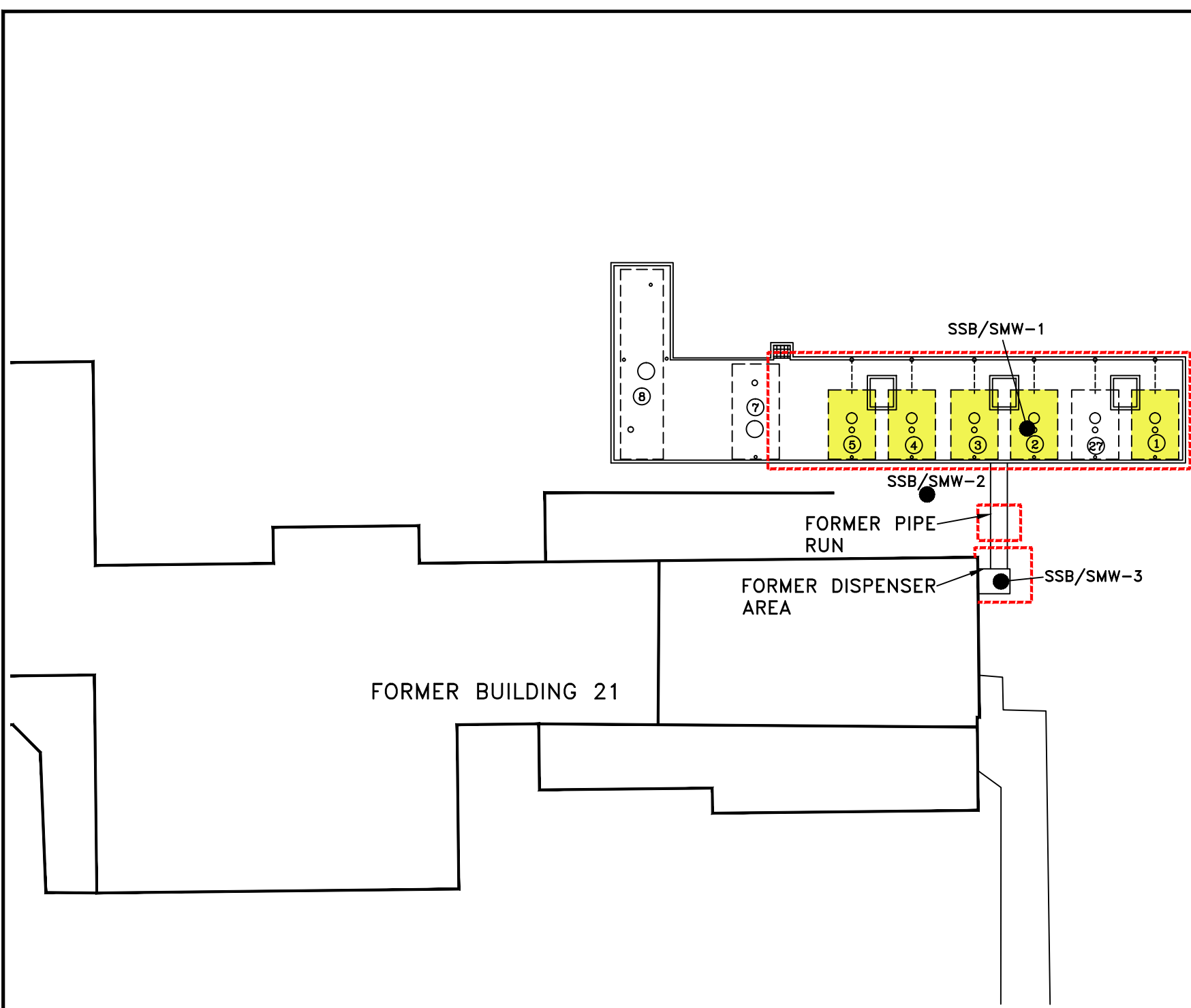
RACER TRUST  
 MORAINE, OHIO  
 OH000294.2014

**SITE LOCATION MAP  
 (FORMER SOUTH TANK FARM)**



FIGURE

**1**



- LEGEND**
- SOIL BORING/MONITORING WELL (2014)
  - Ⓣ TANK NUMBER
  - - - - - APPROXIMATE EXTENT OF EXCAVATION AREA

HISTORICAL TANK CONTENTS	
<b>BUSTR REGULATED TANKS</b>	
1	WASHING OIL (REMOVED 1992)
2	LUB. GEAR OIL (REMOVED 1992)
3	BRUKO D-332 (REMOVED 1992)
4	HYDRAULIC OIL - 215 SEC (REMOVED 1992)
5	CIMTECH 3900 (REMOVED 1992)
<b>RFI TANKS</b>	
7	SWMU T2 - DIRTY OILS (REMOVED 1986)
8	SWMU T3 - DIRTY OILS, VIRGIN MACHINE COOLANT (REMOVED 1986)
27	SWMU T1 - SPENT ALKALINE DETERGENT SOLUTION (REMOVED 1992)

RACER TRUST  
MORaine, OHIO  
OH000294.2014

**SITE MAP  
FORMER SOUTH TANK FARM**

FIGURE  
**2**

CITY: DUBLIN, OHIO DIV/ GROUP: ENV DBR: SMITH, LD: OPT PIC: OPT PM: GILLOTTI TM: OPT LXR: OPT ON: OFF: REF  
 G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\294-2014-02\E294-2014-02F-11.dwg LAYOUT: FIG 2 SITE MAP SAVED: 9/2/2014 3:08 PM ACADVER: 18.1S (LMS TECH) PAGES: 18.1S (LMS TECH) PLOTSTYLETABLE: ACAD.CTB PLOTTED: 9/4/2014 12:14 PM BY: SMITH, BOB  
 XREFS:

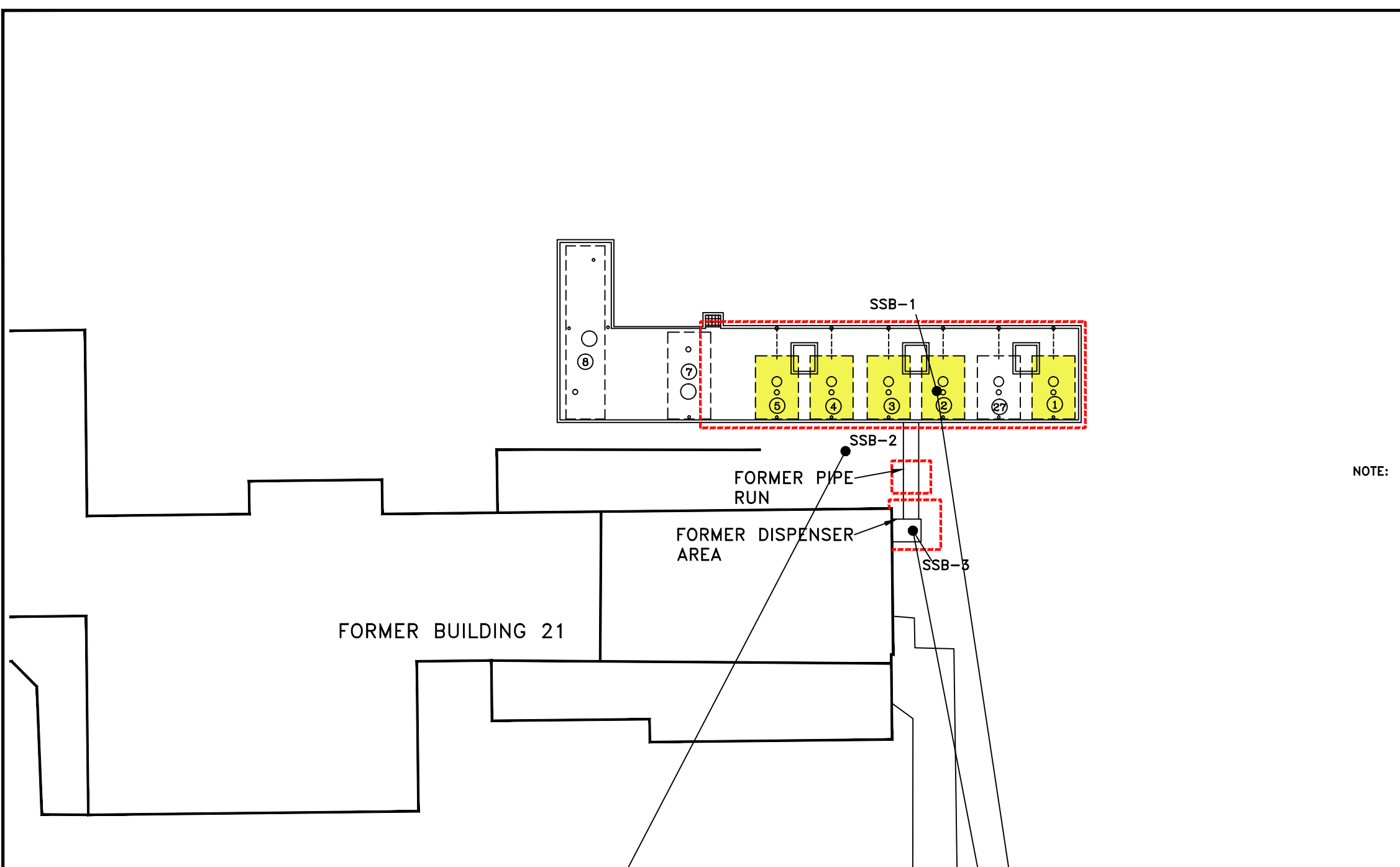


- LEGEND**
- SOIL BORING/MONITORING WELL
  - ②7 TANK NUMBER
  - mg/kg MILLIGRAMS PER KILOGRAM
  - - - - - APPROXIMATE EXTENT OF EXCAVATION AREA
  - BOLD** CONCENTRATION EXCEEDS BUSTR ACTION LEVELS
  - J ESTIMATED CONCENTRATION
  - B COMPOUND WAS DETECTED IN METHOD BLANK AND SAMPLE
  - BDL BELOW LABORATORY DETECTION LIMITS
  - VOCs VOLATILE ORGANIC COMPOUNDS
  - PAHs POLYNUCLEAR AROMATIC HYDROCARBONS
  - TPH TOTAL PETROLEUM HYDROCARBONS
  - mg/kg MILLIGRAMS PER KILOGRAMS

ALL CONCENTRATIONS SHOWN IN MILLIGRAMS PER KILOGRAM  
 NOTE: THIS FIGURE PRESENTS ONLY DETECTED CHEMICALS OF CONCERN (COCs).

	BUSTR ACTION LEVELS — RESIDENTIAL — GROUNDWATER 15–30 FEET			
	Direct Contact	Soil to Indoor Air	Soil to Outdoor Air	Soil to Drinking Water Leaching
<b>SVOCs</b>				
Acenaphthene1	3,500	---	---	77.5
Benzo(a)pyrene	1.1	245,000	1,000,000	50.6
Benzo(b)fluoranthene	11	165,000	1,000,000	55.3
Benzo(g,h,i)perylene	---	---	---	372
Bis (2-ethylhexyl) phthalate	190	---	---	---
Di-n-butyl phthalate	110	---	---	---
Fluoranthene1	2,400	---	---	421
Indeno(1,2,3-cd)pyrene	11	1,000,000	1,000,000	244
2-Methyl naphthalene	---	---	---	---
Naphthalene	54	54	1,710	39.8
Phenanthrene	---	---	---	---
Phenol	66,000	---	---	---
Pyrene1	28,000	---	---	439
<b>TPH</b>				
C10–C20	2,000	---	---	---
C20–C34	5,000	---	---	---

HISTORICAL TANK CONTENTS	
<b>BUSTR REGULATED TANKS</b>	
1	WASHING OIL (REMOVED 1992)
2	LUB. GEAR OIL (REMOVED 1992)
3	BRUKO D-332 (REMOVED 1992)
4	HYDRAULIC OIL – 215 SEC (REMOVED 1992)
5	CIMTECH 3900 (REMOVED 1992)
<b>RFI TANKS</b>	
7	SWMU T2 – DIRTY OILS (REMOVED 1986)
8	SWMU T3 – DIRTY OILS, VIRGIN MACHINE COOLANT (REMOVED 1986)
27	SWMU T1 – SPENT ALKALINE DETERGENT SOLUTION (REMOVED 1992)



SSB-2 (6/10/14)		
	12 – 14'	18 – 20'
<b>SVOC</b>		
Benzo(b)fluoranthene	0.0038 J	BDL
Bis (2-ethylhexyl) phthalate	0.270 B	0.120 B
Di-n-butyl phthalate	0.024 JB	BDL
Fluoranthene	0.0046 J	BDL
Phenanthrene	0.0049 J	BDL
Pyrene	0.0059 J	BDL
<b>TPH</b>		
C10–C20	BDL	BDL
C20–C34	5.8 J	BDL

SSB-3 (6/10/14)		
	0 – 2'	16 – 18'
<b>SVOC</b>		
Acenaphthene	2.0	BDL
Benzo(a)pyrene	0.64	BDL
Benzo(b)fluoranthene	0.95	BDL
Benzo(g,h,i)perylene	0.39	BDL
Bis (2-ethylhexyl) phthalate	BDL	0.26 B
Di-n-butyl phthalate	1.4 JB	0.022 JB
Fluoranthene	1.6	BDL
Indeno(1,2,3-cd)pyrene	0.54	BDL
2-Methyl naphthalene	3.2	BDL
Naphthalene	1.5	BDL
Phenanthrene	1.5	BDL
Phenol	3.4	BDL
Pyrene	2.7	BDL
<b>TPH</b>		
C10–C20	21000	BDL
C20–C34	12000	5.4 J

SSB-1 (6/10/14)		
	10 – 12'	18 – 20'
<b>SVOC</b>		
Bis (2-ethylhexyl) phthalate	0.031 JB	0.210 B
<b>TPH</b>		
C10–C20	BDL	BDL
C20–C34	5.8 J	BDL

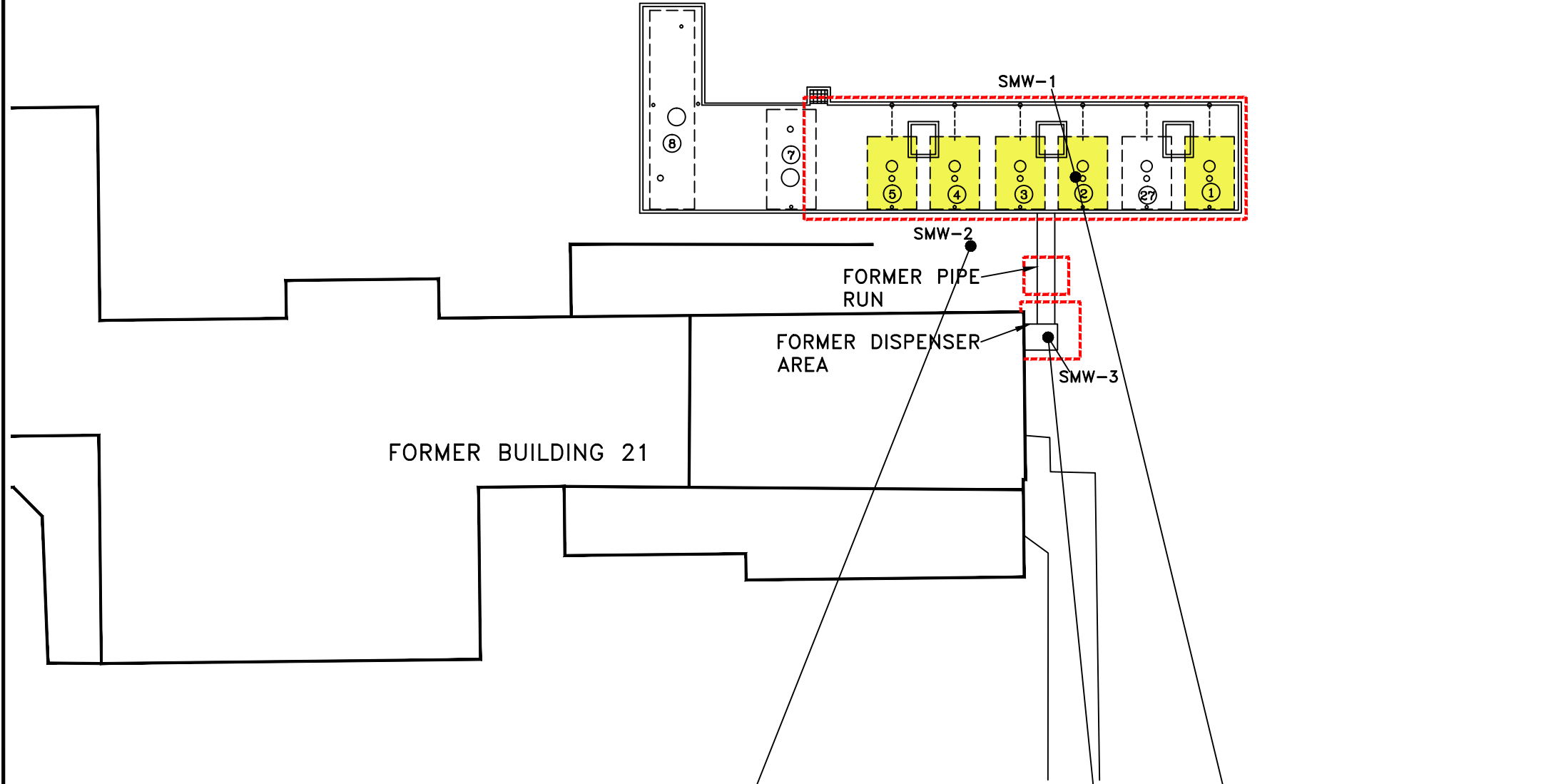
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MORaine, OHIO  
OH000294.2014

**FORMER SOUTH TANK FARM  
SOIL ANALYTICAL RESULTS**

FIGURE  
**3**

CITY: DUBLIN, OHIO DIV/GRUP: ENV DBR: SMITH, LD: (Opt) PIC: (Opt) PM: (N GILLOTT) TM: (Opt) LVR: (Opt) ON: -OFF: REF- G:\ENVCAD\Columbus-OH\ACT\0000294 - RACER\294-2014-02\F294-2014-02F-11.dwg LAYOUT: FIG 3 SOIL DATA 06/00/14 - SAVED: 9/16/2014 2:39 PM ACADVER: 18.15 (LMS TECH) PAGES: 10 PLOTSTYLETABLE: ACAD.CTB PLOTTED: 9/16/2014 2:39 PM BY: SMITH, BOB XREFS:

CITY: DUBLIN, OHIO DIV: GROUP: ENV DB: R: SMITH, LD: (OP) PIC: (OP) PK: (N) GILLOTTI TM: (OP) L: YR: (OP) ON: -OFF: REF- G: EN: V: CAD: Columbus-OH: V: ACT: OH: 000294 - RACER: 294-2014-02: E: 294-2014-02: F: 11: DWG LAYOUT: FIG 4 GW DATA: 060014 SAVED: 9/16/2014 2:39 PM ACAD: V: 18:15 (LMS TECH) PAGESETUP: PLOT: STY: LET: TABLE: ACAD: CTB PLOTTED: 9/16/2014 2:40 PM BY: SMITH, BOB XREFS:



**LEGEND**

- MONITORING WELL
- Ⓣ TANK NUMBER
- mg/kg MILLIGRAMS PER KILOGRAM
- - - - - APPROXIMATE EXTENT OF EXCAVATION AREA
- BOLD** CONCENTRATION EXCEEDS BUSTR ACTION LEVELS
- J ESTIMATED CONCENTRATION
- B COMPOUND WAS DETECTED IN METHOD BLANK AND SAMPLE
- BDL BELOW LABORATORY DETECTION LIMITS
- SVOCs SEMIVOLATILE ORGANIC COMPOUNDS
- ug/L MICROGRAMS PER LITER

ALL CONCENTRATIONS SHOWN IN MICROGRAMS PER LITER  
 NOTE: THIS FIGURE PRESENTS ONLY DETECTED CHEMICALS OF CONCERN (COCS).

	BUSTR Action Levels - Residential - Groundwater 15-30 Feet		
	Groundwater Ingestion <sup>1</sup>	Groundwater to Indoor Air	Groundwater to Outdoor Air
<b>SVOCs</b>			
Acetophenon	1.6	---	---
Bis (2-ethylhexyl) phthalate	0.006	---	---
Butyl benzyl phthalate	0.11	---	---
Caprolactam	---	---	---
Diethyl phthalate	13	---	---
Di-n-butyl phthalate	1.5	---	---
Phenol	4.7	---	---

HISTORICAL TANK CONTENTS	
<b>BUSTR REGULATED TANKS</b>	
1	WASHING OIL (REMOVED 1992)
2	LUB. GEAR OIL (REMOVED 1992)
3	BRUKO D-332 (REMOVED 1992)
4	HYDRAULIC OIL - 215 SEC (REMOVED 1992)
5	CIMTECH 3900 (REMOVED 1992)
<b>RFI TANKS</b>	
7	SWMU T2 - DIRTY OILS (REMOVED 1986)
8	SWMU T3 - DIRTY OILS, VIRGIN MACHINE COOLANT (REMOVED 1986)
27	SWMU T1 - SPENT ALKALINE DETERGENT SOLUTION (REMOVED 1992)

SMW-2	
SVOC	6/16/14
Acetophenon	0.00037 JB
Bis (2-ethylhexyl) phthalate	0.013 B
Butyl benzyl phthalate	BDL
Caprolactam	0.0011 JB
Diethyl phthalate	0.00026 J
Di-n-butyl phthalate	0.0021 B
Phenol	0.00033 JB

SMW-3	
SVOC	6/16/14
Acetophenon	0.00025 JB
Bis (2-ethylhexyl) phthalate	0.015 B
Butyl benzyl phthalate	BDL
Caprolactam	0.00083 JB
Diethyl phthalate	0.00025 J
Di-n-butyl phthalate	0.0018 B
Phenol	BDL

SMW-1	
SVOC	6/16/14
Acetophenon	0.00036 JB
Bis (2-ethylhexyl) phthalate	0.016 B
Butyl benzyl phthalate	0.00047 J
Caprolactam	0.0011 JB
Diethyl phthalate	0.0003 J
Di-n-butyl phthalate	0.0022 B
Phenol	BDL

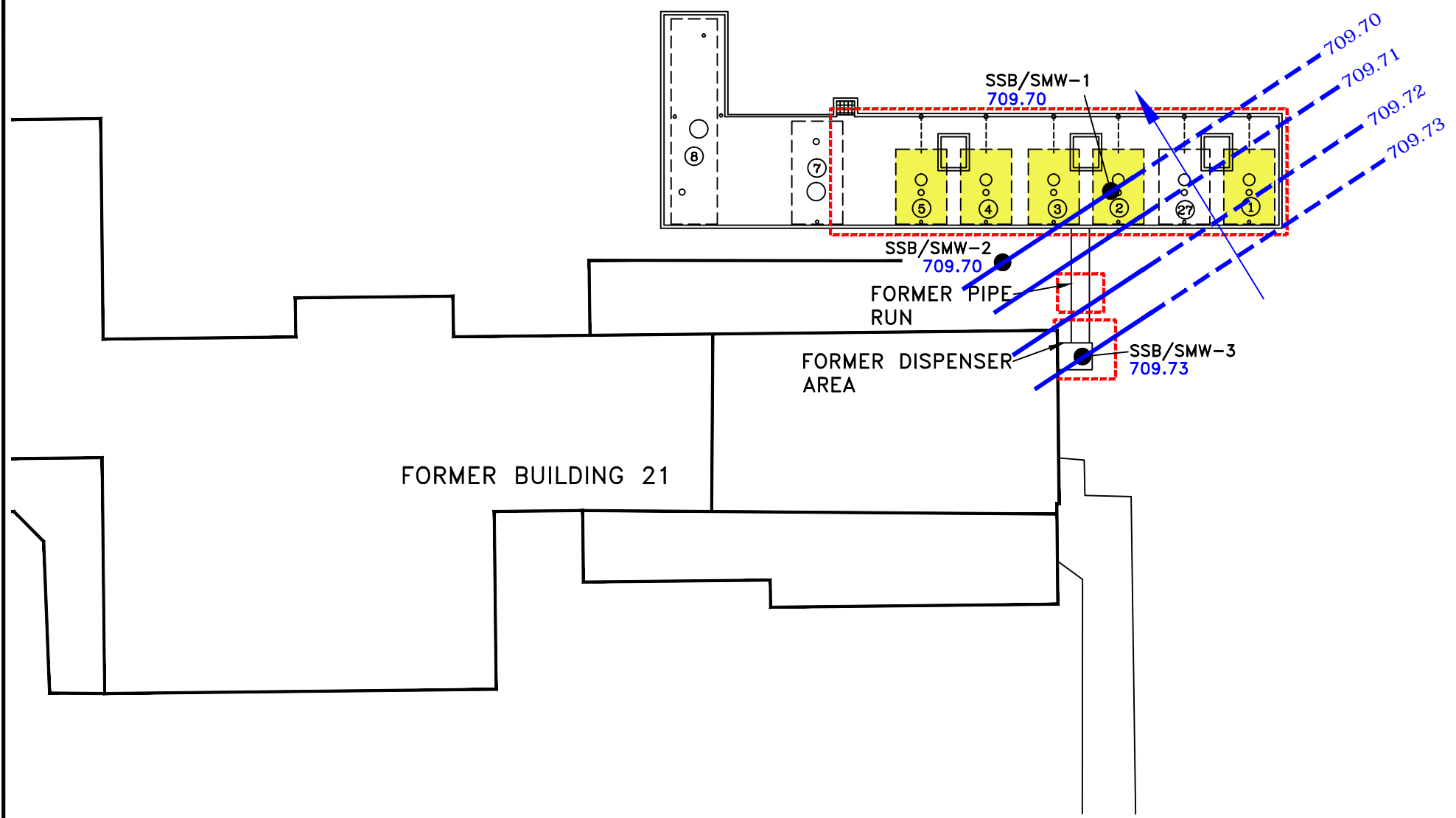
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 OH000294.2014

FORMER SOUTH TANK FARM  
 GROUNDWATER ANALYTICAL RESULTS

FIGURE  
**4**



CITY: DUBLIN, OHIO DIV: GROUP: ENV DB: R. SMITH LD: (Opt) PIC: (Opt) PK: (N. GILLOTT) TM: (Opt) L: YR: (Opt) ON: -OFF: REF- G: ENVCAD/Columbus-OH/VACT/OH000294 - RACER/294-2014-02/E/294-2014-02F-11.dwg LAYOUT: FIG 5 GW ELEV 061614. SAVED: 9/16/2014 12:25 PM ACADVER: 18.1.5 (LMS TECH) PAGES: 18 PAGES: 18 PLOT: 9/16/2014 3:46 PM BY: SMITH, BOB XREFS:



- LEGEND**
- SOIL BORING/MONITORING WELL (2014)
  - Ⓣ TANK NUMBER
  - - - - - APPROXIMATE EXTENT OF EXCAVATION AREA
  - 709.73 GROUNDWATER ELEVATION (FEET AMSL)
  - 709.70 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
  - ➔ INFERRED GROUNDWATER FLOW DIRECTION
  - AMSL ABOVE MEAN SEA LEVEL

HISTORICAL TANK CONTENTS	
<b>BUSTR REGULATED TANKS</b>	
1	WASHING OIL (REMOVED 1992)
2	LUB. GEAR OIL (REMOVED 1992)
3	BRUKO D-332 (REMOVED 1992)
4	HYDRAULIC OIL - 215 SEC (REMOVED 1992)
5	CIMTECH 3900 (REMOVED 1992)
<b>RFI TANKS</b>	
7	SWMU T2 - DIRTY OILS (REMOVED 1986)
8	SWMU T3 - DIRTY OILS, VIRGIN MACHINE COOLANT (REMOVED 1986)
27	SWMU T1 - SPENT ALKALINE DETERGENT SOLUTION (REMOVED 1992)

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 OH000294.2014

FORMER SOUTH TANK FARM  
 GROUNDWATER ELEVATION MAP  
 JUNE 16, 2014

FIGURE  
**5**



**Appendix A**

Soil Boring Logs and Monitoring  
Well Construction Diagrams



# BORING/WELL CONSTRUCTION LOG

WELL NO.: **SSB-1/SMW-1**

TOTAL DEPTH: **26** feet bls

## PROJECT INFORMATION

CLIENT: **RACER Trust**  
 SITE LOCATION: **South Tank Farm**  
 CITY, STATE: **Moraine, Ohio**  
 PROJECT NUMBER: **OH000294.2014.0002F**  
 LOGGED BY: **Kari Eldridge**

## DRILLING INFORMATION

DRILLING CO.: **EnviroCore**  
 DRILLER: **Ray Cord/Anthony Eaton**  
 DRILLING METHOD: **Hand Auger/Hollow Stem Auger**  
 DATE STARTED: **6/10/2014**  
 DATE COMPLETED: **6/10/2014**  
 TOC ELEVATION: **728.92**

Depth (feet)	Recovery (inches)	PID/FID (ppm)	Blow Count	Soil Symbol	USCS Classification	SOIL DESCRIPTION	WELL CONSTRUCTION DETAILS
0	Hand Auger	0.8/NM	N/A		CONCRETE	(0.0 - 0.7) CONCRETE.	Concrete (0 to 2 ft)
2	Hand Auger	3.6/NM	N/A		GW	(0.7 - 1.0) GRAVEL sub base.	2" PVC Sch 40 Casing (0 to 15 ft)
4	Hand Auger	0.0/NM	N/A		FILL	(1.0 - 5.0) FILL, sand, poorly sorted, fine to coarse, angular to round, moist, brown	
6	Hand Auger	0.0/NM	N/A		FILL	(5.0 - 8.0) FILL, clay and sand, little silt, moist, grayish brown.	Bentonite (2 to 13 ft)
7	7	0.0/NM	3,3,4,3				
8	12	11.6/NM	5,7,11,15		SW	(8.0 - 26.0) SAND & GRAVEL, poorly sorted, fine sand to large pebbles, angular to round, trace to little silt, moist, brown.	Sand Pack (13 to 26 ft)
10	17	22.6/NM	12,15,24,32			*Sample submitted for laboratory analysis from 10 to 12 feet.	
12	15	14.0/NM	13,19,23,26				
14	15	10.9/NM	19,37,38,50/4				
16	14	8.4/NM	18,23,32,33				
18	15	3.3/NM	12,27,19,15			*Sample submitted for laboratory analysis from 18 to 20 feet.	
20	11	0.0/NM	14,19,14,17			Note: wet at 20 feet.	
22	12	0.0/NM	4,6,10,15				
24	14	0.0/NM	4,9,11,12				
26						End of boring at 26 feet.	

**Notes:**

bls: below land surface  
 ppm: parts per million  
 N/A: Not applicable

USCS: Unified Soil Classification System  
 NM: Not measured  
 TOC: Top of Casing

PID: Photo-ionization Detector  
 FID: Flame Ionization Detector  
 HA: Hand auger

Date: 7/17/2014  
 Page: 1 of 1



## BORING/WELL CONSTRUCTION LOG

WELL NO.: **SSB-2/SMW-2**

TOTAL DEPTH: **26** feet bls

### PROJECT INFORMATION

CLIENT: **RACER Trust**  
 SITE LOCATION: **South Tank Farm**  
 CITY, STATE: **Moraine, Ohio**  
 PROJECT NUMBER: **OH000294.2014.0002F**  
 LOGGED BY: **Kari Eldridge**

### DRILLING INFORMATION

DRILLING CO.: **EnviroCore**  
 DRILLER: **Ray Cord/Anthony Eaton**  
 DRILLING METHOD: **Hand Auger/Hollow Stem Auger**  
 DATE STARTED: **6/10/2014**  
 DATE COMPLETED: **6/10/2014**  
 TOC ELEVATION: **729.68**

Depth (feet)	Recovery (inches)	PID/FID (ppm)	Blow Count	Soil Symbol	USCS Classification	SOIL DESCRIPTION	WELL CONSTRUCTION DETAILS			
0	Hand Auger	0.0/NM	N/A	[Symbol]	FILL	(0.0 - 2.0) FILL, sand and gravel, poorly sorted, fine sand to large pebbles, round to angular, some silt and clay, moist, brown.	Concrete (0 to 2 ft)			
2	Hand Auger	0.0/NM	N/A	[Symbol]	FILL	(2.0 - 9.0) FILL, cinders, sand and gravel, pieces of broken bricks, cinder blocks, moist, black with trace orange.	2" PVC Sch 40 Casing (0 to 16 ft)			
4	Hand Auger	0.0/NM	N/A	[Symbol]	FILL					
6	22	0.0/NM	6,3,4,7	[Symbol]	FILL			Bentonite (2 to 14 ft)		
8	9	0.4/NM	4,3,4,5	[Symbol]	FILL	(9.0 - 10.5) FILL, clay, little to some silt, some sand and trace cinders, medium plastic, stiff, moist, yellowish brown.				
10	20	0.1/NM	3,6,9,14	[Symbol]	SW					
12	18	3.4/NM	15,27,27,30	[Symbol]	SW	(10.5 - 26.0) SAND & GRAVEL, poorly sorted, fine sand to very large pebbles, angular to round, dry, tan, trace to little silt.  *Sample submitted for laboratory analysis from 12 to 14 feet.  Note: moist from 16 to 18 feet.  *Sample submitted for laboratory analysis from 18 to 20 feet.  Note: wet at 20 feet.	Sand Pack (14 to 26 ft)  2" Screen slot size 0.10 (16 to 26 ft)			
14	18	0.6/NM	16,18,15,20	[Symbol]						
16	5	0.0/NM	10,19,50/4	[Symbol]						
18	17	1.8/NM	16,20,24,26	[Symbol]						
20	1	0.0/NM	21,8,10,8	[Symbol]						
22	6	0.0/NM	4,7,9,12	[Symbol]						
24	14	0.0/NM	9,10,12,9	[Symbol]						
26									End of boring at 26 feet.	

**Notes:**

bls: below land surface  
 ppm: parts per million  
 N/A: Not applicable

USCS: Unified Soil Classification System  
 NM: Not measured  
 TOC: Top of Casing

PID: Photo-ionization Detector  
 FID: Flame Ionization Detector  
 HA: Hand auger

Date: 7/17/2014  
 Page: 1 of 1



## BORING/WELL CONSTRUCTION LOG

WELL NO.: **SSB-3/SMW-3**

TOTAL DEPTH: **24** feet bls

### PROJECT INFORMATION

CLIENT: **RACER Trust**  
 SITE LOCATION: **South Tank Farm**  
 CITY, STATE: **Moraine, Ohio**  
 PROJECT NUMBER: **OH000294.2014.0002F**  
 LOGGED BY: **Kari Eldridge**

### DRILLING INFORMATION

DRILLING CO.: **EnviroCore**  
 DRILLER: **Ray Cord/Anthony Eaton**  
 DRILLING METHOD: **Hand Auger/Hollow Stem Auger**  
 DATE STARTED: **6/10/2014**  
 DATE COMPLETED: **6/10/2014**  
 TOC ELEVATION: **728.05**

Depth (feet)	Recovery (inches)	PID/FID (ppm)	Blow Count	Soil Symbol	USCS Classification	SOIL DESCRIPTION	WELL CONSTRUCTION DETAILS	
0	Hand Auger	96.8/NM	N/A		CONCRETE	(0.0 - 0.7) CONCRETE.	Concrete (0 to 2 ft)	
2	Hand Auger	55.1/NM	N/A		FILL	(0.7 - 4.0) FILL, cinders, sand, gravel, broken pieces of cinder block and bricks, moist, black with trace orange. *Sample submitted for laboratory analysis from 0 to 2 feet.	2" PVC Sch 40 Casing (0 to 14 ft)	
4	Hand Auger	16.8/NM	N/A		FILL	(4.0 - 6.0) FILL, clay, some silt, some cinders and sand, moist, yellowish brown.		
6	17	0.0/NM	3,2,4,5		FILL	(6.0 - 9.0) FILL, clay, little of some silt and sand, trace gravel, medium plastic, medium stiff, moist, yellowish brown.	Bentonite (2 to 12 ft)	
8	16	2.4/NM	4,6,10,11		SW	(9.0 - 24.0) SAND & GRAVEL, poorly sorted, very fine sand to large pebbles, angular to round, dry to moist, brown, trace silt.		
10	14	8.8/NM	17,24,26,27					
12	18	4.1/NM	7,16,19,18			Note: gravel decreases to trace from 12 to 13 feet.	Sand Pack (12 to 24 ft)	
14	16	1.5/NM	10,13,18,24					
16	19	3.8/NM	20,32,37,31			*Sample submitted for laboratory analysis from 16 to 18 feet.	2" Screen slot size 0.10 (14 to 24 ft)	
18	14	0.0/NM	16,21,19,17			Note: wet at 19 feet.		
20	16	0.0/NM	12,13,15,13					
22	13	0.0/NM	7,13,11,8					
24	End of boring at 24 feet.							

**Notes:**

bls: below land surface  
 ppm: parts per million  
 N/A: Not applicable

USCS: Unified Soil Classification System  
 NM: Not measured  
 TOC: Top of Casing

PID: Photo-ionization Detector  
 FID: Flame Ionization Detector  
 HA: Hand auger

Date: 7/17/2014  
 Page: 1 of 1



**Appendix B**

Monitoring Well Development and  
Sampling Logs



**Well Development Logs**

# Well Development Log

Site/Well No. SMW-1

Project South Tank Farm Project No. OH000294.2014.02F Page 1 of 1

Site Location RACER Trust, Moraine, Ohio Date 6/12/2014

Weather Cloudy, 70s Development Time: Begin: 1340 End: 1350

## Evacuation Data

Measuring Point	<u>TOC</u>	Sample Pump Intake Setting (ft bmp)	<u>N/A</u>
MP Elevation (ft)	<u>728.92</u>	Pumping Rate (gpm)	<u>N/A</u>
Land Surface Elevation (ft)	<u>NM</u>	Evacuation Method	<u>Disposable Bailer</u>
Sounded Well Depth (ft bmp)	<u>24.60</u>		
Depth to Water (ft bmp)	<u>19.02</u>		
Water-Level Elevation (ft)	<u>709.90</u>	<b>Field Parameters</b>	
Water Column in Well (ft)	<u>5.58</u>	Color	<u>Brown</u>
Casing Diameter/Type	<u>2" PVC</u>	Odor	<u>None</u>
Gallons in Well	<u>0.89</u>	Appearance	<u>Very Turbid</u>

Well Volume	Total Gallons Removed	pH (s.u.)	Conductivity (mS/cm or umhos/cm)	Turbidity (NTU)	Temperature (°F/°C)	Remarks
Initial	1.00	NM	NM	NM	NM	Very silty
1st						
2nd						
3rd						
4th						
5th						

Development Personnel: S. Clark

Notes: Dry @ 1.25 gallons. Returned @ 1430, 1' water in well, purged dry @ 0.25 gallons.

Well Casing Volumes					
Gal./Ft.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47	

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NM	Not Measured	VOC	Volatile Organic Compounds

# Well Development Log

Site/Well No. SMW-2

Project South Tank Farm Project No. OH000294.2014.02F Page 1 of 1

Site Location RACER Trust, Moraine, Ohio Date 6/12/2014

Weather Cloudy, 70s Development Time: Begin: 1405 End: 1430

## Evacuation Data

Measuring Point	<u>TOC</u>	Sample Pump Intake Setting (ft bmp)	<u>N/A</u>
MP Elevation (ft)	<u>729.68</u>	Pumping Rate (gpm)	<u>N/A</u>
Land Surface Elevation (ft)	<u>NM</u>	Evacuation Method	<u>Disposable Bailer</u>
Sounded Well Depth (ft bmp)	<u>26.01</u>		
Depth to Water (ft bmp)	<u>17.78</u>		
Water-Level Elevation (ft)	<u>711.90</u>	<b>Field Parameters</b>	
Water Column in Well (ft)	<u>8.23</u>	Color	<u>Brown</u>
Casing Diameter/Type	<u>2" PVC</u>	Odor	<u>None</u>
Gallons in Well	<u>1.32</u>	Appearance	<u>Very Turbid</u>

Well Volume	Total Gallons Removed	pH (s.u.)	Conductivity (mS/cm or umhos/cm)	Turbidity (NTU)	Temperature (°F/°C)	Remarks
Initial	7.00	NM	NM	NM	NM	Very silty
1st						
2nd						
3rd						
4th						
5th						

Development Personnel: S. Clark

Notes: Water not clearing.

Well Casing Volumes				
Gal./Ft.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NM	Not Measured	VOC	Volatile Organic Compounds

# Well Development Log

Site/Well No. SMW-3

Project South Tank Farm Project No. OH000294.2014.02F Page 1 of 1

Site Location RACER Trust, Moraine, Ohio Date 6/12/2014

Weather Cloudy, 70s Development Time: Begin: 1300 End: 1405

## Evacuation Data

Measuring Point	<u>TOC</u>	Sample Pump Intake Setting (ft bmp)	<u>N/A</u>
MP Elevation (ft)	<u>728.05</u>	Pumping Rate (gpm)	<u>N/A</u>
Land Surface Elevation (ft)	<u>NM</u>	Evacuation Method	<u>Disposable Bailer</u>
Sounded Well Depth (ft bmp)	<u>23.42</u>		
Depth to Water (ft bmp)	<u>18.13</u>		
Water-Level Elevation (ft)	<u>709.92</u>	<b>Field Parameters</b>	
Water Column in Well (ft)	<u>5.29</u>	Color	<u>Brown</u>
Casing Diameter/Type	<u>2" PVC</u>	Odor	<u>None</u>
Gallons in Well	<u>0.85</u>	Appearance	<u>Very Turbid</u>

Well Volume	Total Gallons Removed	pH (s.u.)	Conductivity (mS/cm or umhos/cm)	Turbidity (NTU)	Temperature (°F/°C)	Remarks
Initial	5.00	NM	NM	NM	NM	Very silty
1st						
2nd						
3rd						
4th						
5th						

Development Personnel: S. Clark

Notes: Water not clearing.

## Well Casing Volumes

<b>Gal./Ft.</b>	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NM	Not Measured	VOC	Volatile Organic Compounds



**Water Sampling Logs**

# ARCADIS

## Water Sampling Log

Project South Tank Farm Project No. OH000294.2014.02F Page 1 of 1  
 Site Location RACER Trust Moraine, Ohio Date 6/16/2014  
 Site/Well No. SMW-1 Replicate No. N/A Code No. N/A  
 Weather Sunny, 70s Sampling Time: Begin 1033 End 1702

### Evacuation Data

Measuring Point TOC  
 MP Elevation (ft) 728.92  
 Land Surface Elevation (ft) NM  
 Sounded Well Depth (ft bmp) 24.95  
 Depth to Water (ft bmp) 19.22  
 Water-Level Elevation (ft) 709.70  
 Water Column in Well (ft) 5.73  
 Casing Diameter/Type 2" PVC  
 Gallons in Well 0.92  
 Gallons Pumped/Bailed Prior to Sampling 3.00  
 Sample Pump Intake Setting (ft bmp) N/A  
 Purge Time begin 1043 end 1050  
 Pumping Rate (gpm) N/A  
 Evacuation Method Disposable Bailer

### Field Parameters

Color Yellowish Brown  
 Odor None  
 Appearance Very Turbid  
 pH (s.u.) 7.05, 7.03, 7.03, 7.02  
 Conductivity (mS/cm) N/A  
 (µmhos/cm) 1080, 1047, 1033, 1043  
 Turbidity (NTU) NM  
 Temperature (°C) 17.0, 16.0, 16.2, 15.6  
 Dissolved Oxygen (mg/L) NM  
 Salinity (%) NM  
 Sampling Method Disposable Bailer  
 Remarks Sampled @ 1700

Constituents Sampled	Container Description	Number	Preservative
TCL SVOCs 8270	250 mL amber glass	2	None

Sampling Personnel K. Eldridge

### Well Casing Volumes

Gal./Ft. 1-¼" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65  
 1-½" = 0.09 2-½" = 0.26 3-½" = 0.50 6" = 1.47

bmp below measuring point ml milliliter NTU Nephelometric Turbidity Units  
 °C Degrees Celsius mS/cm Millisiemens per centimeter PVC Polyvinyl chloride  
 ft feet msl mean sea-level s.u. Standard units  
 gpm Gallons per minute N/A Not Applicable umhos/cm Micromhos per centimeter  
 mg/L Milligrams per liter NR Not Recorded VOC Volatile Organic Compounds

# ARCADIS

## Water Sampling Log

Project South Tank Farm Project No. OH000294.2014.02F Page 1 of 1  
 Site Location RACER Trust Moraine, Ohio Date 6/16/2014  
 Site/Well No. SMW-2 Replicate No. N/A Code No. N/A  
 Weather Sunny, 70s Sampling Time: Begin 0943 End 1638

### Evacuation Data

Measuring Point TOC  
 MP Elevation (ft) 729.68  
 Land Surface Elevation (ft) NM  
 Sounded Well Depth (ft bmp) 26.05  
 Depth to Water (ft bmp) 19.98  
 Water-Level Elevation (ft) 709.70  
 Water Column in Well (ft) 6.07  
 Casing Diameter/Type 2" PVC  
 Gallons in Well 0.97  
 Gallons Pumped/Bailed Prior to Sampling 3.00  
 Sample Pump Intake Setting (ft bmp) N/A  
 Purge Time begin 0957 end 1004  
 Pumping Rate (gpm) N/A  
 Evacuation Method Disposable Bailer

### Field Parameters

Color Yellowish Brown  
 Odor None  
 Appearance Very Turbid  
 pH (s.u.) 6.40, 6.85, 6.92, 6.92  
 Conductivity (mS/cm) N/A  
 (µmhos/cm) 1263, 1114, 1109, 1102  
 Turbidity (NTU) NM  
 Temperature (°C) 17.6, 16.6, 16.5, 16.4  
 Dissolved Oxygen (mg/L) NM  
 Salinity (%) NM  
 Sampling Method Disposable Bailer  
 Remarks Sampled @ 1635

MS/MSD collected

Constituents Sampled	Container Description	Number	Preservative
TCL SVOCs 8270	250 mL amber glass	2	None

Sampling Personnel K. Eldridge

### Well Casing Volumes

Gal./Ft. 1-¼" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65  
 1-½" = 0.09 2-½" = 0.26 3-½" = 0.50 6" = 1.47

bmp below measuring point ml milliliter NTU Nephelometric Turbidity Units  
 °C Degrees Celsius mS/cm Millisiemens per centimeter PVC Polyvinyl chloride  
 ft feet msl mean sea-level s.u. Standard units  
 gpm Gallons per minute N/A Not Applicable umhos/cm Micromhos per centimeter  
 mg/L Milligrams per liter NR Not Recorded VOC Volatile Organic Compounds

# ARCADIS

## Water Sampling Log

Project South Tank Farm Project No. OH000294.2014.02F Page 1 of 1  
 Site Location RACER Trust Moraine, Ohio Date 6/16/2014  
 Site/Well No. SMW-3 Replicate No. DUP-01 Code No. N/A  
 Weather Sunny, 70s Sampling Time: Begin 1008 End 1652

### Evacuation Data

Measuring Point TOC  
 MP Elevation (ft) 728.05  
 Land Surface Elevation (ft) NM  
 Sounded Well Depth (ft bmp) 23.47  
 Depth to Water (ft bmp) 18.32  
 Water-Level Elevation (ft) 709.73  
 Water Column in Well (ft) 5.15  
 Casing Diameter/Type 2" PVC  
 Gallons in Well 0.82  
 Gallons Pumped/Bailed Prior to Sampling 2.50  
 Sample Pump Intake Setting (ft bmp) N/A  
 Purge Time begin 1020 end 1028  
 Pumping Rate (gpm) N/A  
 Evacuation Method Disposable Bailer

### Field Parameters

Color Yellowish Brown  
 Odor None  
 Appearance Very Turbid  
 pH (s.u.) 7.00, 7.03, 7.05, 7.03  
 Conductivity (mS/cm) N/A  
 (µmhos/cm) 1016, 961, 965, 966  
 Turbidity (NTU) NM  
 Temperature (°C) 18.0, 16.3, 15.8, 15.6  
 Dissolved Oxygen (mg/L) NM  
 Salinity (%) NM  
 Sampling Method Disposable Bailer  
 Remarks Sampled @ 1650

DUP-01 collected

Constituents Sampled	Container Description	Number	Preservative
TCL SVOCs 8270	250 mL amber glass	2	None

Sampling Personnel K. Eldridge

### Well Casing Volumes

Gal./Ft. 1-¼" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65  
 1-½" = 0.09 2-½" = 0.26 3-½" = 0.50 6" = 1.47

bmp below measuring point ml milliliter NTU Nephelometric Turbidity Units  
 °C Degrees Celsius mS/cm Millisiemens per centimeter PVC Polyvinyl chloride  
 ft feet msl mean sea-level s.u. Standard units  
 gpm Gallons per minute N/A Not Applicable umhos/cm Micromhos per centimeter  
 mg/L Milligrams per liter NR Not Recorded VOC Volatile Organic Compounds



**Appendix C**

Soil Classification Form



**Department  
of Commerce**

Division of State Fire Marshal  
Bureau of Underground Storage  
Tank Regulations (BUSTR)

# SOIL CLASSIFICATION FORM 2012

REPORT DATE: Sept. 2014

FACILITY ID#: 57000002-N00004

Major Divisions			Letter Symbol	Typical Description	Soil Class		
Coarse Grained Soils  More than 50% of material is retained on #200 Sieve	Gravel and Gravelly Soils	Clean Gravels (Little or No Fines)	GW	Well-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines	Class 1		
			GP	Poorly-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines			
	More than 50% of Coarse Fraction Retained on No. 4 Sieve	Gravels with Fines (Appreciable Amount of Fines)	GM	Silty Gravels, Gravel-Sand-Silt Mixtures			
			GC	Clayey Gravels, Gravel-Sand-Clay Mixtures			
	Sand and Sandy Soils	Clean Sand (Little or No Fines)	SW	Well-Graded Sands, Gravelly Sands, Little or No Fines			
			SP	Poorly-Graded Sands, Gravelly Sands, Little or No Fines			
			More than 50% of Coarse Fraction Passes thru No. 4 Sieve	Sands with Fines (Appreciable Amount of Fines)		SM	Silty-Sands, Sand-Silt Mixtures
						SC	Clayey Sands, Sand-Clay Mixtures
Fine Grained Soils  More than 50% of material passes thru #200 Sieve	Silts and Clays  Liquid Limit<50	ML	Inorganic Silt and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sand or Clayey Silts with Slight Plasticity	Class 2			
		CL	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays				
		OL	Organic Silts and Organic Silty Clays of Low Plasticity				
	Silts and Clays  Liquid Limit>50	MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Soil	Class 3			
		CH	Inorganic Clays of High Plasticity, Fat Clays				
		OH	Organic Clays of Medium to Plasticity, Organic Silts				
Highly Organic Soils			PT	Peat, Humus, Swamp Soil with High Organic Contents			

<b>PATHWAY:</b>	Soil to Indoor Air	GW to Indoor Air	Soil to DW Leaching	Soil to Non-DW Leaching
<b>SYMBOL:</b>	SW	SW	SW	SW

**SITE ADDRESS:** 3600 Dryden Road, Moraine, Montgomery County, Ohio, 45439

*I certify that I have inspected the soils at the above location and am qualified to make the determinations presented:*

**SIGNATURE:** \_\_\_\_\_  \_\_\_\_\_

**PRINT NAME:** Joseph Rumschlag **DATE:** 6/10/2014

**TITLE/COMPANY:** Staff Scientist, ARCADIS U.S., Inc.



**Appendix D**

Laboratory Analytical Reports



**Soil**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton  
4101 Shuffel Street NW  
North Canton, OH 44720  
Tel: (330)497-9396

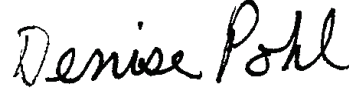
TestAmerica Job ID: 240-38535-1

Client Project/Site: Moraine South Tank Farm-OH000294.2014

For:

ARCADIS U.S., Inc.  
100 E. Campus View Blvd  
Suite 200  
Columbus, Ohio 43235

Attn: Nancy Gillotti



Authorized for release by:  
6/27/2014 6:02:10 PM

Denise Pohl, Project Manager II  
(330)966-9789  
[denise.pohl@testamericainc.com](mailto:denise.pohl@testamericainc.com)



### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?

 **Ask  
The  
Expert**

Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*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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## Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

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### Qualifiers

#### GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
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.
X	Surrogate is outside control limits

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#### GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
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

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### 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)

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TestAmerica Canton

## Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

**Job ID: 240-38535-1**

**Laboratory: TestAmerica Canton**

**Narrative**

### CASE NARRATIVE

**Client: ARCADIS U.S., Inc.**

**Project: Moraine South Tank Farm-OH000294.2014**

**Report Number: 240-38535-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

#### **RECEIPT**

The samples were received on 6/13/2014 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4° C.

#### **SEMIVOLATILE ORGANIC COMPOUNDS (GCMS)**

Samples SSB-2(12-14) (240-38535-1), SSB-2(18-20) (240-38535-2), SSB-1(10-12) (240-38535-3), SSB-1(18-20) (240-38535-4), SSB-3(0-2) (240-38535-5) and SSB-3(16-18) (240-38535-6) were analyzed for semivolatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 06/19/2014 and analyzed on 06/23/2014, 06/25/2014 and 06/26/2014.

Surrogates are added during the extraction process prior to dilution. When the sample is diluted, surrogate recoveries are diluted out and no corrective action is required.

Bis(2-ethylhexyl) phthalate was detected in method blank MB 240-135359/23-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Di-n-butyl phthalate was detected in method blank MB 240-135359/23-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

2,4,6-Tribromophenol (Surr), 2-Fluorobiphenyl (Surr), 2-Fluorophenol (Surr), Nitrobenzene-d5 (Surr), Phenol-d5 (Surr) and Terphenyl-d14



## Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1



---

### Job ID: 240-38535-1 (Continued)

---

#### Laboratory: TestAmerica Canton (Continued)

(Surr) failed the surrogate recovery criteria high for SSB-3(0-2) (240-38535-5). Refer to the QC report for details.

Sample SSB-3(0-2) (240-38535-5)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Method(s) 8270C: The following sample was diluted due to the nature of the sample matrix: SSB-3(0-2) (240-38535-5). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **DIESEL RANGE ORGANICS (DRO)**

Samples SSB-2(12-14) (240-38535-1), SSB-2(18-20) (240-38535-2), SSB-1(10-12) (240-38535-3), SSB-1(18-20) (240-38535-4), SSB-3(0-2) (240-38535-5) and SSB-3(16-18) (240-38535-6) were analyzed for diesel range organics (DRO) in accordance with EPA SW-846 Method 8015B - DRO. The samples were prepared on 06/18/2014 and analyzed on 06/19/2014 and 06/20/2014.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required.

o-Terphenyl (Surr) failed the surrogate recovery criteria high for SSB-3(0-2) (240-38535-5). Refer to the QC report for details.

Sample SSB-3(0-2) (240-38535-5)[200X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Method(s) 8015B: The continuing calibration verification (CCV) associated with batch 135392 recovered above the upper control limit for diesel. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported. The following samples are impacted: S386-B1 (2-8') (240-38571-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **PERCENT SOLIDS**

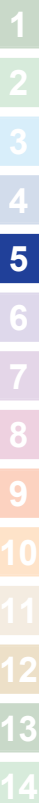
Samples SSB-2(12-14) (240-38535-1), SSB-2(18-20) (240-38535-2), SSB-1(10-12) (240-38535-3), SSB-1(18-20) (240-38535-4), SSB-3(0-2) (240-38535-5) and SSB-3(16-18) (240-38535-6) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 06/16/2014.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

## Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1



Method	Method Description	Protocol	Laboratory
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
8015B	Diesel Range Organics (DRO) (GC)	SW846	TAL CAN
Moisture	Percent Moisture	EPA	TAL CAN

**Protocol References:**

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

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

## Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-38535-1	SSB-2(12-14)	Solid	06/10/14 10:15	06/13/14 09:20
240-38535-2	SSB-2(18-20)	Solid	06/10/14 10:20	06/13/14 09:20
240-38535-3	SSB-1(10-12)	Solid	06/10/14 13:00	06/13/14 09:20
240-38535-4	SSB-1(18-20)	Solid	06/10/14 13:30	06/13/14 09:20
240-38535-5	SSB-3(0-2)	Solid	06/10/14 11:00	06/13/14 09:20
240-38535-6	SSB-3(16-18)	Solid	06/10/14 15:00	06/13/14 09:20

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## Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1



### Client Sample ID: SSB-2(12-14)

### Lab Sample ID: 240-38535-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[b]fluoranthene	3.8	J	7.0	0.62	ug/Kg	1	*	8270C	Total/NA
Bis(2-ethylhexyl) phthalate	270	B	73	20	ug/Kg	1	*	8270C	Total/NA
Di-n-butyl phthalate	24	J B	73	16	ug/Kg	1	*	8270C	Total/NA
Fluoranthene	4.6	J	7.0	0.58	ug/Kg	1	*	8270C	Total/NA
Phenanthrene	4.9	J	7.0	0.76	ug/Kg	1	*	8270C	Total/NA
Pyrene	5.9	J	7.0	0.46	ug/Kg	1	*	8270C	Total/NA
C20-C34	5.8	J	17	4.3	mg/Kg	1	*	8015B	Total/NA

### Client Sample ID: SSB-2(18-20)

### Lab Sample ID: 240-38535-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bis(2-ethylhexyl) phthalate	120	B	74	20	ug/Kg	1	*	8270C	Total/NA

### Client Sample ID: SSB-1(10-12)

### Lab Sample ID: 240-38535-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bis(2-ethylhexyl) phthalate	31	J B	73	20	ug/Kg	1	*	8270C	Total/NA
C20-C34	5.8	J	17	4.3	mg/Kg	1	*	8015B	Total/NA

### Client Sample ID: SSB-1(18-20)

### Lab Sample ID: 240-38535-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bis(2-ethylhexyl) phthalate	210	B	74	20	ug/Kg	1	*	8270C	Total/NA

### Client Sample ID: SSB-3(0-2)

### Lab Sample ID: 240-38535-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	2000		370	42	ug/Kg	50	*	8270C	Total/NA
Benzo[a]pyrene	640		370	36	ug/Kg	50	*	8270C	Total/NA
Benzo[b]fluoranthene	950		370	33	ug/Kg	50	*	8270C	Total/NA
Benzo[g,h,i]perylene	390		370	20	ug/Kg	50	*	8270C	Total/NA
Di-n-butyl phthalate	1400	J B	3900	840	ug/Kg	50	*	8270C	Total/NA
Fluoranthene	1600		370	31	ug/Kg	50	*	8270C	Total/NA
Indeno[1,2,3-cd]pyrene	540		370	20	ug/Kg	50	*	8270C	Total/NA
2-Methylnaphthalene	3200		370	28	ug/Kg	50	*	8270C	Total/NA
Naphthalene	1500		370	46	ug/Kg	50	*	8270C	Total/NA
Phenanthrene	1500		370	41	ug/Kg	50	*	8270C	Total/NA
Phenol	3400		2800	410	ug/Kg	50	*	8270C	Total/NA
Pyrene	2700		370	25	ug/Kg	50	*	8270C	Total/NA
C10-C20	21000		3700	910	mg/Kg	200	*	8015B	Total/NA
C20-C34	12000		3700	910	mg/Kg	200	*	8015B	Total/NA

### Client Sample ID: SSB-3(16-18)

### Lab Sample ID: 240-38535-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bis(2-ethylhexyl) phthalate	260	B	74	20	ug/Kg	1	*	8270C	Total/NA
Di-n-butyl phthalate	22	J B	74	16	ug/Kg	1	*	8270C	Total/NA
C20-C34	5.4	J	17	4.3	mg/Kg	1	*	8015B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

## Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

**Client Sample ID: SSB-2(12-14)**

**Lab Sample ID: 240-38535-1**

**Date Collected: 06/10/14 10:15**

**Matrix: Solid**

**Date Received: 06/13/14 09:20**

**Percent Solids: 96.7**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	7.0	U	7.0	0.80	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Acenaphthylene	7.0	U	7.0	0.37	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Acetophenone	100	U	100	9.6	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Anthracene	7.0	U	7.0	0.82	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Atrazine	210	U	210	9.5	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Benzaldehyde	100	U	100	13	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Benzo[a]anthracene	7.0	U	7.0	0.66	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Benzo[a]pyrene	7.0	U	7.0	0.67	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
<b>Benzo[b]fluoranthene</b>	<b>3.8</b>	<b>J</b>	7.0	0.62	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Benzo[g,h,i]perylene	7.0	U	7.0	0.37	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Benzo[k]fluoranthene	7.0	U	7.0	0.71	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
1,1'-Biphenyl	52	U	52	3.7	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Bis(2-chloroethoxy)methane	100	U	100	23	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Bis(2-chloroethyl)ether	100	U	100	2.1	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
bis (2-chloroisopropyl) ether	100	U	100	9.9	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
<b>Bis(2-ethylhexyl) phthalate</b>	<b>270</b>	<b>B</b>	73	20	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
4-Bromophenyl phenyl ether	52	U	52	14	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Butyl benzyl phthalate	73	U	73	10	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Caprolactam	350	U	350	39	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Carbazole	52	U	52	28	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
4-Chloroaniline	160	U	160	18	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
4-Chloro-3-methylphenol	160	U	160	22	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
2-Chloronaphthalene	52	U	52	0.47	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
2-Chlorophenol	52	U	52	8.6	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
4-Chlorophenyl phenyl ether	52	U	52	14	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Chrysene	7.0	U	7.0	1.2	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Dibenz(a,h)anthracene	7.0	U	7.0	0.69	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Dibenzofuran	52	U	52	0.69	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
3,3'-Dichlorobenzidine	100	U	100	19	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
2,4-Dichlorophenol	160	U	160	21	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Diethyl phthalate	73	U	73	17	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
2,4-Dimethylphenol	160	U	160	21	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Dimethyl phthalate	73	U	73	18	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
<b>Di-n-butyl phthalate</b>	<b>24</b>	<b>J B</b>	73	16	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
4,6-Dinitro-2-methylphenol	160	U	160	9.6	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
2,4-Dinitrophenol	350	U	350	22	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
2,4-Dinitrotoluene	210	U	210	18	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
2,6-Dinitrotoluene	210	U	210	22	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Di-n-octyl phthalate	73	U	73	8.3	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
<b>Fluoranthene</b>	<b>4.6</b>	<b>J</b>	7.0	0.58	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Fluorene	7.0	U	7.0	0.56	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Hexachlorobenzene	7.0	U	7.0	2.2	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Hexachlorobutadiene	52	U	52	5.9	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Hexachlorocyclopentadiene	350	U	350	8.5	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Hexachloroethane	52	U	52	9.4	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Indeno[1,2,3-cd]pyrene	7.0	U	7.0	0.37	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
Isophorone	52	U	52	14	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
2-Methylnaphthalene	7.0	U	7.0	0.52	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1
2-Methylphenol	210	U	210	12	ug/Kg	*	06/19/14 09:32	06/25/14 22:04	1

TestAmerica Canton



## Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

**Client Sample ID: SSB-2(12-14)**

**Lab Sample ID: 240-38535-1**

Date Collected: 06/10/14 10:15

Matrix: Solid

Date Received: 06/13/14 09:20

Percent Solids: 96.7



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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3 & 4 Methylphenol	420	U	420	21	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
Naphthalene	7.0	U	7.0	0.86	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
2-Nitroaniline	210	U	210	9.5	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
3-Nitroaniline	210	U	210	17	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
4-Nitroaniline	210	U	210	27	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
Nitrobenzene	100	U	100	2.3	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
2-Nitrophenol	52	U	52	8.7	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
4-Nitrophenol	350	U	350	18	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
N-Nitrosodi-n-propylamine	52	U	52	6.6	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
N-Nitrosodiphenylamine	52	U	52	22	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
Pentachlorophenol	160	U	160	9.5	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
<b>Phenanthrene</b>	<b>4.9</b>	<b>J</b>	7.0	0.76	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
Phenol	52	U	52	7.6	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
<b>Pyrene</b>	<b>5.9</b>	<b>J</b>	7.0	0.46	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
2,4,5-Trichlorophenol	160	U	160	26	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1
2,4,6-Trichlorophenol	160	U	160	9.3	ug/Kg	☼	06/19/14 09:32	06/25/14 22:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	68		24 - 110	06/19/14 09:32	06/25/14 22:04	1
2-Fluorophenol (Surr)	62		24 - 110	06/19/14 09:32	06/25/14 22:04	1
Nitrobenzene-d5 (Surr)	77		20 - 110	06/19/14 09:32	06/25/14 22:04	1
Phenol-d5 (Surr)	69		26 - 110	06/19/14 09:32	06/25/14 22:04	1
Terphenyl-d14 (Surr)	86		36 - 110	06/19/14 09:32	06/25/14 22:04	1
2,4,6-Tribromophenol (Surr)	46		10 - 110	06/19/14 09:32	06/25/14 22:04	1

**Method: 8015B - Diesel Range Organics (DRO) (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C20	17	U	17	4.3	mg/Kg	☼	06/18/14 08:52	06/19/14 18:36	1
<b>C20-C34</b>	<b>5.8</b>	<b>J</b>	17	4.3	mg/Kg	☼	06/18/14 08:52	06/19/14 18:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	106		40 - 160	06/18/14 08:52	06/19/14 18:36	1

TestAmerica Canton

## Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

**Client Sample ID: SSB-2(18-20)**

**Lab Sample ID: 240-38535-2**

**Date Collected: 06/10/14 10:20**

**Matrix: Solid**

**Date Received: 06/13/14 09:20**

**Percent Solids: 94.4**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	7.0	U	7.0	0.80	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Acenaphthylene	7.0	U	7.0	0.37	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Acetophenone	110	U	110	9.7	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Anthracene	7.0	U	7.0	0.82	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Atrazine	210	U	210	9.6	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Benzaldehyde	110	U	110	13	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Benzo[a]anthracene	7.0	U	7.0	0.66	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Benzo[a]pyrene	7.0	U	7.0	0.68	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Benzo[b]fluoranthene	7.0	U	7.0	0.62	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Benzo[g,h,i]perylene	7.0	U	7.0	0.37	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Benzo[k]fluoranthene	7.0	U	7.0	0.72	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
1,1'-Biphenyl	53	U	53	3.7	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Bis(2-chloroethoxy)methane	110	U	110	23	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Bis(2-chloroethyl)ether	110	U	110	2.1	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
bis (2-chloroisopropyl) ether	110	U	110	10	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
<b>Bis(2-ethylhexyl) phthalate</b>	<b>120</b>	<b>B</b>	74	20	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
4-Bromophenyl phenyl ether	53	U	53	14	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Butyl benzyl phthalate	74	U	74	11	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Caprolactam	350	U	350	39	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Carbazole	53	U	53	28	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
4-Chloroaniline	160	U	160	18	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
4-Chloro-3-methylphenol	160	U	160	22	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
2-Chloronaphthalene	53	U	53	0.47	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
2-Chlorophenol	53	U	53	8.7	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
4-Chlorophenyl phenyl ether	53	U	53	14	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Chrysene	7.0	U	7.0	1.2	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Dibenz(a,h)anthracene	7.0	U	7.0	0.70	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Dibenzofuran	53	U	53	0.70	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
3,3'-Dichlorobenzidine	110	U	110	19	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
2,4-Dichlorophenol	160	U	160	21	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Diethyl phthalate	74	U	74	17	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
2,4-Dimethylphenol	160	U	160	21	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Dimethyl phthalate	74	U	74	18	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Di-n-butyl phthalate	74	U	74	16	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
4,6-Dinitro-2-methylphenol	160	U	160	9.7	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
2,4-Dinitrophenol	350	U	350	22	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
2,4-Dinitrotoluene	210	U	210	18	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
2,6-Dinitrotoluene	210	U	210	22	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Di-n-octyl phthalate	74	U	74	8.3	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Fluoranthene	7.0	U	7.0	0.58	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Fluorene	7.0	U	7.0	0.56	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Hexachlorobenzene	7.0	U	7.0	2.2	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Hexachlorobutadiene	53	U	53	5.9	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Hexachlorocyclopentadiene	350	U	350	8.5	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Hexachloroethane	53	U	53	9.5	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Indeno[1,2,3-cd]pyrene	7.0	U	7.0	0.37	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
Isophorone	53	U	53	14	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
2-Methylnaphthalene	7.0	U	7.0	0.53	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1
2-Methylphenol	210	U	210	12	ug/Kg	*	06/19/14 09:32	06/23/14 20:26	1

TestAmerica Canton



## Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

**Client Sample ID: SSB-2(18-20)**

**Lab Sample ID: 240-38535-2**

Date Collected: 06/10/14 10:20

Matrix: Solid

Date Received: 06/13/14 09:20

Percent Solids: 94.4



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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3 & 4 Methylphenol	420	U	420	21	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
Naphthalene	7.0	U	7.0	0.87	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
2-Nitroaniline	210	U	210	9.6	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
3-Nitroaniline	210	U	210	17	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
4-Nitroaniline	210	U	210	27	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
Nitrobenzene	110	U	110	2.3	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
2-Nitrophenol	53	U	53	8.8	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
4-Nitrophenol	350	U	350	18	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
N-Nitrosodi-n-propylamine	53	U	53	6.6	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
N-Nitrosodiphenylamine	53	U	53	22	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
Pentachlorophenol	160	U	160	9.6	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
Phenanthrene	7.0	U	7.0	0.77	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
Phenol	53	U	53	7.7	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
Pyrene	7.0	U	7.0	0.46	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
2,4,5-Trichlorophenol	160	U	160	26	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1
2,4,6-Trichlorophenol	160	U	160	9.4	ug/Kg	☼	06/19/14 09:32	06/23/14 20:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	72		24 - 110	06/19/14 09:32	06/23/14 20:26	1
2-Fluorophenol (Surr)	63		24 - 110	06/19/14 09:32	06/23/14 20:26	1
Nitrobenzene-d5 (Surr)	76		20 - 110	06/19/14 09:32	06/23/14 20:26	1
Phenol-d5 (Surr)	66		26 - 110	06/19/14 09:32	06/23/14 20:26	1
Terphenyl-d14 (Surr)	94		36 - 110	06/19/14 09:32	06/23/14 20:26	1
2,4,6-Tribromophenol (Surr)	48		10 - 110	06/19/14 09:32	06/23/14 20:26	1

**Method: 8015B - Diesel Range Organics (DRO) (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C20	17	U	17	4.3	mg/Kg	☼	06/18/14 08:52	06/19/14 19:07	1
C20-C34	17	U	17	4.3	mg/Kg	☼	06/18/14 08:52	06/19/14 19:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	88		40 - 160	06/18/14 08:52	06/19/14 19:07	1

TestAmerica Canton

## Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

**Client Sample ID: SSB-1(10-12)**

**Lab Sample ID: 240-38535-3**

**Date Collected: 06/10/14 13:00**

**Matrix: Solid**

**Date Received: 06/13/14 09:20**

**Percent Solids: 95.3**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	7.0	U	7.0	0.80	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Acenaphthylene	7.0	U	7.0	0.37	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Acetophenone	100	U	100	9.7	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Anthracene	7.0	U	7.0	0.82	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Atrazine	210	U	210	9.5	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Benzaldehyde	100	U	100	13	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Benzo[a]anthracene	7.0	U	7.0	0.66	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Benzo[a]pyrene	7.0	U	7.0	0.67	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Benzo[b]fluoranthene	7.0	U	7.0	0.62	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Benzo[g,h,i]perylene	7.0	U	7.0	0.37	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Benzo[k]fluoranthene	7.0	U	7.0	0.71	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
1,1'-Biphenyl	52	U	52	3.7	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Bis(2-chloroethoxy)methane	100	U	100	23	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Bis(2-chloroethyl)ether	100	U	100	2.1	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
bis (2-chloroisopropyl) ether	100	U	100	10	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
<b>Bis(2-ethylhexyl) phthalate</b>	<b>31</b>	<b>J B</b>	73	20	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
4-Bromophenyl phenyl ether	52	U	52	14	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Butyl benzyl phthalate	73	U	73	10	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Caprolactam	350	U	350	39	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Carbazole	52	U	52	28	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
4-Chloroaniline	160	U	160	18	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
4-Chloro-3-methylphenol	160	U	160	22	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
2-Chloronaphthalene	52	U	52	0.47	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
2-Chlorophenol	52	U	52	8.6	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
4-Chlorophenyl phenyl ether	52	U	52	14	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Chrysene	7.0	U	7.0	1.2	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Dibenz(a,h)anthracene	7.0	U	7.0	0.69	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Dibenzofuran	52	U	52	0.69	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
3,3'-Dichlorobenzidine	100	U	100	19	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
2,4-Dichlorophenol	160	U	160	21	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Diethyl phthalate	73	U	73	17	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
2,4-Dimethylphenol	160	U	160	21	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Dimethyl phthalate	73	U	73	18	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Di-n-butyl phthalate	73	U	73	16	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
4,6-Dinitro-2-methylphenol	160	U	160	9.7	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
2,4-Dinitrophenol	350	U	350	22	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
2,4-Dinitrotoluene	210	U	210	18	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
2,6-Dinitrotoluene	210	U	210	22	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Di-n-octyl phthalate	73	U	73	8.3	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Fluoranthene	7.0	U	7.0	0.58	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Fluorene	7.0	U	7.0	0.56	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Hexachlorobenzene	7.0	U	7.0	2.2	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Hexachlorobutadiene	52	U	52	5.9	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Hexachlorocyclopentadiene	350	U	350	8.5	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Hexachloroethane	52	U	52	9.4	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Indeno[1,2,3-cd]pyrene	7.0	U	7.0	0.37	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
Isophorone	52	U	52	14	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
2-Methylnaphthalene	7.0	U	7.0	0.52	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1
2-Methylphenol	210	U	210	12	ug/Kg	*	06/19/14 09:32	06/25/14 22:27	1

TestAmerica Canton



## Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

**Client Sample ID: SSB-1(10-12)**

**Lab Sample ID: 240-38535-3**

Date Collected: 06/10/14 13:00

Matrix: Solid

Date Received: 06/13/14 09:20

Percent Solids: 95.3



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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3 & 4 Methylphenol	420	U	420	21	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
Naphthalene	7.0	U	7.0	0.86	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
2-Nitroaniline	210	U	210	9.5	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
3-Nitroaniline	210	U	210	17	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
4-Nitroaniline	210	U	210	27	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
Nitrobenzene	100	U	100	2.3	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
2-Nitrophenol	52	U	52	8.7	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
4-Nitrophenol	350	U	350	18	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
N-Nitrosodi-n-propylamine	52	U	52	6.6	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
N-Nitrosodiphenylamine	52	U	52	22	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
Pentachlorophenol	160	U	160	9.5	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
Phenanthrene	7.0	U	7.0	0.77	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
Phenol	52	U	52	7.7	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
Pyrene	7.0	U	7.0	0.46	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
2,4,5-Trichlorophenol	160	U	160	26	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1
2,4,6-Trichlorophenol	160	U	160	9.3	ug/Kg	☼	06/19/14 09:32	06/25/14 22:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	65		24 - 110	06/19/14 09:32	06/25/14 22:27	1
2-Fluorophenol (Surr)	62		24 - 110	06/19/14 09:32	06/25/14 22:27	1
Nitrobenzene-d5 (Surr)	72		20 - 110	06/19/14 09:32	06/25/14 22:27	1
Phenol-d5 (Surr)	63		26 - 110	06/19/14 09:32	06/25/14 22:27	1
Terphenyl-d14 (Surr)	87		36 - 110	06/19/14 09:32	06/25/14 22:27	1
2,4,6-Tribromophenol (Surr)	52		10 - 110	06/19/14 09:32	06/25/14 22:27	1

**Method: 8015B - Diesel Range Organics (DRO) (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C20	17	U	17	4.3	mg/Kg	☼	06/18/14 08:52	06/19/14 19:38	1
<b>C20-C34</b>	<b>5.8</b>	<b>J</b>	17	4.3	mg/Kg	☼	06/18/14 08:52	06/19/14 19:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	90		40 - 160	06/18/14 08:52	06/19/14 19:38	1

TestAmerica Canton

## Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

**Client Sample ID: SSB-1(18-20)**

**Lab Sample ID: 240-38535-4**

**Date Collected: 06/10/14 13:30**

**Matrix: Solid**

**Date Received: 06/13/14 09:20**

**Percent Solids: 94.0**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	7.1	U	7.1	0.81	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Acenaphthylene	7.1	U	7.1	0.37	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Acetophenone	110	U	110	9.8	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Anthracene	7.1	U	7.1	0.83	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Atrazine	210	U	210	9.6	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Benzaldehyde	110	U	110	13	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Benzo[a]anthracene	7.1	U	7.1	0.67	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Benzo[a]pyrene	7.1	U	7.1	0.68	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Benzo[b]fluoranthene	7.1	U	7.1	0.63	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Benzo[g,h,i]perylene	7.1	U	7.1	0.37	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Benzo[k]fluoranthene	7.1	U	7.1	0.72	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
1,1'-Biphenyl	53	U	53	3.7	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Bis(2-chloroethoxy)methane	110	U	110	23	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Bis(2-chloroethyl)ether	110	U	110	2.1	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
bis (2-chloroisopropyl) ether	110	U	110	10	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
<b>Bis(2-ethylhexyl) phthalate</b>	<b>210</b>	<b>B</b>	74	20	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
4-Bromophenyl phenyl ether	53	U	53	14	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Butyl benzyl phthalate	74	U	74	11	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Caprolactam	350	U	350	39	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Carbazole	53	U	53	29	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
4-Chloroaniline	160	U	160	18	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
4-Chloro-3-methylphenol	160	U	160	22	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
2-Chloronaphthalene	53	U	53	0.48	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
2-Chlorophenol	53	U	53	8.7	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
4-Chlorophenyl phenyl ether	53	U	53	14	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Chrysene	7.1	U	7.1	1.2	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Dibenz(a,h)anthracene	7.1	U	7.1	0.70	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Dibenzofuran	53	U	53	0.70	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
3,3'-Dichlorobenzidine	110	U	110	19	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
2,4-Dichlorophenol	160	U	160	21	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Diethyl phthalate	74	U	74	17	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
2,4-Dimethylphenol	160	U	160	21	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Dimethyl phthalate	74	U	74	18	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Di-n-butyl phthalate	74	U	74	16	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
4,6-Dinitro-2-methylphenol	160	U	160	9.8	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
2,4-Dinitrophenol	350	U	350	22	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
2,4-Dinitrotoluene	210	U	210	18	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
2,6-Dinitrotoluene	210	U	210	22	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Di-n-octyl phthalate	74	U	74	8.4	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Fluoranthene	7.1	U	7.1	0.58	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Fluorene	7.1	U	7.1	0.56	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Hexachlorobenzene	7.1	U	7.1	2.2	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Hexachlorobutadiene	53	U	53	5.9	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Hexachlorocyclopentadiene	350	U	350	8.6	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Hexachloroethane	53	U	53	9.5	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Indeno[1,2,3-cd]pyrene	7.1	U	7.1	0.37	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
Isophorone	53	U	53	14	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
2-Methylnaphthalene	7.1	U	7.1	0.53	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1
2-Methylphenol	210	U	210	12	ug/Kg	*	06/19/14 09:32	06/25/14 22:51	1

TestAmerica Canton



## Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

**Client Sample ID: SSB-1(18-20)**

**Lab Sample ID: 240-38535-4**

Date Collected: 06/10/14 13:30

Matrix: Solid

Date Received: 06/13/14 09:20

Percent Solids: 94.0



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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3 & 4 Methylphenol	420	U	420	21	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
Naphthalene	7.1	U	7.1	0.87	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
2-Nitroaniline	210	U	210	9.6	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
3-Nitroaniline	210	U	210	17	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
4-Nitroaniline	210	U	210	28	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
Nitrobenzene	110	U	110	2.3	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
2-Nitrophenol	53	U	53	8.8	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
4-Nitrophenol	350	U	350	18	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
N-Nitrosodi-n-propylamine	53	U	53	6.7	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
N-Nitrosodiphenylamine	53	U	53	22	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
Pentachlorophenol	160	U	160	9.6	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
Phenanthrene	7.1	U	7.1	0.77	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
Phenol	53	U	53	7.7	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
Pyrene	7.1	U	7.1	0.47	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
2,4,5-Trichlorophenol	160	U	160	26	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1
2,4,6-Trichlorophenol	160	U	160	9.4	ug/Kg	☼	06/19/14 09:32	06/25/14 22:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	63		24 - 110	06/19/14 09:32	06/25/14 22:51	1
2-Fluorophenol (Surr)	63		24 - 110	06/19/14 09:32	06/25/14 22:51	1
Nitrobenzene-d5 (Surr)	68		20 - 110	06/19/14 09:32	06/25/14 22:51	1
Phenol-d5 (Surr)	61		26 - 110	06/19/14 09:32	06/25/14 22:51	1
Terphenyl-d14 (Surr)	83		36 - 110	06/19/14 09:32	06/25/14 22:51	1
2,4,6-Tribromophenol (Surr)	29		10 - 110	06/19/14 09:32	06/25/14 22:51	1

**Method: 8015B - Diesel Range Organics (DRO) (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C20	18	U	18	4.4	mg/Kg	☼	06/18/14 08:52	06/19/14 20:09	1
C20-C34	18	U	18	4.4	mg/Kg	☼	06/18/14 08:52	06/19/14 20:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	95		40 - 160	06/18/14 08:52	06/19/14 20:09	1

TestAmerica Canton

## Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

**Client Sample ID: SSB-3(0-2)**

**Lab Sample ID: 240-38535-5**

**Date Collected: 06/10/14 11:00**

**Matrix: Solid**

**Date Received: 06/13/14 09:20**

**Percent Solids: 88.9**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Acenaphthene</b>	<b>2000</b>		370	42	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Acenaphthylene	370	U	370	20	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Acetophenone	5600	U	5600	510	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Anthracene	370	U	370	43	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Atrazine	11000	U	11000	510	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Benzaldehyde	5600	U	5600	670	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Benzo[a]anthracene	370	U	370	35	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
<b>Benzo[a]pyrene</b>	<b>640</b>		370	36	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
<b>Benzo[b]fluoranthene</b>	<b>950</b>		370	33	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
<b>Benzo[g,h,i]perylene</b>	<b>390</b>		370	20	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Benzo[k]fluoranthene	370	U	370	38	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
1,1'-Biphenyl	2800	U	2800	200	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Bis(2-chloroethoxy)methane	5600	U	5600	1200	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Bis(2-chloroethyl)ether	5600	U	5600	110	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
bis (2-chloroisopropyl) ether	5600	U	5600	530	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Bis(2-ethylhexyl) phthalate	3900	U	3900	1100	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
4-Bromophenyl phenyl ether	2800	U	2800	720	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Butyl benzyl phthalate	3900	U	3900	560	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Caprolactam	18000	U	18000	2100	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Carbazole	2800	U	2800	1500	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
4-Chloroaniline	8400	U	8400	950	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
4-Chloro-3-methylphenol	8400	U	8400	1200	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
2-Chloronaphthalene	2800	U	2800	25	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
2-Chlorophenol	2800	U	2800	460	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
4-Chlorophenyl phenyl ether	2800	U	2800	720	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Chrysene	370	U	370	61	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Dibenz(a,h)anthracene	370	U	370	37	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Dibenzofuran	2800	U	2800	37	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
3,3'-Dichlorobenzidine	5600	U	5600	1000	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
2,4-Dichlorophenol	8400	U	8400	1100	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Diethyl phthalate	3900	U	3900	890	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
2,4-Dimethylphenol	8400	U	8400	1100	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Dimethyl phthalate	3900	U	3900	950	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
<b>Di-n-butyl phthalate</b>	<b>1400</b>	<b>J B</b>	3900	840	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
4,6-Dinitro-2-methylphenol	8400	U	8400	510	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
2,4-Dinitrophenol	18000	U	18000	1200	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
2,4-Dinitrotoluene	11000	U	11000	950	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
2,6-Dinitrotoluene	11000	U	11000	1200	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Di-n-octyl phthalate	3900	U	3900	440	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
<b>Fluoranthene</b>	<b>1600</b>		370	31	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Fluorene	370	U	370	30	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Hexachlorobenzene	370	U	370	120	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Hexachlorobutadiene	2800	U	2800	310	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Hexachlorocyclopentadiene	18000	U	18000	450	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Hexachloroethane	2800	U	2800	500	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
<b>Indeno[1,2,3-cd]pyrene</b>	<b>540</b>		370	20	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
Isophorone	2800	U	2800	720	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
<b>2-Methylnaphthalene</b>	<b>3200</b>		370	28	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50
2-Methylphenol	11000	U	11000	610	ug/Kg	*	06/19/14 09:32	06/25/14 23:14	50

TestAmerica Canton



## Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

**Client Sample ID: SSB-3(0-2)**

**Lab Sample ID: 240-38535-5**

**Date Collected: 06/10/14 11:00**

**Matrix: Solid**

**Date Received: 06/13/14 09:20**

**Percent Solids: 88.9**



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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3 & 4 Methylphenol	22000	U	22000	1100	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
<b>Naphthalene</b>	<b>1500</b>		370	46	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
2-Nitroaniline	11000	U	11000	510	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
3-Nitroaniline	11000	U	11000	890	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
4-Nitroaniline	11000	U	11000	1400	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
Nitrobenzene	5600	U	5600	120	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
2-Nitrophenol	2800	U	2800	460	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
4-Nitrophenol	18000	U	18000	950	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
N-Nitrosodi-n-propylamine	2800	U	2800	350	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
N-Nitrosodiphenylamine	2800	U	2800	1200	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
Pentachlorophenol	8400	U	8400	510	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
<b>Phenanthrene</b>	<b>1500</b>		370	41	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
<b>Phenol</b>	<b>3400</b>		2800	410	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
<b>Pyrene</b>	<b>2700</b>		370	25	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
2,4,5-Trichlorophenol	8400	U	8400	1400	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
2,4,6-Trichlorophenol	8400	U	8400	500	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	128	X	24 - 110	06/19/14 09:32	06/25/14 23:14	50
2-Fluorophenol (Surr)	112	X	24 - 110	06/19/14 09:32	06/25/14 23:14	50
Nitrobenzene-d5 (Surr)	160	X	20 - 110	06/19/14 09:32	06/25/14 23:14	50
Phenol-d5 (Surr)	114	X	26 - 110	06/19/14 09:32	06/25/14 23:14	50
Terphenyl-d14 (Surr)	142	X	36 - 110	06/19/14 09:32	06/25/14 23:14	50
2,4,6-Tribromophenol (Surr)	132	X	10 - 110	06/19/14 09:32	06/25/14 23:14	50

**Method: 8015B - Diesel Range Organics (DRO) (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C10-C20</b>	<b>21000</b>		3700	910	mg/Kg	☼	06/18/14 08:52	06/20/14 15:51	200
<b>C20-C34</b>	<b>12000</b>		3700	910	mg/Kg	☼	06/18/14 08:52	06/20/14 15:51	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	338	X	40 - 160	06/18/14 08:52	06/20/14 15:51	200

TestAmerica Canton

## Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

**Client Sample ID: SSB-3(16-18)**

**Lab Sample ID: 240-38535-6**

**Date Collected: 06/10/14 15:00**

**Matrix: Solid**

**Date Received: 06/13/14 09:20**

**Percent Solids: 95.7**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	7.0	U	7.0	0.80	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Acenaphthylene	7.0	U	7.0	0.37	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Acetophenone	110	U	110	9.7	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Anthracene	7.0	U	7.0	0.82	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Atrazine	210	U	210	9.6	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Benzaldehyde	110	U	110	13	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Benzo[a]anthracene	7.0	U	7.0	0.66	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Benzo[a]pyrene	7.0	U	7.0	0.67	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Benzo[b]fluoranthene	7.0	U	7.0	0.62	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Benzo[g,h,i]perylene	7.0	U	7.0	0.37	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Benzo[k]fluoranthene	7.0	U	7.0	0.72	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
1,1'-Biphenyl	53	U	53	3.7	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Bis(2-chloroethoxy)methane	110	U	110	23	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Bis(2-chloroethyl)ether	110	U	110	2.1	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
bis (2-chloroisopropyl) ether	110	U	110	10	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
<b>Bis(2-ethylhexyl) phthalate</b>	<b>260</b>	<b>B</b>	74	20	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
4-Bromophenyl phenyl ether	53	U	53	14	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Butyl benzyl phthalate	74	U	74	11	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Caprolactam	350	U	350	39	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Carbazole	53	U	53	28	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
4-Chloroaniline	160	U	160	18	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
4-Chloro-3-methylphenol	160	U	160	22	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
2-Chloronaphthalene	53	U	53	0.47	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
2-Chlorophenol	53	U	53	8.6	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
4-Chlorophenyl phenyl ether	53	U	53	14	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Chrysene	7.0	U	7.0	1.2	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Dibenz(a,h)anthracene	7.0	U	7.0	0.69	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Dibenzofuran	53	U	53	0.69	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
3,3'-Dichlorobenzidine	110	U	110	19	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
2,4-Dichlorophenol	160	U	160	21	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Diethyl phthalate	74	U	74	17	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
2,4-Dimethylphenol	160	U	160	21	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Dimethyl phthalate	74	U	74	18	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
<b>Di-n-butyl phthalate</b>	<b>22</b>	<b>J B</b>	74	16	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
4,6-Dinitro-2-methylphenol	160	U	160	9.7	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
2,4-Dinitrophenol	350	U	350	22	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
2,4-Dinitrotoluene	210	U	210	18	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
2,6-Dinitrotoluene	210	U	210	22	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Di-n-octyl phthalate	74	U	74	8.3	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Fluoranthene	7.0	U	7.0	0.58	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Fluorene	7.0	U	7.0	0.56	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Hexachlorobenzene	7.0	U	7.0	2.2	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Hexachlorobutadiene	53	U	53	5.9	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Hexachlorocyclopentadiene	350	U	350	8.5	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Hexachloroethane	53	U	53	9.5	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Indeno[1,2,3-cd]pyrene	7.0	U	7.0	0.37	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
Isophorone	53	U	53	14	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
2-Methylnaphthalene	7.0	U	7.0	0.53	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1
2-Methylphenol	210	U	210	12	ug/Kg	*	06/19/14 09:32	06/26/14 14:10	1

TestAmerica Canton



## Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

**Client Sample ID: SSB-3(16-18)**

**Lab Sample ID: 240-38535-6**

Date Collected: 06/10/14 15:00

Matrix: Solid

Date Received: 06/13/14 09:20

Percent Solids: 95.7



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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3 & 4 Methylphenol	420	U	420	21	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
Naphthalene	7.0	U	7.0	0.86	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
2-Nitroaniline	210	U	210	9.6	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
3-Nitroaniline	210	U	210	17	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
4-Nitroaniline	210	U	210	27	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
Nitrobenzene	110	U	110	2.3	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
2-Nitrophenol	53	U	53	8.7	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
4-Nitrophenol	350	U	350	18	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
N-Nitrosodi-n-propylamine	53	U	53	6.6	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
N-Nitrosodiphenylamine	53	U	53	22	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
Pentachlorophenol	160	U	160	9.6	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
Phenanthrene	7.0	U	7.0	0.77	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
Phenol	53	U	53	7.7	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
Pyrene	7.0	U	7.0	0.46	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
2,4,5-Trichlorophenol	160	U	160	26	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1
2,4,6-Trichlorophenol	160	U	160	9.4	ug/Kg	☼	06/19/14 09:32	06/26/14 14:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	67		24 - 110	06/19/14 09:32	06/26/14 14:10	1
2-Fluorophenol (Surr)	66		24 - 110	06/19/14 09:32	06/26/14 14:10	1
Nitrobenzene-d5 (Surr)	73		20 - 110	06/19/14 09:32	06/26/14 14:10	1
Phenol-d5 (Surr)	68		26 - 110	06/19/14 09:32	06/26/14 14:10	1
Terphenyl-d14 (Surr)	91		36 - 110	06/19/14 09:32	06/26/14 14:10	1
2,4,6-Tribromophenol (Surr)	46		10 - 110	06/19/14 09:32	06/26/14 14:10	1

**Method: 8015B - Diesel Range Organics (DRO) (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C20	17	U	17	4.3	mg/Kg	☼	06/18/14 08:52	06/20/14 16:22	1
<b>C20-C34</b>	<b>5.4</b>	<b>J</b>	17	4.3	mg/Kg	☼	06/18/14 08:52	06/20/14 16:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	112		40 - 160	06/18/14 08:52	06/20/14 16:22	1

TestAmerica Canton

## Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1



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

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (24-110)	2FP (24-110)	NBZ (20-110)	PHL (26-110)	TPH (36-110)	TBP (10-110)
240-38535-1	SSB-2(12-14)	68	62	77	69	86	46
240-38535-2	SSB-2(18-20)	72	63	76	66	94	48
240-38535-3	SSB-1(10-12)	65	62	72	63	87	52
240-38535-4	SSB-1(18-20)	63	63	68	61	83	29
240-38535-5	SSB-3(0-2)	128 X	112 X	160 X	114 X	142 X	132 X
240-38535-6	SSB-3(16-18)	67	66	73	68	91	46
LCS 240-135359/24-A	Lab Control Sample	69	67	79	68	88	55
MB 240-135359/23-A	Method Blank	64	62	71	66	96	29

**Surrogate Legend**

- FBP = 2-Fluorobiphenyl (Surr)
- 2FP = 2-Fluorophenol (Surr)
- NBZ = Nitrobenzene-d5 (Surr)
- PHL = Phenol-d5 (Surr)
- TPH = Terphenyl-d14 (Surr)
- TBP = 2,4,6-Tribromophenol (Surr)

### Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		OTPH1 (40-160)
240-38535-1	SSB-2(12-14)	106
240-38535-2	SSB-2(18-20)	88
240-38535-3	SSB-1(10-12)	90
240-38535-4	SSB-1(18-20)	95
240-38535-5	SSB-3(0-2)	338 X
240-38535-6	SSB-3(16-18)	112
LCS 240-135159/24-A	Lab Control Sample	90
MB 240-135159/23-A	Method Blank	89

**Surrogate Legend**

- OTPH = o-Terphenyl (Surr)

## QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1



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

**Lab Sample ID: MB 240-135359/23-A**  
**Matrix: Solid**  
**Analysis Batch: 135735**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 135359**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acenaphthene	7.g	U	7.g	0.g7	uK6K		07/19/14 09:32	07/23/14 15:39	1
Acenaphthylene	7.g	U	7.g	0.35	uK6K		07/19/14 09:32	07/23/14 15:39	1
Acetophenone	100	U	100	9.2	uK6K		07/19/14 09:32	07/23/14 15:39	1
Anthracene	7.g	U	7.g	0.g8	uK6K		07/19/14 09:32	07/23/14 15:39	1
Atrazine	200	U	200	9.1	uK6K		07/19/14 09:32	07/23/14 15:39	1
Benzaldehyde	100	U	100	12	uK6K		07/19/14 09:32	07/23/14 15:39	1
Benzo[a]anthracene	7.g	U	7.g	0.73	uK6K		07/19/14 09:32	07/23/14 15:39	1
Benzo[a]pyrene	7.g	U	7.g	0.74	uK6K		07/19/14 09:32	07/23/14 15:39	1
Benzo[b]fluoranthene	7.g	U	7.g	0.59	uK6K		07/19/14 09:32	07/23/14 15:39	1
Benzo[k,h,i]perylene	7.g	U	7.g	0.35	uK6K		07/19/14 09:32	07/23/14 15:39	1
Benzo[k]fluoranthene	7.g	U	7.g	0.78	uK6K		07/19/14 09:32	07/23/14 15:39	1
1,1'-Biphenyl	50	U	50	3.5	uK6K		07/19/14 09:32	07/23/14 15:39	1
Bis(2-chloroethoxy)methane	100	U	100	22	uK6K		07/19/14 09:32	07/23/14 15:39	1
Bis(2-chloroethyl)ether	100	U	100	2.0	uK6K		07/19/14 09:32	07/23/14 15:39	1
bis (2-chloroisopropyl) ether	100	U	100	9.5	uK6K		07/19/14 09:32	07/23/14 15:39	1
Bis(2-ethylhexyl) phthalate	228	U	g0	19	uK6K		07/19/14 09:32	07/23/14 15:39	1
4-Bromophenyl phenyl ether	50	U	50	13	uK6K		07/19/14 09:32	07/23/14 15:39	1
Butyl benzyl phthalate	g0	U	g0	10	uK6K		07/19/14 09:32	07/23/14 15:39	1
Caprolactam	330	U	330	3g	uK6K		07/19/14 09:32	07/23/14 15:39	1
Carbazole	50	U	50	2g	uK6K		07/19/14 09:32	07/23/14 15:39	1
4-Chloroaniline	150	U	150	1g	uK6K		07/19/14 09:32	07/23/14 15:39	1
4-Chloro-3-methylphenol	150	U	150	21	uK6K		07/19/14 09:32	07/23/14 15:39	1
2-Chloronaphthalene	50	U	50	0.45	uK6K		07/19/14 09:32	07/23/14 15:39	1
2-Chlorophenol	50	U	50	8.2	uK6K		07/19/14 09:32	07/23/14 15:39	1
4-Chlorophenyl phenyl ether	50	U	50	13	uK6K		07/19/14 09:32	07/23/14 15:39	1
Chrysene	7.g	U	7.g	1.1	uK6K		07/19/14 09:32	07/23/14 15:39	1
Dibenz(a,h)anthracene	7.g	U	7.g	0.77	uK6K		07/19/14 09:32	07/23/14 15:39	1
Dibenzofuran	50	U	50	0.77	uK6K		07/19/14 09:32	07/23/14 15:39	1
3,3'-Dichlorobenzidine	100	U	100	18	uK6K		07/19/14 09:32	07/23/14 15:39	1
2,4-Dichlorophenol	150	U	150	20	uK6K		07/19/14 09:32	07/23/14 15:39	1
Diethyl phthalate	g0	U	g0	17	uK6K		07/19/14 09:32	07/23/14 15:39	1
2,4-Dimethylphenol	150	U	150	20	uK6K		07/19/14 09:32	07/23/14 15:39	1
Dimethyl phthalate	g0	U	g0	1g	uK6K		07/19/14 09:32	07/23/14 15:39	1
Di-n-butyl phthalate	1g.8	J	g0	15	uK6K		07/19/14 09:32	07/23/14 15:39	1
4,7-Dinitro-2-methylphenol	150	U	150	9.2	uK6K		07/19/14 09:32	07/23/14 15:39	1
2,4-Dinitrophenol	330	U	330	21	uK6K		07/19/14 09:32	07/23/14 15:39	1
2,4-Dinitrotoluene	200	U	200	1g	uK6K		07/19/14 09:32	07/23/14 15:39	1
2,7-Dinitrotoluene	200	U	200	21	uK6K		07/19/14 09:32	07/23/14 15:39	1
Di-n-octyl phthalate	g0	U	g0	g.9	uK6K		07/19/14 09:32	07/23/14 15:39	1
Fluoranthene	7.g	U	7.g	0.55	uK6K		07/19/14 09:32	07/23/14 15:39	1
Fluorene	7.g	U	7.g	0.53	uK6K		07/19/14 09:32	07/23/14 15:39	1
Hexachlorobenzene	7.g	U	7.g	2.1	uK6K		07/19/14 09:32	07/23/14 15:39	1
Hexachlorobutadiene	50	U	50	5.7	uK6K		07/19/14 09:32	07/23/14 15:39	1
Hexachlorocyclopentadiene	330	U	330	8.1	uK6K		07/19/14 09:32	07/23/14 15:39	1
Hexachloroethane	50	U	50	9.0	uK6K		07/19/14 09:32	07/23/14 15:39	1
Indeno[1,2,3-cd]pyrene	7.g	U	7.g	0.35	uK6K		07/19/14 09:32	07/23/14 15:39	1
Isophorone	50	U	50	13	uK6K		07/19/14 09:32	07/23/14 15:39	1
2-Methylnaphthalene	7.g	U	7.g	0.50	uK6K		07/19/14 09:32	07/23/14 15:39	1

TestAmerica Canton

## QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1



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

Lab Sample ID: MB 240-135359/23-A  
Matrix: Solid  
Analysis Batch: 135735

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 135359

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2-Methylphenol	200	U	200	11	uK/6K		07/19/14 09:32	07/23/14 15:39	1
3 & 4 Methylphenol	400	U	400	20	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Naphthalene	7.g	U	7.g	0.82	uK/6K		07/19/14 09:32	07/23/14 15:39	1
2-Nitroaniline	200	U	200	9.1	uK/6K		07/19/14 09:32	07/23/14 15:39	1
3-Nitroaniline	200	U	200	17	uK/6K		07/19/14 09:32	07/23/14 15:39	1
4-Nitroaniline	200	U	200	27	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Nitrobenzene	100	U	100	2.2	uK/6K		07/19/14 09:32	07/23/14 15:39	1
2-Nitrophenol	50	U	50	8.3	uK/6K		07/19/14 09:32	07/23/14 15:39	1
4-Nitrophenol	330	U	330	1g	uK/6K		07/19/14 09:32	07/23/14 15:39	1
N-Nitrosodi-n-propylamine	50	U	50	7.3	uK/6K		07/19/14 09:32	07/23/14 15:39	1
N-Nitrosodiphenylamine	50	U	50	21	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Pentachlorophenol	150	U	150	9.1	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Phenanthrene	7.g	U	7.g	0.g3	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Phenol	50	U	50	g.3	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Pyrene	7.g	U	7.g	0.44	uK/6K		07/19/14 09:32	07/23/14 15:39	1
2,4,5-Trichlorophenol	150	U	150	25	uK/6K		07/19/14 09:32	07/23/14 15:39	1
2,4,7-Trichlorophenol	150	U	150	8.9	uK/6K		07/19/14 09:32	07/23/14 15:39	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2-Fluorobiphenyl (Surr)	64		24 - 110	06/19/14 09:32	06/23/14 15:39	1
2-Fluorophenol (Surr)	62		24 - 110	06/19/14 09:32	06/23/14 15:39	1
Nitrobenzene-d5 (Surr)	71		20 - 110	06/19/14 09:32	06/23/14 15:39	1
Phenol-d5 (Surr)	66		26 - 110	06/19/14 09:32	06/23/14 15:39	1
Terphenyl-d14 (Surr)	96		36 - 110	06/19/14 09:32	06/23/14 15:39	1
2,4,6-Tribromophenol (Surr)	29		10 - 110	06/19/14 09:32	06/23/14 15:39	1

Lab Sample ID: LCS 240-135359/24-A  
Matrix: Solid  
Analysis Batch: 135735

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 135359

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Acenaphthene	77g	49g		uK/6K		g2	38 - 110
Acenaphthylene	77g	453		uK/6K		78	40 - 110
Acetophenone	77g	454		uK/6K		78	40 - 110
Anthracene	77g	510		uK/6K		99	48 - 110
Atrazine	1330	998		uK/6K		g5	77 - 12g
Benzaldehyde	1330	974		uK/6K		g2	32 - 110
Benzo[a]anthracene	77g	484		uK/6K		g3	50 - 110
Benzo[a]pyrene	77g	534		uK/6K		80	44 - 110
Benzo[b]fluoranthene	77g	553		uK/6K		83	43 - 110
Benzo[k]fluoranthene	77g	539		uK/6K		81	38 - 105
1,1'-Biphenyl	77g	471		uK/6K		79	35 - 110
Bis(2-chloroethoxy)methane	77g	459		uK/6K		79	32 - 110
Bis(2-chloroethyl)ether	77g	440		uK/6K		77	34 - 110
bis (2-chloroisopropyl) ether	77g	45g		uK/6K		79	29 - 110
Bis(2-ethylhexyl) phthalate	77g	421		uK/6K		73	50 - 110
4-Bromophenyl phenyl ether	77g	513		uK/6K		99	39 - 110

TestAmerica Canton

## QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1



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

**Lab Sample ID:** LCS 240-135359/24-A  
**Matrix:** Solid  
**Analysis Batch:** 135735

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 135359

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Butyl benzyl phthalate	77g	420		uK/6K		73	51 - 110
Caprolactam	1330	1070		uK/6K		g9	44 - 114
Carbazole	77g	490		uK/6K		g3	50 - 110
4-Chloroaniline	77g	39g		uK/6K		5g	30 - 110
4-Chloro-3-methylphenol	77g	514		uK/6K		9g	48 - 110
2-Chloronaphthalene	77g	474		uK/6K		g0	32 - 110
2-Chlorophenol	77g	451		uK/6K		78	3g - 110
4-Chlorophenyl phenyl ether	77g	501		uK/6K		g5	40 - 110
Chrysene	77g	504		uK/6K		g7	50 - 110
Dibenz(a,h)anthracene	77g	479		uK/6K		g0	51 - 110
Dibenzofuran	77g	47g		uK/6K		g0	43 - 110
3,3'-Dichlorobenzidine	1330	580		uK/6K		43	28 - 110
2,4-Dichlorophenol	77g	472		uK/6K		79	39 - 110
Diethyl phthalate	77g	532		uK/6K		80	52 - 110
2,4-Dimethylphenol	77g	403		uK/6K		70	29 - 110
Dimethyl phthalate	77g	505		uK/6K		g7	50 - 110
Di-n-butyl phthalate	77g	522		uK/6K		g8	51 - 110
4,7-Dinitro-2-methylphenol	1330	g03		uK/6K		53	10 - 110
2,4-Dinitrophenol	1330	5g5		uK/6K		43	10 - 110
2,4-Dinitrotoluene	77g	509		uK/6K		g7	48 - 110
2,7-Dinitrotoluene	77g	521		uK/6K		g8	45 - 110
Di-n-octyl phthalate	77g	385		uK/6K		58	48 - 110
Fluoranthene	77g	515		uK/6K		9g	51 - 110
Fluorene	77g	4g7		uK/6K		g1	47 - 110
Hexachlorobenzene	77g	505		uK/6K		g7	43 - 110
Hexachlorobutadiene	77g	493		uK/6K		g4	29 - 110
Hexachlorocyclopentadiene	77g	391		uK/6K		59	12 - 110
Hexachloroethane	77g	4g3		uK/6K		g1	30 - 110
Indeno[1,2,3-cd]pyrene	77g	4g5		uK/6K		g1	50 - 110
Isophorone	77g	443		uK/6K		77	37 - 110
2-Methylnaphthalene	77g	479		uK/6K		g0	37 - 110
2-Methylphenol	77g	430		uK/6K		74	41 - 110
3 & 4 Methylphenol	77g	470		uK/6K		79	40 - 110
Naphthalene	77g	453		uK/6K		78	37 - 110
2-Nitroaniline	77g	4g4		uK/6K		g1	45 - 110
3-Nitroaniline	77g	432		uK/6K		75	44 - 110
4-Nitroaniline	77g	499		uK/6K		g5	48 - 110
Nitrobenzene	77g	488		uK/6K		g3	32 - 110
2-Nitrophenol	77g	478		uK/6K		g0	34 - 110
4-Nitrophenol	1330	1130		uK/6K		85	28 - 110
N-Nitrosodi-n-propylamine	77g	445		uK/6K		7g	38 - 110
N-Nitrosodiphenylamine	1330	955		uK/6K		g2	47 - 110
Pentachlorophenol	1330	g30		uK/6K		55	10 - 110
Phenanthrene	77g	4g9		uK/6K		g2	49 - 110
Phenol	77g	452		uK/6K		78	38 - 110
Pyrene	77g	505		uK/6K		g7	49 - 110
2,4,5-Trichlorophenol	77g	4g1		uK/6K		g1	25 - 110
2,4,7-Trichlorophenol	77g	39g		uK/6K		70	12 - 110

TestAmerica Canton

## QC Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

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

Lab Sample ID: LCS 240-135359/24-A  
 Matrix: Solid  
 Analysis Batch: 135735

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 135359

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl (Surr)	69		24 - 110
2-Fluorophenol (Surr)	67		24 - 110
Nitrobenzene-d5 (Surr)	79		20 - 110
Phenol-d5 (Surr)	68		26 - 110
Terphenyl-d14 (Surr)	88		36 - 110
2,4,6-Tribromophenol (Surr)	55		10 - 110

### Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 240-135159/23-A  
 Matrix: Solid  
 Analysis Batch: 135392

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 135159

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C10-C20	1g	U	1g	4.1	mK/6K		07/18/14 08:52	07/19/14 1g:34	1
C20-C34	1g	U	1g	4.1	mK/6K		07/18/14 08:52	07/19/14 1g:34	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl (Surr)	89		40 - 160	06/18/14 08:52	06/19/14 17:34	1

Lab Sample ID: LCS 240-135159/24-A  
 Matrix: Solid  
 Analysis Batch: 135392

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 135159

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Diesel RanKe Orkanics [C10 - C28]	83.3	g1.2		mK/6K		85	52 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
o-Terphenyl (Surr)	90		40 - 160

## QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1



### GC/MS Semi VOA

#### Prep Batch: 135359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-38535-1	SSB-2(12-14)	Total/NA	Solid	3540C	
240-38535-2	SSB-2(18-20)	Total/NA	Solid	3540C	
240-38535-3	SSB-1(10-12)	Total/NA	Solid	3540C	
240-38535-4	SSB-1(18-20)	Total/NA	Solid	3540C	
240-38535-5	SSB-3(0-2)	Total/NA	Solid	3540C	
240-38535-6	SSB-3(16-18)	Total/NA	Solid	3540C	
LCS 240-135359/24-A	Lab Control Sample	Total/NA	Solid	3540C	
MB 240-135359/23-A	Method Blank	Total/NA	Solid	3540C	

#### Analysis Batch: 135735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-38535-2	SSB-2(18-20)	Total/NA	Solid	8270C	135359
LCS 240-135359/24-A	Lab Control Sample	Total/NA	Solid	8270C	135359
MB 240-135359/23-A	Method Blank	Total/NA	Solid	8270C	135359

#### Analysis Batch: 136075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-38535-1	SSB-2(12-14)	Total/NA	Solid	8270C	135359
240-38535-3	SSB-1(10-12)	Total/NA	Solid	8270C	135359
240-38535-4	SSB-1(18-20)	Total/NA	Solid	8270C	135359
240-38535-5	SSB-3(0-2)	Total/NA	Solid	8270C	135359

#### Analysis Batch: 136253

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-38535-6	SSB-3(16-18)	Total/NA	Solid	8270C	135359

### GC Semi VOA

#### Prep Batch: 135159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-38535-1	SSB-2(12-14)	Total/NA	Solid	3540C	
240-38535-2	SSB-2(18-20)	Total/NA	Solid	3540C	
240-38535-3	SSB-1(10-12)	Total/NA	Solid	3540C	
240-38535-4	SSB-1(18-20)	Total/NA	Solid	3540C	
240-38535-5	SSB-3(0-2)	Total/NA	Solid	3540C	
240-38535-6	SSB-3(16-18)	Total/NA	Solid	3540C	
LCS 240-135159/24-A	Lab Control Sample	Total/NA	Solid	3540C	
MB 240-135159/23-A	Method Blank	Total/NA	Solid	3540C	

#### Analysis Batch: 135392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-38535-1	SSB-2(12-14)	Total/NA	Solid	8015B	135159
240-38535-2	SSB-2(18-20)	Total/NA	Solid	8015B	135159
240-38535-3	SSB-1(10-12)	Total/NA	Solid	8015B	135159
240-38535-4	SSB-1(18-20)	Total/NA	Solid	8015B	135159
LCS 240-135159/24-A	Lab Control Sample	Total/NA	Solid	8015B	135159
MB 240-135159/23-A	Method Blank	Total/NA	Solid	8015B	135159

TestAmerica Canton

## QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

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### GC Semi VOA (Continued)

#### Analysis Batch: 135578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-38535-5	SSB-3(0-2)	Total/NA	Solid	8015B	135159
240-38535-6	SSB-3(16-18)	Total/NA	Solid	8015B	135159

### General Chemistry

#### Analysis Batch: 134848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-38535-1	SSB-2(12-14)	Total/NA	Solid	Moisture	
240-38535-2	SSB-2(18-20)	Total/NA	Solid	Moisture	
240-38535-2 DU	SSB-2(18-20)	Total/NA	Solid	Moisture	
240-38535-3	SSB-1(10-12)	Total/NA	Solid	Moisture	
240-38535-4	SSB-1(18-20)	Total/NA	Solid	Moisture	
240-38535-5	SSB-3(0-2)	Total/NA	Solid	Moisture	
240-38535-6	SSB-3(16-18)	Total/NA	Solid	Moisture	

## Lab Chronicle

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Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

**Client Sample ID: SSB-2(12-14)**

**Lab Sample ID: 240-38535-1**

Date Collected: 06/10/14 10:15

Matrix: Solid

Date Received: 06/13/14 09:20

Percent Solids: 96.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			135359	06/19/14 09:32	RTR	TAL CAN
Total/NA	Analysis	8270C		1	136075	06/25/14 22:04	JMG	TAL CAN
Total/NA	Prep	3540C			135159	06/18/14 08:52	MAT	TAL CAN
Total/NA	Analysis	8015B		1	135392	06/19/14 18:36	DEB	TAL CAN
Total/NA	Analysis	Moisture		1	134848	06/16/14 12:55	AS	TAL CAN

**Client Sample ID: SSB-2(18-20)**

**Lab Sample ID: 240-38535-2**

Date Collected: 06/10/14 10:20

Matrix: Solid

Date Received: 06/13/14 09:20

Percent Solids: 94.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			135359	06/19/14 09:32	RTR	TAL CAN
Total/NA	Analysis	8270C		1	135735	06/23/14 20:26	JMG	TAL CAN
Total/NA	Prep	3540C			135159	06/18/14 08:52	MAT	TAL CAN
Total/NA	Analysis	8015B		1	135392	06/19/14 19:07	DEB	TAL CAN
Total/NA	Analysis	Moisture		1	134848	06/16/14 12:55	AS	TAL CAN

**Client Sample ID: SSB-1(10-12)**

**Lab Sample ID: 240-38535-3**

Date Collected: 06/10/14 13:00

Matrix: Solid

Date Received: 06/13/14 09:20

Percent Solids: 95.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			135359	06/19/14 09:32	RTR	TAL CAN
Total/NA	Analysis	8270C		1	136075	06/25/14 22:27	JMG	TAL CAN
Total/NA	Prep	3540C			135159	06/18/14 08:52	MAT	TAL CAN
Total/NA	Analysis	8015B		1	135392	06/19/14 19:38	DEB	TAL CAN
Total/NA	Analysis	Moisture		1	134848	06/16/14 12:55	AS	TAL CAN

**Client Sample ID: SSB-1(18-20)**

**Lab Sample ID: 240-38535-4**

Date Collected: 06/10/14 13:30

Matrix: Solid

Date Received: 06/13/14 09:20

Percent Solids: 94.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			135359	06/19/14 09:32	RTR	TAL CAN
Total/NA	Analysis	8270C		1	136075	06/25/14 22:51	JMG	TAL CAN
Total/NA	Prep	3540C			135159	06/18/14 08:52	MAT	TAL CAN
Total/NA	Analysis	8015B		1	135392	06/19/14 20:09	DEB	TAL CAN
Total/NA	Analysis	Moisture		1	134848	06/16/14 12:55	AS	TAL CAN

TestAmerica Canton

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

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**Client Sample ID: SSB-3(0-2)**

**Lab Sample ID: 240-38535-5**

**Date Collected: 06/10/14 11:00**

**Matrix: Solid**

**Date Received: 06/13/14 09:20**

**Percent Solids: 88.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			135359	06/19/14 09:32	RTR	TAL CAN
Total/NA	Analysis	8270C		50	136075	06/25/14 23:14	JMG	TAL CAN
Total/NA	Prep	3540C			135159	06/18/14 08:52	MAT	TAL CAN
Total/NA	Analysis	8015B		200	135578	06/20/14 15:51	DEB	TAL CAN
Total/NA	Analysis	Moisture		1	134848	06/16/14 12:55	AS	TAL CAN

**Client Sample ID: SSB-3(16-18)**

**Lab Sample ID: 240-38535-6**

**Date Collected: 06/10/14 15:00**

**Matrix: Solid**

**Date Received: 06/13/14 09:20**

**Percent Solids: 95.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			135359	06/19/14 09:32	RTR	TAL CAN
Total/NA	Analysis	8270C		1	136253	06/26/14 14:10	JMG	TAL CAN
Total/NA	Prep	3540C			135159	06/18/14 08:52	MAT	TAL CAN
Total/NA	Analysis	8015B		1	135578	06/20/14 16:22	DEB	TAL CAN
Total/NA	Analysis	Moisture		1	134848	06/16/14 12:55	AS	TAL CAN

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

## Certification Summary



Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38535-1

### Laboratory: TestAmerica Canton

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
California	NELAP	9	01144CA	06-30-14 *
Connecticut	State Program	1	PH-0590	12-31-14
Florida	NELAP	4	E87225	06-30-14 *
Georgia	State Program	4	N/A	06-30-14 *
Illinois	NELAP	5	200004	07-31-14 *
Kansas	NELAP	7	E-10336	01-31-15
Kentucky (UST)	State Program	4	58	06-30-14 *
L-A-B	DoD ELAP		L2315	07-18-16
Minnesota	NELAP	5	039-999-348	12-31-14
Nevada	State Program	9	OH-000482008A	07-31-14 *
New Jersey	NELAP	2	OH001	06-30-14 *
New York	NELAP	2	10975	03-31-15
Ohio VAP	State Program	5	CL0024	10-31-15
Pennsylvania	NELAP	3	68-00340	08-31-14 *
Texas	NELAP	6		08-31-14
USDA	Federal		P330-13-00319	11-26-16
Virginia	NELAP	3	460175	09-14-14
Washington	State Program	10	C971	01-12-15
West Virginia DEP	State Program	3	210	12-31-14
Wisconsin	State Program	5	999518190	08-31-14 *

\* Certification renewal pending - certification considered valid.

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**CHAIN OF CUSTODY  
AND  
RECEIVING DOCUMENTS**



240-38535 Chain of Custody

TestAmerica Canton  
4101 Shuffel Street, N.W.

South Tank Farm

Chain of Custody Record

042670

TestAmerica  
THE LEADER IN ENVIRONMENTAL TESTING  
TestAmerica Laboratories, Inc.  
TAL-8210 (0719)

North Canton, OH 44720  
Phone: 330.497.9396 Fax: 330.497.0772

1, 4, 3, 6, 3, 6  
Other: VST

TAL-8210 (0719)

Client Contact  
Company Name: **ARCADIS**  
Address: **100 E. CAMPUS VIEW DRIVE STE 200**  
City/State/Zip: **COLUMBUS, OH 43235**  
Phone: **614-985-9130** Fax:  
Project Name: **PAPER BUSTER INVESTIGATION**  
Site: **MOUND - SOUTH TANK FARM**  
P O #: **OH-1000204-2014**

Regulatory Program:  DW  NPDES  RCRA  Other: **VST**

Project Manager: **Dr. Rumschlag**  
Tel/Fax: **614-985-9130**  
Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS  
TAT If different from Below  
 2 weeks  
 1 week  
 2 days  
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Lab Contact	Site ContactDate:	Carrier:	COC No.	of	COCs
SSB-2(12-14)	6/10/14	1015	G	Soil	2	N	XX	TCL 8100's 8270	Kari Ewing		1	3	
SSB-2(18-20)	6/10/14	1020	G	Soil	2	N	XX	TCL 8100's 8270	Kari Ewing				
SSB-1(10-12)	6/10/14	1300	G	Soil	2	N	XX	TCL 8100's 8270	Kari Ewing				
SSB-1(18-20)	6/10/14	1330	G	Soil	2	N	XX	TCL 8100's 8270	Kari Ewing				
SSB-3(0-2)	6/10/14	1100	G	Soil	2	N	XX	TCL 8100's 8270	Kari Ewing				
SSB-3(10-18)	6/10/14	1500	G	Soil	2	N	XX	TCL 8100's 8270	Kari Ewing				

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other

Possible Hazard Identification:  
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Special Instructions/QC Requirements & Comments:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Custody Seal No.:  
Relinquished by: **[Signature]**  
Relinquished by: **[Signature]**  
Relinquished by: **[Signature]**

Company: **ARCADIS**  
Company: **ARCADIS**  
Company: **ARCADIS**

Date/Time: **6/14/2014**  
Date/Time: **6/14/2014**  
Date/Time: **6/13/14 0920**

Received by: **[Signature]**  
Received by: **[Signature]**  
Received in Laboratory by: **[Signature]**

Company: **TAC**  
Company: **TAC**  
Company: **TAC**

Therm ID No.:  
Cooler Temp. (°C): Obs'd: **TAC** Corr'd: **TAC**



TestAmerica Canton Sample Receipt Form/Narrative

Login # : 30535

Canton Facility

Client ARCADIS Site Name RACOR Cooler unpacked by: [Signature]

Cooler Received on 6/13/14 Opened on 6/13/14

FedEx: 1<sup>st</sup> Grd  UPS  FAS  Stetson  Client Drop Off  TestAmerica Courier  Other

TestAmerica Cooler # \_\_\_\_\_ Foam Box  Client Cooler  Box  Other

Packing material used: Bubble Wrap  Foam  Plastic Bag  None  Other

COOLANT: Wet Ice  Blue Ice  Dry Ice  Water  None

1. Cooler temperature upon receipt

IR GUN# A (CF +2 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

IR GUN# 4 (CF -2 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

IR GUN# 5 (CF +0 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

IR GUN# 8 (CF +0 °C) Observed Cooler Temp. +4 mbt Corrected Cooler Temp. +4 mbt

See Multiple Cooler Form

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes  No

-Were custody seals on the outside of the cooler(s) signed & dated? Yes  No  NA

-Were custody seals on the bottle(s)? Yes  No

3. Shippers' packing slip attached to the cooler(s)? Yes  No

4. Did custody papers accompany the sample(s)? Yes  No

5. Were the custody papers relinquished & signed in the appropriate place? Yes  No

6. Did all bottles arrive in good condition (Unbroken)? Yes  No

7. Could all bottle labels be reconciled with the COC? Yes  No

8. Were correct bottle(s) used for the test(s) indicated? Yes  No

9. Sufficient quantity received to perform indicated analyses? Yes  No

10. Were sample(s) at the correct pH upon receipt? Yes  No  NA  pH Strip Lot# HC302587

11. Were VOAs on the COC? Yes  No

12. Were air bubbles >6 mm in any VOA vials? Yes  No  NA

13. Was a trip blank present in the cooler(s)? Yes  No

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_  
Concerning \_\_\_\_\_

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: [Signature]

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

15. SAMPLE CONDITION

Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.

Sample(s) \_\_\_\_\_ were received in a broken container.

Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION

Sample(s) \_\_\_\_\_ were further preserved in the laboratory.

Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_







**Groundwater**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton  
4101 Shuffel Street NW  
North Canton, OH 44720  
Tel: (330)497-9396

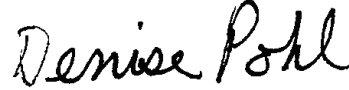
TestAmerica Job ID: 240-38645-1

Client Project/Site: Moraine South Tank Farm-OH000294.2014

For:

ARCADIS U.S., Inc.  
100 E. Campus View Blvd  
Suite 200  
Columbus, Ohio 43235

Attn: Nancy Gillotti



Authorized for release by:  
6/30/2014 2:02:14 PM

Denise Pohl, Project Manager II  
(330)966-9789  
[denise.pohl@testamericainc.com](mailto:denise.pohl@testamericainc.com)



### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*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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## Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

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### Qualifiers

#### GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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#### GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	LCS or LCSD exceeds the control limits
X	Surrogate is outside control limits
F1	MS and/or MSD Recovery exceeds the control limits
F2	MS/MSD RPD exceeds control limits
E	Result exceeded calibration range.

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### 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)

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TestAmerica Canton

## Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

**Job ID: 240-38645-1**

**Laboratory: TestAmerica Canton**

**Narrative**

### CASE NARRATIVE

**Client: ARCADIS U.S., Inc.**

**Project: Moraine South Tank Farm-OH000294.2014.0002F**

**Report Number: 240-38645-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

#### **RECEIPT**

The samples were received on 6/18/2014 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6° C.

#### **VOLATILE ORGANIC COMPOUNDS (GCMS)**

Sample TRIP BLANK (240-38645-5) was analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/27/2014.

Methylene Chloride was detected in method blank MB 240-136336/7 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **SEMIVOLATILE ORGANIC COMPOUNDS (GCMS)**

Samples SMW-1/061614 (240-38645-1), SMW-2/061614 (240-38645-2), SMW-3/061614 (240-38645-3) and DUP-01/061614 (240-38645-4) were analyzed for semivolatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 06/19/2014 and analyzed on 06/23/2014.



## Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

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### Job ID: 240-38645-1 (Continued)

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#### Laboratory: TestAmerica Canton (Continued)

Surrogates are added during the extraction process prior to dilution. When the sample is diluted, surrogate recoveries are diluted out and no corrective action is required.

Bis(2-ethylhexyl) phthalate and Di-n-butyl phthalate were detected in method blank MB 240-135316/18-A at levels exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Acetophenone, Caprolactam and Phenol were detected in method blank MB 240-135316/18-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

2-Fluorobiphenyl (Surr), Nitrobenzene-d5 (Surr) and Terphenyl-d14 (Surr) failed the surrogate recovery criteria low for SMW-3/061614 (240-38645-3). 2-Fluorobiphenyl (Surr), Nitrobenzene-d5 (Surr) and Terphenyl-d14 (Surr) failed the surrogate recovery criteria low for SMW-2/061614MS (240-38645-2MS). Refer to the QC report for details.

Hexachlorobutadiene, Hexachlorocyclopentadiene and Hexachloroethane failed the recovery criteria low for LCS 240-135316/19-A. Refer to the QC report for details.

3,3'-Dichlorobenzidine and Hexachlorocyclopentadiene failed the recovery criteria low for the MS of sample SMW-2/061614MS (240-38645-2) in batch 240-135686.

Hexachlorocyclopentadiene failed the recovery criteria low for the MSD of sample SMW-2/061614MSD (240-38645-2) in batch 240-135686. Several analytes exceeded the RPD limit.

Refer to the QC report for details.

Method(s) 8270C: The laboratory control sample for batch 135316 recovered outside control limits for the following analyte(s): Hexachlorobutadiene, Hexachlorocyclopentadiene, and Hexachloroethane. The control limits are advisory until there are sufficient data points to generate meaningful limits; therefore, no corrective action was taken. The results have been flagged accordingly.

Method(s) 8270C: The method blank for preparation batch135316 contained bis-2 (ethylhexyl) phthalate above the reporting limit (RL). There was insufficient sample to perform a re-extraction and/or re-analysis; therefore, the data have been reported.

Method(s) 8270C: Surrogate recovery for the following sample(s) was outside of acceptance limits: SMW-3/061614 (240-38645-3). There was insufficient sample to perform a re-extraction; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



## Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1



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Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN

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**Protocol References:**

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

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

## Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-38645-1	SMW-1/061614	Water	06/16/14 17:00	06/18/14 09:20
240-38645-2	SMW-2/061614	Water	06/16/14 16:35	06/18/14 09:20
240-38645-3	SMW-3/061614	Water	06/16/14 16:50	06/18/14 09:20
240-38645-4	DUP-01/061614	Water	06/16/14 00:00	06/18/14 09:20
240-38645-5	TRIP BLANK	Water	06/16/14 00:00	06/18/14 09:20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

## Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1



### Client Sample ID: SMW-1/061614

### Lab Sample ID: 240-38645-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetophenone	0.36	J B	1.0	0.14	ug/L	1		8270C	Total/NA
Bis(2-ethylhexyl) phthalate	16	B	2.0	1.5	ug/L	1		8270C	Total/NA
Butyl benzyl phthalate	0.47	J	1.0	0.22	ug/L	1		8270C	Total/NA
Caprolactam	1.1	J B	5.0	0.37	ug/L	1		8270C	Total/NA
Diethyl phthalate	0.30	J	1.0	0.13	ug/L	1		8270C	Total/NA
Di-n-butyl phthalate	2.2	B	1.0	0.40	ug/L	1		8270C	Total/NA

### Client Sample ID: SMW-2/061614

### Lab Sample ID: 240-38645-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetophenone	0.37	J B	1.0	0.14	ug/L	1		8270C	Total/NA
Bis(2-ethylhexyl) phthalate	13	B	2.0	1.5	ug/L	1		8270C	Total/NA
Caprolactam	1.1	J B	5.0	0.37	ug/L	1		8270C	Total/NA
Diethyl phthalate	0.26	J	1.0	0.13	ug/L	1		8270C	Total/NA
Di-n-butyl phthalate	2.1	B	1.0	0.40	ug/L	1		8270C	Total/NA
Phenol	0.33	J B	1.0	0.15	ug/L	1		8270C	Total/NA

### Client Sample ID: SMW-3/061614

### Lab Sample ID: 240-38645-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetophenone	0.25	J B	1.0	0.14	ug/L	1		8270C	Total/NA
Bis(2-ethylhexyl) phthalate	15	B	2.0	1.5	ug/L	1		8270C	Total/NA
Caprolactam	0.83	J B	5.0	0.37	ug/L	1		8270C	Total/NA
Diethyl phthalate	0.25	J	1.0	0.13	ug/L	1		8270C	Total/NA
Di-n-butyl phthalate	1.8	B	1.0	0.40	ug/L	1		8270C	Total/NA

### Client Sample ID: DUP-01/061614

### Lab Sample ID: 240-38645-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetophenone	0.41	J B	1.0	0.14	ug/L	1		8270C	Total/NA
Bis(2-ethylhexyl) phthalate	14	B	2.0	1.5	ug/L	1		8270C	Total/NA
Caprolactam	1.1	J B	5.0	0.37	ug/L	1		8270C	Total/NA
Diethyl phthalate	0.36	J	1.0	0.13	ug/L	1		8270C	Total/NA
Di-n-butyl phthalate	2.3	B	1.0	0.40	ug/L	1		8270C	Total/NA
Phenol	0.34	J B	1.0	0.15	ug/L	1		8270C	Total/NA

### Client Sample ID: TRIP BLANK

### Lab Sample ID: 240-38645-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.4	J	10	1.1	ug/L	1		8260B	Total/NA
2-Butanone (MEK)	1.3	J	10	0.57	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

## Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

**Client Sample ID: SMW-1/061614**

**Lab Sample ID: 240-38645-1**

**Date Collected: 06/16/14 17:00**

**Matrix: Water**

**Date Received: 06/18/14 09:20**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.20	U	0.20	0.044	ug/L		06/19/14 08:04	06/23/14 09:44	1
Acenaphthylene	0.20	U	0.20	0.020	ug/L		06/19/14 08:04	06/23/14 09:44	1
<b>Acetophenone</b>	<b>0.36</b>	<b>J B</b>	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 09:44	1
Anthracene	0.20	U	0.20	0.031	ug/L		06/19/14 08:04	06/23/14 09:44	1
Atrazine	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 09:44	1
Benzaldehyde	1.0	U	1.0	0.30	ug/L		06/19/14 08:04	06/23/14 09:44	1
Benzo[a]anthracene	0.20	U	0.20	0.059	ug/L		06/19/14 08:04	06/23/14 09:44	1
Benzo[a]pyrene	0.20	U	0.20	0.030	ug/L		06/19/14 08:04	06/23/14 09:44	1
Benzo[b]fluoranthene	0.20	U	0.20	0.059	ug/L		06/19/14 08:04	06/23/14 09:44	1
Benzo[g,h,i]perylene	0.20	U	0.20	0.050	ug/L		06/19/14 08:04	06/23/14 09:44	1
Benzo[k]fluoranthene	0.20	U	0.20	0.048	ug/L		06/19/14 08:04	06/23/14 09:44	1
1,1'-Biphenyl	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 09:44	1
Bis(2-chloroethoxy)methane	1.0	U	1.0	0.037	ug/L		06/19/14 08:04	06/23/14 09:44	1
Bis(2-chloroethyl)ether	1.0	U	1.0	0.19	ug/L		06/19/14 08:04	06/23/14 09:44	1
bis (2-chloroisopropyl) ether	1.0	U	1.0	0.18	ug/L		06/19/14 08:04	06/23/14 09:44	1
<b>Bis(2-ethylhexyl) phthalate</b>	<b>16</b>	<b>B</b>	2.0	1.5	ug/L		06/19/14 08:04	06/23/14 09:44	1
4-Bromophenyl phenyl ether	2.0	U	2.0	0.35	ug/L		06/19/14 08:04	06/23/14 09:44	1
<b>Butyl benzyl phthalate</b>	<b>0.47</b>	<b>J</b>	1.0	0.22	ug/L		06/19/14 08:04	06/23/14 09:44	1
<b>Caprolactam</b>	<b>1.1</b>	<b>J B</b>	5.0	0.37	ug/L		06/19/14 08:04	06/23/14 09:44	1
Carbazole	1.0	U	1.0	0.11	ug/L		06/19/14 08:04	06/23/14 09:44	1
4-Chloroaniline	2.0	U	2.0	0.15	ug/L		06/19/14 08:04	06/23/14 09:44	1
4-Chloro-3-methylphenol	2.0	U	2.0	0.28	ug/L		06/19/14 08:04	06/23/14 09:44	1
2-Chloronaphthalene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 09:44	1
2-Chlorophenol	1.0	U	1.0	0.13	ug/L		06/19/14 08:04	06/23/14 09:44	1
4-Chlorophenyl phenyl ether	2.0	U	2.0	0.29	ug/L		06/19/14 08:04	06/23/14 09:44	1
Chrysene	0.20	U	0.20	0.035	ug/L		06/19/14 08:04	06/23/14 09:44	1
Dibenz(a,h)anthracene	0.20	U	0.20	0.040	ug/L		06/19/14 08:04	06/23/14 09:44	1
Dibenzofuran	1.0	U	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 09:44	1
3,3'-Dichlorobenzidine	5.0	U	5.0	0.35	ug/L		06/19/14 08:04	06/23/14 09:44	1
2,4-Dichlorophenol	2.0	U	2.0	0.29	ug/L		06/19/14 08:04	06/23/14 09:44	1
<b>Diethyl phthalate</b>	<b>0.30</b>	<b>J</b>	1.0	0.13	ug/L		06/19/14 08:04	06/23/14 09:44	1
2,4-Dimethylphenol	2.0	U	2.0	0.31	ug/L		06/19/14 08:04	06/23/14 09:44	1
Dimethyl phthalate	1.0	U	1.0	0.10	ug/L		06/19/14 08:04	06/23/14 09:44	1
<b>Di-n-butyl phthalate</b>	<b>2.2</b>	<b>B</b>	1.0	0.40	ug/L		06/19/14 08:04	06/23/14 09:44	1
4,6-Dinitro-2-methylphenol	5.0	U	5.0	0.53	ug/L		06/19/14 08:04	06/23/14 09:44	1
2,4-Dinitrophenol	40	U	40	6.1	ug/L		06/19/14 08:04	06/23/14 09:44	1
2,4-Dinitrotoluene	5.0	U	5.0	0.26	ug/L		06/19/14 08:04	06/23/14 09:44	1
2,6-Dinitrotoluene	5.0	U	5.0	0.24	ug/L		06/19/14 08:04	06/23/14 09:44	1
Di-n-octyl phthalate	1.0	U	1.0	0.37	ug/L		06/19/14 08:04	06/23/14 09:44	1
Fluoranthene	0.20	U	0.20	0.027	ug/L		06/19/14 08:04	06/23/14 09:44	1
Fluorene	0.20	U	0.20	0.034	ug/L		06/19/14 08:04	06/23/14 09:44	1
Hexachlorobenzene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 09:44	1
Hexachlorobutadiene	1.0	U *	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 09:44	1
Hexachlorocyclopentadiene	10	U *	10	2.5	ug/L		06/19/14 08:04	06/23/14 09:44	1
Hexachloroethane	1.0	U *	1.0	0.22	ug/L		06/19/14 08:04	06/23/14 09:44	1
Indeno[1,2,3-cd]pyrene	0.20	U	0.20	0.048	ug/L		06/19/14 08:04	06/23/14 09:44	1
Isophorone	1.0	U	1.0	0.042	ug/L		06/19/14 08:04	06/23/14 09:44	1
2-Methylnaphthalene	0.20	U	0.20	0.037	ug/L		06/19/14 08:04	06/23/14 09:44	1
2-Methylphenol	1.0	U	1.0	0.19	ug/L		06/19/14 08:04	06/23/14 09:44	1

TestAmerica Canton



## Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

**Client Sample ID: SMW-1/061614**

**Lab Sample ID: 240-38645-1**

**Date Collected: 06/16/14 17:00**

**Matrix: Water**

**Date Received: 06/18/14 09:20**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3 & 4 Methylphenol	2.0	U	2.0	0.34	ug/L		06/19/14 08:04	06/23/14 09:44	1
Naphthalene	0.20	U	0.20	0.043	ug/L		06/19/14 08:04	06/23/14 09:44	1
2-Nitroaniline	2.0	U	2.0	0.31	ug/L		06/19/14 08:04	06/23/14 09:44	1
3-Nitroaniline	2.0	U	2.0	0.27	ug/L		06/19/14 08:04	06/23/14 09:44	1
4-Nitroaniline	2.0	U	2.0	0.24	ug/L		06/19/14 08:04	06/23/14 09:44	1
Nitrobenzene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 09:44	1
2-Nitrophenol	2.0	U	2.0	0.21	ug/L		06/19/14 08:04	06/23/14 09:44	1
4-Nitrophenol	5.0	U	5.0	0.59	ug/L		06/19/14 08:04	06/23/14 09:44	1
N-Nitrosodi-n-propylamine	1.0	U	1.0	0.16	ug/L		06/19/14 08:04	06/23/14 09:44	1
N-Nitrosodiphenylamine	1.0	U	1.0	0.11	ug/L		06/19/14 08:04	06/23/14 09:44	1
Pentachlorophenol	40	U	40	5.5	ug/L		06/19/14 08:04	06/23/14 09:44	1
Phenanthrene	0.20	U	0.20	0.031	ug/L		06/19/14 08:04	06/23/14 09:44	1
Phenol	1.0	U	1.0	0.15	ug/L		06/19/14 08:04	06/23/14 09:44	1
Pyrene	0.20	U	0.20	0.028	ug/L		06/19/14 08:04	06/23/14 09:44	1
2,4,5-Trichlorophenol	5.0	U	5.0	0.37	ug/L		06/19/14 08:04	06/23/14 09:44	1
2,4,6-Trichlorophenol	5.0	U	5.0	0.26	ug/L		06/19/14 08:04	06/23/14 09:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	43		29 - 110				06/19/14 08:04	06/23/14 09:44	1
2-Fluorophenol (Surr)	50		15 - 110				06/19/14 08:04	06/23/14 09:44	1
Nitrobenzene-d5 (Surr)	50		31 - 110				06/19/14 08:04	06/23/14 09:44	1
Phenol-d5 (Surr)	57		10 - 110				06/19/14 08:04	06/23/14 09:44	1
Terphenyl-d14 (Surr)	77		31 - 115				06/19/14 08:04	06/23/14 09:44	1
2,4,6-Tribromophenol (Surr)	64		21 - 128				06/19/14 08:04	06/23/14 09:44	1



## Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

**Client Sample ID: SMW-2/061614**

**Lab Sample ID: 240-38645-2**

**Date Collected: 06/16/14 16:35**

**Matrix: Water**

**Date Received: 06/18/14 09:20**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.20	U	0.20	0.044	ug/L		06/19/14 08:04	06/23/14 10:07	1
Acenaphthylene	0.20	U	0.20	0.020	ug/L		06/19/14 08:04	06/23/14 10:07	1
<b>Acetophenone</b>	<b>0.37</b>	<b>J B</b>	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 10:07	1
Anthracene	0.20	U	0.20	0.031	ug/L		06/19/14 08:04	06/23/14 10:07	1
Atrazine	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 10:07	1
Benzaldehyde	1.0	U	1.0	0.30	ug/L		06/19/14 08:04	06/23/14 10:07	1
Benzo[a]anthracene	0.20	U	0.20	0.059	ug/L		06/19/14 08:04	06/23/14 10:07	1
Benzo[a]pyrene	0.20	U	0.20	0.030	ug/L		06/19/14 08:04	06/23/14 10:07	1
Benzo[b]fluoranthene	0.20	U	0.20	0.059	ug/L		06/19/14 08:04	06/23/14 10:07	1
Benzo[g,h,i]perylene	0.20	U	0.20	0.050	ug/L		06/19/14 08:04	06/23/14 10:07	1
Benzo[k]fluoranthene	0.20	U	0.20	0.048	ug/L		06/19/14 08:04	06/23/14 10:07	1
1,1'-Biphenyl	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 10:07	1
Bis(2-chloroethoxy)methane	1.0	U	1.0	0.037	ug/L		06/19/14 08:04	06/23/14 10:07	1
Bis(2-chloroethyl)ether	1.0	U	1.0	0.19	ug/L		06/19/14 08:04	06/23/14 10:07	1
bis (2-chloroisopropyl) ether	1.0	U	1.0	0.18	ug/L		06/19/14 08:04	06/23/14 10:07	1
<b>Bis(2-ethylhexyl) phthalate</b>	<b>13</b>	<b>B</b>	2.0	1.5	ug/L		06/19/14 08:04	06/23/14 10:07	1
4-Bromophenyl phenyl ether	2.0	U	2.0	0.35	ug/L		06/19/14 08:04	06/23/14 10:07	1
Butyl benzyl phthalate	1.0	U	1.0	0.22	ug/L		06/19/14 08:04	06/23/14 10:07	1
<b>Caprolactam</b>	<b>1.1</b>	<b>J B</b>	5.0	0.37	ug/L		06/19/14 08:04	06/23/14 10:07	1
Carbazole	1.0	U	1.0	0.11	ug/L		06/19/14 08:04	06/23/14 10:07	1
4-Chloroaniline	2.0	U	2.0	0.15	ug/L		06/19/14 08:04	06/23/14 10:07	1
4-Chloro-3-methylphenol	2.0	U	2.0	0.28	ug/L		06/19/14 08:04	06/23/14 10:07	1
2-Chloronaphthalene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 10:07	1
2-Chlorophenol	1.0	U	1.0	0.13	ug/L		06/19/14 08:04	06/23/14 10:07	1
4-Chlorophenyl phenyl ether	2.0	U	2.0	0.29	ug/L		06/19/14 08:04	06/23/14 10:07	1
Chrysene	0.20	U	0.20	0.035	ug/L		06/19/14 08:04	06/23/14 10:07	1
Dibenz(a,h)anthracene	0.20	U	0.20	0.040	ug/L		06/19/14 08:04	06/23/14 10:07	1
Dibenzofuran	1.0	U	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 10:07	1
3,3'-Dichlorobenzidine	5.0	U	5.0	0.35	ug/L		06/19/14 08:04	06/23/14 10:07	1
2,4-Dichlorophenol	2.0	U	2.0	0.29	ug/L		06/19/14 08:04	06/23/14 10:07	1
<b>Diethyl phthalate</b>	<b>0.26</b>	<b>J</b>	1.0	0.13	ug/L		06/19/14 08:04	06/23/14 10:07	1
2,4-Dimethylphenol	2.0	U	2.0	0.31	ug/L		06/19/14 08:04	06/23/14 10:07	1
Dimethyl phthalate	1.0	U	1.0	0.10	ug/L		06/19/14 08:04	06/23/14 10:07	1
<b>Di-n-butyl phthalate</b>	<b>2.1</b>	<b>B</b>	1.0	0.40	ug/L		06/19/14 08:04	06/23/14 10:07	1
4,6-Dinitro-2-methylphenol	5.0	U	5.0	0.53	ug/L		06/19/14 08:04	06/23/14 10:07	1
2,4-Dinitrophenol	40	U	40	6.1	ug/L		06/19/14 08:04	06/23/14 10:07	1
2,4-Dinitrotoluene	5.0	U	5.0	0.26	ug/L		06/19/14 08:04	06/23/14 10:07	1
2,6-Dinitrotoluene	5.0	U	5.0	0.24	ug/L		06/19/14 08:04	06/23/14 10:07	1
Di-n-octyl phthalate	1.0	U	1.0	0.37	ug/L		06/19/14 08:04	06/23/14 10:07	1
Fluoranthene	0.20	U	0.20	0.027	ug/L		06/19/14 08:04	06/23/14 10:07	1
Fluorene	0.20	U	0.20	0.034	ug/L		06/19/14 08:04	06/23/14 10:07	1
Hexachlorobenzene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 10:07	1
Hexachlorobutadiene	1.0	U *	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 10:07	1
Hexachlorocyclopentadiene	10	U *	10	2.5	ug/L		06/19/14 08:04	06/23/14 10:07	1
Hexachloroethane	1.0	U *	1.0	0.22	ug/L		06/19/14 08:04	06/23/14 10:07	1
Indeno[1,2,3-cd]pyrene	0.20	U	0.20	0.048	ug/L		06/19/14 08:04	06/23/14 10:07	1
Isophorone	1.0	U	1.0	0.042	ug/L		06/19/14 08:04	06/23/14 10:07	1
2-Methylnaphthalene	0.20	U	0.20	0.037	ug/L		06/19/14 08:04	06/23/14 10:07	1
2-Methylphenol	1.0	U	1.0	0.19	ug/L		06/19/14 08:04	06/23/14 10:07	1

TestAmerica Canton



## Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

**Client Sample ID: SMW-2/061614**

**Lab Sample ID: 240-38645-2**

Date Collected: 06/16/14 16:35

Matrix: Water

Date Received: 06/18/14 09:20



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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3 & 4 Methylphenol	2.0	U	2.0	0.34	ug/L		06/19/14 08:04	06/23/14 10:07	1
Naphthalene	0.20	U	0.20	0.043	ug/L		06/19/14 08:04	06/23/14 10:07	1
2-Nitroaniline	2.0	U	2.0	0.31	ug/L		06/19/14 08:04	06/23/14 10:07	1
3-Nitroaniline	2.0	U	2.0	0.27	ug/L		06/19/14 08:04	06/23/14 10:07	1
4-Nitroaniline	2.0	U	2.0	0.24	ug/L		06/19/14 08:04	06/23/14 10:07	1
Nitrobenzene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 10:07	1
2-Nitrophenol	2.0	U	2.0	0.21	ug/L		06/19/14 08:04	06/23/14 10:07	1
4-Nitrophenol	5.0	U	5.0	0.59	ug/L		06/19/14 08:04	06/23/14 10:07	1
N-Nitrosodi-n-propylamine	1.0	U	1.0	0.16	ug/L		06/19/14 08:04	06/23/14 10:07	1
N-Nitrosodiphenylamine	1.0	U	1.0	0.11	ug/L		06/19/14 08:04	06/23/14 10:07	1
Pentachlorophenol	40	U	40	5.5	ug/L		06/19/14 08:04	06/23/14 10:07	1
Phenanthrene	0.20	U	0.20	0.031	ug/L		06/19/14 08:04	06/23/14 10:07	1
<b>Phenol</b>	<b>0.33</b>	<b>J B</b>	1.0	0.15	ug/L		06/19/14 08:04	06/23/14 10:07	1
Pyrene	0.20	U	0.20	0.028	ug/L		06/19/14 08:04	06/23/14 10:07	1
2,4,5-Trichlorophenol	5.0	U	5.0	0.37	ug/L		06/19/14 08:04	06/23/14 10:07	1
2,4,6-Trichlorophenol	5.0	U	5.0	0.26	ug/L		06/19/14 08:04	06/23/14 10:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	46		29 - 110	06/19/14 08:04	06/23/14 10:07	1
2-Fluorophenol (Surr)	52		15 - 110	06/19/14 08:04	06/23/14 10:07	1
Nitrobenzene-d5 (Surr)	54		31 - 110	06/19/14 08:04	06/23/14 10:07	1
Phenol-d5 (Surr)	58		10 - 110	06/19/14 08:04	06/23/14 10:07	1
Terphenyl-d14 (Surr)	74		31 - 115	06/19/14 08:04	06/23/14 10:07	1
2,4,6-Tribromophenol (Surr)	59		21 - 128	06/19/14 08:04	06/23/14 10:07	1

TestAmerica Canton

## Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

**Client Sample ID: SMW-3/061614**

**Lab Sample ID: 240-38645-3**

**Date Collected: 06/16/14 16:50**

**Matrix: Water**

**Date Received: 06/18/14 09:20**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.20	U	0.20	0.044	ug/L		06/19/14 08:04	06/23/14 11:17	1
Acenaphthylene	0.20	U	0.20	0.020	ug/L		06/19/14 08:04	06/23/14 11:17	1
<b>Acetophenone</b>	<b>0.25</b>	<b>J B</b>	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 11:17	1
Anthracene	0.20	U	0.20	0.031	ug/L		06/19/14 08:04	06/23/14 11:17	1
Atrazine	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 11:17	1
Benzaldehyde	1.0	U	1.0	0.30	ug/L		06/19/14 08:04	06/23/14 11:17	1
Benzo[a]anthracene	0.20	U	0.20	0.059	ug/L		06/19/14 08:04	06/23/14 11:17	1
Benzo[a]pyrene	0.20	U	0.20	0.030	ug/L		06/19/14 08:04	06/23/14 11:17	1
Benzo[b]fluoranthene	0.20	U	0.20	0.059	ug/L		06/19/14 08:04	06/23/14 11:17	1
Benzo[g,h,i]perylene	0.20	U	0.20	0.050	ug/L		06/19/14 08:04	06/23/14 11:17	1
Benzo[k]fluoranthene	0.20	U	0.20	0.048	ug/L		06/19/14 08:04	06/23/14 11:17	1
1,1'-Biphenyl	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 11:17	1
Bis(2-chloroethoxy)methane	1.0	U	1.0	0.037	ug/L		06/19/14 08:04	06/23/14 11:17	1
Bis(2-chloroethyl)ether	1.0	U	1.0	0.19	ug/L		06/19/14 08:04	06/23/14 11:17	1
bis (2-chloroisopropyl) ether	1.0	U	1.0	0.18	ug/L		06/19/14 08:04	06/23/14 11:17	1
<b>Bis(2-ethylhexyl) phthalate</b>	<b>15</b>	<b>B</b>	2.0	1.5	ug/L		06/19/14 08:04	06/23/14 11:17	1
4-Bromophenyl phenyl ether	2.0	U	2.0	0.35	ug/L		06/19/14 08:04	06/23/14 11:17	1
Butyl benzyl phthalate	1.0	U	1.0	0.22	ug/L		06/19/14 08:04	06/23/14 11:17	1
<b>Caprolactam</b>	<b>0.83</b>	<b>J B</b>	5.0	0.37	ug/L		06/19/14 08:04	06/23/14 11:17	1
Carbazole	1.0	U	1.0	0.11	ug/L		06/19/14 08:04	06/23/14 11:17	1
4-Chloroaniline	2.0	U	2.0	0.15	ug/L		06/19/14 08:04	06/23/14 11:17	1
4-Chloro-3-methylphenol	2.0	U	2.0	0.28	ug/L		06/19/14 08:04	06/23/14 11:17	1
2-Chloronaphthalene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 11:17	1
2-Chlorophenol	1.0	U	1.0	0.13	ug/L		06/19/14 08:04	06/23/14 11:17	1
4-Chlorophenyl phenyl ether	2.0	U	2.0	0.29	ug/L		06/19/14 08:04	06/23/14 11:17	1
Chrysene	0.20	U	0.20	0.035	ug/L		06/19/14 08:04	06/23/14 11:17	1
Dibenz(a,h)anthracene	0.20	U	0.20	0.040	ug/L		06/19/14 08:04	06/23/14 11:17	1
Dibenzofuran	1.0	U	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 11:17	1
3,3'-Dichlorobenzidine	5.0	U	5.0	0.35	ug/L		06/19/14 08:04	06/23/14 11:17	1
2,4-Dichlorophenol	2.0	U	2.0	0.29	ug/L		06/19/14 08:04	06/23/14 11:17	1
<b>Diethyl phthalate</b>	<b>0.25</b>	<b>J</b>	1.0	0.13	ug/L		06/19/14 08:04	06/23/14 11:17	1
2,4-Dimethylphenol	2.0	U	2.0	0.31	ug/L		06/19/14 08:04	06/23/14 11:17	1
Dimethyl phthalate	1.0	U	1.0	0.10	ug/L		06/19/14 08:04	06/23/14 11:17	1
<b>Di-n-butyl phthalate</b>	<b>1.8</b>	<b>B</b>	1.0	0.40	ug/L		06/19/14 08:04	06/23/14 11:17	1
4,6-Dinitro-2-methylphenol	5.0	U	5.0	0.53	ug/L		06/19/14 08:04	06/23/14 11:17	1
2,4-Dinitrophenol	40	U	40	6.1	ug/L		06/19/14 08:04	06/23/14 11:17	1
2,4-Dinitrotoluene	5.0	U	5.0	0.26	ug/L		06/19/14 08:04	06/23/14 11:17	1
2,6-Dinitrotoluene	5.0	U	5.0	0.24	ug/L		06/19/14 08:04	06/23/14 11:17	1
Di-n-octyl phthalate	1.0	U	1.0	0.37	ug/L		06/19/14 08:04	06/23/14 11:17	1
Fluoranthene	0.20	U	0.20	0.027	ug/L		06/19/14 08:04	06/23/14 11:17	1
Fluorene	0.20	U	0.20	0.034	ug/L		06/19/14 08:04	06/23/14 11:17	1
Hexachlorobenzene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 11:17	1
Hexachlorobutadiene	1.0	U *	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 11:17	1
Hexachlorocyclopentadiene	10	U *	10	2.5	ug/L		06/19/14 08:04	06/23/14 11:17	1
Hexachloroethane	1.0	U *	1.0	0.22	ug/L		06/19/14 08:04	06/23/14 11:17	1
Indeno[1,2,3-cd]pyrene	0.20	U	0.20	0.048	ug/L		06/19/14 08:04	06/23/14 11:17	1
Isophorone	1.0	U	1.0	0.042	ug/L		06/19/14 08:04	06/23/14 11:17	1
2-Methylnaphthalene	0.20	U	0.20	0.037	ug/L		06/19/14 08:04	06/23/14 11:17	1
2-Methylphenol	1.0	U	1.0	0.19	ug/L		06/19/14 08:04	06/23/14 11:17	1

TestAmerica Canton



## Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

**Client Sample ID: SMW-3/061614**

**Lab Sample ID: 240-38645-3**

**Date Collected: 06/16/14 16:50**

**Matrix: Water**

**Date Received: 06/18/14 09:20**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3 & 4 Methylphenol	2.0	U	2.0	0.34	ug/L		06/19/14 08:04	06/23/14 11:17	1
Naphthalene	0.20	U	0.20	0.043	ug/L		06/19/14 08:04	06/23/14 11:17	1
2-Nitroaniline	2.0	U	2.0	0.31	ug/L		06/19/14 08:04	06/23/14 11:17	1
3-Nitroaniline	2.0	U	2.0	0.27	ug/L		06/19/14 08:04	06/23/14 11:17	1
4-Nitroaniline	2.0	U	2.0	0.24	ug/L		06/19/14 08:04	06/23/14 11:17	1
Nitrobenzene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 11:17	1
2-Nitrophenol	2.0	U	2.0	0.21	ug/L		06/19/14 08:04	06/23/14 11:17	1
4-Nitrophenol	5.0	U	5.0	0.59	ug/L		06/19/14 08:04	06/23/14 11:17	1
N-Nitrosodi-n-propylamine	1.0	U	1.0	0.16	ug/L		06/19/14 08:04	06/23/14 11:17	1
N-Nitrosodiphenylamine	1.0	U	1.0	0.11	ug/L		06/19/14 08:04	06/23/14 11:17	1
Pentachlorophenol	40	U	40	5.5	ug/L		06/19/14 08:04	06/23/14 11:17	1
Phenanthrene	0.20	U	0.20	0.031	ug/L		06/19/14 08:04	06/23/14 11:17	1
Phenol	1.0	U	1.0	0.15	ug/L		06/19/14 08:04	06/23/14 11:17	1
Pyrene	0.20	U	0.20	0.028	ug/L		06/19/14 08:04	06/23/14 11:17	1
2,4,5-Trichlorophenol	5.0	U	5.0	0.37	ug/L		06/19/14 08:04	06/23/14 11:17	1
2,4,6-Trichlorophenol	5.0	U	5.0	0.26	ug/L		06/19/14 08:04	06/23/14 11:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	19	X	29 - 110				06/19/14 08:04	06/23/14 11:17	1
2-Fluorophenol (Surr)	23		15 - 110				06/19/14 08:04	06/23/14 11:17	1
Nitrobenzene-d5 (Surr)	23	X	31 - 110				06/19/14 08:04	06/23/14 11:17	1
Phenol-d5 (Surr)	25		10 - 110				06/19/14 08:04	06/23/14 11:17	1
Terphenyl-d14 (Surr)	28	X	31 - 115				06/19/14 08:04	06/23/14 11:17	1
2,4,6-Tribromophenol (Surr)	22		21 - 128				06/19/14 08:04	06/23/14 11:17	1



## Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

**Client Sample ID: DUP-01/061614**

**Lab Sample ID: 240-38645-4**

**Date Collected: 06/16/14 00:00**

**Matrix: Water**

**Date Received: 06/18/14 09:20**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.20	U	0.20	0.044	ug/L		06/19/14 08:04	06/23/14 11:41	1
Acenaphthylene	0.20	U	0.20	0.020	ug/L		06/19/14 08:04	06/23/14 11:41	1
<b>Acetophenone</b>	<b>0.41</b>	<b>J B</b>	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 11:41	1
Anthracene	0.20	U	0.20	0.031	ug/L		06/19/14 08:04	06/23/14 11:41	1
Atrazine	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 11:41	1
Benzaldehyde	1.0	U	1.0	0.30	ug/L		06/19/14 08:04	06/23/14 11:41	1
Benzo[a]anthracene	0.20	U	0.20	0.059	ug/L		06/19/14 08:04	06/23/14 11:41	1
Benzo[a]pyrene	0.20	U	0.20	0.030	ug/L		06/19/14 08:04	06/23/14 11:41	1
Benzo[b]fluoranthene	0.20	U	0.20	0.059	ug/L		06/19/14 08:04	06/23/14 11:41	1
Benzo[g,h,i]perylene	0.20	U	0.20	0.050	ug/L		06/19/14 08:04	06/23/14 11:41	1
Benzo[k]fluoranthene	0.20	U	0.20	0.048	ug/L		06/19/14 08:04	06/23/14 11:41	1
1,1'-Biphenyl	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 11:41	1
Bis(2-chloroethoxy)methane	1.0	U	1.0	0.037	ug/L		06/19/14 08:04	06/23/14 11:41	1
Bis(2-chloroethyl)ether	1.0	U	1.0	0.19	ug/L		06/19/14 08:04	06/23/14 11:41	1
bis (2-chloroisopropyl) ether	1.0	U	1.0	0.18	ug/L		06/19/14 08:04	06/23/14 11:41	1
<b>Bis(2-ethylhexyl) phthalate</b>	<b>14</b>	<b>B</b>	2.0	1.5	ug/L		06/19/14 08:04	06/23/14 11:41	1
4-Bromophenyl phenyl ether	2.0	U	2.0	0.35	ug/L		06/19/14 08:04	06/23/14 11:41	1
Butyl benzyl phthalate	1.0	U	1.0	0.22	ug/L		06/19/14 08:04	06/23/14 11:41	1
<b>Caprolactam</b>	<b>1.1</b>	<b>J B</b>	5.0	0.37	ug/L		06/19/14 08:04	06/23/14 11:41	1
Carbazole	1.0	U	1.0	0.11	ug/L		06/19/14 08:04	06/23/14 11:41	1
4-Chloroaniline	2.0	U	2.0	0.15	ug/L		06/19/14 08:04	06/23/14 11:41	1
4-Chloro-3-methylphenol	2.0	U	2.0	0.28	ug/L		06/19/14 08:04	06/23/14 11:41	1
2-Chloronaphthalene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 11:41	1
2-Chlorophenol	1.0	U	1.0	0.13	ug/L		06/19/14 08:04	06/23/14 11:41	1
4-Chlorophenyl phenyl ether	2.0	U	2.0	0.29	ug/L		06/19/14 08:04	06/23/14 11:41	1
Chrysene	0.20	U	0.20	0.035	ug/L		06/19/14 08:04	06/23/14 11:41	1
Dibenz(a,h)anthracene	0.20	U	0.20	0.040	ug/L		06/19/14 08:04	06/23/14 11:41	1
Dibenzofuran	1.0	U	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 11:41	1
3,3'-Dichlorobenzidine	5.0	U	5.0	0.35	ug/L		06/19/14 08:04	06/23/14 11:41	1
2,4-Dichlorophenol	2.0	U	2.0	0.29	ug/L		06/19/14 08:04	06/23/14 11:41	1
<b>Diethyl phthalate</b>	<b>0.36</b>	<b>J</b>	1.0	0.13	ug/L		06/19/14 08:04	06/23/14 11:41	1
2,4-Dimethylphenol	2.0	U	2.0	0.31	ug/L		06/19/14 08:04	06/23/14 11:41	1
Dimethyl phthalate	1.0	U	1.0	0.10	ug/L		06/19/14 08:04	06/23/14 11:41	1
<b>Di-n-butyl phthalate</b>	<b>2.3</b>	<b>B</b>	1.0	0.40	ug/L		06/19/14 08:04	06/23/14 11:41	1
4,6-Dinitro-2-methylphenol	5.0	U	5.0	0.53	ug/L		06/19/14 08:04	06/23/14 11:41	1
2,4-Dinitrophenol	40	U	40	6.1	ug/L		06/19/14 08:04	06/23/14 11:41	1
2,4-Dinitrotoluene	5.0	U	5.0	0.26	ug/L		06/19/14 08:04	06/23/14 11:41	1
2,6-Dinitrotoluene	5.0	U	5.0	0.24	ug/L		06/19/14 08:04	06/23/14 11:41	1
Di-n-octyl phthalate	1.0	U	1.0	0.37	ug/L		06/19/14 08:04	06/23/14 11:41	1
Fluoranthene	0.20	U	0.20	0.027	ug/L		06/19/14 08:04	06/23/14 11:41	1
Fluorene	0.20	U	0.20	0.034	ug/L		06/19/14 08:04	06/23/14 11:41	1
Hexachlorobenzene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 11:41	1
Hexachlorobutadiene	1.0	U *	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 11:41	1
Hexachlorocyclopentadiene	10	U *	10	2.5	ug/L		06/19/14 08:04	06/23/14 11:41	1
Hexachloroethane	1.0	U *	1.0	0.22	ug/L		06/19/14 08:04	06/23/14 11:41	1
Indeno[1,2,3-cd]pyrene	0.20	U	0.20	0.048	ug/L		06/19/14 08:04	06/23/14 11:41	1
Isophorone	1.0	U	1.0	0.042	ug/L		06/19/14 08:04	06/23/14 11:41	1
2-Methylnaphthalene	0.20	U	0.20	0.037	ug/L		06/19/14 08:04	06/23/14 11:41	1
2-Methylphenol	1.0	U	1.0	0.19	ug/L		06/19/14 08:04	06/23/14 11:41	1

TestAmerica Canton



## Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

**Client Sample ID: DUP-01/061614**

**Lab Sample ID: 240-38645-4**

**Date Collected: 06/16/14 00:00**

**Matrix: Water**

**Date Received: 06/18/14 09:20**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3 & 4 Methylphenol	2.0	U	2.0	0.34	ug/L		06/19/14 08:04	06/23/14 11:41	1
Naphthalene	0.20	U	0.20	0.043	ug/L		06/19/14 08:04	06/23/14 11:41	1
2-Nitroaniline	2.0	U	2.0	0.31	ug/L		06/19/14 08:04	06/23/14 11:41	1
3-Nitroaniline	2.0	U	2.0	0.27	ug/L		06/19/14 08:04	06/23/14 11:41	1
4-Nitroaniline	2.0	U	2.0	0.24	ug/L		06/19/14 08:04	06/23/14 11:41	1
Nitrobenzene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 11:41	1
2-Nitrophenol	2.0	U	2.0	0.21	ug/L		06/19/14 08:04	06/23/14 11:41	1
4-Nitrophenol	5.0	U	5.0	0.59	ug/L		06/19/14 08:04	06/23/14 11:41	1
N-Nitrosodi-n-propylamine	1.0	U	1.0	0.16	ug/L		06/19/14 08:04	06/23/14 11:41	1
N-Nitrosodiphenylamine	1.0	U	1.0	0.11	ug/L		06/19/14 08:04	06/23/14 11:41	1
Pentachlorophenol	40	U	40	5.5	ug/L		06/19/14 08:04	06/23/14 11:41	1
Phenanthrene	0.20	U	0.20	0.031	ug/L		06/19/14 08:04	06/23/14 11:41	1
<b>Phenol</b>	<b>0.34</b>	<b>J B</b>	1.0	0.15	ug/L		06/19/14 08:04	06/23/14 11:41	1
Pyrene	0.20	U	0.20	0.028	ug/L		06/19/14 08:04	06/23/14 11:41	1
2,4,5-Trichlorophenol	5.0	U	5.0	0.37	ug/L		06/19/14 08:04	06/23/14 11:41	1
2,4,6-Trichlorophenol	5.0	U	5.0	0.26	ug/L		06/19/14 08:04	06/23/14 11:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	46		29 - 110				06/19/14 08:04	06/23/14 11:41	1
2-Fluorophenol (Surr)	54		15 - 110				06/19/14 08:04	06/23/14 11:41	1
Nitrobenzene-d5 (Surr)	54		31 - 110				06/19/14 08:04	06/23/14 11:41	1
Phenol-d5 (Surr)	60		10 - 110				06/19/14 08:04	06/23/14 11:41	1
Terphenyl-d14 (Surr)	73		31 - 115				06/19/14 08:04	06/23/14 11:41	1
2,4,6-Tribromophenol (Surr)	59		21 - 128				06/19/14 08:04	06/23/14 11:41	1



## Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-38645-5**

**Date Collected: 06/16/14 00:00**

**Matrix: Water**

**Date Received: 06/18/14 09:20**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Acetone</b>	<b>3.4</b>	<b>J</b>	10	1.1	ug/L			06/27/14 00:12	1
Benzene	1.0	U	1.0	0.13	ug/L			06/27/14 00:12	1
Dichlorobromomethane	1.0	U	1.0	0.15	ug/L			06/27/14 00:12	1
Bromoform	1.0	U	1.0	0.64	ug/L			06/27/14 00:12	1
Bromomethane	1.0	U	1.0	0.41	ug/L			06/27/14 00:12	1
<b>2-Butanone (MEK)</b>	<b>1.3</b>	<b>J</b>	10	0.57	ug/L			06/27/14 00:12	1
Carbon disulfide	1.0	U	1.0	0.13	ug/L			06/27/14 00:12	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			06/27/14 00:12	1
Chlorobenzene	1.0	U	1.0	0.15	ug/L			06/27/14 00:12	1
Chloroethane	1.0	U	1.0	0.29	ug/L			06/27/14 00:12	1
Chloroform	1.0	U	1.0	0.16	ug/L			06/27/14 00:12	1
Chloromethane	1.0	U	1.0	0.30	ug/L			06/27/14 00:12	1
1,1-Dichloroethane	1.0	U	1.0	0.15	ug/L			06/27/14 00:12	1
1,2-Dichloroethane	1.0	U	1.0	0.22	ug/L			06/27/14 00:12	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/27/14 00:12	1
1,2-Dichloropropane	1.0	U	1.0	0.18	ug/L			06/27/14 00:12	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.14	ug/L			06/27/14 00:12	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.19	ug/L			06/27/14 00:12	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			06/27/14 00:12	1
2-Hexanone	10	U	10	0.41	ug/L			06/27/14 00:12	1
Methylene Chloride	1.0	U	1.0	0.33	ug/L			06/27/14 00:12	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.32	ug/L			06/27/14 00:12	1
Styrene	1.0	U	1.0	0.11	ug/L			06/27/14 00:12	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.18	ug/L			06/27/14 00:12	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			06/27/14 00:12	1
Toluene	1.0	U	1.0	0.13	ug/L			06/27/14 00:12	1
Trichloroethene	1.0	U	1.0	0.17	ug/L			06/27/14 00:12	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			06/27/14 00:12	1
Xylenes, Total	2.0	U	2.0	0.14	ug/L			06/27/14 00:12	1
1,1,1-Trichloroethane	1.0	U	1.0	0.22	ug/L			06/27/14 00:12	1
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			06/27/14 00:12	1
Cyclohexane	1.0	U	1.0	0.12	ug/L			06/27/14 00:12	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.67	ug/L			06/27/14 00:12	1
Ethylene Dibromide	1.0	U	1.0	0.24	ug/L			06/27/14 00:12	1
Dichlorodifluoromethane	1.0	U	1.0	0.31	ug/L			06/27/14 00:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.17	ug/L			06/27/14 00:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/27/14 00:12	1
Isopropylbenzene	1.0	U	1.0	0.13	ug/L			06/27/14 00:12	1
Methyl acetate	10	U	10	0.38	ug/L			06/27/14 00:12	1
Methyl tert-butyl ether	1.0	U	1.0	0.17	ug/L			06/27/14 00:12	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.28	ug/L			06/27/14 00:12	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.15	ug/L			06/27/14 00:12	1
1,2-Dichlorobenzene	1.0	U	1.0	0.13	ug/L			06/27/14 00:12	1
1,3-Dichlorobenzene	1.0	U	1.0	0.14	ug/L			06/27/14 00:12	1
1,4-Dichlorobenzene	1.0	U	1.0	0.13	ug/L			06/27/14 00:12	1
Trichlorofluoromethane	1.0	U	1.0	0.21	ug/L			06/27/14 00:12	1
Chlorodibromomethane	1.0	U	1.0	0.18	ug/L			06/27/14 00:12	1
Methylcyclohexane	1.0	U	1.0	0.13	ug/L			06/27/14 00:12	1

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## Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-38645-5**

**Date Collected: 06/16/14 00:00**

**Matrix: Water**

**Date Received: 06/18/14 09:20**

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	85		63 - 129		06/27/14 00:12	1
4-Bromofluorobenzene (Surr)	73		66 - 120		06/27/14 00:12	1
Toluene-d8 (Surr)	88		74 - 120		06/27/14 00:12	1
Dibromofluoromethane (Surr)	89		75 - 121		06/27/14 00:12	1



## Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1



### Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (63-129)	BFB (66-120)	TOL (74-120)	DBFM (75-121)
240-38645-5	TRIP BLANK	85	73	88	89
LCS 240-136336/5	Lab Control Sample	78	84	95	84
MB 240-136336/7	Method Blank	81	73	93	85

**Surrogate Legend**

- 12DCE = 1,2-Dichloroethane-d4 (Surr)
- BFB = 4-Bromofluorobenzene (Surr)
- TOL = Toluene-d8 (Surr)
- DBFM = Dibromofluoromethane (Surr)

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (29-110)	2FP (15-110)	NBZ (31-110)	PHL (10-110)	TPH (31-115)	TBP (21-128)
240-38645-1	SMW-1/061614	43	50	50	57	77	64
240-38645-2	SMW-2/061614	46	52	54	58	74	59
240-38645-2 MS	SMW-2/061614	22 X	24	25 X	27	18 X	25
240-38645-2 MSD	SMW-2/061614	52	51	56	59	43	63
240-38645-3	SMW-3/061614	19 X	23	23 X	25	28 X	22
240-38645-4	DUP-01/061614	46	54	54	60	73	59
LCS 240-135316/19-A	Lab Control Sample	57	60	63	67	78	66
MB 240-135316/18-A	Method Blank	63	67	69	74	84	65

**Surrogate Legend**

- FBP = 2-Fluorobiphenyl (Surr)
- 2FP = 2-Fluorophenol (Surr)
- NBZ = Nitrobenzene-d5 (Surr)
- PHL = Phenol-d5 (Surr)
- TPH = Terphenyl-d14 (Surr)
- TBP = 2,4,6-Tribromophenol (Surr)

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## QC Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1



### Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-136336/7  
 Matrix: Water  
 Analysis Batch: 136336

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	10	U	10	1.1	ug/L			06/26/14 16:00	1
Benzene	1.0	U	1.0	0.13	ug/L			06/26/14 16:00	1
Dichlorobromomethane	1.0	U	1.0	0.15	ug/L			06/26/14 16:00	1
Bromoform	1.0	U	1.0	0.64	ug/L			06/26/14 16:00	1
Bromomethane	1.0	U	1.0	0.41	ug/L			06/26/14 16:00	1
2-Butanone (MEK)	10	U	10	0.57	ug/L			06/26/14 16:00	1
Carbon disulfide	1.0	U	1.0	0.13	ug/L			06/26/14 16:00	1
Carbon tetrachloride	1.0	U	1.0	0.13	ug/L			06/26/14 16:00	1
Chlorobenzene	1.0	U	1.0	0.15	ug/L			06/26/14 16:00	1
Chloroethane	1.0	U	1.0	0.29	ug/L			06/26/14 16:00	1
Chloroform	1.0	U	1.0	0.16	ug/L			06/26/14 16:00	1
Chloromethane	1.0	U	1.0	0.30	ug/L			06/26/14 16:00	1
1,1-Dichloroethane	1.0	U	1.0	0.15	ug/L			06/26/14 16:00	1
1,2-Dichloroethane	1.0	U	1.0	0.22	ug/L			06/26/14 16:00	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/26/14 16:00	1
1,2-Dichloropropane	1.0	U	1.0	0.18	ug/L			06/26/14 16:00	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.14	ug/L			06/26/14 16:00	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.19	ug/L			06/26/14 16:00	1
Ethylbenzene	1.0	U	1.0	0.17	ug/L			06/26/14 16:00	1
2-Hexanone	10	U	10	0.41	ug/L			06/26/14 16:00	1
Methylene Chloride	0.572	J	1.0	0.33	ug/L			06/26/14 16:00	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.32	ug/L			06/26/14 16:00	1
Styrene	1.0	U	1.0	0.11	ug/L			06/26/14 16:00	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.18	ug/L			06/26/14 16:00	1
Tetrachloroethene	1.0	U	1.0	0.29	ug/L			06/26/14 16:00	1
Toluene	1.0	U	1.0	0.13	ug/L			06/26/14 16:00	1
Trichloroethene	1.0	U	1.0	0.17	ug/L			06/26/14 16:00	1
Vinyl chloride	1.0	U	1.0	0.22	ug/L			06/26/14 16:00	1
Xylenes, Total	2.0	U	2.0	0.14	ug/L			06/26/14 16:00	1
1,1,1-Trichloroethane	1.0	U	1.0	0.22	ug/L			06/26/14 16:00	1
1,1,2-Trichloroethane	1.0	U	1.0	0.27	ug/L			06/26/14 16:00	1
Cyclohexane	1.0	U	1.0	0.12	ug/L			06/26/14 16:00	1
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	0.67	ug/L			06/26/14 16:00	1
Ethylene Dibromide	1.0	U	1.0	0.24	ug/L			06/26/14 16:00	1
Dichlorodifluoromethane	1.0	U	1.0	0.31	ug/L			06/26/14 16:00	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.17	ug/L			06/26/14 16:00	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/26/14 16:00	1
Isopropylbenzene	1.0	U	1.0	0.13	ug/L			06/26/14 16:00	1
Methyl acetate	10	U	10	0.38	ug/L			06/26/14 16:00	1
Methyl tert-butyl ether	1.0	U	1.0	0.17	ug/L			06/26/14 16:00	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.28	ug/L			06/26/14 16:00	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.15	ug/L			06/26/14 16:00	1
1,2-Dichlorobenzene	1.0	U	1.0	0.13	ug/L			06/26/14 16:00	1
1,3-Dichlorobenzene	1.0	U	1.0	0.14	ug/L			06/26/14 16:00	1
1,4-Dichlorobenzene	1.0	U	1.0	0.13	ug/L			06/26/14 16:00	1
Trichlorofluoromethane	1.0	U	1.0	0.21	ug/L			06/26/14 16:00	1
Chlorodibromomethane	1.0	U	1.0	0.18	ug/L			06/26/14 16:00	1
Methylcyclohexane	1.0	U	1.0	0.13	ug/L			06/26/14 16:00	1

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## QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1



### Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-136336/7  
Matrix: Water  
Analysis Batch: 136336

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	81		63 - 129		06/26/14 16:00	1
4-Bromofluorobenzene (Surr)	73		66 - 120		06/26/14 16:00	1
Toluene-d8 (Surr)	93		74 - 120		06/26/14 16:00	1
Dibromofluoromethane (Surr)	85		75 - 121		06/26/14 16:00	1

Lab Sample ID: LCS 240-136336/5  
Matrix: Water  
Analysis Batch: 136336

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.73		ug/L		97 80 - 120	
Dichlorobromomethane	10.0	9.10		ug/L		91 72 - 121	
Bromoform	10.0	9.81		ug/L		98 40 - 131	
Bromomethane	10.0	7.11		ug/L		71 11 - 185	
2-Butanone (MEK)	20.0	16.0		ug/L		80 60 - 126	
Carbon disulfide	10.0	9.03		ug/L		90 62 - 142	
Carbon tetrachloride	10.0	8.88		ug/L		89 66 - 128	
Chlorobenzene	10.0	10.1		ug/L		101 80 - 120	
Chloroethane	10.0	7.38		ug/L		74 25 - 153	
Chloroform	10.0	9.28		ug/L		93 79 - 120	
Chloromethane	10.0	4.40		ug/L		44 44 - 126	
1,1-Dichloroethane	10.0	8.93		ug/L		89 80 - 120	
1,2-Dichloroethane	10.0	8.70		ug/L		87 71 - 127	
1,1-Dichloroethene	10.0	9.43		ug/L		94 78 - 131	
1,2-Dichloropropane	10.0	9.20		ug/L		92 80 - 120	
cis-1,3-Dichloropropene	10.0	9.64		ug/L		96 61 - 120	
trans-1,3-Dichloropropene	10.0	11.1		ug/L		111 58 - 120	
Ethylbenzene	10.0	9.81		ug/L		98 80 - 120	
2-Hexanone	20.0	15.1		ug/L		76 55 - 133	
Methylene Chloride	10.0	9.34		ug/L		93 66 - 131	
4-Methyl-2-pentanone (MIBK)	20.0	15.4		ug/L		77 63 - 128	
Styrene	10.0	10.3		ug/L		103 79 - 120	
1,1,2,2-Tetrachloroethane	10.0	9.49		ug/L		95 68 - 120	
Tetrachloroethene	10.0	10.6		ug/L		106 79 - 120	
Toluene	10.0	10.8		ug/L		108 80 - 120	
Trichloroethene	10.0	10.1		ug/L		101 76 - 120	
Vinyl chloride	10.0	6.01		ug/L		60 53 - 127	
Xylenes, Total	20.0	19.8		ug/L		99 80 - 120	
1,1,1-Trichloroethane	10.0	8.62		ug/L		86 74 - 120	
1,1,2-Trichloroethane	10.0	10.4		ug/L		104 80 - 120	
Cyclohexane	10.0	7.40		ug/L		74 54 - 121	
1,2-Dibromo-3-Chloropropane	10.0	9.03		ug/L		90 42 - 136	
Ethylene Dibromide	10.0	10.3		ug/L		103 79 - 120	
Dichlorodifluoromethane	10.0	2.33		ug/L		23 19 - 129	
cis-1,2-Dichloroethene	10.0	9.31		ug/L		93 80 - 120	
trans-1,2-Dichloroethene	10.0	9.87		ug/L		99 80 - 120	
Isopropylbenzene	10.0	9.52		ug/L		95 75 - 120	

TestAmerica Canton

## QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1



### Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-136336/5

Matrix: Water

Analysis Batch: 136336

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl acetate	50.0	37.7		ug/L		75	58 - 131
Methyl tert-butyl ether	10.0	8.62		ug/L		86	52 - 144
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	9.74		ug/L		97	74 - 151
1,2,4-Trichlorobenzene	10.0	7.83		ug/L		78	48 - 135
1,2-Dichlorobenzene	10.0	9.36		ug/L		94	80 - 120
1,3-Dichlorobenzene	10.0	9.37		ug/L		94	80 - 120
1,4-Dichlorobenzene	10.0	9.43		ug/L		94	80 - 120
Trichlorofluoromethane	10.0	7.64		ug/L		76	49 - 157
Methylcyclohexane	10.0	8.23		ug/L		82	56 - 127
m-Xylene & p-Xylene	10.0	10.1		ug/L		101	80 - 120
o-Xylene	10.0	9.72		ug/L		97	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	78		63 - 129
4-Bromofluorobenzene (Surr)	84		66 - 120
Toluene-d8 (Surr)	95		74 - 120
Dibromofluoromethane (Surr)	84		75 - 121

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

Lab Sample ID: MB 240-135316/18-A

Matrix: Water

Analysis Batch: 135686

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 135316

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.20	U	0.20	0.044	ug/L		06/19/14 08:04	06/23/14 07:48	1
Acenaphthylene	0.20	U	0.20	0.020	ug/L		06/19/14 08:04	06/23/14 07:48	1
Acetophenone	0.501	J	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 07:48	1
Anthracene	0.20	U	0.20	0.031	ug/L		06/19/14 08:04	06/23/14 07:48	1
Atrazine	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 07:48	1
Benzaldehyde	1.0	U	1.0	0.30	ug/L		06/19/14 08:04	06/23/14 07:48	1
Benzo[a]anthracene	0.20	U	0.20	0.059	ug/L		06/19/14 08:04	06/23/14 07:48	1
Benzo[a]pyrene	0.20	U	0.20	0.030	ug/L		06/19/14 08:04	06/23/14 07:48	1
Benzo[b]fluoranthene	0.20	U	0.20	0.059	ug/L		06/19/14 08:04	06/23/14 07:48	1
Benzo[g,h,i]perylene	0.20	U	0.20	0.050	ug/L		06/19/14 08:04	06/23/14 07:48	1
Benzo[k]fluoranthene	0.20	U	0.20	0.048	ug/L		06/19/14 08:04	06/23/14 07:48	1
1,1'-Biphenyl	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 07:48	1
Bis(2-chloroethoxy)methane	1.0	U	1.0	0.037	ug/L		06/19/14 08:04	06/23/14 07:48	1
Bis(2-chloroethyl)ether	1.0	U	1.0	0.19	ug/L		06/19/14 08:04	06/23/14 07:48	1
bis (2-chloroisopropyl) ether	1.0	U	1.0	0.18	ug/L		06/19/14 08:04	06/23/14 07:48	1
Bis(2-ethylhexyl) phthalate	15.9		2.0	1.5	ug/L		06/19/14 08:04	06/23/14 07:48	1
4-Bromophenyl phenyl ether	2.0	U	2.0	0.35	ug/L		06/19/14 08:04	06/23/14 07:48	1
Butyl benzyl phthalate	1.0	U	1.0	0.22	ug/L		06/19/14 08:04	06/23/14 07:48	1
Caprolactam	0.832	J	5.0	0.37	ug/L		06/19/14 08:04	06/23/14 07:48	1
Carbazole	1.0	U	1.0	0.11	ug/L		06/19/14 08:04	06/23/14 07:48	1
4-Chloroaniline	2.0	U	2.0	0.15	ug/L		06/19/14 08:04	06/23/14 07:48	1
4-Chloro-3-methylphenol	2.0	U	2.0	0.28	ug/L		06/19/14 08:04	06/23/14 07:48	1

TestAmerica Canton

## QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1



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

Lab Sample ID: MB 240-135316/18-A  
Matrix: Water  
Analysis Batch: 135686

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 135316

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2-Chloronaphthalene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 07:48	1
2-Chlorophenol	1.0	U	1.0	0.13	ug/L		06/19/14 08:04	06/23/14 07:48	1
4-Chlorophenyl phenyl ether	2.0	U	2.0	0.29	ug/L		06/19/14 08:04	06/23/14 07:48	1
Chrysene	0.20	U	0.20	0.035	ug/L		06/19/14 08:04	06/23/14 07:48	1
Dibenz(a,h)anthracene	0.20	U	0.20	0.040	ug/L		06/19/14 08:04	06/23/14 07:48	1
Dibenzofuran	1.0	U	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 07:48	1
3,3'-Dichlorobenzidine	5.0	U	5.0	0.35	ug/L		06/19/14 08:04	06/23/14 07:48	1
2,4-Dichlorophenol	2.0	U	2.0	0.29	ug/L		06/19/14 08:04	06/23/14 07:48	1
Diethyl phthalate	1.0	U	1.0	0.13	ug/L		06/19/14 08:04	06/23/14 07:48	1
2,4-Dimethylphenol	2.0	U	2.0	0.31	ug/L		06/19/14 08:04	06/23/14 07:48	1
Dimethyl phthalate	1.0	U	1.0	0.10	ug/L		06/19/14 08:04	06/23/14 07:48	1
Di-n-butyl phthalate	1.45	U	1.0	0.40	ug/L		06/19/14 08:04	06/23/14 07:48	1
4,6-Dinitro-2-methylphenol	5.0	U	5.0	0.53	ug/L		06/19/14 08:04	06/23/14 07:48	1
2,4-Dinitrophenol	40	U	40	6.1	ug/L		06/19/14 08:04	06/23/14 07:48	1
2,4-Dinitrotoluene	5.0	U	5.0	0.26	ug/L		06/19/14 08:04	06/23/14 07:48	1
2,6-Dinitrotoluene	5.0	U	5.0	0.24	ug/L		06/19/14 08:04	06/23/14 07:48	1
Di-n-octyl phthalate	1.0	U	1.0	0.37	ug/L		06/19/14 08:04	06/23/14 07:48	1
Fluoranthene	0.20	U	0.20	0.027	ug/L		06/19/14 08:04	06/23/14 07:48	1
Fluorene	0.20	U	0.20	0.034	ug/L		06/19/14 08:04	06/23/14 07:48	1
Hexachlorobenzene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 07:48	1
Hexachlorobutadiene	1.0	U	1.0	0.14	ug/L		06/19/14 08:04	06/23/14 07:48	1
Hexachlorocyclopentadiene	10	U	10	2.5	ug/L		06/19/14 08:04	06/23/14 07:48	1
Hexachloroethane	1.0	U	1.0	0.22	ug/L		06/19/14 08:04	06/23/14 07:48	1
Indeno[1,2,3-cd]pyrene	0.20	U	0.20	0.048	ug/L		06/19/14 08:04	06/23/14 07:48	1
Isophorone	1.0	U	1.0	0.042	ug/L		06/19/14 08:04	06/23/14 07:48	1
2-Methylnaphthalene	0.20	U	0.20	0.037	ug/L		06/19/14 08:04	06/23/14 07:48	1
2-Methylphenol	1.0	U	1.0	0.19	ug/L		06/19/14 08:04	06/23/14 07:48	1
3 & 4 Methylphenol	2.0	U	2.0	0.34	ug/L		06/19/14 08:04	06/23/14 07:48	1
Naphthalene	0.20	U	0.20	0.043	ug/L		06/19/14 08:04	06/23/14 07:48	1
2-Nitroaniline	2.0	U	2.0	0.31	ug/L		06/19/14 08:04	06/23/14 07:48	1
3-Nitroaniline	2.0	U	2.0	0.27	ug/L		06/19/14 08:04	06/23/14 07:48	1
4-Nitroaniline	2.0	U	2.0	0.24	ug/L		06/19/14 08:04	06/23/14 07:48	1
Nitrobenzene	1.0	U	1.0	0.12	ug/L		06/19/14 08:04	06/23/14 07:48	1
2-Nitrophenol	2.0	U	2.0	0.21	ug/L		06/19/14 08:04	06/23/14 07:48	1
4-Nitrophenol	5.0	U	5.0	0.59	ug/L		06/19/14 08:04	06/23/14 07:48	1
N-Nitrosodi-n-propylamine	1.0	U	1.0	0.16	ug/L		06/19/14 08:04	06/23/14 07:48	1
N-Nitrosodiphenylamine	1.0	U	1.0	0.11	ug/L		06/19/14 08:04	06/23/14 07:48	1
Pentachlorophenol	40	U	40	5.5	ug/L		06/19/14 08:04	06/23/14 07:48	1
Phenanthrene	0.20	U	0.20	0.031	ug/L		06/19/14 08:04	06/23/14 07:48	1
Phenol	0.387	J	1.0	0.15	ug/L		06/19/14 08:04	06/23/14 07:48	1
Pyrene	0.20	U	0.20	0.028	ug/L		06/19/14 08:04	06/23/14 07:48	1
2,4,5-Trichlorophenol	5.0	U	5.0	0.37	ug/L		06/19/14 08:04	06/23/14 07:48	1
2,4,6-Trichlorophenol	5.0	U	5.0	0.26	ug/L		06/19/14 08:04	06/23/14 07:48	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2-Fluorobiphenyl (Surr)	63		29 - 110	06/19/14 08:04	06/23/14 07:48	1
2-Fluorophenol (Surr)	67		15 - 110	06/19/14 08:04	06/23/14 07:48	1
Nitrobenzene-d5 (Surr)	69		31 - 110	06/19/14 08:04	06/23/14 07:48	1

TestAmerica Canton

## QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

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

Lab Sample ID: MB 240-135316/18-A  
Matrix: Water  
Analysis Batch: 135686

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 135316

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Phenol-d5 (Surr)	74		10 - 110	06/19/14 08:04	06/23/14 07:48	1
Terphenyl-d14 (Surr)	84		31 - 115	06/19/14 08:04	06/23/14 07:48	1
2,4,6-Tribromophenol (Surr)	65		21 - 128	06/19/14 08:04	06/23/14 07:48	1

Lab Sample ID: LCS 240-135316/19-A  
Matrix: Water  
Analysis Batch: 135686

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 135316

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
							Limits
Acenaphthene	40.0	23.2		ug/L		58	40 - 160
Acenaphthylene	40.0	22.6		ug/L		57	40 - 160
Acetophenone	40.0	27.3		ug/L		68	40 - 160
Anthracene	40.0	24.6		ug/L		62	40 - 160
Atrazine	80.0	51.9		ug/L		65	40 - 160
Benzaldehyde	80.0	77.2	E	ug/L		97	20 - 120
Benzo[a]anthracene	40.0	25.4		ug/L		64	40 - 160
Benzo[a]pyrene	40.0	25.0		ug/L		62	40 - 160
Benzo[b]fluoranthene	40.0	26.0		ug/L		65	40 - 160
Benzo[g,h,i]perylene	40.0	26.4		ug/L		66	40 - 160
Benzo[k]fluoranthene	40.0	26.1		ug/L		65	40 - 160
1,1'-Biphenyl	40.0	22.3		ug/L		56	40 - 160
Bis(2-chloroethoxy)methane	40.0	25.6		ug/L		64	40 - 160
Bis(2-chloroethyl)ether	40.0	25.1		ug/L		63	40 - 160
bis (2-chloroisopropyl) ether	40.0	24.5		ug/L		61	40 - 160
Bis(2-ethylhexyl) phthalate	40.0	41.9		ug/L		105	40 - 160
4-Bromophenyl phenyl ether	40.0	24.6		ug/L		61	40 - 160
Butyl benzyl phthalate	40.0	26.9		ug/L		67	40 - 160
Caprolactam	80.0	59.3		ug/L		74	10 - 120
Carbazole	40.0	25.9		ug/L		65	40 - 160
4-Chloroaniline	40.0	36.1		ug/L		90	10 - 120
4-Chloro-3-methylphenol	40.0	29.1		ug/L		73	40 - 160
2-Chloronaphthalene	40.0	21.9		ug/L		55	40 - 160
2-Chlorophenol	40.0	25.5		ug/L		64	40 - 160
4-Chlorophenyl phenyl ether	40.0	23.6		ug/L		59	40 - 160
Chrysene	40.0	25.7		ug/L		64	40 - 160
Dibenz(a,h)anthracene	40.0	27.5		ug/L		69	40 - 160
Dibenzofuran	40.0	23.9		ug/L		60	40 - 160
3,3'-Dichlorobenzidine	80.0	51.4		ug/L		64	10 - 120
2,4-Dichlorophenol	40.0	26.6		ug/L		67	40 - 160
Diethyl phthalate	40.0	26.2		ug/L		65	40 - 160
2,4-Dimethylphenol	40.0	20.7		ug/L		52	10 - 120
Dimethyl phthalate	40.0	26.7		ug/L		67	40 - 160
Di-n-butyl phthalate	40.0	27.7		ug/L		69	40 - 160
4,6-Dinitro-2-methylphenol	80.0	45.9		ug/L		57	40 - 160
2,4-Dinitrophenol	80.0	32.7	J	ug/L		41	20 - 120
2,4-Dinitrotoluene	40.0	29.5		ug/L		74	40 - 160
2,6-Dinitrotoluene	40.0	28.0		ug/L		70	40 - 160
Di-n-octyl phthalate	40.0	27.0		ug/L		67	40 - 160

TestAmerica Canton



## QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1



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

Lab Sample ID: LCS 240-135316/19-A  
Matrix: Water  
Analysis Batch: 135686

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 135316

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoranthene	40.0	24.9		ug/L		62	40 - 160
Fluorene	40.0	23.6		ug/L		59	40 - 160
Hexachlorobenzene	40.0	24.4		ug/L		61	40 - 160
Hexachlorobutadiene	40.0	13.3	*	ug/L		33	40 - 160
Hexachlorocyclopentadiene	40.0	10	U *	ug/L		3	40 - 160
Hexachloroethane	40.0	14.8	*	ug/L		37	40 - 160
Indeno[1,2,3-cd]pyrene	40.0	27.6		ug/L		69	40 - 160
Isophorone	40.0	26.7		ug/L		67	40 - 160
2-Methylnaphthalene	40.0	21.5		ug/L		54	40 - 160
2-Methylphenol	40.0	26.3		ug/L		66	20 - 120
3 & 4 Methylphenol	40.0	25.7		ug/L		64	40 - 160
Naphthalene	40.0	22.1		ug/L		55	40 - 160
2-Nitroaniline	40.0	26.7		ug/L		67	40 - 160
3-Nitroaniline	40.0	27.4		ug/L		69	40 - 160
4-Nitroaniline	40.0	27.4		ug/L		68	40 - 160
Nitrobenzene	40.0	26.1		ug/L		65	40 - 160
2-Nitrophenol	40.0	27.1		ug/L		68	40 - 160
4-Nitrophenol	80.0	57.9		ug/L		72	10 - 120
N-Nitrosodi-n-propylamine	40.0	26.5		ug/L		66	40 - 160
N-Nitrosodiphenylamine	80.0	50.2		ug/L		63	40 - 160
Pentachlorophenol	80.0	48.9		ug/L		61	10 - 120
Phenanthrene	40.0	24.6		ug/L		62	40 - 160
Phenol	40.0	27.3		ug/L		68	10 - 120
Pyrene	40.0	26.0		ug/L		65	40 - 160
2,4,5-Trichlorophenol	40.0	25.0		ug/L		62	20 - 120
2,4,6-Trichlorophenol	40.0	25.4		ug/L		64	40 - 160

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl (Surr)	57		29 - 110
2-Fluorophenol (Surr)	60		15 - 110
Nitrobenzene-d5 (Surr)	63		31 - 110
Phenol-d5 (Surr)	67		10 - 110
Terphenyl-d14 (Surr)	78		31 - 115
2,4,6-Tribromophenol (Surr)	66		21 - 128

Lab Sample ID: 240-38645-2 MS  
Matrix: Water  
Analysis Batch: 135686

Client Sample ID: SMW-2/061614  
Prep Type: Total/NA  
Prep Batch: 135316

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec. Limits
				Result	Qualifier				
Acenaphthene	0.20	U	40.0	6.90		ug/L		17	10 - 160
Acenaphthylene	0.20	U	40.0	6.62		ug/L		17	10 - 160
Acetophenone	0.37	J B	40.0	10.8		ug/L		26	10 - 160
Anthracene	0.20	U	40.0	8.24		ug/L		21	10 - 160
Atrazine	1.0	U	80.0	22.6		ug/L		28	10 - 160
Benzaldehyde	1.0	U	80.0	32.5		ug/L		41	10 - 160
Benzo[a]anthracene	0.20	U	40.0	8.96		ug/L		22	10 - 160
Benzo[a]pyrene	0.20	U	40.0	8.37		ug/L		21	10 - 160

TestAmerica Canton

## QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1



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

Lab Sample ID: 240-38645-2 MS

Matrix: Water

Analysis Batch: 135686

Client Sample ID: SMW-2/061614

Prep Type: Total/NA

Prep Batch: 135316

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier	Added	Result	Qualifier				
Benzo[b]fluoranthene	0.20	U	40.0	9.23		ug/L		23	10 - 160
Benzo[g,h,i]perylene	0.20	U	40.0	8.22		ug/L		21	10 - 160
Benzo[k]fluoranthene	0.20	U	40.0	9.84		ug/L		25	10 - 160
1,1'-Biphenyl	1.0	U	40.0	6.21		ug/L		16	10 - 160
Bis(2-chloroethoxy)methane	1.0	U	40.0	10.1		ug/L		25	10 - 160
Bis(2-chloroethyl)ether	1.0	U	40.0	9.94		ug/L		25	10 - 160
bis (2-chloroisopropyl) ether	1.0	U	40.0	8.89		ug/L		22	10 - 160
Bis(2-ethylhexyl) phthalate	13	B	40.0	25.8		ug/L		32	10 - 160
4-Bromophenyl phenyl ether	2.0	U	40.0	8.08		ug/L		20	10 - 160
Butyl benzyl phthalate	1.0	U	40.0	9.58		ug/L		24	10 - 160
Caprolactam	1.1	J B	80.0	25.6		ug/L		31	10 - 160
Carbazole	1.0	U	40.0	10.4		ug/L		26	10 - 160
4-Chloroaniline	2.0	U	40.0	10.7		ug/L		27	10 - 160
4-Chloro-3-methylphenol	2.0	U	40.0	11.4		ug/L		28	10 - 160
2-Chloronaphthalene	1.0	U	40.0	5.96		ug/L		15	10 - 160
2-Chlorophenol	1.0	U	40.0	10.1		ug/L		25	10 - 160
4-Chlorophenyl phenyl ether	2.0	U	40.0	7.64		ug/L		19	10 - 160
Chrysene	0.20	U	40.0	9.36		ug/L		23	10 - 160
Dibenz(a,h)anthracene	0.20	U	40.0	8.70		ug/L		22	10 - 160
Dibenzofuran	1.0	U	40.0	7.40		ug/L		19	10 - 160
3,3'-Dichlorobenzidine	5.0	U	80.0	4.30	J F1	ug/L		5	10 - 160
2,4-Dichlorophenol	2.0	U	40.0	10.4		ug/L		26	10 - 160
Diethyl phthalate	0.26	J	40.0	11.0		ug/L		27	10 - 160
2,4-Dimethylphenol	2.0	U	40.0	5.02		ug/L		13	10 - 160
Dimethyl phthalate	1.0	U	40.0	10.5		ug/L		26	10 - 160
Di-n-butyl phthalate	2.1	B	40.0	11.4		ug/L		23	10 - 160
4,6-Dinitro-2-methylphenol	5.0	U	80.0	20.0		ug/L		25	10 - 160
2,4-Dinitrophenol	40	U	80.0	15.7	J	ug/L		20	10 - 160
2,4-Dinitrotoluene	5.0	U	40.0	11.4		ug/L		29	10 - 160
2,6-Dinitrotoluene	5.0	U	40.0	10.8		ug/L		27	10 - 160
Di-n-octyl phthalate	1.0	U	40.0	9.82		ug/L		25	10 - 160
Fluoranthene	0.20	U	40.0	8.97		ug/L		22	10 - 160
Fluorene	0.20	U	40.0	7.88		ug/L		20	10 - 160
Hexachlorobenzene	1.0	U	40.0	8.76		ug/L		22	10 - 160
Hexachlorobutadiene	1.0	U *	40.0	4.20		ug/L		11	10 - 160
Hexachlorocyclopentadiene	10	U *	40.0	10	U F1	ug/L		0	10 - 160
Hexachloroethane	1.0	U *	40.0	4.71		ug/L		12	10 - 160
Indeno[1,2,3-cd]pyrene	0.20	U	40.0	8.71		ug/L		22	10 - 160
Isophorone	1.0	U	40.0	10.6		ug/L		27	10 - 160
2-Methylnaphthalene	0.20	U	40.0	5.66		ug/L		14	10 - 160
2-Methylphenol	1.0	U	40.0	9.59		ug/L		24	10 - 160
3 & 4 Methylphenol	2.0	U	40.0	9.65		ug/L		24	10 - 160
Naphthalene	0.20	U	40.0	6.12		ug/L		15	10 - 160
2-Nitroaniline	2.0	U	40.0	10.9		ug/L		27	10 - 160
3-Nitroaniline	2.0	U	40.0	11.0		ug/L		27	10 - 160
4-Nitroaniline	2.0	U	40.0	12.1		ug/L		30	10 - 160
Nitrobenzene	1.0	U	40.0	9.90		ug/L		25	10 - 160
2-Nitrophenol	2.0	U	40.0	10.2		ug/L		26	10 - 160

TestAmerica Canton

## QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1



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

Lab Sample ID: 240-38645-2 MS

Matrix: Water  
Analysis Batch: 135686

Client Sample ID: SMW-2/061614

Prep Type: Total/NA  
Prep Batch: 135316

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
4-Nitrophenol	5.0	U	80.0	23.2		ug/L		29	10 - 160
N-Nitrosodi-n-propylamine	1.0	U	40.0	10.7		ug/L		27	10 - 160
N-Nitrosodiphenylamine	1.0	U	80.0	11.4		ug/L		14	10 - 160
Pentachlorophenol	40	U	80.0	19.1	J	ug/L		24	10 - 160
Phenanthrene	0.20	U	40.0	8.63		ug/L		22	10 - 160
Phenol	0.33	J B	40.0	11.0		ug/L		27	10 - 160
Pyrene	0.20	U	40.0	9.16		ug/L		23	10 - 160
2,4,5-Trichlorophenol	5.0	U	40.0	9.70		ug/L		24	10 - 160
2,4,6-Trichlorophenol	5.0	U	40.0	9.73		ug/L		24	10 - 160

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl (Surr)	22	X	29 - 110
2-Fluorophenol (Surr)	24		15 - 110
Nitrobenzene-d5 (Surr)	25	X	31 - 110
Phenol-d5 (Surr)	27		10 - 110
Terphenyl-d14 (Surr)	18	X	31 - 115
2,4,6-Tribromophenol (Surr)	25		21 - 128

Lab Sample ID: 240-38645-2 MSD

Matrix: Water  
Analysis Batch: 135686

Client Sample ID: SMW-2/061614

Prep Type: Total/NA  
Prep Batch: 135316

Analyte	Sample	Sample	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec. Limits	RPD	
	Result	Qualifier		Result	Qualifier					RPD	Limit
Acenaphthene	0.20	U	40.0	16.7	F2	ug/L		42	10 - 160	83	30
Acenaphthylene	0.20	U	40.0	16.3	F2	ug/L		41	10 - 160	85	30
Acetophenone	0.37	J B	40.0	24.8	F2	ug/L		61	10 - 160	78	30
Anthracene	0.20	U	40.0	18.5	F2	ug/L		46	10 - 160	77	30
Atrazine	1.0	U	80.0	54.0	F2	ug/L		67	10 - 160	82	30
Benzaldehyde	1.0	U	80.0	64.4	E F2	ug/L		81	10 - 160	66	30
Benzo[a]anthracene	0.20	U	40.0	23.3	F2	ug/L		58	10 - 160	89	30
Benzo[a]pyrene	0.20	U	40.0	21.4	F2	ug/L		53	10 - 160	87	30
Benzo[b]fluoranthene	0.20	U	40.0	24.0	F2	ug/L		60	10 - 160	89	30
Benzo[g,h,i]perylene	0.20	U	40.0	21.3	F2	ug/L		53	10 - 160	89	30
Benzo[k]fluoranthene	0.20	U	40.0	24.4	F2	ug/L		61	10 - 160	85	30
1,1'-Biphenyl	1.0	U	40.0	15.0	F2	ug/L		38	10 - 160	83	30
Bis(2-chloroethoxy)methane	1.0	U	40.0	23.9	F2	ug/L		60	10 - 160	81	30
Bis(2-chloroethyl)ether	1.0	U	40.0	22.8	F2	ug/L		57	10 - 160	79	30
bis (2-chloroisopropyl) ether	1.0	U	40.0	20.0	F2	ug/L		50	10 - 160	77	30
Bis(2-ethylhexyl) phthalate	13	B	40.0	36.7	F2	ug/L		59	10 - 160	35	30
4-Bromophenyl phenyl ether	2.0	U	40.0	20.3	F2	ug/L		51	10 - 160	86	30
Butyl benzyl phthalate	1.0	U	40.0	24.6	F2	ug/L		62	10 - 160	88	30
Caprolactam	1.1	J B	80.0	61.0	F2	ug/L		75	10 - 160	82	30
Carbazole	1.0	U	40.0	24.6	F2	ug/L		62	10 - 160	81	30
4-Chloroaniline	2.0	U	40.0	23.8	F2	ug/L		59	10 - 160	76	30
4-Chloro-3-methylphenol	2.0	U	40.0	27.3	F2	ug/L		68	10 - 160	82	30
2-Chloronaphthalene	1.0	U	40.0	14.8	F2	ug/L		37	10 - 160	85	30
2-Chlorophenol	1.0	U	40.0	23.1	F2	ug/L		58	10 - 160	78	30
4-Chlorophenyl phenyl ether	2.0	U	40.0	19.4	F2	ug/L		48	10 - 160	87	30

TestAmerica Canton

## QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1



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

Lab Sample ID: 240-38645-2 MSD

Matrix: Water

Analysis Batch: 135686

Client Sample ID: SMW-2/061614

Prep Type: Total/NA

Prep Batch: 135316

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.		RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits	RPD		
Chrysene	0.20	U	40.0	23.5	F2	ug/L		59	10 - 160	86	30	
Dibenz(a,h)anthracene	0.20	U	40.0	23.4	F2	ug/L		58	10 - 160	92	30	
Dibenzofuran	1.0	U	40.0	18.8	F2	ug/L		47	10 - 160	87	30	
3,3'-Dichlorobenzidine	5.0	U	80.0	8.74	F2	ug/L		11	10 - 160	68	30	
2,4-Dichlorophenol	2.0	U	40.0	24.5	F2	ug/L		61	10 - 160	81	30	
Diethyl phthalate	0.26	J	40.0	27.3	F2	ug/L		68	10 - 160	85	30	
2,4-Dimethylphenol	2.0	U	40.0	8.80	F2	ug/L		22	10 - 160	55	30	
Dimethyl phthalate	1.0	U	40.0	27.2	F2	ug/L		68	10 - 160	88	30	
Di-n-butyl phthalate	2.1	B	40.0	25.2	F2	ug/L		58	10 - 160	76	30	
4,6-Dinitro-2-methylphenol	5.0	U	80.0	55.4	F2	ug/L		69	10 - 160	94	30	
2,4-Dinitrophenol	40	U	80.0	54.7	F2	ug/L		68	10 - 160	111	30	
2,4-Dinitrotoluene	5.0	U	40.0	29.4	F2	ug/L		73	10 - 160	88	30	
2,6-Dinitrotoluene	5.0	U	40.0	28.7	F2	ug/L		72	10 - 160	90	30	
Di-n-octyl phthalate	1.0	U	40.0	24.9	F2	ug/L		62	10 - 160	87	30	
Fluoranthene	0.20	U	40.0	22.6	F2	ug/L		57	10 - 160	86	30	
Fluorene	0.20	U	40.0	19.7	F2	ug/L		49	10 - 160	86	30	
Hexachlorobenzene	1.0	U	40.0	21.8	F2	ug/L		54	10 - 160	85	30	
Hexachlorobutadiene	1.0	U*	40.0	9.77	F2	ug/L		24	10 - 160	80	30	
Hexachlorocyclopentadiene	10	U*	40.0	10	U F1	ug/L		0	10 - 160	NC	30	
Hexachloroethane	1.0	U*	40.0	10.5	F2	ug/L		26	10 - 160	76	30	
Indeno[1,2,3-cd]pyrene	0.20	U	40.0	23.5	F2	ug/L		59	10 - 160	92	30	
Isophorone	1.0	U	40.0	25.6	F2	ug/L		64	10 - 160	83	30	
2-Methylnaphthalene	0.20	U	40.0	13.3	F2	ug/L		33	10 - 160	81	30	
2-Methylphenol	1.0	U	40.0	20.5	F2	ug/L		51	10 - 160	72	30	
3 & 4 Methylphenol	2.0	U	40.0	20.6	F2	ug/L		52	10 - 160	73	30	
Naphthalene	0.20	U	40.0	14.4	F2	ug/L		36	10 - 160	81	30	
2-Nitroaniline	2.0	U	40.0	30.3	F2	ug/L		76	10 - 160	94	30	
3-Nitroaniline	2.0	U	40.0	24.4	F2	ug/L		61	10 - 160	76	30	
4-Nitroaniline	2.0	U	40.0	28.5	F2	ug/L		71	10 - 160	80	30	
Nitrobenzene	1.0	U	40.0	23.5	F2	ug/L		59	10 - 160	81	30	
2-Nitrophenol	2.0	U	40.0	26.3	F2	ug/L		66	10 - 160	88	30	
4-Nitrophenol	5.0	U	80.0	62.5	F2	ug/L		78	10 - 160	92	30	
N-Nitrosodi-n-propylamine	1.0	U	40.0	24.9	F2	ug/L		62	10 - 160	80	30	
N-Nitrosodiphenylamine	1.0	U	80.0	24.5	F2	ug/L		31	10 - 160	73	30	
Pentachlorophenol	40	U	80.0	58.3	F2	ug/L		73	10 - 160	101	30	
Phenanthrene	0.20	U	40.0	21.7	F2	ug/L		54	10 - 160	86	30	
Phenol	0.33	J B	40.0	25.2	F2	ug/L		62	10 - 160	79	30	
Pyrene	0.20	U	40.0	23.3	F2	ug/L		58	10 - 160	87	30	
2,4,5-Trichlorophenol	5.0	U	40.0	25.7	F2	ug/L		64	10 - 160	90	30	
2,4,6-Trichlorophenol	5.0	U	40.0	25.7	F2	ug/L		64	10 - 160	90	30	

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
2-Fluorobiphenyl (Surr)	52		29 - 110
2-Fluorophenol (Surr)	51		15 - 110
Nitrobenzene-d5 (Surr)	56		31 - 110
Phenol-d5 (Surr)	59		10 - 110
Terphenyl-d14 (Surr)	43		31 - 115
2,4,6-Tribromophenol (Surr)	63		21 - 128

TestAmerica Canton

## QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

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### GC/MS VOA

#### Analysis Batch: 136336

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-38645-5	TRIP BLANK	Total/NA	Water	8260B	
LCS 240-136336/5	Lab Control Sample	Total/NA	Water	8260B	
MB 240-136336/7	Method Blank	Total/NA	Water	8260B	

### GC/MS Semi VOA

#### Prep Batch: 135316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-38645-1	SMW-1/061614	Total/NA	Water	3510C	
240-38645-2	SMW-2/061614	Total/NA	Water	3510C	
240-38645-2 MS	SMW-2/061614	Total/NA	Water	3510C	
240-38645-2 MSD	SMW-2/061614	Total/NA	Water	3510C	
240-38645-3	SMW-3/061614	Total/NA	Water	3510C	
240-38645-4	DUP-01/061614	Total/NA	Water	3510C	
LCS 240-135316/19-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-135316/18-A	Method Blank	Total/NA	Water	3510C	

#### Analysis Batch: 135686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-38645-1	SMW-1/061614	Total/NA	Water	8270C	135316
240-38645-2	SMW-2/061614	Total/NA	Water	8270C	135316
240-38645-2 MS	SMW-2/061614	Total/NA	Water	8270C	135316
240-38645-2 MSD	SMW-2/061614	Total/NA	Water	8270C	135316
240-38645-3	SMW-3/061614	Total/NA	Water	8270C	135316
240-38645-4	DUP-01/061614	Total/NA	Water	8270C	135316
LCS 240-135316/19-A	Lab Control Sample	Total/NA	Water	8270C	135316
MB 240-135316/18-A	Method Blank	Total/NA	Water	8270C	135316

## Lab Chronicle

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Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

**Client Sample ID: SMW-1/061614**

**Lab Sample ID: 240-38645-1**

Date Collected: 06/16/14 17:00

Matrix: Water

Date Received: 06/18/14 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			135316	06/19/14 08:04	KEC	TAL CAN
Total/NA	Analysis	8270C		1	135686	06/23/14 09:44	TMH	TAL CAN

**Client Sample ID: SMW-2/061614**

**Lab Sample ID: 240-38645-2**

Date Collected: 06/16/14 16:35

Matrix: Water

Date Received: 06/18/14 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			135316	06/19/14 08:04	KEC	TAL CAN
Total/NA	Analysis	8270C		1	135686	06/23/14 10:07	TMH	TAL CAN

**Client Sample ID: SMW-3/061614**

**Lab Sample ID: 240-38645-3**

Date Collected: 06/16/14 16:50

Matrix: Water

Date Received: 06/18/14 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			135316	06/19/14 08:04	KEC	TAL CAN
Total/NA	Analysis	8270C		1	135686	06/23/14 11:17	TMH	TAL CAN

**Client Sample ID: DUP-01/061614**

**Lab Sample ID: 240-38645-4**

Date Collected: 06/16/14 00:00

Matrix: Water

Date Received: 06/18/14 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			135316	06/19/14 08:04	KEC	TAL CAN
Total/NA	Analysis	8270C		1	135686	06/23/14 11:41	TMH	TAL CAN

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-38645-5**

Date Collected: 06/16/14 00:00

Matrix: Water

Date Received: 06/18/14 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	136336	06/27/14 00:12	RJQ	TAL CAN

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

## Certification Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1



### Laboratory: TestAmerica Canton

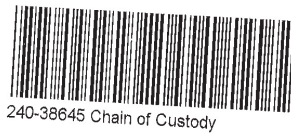
All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
California	NELAP	9	01144CA	06-30-14 *
California	State Program	9	2927	04-30-15
Connecticut	State Program	1	PH-0590	12-31-14
Florida	NELAP	4	E87225	06-30-14 *
Georgia	State Program	4	N/A	06-30-14 *
Illinois	NELAP	5	200004	07-31-14 *
Kansas	NELAP	7	E-10336	01-31-15
Kentucky (UST)	State Program	4	58	06-30-14 *
L-A-B	DoD ELAP		L2315	07-18-16
Minnesota	NELAP	5	039-999-348	12-31-14
Nevada	State Program	9	OH-000482008A	07-31-14 *
New Jersey	NELAP	2	OH001	06-30-15
New York	NELAP	2	10975	03-31-15
Ohio VAP	State Program	5	CL0024	10-31-15
Pennsylvania	NELAP	3	68-00340	08-31-14 *
Texas	NELAP	6		08-31-14
USDA	Federal		P330-13-00319	11-26-16
Virginia	NELAP	3	460175	09-14-14
Washington	State Program	10	C971	01-12-15
West Virginia DEP	State Program	3	210	12-31-14
Wisconsin	State Program	5	999518190	08-31-14 *

\* Certification renewal pending - certification considered valid.

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**CHAIN OF CUSTODY  
AND  
RECEIVING DOCUMENTS**





# South Tank Farm CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

1.0722

Lab Work Order # \_\_\_\_\_

Page 1 of 3

Contact & Company Name: <b>ARCADIS</b> Address: 100E Campus View Blvd, Ste 200 Columbus, OH 43235 City: Columbus, OH State: OH Zip: 43235 Telephone: 614-985-9130 Fax: _____ Email Address: <a href="mailto:rc_rumschlag@arcadis.com">rc_rumschlag@arcadis.com</a> Signature: _____ Printed Name: <b>KARL ELDREDGE</b>	Laboratory Name: <b>ARCADIS</b> Address: 100E Campus View Blvd, Ste 200 Columbus, OH 43235 City: Columbus, OH State: OH Zip: 43235 Telephone: 614-985-9130 Fax: _____ Email Address: <a href="mailto:rc_rumschlag@arcadis.com">rc_rumschlag@arcadis.com</a> Signature: _____ Printed Name: <b>KARL ELDREDGE</b>	Preservation Key: A. H <sub>2</sub> O B. HCl C. HNO <sub>3</sub> D. NaOH E. None F. Other: _____ G. Other: _____ H. Other: _____ Matrix Key: SO - Soil W - Water T - Tissue SE - Sediment SL - Sludge A - Air NL - NAPL/OL SW - Sample Wipe Other: _____	Container Information Key: 1. 40 ml Vial 2. 1L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encara 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other: <b>250ml Amber</b> 10. Other: _____
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Sample ID	Collection Date	Time	Type	Comp	Grab	Matrix	PARAMETER ANALYSIS & METHOD		REMARKS
							TLCS VCS	TRX VCS	
SMN-1/06/10/14	6/10/14	1700	✓			IN	TLCS VCS	TRX VCS	AMS MSD sample (6 bottles)
SMN-2/06/10/14	1635		✓			↓	TLCS VCS	TRX VCS	
SMN-3/06/10/14	1650		✓			↓	TLCS VCS	TRX VCS	
DUP-01/06/10/14			✓			↓	TLCS VCS	TRX VCS	run for me; only - check with the chemist before running analysis
TRIP BLANKS (2)			✓			↓	TLCS VCS	TRX VCS	

Special Instructions/Comments: **Lab PM: Denise Poma**

Special QA/QC Instructions (\*)

Laboratory Information and Receipt		Received By		Relinquished By		Laboratory Received By	
Name: <b>Test America</b> Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact Cooler packed with ice (✓)	Name: <b>KARL ELDREDGE</b> Signature: _____ Firm: <b>ARCADIS</b> Date/Time: <b>6/17/14 0835</b>	Name: <b>Debra Olson</b> Signature: _____ Firm: <b>TA</b> Date/Time: <b>6/17/14 09:35</b>	Name: <b>Matt Barbieri</b> Signature: _____ Firm: <b>Test America</b> Date/Time: <b>6/17/14 14:10</b>	Name: <b>N. Sulek</b> Signature: _____ Firm: <b>TA</b> Date/Time: <b>6.16.14 920</b>	Name: _____ Signature: _____ Firm: _____ Date/Time: _____	Name: _____ Signature: _____ Firm: _____ Date/Time: _____	Name: _____ Signature: _____ Firm: _____ Date/Time: _____

Shipping Tracking #: **STANDARD (2 INKS)**

Sample Receipt: \_\_\_\_\_

Condition/Cooler Temp: \_\_\_\_\_

Distribution: **WHITE - Laboratory returns with results**      **YELLOW - Lab copy**      **PINK - Retained by ARCADIS**

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TestAmerica Canton Sample Receipt Form/Narrative  
Canton Facility

Client Arcaadis Site Name \_\_\_\_\_ Cooler unpacked by: \_\_\_\_\_  
 Cooler Received on 6.18.14 Opened on 6.18.14  
 FedEx: 1<sup>st</sup> Grd Exp UPS FAS Stetson Client Drop Off TestAmerica Courier Other \_\_\_\_\_  
 TestAmerica Cooler # \_\_\_\_\_ Foam Box Client Cooler Box Other \_\_\_\_\_  
 Packing material used: Bubble Wrap Foam Plastic Bag None Other \_\_\_\_\_  
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt  
 IR GUN# A (CF +2 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN# 4 (CF -2 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN# 5 (CF +0 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN# 8 (CF +0 °C) Observed Cooler Temp. 1.6 °C Corrected Cooler Temp. 1.6 °C

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No  
 -Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA  
 -Were custody seals on the bottle(s)? Yes No

3. Shippers' packing slip attached to the cooler(s)? Yes No  
 4. Did custody papers accompany the sample(s)? Yes No  
 5. Were the custody papers relinquished & signed in the appropriate place? Yes No

6. Did all bottles arrive in good condition (Unbroken)? Yes No  
 7. Could all bottle labels be reconciled with the COC? Yes No  
 8. Were correct bottle(s) used for the test(s) indicated? Yes No  
 9. Sufficient quantity received to perform indicated analyses? Yes No  
 10. Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC302587  
 11. Were VOAs on the COC? Yes No  
 12. Were air bubbles >6 mm in any VOA vials? Yes No NA  
 13. Was a trip blank present in the cooler(s)? Yes No

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other  
 Concerning \_\_\_\_\_

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

15. SAMPLE CONDITION

Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
 Sample(s) \_\_\_\_\_ were received in a broken container.  
 Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION

Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
 Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_

Ref: SOP NC-SC-0005, Sample Receiving  
 C:\Users\madduxa\AppData\Local\Microsoft\Windows\Temporary Internet Files\OLKC338\WI-NC-099J-060314 Cooler Receipt Form.doc djf



**Appendix E**

Chain of Custody



**Soil**

TestAmerica Canton  
4101 Shuffel Street, N.W.

South Tank Farm

Chain of Custody Record

042670

TestAmerica  
THE LEADER IN ENVIRONMENTAL TESTING  
TestAmerica Laboratories, Inc.  
TAL-8210 (0719)

North Canton, OH 44720  
Phone: 330.497.9396 Fax: 330.497.8772

Regulatory Program:  DW  NPDES  RCRA  Other: VST

Client Contact  
Company Name: ARCADIS  
Address: 100 E. Columbus View Drive Ste 200  
City/State/Zip: Columbus, OH 43235  
Phone: 614-985-9130  
Fax: \_\_\_\_\_

Project Manager: Dr. Rumschlag  
Tel/Fax: 614-985-9130  
Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS

Site Contact: Kari Ewing  
Date: \_\_\_\_\_  
Lab Contact: DYANIS PAUL  
Carrier: \_\_\_\_\_

Project Name: PAPER MILL INVESTIGATION  
Site: MOUND - SOUTH TANK FARM  
P.O.#: 01000204-2014

COG No: \_\_\_\_\_ of 3 COCs  
Sampler: Kari Ewing  
For Lab Use Only:  
Walk-in Client:  
Lab Sampling:  
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:
SSB-2(12-14)	6/10/14	1015	G	Soil	2	N	XX	
SSB-2(18-20)	6/10/14	1020	G	Soil	2	N	XX	
SSB-1(10-12)	6/10/14	1300	G	Soil	2	N	XX	
SSB-1(18-20)	6/10/14	1330	G	Soil	2	N	XX	
SSB-3(0-2)	6/10/14	1100	G	Soil	2	N	XX	
SSB-3(10-18)	6/10/14	1500	G	Soil	2	N	XX	

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other  
Possible Hazard Identification: \_\_\_\_\_  
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Special Instructions/QC Requirements & Comments:  
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Custody Seal No.: \_\_\_\_\_  
Custody Seals Intact:  Yes  No  
Relinquished by: [Signature]  
Relinquished by: [Signature]  
Received by: [Signature]  
Received by: [Signature]  
Date/Time: 6/14/2014  
Date/Time: 6/13/14 0920  
Company: ARCADIS  
Company: TAC  
Cooler Temp. (°C): Obs'd: \_\_\_\_\_  
Therm ID No.: \_\_\_\_\_





**Groundwater**



# South Tank Farm CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

1.0.22.2

Lab Work Order # \_\_\_\_\_

Page 1 of 3

Contact & Company Name: <b>ARCADIS</b> Address: 100E Campus View Blvd, Ste 200 Columbus, OH 43235 City: Columbus, OH State: OH Zip: 43235 Telephone: 614-985-9130 Fax: _____ Email Address: info@arcadis.com	Sample ID: <b>SMN-1/06/1014</b> <b>SMN-2/06/1014</b> <b>SMN-3/06/1014</b> <b>DUP-01/06/1014</b> <b>TRIP BLANKS (2)</b>	Collection Date: <b>06/14/14</b> Time: <b>1700</b> Matrix: <b>W</b>	Preservation Key: <input type="checkbox"/> H <sub>2</sub> O <sub>2</sub> <input type="checkbox"/> HCl <input type="checkbox"/> HNO <sub>3</sub> <input type="checkbox"/> NaOH <input type="checkbox"/> None <input type="checkbox"/> Other: _____ Container Information Key: <input type="checkbox"/> 40 ml Vial <input type="checkbox"/> 1 L Amber <input type="checkbox"/> 250 ml Plastic <input type="checkbox"/> 500 ml Plastic <input type="checkbox"/> Encara <input type="checkbox"/> 2 oz. Glass <input type="checkbox"/> 8 oz. Glass <input type="checkbox"/> Other: <b>250ml Amber</b> Matrix Key: <input type="checkbox"/> SE - Sediment <input type="checkbox"/> SW - Sample Wipe <input type="checkbox"/> A - Air <input type="checkbox"/> NL - NAPL/OL <input type="checkbox"/> Other: _____
--	---	---	---

Sample ID	Collection Date	Time	Matrix	Preservative Filtered (✓)	# of Containers	Container Information	PARAMETER ANALYSIS & METHOD	REMARKS
SMN-1/06/1014	06/14/14	1700	W	✓	2	USOW	TEL SVCS BTEX/MBRE TEL SVCS	AMS/MSD sample (6 bottles)
SMN-2/06/1014	06/14/14	1635	W	✓	2	USOW	TEL SVCS BTEX/MBRE TEL SVCS	run for me; only - check with the turning before running analysis
SMN-3/06/1014	06/14/14	1650	W	✓	2	USOW	TEL SVCS BTEX/MBRE TEL SVCS	
DUP-01/06/1014	06/14/14		W	✓	2	USOW	TEL SVCS BTEX/MBRE TEL SVCS	
TRIP BLANKS (2)	06/14/14		W	✓	2	USOW	TEL SVCS BTEX/MBRE TEL SVCS	

Special Instructions/Comments: **Lab PM: Denise Poma**

Special QA/QC Instructions (\*)

Laboratory Information and Receipt		Received By		Relinquished By		Laboratory Received By	
Lab Name: <b>Test America</b>	Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Printed Name: <b>Debra Olson</b>	Signature: <i>[Signature]</i>	Printed Name: <b>Matt Barbieri</b>	Signature: <i>[Signature]</i>	Printed Name: <b>N. Sulek</b>	Signature: <i>[Signature]</i>
Sample Receipt: <b>Standard (2 INK)</b>	Condition/Cooler Temp: _____	Printed Name: <b>TA</b>	Signature: <i>[Signature]</i>	Printed Name: <b>Test America</b>	Signature: <i>[Signature]</i>	Printed Name: <b>TA</b>	Signature: <i>[Signature]</i>
Shipping Tracking #: _____		Date/Time: <b>6/17/14 09:35</b>	Date/Time: <b>6/17/14 14:10</b>	Date/Time: <b>6/17/14 14:10</b>	Date/Time: <b>6/17/14 14:10</b>	Date/Time: <b>6/16/14</b>	Date/Time: <b>9:20</b>

Distribution: **WHITE** - Laboratory returns with results  
**YELLOW** - Lab copy  
**PINK** - Retained by ARCADIS



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