Revitalizing Auto Communities
Environmental Response Trust

July 6, 2015

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

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

Dear Mr. Duzak:

Revitalizing Auto Communities Environmental Response Trust (RACER Trust) is submitting this Tier I Investigation Report in response to the Bureau of Underground Storage Tank Regulations (BUSTR) Additional Information Requested (AIR) letter, dated January 7, 2015, for the above referenced site. The BUSTR letter was issued in response to the Tier 1 Investigation Results for the South Tank Farm (STF), dated October 22, 2014. An extension request for the submittal of the AIR was requested in a letter dated April 6, 2015 and approved by BUSTR in a letter dated April 7, 2015. This Tier 1 Investigation Report is being submitted in conjunction with the AIR to Tier 1 Response letter dated June 22, 2015.

Four additional soil borings (SSB-4 to SSB-7) were installed in the vicinity of STF-UST 2-5-15' and SSB-3 for confirmation and delineation purposes as requested in the above mentioned AIR letter. Results of the confirmation and delineation of chemicals of concern (COC) in soil are summarized in the attached Tier 1 Investigation Report Form.

Based on the soil analytical data and the findings of the Tier 1 Investigation, the following pathways and COCs exceed Tier 1 Action Levels and require additional evaluation:

- TPH (C_{10} to C_{20} and C_{20} to C_{34}) - Soil saturation

As stated in the AIR to Tier 1 Response letter, RACER Trust requests BUSTR's written approval of the Tier 1 Investigation and subsequently a shallow excavation in the form of an Interim Response Action (IRA) will be completed.

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

Sincerely,

Pamela L. Barnett

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

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

TIER 1 INVESTIGATION REPORT FORM

Due within one year of the occurrence of any of the following:

- Receiving analytical results, which exceed action levels, while conducting investigations pursuant to paragraph (F)(3)(b) of OAC 1301:7-9-13;
- Electing to conduct corrective actions pursuant to paragraph (B)(2) of OAC 1301:7-9-13;
- Receiving analytical results, which exceed action levels, from a closure assessment conducted pursuant to paragraph (F) of OAC 1301:7-9-12; or
- Conducting corrective action activities pursuant to paragraph (B)(3) and (B)(4) of OAC 1301:7-9-13.

OWNER/OPERATOR AND FACILITY DATA

FACILITY INFORMATION:

COMPANY: RACER Trust
ADDRESS: 3600 Dryden Road
CITY: Moraine, Ohio
COUNTY: Montgomery
ZIP CODE: 45439
LAT/LONG: Latitude 1483371.6285 Longitude 620717.2830
FACILITY ID #: 57000002

UST OWNER INFORMATION:

COMPANY: RACER Trust
ADDRESS: 500 Woodward Avenue, Suite 1510
CITY, STATE: Detroit, MI
ZIP CODE: 48226
CONTACT PERSON: Pam Barnett
PHONE: 937-751-8635

UST OPERATOR INFORMATION:

COMPANY: Harrison Division General Motors Corp.
ADDRESS: 3600 Dryden Road
CITY, STATE: Moraine, Ohio
ZIP: 45439
CONTACT PERSON: Pam Barnett
PHONE: 937-751-8635

PROPERTY OWNER INFORMATION:

COMPANY: IRG Moraine LLC
ADDRESS: 2601 West Stroop Road
CITY, STATE: Moraine, Ohio
ZIP: 45439
CONTACT PERSON: Doug Brucker
PHONE: 440-320-4845

UNDERGROUND STORAGE TANK (UST) SYSTEM DATA

Tank #	Date Installed	Capacity	Const. Material	Tank Status	Date Removed
BUSTR Tank 1	1974	10,000	Steel	R	11/5/1992
BUSTR Tank 2	1974	10,000	Steel	R	11/3/1992
BUSTR Tank 3	1974	10,000	Steel	R	11/3/1992
BUSTR Tank 4	1974	10,000	Steel	R	11/3/1992
BUSTR Tank 5	1974	10,000	Steel	R	10/29/1992
SWMU T1 / SPCC Tank No. 27	1974	10,000	Steel	R	1992
SWMU T2 / SPCC Tank No. 2	1975	11,000	Steel	R	May 1986
SWMU T3 / SPCC Tank No. 8	1975	11,000	Steel	R	May 1986

STATUS= OOS<90 *– Out of Service < 90 days* ***OOS>90*** *– Out of Service > 90 days* ***RE*** *- Replace* ***R*** *- Removed*
CIU *- Currently In Use* ***NA*** *- Not Applicable* ***CIS*** *- Change in Service* ***CIP*** *- Closed in Place*

SITE HISTORY AND VISUAL SITE EVALUATION

(Include a description of the property, surrounding area, the date the release occurred, etc.)

The Revitalizing Auto Communities Environmental Response Trust (RACER Trust) South Tank Farm (STF) site (Site) (BUSTR Release # 57000002-N00004) is located in Moraine, Montgomery County, Ohio, approximately one mile south of Dayton, Ohio. The RACER Trust Moraine Facilities site has had a multi-phased Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) completed and corrective measures are on-going. The site includes the former Delphi Harrison Thermal Systems Moraine Plant (former Delphi Thermal Moraine), former General Motors Powertrain Group, Moraine Engine Plant (former Moraine Engine), and former General Motors Truck Group, Moraine Assembly Plant (former Moraine Assembly). The former Moraine Engine and Moraine Assembly facilities occupy approximately 239 acres, while the adjacent former Delphi Thermal Moraine facility occupies approximately 124 acres. The STF is located south of the former Delphi facility on the northwest corner of Former Building 21 (see **Figures 1** and **2**).

The Site is located within an area that is currently zoned for general industry and has been since the mid 1920's. The immediate vicinity of the Site has been used for industrial manufacturing for more than 50 years. Environmental assessment activities that included evaluating soil and groundwater quality for BUSTR purposes have been performed at the RACER Trust Moraine Facilities site since approximately 1992.

The Site is located in the Great Miami River Valley, which is bound by bedrock valley walls and various glacial features. The Site is situated on the valley flats, which has little relief and has grade elevations ranging from approximately 725 to 735 feet above mean sea level. The Site UST systems are included in the "Underground Storage Tank (UST) System Data" table presented above. No other known out-of-service UST systems exist on the STF site.

The following Site information was adapted from the October 5, 2012 letter from RACER Trust to Ms. Mirtha Cápiro, U.S. EPA Region 5 Remediation and Reuse Branch Land and Chemicals Division, LU-9J, 77 West Jackson Blvd., Chicago, IL 60604-3590, *RE: Summary of Assessment Activities at the West, South, and Northwest Tank Farms, RACER Trust Moraine Facilities, Moraine, Ohio*.

- January 1991 – General Motors (GM) received an Administrative Order (Docket No. V-W-91R-2) from the U.S. EPA to implement RCRA Corrective Action. The South Tank Farm was included in this Administrative Order.
- October 14, 1992 – The BUSTR UST Closure Checklist indicated that BUSTR Tank ID Nos. 1-5 were pumped, cleaned, and removed. Staining was noted below BUSTR Tank ID Nos. 4 and 5. No holes in the USTs or associated piping were noted.
- October 30, 1992 – The BUSTR Suspected Release Report indicated that the Harrison Division of GM reported soil staining that was observed during closure activities.
- November 1992 – Phase I RCRA Facility Investigation (RFI) sampling activities in the South Tank Farm were completed per the U.S. EPA approved RFI Work Plan (Geraghty & Miller, Inc. 1992). Soil samples collected during Phase I RFI were analyzed for volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), pesticides, and metals. Groundwater samples collected during Phase I RFI were analyzed for VOCs, semi-volatile organic compounds (SVOCs), PCBs, herbicides, pesticides, cyanide, and metals.
- April 15, 1993 – Harrison Radiator submitted the *Closure Assessment Report for Closure of Nine Underground Storage Tanks* (South Tank Farm, Northwest Tank Farm, and Wind Tunnel) (Geraghty & Miller, Inc. 1993a) to BUSTR. The report summarized closure activities for the five BUSTR regulated USTs, the piping run, and associated dispenser in the South Tank Farm. Solid waste management unit (SWMU) T1 was removed during the South Tank Farm closure activities.

Soil samples collected during closure were submitted to the laboratory for analysis of TPH. Staining and odors were observed during UST closure activities. Concentrations of TPH were detected above the action levels in a sample collected below BUSTR Tank ID No. 2 and the dispenser island. Groundwater samples were not collected in association with the Closure Assessment. Based on the results of the Closure Assessment, a Site Assessment was required.

- July 13, 1993 – BUSTR submitted a letter to Harrison Division GMC that indicated the Closure Assessment Report had been received and a Site Assessment Report was due to BUSTR within 180 days of the date that the release was reported.
- July 13, 1993 – The BUSTR Site Listing Update Form indicated that BUSTR had issued a directive for a Site Assessment.
- October 1994 – Phase II RFI sampling activities associated with the South Tank Farm were completed per the U.S. EPA approved Interim RFI Report (Geraghty & Miller, Inc. 1993b). No additional soil samples were collected during Phase II RFI. Groundwater samples collected during Phase II RFI were analyzed for VOCs. See below for a discussion of the analytical results.
- October 27, 1997 – BUSTR issued a letter indicating that the Site Assessment Report had not been received. The letter indicated that the Site Assessment Report was due on October 12, 1993 and requested that the report be submitted within 30 days of the date of the letter.
- January 27, 1998 – BUSTR issued a letter indicating that the Site Assessment Report had not been received. BUSTR requested the report be submitted within 30 days of the date of the letter.
- February 3, 1998 – The BUSTR Site Listing Update Form indicated that a letter that was issued to Harrison Radiator had been returned and BUSTR re-issued the letter to a new address.
- February 26, 1998 – Delphi Harrison Thermal Systems submitted a letter to BUSTR summarizing correspondence between Delphi and BUSTR which indicated that BUSTR would consider using data collected during the RFI in conjunction with closure soil sample data to satisfy the requirements of the requested Site Assessment. The letter indicated that GM planned to summarize information from the RFI and submit it to BUSTR by April 17, 1998.
- April 17, 1998 – Delphi Harrison Thermal Systems submitted the "Site Assessment Report for the Northwest, West, and South Tanks Farms" (Environ 1998) to BUSTR. The Site Assessment summarized data from the RFI. During the RFI, three soil samples were collected from the location of the UST cavity in the South Tank Farm. The soil samples were analyzed for VOCs, PCBs, pesticides, and metals. Tetrachloroethene (PCE) was the only VOC detected in the soil samples and is not likely related to the BUSTR regulated USTs in the STF. PCBs and pesticides were not detected in the soil samples and the metals concentrations detected are not likely associated with a release from BUSTR regulated USTs in the STF.

  Groundwater samples were collected from monitor wells located down-gradient of the STF (monitor wells "West" and GM-19S) during the RFI. The groundwater sample from monitor well "West" was analyzed for VOCs, and the groundwater sample from monitor well GM-19S was analyzed for VOCs, SVOCs, PCBs, pesticides, herbicides, cyanide, and metals. The VOCs detected in these wells were PCE, trichloroethene (TCE), and associated daughter products. SVOCs, PCBs, pesticides, and herbicides were not detected. Barium was detected in the groundwater sample collected from GM-19S, and its presence is not likely to be associated with a release from the BUSTR regulated USTs in the STF.

  The Site Assessment Report used data from the UST closure activities and the RFI to conclude that "The characterization data supports a determination that releases of materials from the USTs identified in the closure assessments warrant no further action because the released materials pose no significant threat to human health or the environment."
- April 2000 – U.S. EPA approved the RFI (ARCADIS Geraghty and Miller 2000; Environ 2000). The RFI concluded that no further action was required for the South Tank Farm. The key conclusions of

the Baseline Risk Assessment within the RFI were (Environ 2000):

- For all soil- and air-related pathways, estimates of potential cumulative cancer risk and noncancer effects were estimated to be well below the levels U.S. EPA considers protective of human health.
- Under current groundwater use conditions, with or without interim measures, potential SWMU-related contributions to groundwater were estimated to result in constituent concentrations at points of groundwater use that are lower than maximum contaminant levels (MCLs) or similar risk-based drinking water concentrations for constituents without MCLs (i.e., equivalent drinking water levels).

- June 7, 2001 – BUSTR issued an Additional Information Required letter to GM-REALM. BUSTR requested the following information in the letter:
  1. The information required by Ohio Administrative Code 1301:7-9-13 (I) (3) including but not limited to: soil boring logs, sampling depths, field screening readings, and sampling methodology was not included in the report.
  2. The test method used for the detection of the release from USTs Nos. 1 through 5 may not have been appropriate for the substance and was not approved prior to its use in accordance with OAC 1301:7-9-13: (D) (3) (d). In order to determine the appropriate analytical methods, BUSTR requires a copy of the MSDS and a suggested analytical method for each substance stored in the USTs.
  3. The site assessment is incomplete in the area of tanks # 1-5 and the associated dispenser for soil and groundwater.
  4. The groundwater samples collected at the site are not in close enough proximity to assess the groundwater in the area of the release.

  BUSTR requested the information be submitted in a report within 120 days of the date of the letter.

- June 5, 2012 – RACER Trust met with BUSTR to discuss the status of the West Tank Farm, South Tank Farm, and Northwest Tank Farm.

- June 29, 2012 – Mr. Bryan Duzak, the BUSTR Site Coordinator, e-mailed RACER Trust with the BUSTR status for the STF. The e-mail indicated that a Tier 1 Source Investigation is required since the Site Assessment was not properly conducted in response to total petroleum hydrocarbons (TPH) detected above action levels under UST #2 and under the dispenser. Mr. Duzak indicated that the U.S. EPA Consent Order does not properly investigate the BUSTR release.

In response to the BUSTR request, RACER Trust completed Tier 1 Source Investigation activities at the STF including the installation of three borings (SSB-1 to SSB-3) on June 10, 2014 that were converted to three monitoring wells (SMW-1 to SMW-3). Soil samples were submitted to TestAmerica Laboratories, Inc. (TestAmerica) in North Canton, Ohio for analysis of target compound list (TCL) SVOCs and TPH carbon ranges C_{10} to C_{20} and C_{20} to C_{34}. Groundwater elevations and samples were collected on June 16, 2014 and submitted to TestAmerica for analysis of TCL SVOCs. Soil analytical results are summarized on **Table 1** and illustrated on **Figure 3**. Groundwater analytical results are summarized on **Table 2** and illustrated on **Figure 4**. Groundwater elevation data is summarized on **Table 3** and illustrated on **Figure 5**.

Analytical results indicated that soil parameters were below Action Levels with the exception of TPH C_{10} to C_{20} (21,000 milligrams per kilogram [mg/kg]) and TPH C_{20} to C_{34} (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 Action Level of 0.006 mg/L.

In response to BUSTR's request for additional information letter dated January 7, 2105, RACER Trust completed four additional borings in the STF on May 27, 2015. Three delineation borings (SSB-4 through SSB-6) and one confirmation boring (SSB-7) were installed. Soil samples were submitted to TestAmerica in North Canton, Ohio for analysis of TPH carbon ranges C_{10} to C_{20}, and C_{20} to C_{34}. Analytical results indicated soil parameters were below comparison standards. Analytical results are summarized in **Table 4** and illustrated on **Figure 6**.

Cited References:

ARCADIS U.S., Inc., 2014. *Tier 1Investigation Results for the South Tank Farm, RACER Trust Moraine Facilities, Moraine, Ohio*. October 2014.

ARCADIS Geraghty & Miller, Inc., 2000. *Resource Conservation and Recovery Act Facility Investigation Final Report Volume I (Methodologies and Results), Delphi Harrison Thermal Systems, Moraine, Ohio*. April 2000.

Geraghty & Miller, Inc., 1993a. *Closure Assessment Report for Closure of Nine Underground Storage Tanks (South Tank Farm, Northwest Tank Farm and Wind Tunnel), Harrison Division – GMC, Moraine, Ohio*. March 1993.

Geraghty & Miller, Inc., 1993b. *Interim RFI Report, Harrison Division – General Motors Corporation, Moraine, Ohio*. July 1993.

Geraghty & Miller, Inc., 1992. *RCRA Facility Investigation Work Plan, Harrison Division – GMC, Moraine, Ohio.* November 1992.

ENVIRON Corporation, 2000a. *RCRA Facility Investigation Final Report Volume II (Baseline Risk Assessment), Delphi Harrison Thermal Systems, General Motors Truck Group Moraine Assembly Plant, Moraine, Ohio.* April 2000.

ENVIRON Corporation, 2000b. *Supplemental Resource Conservation and Recovery Act Facility Investigation Report, Volume II supplemental Baseline Risk Assessment, General Motors Powertrain Group Moraine Engine Plant and General Motors Truck Group Moraine Assembly Plant, Moraine, Ohio.* April 2000.

ENVIRON Corporation, 1998. *Site Assessment Report for Northwest, West, and South Tank Farms, Delphi Harrison Thermal Systems, General Motors Corporation, Moraine, Ohio*. April 1998.

TIER 1 SOURCE INVESTIGATION

POTENTIAL SOURCE(S):
Former USTs and dispensers.

POTENTIAL SOURCE AREA(S):
UST #2 and former dispenser area.

CHEMICALS OF CONCERN:
Group 3 and 5 COCs; TCL SVOCs, TPH (C_{10}-C_{20}), and TPH (C_{20}-C_{34}).

SUBSURFACE INVESTIGATION:

SOIL BORINGS INSTALLED DURING THIS INVESTIGATION / DATE:
SSB-1, SSB-2, and SSB-3 installed on June 10, 2014; SSB-4, SSB-5, SSB-6, and SSB-7 installed on May 27, 2015.

PREVIOUSLY INSTALLED SOIL BORINGS / DATE:
None cited.

MONITORING WELLS INSTALLED DURING THIS INVESTIGATION / DATE:
SMW-1, SMW-2, SMW- 3 installed in June 2014

PREVIOUSLY INSTALLED MONITORING WELLS / DATE:

None cited.

SB/MW	Install Date	Location	Installed With*	Total Depth	Depth to GW	Static GW	Depth to Bedrock	Screened Interval	MW Diameter
SSB-1/ SMW-1	6/10/14	STF tank cavity	HSA/SS	26	20	19.22	NA	15-25	2-inch
SSB-2 /SMW-2	6/10/14	STF down-gradient	HSA/SS	26	20	19.98	NA	16-26	2-inch
SSB-3/ SMW-3	6/10/14	STF down-gradient	HAS/SS	24	19	18.32	NA	14-24	2-inch
SSB-4	5/27/15	West of former dispenser	HA	4	NA	NA	NA	NA	NA
SSB-5	5/27/15	Southeast of former dispenser	HA	4	NA	NA	NA	NA	NA
SSB-6	5/27/15	Northeast of former dispenser	HA	4	NA	NA	NA	NA	NA
SSB-7	5/27/15	STF tank cavity	DP	24	20.5	NA	NA	NA	NA

*HSA/SS – hollow stem auger/split spoon, DP – direct push, HA – hand auger

FIELD SCREENING

INSTRUMENT USED: MiniRAE 2000 Photoionization Detector (PID)

METHODOLOGY USED:

Each soil interval collected at the Site was immediately split into two portions. One portion was placed into a 4-ounce glass jar and stored on ice in a sample cooler. The remaining portion was placed in a plastic re-sealable plastic bag and permitted to outgas for approximately 5 to 10 minutes prior to being screened with a PID. PID readings were recorded, and the soil sample with the highest PID reading was sent to the laboratory for appropriate analysis.

CALIBRATION PROCEDURES:

The PID instrument was two-point calibrated according to manufacturer's instructions prior to use in the field. The instrument was zeroed using ambient air, and a span value of 100 parts per million (ppm) was calibrated using a standard isobutylene reference gas.

SB/MW#	SSB-1/SMW-1	SSB-2/SMW-2	SSB-3/SMW-3	SSB-4	SSB-5	SSB-6	SSB-7
Depth	PID/FID Result	PID/FID Result	PID/FID Result	PID/FID Result	PID/FID Result	PID/FID Result	PID/FID Result
0-2'	0.8	0.0	**96.8**	**0.2**	**1.7**	**1.2**	1.1
2-4'	3.6	0.0	55.1	**0.3**	**0.9**	**12.8**	2.0
4-6'	0.0	0.0	16.8				3.2
6-8'	0.0	0.0	0.0				0.4
8-10'	11.6	0.4	2.4				8.2
10-12'	**22.6**	0.1	8.8				**14.9**
12-14'	14.0	**3.4**	4.1				11.6

14-16’	10.9	0.6	1.5				**2.4**
16-18’	8.4	0.0	**3.8**				5.5
18-20’	**3.3**	**1.8**	0.0				3.7
20-22’	0.0	0.0	0.0				0.7
22-24’	0.0	0.0	0.0				0.9
24-26’	0.0	0.0	--				
26-28’							
28-30’							
GW Depth	20	20	19	NA	NA	NA	20.5

The soil samples that were submitted for analysis should be in **BOLD** or marked with *

SOIL CLASSIFICATION

SOIL CLASSIFICATION:	SOIL CLASS 1	SOIL CLASS 2	SOIL CLASS 3
SOIL SYMBOL:	GW, GP, GM, GC, SW, SP, SM,	SC, ML, CL, OL, MH	CH, OH, PT

MARK THE CORRECT CHOICE: SOIL CLASS 1 ☒ SOIL CLASS 2 ☐ SOIL CLASS 3 ☐

LABORATORY DATA

LABORATORY NAME: TestAmerica

ADDRESS: 4101 Shuffel Street NW, North Canton, OH 44720

PHONE #: 330-497-9396

CHEMICAL OF CONCERN / TEST METHOD: SVOCs (8270C), TPH C_{10}-C_{20} (8015B), TPH C_{20}-C_{34} (8015B)

DATE SAMPLES RECEIVED BY LAB: 6/13/2014 and 6/18/2014

DATE SAMPLES ANALYZED BY LAB: 6/23/2014 – 6/27/2014

TEMPERATURE OF COOLER/SAMPLES: 1.4 and 1.6 °C

LABORATORY NAME: Test America

ADDRESS: 4101 Shuffel Street NW, North Canton, OH 44720

PHONE #: 330-497-9396

CHEMICAL OF CONCERN / TEST METHOD: TPH - TPH C_{10}-C_{20} and TPH C_{20}-C_{34} (8015B)

DATE SAMPLES RECEIVED BY LAB: 5/28/2015

DATE SAMPLES ANALYZED BY LAB: 6/3/2015

TEMPERATURE OF COOLER/SAMPLES: 1.6 °C

IMMEDIATE CORRECTIVE ACTIONS

FREE PRODUCT PRESENT: YES ☐ NO ☒

AMOUNT OF FREE PRODCT RECOVERED TO DATE: None.

LOCATION OF FREE PRODUCT: Not applicable.

OFF-SITE ACCESS

IS OFF-SITE ACCESS REQUIRED TO DELINEATE COCs: YES ☐ NO ☒

IF YES, DESCRIBE: Not applicable.

GROUNDWATER DETERMINATION

MARK THE CORRECT CHOICE

THE SATURATED ZONE IS ASSUMED TO BE GROUND WATER**:** YES ☒ NO ☐

THE SATURATED ZONE IS NOT CONSIDERED GROUND WATER: YES ☐ NO ☒ N/A ☐

DEPTH TO THE SATURATED ZONE: <15' ☐ 15'-30' ☒ 31-50' ☐ > 50' ☐

IF THE SATURATED ZONE IS NOT CONSIDERED GROUND WATER, DOCUMENTATION MUST BE PROVIDED:

GROUND WATER FLOW DIRECTION: Groundwater flow to the southwest.

DRINKING WATER DETERMINATION

IF ANY OF THE FOLLOWING FOUR ITEMS APPLY, GROUND WATER IS CONSIDERED DRINKING WATER:

1.) The UST site or surrounding area is located in a Drinking Water Source Protection Area as defined by paragraph (C)(5) of OAC 1301:7-9-13**:** YES ☐ NO ☐

DESCRIBE: Not evaluated as "yes" is applied to option 2.

2.) The UST site is in a Sensitive Area as defined by OAC 1301:7-9-09**:** YES ☒ NO ☐

DESCRIBE:
Area associate with the buried valley aquifer system of the Great Miami/Little Miami river basin of southwestern Ohio

3.) A drinking water source in the ground water is identified within the surrounding area, even if the source is completed into a lower saturated zone than the saturated zone to be evaluated on an

UST site. This identification shall include the information required in paragraph (I)(1)(b) of OAC 1301:7-9-13**:** YES ☐ NO ☐

DESCRIBE: _____

Not evaluated as "yes" is applied to option 2.

4.) A surface water body is located within three hundred feet of the UST site**:** YES ☐ NO ☒

DESCRIBE: _____

IF THE UST SITE DOES NOT MEET THE DRINKING WATER REQUIREMENTS OF THE FOUR ITEMS LISTED ABOVE, THEN GROUND WATER UNDERLYING THE UST SITE SHALL BE CONSIDERED NON-DRINKING WATER IF ANY ONE OF THE BELOW SIX ITEMS APPLY:

1.) Ground water in the upper saturated zone yields less than three gallons per minute;
YES ☐ NO ☐ Not Evaluated ☒

DESCRIBE: _____

2.) Ground water in the upper saturated zone has a background level of total dissolved solids of three thousand milligrams per liter or greater; YES ☐ NO ☐ Not Evaluated ☒

DESCRIBE: _____

3.) An UST site is located in an area where an urban setting designation pursuant to Chapter 3746 of the Revised Code and rules adopted there under has been approved by the director of Ohio Environmental Protection Agency and the owner and operator verifies that the urban setting designation remains protective of the potable use pathway in accordance with OAC 3745-300-10(D)(3)(b); YES ☐ NO ☐ Not Evaluated ☒

DESCRIBE: _____

4.) No potable wells are located within 300 feet of an UST site based on a physical survey and an ordinance requires a mandatory tie-in to a municipal water system for all properties in the surrounding area; YES ☐ NO ☐ Not Evaluated ☒

DESCRIBE: _____

5.) No potable wells are located within 300 feet of an UST site based on a physical survey and an ordinance prohibits the installation of potable water wells at all properties within the surrounding area; or YES ☐ NO ☐ Not Evaluated ☒

DESCRIBE: _____

6.) No potable wells are located within 300 feet of an UST site based on a physical survey and 100 percent of the properties within 300 feet of an UST site area are connected to a municipal water source or a municipal source is readily available. YES ☐ NO ☐ Not Evaluated ☒

DESCRIBE: _____

DRINKING WATER DETERMINATION CONCLUSIONS
Groundwater is considered drinking water: ☒
Groundwater is not considered drinking water: ☐

SITE MAXIMUM CONCENTRATIONS

	SOIL				GROUND WATER		
	SB	Depth	Conc. mg/kg	Action Level	MW	Conc. mg/L	Action Level
BENZENE	N/A	N/A	N/A	0.252	N/A	N/A	0.005
TOLUENE	N/A	N/A	N/A	70.8	N/A	N/A	1.000
ETHYLBENZENE	N/A	N/A	N/A	83	N/A	N/A	0.700
TOTAL XYLENES	N/A	N/A	N/A	18.0	N/A	N/A	10.000
MTBE	N/A	N/A	N/A	0.788	N/A	N/A	0.040
BENZO (a) ANTHRACENE	SSB-3	0-2	<0.370	11	SM W-1	<0.00020	0.00026
BENZO (a) PYRENE	SSB-3	0-2	0.64	1.1	SM W-1	<0.00020	0.0002
BENZO (b) FLUORANTHENE	SSB-3	0-2	0.95	11	SM W-1	<0.00020	0.00017
BENZO (k) FLUORANTHENE	SSB-3	0-2	<0.370	110	SM W-1	<0.00020	0.0017
CHRYSENE	SSB-3	0-2	<0.370	1,100	SM W-1	<0.00020	0.047
DIBENZ (a,h) ANTHRACENE	SSB-3	0-2	<0.370	1.1	SM W-1	<0.00020	0.0002
INDENO (1,2,3-cd) PYRENE	SSB-3	0-2	0.54	11	SM W-1	<0.00020	0.0002
NAPHTHALENE	SSB-3	0-2	1.5	54	N/A	N/A	0.14
TPH (C6-C12)	N/A	N/A	N/A	1,000	N/A	N/A	N/A
TPH (C10-C20)	SSB-3	0-2	**21,000**	2,000	N/A	N/A	N/A
TPH (C20-C34)	SSB-3	0-2	**12,000**	5,000	N/A	N/A	N/A
OTHER: Bis (2-ethylhexyl) Phthalate	SSB-2	12-14	0.270 B	190	SM W-1	**0.016 B**	0.006
OTHER: Di-n-butyl Phthalate	NA	NA	NA	110	SM W-1	0.0022 B	1.5

Notes: Bis (2-ethylhexyl) phthalate and di-n-butyl phthalate were detected in the method blank, and based on the chemicals used in the STF area, these chemicals are not likely present in the groundwater under the STF.

The reporting limit for benzo(b)fluoranthene (0.0002 mg/L) was above the BUSTR action level of 0.00017 mg/L. However, the method detection limit was 0.000059 mg/L, and there were no J-values between the reporting limit and the method detection limit. Therefore, it is not likely that benzo(b)fluoranthene is present in the groundwater above BUSTR action levels.

TIER 1 DECISIONS

Select one of the following:

☐ The concentrations of all chemical(s) of concern are at or below action levels determined in accordance with paragraph (I)(2)(f) of OAC 1301:7-9-13 for all applicable pathways, and no further action is requested.

or

☒ The concentrations of chemical(s) of concern are above applicable action level(s) determined in accordance with paragraph (I)(2)(f) of OAC 1301:7-9-13, and the following chemicals of concern and pathways require further evaluation:

If applicable, please list the COCs and the pathways that failed:

Chemicals of Concern	Soil Pathways	Chemicals of Concern	GW Pathways
TPH C_{10}-C_{20}	Soil Saturation		
TPH C_{20}-C_{34}	Soil Saturation		

Upon approval of the completeness of the Tier 1 Investigation Report, the owners and operators are planning on conducting one or a combination of the following:

A.) An Interim Response Action: Yes ☒

B.) A Tier 2 Evaluation: Yes ☐

C.) A Remedial Action Plan: Yes ☐

MISCELLANEOUS DATA

THE FOLLOWING ITEMS MUST BE ATTACHED:

ADDITIONAL INFORMATION WHICH IS REQUIRED BY OAC 1301:7-9-13 OR ADDITIONAL INFORMATION WHICH CLARIFIES THE INVESTIGATION ACTIVITIES SHALL BE SUBMITTED AS APPENDICIES TO THIS REPORT.

TABLES:
TABLE 1 – SOIL ANALYTICAL RESULTS
TABLE 2 – GROUNDWATER ANALYTICAL RESULTS
TABLE 3 – GROUNDWATER ELEVATION DATA
TABLE 4 – SOIL ANALYTICAL RESULTS FOR TOTAL PETROLEUM HYDROCARBONS

FIGURES:
FIGURE 1 – SITE LOCATION MAP (FORMER SOUTH TANK FARM)
FIGURE 2 – SITE MAP FORMER SOUTH TANK FARM
FIGURE 3 – FORMER SOUTH TANK FARM SOIL ANALYTICAL RESULTS - 2014
FIGURE 4 – FORMER SOUTH TANK FARM GROUNDWATER ANALYTICAL RESULTS
FIGURE 5 – FORMER SOUTH TANK FARM GROUNDWATER ELEVATION MAP – JUNE 16, 2014
FIGURE 6 – FORMER SOUTH TANK FARM SOIL ANALTICAL RESULTS - TPH

APPENDIX:
APPENDIX A – SOIL BORING LOGS AND MONITORING WELL CONSTRUCTION DIAGRAMS
APPENDIX B – MONITORING WELL DEVELOPMENT AND SAMPLING LOGS
APPENDIX C – SOIL CLASSIFICATION FORM
APPENDIX D – LABORATORY ANALYTICAL REPORTS
APPENDIX E – CHAIN OF CUSTODY

The Tier 1 Investigation Report Form **must** be signed by the UST owner/operator. The owner/operator is responsible for ensuring all data is accurate, and the form is legible and complete.

OWNER / OPERATOR SIGNATURE: Pamela L. Barnett

PRINT NAME: **Pam Barnett** **DATE:** **7/6/2015**

FORM PREPARED BY:

NAME: Robert Wolford
COMPANY: ARCADIS U.S., Inc
ADDRESS: 100 E. Campus View Blvd., Suite 200, Columbus, OH 43235
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CHEMICALS OF CONCERN AND RECOMMENDED LABORATORY METHODS

Analytical Group 1 - light distillate products - including unleaded gasoline, leaded gasoline and aviation gasoline;

Analytical Group 2 - middle distillate products - including diesel, light fuel oils, stoddard solvents, mineral spirits, kerosene, and jet fuels;

Analytical Group 3 - heavy petroleum distillate products - including, but not limited to, lubricating and hydraulic oils;

Analytical Group 4 - used oil

Analytical Group 5 - unknown petroleum products or petroleum products other than those listed in analytical groups 1, 2, 3 and 4. Additional chemical(s) of concern and analytical methods must be selected, as appropriate, based on reasonably available information related to the product stored, including additives, impurities and degradation products. In addition, chemical(s) of concern should be selected based on their toxicity, mobility, and persistence in the environment. The owners and operators shall consult with the fire marshal for the appropriate chemical(s) of concern for products not in analytical group 1, 2, 3 and 4.

	Analytical Group Number	**1**	**2**	**3**	**4**	**5**	**Analytical Methods**
		Light Distillates	Middle Distillates	Heavy Distillates	Used Oil	Unknowns & Others	
	Chemical						
Aromatics	Benzene	x	x		x		8021/8260
	Toluene	x	x		x		
	Ethylbenzene	x	x		x		
	o, m and p-Xylenes	x	x		x		
Additives	Methyl tertiary-butyl ether (MTBE)	x			x		
Polynuclear Aromatics	Benzo(a)anthracene		x	x	x		8270/8310
	Benzo(a)pyrene		x	x	x		
	Benzo(b)fluoranthene		x	x	x		
	Benzo(k)fluoranthene		x	x	x		
	Chrysene		x	x	x		
	Dibenz(a,h)anthracene		x	x	x		
	Indeno(1,2,3-c,d)pyrene		x	x	x		
	Naphthalene		x	x	x		
Chlorinated Hydrocarbons	Volatile Organic Hydrocarbons				x		8260
Total Petroleum Hydrocarbons *1	TPH (C6 – C12)	x			x		8015
	TPH (C10 – C20)		x		x		
	TPH (C20 – C34)			x	x		
	Varies based on UST contents			x	x	*2	

*1 TPH analysis is not required for ground water samples.

*2 Additional chemical(s) of concern and analytical methods must be selected, as appropriate, based on reasonably available information related to the product stored, including additives, impurities and degradation products. In addition, chemical(s) of concern should be selected based on their toxicity, mobility, and persistence in the environment. The owners and operators shall consult with the fire marshal for the appropriate chemical(s) of concern for products not in analytical group 1, 2, 3 and 4.

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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[2]	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[1]	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[1]	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-chloroisopropl) 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-Chlorophyenyl 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[1]	2,400	--	--	421	mg/kg	<0.007	<0.0071	0.0046 J	<0.007	1.6	<0.007
	Fluorene[1]	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[1]	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
	2,4,6-Trichlorophenol	4,400	--	--	--	mg/kg	<0.160	<0.160	<0.160	<0.160	<8.4	<0.160
TPH	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.

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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[1]	Groundwater to Indoor Air	Groundwater to Outdoor Air	Date Collected	6/16/2014	6/16/2014	6/16/2014
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) ehter	--	--	--	mg/L	<0.001	<0.001	<0.001
	bis (2-chloroisopropl) ether	--	--	--	mg/L	<0.001	<0.001	<0.001
	Bis (2-ethylhexyl) phthalate	0.006	--	--	mg/L	**0.016 B**	**0.013 B**	**0.015 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-Chlorophyenyl 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.

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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)

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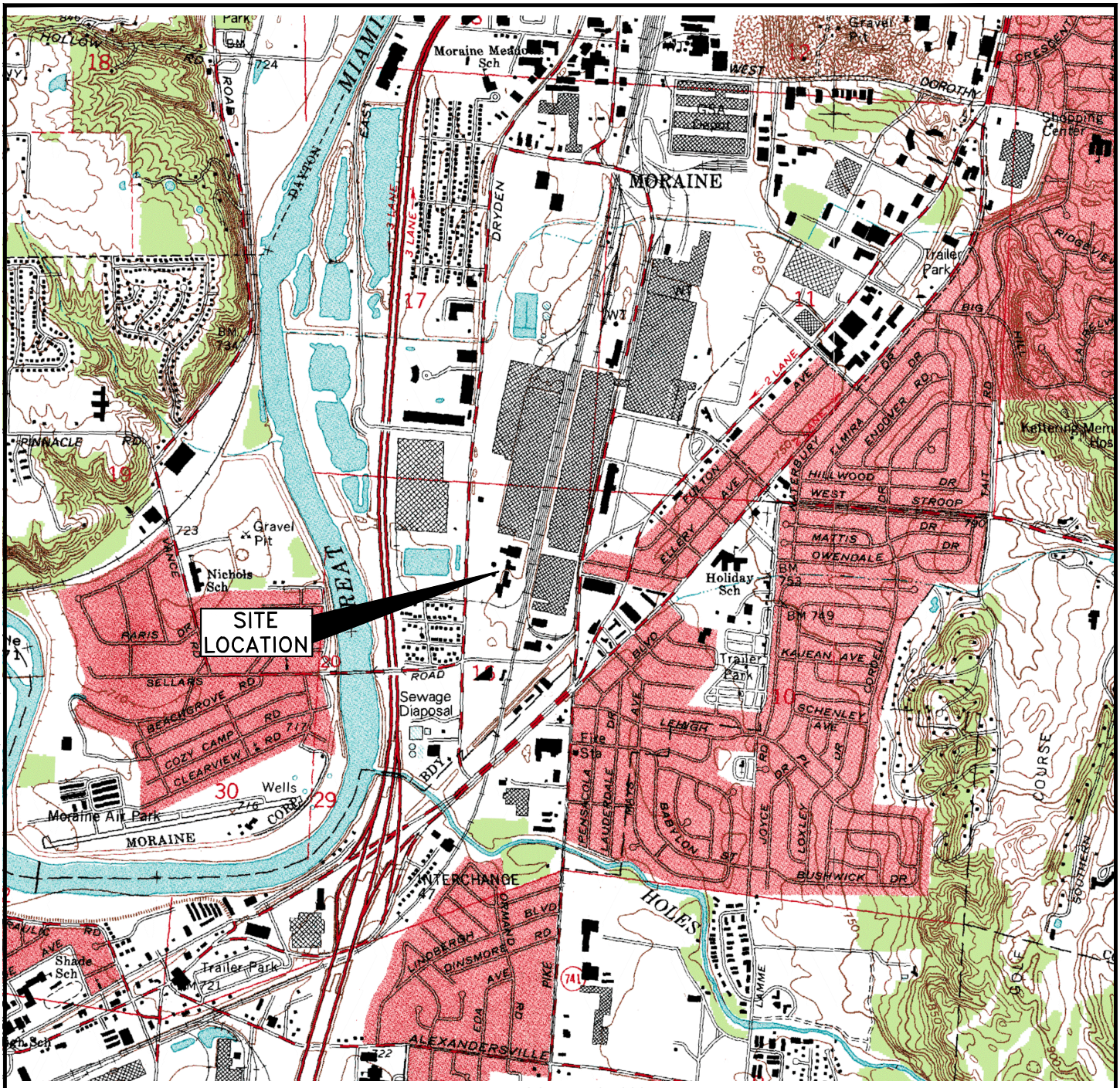
Table 4. Soil Analytical Results for Total Petroleum Hydrocarbons, South Tank Farm, RACER Trust Moraine, OH

Sample ID	Date Collected	Depth (feet)	C10-C20 mg/kg	C20-C34 mg/kg	Total TPH mg/kg
STF-UST 1-1	**11/5/1992**	**15**	--	--	29
STF-UST 1-2	**11/5/1992**	**15**	--	--	28
STF-UST 2-2	**11/4/1992**	**15**	--	--	12
STF-UST 2-5 Confirmed by SSB-7	**11/4/1992**	**15**	--	--	**20,900**
STF-UST 3-2	**11/4/1992**	**15**	--	--	26
STF-UST 3-3	**11/4/1992**	**15**	--	--	40
STF-UST 4-1	**11/4/1992**	**15**	--	--	11
STF-UST 4-4	**11/5/1992**	**15**	--	--	13
STF-UST 5-2	**10/30/1992**	**15**	--	--	26
STF-UST 5-4	**10/30/1992**	**15**	--	--	31
STF PR	**11/12/1992**	**3**	--	--	30
STF DI	**11/11/1992**	**3**	--	--	**7,620**
SSB-1	**6/10/2014**	**10 - 12**	<17	5.8 J	--
		18 - 20	<18	<18	--
SSB-2	**6/10/2014**	**12 - 14**	<17	5.8 J	--
		18 - 20	<17	<17	--
SSB-3	**6/10/2014**	**0 - 2**	**21,000**	**12,000**	--
SSB-4	**5/27/2015**	**0-2**	<17	<17	--
		2-4	32	77	--
SSB-5	**5/27/2015**	**0-2**	45	230	--
		2-4	35	300	--
SSB-6	**5/27/2015**	**0-2**	15 J	86	--
		2-4	43	120	--
SSB-7	**5/27/2015**	**10-12**	14 J	110	--
		15	<17	<17	--
BUSTR Action Levels - Soil Class I, Residential Land Use					
Direct Contact			**2,000**	**5,000**	**--**
Soil to Indoor Air			**--**	**--**	**--**
Soil to Outdoor Air			**--**	**--**	**--**
Soil to Drinking Water Leaching			**--**	**--**	**--**

-- 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



SCALE 1:24 000

1 1/2 0 1

SCALE IN MILE

1000 0 1000 2000 3000 4000 5000 6000 7000

SCALE IN FEET: 1" = 2000'

N

OHIO QUADRANGLE LOCATION

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

RACER TRUST
MORAINE, OHIO

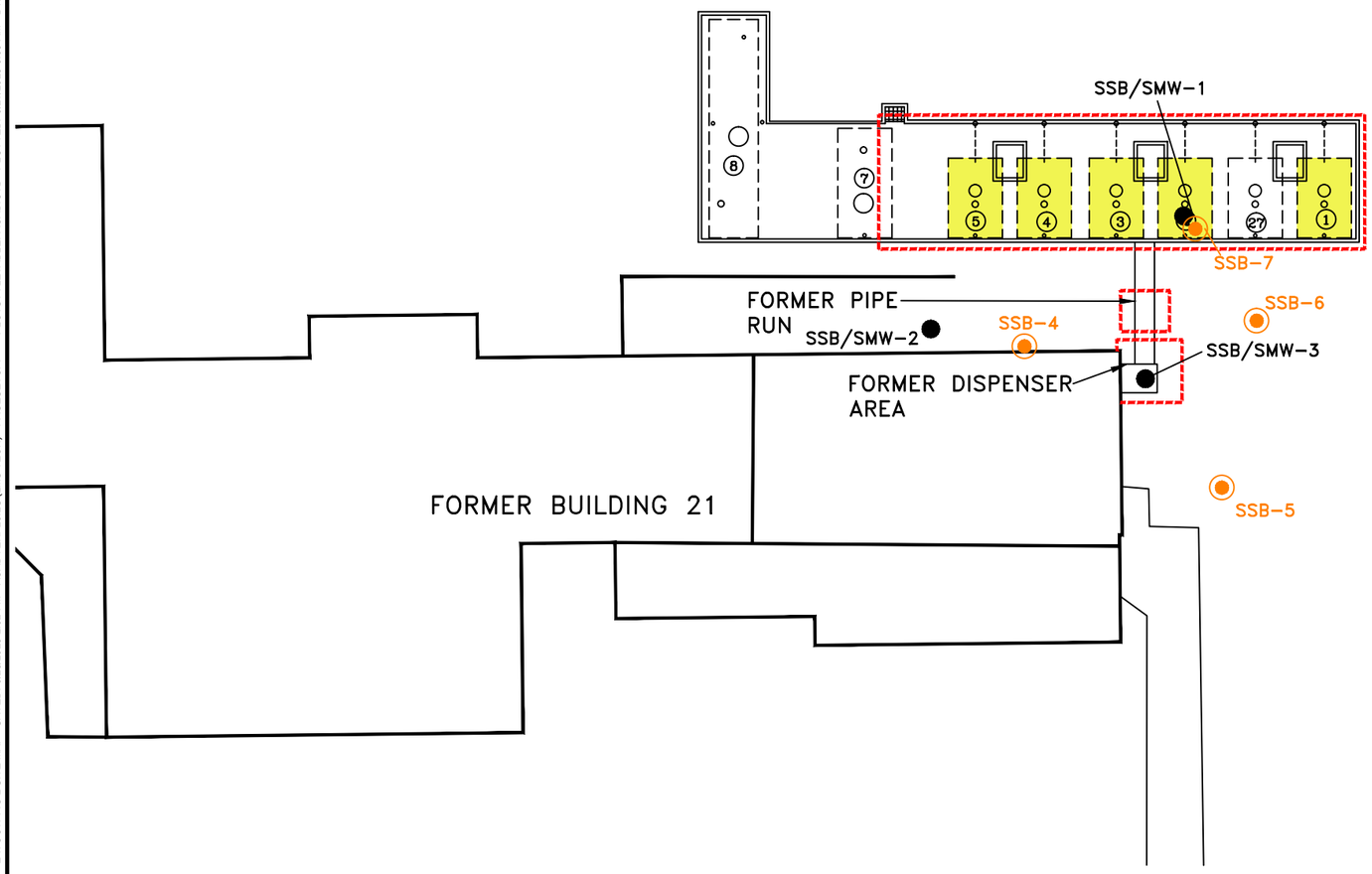
OH000294.2015

SITE LOCATION MAP (FORMER SOUTH TANK FARM)

ARCADIS

FIGURE 1

CITY:(COLUMBUS, OH) DIV/GROUP:(IM/DV) DB:(R. SMITH) LD:(Opt) PIC:(Opt) PM:(N. GILLOTTI) TM:(OPT) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACTIVITY\OH000294 - RACER\0001\294-2015-STF-F00.dwg LAYOUT: SOUTH-TANK FARM SAVED: 6/17/2015 9:06 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 6/17/2015 9:17 AM BY: SMITH, BOB
XREFS: IMAGES: PROJECTNAME: ---
dayton south.tif



APPROX SCALE 0 30 FT

LEGEND

- SOIL BORING (2015)
- SOIL BORING/MONITORING WELL (2014)
- 27 TANK NUMBER
- APPROXIMATE EXTENT OF EXCAVATION AREA

HISTORICAL TANK CONTENTS	
BUSTR REGULATED TANKS	
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)
RFI TANKS	
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)

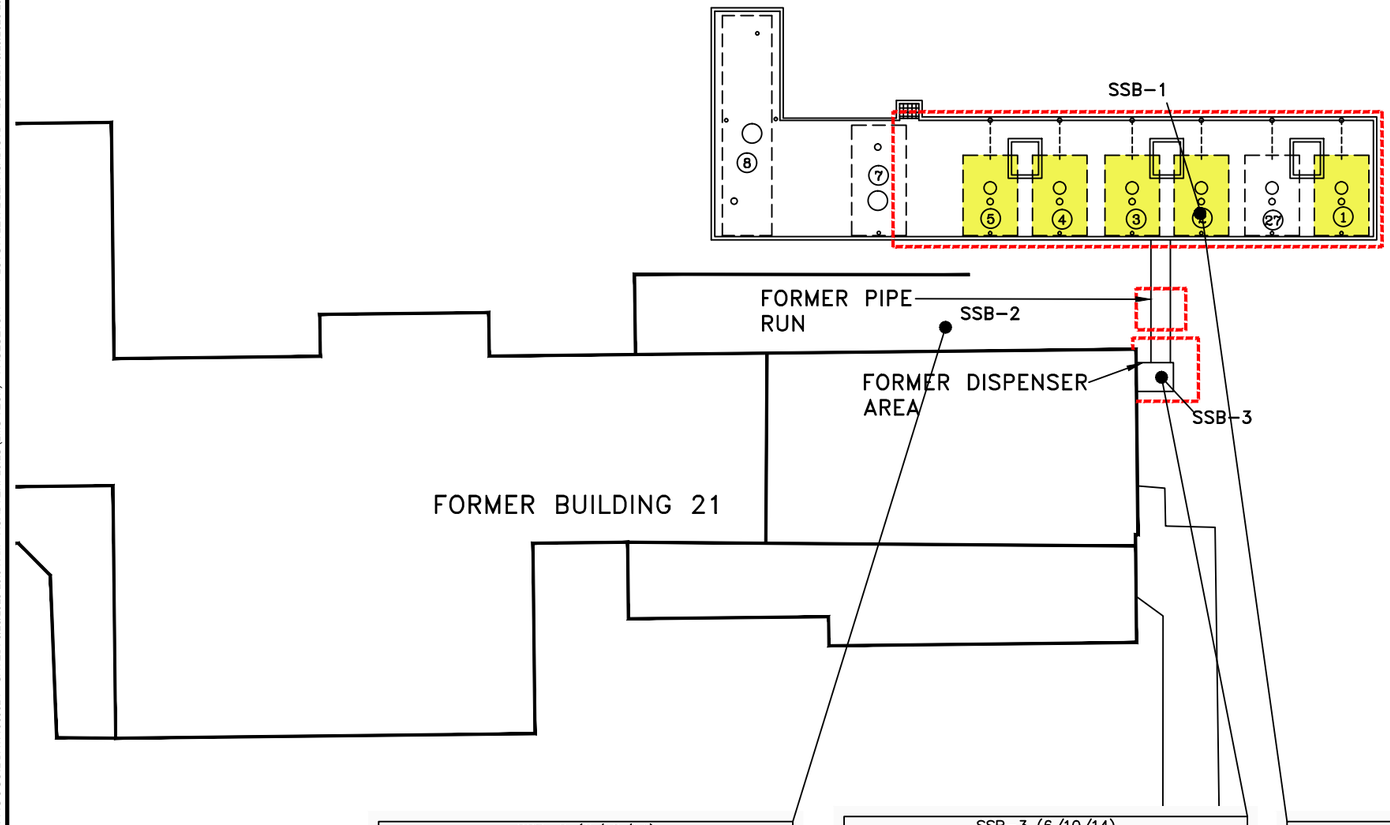
RACER TRUST
MORAINE, OHIO

OH000294.2015

SITE MAP
FORMER SOUTH TANK FARM

ARCADIS

FIGURE
2



APPROX SCALE 0 60 FT

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
- 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
SVOCs				
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
TPH				
C10–C20	2,000	--	--	--
C20–C34	5,000	--	--	--

SSB–2 (6/10/14)	12 – 14'	18 – 20'
SVOC		
Benzo(b)fluoranthene	0.0038 J	<0.007
Bis (2–ethylhexyl) phthalate	0.270 B	0.120 B
Di–n–butyl phthalate	0.024 JB	<0.074
Fluoranthene	0.0046 J	<0.007
Phenanthrene	0.0049 J	<0.007
Pyrene	0.0059 J	<0.007
TPH		
C10–C20	<17	<17
C20–C34	5.8 J	<17

SSB–3 (6/10/14)	0 – 2'	16 – 18'
SVOC		
Acenaphthene	2.0	<0.007
Benzo(a)pyrene	0.64	<0.007
Benzo(b)fluoranthene	0.95	<0.007
Benzo(g,h,i)perylene	0.39	<0.007
Bis (2–ethylhexyl) phthalate	<3.9	0.26 B
Di–n–butyl phthalate	1.4 JB	0.022 JB
Fluoranthene	1.6	<0.007
Indeno(1,2,3–cd)pyrene	0.54	<0.007
2–Methyl naphthalene	3.2	<0.007
Naphthalene	1.5	<0.007
Phenanthrene	1.5	<0.007
Phenol	3.4	<0.053
Pyrene	2.7	<0.007
TPH		
C10–C20	21000	<17
C20–C34	12000	5.4 J

SSB–1 (6/10/14)	10 – 12'	18 – 20'
SVOC		
Bis (2–ethylhexyl) phthalate	0.031 JB	0.210 B
TPH		
C10–C20	<17	<18
C20–C34	5.8 J	<18

HISTORICAL TANK CONTENTS	
BUSTR REGULATED TANKS	
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)
RFI TANKS	
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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MORAINE, OHIO

OH000294.2014

FORMER SOUTH TANK FARM SOIL ANALYTICAL RESULTS -2014

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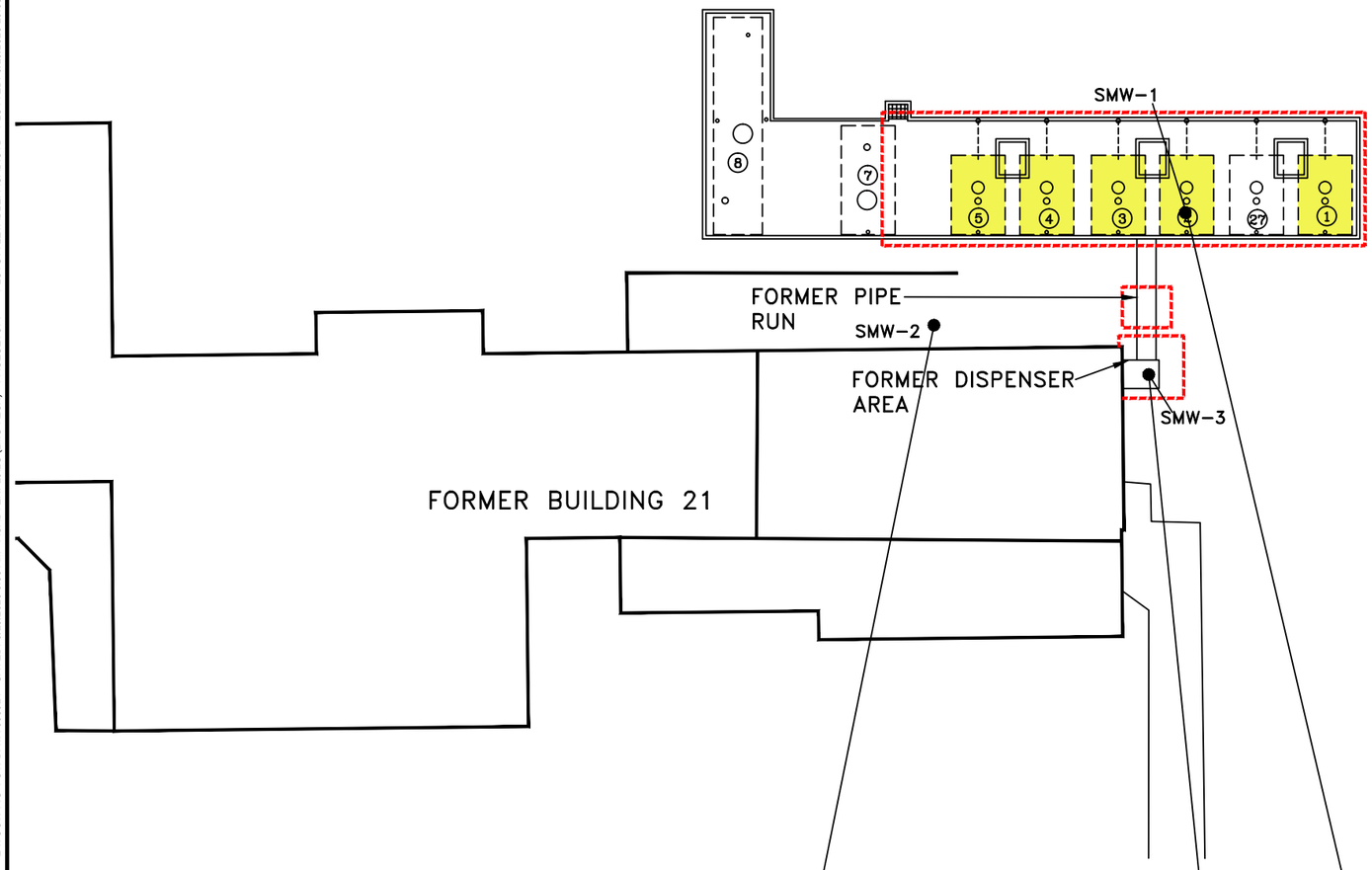
FIGURE 3



APPROX SCALE
0 60 FT

LEGEND

●	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
SVOCs	SEMIVOLATILE ORGANIC COMPOUNDS
mg/L	MILLIGRAMS PER LITER

ALL CONCENTRATIONS SHOWN IN MILLIGRAMS PER LITER

NOTE: THIS FIGURE PRESENTS ONLY DETECTED CHEMICALS OF CONCERN (COCs).

BUSTR Action Levels – Residential – Groundwater 15–30 Feet			
	Groundwater Ingestion1	Groundwater to Indoor Air	Groundwater to Outdoor Air
SVOCs			
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	--	--

SMW–2	
	6/16/14
SVOC	
Acetophenon	0.00037 JB
Bis (2–ethylhexyl) phthalate	0.013 B
Butyl benzyl phthalate	<0.001
Caprolactam	0.0011 JB
Diethyl phthalate	0.00026 J
Di–n–butyl phthalate	0.0021 B
Phenol	0.00033 JB

SMW–3	
	6/16/14
SVOC	
Acetophenon	0.00025 JB
Bis (2–ethylhexyl) phthalate	0.015 B
Butyl benzyl phthalate	<0.001
Caprolactam	0.00083 JB
Diethyl phthalate	0.00025 J
Di–n–butyl phthalate	0.0018 B
Phenol	<0.001

SMW–1	
	6/16/14
SVOC	
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	<0.001

HISTORICAL TANK CONTENTS	
BUSTR REGULATED TANKS	
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)
RFI TANKS	
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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MORAINE, OHIO

OH000294.2014

FORMER SOUTH TANK FARM GROUNDWATER ANALYTICAL RESULTS

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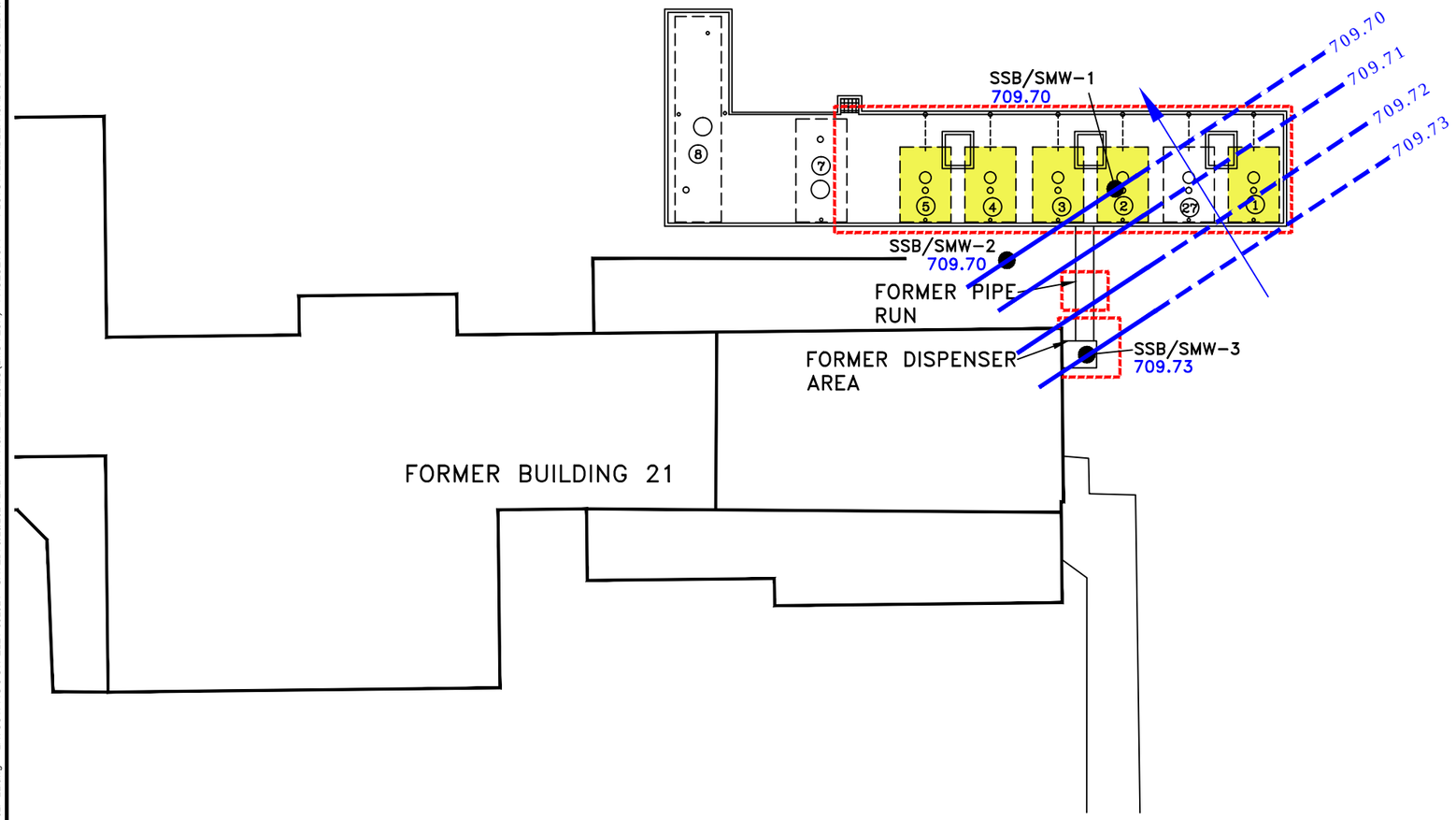
FIGURE
4



APPROX SCALE
0 60 FT

LEGEND

- SOIL BORING/MONITORING WELL (2014)
- (27) 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	
BUSTR REGULATED TANKS	
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)
RFI TANKS	
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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FORMER SOUTH TANK FARM GROUNDWATER ELEVATION MAP JUNE 16, 2014

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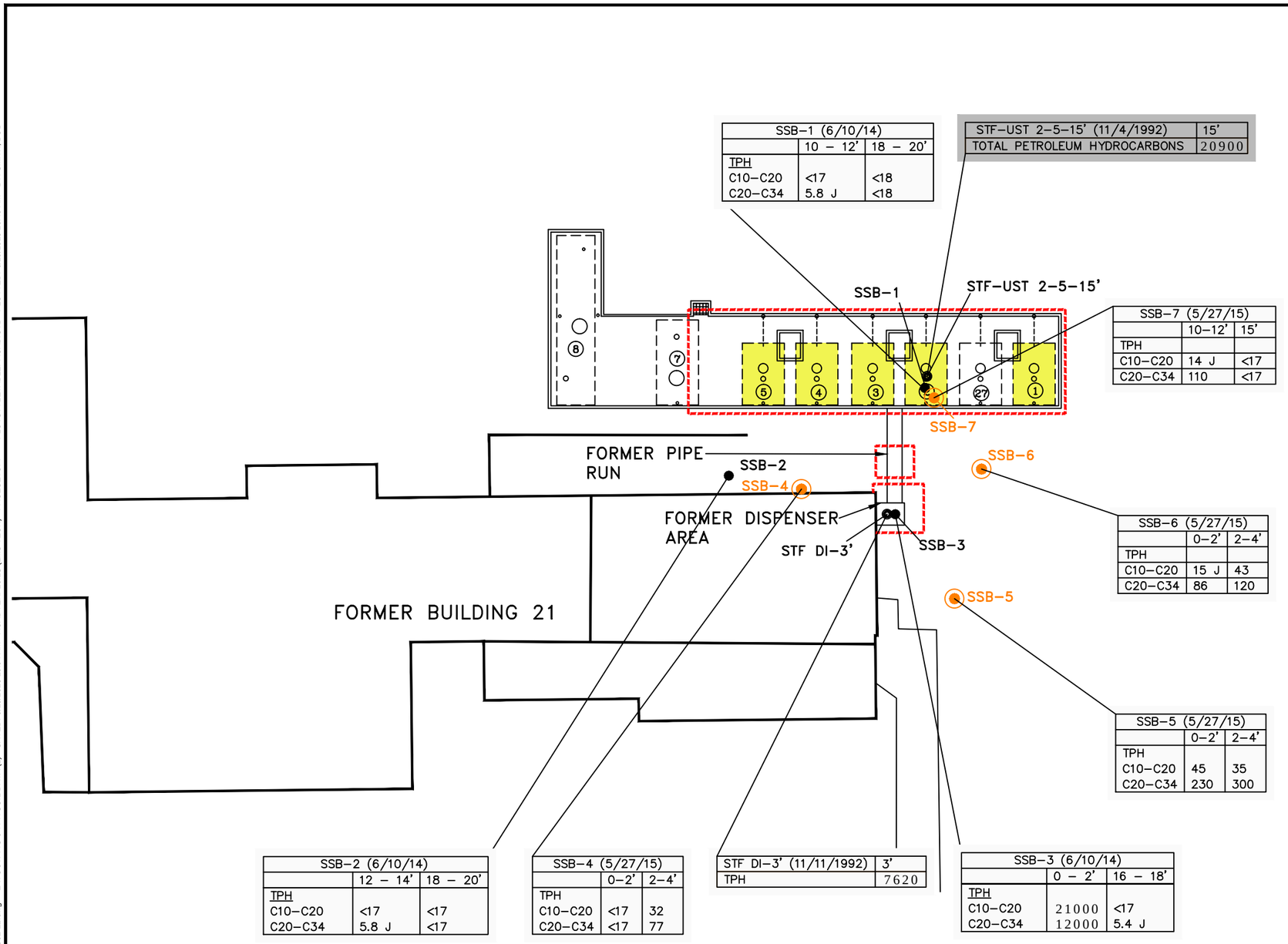
FIGURE
5



APPROX SCALE
0 30 FT

LEGEND

- EXCAVATION SOIL SAMPLE
- SOIL BORING (2015)
- SOIL BORING/MONITORING WELL (2014)
- (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
- VOCs VOLATILE ORGANIC COMPOUNDS
- PAHs POLYNUCLEAR AROMATIC HYDROCARBONS
- TPH TOTAL PETROLEUM HYDROCARBONS
- mg/kg MILLIGRAMS PER KILOGRAMS
- CONFIRMED TPH ANALYTICAL RESULTS

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
TPH				
C10–C20	2,000	--	--	--
C20–C34	5,000	--	--	--

HISTORICAL TANK CONTENTS

BUSTR REGULATED TANKS

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)

RFI TANKS

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
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FORMER SOUTH TANK FARM SOIL ANALYTICAL RESULTS - TPH

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FIGURE 6

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**

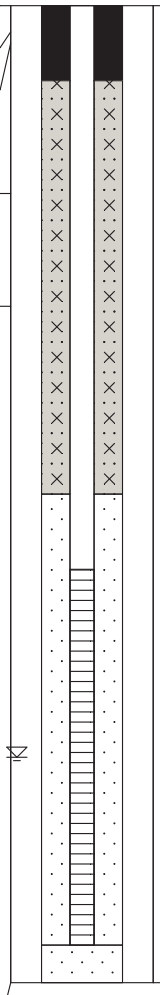
PROJECT INFORMATION

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
0	Hand Auger	0.8/NM	N/A		CONCRETE	(0.0 - 0.7) CONCRETE.
					GW	(0.7 - 1.0) GRAVEL sub base.
2	Hand Auger	3.6/NM	N/A		FILL	(1.0 - 5.0) FILL, sand, poorly sorted, fine to caorse, angular to round, moist, brown
4	Hand Auger	0.0/NM	N/A			
6	7	0.0/NM	3,3,4,3		FILL	(5.0 - 8.0) FILL, clay and sand, little silt, moist, grayish brown.
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.
10	17	22.6/NM	12,15,24,32			*Sample submitted for laboratory anlaysis 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 anlaysis 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.



Concrete (0 to 2 ft)

2" PVC Sch 40 Casing (0 to 15 ft)

Bentonite (2 to 13 ft)

Sand Pack (13 to 26 ft)

2" Screen slot size 0.10 (15 to 25 ft)

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

BORING/WELL CONSTRUCTION LOG

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

TOTAL DEPTH: **26** **feet bls**

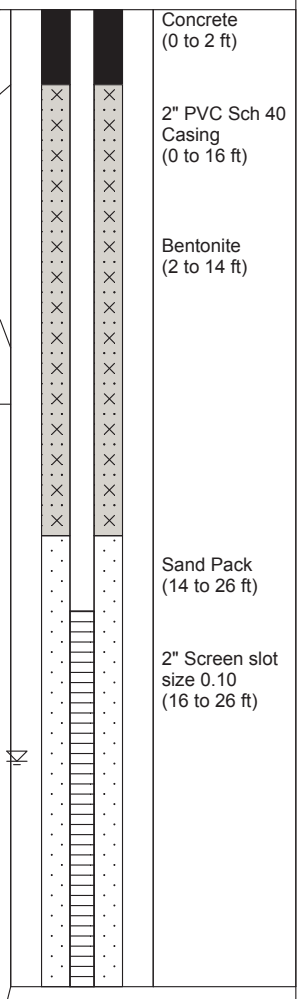
PROJECT INFORMATION

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
0	Hand Auger	0.0/NM	N/A		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.
2	Hand Auger	0.0/NM	N/A		FILL	(2.0 - 9.0) FILL, cinders, sand and gravel, pieces of broken bricks, cinder blocks, moist, black with trace orange.
4	Hand Auger	0.0/NM	N/A			
6	22	0.0/NM	6,3,4,7			
8	9	0.4/NM	4,3,4,5			
10	20	0.1/NM	3,6,9,14		FILL	(9.0 - 10.5) FILL, clay, little to some silt, some sand and trace cinders, medium plastic, stiff, moist, yellowish brown.
12	18	3.4/NM	15,27,27,30		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.
14	18	0.6/NM	16,18,15,20			
16	5	0.0/NM	10,19,50/4			Note: moist from 16 to 18 feet.
18	17	1.8/NM	16,20,24,26			*Sample submitted for laboratory analysis from 18 to 20 feet.
20	1	0.0/NM	21,8,10,8			Note: wet at 20 feet.
22	6	0.0/NM	4,7,9,12			
24	14	0.0/NM	9,10,12,9			
26						End of boring at 26 feet.



Concrete (0 to 2 ft)

2" PVC Sch 40 Casing (0 to 16 ft)

Bentonite (2 to 14 ft)

Sand Pack (14 to 26 ft)

2" Screen slot size 0.10 (16 to 26 ft)

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

BORING/WELL CONSTRUCTION LOG

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

TOTAL DEPTH: **24** **feet bls**

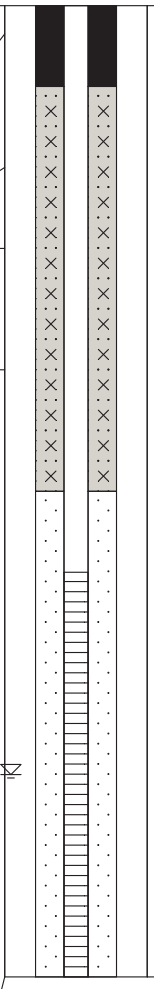
PROJECT INFORMATION

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
0	Hand Auger	96.8/NM	N/A		CONCRETE	(0.0 - 0.7) CONCRETE.
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.
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 ot some silt and sand, trace gravel, medium plastic, medium stiff, moist, yellowish brown.
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.
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.
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.



Concrete (0 to 2 ft)

2" PVC Sch 40 Casing (0 to 14 ft)

Bentonite (2 to 12 ft)

Sand Pack (12 to 24 ft)

2" Screen slot size 0.10 (14 to 24 ft)

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

SOIL BORING LOG

BORING NO.: **SSB-4**

TOTAL DEPTH: **4** **feet bls**

PROJECT INFORMATION

CLIENT:	**RACER Trust**
PROJECT:	**South Tank Farm**
SITE LOCATION:	**Moraine, Ohio**
PROJECT NUMBER:	**OH000294.2015**
LOGGED BY:	**K. Eldridge**
DATE STARTED:	**05/27/2015**
DATE COMPLETED:	**05/27/2015**

DRILLING INFORMATION AMSL

DRILLING CO.:	**EnviroCore**
DRILLER:	**Craig Smallwood**
DRILLING METHOD:	**Hand Auger**
GROUND ELEVATION:	**NM**
NORTHING:	**NM**
EASTING:	**NM**

DEPTH (feet)	Recovery (inches)	PID (ppm)	Soil Symbols	USCS Classification	SOIL DESCRIPTION
0	Hand Auger	*0.2		FILL	(0.0 - 4.0) FILL, cinders, slag like materials, sand, gravel, bricks, slightly moist, dark brown and black.
2	Hand Auger	*0.3			
4					End of boring at 4 feet.
6					

Notes:
bls: below land surface
NR: No Recovery
*Indicates sample submitted for laboratory analysis.
NR: No Recovery
NM: Not Measured
USCS: Unified Soil Classification System
ppm: parts per million
PID: Photo-ionization Detector
ft: feet
HK: Hydroknife AMSL - Above Mean Sea Level

Date: 6/17/2015

SOIL BORING LOG

BORING NO.: **SSB-5**

TOTAL DEPTH: **4** **feet bls**

PROJECT INFORMATION

CLIENT:	**RACER Trust**
PROJECT:	**South Tank Farm**
SITE LOCATION:	**Moraine, Ohio**
PROJECT NUMBER:	**OH000294.2015**
LOGGED BY:	**K. Eldridge**
DATE STARTED:	**05/27/2015**
DATE COMPLETED:	**05/27/2015**

DRILLING INFORMATION AMSL

DRILLING CO.:	**EnviroCore**
DRILLER:	**Craig Smallwood**
DRILLING METHOD:	**Hand Auger**
GROUND ELEVATION:	**NM**
NORTHING:	**NM**
EASTING:	**NM**

DEPTH (feet)	Recovery (inches)	PID (ppm)	Soil Symbols	USCS Classification	SOIL DESCRIPTION
0				CONCRETE	(0.0 - 0.6) CONCRETE.
	Hand Auger	*1.7		FILL	(0.6 - 4.0) FILL, cinders, slag like materials, sand, gravel, slightly moist, dark brown and black.
2	Hand Auger	*0.9			
4					End of boring at 4 feet.
6					

Notes:
bls: below land surface
NR: No Recovery
*Indicates sample submitted for laboratory analysis.
NR: No Recovery
NM: Not Measured
USCS: Unified Soil Classification System
ppm: parts per million
PID: Photo-ionization Detector
ft: feet
HK: Hydroknife AMSL - Above Mean Sea Level

SOIL BORING LOG

BORING NO.: **SSB-6**

TOTAL DEPTH: **4** **feet bls**

PROJECT INFORMATION

CLIENT:	**RACER Trust**
PROJECT:	**South Tank Farm**
SITE LOCATION:	**Moraine, Ohio**
PROJECT NUMBER:	**OH000294.2015**
LOGGED BY:	**K. Eldridge**
DATE STARTED:	**05/27/2015**
DATE COMPLETED:	**05/27/2015**

DRILLING INFORMATION AMSL

DRILLING CO.:	**EnviroCore**
DRILLER:	**Craig Smallwood**
DRILLING METHOD:	**Hand Auger**
GROUND ELEVATION:	**NM**
NORTHING:	**NM**
EASTING:	**NM**

DEPTH (feet)	Recovery (inches)	PID (ppm)	Soil Symbols	USCS Classification	SOIL DESCRIPTION
0				CONCRETE	(0.0 - 0.5) CONCRETE.
	Hand Auger	*1.2		CONCRETE	(0.5 - 1.5) CONCRETE, gravel sub-base.
				FILL	(1.5 - 4.0) FILL, cinders, slag like materials, sand, gravel, slightly moist, dark brown to black.
2	Hand Auger	*12.8			
4					End of boring at 4 feet.
6					

Notes:
bls: below land surface
NR: No Recovery
*Indicates sample submitted for laboratory analysis.
NR: No Recovery
NM: Not Measured
USCS: Unified Soil Classification System
ppm: parts per million
PID: Photo-ionization Detector
ft: feet
HK: Hydroknife
AMSL - Above Mean Sea Level

Date: 6/17/2015

SOIL BORING LOG

BORING NO.: **SSB-7**

TOTAL DEPTH: **24** **feet bls**

PROJECT INFORMATION

CLIENT:	**RACER Trust**
PROJECT:	**South Tank Farm**
SITE LOCATION:	**Moraine, Ohio**
PROJECT NUMBER:	**OH000294.2015**
LOGGED BY:	**K. Eldridge**
DATE STARTED:	**05/27/2015**
DATE COMPLETED:	**05/27/2015**

DRILLING INFORMATION AMSL

DRILLING CO.:	**EnviroCore**
DRILLER:	**Craig Smallwood**
DRILLING METHOD:	**Direct Push/Geoprobe**
GROUND ELEVATION:	**NM**
NORTHING:	**NM**
EASTING:	**NM**

DEPTH (feet)	Recovery (inches)	PID (ppm)	Soil Symbols	USCS Classification	SOIL DESCRIPTION
0	Hand Auger	1.1		CONCRETE	(0.0 - 0.6) CONCRETE.
				FILL	(0.6 - 4.0) FILL, cinders, slag like materials, sand, gravel, very moist, black.
2	Hand Auger	2.0			
4	16	3.2		FILL	(4.0 - 5.0) FILL, layers of silt and cinders with slag like materials, moist, light gray and black.
				FILL	(5.0 - 7.0) FILL, sand, poorly sorted, fine to coarse, some clay, wet, dark gray.
6	41	0.4		FILL	(7.0 - 8.5) FILL, clay, some poorly sorted, sand, little silt, trace gravel, non-plastic, medium stiff, moist, brown.
8		8.2		SW	(8.5 - 24.0) SAND and GRAVEL, poorly sorted, very fine sand to large pebbles, angular to round, little silt, moist, tan dense.
10	14	*14.9			Note: At 10 to 20 feet dry.
12	29	11.6			
14		*2.4			
16	34	5.5			
18		3.7			
20	21	0.7			Note: At 20.5 feet saturated.
22		0.9			
24					End of boring at 24 feet.
26					

Notes:
bls: below land surface
NR: No Recovery
*Indicates sample submitted for laboratory analysis.

NR: No Recovery
NM: Not Measured
USCS: Unified Soil Classification System

ppm: parts per million
PID: Photo-ionization Detector
ft: feet
HK: Hydroknife AMSL - Above Mean Sea Level

Date: 6/17/2015

Appendix B

Monitoring Well Development and Sampling Logs

ARCADIS

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

Well Volume	Total Gallons Removed	pH (s.u.)	Conductivity (mS/cm or umhos/cm)	Turbidity (NTU)	Temperature (^{o}F/^{o}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	mililiter	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	TOC	Sample Pump Intake Setting (ft bmp)	N/A
MP Elevation (ft)	729.68	Pumping Rate (gpm)	N/A
Land Surface Elevation (ft)	NM	Evacuation Method	Disposable Bailer
Sounded Well Depth (ft bmp)	26.01		
Depth to Water (ft bmp)	17.78		
Water-Level Elevation (ft)	711.90	**Field Parameters**	
Water Column in Well (ft)	8.23	Color	Brown
Casing Diameter/Type	2" PVC	Odor	None
Gallons in Well	1.32	Appearance	Very Turbid

Well Volume	Total Gallons Removed	pH (s.u.)	Conductivity (mS/cm or umhos/cm)	Turbidity (NTU)	Temperature (^{o}F/^{o}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	mililiter	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	TOC	Sample Pump Intake Setting (ft bmp)	N/A
MP Elevation (ft)	728.05	Pumping Rate (gpm)	N/A
Land Surface Elevation (ft)	NM	Evacuation Method	Disposable Bailer
Sounded Well Depth (ft bmp)	23.42		
Depth to Water (ft bmp)	18.13		
Water-Level Elevation (ft)	709.92	**Field Parameters**	
Water Column in Well (ft)	5.29	Color	Brown
Casing Diameter/Type	2" PVC	Odor	None
Gallons in Well	0.85	Appearance	Very Turbid

Well Volume	Total Gallons Removed	pH (s.u.)	Conductivity (mS/cm or umhos/cm)	Turbidity (NTU)	Temperature (^{o}F/^{o}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

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	mililiter	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

ARCADIS

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 More than 50% of Coarse Fraction Retained on No. 4 Sieve	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	
		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 More than 50% of Coarse Fraction Passes thru No. 4 Sieve	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	
		Sands with Fines (Appreciable Amount of Fines)	SM	Silty-Sands, Sand-Silt Mixtures	
			SC	Clayey Sands, Sand-Clay Mixtures	Class 2
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	
			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	
			CH	Inorganic Clays of High Plasticity, Fat Clays	Class 3
			OH	Organic Clays of Medium to Plasticity, Organic Silts	
Highly Organic Soils			PT	Peat, Humus, Swamp Soil with High Organic Contents	

PATHWAY:	Soil to Indoor Air	GW to Indoor Air	Soil to DW Leaching	Soil to Non-DW Leaching
SYMBOL:	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

ARCADIS

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

Denise Pohl

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

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

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Definitions/Glossary

Client: ARCADIS U.S., Inc. TestAmerica Job ID: 240-38535-1
Project/Site: Moraine South Tank Farm-OH000294.2014

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

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

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)

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 1.4º 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

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

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.

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)
Date Collected: 06/10/14 10:15
Date Received: 06/13/14 09:20

Lab Sample ID: 240-38535-1
Matrix: Solid
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
Benzo[b]fluoranthene	**3.8**	**J**	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
Bis(2-ethylhexyl) phthalate	**270**	**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
Di-n-butyl phthalate	**24**	**J 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
Fluoranthene	**4.6**	**J**	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

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)
Date Collected: 06/10/14 10:15
Date Received: 06/13/14 09:20

Lab Sample ID: 240-38535-1
Matrix: Solid
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
Phenanthrene	**4.9**	**J**	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
Pyrene	**5.9**	**J**	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
C20-C34	**5.8**	**J**	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*

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)
Date Collected: 06/10/14 10:20
Date Received: 06/13/14 09:20

Lab Sample ID: 240-38535-2
Matrix: Solid
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
Bis(2-ethylhexyl) phthalate	**120**	**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

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)
Date Collected: 06/10/14 10:20
Date Received: 06/13/14 09:20

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

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)
Date Collected: 06/10/14 13:00
Date Received: 06/13/14 09:20

Lab Sample ID: 240-38535-3
Matrix: Solid
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
Bis(2-ethylhexyl) phthalate	**31**	**J 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

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)
Date Collected: 06/10/14 13:00
Date Received: 06/13/14 09:20

Lab Sample ID: 240-38535-3
Matrix: Solid
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
C20-C34	5.8	J	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*

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)
Date Collected: 06/10/14 13:30
Date Received: 06/13/14 09:20

Lab Sample ID: 240-38535-4
Matrix: Solid
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
Bis(2-ethylhexyl) phthalate	**210**	**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

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)
Date Collected: 06/10/14 13:30
Date Received: 06/13/14 09:20

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

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)
Date Collected: 06/10/14 11:00
Date Received: 06/13/14 09:20

Lab Sample ID: 240-38535-5
Matrix: Solid
Percent Solids: 88.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**2000**		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
Benzo[a]pyrene	**640**		370	36	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
Benzo[b]fluoranthene	**950**		370	33	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
Benzo[g,h,i]perylene	**390**		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
Di-n-butyl phthalate	**1400**	**J 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
Fluoranthene	**1600**		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
Indeno[1,2,3-cd]pyrene	**540**		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
2-Methylnaphthalene	**3200**		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

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)
Date Collected: 06/10/14 11:00
Date Received: 06/13/14 09:20

Lab Sample ID: 240-38535-5
Matrix: Solid
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
Naphthalene	**1500**		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
Phenanthrene	**1500**		370	41	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
Phenol	**3400**		2800	410	ug/Kg	☼	06/19/14 09:32	06/25/14 23:14	50
Pyrene	**2700**		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
C10-C20	**21000**		3700	910	mg/Kg	☼	06/18/14 08:52	06/20/14 15:51	200
C20-C34	**12000**		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*

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)
Date Collected: 06/10/14 15:00
Date Received: 06/13/14 09:20

Lab Sample ID: 240-38535-6
Matrix: Solid
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
Bis(2-ethylhexyl) phthalate	**260**	**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
Di-n-butyl phthalate	**22**	**J 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

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)
Date Collected: 06/10/14 15:00
Date Received: 06/13/14 09:20

Lab Sample ID: 240-38535-6
Matrix: Solid
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
C20-C34	**5.4**	**J**	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*

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**

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	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**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	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)

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 Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	7.g	U	7.g	0.g7	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Acenaphthylene	7.g	U	7.g	0.35	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Acetophenone	100	U	100	9.2	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Anthracene	7.g	U	7.g	0.g8	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Atrazine	200	U	200	9.1	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Benzaldehyde	100	U	100	12	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Benzo[a]anthracene	7.g	U	7.g	0.73	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Benzo[a]pyrene	7.g	U	7.g	0.74	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Benzo[b]fluoranthene	7.g	U	7.g	0.59	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Benzo[K,h,i]perylene	7.g	U	7.g	0.35	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Benzo[k]fluoranthene	7.g	U	7.g	0.78	uK/6K		07/19/14 09:32	07/23/14 15:39	1
1,1'-Biphenyl	50	U	50	3.5	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Bis(2-chloroethoxy)methane	100	U	100	22	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Bis(2-chloroethyl)ether	100	U	100	2.0	uK/6K		07/19/14 09:32	07/23/14 15:39	1
bis (2-chloroisopropyl) ether	100	U	100	9.5	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Bis(2-ethylhexyl) phthalate	228		g0	19	uK/6K		07/19/14 09:32	07/23/14 15:39	1
4-Bromophenyl phenyl ether	50	U	50	13	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Butyl benzyl phthalate	g0	U	g0	10	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Caprolactam	330	U	330	3g	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Carbazole	50	U	50	2g	uK/6K		07/19/14 09:32	07/23/14 15:39	1
4-Chloroaniline	150	U	150	1g	uK/6K		07/19/14 09:32	07/23/14 15:39	1
4-Chloro-3-methylphenol	150	U	150	21	uK/6K		07/19/14 09:32	07/23/14 15:39	1
2-Chloronaphthalene	50	U	50	0.45	uK/6K		07/19/14 09:32	07/23/14 15:39	1
2-Chlorophenol	50	U	50	8.2	uK/6K		07/19/14 09:32	07/23/14 15:39	1
4-Chlorophenyl phenyl ether	50	U	50	13	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Chrysene	7.g	U	7.g	1.1	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Dibenz(a,h)anthracene	7.g	U	7.g	0.77	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Dibenzofuran	50	U	50	0.77	uK/6K		07/19/14 09:32	07/23/14 15:39	1
3,3'-Dichlorobenzidine	100	U	100	18	uK/6K		07/19/14 09:32	07/23/14 15:39	1
2,4-Dichlorophenol	150	U	150	20	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Diethyl phthalate	g0	U	g0	17	uK/6K		07/19/14 09:32	07/23/14 15:39	1
2,4-Dimethylphenol	150	U	150	20	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Dimethyl phthalate	g0	U	g0	1g	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Di-n-butyl phthalate	1g.8	J	g0	15	uK/6K		07/19/14 09:32	07/23/14 15:39	1
4,7-Dinitro-2-methylphenol	150	U	150	9.2	uK/6K		07/19/14 09:32	07/23/14 15:39	1
2,4-Dinitrophenol	330	U	330	21	uK/6K		07/19/14 09:32	07/23/14 15:39	1
2,4-Dinitrotoluene	200	U	200	1g	uK/6K		07/19/14 09:32	07/23/14 15:39	1
2,7-Dinitrotoluene	200	U	200	21	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Di-n-octyl phthalate	g0	U	g0	g.9	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Fluoranthene	7.g	U	7.g	0.55	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Fluorene	7.g	U	7.g	0.53	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Hexachlorobenzene	7.g	U	7.g	2.1	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Hexachlorobutadiene	50	U	50	5.7	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Hexachlorocyclopentadiene	330	U	330	8.1	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Hexachloroethane	50	U	50	9.0	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Indeno[1,2,3-cd]pyrene	7.g	U	7.g	0.35	uK/6K		07/19/14 09:32	07/23/14 15:39	1
Isophorone	50	U	50	13	uK/6K		07/19/14 09:32	07/23/14 15:39	1
2-Methylnaphthalene	7.g	U	7.g	0.50	uK/6K		07/19/14 09:32	07/23/14 15:39	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 Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
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 %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
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 Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	77g	4gg		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		gg	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,h,i]perylene	77g	52g		uK/6K		g9	51 - 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		gg	39 - 110

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	3gg		uK/6K		5g	30 - 110
4-Chloro-3-methylphenol	77g	514		uK/6K		gg	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		gg	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

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 %Recovery*	*LCS Qualifier*	*Limits*
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 Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
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 %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
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 Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel RanKe OrKanics [C10 - C28]			83.3	g1.2		mK/6K		85	52 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
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

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

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

Lab Chronicle

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**

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.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY
AND
RECEIVING DOCUMENTS

240-38535 Chain of Custody

4101 Shuffel Street, N.W. North Canton, OH 44720 tel 330.497.9396 fax 330.497.0772 www.testamericainc.com

TestAmerica Canton
4101 Shuffel Street, N. U.
North Canton, OH 44720
Phone: 330.497.9396 Fax: 330.497.0772

South Tank Farm

Chain of Custody Record

042670

1.4, 3.6, 3.6

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☒ Other: UST

Client Contact	Project Manager: Jor Rumschlag	Site Contact: Kari Eldridge	Date:	COC No:
Company Name: ARCADIS	Tel/Fax: 614-985-9130	Lab Contact: Denise Pohl	Carrier:	1 of 3 COCs
Address: 100 E. Campus View Drive, Ste 200	Analysis Turnaround Time			Sampler: Kari Eldridge
City/State/Zip: Columbus, OH 43235	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 614-985-9130	TAT if different from Below			Walk-in Client:
Fax:	☒ 2 weeks			Lab Sampling:
Project Name: RACER BUSTR Investigation	☐ 1 week			
Site: Moraine - South Tank Farm	☐ 2 days			Job / SDG No.:
P O # OH0000704.2014	☐ 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)	TPH-DRO & ORO 8015	TCL SVOCs 8270	Sample Specific Notes:
SSB-2(12-14)	6/10/14	1015	G	Soil	2	N	N	X	X	
SSB-2(18-20)	6/10/14	1020			2			X	X	
SSB-1(10-12)	6/10/14	1300			2			X	X	
SSB-1(18-20)	6/10/14	1330			2			X	X	
SSB-3(0-2)	6/10/14	1100			2			X	X	
SSB-3(16-18)	6/10/14	1500	↓	↓	2	↓	↓	X	X	

Page 32 of 34

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	ARCADIS	6/12/14 2030		TAC	6/13/14 0920
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

6/27/2014

TestAmerica Canton Sample Receipt Form/Narrative Login # : 38535
Canton Facility

Client ARCADIS Site Name RACOR

Cooler unpacked by:

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

FedEx: 1st 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 ☒ See Multiple Cooler Form

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

IR GUN# 8 (CF +0 °C) Observed Cooler Temp. 1.4 °C Corrected Cooler Temp. 1.4 °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): _____

TestAmerica Multiple Cooler Receipt Form/Narrative **Login # : 38535**
Canton Facility

Cooler #	IR Gun #	Observed Temp °C	Corrected Temp °C	Coolant
client Cooler	8	1.4	1.4	WF
↓ ↓	↓	3.6	3.6	↓
↓ ↓	↓	3.6	3.6	↓

This batch by

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: 240-51254-1
Client Project/Site: Racer Moraine OH - OH000294.2015.0002F

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

Attn: Ms. Emily B Christy

Denise Pohl

Authorized for release by:
6/5/2015 5:53:07 PM

Denise Pohl, Project Manager II
(330)966-9789
denise.pohl@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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Qualifiers

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.

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)

Job ID: 240-51254-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Racer Moraine OH - OH000294.2015.0002F

Report Number: 240-51254-1

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 5/28/2015 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.4º C.

DIESEL RANGE ORGANICS (DRO)

Samples SSB-4(0-2) (240-51254-1), SSB-4(2-4) (240-51254-2), SSB-5(0-2) (240-51254-3), SSB-5(2-4) (240-51254-4), SSB-6(0-2) (240-51254-5), SSB-6(2-4) (240-51254-6), SSB-7(10-12) (240-51254-7) and SSB-7(15') (240-51254-8) were analyzed for diesel range organics (DRO) in accordance with EPA SW-846 Method 8015B - DRO. The samples were prepared on 06/01/2015 and analyzed on 06/03/2015.

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.

Method(s) 8015B: The continuing calibration verification (CCV) associated with batch 240-183380 recovered above the upper control limit for diesel. The sample associated with this CCV was non-detect for the affected analyte; therefore, the data have been reported. The following sample is impacted: SSB-7(15') (240-51254-8).

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

Job ID: 240-51254-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

PERCENT SOLIDS

Samples SSB-4(0-2) (240-51254-1), SSB-4(2-4) (240-51254-2), SSB-5(0-2) (240-51254-3), SSB-5(2-4) (240-51254-4), SSB-6(0-2) (240-51254-5), SSB-6(2-4) (240-51254-6), SSB-7(10-12) (240-51254-7) and SSB-7(15') (240-51254-8) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 05/29/2015.

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: Racer Moraine OH - OH000294.2015.0002F

TestAmerica Job ID: 240-51254-1

Method	Method Description	Protocol	Laboratory
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: Racer Moraine OH - OH000294.2015.0002F

TestAmerica Job ID: 240-51254-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-51254-1	SSB-4(0-2)	Solid	05/27/15 09:50	05/28/15 09:30
240-51254-2	SSB-4(2-4)	Solid	05/27/15 10:45	05/28/15 09:30
240-51254-3	SSB-5(0-2)	Solid	05/27/15 10:05	05/28/15 09:30
240-51254-4	SSB-5(2-4)	Solid	05/27/15 10:10	05/28/15 09:30
240-51254-5	SSB-6(0-2)	Solid	05/27/15 10:20	05/28/15 09:30
240-51254-6	SSB-6(2-4)	Solid	05/27/15 10:35	05/28/15 09:30
240-51254-7	SSB-7(10-12)	Solid	05/27/15 10:25	05/28/15 09:30
240-51254-8	SSB-7(15')	Solid	05/27/15 11:35	05/28/15 09:30

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine OH - OH000294.2015.0002F

TestAmerica Job ID: 240-51254-1

Client Sample ID: SSB-4(0-2) — Lab Sample ID: 240-51254-1

No Detections.

Client Sample ID: SSB-4(2-4) — Lab Sample ID: 240-51254-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C10-C20	32		19	7.3	mg/Kg	1	☼	8015B	Total/NA
C20-C34	77		19	7.3	mg/Kg	1	☼	8015B	Total/NA

Client Sample ID: SSB-5(0-2) — Lab Sample ID: 240-51254-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C10-C20	45		20	7.5	mg/Kg	1	☼	8015B	Total/NA
C20-C34	230		20	7.5	mg/Kg	1	☼	8015B	Total/NA

Client Sample ID: SSB-5(2-4) — Lab Sample ID: 240-51254-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C10-C20	35		19	7.1	mg/Kg	1	☼	8015B	Total/NA
C20-C34	300		19	7.1	mg/Kg	1	☼	8015B	Total/NA

Client Sample ID: SSB-6(0-2) — Lab Sample ID: 240-51254-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C10-C20	15	J	20	7.6	mg/Kg	1	☼	8015B	Total/NA
C20-C34	86		20	7.6	mg/Kg	1	☼	8015B	Total/NA

Client Sample ID: SSB-6(2-4) — Lab Sample ID: 240-51254-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C10-C20	43		19	7.2	mg/Kg	1	☼	8015B	Total/NA
C20-C34	120		19	7.2	mg/Kg	1	☼	8015B	Total/NA

Client Sample ID: SSB-7(10-12) — Lab Sample ID: 240-51254-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C10-C20	14	J	20	7.5	mg/Kg	1	☼	8015B	Total/NA
C20-C34	110		20	7.5	mg/Kg	1	☼	8015B	Total/NA

Client Sample ID: SSB-7(15') — Lab Sample ID: 240-51254-8

No Detections.

This Detection Summary does not include radiochemical test results.

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine OH - OH000294.2015.0002F

TestAmerica Job ID: 240-51254-1

Client Sample ID: SSB-4(0-2)
Date Collected: 05/27/15 09:50
Date Received: 05/28/15 09:30

Lab Sample ID: 240-51254-1
Matrix: Solid
Percent Solids: 96.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C20	17	U	17	6.6	mg/Kg	☼	06/01/15 07:58	06/03/15 02:00	1
C20-C34	17	U	17	6.6	mg/Kg	☼	06/01/15 07:58	06/03/15 02:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*57*		*40 - 160*	*06/01/15 07:58*	*06/03/15 02:00*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97		0.10	0.10	%			05/29/15 16:28	1

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine OH - OH000294.2015.0002F

TestAmerica Job ID: 240-51254-1

Client Sample ID: SSB-4(2-4)
Date Collected: 05/27/15 10:45
Date Received: 05/28/15 09:30

Lab Sample ID: 240-51254-2
Matrix: Solid
Percent Solids: 88.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C20	32		19	7.3	mg/Kg	☼	06/01/15 07:58	06/03/15 02:32	1
C20-C34	77		19	7.3	mg/Kg	☼	06/01/15 07:58	06/03/15 02:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*73*		*40 - 160*	*06/01/15 07:58*	*06/03/15 02:32*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88		0.10	0.10	%			05/29/15 16:28	1

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine OH - OH000294.2015.0002F

TestAmerica Job ID: 240-51254-1

Client Sample ID: SSB-5(0-2)
Date Collected: 05/27/15 10:05
Date Received: 05/28/15 09:30

Lab Sample ID: 240-51254-3
Matrix: Solid
Percent Solids: 86.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C20	45		20	7.5	mg/Kg	☼	06/01/15 07:58	06/03/15 03:03	1
C20-C34	230		20	7.5	mg/Kg	☼	06/01/15 07:58	06/03/15 03:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*93*		*40 - 160*	*06/01/15 07:58*	*06/03/15 03:03*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87		0.10	0.10	%			05/29/15 16:28	1

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine OH - OH000294.2015.0002F

TestAmerica Job ID: 240-51254-1

Client Sample ID: SSB-5(2-4)
Date Collected: 05/27/15 10:10
Date Received: 05/28/15 09:30

Lab Sample ID: 240-51254-4
Matrix: Solid
Percent Solids: 91.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C20	35		19	7.1	mg/Kg	☼	06/01/15 07:58	06/03/15 03:35	1
C20-C34	300		19	7.1	mg/Kg	☼	06/01/15 07:58	06/03/15 03:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*78*		*40 - 160*	*06/01/15 07:58*	*06/03/15 03:35*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	91		0.10	0.10	%			05/29/15 16:28	1

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine OH - OH000294.2015.0002F

TestAmerica Job ID: 240-51254-1

Client Sample ID: SSB-6(0-2)
Date Collected: 05/27/15 10:20
Date Received: 05/28/15 09:30

Lab Sample ID: 240-51254-5
Matrix: Solid
Percent Solids: 84.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C20	15	J	20	7.6	mg/Kg	☼	06/01/15 07:58	06/03/15 04:06	1
C20-C34	86		20	7.6	mg/Kg	☼	06/01/15 07:58	06/03/15 04:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*70*		*40 - 160*	*06/01/15 07:58*	*06/03/15 04:06*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84		0.10	0.10	%			05/29/15 16:28	1

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine OH - OH000294.2015.0002F

TestAmerica Job ID: 240-51254-1

Client Sample ID: SSB-6(2-4)
Date Collected: 05/27/15 10:35
Date Received: 05/28/15 09:30

Lab Sample ID: 240-51254-6
Matrix: Solid
Percent Solids: 89.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C20	43		19	7.2	mg/Kg	☼	06/01/15 07:58	06/03/15 04:37	1
C20-C34	120		19	7.2	mg/Kg	☼	06/01/15 07:58	06/03/15 04:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*84*		*40 - 160*	*06/01/15 07:58*	*06/03/15 04:37*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90		0.10	0.10	%			05/29/15 16:28	1

Client Sample ID: SSB-7(10-12)
Date Collected: 05/27/15 10:25
Date Received: 05/28/15 09:30

Lab Sample ID: 240-51254-7
Matrix: Solid
Percent Solids: 86.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C20	14	J	20	7.5	mg/Kg	☼	06/01/15 07:58	06/03/15 05:09	1
C20-C34	110		20	7.5	mg/Kg	☼	06/01/15 07:58	06/03/15 05:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*62*		*40 - 160*	*06/01/15 07:58*	*06/03/15 05:09*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86		0.10	0.10	%			05/29/15 16:28	1

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine OH - OH000294.2015.0002F

TestAmerica Job ID: 240-51254-1

Client Sample ID: SSB-7(15')
Date Collected: 05/27/15 11:35
Date Received: 05/28/15 09:30

Lab Sample ID: 240-51254-8
Matrix: Solid
Percent Solids: 97.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C20	17	U	17	6.5	mg/Kg	☼	06/01/15 07:58	06/03/15 06:12	1
C20-C34	17	U	17	6.5	mg/Kg	☼	06/01/15 07:58	06/03/15 06:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*48*		*40 - 160*	*06/01/15 07:58*	*06/03/15 06:12*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97		0.10	0.10	%			05/29/15 16:28	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine OH - OH000294.2015.0002F

TestAmerica Job ID: 240-51254-1

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	OTPH1 (40-160)						
240-51254-1	SSB-4(0-2)	57						
240-51254-2	SSB-4(2-4)	73						
240-51254-3	SSB-5(0-2)	93						
240-51254-4	SSB-5(2-4)	78						
240-51254-5	SSB-6(0-2)	70						
240-51254-6	SSB-6(2-4)	84						
240-51254-7	SSB-7(10-12)	62						
240-51254-8	SSB-7(15')	48						
LCS 240-183076/24-A	Lab Control Sample	55						
MB 240-183076/23-A	Method Blank	52						

Surrogate Legend

OTPH = o-Terphenyl (Surr)

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

Lab Sample ID: MB 240-183076/23-A
Matrix: Solid
Analysis Batch: 183380

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 183076

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C20	17	U	17	6.4	mg/Kg		06/01/15 07:58	06/02/15 18:38	1
C20-C34	17	U	17	6.4	mg/Kg		06/01/15 07:58	06/02/15 18:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*52*		*40 - 160*	*06/01/15 07:58*	*06/02/15 18:38*	*1*

Lab Sample ID: LCS 240-183076/24-A
Matrix: Solid
Analysis Batch: 183380

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 183076

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10 - C28]			83.3	45.1		mg/Kg		54	52 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*55*		*40 - 160*

Method: Moisture - Percent Moisture

Lab Sample ID: 240-51254-3 DU
Matrix: Solid
Analysis Batch: 182974

Client Sample ID: SSB-5(0-2)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	87			90		%				3	20

GC Semi VOA

Prep Batch: 183076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-51254-1	SSB-4(0-2)	Total/NA	Solid	3540C	
240-51254-2	SSB-4(2-4)	Total/NA	Solid	3540C	
240-51254-3	SSB-5(0-2)	Total/NA	Solid	3540C	
240-51254-4	SSB-5(2-4)	Total/NA	Solid	3540C	
240-51254-5	SSB-6(0-2)	Total/NA	Solid	3540C	
240-51254-6	SSB-6(2-4)	Total/NA	Solid	3540C	
240-51254-7	SSB-7(10-12)	Total/NA	Solid	3540C	
240-51254-8	SSB-7(15')	Total/NA	Solid	3540C	
LCS 240-183076/24-A	Lab Control Sample	Total/NA	Solid	3540C	
MB 240-183076/23-A	Method Blank	Total/NA	Solid	3540C	

Analysis Batch: 183380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-51254-1	SSB-4(0-2)	Total/NA	Solid	8015B	183076
240-51254-2	SSB-4(2-4)	Total/NA	Solid	8015B	183076
240-51254-3	SSB-5(0-2)	Total/NA	Solid	8015B	183076
240-51254-4	SSB-5(2-4)	Total/NA	Solid	8015B	183076
240-51254-5	SSB-6(0-2)	Total/NA	Solid	8015B	183076
240-51254-6	SSB-6(2-4)	Total/NA	Solid	8015B	183076
240-51254-7	SSB-7(10-12)	Total/NA	Solid	8015B	183076
240-51254-8	SSB-7(15')	Total/NA	Solid	8015B	183076
LCS 240-183076/24-A	Lab Control Sample	Total/NA	Solid	8015B	183076
MB 240-183076/23-A	Method Blank	Total/NA	Solid	8015B	183076

General Chemistry

Analysis Batch: 182974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-51254-1	SSB-4(0-2)	Total/NA	Solid	Moisture	
240-51254-2	SSB-4(2-4)	Total/NA	Solid	Moisture	
240-51254-3	SSB-5(0-2)	Total/NA	Solid	Moisture	
240-51254-3 DU	SSB-5(0-2)	Total/NA	Solid	Moisture	
240-51254-4	SSB-5(2-4)	Total/NA	Solid	Moisture	
240-51254-5	SSB-6(0-2)	Total/NA	Solid	Moisture	
240-51254-6	SSB-6(2-4)	Total/NA	Solid	Moisture	
240-51254-7	SSB-7(10-12)	Total/NA	Solid	Moisture	
240-51254-8	SSB-7(15')	Total/NA	Solid	Moisture	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine OH - OH000294.2015.0002F

TestAmerica Job ID: 240-51254-1

Client Sample ID: SSB-4(0-2)

Lab Sample ID: 240-51254-1
Date Collected: 05/27/15 09:50
Matrix: Solid
Date Received: 05/28/15 09:30
Percent Solids: 96.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			183076	06/01/15 07:58	CSC	TAL CAN
Total/NA	Analysis	8015B		1	183380	06/03/15 02:00	DEB	TAL CAN
Total/NA	Analysis	Moisture		1	182974	05/29/15 16:28	DTN	TAL CAN

Client Sample ID: SSB-4(2-4)

Lab Sample ID: 240-51254-2
Date Collected: 05/27/15 10:45
Matrix: Solid
Date Received: 05/28/15 09:30
Percent Solids: 88.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			183076	06/01/15 07:58	CSC	TAL CAN
Total/NA	Analysis	8015B		1	183380	06/03/15 02:32	DEB	TAL CAN
Total/NA	Analysis	Moisture		1	182974	05/29/15 16:28	DTN	TAL CAN

Client Sample ID: SSB-5(0-2)

Lab Sample ID: 240-51254-3
Date Collected: 05/27/15 10:05
Matrix: Solid
Date Received: 05/28/15 09:30
Percent Solids: 86.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			183076	06/01/15 07:58	CSC	TAL CAN
Total/NA	Analysis	8015B		1	183380	06/03/15 03:03	DEB	TAL CAN
Total/NA	Analysis	Moisture		1	182974	05/29/15 16:28	DTN	TAL CAN

Client Sample ID: SSB-5(2-4)

Lab Sample ID: 240-51254-4
Date Collected: 05/27/15 10:10
Matrix: Solid
Date Received: 05/28/15 09:30
Percent Solids: 91.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			183076	06/01/15 07:58	CSC	TAL CAN
Total/NA	Analysis	8015B		1	183380	06/03/15 03:35	DEB	TAL CAN
Total/NA	Analysis	Moisture		1	182974	05/29/15 16:28	DTN	TAL CAN

Client Sample ID: SSB-6(0-2)

Lab Sample ID: 240-51254-5
Date Collected: 05/27/15 10:20
Matrix: Solid
Date Received: 05/28/15 09:30
Percent Solids: 84.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			183076	06/01/15 07:58	CSC	TAL CAN
Total/NA	Analysis	8015B		1	183380	06/03/15 04:06	DEB	TAL CAN
Total/NA	Analysis	Moisture		1	182974	05/29/15 16:28	DTN	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine OH - OH000294.2015.0002F

TestAmerica Job ID: 240-51254-1

Client Sample ID: SSB-6(2-4)

Lab Sample ID: 240-51254-6
Date Collected: 05/27/15 10:35
Matrix: Solid
Date Received: 05/28/15 09:30
Percent Solids: 89.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			183076	06/01/15 07:58	CSC	TAL CAN
Total/NA	Analysis	8015B		1	183380	06/03/15 04:37	DEB	TAL CAN
Total/NA	Analysis	Moisture		1	182974	05/29/15 16:28	DTN	TAL CAN

Client Sample ID: SSB-7(10-12)

Lab Sample ID: 240-51254-7
Date Collected: 05/27/15 10:25
Matrix: Solid
Date Received: 05/28/15 09:30
Percent Solids: 86.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			183076	06/01/15 07:58	CSC	TAL CAN
Total/NA	Analysis	8015B		1	183380	06/03/15 05:09	DEB	TAL CAN
Total/NA	Analysis	Moisture		1	182974	05/29/15 16:28	DTN	TAL CAN

Client Sample ID: SSB-7(15')

Lab Sample ID: 240-51254-8
Date Collected: 05/27/15 11:35
Matrix: Solid
Date Received: 05/28/15 09:30
Percent Solids: 97.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			183076	06/01/15 07:58	CSC	TAL CAN
Total/NA	Analysis	8015B		1	183380	06/03/15 06:12	DEB	TAL CAN
Total/NA	Analysis	Moisture		1	182974	05/29/15 16:28	DTN	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: Racer Moraine OH - OH000294.2015.0002F

TestAmerica Job ID: 240-51254-1

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	04-30-17
Connecticut	State Program	1	PH-0590	12-31-15
Florida	NELAP	4	E87225	06-30-15 *
Georgia	State Program	4	N/A	06-30-15 *
Illinois	NELAP	5	200004	07-31-15
Kansas	NELAP	7	E-10336	05-31-15 *
Kentucky (UST)	State Program	4	58	06-30-15 *
Kentucky (WW)	State Program	4	98016	12-31-15
L-A-B	DoD ELAP		L2315	07-18-16
Minnesota	NELAP	5	039-999-348	12-31-15
Nevada	State Program	9	OH-000482008A	07-31-15
New Jersey	NELAP	2	OH001	06-30-15 *
New York	NELAP	2	10975	03-31-16 *
Ohio VAP	State Program	5	CL0024	10-31-15
Oregon	NELAP	10	4062	02-23-16
Pennsylvania	NELAP	3	68-00340	08-31-15
Texas	NELAP	6		08-31-15
USDA	Federal		P330-13-00319	11-26-16
Virginia	NELAP	3	460175	09-14-15
Washington	State Program	10	C971	01-12-16
West Virginia DEP	State Program	3	210	12-31-15
Wisconsin	State Program	5	999518190	08-31-15

* Certification renewal pending - certification considered valid.

CHAIN OF CUSTODY
AND
RECEIVING DOCUMENTS

1.6/C 0.4

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes☐ No☐

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client: ARCADIS	Project Manager: Carolyn Grogan / Jason Manzo	Date: 5/27/15	Chain of Custody Number: 259273
Address: 100 E. Campus View Blvd, Ste 200	Telephone Number (Area Code)/Fax Number:	Lab Number: 240016917	Page 1 of 1
City: Columbus / State: OH / Zip Code: 43235	Site Contact: Kari Eldridge	Lab Contact: Denise Pohl	
Project Name and Location (State): RACER Moraine, OH	Carrier/Waybill Number: 614-985-9100		
Contract/Purchase Order/Quote No.: 240016917			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis: TPH C10-C20	TPH C20-C34	Special Instructions/ Conditions of Receipt
SSB-4 (0-2)	5/27/15	0950				X	X						X	X	
SSB-4 (2-4)		1045				X							X	X	
SSB-5 (0-2)		1005				X							X	X	
SSB-5 (2-4)		1010				X							X	X	
SSB-6 (0-2)		1020				X							X	X	
SSB-6 (2-4)		1035				X							X	X	
SSB-7 (10-12)		1125				X							X	X	
SSB-7 (15')		1135				X							X	X	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☒ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: ARCADIS	5/27/15	1230	1. Received By:	5-28-15	930
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

6/5/2015

TestAmerica Canton Sample Receipt Form/Narrative Login # : 51154
Canton Facility

Client Arcadis Site Name _____ Cooler unpacked by:

Cooler Received on 5-28-15 Opened on 5-28-15

FedEx: 1st Grd (Exp) UPS FAS Stetson Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

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 +4.0 °C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C~~

IR GUN# 4 (CF +0.5 °C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C ☐ See Multiple Cooler Form

~~IR GUN# 5 (CF +0.4 °C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C~~

IR GUN# 8 (CF -1.2 °C) Observed Cooler Temp. 1.6 °C Corrected Cooler Temp. 0.4 °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.	Was/were the sampler(s) clearly identified on the COC?	Yes	(No)
7.	Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8.	Could all bottle labels be reconciled with the COC?	(Yes)	No
9.	Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
10.	Sufficient quantity received to perform indicated analyses?	(Yes)	No
11.	Were sample(s) at the correct pH upon receipt?	Yes	No (NA) pH Strip Lot# HC432654
12.	Were VOAs on the COC?	Yes	(No)
13.	Were air bubbles >6 mm in any VOA vials?	Yes	No (NA)
14.	Was a trip blank present in the cooler(s)? Trip Blank Lot #_____	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): _____

ARCADIS

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

Denise Pohl

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

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

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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

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.

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.

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)

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.

Job ID: 240-38645-1 (Continued)

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

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

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

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.

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
Date Collected: 06/16/14 17:00
Date Received: 06/18/14 09:20

Lab Sample ID: 240-38645-1
Matrix: Water

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
Acetophenone	**0.36**	**J 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
Bis(2-ethylhexyl) phthalate	**16**	**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
Butyl benzyl phthalate	**0.47**	**J**	1.0	0.22	ug/L		06/19/14 08:04	06/23/14 09:44	1
Caprolactam	**1.1**	**J 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
Diethyl phthalate	**0.30**	**J**	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
Di-n-butyl phthalate	**2.2**	**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

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
Date Collected: 06/16/14 17:00
Date Received: 06/18/14 09:20

Lab Sample ID: 240-38645-1
Matrix: Water

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

TestAmerica Job ID: 240-38645-1

Client Sample ID: SMW-2/061614
Date Collected: 06/16/14 16:35
Date Received: 06/18/14 09:20

Lab Sample ID: 240-38645-2
Matrix: Water

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
Acetophenone	**0.37**	**J 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
Bis(2-ethylhexyl) phthalate	**13**	**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
Caprolactam	**1.1**	**J 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
Diethyl phthalate	**0.26**	**J**	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
Di-n-butyl phthalate	**2.1**	**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

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
Date Collected: 06/16/14 16:35
Date Received: 06/18/14 09:20

Lab Sample ID: 240-38645-2
Matrix: Water

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
Phenol	**0.33**	**J 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*

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
Date Collected: 06/16/14 16:50
Date Received: 06/18/14 09:20

Lab Sample ID: 240-38645-3
Matrix: Water

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
Acetophenone	**0.25**	**J 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
Bis(2-ethylhexyl) phthalate	**15**	**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
Caprolactam	**0.83**	**J 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
Diethyl phthalate	**0.25**	**J**	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
Di-n-butyl phthalate	**1.8**	**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

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
Date Collected: 06/16/14 16:50
Date Received: 06/18/14 09:20

Lab Sample ID: 240-38645-3
Matrix: Water

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 ID: DUP-01/061614
Date Collected: 06/16/14 00:00
Date Received: 06/18/14 09:20

Lab Sample ID: 240-38645-4
Matrix: Water

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
Acetophenone	**0.41**	**J 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
Bis(2-ethylhexyl) phthalate	**14**	**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
Caprolactam	**1.1**	**J 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
Diethyl phthalate	**0.36**	**J**	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
Di-n-butyl phthalate	**2.3**	**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

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
Date Collected: 06/16/14 00:00
Date Received: 06/18/14 09:20

Lab Sample ID: 240-38645-4
Matrix: Water

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
Phenol	**0.34**	**J 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: ARCADIS U.S., Inc.
Project/Site: Moraine South Tank Farm-OH000294.2014

TestAmerica Job ID: 240-38645-1

Client Sample ID: TRIP BLANK
Date Collected: 06/16/14 00:00
Date Received: 06/18/14 09:20

Lab Sample ID: 240-38645-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	3.4	J	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
2-Butanone (MEK)	1.3	J	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

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

TestAmerica Job ID: 240-38645-1

Client Sample ID: TRIP BLANK
Date Collected: 06/16/14 00:00
Date Received: 06/18/14 09:20

Lab Sample ID: 240-38645-5
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
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**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(63-129)	(66-120)	(74-120)	(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**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	PHL	TPH	TBP
Lab Sample ID	Client Sample ID	(29-110)	(15-110)	(31-110)	(10-110)	(31-115)	(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)

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 Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
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

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 %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
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
Acetone	20.0	12.5		ug/L		63	43 - 136
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

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

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 Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
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		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 %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
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*

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 %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
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

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 %Recovery*	*LCS Qualifier*	*Limits*
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 Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
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

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 Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
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

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 Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
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 %Recovery*	*MS Qualifier*	*Limits*
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 Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	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

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 Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
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*	*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*

QC Association Summary

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

TestAmerica Job ID: 240-38645-1

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

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
Matrix: Water
Date Collected: 06/16/14 17:00
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
Matrix: Water
Date Collected: 06/16/14 16:35
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
Matrix: Water
Date Collected: 06/16/14 16:50
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
Matrix: Water
Date Collected: 06/16/14 00:00
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
Matrix: Water
Date Collected: 06/16/14 00:00
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

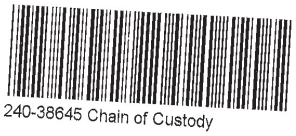
All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

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.

TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY AND RECEIVING DOCUMENTS



South Tank Farm 1.6,2.2

ARCADIS
Infrastructure · Water · Environment · Buildings

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 3

Lab Work Order #

Send Results to:

Contact & Company Name: Joe Rumschlag / ARCADIS	Telephone: 614-985-9130
Address: 100 E. Campus View Blvd, Ste 200	Fax:
City: Columbus State: OH Zip: 43235	E-mail Address: joe.rumschlag@arcadis-us.com
Project Name/Location (City, State): PLACER / Moraine, OH	Project #: OH000294.2014.0002F
Sampler's Printed Name: Kari Eldridge	Sampler's Signature: [signature]

Preservative	E						
Filtered (✓)							
# of Containers	2						
Container Information	9						

PARAMETER ANALYSIS & METHOD

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	TCL VOCs 8260 ~~8270~~	BTEX/MTBE 8260	TCL VOCs 8260						REMARKS
SMW-1/061614	6/16/14	1700		✓	W	✓								
SMW-2/061614	↓	1635		↓	↓	✓								*MS/MSD sample (6 bottles)
SMW-3/061614	↓	1650		↓	↓	✓								
DUP-01/061614	↓	—		↓	↓	✓								
TRIP BLANKS (2)					↓	~~✓~~ KRE	✓	✓						run for VOCs only - check with Joe Rumschlag before running analysis

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: ______
G. Other: ______
H. Other: ______

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: 250mL amber
10. Other: ______

Matrix Key:
SO - Soil; W - Water; T - Tissue; SE - Sediment; SL - Sludge; A - Air; NL - NAPL/Oil; SW - Sample Wipe; Other: ______

Special Instructions/Comments: Lab PM: Denise Pohl

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt

Lab Name: Test America / North Canton	Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact
☑ Cooler packed with ice (✓)	
Specify Turnaround Requirements: Standard (2 wks)	Sample Receipt:
Shipping Tracking #:	Condition/Cooler Temp: ______

	Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name:	Kari Eldridge	Debbie Olszak	Matt Barbieri	N. Sotek
Signature:	[signature]	[signature]	[signature]	[signature]
Firm/Courier:	ARCADIS	TA	Test America	TA
Date/Time:	6/17/14 0835	6/17/14 09:35	6/17/14 / 14:10	6.18.14 ~~930~~ 920

20730826 CofC AR Form 01.12.2007

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

TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 380045

Client Arcadis Site Name

Cooler unpacked by:

Cooler Received on 6.19.14 Opened on 6.19.14

FedEx: 1st 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	☐ See Multiple Cooler Form
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): _____

Appendix E

Chain of Custody

ARCADIS

Soil

TestAmerica Canton
4101 Shuffel Street, N. U.
North Canton, OH 44720
Phone: 330.497.9396 Fax: 330.497.0772

South Tank Farm

Chain of Custody Record

042670

1.4, 3.6, 3.6

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☒ Other: UST

Client Contact	Project Manager: Jor Rumschlag	Site Contact: Kari Eldridge	Date:	COC No:
Company Name: ARCADIS	Tel/Fax: 614-985-9130	Lab Contact: Denise Pohl	Carrier:	1 of 3 COCs
Address: 100 E. Campus View Drive, Ste 200	Analysis Turnaround Time			Sampler: Kari Eldridge
City/State/Zip: Columbus, OH 43235	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 614-985-9130	TAT if different from Below			Walk-in Client:
Fax:	☒ 2 weeks			Lab Sampling:
Project Name: RACER BUSTR Investigation	☐ 1 week			
Site: Moraine - South Tank Farm	☐ 2 days			Job / SDG No.:
P O # OH0000704.2014	☐ 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)	TPH-DRO & ORO 8015	TCL SVOCs 8270	Sample Specific Notes:
SSB-2(12-14)	6/10/14	1015	G	Soil	2	N	N	X	X	
SSB-2(18-20)	6/10/14	1020			2			X	X	
SSB-1(10-12)	6/10/14	1300			2			X	X	
SSB-1(18-20)	6/10/14	1330			2			X	X	
SSB-3(0-2)	6/10/14	1100			2			X	X	
SSB-3(16-18)	6/10/14	1500	↓	↓	2	↓	↓	X	X	

Page 32 of 34

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	ARCADIS	6/12/14 2030		TAC	6/13/14 0920
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

6/27/2014

1.6/C 0.4

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes☐ No☐

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client: ARCADIS	Project Manager: Carolyn Grogan / Jason Manzo	Date: 5/27/15	Chain of Custody Number: 259273
Address: 100 E. Campus View Blvd, Ste 200	Telephone Number (Area Code)/Fax Number:	Lab Number: 240016917	Page 1 of 1
City: Columbus / State: OH / Zip Code: 43235	Site Contact: Kari Eldridge	Lab Contact: Denise Pohl	
Project Name and Location (State): RACER Moraine, OH	Carrier/Waybill Number: 614-985-9100		
Contract/Purchase Order/Quote No.: 240016917			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis: TPH C10-C20	TPH C20-C34	Special Instructions/ Conditions of Receipt
SSB-4 (0-2)	5/27/15	0950				X	X						X	X	
SSB-4 (2-4)		1045				X							X	X	
SSB-5 (0-2)		1005				X							X	X	
SSB-5 (2-4)		1010				X							X	X	
SSB-6 (0-2)		1020				X							X	X	
SSB-6 (2-4)		1035				X							X	X	
SSB-7 (10-12)		1125				X							X	X	
SSB-7 (15')		1135				X							X	X	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☒ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: ARCADIS	5/27/15	1230	1. Received By:	5-28-15	930
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

6/5/2015

ARCADIS

Groundwater

South Tank Farm 1.0,2.2

ARCADIS
Infrastructure · Water · Environment · Buildings

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 3

Lab Work Order #

Send Results to:

Contact & Company Name: Joe Rumschlag/ARCADIS
Telephone: 614-985-9130
Address: 100 E. Campus View Blvd, Ste 200
Fax:
City: Columbus State: OH Zip: 43235
E-mail Address: joe.rumschlag@arcadis-us.com
Project Name/Location (City, State): PLACER/Moraine, OH
Project #: OH000294.2014.0002F
Sampler's Printed Name: Kari Eldridge
Sampler's Signature:

Preservative	E
Filtered (✓)	
# of Containers	2
Container Information	9

PARAMETER ANALYSIS & METHOD

Sample ID	Collection Date	Collection Time	Type Comp	Type Grab	Matrix	TCL VOCs 8270 8260	BTEX/MTBE 8260	TCL VOCs 8260	REMARKS
SMW-1/061614	6/16/14	1700		✓	W	✓			
SMW-2/061614	↓	1635		↓	↓	✓			*MS/MSD sample (6 bottles)
SMW-3/061614	↓	1650		↓	↓	✓			
DUP-01/061614	↓	—		↓	↓	✓			
TRIP BLANKS (2)					↓	~~✓~~ KRE	✓	✓	run for VOCs only - check with Joe Rumschlag before running analysis

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: ____
G. Other: ____
H. Other: ____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: 250mL amber
10. Other: ____

Matrix Key:
SO - Soil, W - Water, T - Tissue
SE - Sediment, SL - Sludge, A - Air
NL - NAPL/Oil, SW - Sample Wipe, Other: ____

Special Instructions/Comments: Lab PM: Denise Pohl

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt

Lab Name: Test America/North Canton
☑ Cooler packed with ice (✓)
Cooler Custody Seal (✓): ☐ Intact ☐ Not Intact
Specify Turnaround Requirements: Standard (2 wks)
Sample Receipt:
Shipping Tracking #:
Condition/Cooler Temp: ____

	Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name	Kari Eldridge	Debbie Olszak	Matt Barbieri	N. Sztek
Signature	[signature]	[signature]	[signature]	[signature]
Firm	ARCADIS	TA	Test America	TA
Date/Time	6/17/14 0835	6/17/14 09:35	6/17/14 / 14:10	6.18.14 ~~930~~ 920

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