Technical Memorandum

Date: March 15, 2018

To: Bill Mullins Jr.
Mullins Rubber Products

From: Andrew Davis, EIT – TRC Environmental
Brooks Bertl, PE, PG - TRC Environmental

Project No.: 268970.0001

Subject: SVE System Operation Update
Mullins Rubber Products
2949 Valley Pike
Dayton, OH 45404

In order to address the presence of volatile organic compounds (VOCs), primarily Tetrachloroethene (PCE) and Trichloroethene (TCE) in the subsurface, Mullins Rubber Products has:

- Implemented the pilot-scale Soil Vapor Extraction (SVE) system to treat VOCs in unsaturated soils in January 2016;
- Based on successful implementation of the pilot-scale SVE system and the results of the May 2016 Supplemental Source Area Investigation to evaluate other potential source areas, expanded the SVE system to include two additional recovery wells in January 2017; and
- Installed an emulsified zero valent iron (eZVI) treatment zone along the western property boundary in January 2017 to address impacted groundwater before it leaves the property.

Summary of Activities

This report details the monthly operations and maintenance (O&M) activities performed at the Mullins Rubber Products facility at 2949 Valley Pike in Dayton, Ohio from January 23, 2018 through February 15, 2018. The O&M tasks performed in that time include the following:

- Monthly collection of influent and effluent vapor samples from the SVE treatment system (i.e., vapor sampled before carbon treatment and after carbon treatment). The SVE system layout is presented in Figure 1. Laboratory results of the vapor sampling are summarized in Table 1. A complete laboratory analytical report is included in Attachment A.
- Monthly recording of measurements at all SVE monitoring points, SVE wells, and the SVE blower as summarized in Attachment B. The parameters recorded at these locations included:

  - Air flow
  - Temperature
  - Vacuum
  - Photo Ionization Detector (PID) vapor readings
- Monthly inspection of the SVE blower and routine maintenance as needed (e.g., change oil, add grease for lubrication, empty condensate collection tank).
- Collection of water levels from onsite monitoring wells MW-EPA-08, MW-01R, MW-02, MW-EPA-07, and MW-PW. A summary of the water level data collected from the onsite wells on December 21, 2017 is included in Table 2.

SVE System Performance

Analytical laboratory results of monthly vapor samples collected from both the influent and effluent vapor streams of the SVE treatment system continue to be recorded and monitored by TRC on a monthly basis. Table 1 shows VOC concentrations measured before (influent) and after (effluent) carbon treatment, as well as calculated values reflecting the daily amounts of VOCs discharged by the system. These calculated values estimate the amount of VOCs adsorbed into the granular activated carbon (GAC) and the amount discharged into the atmosphere. Results show that the SVE treatment system continues to operate efficiently, adsorbing 0.6804 pounds of VOCs into the GAC per day. The amount of VOCs discharged daily to the atmosphere are required to be below 10 pounds per day per, the *de Minimis* source exemption specified in Ohio Administration Code (OAC) 3745-15-05.

Calculated discharge rates to the atmosphere have been observed to be rising steadily since November 2017, but continue to be several orders of magnitude below the *de Minimis* discharge limit. Concentrations of the vapor stream discharged to the atmosphere were last recorded in February 2018 to be at 0.2068 pounds per day. The increase in vapor concentrations being discharged to the atmosphere can likely be attributed to the GAC approaching saturation. The effluent vapor stream exiting the SVE system combined with VOCs being desorbed from the GAC are causing the discharge levels to slowly increase. This increase in discharge concentrations, however, remains orders of magnitude below the OAC exemption limit of 10 pounds per day and has decreased 125% from last month. TRC will continue to closely monitor discharge concentrations to determine the extent of these increases. In the event that discharge concentrations approach the discharge limit, TRC will shut down the SVE system in order to coordinate GAC replacement and disposal.

Table 1 also includes the cumulative total mass of VOCs recovered during the lifespan of the SVE system. To date, the SVE treatment system has recovered 574.11 pounds of VOCs. The complete analytical laboratory report from the most recent vapor sampling event in February can be found in Attachment A.

Figure 2 presents the monthly vapor influent sample PCE and TCE concentrations over the course of the SVE treatment system's lifespan. Start-up dates for the SVE Pilot Test including the original three (3) recovery wells and the full scale SVE system expanded to five (5) recovery wells are indicated in the figure to demonstrate the effect of these events on system performance. Figure 2 generally shows a decrease in recovery of PCE and varied TCE recovery over time.

Field measurements of the SVE treatment system are recorded monthly to gauge the effectiveness and efficiency of the overall system. These measurements are collected onto monthly O&M log forms that are kept on record by TRC. Attachment B summarizes the monthly SVE O&M measurements. Based on these quarterly data, vacuum continues to propagate through each SVE monitoring point in the subsurface. These vacuum measurements are reflected in the radii of influence shown in Figure 1.

Groundwater Conditions

Static water elevations collected from five onsite wells and resulting groundwater elevations are summarized in Table 2. Groundwater elevation data was used to develop a groundwater flow map, included in Figure 3. Groundwater flow is westerly from the source area though the eZVI groundwater treatment zone as depicted in Figure 4.

Projected Work for the Next Reporting Periods

- TRC is scheduled to be onsite again on Thursday, March 15, 2018 to perform the monthly SVE O&M activities and collection of influent and effluent vapor samples from the SVE treatment system.
- TRC will sample monitoring wells MW-EPA-08, MW-EPA-14, and MW-04 in March 2018. The results of that sampling event will be incorporated into the applicable memorandum.
- TRC is planning to meet with MRP during March 2018 to discuss next steps with the SVE system and groundwater treatment.

Attachments

Table 1:	SVE Vapor Analytical Results Summary
Table 2:	Water Level Summary
Figure 1:	Site Detail Map
Figure 2:	SVE Vapor Influent Concentrations vs. Time
Figure 3:	Groundwater Contour and Flow Direction
Figure 4:	Injection Locations
Attachment A:	Laboratory Analytical Results

Technical Memorandum

Attachment B: SVE O&M Data Summary

Tables

Table 1
SVE Vapor Analytical Results Summary
Valley Pike VOC Site (Riverside, Ohio)

Date	BLOWER-IN (Influent - pre-Carbon)					BLOWER-OUT (Effluent - post-Carbon)					Pounds per Day discharged to Carbon	Pounds per Day Discharged out Stack	Total Mass Recovered (lbs.)
	PCE (ppm-v)	TCE (ppm-v)	*t*-1,2DCE (ppm-v)	*c*-1,2DCE (ppm-v)	VC (ppm-v)	PCE (ppm-v)	TCE (ppm-v)	*t*-1,2DCE (ppm-v)	*c*-1,2DCE (ppm-v)	VC (ppm-v)			
2/5/2016	**4.500**	**6.500**	ND	ND	ND	**0.130**	**0.067**	ND	ND	ND	2.6900	0.0637	30.20
3/3/2016	**1.100**	**1.200**	ND	ND	ND	**0.000**	**0.001**	ND	ND	ND	0.6762	0.0002	48.46
4/29/2016	**0.940**	**1.400**	ND	ND	ND	**0.007**	**0.004**	ND	ND	ND	0.6705	0.0034	86.67
5/19/2016	**1.400**	**2.600**	ND	ND	ND	**0.000**	**0.000**	ND	**0.001**	ND	1.1189	0.0008	109.05
6/15/2016	**0.860**	**1.700**	ND	ND	ND	**0.002**	**0.004**	ND	ND	ND	0.7106	0.0014	128.24
7/21/2016	**0.640**	**2.200**	ND	ND	ND	**0.002**	**0.003**	ND	**0.005**	ND	0.7646	0.0029	155.76
8/18/2016	**0.730**	**2.000**	ND	ND	ND	**0.000**	**0.460**	ND	ND	ND	0.7412	0.1167	176.52
9/15/2016	**1.000**	**2.900**	ND	ND	ND	**0.000**	**2.300**	ND	ND	ND	1.0618	0.5868	206.25
10/6/2016	**1.300**	**3.500**	ND	ND	ND	**0.000**	**3.300**	ND	ND	ND	1.3144	0.8438	233.85
11/17/2016	**1.100**	**1.300**	ND	ND	ND	**0.015**	**0.012**	ND	ND	ND	0.6918	0.0080	262.91
12/15/2016	**0.410**	**0.540**	ND	ND	ND	**0.002**	**0.002**	ND	ND	ND	0.2757	0.0011	270.63
1/26/2017	**0.950**	**1.100**	ND	ND	ND	**0.015**	**0.010**	ND	**0.002**	**0.022**	0.5984	0.0105	295.76
2/19/2017	**0.790**	**0.860**	ND	ND	ND	**0.015**	**0.009**	ND	ND	ND	0.4813	0.0048	307.31
3/15/2017*	**0.630**	**0.990**	ND	ND	ND	**0.008**	**0.007**	ND	ND	ND	0.4511	0.0047	318.14
4/20/2017	**0.920**	**3.600**	ND	ND	ND	**0.009**	**0.012**	ND	ND	ND	1.2110	0.0059	361.73
5/18/2017	**0.870**	**2.000**	ND	ND	ND	**0.010**	**0.015**	ND	ND	ND	0.7809	0.0070	383.60
6/15/2017*	**0.760**	**3.400**	ND	ND	ND	**0.004**	**0.005**	ND	ND	ND	1.1063	0.0025	414.60
7/25/2017	**0.510**	**0.510**	ND	**0.016**	ND	**0.003**	**0.001**	ND	ND	ND	0.2935	0.0014	426.32
8/17/2017	**0.750**	**2.600**	ND	ND	ND	**0.007**	**0.019**	ND	ND	ND	0.8896	0.0071	446.78
9/21/2017*	**0.630**	**2.900**	ND	ND	ND	**0.006**	**0.009**	ND	ND	ND	0.9260	0.0040	479.19
10/19/2017	**0.530**	**1.900**	ND	ND	ND	**0.004**	**0.005**	ND	**0.004**	ND	0.6575	0.0025	497.60
11/16/2017	**0.720**	**1.600**	ND	ND	ND	ND	**0.300**	ND	**0.001**	ND	0.6608	0.0790	516.10
12/21/2017*	**0.760**	**1.600**	ND	ND	ND	**0.005**	**0.480**	ND	**0.025**	ND	0.6644	0.1246	539.35
1/23/2018	**0.410**	**1.700**	ND	ND	ND	**0.012**	**0.970**	ND	**0.021**	ND	0.5790	0.2533	558.46
2/15/2018	**0.660**	**1.800**	ND	ND	ND	ND	**0.800**	ND	**0.023**	ND	0.6804	0.2068	574.11

Notes

NA: Non-Applicable

ND: Non-detect, concentration below laboratory reporting limit.

ppmv: parts per million by volume

* = Duplicate field sample collected on this date. Highest VOC values recorded.

Results obtained after system was expanded to five (5) extraction wells.

Table 2

Water Level Summary

Valley Pike VOC Site (Riverside, OH)

WATER LEVEL SUMMARY	
Valley Pike O&M	Author: A Davis

Well ID	Total Depth (ft)	TOC Elevation (ftmsl)	2/15/2018	
			DTW	GW Elevation
MW-01R	36.22	782.09	23.97	758.12
MW-02	24.14	783.57	21.93	761.64
MW-EPA-08	36.57	781.50	23.36	758.14
MW-EPA-07	47.89	782.64	24.44	758.2
MW-PW	48.99	784.32	26.01	758.31
MW-03R	29.57	NA	22.91	NA

Notes:

TOC - Top of inner well casing

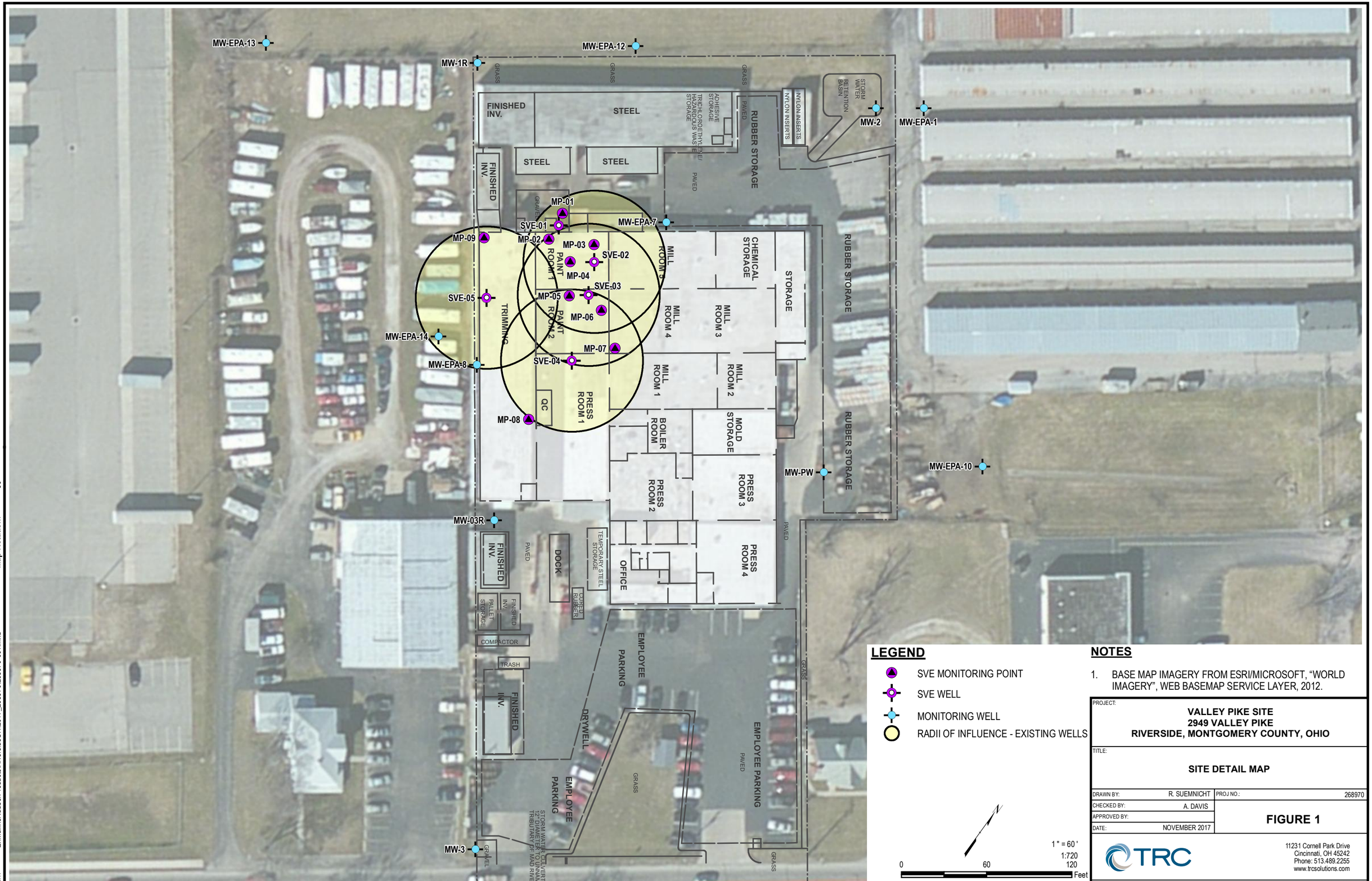
ftmsl - feet mean sea level

DTW - depth to water in ft

GW Elevation - Groundwater elevation in ftmsl on date indicated

NA - No data available

Figures



LEGEND

- SVE MONITORING POINT
- SVE WELL
- MONITORING WELL
- RADII OF INFLUENCE - EXISTING WELLS

1 " = 60 '
1:720
0 60 120 Feet

NOTES

1. BASE MAP IMAGERY FROM ESRI/MICROSOFT, "WORLD IMAGERY", WEB BASEMAP SERVICE LAYER, 2012.

PROJECT:
VALLEY PIKE SITE
2949 VALLEY PIKE
RIVERSIDE, MONTGOMERY COUNTY, OHIO

TITLE:
SITE DETAIL MAP

DRAWN BY:	R. SUEMNICHT	PROJ NO.:	268970
CHECKED BY:	A. DAVIS		
APPROVED BY:			
DATE:	NOVEMBER 2017		

FIGURE 1

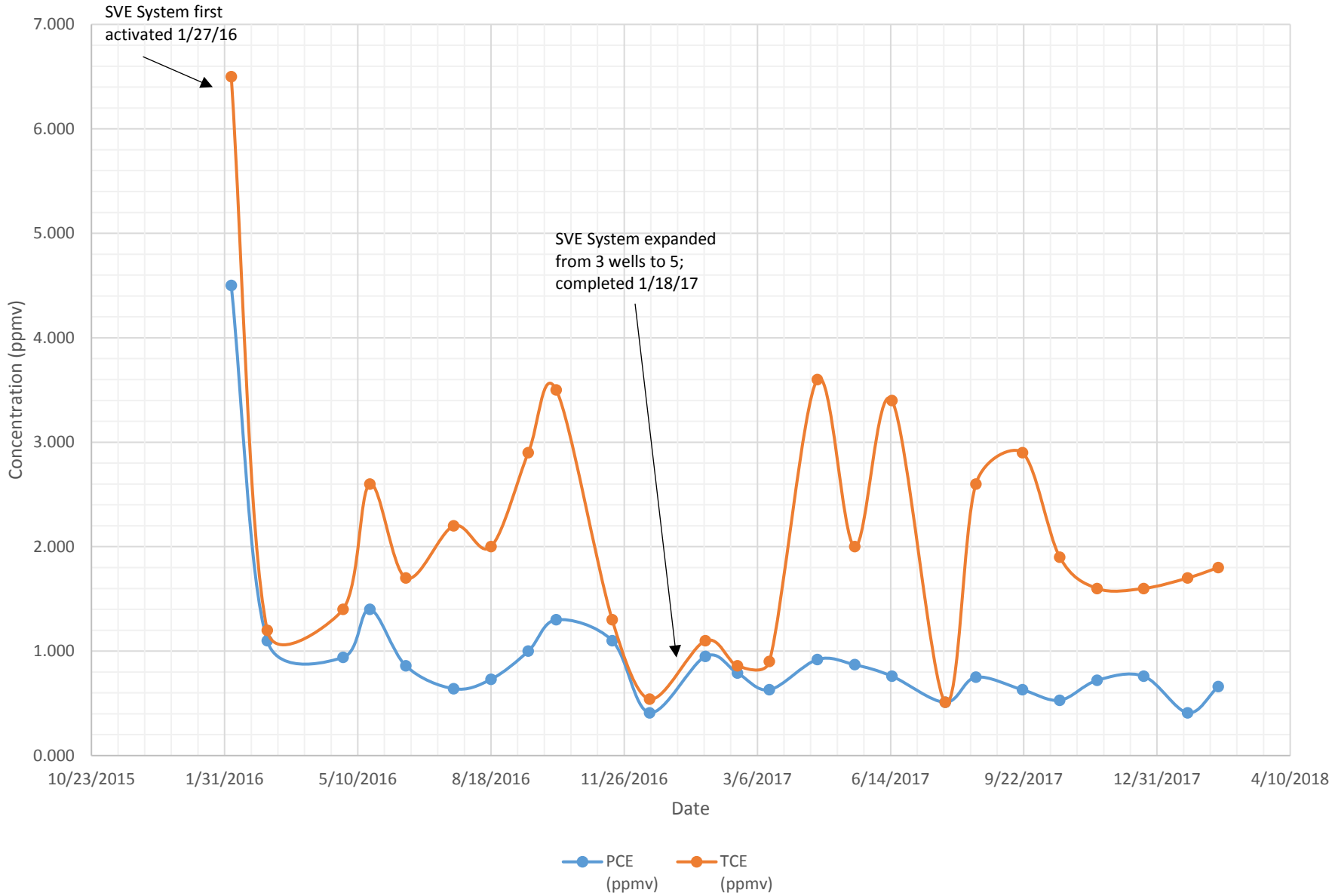
TRC
11231 Cornell Park Drive
Cincinnati, OH 45242
Phone: 513.489.2255
www.trcsolutions.com

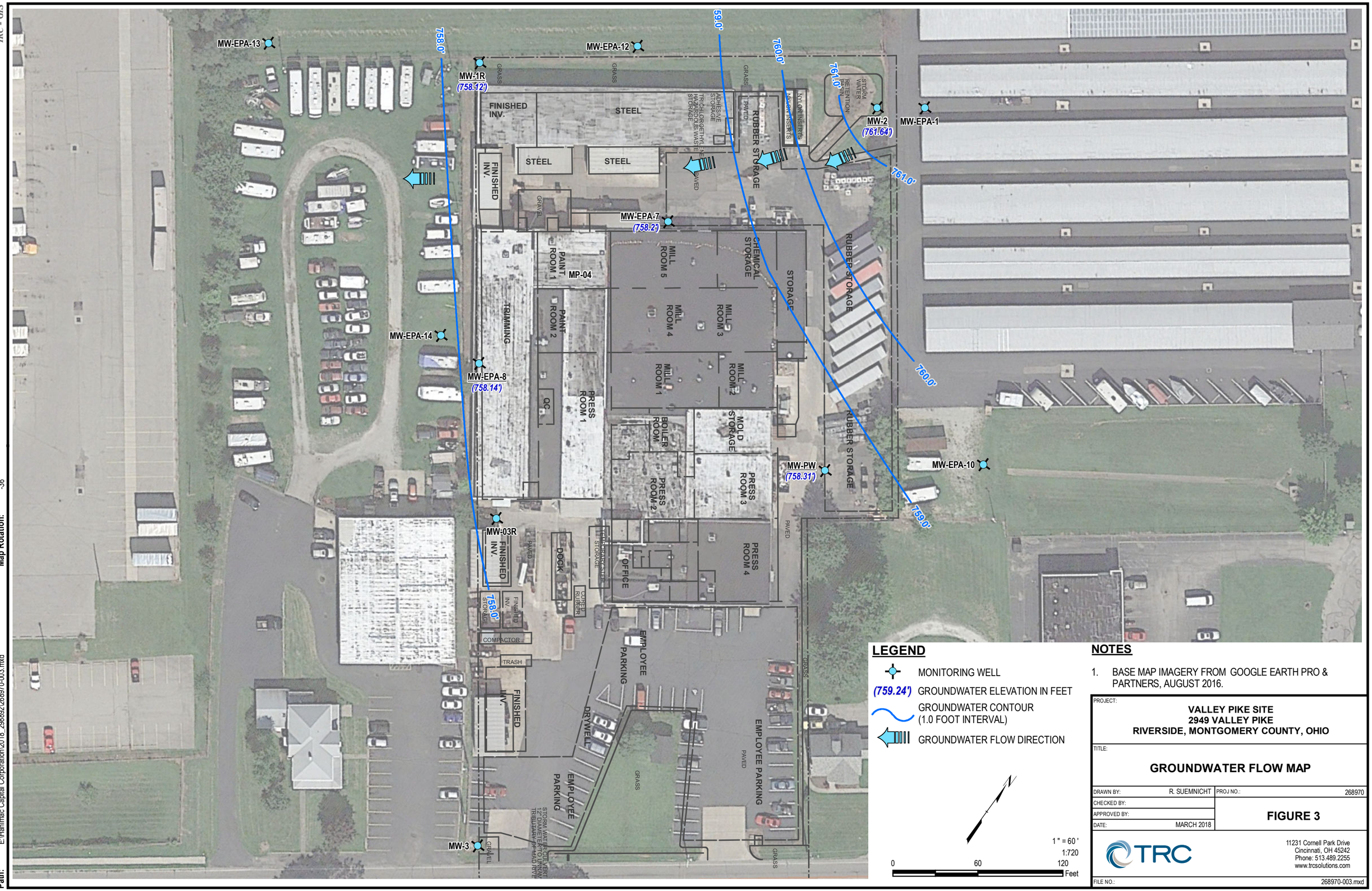
FILE NO.: 268970-001.mxd

Plot Date: 11/8/2017, 12:51:16 PM by RSUEMNICHT -- LAYOUT: ANSI B(11"x17")
Path: E:\MullinsRubberProducts\RiversideOH\2017_268970\268970-001.mxd
Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet (Foot US)
Map Rotation: -36

TRC - GIS

Figure 2
SVE Vapor Influent Concentrations vs. Time





LEGEND

- MONITORING WELL
- (759.24') GROUNDWATER ELEVATION IN FEET
- GROUNDWATER CONTOUR (1.0 FOOT INTERVAL)
- GROUNDWATER FLOW DIRECTION

1 " = 60 '
1:720
0 60 120 Feet

NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO & PARTNERS, AUGUST 2016.

PROJECT:
VALLEY PIKE SITE
2949 VALLEY PIKE
RIVERSIDE, MONTGOMERY COUNTY, OHIO

TITLE:
GROUNDWATER FLOW MAP

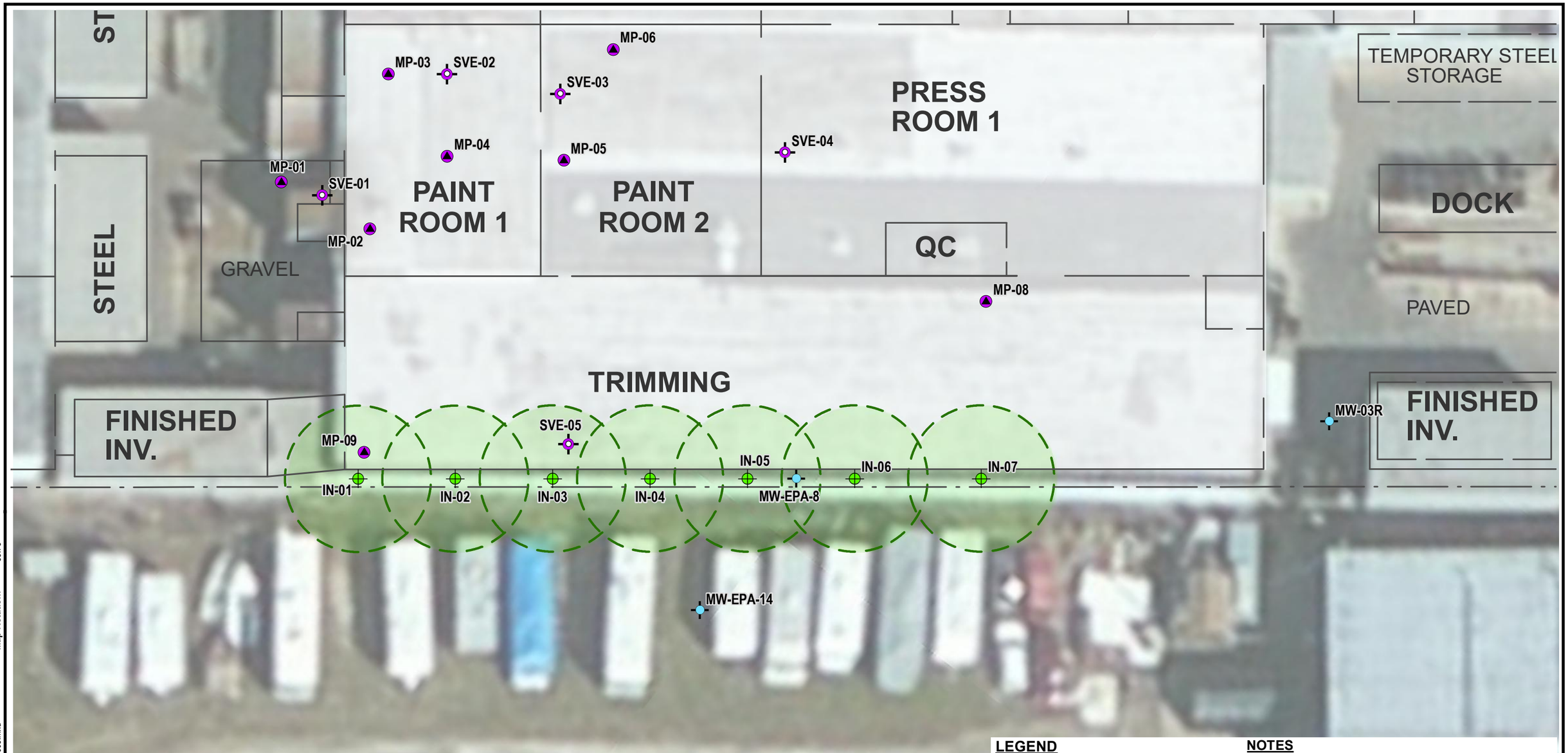
DRAWN BY:	R. SUEMNICHT	PROJ NO.:	268970
CHECKED BY:			
APPROVED BY:			
DATE:	MARCH 2018		

FIGURE 3

TRC
11231 Cornell Park Drive
Cincinnati, OH 45242
Phone: 513.489.2255
www.trcsolutions.com

FILE NO.: 268970-003.mxd

TRC - GIS
Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet (Foot US)
Map Rotation: -36
Plot Date: 3/8/2018, 15:49:57 PM by SMAJOR -- LAYOUT: ANSI B(11"x17")
Path: E:\Hanimac Capital Corporation\2018_298892\268970-003.mxd



LEGEND

- eZVI INJECTION POINT
- SVE MONITORING POINT
- NEW SVE EXTRACTION WELL
- MONITORING WELL
- RADII OF INFLUENCE - EXISTING WELLS

1 " = 20 '
1:240
0 20 40 Feet

NOTES

1. BASE MAP IMAGERY FROM ESRI/MICROSOFT, "WORLD IMAGERY", WEB BASEMAP SERVICE LAYER, 2012.

PROJECT:
VALLEY PIKE SITE
2949 VALLEY PIKE
RIVERSIDE, MONTGOMERY COUNTY, OHIO

TITLE:
INJECTION LOCATIONS

DRAWN BY:	R SUEMNICHT	PROJ NO.:	243854
CHECKED BY:	A. DAVIS		
APPROVED BY:	B. BERTL		**FIGURE 4**
DATE:	NOVEMBER 2017		

TRC
11231 Cornell Park Drive
Cincinnati, OH 45242
513.489.2255
www.trcsolutions.com

FILE NO.: 243854-008.mxd

Plot Date: 11/8/2017, 13:04:41 PM by RSUEMNICHT -- LAYOUT: ANSI B (11"x17")
Path: E:\MullinsRubberProducts\RiversideOH\2016_243854\243854-008.mxd
Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet (Foot US)
Map Rotation: 53.75

TRC - GIS

Technical Memorandum

Attachment A: Laboratory Analytical Results

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

TestAmerica Job ID: 140-10738-1
Client Project/Site: Mullins Rubber Products

For:
TRC Environmental Corporation
11231 Cornell Park Drive
Cincinnati, Ohio 45242

Attn: Andrew Davis

Terry Walker Wasmund

Authorized for release by:
2/23/2018 9:12:03 AM

Terry Walker Wasmund, Project Manager II
(865)291-3000
terry.wasmund@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.

Table of Contents

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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: 140-10738-1

Laboratory: TestAmerica Knoxville

Narrative

Job Narrative
140-10738-1

Receipt
The samples were received on 2/19/2018 at 11:00 AM. The samples arrived in good condition and properly preserved.

Air - GC/MS VOA - Method TO-15 LL
EPA methods TO-14A and TO-15 specify the use of humidified “zero air” as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of “zero air” by TestAmerica Knoxville.

Ohio VAP Requirements
Unless otherwise described in this paragraph, TestAmerica Laboratories, Inc. performed the analyses within its current VAP certification. The laboratory was certified for each analyte, parameter group and method used at the time that it performed the analyses. The analyses were performed consistent with the laboratory's standard operating procedures and quality assurance program plan as approved under OAC 3745-300-04.

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

Comments
No additional comments.

Detection Summary

Client: TRC Environmental Corporation
Project/Site: Mullins Rubber Products

TestAmerica Job ID: 140-10738-1

Client Sample ID: BLOWER INLET_20180215 — Lab Sample ID: 140-10738-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	660		28		ppb v/v	13.85		TO-15	Total/NA
Trichloroethene	1800		14		ppb v/v	13.85		TO-15	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	4500		190		ug/m3	13.85		TO-15	Total/NA
Trichloroethene	9800		74		ug/m3	13.85		TO-15	Total/NA

Client Sample ID: CARBON OUTLET_20180215 — Lab Sample ID: 140-10738-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	23		14		ppb v/v	3.72		TO-15	Total/NA
Trichloroethene	800		6.8		ppb v/v	3.72		TO-15	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	90		54		ug/m3	3.72		TO-15	Total/NA
Trichloroethene	4300		36		ug/m3	3.72		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: BLOWER INLET_20180215
Lab Sample ID: 140-10738-1
Date Collected: 02/15/18 11:02
Matrix: Air
Date Received: 02/19/18 11:00
Sample Container: Summa Canister 1L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		28		ppb v/v			02/20/18 14:44	13.85
Tetrachloroethene	**660**		28		ppb v/v			02/20/18 14:44	13.85
trans-1,2-Dichloroethene	ND		28		ppb v/v			02/20/18 14:44	13.85
Trichloroethene	**1800**		14		ppb v/v			02/20/18 14:44	13.85
Vinyl chloride	ND		14		ppb v/v			02/20/18 14:44	13.85

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		110		ug/m3			02/20/18 14:44	13.85
Tetrachloroethene	**4500**		190		ug/m3			02/20/18 14:44	13.85
trans-1,2-Dichloroethene	ND		110		ug/m3			02/20/18 14:44	13.85
Trichloroethene	**9800**		74		ug/m3			02/20/18 14:44	13.85
Vinyl chloride	ND		35		ug/m3			02/20/18 14:44	13.85

Client: TRC Environmental Corporation
Project/Site: Mullins Rubber Products

TestAmerica Job ID: 140-10738-1

Client Sample ID: CARBON OUTLET_20180215
Date Collected: 02/15/18 11:01
Date Received: 02/19/18 11:00
Sample Container: Summa Canister 1L

Lab Sample ID: 140-10738-2
Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	**23**		14		ppb v/v			02/20/18 15:24	3.72
Tetrachloroethene	ND		14		ppb v/v			02/20/18 15:24	3.72
trans-1,2-Dichloroethene	ND		14		ppb v/v			02/20/18 15:24	3.72
Trichloroethene	**800**		6.8		ppb v/v			02/20/18 15:24	3.72
Vinyl chloride	ND		6.8		ppb v/v			02/20/18 15:24	3.72

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	**90**		54		ug/m3			02/20/18 15:24	3.72
Tetrachloroethene	ND		92		ug/m3			02/20/18 15:24	3.72
trans-1,2-Dichloroethene	ND		54		ug/m3			02/20/18 15:24	3.72
Trichloroethene	**4300**		36		ug/m3			02/20/18 15:24	3.72
Vinyl chloride	ND		17		ug/m3			02/20/18 15:24	3.72

Default Detection Limits

Client: TRC Environmental Corporation
Project/Site: Mullins Rubber Products

TestAmerica Job ID: 140-10738-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	RL	MDL	Units	Method
cis-1,2-Dichloroethene	0.080	0.024	ppb v/v	TO-15
cis-1,2-Dichloroethene	0.32	0.095	ug/m3	TO-15
Tetrachloroethene	0.080	0.016	ppb v/v	TO-15
Tetrachloroethene	0.54	0.11	ug/m3	TO-15
trans-1,2-Dichloroethene	0.080	0.020	ppb v/v	TO-15
trans-1,2-Dichloroethene	0.32	0.079	ug/m3	TO-15
Trichloroethene	0.040	0.014	ppb v/v	TO-15
Trichloroethene	0.21	0.075	ug/m3	TO-15
Vinyl chloride	0.040	0.029	ppb v/v	TO-15
Vinyl chloride	0.10	0.074	ug/m3	TO-15

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 140-18325/4
Matrix: Air
Analysis Batch: 18325

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		0.080		ppb v/v			02/20/18 11:26	1
Tetrachloroethene	ND		0.080		ppb v/v			02/20/18 11:26	1
trans-1,2-Dichloroethene	ND		0.080		ppb v/v			02/20/18 11:26	1
Trichloroethene	ND		0.040		ppb v/v			02/20/18 11:26	1
Vinyl chloride	ND		0.040		ppb v/v			02/20/18 11:26	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		0.32		ug/m3			02/20/18 11:26	1
Tetrachloroethene	ND		0.54		ug/m3			02/20/18 11:26	1
trans-1,2-Dichloroethene	ND		0.32		ug/m3			02/20/18 11:26	1
Trichloroethene	ND		0.21		ug/m3			02/20/18 11:26	1
Vinyl chloride	ND		0.10		ug/m3			02/20/18 11:26	1

QC Association Summary

Client: TRC Environmental Corporation
Project/Site: Mullins Rubber Products

TestAmerica Job ID: 140-10738-1

Air - GC/MS VOA

Analysis Batch: 18325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10738-1	BLOWER INLET_20180215	Total/NA	Air	TO-15	
140-10738-2	CARBON OUTLET_20180215	Total/NA	Air	TO-15	
MB 140-18325/4	Method Blank	Total/NA	Air	TO-15	

Lab Chronicle

Client: TRC Environmental Corporation
Project/Site: Mullins Rubber Products

TestAmerica Job ID: 140-10738-1

Client Sample ID: BLOWER INLET_20180215

Lab Sample ID: 140-10738-1

Date Collected: 02/15/18 11:02

Matrix: Air

Date Received: 02/19/18 11:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		13.85	20 mL	500 mL	18325	02/20/18 14:44	HMT	TAL KNX
	Instrument ID: MG									

Client Sample ID: CARBON OUTLET_20180215

Lab Sample ID: 140-10738-2

Date Collected: 02/15/18 11:01

Matrix: Air

Date Received: 02/19/18 11:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		3.72	11 mL	500 mL	18325	02/20/18 15:24	HMT	TAL KNX
	Instrument ID: MG									

Client Sample ID: Method Blank

Lab Sample ID: MB 140-18325/4

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	500 mL	500 mL	18325	02/20/18 11:26	HMT	TAL KNX
	Instrument ID: MG									

Laboratory References:

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: TRC Environmental Corporation
Project/Site: Mullins Rubber Products

TestAmerica Job ID: 140-10738-1

Laboratory: TestAmerica Knoxville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Ohio VAP	State Program	5	CL0059	11-22-18

Method Summary

Client: TRC Environmental Corporation
Project/Site: Mullins Rubber Products

TestAmerica Job ID: 140-10738-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL KNX

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Sample Summary

Client: TRC Environmental Corporation
Project/Site: Mullins Rubber Products

TestAmerica Job ID: 140-10738-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-10738-1	BLOWER INLET_20180215	Air	02/15/18 11:02	02/19/18 11:00
140-10738-2	CARBON OUTLET_20180215	Air	02/15/18 11:01	02/19/18 11:00

TAL Knoxville 5815 Middlebrook Pike Knoxville, TN 37921 phone 865-291-3000 fax 865-584-4315

CINCINNATI 210501

Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

TestAmerica THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Information		Project Manager: Brooks Bertl		Sampled By: Andrew Davis	1 of 1 COCs
Company:	TRC	Phone: 315-517-2616			
Address:	11231 Cornell Park Drive	Site Contact: A. Davis			
City/State/Zip	Cincinnati, OH 45242	TAL Contact: T. Wasmund			
Phone:	513-489-2255				
FAX:	513-489-2533				
Project Name:	Valley Pike O&M	Analysis Turnaround Time			
Site/location:	Riverside, OH	(Standard) (Specify)			
PO #	103779	Rush (Specify)			

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
Blower Inlet_20180215	2/15/18	1102	1102	-29.8	0.0	NA	11834	X											
Carbon Outlet_20180215	⊥	1101	1101	-29.8	0.0	NA	11846	X											

Sampled by: Andrew Davis

Temperature (Fahrenheit)	Interior	Ambient
Start		60° F
Stop		60° F

Pressure (inches of Hg)	Interior	Ambient
Start		29.8"
Stop		29.8"

CUSTODY SEAL INTACT
RECEIVED AMBIENT
BRD 2-19-18
FEDEX FED X# 7003 1340 3214 GRNN
2 CANS / 0 FLOWS

140-10738 Chain of Custody

Special Instructions/QC Requirements & Comments:
Ohio VAP, TRC Equis EDD

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: [signature]	Date/Time: 2/15/18 @ 1425	Received by: [signature] 2/15/18 1425
Relinquished by: [signature]	Date/Time: 2/15/18 1425	Received by: [signature] 2-19-18 11:00 TA-KNX

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Log In Number:

Review Items	Yes	No	NA	If No, what was the problem?
1. Are the shipping containers intact?	✓			☐ Containers, Broken
2. Were ambient air containers received intact?			✓	☑ Checked in lab
3. The coolers/containers custody seal if present, is it intact?	✓			☐ Yes ☐ NA
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID :_____ Correction factor: _____			✓	☐ Cooler Out of Temp, Client Contacted, Proceed/Cancel ☐ Cooler Out of Temp, Same Day Receipt
5. Were all of the sample containers received intact?	✓			☐ Containers, Broken
6. Were samples received in appropriate containers?	✓			☐ Containers, Improper; Client Contacted; Proceed/Cancel
7. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ COC & Samples Do Not Match ☐ COC Incorrect/Incomplete ☐ COC Not Received
8. Were all of the samples listed on the COC received?	✓			☐ Sample Received, Not on COC ☐ Sample on COC, Not Received
9. Is the date/time of sample collection noted?	✓			☐ COC; No Date/Time; Client Contacted
10. Was the sampler identified on the COC?	✓			☐ Sampler Not Listed on COC
11. Is the client and project name/# identified?	✓			☐ COC Incorrect/Incomplete
12. Are tests/parameters listed for each sample?	✓			☐ COC No tests on COC
13. Is the matrix of the samples noted?	✓			☐ COC Incorrect/Incomplete
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ COC Incorrect/Incomplete
15. Were samples received within holding time?	✓			☐ Holding Time - Receipt
16. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ pH Adjusted, pH Included (See box 16A) ☐ Incorrect Preservative
17. Were VOA samples received without headspace?			✓	☐ Headspace (VOA only)
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:_____			✓	☐ Residual Chlorine
19. For 1613B water samples is pH<9?			//	☐ If no, lab will adjust
20. For rad samples was sample activity info. Provided?			//	☐ Project missing info

Comments/Actions Taken

Labeling Verified by: **Date:**

pH test strip lot number:

	Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative:		
Lot Number:		
Exp Date:		
Analyst:		
Date:		
Time:		

Project #: 140003776 PM Instructions: NA

Sample Receiving Associate: _____ Date: 2-19-18

QA026R30.doc, 080916

TestAmerica Knoxville - Air Canister Initial Pressure Check

Gauge ID: G5
Date: 2/19/2018

Analyst	Sample ID	Asset #	Cleaning Job	Cert	Size (L)	Pressure @ Receipt (-in Hg or +psig)	Time	Comments
AFB	140-10738-a-1	11834	10638	B	1	-2.4	1530	2/13
AFB	140-10738-a-2	11846	10638	B	1	-1.2	1531	2/13

Technical Memorandum

Attachment B: SVE O&M Data Summary

Attachment B
SVE OM Data Summary
Valley Pike VOC Site (Riverside, OH**)**

SVE O&M Measurement Log

Project Name:	Valley Pike 2017 O&M	Date:	2/15/2018
Project Number:	268970.0001	By:	Andrew Davis

Blower Readings

Vacuum (in. Hg)	Temp (°F)	Flow Rate (ACFM)	PID (ppm)	Outlet Pressure (in. H_20)
1.9	65.3	6000	8.4	39.0

Monitoring Point Readings

Location	Time	Vacuum	Location	Time	Vacuum	Location	Time	Vacuum
MP-1S	1131	0.04	MP-4S	1145	0.68	MP-7S	1200	0.25
MP-1D	1131	0.38	MP-4D	1145	0.86	MP-7D	1200	0.40
MP-2S	1137	0.11	MP-5S	1147	0.24	MP-8S	1204	0.16
MP-2D	1137	0.52	MP-5D	1147	0.76	MP-8D	1204	0.18
MP-3S	1140	0.57	MP-6S	1152	0.59	MP-9S	1208	0.25
MP-3D	1140	0.85	MP-6D	1152	0.68	MP-9D	1208	0.32

Extraction Well Readings

Location	Time	Vacuum (in. H_20)	Temp (°F)	Flow Rate (ACFM)	PID (ppm)	Notes
SVE-01	1134	0.47	58.9	47.2	0.3	Closed
SVE-02	1142	2.30	62.5	194.0	9.8	Completely Open
SVE-03	1158	2.25	65.7	147.8	11.2	Completely Open
SVE-04	1203	2.00	71.0	129.6	11.4	Completely Open
SVE-05	1205	2.05	63.2	161.1	6.3	Completely Open