



AMERICAN ENVIRONMENTAL ASSOCIATES, INC.

REMEDIAL ACTION PROGRESS REPORT

Leo's Car Wash
PA DEP Facility I.D. #25-90615

3rd QUARTER OF 2016

2938 West 26th Street
Erie, Pennsylvania 16506

MILLCREEK TOWNSHIP
ERIE COUNTY, PENNSYLVANIA

Prepared: October 2016

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2938 WEST 26TH STREET
ERIE, PENNSYLVANIA

FACILITY ID# 25-90615

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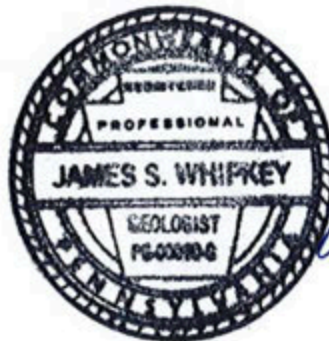
PREPARED FOR:

LEO'S CAR WASH
2938 WEST 26TH STREET
ERIE, PENNSYLVANIA

PREPARED BY:

AMERICAN ENVIRONMENTAL ASSOCIATES, INC.
1135 BUTLER AVENUE
NEW CASTLE, PA 16101

JAMES S. WHIPKEY
PROFESSIONAL GEOLOGIST



A handwritten signature in blue ink, appearing to read "James S. Whipkey", written over the right side of the professional seal.

October 2016

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1.0 INTRODUCTION

American Environmental Associates, Inc. (AEA) has been contracted by Leo's Car Wash to provide environmental services pursuant to Underground Storage Tank (UST) corrective action and Environmental Remediation Standards Act (ACT 2) regulations at the subject site.

Corrective actions were initiated in response to a release that was discovered during construction of a new canopy on January 23, 2002. The release was eventually found to be associated with a loose swing joint in the regular unleaded line for the middle dispenser. A minor amount of contaminated soil was removed; approximately five tons, and then the new canopy footers were poured. The swing joint lead was repaired at this time. Clean soil conditions were never obtained and over excavation was not performed at this time due to site restraints. A Notification of Reportable Release was confirmed on January 22, 2002 and submitted to the PADEP's Meadville Office on January 23, 2002.

An Initial Site Characterization report was prepared and dated November 27, 2002 documenting the installation of monitoring wells MW#1 through MW#6. These wells were installed to delineate subsurface impacts.

In October of 2002 monitoring wells MW#1 through MW#6 were installed to delineate subsurface impacts. Soils samples were collected on October 29, 2002 and October 30, 2002. Soil sample results showed exceedances of Benzene and of MTBE. Groundwater exhibited levels of benzene, toluene, ethylbenzene, naphthalene and MTBE that exceeded Statewide Health Standards. See Appendix B for spreadsheet summarizing soil sample analysis results.

An Interim Site Characterization Report was prepared and dated February 13, 2003 documenting the installation of Monitoring Wells MW #7, MW# 8, and MW #9. These wells were installed to further delineate sub-surface contamination. Monitoring well soil samples were collected on January 17, 2003 for MW #7, MW# 8, and MW #9. The analytical results for soil were within the PADEP's Statewide Health Standards for

Used Aquifers in Soil. Groundwater impacts were still present. See Appendix B for spreadsheet summarizing soil sample analysis results.

During April of 2003, AEA installed monitoring wells MW#10, MW# 11, and MW #12. Monitoring wells soil samples were collected on April 8, 2003 from MW#10, MW#11 or MW#12. The analytical results were within the PADEP's Statewide Health Standards for Used Aquifers in Soil. Groundwater analytical results indicated that monitoring wells MW#1, MW#2, MW#5, MW#6, MW#8, MW#9, MW#10 and MW#12 exceed Statewide Health Standard of Used Aquifers for one or more of the required parameters for unleaded gasoline. See Appendix B for spreadsheet summarizing soil sample analysis results.

In May of 2003, AEA submitted an overall Site Characterization Report for the facility. The report summarized site characterization activities including the drilling and installation of twelve groundwater monitoring wells and the collection of twelve soil samples and twelve groundwater samples. Spreadsheets summarizing soil analytical results are included in Appendix B.

A Remedial Action Plan was submitted to the PADEP on July 18, 2003. This plan recommended that American Environmental Associates, Inc. install a system to remediate the dissolved gasoline contaminants in the groundwater at the site. In a letter dated July 28, 2003, the DEP approved the Plan. The system is a dual phase high vacuum extraction (DPE). Monitoring wells MW#1, MW#3, MW#4, MW#5 and MW#6 will be utilized as recovery wells.

Site preparation included the installation of below grade recovery piping (2-inch diameter, schedule 40 PVC) and modification of the recovery well heads. Trenching was done for electric, vapor extraction, groundwater recovery piping and a discharge line to the groundwater discharge location.

The remediation system consists of a 7.5 Hp oil sealed liquid ring pump (LRP) to recover liquid and vapor phase fluids. The pump consists of a shrouded rotor which

rotates freely within an eccentric casing. There is no metal to metal contact between the rotor and casing. Centrifugal force acting on liquids within the pump causes the liquids to form a ring inside the casing. A fixed port cylinder, concentric with the rotor, directs the gas into the suction ports. Gas is trapped between the blades by the liquid pistons formed by centrifugal force as the liquid recedes from the port cylinder. It is trapped at the point of maximum eccentricity and is then compressed by the liquid ring as it is forced radially inward toward the central port cylinder. After each revolution, the compressed gas and accompanying liquid are discharged. During the pumping cycle, the gas is in intimate contact with the sealing liquid and compression is nearly isothermal. When handling saturated vapor-gas mixtures, the liquid ring acts as a condenser, greatly increasing the effective capacity of the pump. Seal liquid will be oil supplied via a reservoir mounted on the LRP skid.

The recovered fluids are pumped through a vapor/liquid knockout tank. Liquids are then directed, via transfer pump, through liquid phase granular activated carbon absorbers (GACA) to municipal sewage. Vapors are drawn from the knockout tank through the LRP and vapor phase GACA's and discharged to the atmosphere. Treatment of the vapors will be conducted through two carbon units.

The subject site was put into operation in the first quarter of 2005 in order to obtain results to prepare a pay for performance proposal for the Underground Storage Tank Insurance Fund. The contract has since been executed and the system was put into operation permanently in January 4, 2006.

In July of 2012, AEA submitted a revised RAP to PADEP for the installation of five additional groundwater recovery wells. In November of 2012, PADEP requested the installation of additional P.O.C. wells before they would approve the revised RAP. In November of 2012, AEA submitted a proposal to the PADEP for the additional P.O.C. wells they had requested. In May of 2013, PADEP approved the installation of additional P.O.C. wells. In July of 2013, P.O.C. wells MW#18, MW#19, and MW#20 were installed.

In November of 2013, the DEP directed the installation of one additional off-site monitoring well to be located downgradient of monitoring well MW#19. On March 27, 2014 monitoring well MW#21 was installed. Two vapor points were also installed on March 27, 2014 next to the homes located on two off-site properties; VP#1 was installed at the Dzikowski property and VP#2 was installed at the Parker property. These two vapor points were sampled on April 1, 2014 and analytical results indicated that Benzene, Cumene, Ethylbenzene, MTBE, Naphthalene, m/p-Xylenes, and o-Xylenes were within Non-Residential Outdoor Air Criteria. Spreadsheets summarizing vapor analytical results are included in Appendix B.

In May of 2014, AEA submitted a revised SCR/RAP to the DEP proposing the installation of five additional recovery wells in order to help expedite achievement of the proposed Statewide Health Standard. In a letter dated June 10, 2014, the PADEP approved this revised SCR/RAP. PADEP requested that monitoring well MW#20 be included as a Point of Compliance monitoring well.

In June of 2014, AEA installed the five additional recovery wells (RW#1A, RW#3A, RW#4A, RW#5A, and RW#6A). The additional recovery wells were connected to the existing LRP remediation system operating at the site. The recovery wells that run continuously at the site include: MW#1, MW#3, MW#4, MW#5 MW#6, RW#1A, RW#3A, RW#4A, RW#5A, and RW#6A.

The system operates under the City of Erie Wastewater Groundwater Remediation Permit No. GRP 09-01. Quarterly reports are submitted to the City of Erie documenting analytical results and approximate volume of discharge. The system was operational throughout the ninety-two days in the third quarter of 2016, other than for brief periods required for system maintenance and quarterly sampling events. Recovery wells RW#1, RW#2, RW#3, RW#4, and RW#5 are cycled on for one week and then shut down. Then recovery wells RW#1A, RW#2A, RW#3A, RW#4A, RW#5A, and RW#6A are cycled on for one week. The treatment system pumped approximately 131,641 gallons of water in the third quarter of 2016 and approximately 7,759,230 gallons of water since the system was put into operation (January 4, 2006).

On August 18, 2016, twelve test borings (RS1 through RS12) were drilled according to the Soil Attainment Random Sampling Plan included in the approved Remedial Action Plan (RAP) for the site. Twelve soil samples were obtained from the twelve test borings and submitted to the laboratory for analysis of Benzene, Toluene, Ethylbenzene, Xylene, Cumene, Naphthalene, and MTBE. Results of the laboratory analysis indicated that seventy-five percent of all the twelve soil samples were equal to or less than the Statewide Health Standard (SHS) with no individual sample exceeding ten times the SHS. Soil sample analytical reports are included in Appendix A. A spreadsheet depicting soil attainment sampling results is included in Appendix B.

On August 19, 2016, upgradient POC monitoring well MW#22 was installed to replace upgradient POC monitoring well MW#5/RW#5. Monitoring well MW#5/RW#5 was replaced because it is being utilized as a remediation system recovery well and is not suitable for use as a POC well. A monitoring well log for MW#22 is included in Appendix H.

Static water levels were obtained for MW#2, MW#7, MW#8, MW#9, MW#10, MW#11, MW#12, MW#18, MW#19, MW#20, MW#22, K-1, K-2, and K-3 on September 23, 2016. Groundwater samples were taken from monitoring wells MW#2, MW#5/RW#5, MW#7, MW#8, MW#9, MW#10, MW#11, MW#12, MW#22, K-1, K-2, and K-3 on September 23, 2016. Groundwater samples were also taken from monitoring wells K-1, K-2, and K-3 on July 5, 2016 and September 29, 2016. All samples were analyzed for unleaded gasoline parameters including; Benzene, Toluene, Ethylbenzene, Xylene, Cumene, Naphthalene, and MTBE (EPA 5030B/8260B). Purged water from the wells is filtered through activated carbon before being discharged to the surface. No free product was encountered at the time of the sampling event. Laboratory analysis report forms are included in Appendix A of this report. Spreadsheets are included in Appendix B to show the progress of remediation. Trend plots for Benzene detected in monitoring wells MW#2, RW#5, MW#8, MW#19, MW#20, K-1, K-2, and K-3 are included in Appendix F of this report.

Before, between, and after activated carbon treatment water samples were taken monthly and analyzed for Benzene, Toluene, Ethylbenzene, Xylene, Cumene, Naphthalene, and MTBE (5030B/8260B). Laboratory analysis report forms will be included in Appendix A of this report. Spreadsheets are included in Appendix B to show the progress of remediation. Liquid phase carbon units were replaced on July 29, 2016 (one unit), August 18, 2016 (one unit), and September 29, 2016 (one unit) during the third quarter of 2016. Drum disposal documentation is on file at the office of American Environmental Associates, Inc.

Air samples were taken before, between and after activated carbon treatment monthly and analyzed for Benzene, Toluene, Ethylbenzene, Xylene, and MTBE (EPA 8020B modified). Samples were also analyzed for Gasoline Range Organics (API method). Laboratory analysis report forms are included in Appendix A of this report. Spreadsheets are included in Appendix B to show the progress of remediation. Two vapor phase carbon units were replaced during the third quarter of 2016. Drum disposal documentation is on file at the office of American Environmental Associates, Inc.

2.0 ANALYTICAL TESTING RESULTS

Testing results for all samples analyzed are available in Appendix B of this report. These results are presented in spreadsheet format and are updated quarterly to show the progress of remediation. The laboratory analysis report forms are found in Appendix A of this report. Trend plots for Benzene are included in Appendix F of this report.

Groundwater samples were taken as part of the Site Characterization Report that was prepared prior to system operation. Initial masses of unleaded gasoline parameters were calculated based on the four monitoring wells with the highest total mass concentrations. These were monitoring wells MW#2, MW#5, MW#6, and MW#12. These well were sampled on April 23, 2003. The initial mass of Benzene was calculated to be 19,559 parts per billion, Toluene was calculated to be 15,980 parts per billion, Ethylbenzene was calculated to be 1,671 parts per billion, Xylenes was calculated to be

10,505 parts per billion, MTBE was calculated to be 45,554 parts per billion, Cumene was calculated to be 17 parts per billion, and Naphthalene was calculated to be 189 parts per billion.

As per the third quarter 2016 sampling, all parameters in monitoring wells MW#2, MW#7, MW#8, MW#9, MW#10, MW#11, MW#12, MW#18, MW#19, MW#20, MW#22 have been reduced to levels below Statewide Health Standards. Benzene exceeded Statewide Health Standards (SHS) in MW#5/RW#5. All other parameters analyzed in MW#5/RW#5 were below SHS.

Key Wells (K-1, K-2, and K-3) were sampled twice during the third quarter of 2016; July 5, 2016 and September 29, 2016. Benzene exceeded Statewide Health Standards (SHS) in K-1 in the July 5, 2016 sample. All other parameters analyzed in K-1 were below SHS. Benzene and Naphthalene exceeded Statewide Health Standards (SHS) in K-2 in the July 5, 2016 sample. All other parameters analyzed in K-2 were below SHS. Benzene and Naphthalene exceeded Statewide Health Standards (SHS) in K-3 in the July 5, 2016 sample. All other parameters analyzed in K-3 were below SHS.

Benzene exceeded Statewide Health Standards (SHS) in K-1 in the September 29, 2016 sample. All other parameters analyzed in K-1 were below SHS. Benzene, Naphthalene, and Ethylbenzene exceeded Statewide Health Standards (SHS) in K-2 in the September 29, 2016 sample. All other parameters analyzed in K-2 were below SHS. Benzene and Naphthalene exceeded Statewide Health Standards (SHS) in K-3 in the September 29, 2016 sample. All other parameters analyzed in K-3 were below SHS.

The original P.O.C. wells for the subject site consisted of MW#5, MW#7, MW#9, MW#10, MW#11, and MW#12. It should be noted that MW#5 is a recovery well. In 2013, PADEP requested the installation of additional on-site P.O.C. wells MW#19 and MW#20 and off-site P.O.C. wells MW#18 and MW#21. A review of groundwater analytical results obtained from these wells since the installation and operation of the additional system recovery wells in June of 2014 indicates that contaminant concentrations in MW#7, MW#9, MW#10, MW#11, and MW#12 are within SHS.

Contaminant concentrations in MW#5/RW#5 have fluctuated as expected from an active recovery well. On-site P.O.C. wells MW#8, MW#19 and MW#20 indicate a decreasing trend in Benzene concentrations. Off-site P.O.C. wells MW#18 and MW#21 indicate that contaminant concentrations are within SHS. Benzene concentrations in source well MW#2 have fluctuated.

Mann-Kendall Statistical Analysis has been performed on the eight quarters of groundwater analysis obtained from MW#2, MW#8, MW#19, MW#20, K-1, K-2, and K-3. This analysis will continue to be performed each quarter on the previous eight quarters of groundwater analysis to determine if the groundwater plume is stable, decreasing, or increasing. The results of the statistical analysis show a stable or decreasing trend with the exception of Benzene and Xylenes in MW#2 that show a non-stable trend, Ethylbenzene in MW#8 that shows a non-stable trend, and Benzene and Toluene in K-1 that show a non-stable trend. Results of the statistical analysis are included in Appendix G.

3.0 MAINTENANCE AND SAMPLING SCHEDULE

The remediation system will be inspected at least once a month to assure proper working condition. Static water levels will be taken from all monitoring wells. Quarterly groundwater samples will be taken for monitoring wells MW#2, MW#7, MW#8, MW#9, MW#10, MW#11, MW#12, MW#18, MW#19, MW#20, and MW#22 and analyzed for unleaded gasoline parameters. Before, between and after activated carbon treatment water samples will be obtained monthly and analyzed for Benzene, Toluene, Ethylbenzene, Xylene, Cumene, Naphthalene, and MTBE. Air samples will be taken monthly before, between, and after activated carbon treatment and analyzed for Benzene, Toluene, Ethylbenzene, Xylene, MTBE, and Gasoline Range Organics.

The result of analytical testing during each quarter will be summarized in a Quarterly Remedial Action Progress Report and submitted to the Pennsylvania Department of Environmental Protection.

APPENDIX A
LABORATORY ANALYSIS REPORT FORMS



Report Date: 09/27/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15950-001
Sample Name: Monitoring Well MW#2 Groundwater Sample
Sample Date: 9/23/2016 10:22:00 AM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	<0.001	0.001	EPA 8260B	09/26/16 10:41	AEH
Toluene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 10:41	AEH
Ethylbenzene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 10:41	AEH
Xylenes(Total), mg/L	<0.002	0.002	EPA 8260B	09/26/16 10:41	AEH
Cumene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 10:41	AEH
Naphthalene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 10:41	AEH
MTBE, mg/L	<0.002	0.002	EPA 8260B	09/26/16 10:41	AEH
Aqueous-phase purge-and-trap	---		EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 09/27/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15950-002
Sample Name: Monitoring Well MW#5/RW#5 Groundwater Sample
Sample Date: 9/23/2016 11:02:00 AM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	0.024	0.001	EPA 8260B	09/26/16 11:04	AEH
Toluene, mg/L	0.020	0.002	EPA 8260B	09/26/16 11:04	AEH
Ethylbenzene, mg/L	0.004	0.002	EPA 8260B	09/26/16 11:04	AEH
Xylenes(Total), mg/L	0.221	0.01 D2	EPA 8260B	09/26/16 15:00	AEH
Cumene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 11:04	AEH
Naphthalene, mg/L	0.006	0.002	EPA 8260B	09/26/16 11:04	AEH
MTBE, mg/L	<0.002	0.002	EPA 8260B	09/26/16 11:04	AEH
Aqueous-phase purge-and-trap	---		EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 09/27/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15950-003
Sample Name: Monitoring Well MW#7 Groundwater Sample
Sample Date: 9/23/2016 11:07:00 AM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	<0.001	0.001	EPA 8260B	09/26/16 11:28	AEH
Toluene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 11:28	AEH
Ethylbenzene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 11:28	AEH
Xylenes(Total), mg/L	<0.002	0.002	EPA 8260B	09/26/16 11:28	AEH
Cumene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 11:28	AEH
Naphthalene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 11:28	AEH
MTBE, mg/L	<0.002	0.002	EPA 8260B	09/26/16 11:28	AEH
Aqueous-phase purge-and-trap	---		EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 09/27/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15950-004
Sample Name: Monitoring Well MW#8 Groundwater Sample
Sample Date: 9/23/2016 10:35:00 AM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	<0.001	0.001	EPA 8260B	09/26/16 11:51	AEH
Toluene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 11:51	AEH
Ethylbenzene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 11:51	AEH
Xylenes(Total), mg/L	<0.002	0.002	EPA 8260B	09/26/16 11:51	AEH
Cumene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 11:51	AEH
Naphthalene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 11:51	AEH
MTBE, mg/L	0.006	0.002	EPA 8260B	09/26/16 11:51	AEH
Aqueous-phase purge-and-trap	---		EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 09/27/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15950-005
Sample Name: Monitoring Well MW#9 Groundwater Sample
Sample Date: 9/23/2016 10:58:00 AM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	<0.001	0.001	EPA 8260B	09/26/16 12:15	AEH
Toluene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 12:15	AEH
Ethylbenzene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 12:15	AEH
Xylenes(Total), mg/L	<0.002	0.002	EPA 8260B	09/26/16 12:15	AEH
Cumene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 12:15	AEH
Naphthalene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 12:15	AEH
MTBE, mg/L	<0.002	0.002	EPA 8260B	09/26/16 12:15	AEH
Aqueous-phase purge-and-trap	---		EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 09/27/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15950-006
Sample Name: Monitoring Well MW#10 Groundwater Sample
Sample Date: 9/23/2016 10:45:00 AM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	<0.001	0.001	EPA 8260B	09/26/16 12:38	AEH
Toluene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 12:38	AEH
Ethylbenzene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 12:38	AEH
Xylenes(Total), mg/L	<0.002	0.002	EPA 8260B	09/26/16 12:38	AEH
Cumene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 12:38	AEH
Naphthalene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 12:38	AEH
MTBE, mg/L	<0.002	0.002	EPA 8260B	09/26/16 12:38	AEH
Aqueous-phase purge-and-trap	---		EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 09/27/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15950-007
Sample Name: Monitoring Well MW#11 Groundwater Sample
Sample Date: 9/23/2016 11:17:00 AM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	<0.001	0.001	EPA 8260B	09/26/16 13:02	AEH
Toluene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:02	AEH
Ethylbenzene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:02	AEH
Xylenes(Total), mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:02	AEH
Cumene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:02	AEH
Naphthalene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:02	AEH
MTBE, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:02	AEH
Aqueous-phase purge-and-trap	---		EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 09/27/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15950-008
Sample Name: Monitoring Well MW#12 Groundwater Sample
Sample Date: 9/23/2016 11:47:00 AM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	<0.001	0.001	EPA 8260B	09/26/16 13:25	AEH
Toluene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:25	AEH
Ethylbenzene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:25	AEH
Xylenes(Total), mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:25	AEH
Cumene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:25	AEH
Naphthalene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:25	AEH
MTBE, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:25	AEH
Aqueous-phase purge-and-trap	---		EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 09/27/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15950-009
Sample Name: Monitoring Well MW#22 Groundwater Sample
Sample Date: 9/23/2016 11:24:00 AM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	<0.001	0.001	EPA 8260B	09/26/16 13:48	AEH
Toluene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:48	AEH
Ethylbenzene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:48	AEH
Xylenes(Total), mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:48	AEH
Cumene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:48	AEH
Naphthalene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:48	AEH
MTBE, mg/L	<0.002	0.002	EPA 8260B	09/26/16 13:48	AEH
Aqueous-phase purge-and-trap	---		EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 07/13/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15312-001
Sample Name: Monitoring Well K-1 Groundwater Sample
Sample Date: 7/5/2016 1:30:00 PM
Date Received: 7/6/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/L	0.481	0.01	D2	EPA 8260B	07/12/16 14:06	AEH
Toluene, mg/L	0.189	0.02	D2	EPA 8260B	07/12/16 14:06	AEH
Ethylbenzene, mg/L	0.140	0.02	D2	EPA 8260B	07/12/16 14:06	AEH
Xylenes(Total), mg/L	0.304	0.02	D2	EPA 8260B	07/12/16 14:06	AEH
Cumene, mg/L	0.008	0.002		EPA 8260B	07/12/16 13:41	AEH
Naphthalene, mg/L	0.007	0.002		EPA 8260B	07/12/16 13:41	AEH
MTBE, mg/L	0.007	0.002		EPA 8260B	07/12/16 13:41	AEH
Aqueous-phase purge-and-trap	---			EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 07/13/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15312-002
Sample Name: Monitoring Well K-2 Groundwater Sample
Sample Date: 7/5/2016 1:45:00 PM
Date Received: 7/6/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/L	0.075	0.005	D2	EPA 8260B	07/13/16 10:49	AEH
Toluene, mg/L	0.016	0.01	D2	EPA 8260B	07/13/16 10:49	AEH
Ethylbenzene, mg/L	0.534	0.02	D2	EPA 8260B	07/13/16 11:14	AEH
Xylenes(Total), mg/L	1.01	0.02	D2	EPA 8260B	07/13/16 11:14	AEH
Cumene, mg/L	0.137	0.01	D2	EPA 8260B	07/13/16 10:49	AEH
Naphthalene, mg/L	0.162	0.01	D2	EPA 8260B	07/13/16 10:49	AEH
MTBE, mg/L	<0.010	0.01	D2	EPA 8260B	07/13/16 10:49	AEH
Aqueous-phase purge-and-trap	---			EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 07/13/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15312-003
Sample Name: Monitoring Well K-3 Groundwater Sample
Sample Date: 7/5/2016 2:00:00 PM
Date Received: 7/6/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/L	0.024	0.005	D2	EPA 8260B	07/13/16 12:03	AEH
Toluene, mg/L	<0.010	0.01	D2	EPA 8260B	07/13/16 12:03	AEH
Ethylbenzene, mg/L	0.158	0.01	D2	EPA 8260B	07/13/16 12:03	AEH
Xylenes(Total), mg/L	0.369	0.01	D2	EPA 8260B	07/13/16 12:03	AEH
Cumene, mg/L	0.017	0.01	D2	EPA 8260B	07/13/16 12:03	AEH
Naphthalene, mg/L	0.182	0.01	D2	EPA 8260B	07/13/16 12:03	AEH
MTBE, mg/L	<0.010	0.01	D2	EPA 8260B	07/13/16 12:03	AEH
Aqueous-phase purge-and-trap	---			EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 10/04/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15998-001
Sample Name: Key Well K-1 Groundwater Sample
Sample Date: 9/29/2016 10:25:00 AM
Date Received: 9/29/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/L	0.320	0.005	D2	EPA 8260B	10/03/16 14:54	EJM
Toluene, mg/L	<0.002	0.002		EPA 8260B	10/03/16 12:30	EJM
Ethylbenzene, mg/L	0.215	0.01	D2	EPA 8260B	10/03/16 14:54	EJM
Xylenes(Total), mg/L	0.006	0.002		EPA 8260B	10/03/16 12:30	EJM
Cumene, mg/L	0.019	0.002		EPA 8260B	10/03/16 12:30	EJM
Naphthalene, mg/L	<0.002	0.002		EPA 8260B	10/03/16 12:30	EJM
MTBE, mg/L	0.003	0.002		EPA 8260B	10/03/16 12:30	EJM
Aqueous-phase purge-and-trap	---			EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 10/04/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15998-002
Sample Name: Key Well K-2 Groundwater Sample
Sample Date: 9/29/2016 10:17:00 AM
Date Received: 9/29/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/L	0.062	0.001		EPA 8260B	09/30/16 11:53	AEH
Toluene, mg/L	0.041	0.002		EPA 8260B	09/30/16 11:53	AEH
Ethylbenzene, mg/L	1.06	0.05	D2	EPA 8260B	09/30/16 13:51	AEH
Xylenes(Total), mg/L	2.51	0.05	D2	EPA 8260B	09/30/16 13:51	AEH
Cumene, mg/L	0.196	0.05	D2	EPA 8260B	09/30/16 13:51	AEH
Naphthalene, mg/L	0.289	0.05	D2	EPA 8260B	09/30/16 13:51	AEH
MTBE, mg/L	<0.002	0.002		EPA 8260B	09/30/16 11:53	AEH
Aqueous-phase purge-and-trap	---			EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 10/04/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15998-003
Sample Name: Key Well K-3 Groundwater Sample
Sample Date: 9/29/2016 10:10:00 AM
Date Received: 9/29/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/L	0.035	0.001		EPA 8260B	10/03/16 12:54	EJM
Toluene, mg/L	0.006	0.002		EPA 8260B	10/03/16 12:54	EJM
Ethylbenzene, mg/L	0.525	0.05	D2	EPA 8260B	10/03/16 14:30	EJM
Xylenes(Total), mg/L	0.899	0.05	D2	EPA 8260B	10/03/16 14:30	EJM
Cumene, mg/L	0.077	0.002		EPA 8260B	10/03/16 12:54	EJM
Naphthalene, mg/L	0.493	0.05	D2	EPA 8260B	10/03/16 14:30	EJM
MTBE, mg/L	<0.002	0.002		EPA 8260B	10/03/16 12:54	EJM
Aqueous-phase purge-and-trap	---			EPA 5030B		

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/04/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15463-001
Sample Name: Before Activated Carbon Treatment Water
Sample Date: 7/22/2016 12:00:00 PM
Date Received: 7/22/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	0.008	0.001	EPA 8260B	08/02/16 13:16	AEH
Toluene, mg/L	0.009	0.002	EPA 8260B	08/02/16 13:16	AEH
Ethylbenzene, mg/L	0.004	0.002	EPA 8260B	08/02/16 13:16	AEH
Xylenes(Total), mg/L	0.035	0.002	EPA 8260B	08/02/16 13:16	AEH
Cumene, mg/L	<0.002	0.002	EPA 8260B	08/02/16 13:16	AEH
Naphthalene, mg/L	0.004	0.002	EPA 8260B	08/02/16 13:16	AEH
MTBE, mg/L	<0.002	0.002	EPA 8260B	08/02/16 13:16	AEH
Aqueous-phase purge-and-trap	---		EPA 5030B		

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/24/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15679-001
Sample Name: Before Activated Carbon Treatment Water
Sample Date: 8/18/2016 12:30:00 PM
Date Received: 8/18/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	0.006	0.001	EPA 8260B	08/23/16 10:34	EJM
Toluene, mg/L	0.010	0.002	EPA 8260B	08/23/16 10:34	EJM
Ethylbenzene, mg/L	0.005	0.002	EPA 8260B	08/23/16 10:34	EJM
Xylenes(Total), mg/L	0.044	0.002	EPA 8260B	08/23/16 10:34	EJM
Cumene, mg/L	<0.002	0.002	EPA 8260B	08/23/16 10:34	EJM
Naphthalene, mg/L	0.011	0.002	EPA 8260B	08/23/16 10:34	EJM
MTBE, mg/L	<0.002	0.002	EPA 8260B	08/23/16 10:34	EJM
Aqueous-phase purge-and-trap	---		EPA 5030B		

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Approved By: Marianne Whipkey
Laboratory Director



Report Date: 10/03/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15951-001
Sample Name: Before Activated Carbon Treatment Water
Sample Date: 9/23/2016 10:38:00 AM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	0.002	0.001	EPA 8260B	09/26/16 15:23	AEH
Toluene, mg/L	0.006	0.002	EPA 8260B	09/26/16 15:23	AEH
Ethylbenzene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 15:23	AEH
Xylenes(Total), mg/L	0.032	0.002	EPA 8260B	09/26/16 15:23	AEH
Cumene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 15:23	AEH
Naphthalene, mg/L	0.009	0.002	EPA 8260B	09/26/16 15:23	AEH
MTBE, mg/L	<0.002	0.002	EPA 8260B	09/26/16 15:23	AEH
Aqueous-phase purge-and-trap	---		EPA 5030B		

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Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/04/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15463-002
Sample Name: Between Activated Carbon Treatment Water
Sample Date: 7/22/2016 12:00:00 PM
Date Received: 7/22/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/L	<0.001	0.001		EPA 8260B	08/02/16 11:04	AEH
Toluene, mg/L	<0.002	0.002		EPA 8260B	08/02/16 11:04	AEH
Ethylbenzene, mg/L	<0.002	0.002		EPA 8260B	08/02/16 11:04	AEH
Xylenes(Total), mg/L	<0.002	0.002		EPA 8260B	08/02/16 11:04	AEH
Cumene, mg/L	<0.002	0.002		EPA 8260B	08/02/16 11:04	AEH
Naphthalene, mg/L	<0.002	0.002		EPA 8260B	08/02/16 11:04	AEH
MTBE, mg/L	<0.002	0.002		EPA 8260B	08/02/16 11:04	AEH
Aqueous-phase purge-and-trap	---			EPA 5030B		

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/24/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15679-002
Sample Name: Between Activated Carbon Treatment Water
Sample Date: 8/18/2016 12:30:00 PM
Date Received: 8/18/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	<0.001	0.001	EPA 8260B	08/23/16 12:10	EJM
Toluene, mg/L	<0.002	0.002	EPA 8260B	08/23/16 12:10	EJM
Ethylbenzene, mg/L	<0.002	0.002	EPA 8260B	08/23/16 12:10	EJM
Xylenes(Total), mg/L	<0.002	0.002	EPA 8260B	08/23/16 12:10	EJM
Cumene, mg/L	<0.002	0.002	EPA 8260B	08/23/16 12:10	EJM
Naphthalene, mg/L	<0.002	0.002	EPA 8260B	08/23/16 12:10	EJM
MTBE, mg/L	<0.002	0.002	EPA 8260B	08/23/16 12:10	EJM
Aqueous-phase purge-and-trap	---		EPA 5030B		

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 10/03/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15951-002
Sample Name: Between Activated Carbon Treatment Water
Sample Date: 9/23/2016 10:38:00 AM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	<0.001	0.001	EPA 8260B	09/26/16 16:33	AEH
Toluene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 16:33	AEH
Ethylbenzene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 16:33	AEH
Xylenes(Total), mg/L	<0.002	0.002	EPA 8260B	09/26/16 16:33	AEH
Cumene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 16:33	AEH
Naphthalene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 16:33	AEH
MTBE, mg/L	<0.002	0.002	EPA 8260B	09/26/16 16:33	AEH
Aqueous-phase purge-and-trap	---		EPA 5030B		

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/04/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15463-003
Sample Name: After Activated Carbon Treatment Water
Sample Date: 7/22/2016 12:00:00 PM
Date Received: 7/22/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	<0.001	0.001	EPA 8260B	08/02/16 10:40	AEH
Toluene, mg/L	<0.002	0.002	EPA 8260B	08/02/16 10:40	AEH
Ethylbenzene, mg/L	<0.002	0.002	EPA 8260B	08/02/16 10:40	AEH
Xylenes(Total), mg/L	<0.002	0.002	EPA 8260B	08/02/16 10:40	AEH
Cumene, mg/L	<0.002	0.002	EPA 8260B	08/02/16 10:40	AEH
Naphthalene, mg/L	<0.002	0.002	EPA 8260B	08/02/16 10:40	AEH
MTBE, mg/L	<0.002	0.002	EPA 8260B	08/02/16 10:40	AEH
Aqueous-phase purge-and-trap	---		EPA 5030B		

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/24/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15679-003
Sample Name: After Activated Carbon Treatment Water
Sample Date: 8/18/2016 12:30:00 PM
Date Received: 8/18/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	<0.001	0.001	EPA 8260B	08/23/16 12:33	EJM
Toluene, mg/L	<0.002	0.002	EPA 8260B	08/23/16 12:33	EJM
Ethylbenzene, mg/L	<0.002	0.002	EPA 8260B	08/23/16 12:33	EJM
Xylenes(Total), mg/L	<0.002	0.002	EPA 8260B	08/23/16 12:33	EJM
Cumene, mg/L	<0.002	0.002	EPA 8260B	08/23/16 12:33	EJM
Naphthalene, mg/L	<0.002	0.002	EPA 8260B	08/23/16 12:33	EJM
MTBE, mg/L	<0.002	0.002	EPA 8260B	08/23/16 12:33	EJM
Aqueous-phase purge-and-trap	---		EPA 5030B		

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 10/03/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15951-003
Sample Name: After Activated Carbon Treatment Water
Sample Date: 9/23/2016 10:38:00 AM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/L	<0.001	0.001	EPA 8260B	09/26/16 16:56	AEH
Toluene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 16:56	AEH
Ethylbenzene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 16:56	AEH
Xylenes(Total), mg/L	<0.002	0.002	EPA 8260B	09/26/16 16:56	AEH
Cumene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 16:56	AEH
Naphthalene, mg/L	<0.002	0.002	EPA 8260B	09/26/16 16:56	AEH
MTBE, mg/L	<0.002	0.002	EPA 8260B	09/26/16 16:56	AEH
Aqueous-phase purge-and-trap	---		EPA 5030B		

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/04/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15463-004
Sample Name: Before Activated Carbon Treatment Air
Sample Date: 7/22/2016 12:10:00 PM
Date Received: 7/22/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene in air, ppm	0.40	0.1	EPA 8020B Mod.	08/02/16 8:35	EJM
Toluene in air, ppm	0.20	0.1	EPA 8020B Mod.	08/02/16 8:35	EJM
Ethylbenzene in air, ppm	<0.10	0.1	EPA 8020B Mod.	08/02/16 8:35	EJM
Xylenes(Total) in air, ppm	0.28	0.25	EPA 8020B Mod.	08/02/16 8:35	EJM
MTBE in air, ppm	<0.10	0.1	EPA 8020B Mod.	08/02/16 8:35	EJM
Gasoline Range Organics, ppm	43.4	1	API Method	08/02/16 8:35	EJM

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/24/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15679-004
Sample Name: Before Activated Carbon Treatment Air
Sample Date: 8/18/2016 12:35:00 PM
Date Received: 8/18/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene in air, ppm	0.91	0.1	EPA 8020B Mod.	08/23/16 10:58	EJM
Toluene in air, ppm	1.30	0.1	EPA 8020B Mod.	08/23/16 10:58	EJM
Ethylbenzene in air, ppm	0.56	0.1	EPA 8020B Mod.	08/23/16 10:58	EJM
Xylenes(Total) in air, ppm	3.23	0.25	EPA 8020B Mod.	08/23/16 10:58	EJM
MTBE in air, ppm	<0.1	0.1	EPA 8020B Mod.	08/23/16 10:58	EJM
Gasoline Range Organics, ppm	31.7	1	API Method	08/23/16 10:58	EJM

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 10/03/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15951-004
Sample Name: Before Activated Carbon Treatment Air
Sample Date: 9/23/2016 12:40:00 PM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene in air, ppm	0.35	0.1	EPA 8020B Mod.	09/27/16 11:31	EJM
Toluene in air, ppm	0.61	0.1	EPA 8020B Mod.	09/27/16 11:31	EJM
Ethylbenzene in air, ppm	0.25	0.1	EPA 8020B Mod.	09/27/16 11:31	EJM
Xylenes(Total) in air, ppm	1.83	0.25	EPA 8020B Mod.	09/27/16 11:31	EJM
MTBE in air, ppm	<0.1	0.1	EPA 8020B Mod.	09/27/16 11:31	EJM
Gasoline Range Organics, ppm	19.0	1	API Method	09/27/16 11:31	EJM

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/04/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15463-005
Sample Name: Between Activated Carbon Treatment Air
Sample Date: 7/22/2016 12:10:00 PM
Date Received: 7/22/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene in air, ppm	0.17	0.1	EPA 8020B Mod.	08/02/16 8:05	EJM
Toluene in air, ppm	0.23	0.1	EPA 8020B Mod.	08/02/16 8:05	EJM
Ethylbenzene in air, ppm	0.35	0.1	EPA 8020B Mod.	08/02/16 8:05	EJM
Xylenes(Total) in air, ppm	0.40	0.25	EPA 8020B Mod.	08/02/16 8:05	EJM
MTBE in air, ppm	<0.10	0.1	EPA 8020B Mod.	08/02/16 8:05	EJM
Gasoline Range Organics, ppm	17.4	1	API Method	08/02/16 8:05	EJM

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/24/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15679-005
Sample Name: Between Activated Carbon Treatment Air
Sample Date: 8/18/2016 12:35:00 PM
Date Received: 8/18/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene in air, ppm	0.31	0.1	EPA 8020B Mod.	08/23/16 8:48	EJM
Toluene in air, ppm	0.65	0.1	EPA 8020B Mod.	08/23/16 8:48	EJM
Ethylbenzene in air, ppm	0.37	0.1	EPA 8020B Mod.	08/23/16 8:48	EJM
Xylenes(Total) in air, ppm	1.51	0.25	EPA 8020B Mod.	08/23/16 8:48	EJM
MTBE in air, ppm	<0.1	0.1	EPA 8020B Mod.	08/23/16 8:48	EJM
Gasoline Range Organics, ppm	13.8	1	API Method	08/23/16 8:48	EJM

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 10/03/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15951-005
Sample Name: Between Activated Carbon Treatment Air
Sample Date: 9/23/2016 12:40:00 PM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene in air, ppm	0.31	0.1	EPA 8020B Mod.	09/27/16 10:06	EJM
Toluene in air, ppm	0.78	0.1	EPA 8020B Mod.	09/27/16 10:06	EJM
Ethylbenzene in air, ppm	0.32	0.1	EPA 8020B Mod.	09/27/16 10:06	EJM
Xylenes(Total) in air, ppm	2.27	0.25	EPA 8020B Mod.	09/27/16 10:06	EJM
MTBE in air, ppm	<0.1	0.1	EPA 8020B Mod.	09/27/16 10:06	EJM
Gasoline Range Organics, ppm	21.1	1	API Method	09/27/16 10:06	EJM

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/04/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15463-006
Sample Name: After Activated Carbon Treatment Air
Sample Date: 7/22/2016 12:10:00 PM
Date Received: 7/22/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene in air, ppm	1.30	0.1	EPA 8020B Mod.	08/02/16 7:35	EJM
Toluene in air, ppm	<0.10	0.1	EPA 8020B Mod.	08/02/16 7:35	EJM
Ethylbenzene in air, ppm	<0.10	0.1	EPA 8020B Mod.	08/02/16 7:35	EJM
Xylenes(Total) in air, ppm	<0.25	0.25	EPA 8020B Mod.	08/02/16 7:35	EJM
MTBE in air, ppm	<0.10	0.1	EPA 8020B Mod.	08/02/16 7:35	EJM
Gasoline Range Organics, ppm	34.9	1	API Method	08/02/16 7:35	EJM

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/24/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15679-006
Sample Name: After Activated Carbon Treatment Air
Sample Date: 8/18/2016 12:35:00 PM
Date Received: 8/18/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene in air, ppm	0.87	0.1	EPA 8020B Mod.		EJM
Toluene in air, ppm	<0.1	0.1	EPA 8020B Mod.		EJM
Ethylbenzene in air, ppm	<0.1	0.1	EPA 8020B Mod.		EJM
Xylenes(Total) in air, ppm	<0.25	0.25	EPA 8020B Mod.		EJM
MTBE in air, ppm	<0.1	0.1	EPA 8020B Mod.		EJM
Gasoline Range Organics, ppm	13.6	1	API Method		EJM

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 10/03/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's #3 Car Wash
Lab Sample #: 15951-006
Sample Name: After Activated Carbon Treatment Air
Sample Date: 9/23/2016 12:40:00 PM
Date Received: 9/26/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene in air, ppm	0.82	0.1	EPA 8020B Mod.	09/27/16 9:11	EJM
Toluene in air, ppm	0.41	0.1	EPA 8020B Mod.	09/27/16 9:11	EJM
Ethylbenzene in air, ppm	<0.1	0.1	EPA 8020B Mod.	09/27/16 9:11	EJM
Xylenes(Total) in air, ppm	<0.25	0.25	EPA 8020B Mod.	09/27/16 9:11	EJM
MTBE in air, ppm	<0.1	0.1	EPA 8020B Mod.	09/27/16 9:11	EJM
Gasoline Range Organics, ppm	22.4	1	API Method	09/27/16 9:11	EJM

E.L.S. does not hold accreditation for the analysis of BTEX, MTBE & GRO on air samples. Please note that these results are to be in-house results only.

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 07/13/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

- CCV The Continuing Calibration Verification (CCV) recovery for this compound did not meet method acceptance criteria. The average of all compounds did meet method acceptance criteria as specified in EPA Method 8000 B.
- D1 Sample required dilution due to matrix interference.
- D2 Sample required dilution due to high concentration of compound.
- D3 Sample required dilution due to lack of proper sample weight or volume.
- HT Sample was analyzed past holding time.
- HT3 Sample was received and analyzed past holding time.
- MB Compound detected in method blank at or above the method reporting limit.
- MD Sample was analyzed undigested.
- MS1 The laboratory fortified matrix (LFM) result for this sample is above established acceptance criteria. But since the sample result is below the regulatory level, the result is valid for regulatory use.
- MS2 The lab fortified matrix (LFM) result for this sample is not within established acceptance criteria. The sample result is above the regulatory limit and is considered to be "estimated" because matrix interferences may be preventing accurate determination.
- MS3 The laboratory fortified matrix (LFM) result for this sample is not within established acceptance criteria due to high concentration of sample.
- MS4 The laboratory fortified matrix (LFM) result for this sample is not within established acceptance criteria. The laboratory fortified blank (LFB) was within the accepted criteria, therefore matrix interference is assumed.
- P1 Sample was not preserved properly.
- RPD Relative Percent Difference (RPD) exceeded the method acceptance limits. The sample result is to be considered "estimated".
- S Analysis not on laboratory's scope of accreditation.



Report Date: 08/04/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

- CCV The Continuing Calibration Verification (CCV) recovery for this compound did not meet method acceptance criteria. The average of all compounds did meet method acceptance criteria as specified in EPA Method 8000 B.
- D1 Sample required dilution due to matrix interference.
- D2 Sample required dilution due to high concentration of compound.
- D3 Sample required dilution due to lack of proper sample weight or volume.
- HT Sample was analyzed past holding time.
- HT3 Sample was received and analyzed past holding time.
- MB Compound detected in method blank at or above the method reporting limit.
- MD Sample was analyzed undigested.
- MS1 The laboratory fortified matrix (LFM) result for this sample is above established acceptance criteria. But since the sample result is below the regulatory level, the result is valid for regulatory use.
- MS2 The lab fortified matrix (LFM) result for this sample is not within established acceptance criteria. The sample result is above the regulatory limit and is considered to be "estimated" because matrix interferences may be preventing accurate determination.
- MS3 The laboratory fortified matrix (LFM) result for this sample is not within established acceptance criteria due to high concentration of sample.
- MS4 The laboratory fortified matrix (LFM) result for this sample is not within established acceptance criteria. The laboratory fortified blank (LFB) was within the accepted criteria, therefore matrix interference is assumed.
- P1 Sample was not preserved properly.
- RPD Relative Percent Difference (RPD) exceeded the method acceptance limits. The sample result is to be considered "estimated".
- S Analysis not on laboratory's scope of accreditation.



Report Date: 08/24/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

- CCV The Continuing Calibration Verification (CCV) recovery for this compound did not meet method acceptance criteria. The average of all compounds did meet method acceptance criteria as specified in EPA Method 8000 B.
- D1 Sample required dilution due to matrix interference.
- D2 Sample required dilution due to high concentration of compound.
- D3 Sample required dilution due to lack of proper sample weight or volume.
- HT Sample was analyzed past holding time.
- HT3 Sample was received and analyzed past holding time.
- MB Compound detected in method blank at or above the method reporting limit.
- MD Sample was analyzed undigested.
- MS1 The laboratory fortified matrix (LFM) result for this sample is above established acceptance criteria. But since the sample result is below the regulatory level, the result is valid for regulatory use.
- MS2 The lab fortified matrix (LFM) result for this sample is not within established acceptance criteria. The sample result is above the regulatory limit and is considered to be "estimated" because matrix interferences may be preventing accurate determination.
- MS3 The laboratory fortified matrix (LFM) result for this sample is not within established acceptance criteria due to high concentration of sample.
- MS4 The laboratory fortified matrix (LFM) result for this sample is not within established acceptance criteria. The laboratory fortified blank (LFB) was within the accepted criteria, therefore matrix interference is assumed.
- P1 Sample was not preserved properly.
- RPD Relative Percent Difference (RPD) exceeded the method acceptance limits. The sample result is to be considered "estimated".
- S Analysis not on laboratory's scope of accreditation.



Report Date: 09/27/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

- CCV The Continuing Calibration Verification (CCV) recovery for this compound did not meet method acceptance criteria. The average of all compounds did meet method acceptance criteria as specified in EPA Method 8000 B.
- D1 Sample required dilution due to matrix interference.
- D2 Sample required dilution due to high concentration of compound.
- D3 Sample required dilution due to lack of proper sample weight or volume.
- HT Sample was analyzed past holding time.
- HT3 Sample was received and analyzed past holding time.
- MB Compound detected in method blank at or above the method reporting limit.
- MD Sample was analyzed undigested.
- MS1 The laboratory fortified matrix (LFM) result for this sample is above established acceptance criteria. But since the sample result is below the regulatory level, the result is valid for regulatory use.
- MS2 The lab fortified matrix (LFM) result for this sample is not within established acceptance criteria. The sample result is above the regulatory limit and is considered to be "estimated" because matrix interferences may be preventing accurate determination.
- MS3 The laboratory fortified matrix (LFM) result for this sample is not within established acceptance criteria due to high concentration of sample.
- MS4 The laboratory fortified matrix (LFM) result for this sample is not within established acceptance criteria. The laboratory fortified blank (LFB) was within the accepted criteria, therefore matrix interference is assumed.
- P1 Sample was not preserved properly.
- RPD Relative Percent Difference (RPD) exceeded the method acceptance limits. The sample result is to be considered "estimated".
- S Analysis not on laboratory's scope of accreditation.



Report Date: 10/03/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

- CCV The Continuing Calibration Verification (CCV) recovery for this compound did not meet method acceptance criteria. The average of all compounds did meet method acceptance criteria as specified in EPA Method 8000 B.
- D1 Sample required dilution due to matrix interference.
- D2 Sample required dilution due to high concentration of compound.
- D3 Sample required dilution due to lack of proper sample weight or volume.
- HT Sample was analyzed past holding time.
- HT3 Sample was received and analyzed past holding time.
- MB Compound detected in method blank at or above the method reporting limit.
- MD Sample was analyzed undigested.
- MS1 The laboratory fortified matrix (LFM) result for this sample is above established acceptance criteria. But since the sample result is below the regulatory level, the result is valid for regulatory use.
- MS2 The lab fortified matrix (LFM) result for this sample is not within established acceptance criteria. The sample result is above the regulatory limit and is considered to be "estimated" because matrix interferences may be preventing accurate determination.
- MS3 The laboratory fortified matrix (LFM) result for this sample is not within established acceptance criteria due to high concentration of sample.
- MS4 The laboratory fortified matrix (LFM) result for this sample is not within established acceptance criteria. The laboratory fortified blank (LFB) was within the accepted criteria, therefore matrix interference is assumed.
- P1 Sample was not preserved properly.
- RPD Relative Percent Difference (RPD) exceeded the method acceptance limits. The sample result is to be considered "estimated".
- S Analysis not on laboratory's scope of accreditation.



Report Date: 10/04/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

- CCV The Continuing Calibration Verification (CCV) recovery for this compound did not meet method acceptance criteria. The average of all compounds did meet method acceptance criteria as specified in EPA Method 8000 B.
- D1 Sample required dilution due to matrix interference.
- D2 Sample required dilution due to high concentration of compound.
- D3 Sample required dilution due to lack of proper sample weight or volume.
- HT Sample was analyzed past holding time.
- HT3 Sample was received and analyzed past holding time.
- MB Compound detected in method blank at or above the method reporting limit.
- MD Sample was analyzed undigested.
- MS1 The laboratory fortified matrix (LFM) result for this sample is above established acceptance criteria. But since the sample result is below the regulatory level, the result is valid for regulatory use.
- MS2 The lab fortified matrix (LFM) result for this sample is not within established acceptance criteria. The sample result is above the regulatory limit and is considered to be "estimated" because matrix interferences may be preventing accurate determination.
- MS3 The laboratory fortified matrix (LFM) result for this sample is not within established acceptance criteria due to high concentration of sample.
- MS4 The laboratory fortified matrix (LFM) result for this sample is not within established acceptance criteria. The laboratory fortified blank (LFB) was within the accepted criteria, therefore matrix interference is assumed.
- P1 Sample was not preserved properly.
- RPD Relative Percent Difference (RPD) exceeded the method acceptance limits. The sample result is to be considered "estimated".
- S Analysis not on laboratory's scope of accreditation.



Report Date: 08/26/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's Car Wash
Lab Sample #: 15685-012
Sample Name: Test Boring RS1 6.9' Soil Sample
Sample Date: 8/18/2016 8:20:00 AM
Date Received: 8/19/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/kg	<0.1	0.1	EPA 8260B	08/25/16 12:13	EJM
Toluene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 12:13	EJM
Ethylbenzene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 12:13	EJM
Xylenes(Total), mg/kg	<0.2	0.2	EPA 8260B	08/25/16 12:13	EJM
Cumene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 12:13	EJM
Naphthalene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 12:13	EJM
MTBE, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 12:13	EJM
Closed-system purge-and-trap (methanol option)	---		EPA 5035	08/22/16 11:00	AEH

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/26/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's Car Wash
Lab Sample #: 15685-001
Sample Name: Test Boring RS2 6.6' Soil Sample
Sample Date: 8/18/2016 8:40:00 AM
Date Received: 8/19/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/kg	0.34	0.1		EPA 8260B	08/25/16 11:23	EJM
Toluene, mg/kg	<0.2	0.2		EPA 8260B	08/25/16 11:23	EJM
Ethylbenzene, mg/kg	18.0	1	D2	EPA 8260B	08/25/16 14:53	EJM
Xylenes(Total), mg/kg	19.4	1	D2	EPA 8260B	08/25/16 14:53	EJM
Cumene, mg/kg	3.15	0.2		EPA 8260B	08/25/16 11:23	EJM
Naphthalene, mg/kg	6.31	0.2		EPA 8260B	08/25/16 11:23	EJM
MTBE, mg/kg	<0.2	0.2		EPA 8260B	08/25/16 11:23	EJM
Closed-system purge-and-trap (methanol option)	---			EPA 5035	08/22/16 11:00	AEH

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/26/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's Car Wash
Lab Sample #: 15685-002
Sample Name: Test Boring RS3 5.5' Soil Sample
Sample Date: 8/18/2016 9:00:00 AM
Date Received: 8/19/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/kg	<0.1	0.1		EPA 8260B	08/25/16 11:37	EJM
Toluene, mg/kg	<0.2	0.2		EPA 8260B	08/25/16 11:37	EJM
Ethylbenzene, mg/kg	<0.2	0.2		EPA 8260B	08/25/16 11:37	EJM
Xylenes(Total), mg/kg	<0.2	0.2		EPA 8260B	08/25/16 11:37	EJM
Cumene, mg/kg	<0.2	0.2	MS1	EPA 8260B	08/25/16 11:37	EJM
Naphthalene, mg/kg	<0.2	0.2	RPD	EPA 8260B	08/25/16 11:37	EJM
MTBE, mg/kg	<0.2	0.2		EPA 8260B	08/25/16 11:37	EJM
Closed-system purge-and-trap (methanol option)	---			EPA 5035	08/22/16 11:00	AEH

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/26/2016

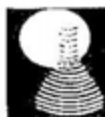
American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's Car Wash
Lab Sample #: 15685-003
Sample Name: Test Boring RS4 5.7' Soil Sample
Sample Date: 8/18/2016 9:25:00 AM
Date Received: 8/19/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/kg	<0.1	0.1	EPA 8260B	08/25/16 12:01	EJM
Toluene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 12:01	EJM
Ethylbenzene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 12:01	EJM
Xylenes(Total), mg/kg	<0.2	0.2	EPA 8260B	08/25/16 12:01	EJM
Cumene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 12:01	EJM
Naphthalene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 12:01	EJM
MTBE, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 12:01	EJM
Closed-system purge-and-trap (methanol option)	---		EPA 5035	08/22/16 11:00	AEH

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/26/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's Car Wash
Lab Sample #: 15685-004
Sample Name: Test Boring RS5 6.0' Soil Sample
Sample Date: 8/18/2016 10:00:00 AM
Date Received: 8/19/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/kg	<0.1	0.1	EPA 8260B	08/25/16 14:27	EJM
Toluene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 14:27	EJM
Ethylbenzene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 14:27	EJM
Xylenes(Total), mg/kg	<0.2	0.2	EPA 8260B	08/25/16 14:27	EJM
Cumene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 14:27	EJM
Naphthalene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 14:27	EJM
MTBE, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 14:27	EJM
Closed-system purge-and-trap (methanol option)	---		EPA 5035	08/22/16 11:00	AEH

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/26/2016

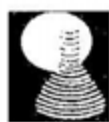
American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's Car Wash
Lab Sample #: 15685-005
Sample Name: Test Boring RS6 10.2' Soil Sample
Sample Date: 8/18/2016 11:15:00 AM
Date Received: 8/19/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/kg	0.29	0.1		EPA 8260B	08/22/16 12:53	AEH
Toluene, mg/kg	2.81	0.2		EPA 8260B	08/22/16 12:53	AEH
Ethylbenzene, mg/kg	6.59	0.2		EPA 8260B	08/22/16 12:53	AEH
Xylenes(Total), mg/kg	38.2	0.4	D2	EPA 8260B	08/22/16 13:18	AEH
Cumene, mg/kg	0.59	0.2		EPA 8260B	08/22/16 12:53	AEH
Naphthalene, mg/kg	2.27	0.2		EPA 8260B	08/22/16 12:53	AEH
MTBE, mg/kg	<0.2	0.2		EPA 8260B	08/22/16 12:53	AEH
Closed-system purge-and-trap (methanol option)	---			EPA 5035	08/22/16 11:00	AEH

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/26/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's Car Wash
Lab Sample #: 15685-006
Sample Name: Test Boring RS7 10.9' Soil Sample
Sample Date: 8/18/2016 10:30:00 AM
Date Received: 8/19/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/kg	<0.1	0.1		EPA 8260B	08/25/16 11:48	EJM
Toluene, mg/kg	7.66	0.2		EPA 8260B	08/25/16 11:48	EJM
Ethylbenzene, mg/kg	44.0	4	D2	EPA 8260B	08/25/16 15:20	EJM
Xylenes(Total), mg/kg	187	4	D2	EPA 8260B	08/25/16 15:20	EJM
Cumene, mg/kg	6.91	0.2		EPA 8260B	08/25/16 11:48	EJM
Naphthalene, mg/kg	23.0	4	D2	EPA 8260B	08/25/16 15:20	EJM
MTBE, mg/kg	<0.2	0.2		EPA 8260B	08/25/16 11:48	EJM
Closed-system purge-and-trap (methanol option)	---			EPA 5035	08/22/16 11:00	AEH

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/26/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's Car Wash
Lab Sample #: 15685-007
Sample Name: Test Boring RS8 5.6' Soil Sample
Sample Date: 8/18/2016 11:45:00 AM
Date Received: 8/19/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/kg	<0.1	0.1		EPA 8260B	08/22/16 15:24	AEH
Toluene, mg/kg	<0.2	0.2		EPA 8260B	08/22/16 15:24	AEH
Ethylbenzene, mg/kg	<0.2	0.2		EPA 8260B	08/22/16 15:24	AEH
Xylenes(Total), mg/kg	<0.2	0.2		EPA 8260B	08/22/16 15:24	AEH
Cumene, mg/kg	<0.2	0.2		EPA 8260B	08/22/16 15:24	AEH
Naphthalene, mg/kg	<0.2	0.2	RPD	EPA 8260B	08/22/16 15:24	AEH
MTBE, mg/kg	<0.2	0.2		EPA 8260B	08/22/16 15:24	AEH
Closed-system purge-and-trap (methanol option)	---			EPA 5035	08/22/16 11:00	AEH

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/26/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's Car Wash
Lab Sample #: 15685-008
Sample Name: Test Boring RS9 9.9' Soil Sample
Sample Date: 8/18/2016 12:30:00 PM
Date Received: 8/19/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/kg	4.27	0.1		EPA 8260B	08/25/16 12:44	EJM
Toluene, mg/kg	9.10	1	D2	EPA 8260B	08/25/16 15:46	EJM
Ethylbenzene, mg/kg	10.9	1	D2	EPA 8260B	08/25/16 15:46	EJM
Xylenes(Total), mg/kg	51.2	1	D2	EPA 8260B	08/25/16 15:46	EJM
Cumene, mg/kg	<0.2	0.2		EPA 8260B	08/25/16 12:44	EJM
Naphthalene, mg/kg	<0.2	0.2		EPA 8260B	08/25/16 12:44	EJM
MTBE, mg/kg	<0.2	0.2		EPA 8260B	08/25/16 12:44	EJM
Closed-system purge-and-trap (methanol option)	---			EPA 5035	08/22/16 11:00	AEH

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/26/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's Car Wash
Lab Sample #: 15685-009
Sample Name: Test Boring RS10 9.3' Soil Sample
Sample Date: 8/18/2016 1:45:00 PM
Date Received: 8/19/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/kg	1.67	0.1		EPA 8260B	08/25/16 13:09	EJM
Toluene, mg/kg	0.32	0.2		EPA 8260B	08/25/16 13:09	EJM
Ethylbenzene, mg/kg	17.1	1	D2	EPA 8260B	08/25/16 16:13	EJM
Xylenes(Total), mg/kg	64.6	1	D2	EPA 8260B	08/25/16 16:13	EJM
Cumene, mg/kg	0.81	0.2		EPA 8260B	08/25/16 13:09	EJM
Naphthalene, mg/kg	2.32	0.2		EPA 8260B	08/25/16 13:09	EJM
MTBE, mg/kg	<0.2	0.2		EPA 8260B	08/25/16 13:09	EJM
Closed-system purge-and-trap (methanol option)	---			EPA 5035	08/22/16 11:00	AEH

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/26/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's Car Wash
Lab Sample #: 15685-010
Sample Name: Test Boring RS11 6.7' Soil Sample
Sample Date: 8/18/2016 2:35:00 PM
Date Received: 8/19/2016

Parameter	Result	Reporting Limit	Qual.	Method	Analysis Date	Analyst
Benzene, mg/kg	<0.2	0.2	D2	EPA 8260B	08/22/16 14:06	AEH
Toluene, mg/kg	5.03	0.4	D2	EPA 8260B	08/22/16 14:06	AEH
Ethylbenzene, mg/kg	11.3	0.4	D2	EPA 8260B	08/22/16 14:06	AEH
Xylenes(Total), mg/kg	87.3	1	D2	EPA 8260B	08/22/16 14:33	AEH
Cumene, mg/kg	2.92	0.4	D2	EPA 8260B	08/22/16 14:06	AEH
Naphthalene, mg/kg	4.63	0.4	D2	EPA 8260B	08/22/16 14:06	AEH
MTBE, mg/kg	<0.4	0.4	D2	EPA 8260B	08/22/16 14:06	AEH
Closed-system purge-and-trap (methanol option)	---			EPA 5035	08/22/16 11:00	AEH

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/26/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

Project: Leo's Car Wash
Lab Sample #: 15685-011
Sample Name: Test Boring RS12 11.8' Soil Sample
Sample Date: 8/18/2016 3:55:00 PM
Date Received: 8/19/2016

Parameter	Result	Reporting Qual. Limit	Method	Analysis Date	Analyst
Benzene, mg/kg	3.18	0.1	EPA 8260B	08/25/16 13:11	EJM
Toluene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 13:11	EJM
Ethylbenzene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 13:11	EJM
Xylenes(Total), mg/kg	<0.2	0.2	EPA 8260B	08/25/16 13:11	EJM
Cumene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 13:11	EJM
Naphthalene, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 13:11	EJM
MTBE, mg/kg	<0.2	0.2	EPA 8260B	08/25/16 13:11	EJM
Closed-system purge-and-trap (methanol option)	---		EPA 5035	08/22/16 11:00	AEH

If there are any questions regarding this data, please call.

Approved By: Marianne Whipkey
Laboratory Director



Report Date: 08/26/2016

American Environmental Associates
5946 Southland Drive
Erie, PA 16509

- CCV The Continuing Calibration Verification (CCV) recovery for this compound did not meet method acceptance criteria. The average of all compounds did meet method acceptance criteria as specified in EPA Method 8000 B.
- D1 Sample required dilution due to matrix interference.
- D2 Sample required dilution due to high concentration of compound.
- D3 Sample required dilution due to lack of proper sample weight or volume.
- HT Sample was analyzed past holding time.
- HT3 Sample was received and analyzed past holding time.
- MB Compound detected in method blank at or above the method reporting limit.
- MD Sample was analyzed undigested.
- MS1 The laboratory fortified matrix (LFM) result for this sample is above established acceptance criteria. But since the sample result is below the regulatory level, the result is valid for regulatory use.
- MS2 The lab fortified matrix (LFM) result for this sample is not within established acceptance criteria. The sample result is above the regulatory limit and is considered to be "estimated" because matrix interferences may be preventing accurate determination.
- MS3 The laboratory fortified matrix (LFM) result for this sample is not within established acceptance criteria due to high concentration of sample.
- MS4 The laboratory fortified matrix (LFM) result for this sample is not within established acceptance criteria. The laboratory fortified blank (LFB) was within the accepted criteria, therefore matrix interference is assumed.
- P1 Sample was not preserved properly.
- RPD Relative Percent Difference (RPD) exceeded the method acceptance limits. The sample result is to be considered "estimated".
- S Analysis not on laboratory's scope of accreditation.

APPENDIX B
LABORATORY ANALYSIS SPREADSHEETS

**Leo's Car Wash
Groundwater Data**

Monitoring Well	4th Qtr 2014	1st Qtr 2015	2nd Qtr 2015	3rd Qtr 2015	4th Qtr 2015	1st Qtr 2016	2nd Qtr 2016	3rd Qtr 2016
MW#1	SW	SW	SW	SW	SW	SW	SW	SW
MW#2	12.73	12.05	13.02	11.45	12.63	11.37	12.33	12.75
MW#3	SW	SW	SW	SW	SW	SW	SW	SW
MW#4	SW	SW	SW	SW	SW	SW	SW	SW
MW#5	SW	SW	SW	SW	SW	SW	SW	SW
MW#6	SW	SW	SW	SW	SW	SW	SW	SW
MW#7	8.34	7.87	8.10	8.36	8.35	7.85	8.17	8.27
MW#8	13.46	12.95	13.10	12.77	13.60	12.23	13.43	13.00
MW#9	12.87	12.29	12.85	12.54	12.61	12.21	12.86	12.03
MW#10	9.71	9.38	9.70	9.60	9.76	9.32	9.66	9.60
MW#11	6.63	6.13	6.40	6.54	6.67	6.13	6.44	6.58
MW#12	10.34	9.40	10.73	9.77	10.27	9.95	10.24	10.22
K-1	12.35	12.05	13.30	9.68	12.38	8.95	12.10	12.42
K-2	10.45	8.75	10.75	10.05	10.60	8.20	8.97	8.87
K-3	9.80	8.44	9.10	9.00	8.94	7.98	9.60	9.04
MW#18	10.25	8.66	13.10	10.16	10.13	9.48	10.62	10.60
MW#19	14.10	13.06	13.60	12.70	13.88	13.50	13.81	13.12
MW#20	10.65	9.90	11.05	9.46	11.28	10.60	9.74	11.42
MW#22	*	*	*	*	*	*	*	8.47

* Monitoring well MW#22 was installed on August 19, 2016.

SW - System Well

**Leo's Car Wash
Monitoring Well MW#2**

Parameter (mg/L)	4th Qtr 2014	1st Qtr 2015	2nd Qtr 2015	3rd Qtr 2015	4th Qtr 2015	1st Qtr 2016	2nd Qtr 2016	3rd Qtr 2016
Benzene	0.007	0.020	0.215	0.045	0.014	0.139	<0.001	<0.001
Toluene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	<0.002	<0.002	<0.002	<0.002	0.005	<0.002	<0.002	<0.002
Xylene	<0.002	<0.002	<0.002	0.005	0.037	<0.002	<0.002	<0.002
Cumene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Naphthalene	<0.002	<0.002	<0.002	0.003	0.002	<0.002	<0.002	<0.002
MTBE	0.006	0.003	0.005	0.003	<0.002	0.003	0.003	<0.002

Bolded Results exceed MCS's for Organic Regulated Substances in Groundwater for Residential Used Aquifers.

**Leo's Car Wash
Monitoring Well MW#5/RW#5**

Parameter (mg/L)	3rd Qtr 2015	1st Qtr 2016	3rd Qtr 2016
Benzene	0.021	0.093	0.024
Toluene	0.008	0.345	0.020
Ethylbenzene	<0.002	0.044	0.004
Xylene	0.060	0.345	0.221
Cumene	<0.002	0.008	<0.002
Naphthalene	<0.002	0.012	0.006
MTBE	<0.002	<0.002	<0.002

Bolded Results exceed MCS's for Organic Regulated Substances in Groundwater for Residential Used Aquifers.

**Leo's Car Wash
Monitoring Well MW#8**

Parameter (mg/L)	4th Qtr 2014	1st Qtr 2015	2nd Qtr 2015	3rd Qtr 2015	4th Qtr 2015	1st Qtr 2016	2nd Qtr 2016	3rd Qtr 2016
Benzene	0.701	0.080	0.003	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	0.011	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Xylene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cumene	0.026	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Naphthalene	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
MTBE	0.008	0.005	0.013	0.007	0.009	0.007	0.004	0.006

Bolded Results exceed MCS's for Organic Regulated Substances in Groundwater for Residential Used Aquifers.

**Leo's Car Wash
Monitoring Well MW#9**

Parameter (mg/L)	4th Qtr 2014	1st Qtr 2015	2nd Qtr 2015	3rd Qtr 2015	4th Qtr 2015	1st Qtr 2016	2nd Qtr 2016	3rd Qtr 2016
Benzene	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Xylene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cumene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Naphthalene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
MTBE	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002

**Leo's Car Wash
Monitoring Well MW#18**

Parameter (mg/L)	3rd Qtr 2014	4th Qtr 2014	1st Qtr 2015	2nd Qtr 2015	3rd Qtr 2015	4th Qtr 2015	1st Qtr 2016	2nd Qtr 2016
Benzene	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Xylene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cumene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Naphthalene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
MTBE	<0.002	0.005	<0.002	<0.002	0.004	0.002	<0.002	<0.002

Bolded Results exceed MCS's for Organic Regulated Substances in Groundwater for Residential Used Aquifers.

**Leo's Car Wash
Monitoring Well MW#19**

Parameter (mg/L)	3rd Qtr 2014	4th Qtr 2014	1st Qtr 2015	2nd Qtr 2015	3rd Qtr 2015	4th Qtr 2015	1st Qtr 2016	2nd Qtr 2016
Benzene	0.011	0.034	<0.001	0.008	<0.001	<0.001	0.006	<0.001
Toluene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Xylene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cumene	0.012	0.025	<0.002	0.011	0.006	<0.002	0.011	<0.002
Naphthalene	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
MTBE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002

Bolded Results exceed MCS's for Organic Regulated Substances in Groundwater for Residential Used Aquifers.

**Leo's Car Wash
Monitoring Well MW#20**

Parameter (mg/L)	3rd Qtr 2014	4th Qtr 2014	1st Qtr 2015	2nd Qtr 2015	3rd Qtr 2015	4th Qtr 2015	1st Qtr 2016	2nd Qtr 2016
Benzene	0.019	0.019	0.010	0.011	0.001	<0.001	<0.001	0.001
Toluene	0.015	0.010	0.014	0.009	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	0.304	0.246	0.319	0.052	0.007	0.002	0.004	0.004
Xylene	0.482	0.362	0.032	0.140	0.014	0.003	<0.002	0.003
Cumene	0.053	0.045	0.073	0.008	<0.002	<0.002	<0.002	<0.002
Naphthalene	0.016	0.023	0.030	0.011	0.005	<0.002	<0.002	<0.002
MTBE	<0.002	0.003	0.002	<0.002	<0.002	<0.002	0.003	<0.002

Bolded Results exceed MCS's for Organic Regulated Substances in Groundwater for Residential Used Aquifers.

**Leo's Car Wash
Monitoring Well MW#22**

Parameter (mg/L)	3rd Qtr 2016
Benzene	<0.001
Toluene	<0.002
Ethylbenzene	<0.002
Xylene	<0.002
Cumene	<0.002
Naphthalene	<0.002
MTBE	<0.002

Bolded Results exceed MCS's for Organic Regulated Substances in Groundwater for Residential Used Aquifers.

**Leo's Car Wash
Monitoring Well K-1**

Parameter (mg/L)	4th Qtr 2014	1st Qtr 2015	3rd Qtr 2015	1st Qtr 2016	3rd Qtr 2016	
					7/5/2016	9/29/16
Benzene	2.41	0.815	0.014	0.020	0.481	0.320
Toluene	0.095	<0.010	<0.002	<0.002	0.189	<0.002
Ethylbenzene	0.541	0.487	0.007	0.007	0.140	0.215
Xylene	2.58	0.995	0.019	0.007	0.304	0.006
Cumene	0.054	0.034	<0.002	<0.002	0.008	0.019
Naphthalene	0.248	0.492	0.015	<0.002	0.007	<0.002
MTBE	0.010	<0.010	<0.002	<0.002	0.007	0.003

Bolded Results exceed MCS's for Organic Regulated Substances in Groundwater for Residential Used Aquifers.

**Leo's Car Wash
Monitoring Well K-2**

Parameter (mg/L)	4th Qtr 2014	1st Qtr 2015	3rd Qtr 2015	1st Qtr 2016	3rd Qtr 2016	
					7/5/2016	9/29/16
Benzene	0.462	0.468	0.299	0.043	0.075	0.062
Toluene	0.060	0.454	0.053	0.056	0.016	0.041
Ethylbenzene	0.597	1.29	0.59	0.115	0.534	1.06
Xylene	2.28	5.70	2.20	0.632	1.010	2.51
Cumene	0.067	0.286	0.071	0.011	0.137	0.196
Naphthalene	0.125	0.347	0.214	0.079	0.162	0.289
MTBE	<0.002	<0.010	<0.010	<0.010	<0.010	<0.002

Bolded Results exceed MCS's for Organic Regulated Substances in Groundwater for Residential Used Aquifers.

**Leo's Car Wash
Monitoring Well K-3**

Parameter (mg/L)	4th Qtr 2014	1st Qtr 2015	3rd Qtr 2015	1st Qtr 2016	3rd Qtr 2016	
					7/5/2016	9/29/16
Benzene	0.087	0.111	0.034	0.007	0.024	0.035
Toluene	0.009	0.012	<0.010	<0.002	<0.010	0.006
Ethylbenzene	0.183	0.494	0.098	0.015	0.158	0.525
Xylene	0.370	0.490	0.271	0.113	0.369	0.899
Cumene	0.033	0.140	0.023	<0.002	0.017	0.077
Naphthalene	0.263	0.902	0.384	0.047	0.182	0.493
MTBE	<0.002	<0.002	<0.010	<0.002	<0.010	<0.002

Bolded Results exceed MCS's for Organic Regulated Substances in Groundwater for Residential Used Aquifers.

**Leo's Car Wash
Summary of Historic Soil Sampling Analysis Results**

Parameter	**SHS	MW#1	MW#2	MW#3	MW#4	MW#5	MW#6	MW#7	MW#8	MW#9	MW#10
Date		10/19/2002	10/30/2002	10/30/2002	10/30/2002	10/30/2002	10/30/2002	1/17/2003	1/17/2003	1/17/2003	4/8/2003
Benzene	0.5	<0.1	0.26	0.1	7.26	0.59	1.33	<0.1	<0.1	<0.1	<0.1
Toluene	100	<0.2	<0.2	1.23	61.8	0.31	0.58	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	70	0.9	3.39	3.45	17.6	0.38	14.9	<0.2	<0.2	<0.2	<0.2
Xylenes	1000	1.56	2.03	11.5	98.8	1.33	65.5	<0.2	<0.2	<0.2	<0.2
Cumene	18	<0.2	0.5	1.07	4.81	<0.2	0.55	<0.2	<0.2	<0.2	<0.2
Naphthalene	10	0.29	0.82	1.71	3.42	<0.2	0.57	<0.2	<0.2	<0.2	<0.2
MTBE	2	<0.2	<0.2	0.25	8.14	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Parameter	**SHS	MW#11	MW#12
Date		4/8/2003	4/8/2003
Benzene	0.5	<0.1	<0.1
Toluene	100	<0.2	<0.2
Ethylbenzene	70	<0.2	<0.2
Xylenes	1000	<0.2	<0.2
Cumene	18	<0.2	<0.2
Naphthalene	10	<0.2	<0.2
MTBE	2	<0.2	<0.2

All results are in mg/kg or ppm.

Bolded numbers exceed allowable limits.

**SHS = Statewide Health Standard for Soil

**Leo's Car Wash
Vapor Sampling Results**

Parameter	Non-residential Outdoor Air Criteria	VP#1/VP-A Air 4/1/14	VP#2 / VP-B Air 4/1/14	Field Blank Air SC#1031 4/1/14
Benzene(ug/m3)	1,100	2.4	2.0	1.3
Cumene (ug/m3)	110,000	N.D.	N.D.	N.D.
Ethylbenzene (ug/m3))	7,300	14	8.6	3.6
Methyl t-Butyl Ether (ug/m3)	31,000	N.D.	N.D.	N.D.
Naphthalene (ug/m3)	880	48	8.4	9.4
Toluene (ug/m3)	120,000	36	24	2.6
m/p-Xylene (ug/m3)	-	38	23	11
o-Xylene (ug/m3)	-	17	11	7.0
Total Xylenes (ug/m3)	30,000	55	34	18

SUMMARY OF ANALYTICAL RESULTS - SOIL ATTAINMENT SAMPLES

LEO'S CAR WASH
2938 WEST 26TH STREET
ERIE, PENNSYLVANIA

	Test Boring RS1	Test Boring RS2	Test Boring RS3	Test Boring RS4	Test Boring RS5	Test Boring RS6	PADEP MEDIUM SPECIFIC CONCENTRATIONS FOR ORGANIC REGULATED SUBSTANCES IN SOIL (NON-RESIDENTIAL USED AQUIFERS)
Sample Interval (ft.)	6.9'	6.6'	5.5'	5.7'	6.0'	10.2'	
Sample Date	8/18/2016	8/18/2016	8/18/2016	8/18/2016	8/18/2016	8/18/2016	
BENZENE, MG/KG	<0.1	0.34	<0.1	<0.1	<0.1	0.29	0.5
TOLUENE, MG/KG	<0.2	<0.2	<0.2	<0.2	<0.2	2.81	100
ETHYLBENZENE, MG/KG	<0.2	18.0	<0.2	<0.2	<0.2	6.59	70
XYLENES, MG/KG	<0.2	19.4	<0.2	<0.2	<0.2	38.2	1,000
CUMENE, MG/KG	<0.2	3.15	<0.2	<0.2	<0.2	0.59	2,500
NAPHTHALENE, MG/KG	<0.2	6.31	<0.2	<0.2	<0.2	2.27	25
MTBE, MG/KG	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	2

Medium Specific Concentrations (MSC's) are based on Residential Used Aquifers as referenced in 25 PA Code Chapter 250, Appendix A, Exceedances of the selected MSC's are indicated in bold.

SUMMARY OF ANALYTICAL RESULTS - SOIL ATTAINMENT SAMPLES (continued)

LEO'S CAR WASH
2938 WEST 26TH STREET
ERIE, PENNSYLVANIA

	Test Boring RS7	Test Boring RS8	Test Boring RS9	Test Boring RS10	Test Boring RS11	Test Boring RS12	PADEP MEDIUM SPECIFIC CONCENTRATIONS FOR ORGANIC REGULATED SUBSTANCES IN SOIL (NON-RESIDENTIAL USED AQUIFERS)
Sample Interval (ft.)	10.9'	5.6'	9.9'	9.3'	6.7'	11.8'	
Sample Date	8/18/2016	8/18/2016	8/18/2016	8/18/2016	8/18/2016	8/18/2016	
BENZENE, MG/KG	<0.1	<0.1	4.27	1.67	<0.2	3.18	0.5
TOLUENE, MG/KG	7.66	<0.2	9.10	0.32	5.03	<0.2	100
ETHYLBENZENE, MG/KG	44.0	<0.2	10.9	17.1	11.3	<0.2	70
XYLENES, MG/KG	187	<0.2	51.2	64.6	87.3	<0.2	1,000
CUMENE, MG/KG	6.91	<0.2	<0.2	0.81	2.92	<0.2	2,500
NAPHTHALENE, MG/KG	23.0	<0.2	<0.2	2.32	4.63	<0.2	25
MTBE, MG/KG	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	2

Medium Specific Concentrations (MSC's) are based on Residential Used Aquifers as referenced in 25 PA Code Chapter 250, Appendix A, Exceedances of the selected MSC's are indicated in bold.

**Leo's Car Wash
Before Activated Carbon Treatment Air Sample Results**

Parameter (ppm)	4th Quarter 2014			1st Quarter 2015			2nd Quarter 2015			3rd Quarter 2015		
	10/14/14	11/13/14	12/11/14	1/22/15	2/13/15	3/19/15	4/15/15	5/11/15	6/8/15	7/16/15	8/13/15	9/22/15
Benzene	28.0	10.6	3.33	1.60	1.66	2.56	2.96	3.52	4.71	1.36	1.42	1.01
Toluene	55.4	18.4	7.05	1.41	2.48	5.48	9.04	7.97	13.6	3.49	1.61	3.18
Ethyl Benzene	15.9	4.32	1.60	0.39	0.81	1.64	4.32	4.39	2.49	2.56	0.52	1.49
Xylene	67.3	28.2	5.92	2.50	4.42	9.60	20.3	25.1	12.9	15.2	3.77	10.3
MTBE	<1.0	<0.4	<0.1	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
GRO	725	209	70.4	32.7	83.5	74.6	144	190	113	95.2	59.1	60.3

Parameter (ppm)	4th Quarter 2015			1st Quarter 2016			2nd Quarter 2016			3rd Quarter 2016		
	10/7/15	11/20/15	12/9/15	1/29/16	2/17/16	3/10/16	4/22/16	5/20/16	6/10/16	7/22/16	8/18/16	9/23/16
Benzene	0.87	0.76	2.28	0.42	0.13	1.04	0.31	<0.1	0.86	0.40	0.91	0.35
Toluene	2.41	1.98	2.03	0.60	1.54	<0.1	0.39	0.11	0.48	0.20	1.3	0.61
Ethyl Benzene	1.11	0.65	0.46	0.19	0.19	0.1	0.12	<0.1	0.21	<0.10	0.56	0.25
Xylene	6.60	5.21	3.35	1.36	1.3	<0.25	0.94	<0.25	0.81	0.28	3.23	1.83
MTBE	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.1	<0.1
GRO	46.0	32.8	25.2	15.8	7.2	16.3	11.3	8.3	30.2	43.4	31.7	19.0

**Leo's Car Wash
Between Activated Carbon Treatment Air Sample Results**

Parameter (ppm)	4th Quarter 2014			1st Quarter 2015			2nd Quarter 2015			3rd Quarter 2015		
	10/14/14	11/13/14	12/11/14	1/22/15	2/13/15	3/19/15	4/15/15	5/11/15	6/8/15	7/16/15	8/13/15	9/22/15
Benzene	31.1	4.54	2.49	<0.1	<0.1	2.90	<0.1	1.46	0.35	<0.1	<0.1	2.15
Toluene	64.3	3.12	6.49	<0.1	<0.1	6.41	<0.1	5.05	0.97	<0.1	<0.1	4.61
Ethyl Benzene	18.9	<0.1	0.80	<0.1	<0.1	0.22	<0.1	2.55	0.89	<0.1	<0.1	<0.1
Xylene	68.6	<0.25	0.45	<0.25	<0.25	0.98	<0.25	11.3	5.06	<0.25	<0.25	<0.25
MTBE	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
GRO	833	79.1	47.3	<1	9.2	75.3	3.8	63.9	17.8	1.1	19.3	50.9

Parameter (ppm)	4th Quarter 2015			1st Quarter 2016			2nd Quarter 2016			3rd Quarter 2016		
	10/7/15	11/20/15	12/9/15	1/29/16	2/17/16	3/10/16	4/22/16	5/20/16	6/10/16	7/22/16	8/18/16	9/23/16
Benzene	1.14	0.70	<0.1	<0.1	0.13	1.04	0.67	<0.1	0.65	0.17	0.31	0.31
Toluene	4.23	2.16	0.24	<0.1	<0.1	<0.1	1.33	0.14	0.47	0.23	0.65	0.78
Ethyl Benzene	1.83	0.94	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.19	0.35	0.37	0.32
Xylene	3.37	9.05	1.04	<0.25	<0.25	<0.25	<0.25	<0.25	0.47	0.40	1.51	2.27
MTBE	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.1	<0.1
GRO	43.8	38.4	3.9	4.7	7.2	16.3	15.1	2.6	15.7	17.4	13.8	21.1

Leo's Car Wash
After Activated Carbon Treatment Air Sample Results

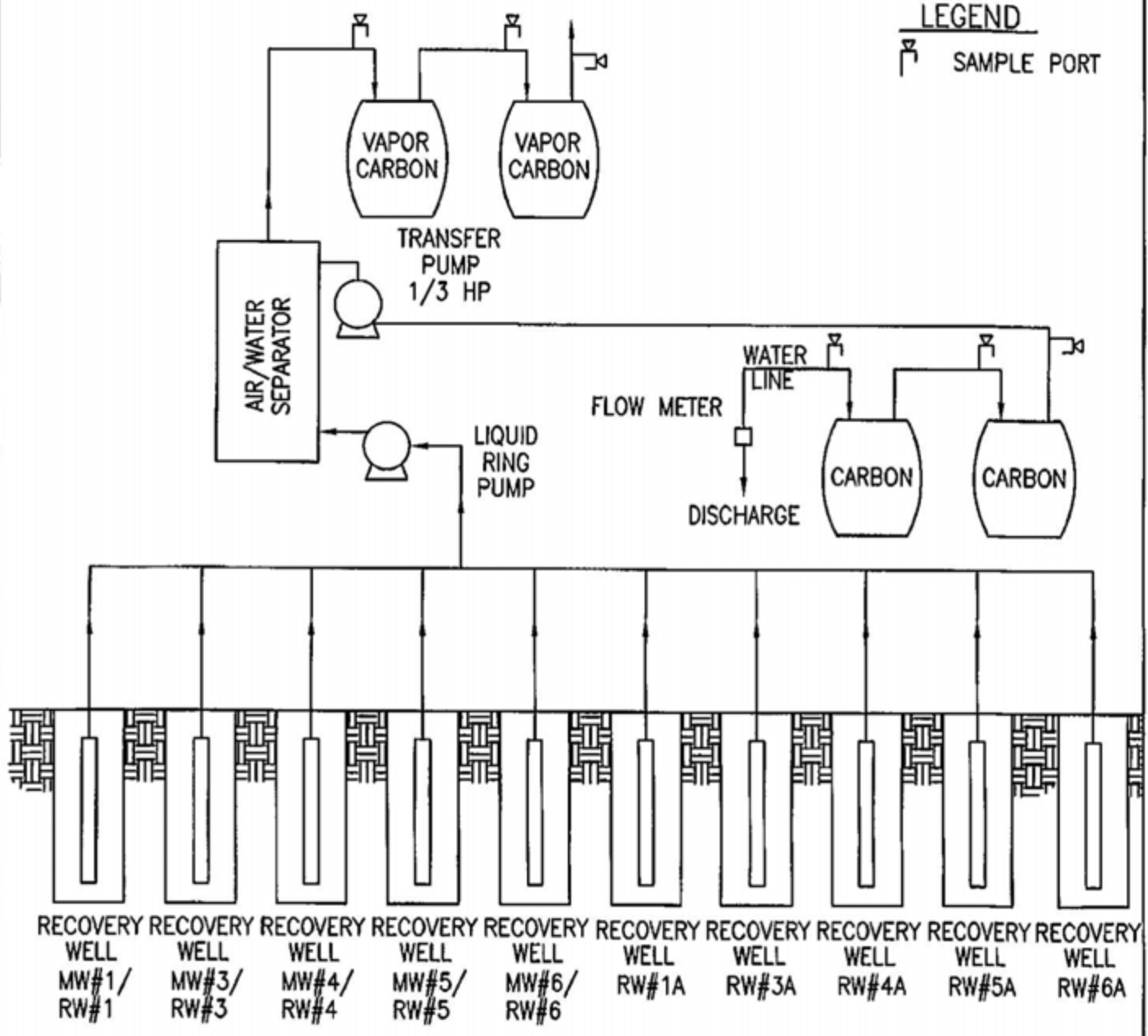
Parameter (ppm)	4th Quarter 2014			1st Quarter 2015			2nd Quarter 2015			3rd Quarter 2015		
	10/14/14	11/13/14	12/11/14	1/22/15	2/13/15	3/19/15	4/15/15	5/11/15	6/8/15	7/16/15	8/13/15	9/22/15
Benzene	32.0	1.09	2.89	<0.1	<0.1	3.67	<0.1	<0.1	1.50	<0.1	<0.1	<0.1
Toluene	52.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.10	<0.1	<0.1	<0.1
Ethyl Benzene	10.3	<0.1	0.56	<0.1	0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene	23.6	<0.25	0.56	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
MTBE	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
GRO	695	86.5	37.6	<1	2.8	81.1	3.5	16.5	23.4	1.0	3.0	39.8

Parameter (ppm)	4th Quarter 2015			1st Quarter 2016			2nd Quarter 2016			3rd Quarter 2016		
	10/7/15	11/20/15	12/9/15	1/29/16	2/17/16	3/10/16	4/22/16	5/20/16	6/10/16	7/22/16	8/18/16	9/23/16
Benzene	<0.1	0.87	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.30	0.87	0.82
Toluene	<0.1	4.38	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.41
Ethyl Benzene	<0.1	0.84	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene	<0.25	0.93	0.51	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
MTBE	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
GRO	4.3	30.4	1.0	<1	2.9	1.5	4.6	3.6	3.0	34.9	13.6	22.4

APPENDIX C
PROCESS AND INSTRUMENTATION DIAGRAM

LEGEND

☒ SAMPLE PORT



RAR engineering group, inc.
 1135 Butler Avenue, New Castle, Pennsylvania 16101
 telephone 724.652.1004 facsimile 724.652.3814
 email rarengineering@rarengineering.com

LEO'S #3 CAR WASH
2938 WEST 26TH STREET

PROCESS AND INSTRUMENTATION DIAGRAM

SEAL

DESIGNED BY	DATE
DRAWN BY CMS	DATE 7/2012
CHECKED BY PEP	DATE 7/2012
SCALE NOT TO SCALE	
FILE NAME	
REVISION	DATE

ERIE COUNTY PENNSYLVANIA

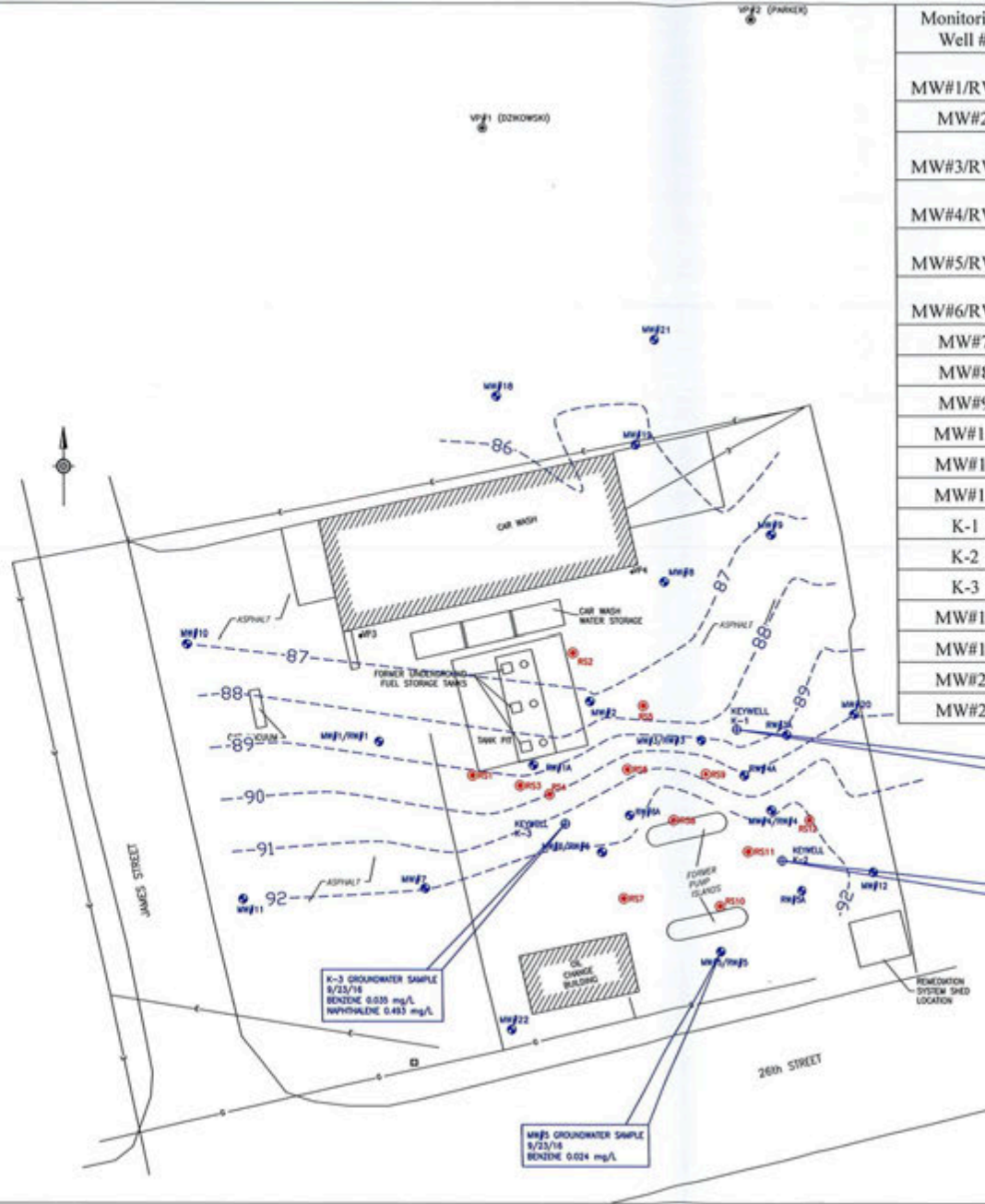
SIGNATURE _____ DATE _____

APPENDIX D
LOCATION MAP



Appendix D
Location Map
Leo's Car Wash
Erie, Pennsylvania

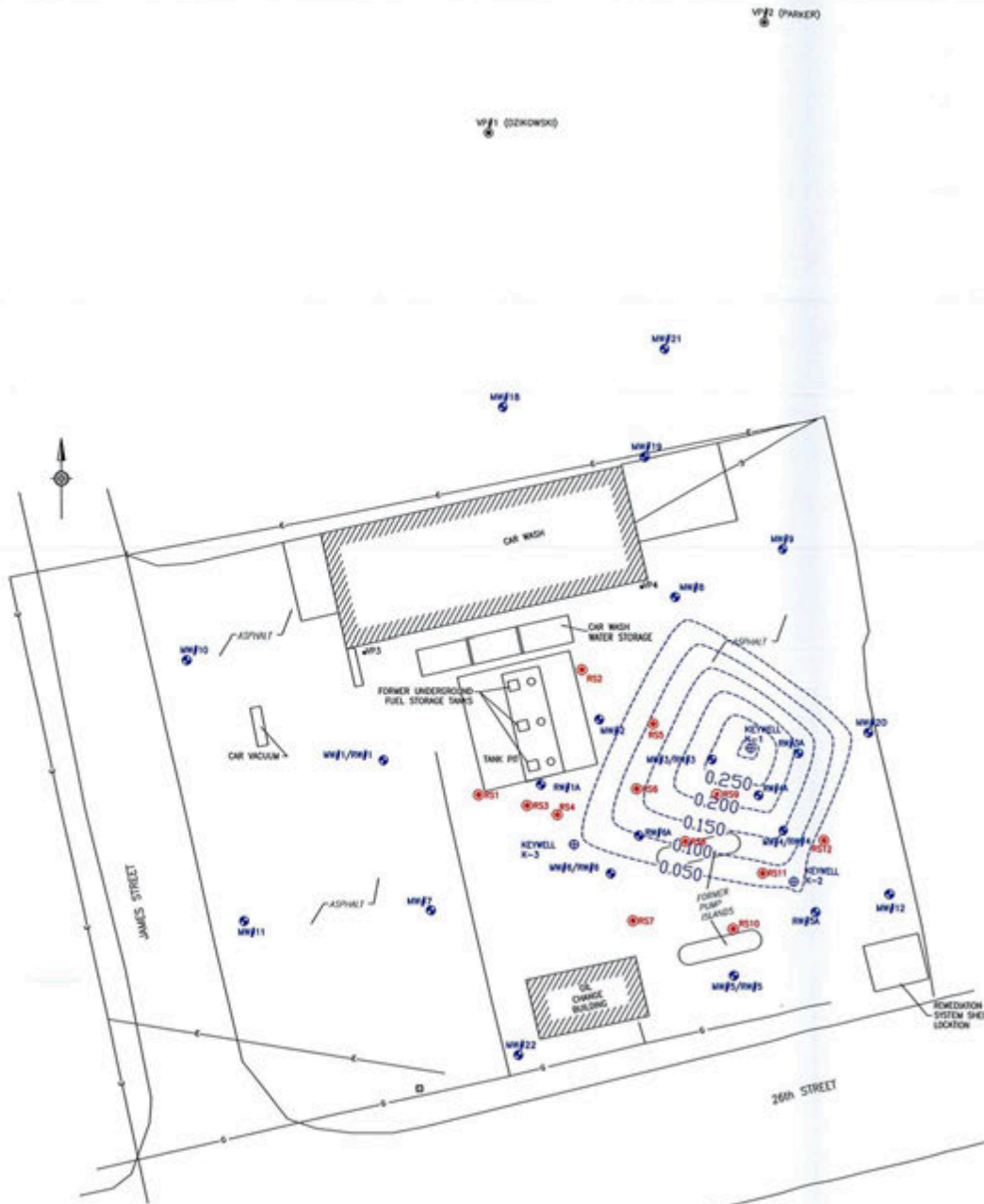
APPENDIX E
SITE MAP



Monitoring Well #	Surface Elevation	Depth to Water	Static Water Elev. 9/23/16
MW#1/RW#1	99.58	recovery well	recovery well
MW#2	99.80	12.75	87.05
MW#3/RW#3	101.21	recovery well	recovery well
MW#4/RW#4	101.73	recovery well	recovery well
MW#5/RW#5	101.84	recovery well	recovery well
MW#6/RW#6	101.45	recovery well	recovery well
MW#7	100.22	8.27	91.95
MW#8	99.21	13.00	86.21
MW#9	99.38	12.03	87.35
MW#10	96.60	9.60	87.00
MW#11	98.49	6.58	91.91
MW#12	101.57	10.22	91.35
K-1	100.72	12.42	88.30
K-2	101.25	8.87	92.38
K-3	100.50	9.04	91.46
MW#18	96.38	10.60	85.78
MW#19	99.41	13.12	86.29
MW#20	101.38	11.42	89.96
MW#22	101.98	8.47	93.51

- MW#11 RANDOM SAMPLING POINT
- VP#4 VAPOR POINT
- MONITORING WELL LOCATIONS
- - - GROUNDWATER CONTOURS
- - - ELECTRIC
- FIRE HYDRANT
- - - GAS

DRAWING TITLE: LEO'S #3 CAR WASH LOCATION: LEO'S #3 CAR WASH CITY: ERIE, PA FIELD INVESTIGATION MAP	REVISIONS NO. DATE DESCRIPTION DATE: 12/23/16 DRAWN BY: [blank] CHECKED BY: [blank] APPROVED BY: [blank] SCALE: 1"=30' SHEET NO.: [blank]
RAR engineering group, inc. 1031 Butler Avenue, Erie, PA 16590-1602 telephone: 814.833.8838 fax: 814.833.8839	
1	of 1
1	SHEET NUMBER



- RSP#11 RANDOM SAMPLING POINT
- VP#4 VAPOR POINT
- MONITORING WELL LOCATIONS
- BENZENE CONTAMINANT CONCENTRATION CONTOURS
- E — ELECTRIC
- G — GAS LINE
- FIRE HYDRANT

Monitoring Well #	Benzene
MW#2	non-detectable
MW#5/RW#5	0.024
MW#7	non-detectable
MW#8	non-detectable
MW#9	non-detectable
MW#10	non-detectable
MW#11	non-detectable
MW#12	non-detectable
MW#22	non-detectable
KW#1	0.320
KW#2	0.062
KW#3	0.035

NO.	DATE	DESCRIPTION

DESIGNED BY	CHECKED BY	APPROVED	DATE

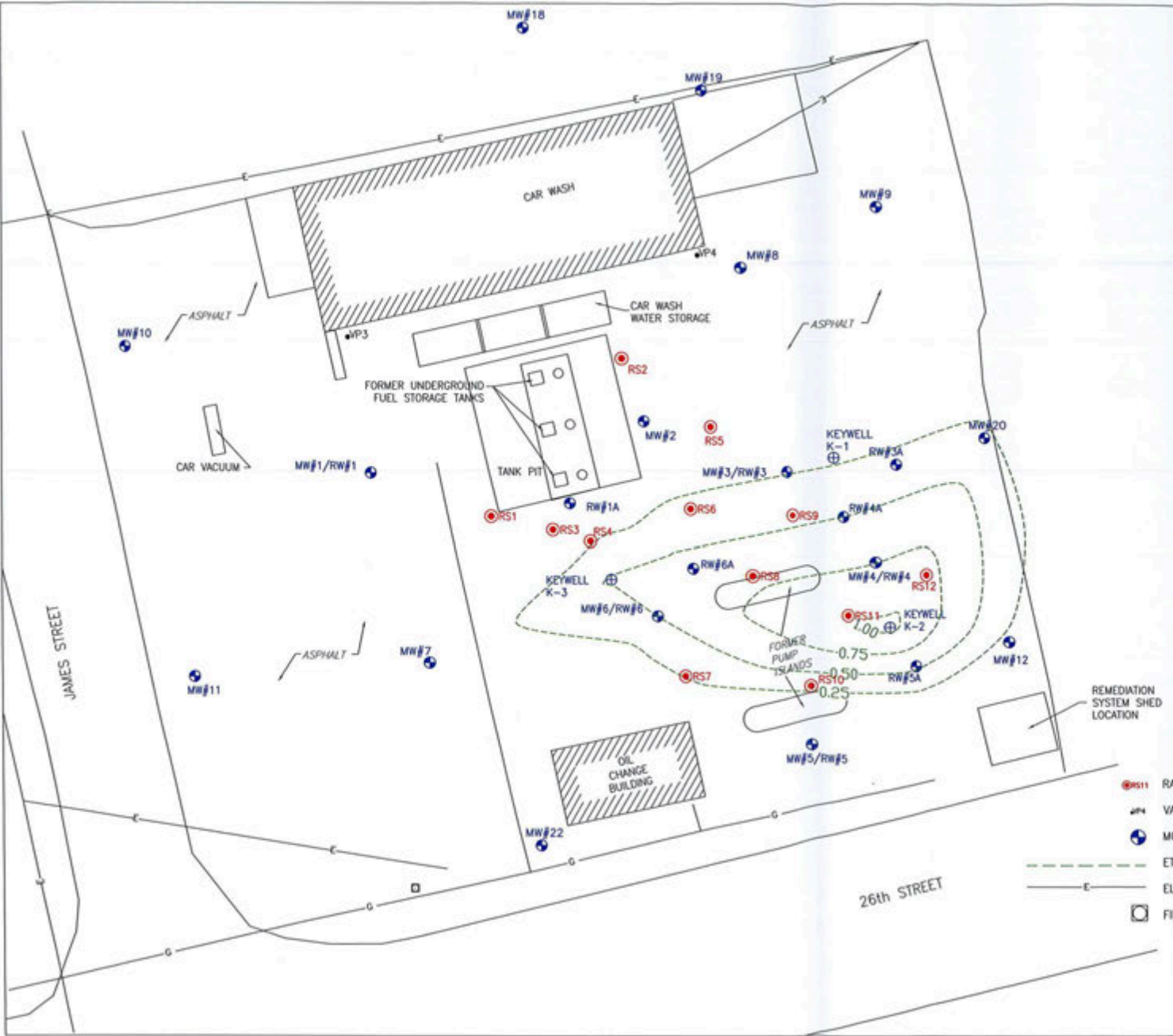
SCALE 1"=30'

DRAWING TITLE:
LEO'S #3 CAR WASH
 ERIE, PA
 CONTAMINANT
 CONCENTRATION MAP

RAR engineering group, Inc.
 1333 State Avenue, New Castle, Pennsylvania 16135
 telephone 724.633.6616 fax 724.633.6617 email eng@rar-engineering.com

DATE: _____
 SHEET NUMBER: _____

1 of 1
 SHEET NUMBER



Monitoring Well #	Ethylbenzene
MW#2	non-detectable
MW#5/RW#5	0.004
MW#7	non-detectable
MW#8	non-detectable
MW#9	non-detectable
MW#10	non-detectable
MW#11	non-detectable
MW#12	non-detectable
MW#22	non-detectable
KW#1	0.215
KW#2	1.060
KW#3	0.525

- RS11 RANDOM SAMPLING POINT
- VP VAPOR POINT
- MONITORING WELL LOCATIONS
- ETHYLBENZENE CONTAMINANT CONCENTRATION CONTOURS
- ELECTRIC
- FIRE HYDRANT

NO.	DATE	DESCRIPTION

DESIGNED BY	CHECKED BY	DATE

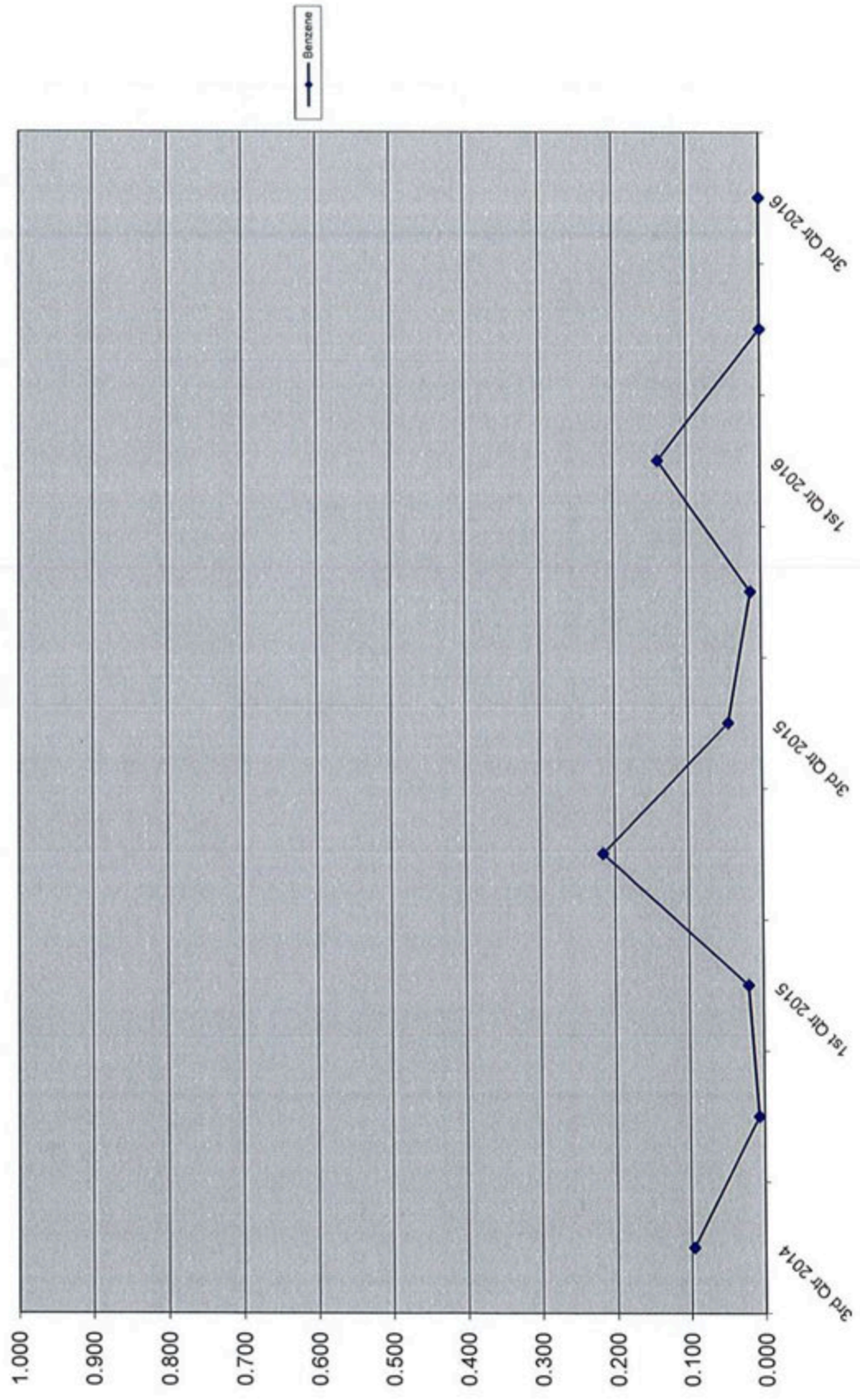
DRAWING TITLE: LEO'S #3 CAR WASH ERIE, PA. CONTAMINANT CONCENTRATION MAP

RAR engineering group, inc.
 1531 Butler Avenue, Erie, PA 16595
 telephone 724.322.2800 website 724.322.2801 and email rargroup@erierar.com

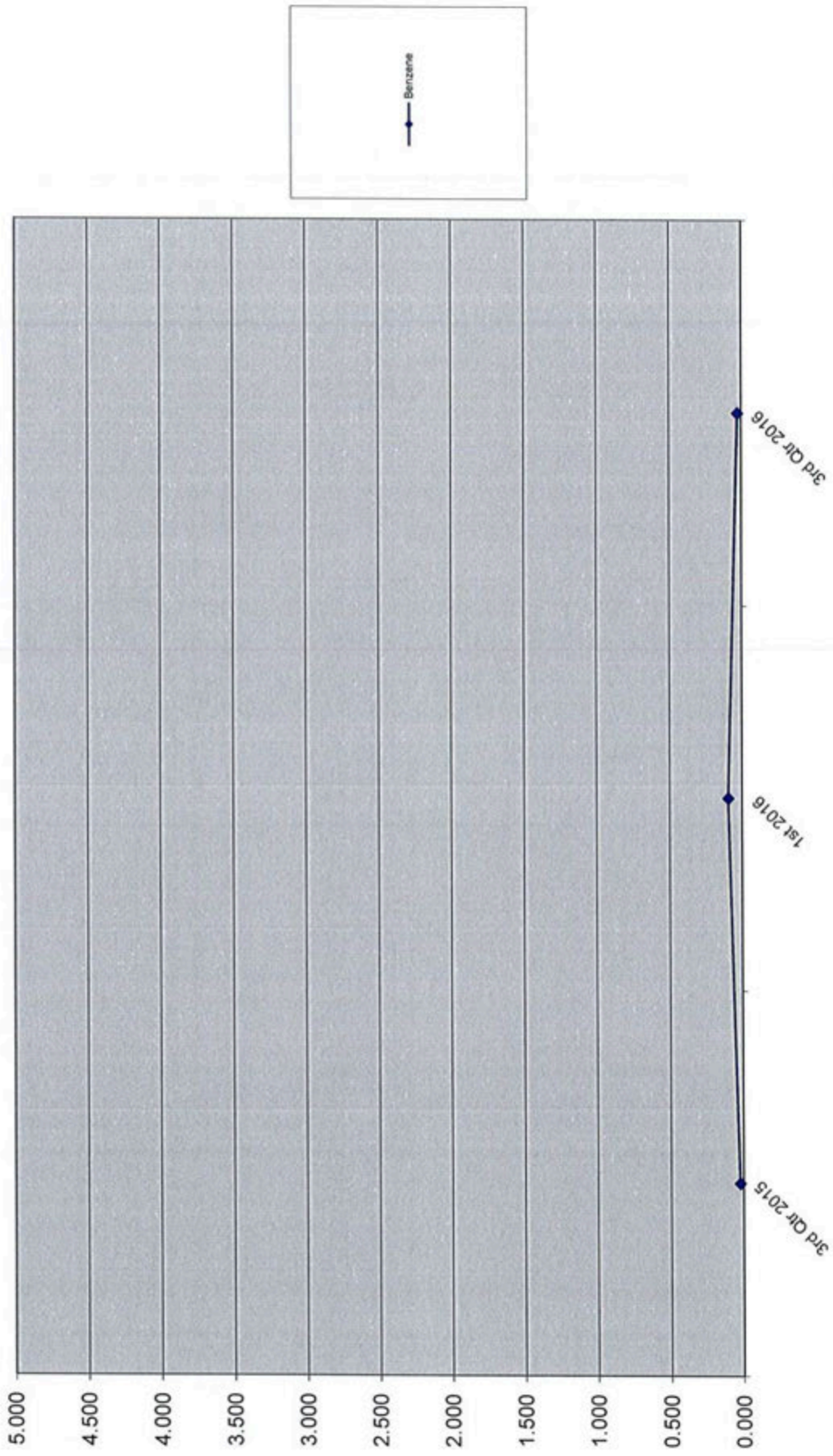
SCALE: 1"=20'

APPENDIX F
BENZENE TREND PLOTS

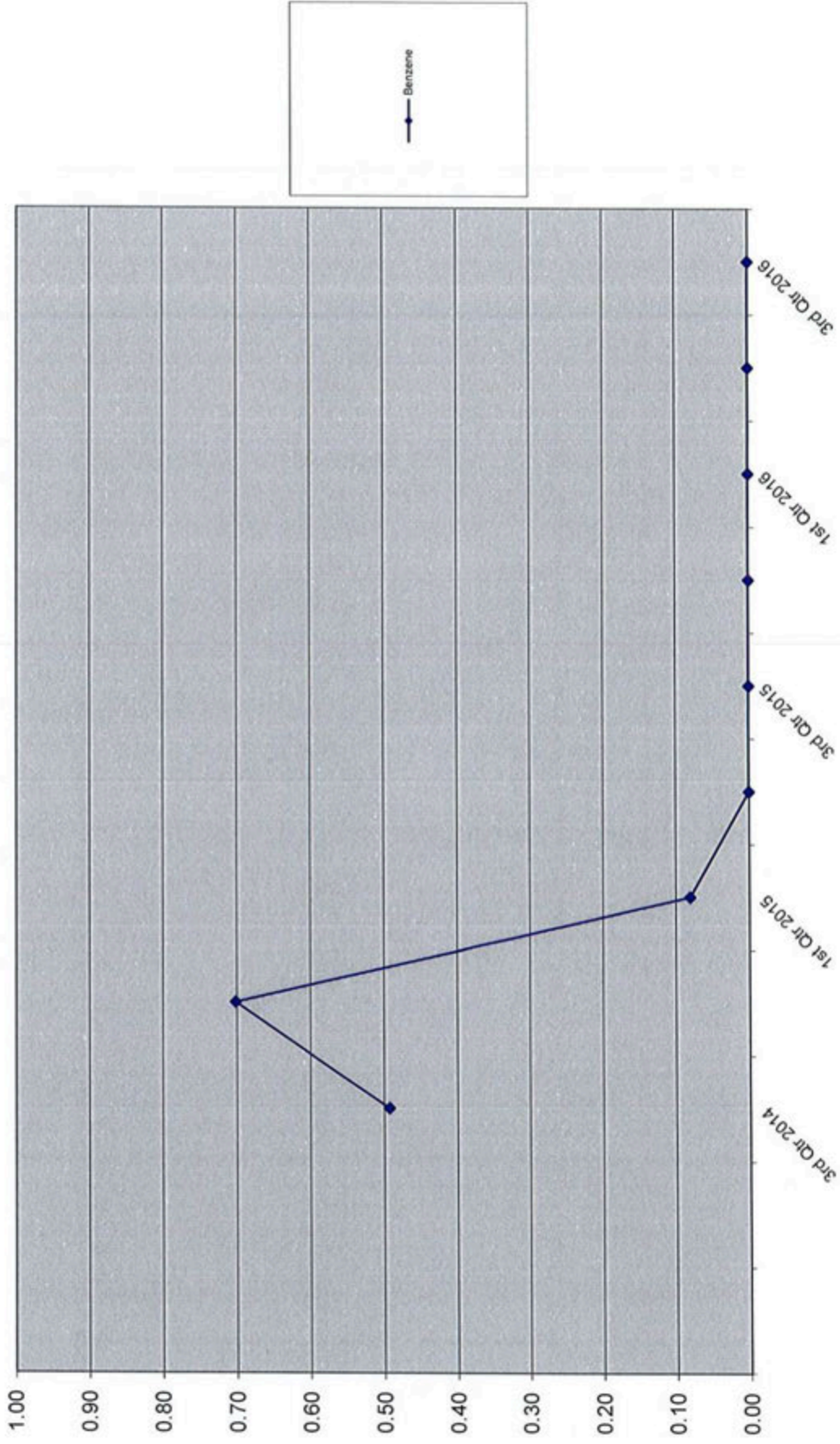
Monitoring Well MW#2



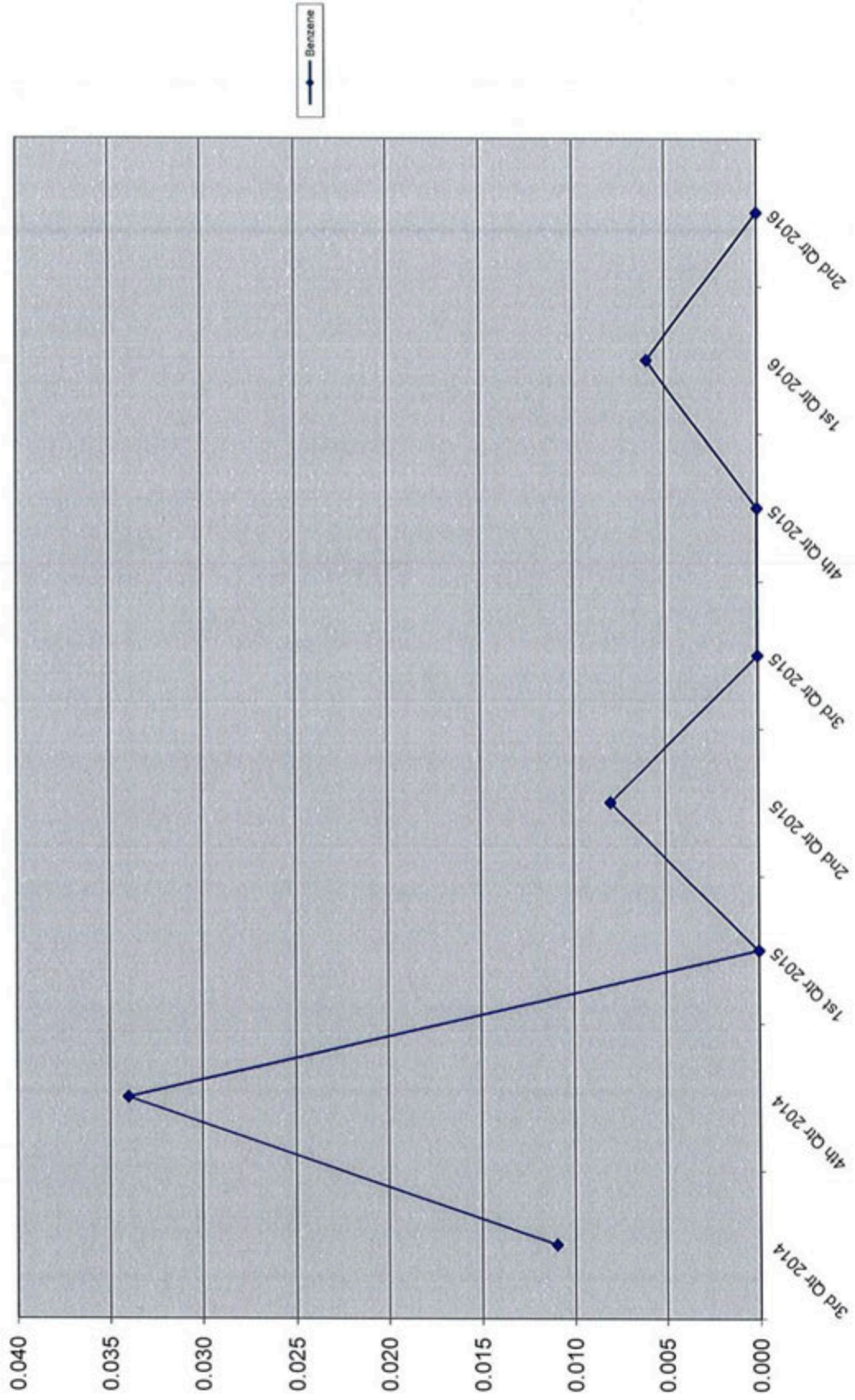
Monitoring Well MW#5/RW#5



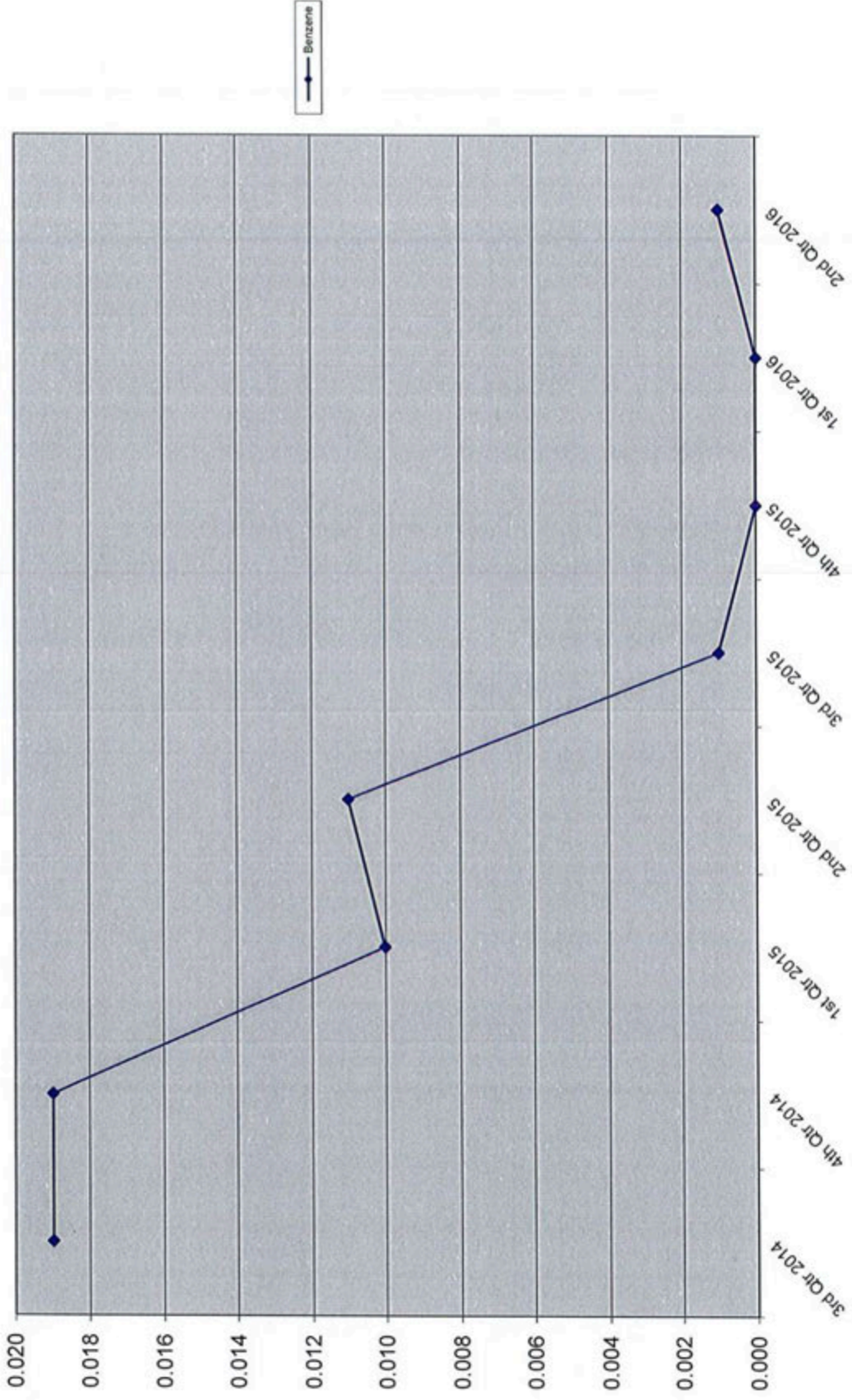
Monitoring Well MW#8



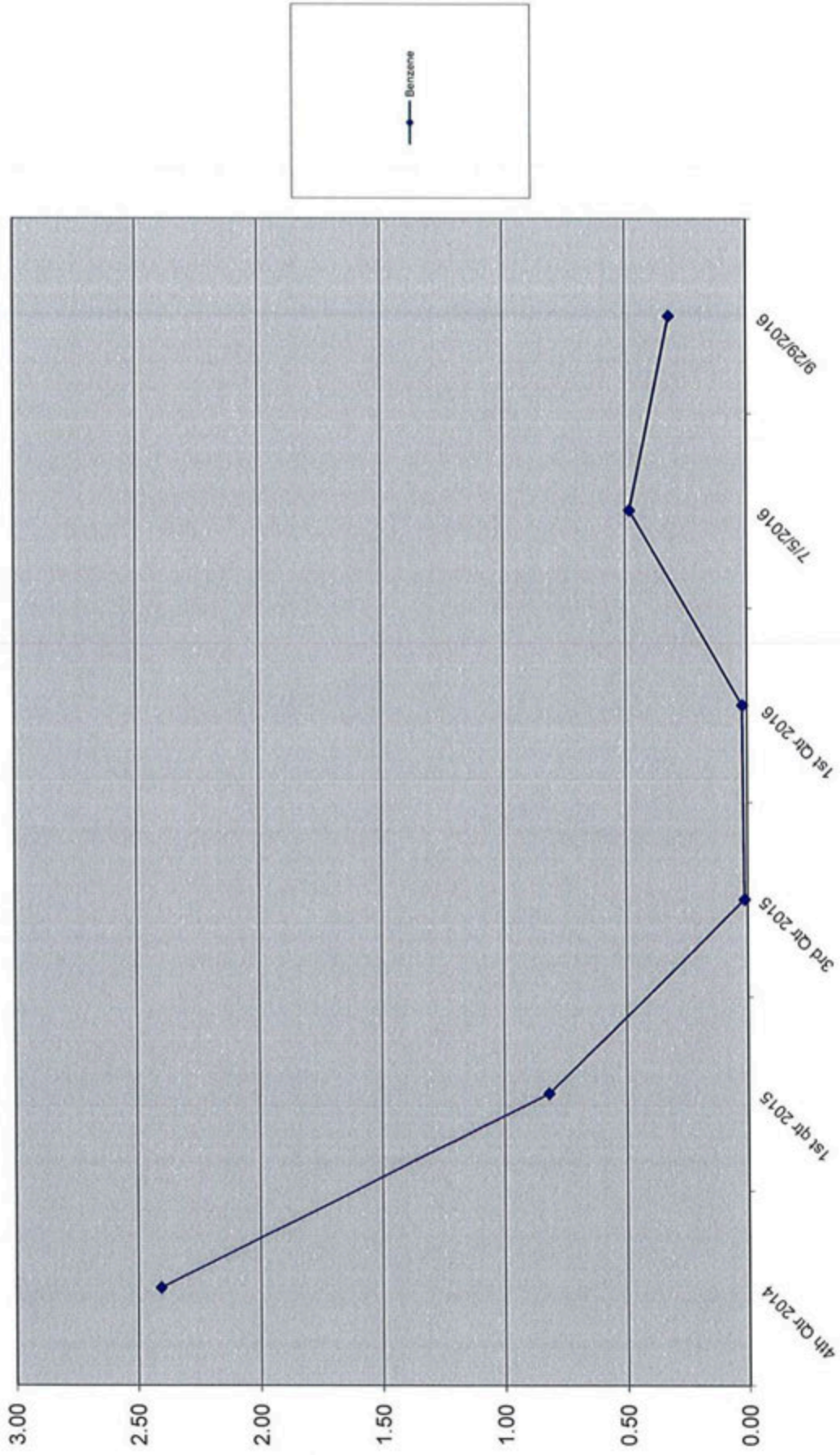
Monitoring Well MW#19



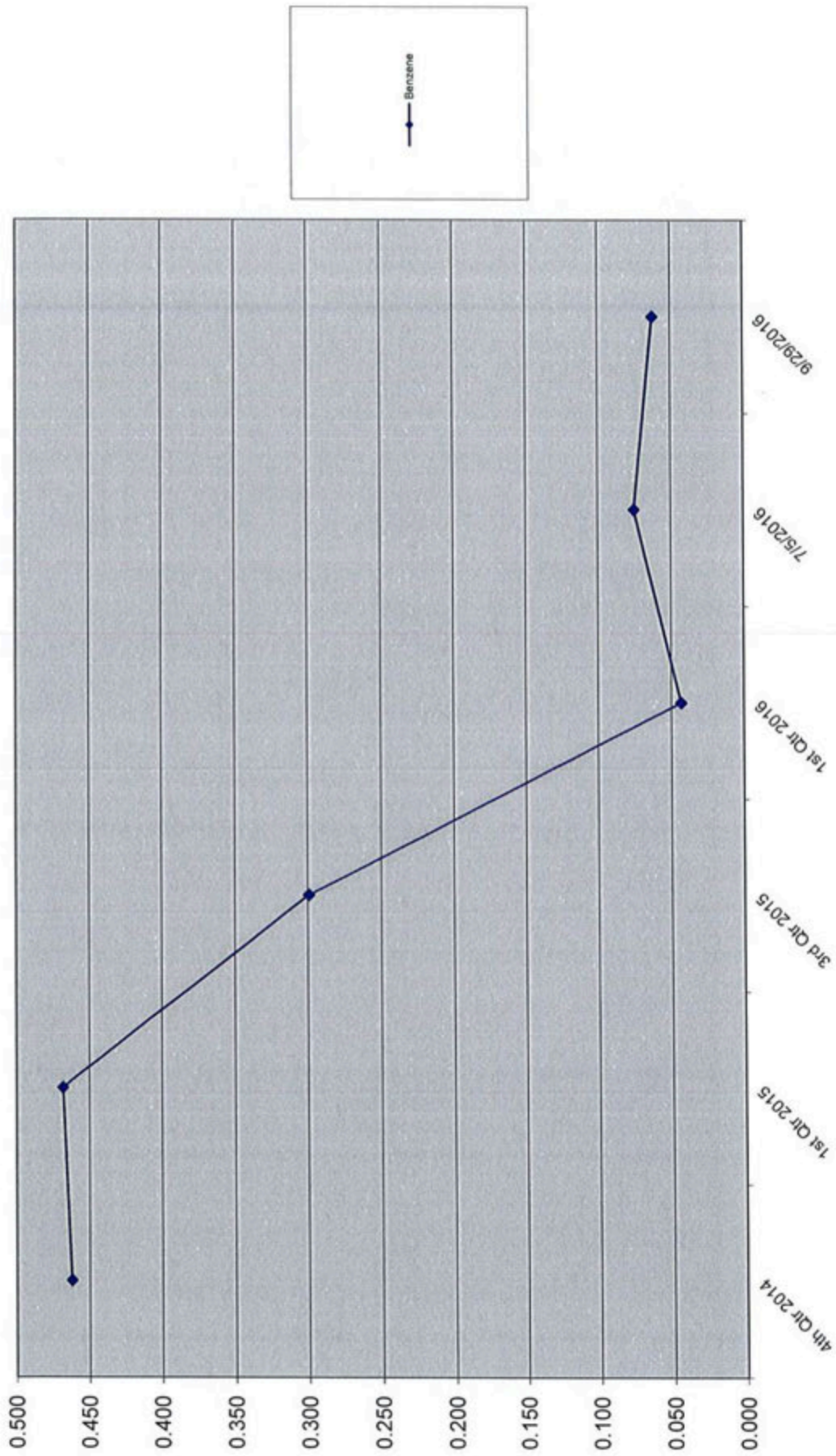
Monitoring Well MW#20



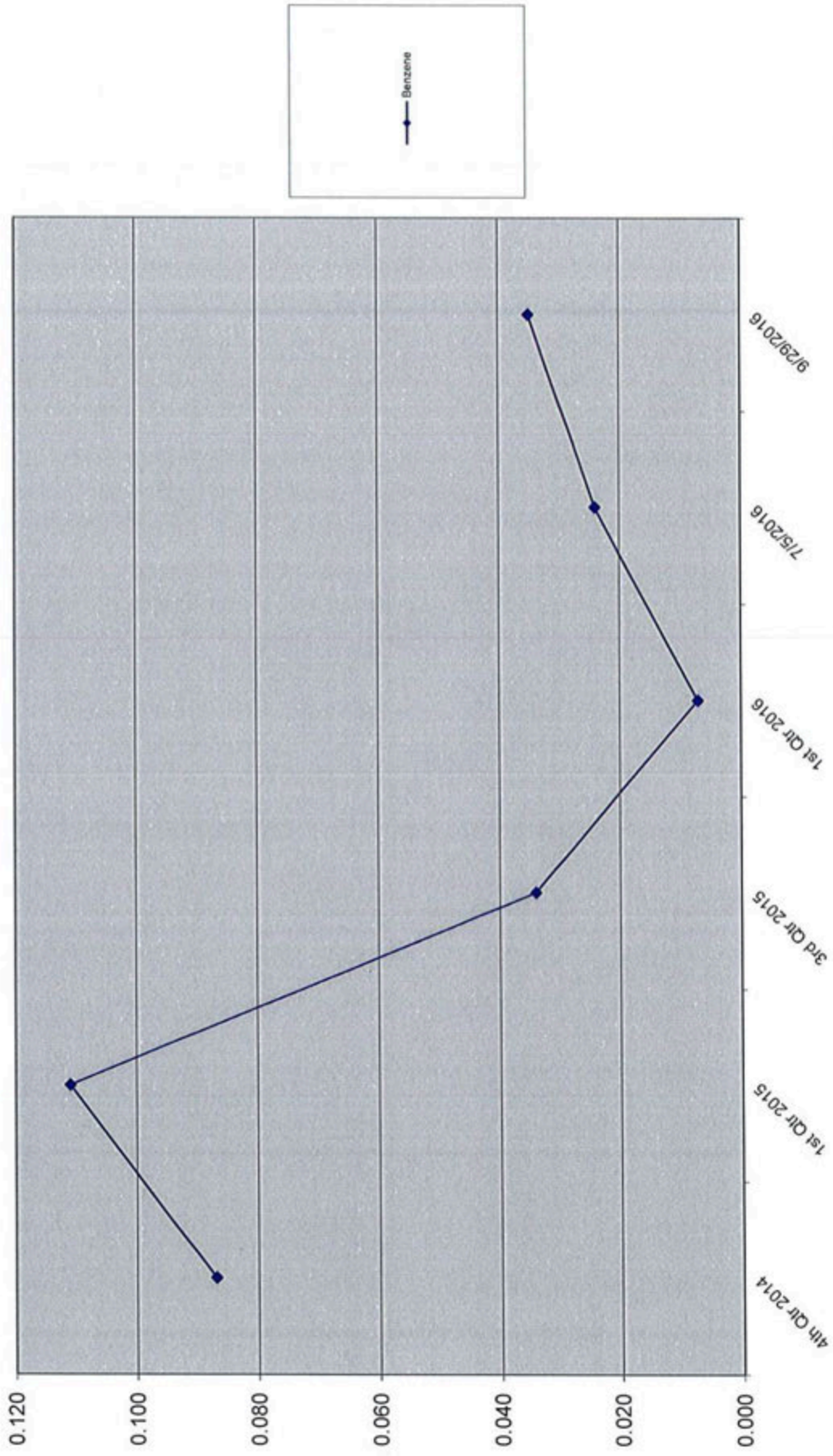
Monitoring Well K-1



Monitoring Well K-2



Monitoring Well K-3



APPENDIX G
MANN-KENDALL STATISTICAL ANALYSIS

**State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program**

**Mann-Kendall Statistical Test
Form 4400-215 (2/2001)**

Notice: This form is the UNK supplied spreadsheet referenced in Appendices A of Comm 46 and NK /46, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.

Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATE ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.

Site Name : Leo's Car Wash		BRRTS No. =				Well Number = MW-2	
Compound ->		Benzene	Toluene	Ethylbenzene	Total Xylenes	Napthalene	MTBE
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	14-Oct-14	0.01	0.00	0.00	0.00	0.00	0.01
2	19-Mar-15	0.02	0.00	0.00	0.00	0.00	0.00
3	11-Jun-15	0.22	0.00	0.00	0.00	0.00	0.01
4	11-Sep-15	0.05	0.00	0.00	0.01	0.00	0.00
5	14-Nov-15	0.01	0.00	0.01	0.04	0.00	0.00
6	4-Feb-16	0.14	0.00	0.00	0.00	0.00	0.00
7	10-Jun-16	0.00	0.00	0.00	0.00	0.00	0.00
8	23-Sep-16	0.00	0.00	0.00	0.00	0.00	0.00
9							
10							

Mann Kendall Statistic (S) =	-7.0	0.0	1.0	1.0	1.0	-1.0	-15.0
Number of Rounds (n) =	8	8	8	8	8	8	8
Average =	0.06	0.00	0.00	0.01	0.00	0.00	0.00
Standard Deviation =	0.079	0.000	0.001	0.012	0.000	0.000	0.001
Coefficient of Variation(CV)=	1.432	0.000	0.447	1.817	0.166	0.417	0.417

Error Check, Blank if No Errors Detected							
Trend ≥ 80% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend	DECREASING
Trend ≥ 90% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend	DECREASING
Stability Test, If No Trend Exists at 80% Confidence Level	CV > 1 NON-STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV > 1 NON-STABLE	CV ≤ 1 STABLE	NA
Data Entry By = JSW	Date = 20-Jul-16	Checked By = JSW					

**Mann-Kendall Statistical Test
Form 4400-215 (2/2001)**

**State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program**

Notice: This form is the DNK supplied spreadsheet referenced in Appendices A of Comm 46 and NK 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.

Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.

Site Name : Leo's Car Wash		BRRTS No. =	Well Number = MW-8				
Compound ->		Benzene Concentration (leave blank if no data)	Toluene Concentration (leave blank if no data)	Ethylbenzene Concentration (leave blank if no data)	Total Xylenes Concentration (leave blank if no data)	Napthalene Concentration (leave blank if no data)	MTBE Concentration (leave blank if no data)
Event Number	Sampling Date (most recent last)						
1	14-Oct-14	0.70	0.00	0.01	0.00	0.00	0.01
2	19-Mar-15	0.08	0.00	0.00	0.00	0.00	0.01
3	11-Jun-15	0.00	0.00	0.00	0.00	0.00	0.01
4	11-Sep-15	0.00	0.00	0.00	0.00	0.00	0.01
5	14-Nov-15	0.00	0.00	0.00	0.00	0.00	0.01
6	4-Feb-16	0.00	0.00	0.00	0.00	0.00	0.01
7	10-Jun-16	0.00	0.00	0.00	0.00	0.00	0.00
8	23-Sep-16	0.00	0.00	0.00	0.00	0.00	0.01
9							
10							
Mann Kendall Statistic (S) =		-18.0	-7.0	-7.0	0.0	-7.0	-9.0
Number of Rounds (n) =		8	8	8	8	8	8
Average =		0.10	0.00	0.00	0.00	0.00	0.01
Standard Deviation =		0.245	0.000	0.003	0.000	0.001	0.003
Coefficient of Variation(CV)=		2.484	0.166	1.018	0.000	0.314	0.376

Error Check, Blank if No Errors Detected

Trend ≥ 80% Confidence Level	DECREASING	No Trend	No Trend	No Trend	No Trend	No Trend	DECREASING
Trend ≥ 90% Confidence Level	DECREASING	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level	NA	CV <= 1 STABLE	CV <= 1 STABLE	CV > 1 NON-STABLE	CV <= 1 STABLE	CV <= 1 STABLE	NA

Data Entry By = JAM

Date = 20-Oct-16

Checked By = JSW

**Mann-Kendall Statistical Test
Form 4400-215 (2/2001)**

**State of Wisconsin
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Remediation and Redevelopment Program**

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Site Name : Leo's Car Wash		BRRTS No. =		Well Number = MW-19			
Compound ->		Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	28-Jul-14	0.01	0.00	0.00	0.00	0.00	0.00
2	14-Oct-14	0.03	0.00	0.00	0.00	0.00	0.00
3	19-Mar-15	0.00	0.00	0.00	0.00	0.00	0.00
4	11-Jun-15	0.01	0.00	0.00	0.00	0.00	0.00
5	11-Sep-15	0.00	0.00	0.00	0.00	0.00	0.00
6	14-Nov-15	0.00	0.00	0.00	0.00	0.00	0.00
7	4-Feb-16	0.01	0.00	0.00	0.00	0.00	0.00
8	10-Jun-16	0.00	0.00	0.00	0.00	0.00	0.00
9							
10							
Mann Kendall Statistic (S) =		-12.0	0.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		8	8	8	8	8	8
Average =		0.01	0.00	0.00	0.00	0.00	0.00
Standard Deviation =		0.011	0.000	0.000	0.000	0.000	0.000
Coefficient of Variation(CV)=		1.428	0.000	0.000	0.000	0.000	0.000

Error Check, Blank if No Errors Detected			
Trend ≥ 80% Confidence Level	DECREASING	No Trend	No Trend
Trend ≥ 90% Confidence Level	DECREASING	No Trend	No Trend
Stability Test, if No Trend Exists at 80% Confidence Level	NA	CV <= 1 STABLE	CV <= 1 STABLE
Data Entry By = JAM	Date = 20-Oct-16	Checked By = JSW	

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Site Name : Leo's Car Wash		BRRTS No. =	Well Number = MW-20				
Compound ->		Benzene Concentration (leave blank if no data)	Toluene Concentration (leave blank if no data)	Ethylbenzene Concentration (leave blank if no data)	Total Xylenes Concentration (leave blank if no data)	Naphthalene Concentration (leave blank if no data)	MTBE Concentration (leave blank if no data)
Event Number	Sampling Date (most recent last)						
1	28-Jul-14	0.02	0.02	0.30	0.48	0.02	0.00
2	14-Oct-14	0.02	0.01	0.25	0.36	0.02	0.00
3	19-Mar-15	0.01	0.01	0.32	0.03	0.03	0.00
4	11-Jun-15	0.01	0.01	0.05	0.14	0.01	0.00
5	11-Sep-15	0.00	0.00	0.01	0.01	0.01	0.00
6	14-Nov-15	0.00	0.00	0.00	0.00	0.00	0.00
7	4-Feb-16	0.00	0.00	0.00	0.00	0.00	0.00
8	10-Jun-16	0.00	0.00	0.00	0.00	0.00	0.00
9							
10							

Mann Kendall Statistic (S) =	-19.0	-20.0	-19.0	-23.0	-19.0	0.0
Number of Rounds (n) =	8	8	8	8	8	8
Average =	0.01	0.01	0.12	0.13	0.01	0.00
Standard Deviation =	0.008	0.006	0.145	0.189	0.011	0.000
Coefficient of Variation(CV)=	1.019	0.812	1.238	1.455	0.944	0.206

Error Check, Blank if No Errors Detected		DECREASING	DECREASING	DECREASING	DECREASING	DECREASING	No Trend
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	DECREASING	DECREASING	DECREASING	No Trend
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	DECREASING	DECREASING	DECREASING	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	NA	NA	NA	CV ≤ 1 STABLE

Data Entry By = JAM Date = 20-Oct-16 Checked By = JSW

**Mann-Kendall Statistical Test
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Site Name : Leo's Car Wash		BRTS No. =						Well Number = K-1	
Compound ->		Benzene	Toluene	Ethylbenzene	Total Xylenes	Napthalene	MTBE		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)		
1	14-Oct-14	0.02	0.02	0.30	0.48	0.02	0.00		
2	19-Mar-15	0.02	0.01	0.25	0.36	0.02	0.00		
3	11-Sep-15	0.01	0.01	0.32	0.03	0.03	0.00		
4	10-Jun-16	0.01	0.01	0.05	0.14	0.01	0.00		
5	5-Jul-16	0.48	0.19	0.14	0.30	0.01	0.01		
6	29-Sep-16	0.32	0.00	0.22	0.01	0.00	0.00		
7									
8									
9									
10									
Mann Kendall Statistic (S) =		4.0	-5.0	-5.0	-9.0	-9.0	5.0		
Number of Rounds (n) =		6	6	6	6	6	6		
Average =		0.14	0.04	0.21	0.22	0.01	0.00		
Standard Deviation =		0.206	0.073	0.102	0.192	0.010	0.002		
Coefficient of Variation(CV)=		1.435	1.838	0.479	0.867	0.700	0.613		

Error Check, Blank if No Errors Detected									
Trend ≥ 80% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	DECREASING	DECREASING	No Trend	No Trend
Trend ≥ 90% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	DECREASING	DECREASING	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level	CV > 1 NON-STABLE	CV > 1 NON-STABLE	CV > 1 NON-STABLE	CV <= 1 STABLE	CV <= 1 STABLE	NA	NA	CV <= 1 STABLE	CV <= 1 STABLE
Data Entry By = JAM	Date = 20-Oct-16	Checked By = JSW							

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Site Name : Leo's Car Wash		BRTS No. =				Well Number = K-2	
Compound ->		Benzene	Toluene	Ethylbenzene	Total Xylenes	Napthalene	MTBE
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	14-Oct-14	0.46	0.06	0.60	2.28	0.13	0.00
2	19-Mar-15	0.47	0.45	1.29	5.70	0.35	0.01
3	11-Sep-15	0.30	0.05	0.59	2.20	0.21	0.01
4	10-Jun-16	0.04	0.06	0.12	0.63	0.08	0.01
5	5-Jul-16	0.08	0.02	0.53	1.01	0.16	0.01
6	29-Sep-16	0.06	0.04	1.03	2.51	0.29	0.00
7							
8							
9							
10							
Mann Kendall Statistic (S) =		-9.0	-9.0	-3.0	-3.0	1.0	0.0
Number of Rounds (n) =		6	6	6	6	6	6
Average =		0.23	0.11	0.69	2.39	0.20	0.01
Standard Deviation =		0.201	0.168	0.412	1.790	0.101	0.004
Coefficient of Variation(CV)=		0.857	1.479	0.595	0.749	0.500	0.563

Error Check, Blank if No Errors Detected			
Trend ≥ 80% Confidence Level	DECREASING	DECREASING	No Trend
Trend ≥ 90% Confidence Level	DECREASING	DECREASING	No Trend
Stability Test, if No Trend Exists at 80% Confidence Level	NA	NA	CV ≤ 1 STABLE
Data Entry By = JAM		Date = 20-Oct-16	Checked By = JSW
		CV ≤ 1 STABLE	CV ≤ 1 STABLE
		No Trend	No Trend
		No Trend	No Trend
		CV ≤ 1 STABLE	CV ≤ 1 STABLE

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Site Name : Leo's Car Wash		BRRTS No. =		Well Number = K-3			
Compound ->		Benzene	Toluene	Ethylbenzene	Total Xylenes	Napthalene	MTBE
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	14-Oct-14	0.09	0.01	0.18	0.37	0.26	0.00
2	19-Mar-15	0.11	0.01	0.49	0.49	0.90	0.00
3	11-Sep-15	0.03	0.01	0.10	0.27	0.38	0.01
4	10-Jun-16	0.01	0.00	0.02	0.11	0.05	0.00
5	5-Jul-16	0.02	0.01	0.16	0.37	0.18	0.01
6	29-Sep-16	0.04	0.01	0.53	0.90	0.49	0.00
7							
8							
9							
10							
Mann Kendall Statistic (S) =		-5.0	-4.0	1.0	1.0	-1.0	2.0
Number of Rounds (n) =		6	6	6	6	6	6
Average =		0.05	0.01	0.25	0.42	0.38	0.00
Standard Deviation =		0.040	0.004	0.213	0.267	0.300	0.004
Coefficient of Variation(CV)=		0.810	0.441	0.867	0.637	0.792	0.885

Error Check, Blank if No Errors Detected		Date = 20-Oct-16		Checked By = JSW	
Trend ≥ 80% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend
Trend ≥ 90% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend
Stability Test, if No Trend Exists at 80% Confidence Level	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE	CV ≤ 1 STABLE
Data Entry By = JAM					


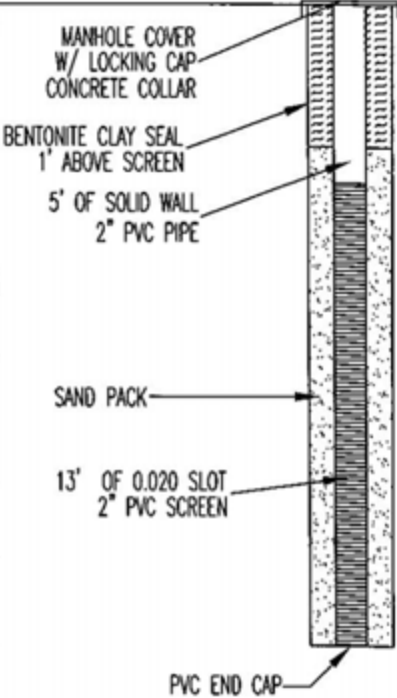




APPENDIX H
MONITORING WELL LOG

MONITORING WELL LOG

MW#22

Surface Elevation (MSL): 101.98
 Casing Stickup: N/A
 Borehole Diameter: 8 inches, From 0 To 19'
 inches, From To
 Total Depth: 19'
 Depth of Ground Water: 8.47'
 Date Measured: 9-23-16

Drilling Method: HOLLOW-STEM AUGER
 Date Drilled: 8-19-16
 Drilled By: CHATFIELD DRILLING
 Logged By: KYLE GRIFFITH
 County: ERIE
 Township or Municipality: MILLCREEK TWP
 Project Name: LEO'S CAR WASH

Depth (Ft.)	Lithologic Discription	Strat. Symbol	Samples		PID Meter Response	Comments	Depth (Ft.)
			No.	Rec/Att			
0	0-2" ASPHALT 2"-4' BROWN SILTY SAND & GRAVEL				NMR	 <p>MANHOLE COVER W/ LOCKING CAP CONCRETE COLLAR</p> <p>BENTONITE CLAY SEAL 1' ABOVE SCREEN</p> <p>5' OF SOLID WALL 2" PVC PIPE</p> <p>SAND PACK</p> <p>13' OF 0.020 SLOT 2" PVC SCREEN</p> <p>PVC END CAP</p>	0
5	4-8' BROWN SILTY SAND & GRAVEL				NMR		5
10	8-10' BROWN SILTY SAND & GRAVEL (WET @ 9.7')				NMR		10
10	10-14' BROWN SILT & SAND TURNING TO GREY SILT				NMR		10
15	14-19' WEATHERED SHALE & GRAY SILT				NMR		15
20	REFUSAL AT 19'						20
25							25
30							30
35							35
40							40