JC

October 30, 2014

Mr. Jonathan Hazen, P.G.
PA Department of Environmental Protection
Environmental Cleanup
208 West Third Street, Suite 101
Williamsport, PA 17701

RE: Remedial Action Progress Report (Third Quarter of 2014)
Former D D Garage / Root Oil Facility
Main Street
Knoxville, PA 16928
PADEP Facility ID #59-11706

Dear Mr. Hazen,

Enclosed please find the Third Quarter of 2014 Remedial Action Progress Report for the above referenced facility. Should you have any questions regarding the report, or any other aspect of the project, please feel free to contact me at 814.515.9637 or Corey@JuniataGeo.com.

Sincerely,
Juniata Geosciences, LLC

Corey L. Rilk
Project Manager

Enclosure

Cc: Mr. Don Root, Root Oil Company
Ms. Jolene Cramer, ICF International

Corrective Action Process Report/Plan Cover Sheet

CHAPTER 245
STORAGE TANK ACT

(check all that apply to the enclosed submission)

☐ **Site Characterization Report – Section 245.310(b)**

☐ **Site Characterization Report – Site-Specific Standard**

☐ **Site Characterization Report – Statewide Health or Background Standard**

☐ **Site Characterization Report PLUS – Statewide Health Standard**

☐ **Remedial Action Plan – Statewide Health or Background Standard**

☐ **Remedial Action Plan – Site Specific Standard**

☒ **Remedial Action Progress Report**

☐ **Remedial Action Completion Report – Statewide Health or Background Standard**

☐ **Remedial Action Completion Report – Site-Specific Standard**

☐ **Post Remediation Care Plan Report**

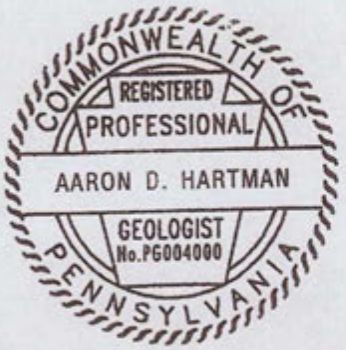
☐ **Environmental Covenant**

Facility Name	Former D D Garage
Facility ID Number	59-11706
Facility Address	Main St.
	Knoxville
	Tioga County

REMEDIAL ACTION PROGRESS REPORT
THIRD QUARTER OF 2014
FORMER D&D GARAGE
PADEP FACILITY ID #59-11706

Prepared for
Mr. Don Root
Root Oil Company

Prepared by



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Submitted on
October 29, 2014

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DEFINITIONS

BGS – Below Ground Surface
Juniata – Juniata Geosciences, LLC
µg/l – Micrograms per liter (parts per billion)
mg/l – Milligrams per liter (parts per million)
MSC – Media Specific Concentration
MTBE – Methyl tert-Butyl Ether
PADEP – Pennsylvania Department of Environmental Protection
POC – Point of Compliance
RAP – Remedial Action Plan
RAPR – Remedial Action Progress Report
RACR – Remedial Action Closure Report
ROL – Relief of Liability
Root – Root Oil Company
SCR – Site Characterization Report
SHS – Residential Statewide Health Standard
SRS – Sensitive Receptor Survey
TOC – Top of Casing
TMB – Trimethyl Benzene
UST – Underground Storage Tank

EXECUTIVE SUMMARY

Juniata is pleased to present this RAPR for the former DD Garage site located at 156 Main St., Knoxville, Pennsylvania. This RAPR includes the data collected during the third quarter of 2014 including the August 19, 2014, groundwater sampling event.

Environmental site characterization activities were conducted in accordance with PADEP UST regulations outlined in Title 25, Chapter 245 at the Former DD Garage Facility owned by Root Oil located in Knoxville, Pennsylvania. The Site characterization was prompted due to an unleaded gasoline release identified during UST removal activities in July 2012.

A SCR was submitted on January 20, 2014. To date, characterization activities included installation of soil borings, soil vapor points, and monitoring wells, the collection and analysis of soil, soil gas, and groundwater samples, the measurement of groundwater elevations, creation of groundwater elevation contour maps, and the creation of contaminant isoconcentration maps.

Characterization results consisted of the following:

- The overall groundwater gradient in the overburden aquifer is to the southeast. MW-1 and MW-3 are the site's down gradient POC wells.
- The UST Closure Report identified benzene, toluene, ethyl benzene, xylenes, naphthalene, 1,2,4-TMB, and 1,3,5-TMB in unsaturated soil at concentrations greater than their PADEP SHS.
- Initial soil borings collected by Juniata, identified 1,2,4-TMB and 1,3,5-TMB in unsaturated soil above PADEP SHS.
- Samples collected from down gradient POC monitoring wells MW-1, MW-3, and MW-6 have been reported to contain benzene, ethyl benzene, xylenes (total), MTBE, naphthalene, 1,2,4-TMB, and 1,3,5-TMB at concentrations greater than the PADEP SHS.

Additional characterization of the site's soil and groundwater is required. The attainment standard for the site is currently SHS in a residential setting for unleaded gasoline short list parameters including: benzene, toluene, ethyl benzene, total xylenes, MTBE, cumene, naphthalene, 1,2,4 - TMB, and 1,3,5 - TMB. The Site impacts are not completely delineated at this time. Juniata has been granted off Site access by the Knoxville Borough and is planning to install additional monitoring wells and soil borings during the fourth quarter of 2014. The remedial standard may change if the analytical data acquired during additional sampling dictates. An addendum to the SCR will be prepared and submitted to PADEP once Site characterization (in particular impacted groundwater delineation) is complete.

1.0 INTRODUCTION

Juniata was retained by Root Oil to complete site characterization activities for their former retail gasoline and service garage facility (former DD Garage), located on West Main Street in Knoxville Borough, Tioga County, Pennsylvania. The site characterization was prompted due to an unleaded gasoline release observed during UST removal activities completed in July 2012. The majority of the impacted soil was observed under the former dispenser area. No soil or groundwater impacts were identified in the UST field.

Site characterization activities, including installation of soil borings, installation of soil vapor points, installation of groundwater monitoring wells, and the collection of soil, soil vapor, and groundwater samples have occurred. These events were completed from August 2013 through March 2014. Site characterization is incomplete. Down-gradient POC wells indicate benzene, ethyl benzene, MTBE, naphthalene, 1,2,4-TMB, and 1,3,5-TMB groundwater plumes have potentially migrated off Site. Juniata has been granted off Site access by the Knoxville Borough. Juniata is planning to install additional soil borings and monitoring wells to further delineate the contamination during the fourth quarter of 2014. After the site is completely delineated an addendum to this SCR will be submitted to PADEP.

The following RAPR includes data generated during the reporting period (third quarter of 2014). It also describes the progress to date towards attainment of the SHS for groundwater. Per §245.312 Remedial Action, at minimum this report contains the following necessary elements based on the nature, extent, type, volume, and/or complexity of the release.

- Summary of remedial progress made during the reporting period,
- Depth to water measurements collected from the monitoring wells,
- Groundwater contour maps depicting groundwater flow direction,
- Quantitative analytical results from groundwater sampling,

This report is organized as follows:

- Section 2.0 Project History which reviews the site characterization activities and remedial approach to the site,
- Section 3.0 Groundwater Monitoring reviews the analytical results from the third quarter of 2014 groundwater sampling event as well as how they show progress towards obtaining the remedial goals for the site, and
- Section 4.0 Summary and Recommendations reviews the results of the groundwater sampling events and the currently recommended path to closure.

2.0 PROJECT HISTORY

2.1 Site History and Summary of Characterization Activities

Based on a file review on February 1, 2013, as well as correspondence with Professional Petroleum Company (Professional) who removed three USTs at the time of the July 2012 release and Mr. Don Root (Claimant), the following summarizes the known historic and current status of UST(s) and AST(s) at the site.

- November 23, 1989 – Four USTs (Tanks #001 through #004) are registered. They include: two 4,000-gallon unleaded gasoline tanks (Tanks #001 and #002), one 2,000-gallon gasoline tank (Tank #003), and one 1,000-gallon kerosene tank (Tank #004). The locations of all four tanks are shown on the attached Figure 2 – Site Base Map. It includes the locations of three unleaded gasoline dispensers and product piping.
- November 20, 1998 – A UST upgrade occurred which included replacement of bare steel product lines with "flexible non-metallic" piping between tanks #001 through #003 and the three dispensers. During line replacement, 13.64 tons of impacted soil from beneath the lines was excavated and disposed of off Site.
- January 13, 1999 – A PADEP phone log between Phil Zechman (PADEP) and the Claimant shows the Claimant had the kerosene tank (Tank #004) grouted and closed in place sometime in the 1980s.
- June 9, 1999 – PADEP issued a relief of liability for the November 20, 1998, release.
- June 6, 2003 – A PADEP letter identifies the tanks (#001 through #003) are in T-status (temporarily out of use).
- February 11, 2008 – PADEP issued an NOV stating that Tank #001 contained 3.5 inches of water and Tank #001 contained 1.25 inches of water with a trace amount of product. T-status tanks can only contain 1 inch of residue. The vent pipes were also removed and needed to be replaced if tanks would remain in T-status.
- March 6, 2008 – PADEP documented that Brooks Petroleum had pumped the tanks out, repaired the tank tops, and replaced the vent pipes on February 22, 2008, in order to be compliant.
- July 25, 2012 – Professional removed Tanks #001 through #003. Tank #004 was considered a ghost tank and left in place due to its proximity to the sidewalk and Main Street. The product lines and dispensers were also removed. Impacted soil was identified in the associated laboratory report under the three dispenser locations. The water within the tank field was reported to contain a sheen, but no detections above laboratory detection limits or PADEP SHS were identified in the laboratory report. This UST Closure Report is included in Appendix IV – UST Closure Report.
- May 13, 2013 – Juniata installed six soil borings (SB-1 through SB-6). Soil impact above PADEP SHS was observed.

- August 12 – 13, 2013 – Juniata installed of five monitoring wells (MW-1 through MW-5). All wells were drilled to a nominal depth of 20 feet bgs. Sample results indicated impact about PADEP SHS in Site POC wells.
- January 20, 2014 – Juniata submitted the SCR to PADEP for review and approval.
- February 4, 2014 – Juniata installed MW-6 to further delineate the contamination. Soil vapor points SVP-1 and SVP-2 were installed during this event to delineate soil gas on Site.
- February 19, 2014 – Juniata completes the initial soil vapor sampling event.
- March 30, 2014 – Juniata completed a second soil vapor sampling event.
- August 19, 2014 – Juniata completed the third quarter of 2014 groundwater sampling event.

3.0 GROUNDWATER MONITORING

The following section describes the groundwater gauging and analytical results from the groundwater sampling event which took place on August 19, 2014. These results are also used to show how effective the current remedial strategy is at obtaining the selected remedial goals for the site.

3.1 Groundwater Elevations

Prior to sampling, depth to water measurements were collected in order to calculate groundwater elevations, direction of groundwater flow, and hydraulic gradients. The following summarizes the August 19, 2014, gauging event data:

- Groundwater elevations ranged from 90.51 in MW-4 to 89.73 in MW-6,
- Direction of groundwater flow is towards the southeast.
- Hydraulic gradient was 0.006 feet/foot as measured along groundwater flow direction in the area between the MW-6 and MW-4.

The August 2014 depth to water and groundwater elevation data is included in Appendix I, Table 1 – Groundwater Sampling Results as well as Table 2 – Historic Groundwater Sampling Results. A groundwater contour map for the August 19, 2014, groundwater gauging event is included in Appendix II, Figure 2.

3.2 Groundwater Analytical Results

The site was sampled during the third quarter of 2014 on August 19, 2014, by Juniata. Six monitoring wells, a blind duplicate of MW-1 (labeled MW-X), equipment blank, and a trip blank were sampled and analyzed for PADEP's "New" lists for unleaded gasoline and kerosene parameters including benzene, toluene, ethyl benzene, xylenes (total), cumene, MTBE, naphthalene, 1,2,4-TMB, and 1,3,5-TMB. The results are as follows:

- MW-1 contained benzene, ethyl benzene, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB (16.0, 1,370, 25.2, 466, 3,350 and 1,050 µg/l, respectively) at concentrations greater than their PADEP SHS (5, 700, 20, 100, 15, and 13 µg/l, respectively),
- MW-3 contained benzene, ethyl benzene, naphthalene, 1,2,4-TMB, and 1,3,5-TMB (7.08, 1,050, 395, 2,120, and 665 µg/l, respectively) at concentrations greater than their PADEP SHS (5, 700, 100, 15, and 13 µg/l, respectively),
- MW-6 contained MTBE (106 µg/l) at a concentration greater than PADEP SHS (20 µg/l),
- MW-X (a blind duplicate of MW-1) contained benzene, ethyl benzene, xylenes, MTBE, naphthalene, 1,2,4-TMB and 1,3,5 TMB (17.6, 1,780, 11,600, 460, 404, 3,810, and 1,160 µg/l, respectively) at concentrations greater than their PADEP SHS (5, 700, 20, 100, 15, and 13

µg/l, respectively),

- The Trip Blank and Equipment Blank samples both were reported to have no contaminants detected above the laboratory detection limit, and
- All other contaminant concentrations were below the PADEP SHS and/or below the laboratory detection limit.

Results of the August 2014 groundwater sampling event are included in Appendix I, Table 1 – Groundwater Sampling Results as well as Table 2 – Historic Groundwater Sampling Results. The laboratory analytical reports are included in Appendix III.

3.3 Progress Towards Remedial Goals

One line of evidence was considered when determining if progress towards the site's remedial goals are being met: *overall* unleaded gasoline contaminant trends. This line of evidence is the primary method to identify if contaminants are entering the groundwater at rates greater or less than the rate at which natural attenuation is occurring. A review of the *recent* and *overall* unleaded gasoline contaminant trends is discussed below.

3.4.1 Unleaded Gasoline Contaminant Trend Analysis

A contaminant trend analysis was performed for each well which currently or historically (since August 2013) contained at least one contaminant concentration greater than its PADEP SHS. For the purpose of this report, the analysis is based on the most recent four quarters of data collected from August 2013 through the most recent quarter of groundwater sampling (third quarter of 2014).

Charts were created using the analytical data and depth to groundwater. These charts are linear plots with contaminant concentrations and groundwater elevations on opposite y-axes. The sample dates are on the X-axis. These charts were created for thirteen contaminant/well pairs including benzene in MW-1 and MW-3, ethyl benzene in MW-1 and MW-3, MTBE in MW1, MW-3 and MW-6, naphthalene in MW-1 and MW-3, 1,2,4-TMB, in MW-1 and MW-3, and 1,3,5-TMB in MW-1 and MW-3. The charts are included as Chart 1 through 13 in Appendix III. A second set of charts was created to show the same contaminant concentrations versus only the groundwater elevations in order to identify if groundwater fluctuations are influencing contaminant trends (increasing, decreasing, or oscillating). These charts are also included in Appendix III, Charts 14 through 26. Results of both analyses are broken down in Appendix I, Table 3 – Contaminant Trend Summary and are summarized as follows:

- Twelve contaminant concentrations were above their PADEP SHS during the third quarter of 2014 (benzene in MW-1 and 3, ethyl benzene in MW-1 and 3, MTBE in MW-1 and 6, naphthalene in MW-1 and 3, 1,2,4-TMB in MW-1 and 3, and 1,3,5-TMB in MW-1 and 3),

- *Recent* trends during the second quarter of 2014 compared to the third quarter of 2014 show all of the thirteen contaminant/well pairs increased,
- *Overall* contaminant vs. time trends using data from May 2014 through August 2014 shows two of the thirteen contaminant/well pairs are decreasing. Benzene concentrations in MW-1 and 3, ethyl benzene concentrations in MW-1 and 3, MTBE concentrations in MW-6, naphthalene concentrations in MW-1 and 3, 1,2,4-TMB concentrations in MW-1 and 3, and 1,3,5-TMB concentrations in MW-1 and 3 are all increasing *overall* trends,
- *Overall* R-squared values for contaminant vs. time charts ranged from 0.9037 (1,2,4-TMB in MW-3) to 0.00005 (benzene in MW-3), and
- There does not appear to be much correlation between contaminant concentrations and depth to groundwater with the highest R-squared value of 0.679 (ethyl benzene in MW-1) (MTBE in MW-6 recorded an R-squared value of 0.966, however it has only been sampled for three quarters) to the lowest of 0.0023 (benzene in MW-1) with an average of 0.2009. Five of the analyzed contaminant/well pairs showed *higher* contaminant concentrations with *deeper* depth to water trends while six contaminant/well pairs showed *lower* contaminant concentrations with *deeper* depth to water.

Based on this data, it appears natural attenuation of unleaded gasoline parameters occurred at a rate less than the overall dissolution of these contaminants into the groundwater during the period between the second quarter of 2014 and third quarter of 2014 sampling events. In general the plumes increased or remained stable. These results are summarized in Appendix I, Table 3– Contaminant Trend Summary.

4.0 Summary and Recommendations

The site was sampled during the third quarter of 2014 on August 19, 2014. MW-1,MW-3, and MW-6 reported contaminant concentrations above PADEP SHS.

Juniata has acquired off Site access and is planning to install additional monitoring wells to further delineate the impacted groundwater plume. Juniata will continue to sample the monitoring wells quarterly and submit RAPRs.

APPENDIX I - TABLES

Table 1 - August 19, 2014 Groundwater Sampling Results
Former DD Garage, Knoxville, PA

Monitoring Well	Sample Date	Measuring Point Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)	Contaminant Concentrations and PADEP Residential SHS (ug/L)								
					Benzene	Toluene	Ethyl benzene	Xylenes (total)	Cumene	MTBE	Naphthalene	1,2,4-TMB	1,3,5-TMB
PADEP SHS - Residential					5	1,000	700	10,000	840	20	100	15	13
PADEP SHS - Non-Residential					5	1,000	700	10,000	3,500	20	100	62	53
MW-1	8/19/2014	98.61	8.44	90.17	**16.0**	**32.8**	**1,370**	**9,550**	**239**	**25.2**	**466**	**3,350**	**1,050**
MW-2	8/19/2014	99.07	8.75	90.32	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
MW-3	8/19/2014	98.36	8.48	89.88	**7.08**	**35.1**	**1,050**	**3,850**	**106**	**9.56**	**395**	**2,120**	**665**
MW-4	8/19/2014	99.59	9.08	90.51	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
MW-5	8/19/2014	98.73	8.35	90.38	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
MW-6	8/19/2014	98.26	8.53	89.73	<1.00	<1.00	<1.00	<2.00	<1.00	**106**	<1.00	**2.10**	<1.00
MW-X	8/19/2014	Blind Duplicate of MW-1			**9.35**	**19.1**	**1,250**	**8,240**	**138**	**14.2**	**454**	**3,070**	**978**
Equip Blank	8/19/2014	Not Appliacable			<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
Trip Blank	8/19/2014	Not Appliacable			<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00

Bold cells indicate a contaminant concentration greater than the Laboratory Detection Limit
Shaded cells indicate a contaminant concentration greater than the PADEP SHS - Residential
CNL - Could not locate

Table 2 - Historic Groundwater Analytical Results
Former DD Garage, Knoxville, PA

Monitoring Well	Sample Date	Measuring Point Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)	Contaminant Concentrations and PADEP Residential SHS (ug/L)								
					Benzene	Toluene	Ethyl benzene	Xylenes (total)	Cumene	MTBE	Naphthalene	1,2,4-TMB	1,3,5-TMB
PADEP SHS - Residential					5	1,000	700	10,000	840	20	100	15	13
PADEP SHS - Non-Residential					5	1,000	700	10,000	3,500	20	100	62	53
MW-1	8/27/2013	98.61	9.09	89.52	14.0	56.2	1,080	7,680	130	268	185	2,160	638
	8/27/2013	Blind Duplicate of MW-1			17.6	73.7	1,780	11,600	175	460	404	3,810	1,160
	10/3/2013	98.61	8.71	89.90	12.6	64.0	901	2,230	120	324	706	1,310	762
	10/3/2013	Blind Duplicate of MW-1			12.2	64.5	524	1,660	114	308	561	724	473
	2/19/2014	98.61	8.08	90.53	25.4	58.9	914	6,070	130	313	520	2,430	752
	2/19/2014	Blind Duplicate of MW-1			21.7	52.0	968	6,450	114	279	480	2,600	802
	5/29/2014	98.61	6.81	91.80	12.0	51.4	954	7,570	146	23.0	530	2,070	718
	5/29/2014	Blind Duplicate of MW-1			8.80	23.3	961	9,460	94.4	20.6	445	3,520	1,010
	8/19/2014	98.61	8.44	90.17	16.0	32.8	1,370	9,550	239	25.2	466	3,350	1,050
	8/19/2014	Blind Duplicate of MW-1			9.35	19.1	1,250	8,240	138	14.2	454	3,070	978
MW-2	8/27/2013	99.07	9.29	89.78	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
	10/3/2013	99.07	8.75	90.32	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
	2/19/2014	99.07	9.00	90.07	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
	5/29/2014	99.07	7.02	92.05	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
	8/19/2014	99.07	8.75	90.32	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
MW-3	8/27/2013	98.36	8.96	89.40	4.40	7.55	341	1,440	28.7	530	123	776	278
	10/3/2013	98.36	8.73	89.63	7.72	25.3	450	863	86.4	227	450	658	435
	2/19/2014	98.36	8.52	89.84	14.4	19.9	776	2,060	115	170	477	1,810	608
	5/29/2014	98.36	6.59	91.77	3.30	12.0	518	2,040	88.6	<5.00	327	2,040	651
	8/19/2014	98.36	8.48	89.88	7.08	35.1	1,050	3,850	106	9.56	395	2,120	665
MW-4	8/27/2013	99.59	9.35	90.24	<1.00	<1.00	<1.00	<2.00	<1.00	2.15	<1.00	<1.00	<1.00
	10/3/2013	99.59	8.90	90.69	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
	2/19/2014	99.59	9.20	90.39	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
	5/29/2014	99.59	7.05	92.54	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
	8/19/2014	99.59	9.08	90.51	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
MW-5	8/27/2013	98.73	8.61	90.12	<1.00	<1.00	<1.00	<2.00	<1.00	1.83	<1.00	<1.00	<1.00
	10/3/2013	98.73	8.61	90.12	<1.00	<1.00	<1.00	<2.00	<1.00	1.35	<1.00	<1.00	<1.00
	2/19/2014	98.73	CNL										
	5/29/2014	98.73	6.38	92.35	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
	8/19/2014	98.73	8.35	90.38	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
MW-6	2/19/2014	98.26	8.45	89.81	<1.00	<1.00	1.94	7.28	<1.00	82.3	<1.00	13.7	5.40
	5/29/2014	98.26	6.28	91.98	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00
	8/19/2014	98.26	8.53	89.73	<1.00	<1.00	<1.00	<2.00	<1.00	106	<1.00	2.10	<1.00

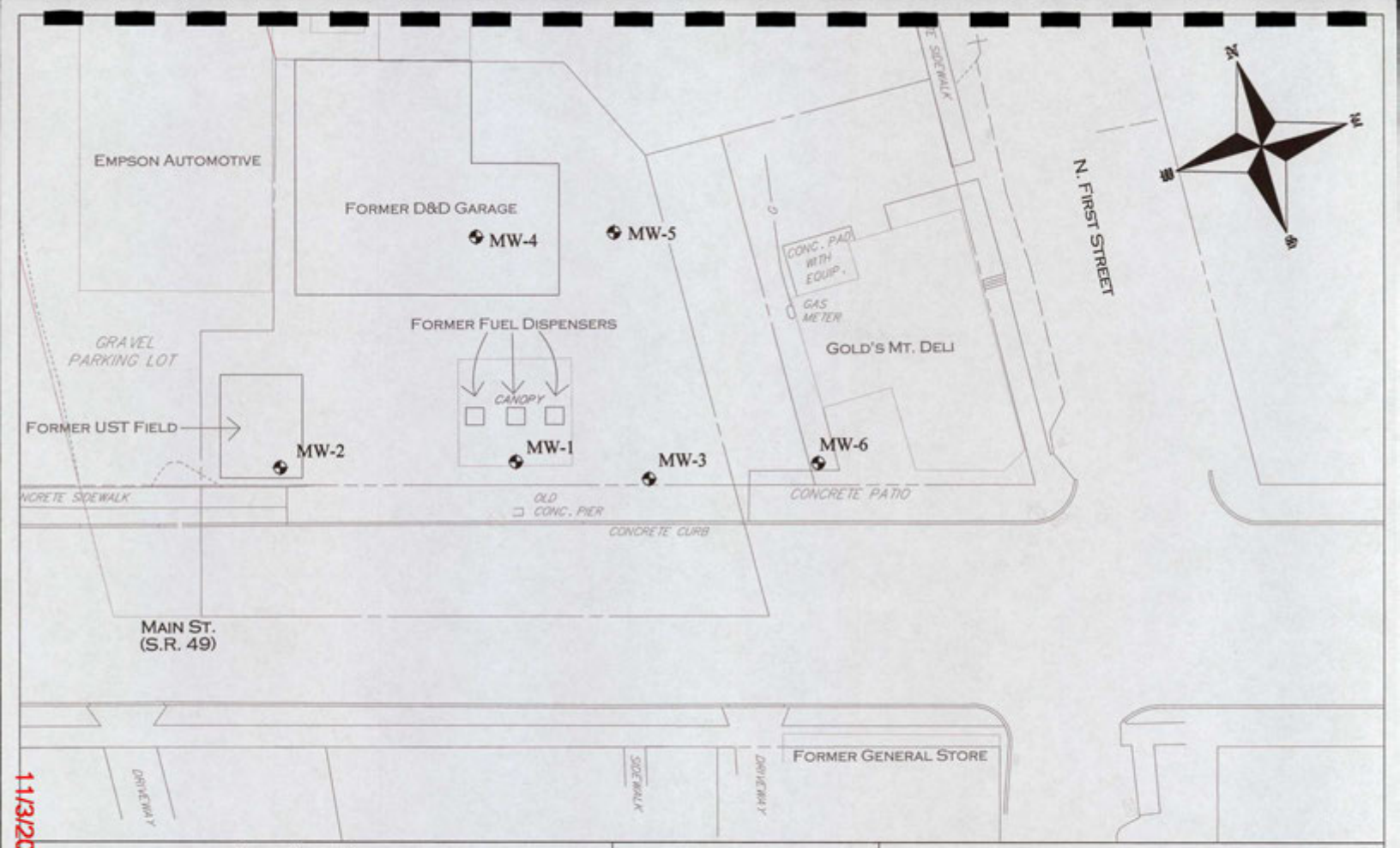
Bold values indicate a concentration greater than the laboratory detection limit.
Shaded cells indicate values at concentrations greater than the PADEP Residential SHS
CNL - Could not locate

Table 3 - Contaminant Trend Summary
Former DD Garage, Knoxville, PA

Well	Contaminant	October 2013 Concentration (ug/L)	March 2014 Concentration (ug/L)	Most Recent Trend	Two Year Contaminant vs Time			Two Year Contaminant vs GWE		
					Slope	R-Squared	Trend	Slope	R-Squared	Trend
MW-1	benzene	**12.6**	**25.4**	Increasing	0.0038	0.8885	Increasing	0.6425	0.7518	Increasing
MW-1	ethyl-benzene	**901**	**914**	Increasing	-0.0007	0.3693	Decreasing	-0.146	0.5486	Decreasing
MW-1	MTBE	**324**	**313**	Decreasing	0.0006	0.2755	Decreasing	0.1326	0.4482	Increasing
MW-1	naphthalene	**706**	**520**	Decreasing	0.0037	0.2338	Increasing	0.8711	0.4009	Increasing
MW-1	1,2,4-TMB	**1,310**	**2,430**	Increasing	0.0017	0.2327	Increasing	0.2038	0.1004	Increasing
MW-1	1,3,5-TMB	**762**	**752**	Decreasing	0.0007	0.3735	Increasing	0.1442	0.553	Increasing
MW-3	benzene	**7.72**	**14.4**	Increasing	0.0061	0.9165	Increasing	2.6906	0.9969	Increasing
MW-3	ethyl-benzene	**450**	**776**	Increasing	0.0045	0.9813	Increasing	1.8583	0.9558	Increasing
MW-3	MTBE	**227**	**170**	Decreasing	-0.005	0.6818	Decreasing	-2.602	0.9387	Decreasing
MW-3	naphthalene	**450**	**477**	Increasing	0.0057	0.4769	Increasing	3.1208	0.8034	Increasing
MW-3	1,2,4-TMB	**658**	**1,810**	Increasing	0.0055	0.8803	Increasing	1.883	0.5827	Increasing
MW-3	1,3,5-TMB	**435**	**608**	Increasing	0.0039	0.844	Increasing	1.7812	0.9968	Increasing

Bold values represent a concentration greater than the laboratory detection limit.
Shaded cells represent a concentration greater than the PADEP SHS.

APPENDIX II - FIGURES



SCALE (APPROX)

0' 10' 20' 30' 60'

LEGEND

- MONITORING WELL LOCATION

NOTES

- GAS LINE MARKED BY OTHERS. NOT ALL UTILITY LOCATIONS ARE SHOWN.
- PROPERTY AND RIGHT-OF-WAY LINES ARE BASED ON MAPS AND DEEDS RECORDED AT TIOGA COUNTY RECORDER OF DEEDS OFFICE AND ARE APPROXIMATE AS SHOWN.
- VERTICAL DATUM IS ARBITRARY AND ASSUMED AS SHOWN.
- SOURCE: BASE MAP CREATED BY GEOTEC, INC

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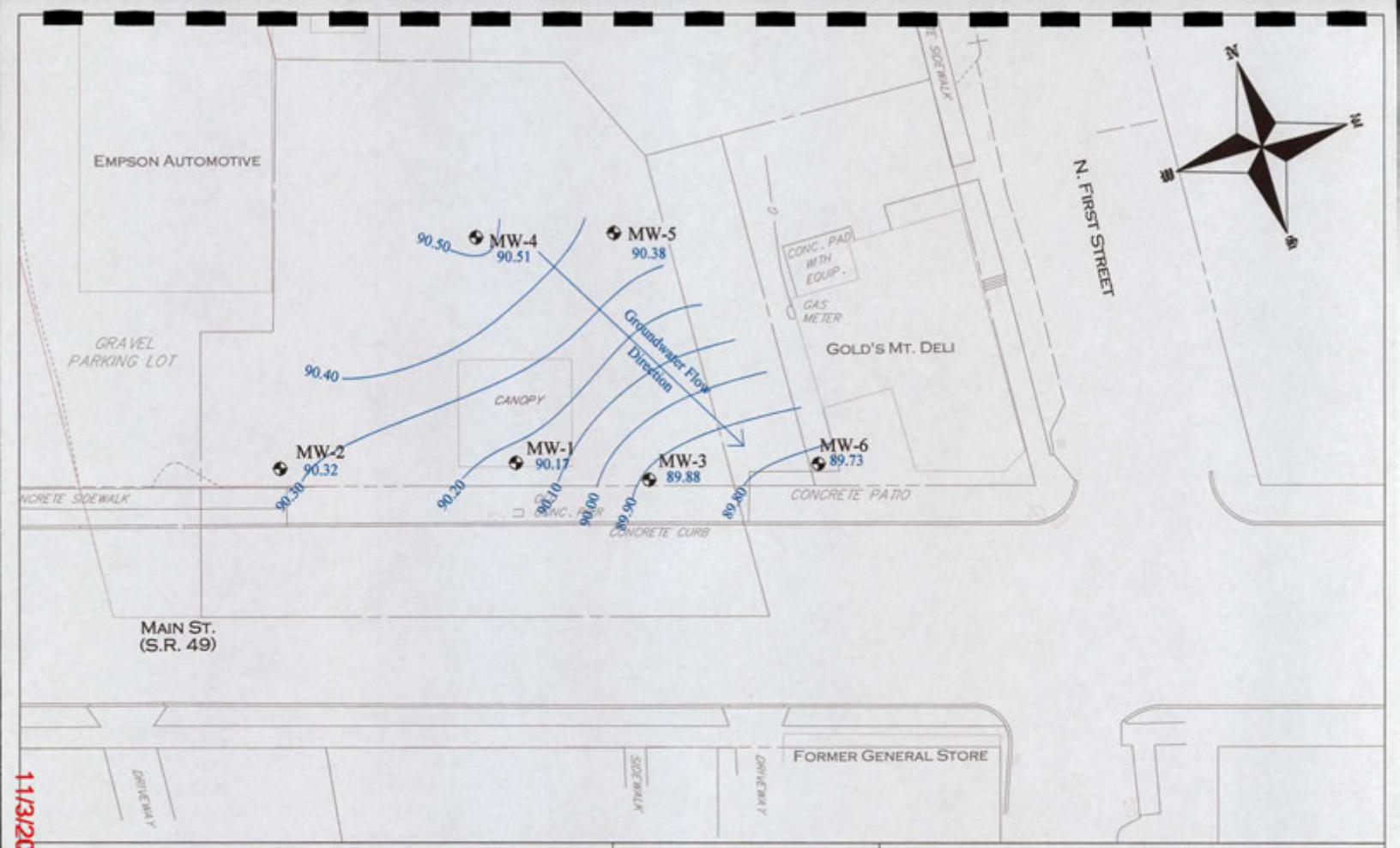
FIGURE 1 - SITE BASE MAP

PROJECT NUMBER:	REVISION DATE:
1227	10/27/2014

11/3/2014 2:32:07 PM



SCALE (APPROX)

0' 10' 20' 30' 60'

LEGEND

- MONITORING WELL LOCATION
- GROUNDWATER CONTOUR
- GROUNDWATER FLOW DIRECTION

NOTES

- BASE LINE MARKED BY OTHERS. NOT ALL UTILITY LOCATIONS ARE SHOWN.
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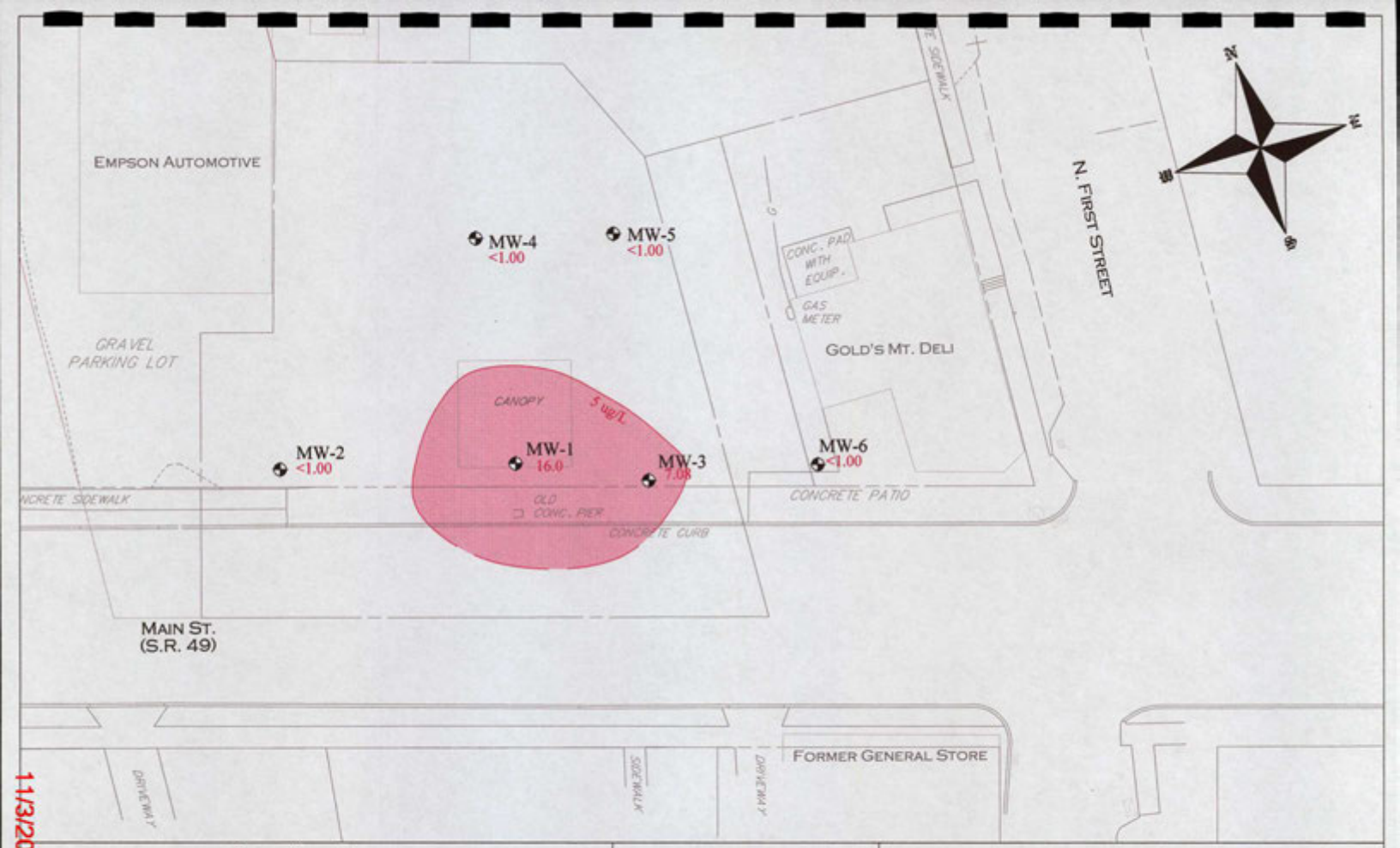
FIGURE 2 - GROUNDWATER CONTOUR MAP (AUGUST 19, 2014)

PROJECT NUMBER:	REVISION DATE:
1227	10/27/2014

11/3/2014 2:32:08 PM



11/3/2014 2:32:09 PM

SCALE (APPROX)

0' 10' 20' 30' 60'

LEGEND

- MONITORING WELL LOCATION
- BENZENE ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)

NOTES

- BASE LINE MARKED BY OTHERS. NOT ALL UTILITY LOCATIONS ARE SHOWN.
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- SOURCE: BASE MAP CREATED BY GEOTEC, INC.

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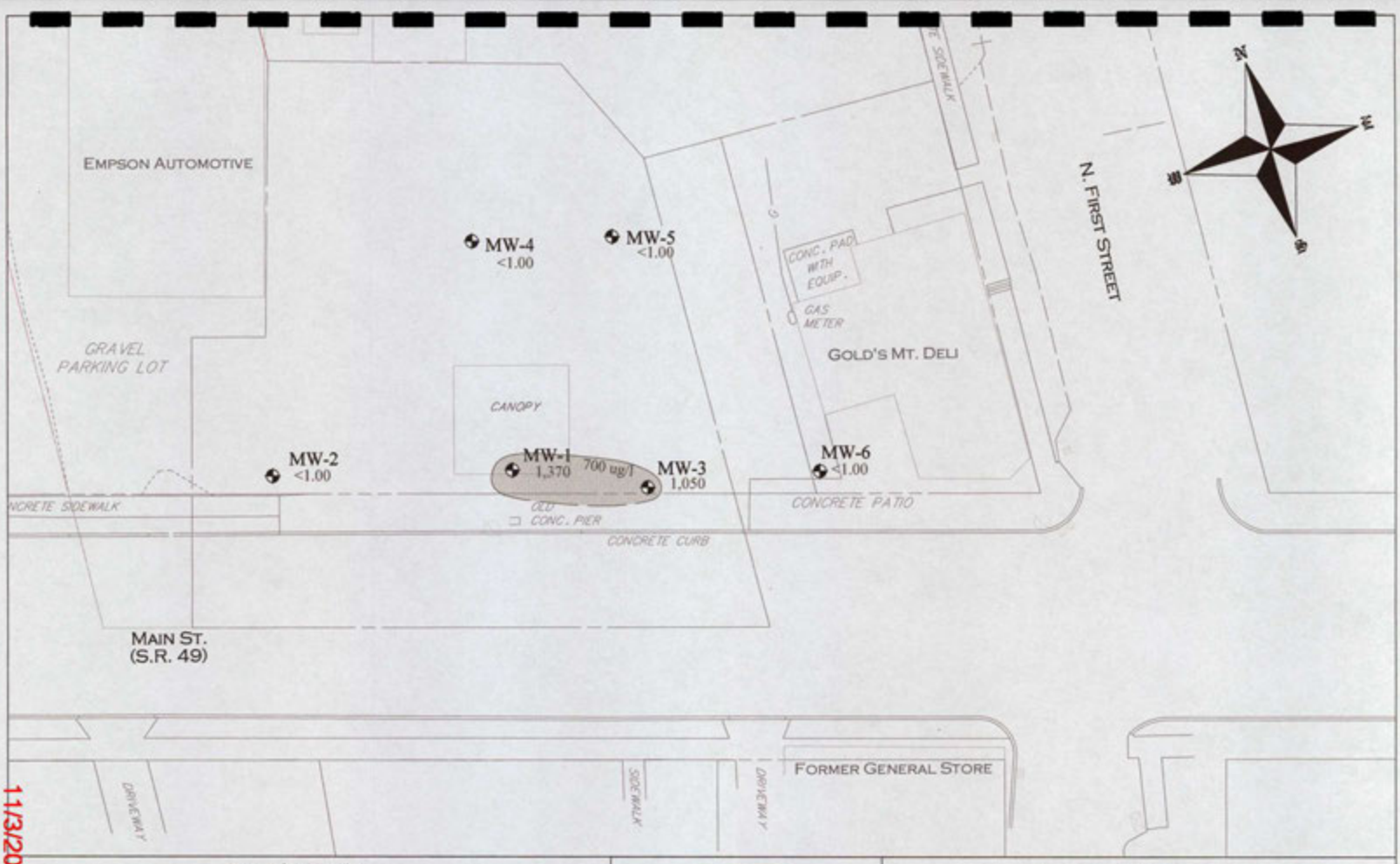
FIGURE 3 - BENZENE ISOCONCENTRATION MAP (AUGUST 19, 2014)

PROJECT NUMBER:	REVISION DATE:
1227	10/27/2014



SCALE (APPROX)

0' 10' 20' 30' 60'

LEGEND

- MONITORING WELL LOCATION
- ETHYL BENZENE ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)

NOTES

- GAS LINE MARKED BY OTHERS. NOT ALL UTILITY LOCATIONS ARE SHOWN.
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- SOURCE: BASE MAP CREATED BY GEOTEC, INC

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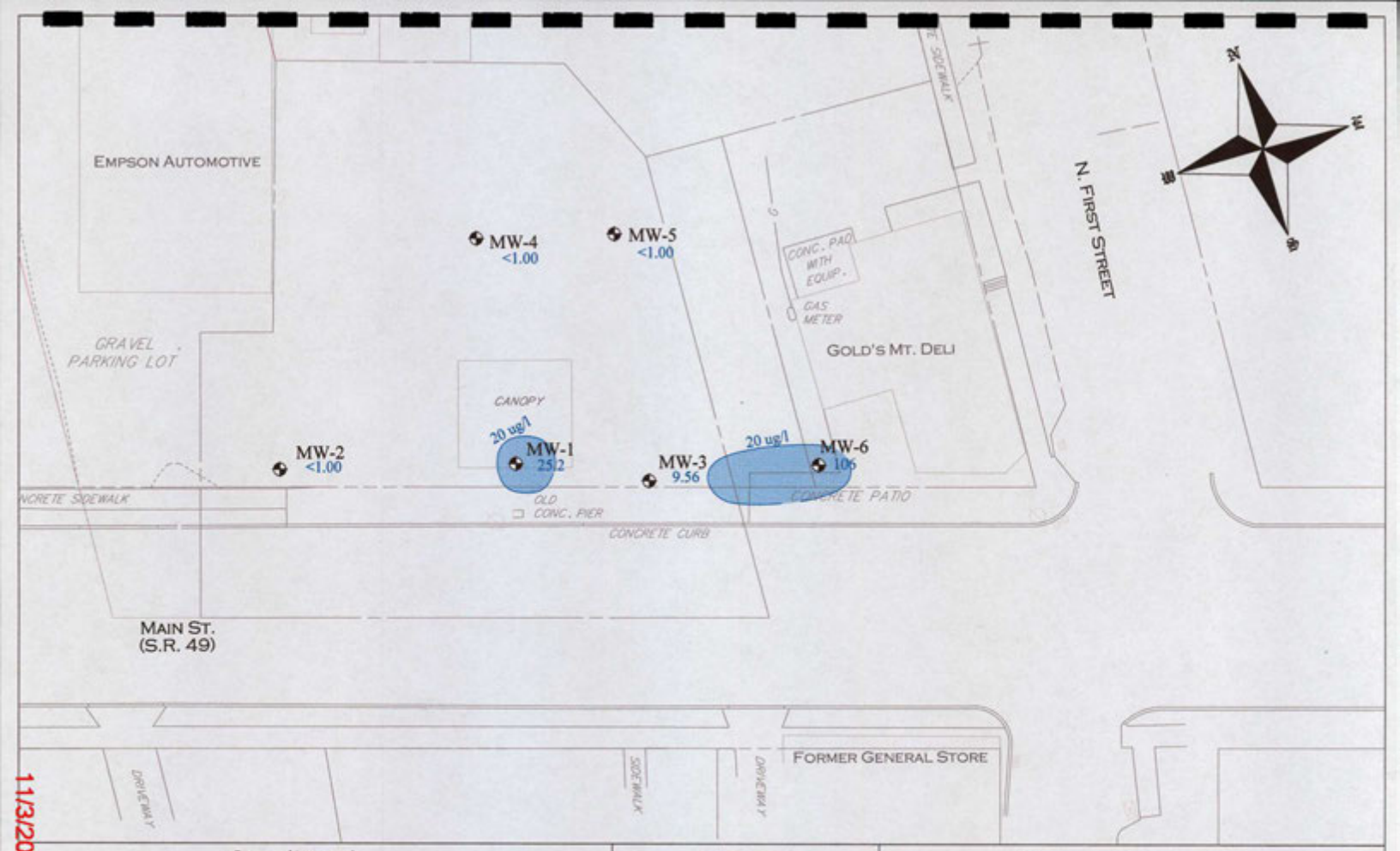
FIGURE 4 - ETHYL BENZENE ISOCONCENTRATION MAP
(AUGUST 19, 2014)

PROJECT NUMBER:	REVISION DATE:
1227	10/27/2014

11/3/2014 2:32:10 PM



11/3/2014 2:32:11 PM

SCALE (APPROX)

0' 10' 20' 30' 60'

LEGEND

- MONITORING WELL LOCATION
- MTBE ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)

NOTES

- AS LINE MARKED BY OTHERS. NOT ALL UTILITY LOCATIONS ARE SHOWN.
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- SOURCE: BASE MAP CREATED BY GEOTEC, INC

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FIGURE 5 - MTBE ISOCONCENTRATION MAP (AUGUST 19, 2014)

PROJECT NUMBER:	REVISION DATE:
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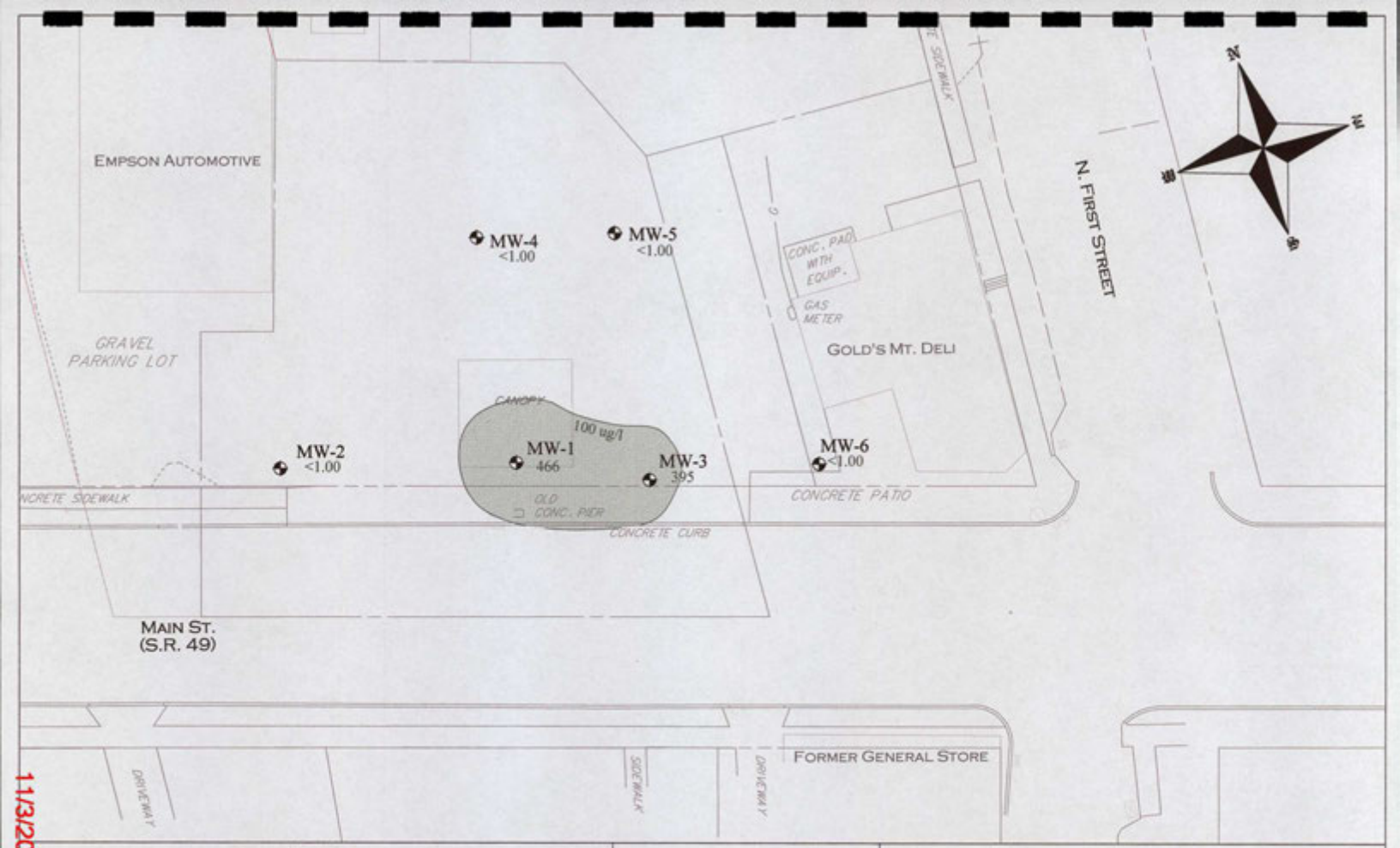

11/3/2014 2:32:12 PM

SCALE (APPROX)

0' 10' 20' 30' 60'

LEGEND

- MONITORING WELL LOCATION
- NAPHTHALENE ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)

NOTES

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FIGURE 6 - NAPHTHALENE ISOCONCENTRATION MAP (AUGUST 19, 2014)

PROJECT NUMBER:	REVISION DATE:
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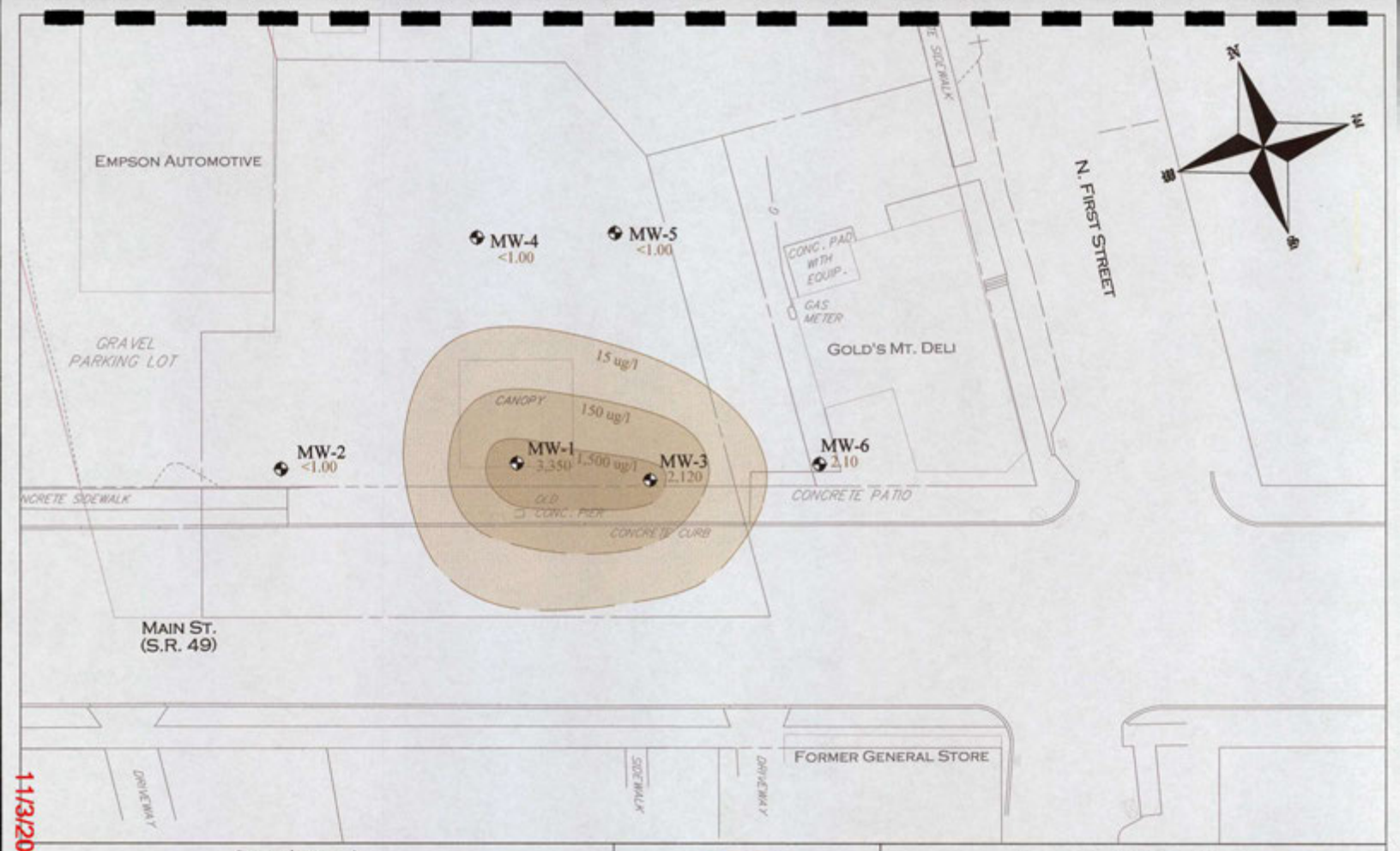

SCALE (APPROX)

0' 10' 20' 30' 60'

LEGEND

- MONITORING WELL LOCATION
- 1,2,4-TMB ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)

NOTES

- GAS LINE MARKED BY OTHERS. NOT ALL UTILITY LOCATIONS ARE SHOWN.
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- SOURCE: BASE MAP CREATED BY GEOTEC, INC

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FIGURE 7 - 1,2,4 - TMB ISOCONCENTRATION MAP
(AUGUST 19, 2014)

PROJECT NUMBER:	REVISION DATE:
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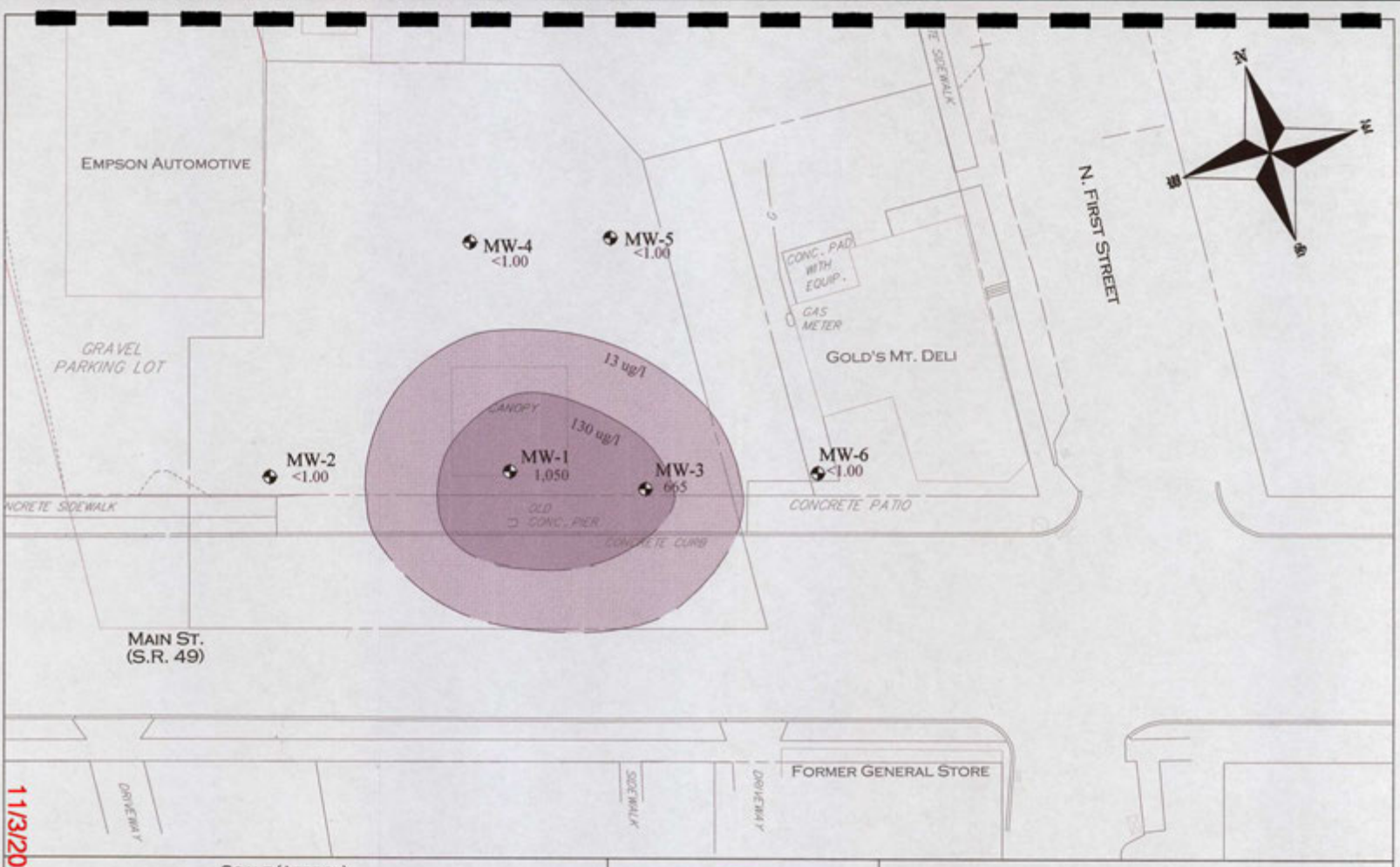
11/3/2014 2:32:14 PM



11/3/2014 2:32:15 PM

SCALE (APPROX)

0' 10' 20' 30' 60'

LEGEND

- MONITORING WELL LOCATION

-1,3,5-TMB ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)

NOTES

- ...S LINE MARKED BY OTHERS. NOT ALL UTILITY LOCATIONS ...E SHOWN.
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FIGURE 8 - 1,3,5 - TMB ISOCONCENTRATION MAP
(AUGUST 19, 2014)

PROJECT NUMBER:	REVISION DATE:
1227	10/27/2014

APPENDIX III - LABORATORY REPORTS

2019 Ninth Avenue
PO Box 1925
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(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

Juniata Geosciences
6872 Willow Brook Rd.
Alexandria PA, 16611
Project Manager: Aaron D. Hartman

Project: 1227
Project Number: 1227
Collector: CLIENT
Number of Containers: 17

Reported: 08/28/14 11:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
MW01	4H19102-01	Water	Grab	08/19/14 11:30	08/19/14 15:50
MW02	4H19102-02	Water	Grab	08/19/14 10:34	08/19/14 15:50
MW03	4H19102-03	Water	Grab	08/19/14 11:04	08/19/14 15:50
MW04	4H19102-04	Water	Grab	08/19/14 10:00	08/19/14 15:50
MW05	4H19102-05	Water	Grab	08/19/14 10:20	08/19/14 15:50
MW06	4H19102-06	Water	Grab	08/19/14 10:50	08/19/14 15:50
MWX	4H19102-07	Water	Grab	08/19/14 11:40	08/19/14 15:50
EQUIP	4H19102-08	Water	Grab	08/19/14 11:45	08/19/14 15:50
TRIP	4H19102-09	Water	Trip Blank	08/19/14 00:00	08/19/14 15:50

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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Alexandria PA, 16611
Project Manager: Aaron D. Hartman

Project: 1227
Project Number: 1227
Collector: CLIENT
Number of Containers: 17

Reported: 08/28/14 11:32

Client Sample ID: MW01 **Date/Time Sampled:** 08/19/14 11:30

Laboratory Sample ID: 4H19102-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	1050		100	ug/l	08/22/14 11:56	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	3350		100	ug/l	08/22/14 11:56	EPA 8260B	mtc	
Benzene	16.0		5.00	ug/l	08/21/14 12:36	EPA 8260B	mtc	
Toluene	32.8		5.00	ug/l	08/21/14 12:36	EPA 8260B	mtc	
Ethylbenzene	1370		100	ug/l	08/22/14 11:56	EPA 8260B	mtc	
Xylenes (total)	9550		200	ug/l	08/22/14 11:56	EPA 8260B	mtc	
Isopropylbenzene	239		5.00	ug/l	08/21/14 12:36	EPA 8260B	mtc	
Methyl tert-butyl ether	25.2		5.00	ug/l	08/21/14 12:36	EPA 8260B	mtc	
Naphthalene	466		100	ug/l	08/22/14 11:56	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene		*104 %*	*70-130*		*08/21/14 12:36*	*EPA 8260B*	mtc	
Surrogate: 1,2-Dichloroethane-d4		*105 %*	*70-130*		*08/21/14 12:36*	*EPA 8260B*	mtc	
Surrogate: Fluorobenzene		*102 %*	*70-130*		*08/21/14 12:36*	*EPA 8260B*	mtc	

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Project Manager: Aaron D. Hartman

Project: 1227
Project Number: 1227
Collector: CLIENT
Number of Containers: 17

Reported: 08/28/14 11:32

Client Sample ID: MW02 **Date/Time Sampled:** 08/19/14 10:34

Laboratory Sample ID: 4H19102-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	08/21/14 10:26	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	08/21/14 10:26	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	08/21/14 10:26	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	08/21/14 10:26	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	08/21/14 10:26	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	08/21/14 10:26	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	08/21/14 10:26	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	08/21/14 10:26	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	08/21/14 10:26	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	*91.6 %*		*70-130*		*08/21/14 10:26*	*EPA 8260B*	mtc	
Surrogate: 1,2-Dichloroethane-d4	*105 %*		*70-130*		*08/21/14 10:26*	*EPA 8260B*	mtc	
Surrogate: Fluorobenzene	*102 %*		*70-130*		*08/21/14 10:26*	*EPA 8260B*	mtc	

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Project Manager: Aaron D. Hartman

Project: 1227
Project Number: 1227
Collector: CLIENT
Number of Containers: 17

Reported: 08/28/14 11:32

Client Sample ID: MW03 **Date/Time Sampled:** 08/19/14 11:04

Laboratory Sample ID: 4H19102-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	665		20.0	ug/l	08/23/14 06:12	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	2120		20.0	ug/l	08/23/14 06:12	EPA 8260B	mtc	
Benzene	7.08		2.00	ug/l	08/21/14 16:22	EPA 8260B	mtc	
Toluene	35.1		2.00	ug/l	08/21/14 16:22	EPA 8260B	mtc	
Ethylbenzene	1050		20.0	ug/l	08/23/14 06:12	EPA 8260B	mtc	
Xylenes (total)	3860		40.0	ug/l	08/23/14 06:12	EPA 8260B	mtc	
Isopropylbenzene	106		2.00	ug/l	08/21/14 16:22	EPA 8260B	mtc	
Methyl tert-butyl ether	9.56		2.00	ug/l	08/21/14 16:22	EPA 8260B	mtc	
Naphthalene	395		20.0	ug/l	08/23/14 06:12	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	*102 %*		*70-130*		*08/21/14 16:22*	*EPA 8260B*	mtc	
Surrogate: 1,2-Dichloroethane-d4	*99.5 %*		*70-130*		*08/21/14 16:22*	*EPA 8260B*	mtc	
Surrogate: Fluorobenzene	*99.4 %*		*70-130*		*08/21/14 16:22*	*EPA 8260B*	mtc	

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Alexandria PA, 16611	Collector:	CLIENT	08/28/14 11:32
Project Manager: Aaron D. Hartman	Number of Containers:	17	

Client Sample ID: MW04 **Date/Time Sampled:** 08/19/14 10:00

Laboratory Sample ID: 4H19102-04 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	08/21/14 11:03	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	08/21/14 11:03	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	08/21/14 11:03	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	08/21/14 11:03	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	08/21/14 11:03	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	08/21/14 11:03	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	08/21/14 11:03	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	08/21/14 11:03	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	08/21/14 11:03	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene		*90.7 %*	*70-130*		*08/21/14 11:03*	*EPA 8260B*	mtc	
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*70-130*		*08/21/14 11:03*	*EPA 8260B*	mtc	
Surrogate: Fluorobenzene		*101 %*	*70-130*		*08/21/14 11:03*	*EPA 8260B*	mtc	

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6872 Willow Brook Rd.	Project Number:	1227	**Reported:**
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Project Manager: Aaron D. Hartman	Number of Containers:	17	

Client Sample ID: MW05 **Date/Time Sampled:** 08/19/14 10:20

Laboratory Sample ID: 4H19102-05 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	08/22/14 20:03	EPA 8260B	wlm	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	08/22/14 20:03	EPA 8260B	wlm	
Benzene	<1.00		1.00	ug/l	08/22/14 20:03	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	08/22/14 20:03	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	08/22/14 20:03	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	08/22/14 20:03	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	08/22/14 20:03	EPA 8260B	wlm	
Methyl tert-butyl ether	<1.00		1.00	ug/l	08/22/14 20:03	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	08/22/14 20:03	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*94.4 %*	*70-130*		*08/22/14 20:03*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*105 %*	*70-130*		*08/22/14 20:03*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*104 %*	*70-130*		*08/22/14 20:03*	*EPA 8260B*	wlm	

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NELAP: PA 07-062, VA 460212

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Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

Juniata Geosciences	Project:	1227	
6872 Willow Brook Rd.	Project Number:	1227	**Reported:**
Alexandria PA, 16611	Collector:	CLIENT	08/28/14 11:32
Project Manager: Aaron D. Hartman	Number of Containers:	17	

Client Sample ID: MW06 **Date/Time Sampled:** 08/19/14 10:50

Laboratory Sample ID: 4H19102-06 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	08/22/14 20:40	EPA 8260B	wlm	
1,2,4-Trimethylbenzene	2.10		1.00	ug/l	08/22/14 20:40	EPA 8260B	wlm	
Benzene	<1.00		1.00	ug/l	08/22/14 20:40	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	08/22/14 20:40	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	08/22/14 20:40	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	08/22/14 20:40	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	08/22/14 20:40	EPA 8260B	wlm	
Methyl tert-butyl ether	106		1.00	ug/l	08/22/14 20:40	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	08/22/14 20:40	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*93.9 %*	*70-130*		*08/22/14 20:40*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*70-130*		*08/22/14 20:40*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*106 %*	*70-130*		*08/22/14 20:40*	*EPA 8260B*	wlm	

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Juniata Geosciences	Project:	1227	
6872 Willow Brook Rd.	Project Number:	1227	**Reported:**
Alexandria PA, 16611	Collector:	CLIENT	08/28/14 11:32
Project Manager: Aaron D. Hartman	Number of Containers:	17	

Client Sample ID: MWX **Date/Time Sampled:** 08/19/14 11:40

Laboratory Sample ID: 4H19102-07 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	978		50.0	ug/l	08/22/14 13:13	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	3070		50.0	ug/l	08/22/14 13:13	EPA 8260B	mtc	
Benzene	9.35		5.00	ug/l	08/21/14 13:14	EPA 8260B	mtc	
Toluene	19.1		5.00	ug/l	08/21/14 13:14	EPA 8260B	mtc	
Ethylbenzene	1250		50.0	ug/l	08/22/14 13:13	EPA 8260B	mtc	
Xylenes (total)	8240		100	ug/l	08/22/14 13:13	EPA 8260B	mtc	
Isopropylbenzene	138		5.00	ug/l	08/21/14 13:14	EPA 8260B	mtc	
Methyl tert-butyl ether	14.2		5.00	ug/l	08/21/14 13:14	EPA 8260B	mtc	
Naphthalene	454		50.0	ug/l	08/22/14 13:13	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene		*102 %*	*70-130*		*08/21/14 13:14*	*EPA 8260B*	mtc	
Surrogate: 1,2-Dichloroethane-d4		*102 %*	*70-130*		*08/21/14 13:14*	*EPA 8260B*	mtc	
Surrogate: Fluorobenzene		*101 %*	*70-130*		*08/21/14 13:14*	*EPA 8260B*	mtc	

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State Certifications: MD 275, WV 364

Juniata Geosciences	Project:	1227	
6872 Willow Brook Rd.	Project Number:	1227	**Reported:**
Alexandria PA, 16611	Collector:	CLIENT	08/28/14 11:32
Project Manager: Aaron D. Hartman	Number of Containers:	17	

Client Sample ID: EQUIP **Date/Time Sampled:** 08/19/14 11:45

Laboratory Sample ID: 4H19102-08 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	08/22/14 22:33	EPA 8260B	wlm	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	08/22/14 22:33	EPA 8260B	wlm	
Benzene	<1.00		1.00	ug/l	08/22/14 22:33	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	08/22/14 22:33	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	08/22/14 22:33	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	08/22/14 22:33	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	08/22/14 22:33	EPA 8260B	wlm	
Methyl tert-butyl ether	<1.00		1.00	ug/l	08/22/14 22:33	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	08/22/14 22:33	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*96.4 %*	*70-130*		*08/22/14 22:33*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*70-130*		*08/22/14 22:33*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*105 %*	*70-130*		*08/22/14 22:33*	*EPA 8260B*	wlm	

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Juniata Geosciences	Project:	1227	
6872 Willow Brook Rd.	Project Number:	1227	**Reported:**
Alexandria PA, 16611	Collector:	CLIENT	08/28/14 11:32
Project Manager: Aaron D. Hartman	Number of Containers:	17	

Client Sample ID: TRIP **Date/Time Sampled:** 08/19/14 00:00

Laboratory Sample ID: 4H19102-09 (Water/Trip Blank)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	08/22/14 12:16	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	08/22/14 12:16	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	08/22/14 12:16	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	08/22/14 12:16	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	08/22/14 12:16	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	08/22/14 12:16	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	08/22/14 12:16	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	08/22/14 12:16	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	08/22/14 12:16	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene		*92.3 %*	*70-130*		*08/22/14 12:16*	*EPA 8260B*	mtc	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*		*08/22/14 12:16*	*EPA 8260B*	mtc	
Surrogate: Fluorobenzene		*99.3 %*	*70-130*		*08/22/14 12:16*	*EPA 8260B*	mtc	

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CHAIN OF CUSTODY / REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

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FAIRWAY LABORATORIES
Environmental Laboratory

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Phone: (570) 494-6380

#1
4H19102
COC #
Page 1 of #2

Client Name: Juniata Geosciences, LLC
Address: 6872 Willow Brook Rd
Alexandria, PA 16611
Contact: Aaron Hartman
Phone #: 814 954 0199
Fax #:
Project Name: 1227
Quote/PO #: 1227

Received on ice? Y N
Sample Temp: 5.6
Reportable to PADEP? Yes ☐
PWSID #:

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ___/___/___

Analyses Requested: New PA unleaded Gas

LAB USE ONLY
FedEx USPS UPS Other
Tracking #

Sample Description/Location	GRAB	Composite	Composite Start: Start Date	Composite Start: Start Time	GRAB -or- Composite End: End Date	GRAB -or- Composite End: End Time	Matrix: Solid	Matrix: Water	Matrix: Other	# of Containers	Bottle Type/Comments
MW01	G				8-19-14	1130				2	
MW02	G					1034				2	
MW03	G					1109				2	
MW04	G					1000				2	
MW05	G					1020				2	
MW06	G					1050				2	
MWX	G					1140				2	
Equip Trip	G				↓	1145				2	
					—	—				1	

	Date	Time		Date	Time
Sampled by: Cory Zeh	8/19/14	1700	Received by:		
Relinquished by:	8/19	1350	Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received by:		

Remarks

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse. White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

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State Certifications: MD 275, WV 364

Project: 1227
Project Number: 1227
Collector: CLIENT
Number of Containers: 17

Reported: 08/28/14 11:32

Juniata Geosciences
6872 Willow Brook Rd.
Alexandria PA, 16611
Project Manager: Aaron D. Hartman

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtrate on for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

P Indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< Represents "less than" - indicates that the result was less than the reporting limit.

MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.

RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

[CALC] Indicates a calculated result: Calculations use results from other analyses performed under accredited methods.

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SOP FLI0601-002 Revision 17 Date: June 18, 2014 Page of

Chain of Custody Receiving Document

Page 2 of 2 #2

Receiver: CR

Date/Time of this check: 8/19/14 15:17 Client: Jacobs GeoSciences Lab # 411902

Received on ICE? Y ☐ * Sample Temperature when delivered to the Lab: 5.6 Acceptable? Y ☐ * or In cool down process? ☐ *

Custody Seals? no Intact? NA

COC/Labels on bottles agree? Y ☐ * Correct containers for all the analysis requested? Y ☐ * Matrix: water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?)	Other ☐ *	Properly Preserved ☒ *	Bacti	
1							2				
2											
3											
4											
5											
6											
7							4				
8											
TB							1-HCl				

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
⊗ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
⊗ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
⊗ Wrong Container ( )		Provided Information ( )
⊗ Missing Information: ( )	Date:	No Response; Proceed and qualified ( )
		Client Contact: Date:

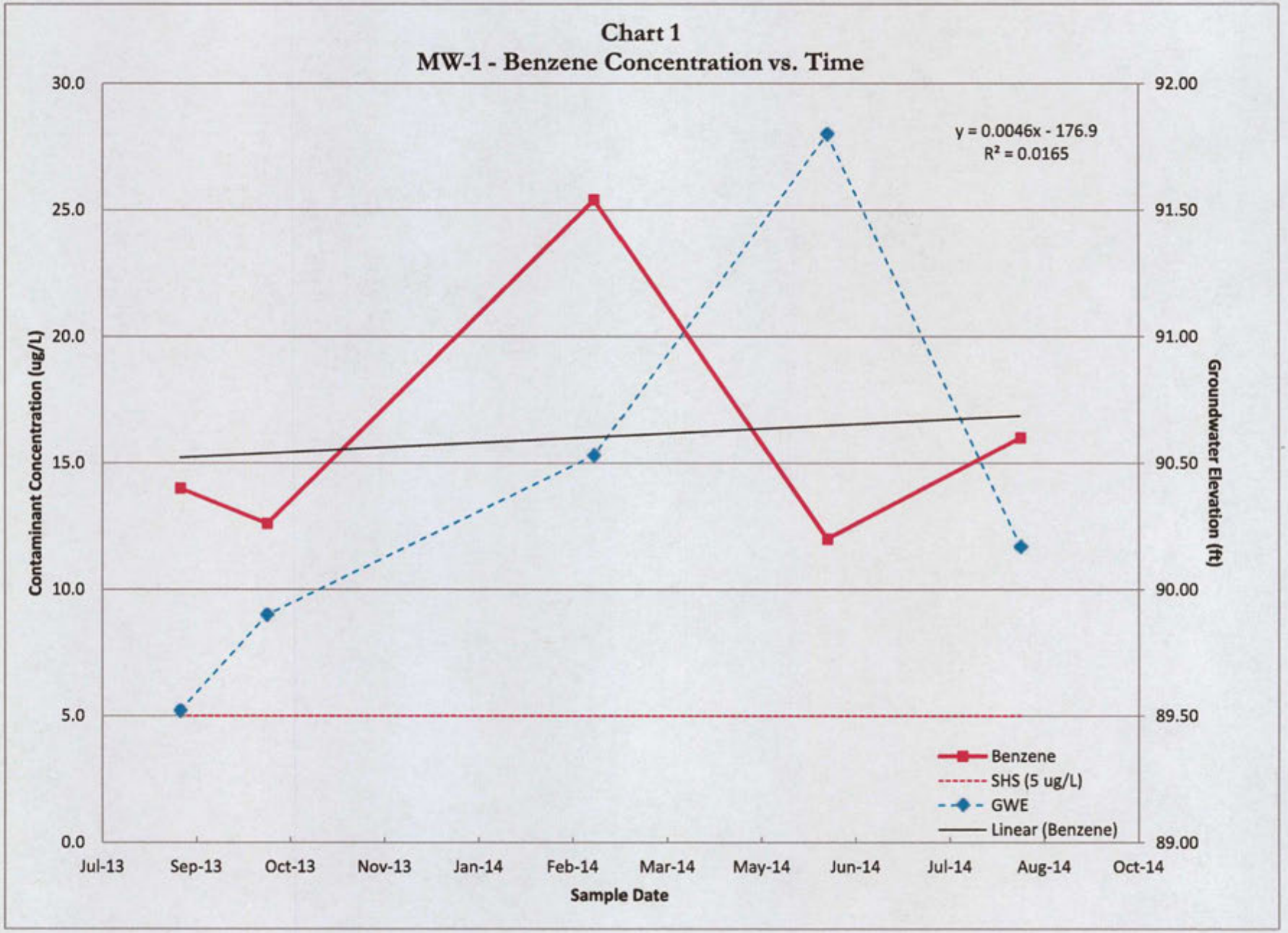
* Comments:

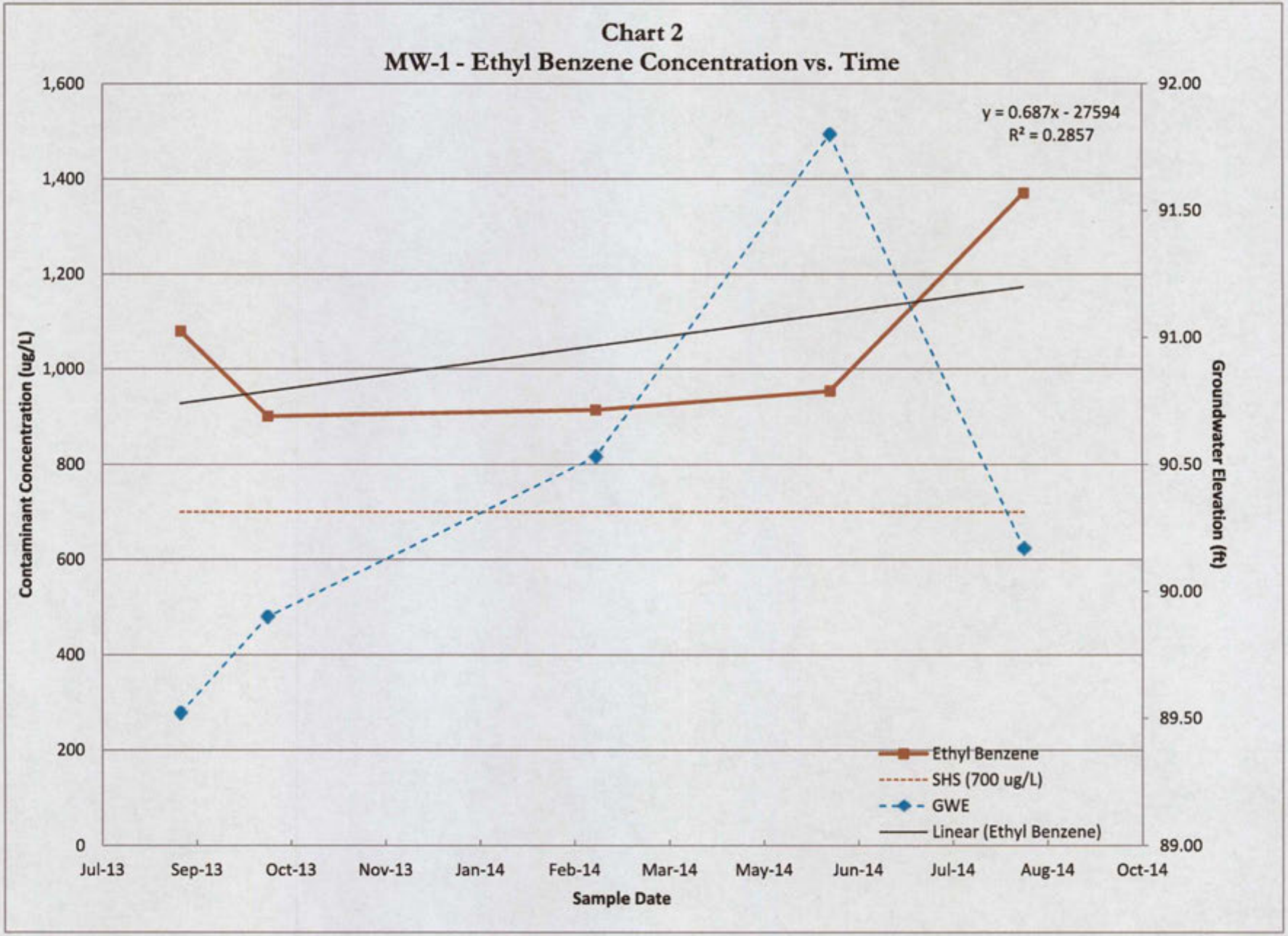
This is a date sensitive document and may not be current after August 12, 2014.

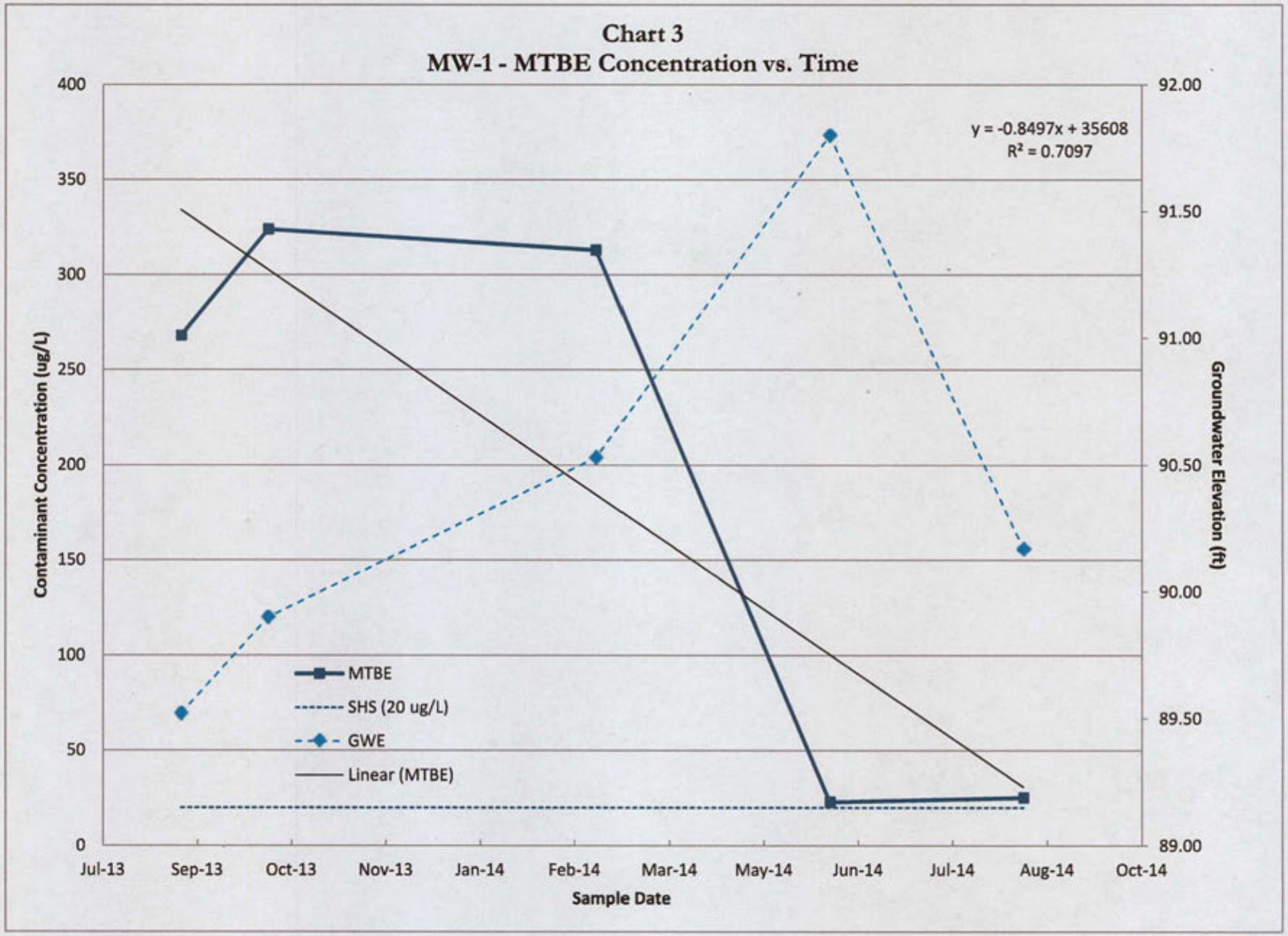
Page 13 of 13

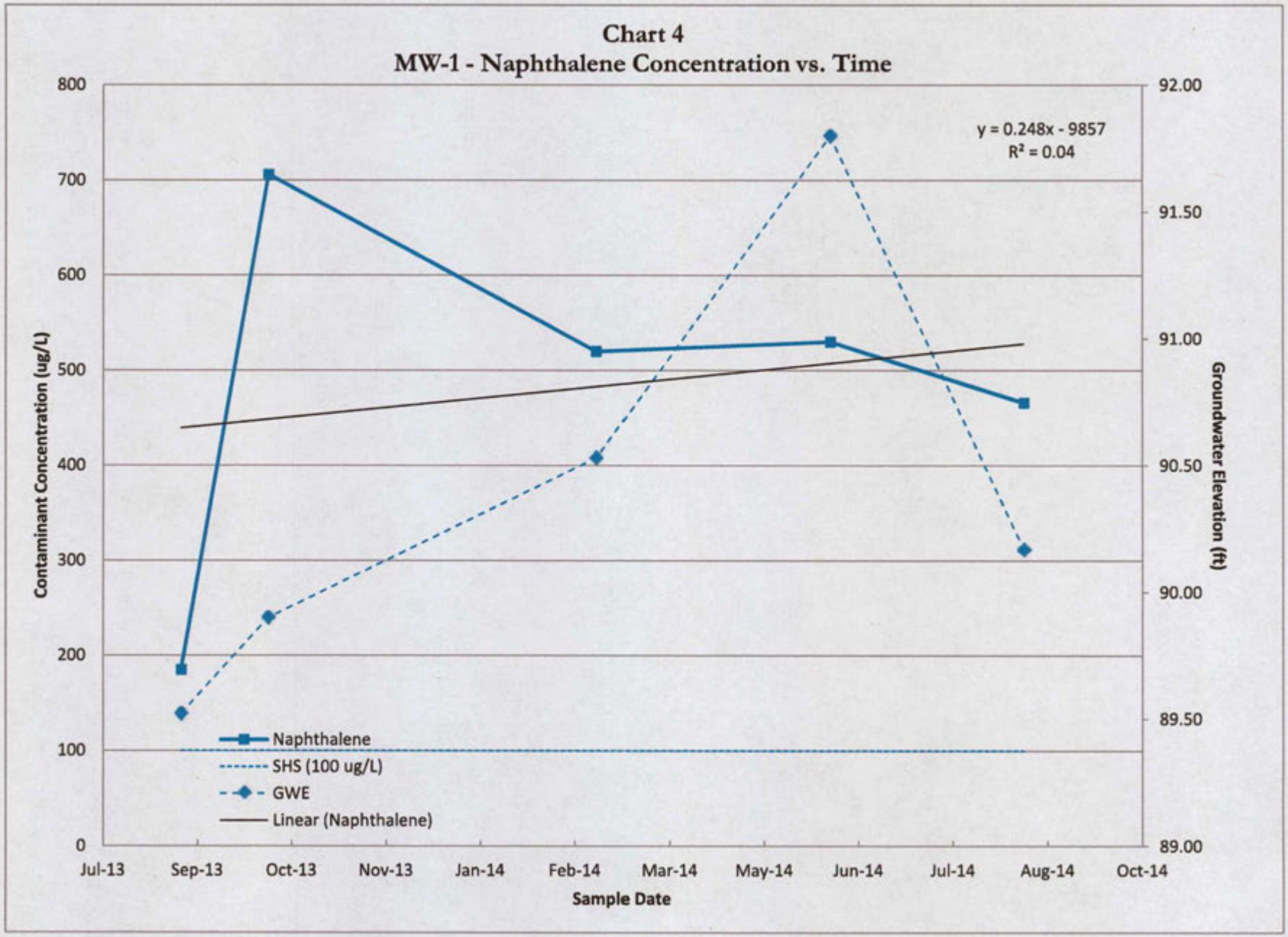
11/3/2014 2:32:20 PM

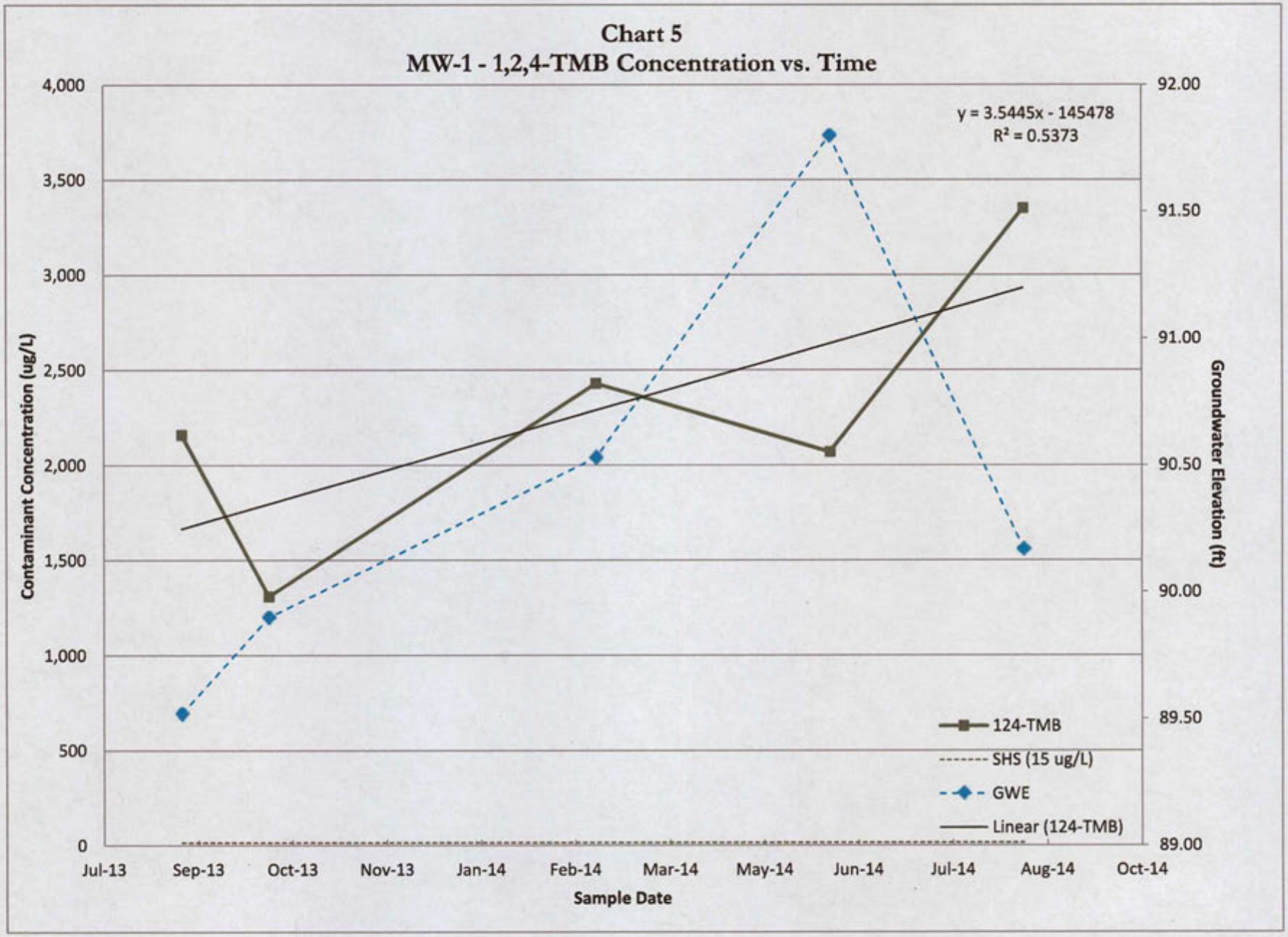
APPENDIX IV – CHARTS

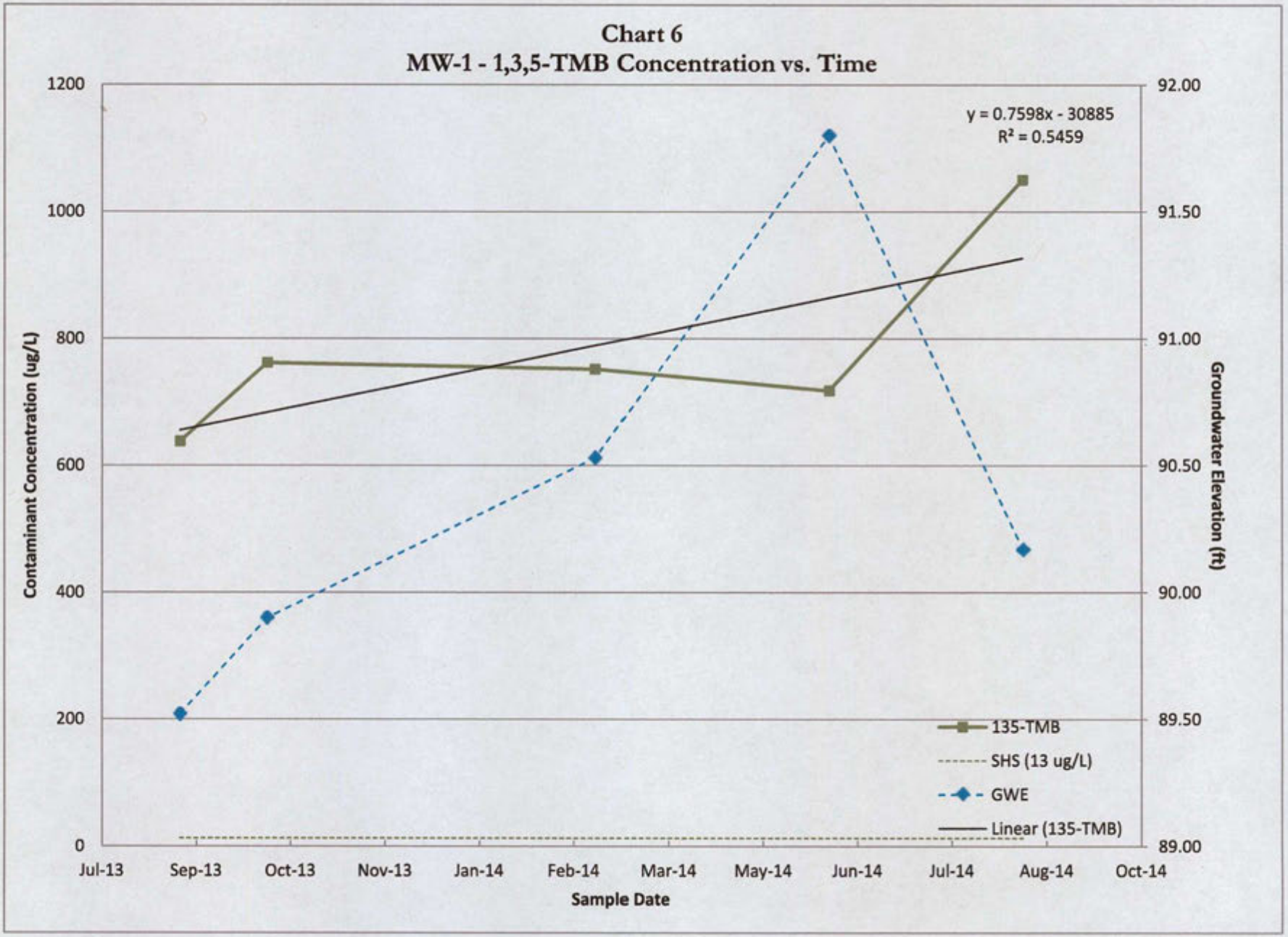


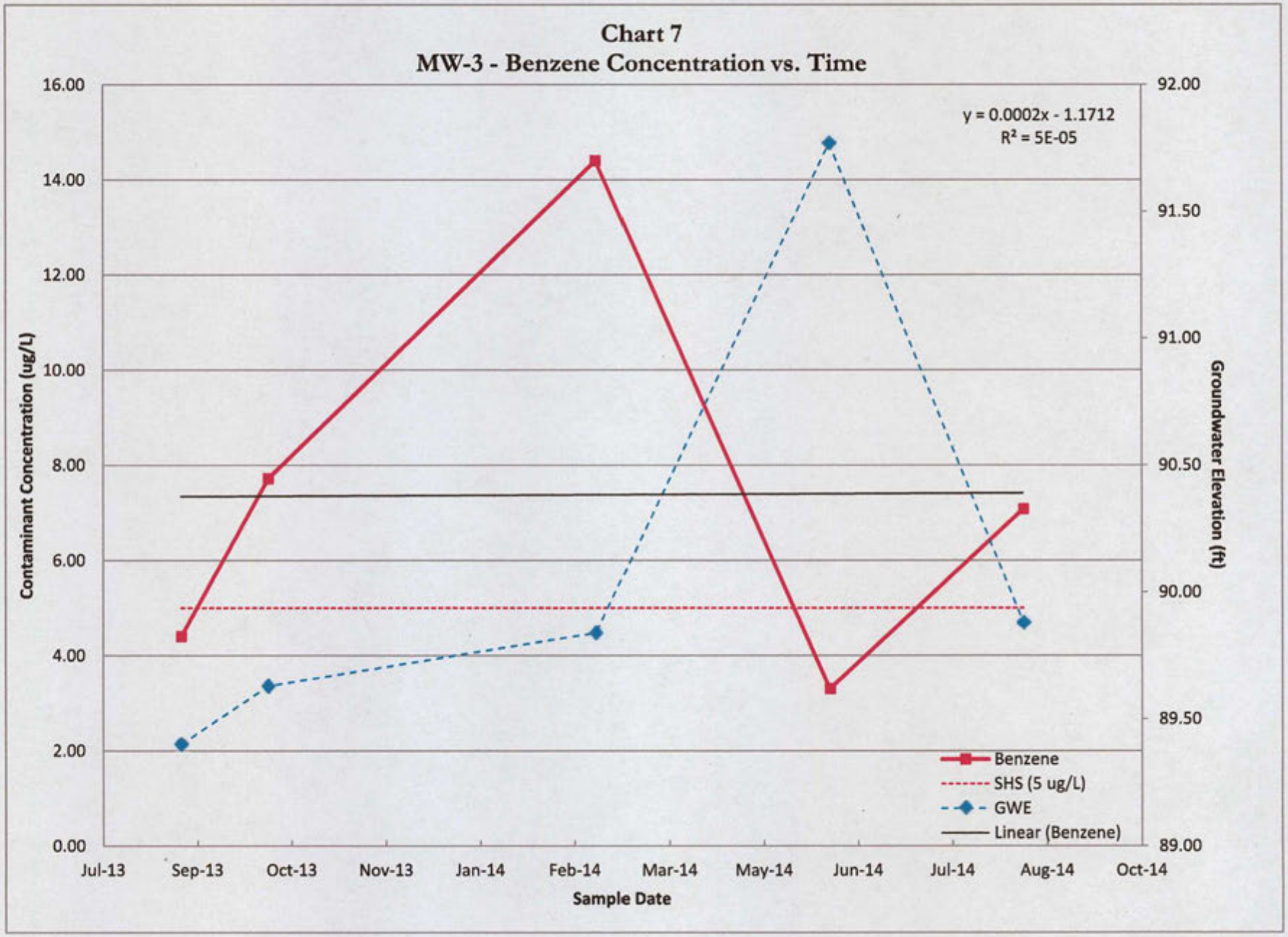


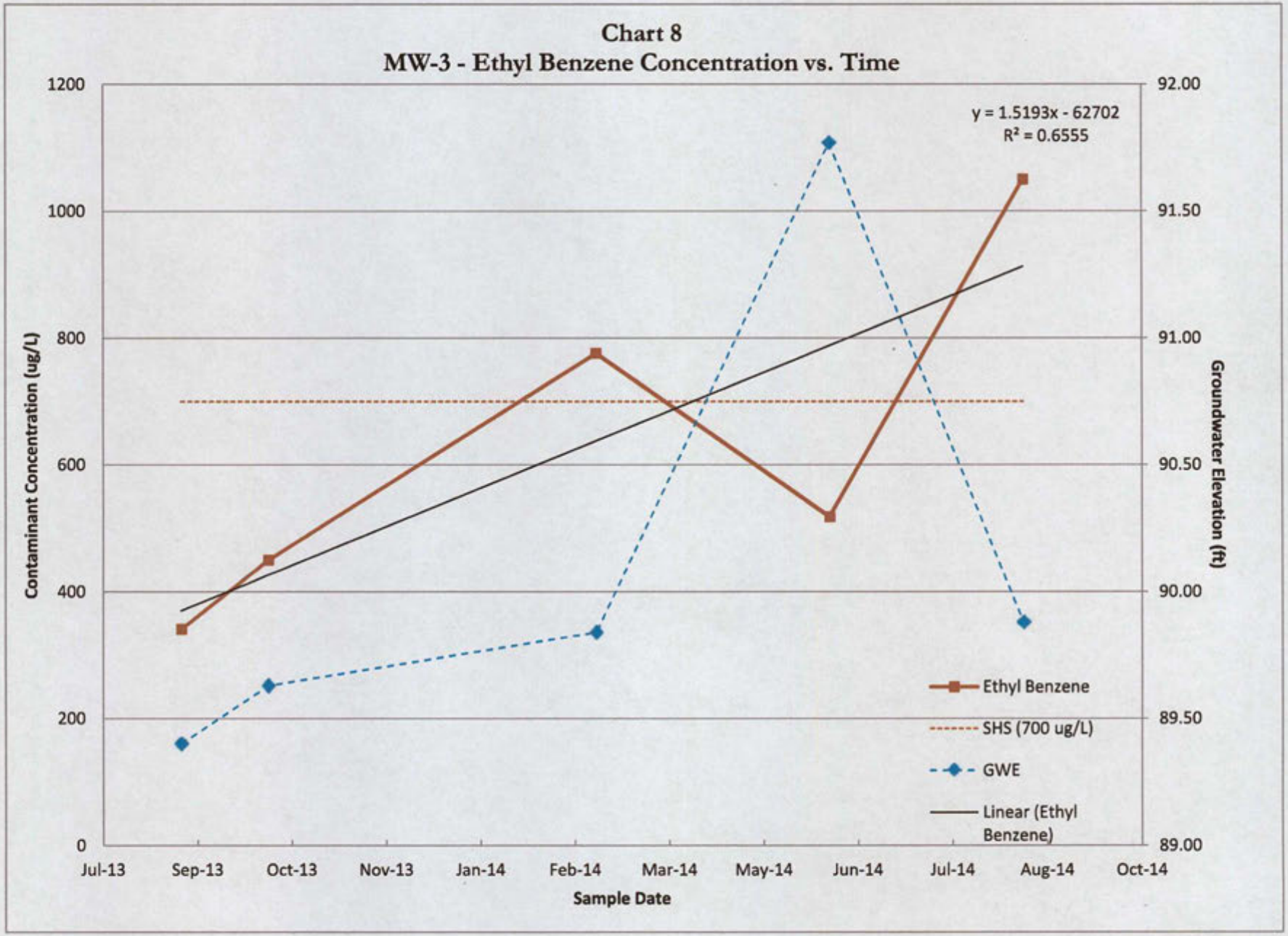


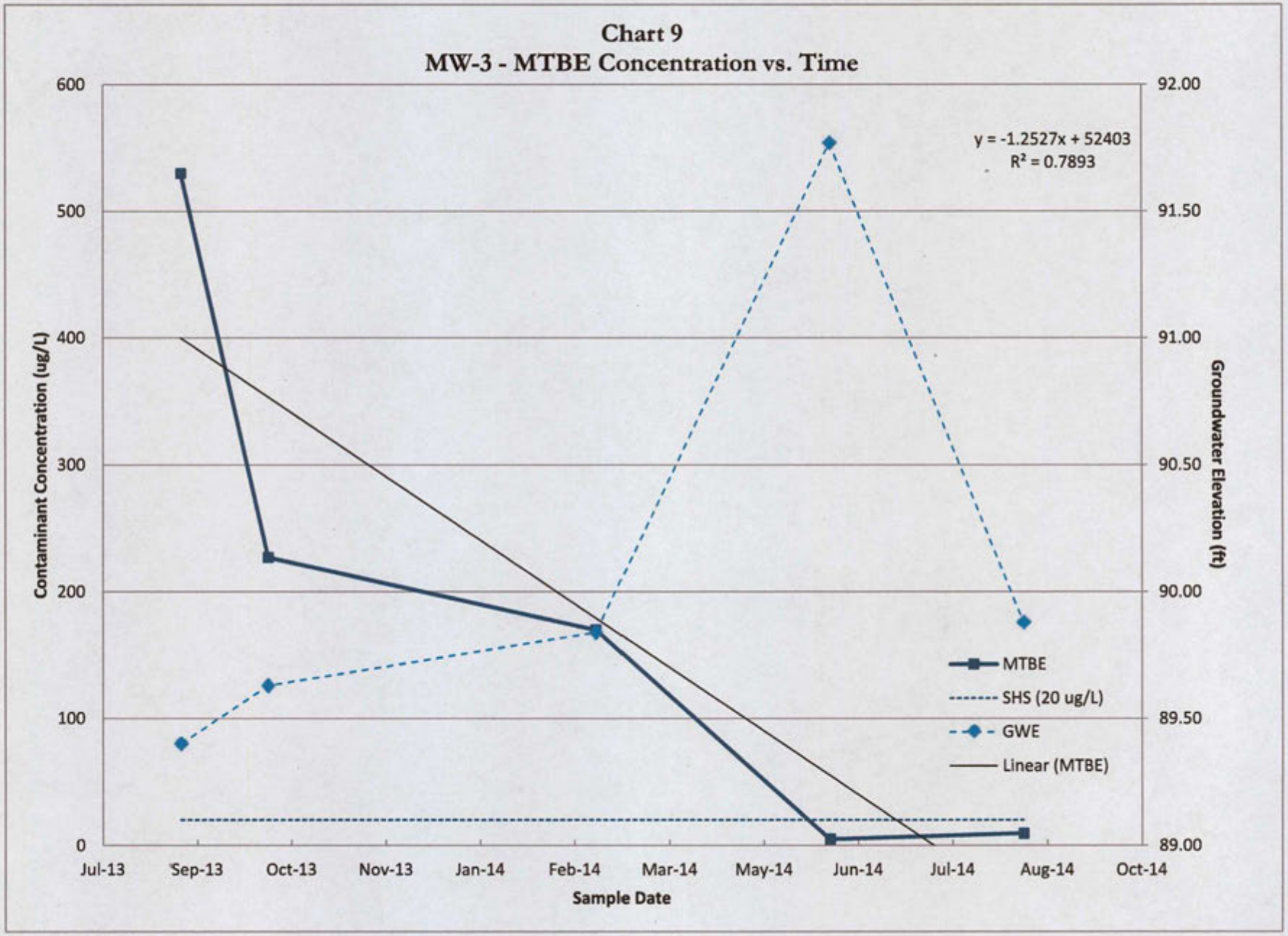


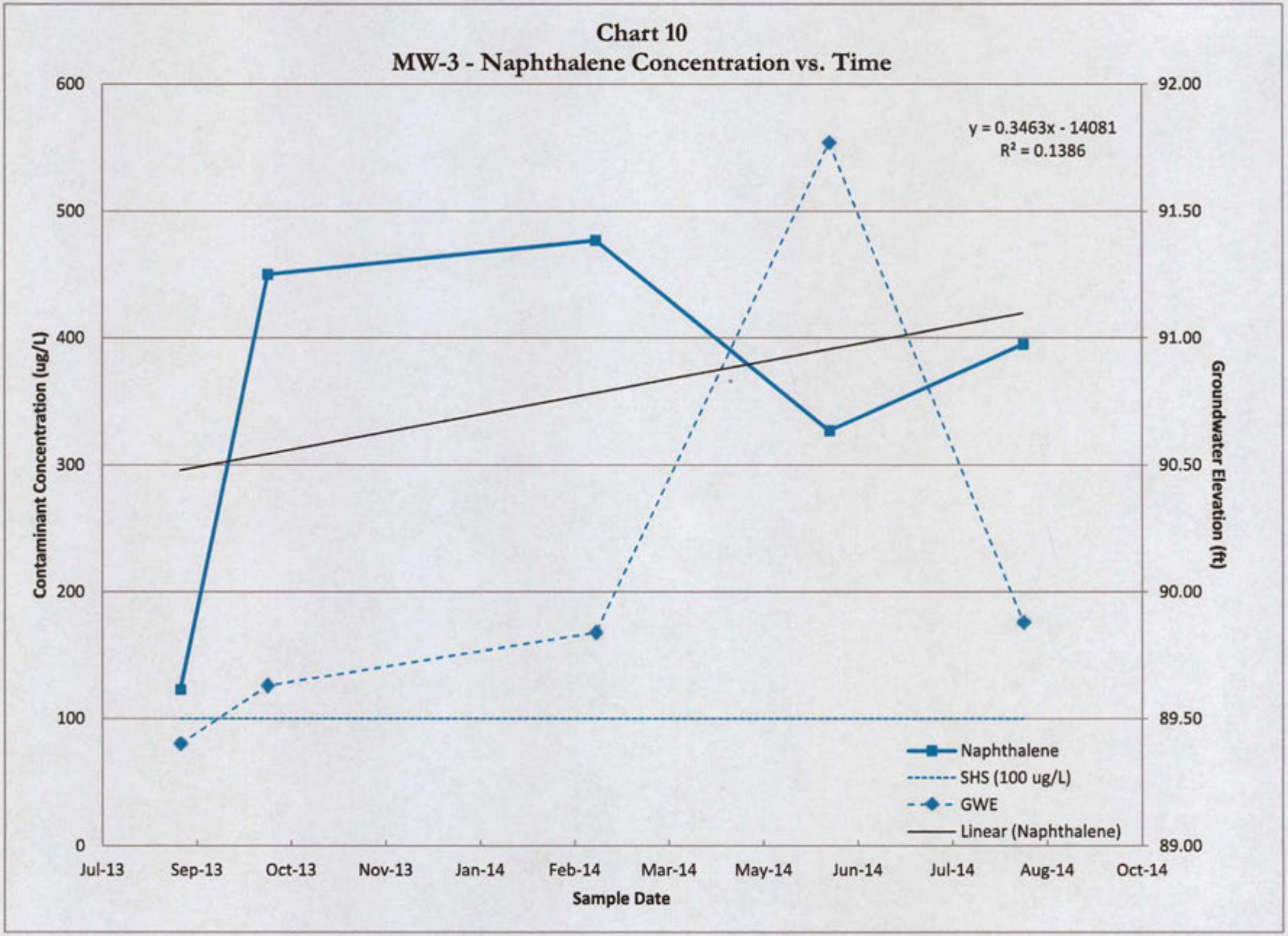


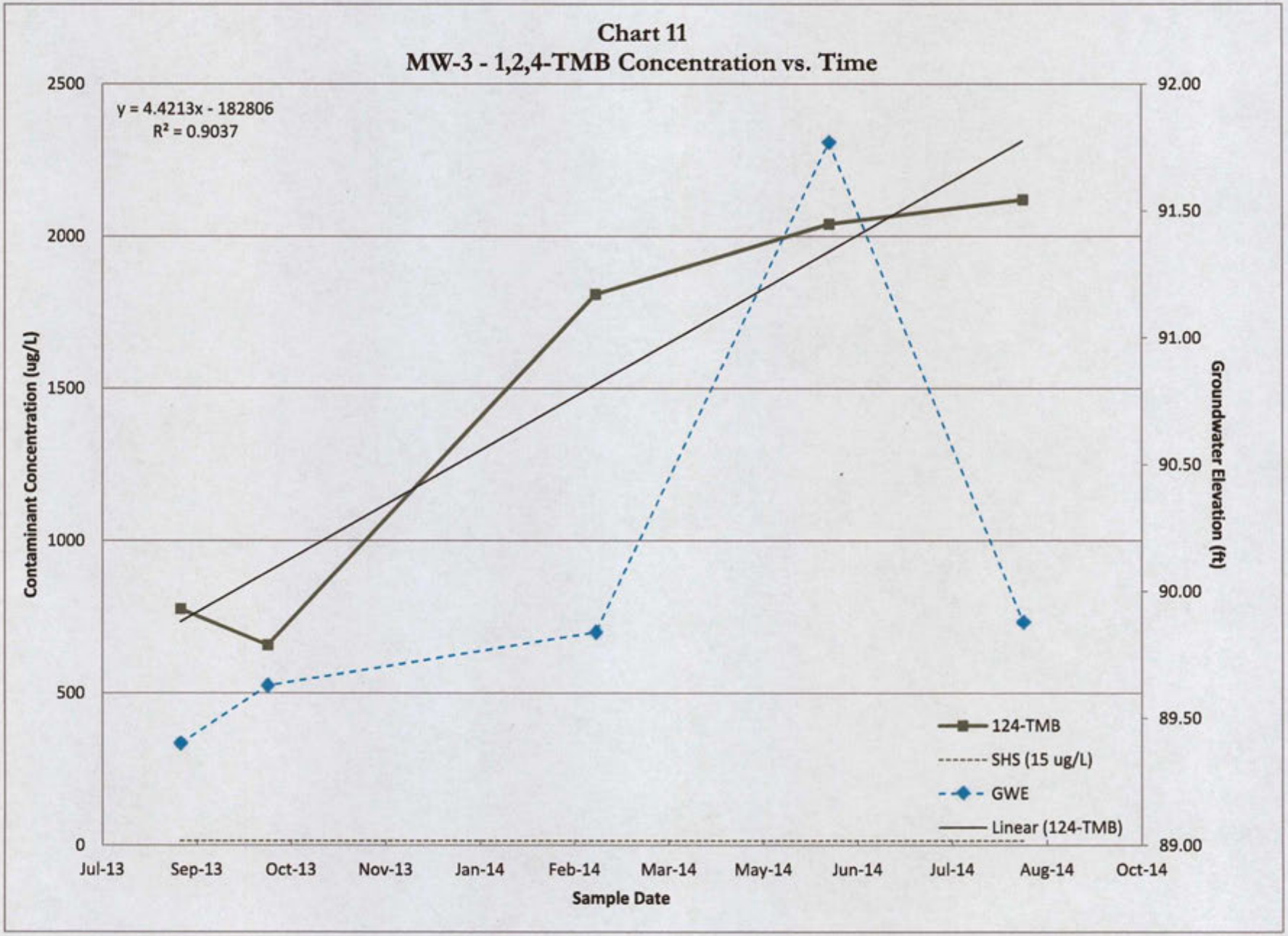


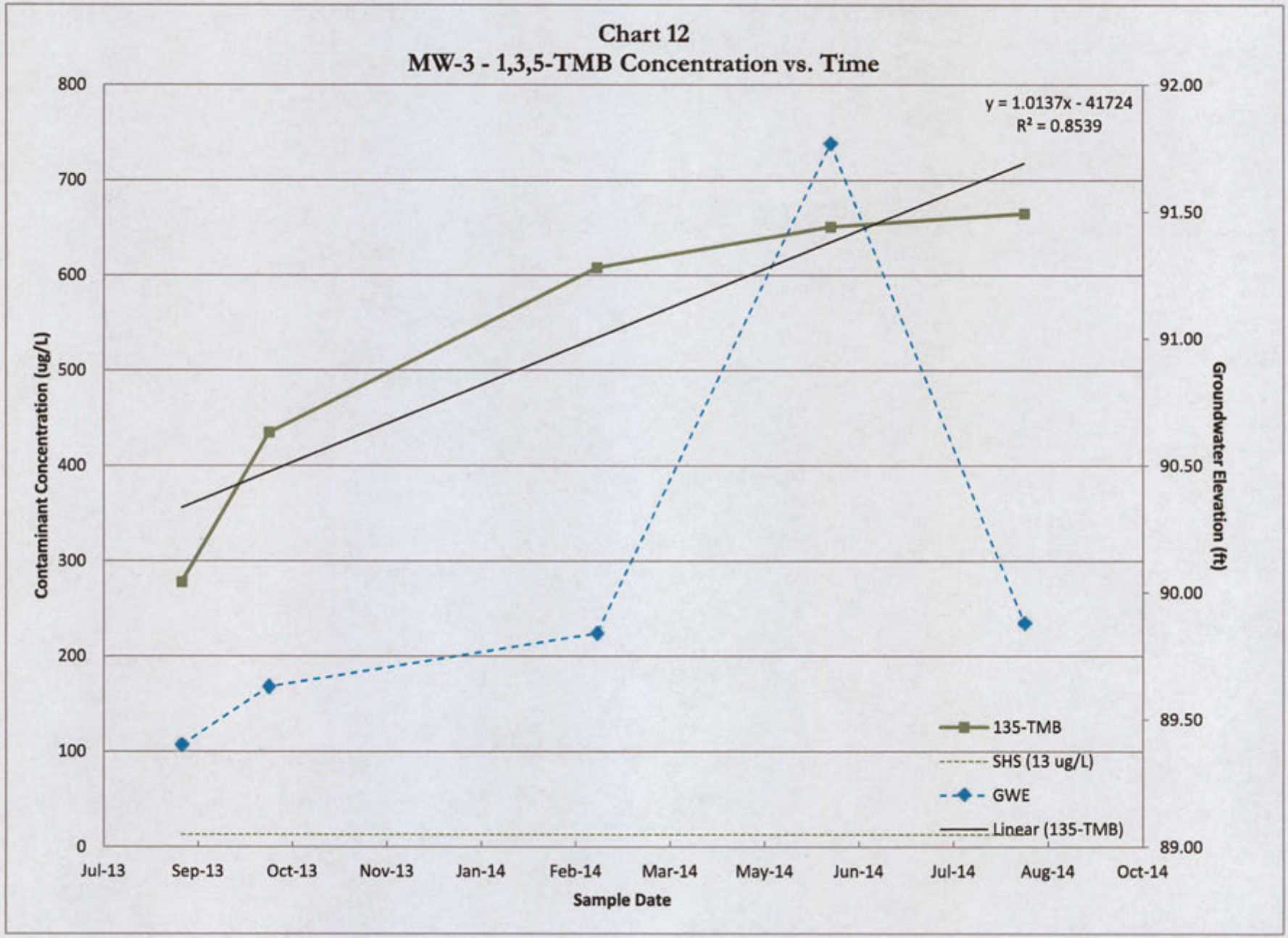


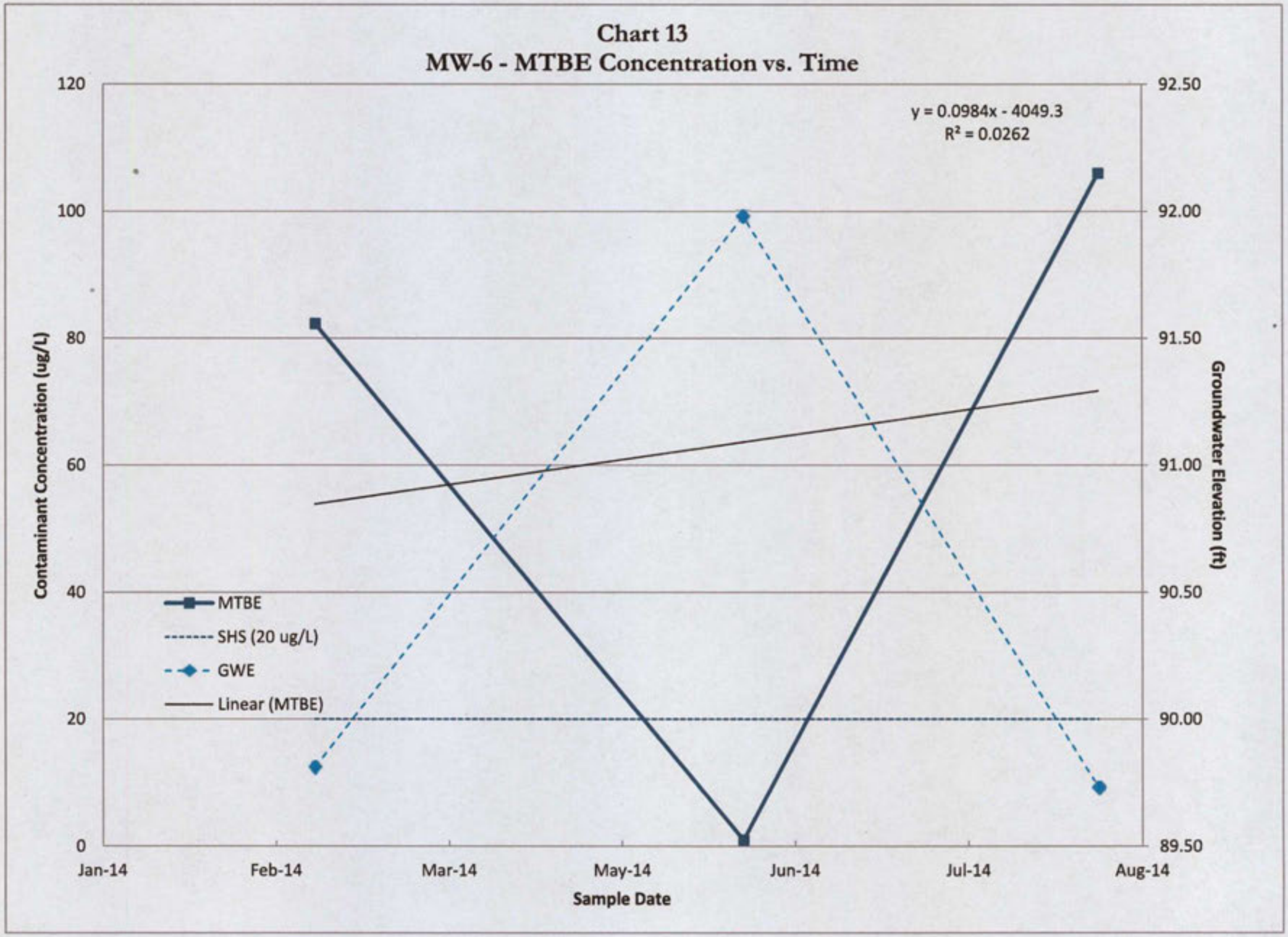


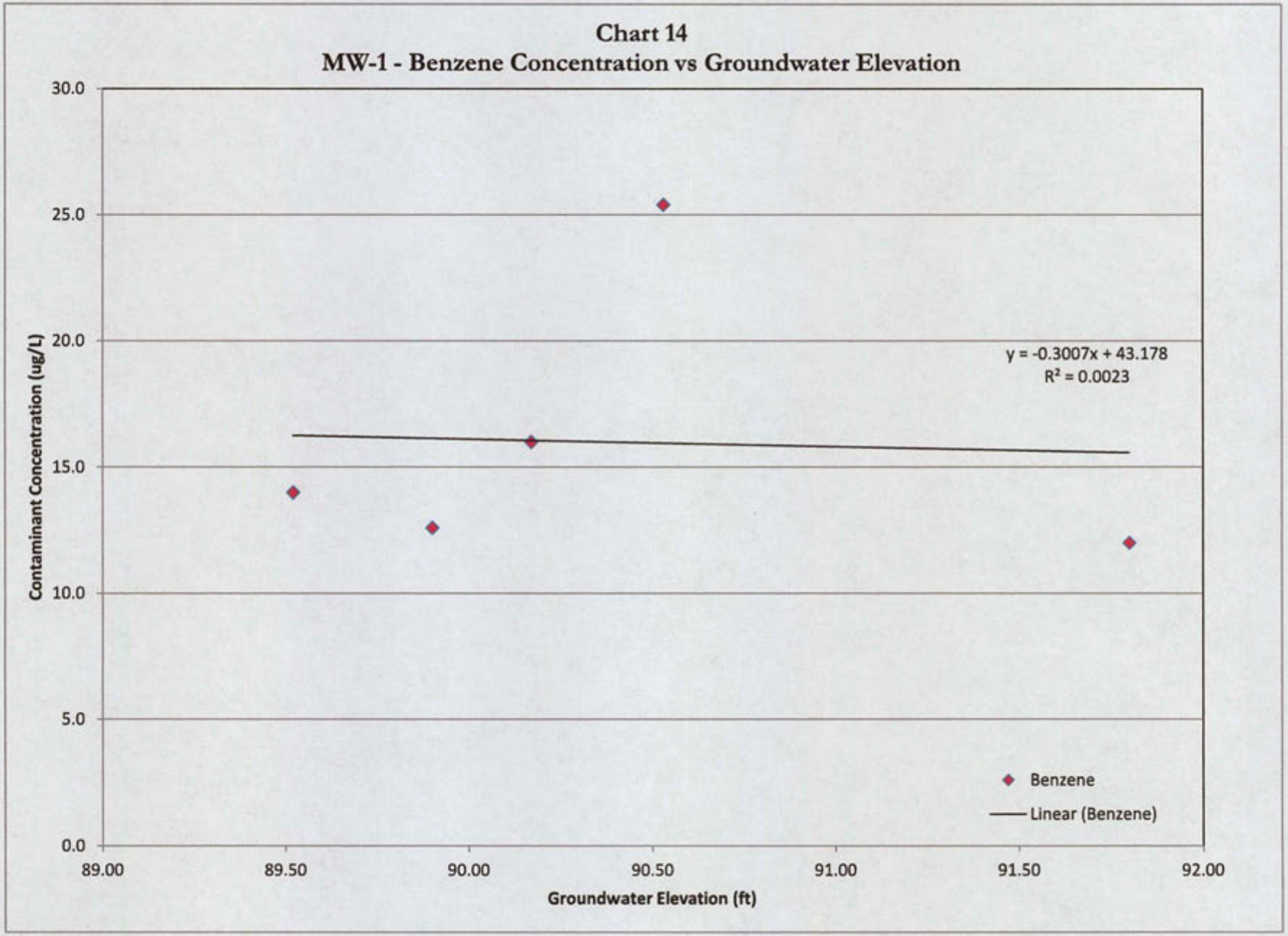


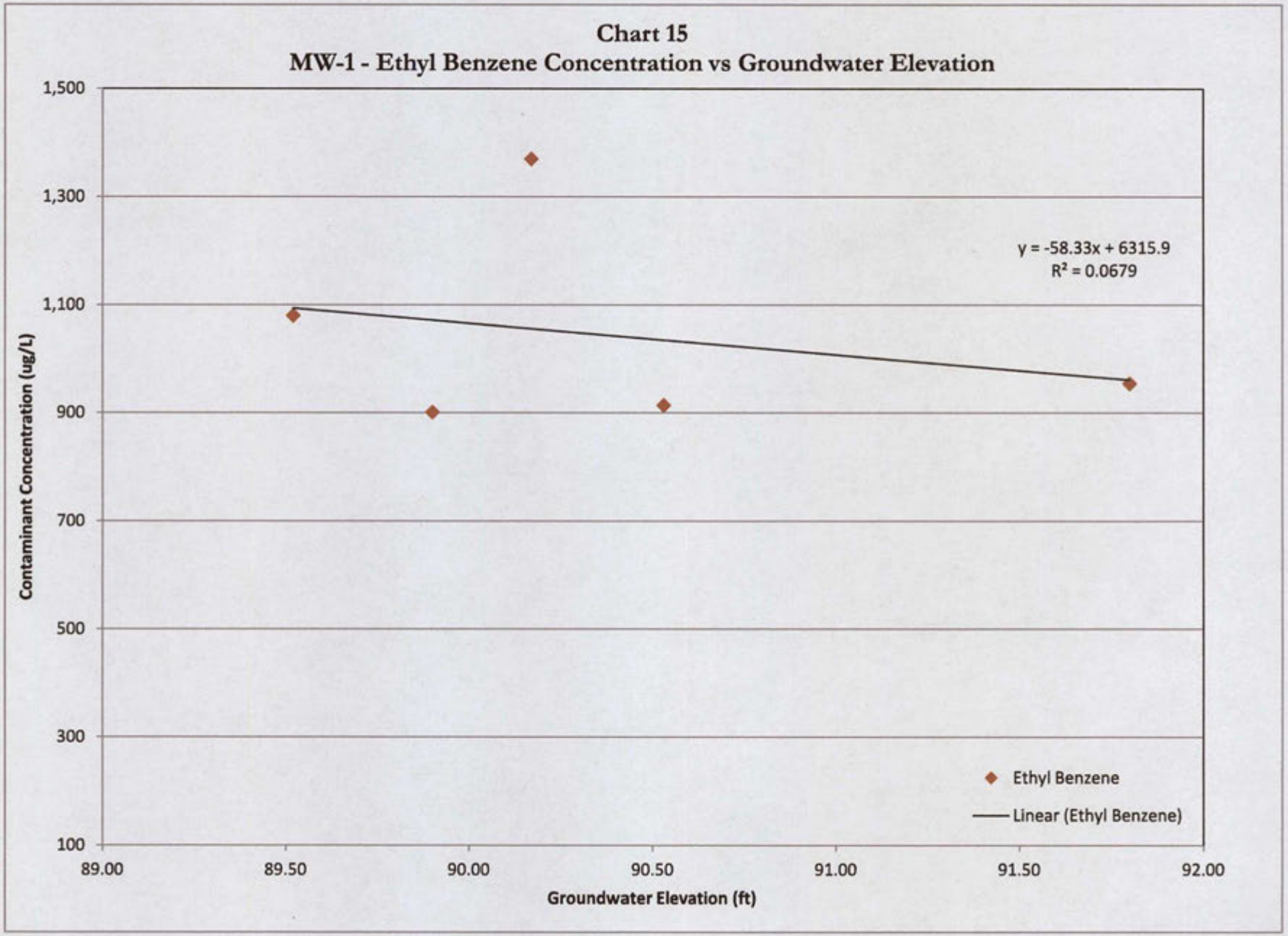


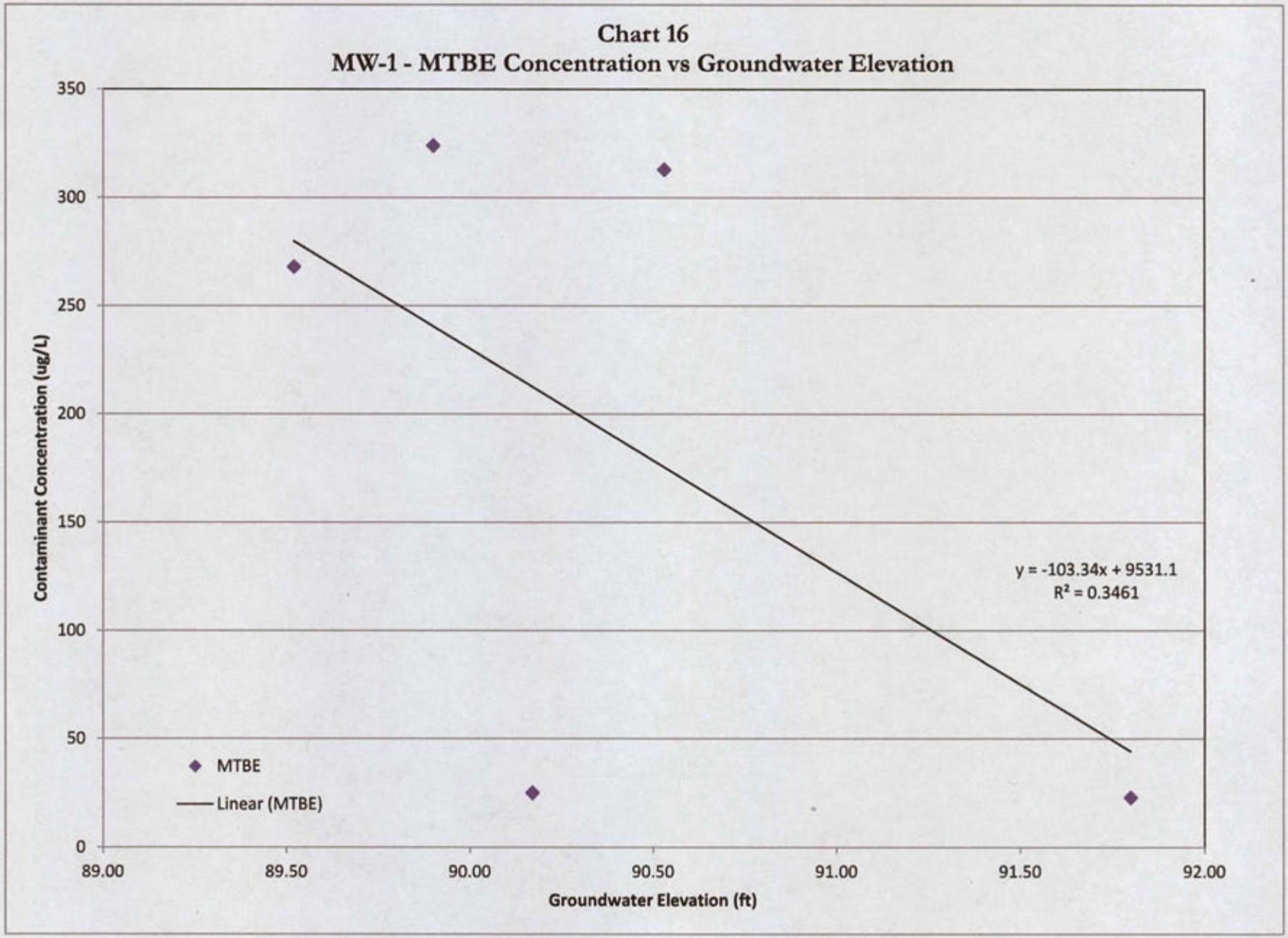


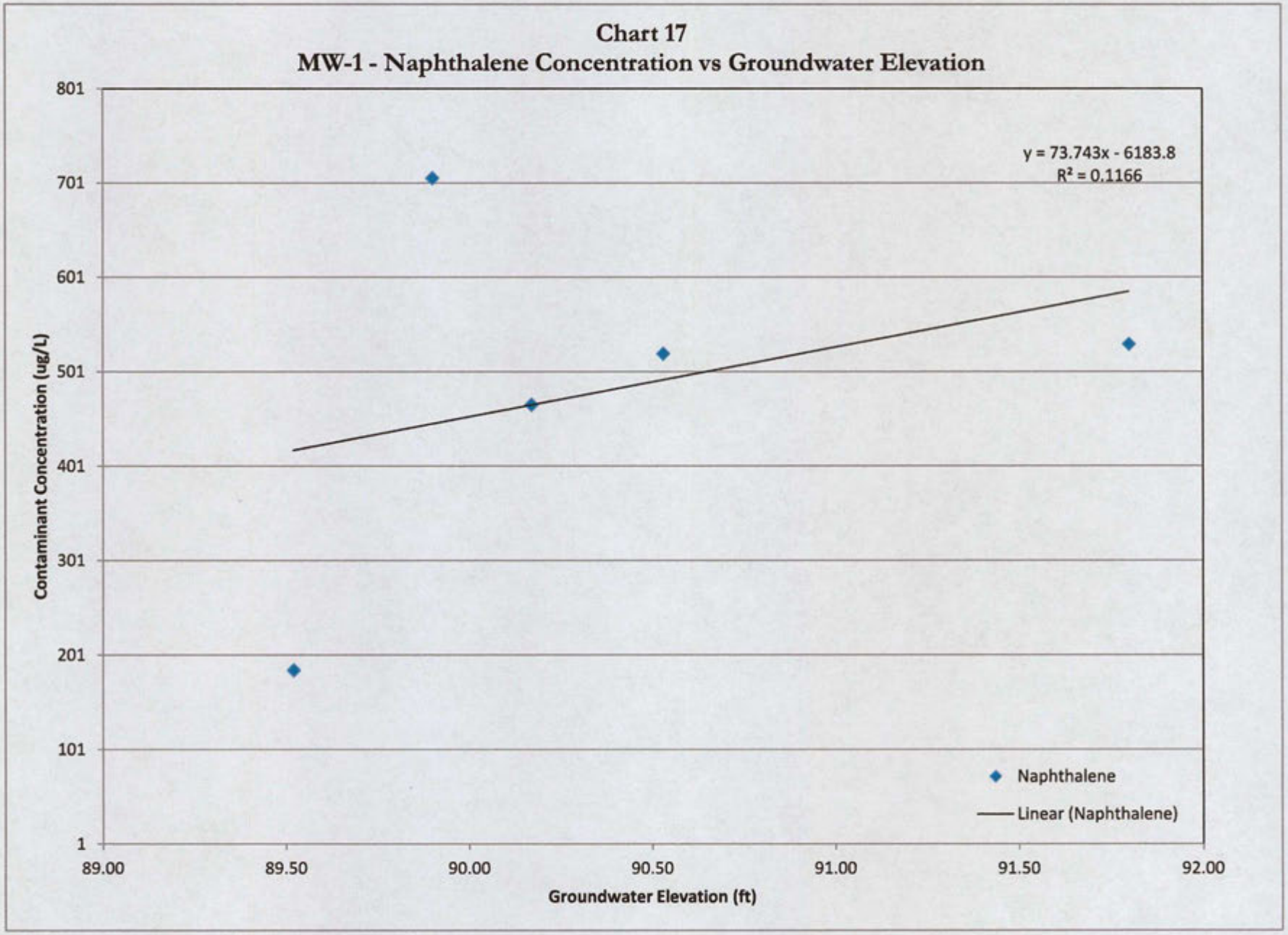


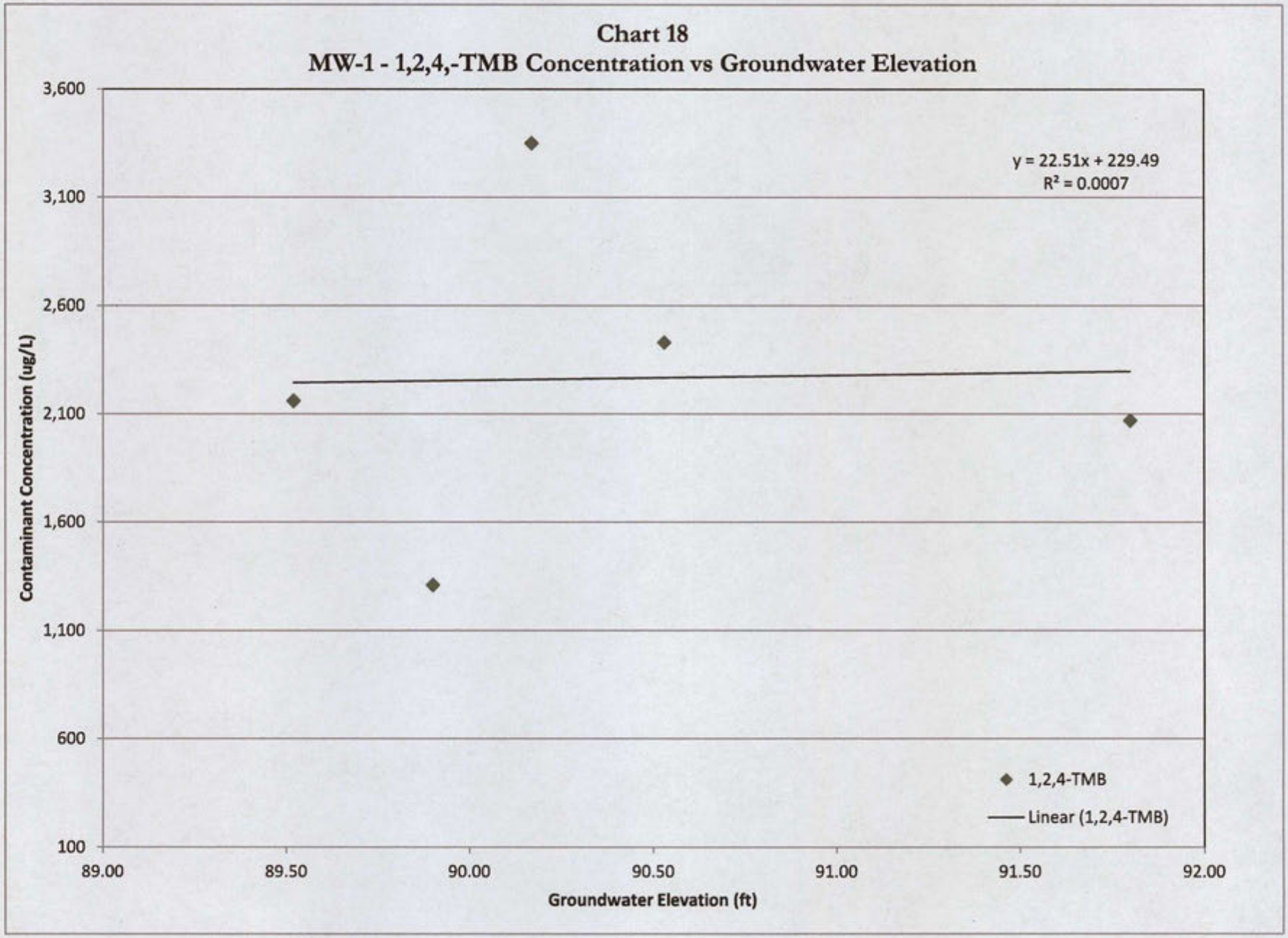


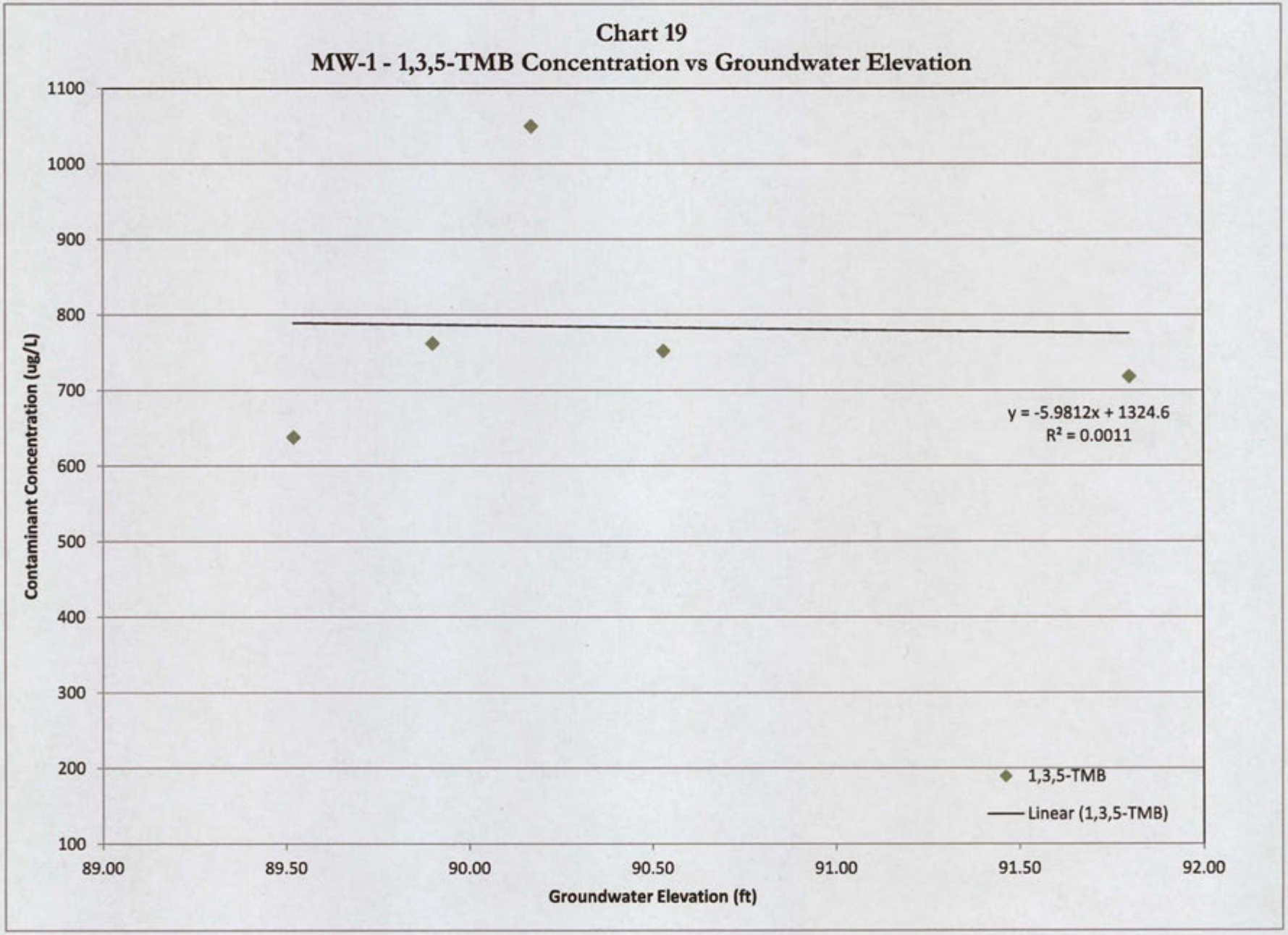


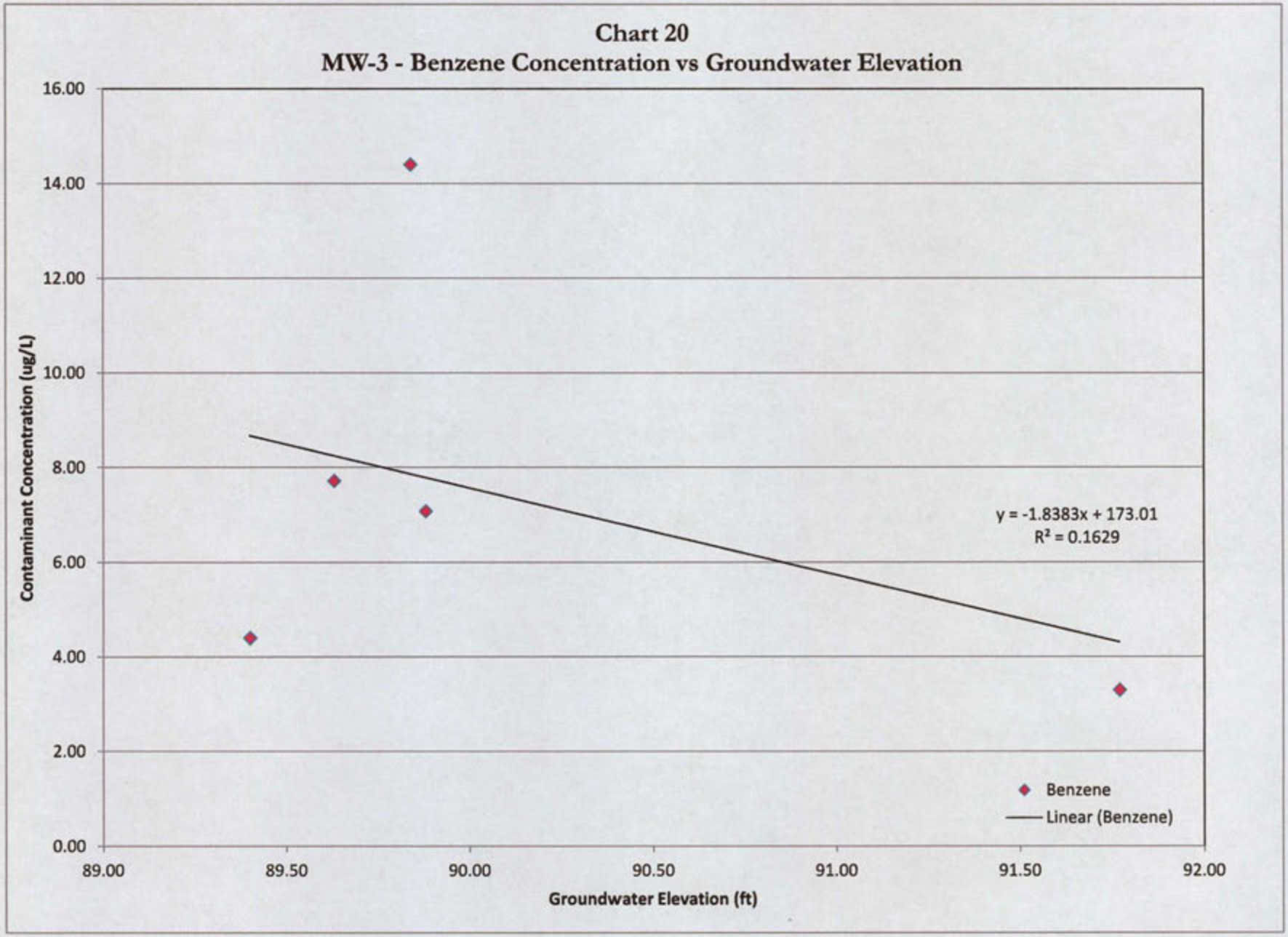


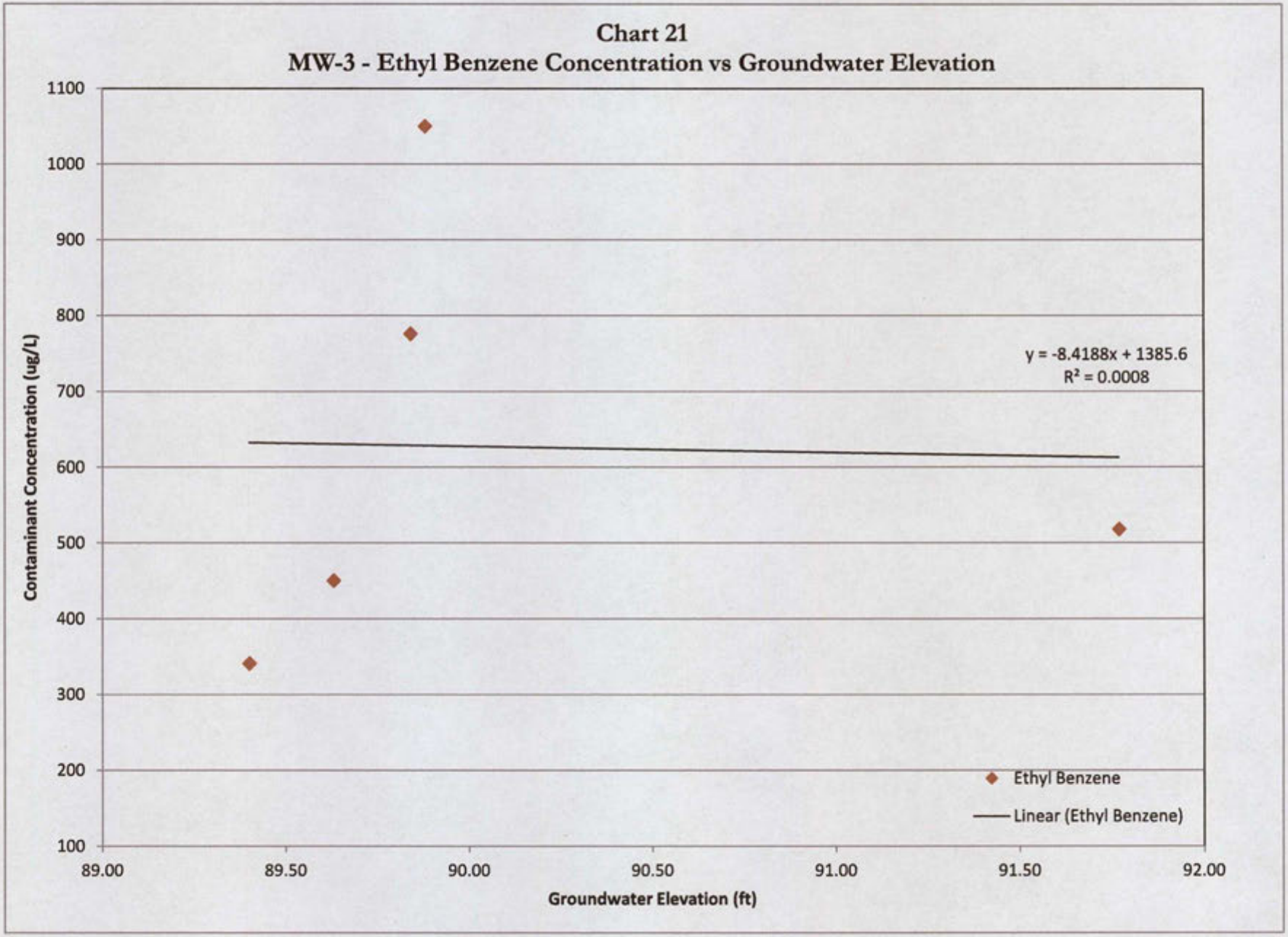












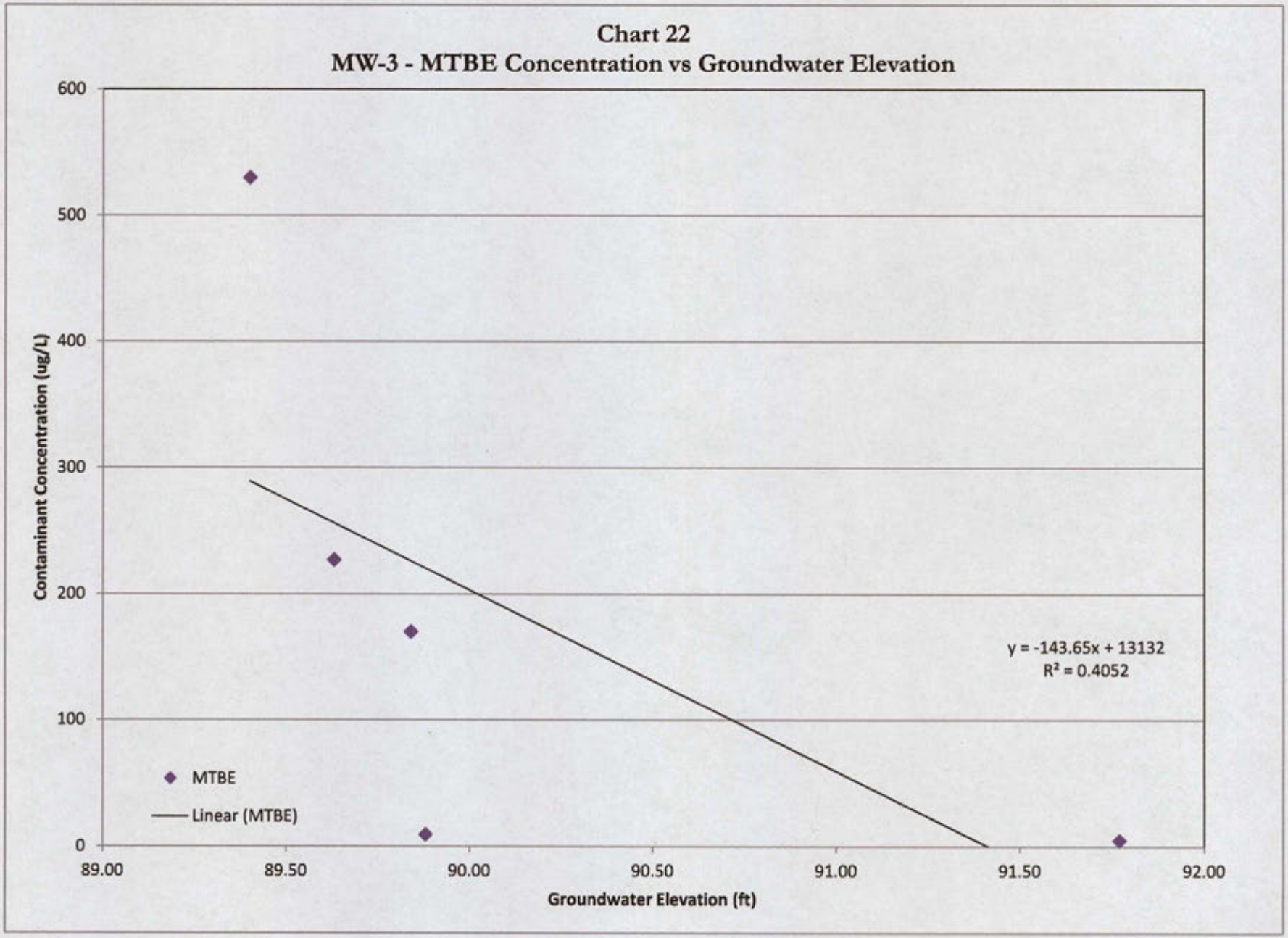


Chart 23
MW-3 - Naphthalene Concentration vs Groundwater Elevation