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September 21, 2015

Mr. John R. Morris, P.G.
Solid Waste Section
Southwest District
Florida Department of Environmental Protection
13051 North Telecom Parkway
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Subject: Semester I 2013 – Semester I 2015 Water Quality Monitoring Plan Evaluation Report
Citrus County Central Class I Landfill
Operation Permit No.: 21375-018-SO/01
Citrus County WACS Facility No.: SWD/09/39859
CDM Smith Project #71138-106667

Dear Mr. Morris:

CDM Smith Inc. (CDM Smith), on behalf of Citrus County, is submitting the Semester I 2013 – Semester I 2015 Water Quality Monitoring Plan Evaluation Report for the Citrus County Central Class I Landfill. This report is submitted in accordance with Specific Condition E.11.a of the current permit for the facility. Please let me know if you have any questions or comments.

Sincerely,

David R. Rojas, P.G.
Environmental Scientist
CDM Smith Inc.

cc: Mr. Henry C. Norris, Jr., Citrus County
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Mr. Nathan Schmaus, CDM Smith

Citrus County, Florida
Citrus County Central Class I Landfill
Facility WACS # SWD/09/39859
Permit# 21375-018-SO/01
Water Quality Monitoring Plan
Evaluation Report
Semester I 2013 – Semester I 2015

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CDM Smith

Citrus County, Florida

Citrus County Central Class I Landfill
Facility WACS# SWD/09/39859
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Water Quality Monitoring Plan Evaluation Report
Semester I 2013 – Semester I 2015

September 2015

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Section 1
Introduction

1.1 Purpose

This Water Quality Monitoring Plan Evaluation Report (WQMPER) was prepared in accordance with Specific Condition E.11 of Permit No. 21375-018-SO/01 as modified by the Florida Department of Environmental Protection (FDEP) and Chapter 72-701.510(8)(b), Florida Administrative Code (F.A.C.). The purpose of the WQMPER is to evaluate water level and water quality data from the first half of 2013 through the first half of 2015 with respect to determining the adequacy of the facility monitoring program to detect a release.

1.2 Background

The Citrus County Central Class I Landfill (site) is located at 230 West Gulf-to-Lake Highway, three miles east of Lecanto, Florida, in central Citrus County. The site, which is located in Section 1, Township 19 South, Range 18 East, is approximately 140 acres in size. The site is permitted to operate the landfill and continue post-closure care of closed landfill cells in accordance with Chapter 62-701, F.A.C. and Permit No. 21375-018-SO/01 as modified.

The site was an undeveloped portion of the Withlacoochee State Forest before landfill operations began in 1975. The western portion of the site is 60 acres in area and includes the closed Class I landfill. The primary landfilling method from 1975 through the late 1980s was unlined trench and fill. In 1988, approximately seven acres in the northeastern part of the 60-acre property was developed as a single-lined disposal unit with a leachate collection system. The closed landfill is capped with a membrane and soil cover, with the exception of an area in the east central portion of the property. A groundwater monitoring network has been in place since 1985.

The eastern portion of the site is approximately 80 acres in area and includes the active cells. The active cells comprise approximately 33 acres. The active landfill cells are lined and were developed in four phases (Phases 1, 1A, 2, and 3) beginning in 1990. Phase 1 is single-lined. Phase 1A began receiving waste in 1997 and is double-lined with a clay sub-base. Phase 2 began receiving waste in 2005 and is also double-lined with a clay sub-base. Phase 3 began receiving waste in 2011 and is double-lined with a geosynthetic clay liner. A leachate collection, storage, and treatment system serves the seven-acre lined cell on the closed portion of the site and all units on the active portion of the site.

1.3 Water Quality Monitoring Plan

Routine semi-annual groundwater and treated leachate effluent monitoring at the facility is performed in accordance with Specific Conditions E.1., E.3., E.4., and E.9. of Permit No. 21375-018-SO/01. In accordance with Specific Condition E.4.b, sampling of the wells listed in Specific Condition E.3 must be performed between January 1 and June 30 (first half) and between July 1 and December 31 (second half) each year. The sampling events were performed in January and July of each year during this monitoring period.

Monitor wells MW-3 and MW-7 are designated as background groundwater quality monitoring locations. Wells MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, MW-20, and MW-21 are designated as compliance wells. Well MW-6 is designated as an intermediate well and wells MW-18 and MW-19 are designated as assessment wells. Locations of monitor wells are shown on **Figure 1-1**. Groundwater samples are collected from the background and compliance wells as specified in Specific Condition E.4.b. of the permit and from the assessment wells as specified in Specific Condition E.4.d. of the permit. Groundwater samples are collected from the intermediate well as specified in Specific Condition E.4.c. Well MW-6 is used to monitor the percolation pond for the disposal of treated leachate and is therefore not included in the discussions regarding groundwater quality. **Table 1-1** is a summary of construction information for all monitor wells and piezometers. The table has been modified from the Well Construction Details table in Attachment 2 of the Water Quality and Leachate Monitoring Plan (WQLMP) dated September 22, 2010 and information from the Ground Water Monitoring Well Installation letter and supporting documents dated March 2, 2011, prepared by SCS Engineers. The measuring point elevations for wells MW-20 and MW-21 provided in the SCS report were converted to the National Geodetic Vertical Datum of 1929 (NGVD) as requested by FDEP and to be consistent with the datum for the measuring points for the wells at the facility.

Based on evaluations of water level data, resurveying of the measuring points of several monitor wells was recommended in early 2015. Discrepancies between the measuring point elevations that were used initially and the resurveyed measuring points were identified. Therefore, the measuring points for all wells were resurveyed in May 2015. Differences between the resurveyed measuring point elevations and the previous elevations were as much as 0.83 foot. Most of the significant discrepancies were for wells located along the western boundary of the site. The corrections in the measuring point elevations along the western portion of the site result in a smoothing of the contour lines in that area. Although the discrepancies in other parts of the site have no significant impact on the interpretation of the water level data, the water level elevation data based on the resurveyed measuring point elevations are used in this report to meet the requirements for the evaluations of water level data specified in Chapter 62-701.510(8)(b). The new survey measuring point elevations are shown in Table 1-1. **Table 1-2** shows the previous measuring point elevations, the resurveyed measuring point elevations, the measuring point reference, and the differences between the previous and new surveyed measuring point elevations. Water level contour maps that were initially provided with the semi-annual groundwater monitoring reports were revised using the data based on the resurveyed measuring point elevations and are included in this report.

Groundwater monitoring of the background, compliance, assessment, and intermediate wells is performed semi-annually in accordance with Specific Condition E.4 of the permit. Surface water monitoring requirements are in Specific Condition E.8 and leachate monitoring requirements are in Specific Condition E.9. Groundwater and leachate samples are collected and analyzed in accordance with quality assurance requirements specified in Specific Condition E.1 of the permit. The samples are collected and analyzed by personnel from TestAmerica Laboratories. Surface

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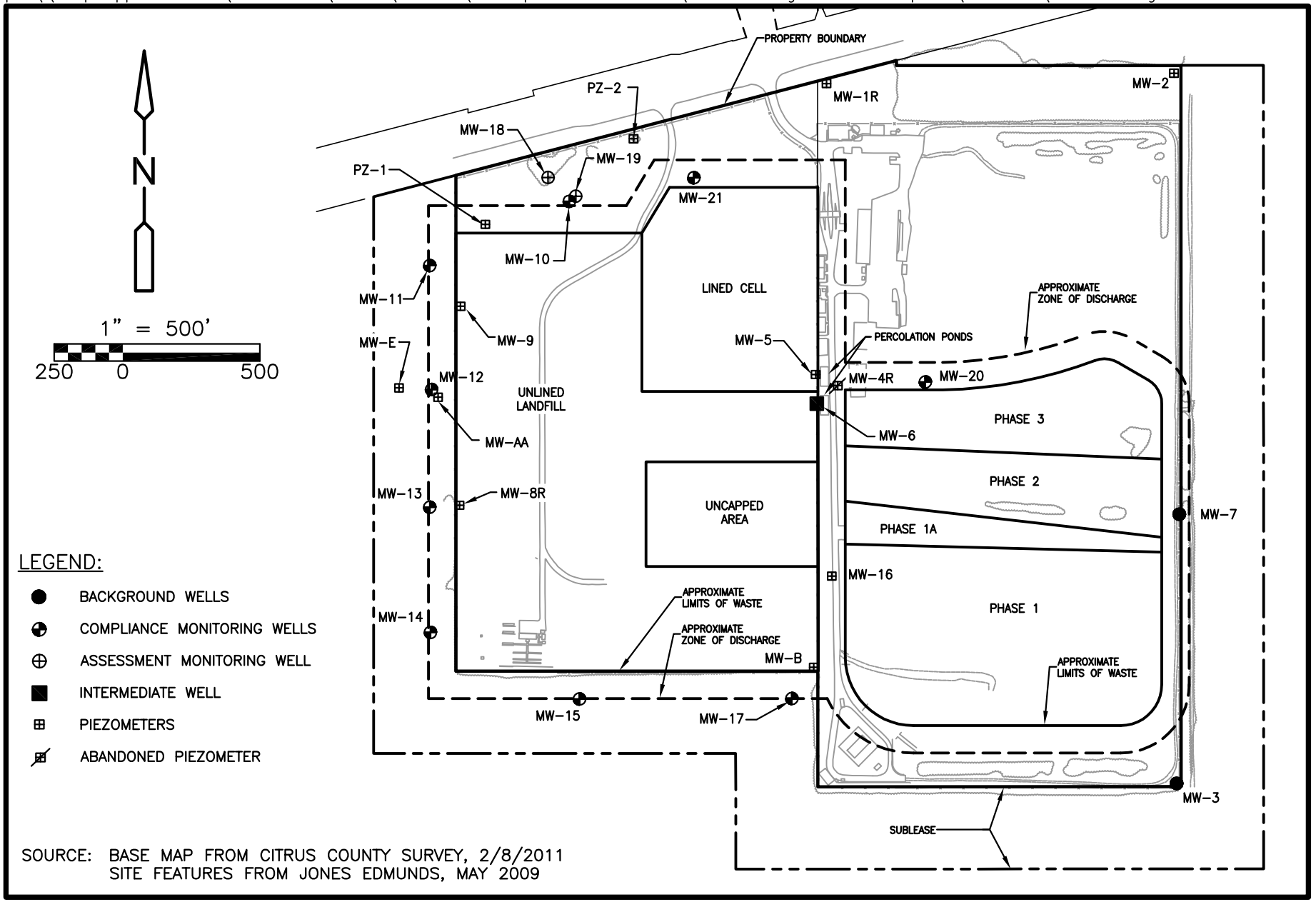

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Figure No. 1-1
Citrus County Central Landfill
Site Features Map

Table 1-1 Citrus County Central Landfill Well - Construction Details for Active Wells and Piezometers

Monitor Well	Well Designation	Well Location		Casing Size (in)	Top of Casing Elev. (NGVD)	Measuring Point Elev. (NGVD)	Land Surface Elev. (NGVD)	TOC vs. Land Surface (ft)	Total Depth		Filter Pack (silica sand)	Screen Details				
		Northing (ft)	Easting (ft)						(ft bls)	(ft btoc)		Length (ft)	Depth (ft. bls)		Elevation (NGVD)	
													Top	Bottom	Top	Bottom
MW-AA	Piezometer	514330.1915	1642944.6946	2	106.11	105.85	104.70	1.41	116	117.4	NR	10	106	116	-1.30	-11.30
MW-B	Piezometer	515703.188	1641952.201	4	113.46	113.30	112.62	0.84	128	128.8	NR	20	108	128	4.62	-15.38
MW-E	Piezometer	514187.411	1642978.872	2	109.51	109.36	106.63	2.88	118	120.9	NR	20	98	118	8.63	-11.37
MW-1R	Piezometer	515734.4675	1644075.0314	2	118.08	118.07	115.30	2.78	125	127.8	NR	10	115	125	0.3	-9.7
MW-2	Piezometer	517016.947	1644134.0121	2	136.19	136.05	133.40	2.79	161	163.8	NR	15	146	161	-12.60	-27.60
MW-3	Background	517026.689	1641528.493	2	120.47	120.31	119.70	0.77	119	119.8	NR	15	104	119	15.7	0.7
MW-5	Piezometer	515706.7199	1643027.5870	2	121.14	120.98	118.60	2.54	120	122.5	NR	10	110	120	8.6	-1.4
MW-6	Intermediate	515710.8712	1642921.8127	2	118.48	118.27	115.80	2.68	122	124.7	NR	10	112	122	3.8	-6.2
MW-7	Background	517032.495	1642518.150	2	128.66	128.47	NR	NR	137	139.06	NR	20	117	137	11.7	-8.3
MW-8R	Piezometer	514408.379	1642551.088	2	118.08	117.96	NR	NR	128	127.98	NR	20	108	128	10.1	-9.9
MW-9	Piezometer	514411.959	1643276.437	2	113.46	113.29	NR	NR	121	120.96	NR	20	101	121	12.6	-7.5
MW-10	Compliance	514808.4751	1643659.0352	2	114.20	113.37	114.74	-0.54	120.5	120.0	20/30	20	100.5	120.5	14.24	-5.76
MW-11	Compliance	514299.5523	1643424.8999	2	105.21	104.69	105.55	-0.34	112.0	111.7	Gravel	20	92.0	112.0	13.55	-6.45
MW-12	Compliance	514306.5574	1642972.8677	2	104.01	103.36	104.50	-0.49	110.0	109.5	20/30	20	90.0	110.0	14.50	-5.50
MW-13	Compliance	514299.7062	1642543.8233	2	112.61	111.92	113.12	-0.51	120.0	119.5	20/30	20	100.0	120.0	13.12	-6.88
MW-14	Compliance	514302.3733	1642085.7341	2	109.12	108.50	109.58	-0.46	116.0	115.5	20/30	20	96.0	116.0	13.58	-6.42
MW-15	Compliance	514845.7153	1641844.4367	2	124.21	123.58	124.65	-0.44	130.0	129.6	20/30	20	110.0	130.0	14.65	-5.35
MW-16	Piezometer	515765.2792	1642292.6040	2	120.31	119.64	120.72	-0.41	127.0	126.6	20/30	20	107.0	127.0	13.72	-6.28
MW-17	Compliance	515619.9611	1641846.2474	2	111.55	110.85	112.07	-0.52	118.0	117.5	20/30	20	98.0	118.0	14.07	-5.93
MW-18	Assessment	514730.9420	1643746.0676	2	116.41	115.82	116.71	-0.30	120.0	119.7	20/30	20	100.0	120.0	16.71	-3.29
MW-19	Assessment	514816.3731	1643660.2048	2	114.16	113.50	114.56	-0.40	140.0	139.6	20/30	10	130.0	140.0	-15.44	-25.44
MW-20	Compliance	516104.004	1642999.189	2	119.74	119.76	NR	NR	NR	125.7	20/30	20	105.0	125.0	NR	NR
MW-21	Compliance	515259.800	1643743.909	2	115.63	115.63	NR	NR	NR	125.9	20/30	20	105.0	125.0	NR	NR
PZ-1	Piezometer	514454.2759	1643505.5893	2	111.56	110.97	111.86	-0.30	120.0	119.7	20/30	20	100.0	120.0	11.86	-8.14
PZ-2	Piezometer	515020.7612	1643833.4593	2	117.32	116.82	117.51	-0.19	120.0	119.8	20/30	20	100.0	120.0	17.51	-2.49

NOTES:
Well Location (Northing and Easting) and Top of Casing (TOC) Elevations from Citrus County Boundary Survey dated 02/10/2011
NGVD - National Geodetic Vertical Datum 1929
Elevations of MW-20 and MW-21 converted to NGVD from NAVD 1988 data from Citrus County Boundary Survey dated 02/10/2011
Total Depths (ft btoc) of MW-20 and MW-21 measured on 01/14/2011 by CDM Smith
Total Depth (ft bls) and Filter Pack information from Attachment 2 of the Water Quality and Leachate Monitoring Plan (WQLMP) dated 09/22/10
Measuring Point Elevations from Citrus County Special Purpose Survey dated 06/11/2015
"TOC vs. Land Surface" values calculated using difference between TOC & ground elevation data presented in Attachment 2 of the WQLMP dated 09/22/10
Land Surface Elevations calculated using "TOC vs. Land Surface" values and the TOC Elevations from Citrus County Boundary Survey dated 02/10/2011
Screen Elevations (NGVD) calculated using screen depths (ft bls) from data presented in Attachment 2 of the WQLMP dated 09/22/10 and revised land surface elevations
NR - Not Recorded
btoc - below top of casing
bls - below land surface
ft - feet
in - inches

Table 1-2. Comparison of Top of Casing and Resurveyed Measuring Point Elevations

Monitor Well ID	Top of Casing (TOC) Elevation (feet NGVD)	Resurveyed Measuring Point (MP) Elevation (feet NGVD)	Measuring Point Reference	Difference between TOC and MP Elev. (feet)
MW-AA	106.11	105.85	Top of PVC casing	0.26
MW-B	113.46	113.30	Top of casing ring	0.16
MW-E	109.51	109.36	Top of casing ring	0.15
MW-1R	118.08	118.07	Top of casing ring	0.01
MW-2	136.19	136.05	Top of casing ring	0.14
MW-3	120.47	120.31	Top of casing ring	0.16
MW-5	121.14	120.98	Top of PVC casing	0.16
MW-6	118.48	118.27	Top of PVC casing	0.21
MW-7	128.66	128.47	Top of casing ring	0.19
MW-8R	118.08	117.96	Top of casing ring	0.12
MW-9	113.46	113.29	Top of casing ring	0.17
MW-10	114.20	113.37	Top of PVC casing	0.83
MW-11	105.21	104.69	Top of PVC casing	0.52
MW-12	104.01	103.36	Top of PVC casing	0.65
MW-13	112.61	111.92	Top of PVC casing	0.69
MW-14	109.12	108.50	Top of PVC casing	0.62
MW-15	124.21	123.58	Top of PVC casing	0.63
MW-16	120.31	119.64	Top of PVC casing	0.67
MW-17	111.55	110.85	Top of PVC casing	0.70
MW-18	116.41	115.82	Top of PVC casing	0.59
MW-19	114.16	113.50	Top of PVC casing	0.66
MW-20	119.74	119.76	Top of PVC casing	-0.02
MW-21	115.63	115.63	Top of PVC casing	0.00
PZ-1	111.56	110.97	Top of PVC casing	0.59
PZ-2	117.32	116.82	Top of PVC casing	0.50

NOTES:
Top of Casing (TOC) Elevations from Citrus County Boundary Survey dated 02/10/2011
Resurveyed Measuring Point (MP) Elevations from Citrus County Special Purpose Survey dated 06/11/2015
NGVD - National Geodetic Vertical Datum 1929

water samples were not collected because there were no off-site discharges during the monitoring period.

Specific Condition E.3. of the permit designates wells MW-1R, MW-2, MW-5, MW-8R, MW-9, MW-16, MW-AA, MW-B, MW-E, PZ-1, and PZ-2 as piezometers. Locations of these wells and piezometers are shown on Figure 1-1. In accordance with Specific Condition E.4.a, groundwater level measurements are collected from all active monitor wells and piezometers during each routine sampling event.

1.4 Report Contents and Organization

This Water Quality Monitoring Plan Evaluation Report (WQMPER) includes monitoring data from January 2013 through January 2015 as specified by Specific Condition E.11 of the permit. As required by Chapter 62-701.510(8)(b) and referenced in Specific Condition E.11 of the permit, this report includes the following:

- Tabular displays of any data which shows that a monitoring parameter has been detected, and graphical displays of any leachate key indicator parameters detected (such as pH, specific conductance, TDS, TOC, sulfate, chloride, sodium and iron), including hydrographs for all monitor wells and piezometers;
- Trend analyses of any monitoring parameters consistently detected;
- Comparisons among shallow, middle, and deep zone wells, as appropriate;
- Comparisons between background water quality and the water quality in compliance wells;
- Correlations between related parameters;
- Discussion of erratic and/or poorly correlated data;
- An interpretation of the ground water contour maps, including an evaluation of ground water flow rates; and
- An evaluation of the adequacy of the water quality monitoring frequency and sampling locations based upon site conditions.

The report is divided into four sections. Section 1 includes an overview of the water quality monitoring program for the Citrus County Central Class I Landfill. Section 2 presents and discusses groundwater level data. Section 3 presents and discusses groundwater quality data, the results of leachate monitoring, and interpretations of the data. Section 4 presents conclusions and recommendations based on the evaluations.

Section 2
Groundwater Level Data

2.1 Introduction

Requirements for water level monitoring are specified in Specific Condition E.4.a of Permit No. 21375-018-S0/01. Groundwater levels are measured semi-annually in the 23 monitor wells and two piezometers as part of the routine monitoring program for the facility in accordance with the approved Water Quality Monitoring Plan dated September 22, 2010. The monitor wells and piezometers that comprise the groundwater monitoring network are listed in Specific Condition E.3 of the permit and in Table 1-1. Locations of monitor wells are shown on Figure 1-1.

As stated in Section 1, measuring point elevations were resurveyed and discrepancies between the new surveyed measuring point elevations and the previous ones were identified. The interpretations of water level data that were submitted to FDEP as part of the semi-annual monitoring reports have not changed with respect to the general directions and rates of groundwater movement; however, the data that are presented and discussed in this section of this report are based on water level elevations calculated using the resurveyed measuring point elevations.

2.2 Groundwater Levels

Groundwater level data collected during each routine monitoring event from the January 2013 event through the January 2015 event are discussed in this section. Prior to conducting each of the routine groundwater sampling events, groundwater water levels were measured in the wells and piezometers designated in Specific Condition E.4.a. All of the wells and piezometers are screened in the Floridan aquifer system or in sediments directly connected to the Floridan aquifer system.

The groundwater level data are presented in **Table A-1 (Appendix A).** Hydrographs are presented in **Figures A-1** through **A-6** (Appendix A). Groundwater level contour maps of the Floridan aquifer system beneath the facility during reporting period from the January 2013 event through the January 2015 event are presented in Appendix A.

With the exception of groundwater levels in wells MW-5 and MW-6, the highest groundwater level elevations are typically in wells that are located in the eastern part of the site (MW-2, MW-3, and MW-7) and in a localized area in the northwestern part of the site (MW-10, MW-18, and MW-19). Groundwater levels in MW-5 and MW-6 have historically been influenced by localized recharge from the disposal of treated leachate effluent via percolation ponds. The percolation ponds, MW-5 and MW-6 are within the permitted zone of discharge. The lowest groundwater level elevations are typically measured in wells that are located along the western boundary of the site (MW-AA, MW-E, MW-8R, and MW-9).

2.3 Direction and Rate of Groundwater Movement

Groundwater level contour maps of the Floridan aquifer system beneath the facility during the January 2013 through January 2015 reporting period indicate that the general direction of the groundwater water movement in the Floridan aquifer system at the site is from east to west. The localized high groundwater level elevations in the approximate center of the site in the vicinity of wells MW-5 and MW-6 is attributed to the disposal of treated leachate effluent via percolation ponds near MW-5 and MW-6.

The groundwater mound associated with the disposal of treated leachate effluent allows for the calculation of seepage velocities from the interior of the zone of discharge to the compliance boundary. The hydraulic gradients between MW-6 and compliance wells along the north, south and west compliance boundaries for each event were estimated by calculating hydraulic gradients for three transects. The three transects are:

- From MW-6 north to MW-1R,
- From MW-6 west to MW-AA, and,
- From MW-6 south to MW-B.

The average hydraulic gradients from January 2013 through January 2015 were 0.0011 in the westward direction from the groundwater mound and 0.0013 in both the northward and southward directions from the groundwater mound.

Slug tests were performed in two Floridan aquifer system wells at the site as part of the investigations performed by Jones Edmonds and Associates, Inc. (JEA). Results of the investigations, including the slug test data, were reported in the Citrus County Central Landfill Groundwater Investigative Report (GWIR) dated January 2006 and the Citrus County Central Landfill Request for Additional Information (RAI) response dated September 2006. The hydraulic conductivity values calculated from these test data ranged from a low of 5.53 feet/day to a high of 40.04 feet/day. In addition, an average value for the hydraulic conductivity of the Floridan aquifer system at the site of 4.86 feet/day was reported by JEA in the Citrus County Central Landfill Site Assessment Report (SARA) dated October 2007. The data used to calculate this value were obtained from slug tests performed in four wells at the site.

The average estimated horizontal seepage velocities from the groundwater mound in the interior of the zone of discharge to the north, south and west in the Floridan aquifer beneath the site were estimated using the two-dimensional form of Darcy's Law below:

$$V_s = \frac{K_H\, i}{n_e}$$

where: V_s = Horizontal seepage velocity (feet/day)

K_H = Horizontal hydraulic conductivity (feet/day)

i = Hydraulic gradient

n_e = Effective porosity

The estimated horizontal seepage rates from the groundwater mound in the interior of the zone of discharge to the north, south and west in the Floridan aquifer system beneath the site were calculated using the average hydraulic gradients calculated for each of these directions and the most conservative values (i.e., the highest) for hydraulic conductivity (40.04 feet/day) and effective porosity (25% as presented in Fetter, 2001, Applied Hydrogeology 4th Edition, Prentice Hall 66-204). Based on these data, the calculated conservative estimates for horizontal seepage velocities are 0.208 foot/day or approximately 6.25 feet/month for northward and southward groundwater movement from the groundwater mound in the interior of the zone of discharge and 0.176 foot/day or approximately 5.23 feet/month for westward groundwater movement from the groundwater mound in the interior of the zone of discharge. The hydraulic gradients, and resulting horizontal seepage rates, are expected to decline after the cessation of leachate effluent disposal into the percolation ponds near MW-6.

Section 3

Groundwater and Leachate Effluent Quality

3.1 Compliance and Assessment Groundwater Quality

3.1.1 Data

Table B-1 (**Appendix B**) summarizes field parameter measurements and detected analytes from groundwater sampling events conducted from January 2013 through January 2015. Concentration versus time graphs for all analytes that were detected in more than one-half of the samples (consistently) from individual wells during the January 2013 through January 2015 reporting period are also in Appendix B.

3.1.2 Groundwater Quality in Background Wells

Monitor wells MW-3 and MW-7 are designated as background wells. The results of analyses and field measurements of pH performed during the January 2013 through January 2015 reporting period were compared to Maximum Contaminant Levels (MCLs) established in Chapter 62-550, F.A.C., or, for analytes for which MCLs have not been established, Groundwater Cleanup Target Levels (GCTLs) established in 62-777, F.A.C. No analytes for which MCLs have not been established were detected in concentrations that exceeded GCTLs.

Arsenic, benzene, and iron were the only analytes detected in samples from background wells that were detected in concentrations that exceeded MCLs. All of the pH values measured in the samples collected from both background wells were below the Secondary Drinking Water Standard (SDWS) acceptable range of 6.5 – 8.5 Standard Units (S.U.). Results of analyses for these analytes and pH values are summarized in **Table 3-1**.

Average and maximum background concentrations of benzene and iron and pH values from the samples collected from background wells are also shown on Table 3-1. Average and maximum background concentrations for arsenic are not included in Table 3-1 because arsenic was not detected in concentrations that exceeded the MCL in any samples collected from compliance wells.

Only the concentration of arsenic detected in the groundwater sample collected from background well MW-7 during the January 2013 sampling event was above the Primary Drinking Water Standard (PDWS) MCL. The concentration of arsenic in the sample was 11 micrograms per liter (µg/L), which is only 1 µg/L above the MCL. This exceedance was not confirmed by subsequent analyses. Concentrations were below the MCL and were decreasing in samples collected during the three subsequent monitoring events.

During the reporting period, benzene was not detected in any of the samples collected from background well MW-3. Benzene was detected in all of the samples collected from background well MW-7 during the reporting period. Although the concentrations of benzene detected in the last three samples collected from MW-7 exceeded 1.0 µg/L, the concentration detected in the sample collected in January 2014 (1.1 µg/L) is not considered to exceed the PDWS MCL when applying the rounding method described in the FDEP memo *Rounding Analytical Data for Site*

Table 3-1. Background Wells - Parameters Detected in Groundwater Samples at Concentrations Exceeding Groundwater Quality Criteria

Well	Parameter	Units	GCTL/MCL	Average Background	Maximum Background	DATE OF SAMPLE				
				Concentration/ValueΔ	Concentration/Value	January 2013	July 2013	January 2014	July 2014	January 2015
MW-3	Arsenic	µg/L	10	NA	NA	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
	Benzene	µg/L	1.0	0.83	2.0	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	Iron	µg/L	300	963	2300	33 U	33 U	33 U	100	33 U
	pH	S.U.	6.5 - 8.5	4.85	3.96 †	5.19	3.96	4.86	4.88	4.70
MW-7	Arsenic	µg/L	10	NA	NA	9.1	11.0	8.5	7.7	6.4
	Benzene	µg/L	1.0	0.83	2.0	0.97 I	0.95 I	1.1 *	2.0	2.0
	Iron	µg/L	300	963	2300	1400	2000	1800	2300	1900
	pH	S.U.	6.5 - 8.5	4.85	3.96 †	5.29	4.20	5.24	5.15	5.00

NOTES:

Concentration of the parameter exceeds the MCL/GCTL or the value of pH is outside the acceptable MCL range.

† = Because all of the pH values measured in background wells that are outside the acceptable MCL range are below the acceptable range, the minimum value is presented.

µg/L = Microgram per liter

S.U. = Standard Units

MCL = Maximum Contaminant Level established in Chapter 62-550, F.A.C.

GCTL = Groundwater Cleanup Target Level established in Chapter 62-777, F.A.C.

NA = Not applicable because there were no exceedances in samples from compliance wells.

U = Not detected; the reported value is the Method Detection Limit.

I = Estimated value; the parameter was detected below the Practical Quantitation Limit

Δ = Method Detection Limits are used to calculate averages for parameters that are not detected.

* = Although the lab reported this concentration in tenths, using the rounding method described in FDEP Rounding Analytical Data for Site Rehabilitation Completion memo dated November 17, 2011, the value can be rounded to the nearest whole integer which results in this value being equivalent to the MCL/GCTL.

Rehabilitation Completion, dated November 17, 2011. The concentrations detected in the July 2014 and January 2015 samples from MW-7 (2.0 µg/L) were above the PDWS MCL. The presence of benzene and other volatile organic contaminants are attributed to the exchange of these compounds from landfill gas to the groundwater.

The concentrations of iron detected in all of the samples collected from background well MW-3 during the reporting period were below the Secondary Drinking Water Standard (SDWS) MCL. Iron was only detected in one of the samples collected from background well MW-3 during this period and the concentration detected was below the SDWS MCL. Iron was detected above the SDWS MCL in all of the groundwater samples collected from background well MW-7 during this period.

All of the pH values measured in the samples collected from both of the background wells during the January 2013 through January 2015 reporting period were below the acceptable range of 6.5 – 8.5 S.U. The pH values of 3.96 S.U. (MW-3) and 4.20 S.U. (MW-7) measured in July 2013, were approximately one standard unit below the other values measured in these background wells during the monitoring period and are considered anomalous.

3.1.3 Groundwater Quality in Compliance Wells

Groundwater quality was monitored in nine compliance wells (MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, MW-20, and MW-21). The results of groundwater quality monitoring performed during the January 2013 through January 2015 reporting period were compared to established criteria including PDWS MCLs, SDWS MCLs, and GCTLs. Concentrations of analytes that exceeded the MCLs or GCTLs were also compared to background concentrations. Values for pH were also compared to the SDWS acceptable range and, if outside the acceptable range, were compared to background values.

Table 3-2 is a summary of analytical results of analytes that were detected in concentrations that exceeded MCLs and pH values that were outside of the acceptable SDWS range in samples collected from compliance wells during this monitoring period. Benzene, vinyl chloride, and iron were the only analytes detected in concentrations that exceeded their MCLs in samples collected from compliance wells during this reporting period. Values for pH were also below the acceptable level in samples collected from six of the nine compliance wells during this reporting period. Concentrations of all analytes were below MCLs and GCTLs and values for pH were within the acceptable range in all samples collected from MW-11 during this reporting period.

Benzene and vinyl chloride in samples from monitor wells MW-10 and MW-21 were the only organic compounds detected in concentrations that exceeded PDWS MCLs in the groundwater samples collected from compliance wells during the January 2013 through January 2015 monitoring period. The concentrations of benzene that were detected in samples from MW-10 varied from 1.2 µg/L to 1.6 µg/L during this monitoring period. The concentration of benzene detected in the sample collected from MW-21 in January 2013 was 2.5 µg/L. The concentrations of benzene in the subsequent four samples collected from this well decreased after the January 2013 event and varied from 1.3 µg/L to 1.5 µg/L. Vinyl chloride concentrations in all of the samples from well MW-10 and one sample collected from well MW-21 during this monitoring period exceeded the PDWS MCL.

Table 3-2. Parameters Detected in Citrus County Central Class I Landfill Compliance and Assessment Wells at Concentrations Exceeding Regulatory Criteria

Well No.	Well Designation	Parameter	Units	GCTL/MCL	Average Background Concentration/Value	Maximum Background Concentration/Value	Date of Sample				
							Jan-13	Jul-13	Jan-14	Jul-14	Jan-15
MW-10	Compliance	Benzene	ug/l	1	0.83	2.0	1.6	1.6	1.2 Δ	1.6	1.3 Δ
MW-10	Compliance	Iron, dissolved	ug/l	300	NA	NA	3,000	5,000	4,800	5,200	4,700
MW-10	Compliance	Iron, total	ug/l	300	957	2300	3,700	5,900	5,300	5,900	5,100
MW-10	Compliance	pH	SU	6.5 - 8.5	4.85	3.96†	4.36	4.35	4.59	4.32	4.48
MW-10	Compliance	Vinyl Chloride	ug/l	1	NA	NA	1.7	1.8	1.5	1.80	1.8
MW-12	Compliance	Iron, total	ug/l	300	957	2300	2,700	3,600	3,300	2,700	2,900
MW-13	Compliance	Iron, total	ug/l	300	957	2300	2,700	3,100	3,500	3,400	3,700
MW-13	Compliance	pH	SU	6.5 - 8.5	4.85	3.96†	5.03	5.15	5.15	5.05	5.30
MW-14	Compliance	Iron, total	ug/l	300	957	2300	420	62 I	150	51 I	45 I
MW-15	Compliance	Iron, total	ug/l	300	957	2300	9,000	7,000	9,800	7,200	7,500
MW-15	Compliance	pH	SU	6.5 - 8.5	4.85	3.96†	4.69	5.14	5.09	4.24	4.55
MW-17	Compliance	Iron, total	ug/l	300	957	2300	7,700	8,600	11,000	13,000	13,000
MW-17	Compliance	pH	SU	6.5 - 8.5	4.85	3.96†	4.95	5.41	5.30	5.18	5.30
MW-18	Assessment	pH	SU	6.5 - 8.5	4.85	3.96†	4.79	3.90	4.95	4.54	4.79
MW-19	Assessment	Methylene chloride	ug/l	5	NA	NA	4.0 U	4.0 U	4.0 U	4.2 I	7.3
MW-19	Assessment	pH	SU	6.5 - 8.5	4.85	3.96†	5.69	5.76	6.11	5.59	5.54
MW-19	Assessment	Vinyl Chloride	ug/l	1	NA	NA	0.50 U	0.50 U	0.50 U	0.50 U	1.2 Δ
MW-20	Compliance	Iron, total	ug/l	300	957	2300	85,000	62,000	66,000	50,000	63,000
MW-20	Compliance	pH	SU	6.5 - 8.5	4.85	3.96†	6.15	5.39	5.94	5.67	5.91
MW-21	Compliance	Benzene	ug/l	1	0.98	2.0	2.5	1.4 Δ	1.3 Δ	1.5	1.5
MW-21	Compliance	Iron, dissolved	ug/l	300	NA	NA	820	680	1,000	710	910
MW-21	Compliance	Iron, total	ug/l	300	957	2300	1,200	740	1,600	1,200	1,300
MW-21	Compliance	pH	SU	6.5 - 8.5	4.85	3.96†	4.74	3.91	4.74	4.57	4.54
MW-21	Compliance	Vinyl Chloride	ug/l	1	NA	NA	2.3	0.79 I	0.68 I	0.52 I	0.55 I

NOTES:

Concentration exceeds the MCL/GCTL and maximum background concentration

Concentration exceeds the MCL/GCTL and the average background concentration

Concentration exceeds the MCL/GCTL

GCTL - Groundwater Cleanup Target level (Chapter 62-777, F.A.C.)

MCL - Maximum Contaminant Target Level (Chapter 62-550, F.A.C.)

ug/L - micrograms per liter

† = Because all of the pH values measured in background wells that are outside the acceptable MCL range are below the acceptable range, the minimum value is presented.

Δ = Although the lab reported this concentration in tenths, using the rounding method described in FDEP Rounding Analytical Data for Site Rehabilitation Completion memo dated November 17, 2011, the value can be

NA - Not applicable either because the parameter was not analyzed or detected at concentrations above regulatory criteria in samples collected from background wells during the moniting period.

NTU - nephelometric turbidity units

I - Estimated value; the analyte was detected at a concentration below the quantitation limit

U = Analyte not detected; the concentration shown is the method detection limit (MDL).

SU - Standard Unit

Iron was detected in concentrations above the SDWS MCL and maximum background concentration in all of the samples collected during the January 2013 through January 2015 monitoring period from all compliance wells except MW-11, MW-14, and MW-21. The highest concentrations of iron were detected in samples from well MW-20. The concentrations of iron detected in the samples collected from MW-20 during the monitoring period ranged from 85,000 µg/L in the January 2013 sample to 50,000 µg/L in the July 2014 sample. The next highest concentration of iron detected in samples from compliance wells during this monitoring period was 13,000 µg/L in the July 2014 and January 2015 samples from MW-17.

Values for pH below the acceptable SDWS range were measured in all of the samples collected during the January 2013 through January 2015 monitoring period from compliance wells MW-10, MW-13, MW-15, MW-17, MW-20, and MW-21. The pH values measured in all the samples collected from compliance wells MW-13 and MW-17 during the reporting period were above the average background value of 4.85 S.U.

3.1.4 Groundwater Quality in Assessment Wells

Samples from the assessment wells MW-18 and MW-19 were analyzed for benzene, methylene chloride, and vinyl chloride in accordance with Specific Condition E.4.d. Results are summarized in Table 3-2. The concentrations of benzene, methylene chloride, and vinyl chloride were below the MCLs in all of the samples collected from MW-18 during the monitoring period. Vinyl chloride and methylene chloride were detected in the sample collected in January 2015 from MW-19 in concentrations that exceeded PDWS MCLs. Although 1.2 µg/L vinyl chloride was detected, using the rounding method described in the FDEP memo *Rounding Analytical Data for Site Rehabilitation Completion*, dated November 17, 2011, the concentration is not considered to exceed the PDWS MCL. Methylene chloride was detected for the first time in the sample collected from MW-19 in July 2014 (4.2 µg/L) and the concentration detected in the sample collected in January 2015 (7.3 µg/L) exceeded the PDWS MCL. The values for pH were below the acceptable SDWS value in all samples from both of the assessment wells.

3.1.5 Trends and Correlations

Time versus concentration graphs for parameters that were consistently detected in groundwater samples collected during the January 2013 through January 2015 reporting period are in Appendix B. With the exception of several parameters in samples from background wells, there are few strong increasing or decreasing trends in concentrations. In most areas of the site, groundwater quality remained stable.

Concentrations of 1,4-dichlorobenzene, benzene, chlorobenzene, and iron increased during the monitoring period in samples from background well MW-7. Although the concentrations of 1,4-dichlorobenzene and chlorobenzene increased in samples from background well MW-7 during the monitoring period, the concentrations of these analytes remained far below the PDWS MCLs. However, concentrations of benzene exceeded the PDWS MCL in the samples collected from MW-7 in July 2014 and January 2015. After July 2013, iron concentrations in samples from MW-7 have fluctuated with a slight overall increasing trend. The increases in concentrations of 1,4-dichlorobenzene, benzene, chlorobenzene, and iron do not correlate with concentrations of the common leachate indicator parameters such as chloride, total dissolved solids (TDS), and ammonia. Concentrations of these analytes remained very low during this monitoring period.

This data indicates that the increases in concentrations of 1,4-dichlorobenzene, benzene, chlorobenzene, and iron are not associated with a discharge of landfill leachate.

The concentration of arsenic slightly exceeded the PDWS MCL in the sample collected from MW-7 in July 2013. However, after July 2013, the concentrations in the subsequent three samples were below the MCL and exhibited a decreasing trend.

With the exceptions of vinyl chloride in samples from MW-13, iron in samples from MW-14, TDS, iron and ammonia in samples from MW-17, iron in samples from MW-20, and organic compounds in samples from well MW-21, there were no obvious trends in concentrations of analytes in samples from compliance and assessment wells. These trends are summarized below:

- Concentrations of vinyl chloride in samples from MW-13 continued to decline and remained below the PDWS MCL of 1.0 µg/L during the January 2013 through January 2015 monitoring period. Vinyl chloride was not detected in the samples collected in July 2014 and January 2015.
- Concentrations of iron in samples from well MW-14 decreased from above the SDWS MCL in the sample collected in January 2013 to well below the MCL in subsequent samples.
- Concentrations of TDS, iron and ammonia in samples collected from MW-17 increased during the monitoring period. Concentrations of TDS increased slightly but remained far below the SDWS MCL. Concentrations of ammonia also increased slightly but remained far below the GCTL. Concentrations of iron nearly doubled during the period. The increases in iron loosely correlate with increases in specific conductance and turbidity. However, the concentration of iron in the sample collected in January 2015 was the same as the concentration detected in the sample collected in July 2014 despite the decrease in turbidity.
- The concentrations of benzene and vinyl chloride in samples collected from MW-21 generally declined during the early part of the monitoring period. Concentrations of both of these analytes decreased from above their PDWS MCLs in the samples collected in January 2013 to below their PDWS MCLs in the samples collected in July 2013. Concentrations of benzene remained relatively stable during the last four monitoring events with concentrations varying from 1.3 µg/L to 1.5 µg/L. After July 2013, concentrations of vinyl chloride slowly declined through the July 2014 event and remained stable afterward.

In general, neither the concentrations of benzene, vinyl chloride, and iron nor the generally low pH values correlate with concentrations of other leachate indicator parameters such as ammonia, chlorides and TDS. Concentrations of leachate indicator parameters have remained relatively stable and generally far below the SDWS MCLs and GCTL in samples from all wells. These data indicate that the concentrations of iron that exceed the SDWS MCL and the low pH values are naturally occurring and that the presence of organic compounds is not associated with a discharge of leachate.

3.2 MW-6 Groundwater and Leachate Effluent Quality

3.2.1 MW-6

Monitor well MW-6 is designated as an intermediate well. This well is located within the permitted zone of discharge for the facility. Revisions to the monitoring requirements for MW-6 groundwater sampling and leachate sampling were established in permit modification 21375-024-SO/MM dated December 19, 2013. MW-6 was sampled semi-annually for the parameters listed in Specific Condition E.4.c. of the permit in January 2014, July 2014, and January 2015. Trend analyses of the results were performed in accordance with Specific Condition E.10.a. of the permit to evaluate potential effects of the discharge of treated leachate on groundwater within the zone of discharge. These data and trend analyses were included in the semi-annual water quality monitoring reports.

A summary of the analytical results for samples collected from monitor well MW-6 from January 2002 through January 2015 along with the MCLs is provided in **Table C-1 (Appendix C)**. Time verses concentration graphs for the parameters listed in Specific Condition E.4.c. of the permit since January 2002 are also included in Appendix C. Recent concentrations and values are generally within the historical ranges of concentrations or values for samples collected before January 2013. Although the linear regressions may indicate increasing or decreasing trends, in general, the concentrations or values vary greatly resulting in low correlation coefficients.

3.2.2 Leachate Effluent Quality

In accordance with the current permit, leachate influent sampling is not required and was not performed during the January 2013 through January 2015 monitoring period. Leachate effluent sampling was performed semi-annually in accordance with Specific Conditions E.9.a.(1) and E.9.a.(2) of the permit in January 2014, July 2014, and January 2015. A summary of the leachate effluent quality analytical results for samples collected from 2010 through January 2015 is provided in **Table C-2** (Appendix C). The annual leachate effluent analytical results from the January 2013 through January 2015 reporting period were compared to established toxicity characteristic values in Table 1 of 40 CFR Part 261.24. Concentrations of all analytes were below thee established toxicity criteria.

Section 4
Conclusions and Recommendations

4.1 Conclusions

The following conclusions are based on evaluation of the data presented in this WQMPER:

- All of the monitor wells and piezometers at the site are screened in the Floridan aquifer system or in sediments directly connected to the Floridan aquifer system.
- Discrepancies between previous surveyed measuring point elevations and measuring point elevations surveyed in May 2015 have little effect on interpretations of groundwater movement at the site. Water level elevations calculated using the resurveyed measuring point elevations and revised water level contour maps are used in this report to meet the requirements of the permit and Chapter 62-701.560(8)(b).
- With the exception of groundwater levels in wells MW-5 and MW-6, the highest groundwater level elevations are typically in wells that are located in the eastern part of the site and in a localized area in the northwestern part of the site.
- Groundwater levels in MW-5 and MW-6 are influenced by localized recharge from the disposal of treated leachate effluent via percolation ponds.
- The lowest groundwater level elevations are typically measured in wells that are located along the western boundary of the site.
- The general direction of the groundwater water movement in the Floridan aquifer at the site is from east to west.
- The groundwater mound associated with the disposal of treated leachate effluent allows for the calculation of seepage velocities from the interior of the zone of discharge to the compliance boundary.
- The calculated conservative estimates for horizontal seepage velocities are 0.208 foot/day or approximately 6.25 feet/month for northward and southward groundwater movement from the groundwater mound in the interior of the zone of discharge and 0.176 foot/day or approximately 5.23 feet/month for westward groundwater movement from the groundwater mound in the interior of the zone of discharge.
- Benzene and iron were the only analytes detected in samples from background wells in confirmed concentrations that exceeded MCLs.
- The benzene concentrations detected in the July 2014 and January 2015 samples from MW-7 (2.0 µg/L) were above the PDWS MCL.

- Values for pH were below the acceptable range in all of the samples collected from all of the background wells.
- Concentrations of 1,4-dichlorobenzene, benzene, chlorobenzene, and iron increased during the monitoring period in samples from background well MW-7.
- Concentrations of the common leachate indicator parameters such as chloride, TDS, and ammonia in samples from MW-7 remained very low, indicating that the increases in concentrations of 1,4-dichlorobenzene, benzene, chlorobenzene, and iron are not associated with a discharge of landfill leachate. The presence of benzene and other volatile organic contaminants in the samples from MW-7 are attributed to the exchange of these compounds from landfill gas to the groundwater.
- Benzene, vinyl chloride, and iron were the only analytes detected in concentrations that exceeded their MCLs in samples collected from compliance wells during this reporting period.
- Benzene concentrations in all of the samples from MW-10 and MW-21 slightly exceeded the PDWS MCL of 1 µg/L; however, when concentrations were rounded in accordance with FDEP guidance, two of the samples from each of the wells did not exceed the MCL.
- Vinyl chloride concentrations in all of the samples from well MW-10 and one sample collected from well MW-21 during this monitoring period exceeded the PDWS MCL.
- Vinyl chloride and methylene chloride were detected in the sample collected in January 2015 from assessment well MW-19 in concentrations that exceeded the PDWS MCL.
- The absence of numerous strong increasing or decreasing trends in concentrations indicates that in most areas of the site, groundwater quality remained stable.
- Concentrations of leachate indicator parameters have remained relatively stable and generally far below the SDWS MCLs and GCTL in groundwater samples indicating that the concentrations of iron that exceed the SDWS MCL and the low pH values in groundwater are naturally occurring and that the presence of organic compounds is not associated with a discharge of leachate. The presence of volatile organic contaminants in the groundwater are attributed to the exchange of these compounds from landfill gas to the groundwater.
- The groundwater monitoring program is sufficient to detect a release of contaminants associated with landfill leachate into groundwater.

4.2 Recommendations

The following recommendations are based on the information presented in this technical report and changes in facility operations:

- No substantial modifications to the monitoring program should be made.
- Routine monitoring of background and compliance wells should continue in accordance with the September 2010 WQMP.

- Monitoring of MW-6 should be discontinued because treated leachate is no longer disposed of via the percolation ponds.
- Due to the cessation of the chemical treatment and disposal of leachate at the site, the requirements for leachate effluent sampling pursuant to Specific Condition E.9 of the Permit should be terminated.
- Wells MW-20 and MW-21, should be redesignated as detection wells because of their relative distances from the edge of waste and the edge of the zone of discharge (ZOD).
- The ZOD north of the closed 60-acre landfill should be extended to the north property boundary as allowed pursuant to Chapter 62-520.465(1), F.A.C.

Appendix A

Groundwater Level Data and Groundwater Level Contour Maps

Table A-1. Static Water Level Elevations From All Monitor Wells and Piezometers From January 2013 To January 2015

Monitor Well or Piezometer	Static Water Level Elevations (FT NGVD 29*)				
	2013		2014		2015
	1/22/13	7/16/13	1/21/14	7/22/14	1/20/15
MW-AA	5.90	5.71	5.52	5.50	5.85
MW-B	6.26	5.93	5.84	5.83	6.13
MW-E	5.92	5.76	5.58	5.56	5.84
MW-1R	6.12	5.70	5.67	5.67	5.99
MW-2	8.63	6.86	7.34	7.15	7.59
MW-3	8.13	7.92	6.94	6.87	7.89
MW-5	8.21	6.36	7.30	7.09	7.57
MW-6	8.16	6.36	7.27	7.07	7.52
MW-7	8.06	6.37	6.89	6.69	7.27
MW-8R	6.11	5.65	5.63	5.65	5.96
MW-9	5.85	5.65	5.44	5.46	5.82
MW-10	7.52	6.58	6.67	6.57	7.22
MW-11	5.88	5.69	5.50	5.45	5.82
MW-12	5.90	5.68	5.52	5.50	5.86
MW-13	6.21	5.63	5.65	5.64	5.96
MW-14	5.89	5.70	5.49	5.48	5.83
MW-15	6.54	5.74	5.85	5.86	6.20
MW-16	6.10	5.85	5.72	5.72	6.12
MW-17	6.05	5.78	5.62	5.63	5.96
MW-18	7.68	8.10	6.93	6.81	7.67
MW-19	7.53	6.61	6.80	6.62	7.19
MW-20	7.60	6.25	6.85	6.76	7.13
MW-21	7.43	6.86	6.68	6.57	7.11
PZ-1	5.91	5.68	5.50	5.52	5.84
PZ-2	5.73	5.56	5.33	5.36	5.71
Gradient Pairs	Calculated Hydraulic Gradients				
	2013		2014		2015
	1/22/13	7/16/13	1/21/14	7/22/14	1/20/15
HG from MW-6 to MW-1R	0.0018	0.0006	0.0014	0.0012	0.0013
HG from MW-6 to MW-AA	0.0016	0.0005	0.0013	0.0011	0.0012
HG from MW-6 to MW-B	0.0020	0.0004	0.0015	0.0013	0.0014
Average Hydraulic Gradient	0.0018	0.0005	0.0014	0.0012	0.0013

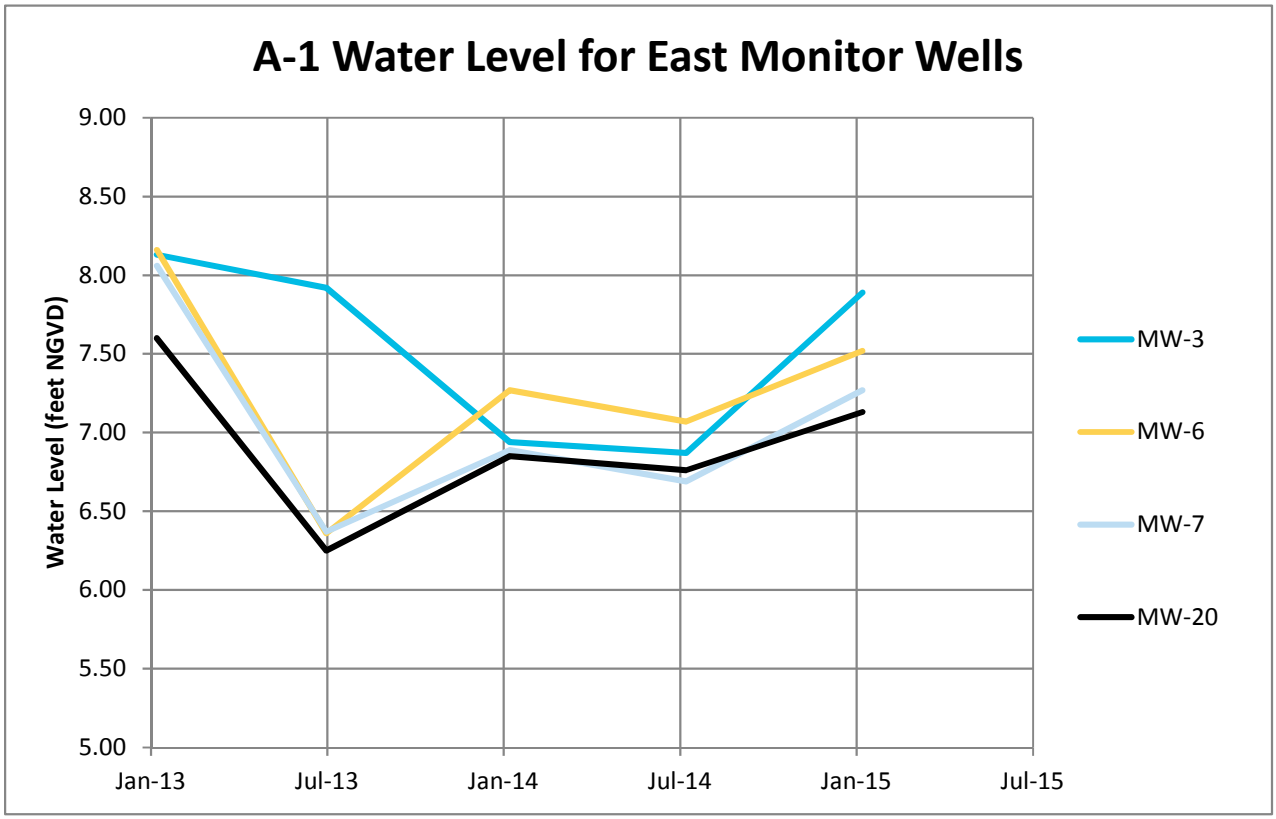
Note:

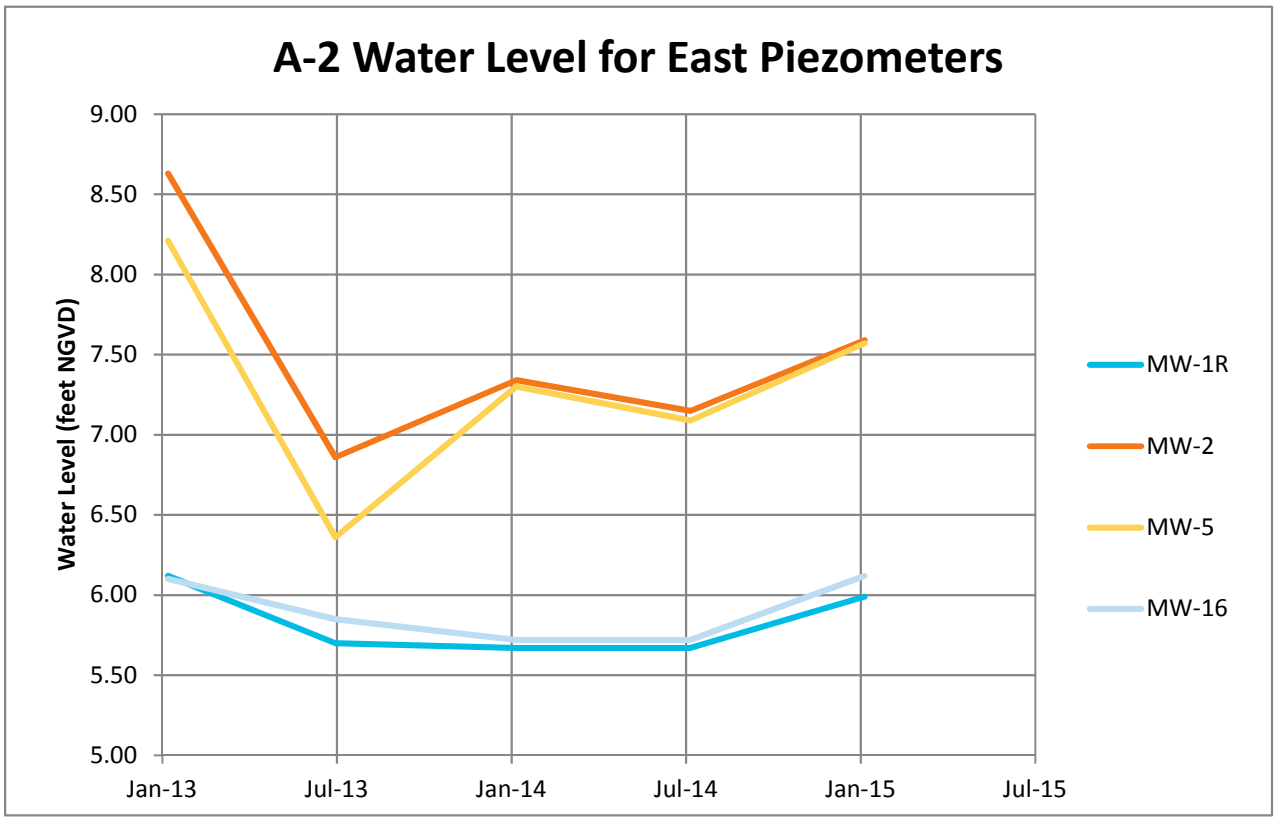
NA - Well was plugged and abandoned or not yet installed, so a static water level was not available

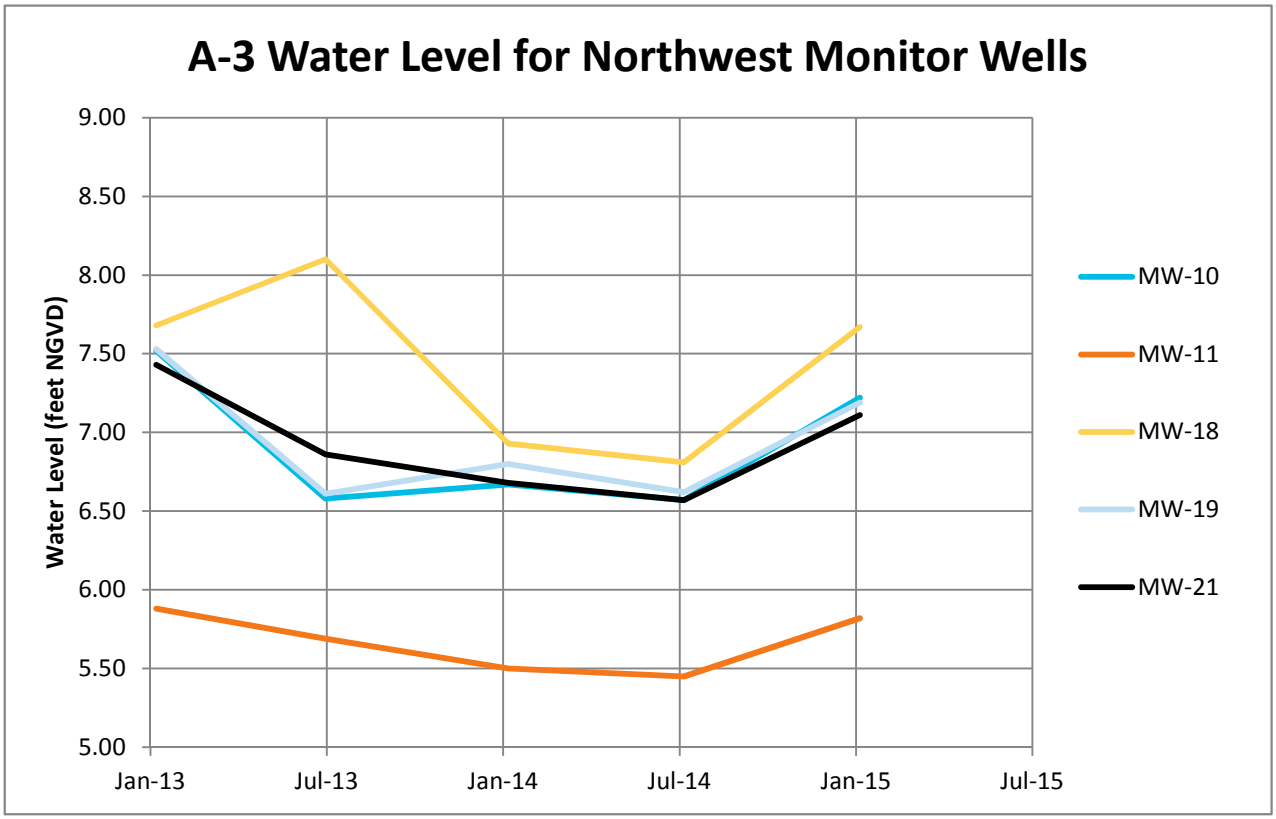
HG - Hydraulic Gradient

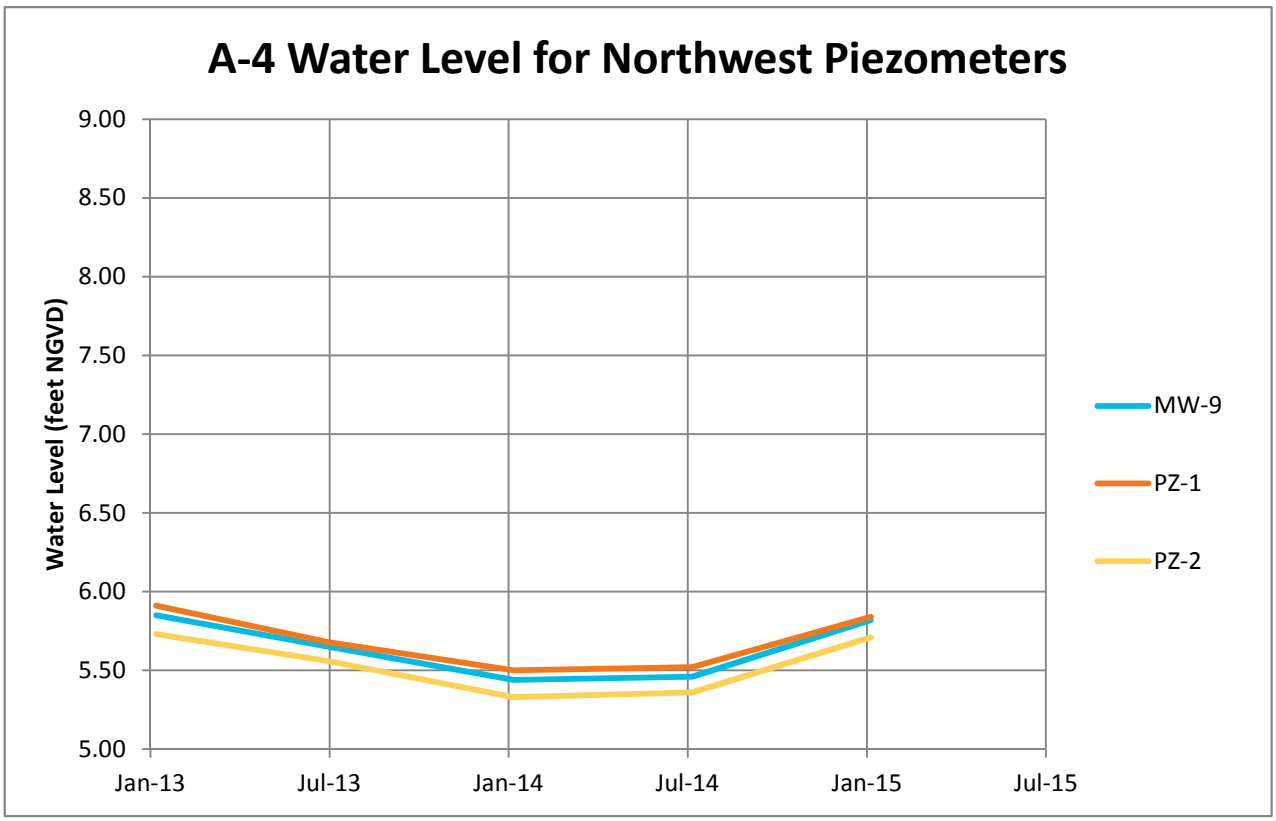
Average hydraulic gradient calculated by averaging hydraulic gradients from three transects within the Citrus County Central Landfill

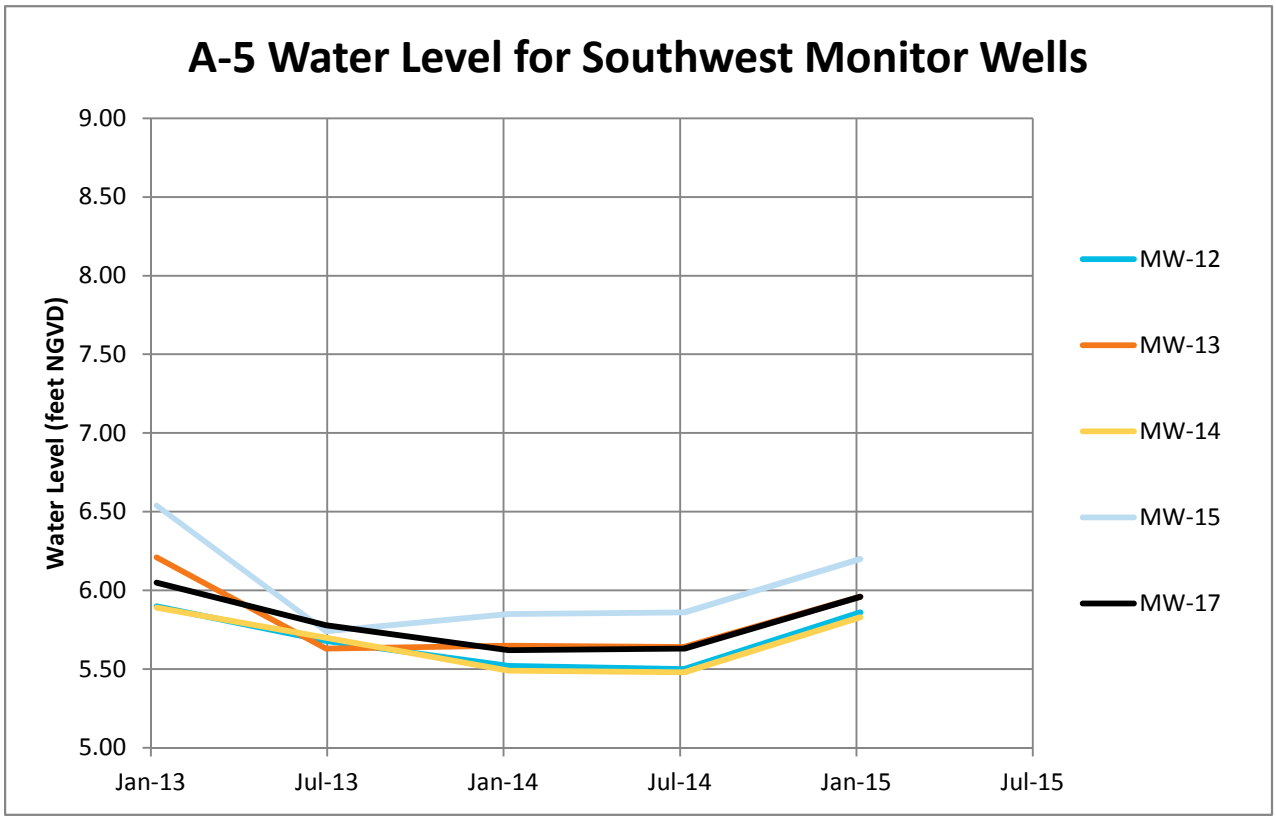
*National Geodetic Vertical Datum of 1929 (NGVD 29)


A-1 Water Level for East Monitor Wells
Water Level (feet NGVD)
9.00
8.50
8.00
7.50
7.00
6.50
6.00
5.50
5.00
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
MW-3
MW-6
MW-7
MW-20


A-2 Water Level for East Piezometers
Water Level (feet NGVD)
9.00
8.50
8.00
7.50
7.00
6.50
6.00
5.50
5.00
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
MW-1R
MW-2
MW-5
MW-16


A-3 Water Level for Northwest Monitor Wells
Water Level (feet NGVD)
9.00
8.50
8.00
7.50
7.00
6.50
6.00
5.50
5.00
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
MW-10
MW-11
MW-18
MW-19
MW-21


A-4 Water Level for Northwest Piezometers
Water Level (feet NGVD)
9.00
8.50
8.00
7.50
7.00
6.50
6.00
5.50
5.00
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
MW-9
PZ-1
PZ-2


A-5 Water Level for Southwest Monitor Wells
Water Level (feet NGVD)
9.00
8.50
8.00
7.50
7.00
6.50
6.00
5.50
5.00
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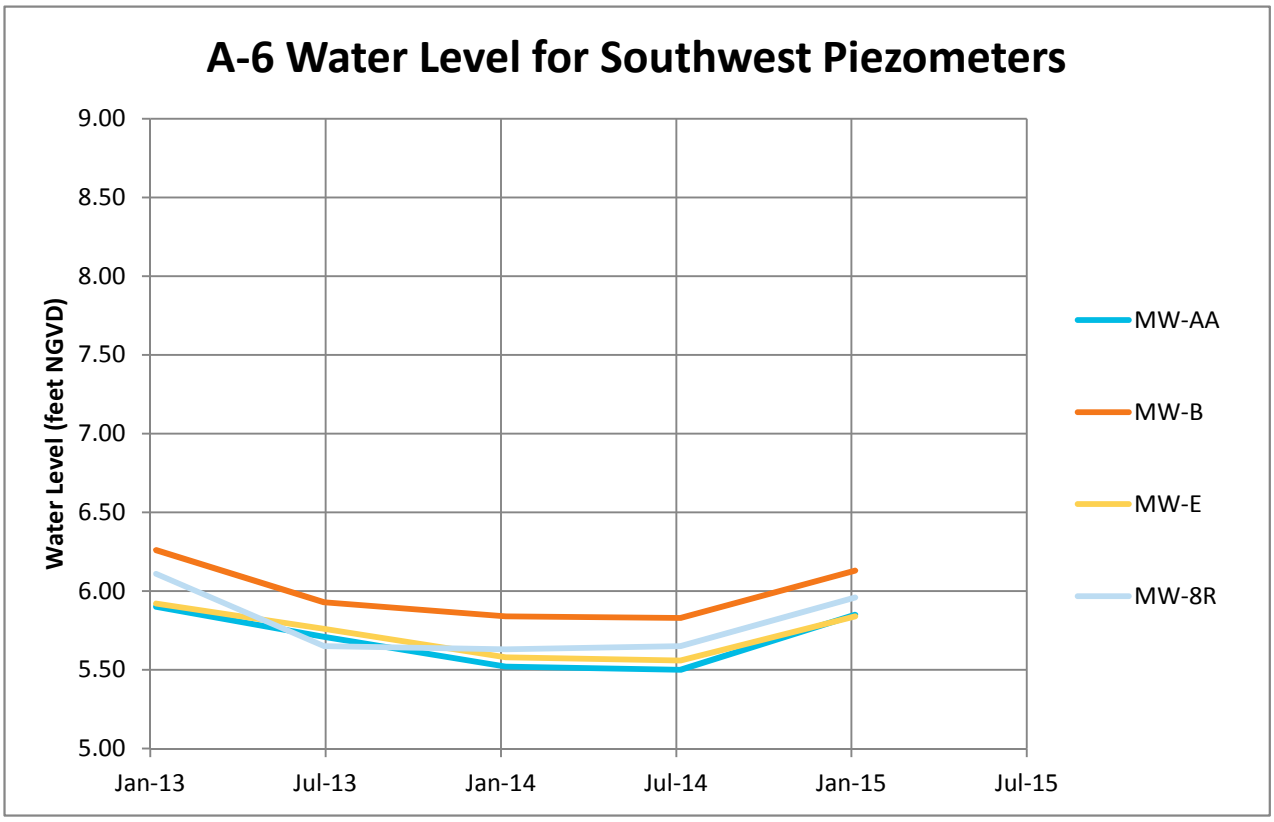
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
MW-12
MW-13
MW-14
MW-15
MW-17


A-6 Water Level for Southwest Piezometers
Water Level (feet NGVD)
9.00
8.50
8.00
7.50
7.00
6.50
6.00
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5.00
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
MW-AA
MW-B
MW-E
MW-8R

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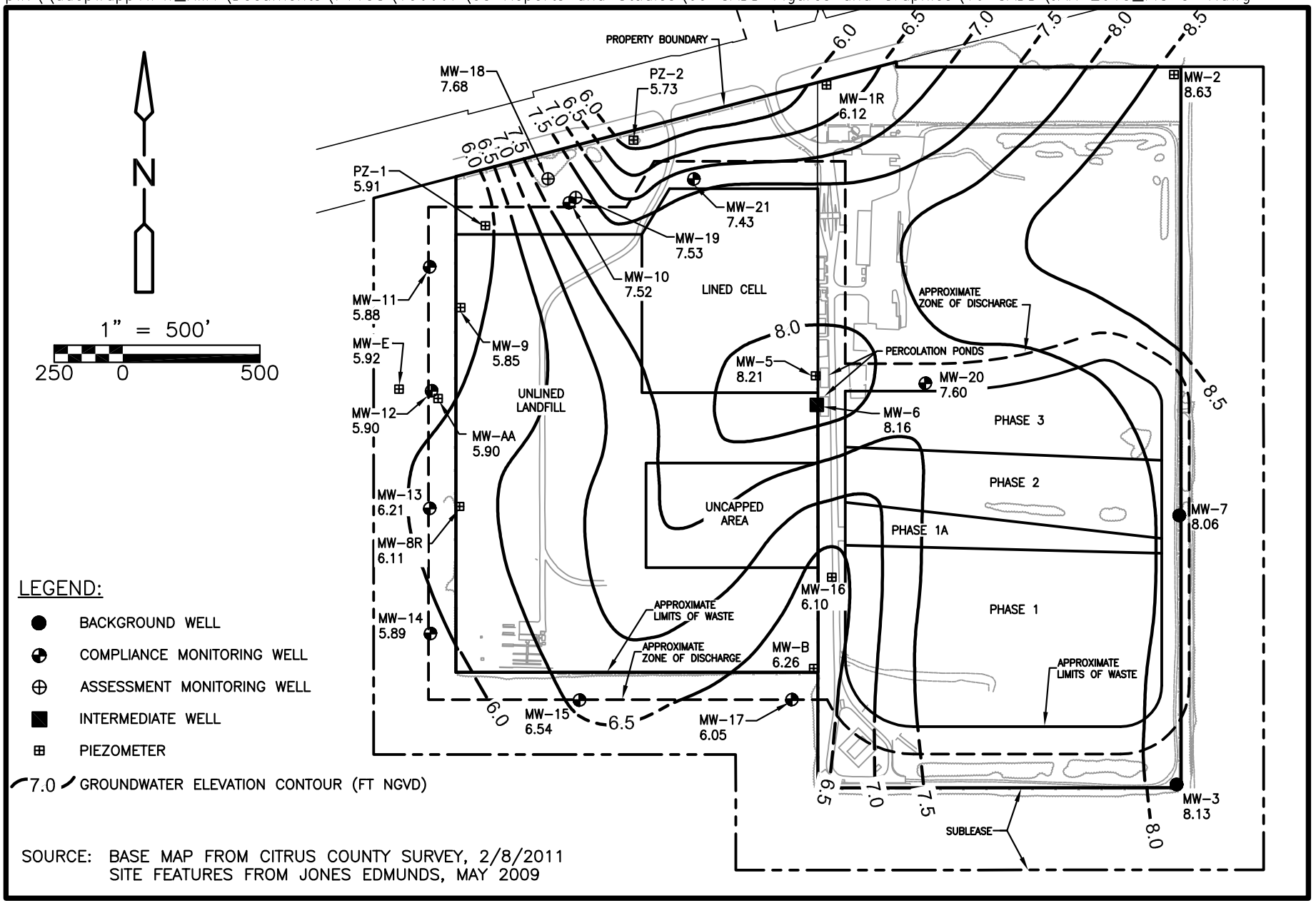

CDM Smith

Figure No. 3-1
Groundwater Contour Map of Floridan Aquifer
Citrus County Central Landfill
Water Level Data Collected January 22, 2013

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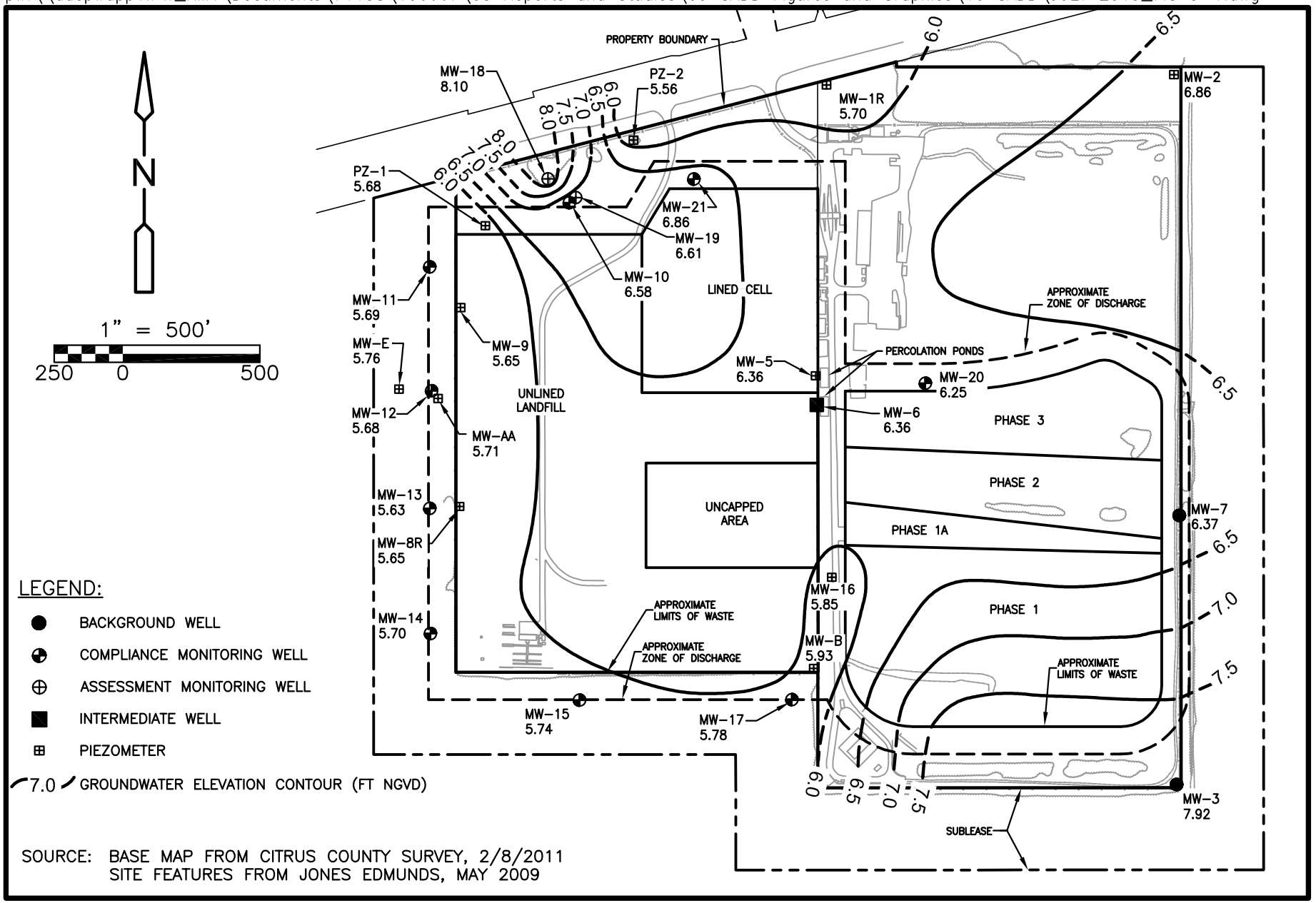

CDM Smith

Figure No. 3-1
Groundwater Contour Map of Floridan Aquifer
Citrus County Central Landfill
Water Level Data Collected July 16, 2013

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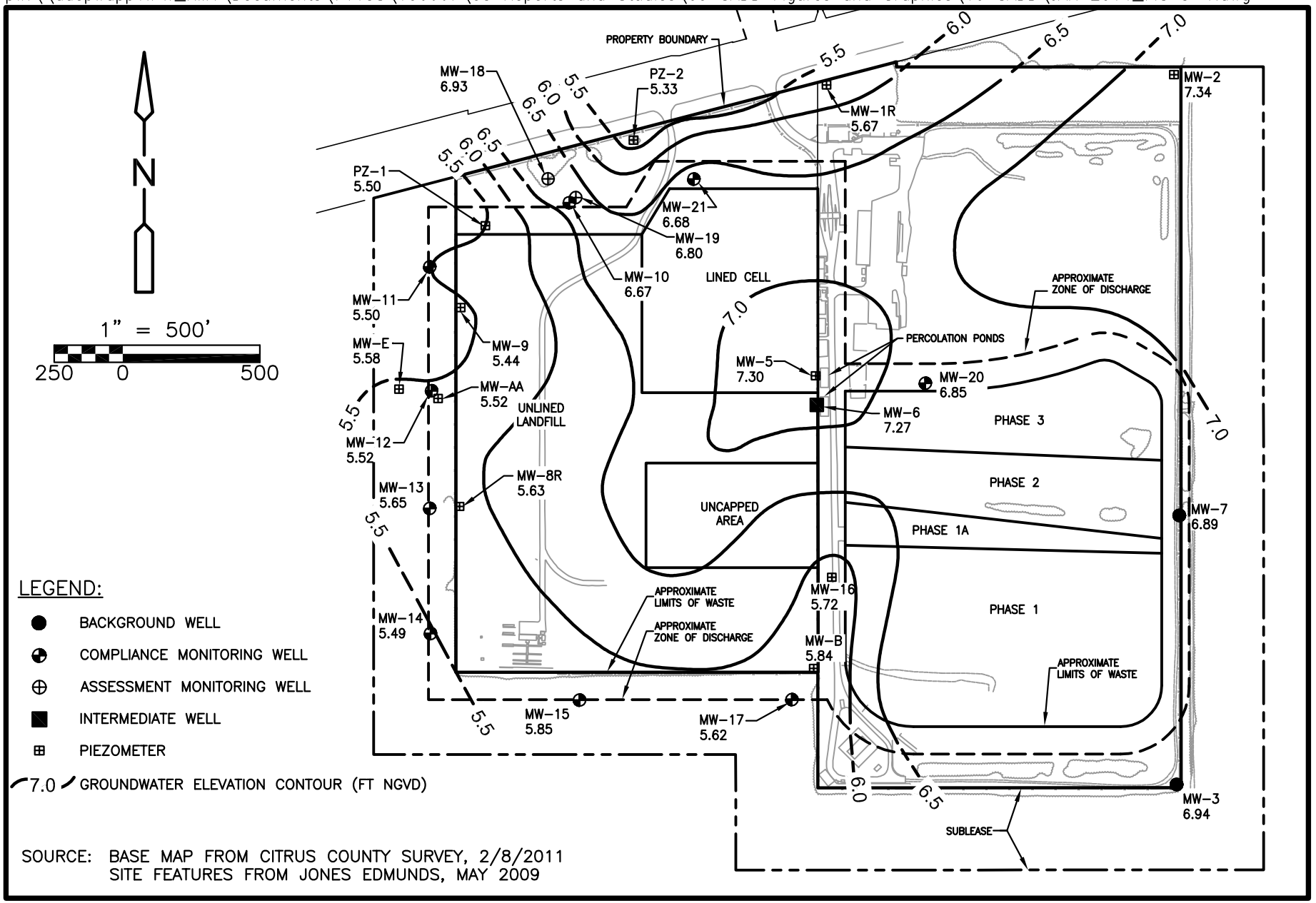

SOURCE: BASE MAP FROM CITRUS COUNTY SURVEY, 2/8/2011
SITE FEATURES FROM JONES EDMUNDS, MAY 2009

CDM Smith

Figure No. 3-1
Groundwater Contour Map of Floridan Aquifer
Citrus County Central Landfill
Water Level Data Collected January 21, 2014

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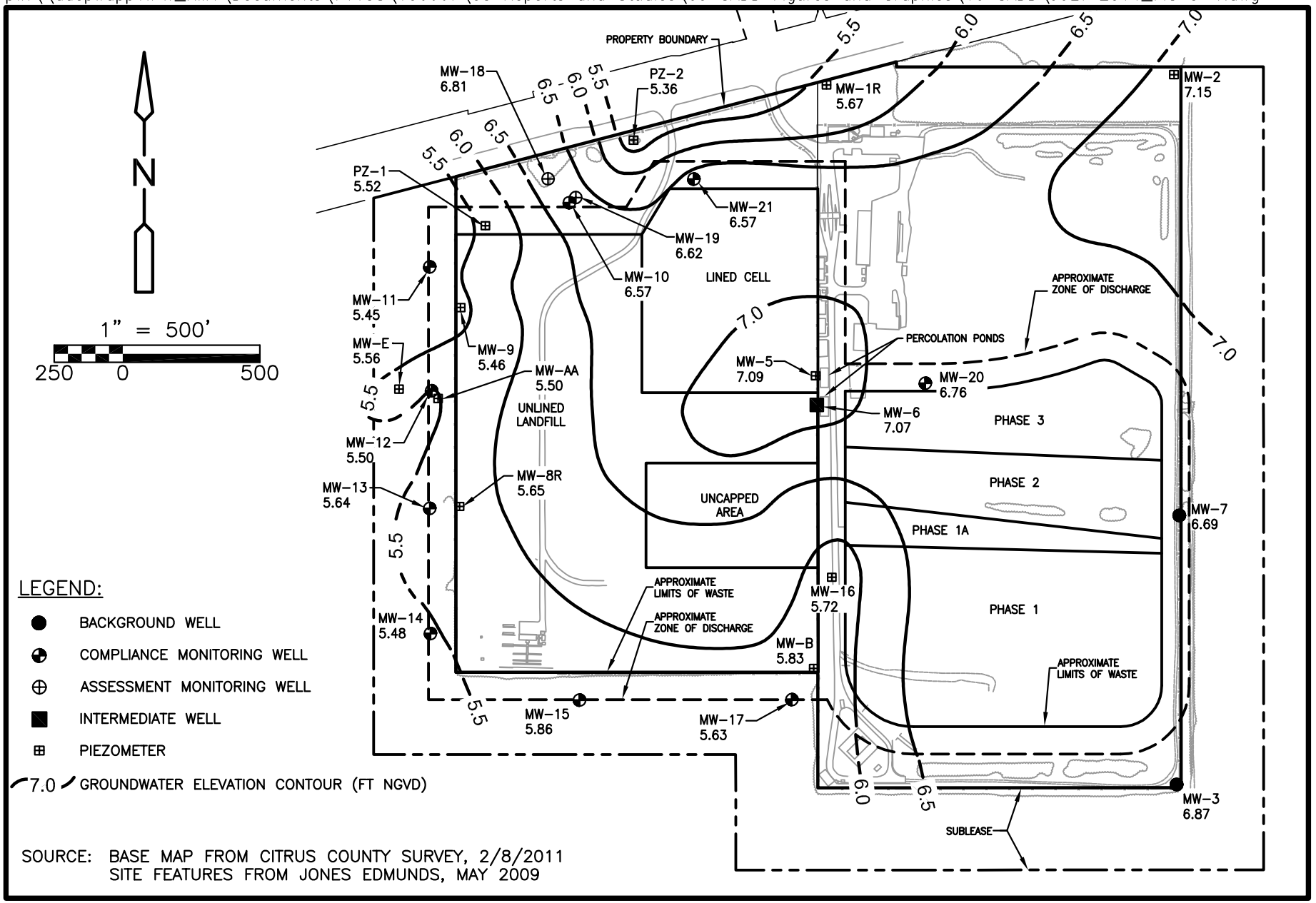

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Figure No. 3-1
Groundwater Contour Map of Floridan Aquifer
Citrus County Central Landfill
Water Level Data Collected July 22, 2014

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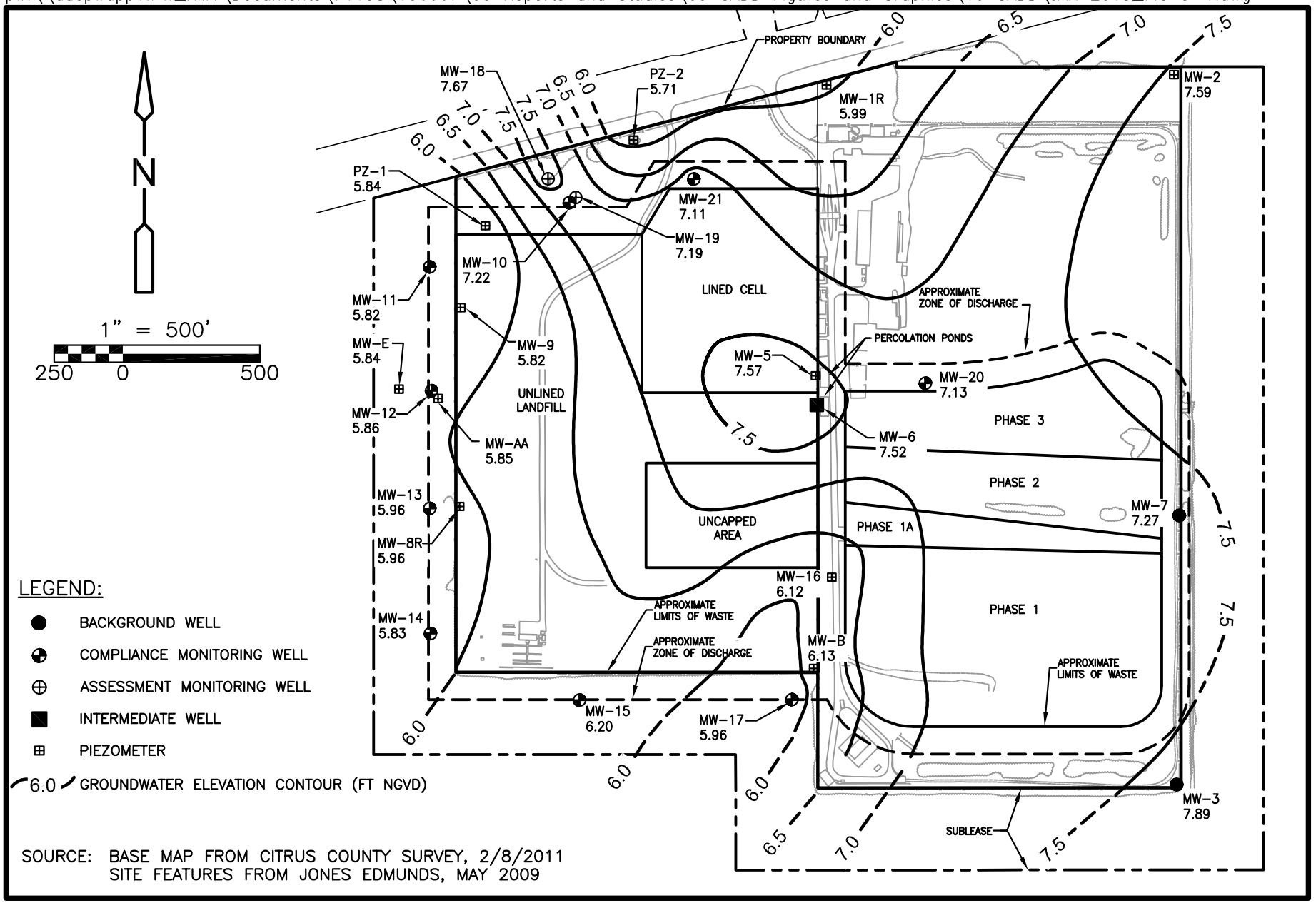

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Figure No. 3-1
Groundwater Contour Map of Floridan Aquifer
Citrus County Central Landfill
Water Level Data Collected January 20, 2015

Appendix B

Background, Compliance and Assessment Groundwater Quality Data

Table B-1 Analyte Detections in Monitor Wells for Citrus County Central Class I Landfill from January 2013 to January 2015

Well No.	Well Designation	Parameter	Units	GCTL/MCL	Jan-13	Jul-13	Jan-14	Jul-14	Jan-15
MW-3	Background	Ammonia (as N)	mg/L	2.8	0.026 U	0.031 I	0.026 U	0.14 J	0.11
MW-3	Background	Barium	ug/L	2000	17	16	16	17	15
MW-3	Background	Cadmium	ug/L	5	0.27 I	0.27 I	0.14 I	0.44 I	0.29 I
MW-3	Background	Chloride	mg/L	250	9.5	7.9	7.6	8.8	10
MW-3	Background	Cobalt	ug/L	140	0.43 I	0.5 I	0.56	0.56	0.4 I
MW-3	Background	Copper	ug/L	1000	34	40	28	48	27
MW-3	Background	Dissolved Oxygen	mg/L	- - -	5.01	3.97	3.48	1.37	4.15
MW-3	Background	Iron	ug/L	300	33 U	33 U	33 U	100	33 U
MW-3	Background	Lead	ug/L	15	3.9	4	3.3	2.9	3.8
MW-3	Background	Nickel	ug/L	100	7.2	4.9 I	3.8 I	10	6
MW-3	Background	Nitrate as N	mg/L	10	3.1	2.2	1.2	3	5.8
MW-3	Background	pH	SU	6.5-8.5	5.19	3.96	4.86	4.88	4.70
MW-3	Background	Residues- Filterable (TDS)	mg/L	500	42	38	8	46	66
MW-3	Background	Silver	ug/L	100	0.46 I	0.25 U	0.25 U	0.25 U	0.25 U
MW-3	Background	Sodium	mg/L	160	6.8	6.8	6.6	5.7	6.5
MW-3	Background	Specific Conductance	umhos/cm	- - -	53	59	44	67	56
MW-3	Background	Temperature, Water	Degrees C	- - -	20.2	24.3	19.5	26.2	22
MW-3	Background	Turbidity	NTU	- - -	0.6	2	0.55	4.6	0.51
MW-3	Background	Water Level	ft	- - -	112.2	112.25	113.45	113.41	112.54
MW-3	Background	Zinc	ug/L	5000	50	87	50	170	66
MW-6	Intermediate	Arsenic	ug/L	10	1.8 I	1.3 U	1.3 U	1.3 U	1.3 U
MW-6	Intermediate	Chloride	mg/L	250	240	230	280	260	240
MW-6	Intermediate	Dissolved Oxygen	mg/L	- - -	0.32	0.59	0.3	0.5	1.4
MW-6	Intermediate	Iron	ug/L	300	1800	330	1100	1500	2200
MW-6	Intermediate	pH	SU	6.5-8.5	4.49	4.40	4.37	4.30	4.38
MW-6	Intermediate	Residues- Filterable (TDS)	mg/L	500	530	380	410	460	460
MW-6	Intermediate	Sodium	mg/L	160	120 J	110	150	110	130
MW-6	Intermediate	Specific Conductance	umhos/cm	- - -	810	811	885	930	851
MW-6	Intermediate	Temperature, Water	Degrees C	- - -	23.2	25.5	22.4	24.9	23.6
MW-6	Intermediate	Trihalomethanes	ug/L	100	4.7	4.3	4.3	4	4.4
MW-6	Intermediate	Turbidity	NTU	- - -	1.03	0.56	1.05	1.30	0.43
MW-6	Intermediate	Water Level	ft	- - -	110.53	111.71	111.27	111.13	110.89
MW-7	Background	1,4-Dichlorobenzene	ug/L	75	0.52 U	0.78 I	1.6	1.6	2.2
MW-7	Background	Ammonia (as N)	mg/L	2.8	0.042 I	0.046 I	0.039 I	0.28	0.13
MW-7	Background	Arsenic	ug/L	10	9.1	11	8.5	7.7	6.4
MW-7	Background	Barium	ug/L	2000	16	19	17	18	16
MW-7	Background	Benzene	ug/L	1	0.97 I	0.95 I	1.1	2	2
MW-7	Background	Chloride	mg/L	250	4.9	4.9	4.8	4.6	5.6
MW-7	Background	Chlorobenzene	ug/L	100	0.63 U	0.63 U	0.91 I	0.87 I	1.3
MW-7	Background	cis-1,2-Dichloroethene	ug/L	70	0.65 U	0.65 U	0.65 U	0.65 U	0.77 I
MW-7	Background	Cobalt	ug/L	140	0.84	1.1	1	1.1	1
MW-7	Background	Copper	ug/L	1000	1.1 U	1.2 I	2 I	1.1 U	1.1 U
MW-7	Background	Dissolved Oxygen	mg/L	- - -	0.19	0.27	0.14	0.15	0.38
MW-7	Background	Ethylbenzene	ug/L	700	5.9	3.2	2.7	3.3	2.6
MW-7	Background	Iron	ug/L	300	1400	2000	1800	2300	1900
MW-7	Background	Lead	ug/L	15	0.39 I	0.3 I	0.24 I	1.3 I	0.65 I
MW-7	Background	Nickel	ug/L	100	5.8	7.7	7.5	7.8	8
MW-7	Background	pH	SU	6.5-8.5	5.29	4.20	5.24	5.15	5.00
MW-7	Background	Residues- Filterable (TDS)	mg/L	500	54	46	42	66	58
MW-7	Background	Sodium	mg/L	160	10	12	9.8	8.9	9.3
MW-7	Background	Specific Conductance	umhos/cm	- - -	85	100	81	118	109
MW-7	Background	Temperature, Water	Degrees C	- - -	23.5	25.4	22.8	25.6	24.2
MW-7	Background	Turbidity	NTU	- - -	1.28	1.2	1.11	0.97	1.56
MW-7	Background	Vinyl chloride	ug/L	1	0.9 I	0.5 U	0.5 U	0.5 U	0.68 I
MW-7	Background	Water Level	ft	- - -	120.41	122.05	121.67	119.78	121.22
MW-7	Background	Xylenes, Total	ug/L	20	1.4 I	0.5 U	1 I	0.69 I	1.3 I
MW-7	Background	Zinc	ug/L	5000	25	27	22	20	37
MW-10	Compliance	1,1-Dichloroethane	ug/L	70	1.3	1.2	1.2	1.2	1.1
MW-10	Compliance	1,4-Dichlorobenzene	ug/L	75	5.8	8.6	7.8	6.8	7.3
MW-10	Compliance	Ammonia (as N)	mg/L	2.8	0.026 U	0.026 U	0.026 UJ	0.056	0.16
MW-10	Compliance	Arsenic	ug/L	10	1.6 I	2.3 I	1.9 I	2.3 I	2.2 I
MW-10	Compliance	Arsenic, Dissolved	ug/L	10	1.3 U	2.1 I	1.7 I	2.3 I	1.8 I
MW-10	Compliance	Barium	ug/L	2000	84	28	83	57 J	91
MW-10	Compliance	Barium, Dissolved	ug/L	2000	2.8 I	2.7 I	2.9 I	9.8	2.9 I
MW-10	Compliance	Benzene	ug/L	1	1.6	1.6	1.2	1.6	1.3
MW-10	Compliance	Cadmium	ug/L	5	0.19 I	0.21 I	0.31 I	0.3 I	0.19 I
MW-10	Compliance	Chloride	mg/L	250	6.7	6.5	6.3	6.4	6.5
MW-10	Compliance	Chlorobenzene	ug/L	100	0.63 U	0.63 I	0.63 U	0.63 U	0.63 U
MW-10	Compliance	Chromium	ug/L	100	7.9	2.5 U	6.3	3.8 I	6.5
MW-10	Compliance	cis-1,2-Dichloroethene	ug/L	70	5.2	4.9	3.4	5.2	3.4
MW-10	Compliance	Cobalt	ug/L	140	0.5	0.47 I	0.46 I	0.4 I	0.38 I
MW-10	Compliance	Cobalt, Dissolved	ug/L	140	0.47 I	0.43 I	0.41 I	0.41 I	0.42 I
MW-10	Compliance	Dissolved Oxygen	mg/L	- - -	0.62	0.29	0.31	0.42	1.53
MW-10	Compliance	Iron	ug/L	300	3700	5900	5300	5900	5100
MW-10	Compliance	Iron, Dissolved	ug/L	300	3000	5000	4800	5200	4700
MW-10	Compliance	Lead	ug/L	15	3	0.92 I	2.9	2.1	3.3
MW-10	Compliance	Lead, Dissolved	ug/L	15	0.2 U	0.2 U	0.2 U	0.31 I	0.2 U
MW-10	Compliance	Nickel	ug/L	100	4.2 I	2 U	2.7 I	2 I	3.3 I
MW-10	Compliance	Nickel, Dissolved	ug/L	100	2 U	2 U	2 U	2.2 I	2 U
MW-10	Compliance	pH	SU	6.5-8.5	4.36	4.35	4.59	4.32	4.48
MW-10	Compliance	Residues- Filterable (TDS)	mg/L	500	12	16	34	20	36
MW-10	Compliance	Selenium	ug/L	50	1 U	1 U	1 U	1 U	1.4 I

Table B-1 Analyte Detections in Monitor Wells for Citrus County Central Class I Landfill from January 2013 to January 2015

Well No.	Well Designation	Parameter	Units	GCTL/MCL	Jan-13	Jul-13	Jan-14	Jul-14	Jan-15
MW-10	Compliance	Silver	ug/L	100	0.25 U	0.25 U	0.36 I	0.52 I	0.25 U
MW-10	Compliance	Sodium	mg/L	160	5.2	5.4	5	3.9 J	5
MW-10	Compliance	Sodium, Dissolved	mg/L	160	4.9	5	4.8	4.7	4.7
MW-10	Compliance	Specific Conductance	umhos/cm	- - -	44	58	46	58	55
MW-10	Compliance	Temperature, Water	Degrees C	- - -	22.6	24.7	22.6	24.5	22.7
MW-10	Compliance	Turbidity	NTU	- - -	31.2	35.3	23.4	32.3	23.5
MW-10	Compliance	Turbidity Filtered	NTU	- - -	0.29	0.67	0.46	3.18	4.22
MW-10	Compliance	Vinyl chloride	ug/L	1	1.7	1.8	1.5	1.8	1.8
MW-10	Compliance	Water Level	ft	- - -	105.88	106.79	106.7	106.8	106.15
MW-10	Compliance	Xylenes, Total	ug/L	20	5.4	3.8	2.1 I	3.5	3.1
MW-10	Compliance	Zinc	ug/L	5000	8.3 U	8.3 U	8.3 U	8.7 I	8.3 U
MW-10	Compliance	Zinc, Dissolved	ug/L	5000	9 I	8.3 U	8.3 U	8.3 U	8.3 U
MW-11	Compliance	Ammonia (as N)	mg/L	2.8	0.026 U	0.05	0.036 I	0.14	0.14
MW-11	Compliance	Barium	ug/L	2000	18	18	23	22	22
MW-11	Compliance	Chloride	mg/L	250	5.8	6	6.4	6.7	7.3
MW-11	Compliance	Chromium	ug/L	100	2.5 U	2.5 U	2.5 U	2.5 U	3 I
MW-11	Compliance	Cobalt	ug/L	140	0.15 U	0.15 U	0.15 U	0.2 I	0.15 U
MW-11	Compliance	Copper	ug/L	1000	1.1 U	6	1.1 U	1.1 U	1.1 U
MW-11	Compliance	Dissolved Oxygen	mg/L	- - -	0.27	0.8	0.57	0.47	0.87
MW-11	Compliance	Iron	ug/L	300	33 U	37 I	33 U	33 U	73 I
MW-11	Compliance	Nickel	ug/L	100	2 U	2 U	2 U	2 U	3 I
MW-11	Compliance	Nitrate as N	mg/L	10	0.46 I	0.24 I	0.31 I	0.61	0.38 I
MW-11	Compliance	pH	SU	6.5-8.5	6.79	6.60	6.99	6.79	6.84
MW-11	Compliance	Residues- Filterable (TDS)	mg/L	500	220	230	200	240	280
MW-11	Compliance	Sodium	mg/L	160	3.3	3.3	3.9	3.4	4.3
MW-11	Compliance	Specific Conductance	umhos/cm	- - -	406	432	485	485	479
MW-11	Compliance	Temperature, Water	Degrees C	- - -	23.2	23.6	21.7	23.6	20.6
MW-11	Compliance	Thallium	ug/L	2	0.89 I	0.62 I	1	1.1	1.2
MW-11	Compliance	Turbidity	NTU	- - -	1.41	2.16	0.88	3.44	3.95
MW-11	Compliance	Vanadium	ug/L	49	3.8 U	3.8 U	3.8 U	3.8 I	3.8 U
MW-11	Compliance	Water Level	ft	- - -	98.85	99	99.24	99.19	98.87
MW-12	Compliance	1,4-Dichlorobenzene	ug/L	75	0.82 I	1	0.52 U	0.52 U	0.96 I
MW-12	Compliance	Ammonia (as N)	mg/L	2.8	0.16	0.11	0.13	0.3	0.31
MW-12	Compliance	Arsenic	ug/L	10	2.2 I	2.1 I	2.1 I	2.5	1.8 I
MW-12	Compliance	Barium	ug/L	2000	16	17	16	15	17
MW-12	Compliance	Chloride	mg/L	250	4.9	4.5	4.9	5.2	5.9
MW-12	Compliance	Cobalt	ug/L	140	0.54	0.55	0.26 I	0.62	0.41 I
MW-12	Compliance	Dissolved Oxygen	mg/L	- - -	0.21	0.19	0.24	0.18	0.53
MW-12	Compliance	Iron	ug/L	300	2700	3600	3300	2700	2900
MW-12	Compliance	pH	SU	6.5-8.5	6.76	7.00	6.93	6.74	6.75
MW-12	Compliance	Residues- Filterable (TDS)	mg/L	500	240	290	240	280	330
MW-12	Compliance	Sodium	mg/L	160	2.8	3.2	3.4	2.9	3.5
MW-12	Compliance	Specific Conductance	umhos/cm	- - -	456	591	457	584	565
MW-12	Compliance	Temperature, Water	Degrees C	- - -	23.5	24.3	27.1	23.9	23.5
MW-12	Compliance	Turbidity	NTU	- - -	1.33	4.48	4.71	3.14	3.26
MW-12	Compliance	Water Level	ft	- - -	97.5	97.67	97.8	97.86	97.52
MW-13	Compliance	1,1-Dichloroethane	ug/L	70	0.57 I	0.57 I	0.52 U	0.52 U	0.52 U
MW-13	Compliance	1,4-Dichlorobenzene	ug/L	75	2.8	3.1	2.7	2.2	2.8
MW-13	Compliance	Ammonia (as N)	mg/L	2.8	0.029 I	0.026 U	0.026 I	0.51 J	0.15
MW-13	Compliance	Arsenic	ug/L	10	3.6	3.6	4.4	4.3	4.2
MW-13	Compliance	Barium	ug/L	2000	5.4	2.8 I	2.4 I	5.1	10
MW-13	Compliance	Chloride	mg/L	250	5.8	5.5	5.6	5.7	5.9
MW-13	Compliance	cis-1,2-Dichloroethene	ug/L	70	2	1.7	1	1	1.2
MW-13	Compliance	Cobalt	ug/L	140	6.1	6.3	6.9	6.2	6.5
MW-13	Compliance	Copper	ug/L	1000	1.1 U	1.1 U	1.1 U	1.1 U	2.5 I
MW-13	Compliance	Dissolved Oxygen	mg/L	- - -	0.47	0.25	0.41	0.5	0.68
MW-13	Compliance	Iron	ug/L	300	2700	3100	3500	3400	3700
MW-13	Compliance	Lead	ug/L	15	0.2 U	0.2 U	0.2 U	0.2 U	0.54 I
MW-13	Compliance	Nickel	ug/L	100	3.3 I	3.7 I	3.1 I	3.9 I	4.9 I
MW-13	Compliance	pH	SU	6.5-8.5	5.03	5.15	5.15	5.05	5.30
MW-13	Compliance	Residues- Filterable (TDS)	mg/L	500	16	48	24	40	54
MW-13	Compliance	Sodium	mg/L	160	3	2.9	3.4	2.7	3.1
MW-13	Compliance	Specific Conductance	umhos/cm	- - -	70	83	80	84	81
MW-13	Compliance	Temperature, Water	Degrees C	- - -	23.1	23.9	22.7	23.7	23.2
MW-13	Compliance	Turbidity	NTU	- - -	3.53	3.29	1.84	4.69	4.34
MW-13	Compliance	Vinyl chloride	ug/L	1	0.89 I	0.63 I	0.58 I	0.5 U	0.5 U
MW-13	Compliance	Water Level	ft	- - -	105.78	106.27	106.3	106.29	105.92
MW-13	Compliance	Zinc	ug/L	5000	8.3 U	8.3 U	8.3 U	8.3 U	46 J
MW-14	Compliance	Ammonia (as N)	mg/L	2.8	0.032 I	0.026 U	0.034 I	0.53	0.16
MW-14	Compliance	Barium	ug/L	2000	14	12	14	13	11
MW-14	Compliance	Cadmium	ug/L	5	0.87	0.31 I	0.33 I	0.34 I	0.39 I
MW-14	Compliance	Chloride	mg/L	250	3.6	3.6	3.5	3.7	3.7
MW-14	Compliance	Cobalt	ug/L	140	1.4	0.75	1.1	0.9	0.5
MW-14	Compliance	Dissolved Oxygen	mg/L	- - -	0.42	0.33	0.1	0.44	0.39
MW-14	Compliance	Iron	ug/L	300	420	62 I	150	51 I	45 I
MW-14	Compliance	Mercury	ug/L	2	0.58	0.091 U	0.11 I	0.091 U	0.091 U
MW-14	Compliance	Nickel	ug/L	100	2.4 I	2 U	2 U	2 U	2 U
MW-14	Compliance	pH	SU	6.5-8.5	6.65	6.94	6.91	6.70	6.78
MW-14	Compliance	Residues- Filterable (TDS)	mg/L	500	260	270	280	260	290
MW-14	Compliance	Sodium	mg/L	160	3	3.1	2.9	3	3
MW-14	Compliance	Specific Conductance	umhos/cm	- - -	467	529	431	508	497
MW-14	Compliance	Temperature, Water	Degrees C	- - -	21.6	23.8	22.92	23.4	23

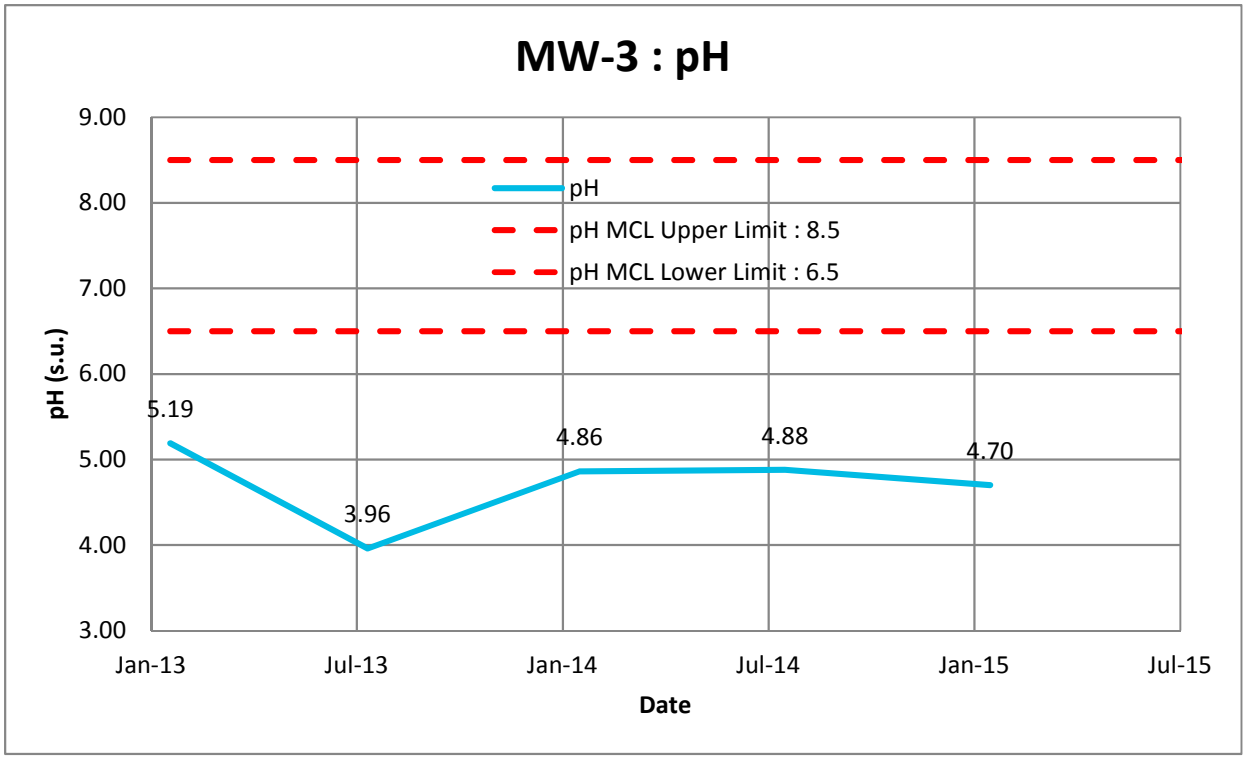
Table B-1 Analyte Detections in Monitor Wells for Citrus County Central Class I Landfill from January 2013 to January 2015

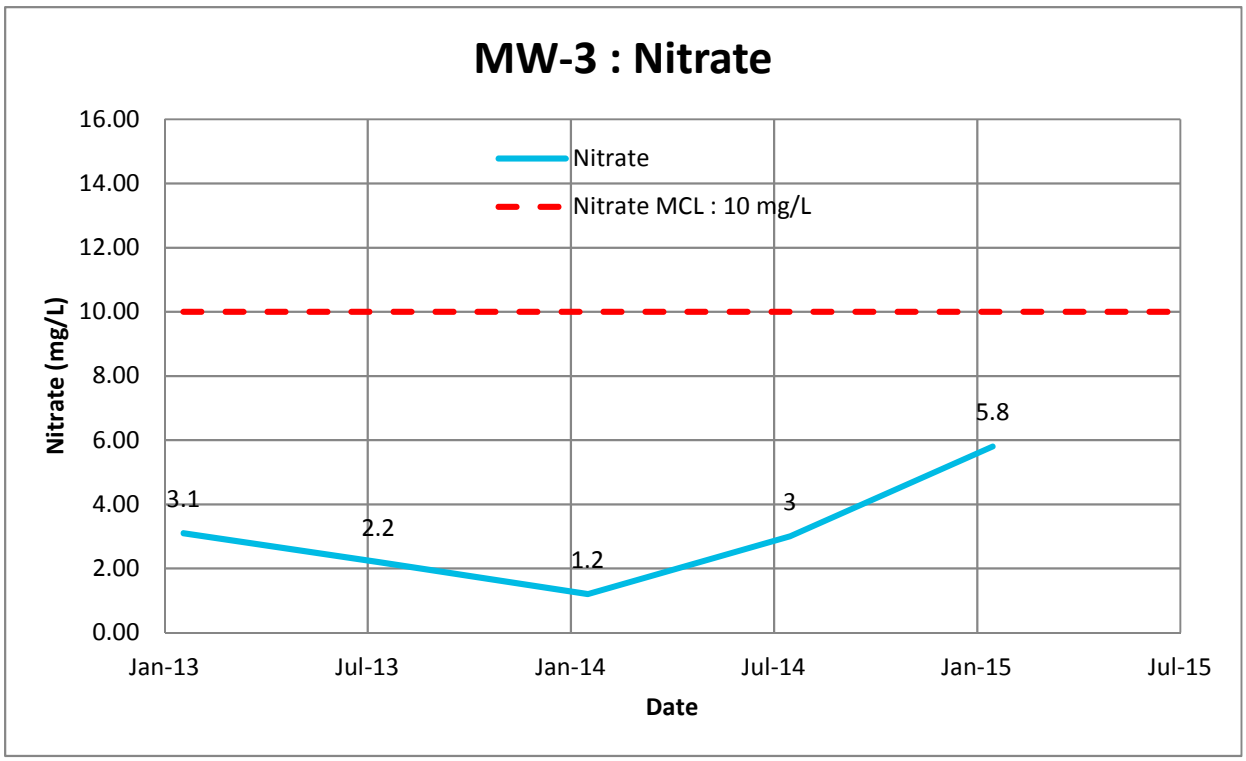
Well No.	Well Designation	Parameter	Units	GCTL/MCL	Jan-13	Jul-13	Jan-14	Jul-14	Jan-15
MW-14	Compliance	Turbidity	NTU	- - -	4.18	0.73	4.93	2.3	0.79
MW-14	Compliance	Vanadium	ug/L	49	3.8 U	3.8 U	3.8 U	4.2 I	3.8 U
MW-14	Compliance	Water Level	ft	- - -	102.69	102.79	103.04	103.05	102.66
MW-15	Compliance	Ammonia (as N)	mg/L	2.8	0.1	0.085	0.1	0.67	0.21
MW-15	Compliance	Arsenic	ug/L	10	3.7	3.7	3.9	4.1	4.1
MW-15	Compliance	Barium	ug/L	2000	5	4.5 I	11	2.9 I	2.3 I
MW-15	Compliance	Cadmium	ug/L	5	0.24 I	0.36 I	0.095 U	0.095 U	0.095 U
MW-15	Compliance	Chloride	mg/L	250	3	2.8	2.6	2.6	2.8
MW-15	Compliance	Chromium	ug/L	100	2.5 U	2.5 U	3.7 I	2.5 U	2.5 U
MW-15	Compliance	cis-1,2-Dichloroethene	ug/L	70	2.2	2.3	1.5	2.2	1.8
MW-15	Compliance	Cobalt	ug/L	140	0.38 I	0.3 I	4.1	0.28 I	0.24 I
MW-15	Compliance	Dissolved Oxygen	mg/L	- - -	0.39	0.38	0.19	0.37	0.8
MW-15	Compliance	Iron	ug/L	300	9000	7000	9800	7200	7500
MW-15	Compliance	Lead	ug/L	15	0.2 U	0.52 I	0.22 I	0.2 U	0.28 I
MW-15	Compliance	Nickel	ug/L	100	3.3 I	2.8 I	5.4	3.1 I	2 I
MW-15	Compliance	pH	SU	6.5-8.5	4.69	5.14	5.09	4.24	4.55
MW-15	Compliance	Residues- Filterable (TDS)	mg/L	500	36	20	12	42	32
MW-15	Compliance	Sodium	mg/L	160	1.6	1.7	2.1	1.7	1.8
MW-15	Compliance	Specific Conductance	umhos/cm	- - -	48	50	48	51	51
MW-15	Compliance	Temperature, Water	Degrees C	- - -	22.1	23.3	26.7	22.9	22.5
MW-15	Compliance	Trichloroethene	ug/L	3	0.68 I	0.68 I	0.52 I	0.5 U	0.53 I
MW-15	Compliance	Turbidity	NTU	- - -	1.47	0.78	4.33	3.55	2.26
MW-15	Compliance	Water Level	ft	- - -	117.1	117.86	117.7	117.78	117.36
MW-15	Compliance	Zinc	ug/L	5000	8.3 U	20	60	8.3 U	9.8 I
MW-17	Compliance	1,4-Dichlorobenzene	ug/L	75	0.65 I	0.77 I	0.97 I	0.64 I	1.1
MW-17	Compliance	Ammonia (as N)	mg/L	2.8	0.23	0.1	0.53	1.2	0.73
MW-17	Compliance	Arsenic	ug/L	10	4	3.8	4	4.6	4.3
MW-17	Compliance	Barium	ug/L	2000	7.5	13	7	13	4.9 I
MW-17	Compliance	Cadmium	ug/L	5	0.095 U	0.32 I	0.095 U	0.095 U	0.095 U
MW-17	Compliance	Chloride	mg/L	250	4.5	4.3	4.1	4.8	4.3
MW-17	Compliance	Cobalt	ug/L	140	5.9	4.9	4.7	5.8	6.4
MW-17	Compliance	Dissolved Oxygen	mg/L	- - -	0.45	0.62	0.21	0.39	0.78
MW-17	Compliance	Iron	ug/L	300	7700	8600	11000	13000	13000
MW-17	Compliance	Lead	ug/L	15	0.2 U	0.4 I	0.2 U	0.29 I	0.2 U
MW-17	Compliance	Nickel	ug/L	100	2 U	3.9 I	2 U	2.3 I	2.4 I
MW-17	Compliance	pH	SU	6.5-8.5	4.95	5.41	5.30	5.18	5.30
MW-17	Compliance	Residues- Filterable (TDS)	mg/L	500	16	36	44	50	64
MW-17	Compliance	Sodium	mg/L	160	2.5	2.5	2.4	2.4	2.3
MW-17	Compliance	Specific Conductance	umhos/cm	- - -	61	83	76	105	116
MW-17	Compliance	Temperature, Water	Degrees C	- - -	22.8	24.1	23.3	24.1	23.7
MW-17	Compliance	Turbidity	NTU	- - -	2.99	3.13	4	4.92	3.23
MW-17	Compliance	Water Level	ft	- - -	104.8	105.09	105.18	105.27	104.85
MW-18	Assessment	Dissolved Oxygen	mg/L	- - -	1.57	0.9	1.77	1.28	2.27
MW-18	Assessment	pH	SU	6.5-8.5	4.79	3.9	4.95	4.54	4.79
MW-18	Assessment	Specific Conductance	umhos/cm	- - -	49	58	42	54	49
MW-18	Assessment	Temperature, Water	deg C	- - -	20.3	24.1	20.5	24.3	23.1
MW-18	Assessment	Turbidity	NTU	- - -	47.2	12	31.9	13	19.4
MW-18	Assessment	Water Level	ft	- - -	108.2	107.6	108.97	109.01	108.19
MW-19	Assessment	Benzene	ug/L	1	0.5 U	0.5 U	0.5 U	0.65 I	1
MW-19	Assessment	Dissolved Oxygen	mg/L	- - -	0.55	1.41	0.81	0.53	0.82
MW-19	Assessment	Methylene chloride	ug/L	5	4 U	4 U	4 U	4.2 I	7.3
MW-19	Assessment	pH	SU	6.5-8.5	5.69	5.76	6.11	5.59	5.54
MW-19	Assessment	Specific Conductance	umhos/cm	- - -	71	69	74	67	67
MW-19	Assessment	Temperature, Water	deg C	- - -	23	23.9	22.7	23.8	23.3
MW-19	Assessment	Turbidity	NTU	- - -	3.45	3.52	1.91	3.9	2.12
MW-19	Assessment	Vinyl chloride	ug/L	1	0.61 I	0.5 U	0.5 U	0.65 I	1.2
MW-19	Assessment	Water Level	ft	- - -	105.96	106.8	106.81	106.88	106.24
MW-20	Compliance	Ammonia (as N)	mg/L	2.8	0.66	0.71	0.74	1.2	0.95
MW-20	Compliance	Arsenic	ug/L	10	7.9	6.9	8.5	8	7
MW-20	Compliance	Barium	ug/L	2000	32	14	19	19	16
MW-20	Compliance	Cadmium	ug/L	5	0.095 U	0.27 I	0.095 U	0.095 U	0.095 U
MW-20	Compliance	Chloride	mg/L	250	33	31	30	29	31
MW-20	Compliance	Cobalt	ug/L	140	3.8	2.7	2.3	1.6	2.1
MW-20	Compliance	Dissolved Oxygen	mg/L	- - -	0.15	0.48	0.22	0.1	1.1
MW-20	Compliance	Iron	ug/L	300	85000	62000	66000	50000	63000
MW-20	Compliance	Lead	ug/L	15	0.34 I	0.2 U	0.2 U	0.2 U	0.2 U
MW-20	Compliance	Nickel	ug/L	100	2 U	3.5 I	2 U	2.3 I	2 U
MW-20	Compliance	pH	SU	6.5-8.5	6.15	5.39	5.94	5.67	5.91
MW-20	Compliance	Residues- Filterable (TDS)	mg/L	500	280	180	160	160	210
MW-20	Compliance	Sodium	mg/L	160	12	11	9.3	8.1	8.7
MW-20	Compliance	Specific Conductance	umhos/cm	- - -	523	420	372	350	419
MW-20	Compliance	Temperature, Water	Degrees C	- - -	23.9	26.1	22.8	25.7	24.3
MW-20	Compliance	Turbidity	NTU	- - -	4.18	2.63	1.53	1.78	2.83
MW-20	Compliance	Water Level	ft	- - -	112.12	113.4	113.11	113	112.73
MW-20	Compliance	Zinc	ug/L	5000	8.3 U	13 I	19 I	8.3 U	8.3 U
MW-21	Compliance	1,1-Dichloroethane	ug/L	70	0.58 I	0.52 U	0.52 U	0.52 U	0.52 U
MW-21	Compliance	1,4-Dichlorobenzene	ug/L	75	15	10	13 J	8.3	10
MW-21	Compliance	Acetone	ug/L	6300	17 I	9.9 U	9.9 U	9.9 U	9.9 U
MW-21	Compliance	Ammonia (as N)	mg/L	2.8	1.6	1.2	1.7	2.5	2
MW-21	Compliance	Arsenic	ug/L	10	3	2.8	3.7	3.4	3.3
MW-21	Compliance	Arsenic, Dissolved	ug/L	10	2.9	2.9	3.4	2.9	3.4
MW-21	Compliance	Barium	ug/L	2000	27	16	47	35	33

Table B-1 Analyte Detections in Monitor Wells for Citrus County Central Class I Landfill from January 2013 to January 2015

Well No.	Well Designation	Parameter	Units	GCTL/MCL	Jan-13		Jul-13		Jan-14		Jul-14		Jan-15	
MW-21	Compliance	Barium, Dissolved	ug/L	2000	1.3	U	1.3	U	1.3	U	2.9	I	1.3	U
MW-21	Compliance	Benzene	ug/L	1	2.5		1.4		1.3		1.5		1.5	
MW-21	Compliance	Cadmium	ug/L	5	0.095	U	0.095	U	0.095	U	0.17	I	0.13	I
MW-21	Compliance	Cadmium, Dissolved	ug/L	5	0.095	U	0.095	U	0.095	U	0.18	I	0.095	U
MW-21	Compliance	Chloride	mg/L	250	4.8		4.5		4.7		4.4		4.5	
MW-21	Compliance	Chlorobenzene	ug/L	100	2		1.3		1.5		1.1		1.5	
MW-21	Compliance	Chromium	ug/L	100	3.7	I	2.5	U	6.3		4.2	I	4.2	I
MW-21	Compliance	cis-1,2-Dichloroethene	ug/L	70	2.6		1.3		1.2		1.6		1.2	
MW-21	Compliance	Cobalt	ug/L	140	0.54		0.3	I	0.54		0.46	I	0.66	
MW-21	Compliance	Cobalt, Dissolved	ug/L	140	0.49	I	0.32	I	0.44	I	0.28	I	0.57	
MW-21	Compliance	Copper	ug/L	1000	1.1	U	1.1	U	1.2	I	1.1	U	1.1	U
MW-21	Compliance	Copper, Dissolved	ug/L	1000	1.1	U	1.1	U	1.1	U	1.6	I	1.1	U
MW-21	Compliance	Dissolved Oxygen	mg/L	- - -	0.32		0.33		0.34		0.48		0.97	
MW-21	Compliance	Ethylbenzene	ug/L	700	2.2		0.74	I	0.69	I	0.44	I	0.44	U
MW-21	Compliance	Iron	ug/L	300	1200		740		1600		1200		1300	
MW-21	Compliance	Iron, Dissolved	ug/L	300	820		680		1000		710		910	
MW-21	Compliance	Lead	ug/L	15	1.4	I	0.65	I	2.1		1.8		1.8	
MW-21	Compliance	Lead, Dissolved	ug/L	15	0.2	U	0.2	U	0.2	U	0.39	I	0.2	U
MW-21	Compliance	Nickel	ug/L	100	3.1	I	2	U	2	U	2	U	4.2	I
MW-21	Compliance	Nickel, Dissolved	ug/L	100	2.4	I	2	U	2	U	2	U	2	I
MW-21	Compliance	pH	SU	6.5-8.5	4.74		3.91		4.74		4.57		4.54	
MW-21	Compliance	Residues- Filterable (TDS)	mg/L	500	28		22		56		42		64	
MW-21	Compliance	Silver	ug/L	100	0.28	I	0.25	U	0.25	U	0.25	U	0.25	U
MW-21	Compliance	Sodium	mg/L	160	2		2.1		2		1.7		2.1	
MW-21	Compliance	Sodium, Dissolved	mg/L	160	2		2.4		2.1		1.4		2	
MW-21	Compliance	Specific Conductance	umhos/cm	- - -	62		62		75		77		97	
MW-21	Compliance	Temperature, Water	Degrees C	- - -	23		25.5		22.5		24.8		23.5	
MW-21	Compliance	Turbidity	NTU	- - -	21.8		52.5		37.9		33.1		27.2	
MW-21	Compliance	Turbidity Filtered	NTU	- - -	0.87		2.51		0.51		2.21		2.33	
MW-21	Compliance	Vanadium	ug/L	49	3.8	U	3.8	U	4.2	I	4.6	I	3.8	U
MW-21	Compliance	Vinyl chloride	ug/L	1	2.3		0.79	I	0.68	I	0.52	I	0.55	I
MW-21	Compliance	Water Level	ft	- - -	108.22		108.72		108.93		109.02		108.49	
MW-21	Compliance	Xylenes, Total	ug/L	20	0.5	U	0.86	I	0.5	U	0.5	U	0.5	U

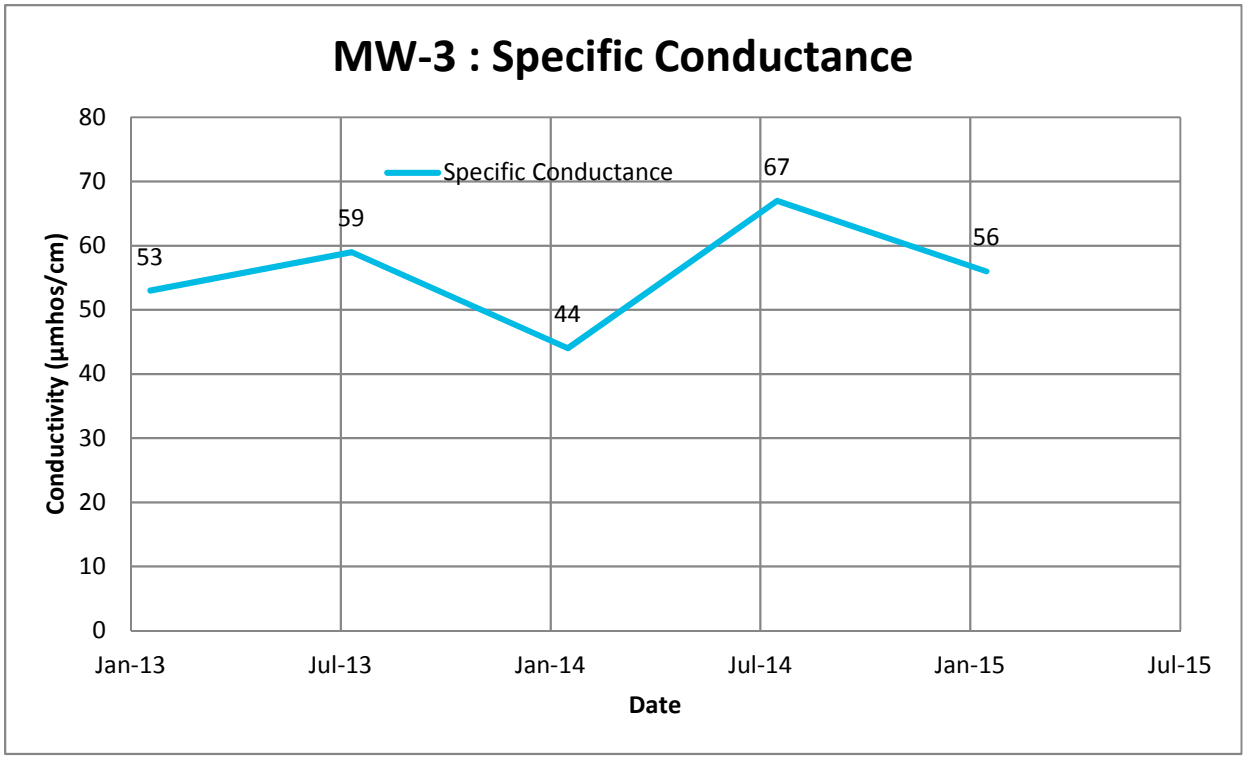
NOTES:
GCTL - Groundwater Cleanup Target level (Chapter 62-777, F.A.C.)
MCL - Maximum Contaminant Target Level (Chapter 62-550, F.A.C.)
mg/l - milligrams per liter
ug/L - micrograms per liter
µmhos/cm - micromohs per centimeter
NTU - nephelometric turbidity units
°C - degrees Centigrade
I - estimated value; reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J - estimated value; value may not be accurate because spike recovery or relative percent difference is outside of criteria
U - analyte not detected; the value reported is the method detection limit
SU - Standard Unit

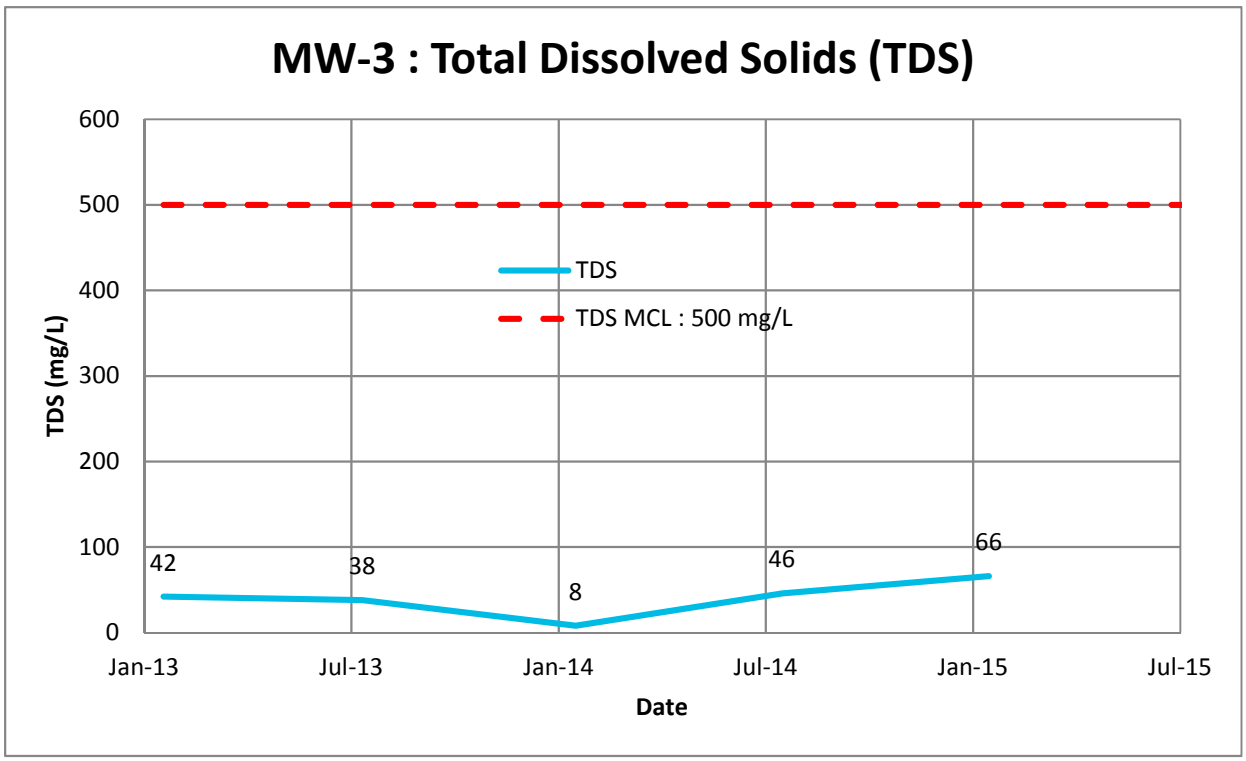




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.





MCL - Maximum Contaminant Level per 62-550 F.A.C

(U) Analyte not detected; value reported is the method detection limit

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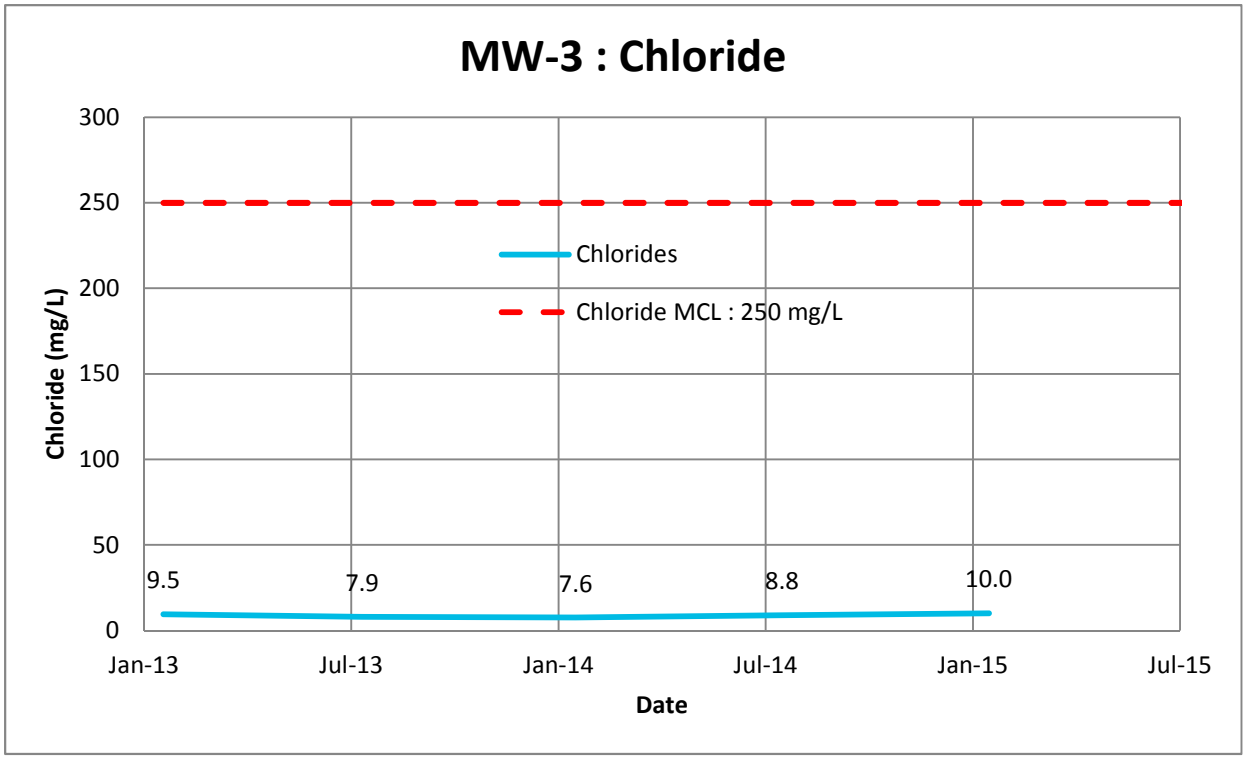
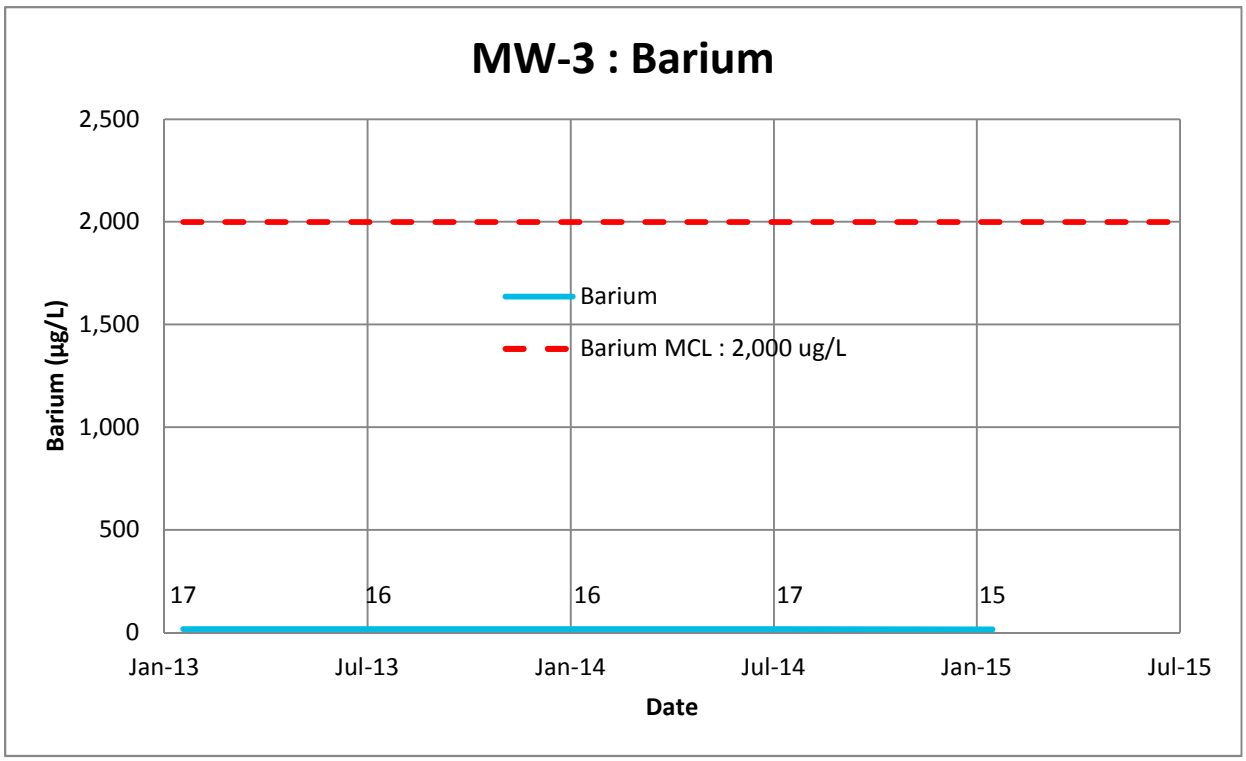
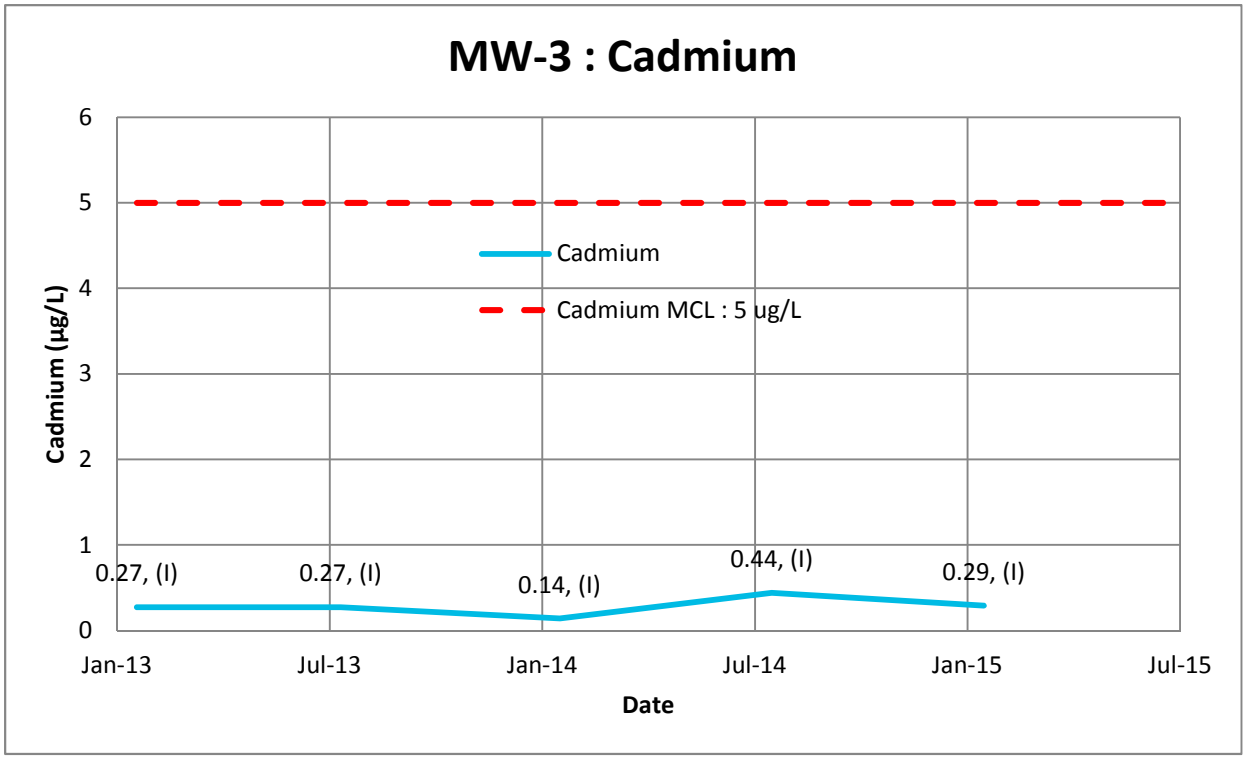
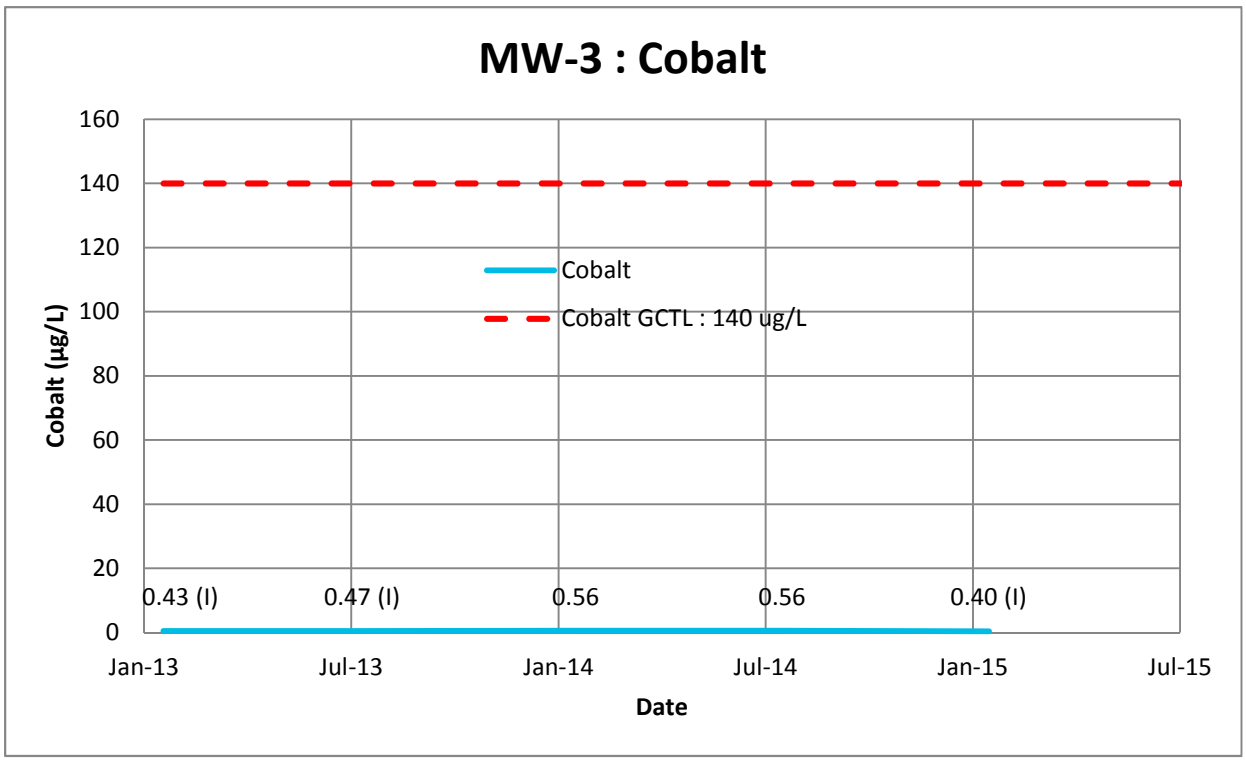




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.



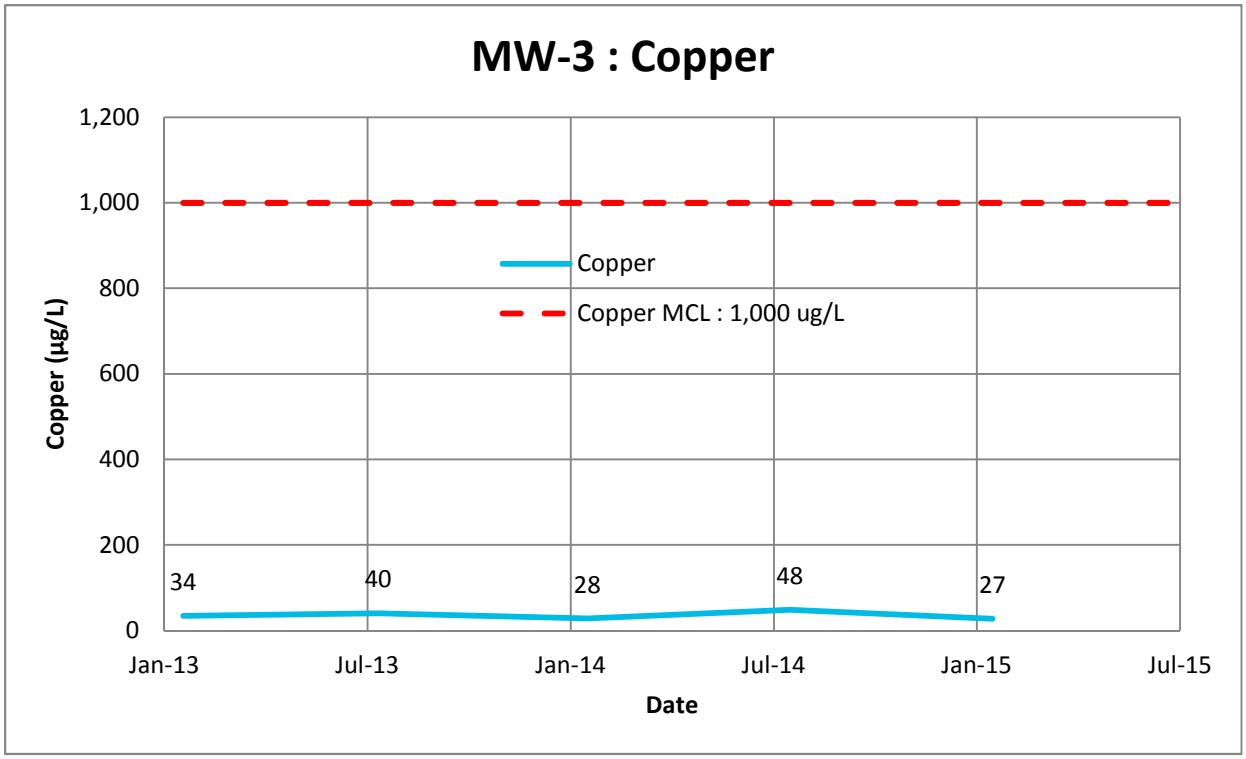


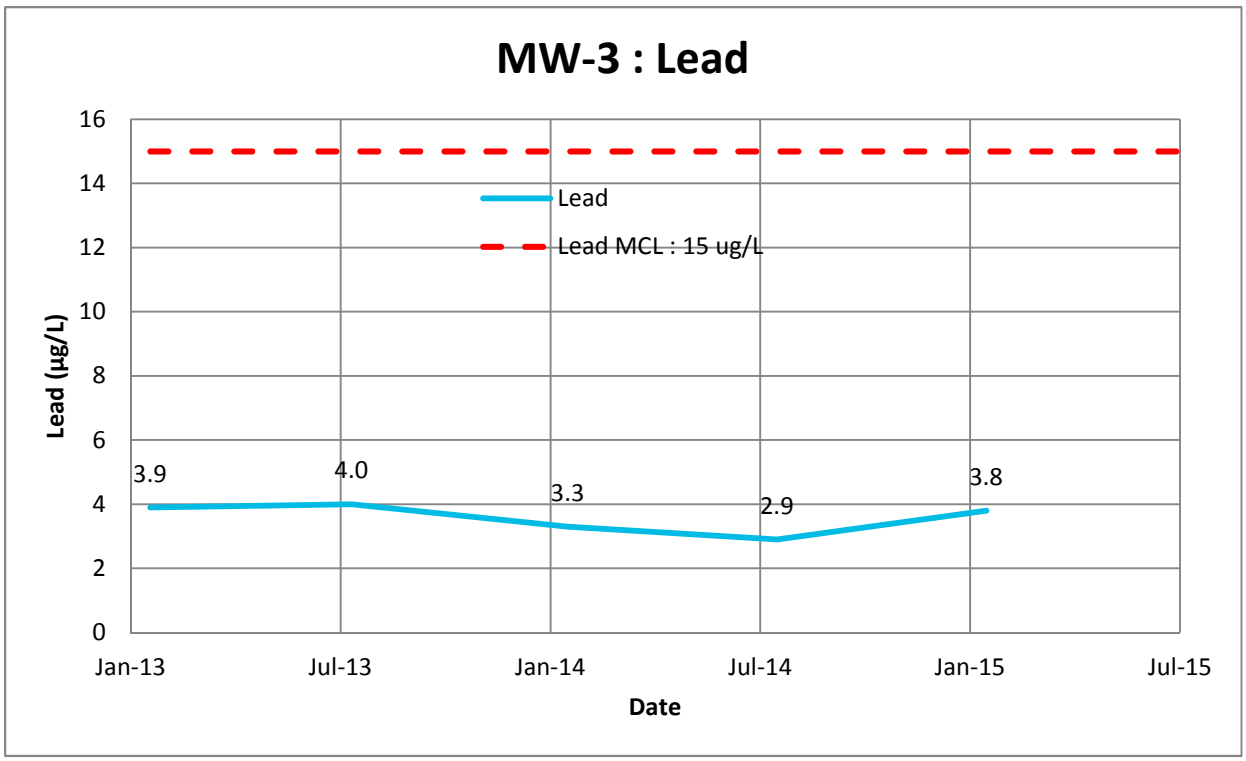
GCTL - Groundwater Clean Up Target Level per 62-777 F.A.C.

MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte concentration detected below quantitation limit

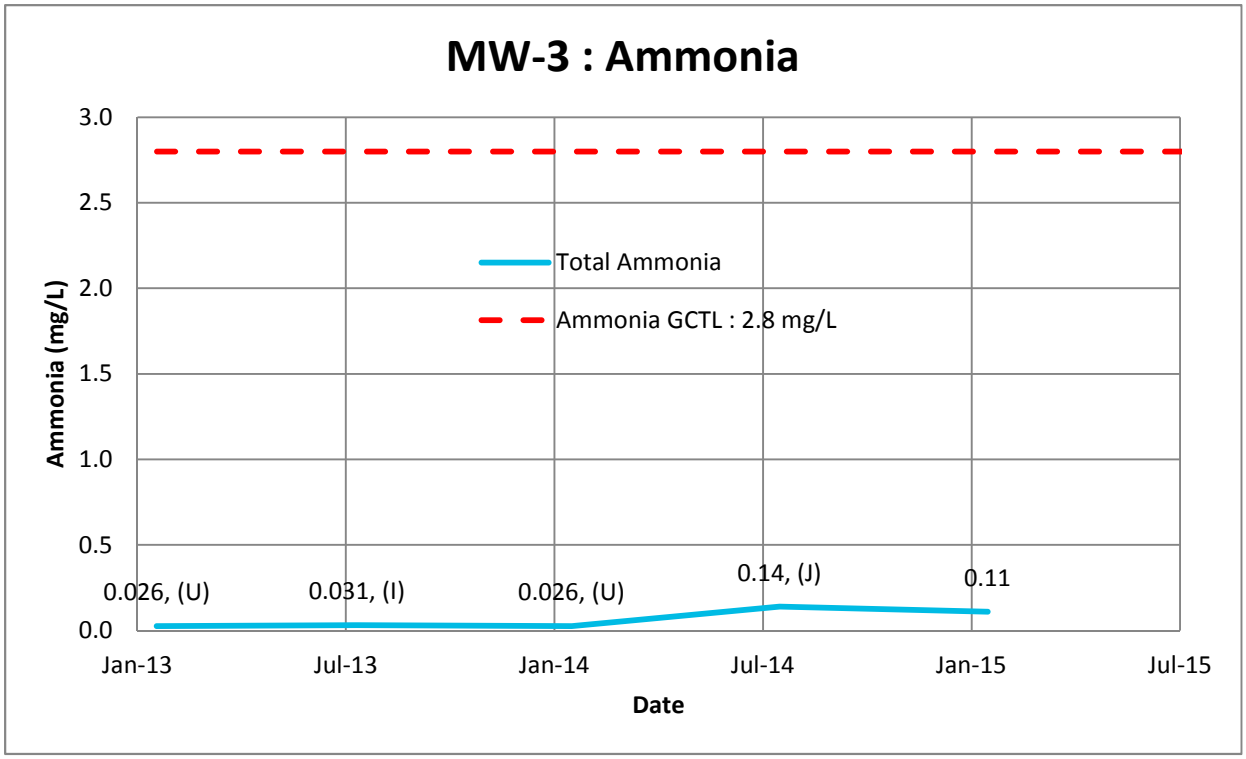
Based on data provided by TestAmerica Laboratories, Inc.

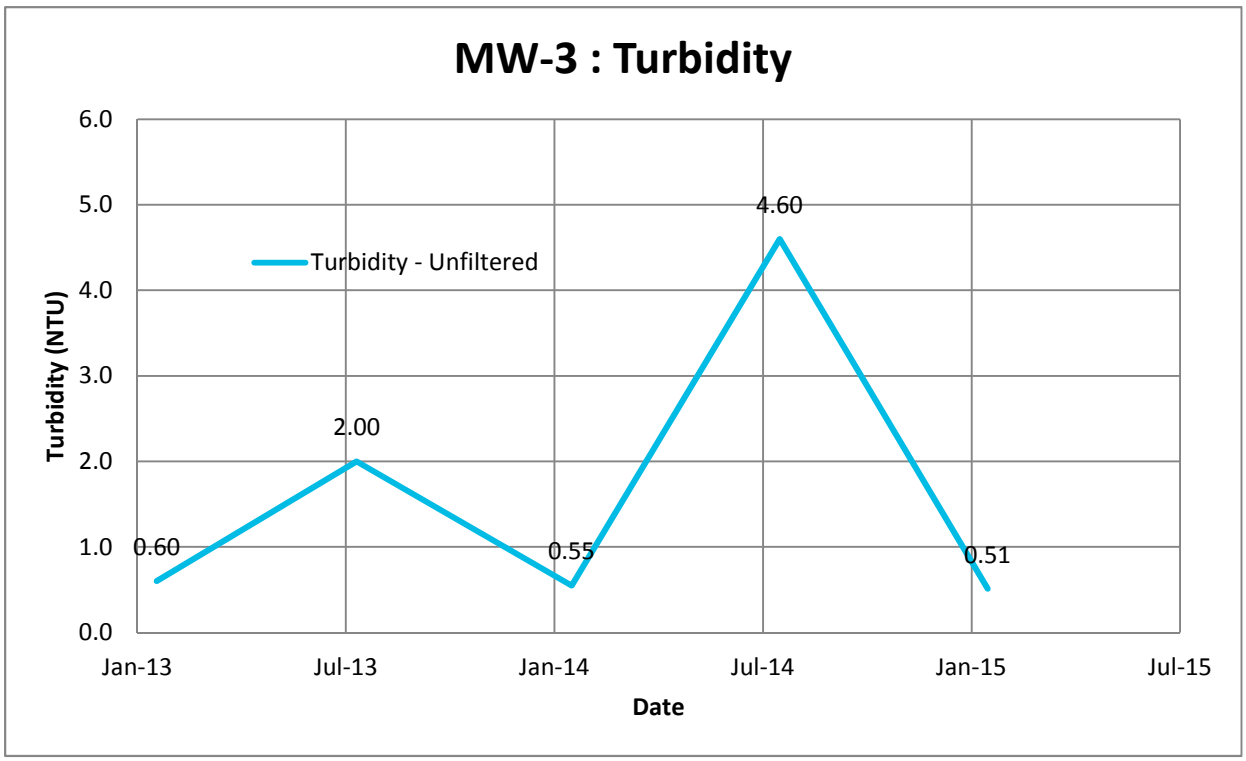




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.





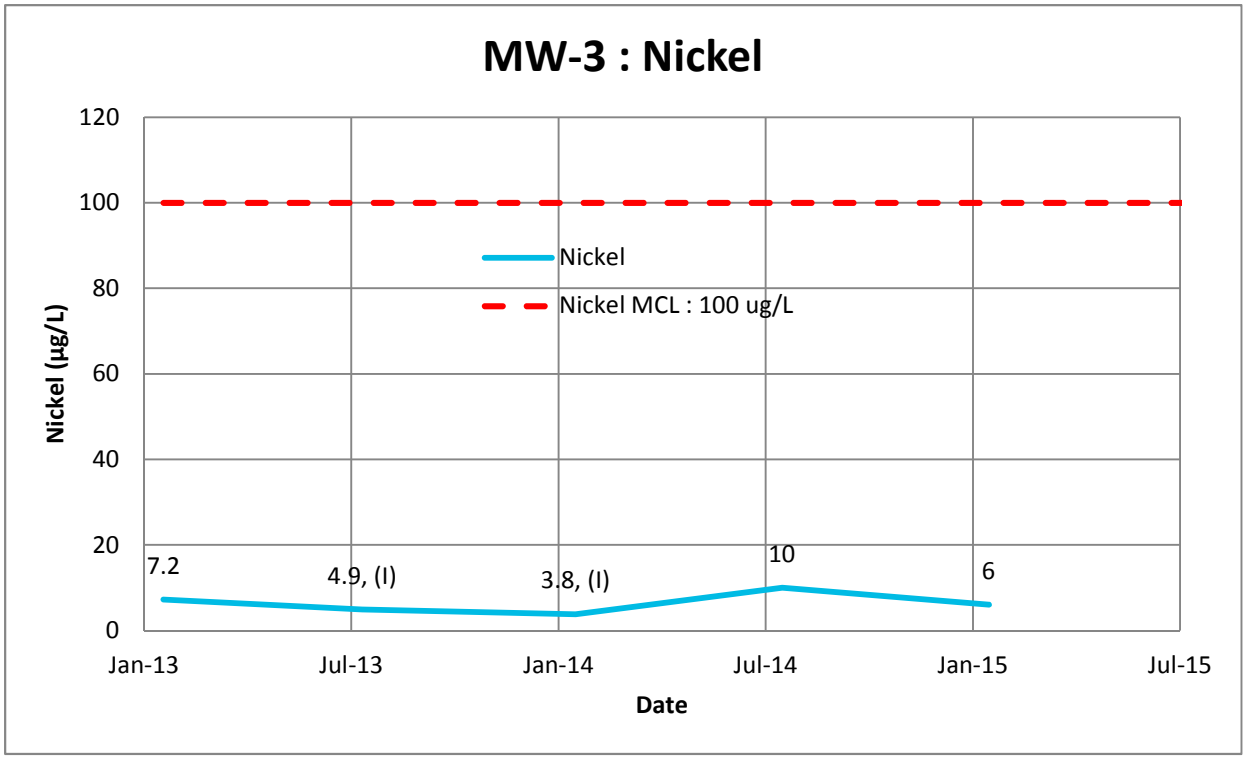
MCL - Maximum Contaminant Level per 62-550 F.A.C

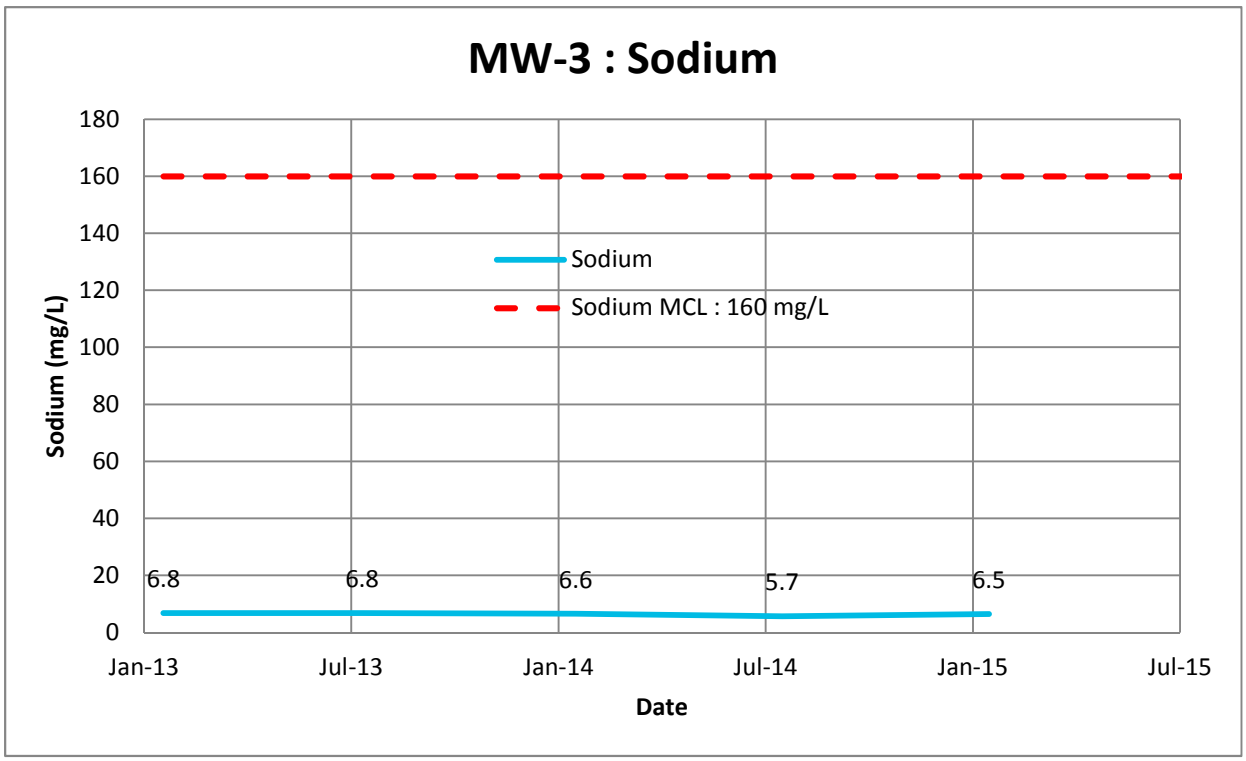
Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte concentration detected below quantitation limit

(J) Analyte concentration may not be accurate due to QC concerns

(U) Analyte not detected; value reported is the method detection limit

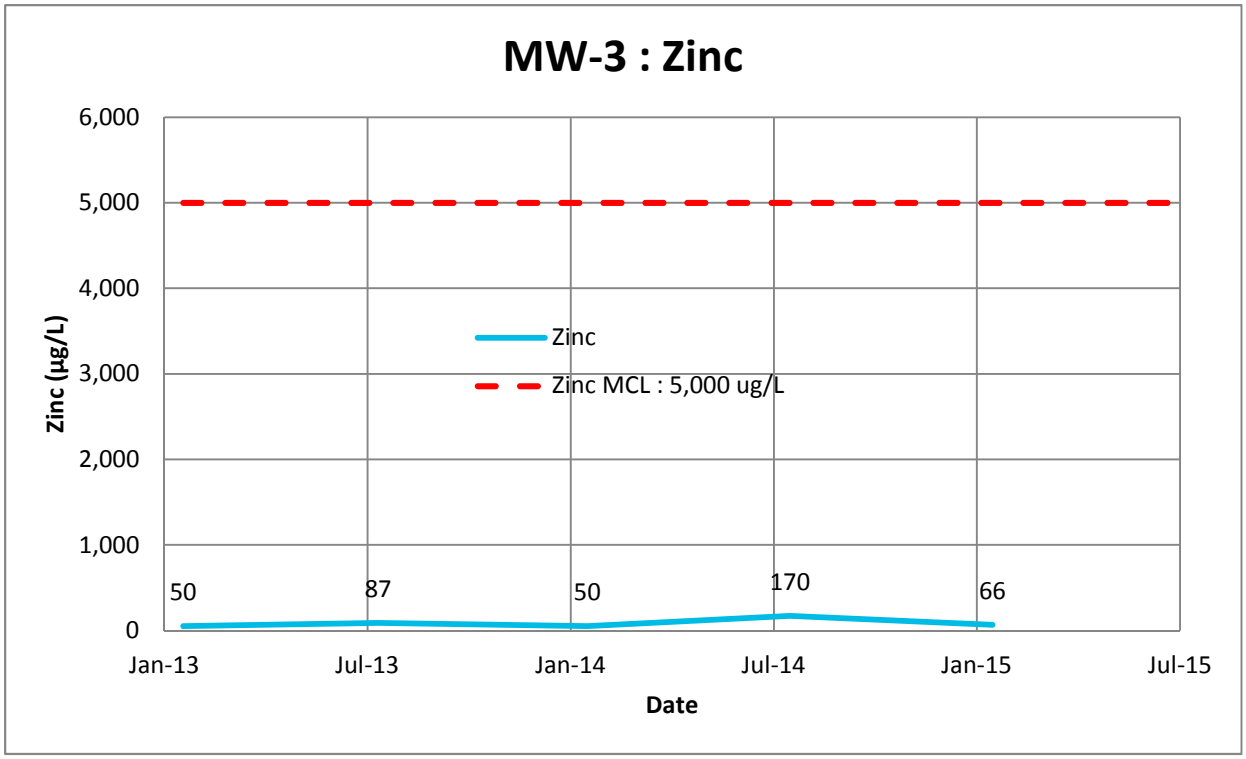




MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte concentration detected below quantitation limit

Based on data provided by TestAmerica Laboratories, Inc.



MCL - Maximum Contaminant Level per 62-550 F.A.C

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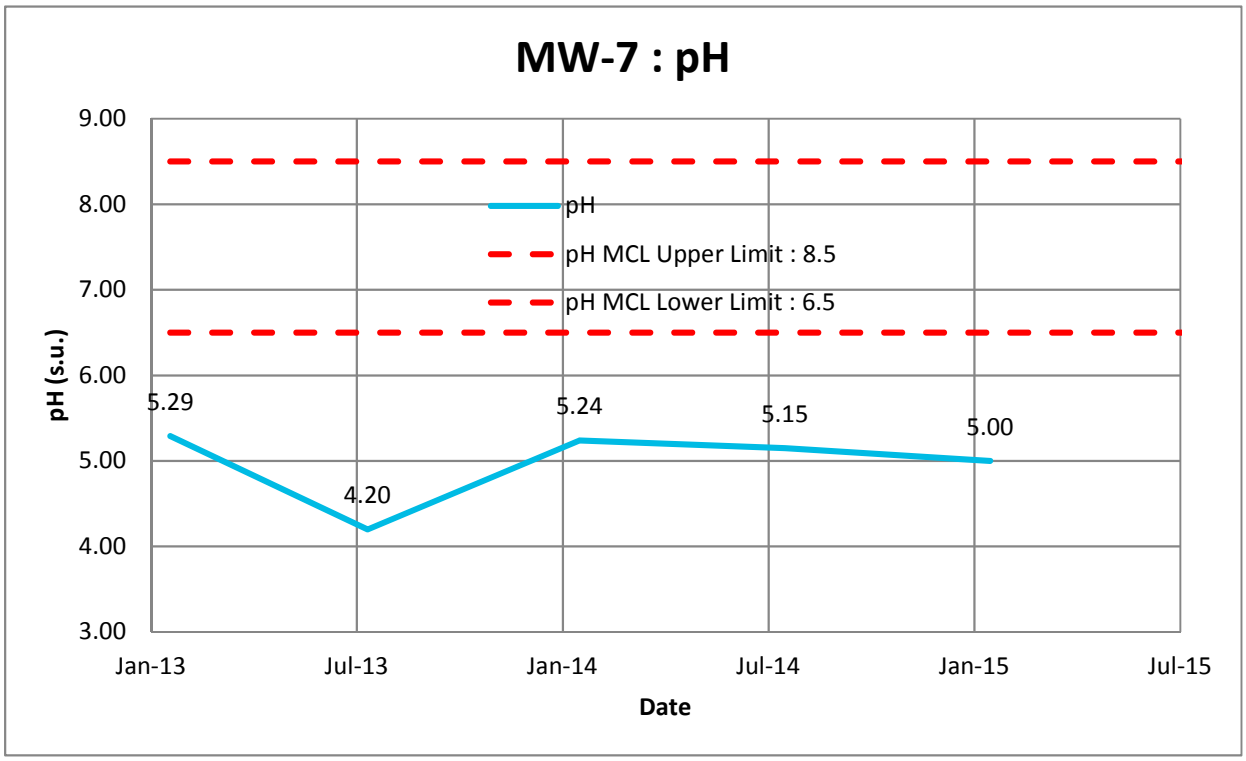

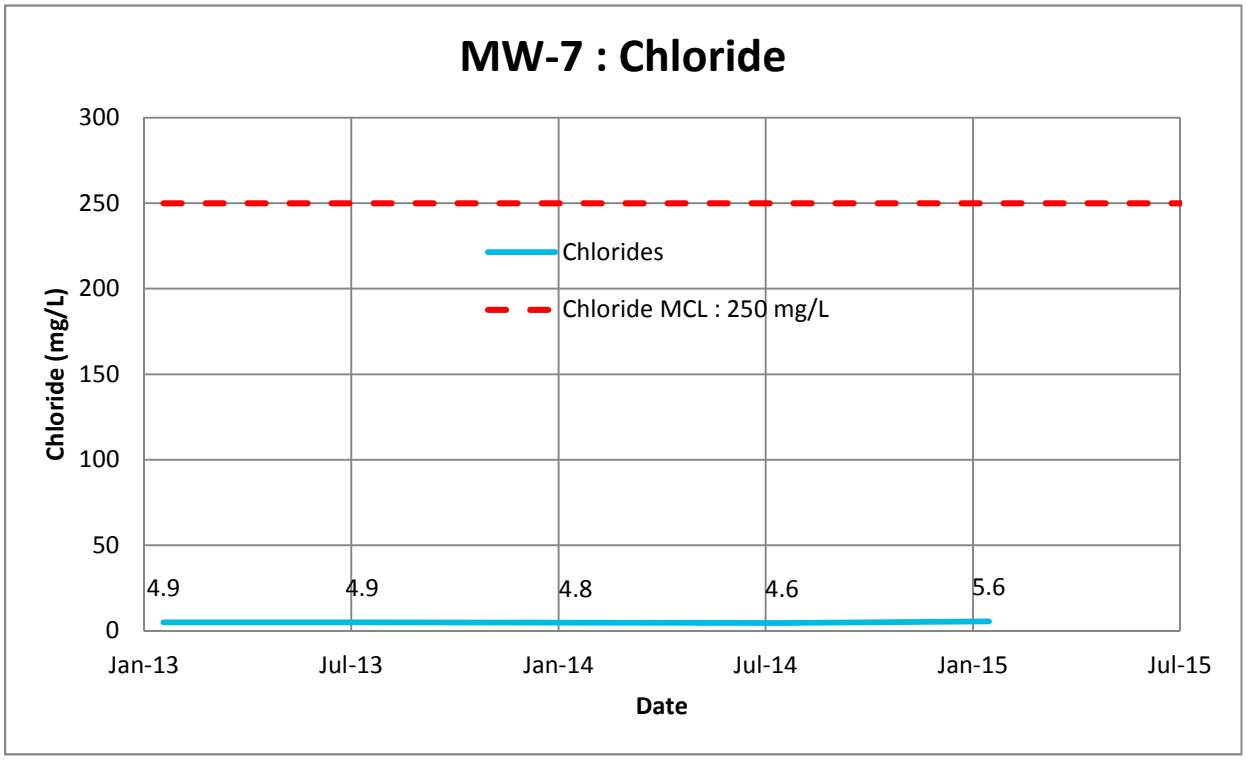

MCL - Maximum Contaminant Level per 62-550 F.A.C

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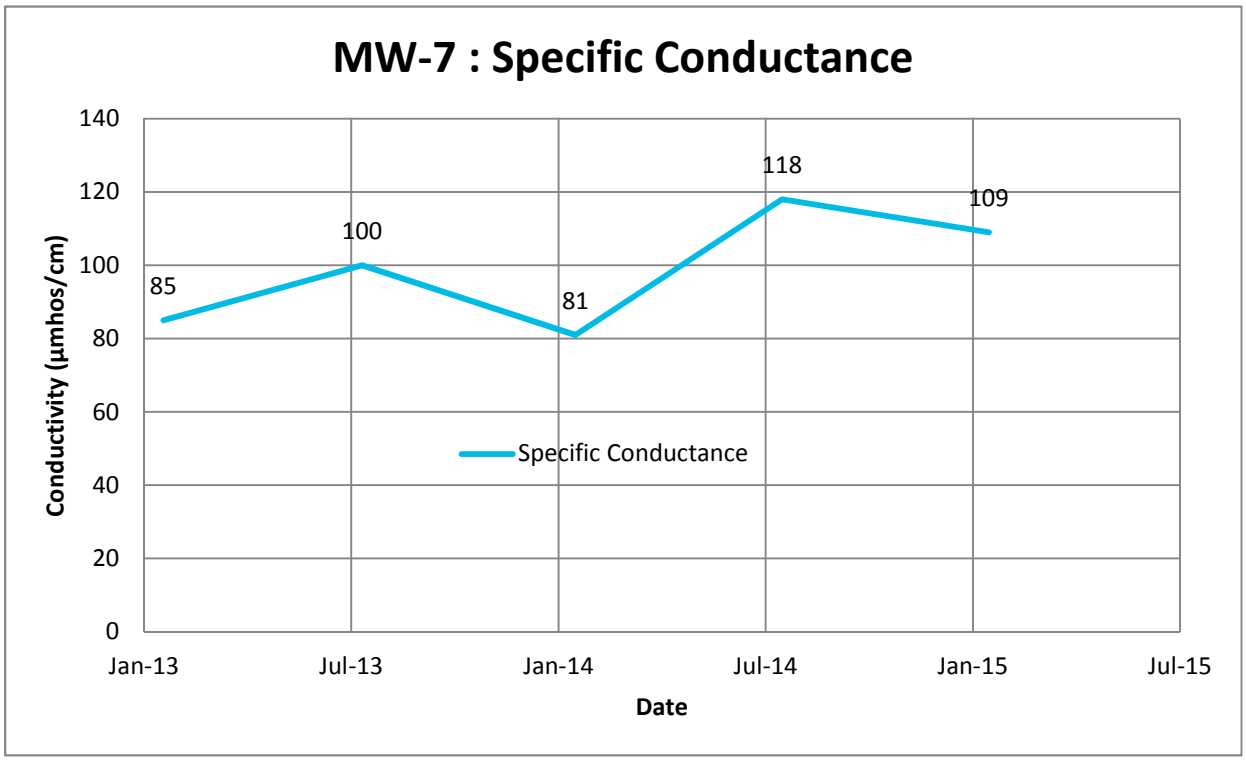

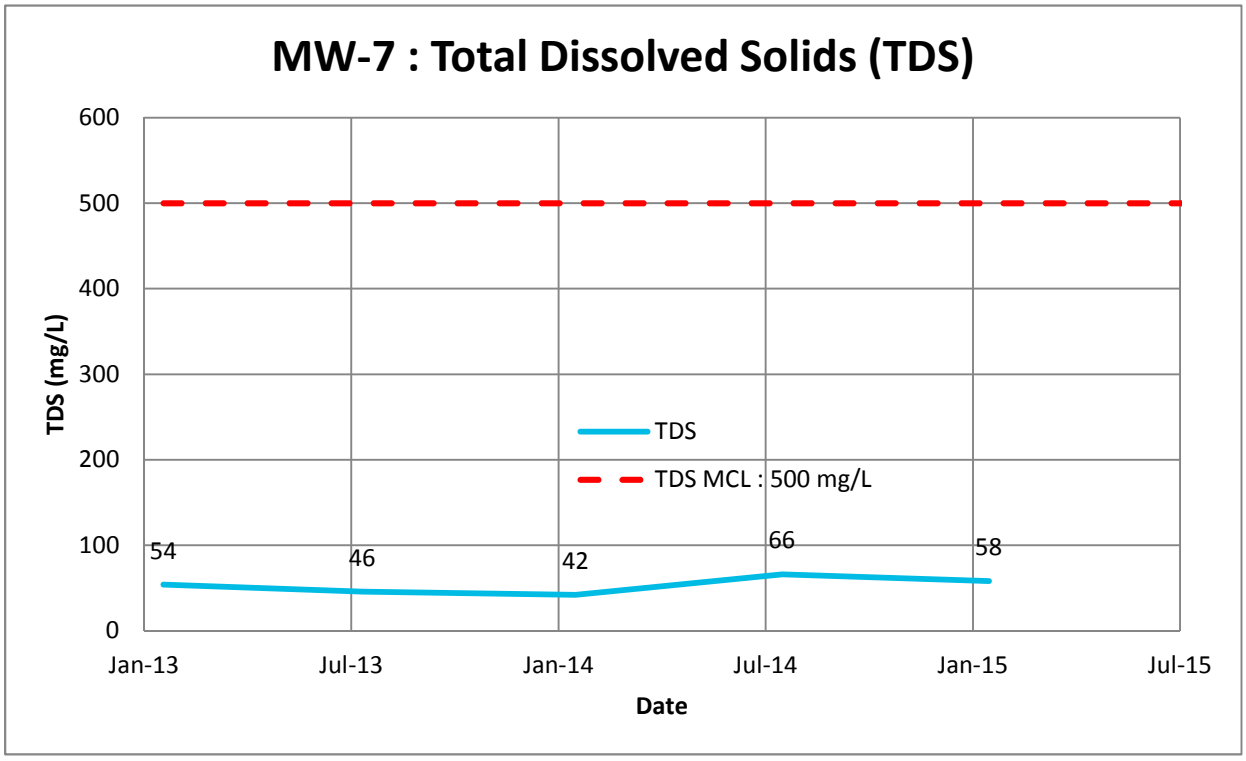

MCL - Maximum Contaminant Level per 62-550 F.A.C

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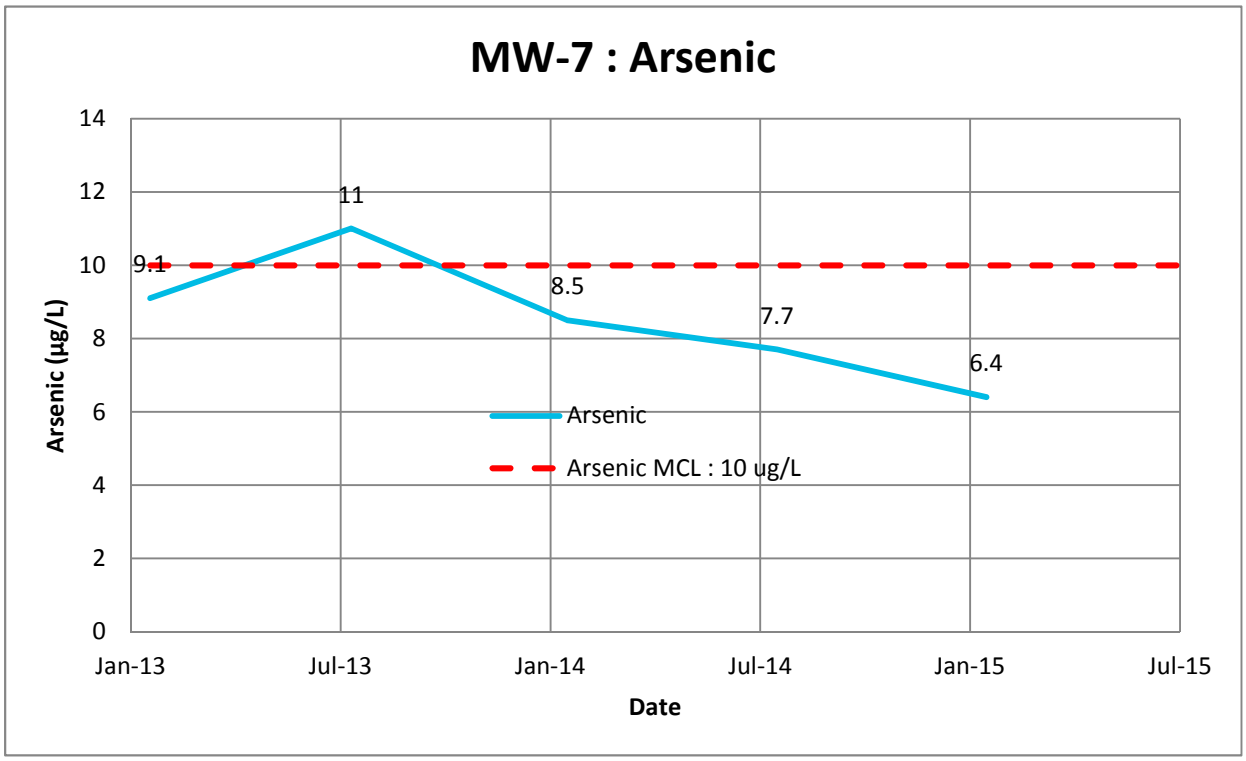

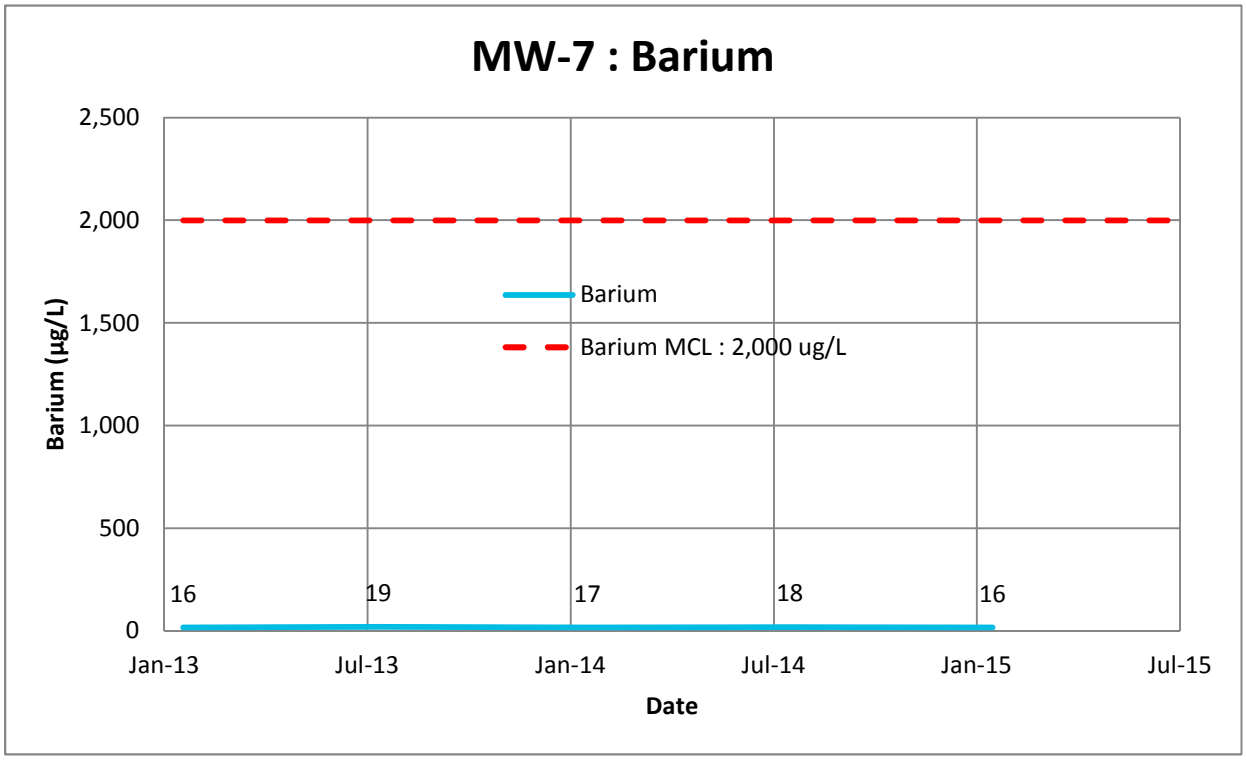

MCL - Maximum Contaminant Level per 62-550 F.A.C

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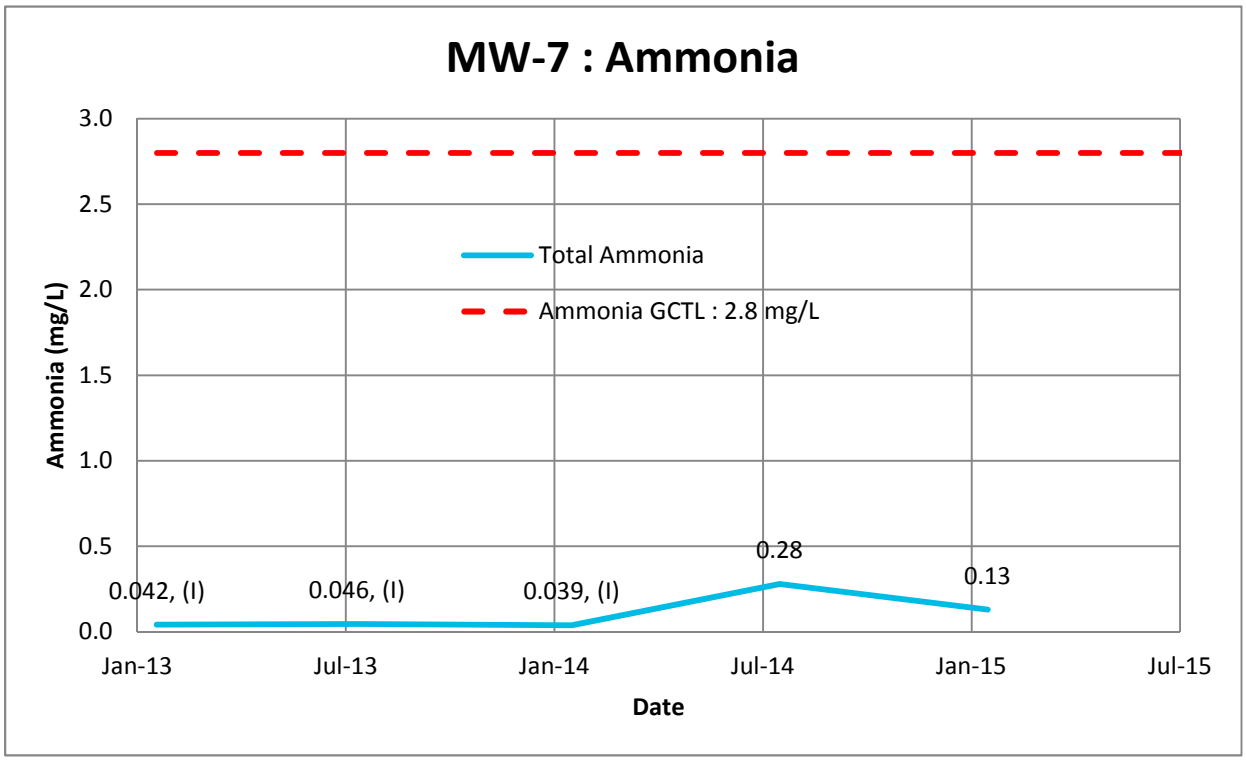
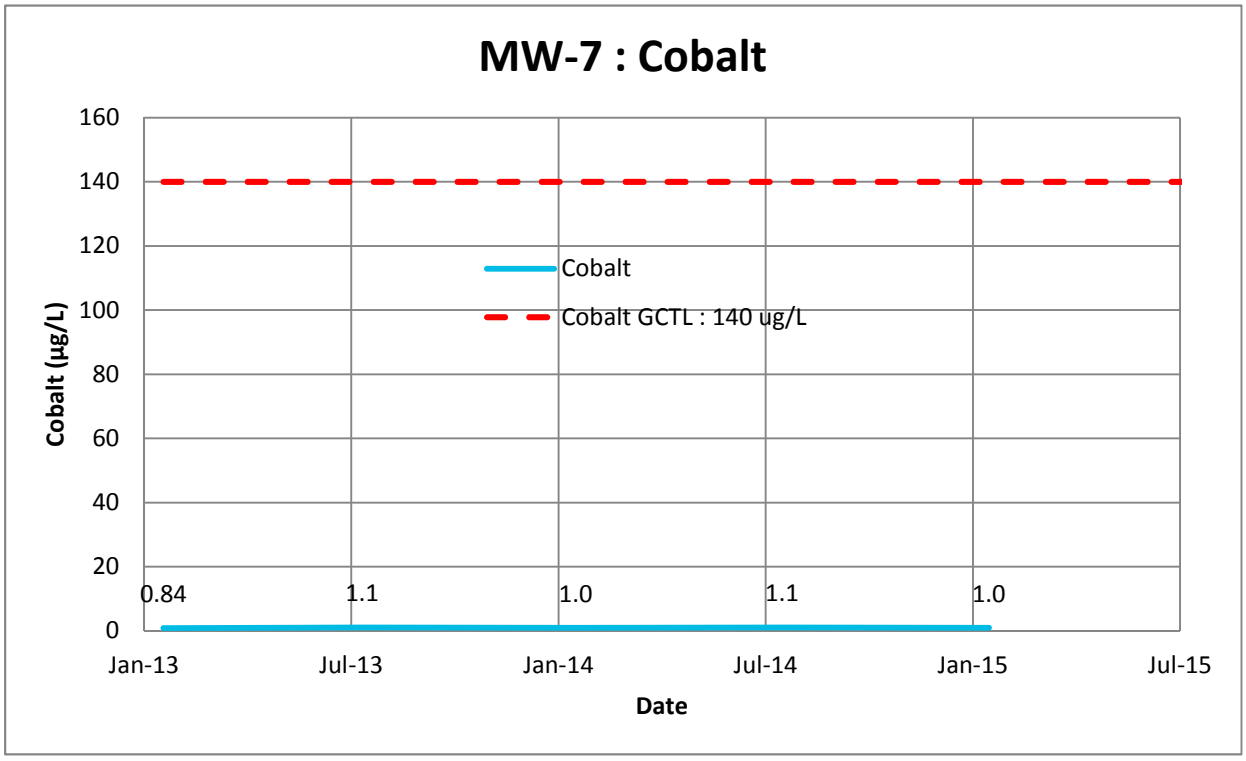


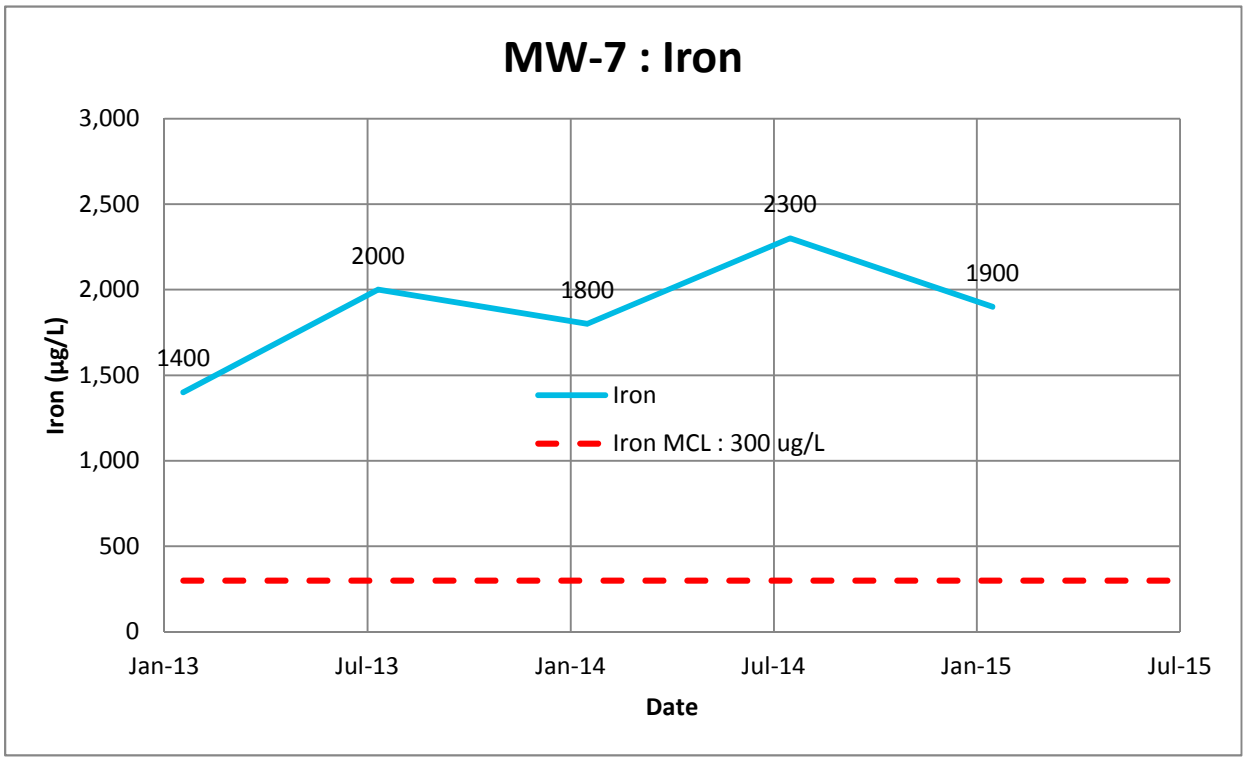


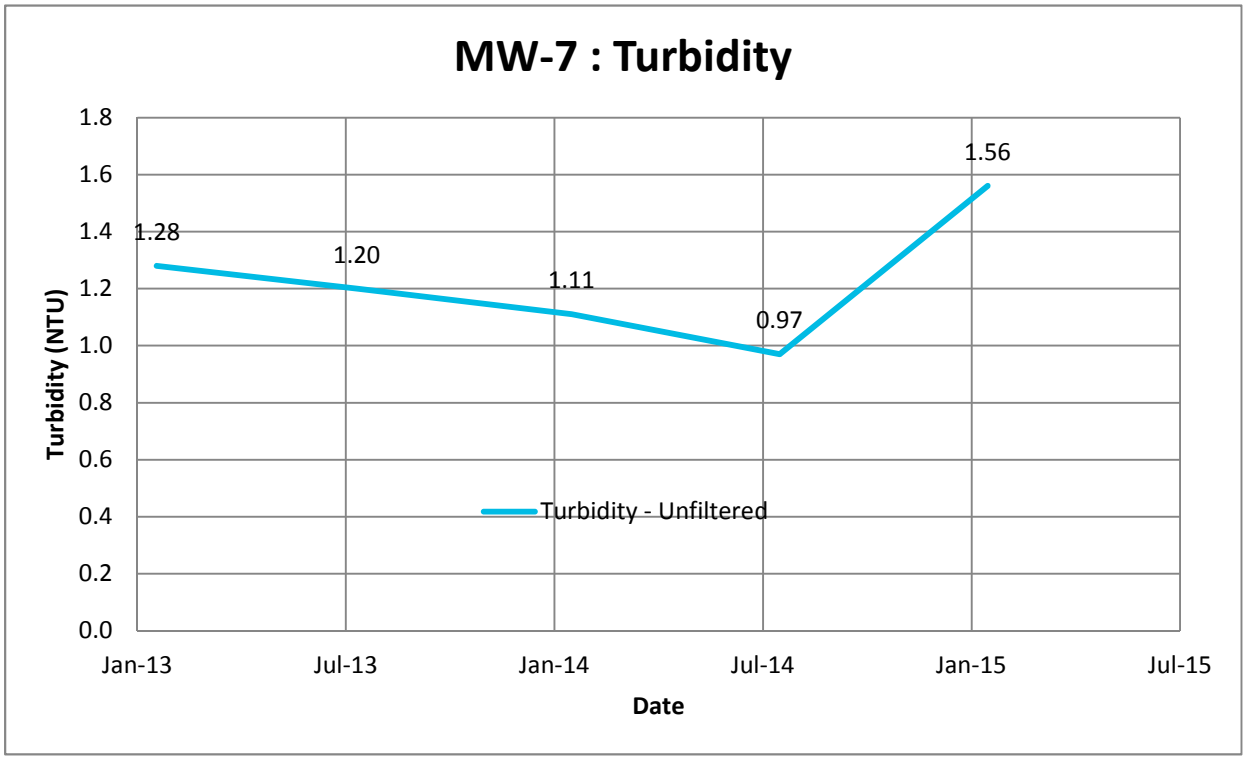
GCTL - Groundwater Clean Up Target Level per 62-777 F.A.C.

MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte concentration detected below quantitation limit

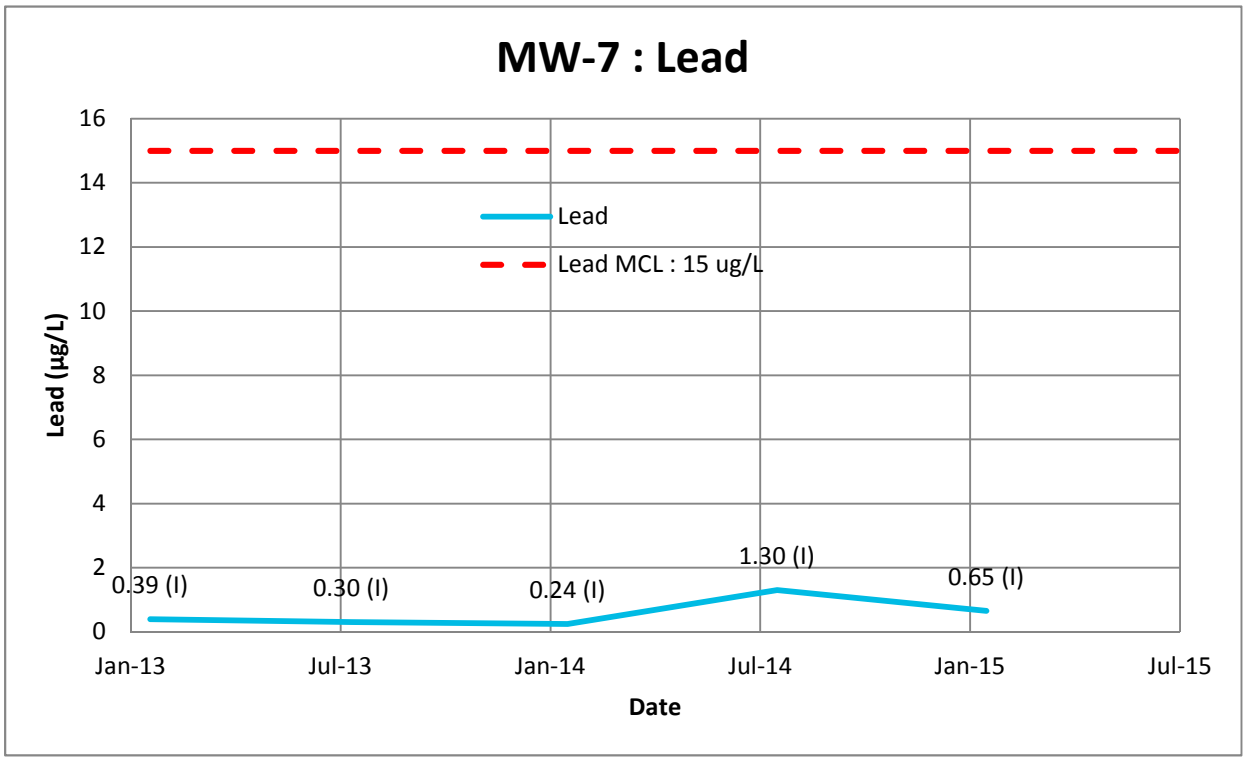
Based on data provided by TestAmerica Laboratories, Inc.

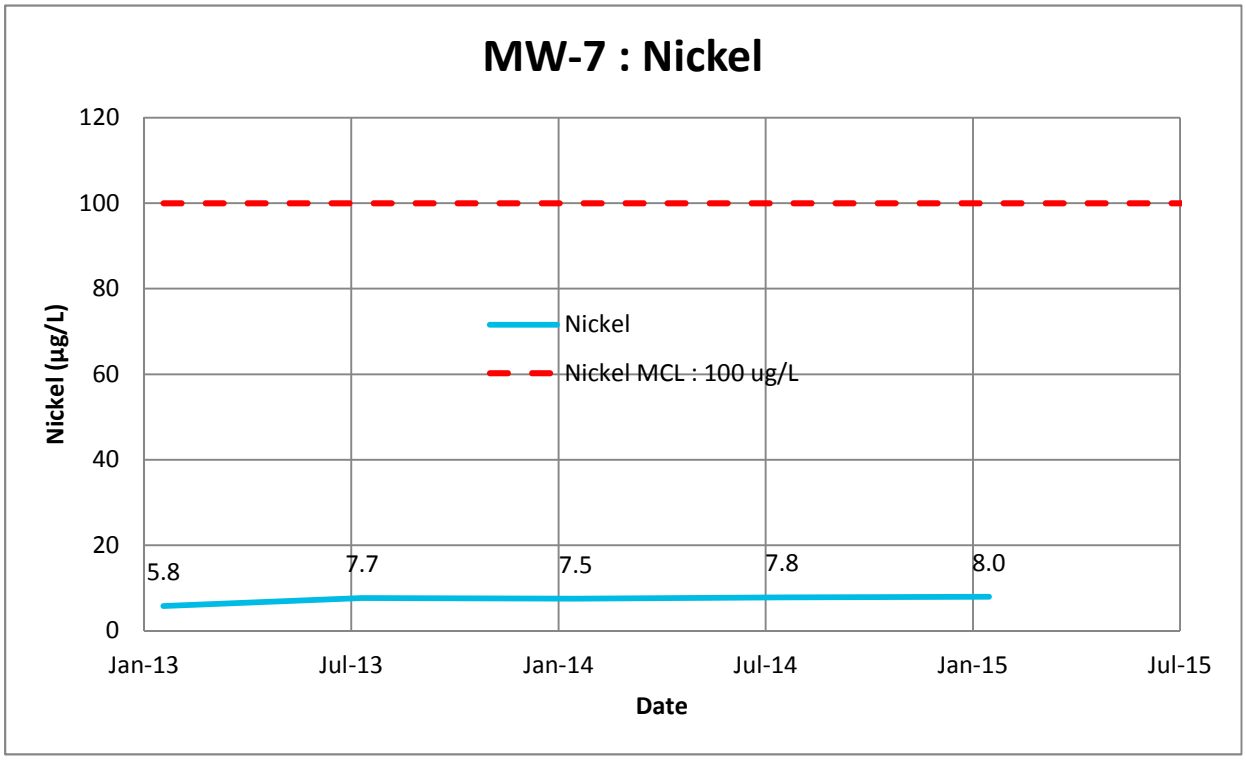




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

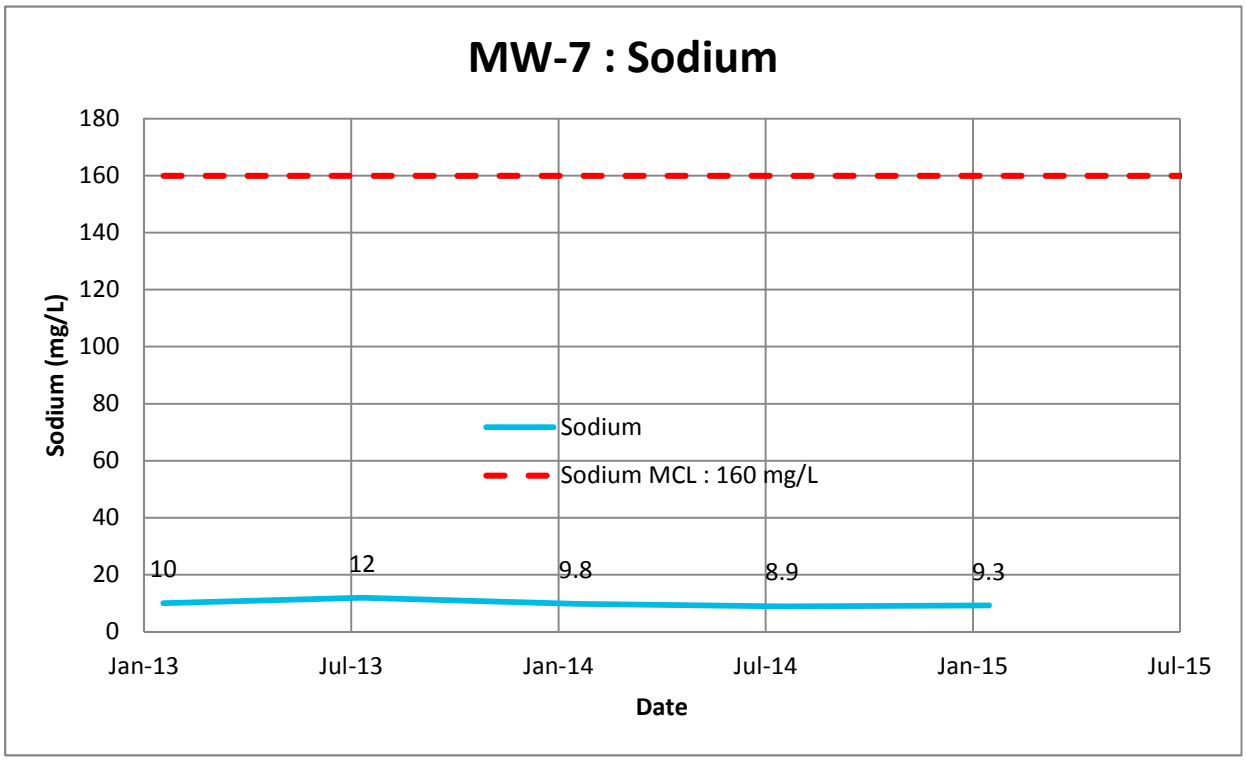


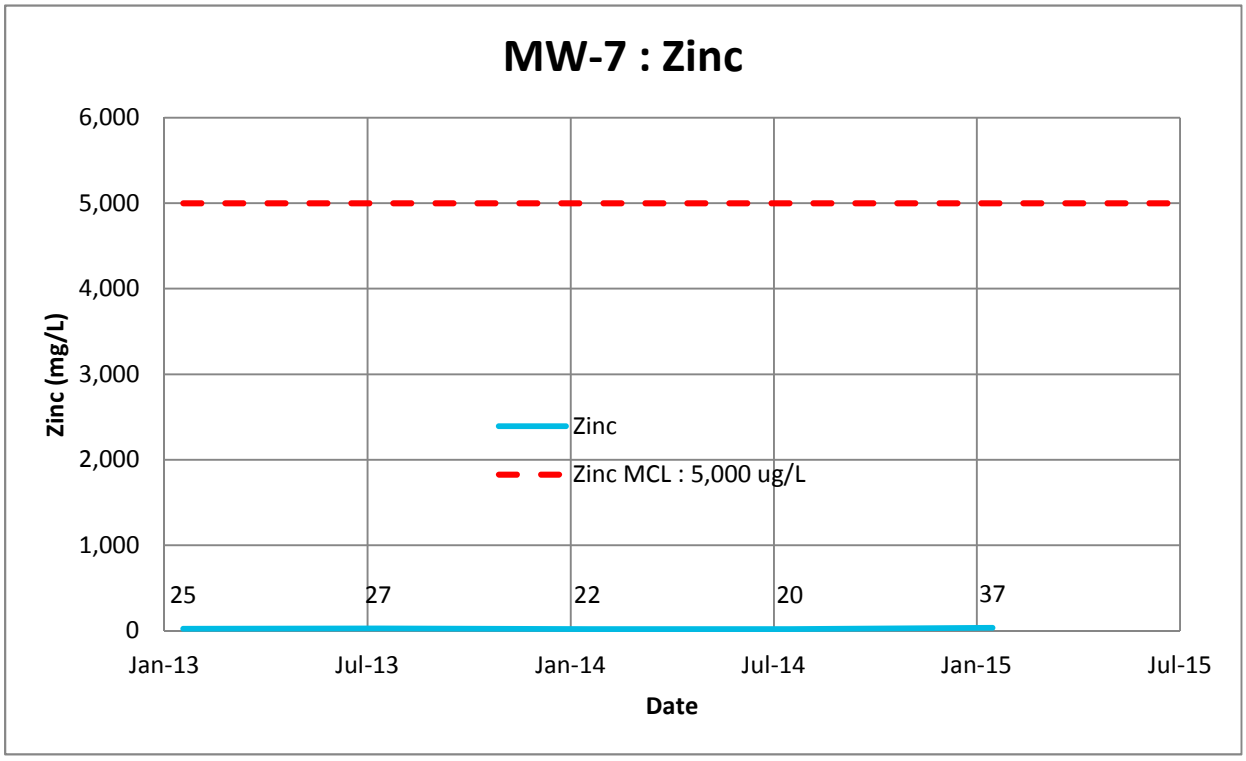


MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte concentration detected below quantitation limit

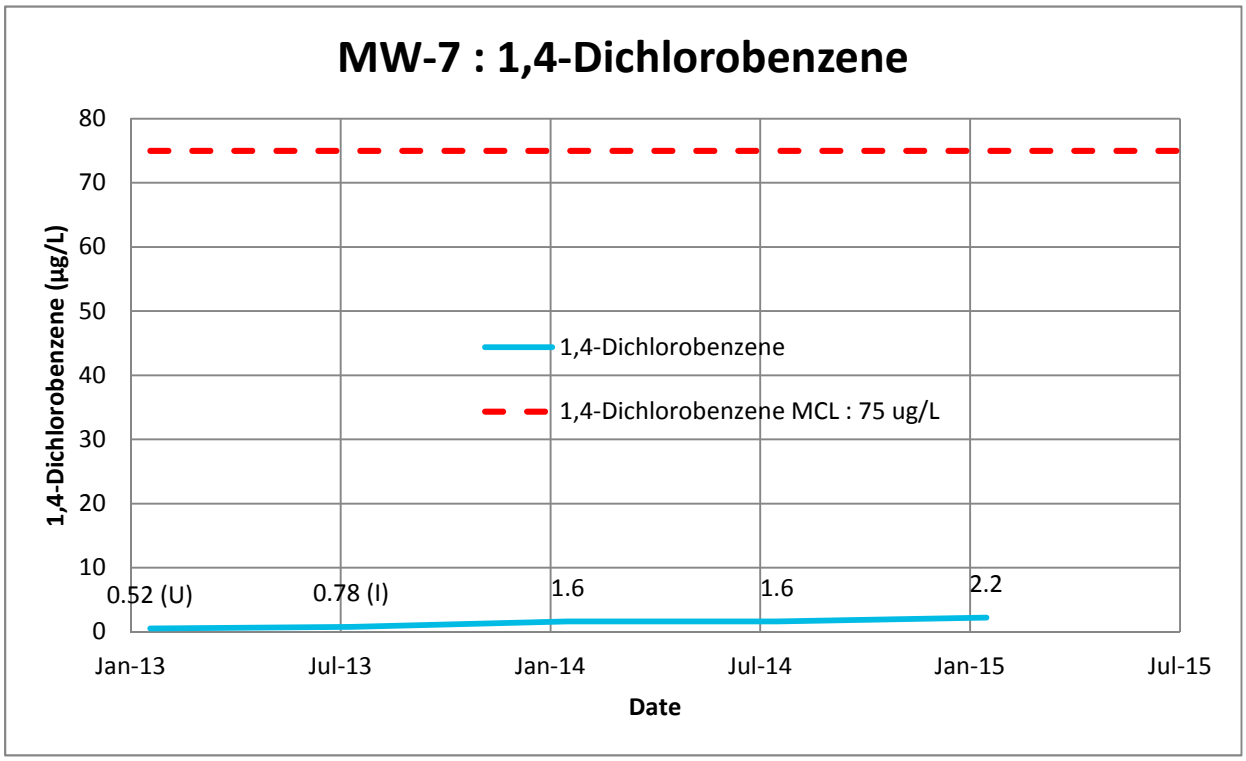
Based on data provided by TestAmerica Laboratories, Inc.

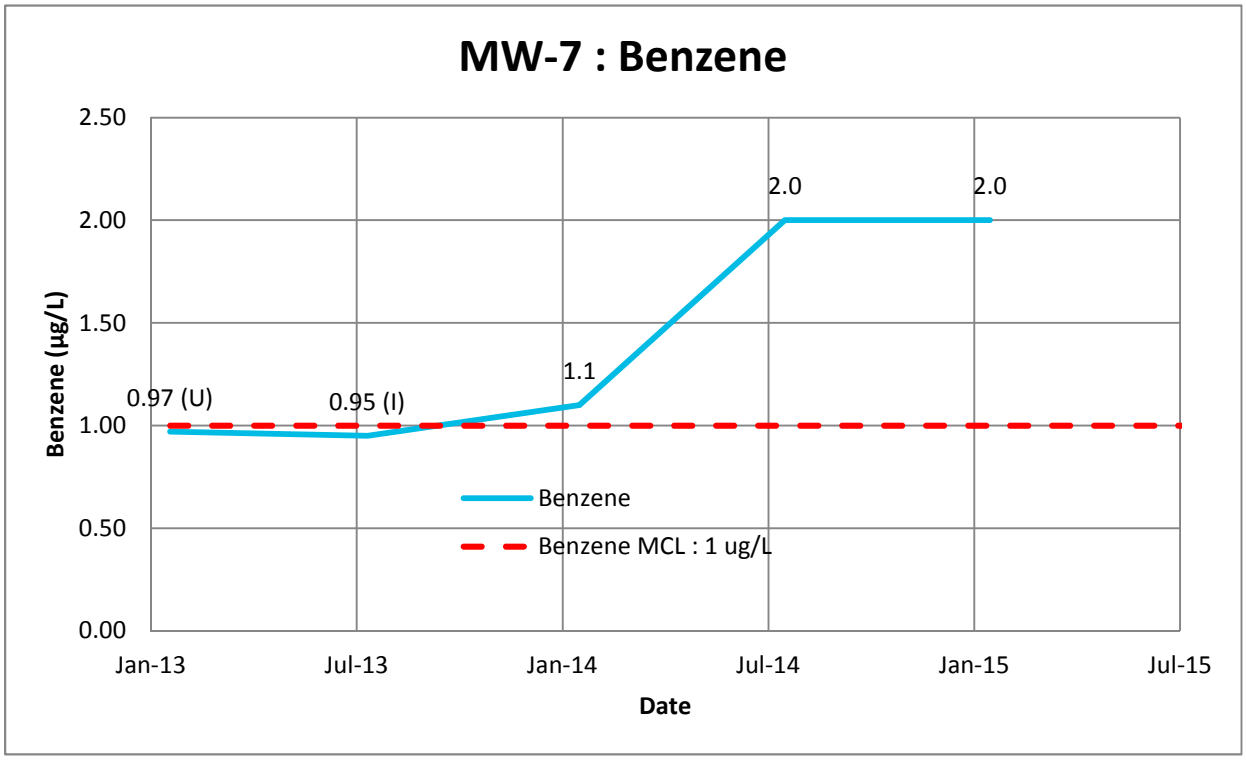




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.



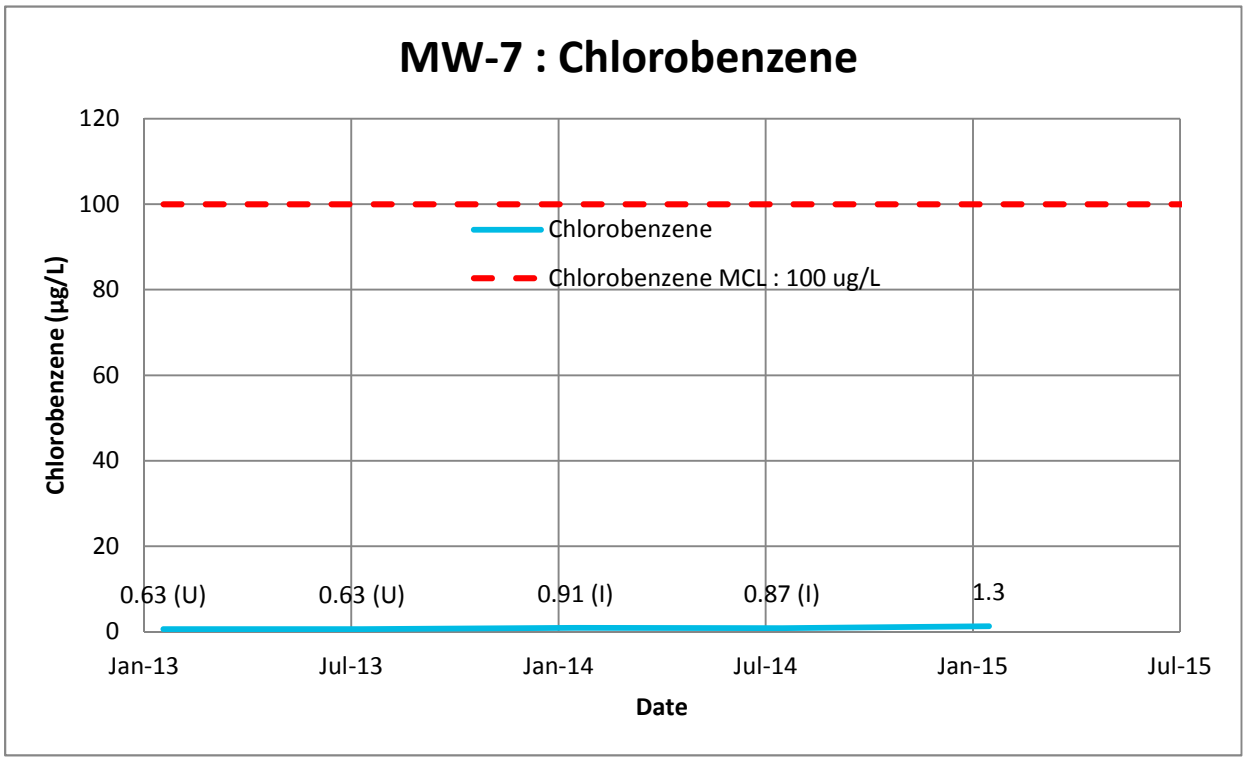


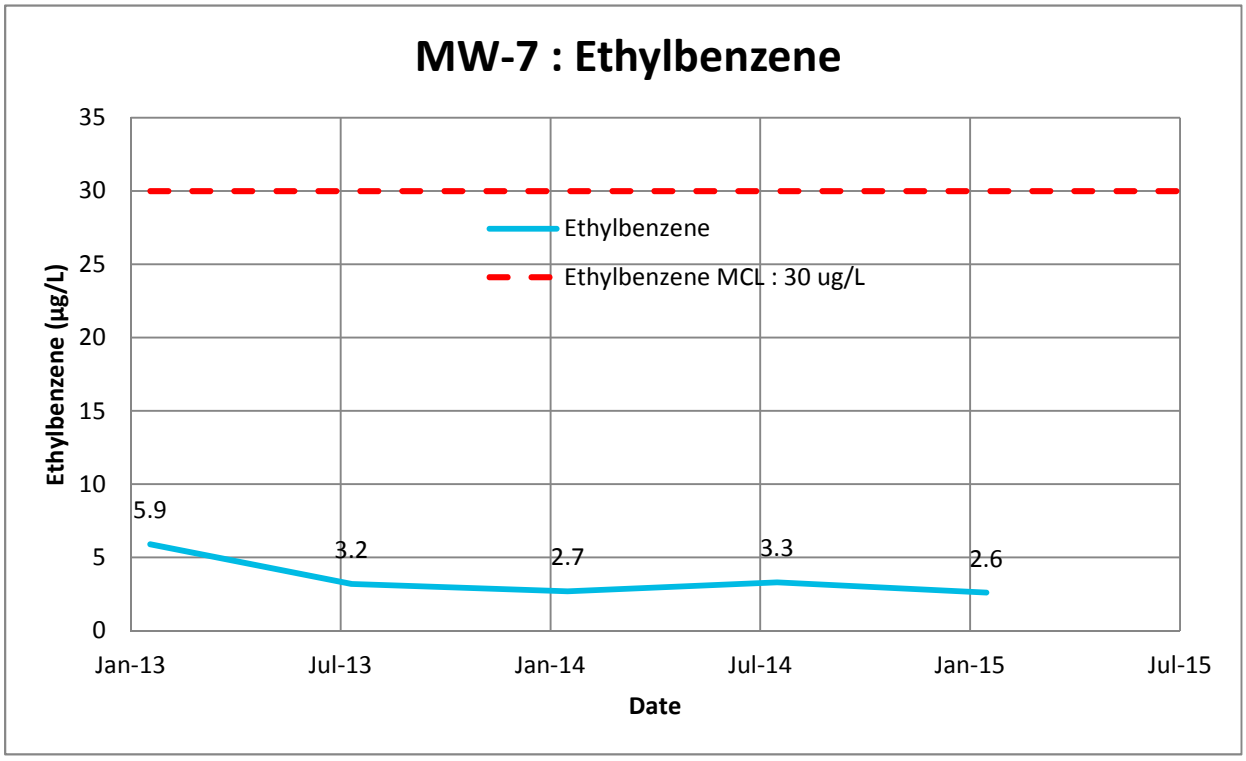
MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte detected below quantitation limit

(U) Analyte not detected; value reported is the method detection limit



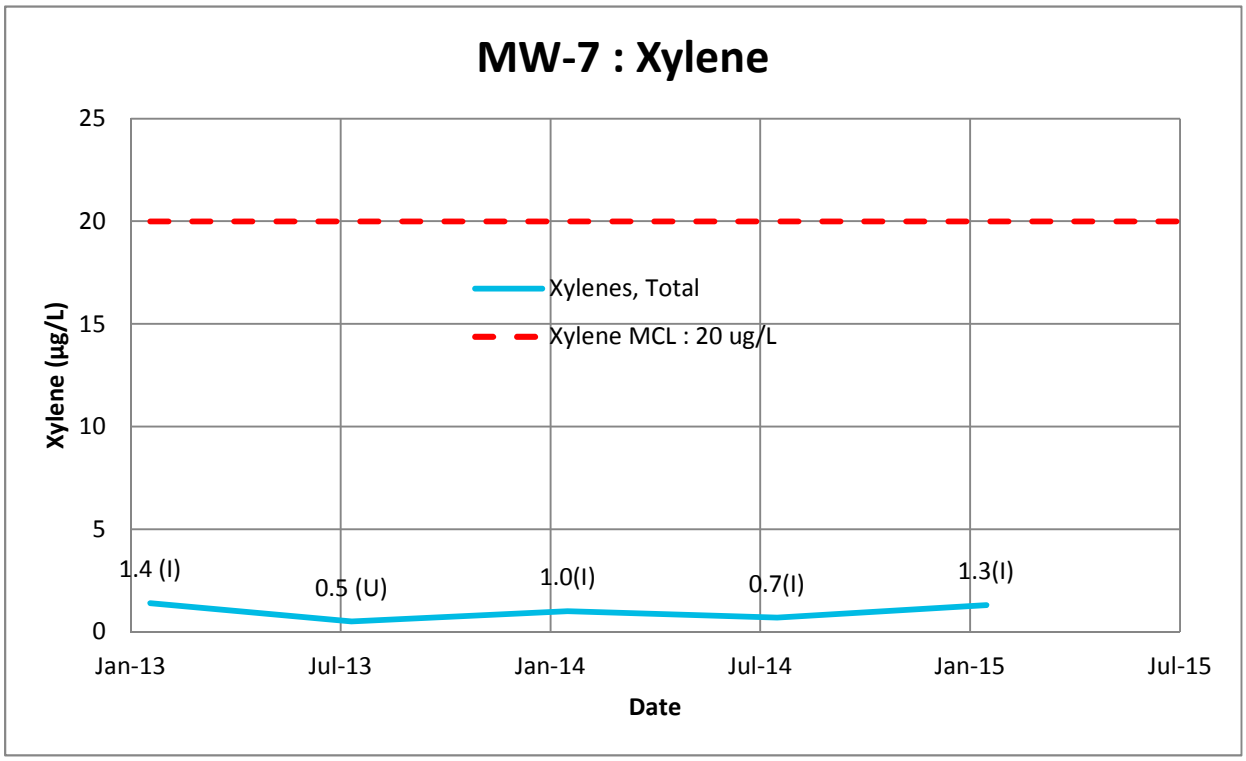


MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte detected below quantitation limit

(U) Analyte not detected; value reported is the method detection limit

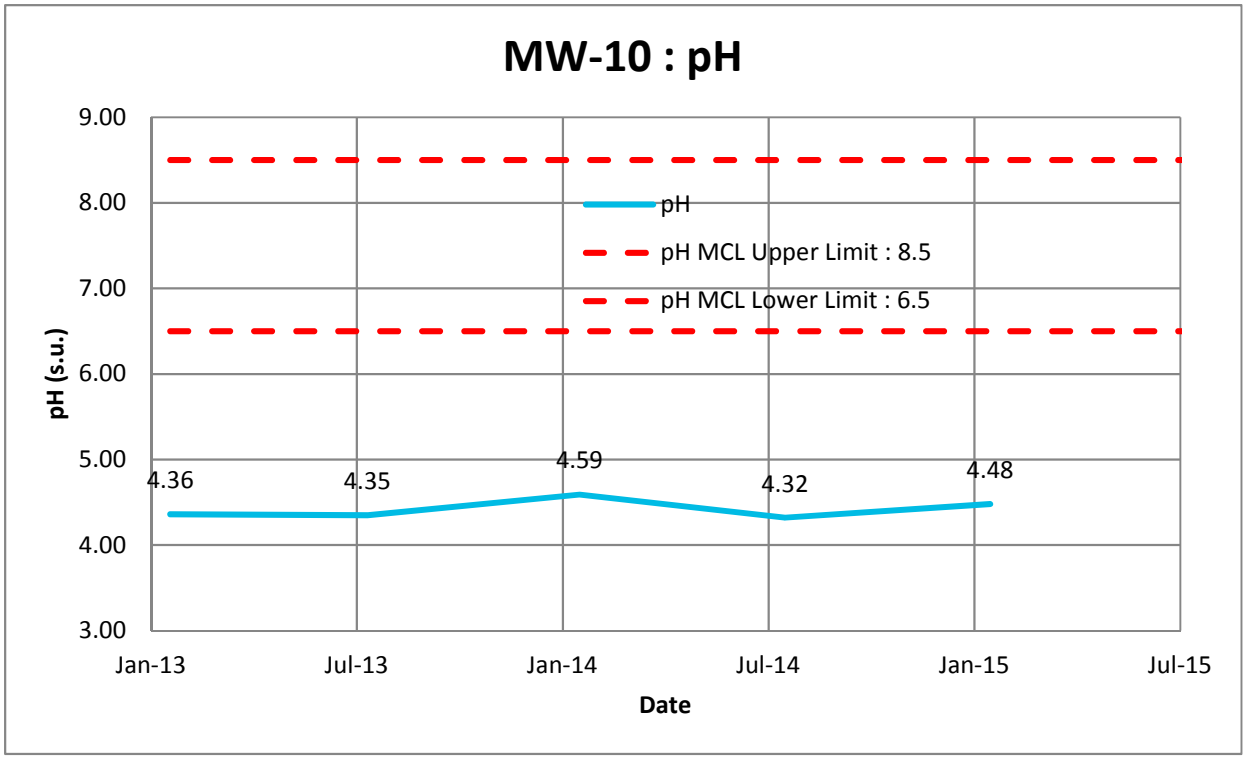


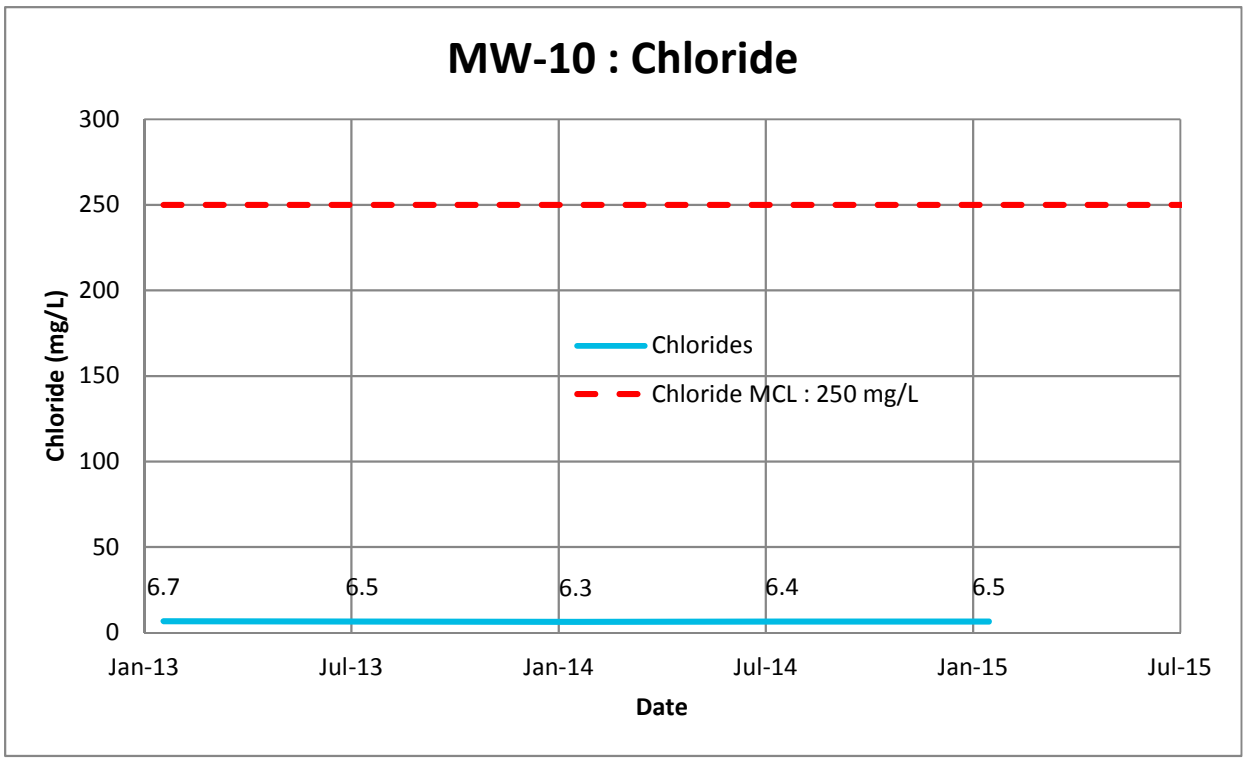
MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte detected below quantitation limit

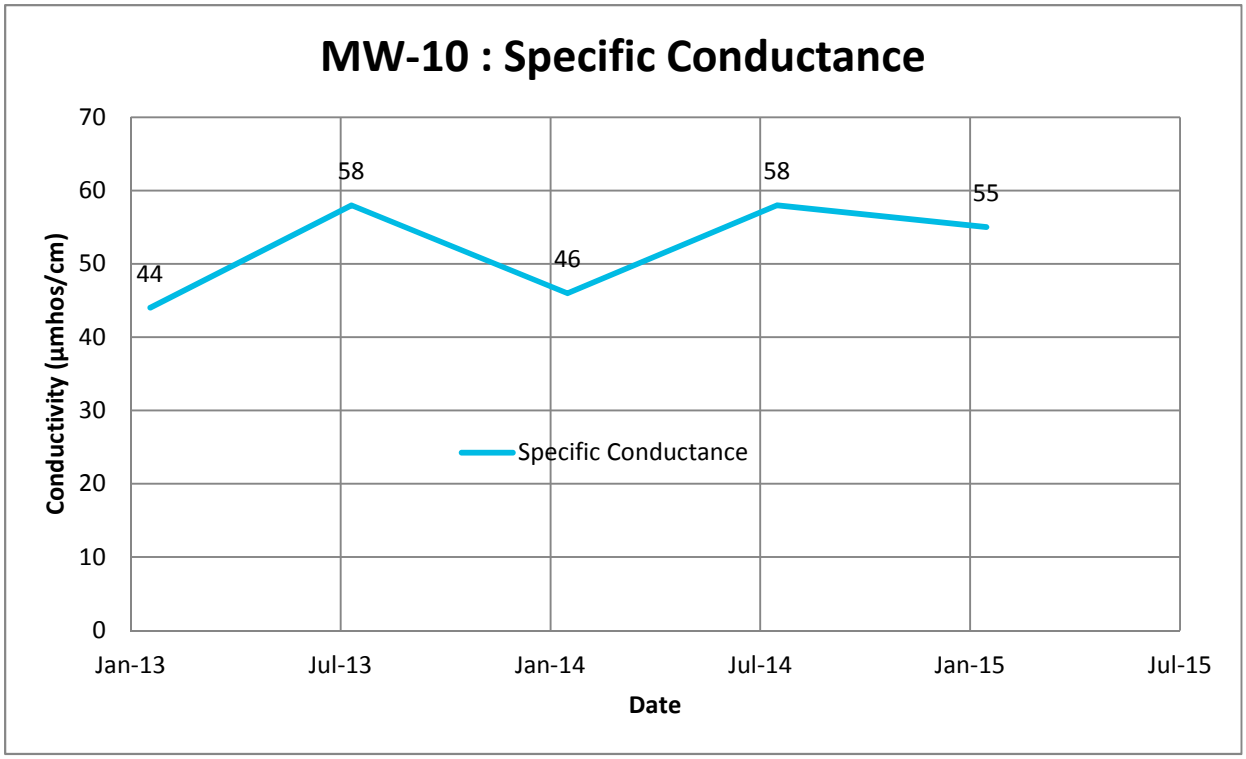
(U) Analyte not detected; value reported is the method detection limit

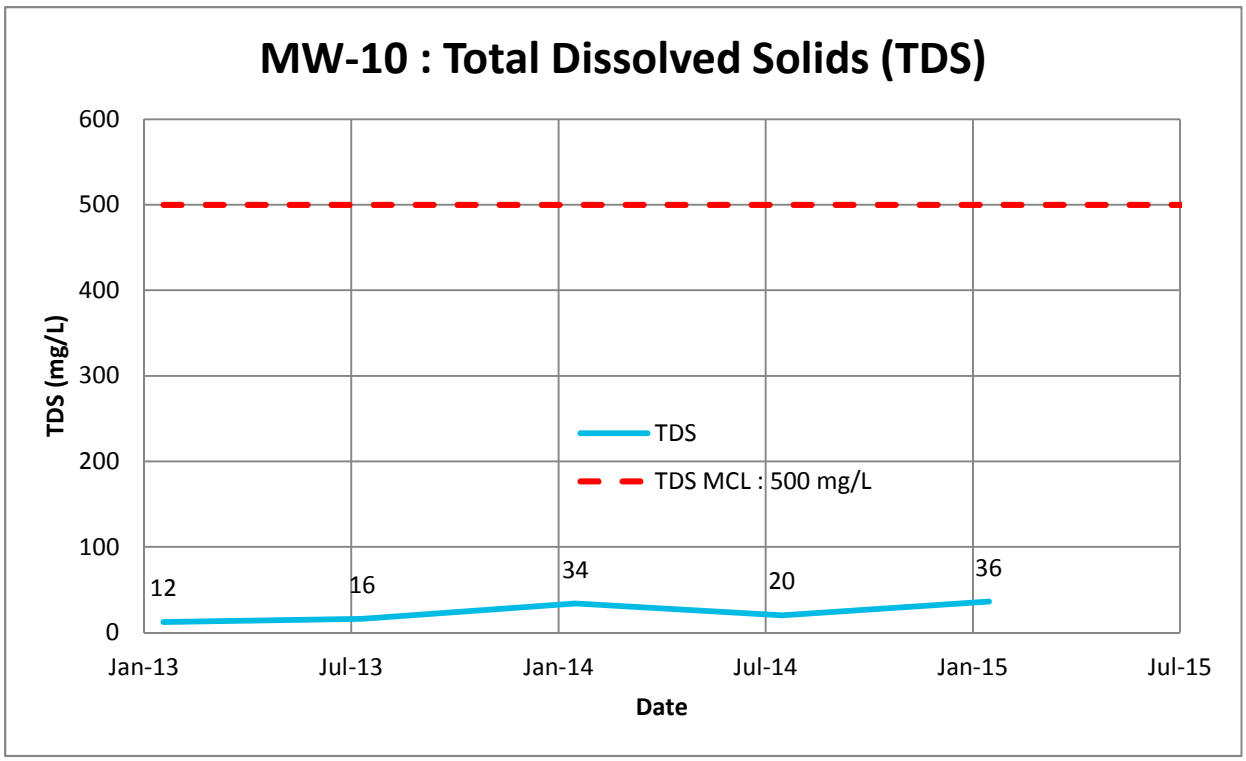




MCL - Maximum Contaminant Level per 62-550 F.A.C

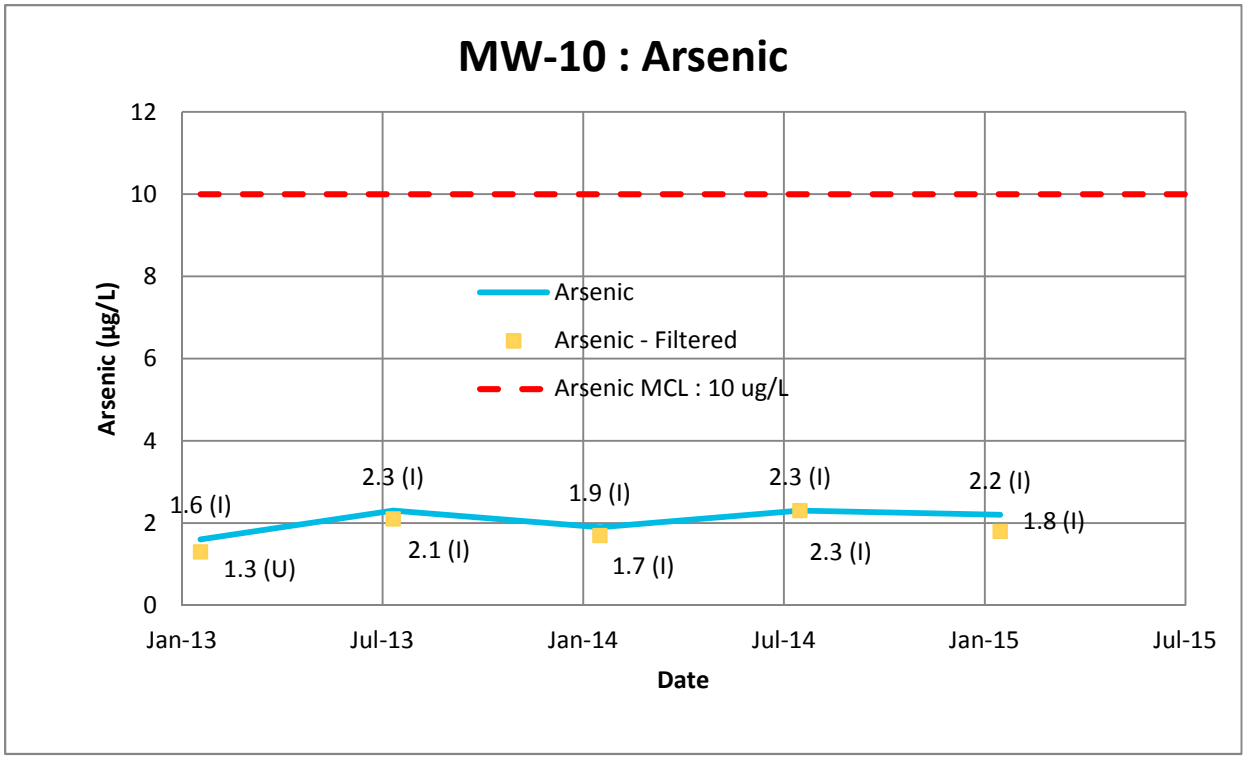
Based on data provided by TestAmerica Laboratories, Inc.

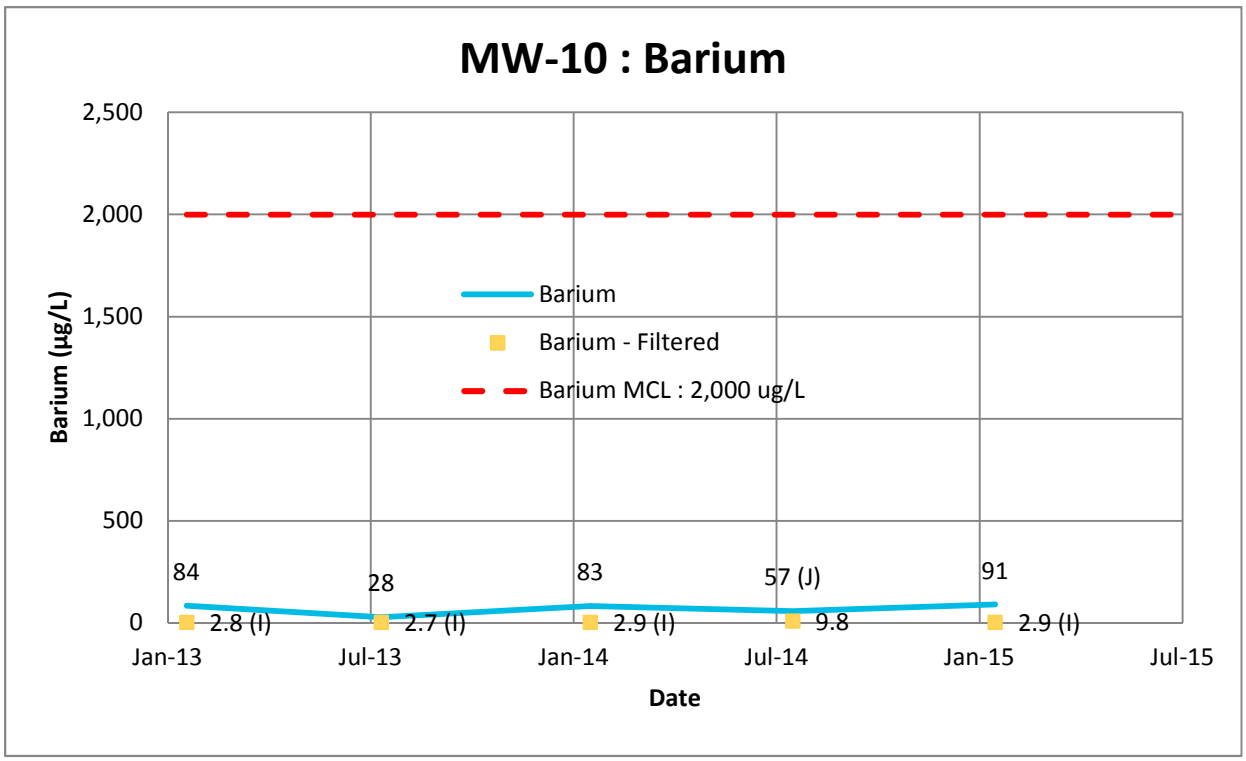




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.





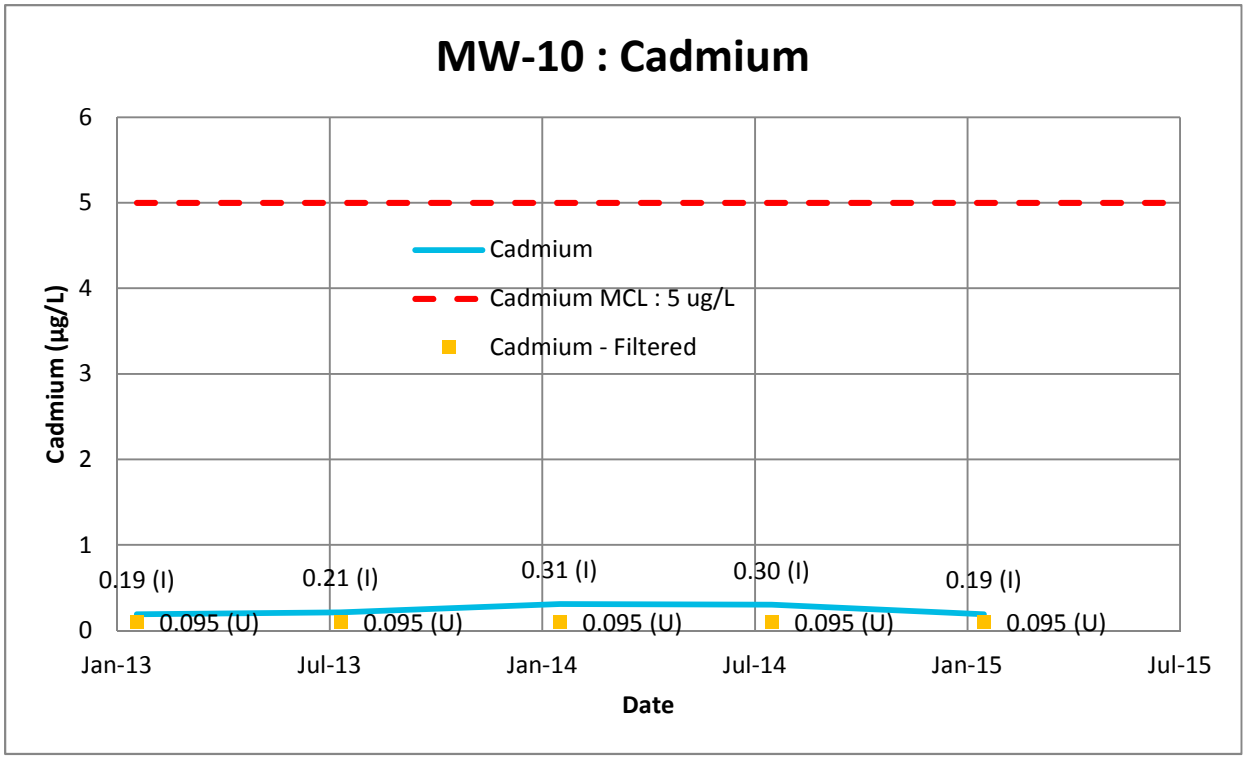
MCL - Maximum Contaminant Level per 62-550 F.A.C

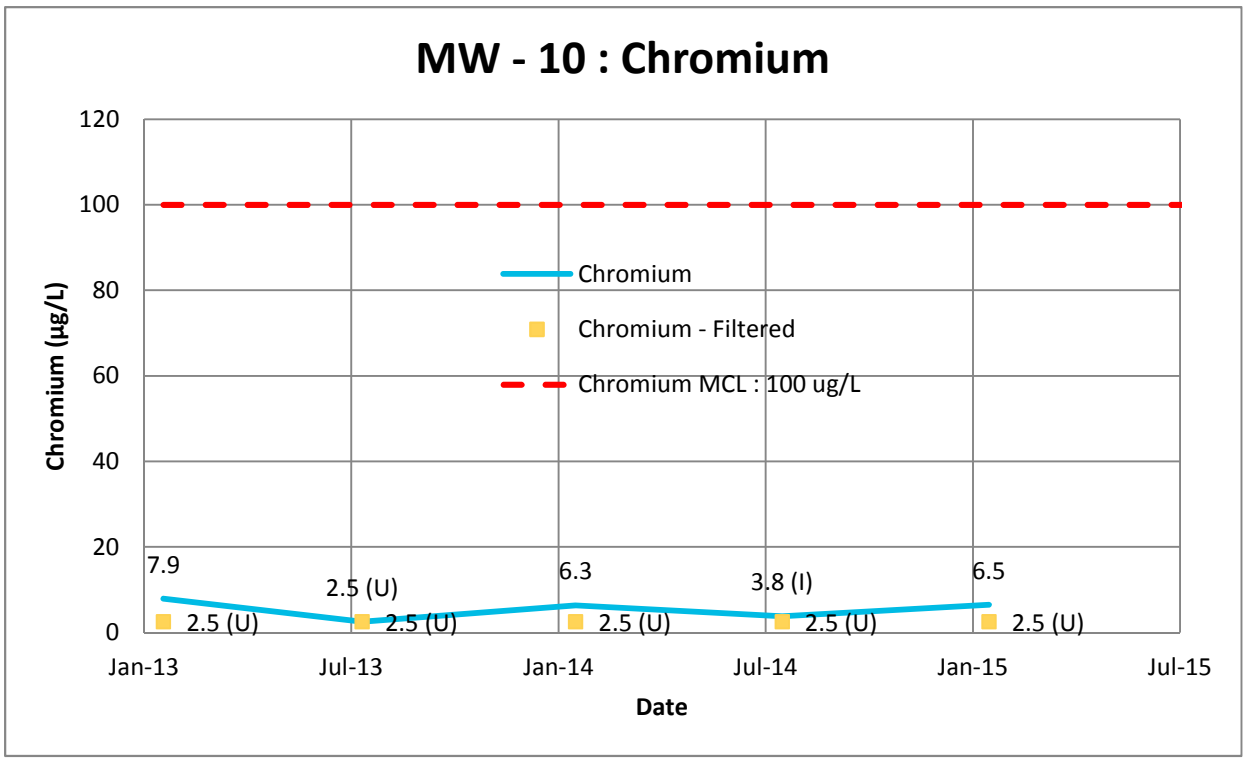
Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte concentration detected below quantitation limit

(J) Analyte concentration may not be accurate due to QC concerns

(U) Analyte not detected; value reported is the method detection limit





MCL - Maximum Contaminant Level per 62-550 F.A.C

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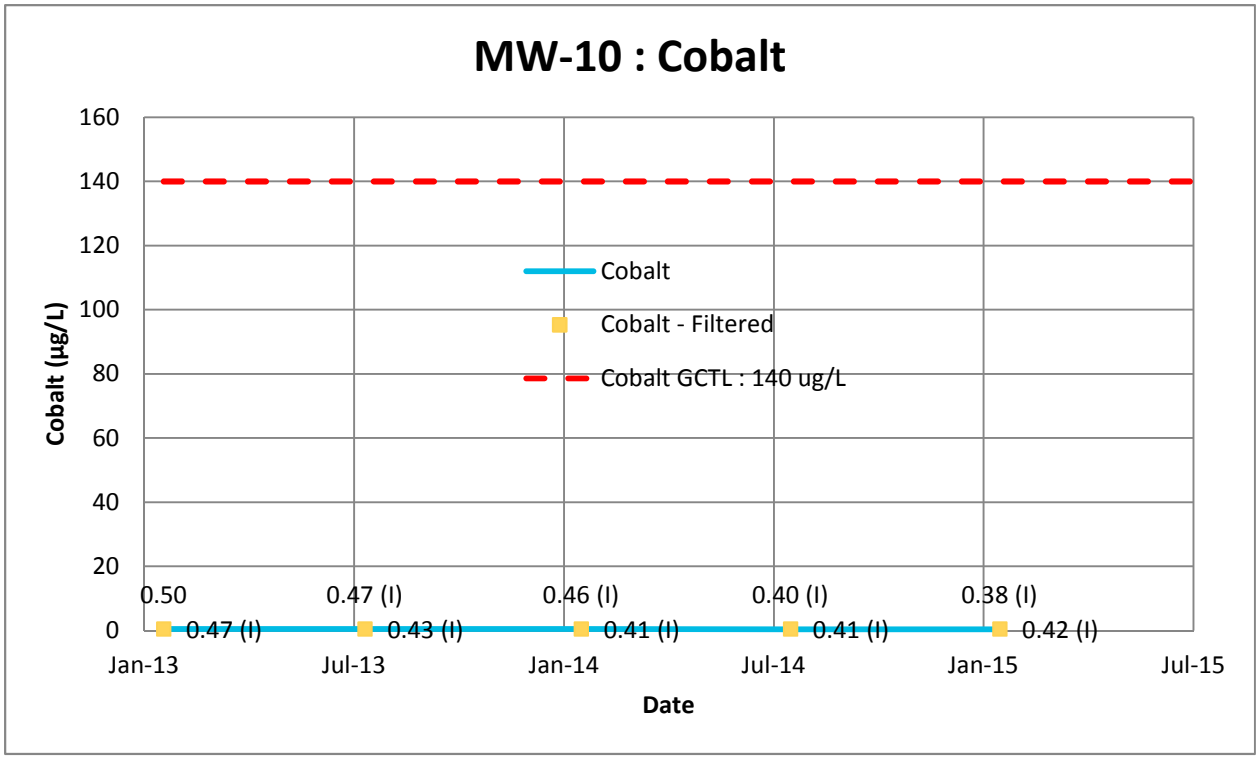

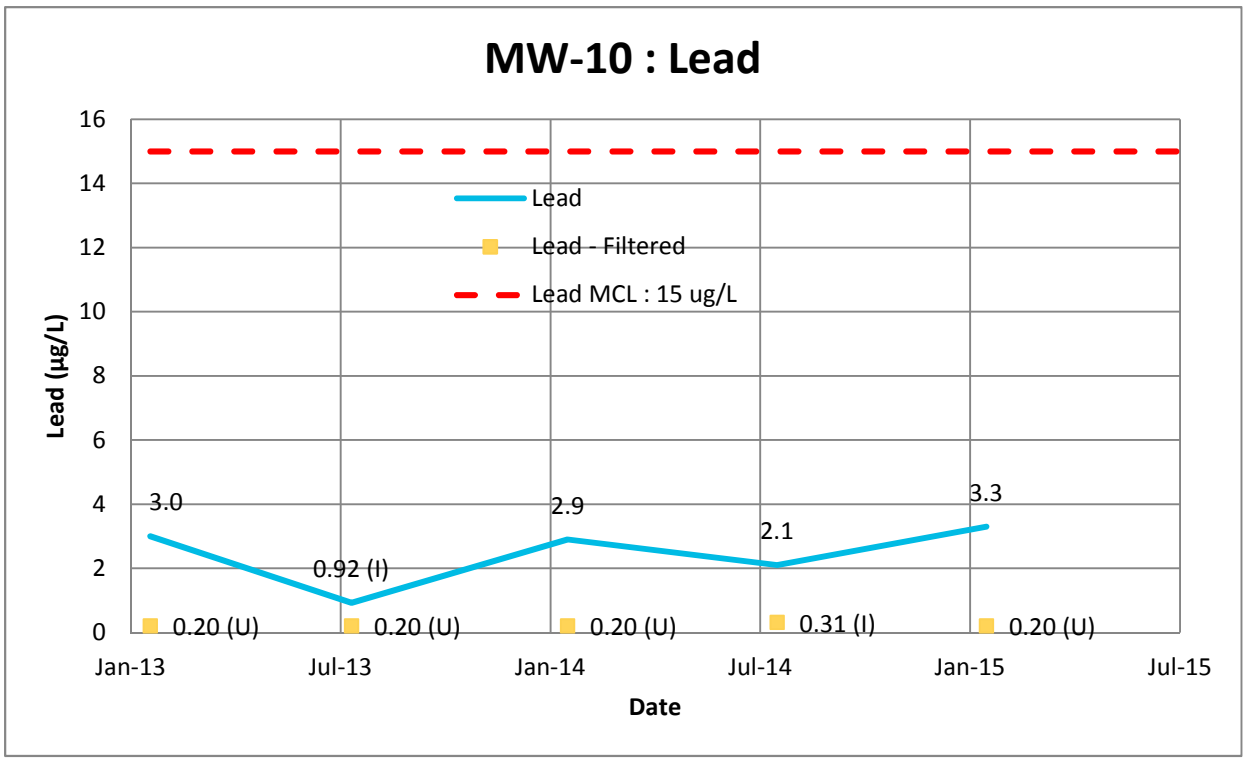

GCTL - Groundwater Clean Up Target Level per 62-777 F.A.C.

MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte concentration detected below quantitation limit

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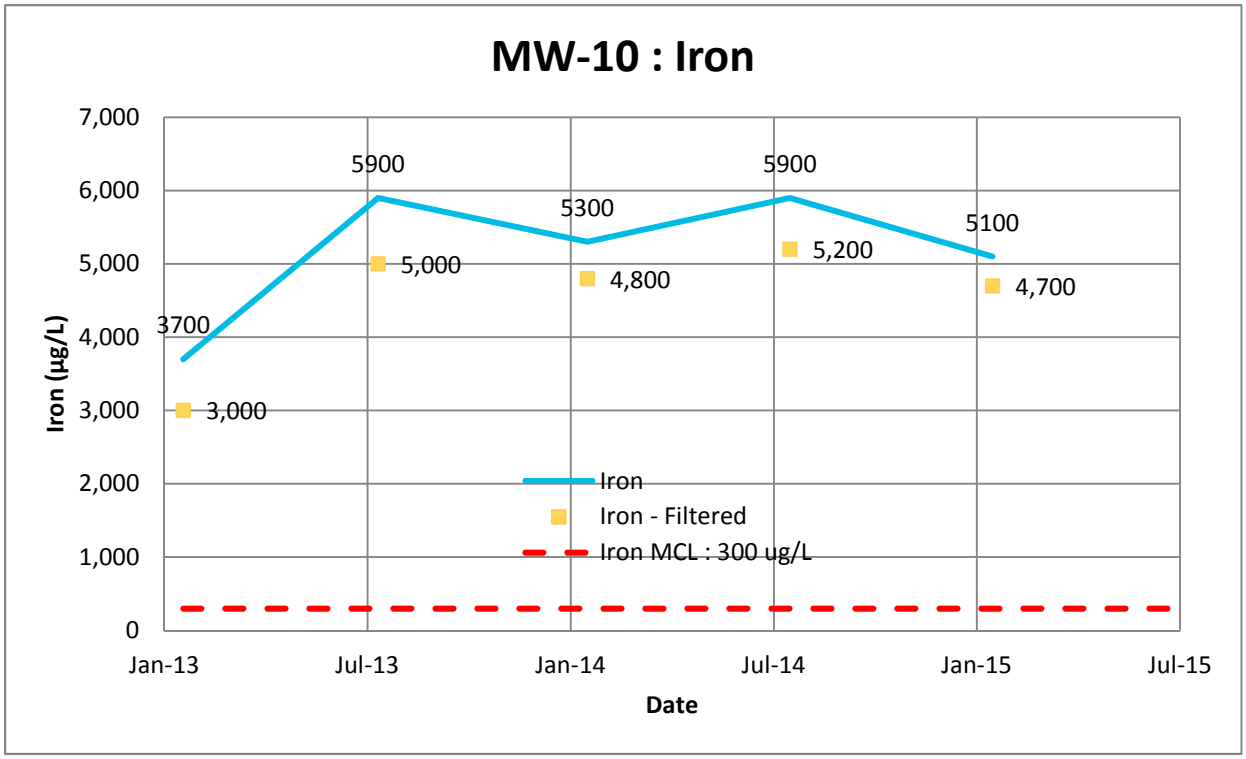
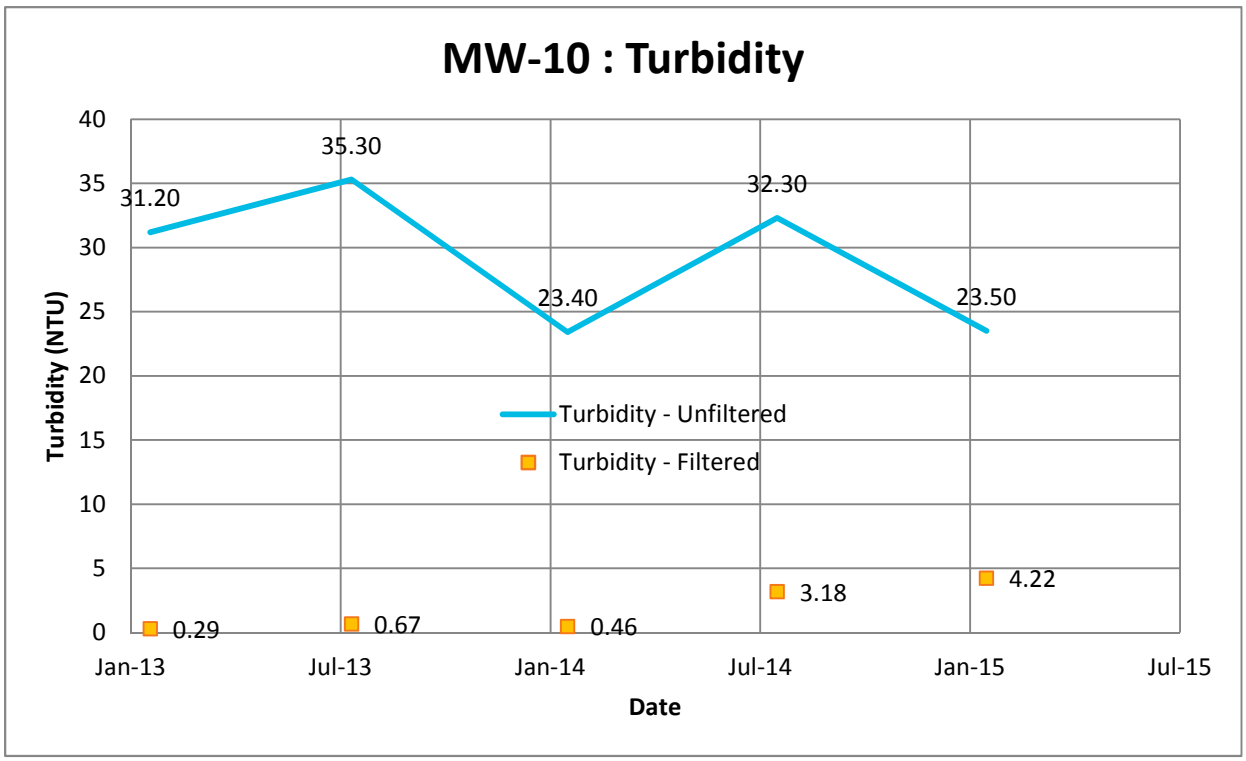
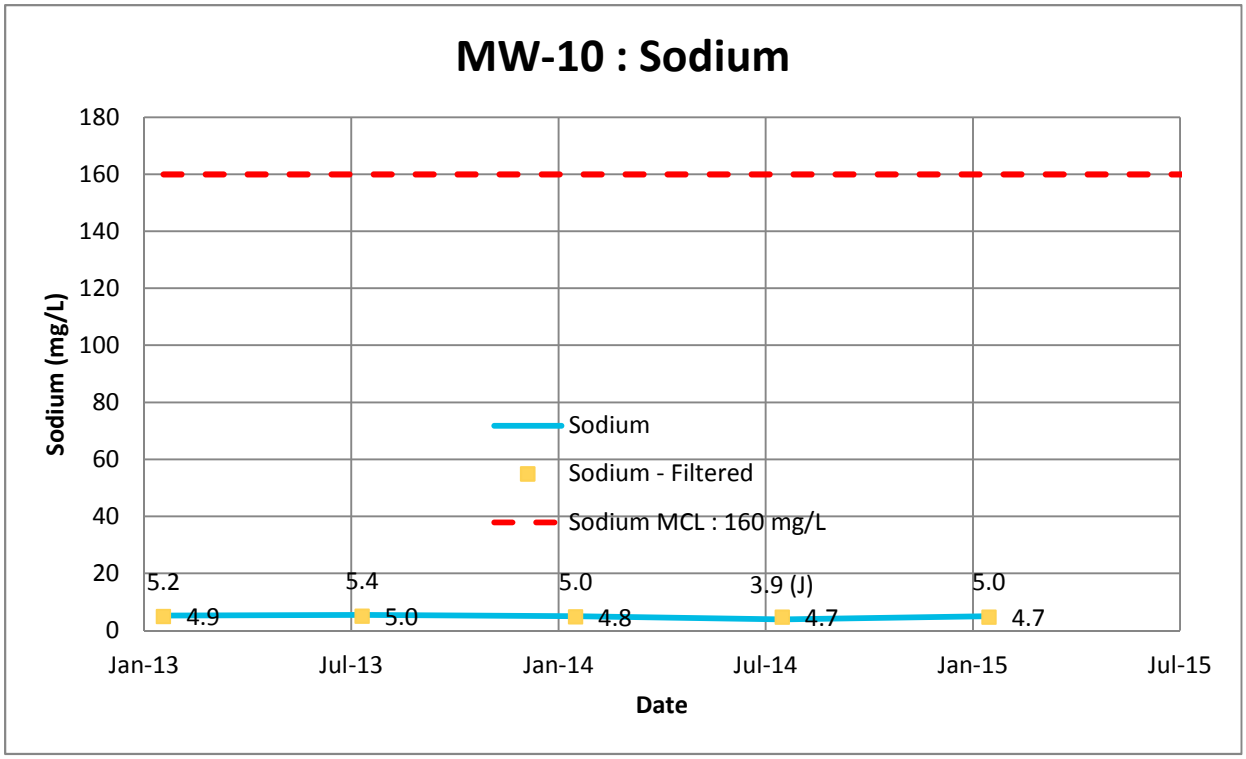
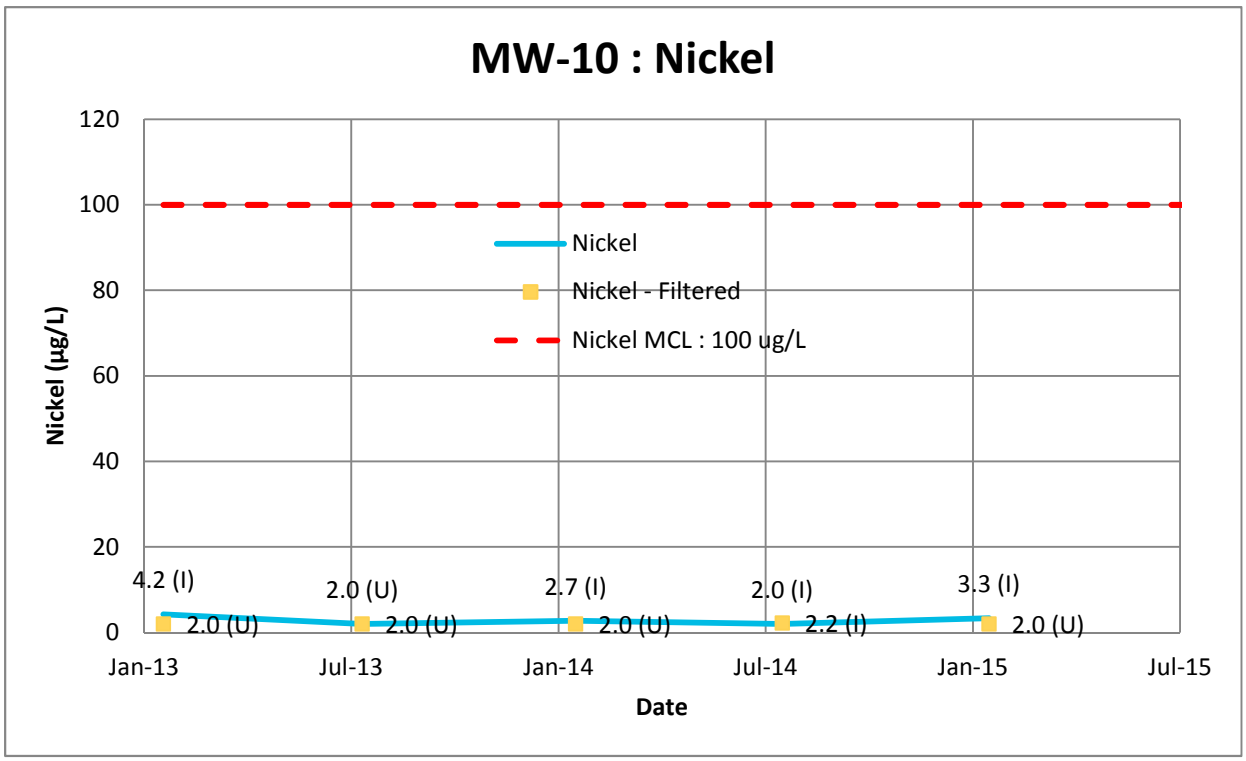




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.





MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(J) Analyte concentration may not be accurate due to QC concerns

(I) Analyte concentration detected below quantitation limit

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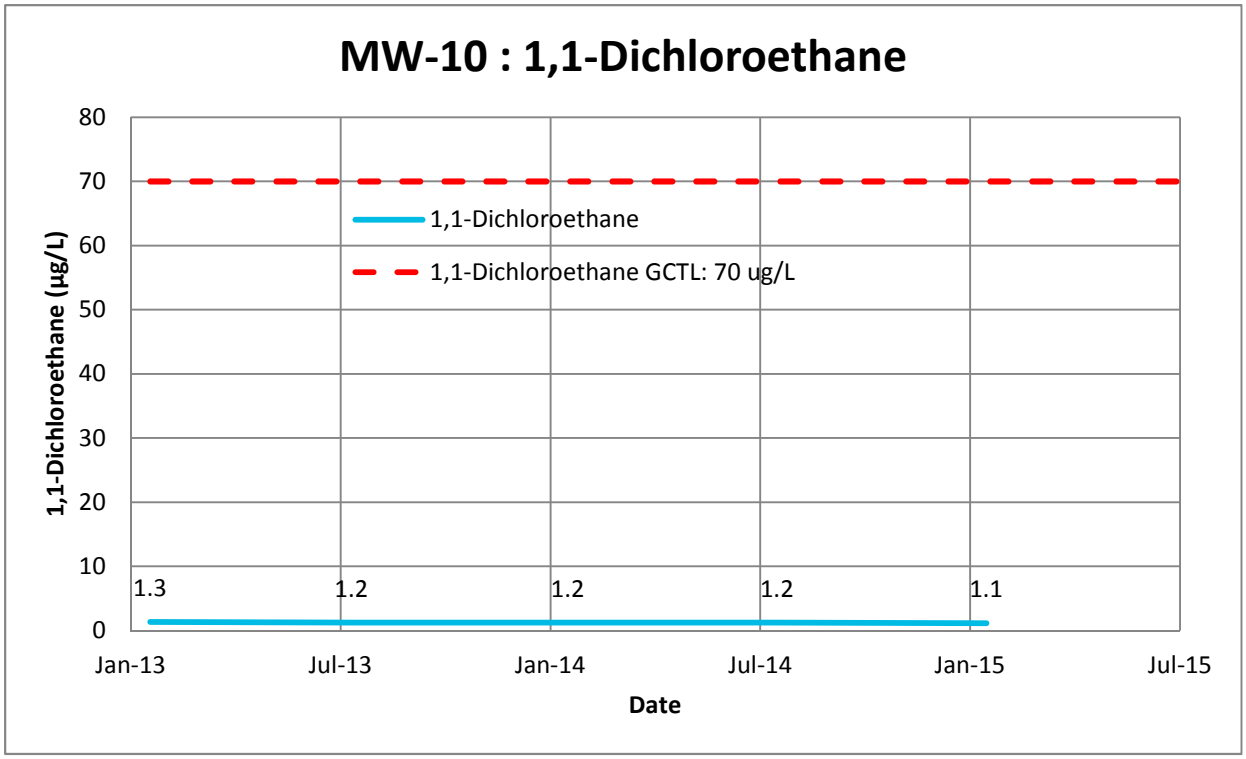
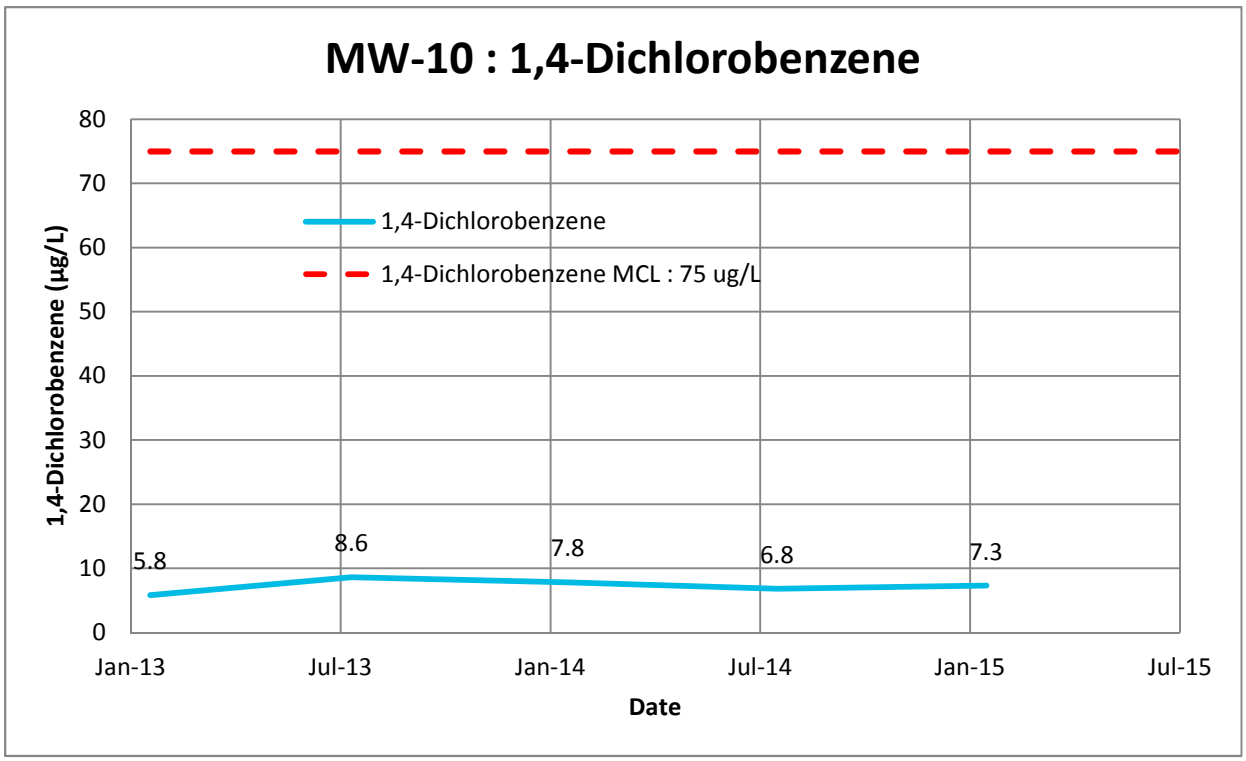
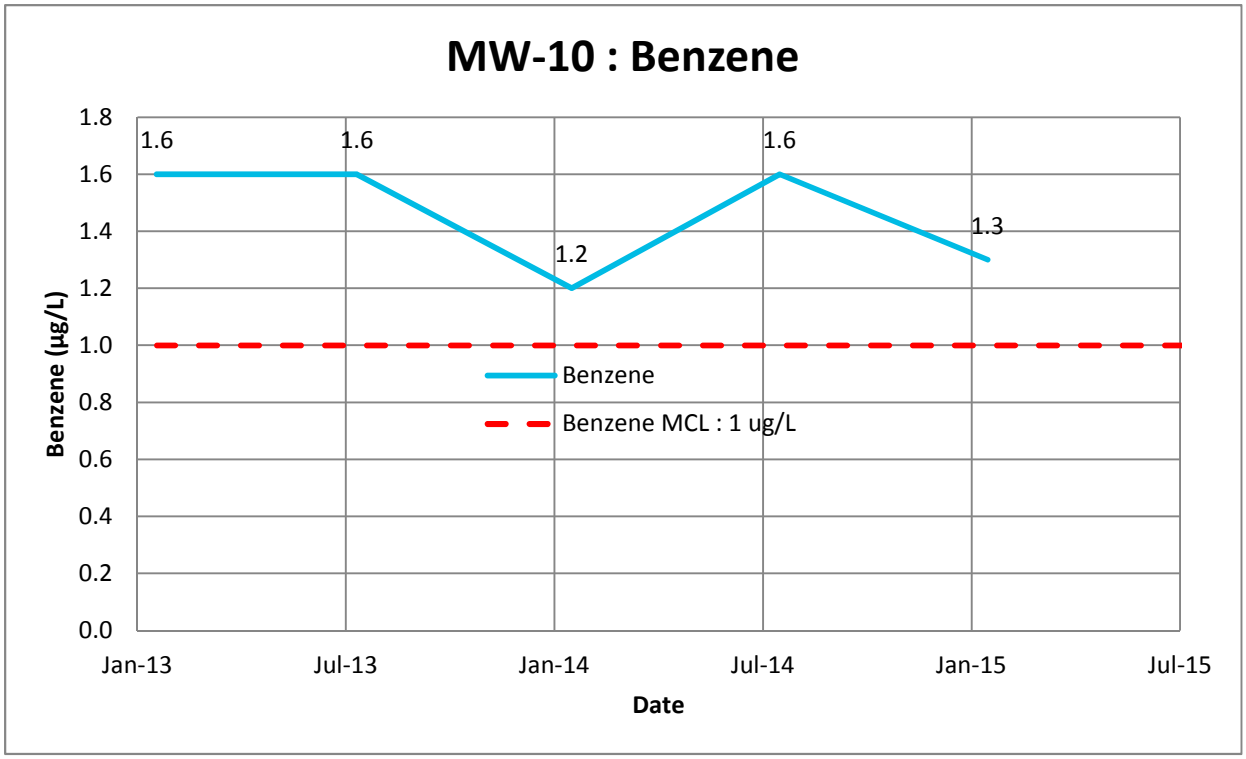


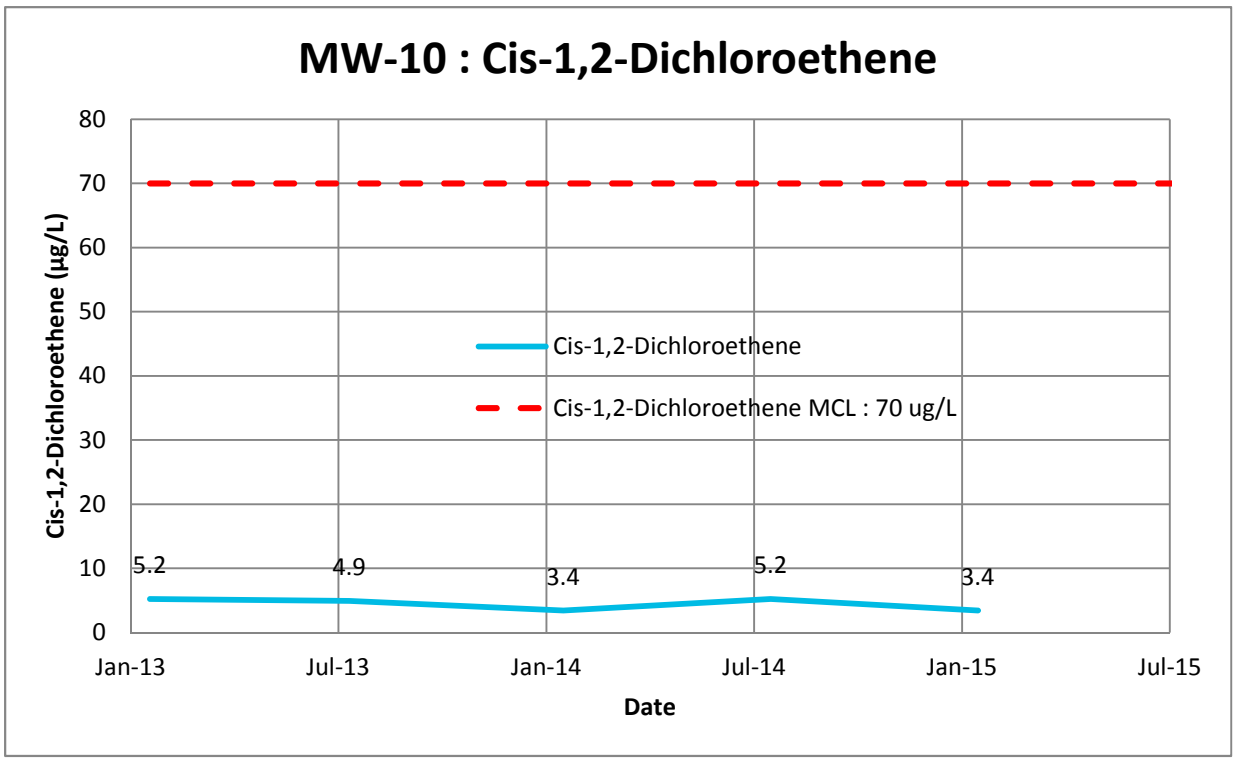


GCTL - Groundwater Clean Up Target Level per 62-777 F.A.C.

MCL - Maximum Contaminant Level per 62-550 F.A.C

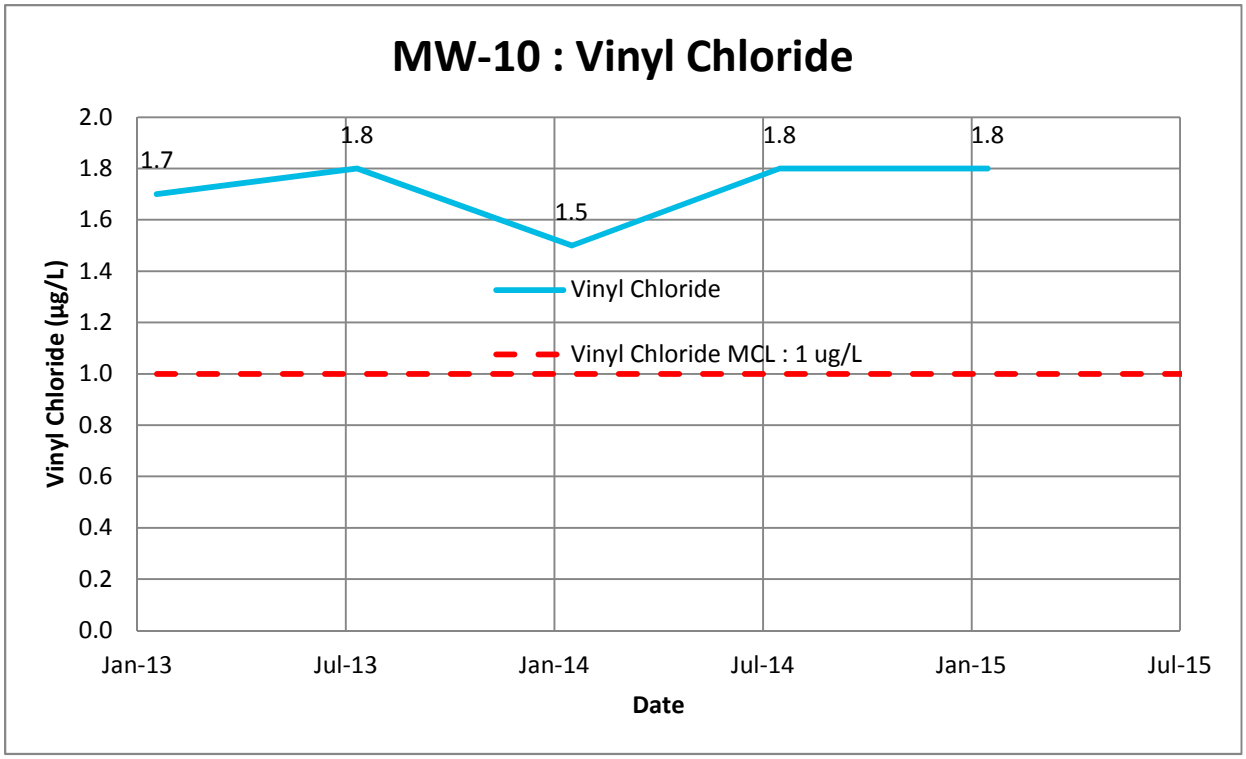
Based on data provided by TestAmerica Laboratories, Inc.

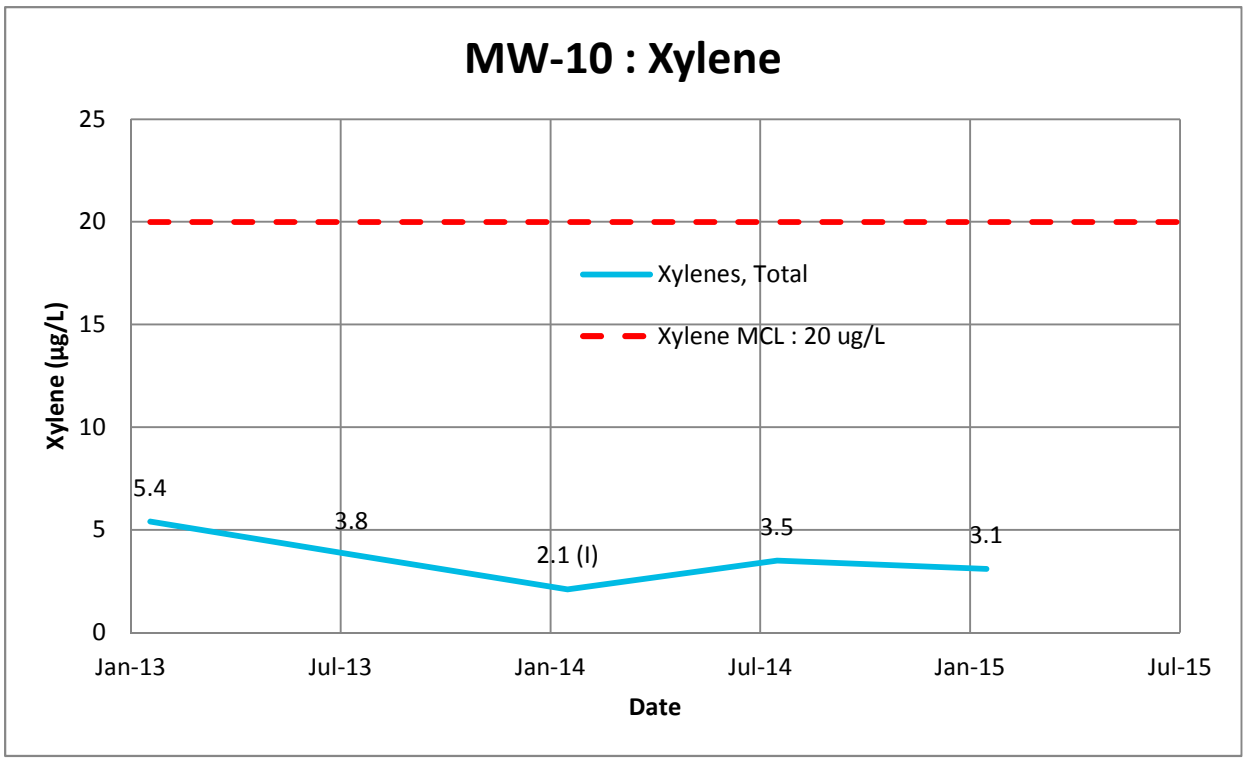




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

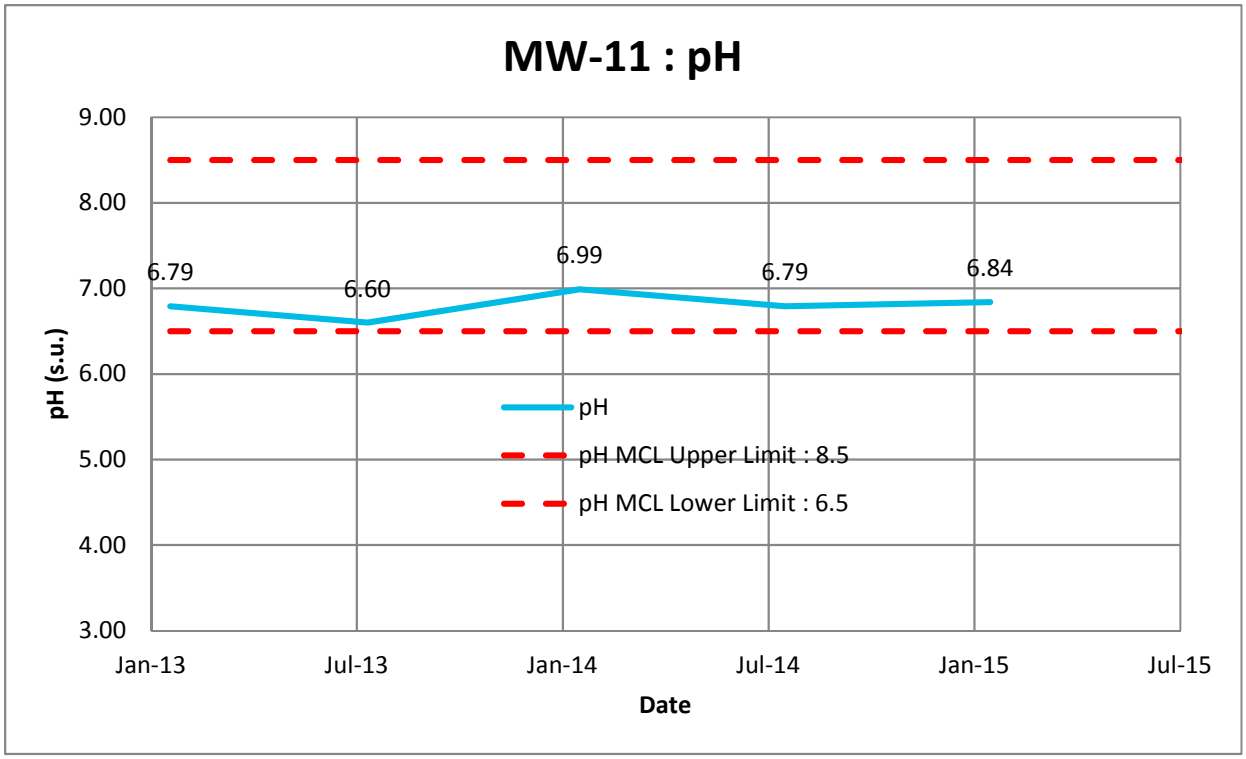


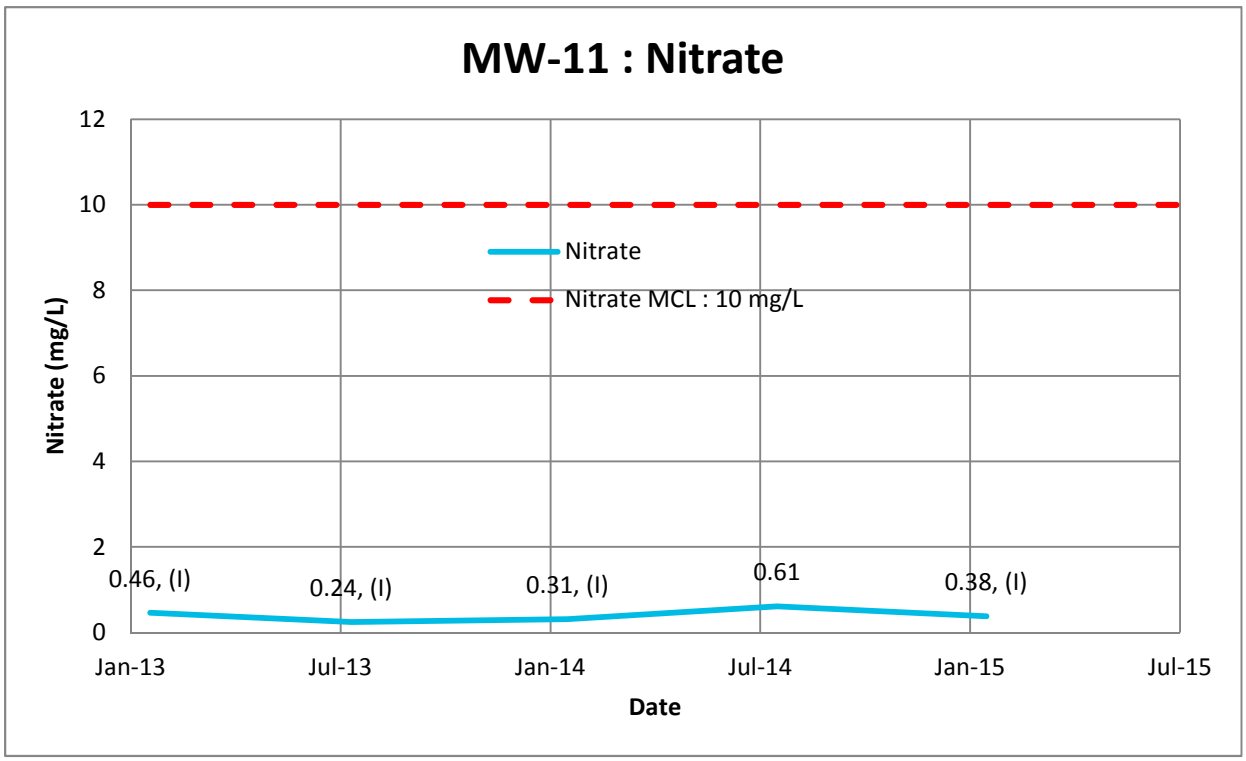


MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte detected below quantitation limit

Based on data provided by TestAmerica Laboratories, Inc.

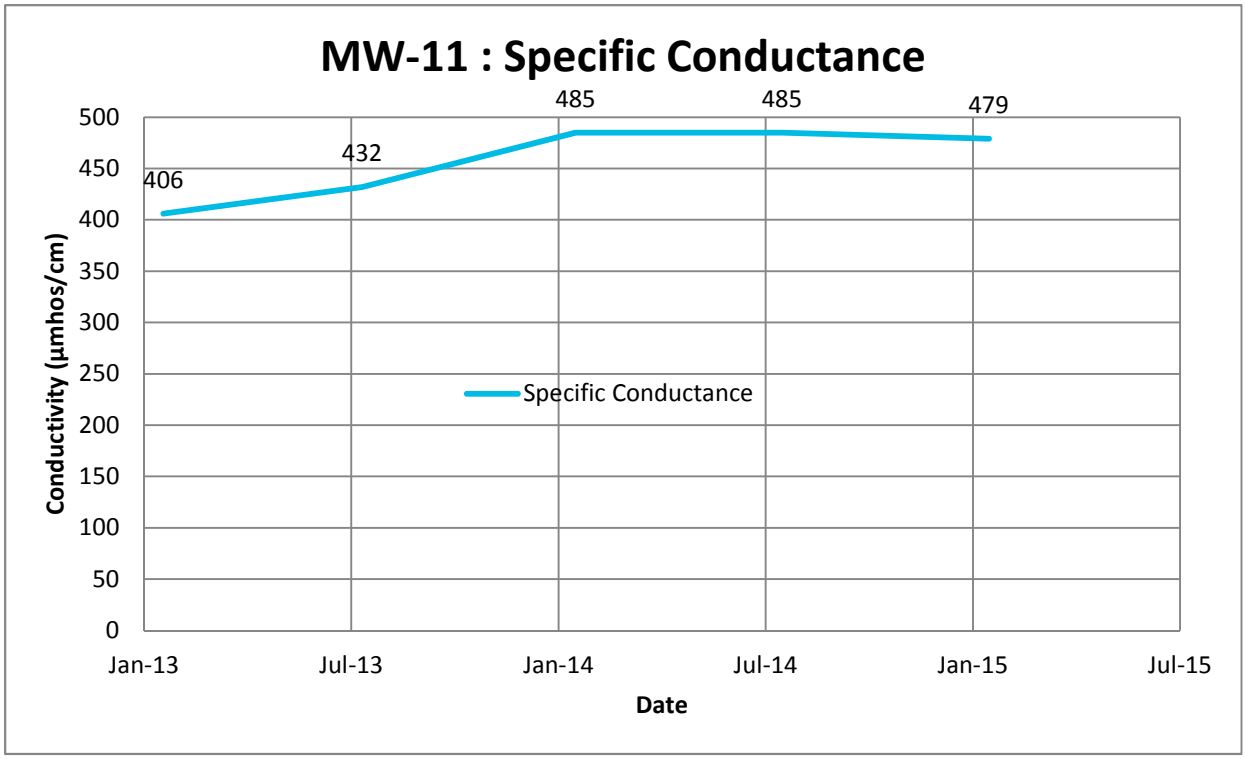


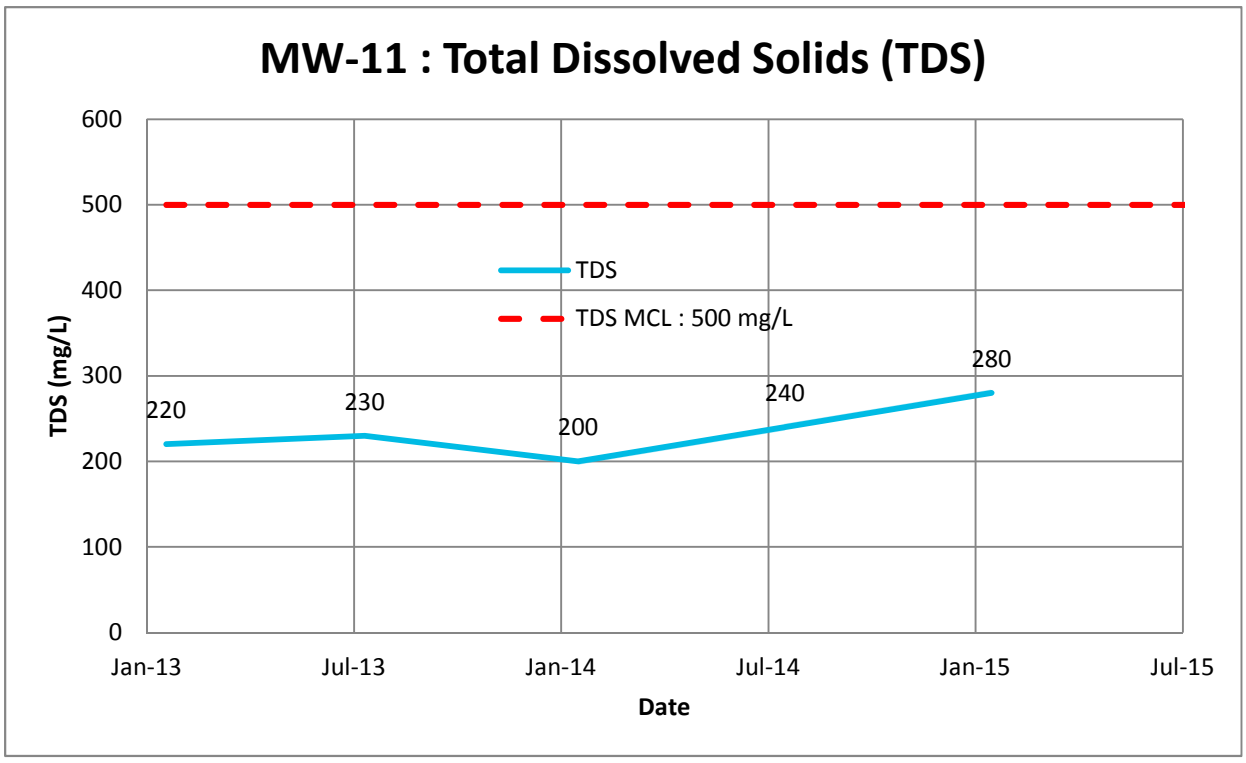


MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte concentration detected below quantitation limit

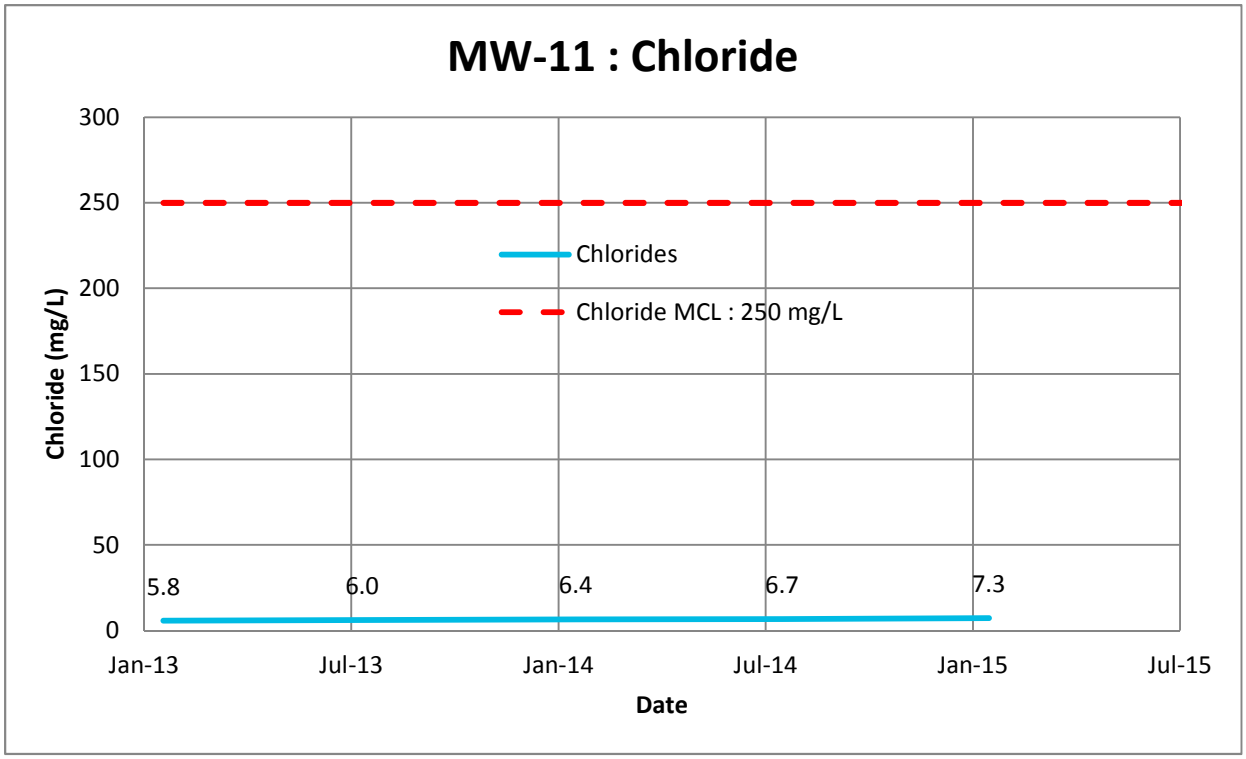
Based on data provided by TestAmerica Laboratories, Inc.

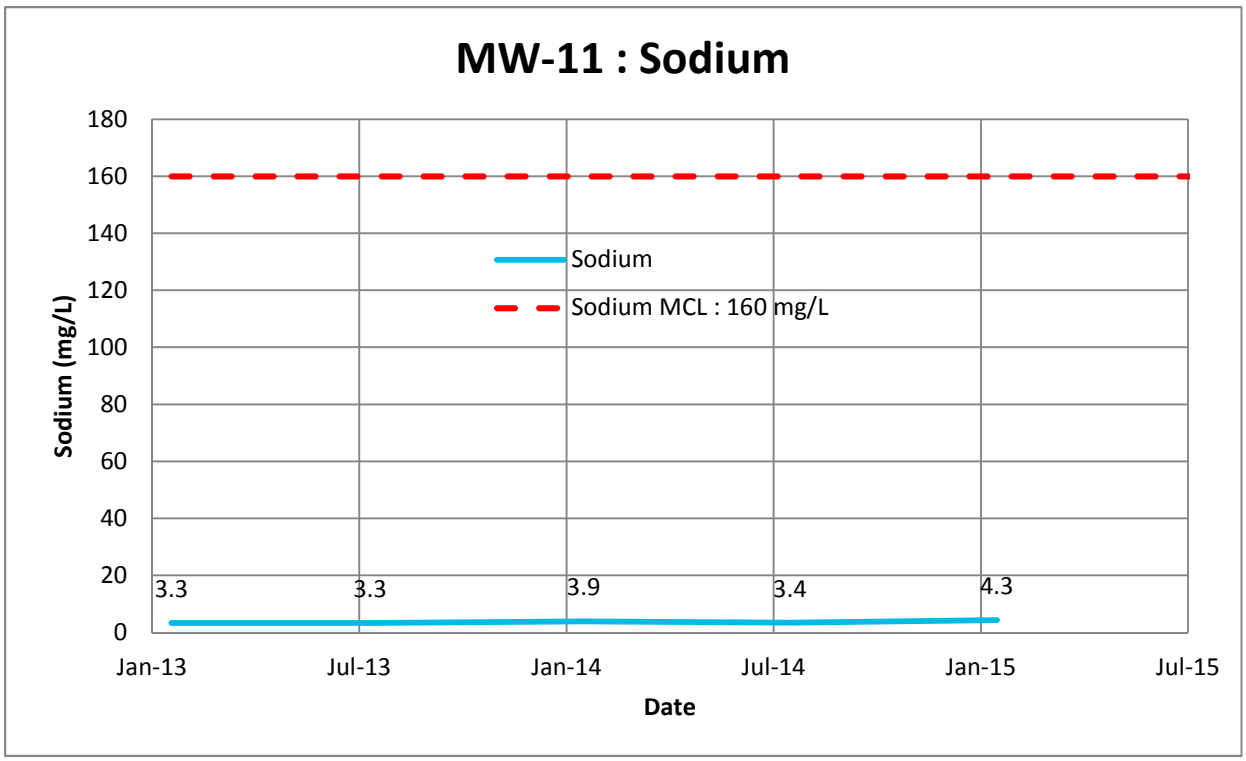




MCL - Maximum Contaminant Level per 62-550 F.A.C

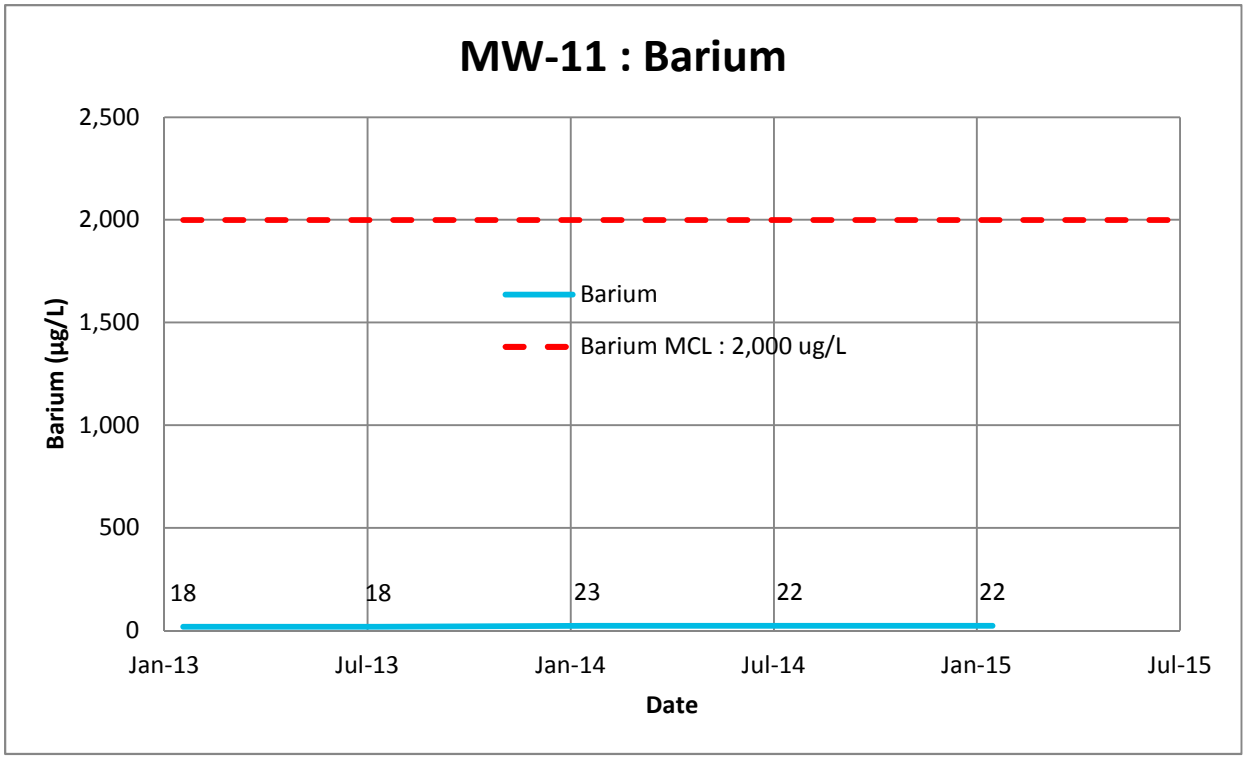
Based on data provided by TestAmerica Laboratories, Inc.

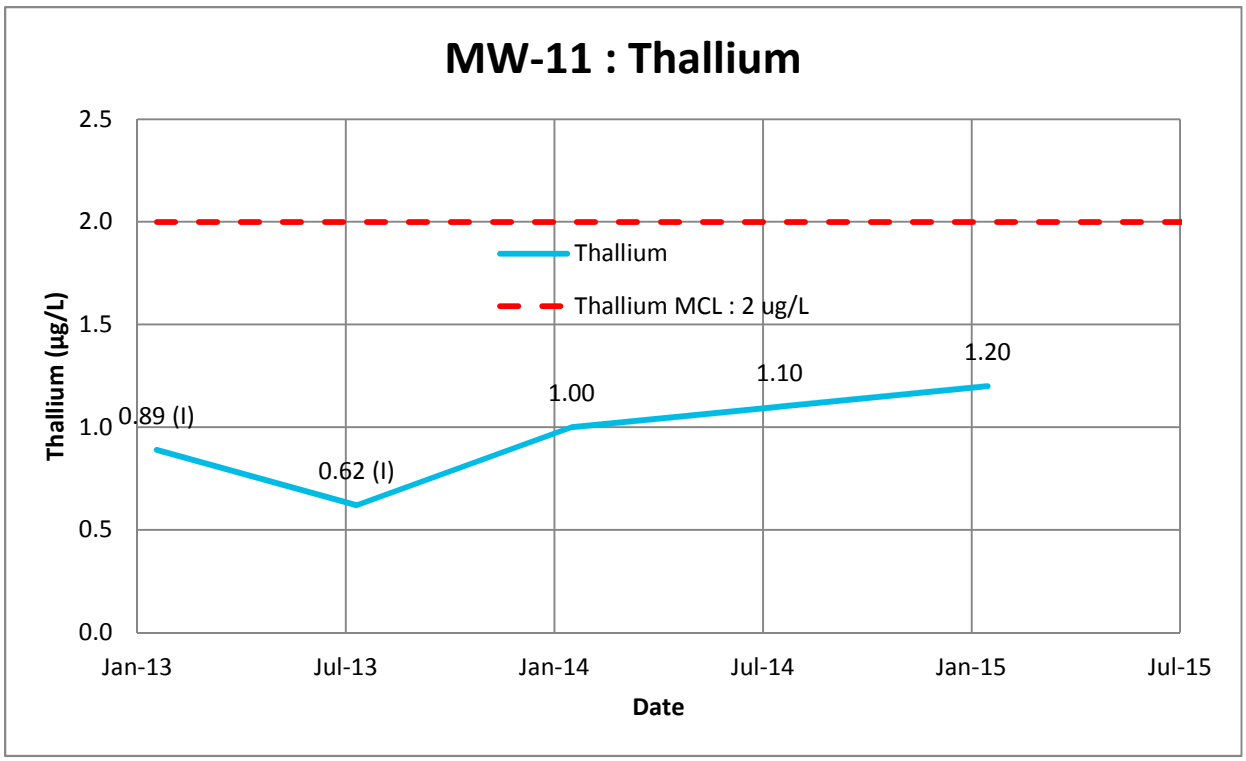




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

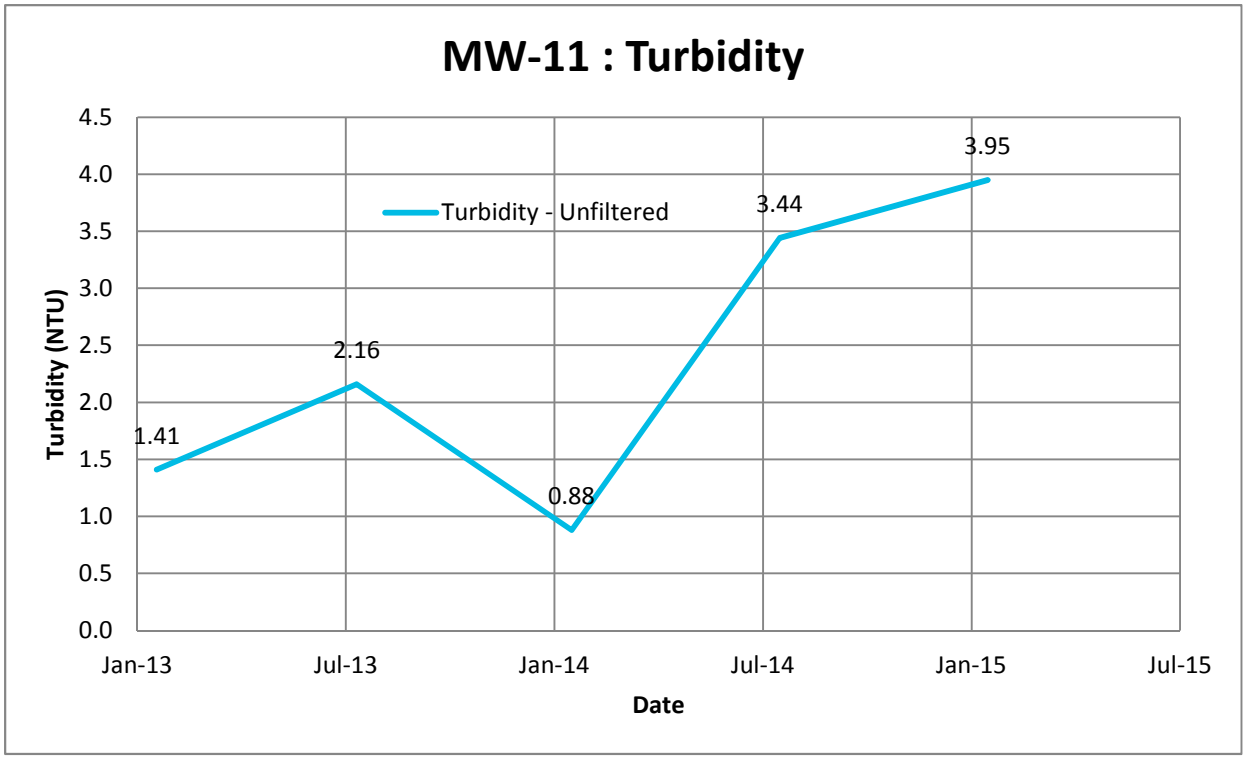




MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte concentration detected below quantitation limit

Based on data provided by TestAmerica Laboratories, Inc.



MCL - Maximum Contaminant Level per 62-550 F.A.C

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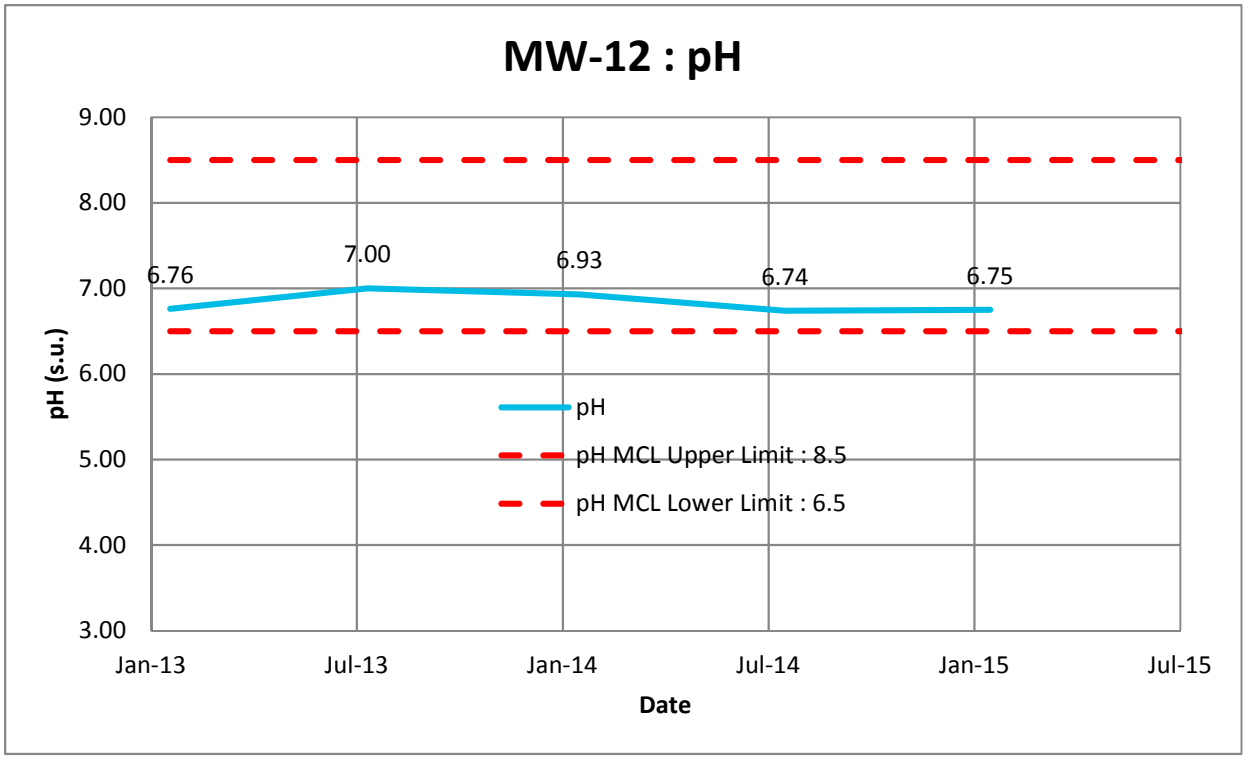
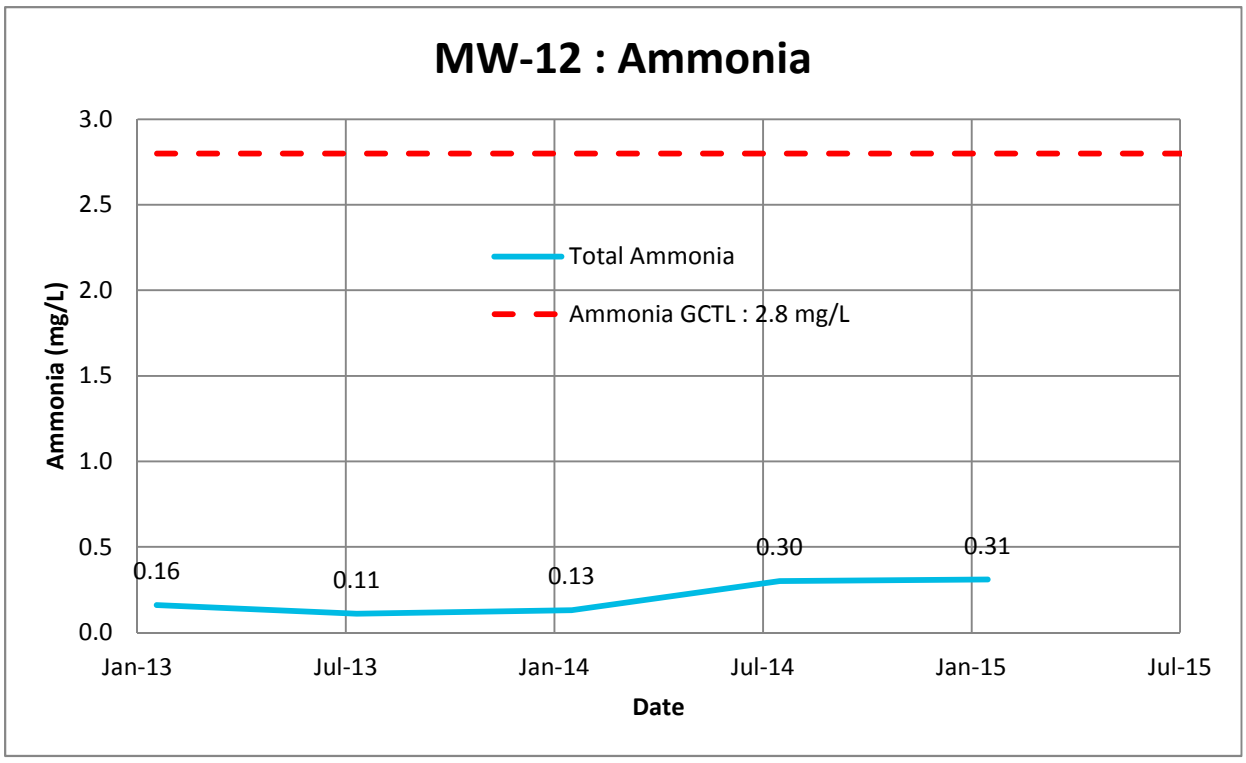
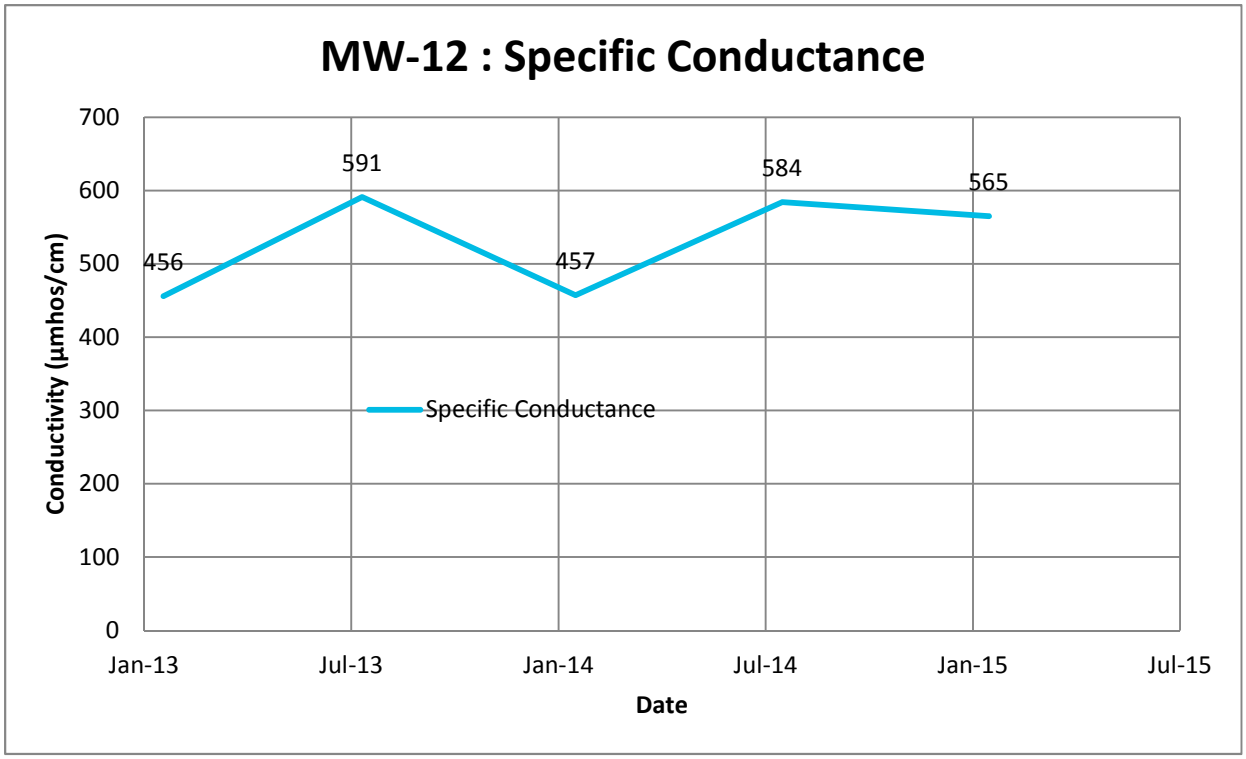


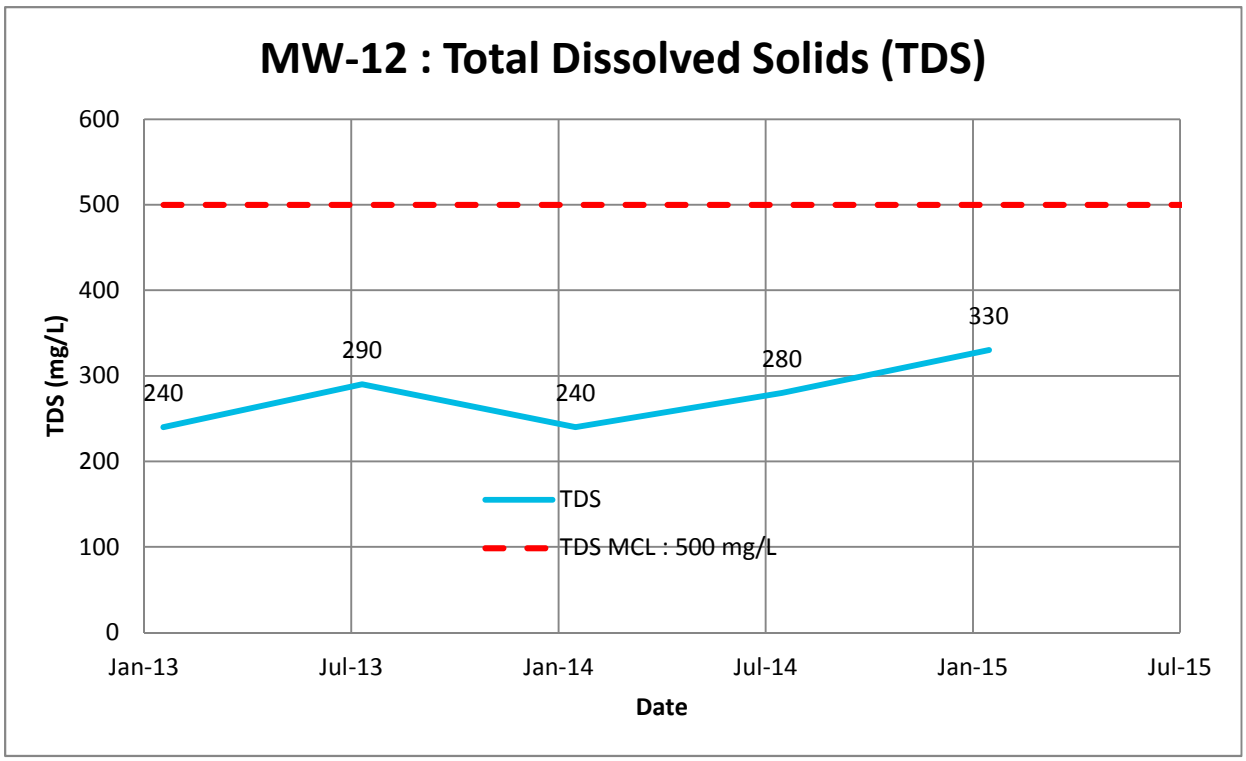


GCTL - Groundwater Clean Up Target Level per 62-777 F.A.C.

MCL - Maximum Contaminant Level per 62-550 F.A.C

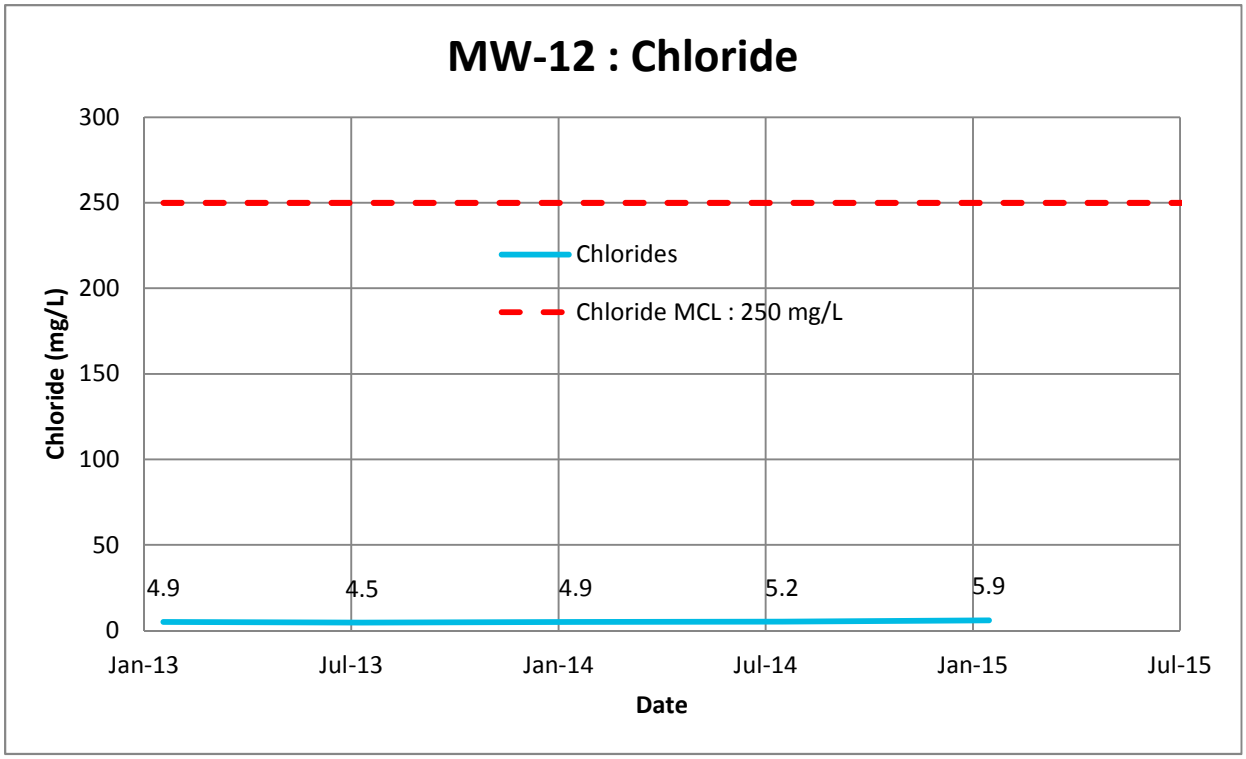
Based on data provided by TestAmerica Laboratories, Inc.

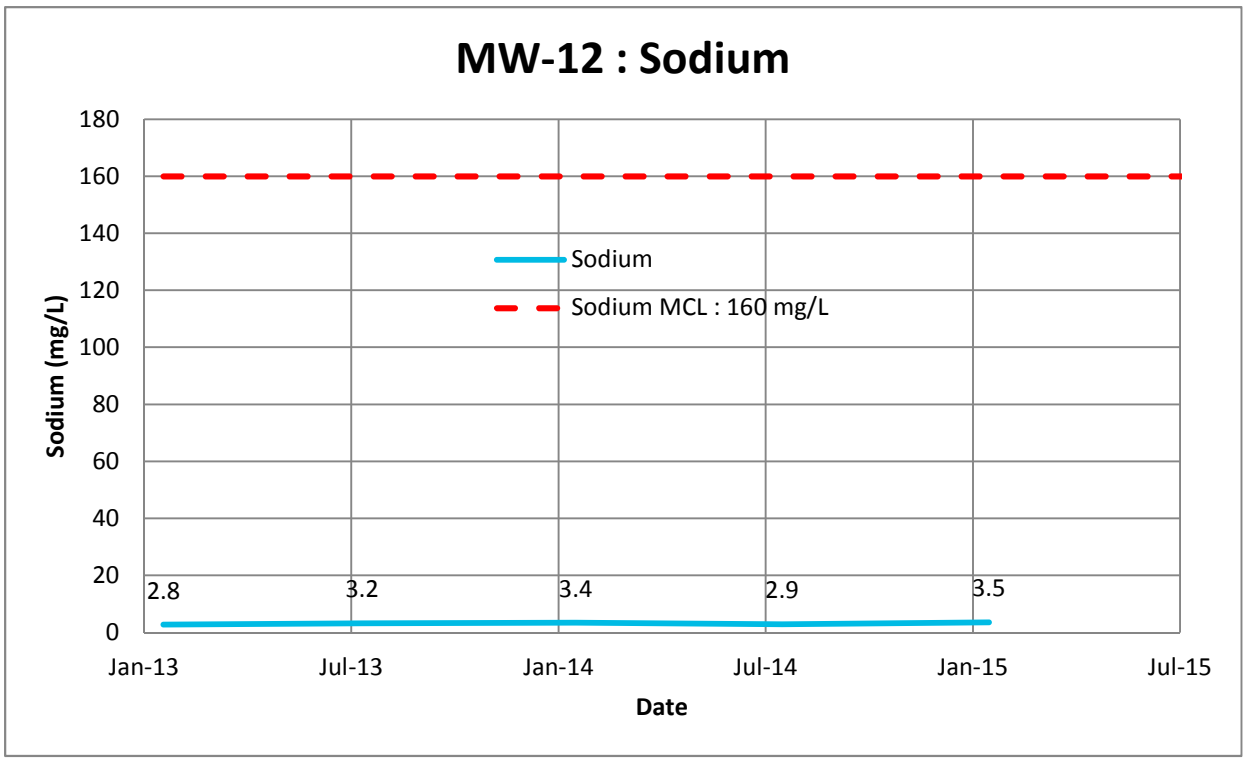




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.





MCL - Maximum Contaminant Level per 62-550 F.A.C

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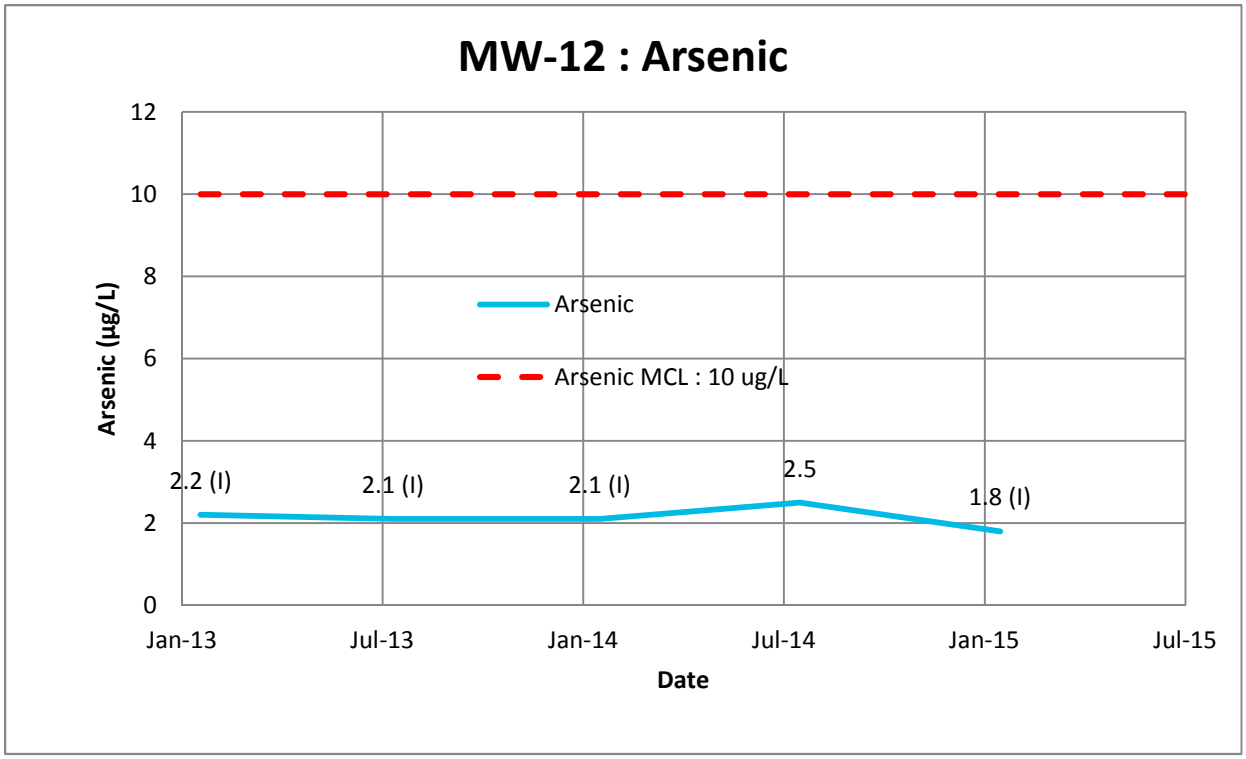
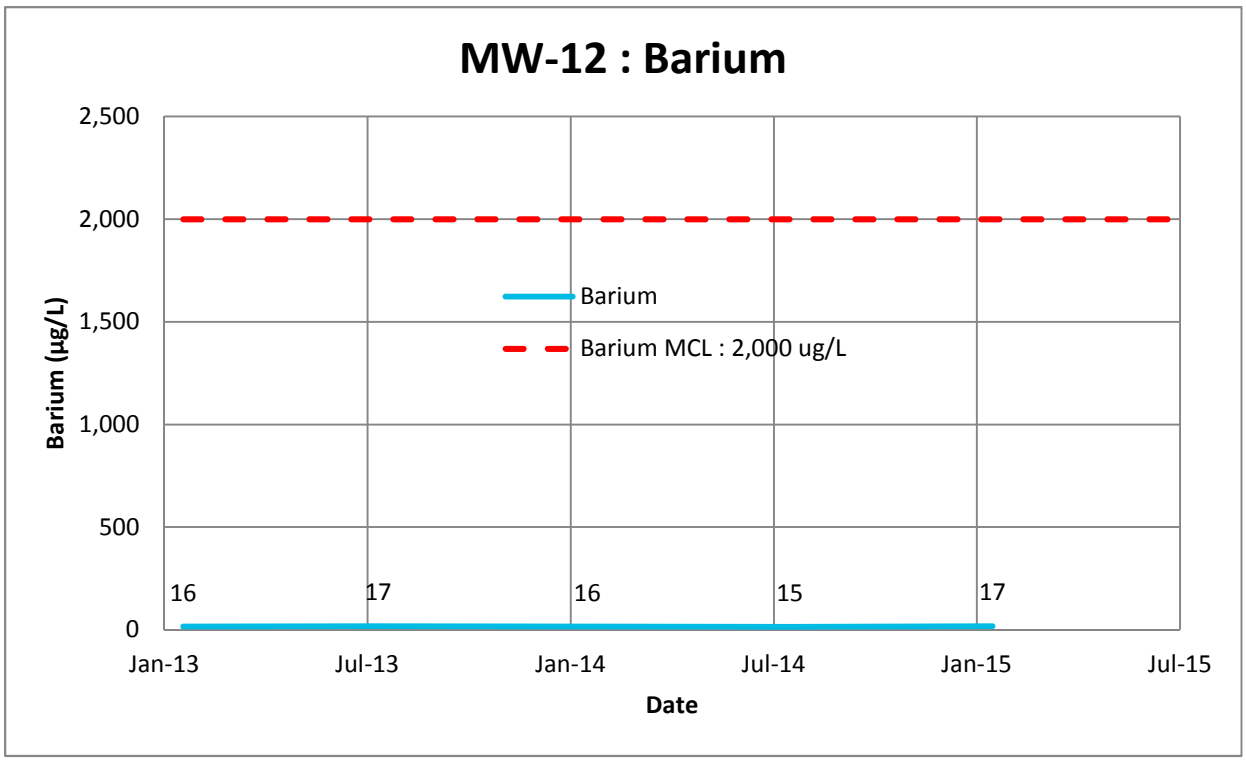
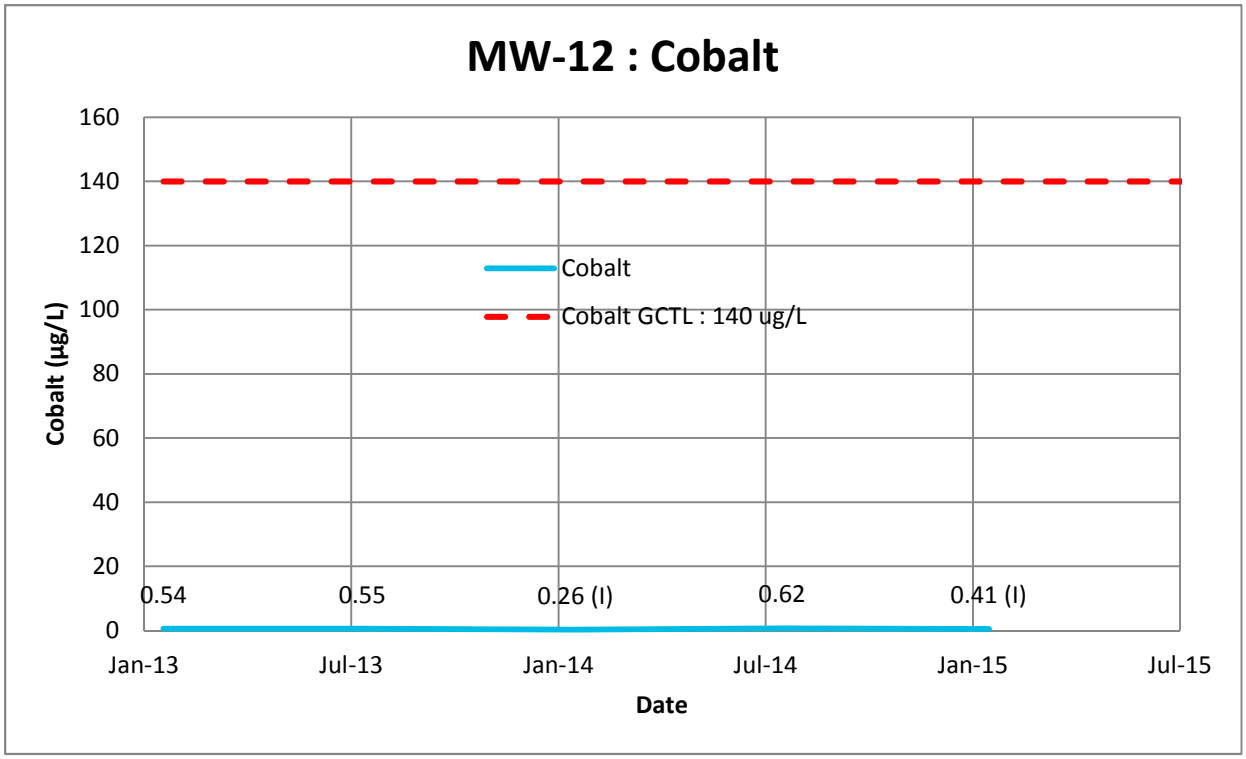


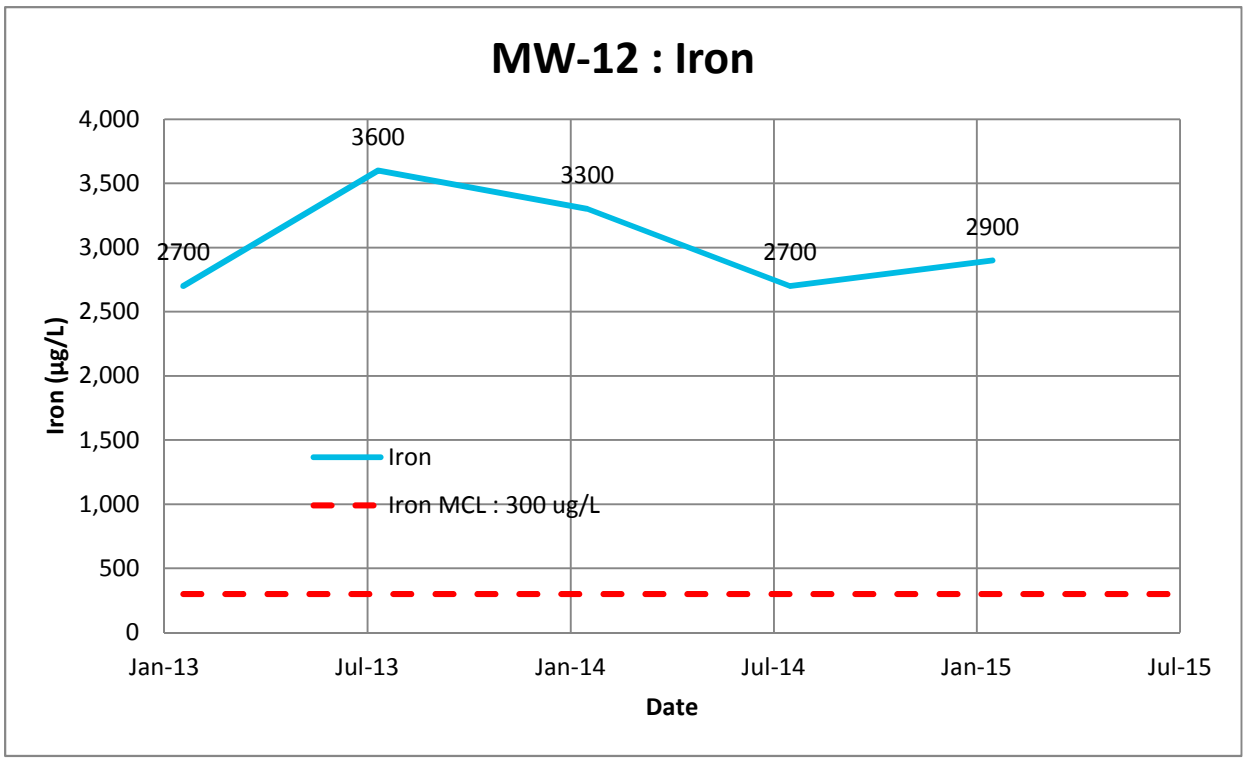


MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte concentration detected below quantitation limit

Based on data provided by TestAmerica Laboratories, Inc.





MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte concentration detected below quantitation limit

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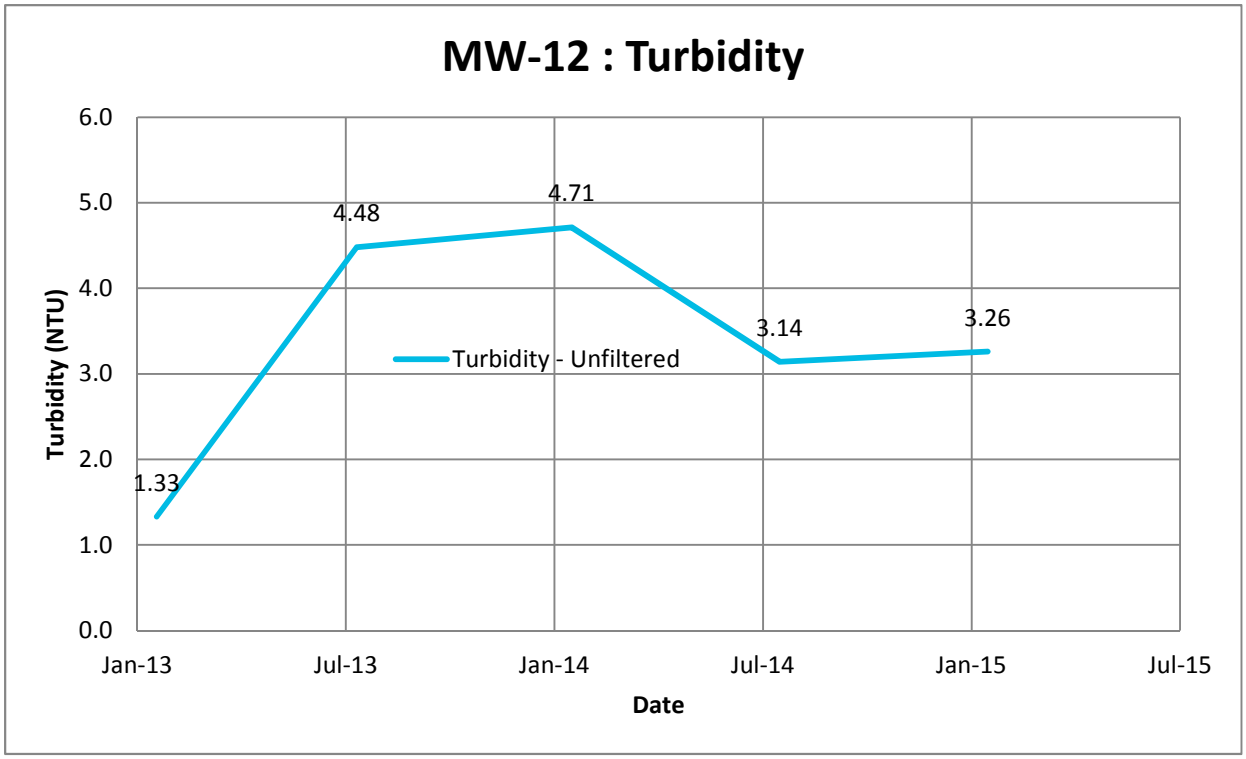

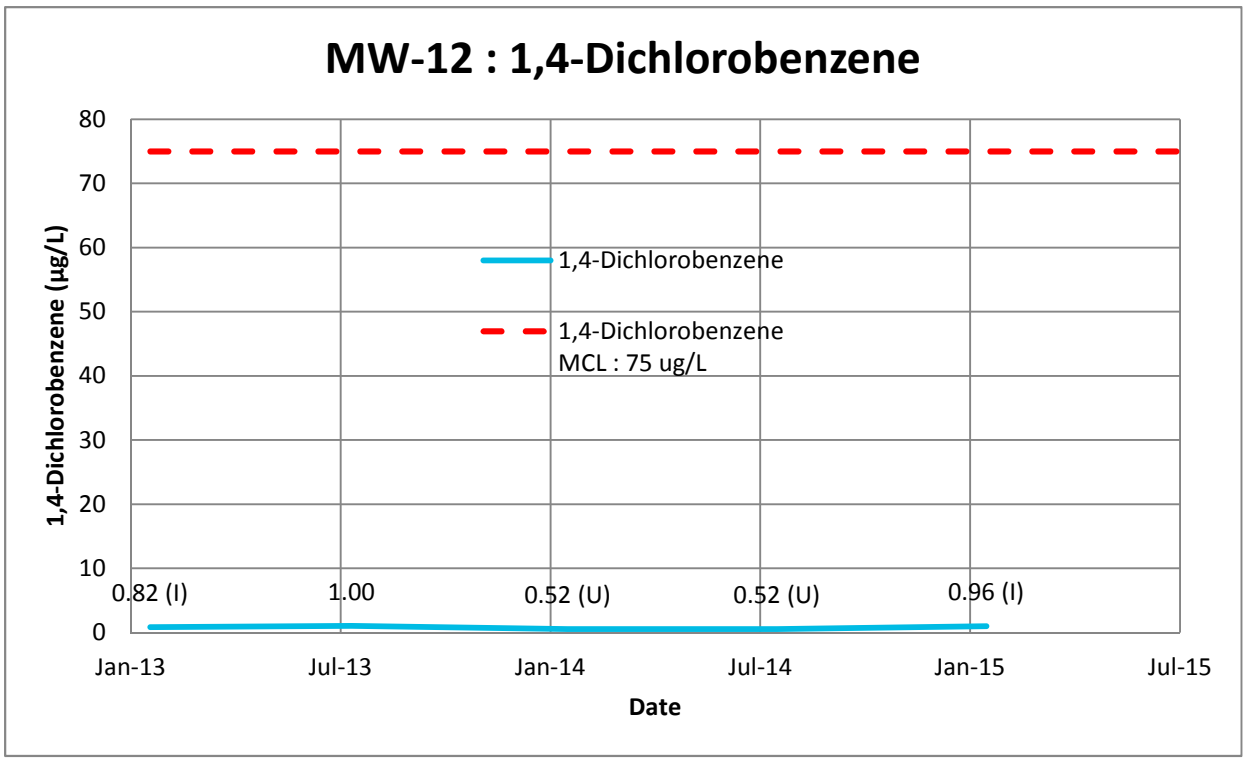

MCL - Maximum Contaminant Level per 62-550 F.A.C

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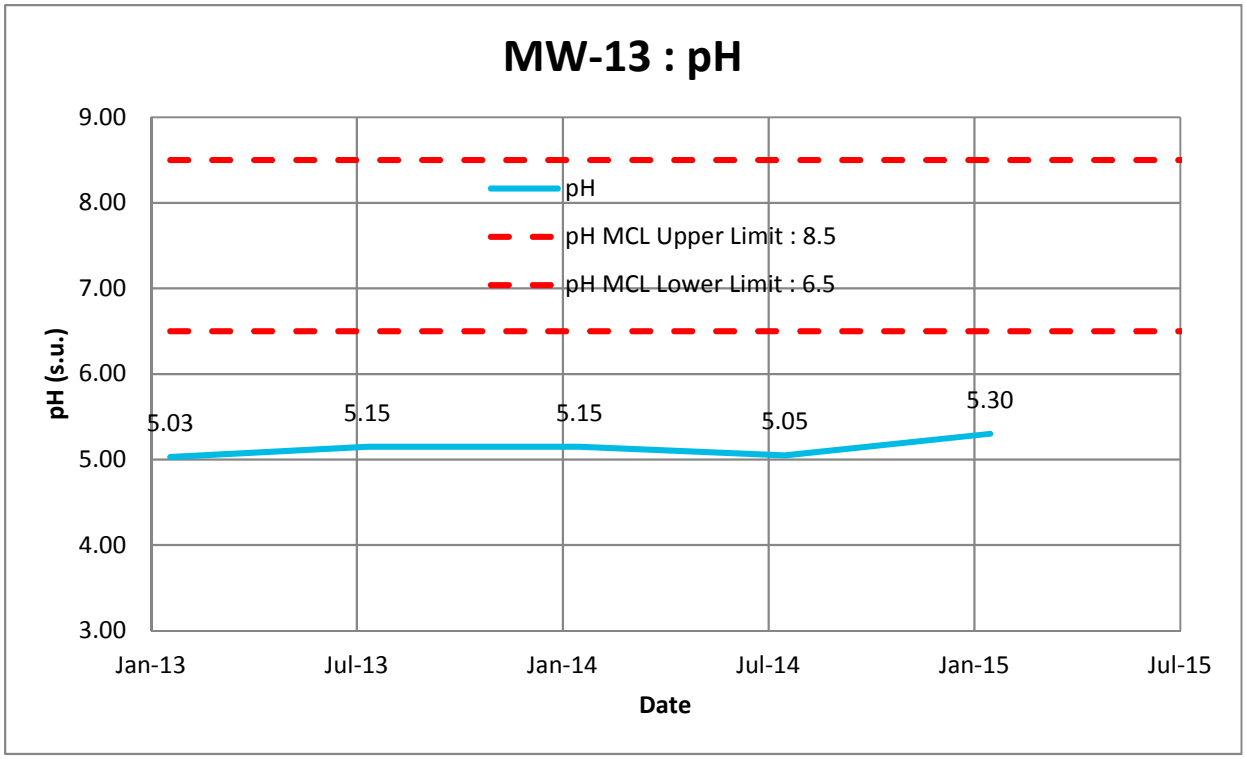
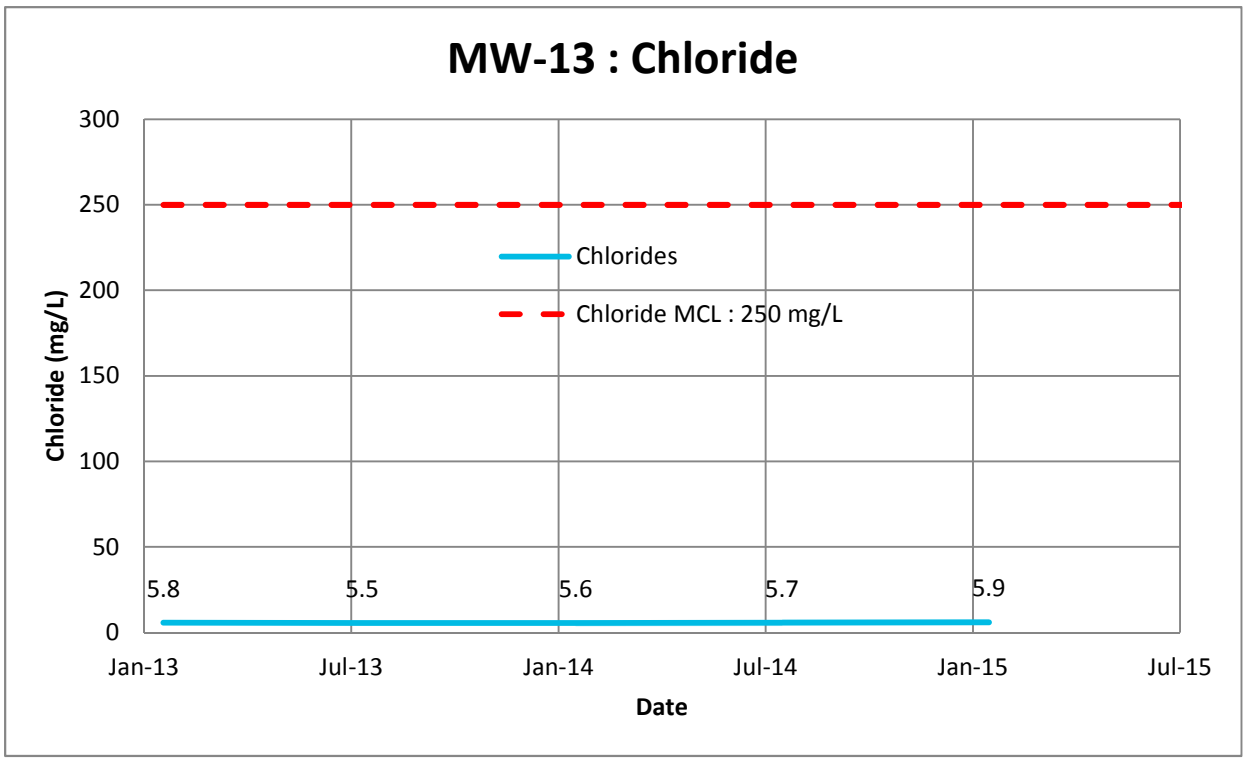
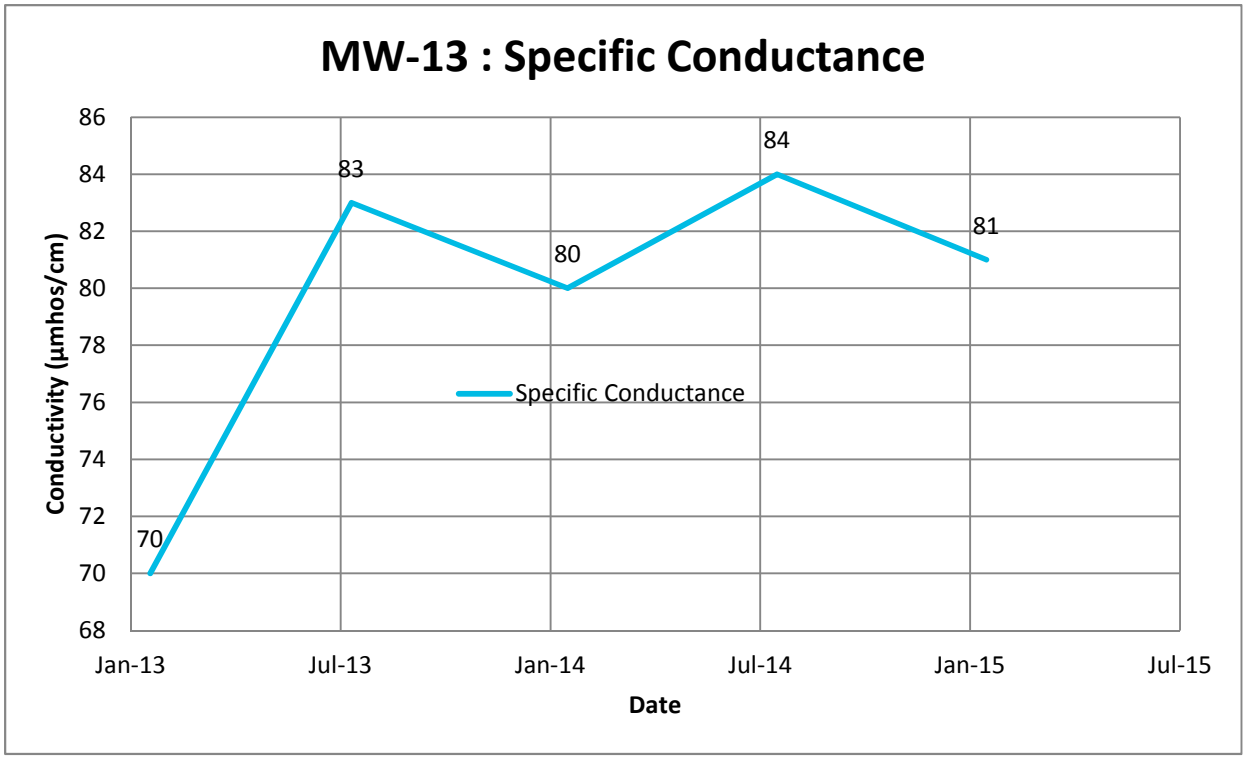
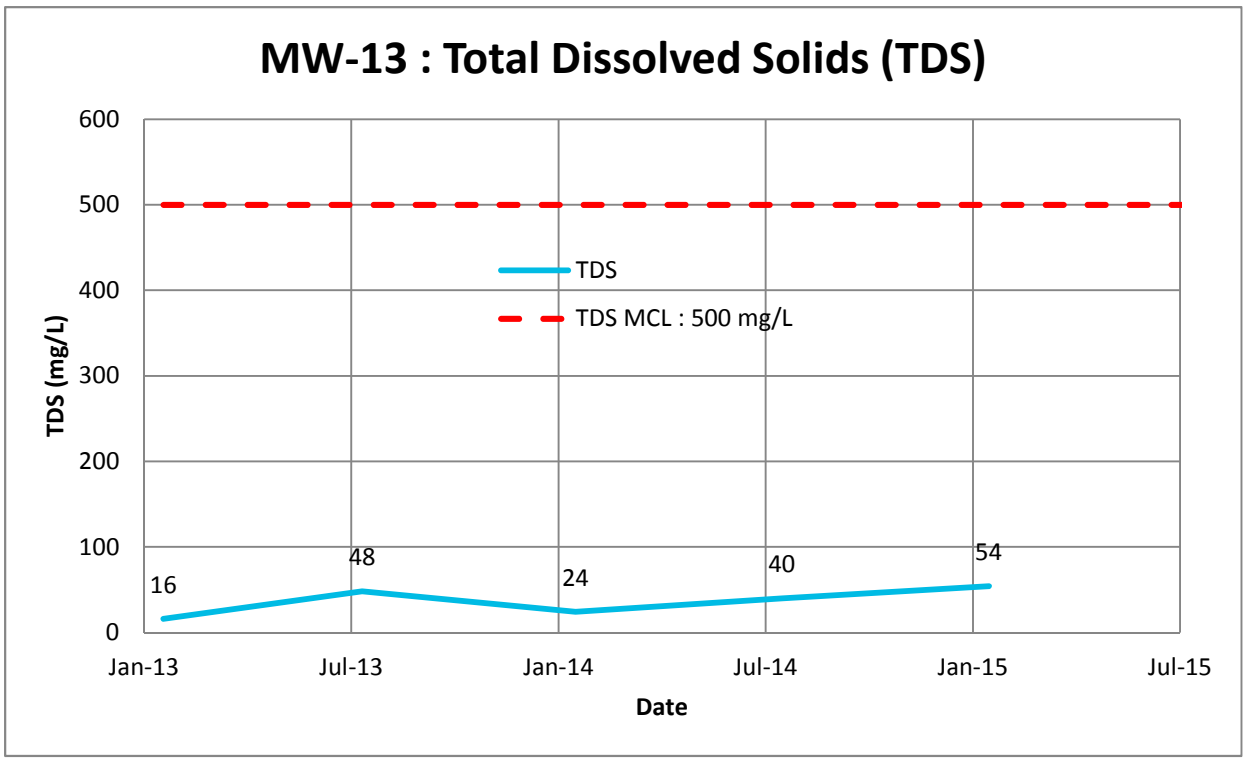




MCL - Maximum Contaminant Level per 62-550 F.A.C

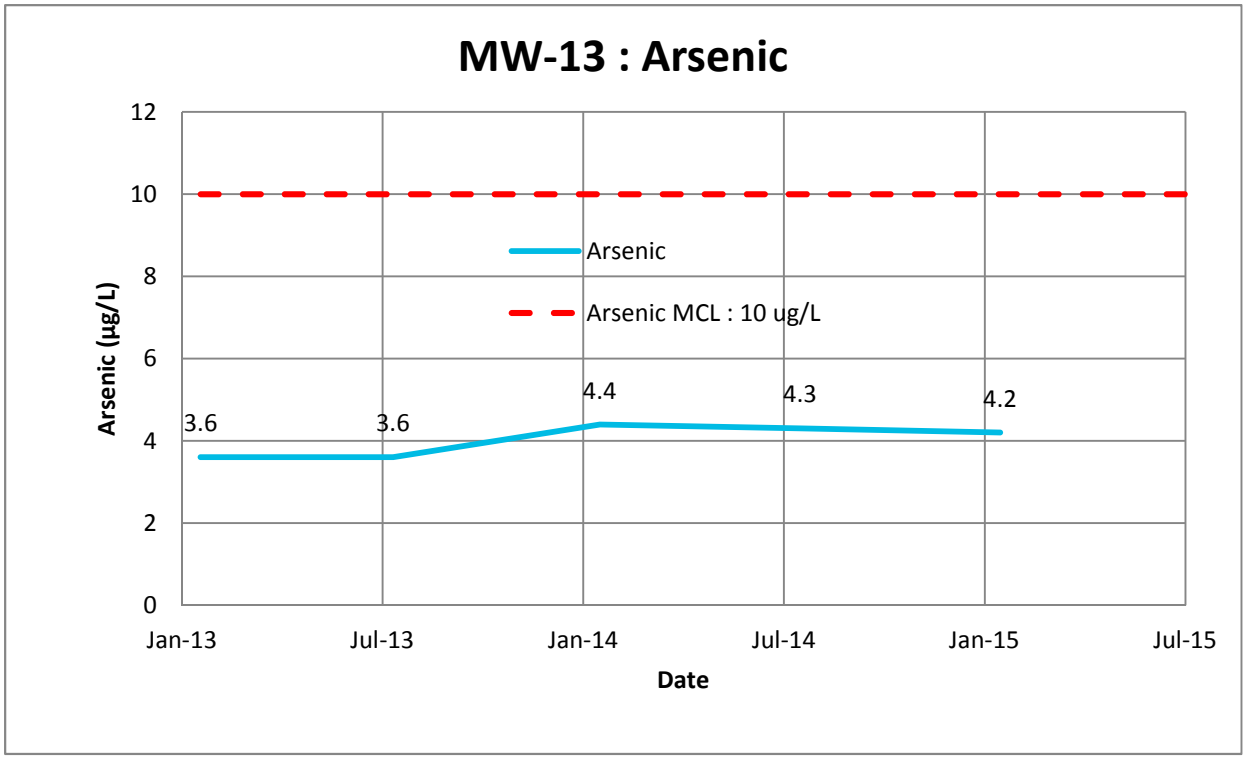
Based on data provided by TestAmerica Laboratories, Inc.

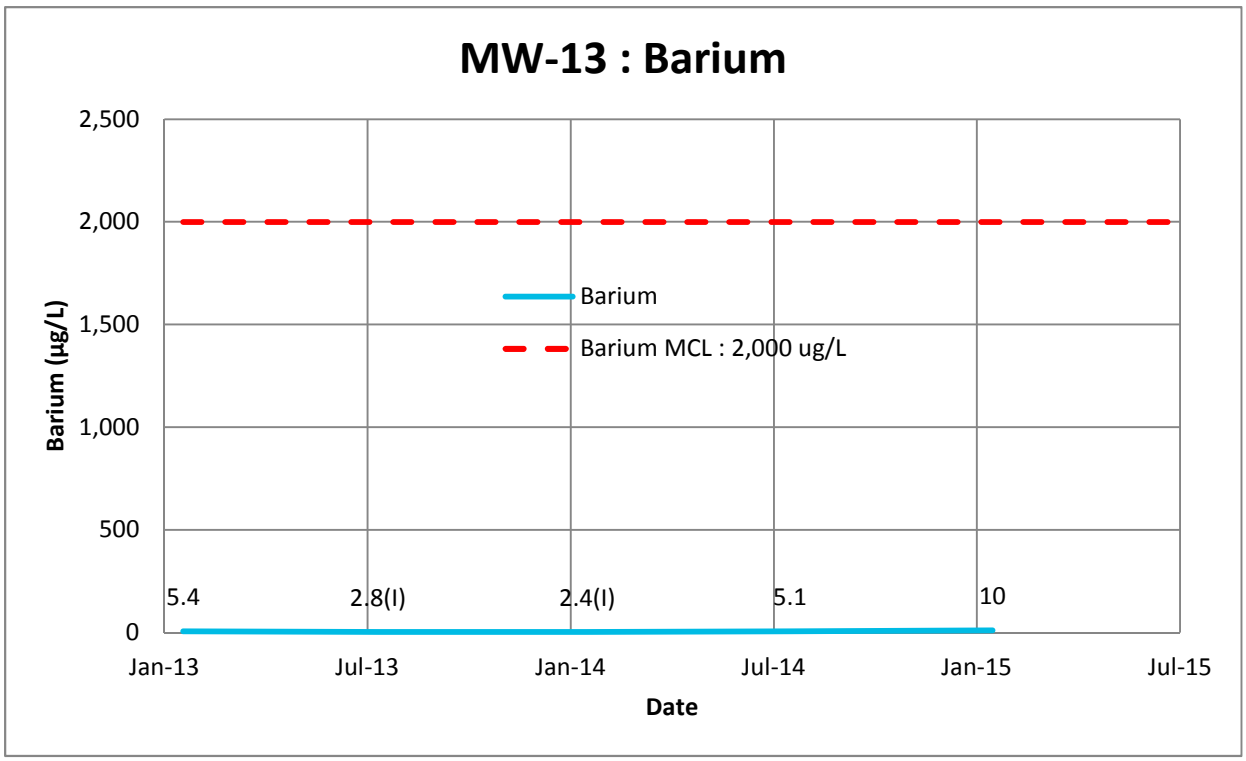




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

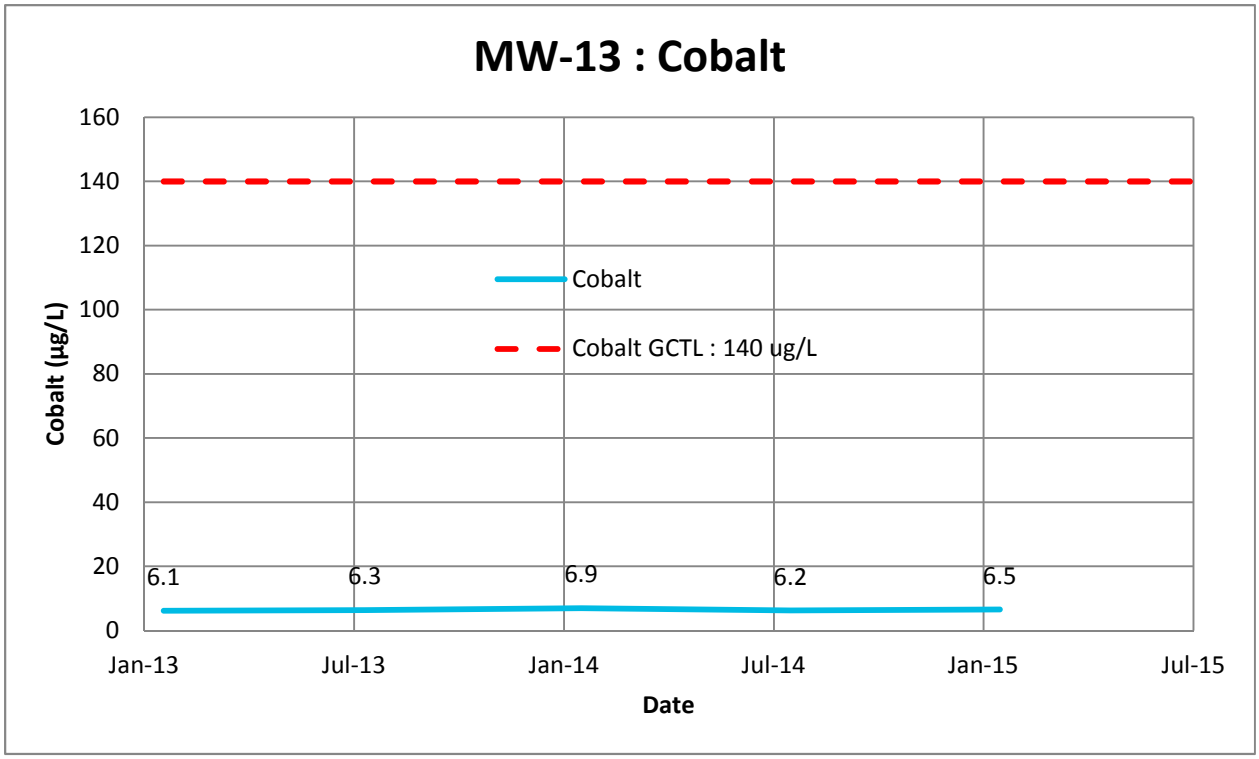


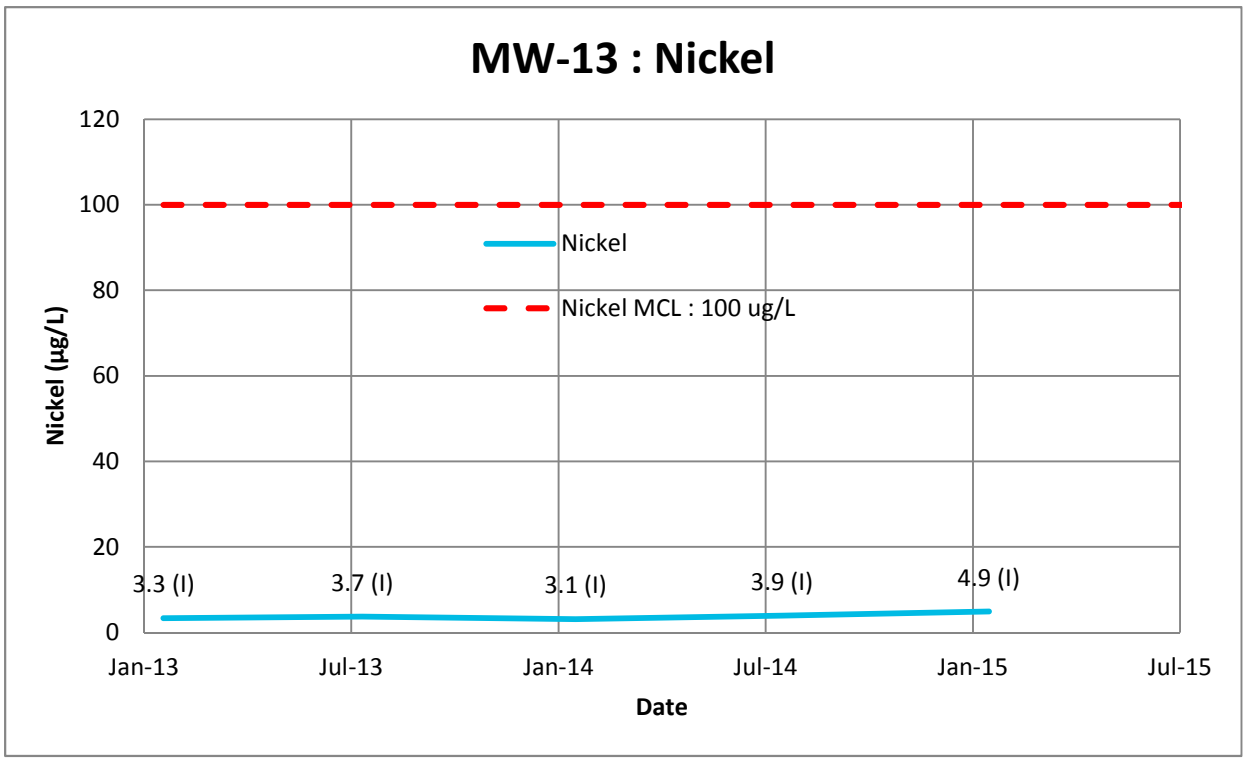


MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte concentration detected below quantitation limit

Based on data provided by TestAmerica Laboratories, Inc.



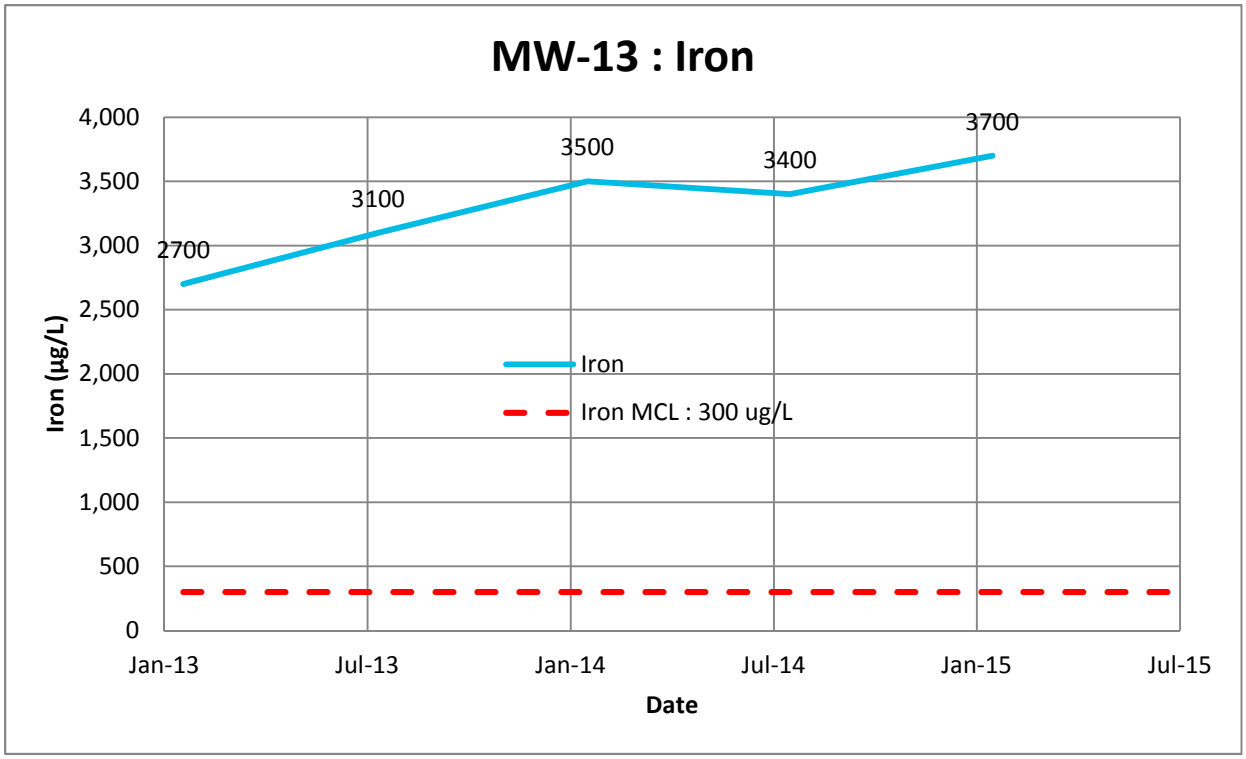


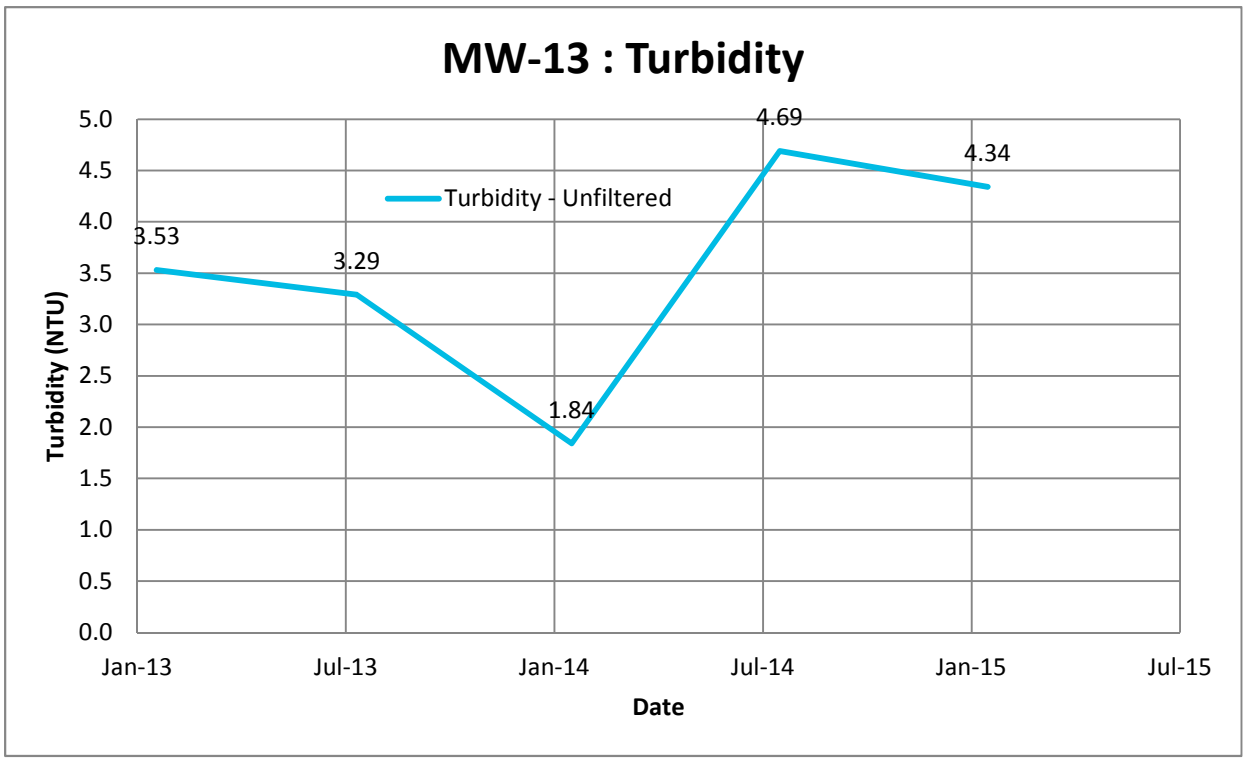
GCTL - Groundwater Clean Up Target Level per 62-777 F.A.C.

MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte concentration detected below quantitation limit

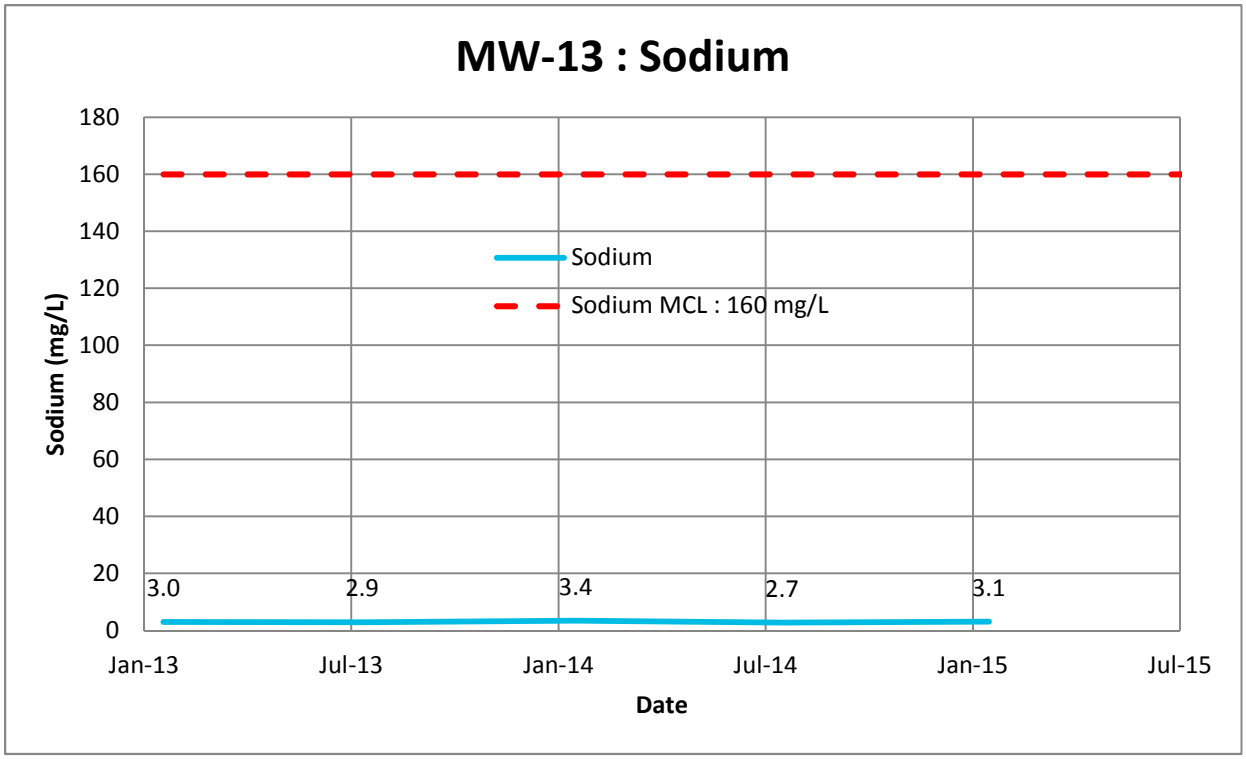
Based on data provided by TestAmerica Laboratories, Inc.

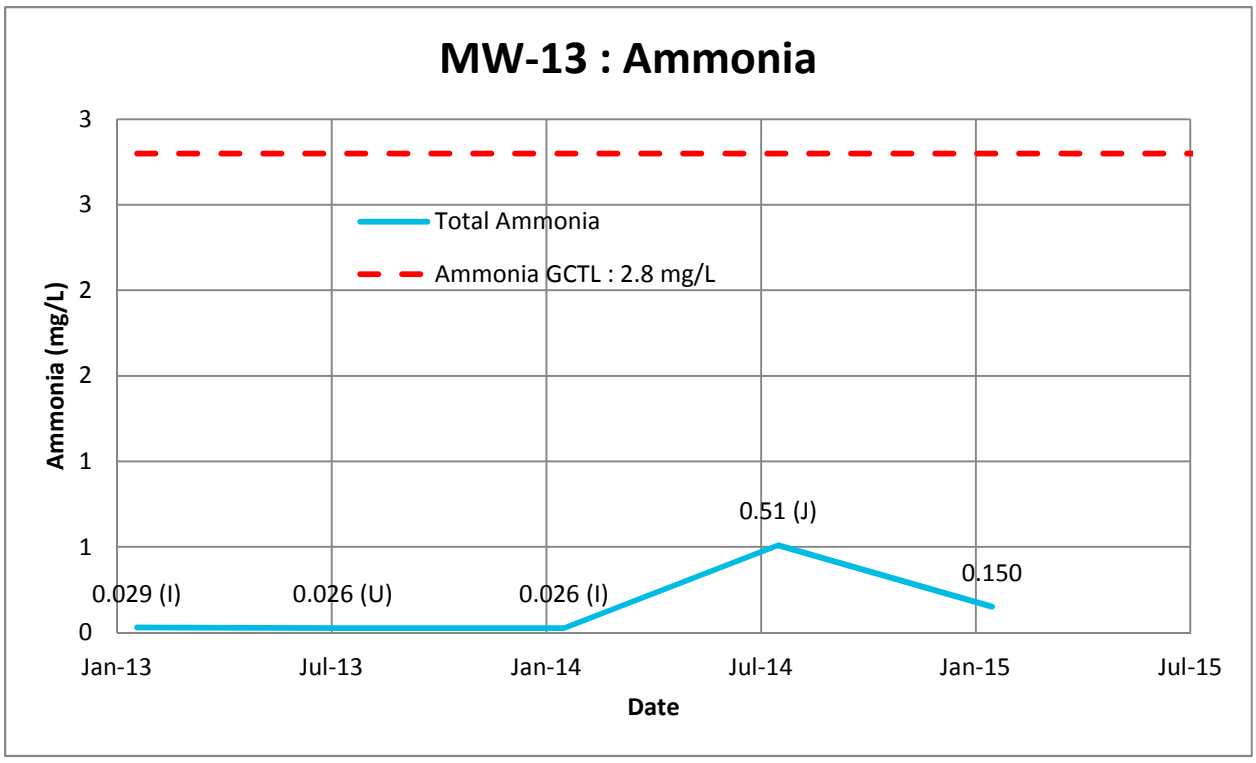




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.





GCTL - Groundwater Clean Up Target Level per 62-777 F.A.C.

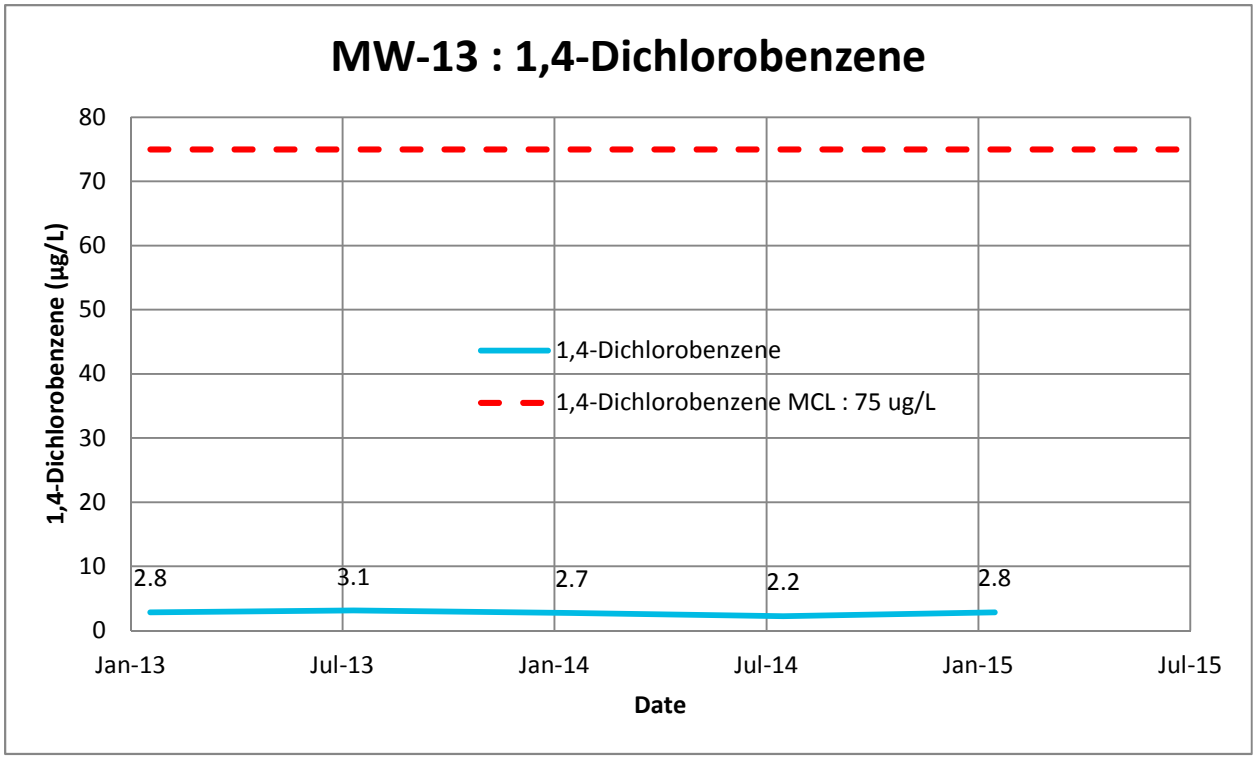
MCL - Maximum Contaminant Level per 62-550 F.A.C

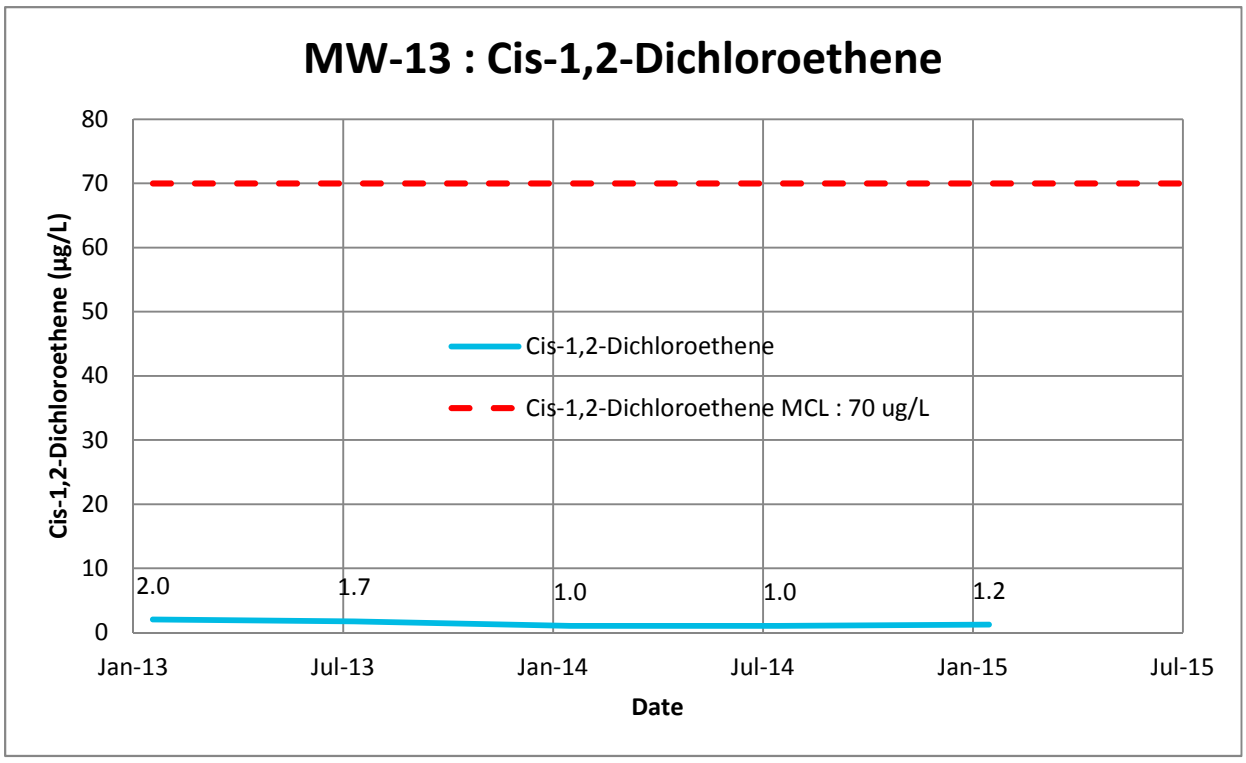
Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte concentration detected below quantitation limit

(J) Analyte concentration may not be accurate due to QC concerns

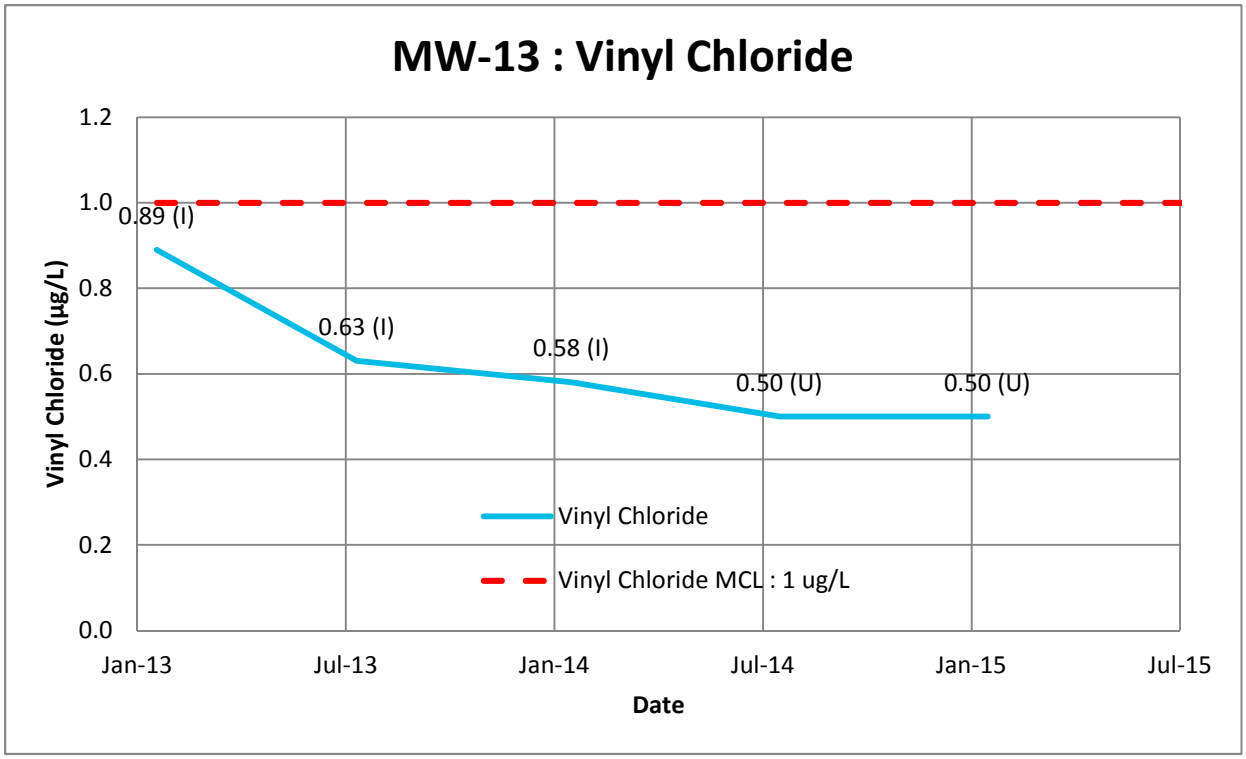
(U) Analyte not detected; value reported is the method detection limit





MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

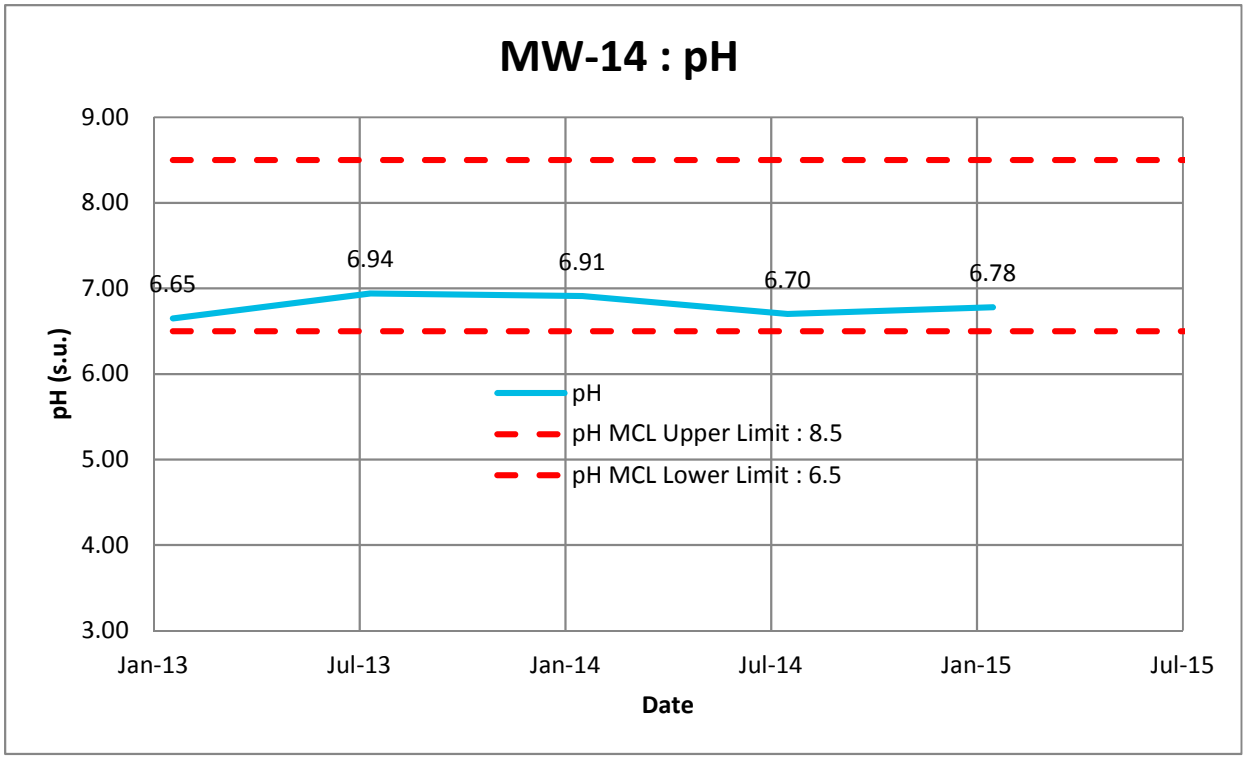


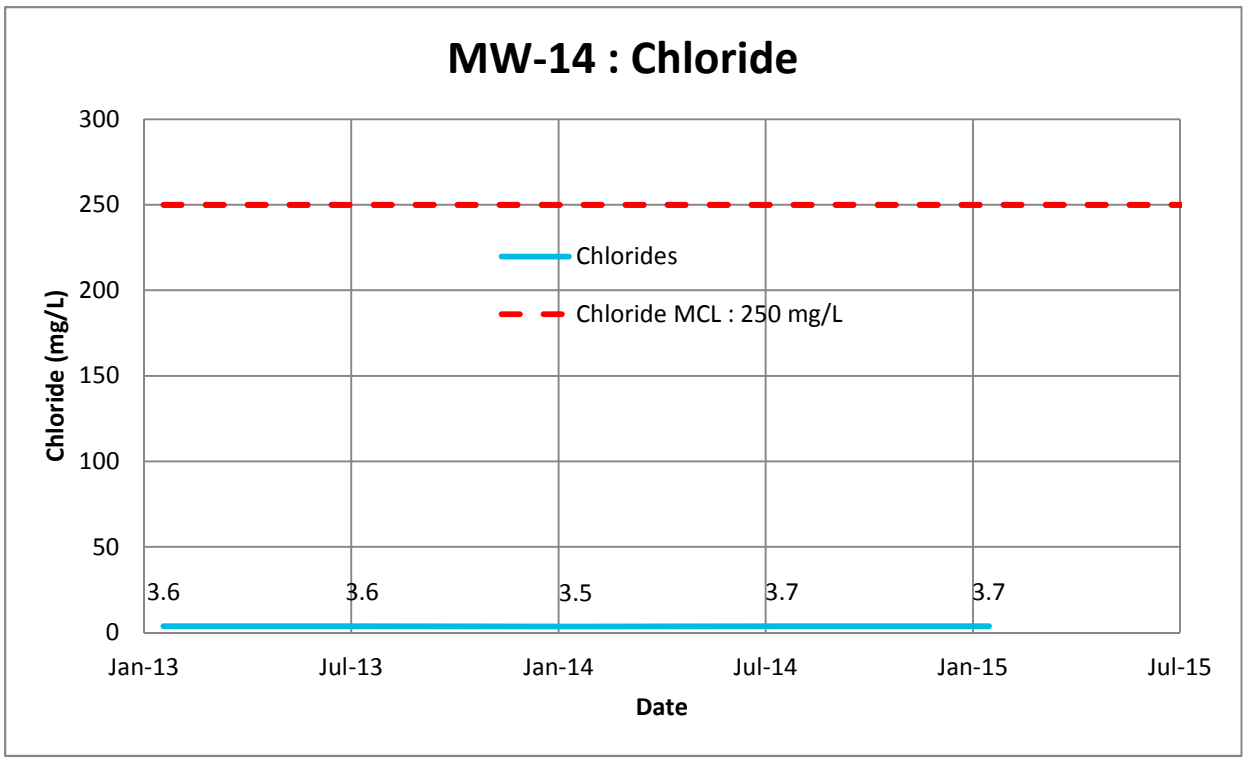
MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte detected below quantitation limit

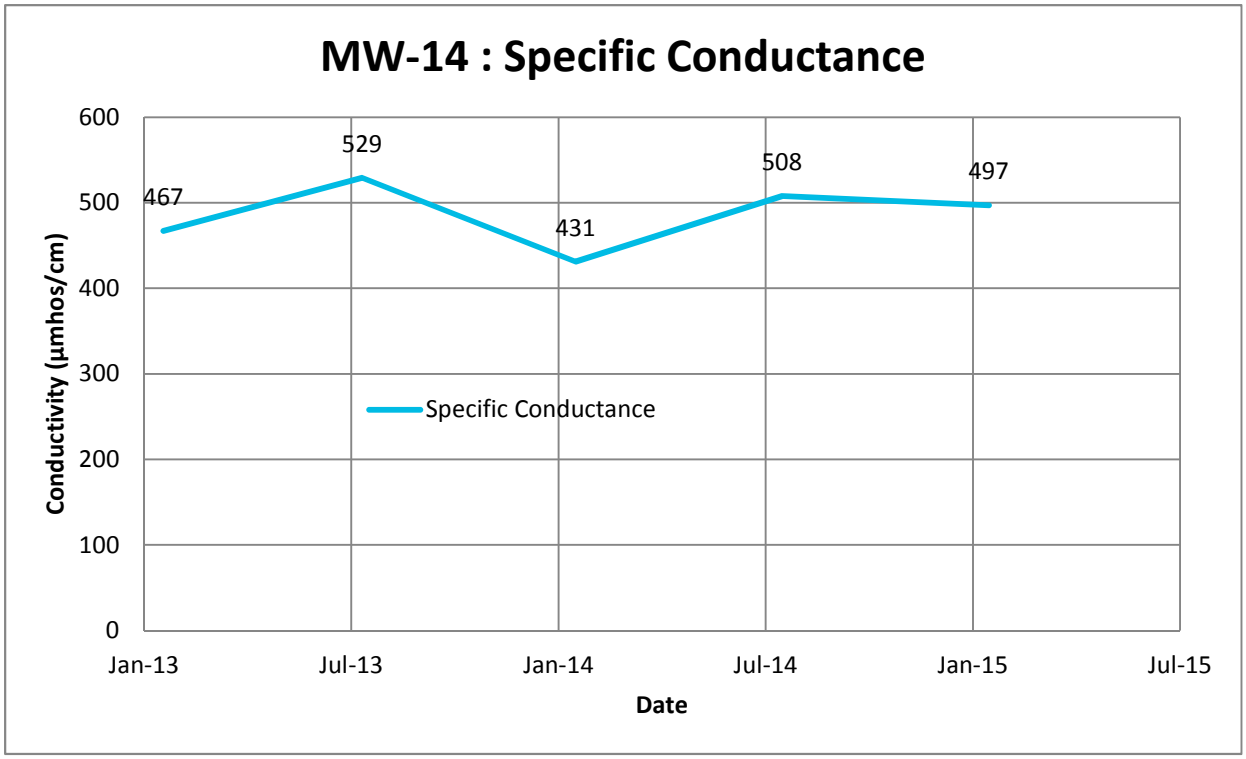
(U) Analyte not detected; value reported is the method detection limit

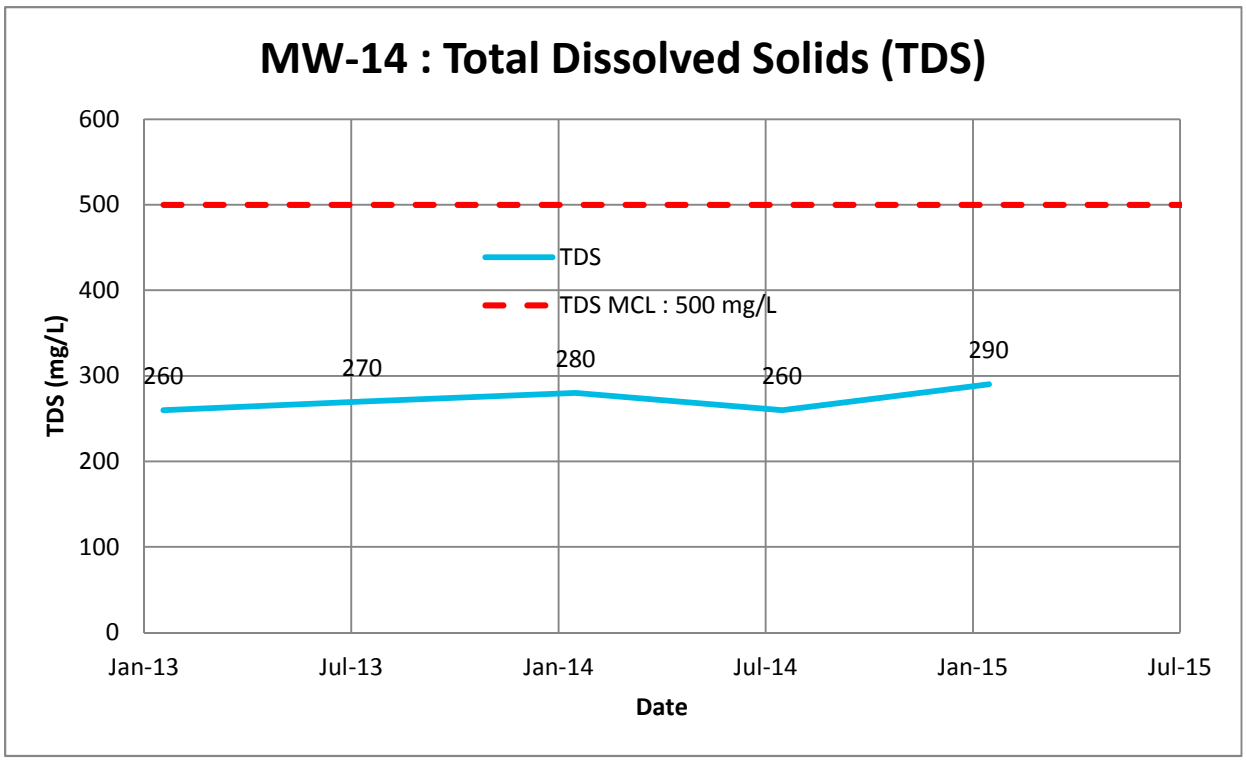




MCL - Maximum Contaminant Level per 62-550 F.A.C

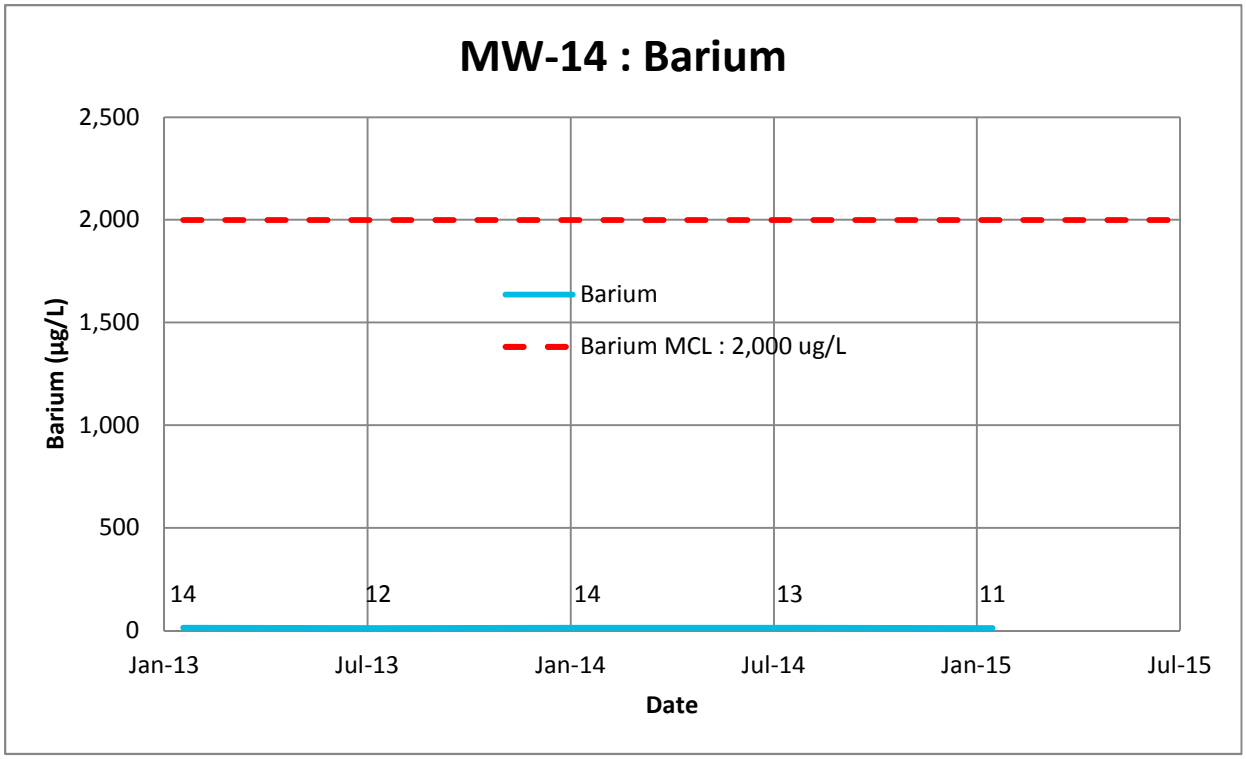
Based on data provided by TestAmerica Laboratories, Inc.

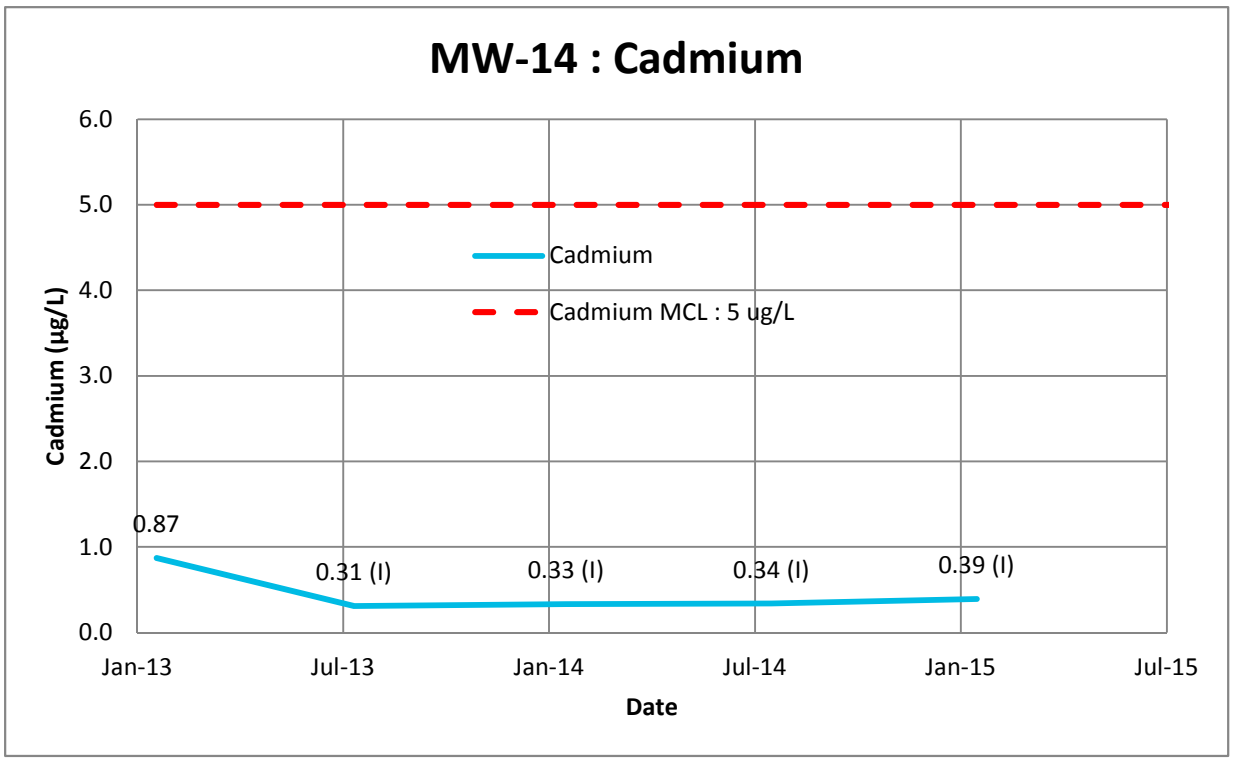




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

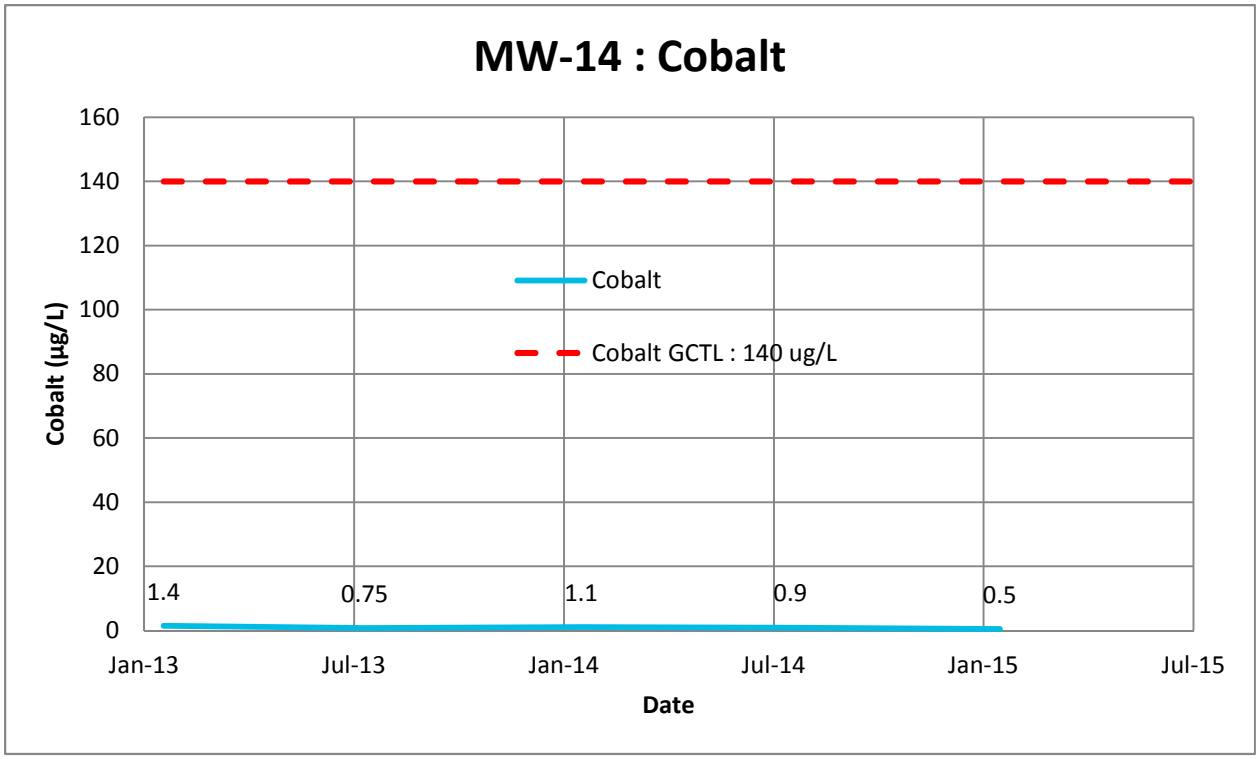


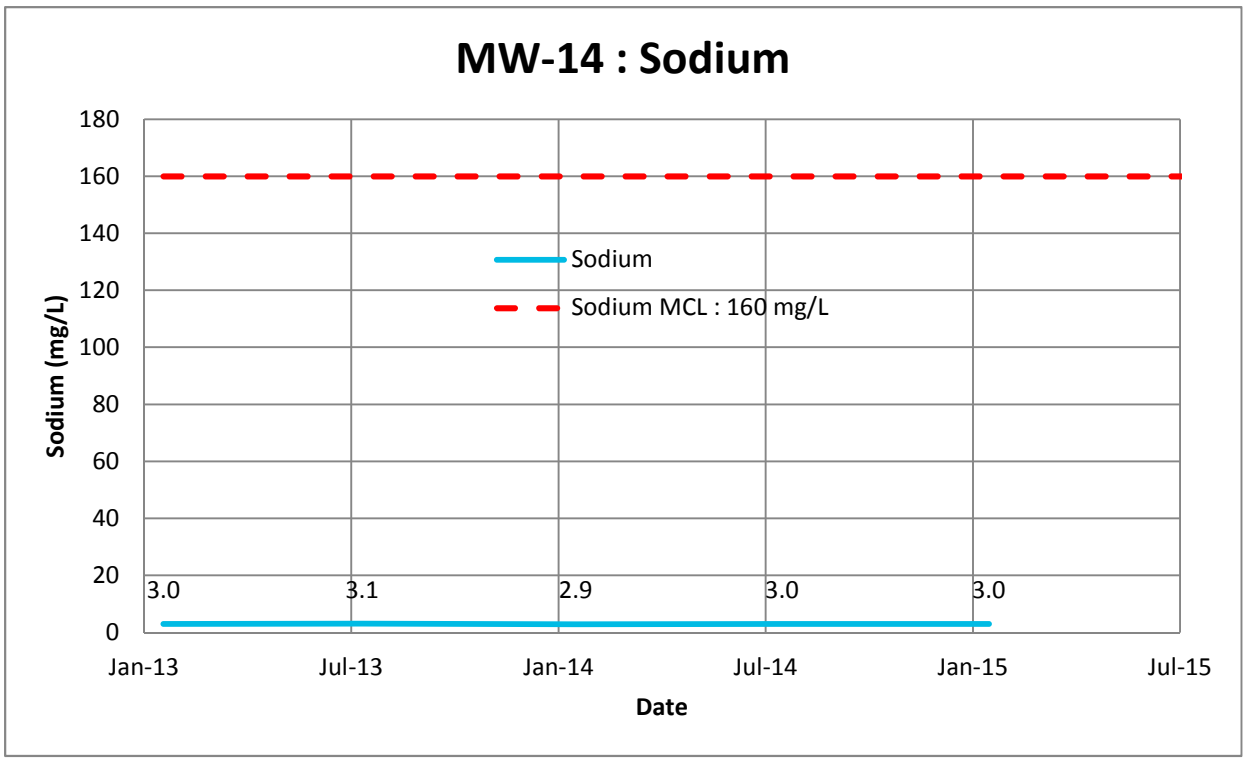


MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte concentration detected below quantitation limit

Based on data provided by TestAmerica Laboratories, Inc.

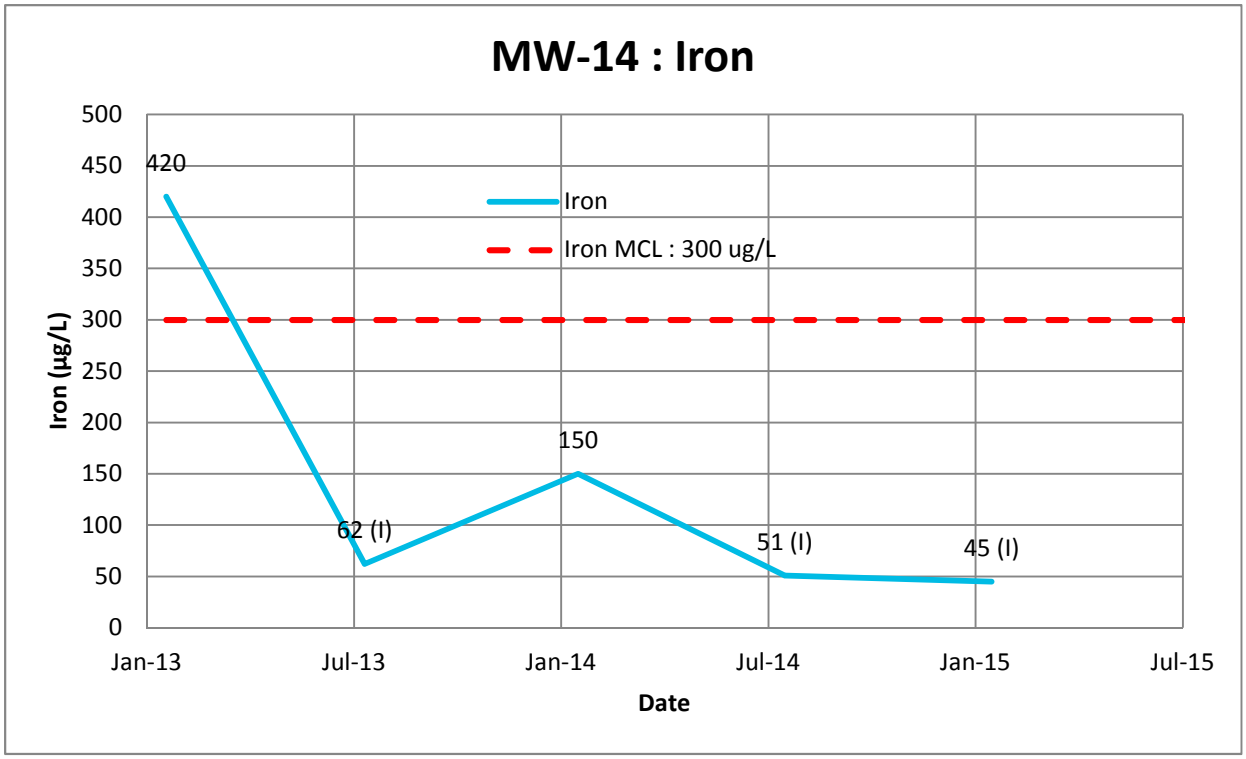


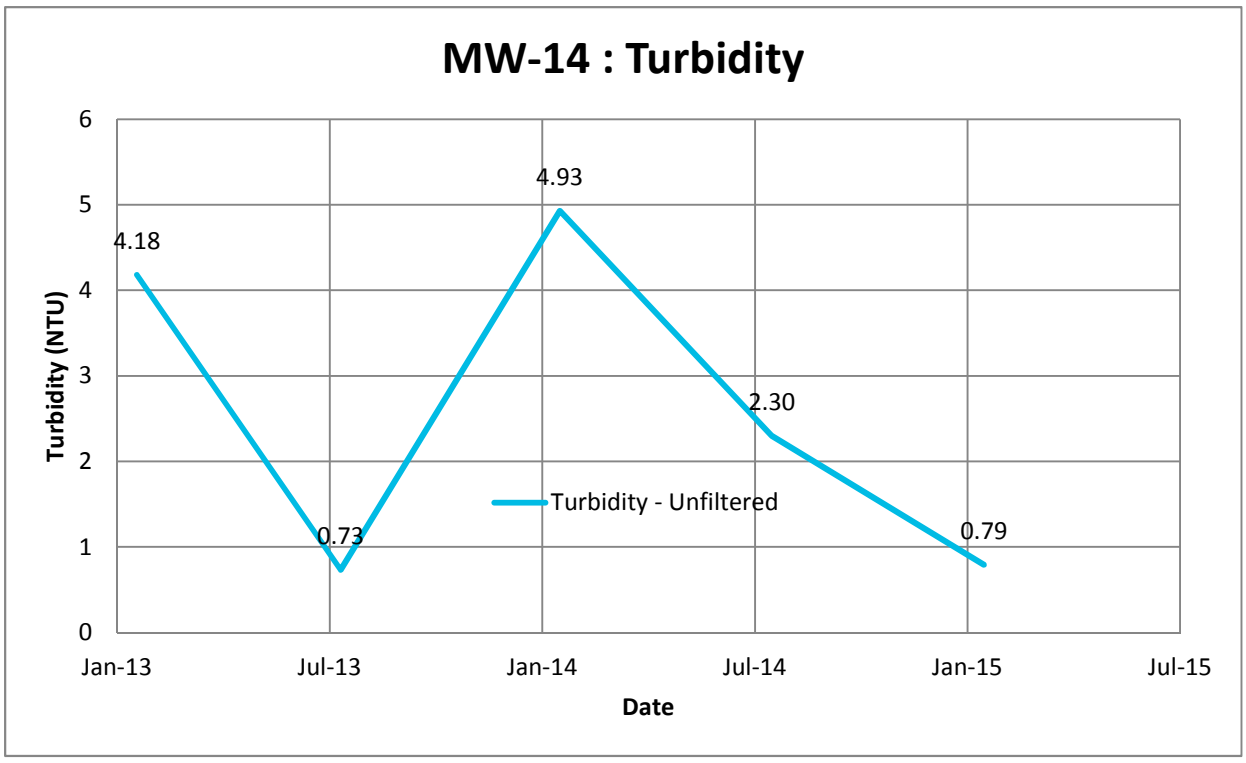


GCTL - Groundwater Clean Up Target Level per 62-777 F.A.C.

MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

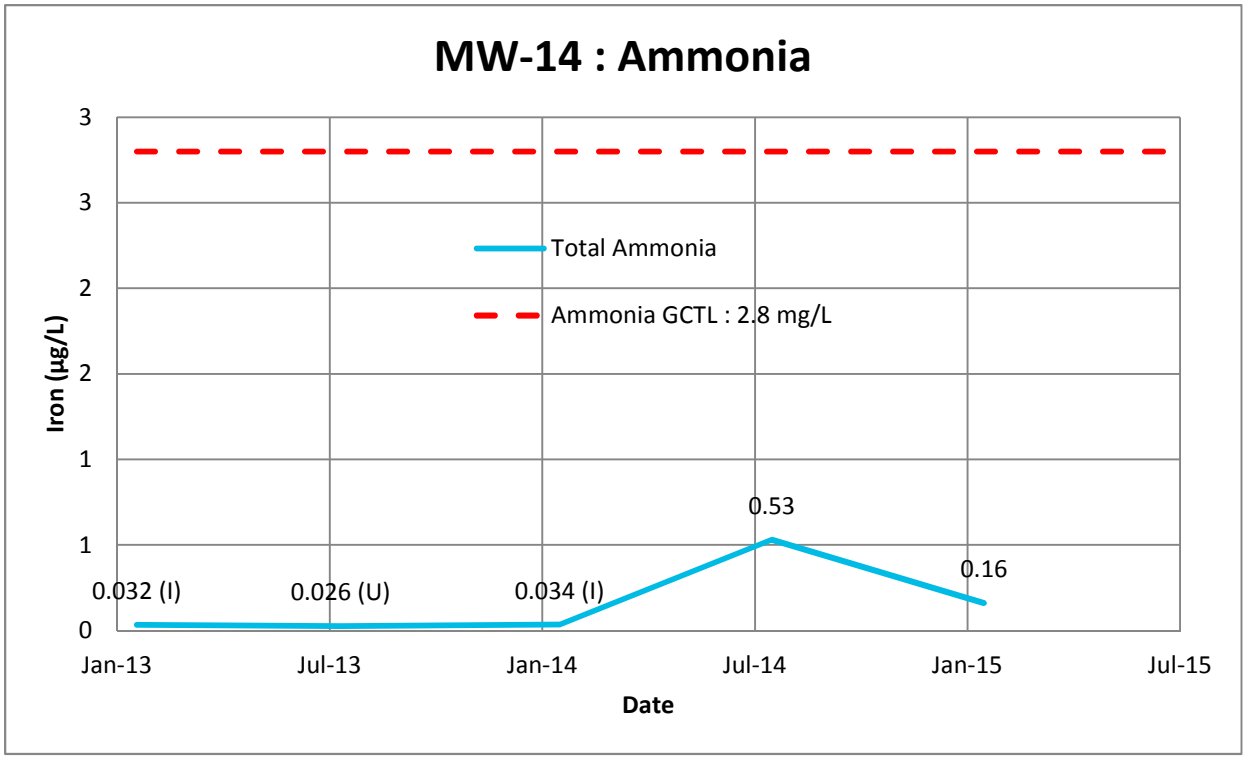




MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte concentration detected below quantitation limit

Based on data provided by TestAmerica Laboratories, Inc.

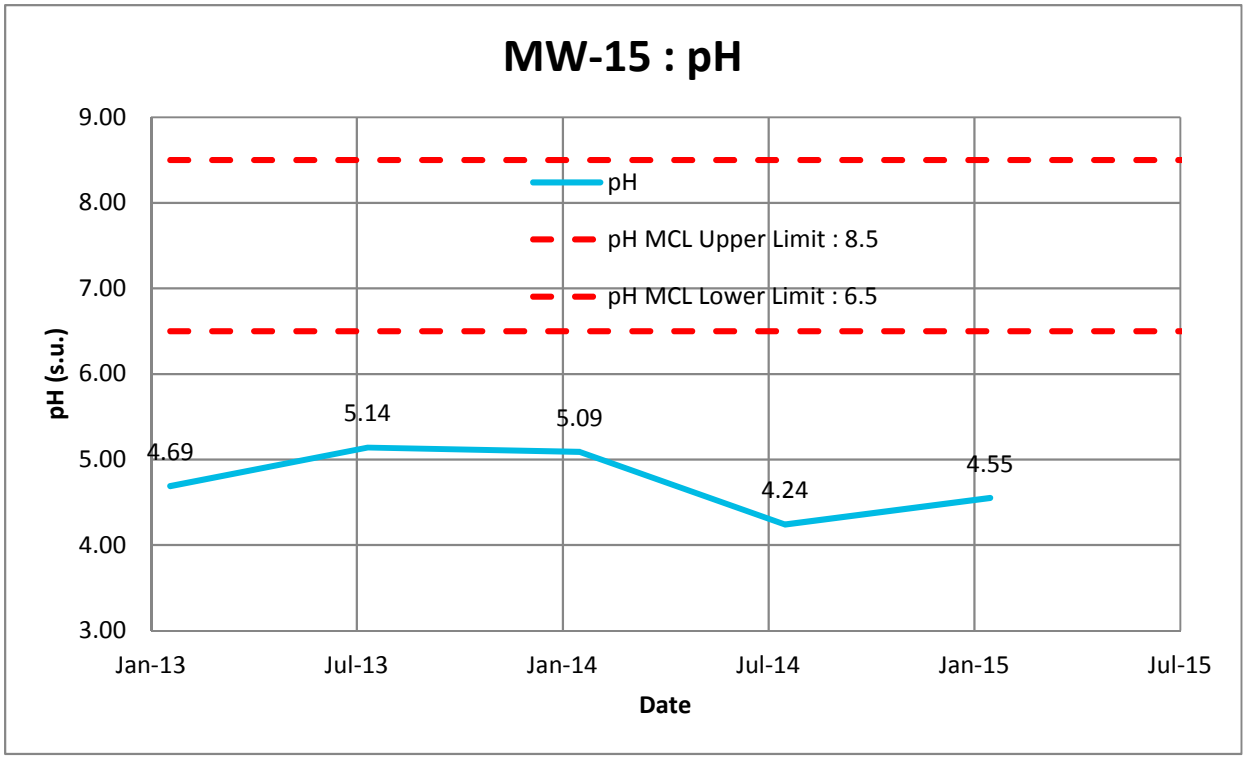


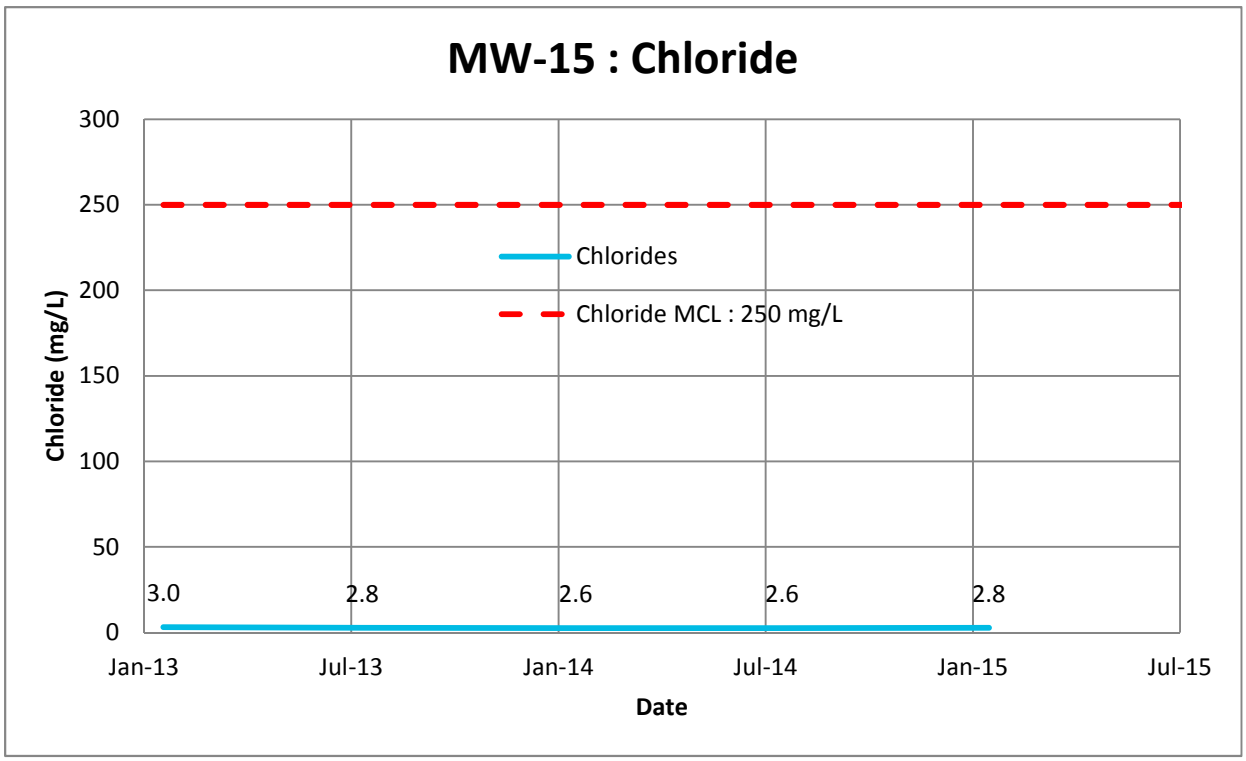
MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte concentration detected below quantitation limit

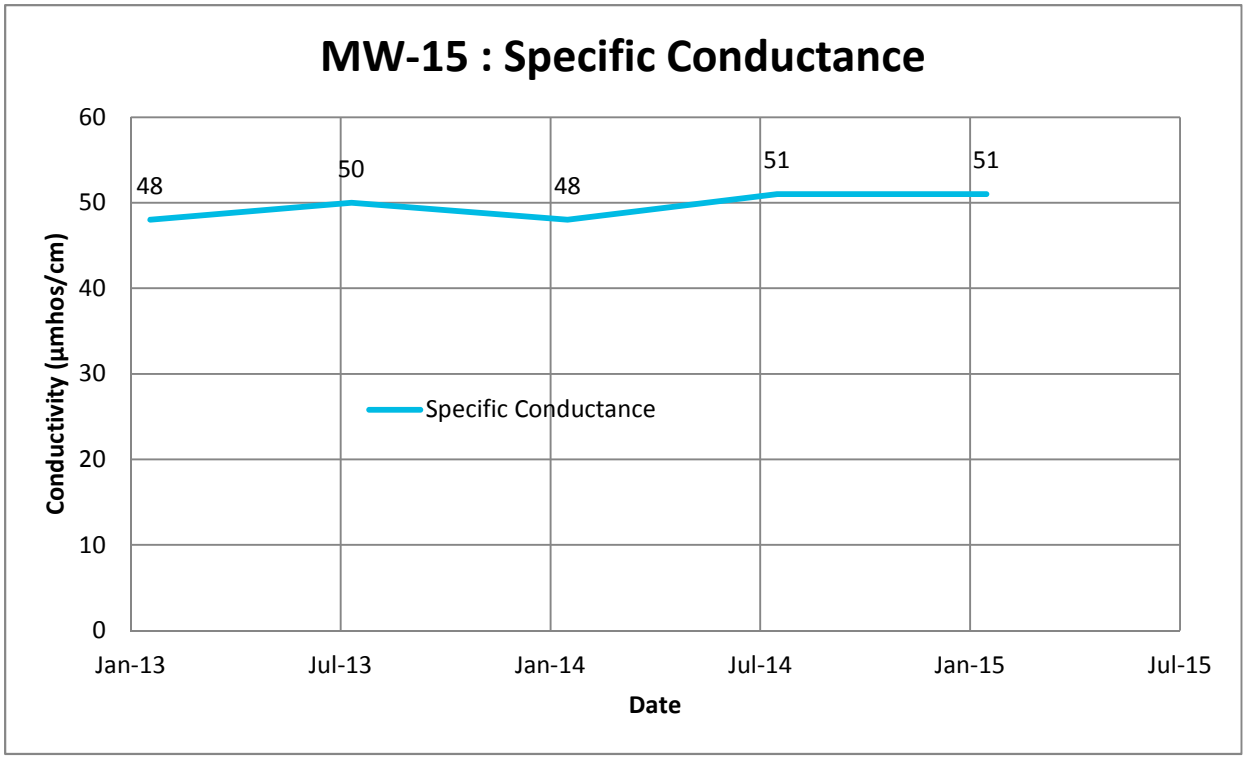
(U) Analyte not detected; value reported is the method detection limit

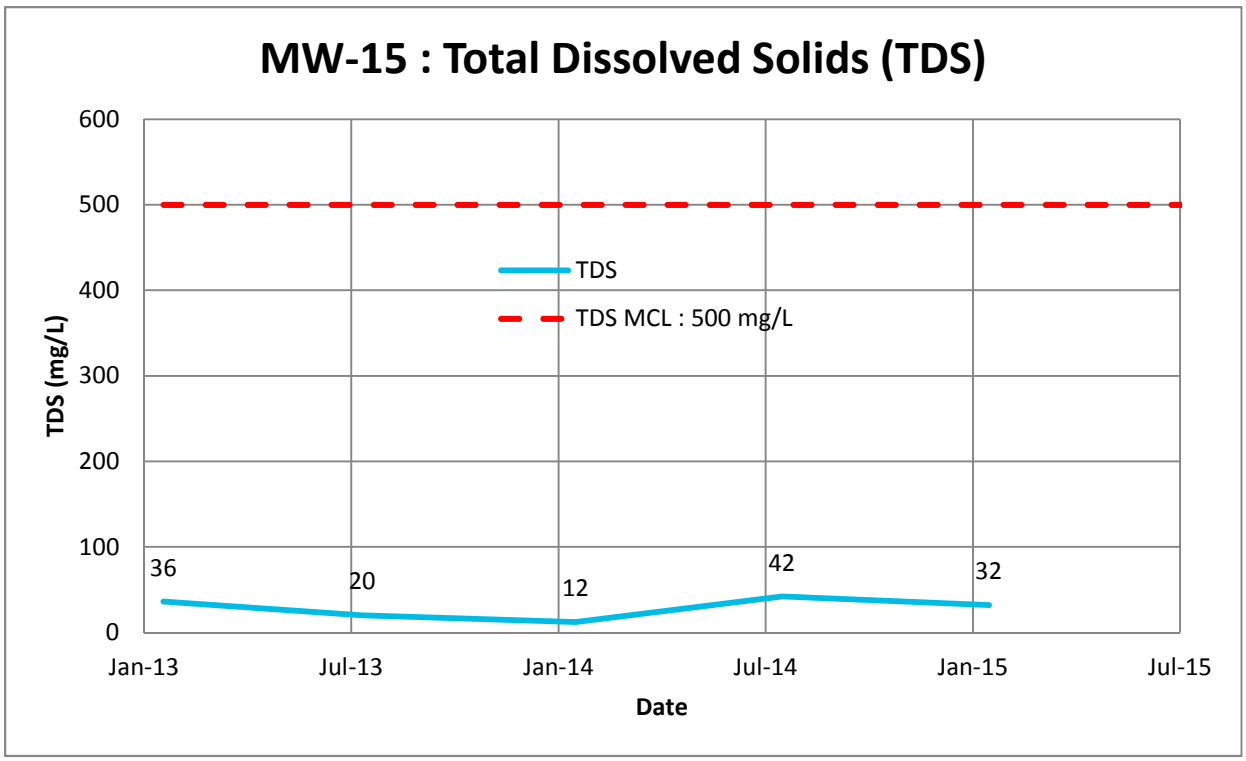




MCL - Maximum Contaminant Level per 62-550 F.A.C

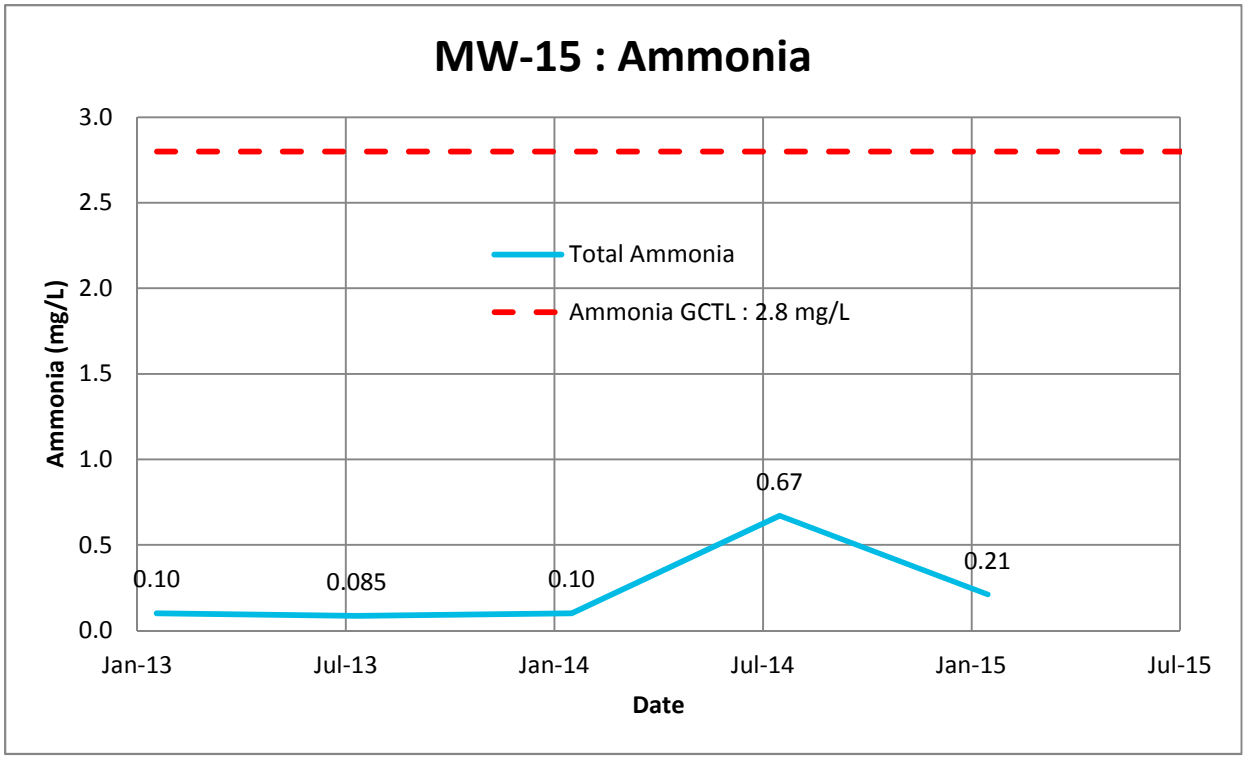
Based on data provided by TestAmerica Laboratories, Inc.

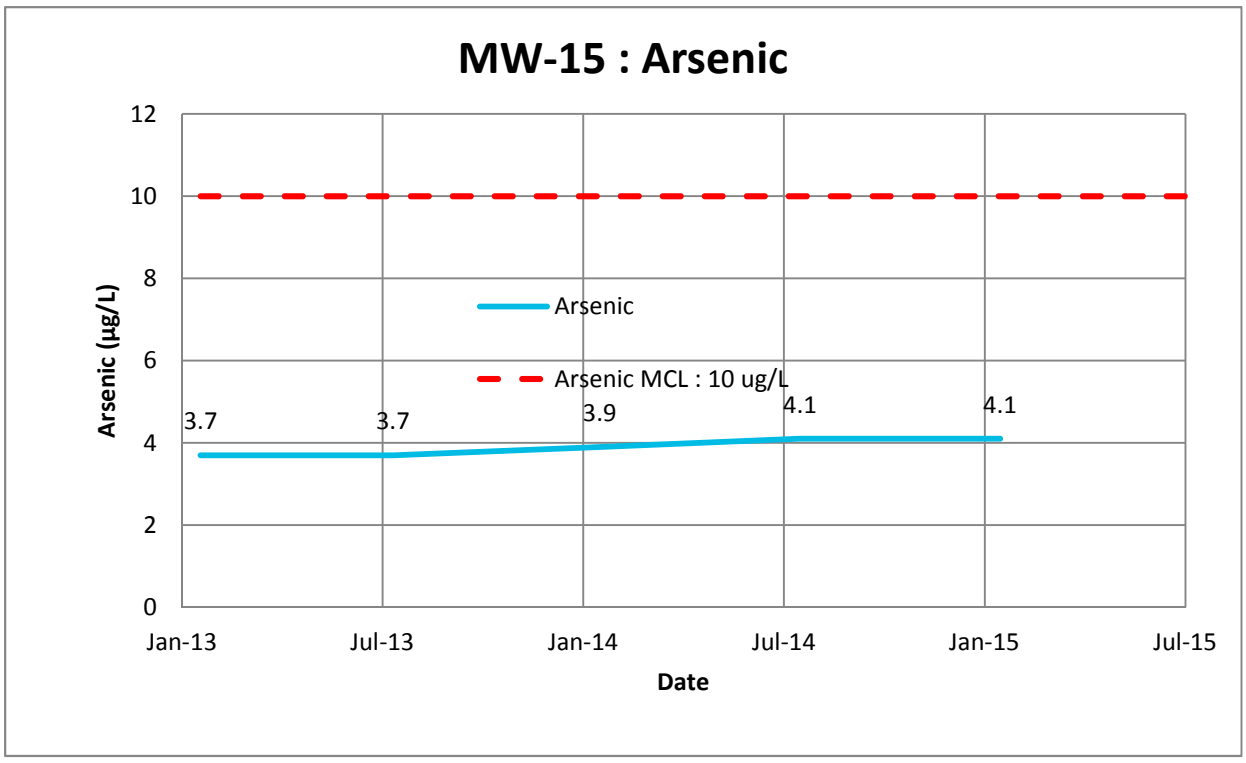




MCL - Maximum Contaminant Level per 62-550 F.A.C

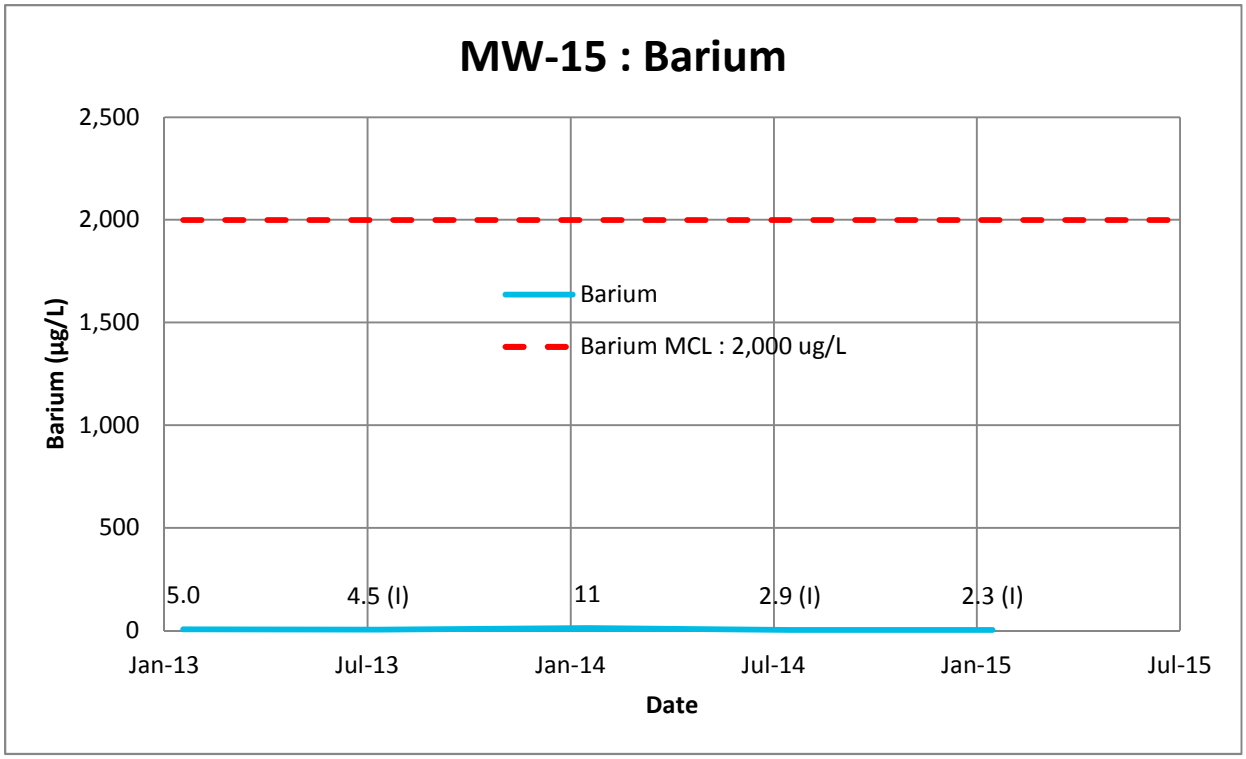
Based on data provided by TestAmerica Laboratories, Inc.

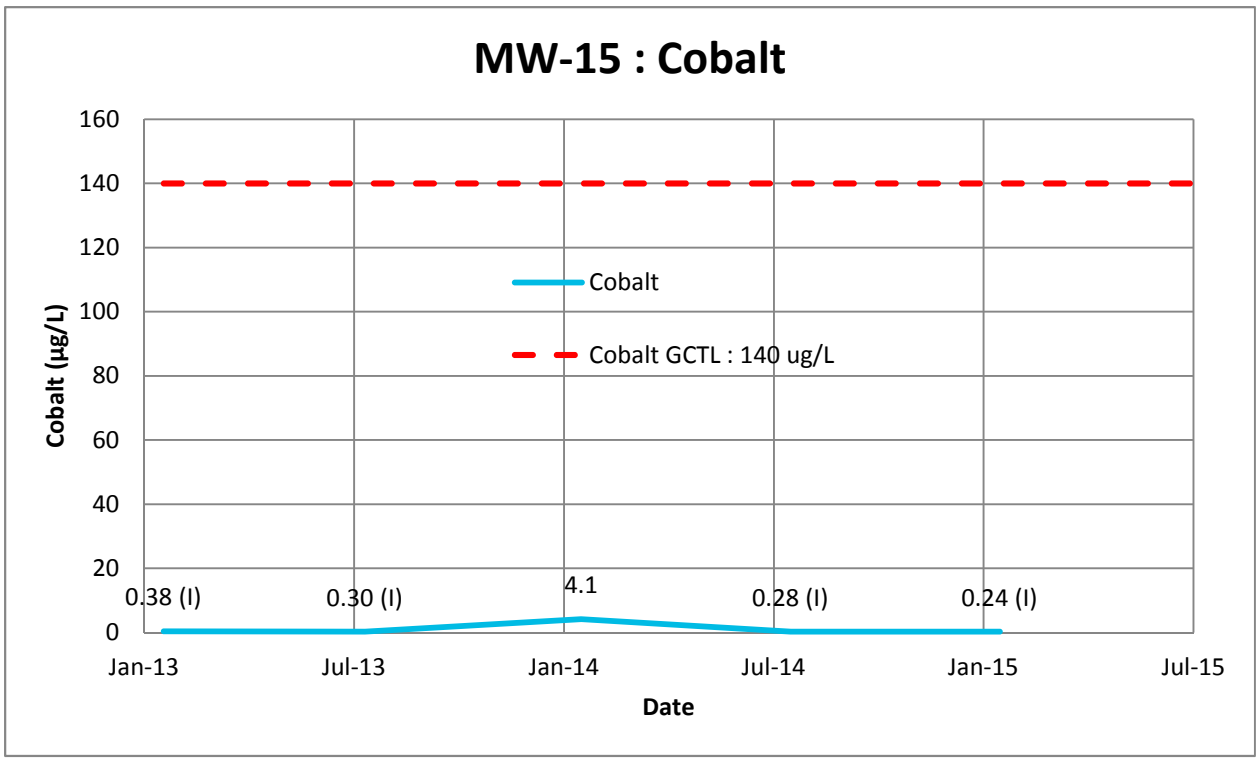




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.



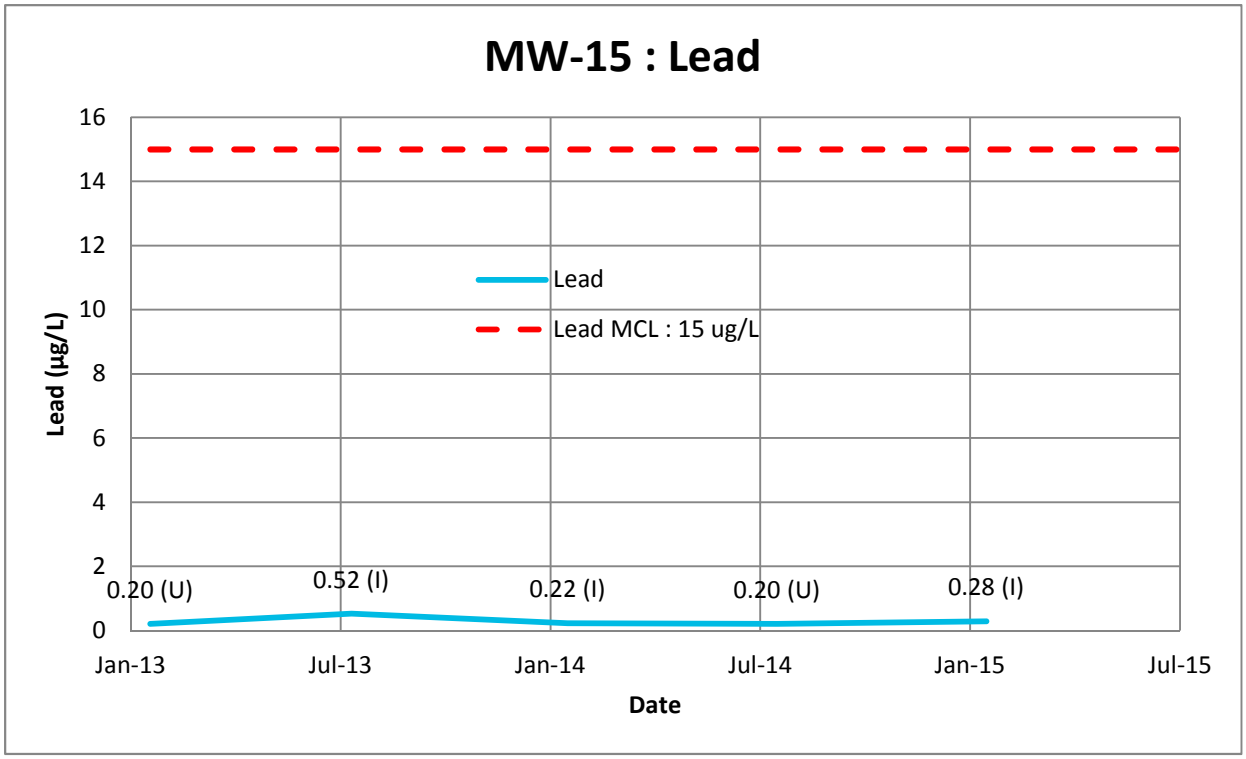


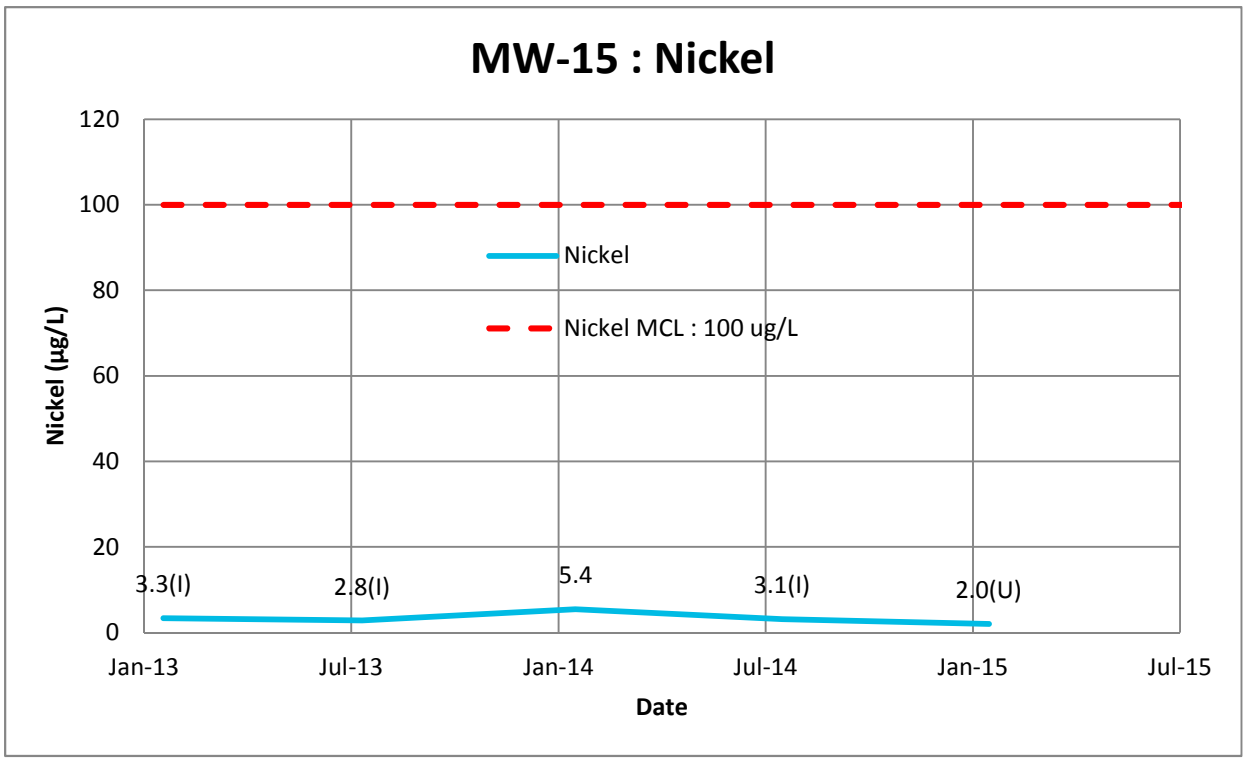
GCTL - Groundwater Clean Up Target Level per 62-777 F.A.C.

MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte concentration detected below quantitation limit

Based on data provided by TestAmerica Laboratories, Inc.



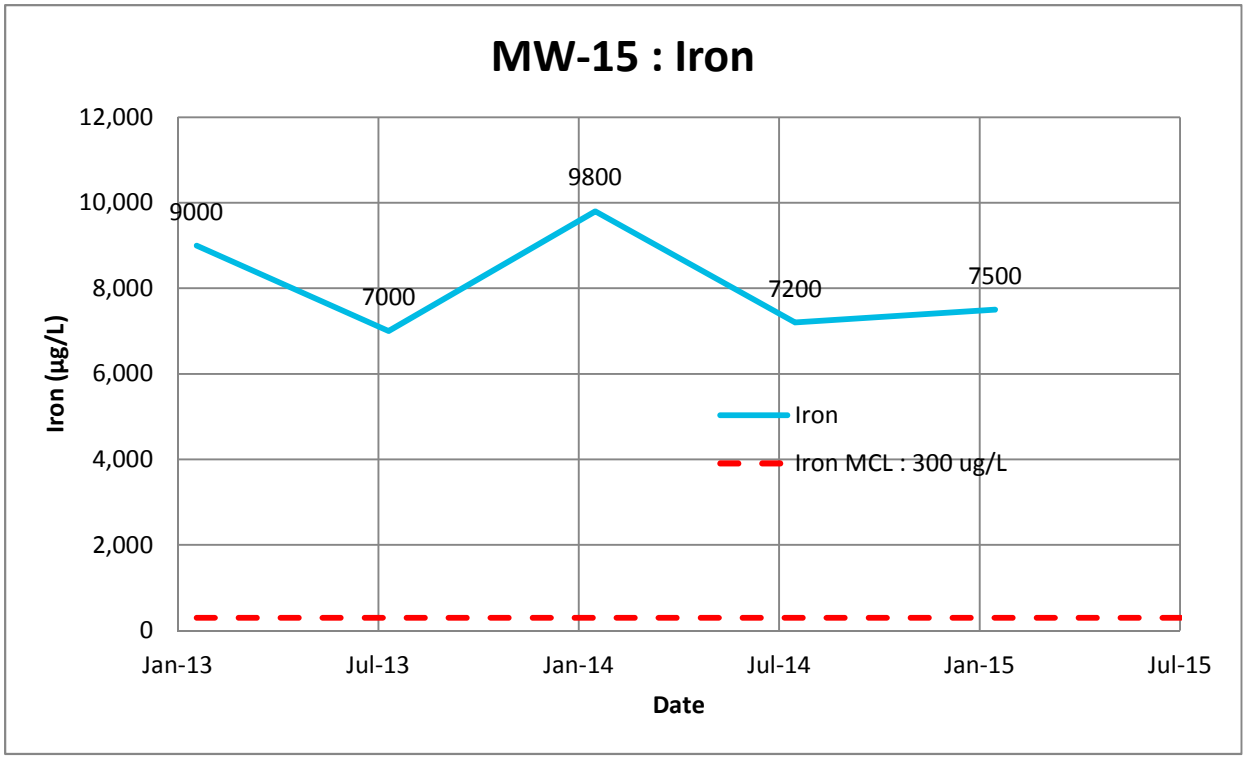


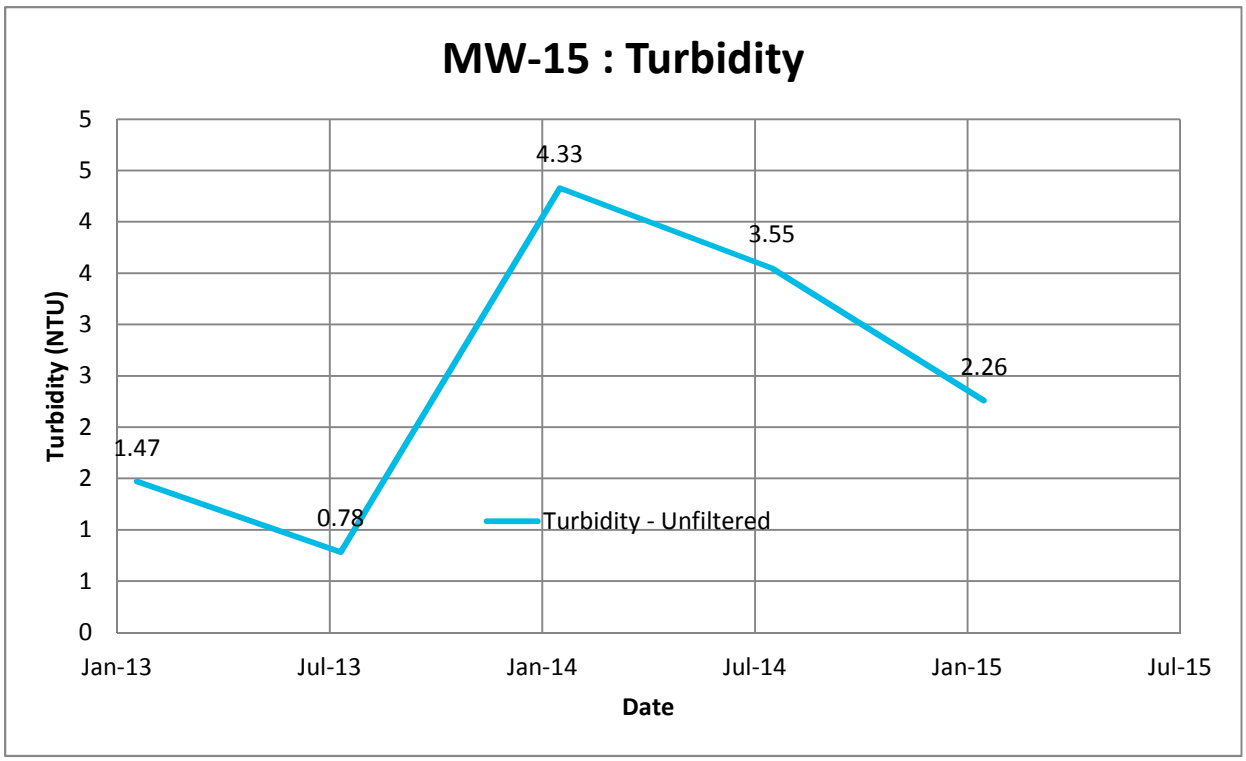
MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte concentration detected below quantitation limit

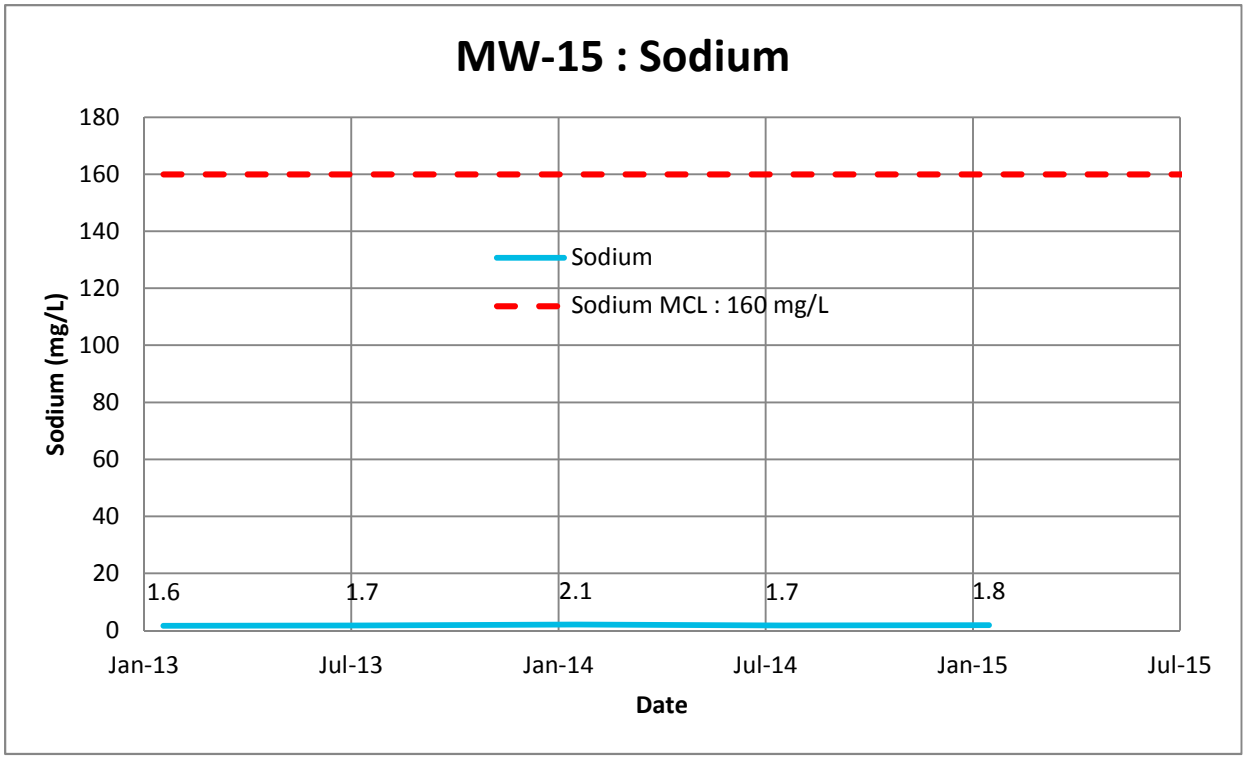
(U) Analyte not detected; value reported is the method detection limit

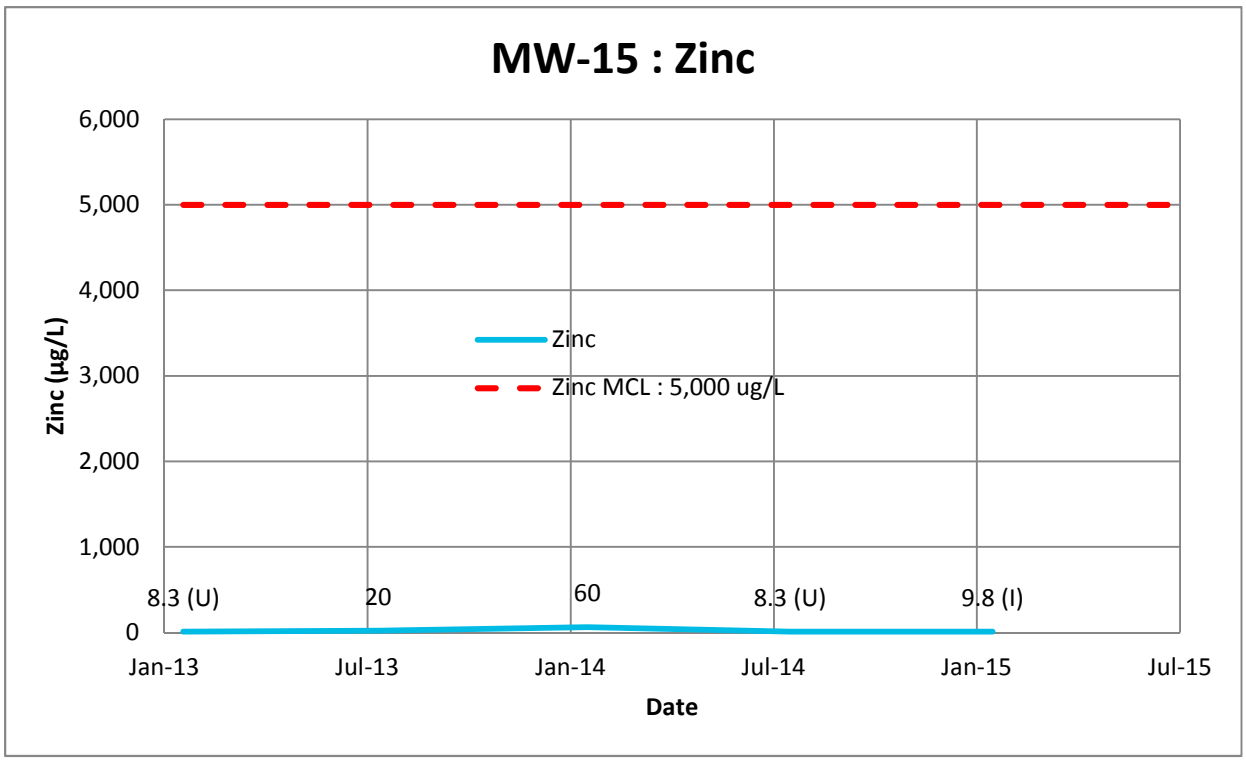




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.



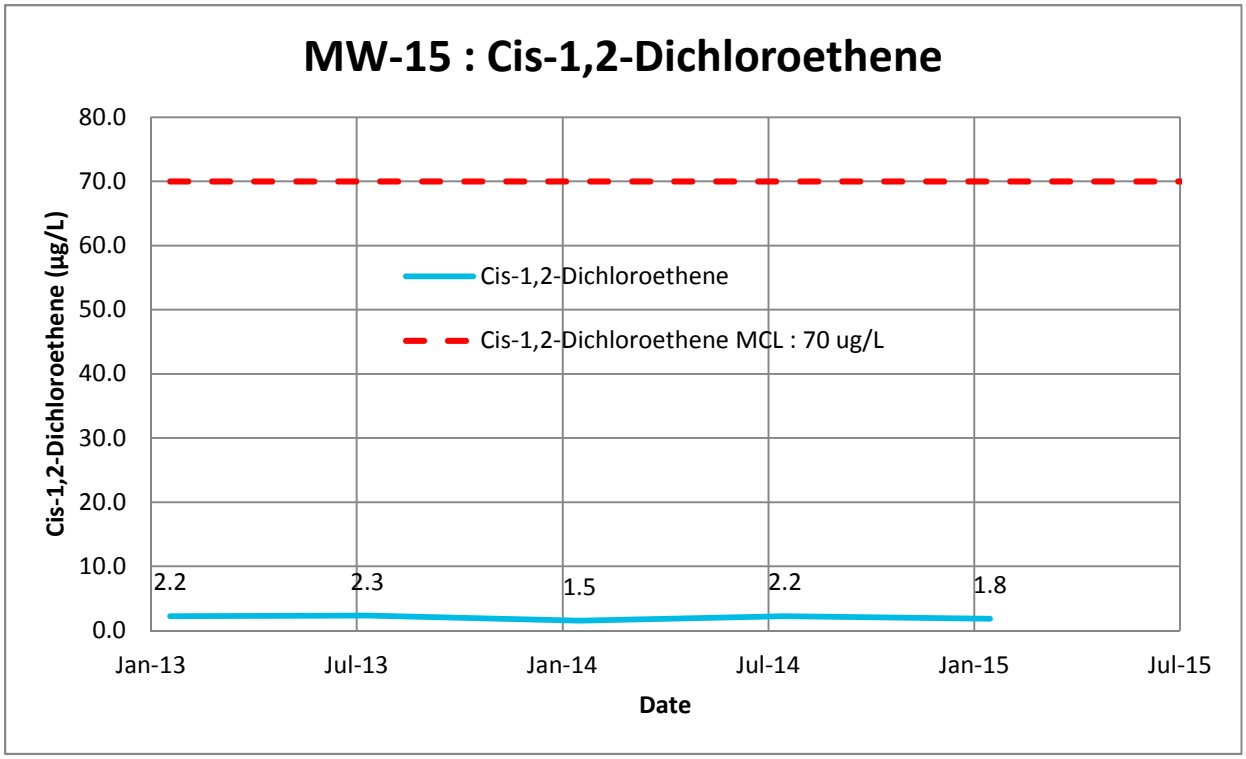


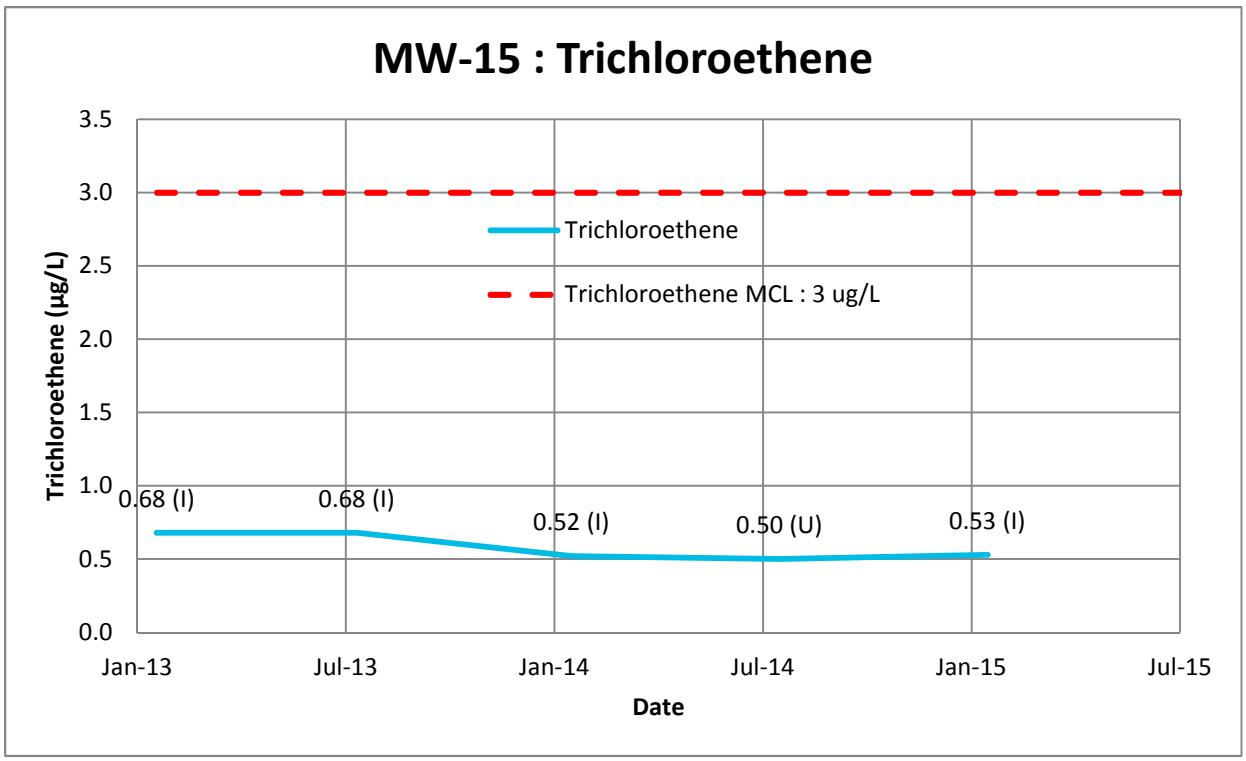
MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte concentration detected below quantitation limit

(U) Analyte not detected; value reported is the method detection limit



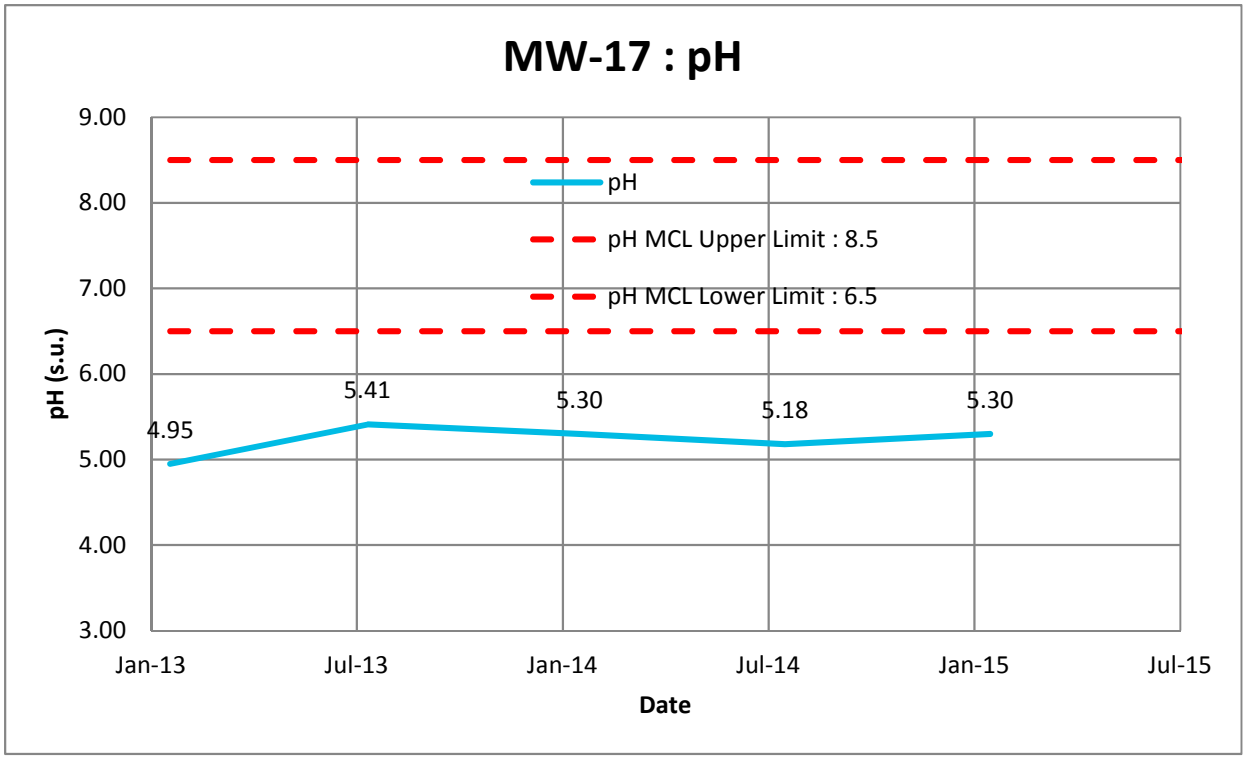


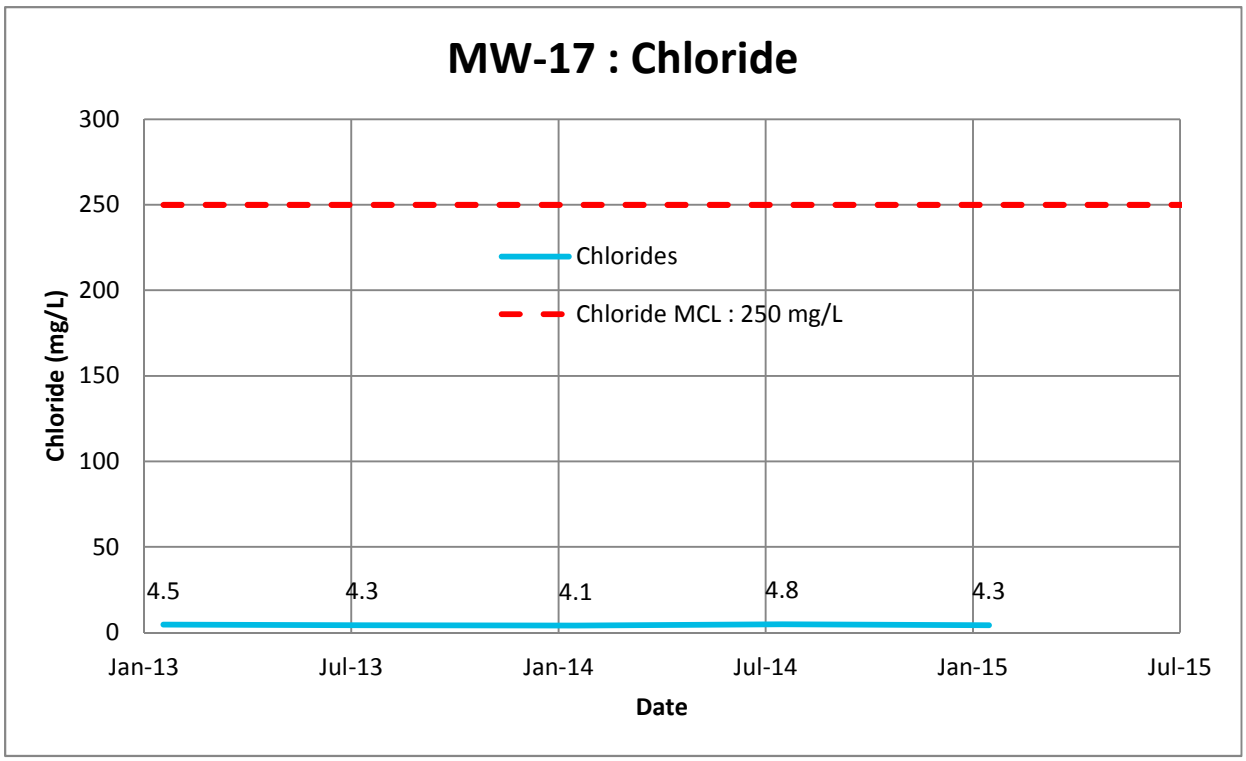
MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte concentration detected below quantitation limit

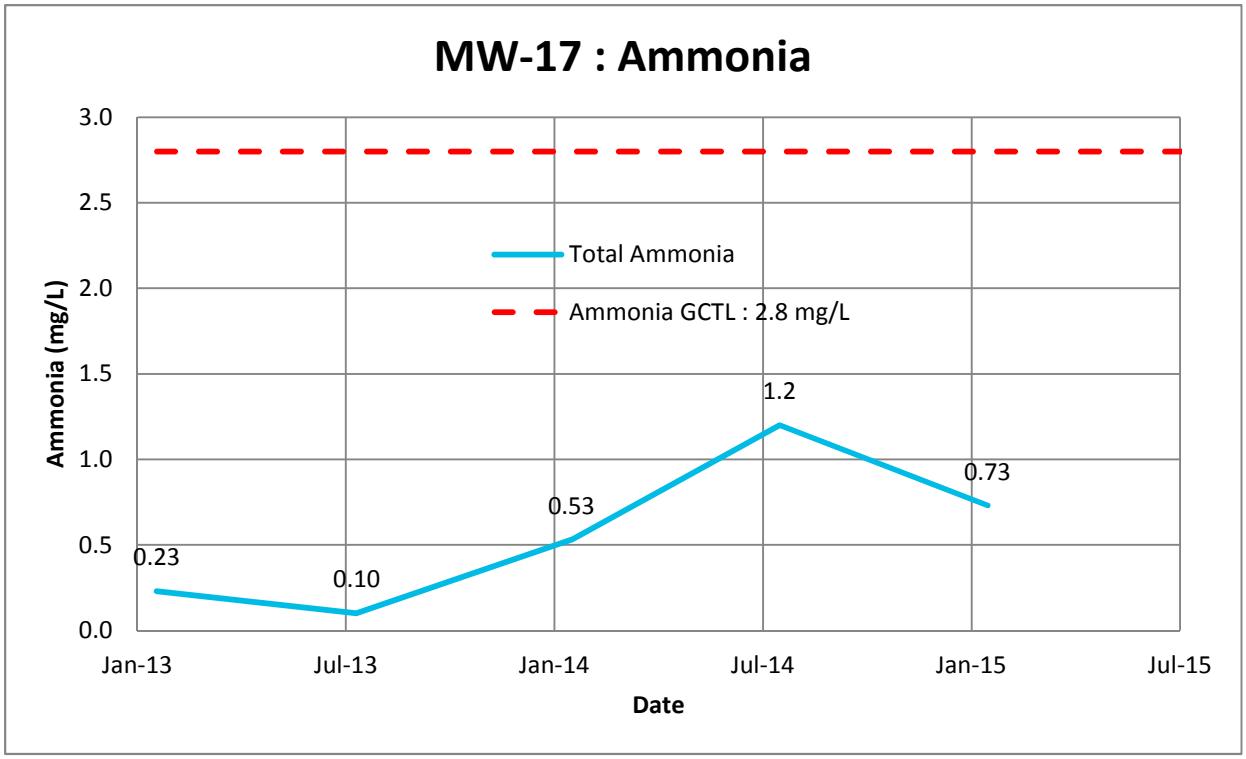
(U) Analyte not detected; value reported is the method detection limit

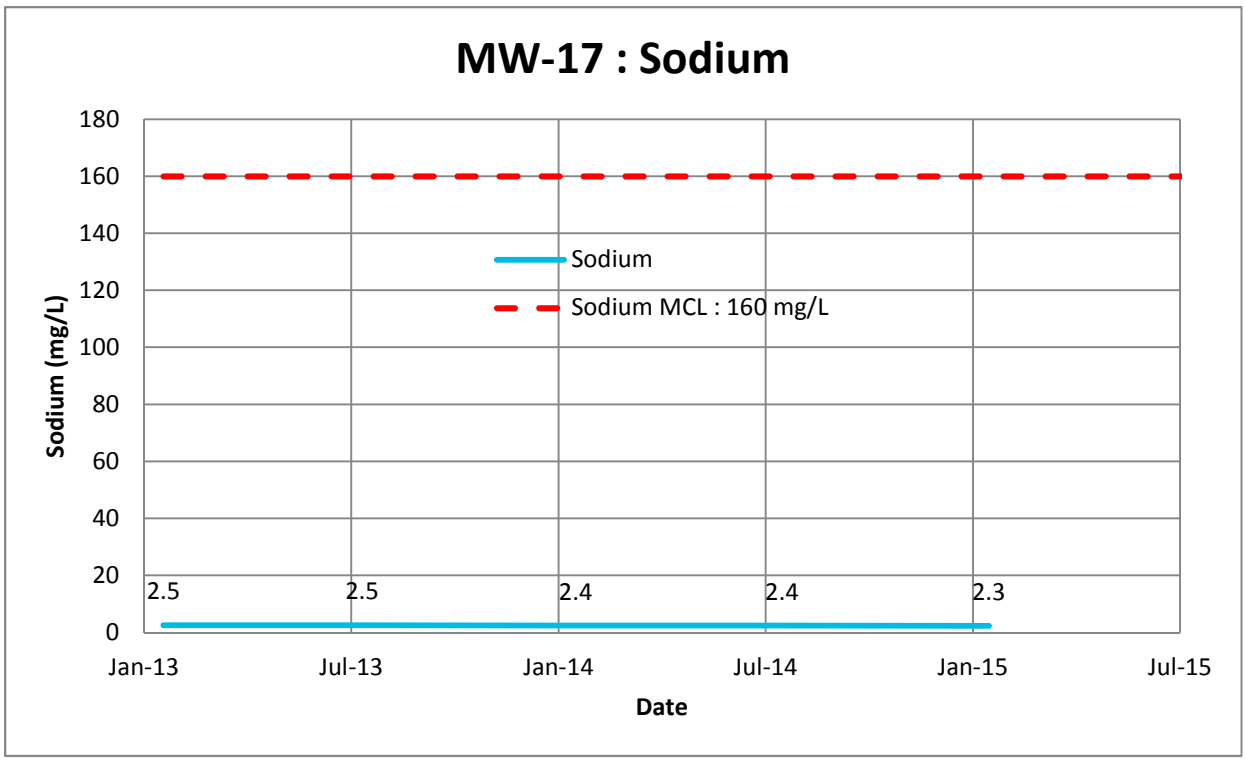




MCL - Maximum Contaminant Level per 62-550 F.A.C

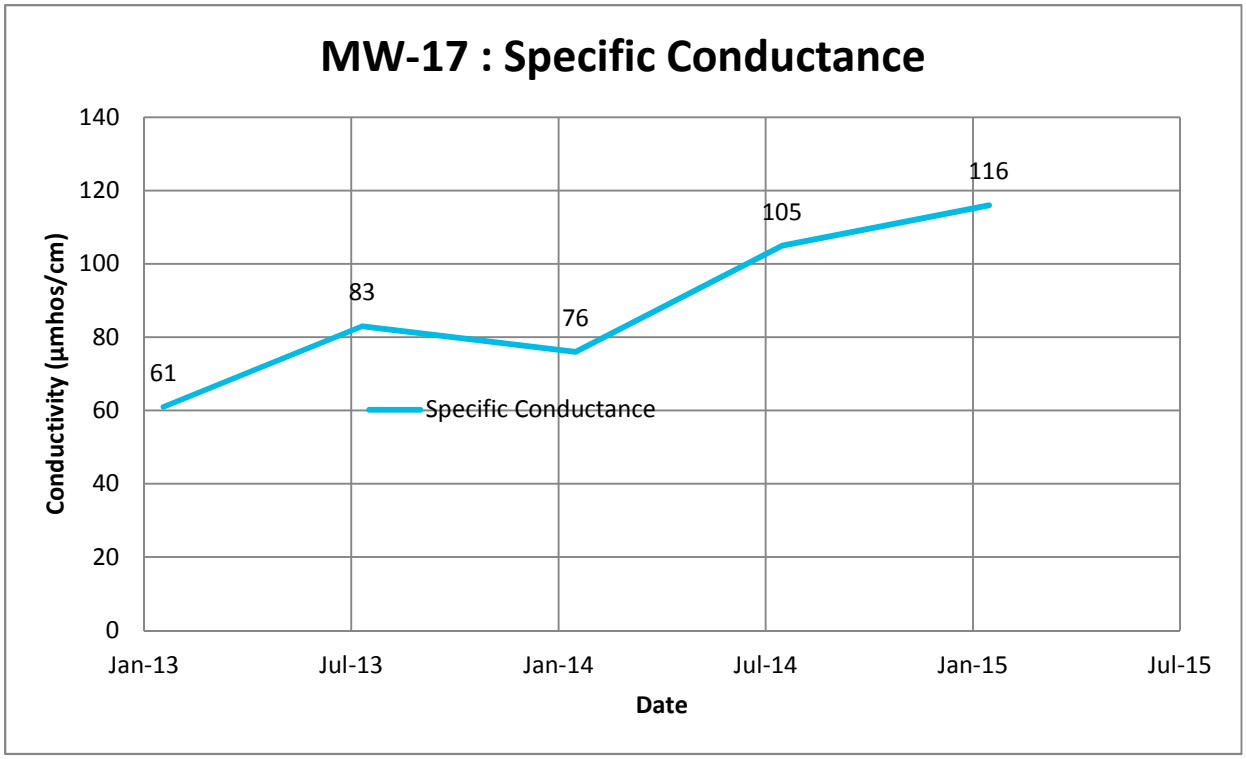
Based on data provided by TestAmerica Laboratories, Inc.

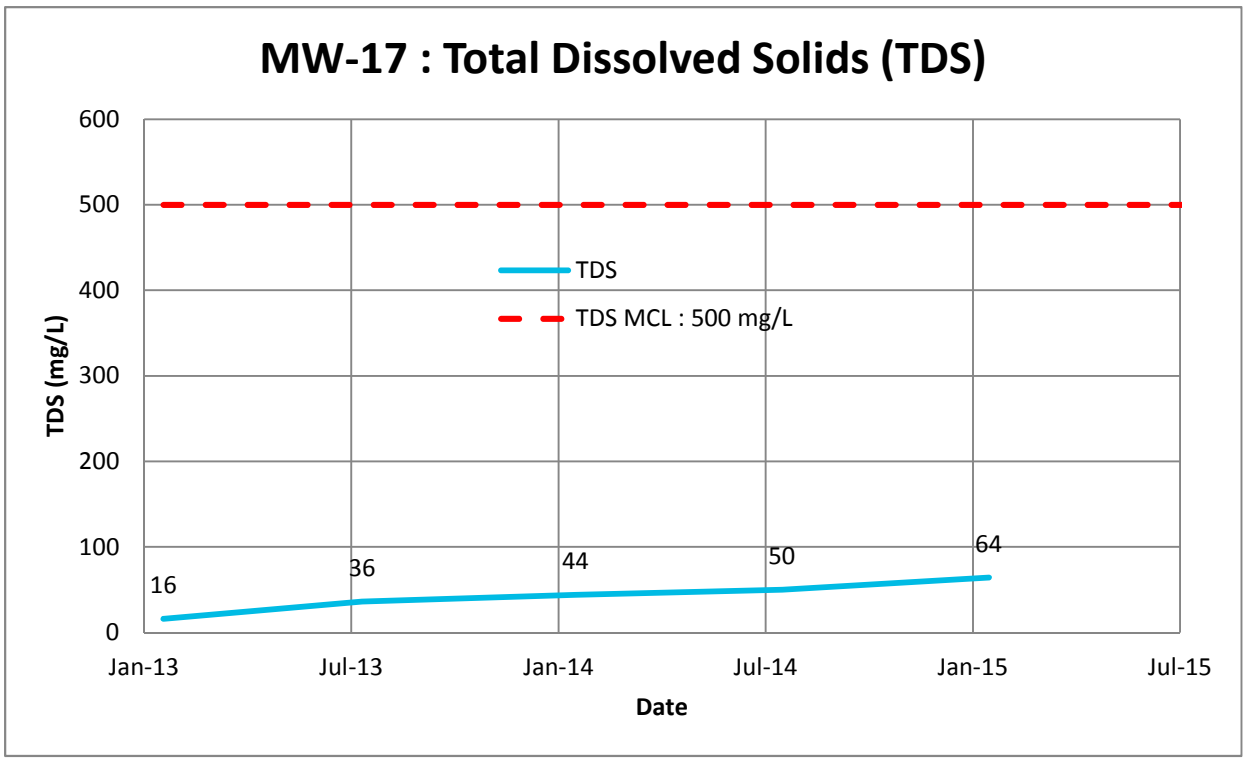




MCL - Maximum Contaminant Level per 62-550 F.A.C

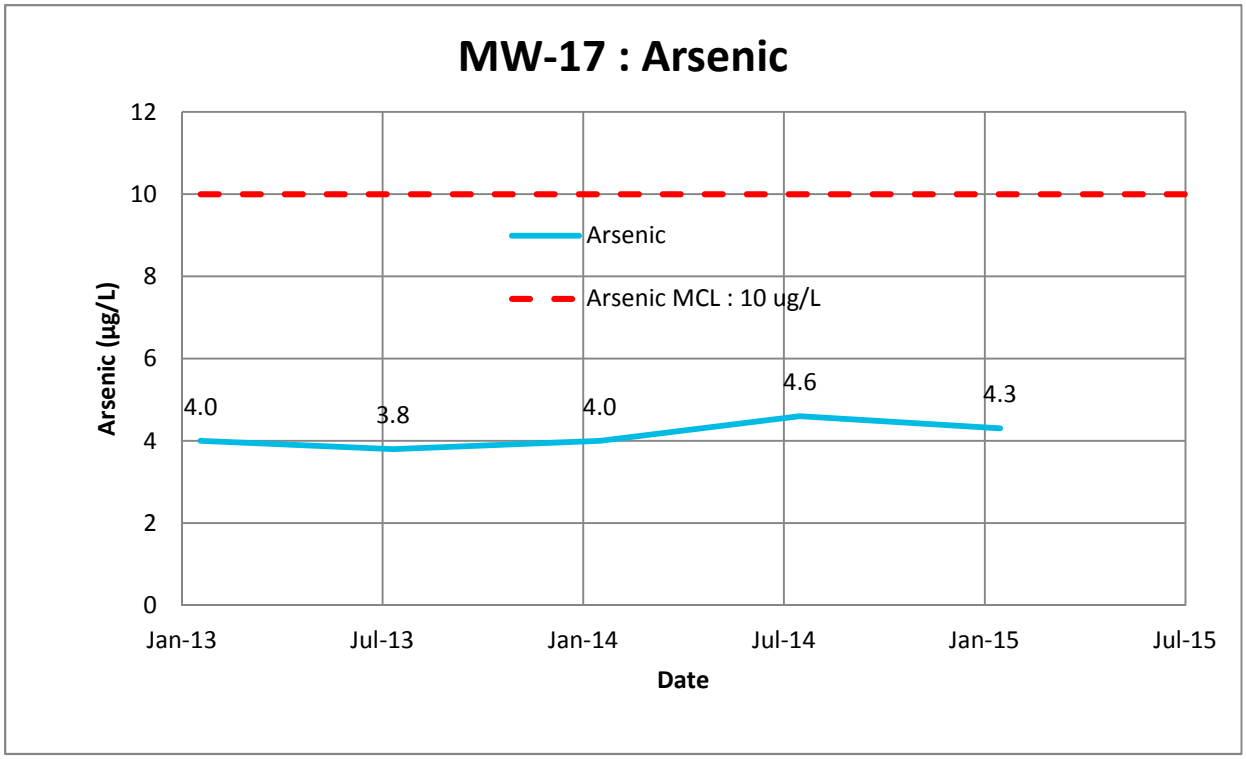
Based on data provided by TestAmerica Laboratories, Inc.

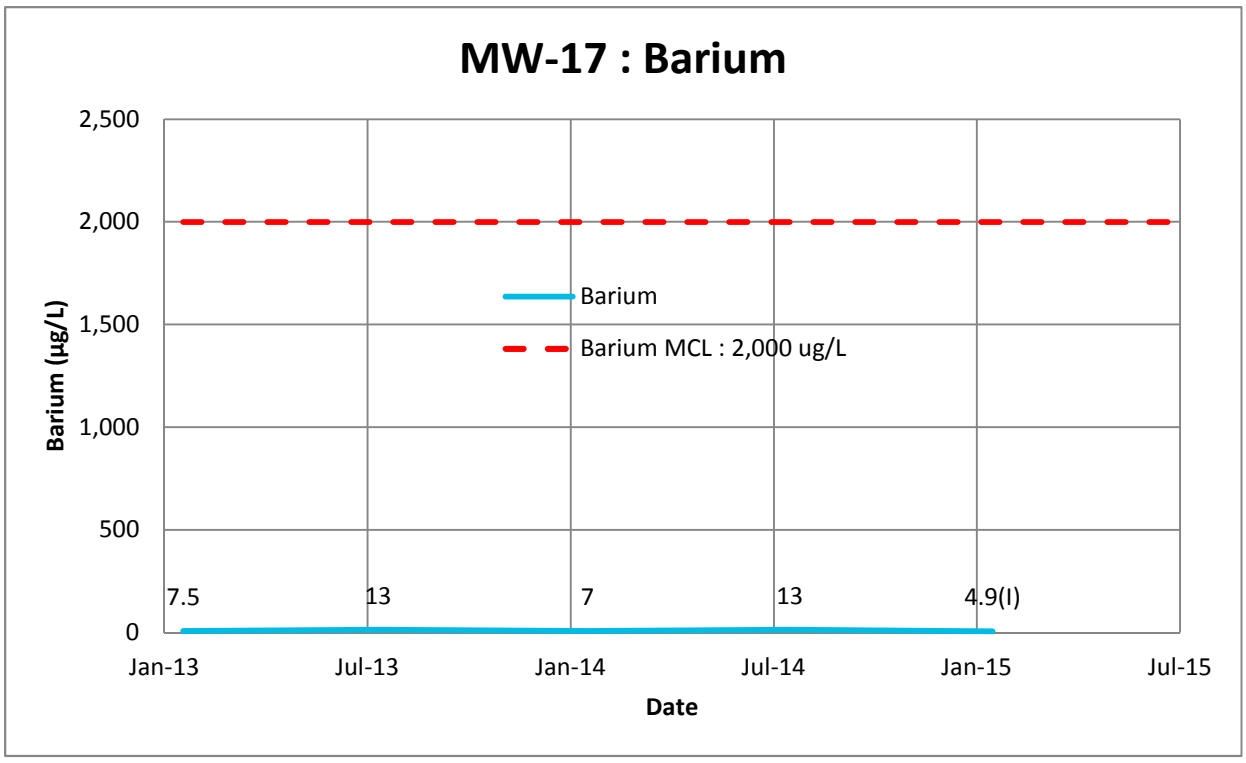




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

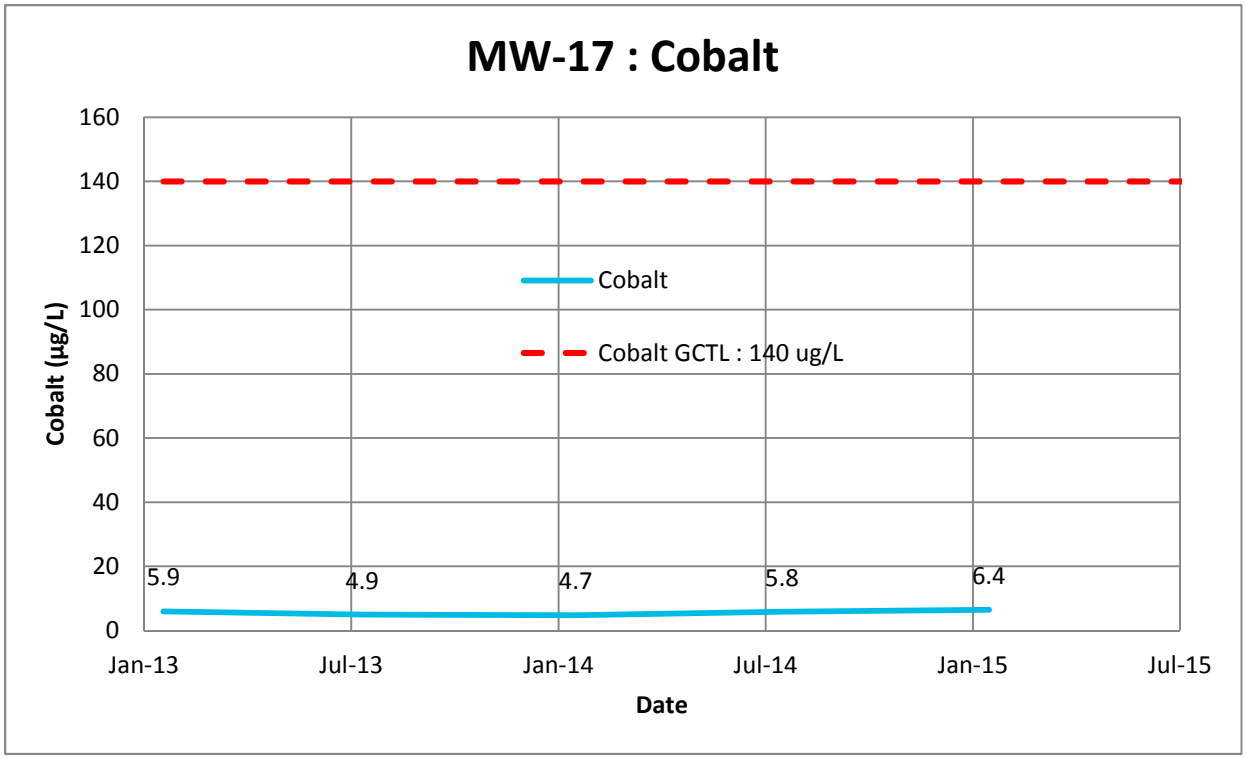


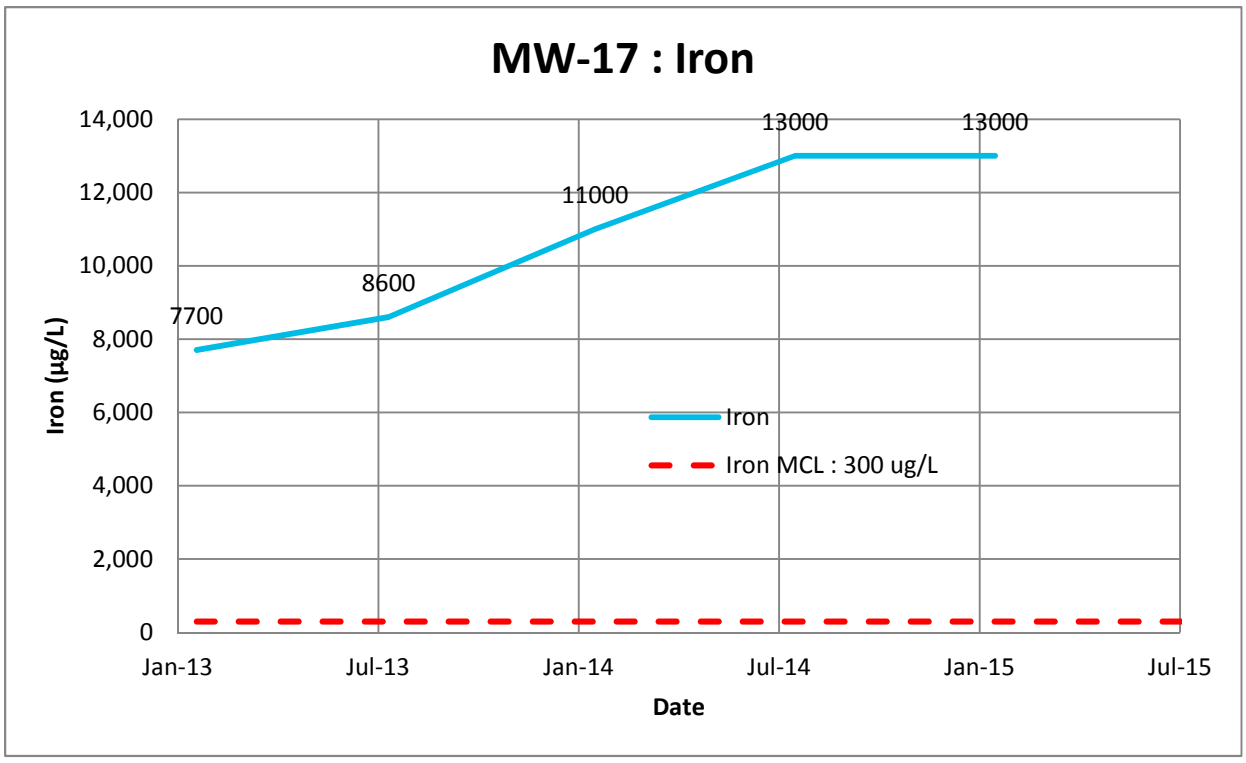


MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte detected below quantitation limit

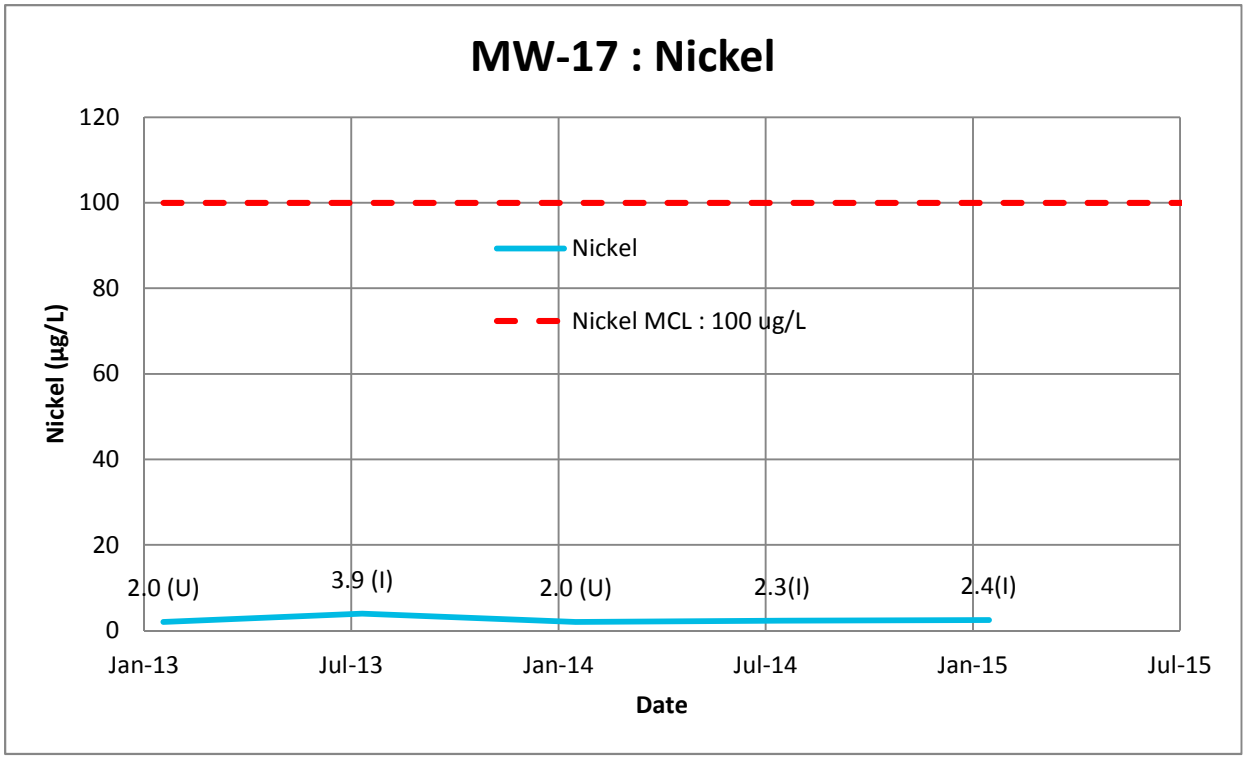
Based on data provided by TestAmerica Laboratories, Inc.

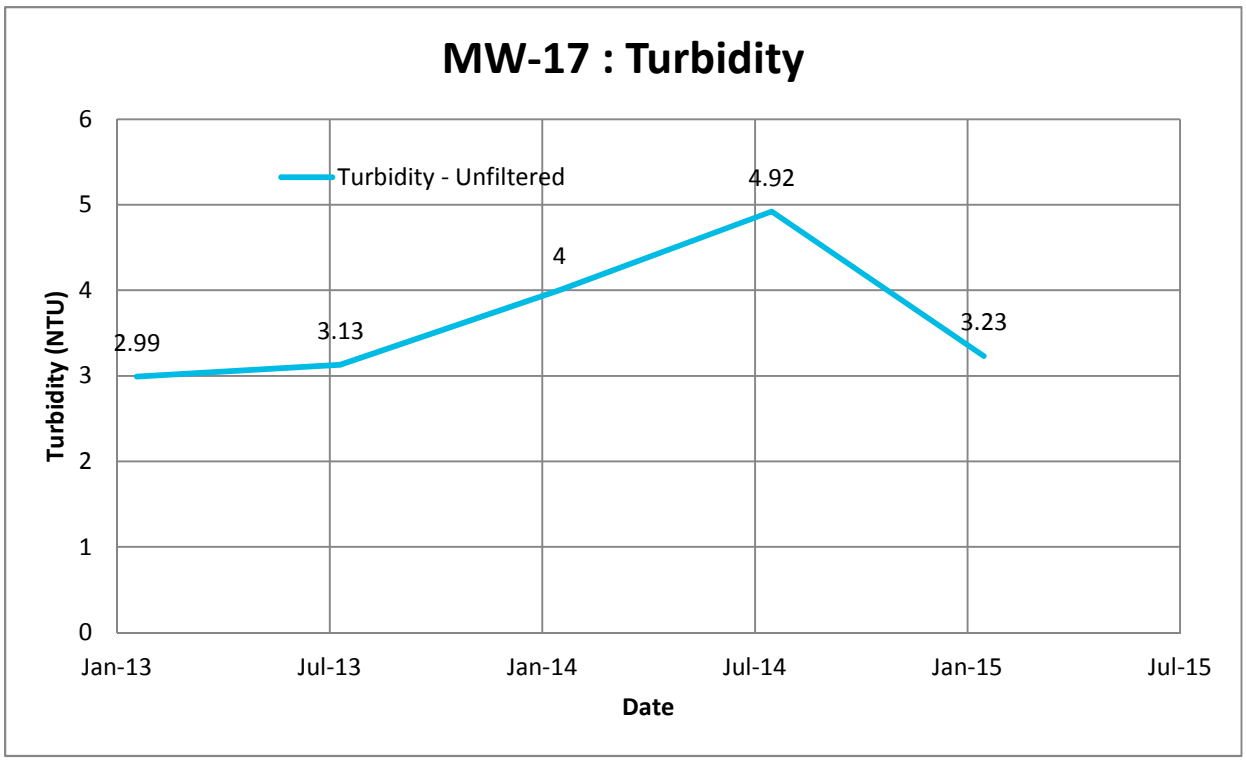




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.



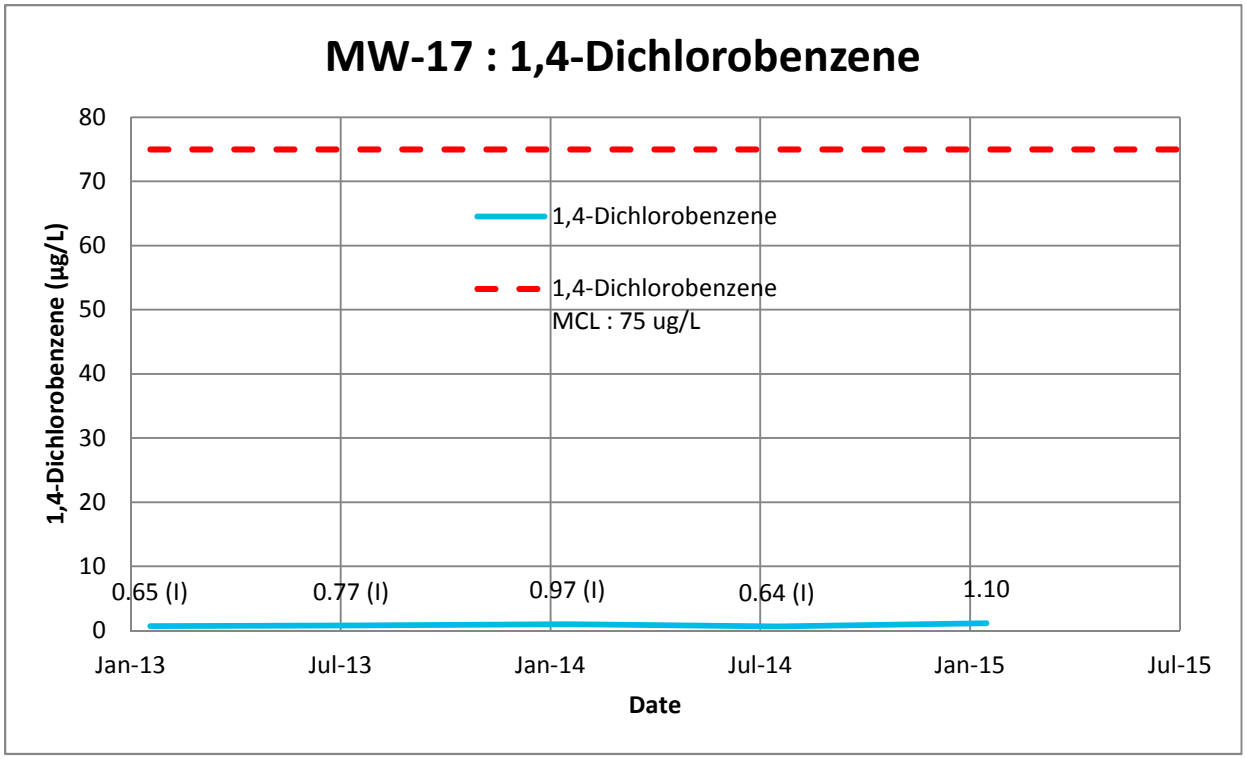


MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte concentration detected below quantitation limit

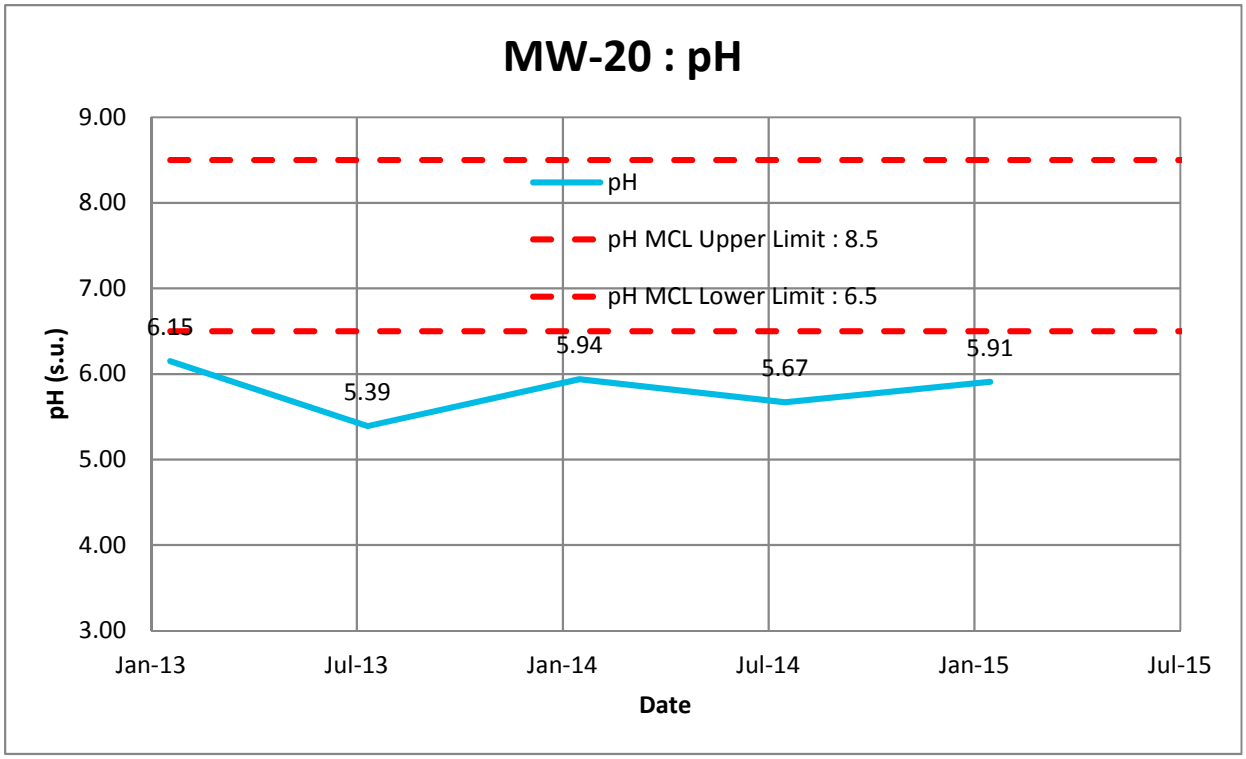
(U) Analyte not detected; value reported is the method detection limit

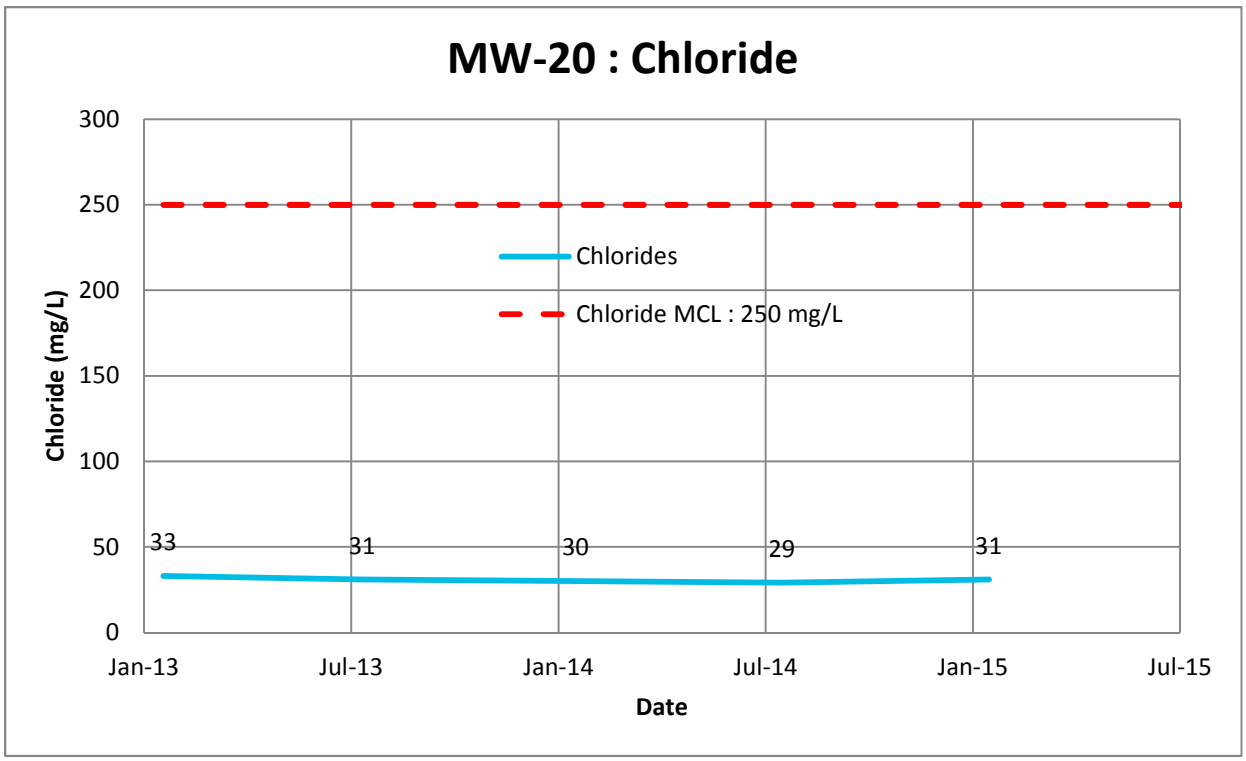


MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte detected below quantitation limit

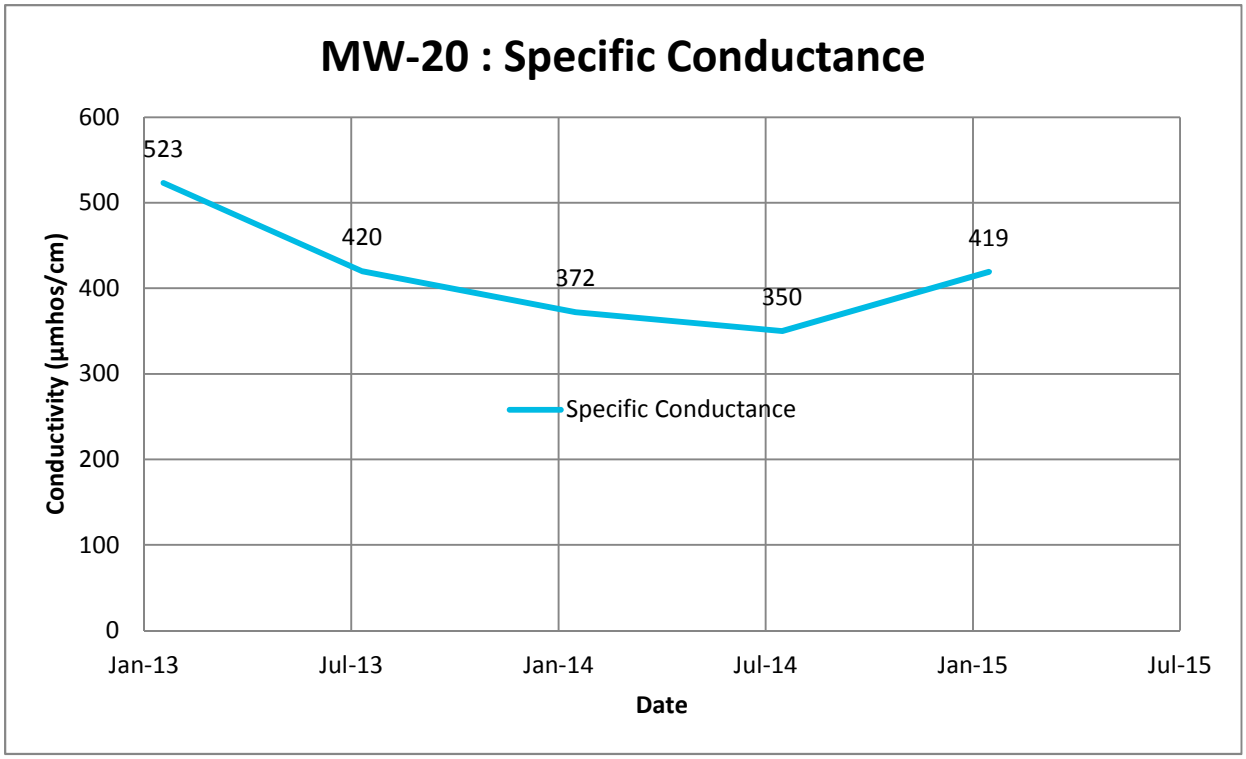
Based on data provided by TestAmerica Laboratories, Inc.

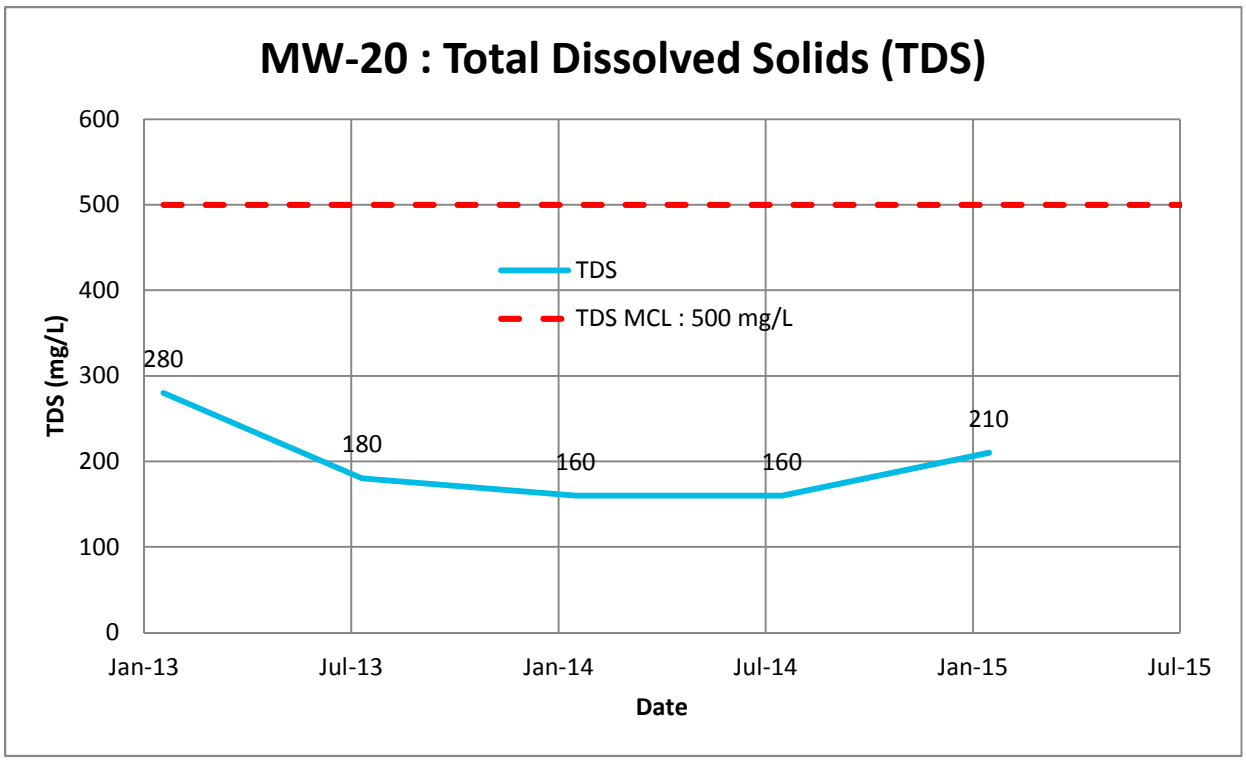




MCL - Maximum Contaminant Level per 62-550 F.A.C

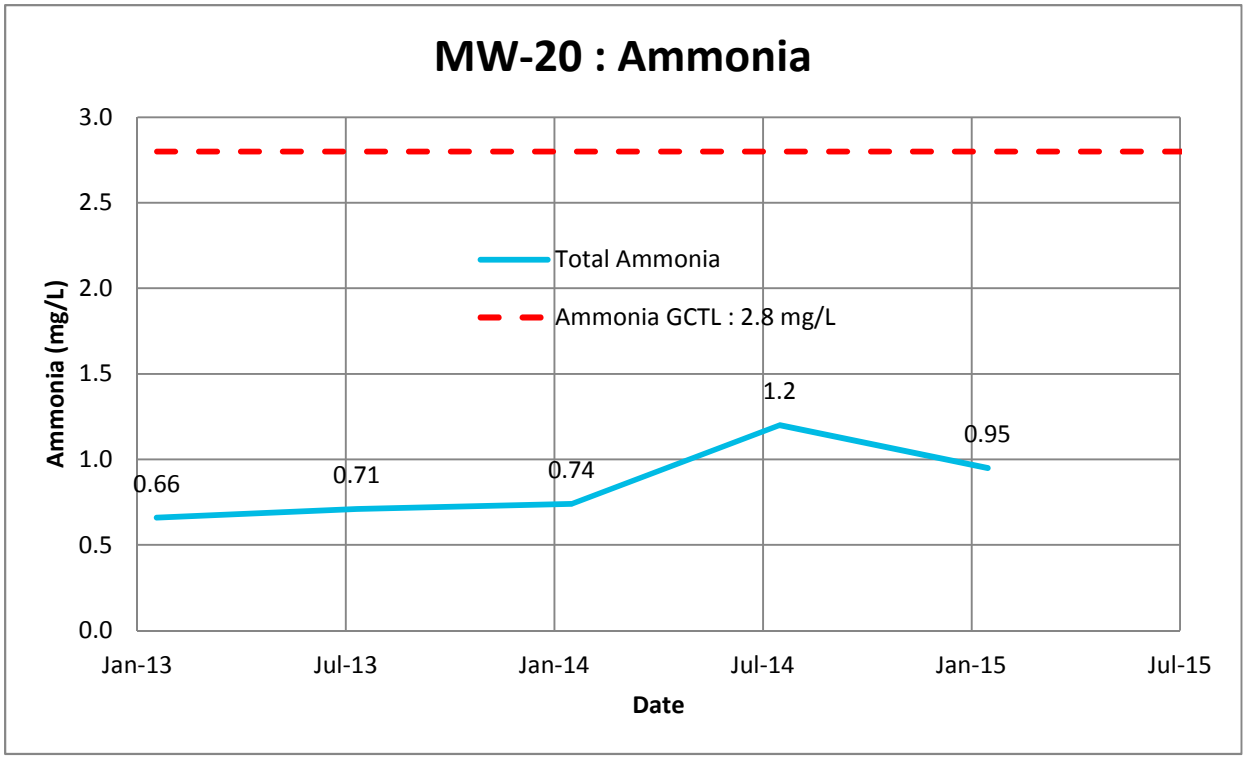
Based on data provided by TestAmerica Laboratories, Inc.

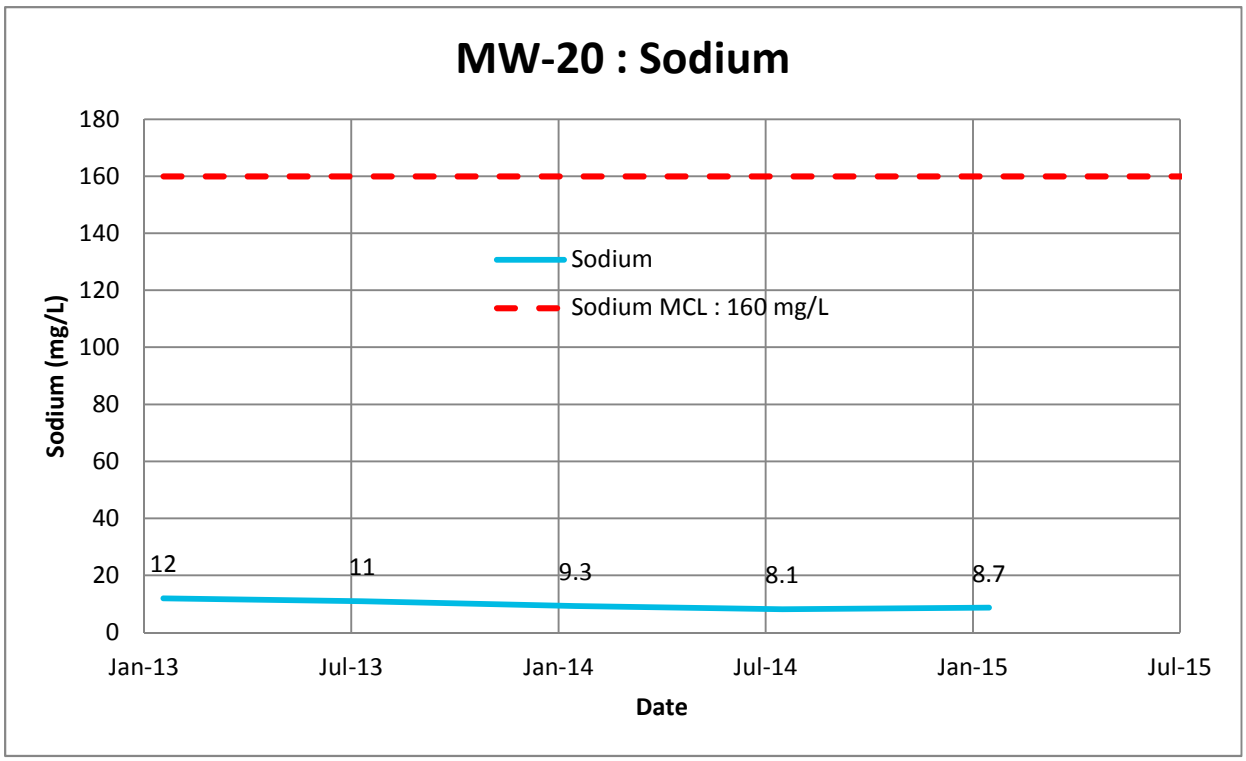




MCL - Maximum Contaminant Level per 62-550 F.A.C

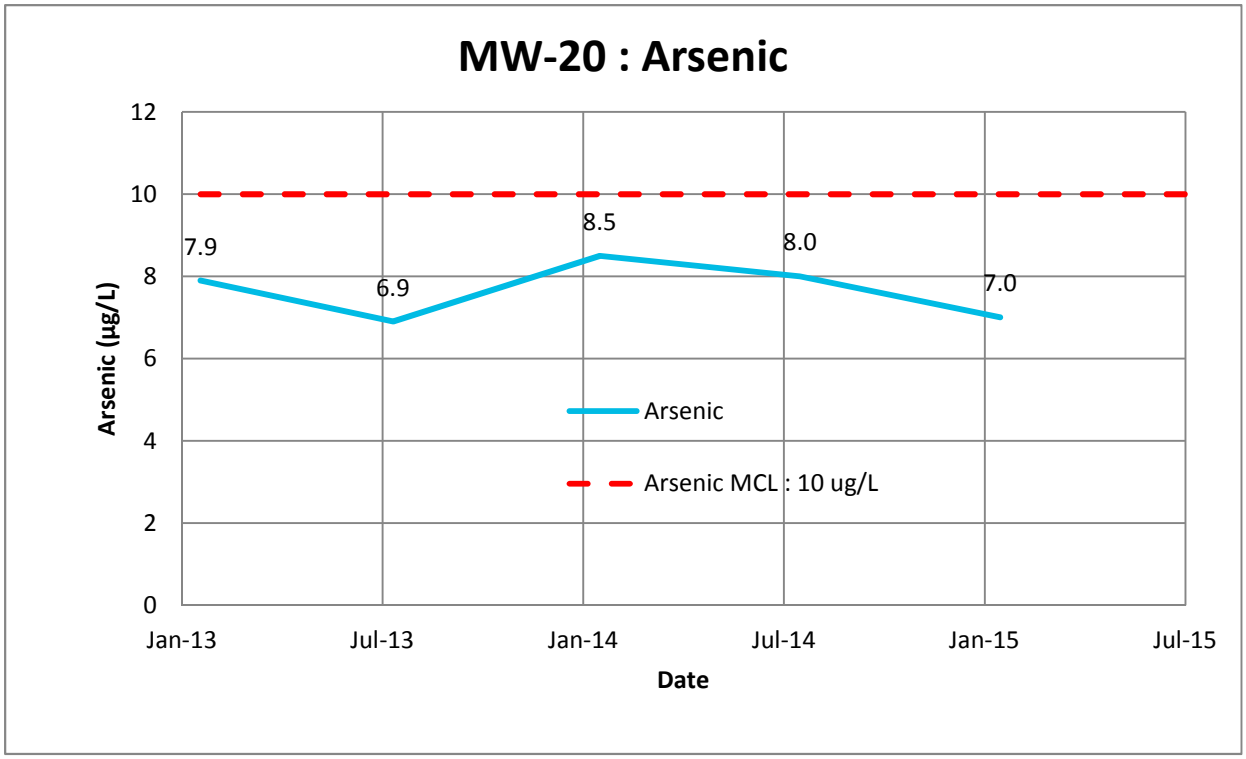
Based on data provided by TestAmerica Laboratories, Inc.

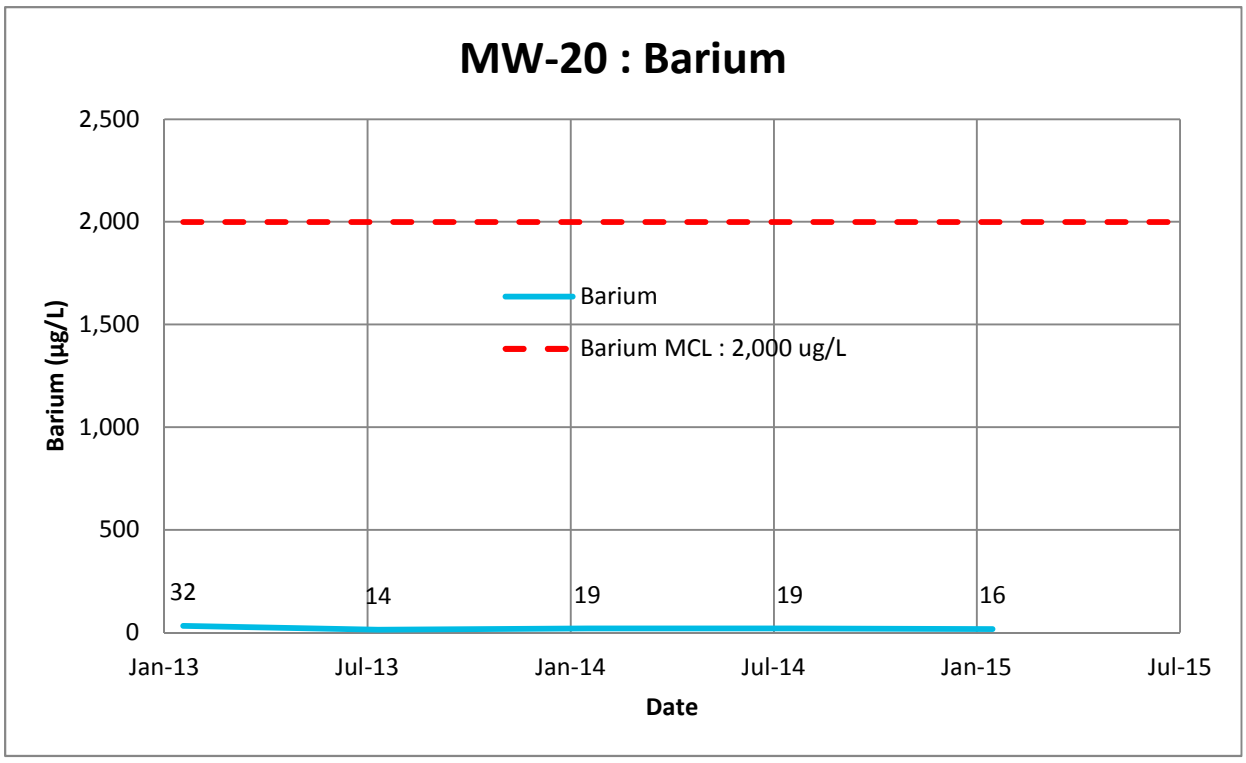




MCL - Maximum Contaminant Level per 62-550 F.A.C

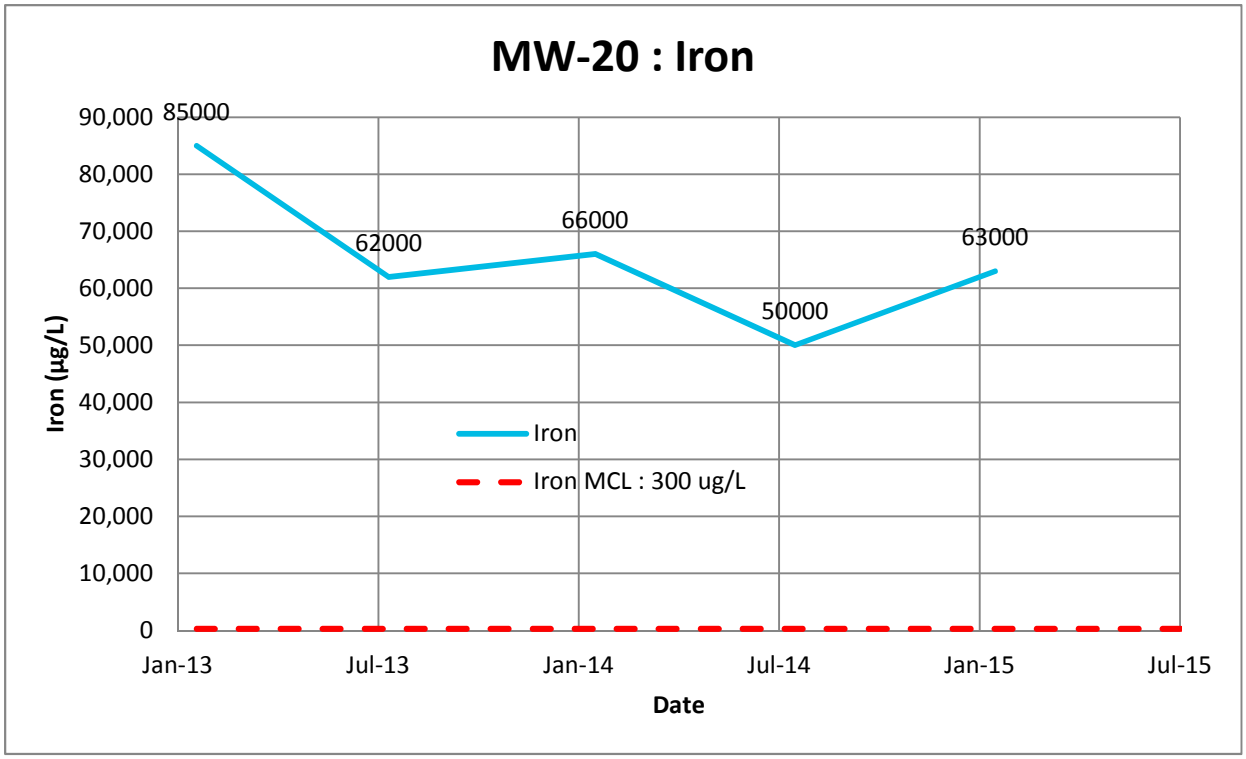
Based on data provided by TestAmerica Laboratories, Inc.

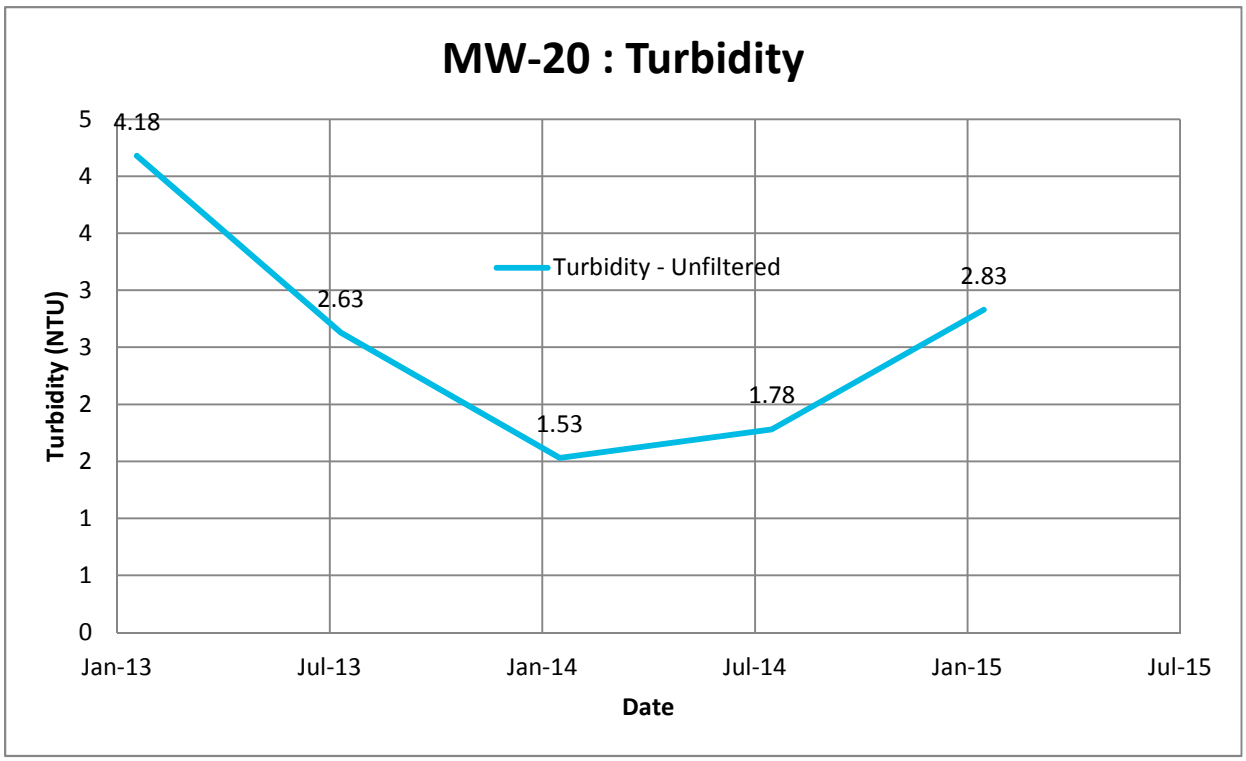




MCL - Maximum Contaminant Level per 62-550 F.A.C

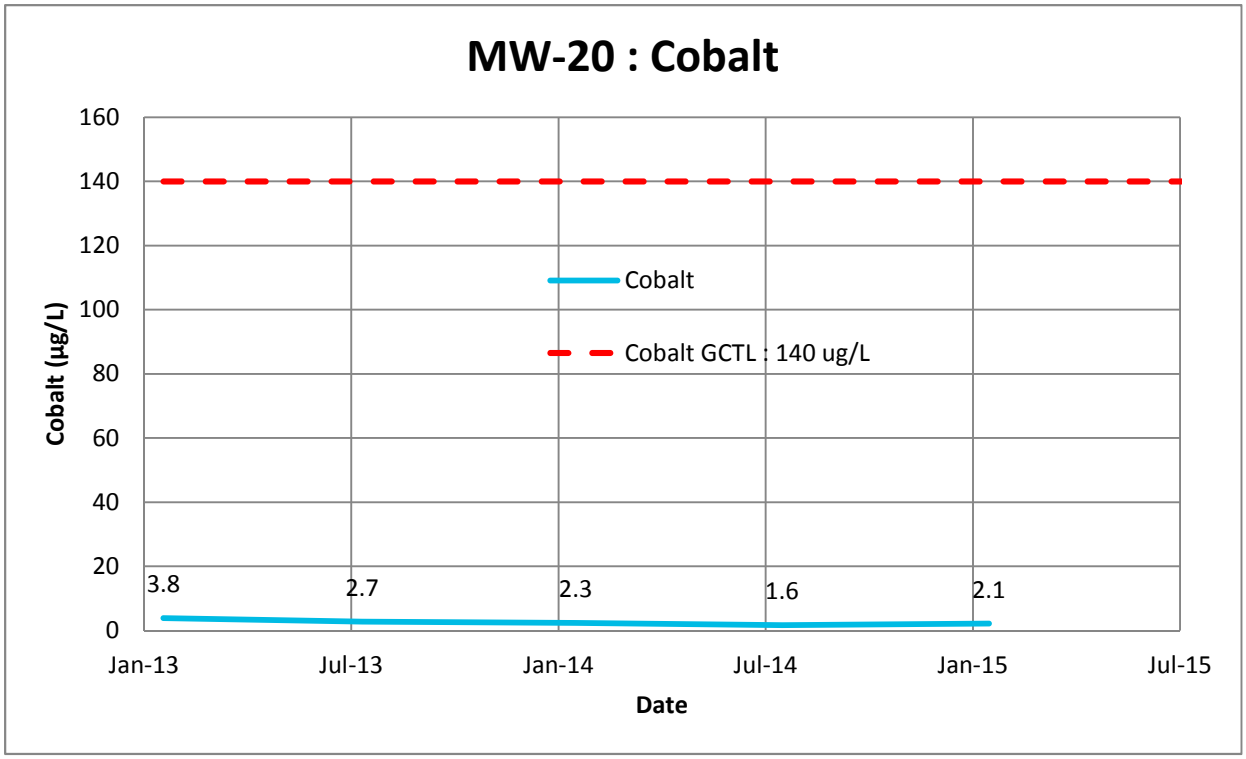
Based on data provided by TestAmerica Laboratories, Inc.





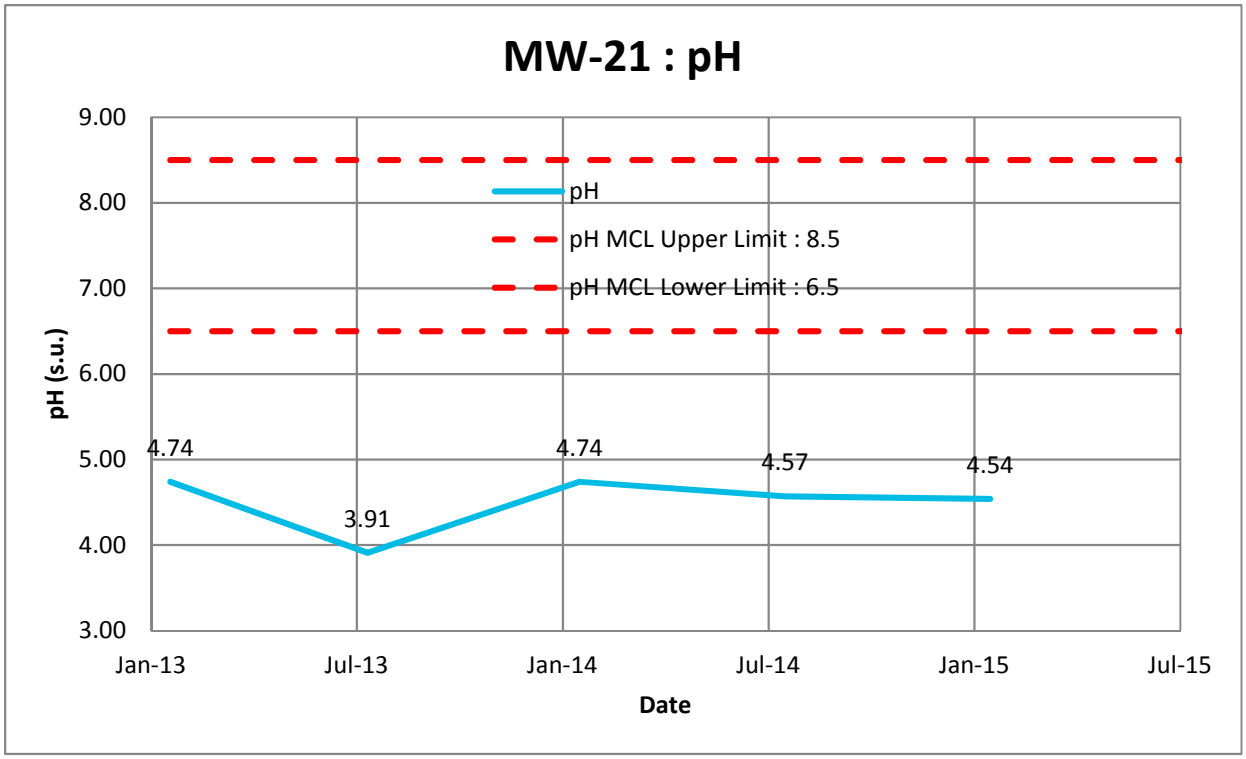
MCL - Maximum Contaminant Level per 62-550 F.A.C

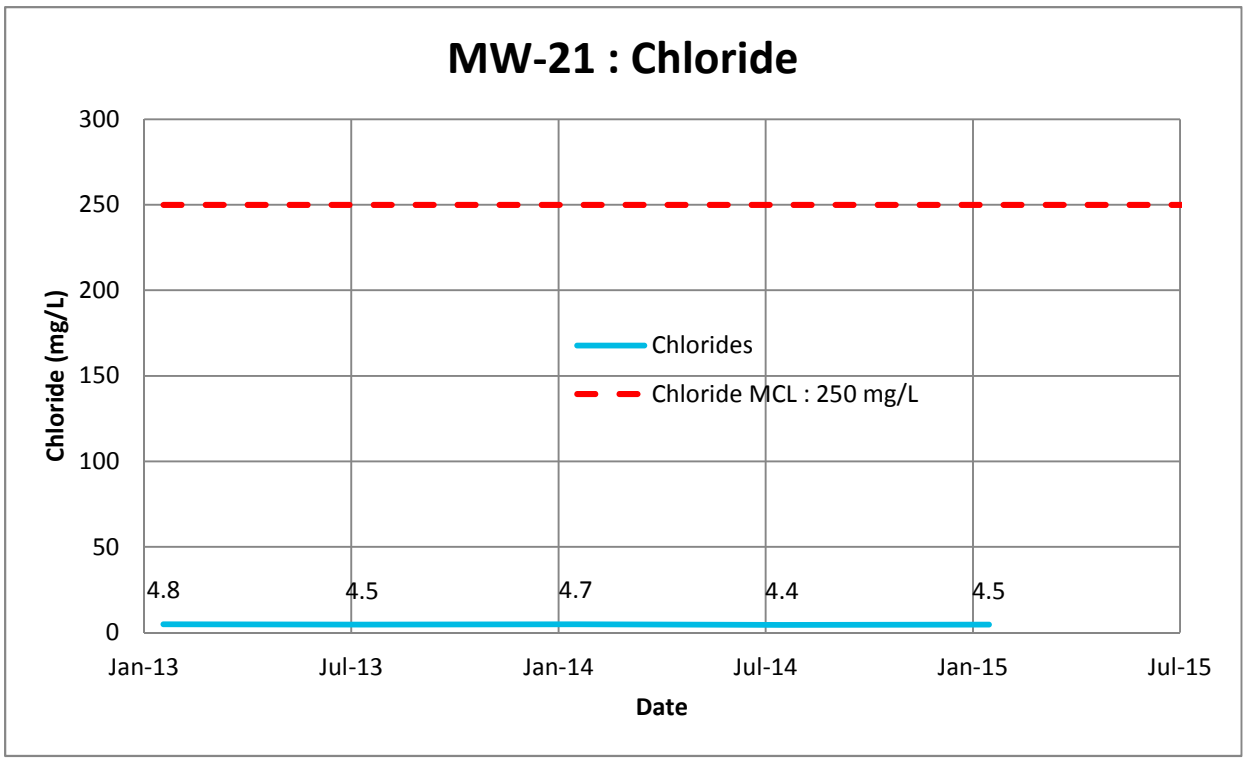
Based on data provided by TestAmerica Laboratories, Inc.



GCTL - Groundwater Clean Up Target Level per 62-777 F.A.C.

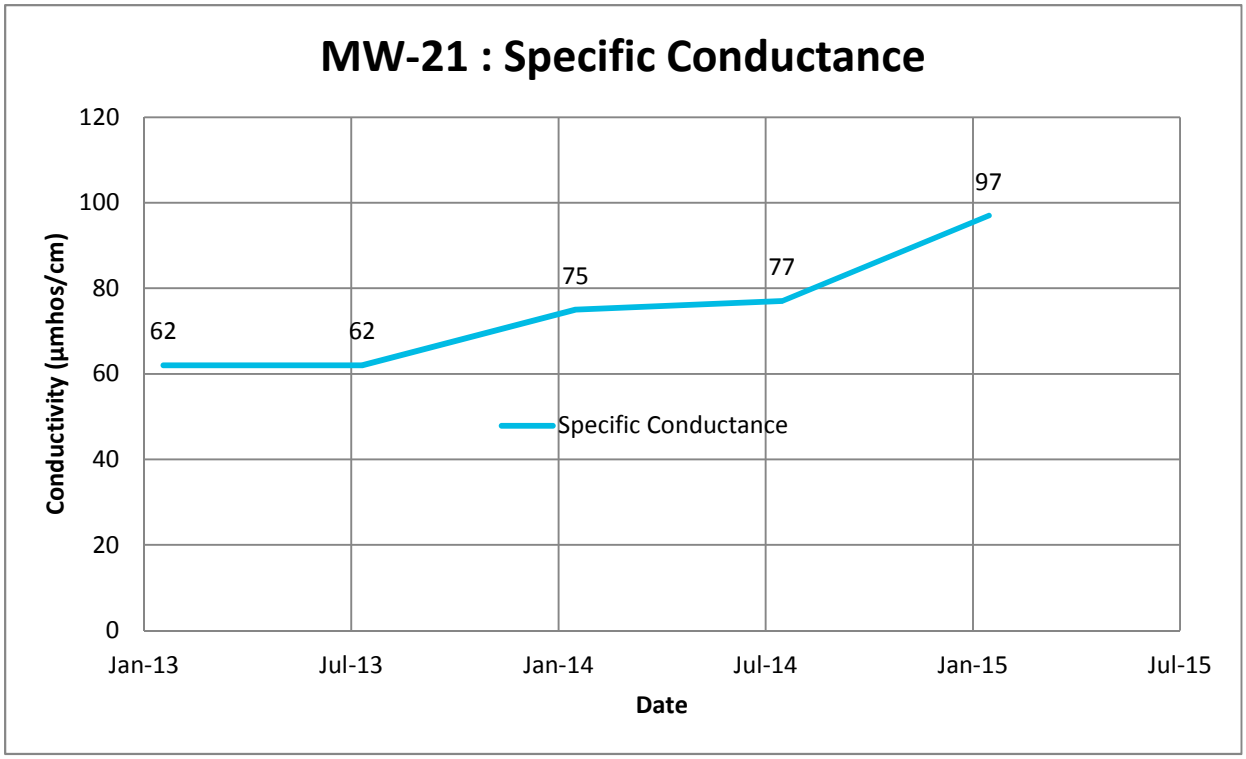
Based on data provided by TestAmerica Laboratories, Inc.

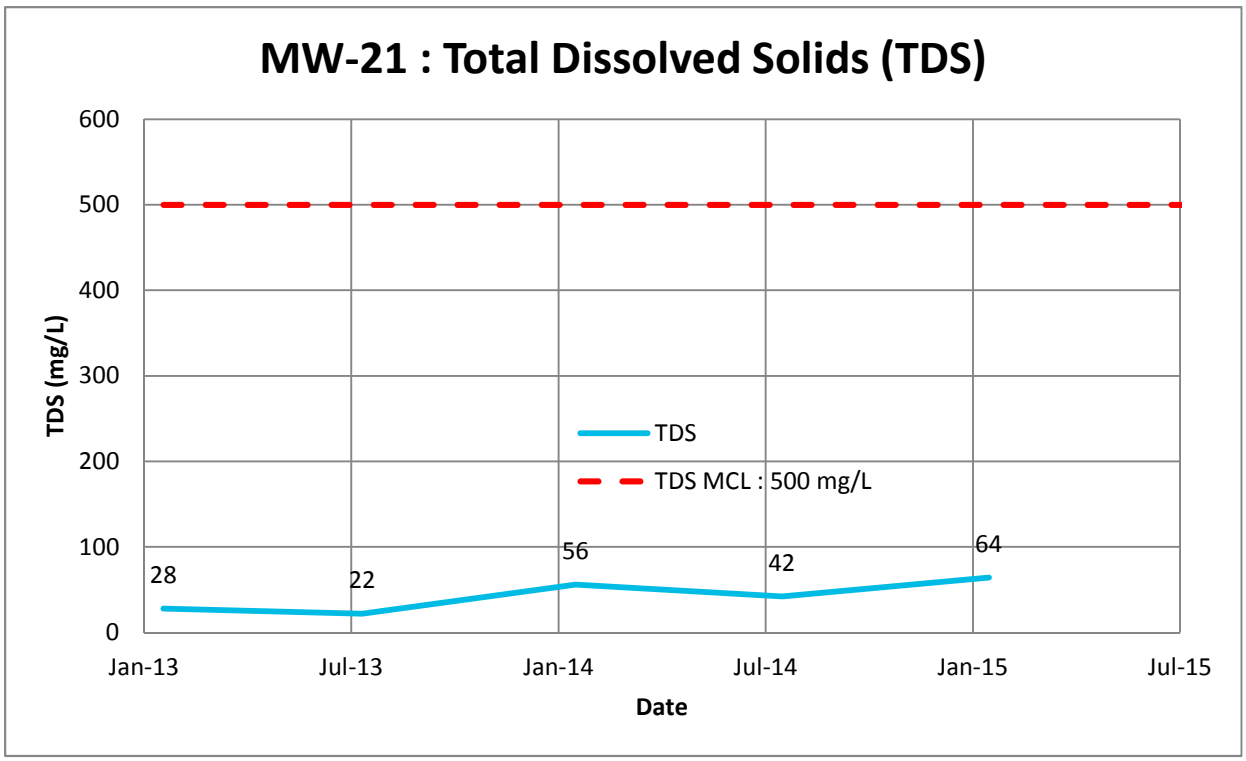




MCL - Maximum Contaminant Level per 62-550 F.A.C

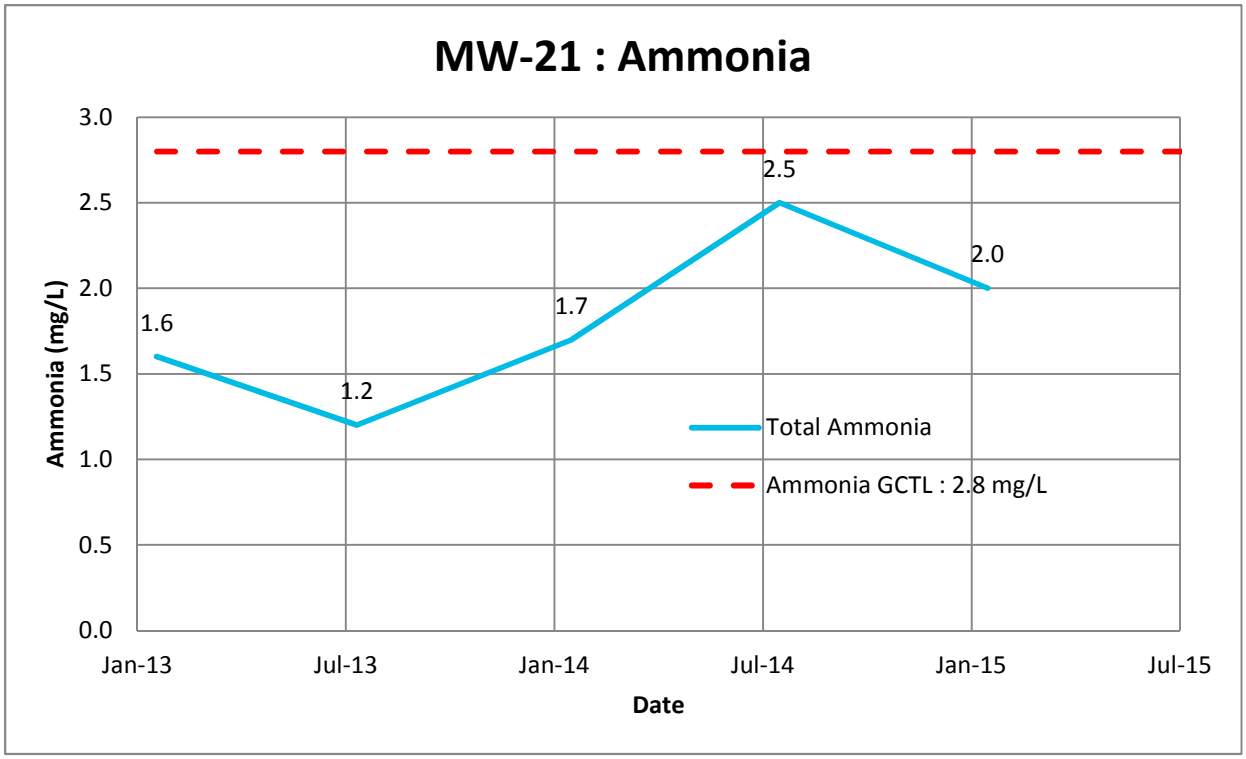
Based on data provided by TestAmerica Laboratories, Inc.

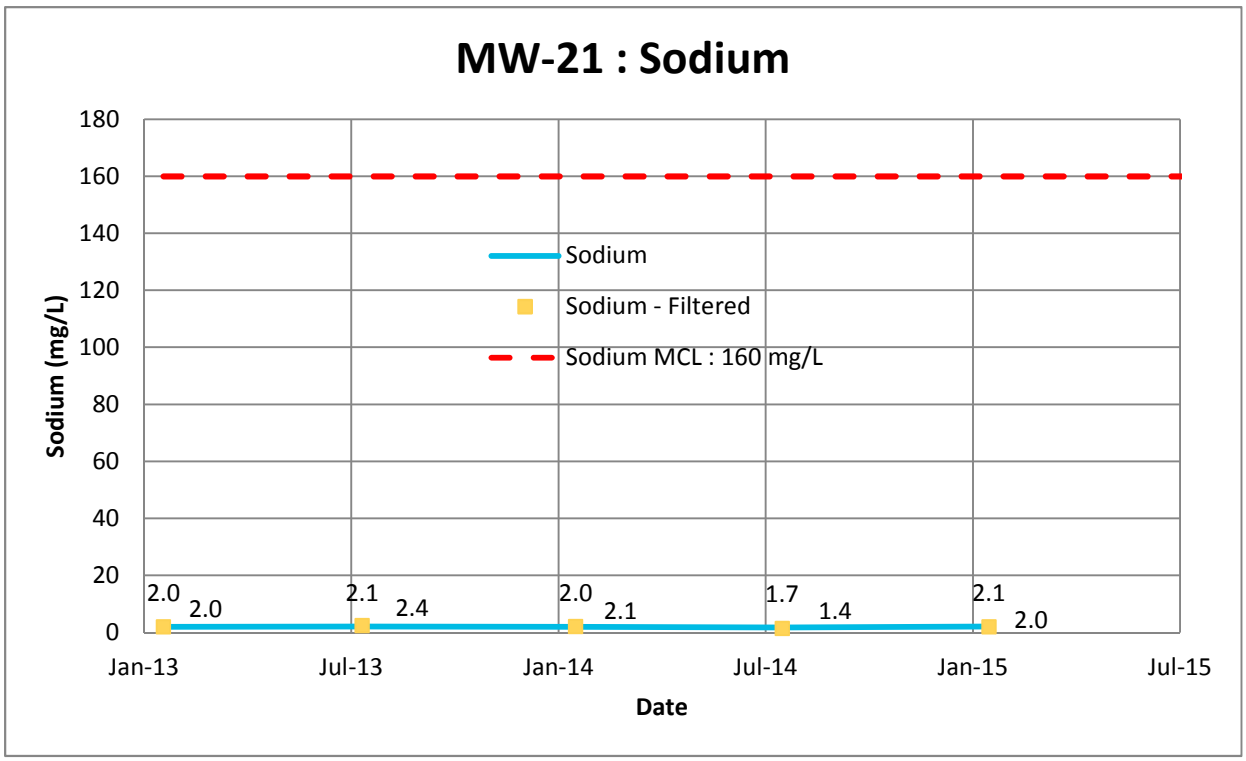




MCL - Maximum Contaminant Level per 62-550 F.A.C

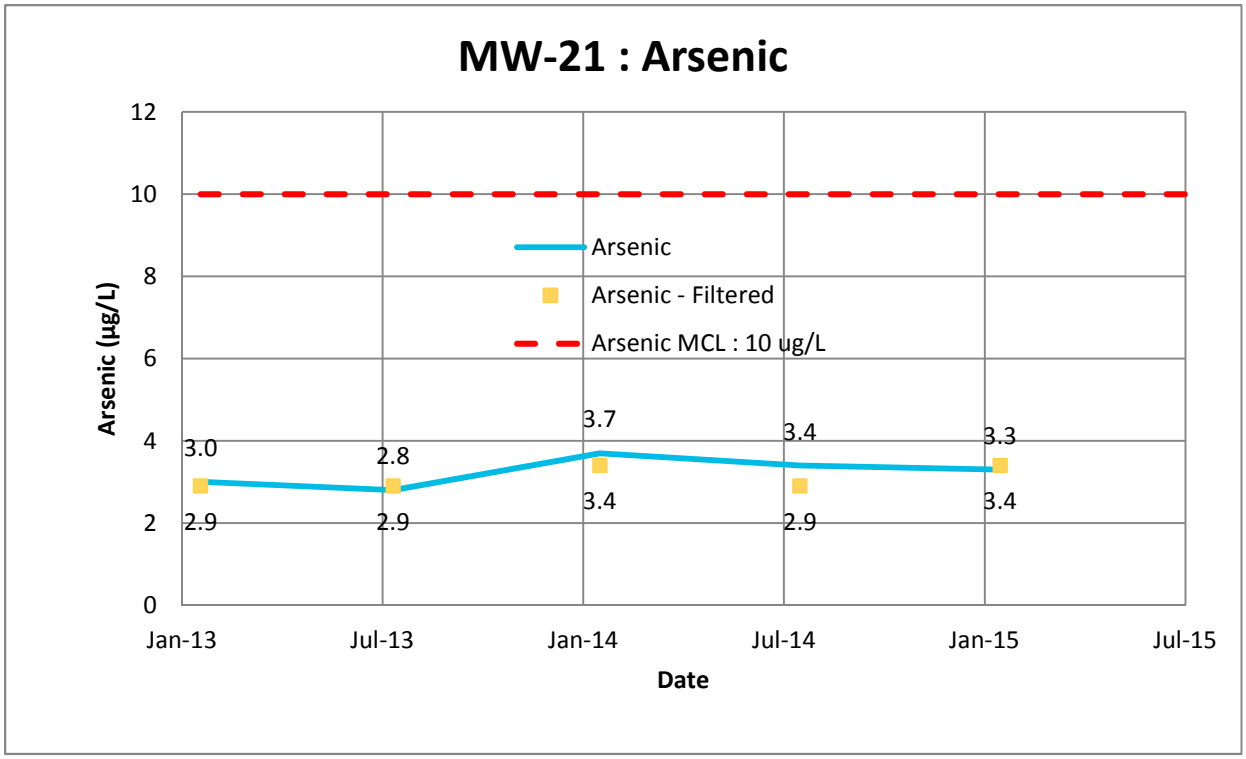
Based on data provided by TestAmerica Laboratories, Inc.

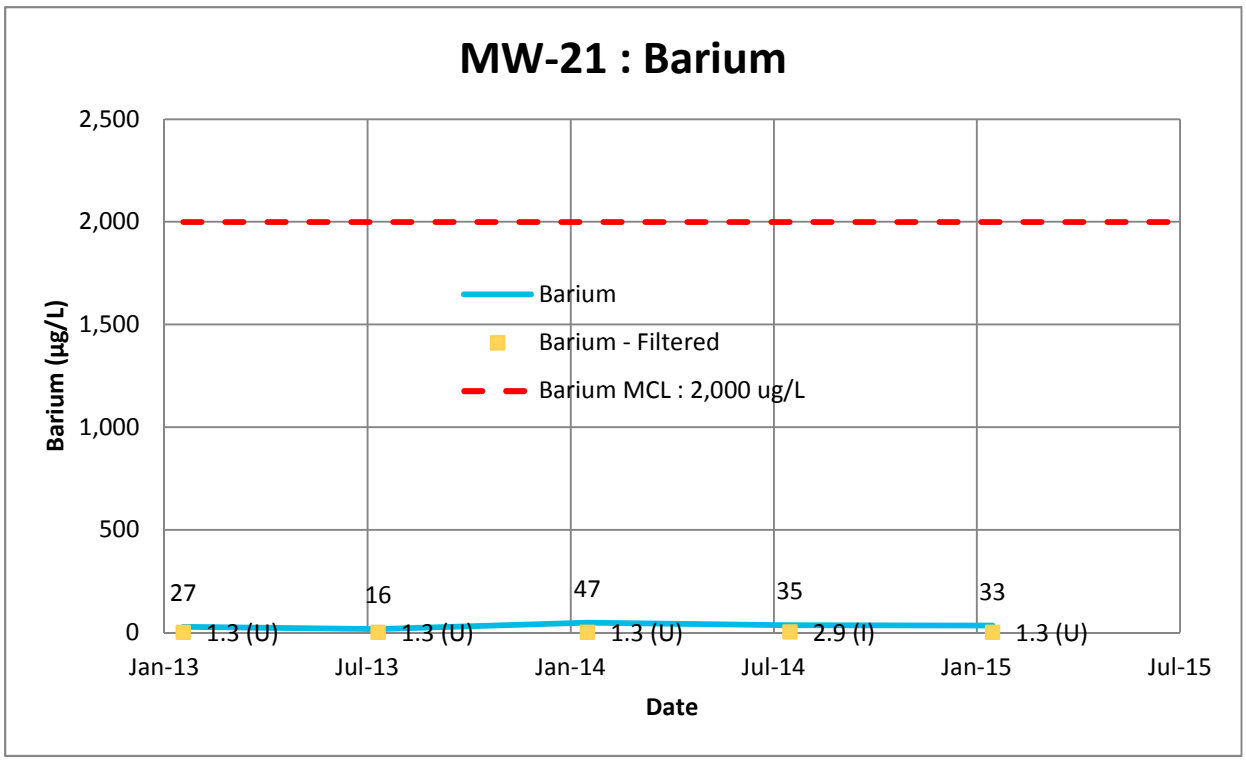




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.



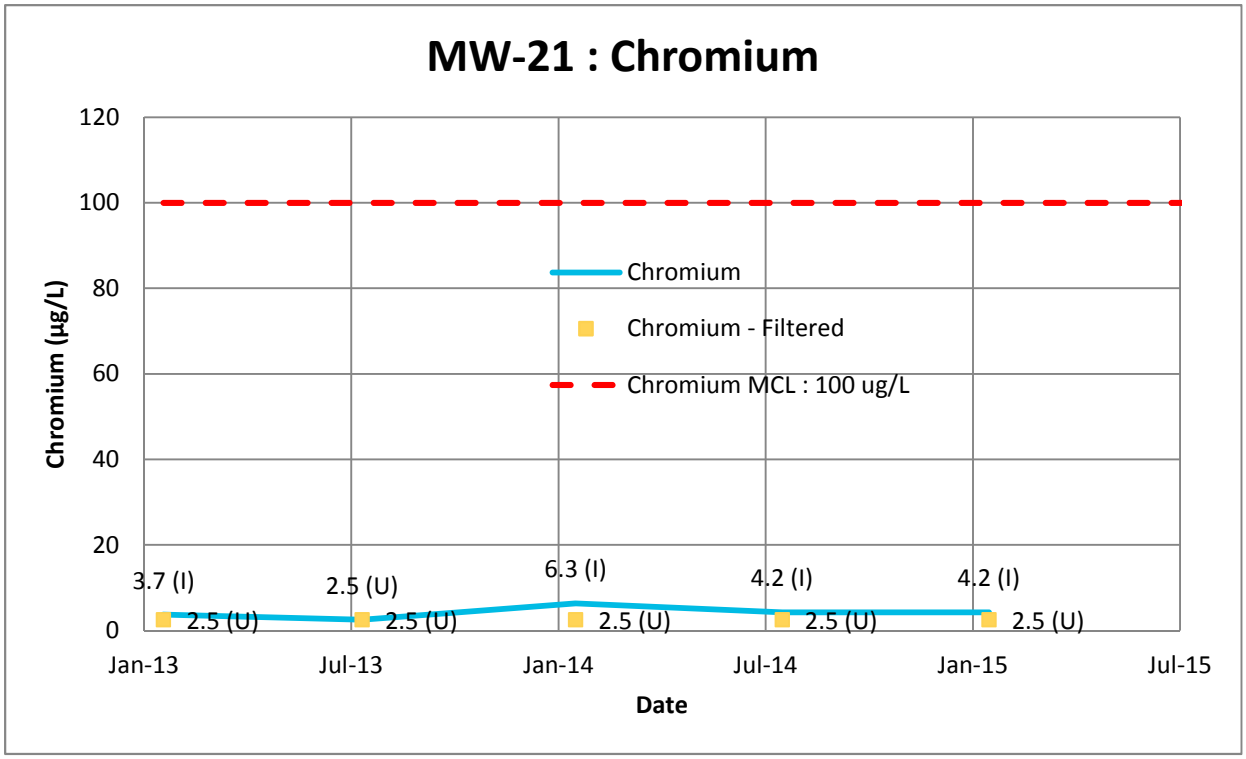


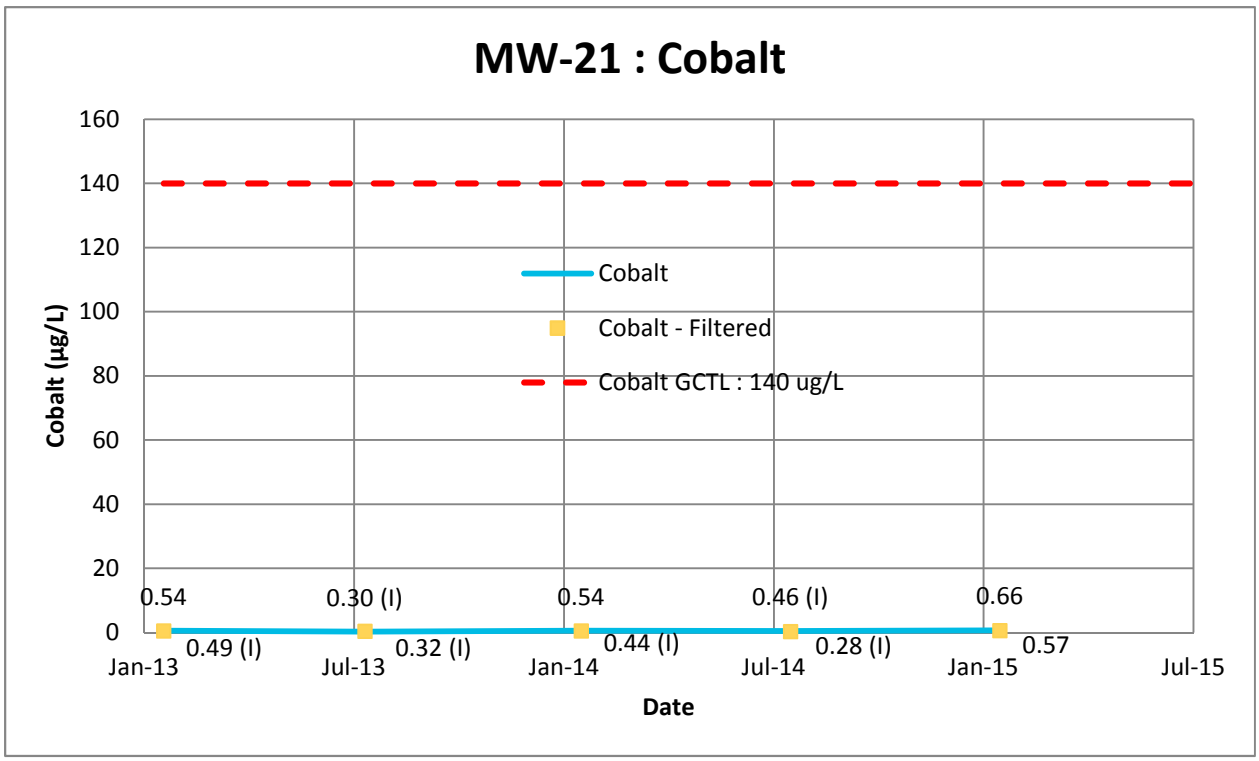
MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte concentration detected below quantitation limit

(U) Analyte not detected; value reported is the method detection limit



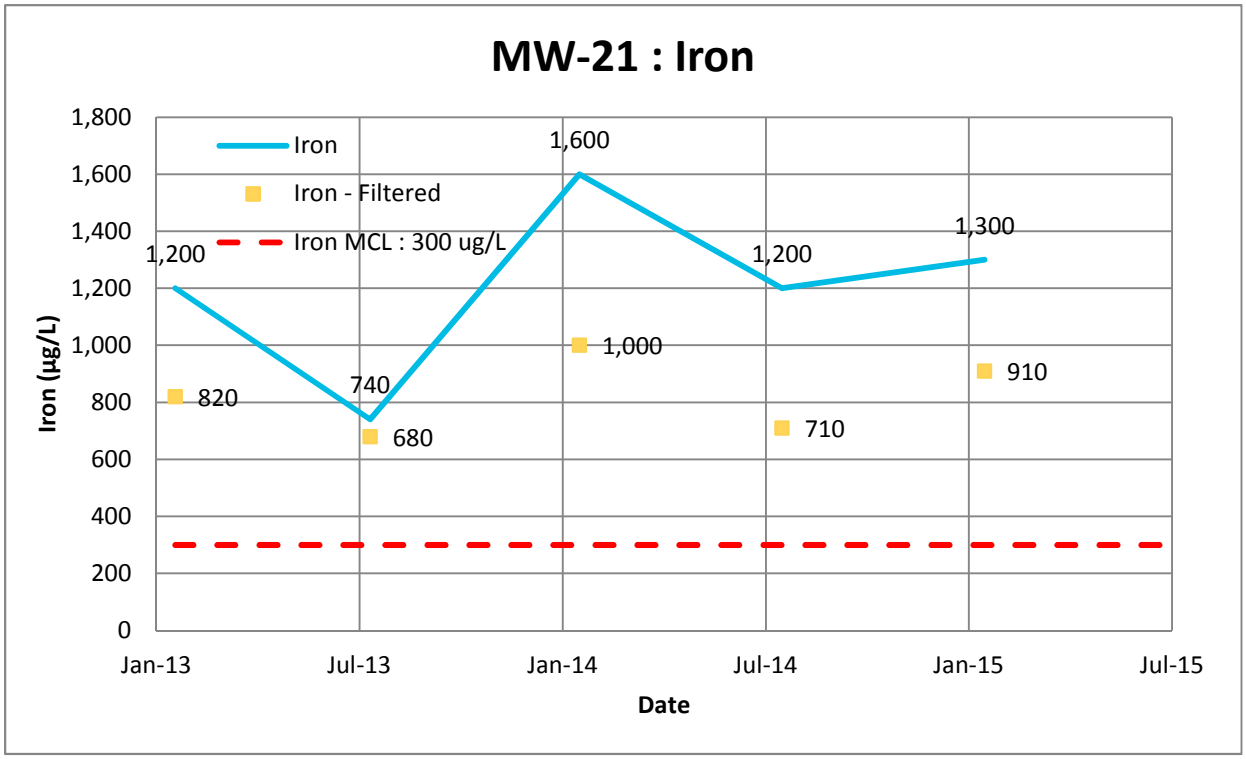


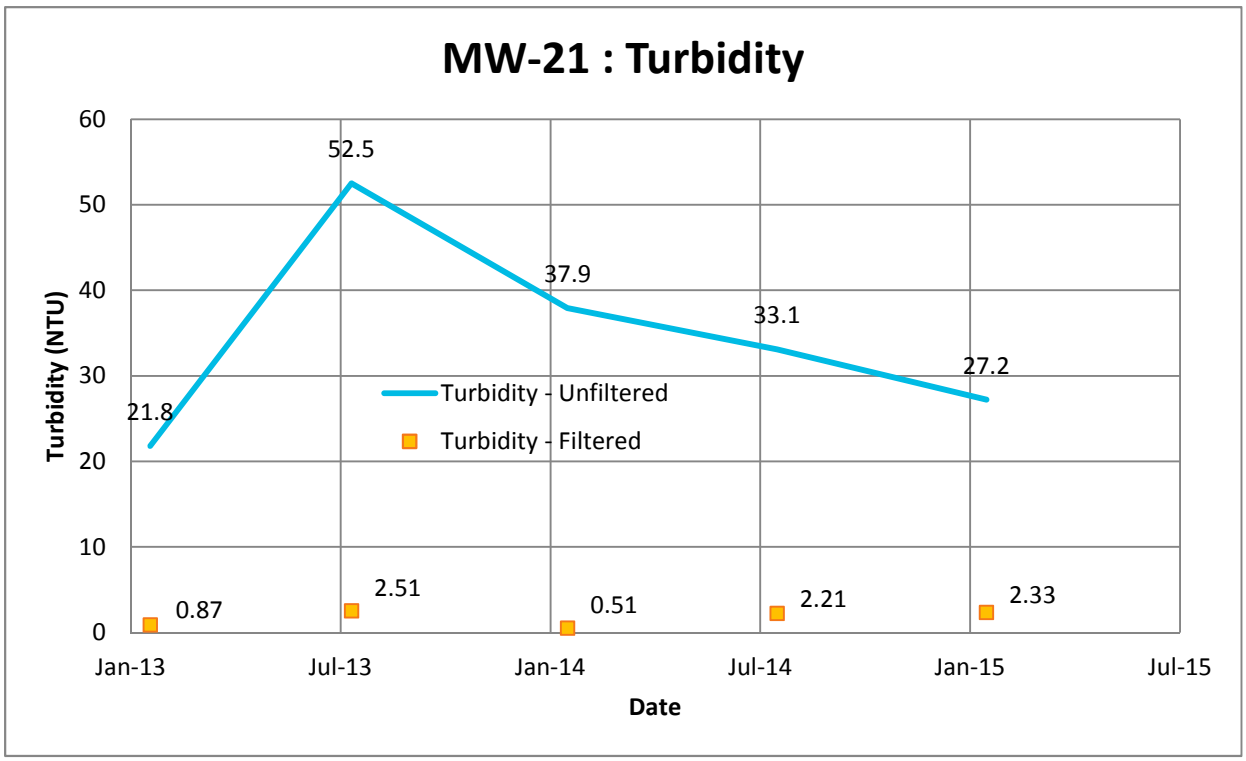
MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte concentration detected below quantitation limit

(U) Analyte not detected; value reported is the method detection limit



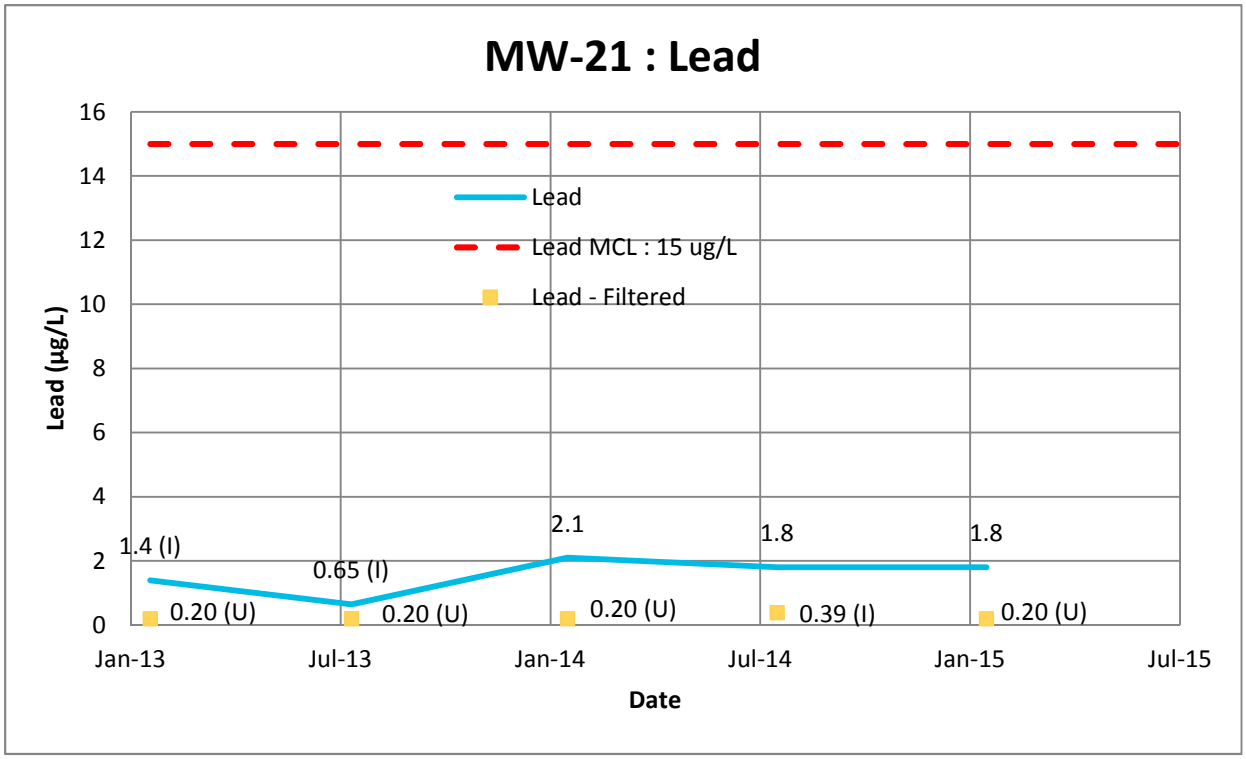


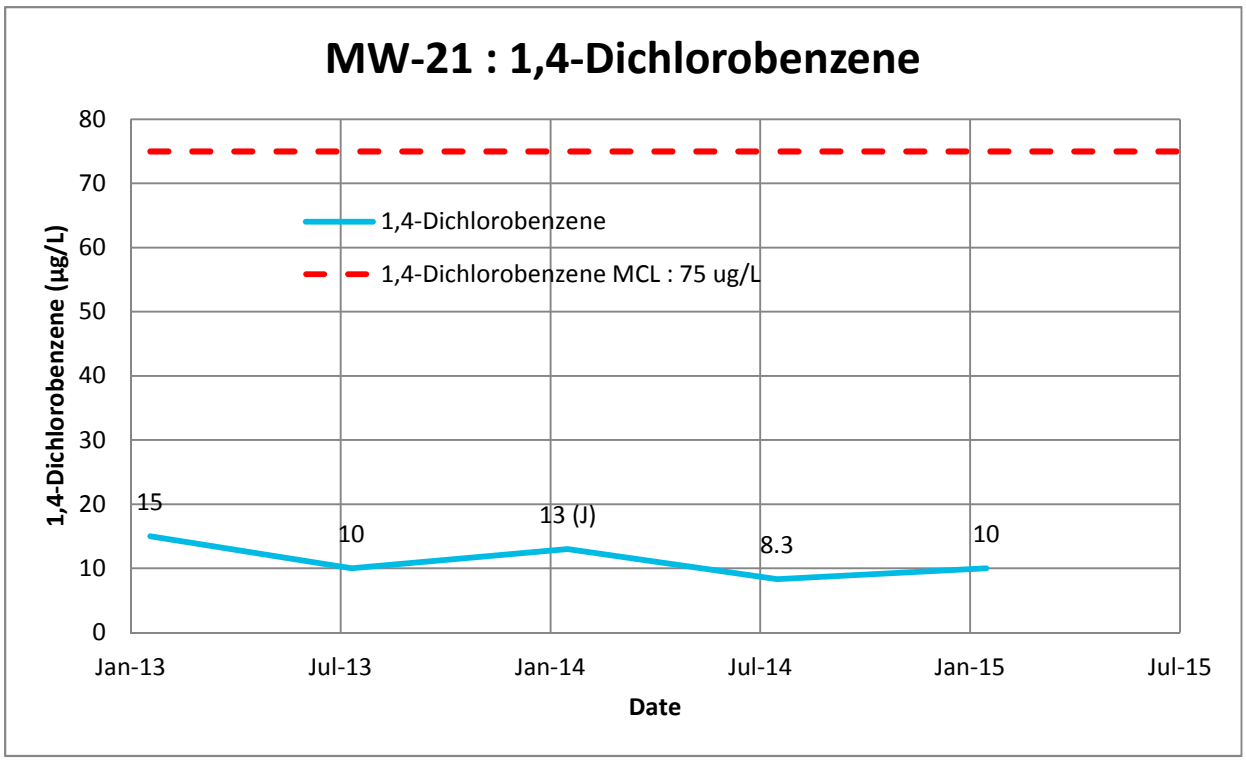
MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte concentration detected below quantitation limit

(U) Analyte not detected; value reported is the method detection limit





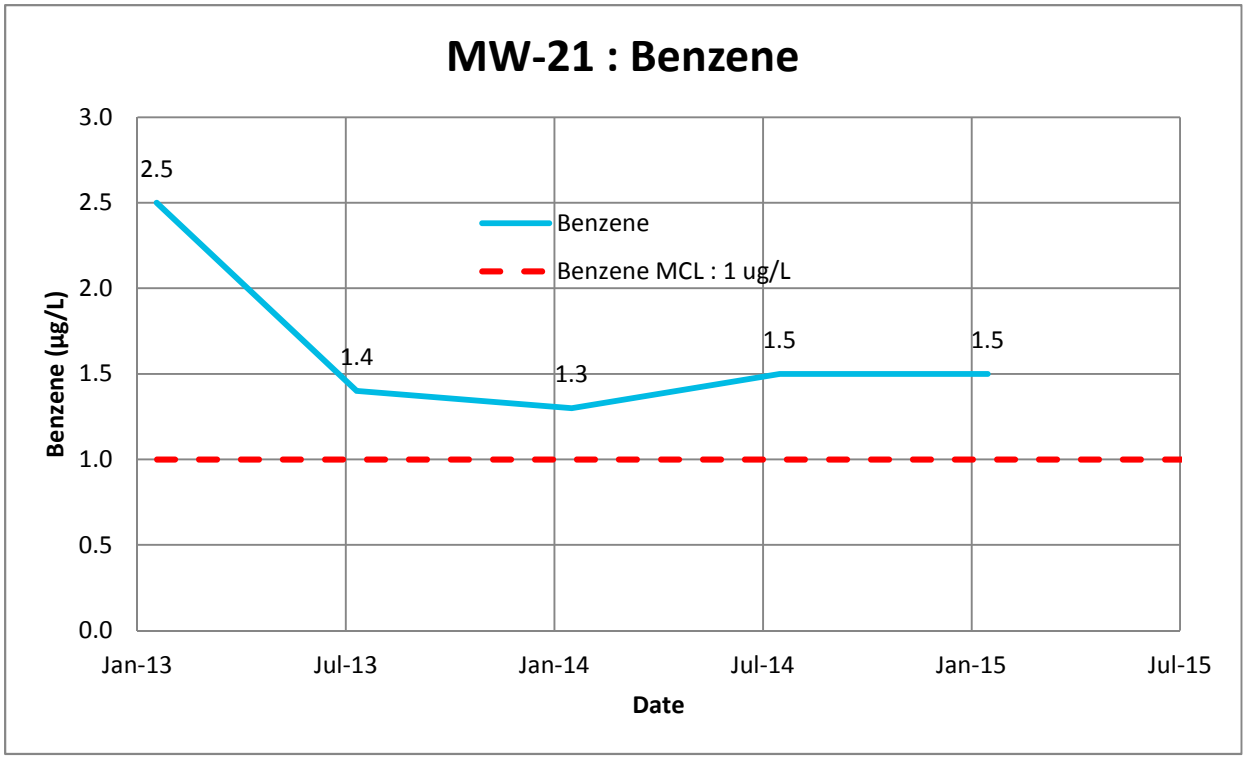
MCL - Maximum Contaminant Level per 62-550 F.A.C

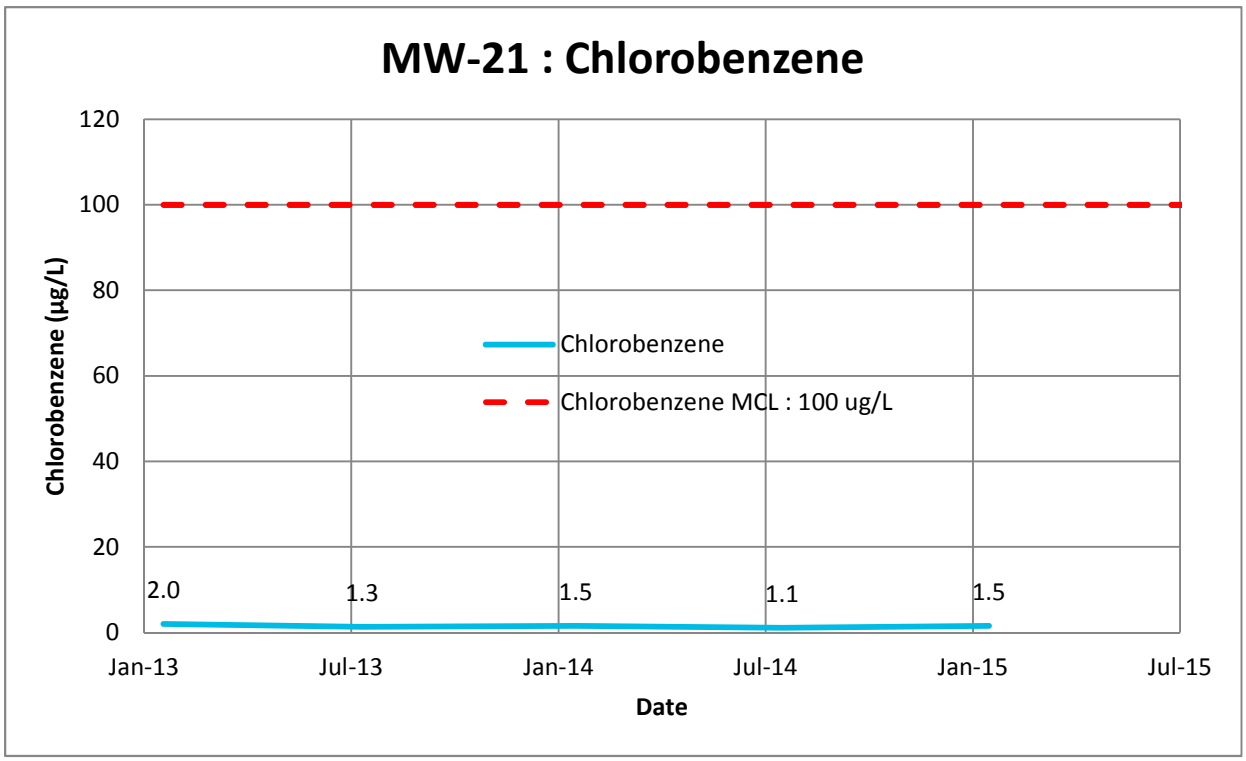
Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte concentration detected below quantitation limit

(J) Analyte concentration may not be accurate due to QC concerns

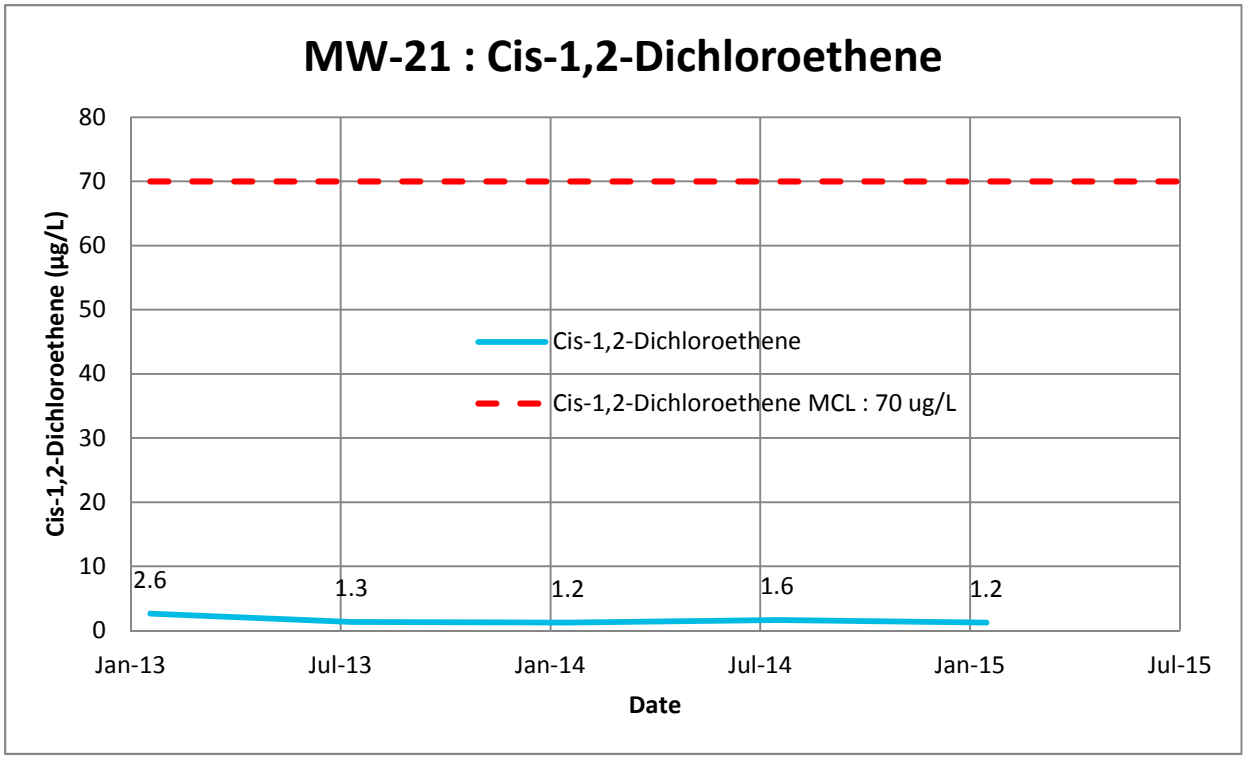
(U) Analyte not detected; value reported is the method detection limit

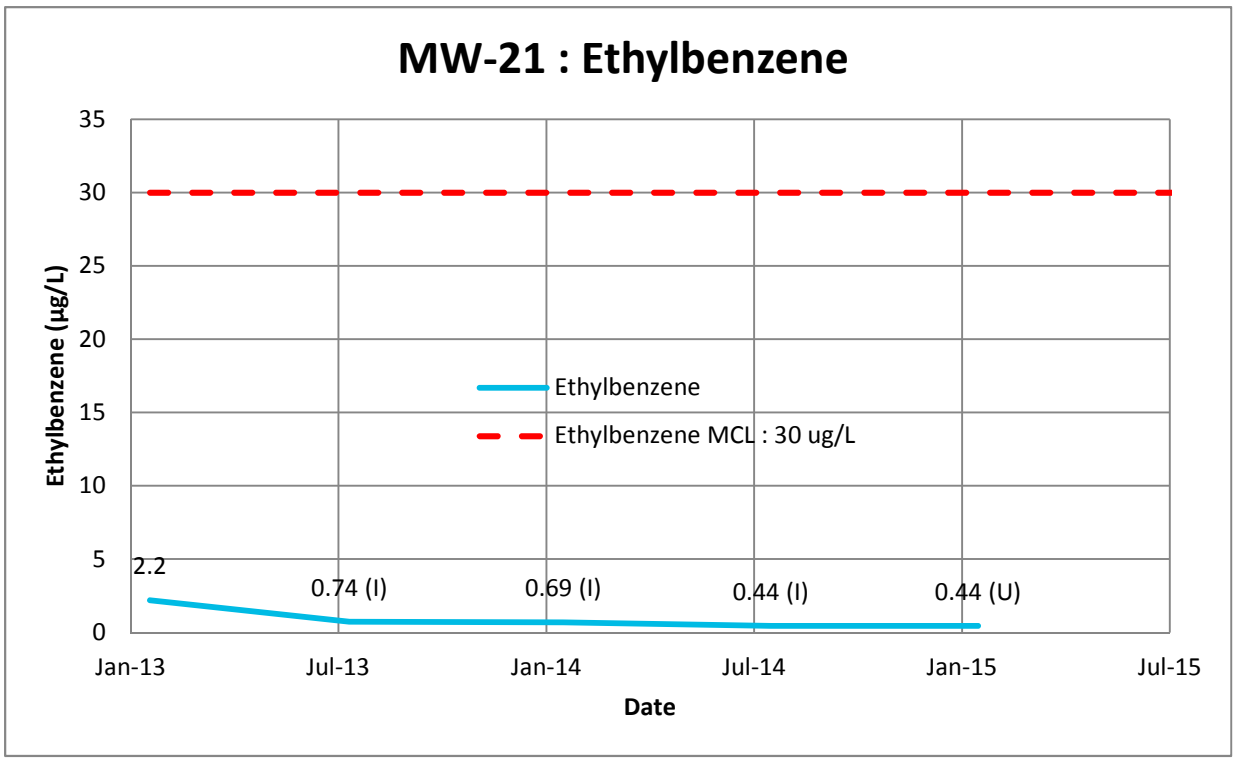




MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.



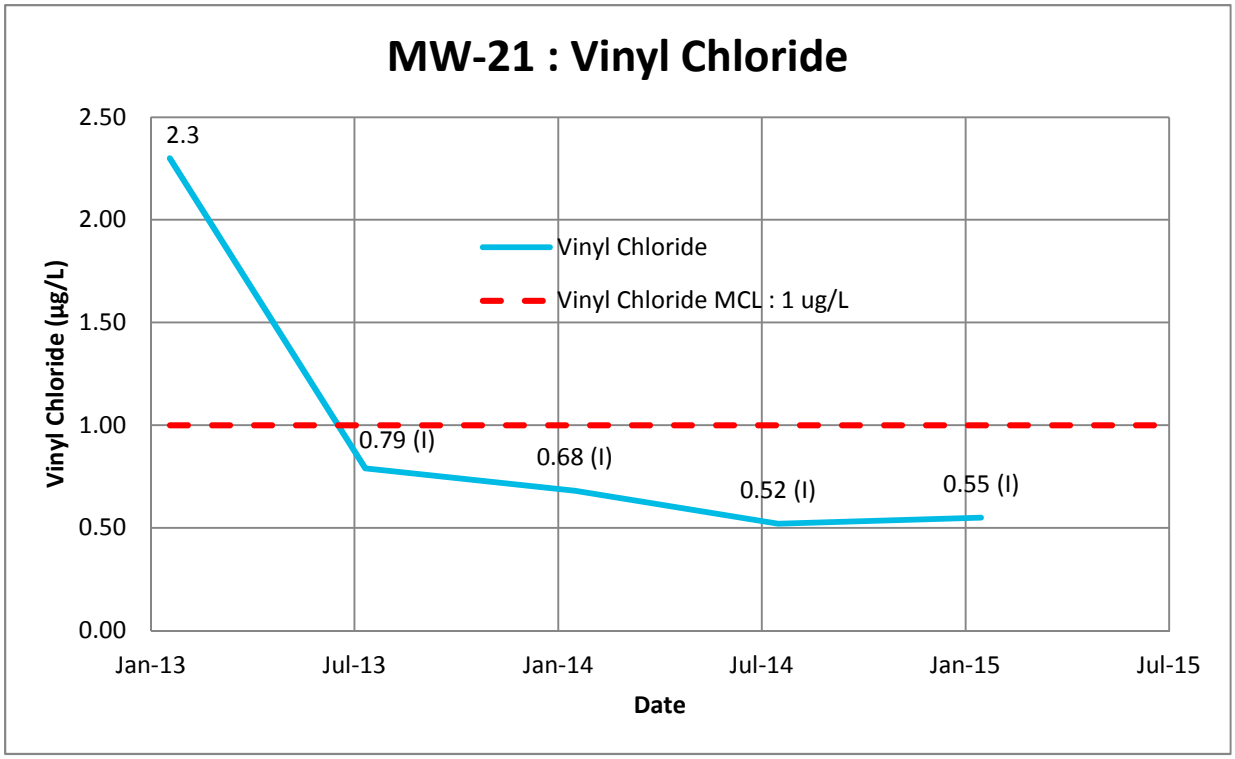


MCL - Maximum Contaminant Level per 62-550 F.A.C

Based on data provided by TestAmerica Laboratories, Inc.

(I) Analyte concentration detected below quantitation limit

(U) Analyte not detected; value reported is the method detection limit



MCL - Maximum Contaminant Level per 62-550 F.A.C

(I) Analyte concentration detected below quantitation limit

Based on data provided by TestAmerica Laboratories, Inc.

Appendix C

MW-6 Groundwater and Leachate Effluent Quality Data

Table C-1 Summary of Groundwater Analytical Results for Samples Collected from Monitor Well MW-6 from January 2002 through January 2015

Well No.	Parameter	Units	GCTL/MCL	Jan-02	Jul-02	Jan-03	Jul-03	Jan-04	Jul-04	Jan-05	Aug-05	Jan-06	Sep-06
MW-6	pH	S.U.	6.5 - 8.5	4.40	4.30	4.04	4.44	4.53	4.22	4.61	4.75	4.31	4.33
MW-6	Iron, total	ug/l	300	1,300	240	300	220	930	180	1,200	500	972	762
MW-6	Chloride	mg/l	250	160	260	178	200	190	230	250	256	187	170
MW-6	Sodium, total	mg/l	160	110	130	119	130	130	120	150	159	127	120
MW-6	Residues- Filterable (TDS)	mg/l	500	450	450	451	540	470	660	500	592	534	506
MW-6	Arsenic	ug/l	10	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	2.0	2.3
MW-6	Trihalomethane (THMs)	ug/l	80	13.2	13.8	8.3	6	7.7	15.3	8	10	13	14.5

Well No.	Parameter	Units	GCTL/MCL	Jan-07	Jul-07	Jan-08	Jul-08	Jan-09	Jul-09	Jan-10	Jul-10	Jan-11	Jul-11
MW-6	pH	S.U.	6.5 - 8.5	4.10	4.02	4.23	4.12	4.35	4.37	4.04	3.65	4.38	3.47
MW-6	Iron, total	ug/l	300	141	108	91	204	1,300	280	220	1,400	710	130
MW-6	Chloride	mg/l	250	220	150	120	170	260	220	220	220	220	13
MW-6	Sodium, total	mg/l	160	125	94.6	76	95	140	110	120	100	100	90
MW-6	Residues- Filterable (TDS)	mg/l	500	480	370	310	390	470	430	400	400	380	370
MW-6	Arsenic	ug/l	10	0.65 U	0.65 U	2.7	0.65 U	0.75	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U
MW-6	Trihalomethane (THMs)	ug/l	80	11.6	11	1.2	10.2	6.2	5.9	4.40	6.10	5.40	3.70

Well No.	Parameter	Units	GCTL/MCL	Jan-12	Jul-12	Jan-13	Jul-13	Jan-14	Jul-14	Jan-15
MW-6	pH	S.U.	6.5 - 8.5	4.15	3.99	4.49	4.40	4.37	4.30	4.38
MW-6	Iron, total	ug/l	300	700	2,400	1,800	330	1,100	1,500	2,200
MW-6	Chloride	mg/l	250	250	240	240	230	280	260	240
MW-6	Sodium, total	mg/l	160	110	120	120	110	150	110	130
MW-6	Residues- Filterable (TDS)	mg/l	500	350	420	530	380	410	460	460
MW-6	Arsenic	ug/l	10	0.65 U	0.65 U	1.80	0.65 U	0.65 U	0.65 U	0.65 U
MW-6	Trihalomethane (THMs)	ug/l	80	2.85	3.91	4.70	4.30	4.30	4.30	4.40

Notes:

MCL = Maximum Contaminant Target Level (Chapter 62-550, F.A.C.)

GCTL = Groundwater Cleanup Target Level (Chapter 62-777, F.A.C.)

S.U. = Standard Unit

mg/l = milligram per liter

ug/l = microgram per liter

U - Indicates that the compound was analyzed for but not detected. The value presented is 1/2 the laboratory method detection limit (MDL)

Figure C-1. Time vs Concentration - pH in Samples from MW-6

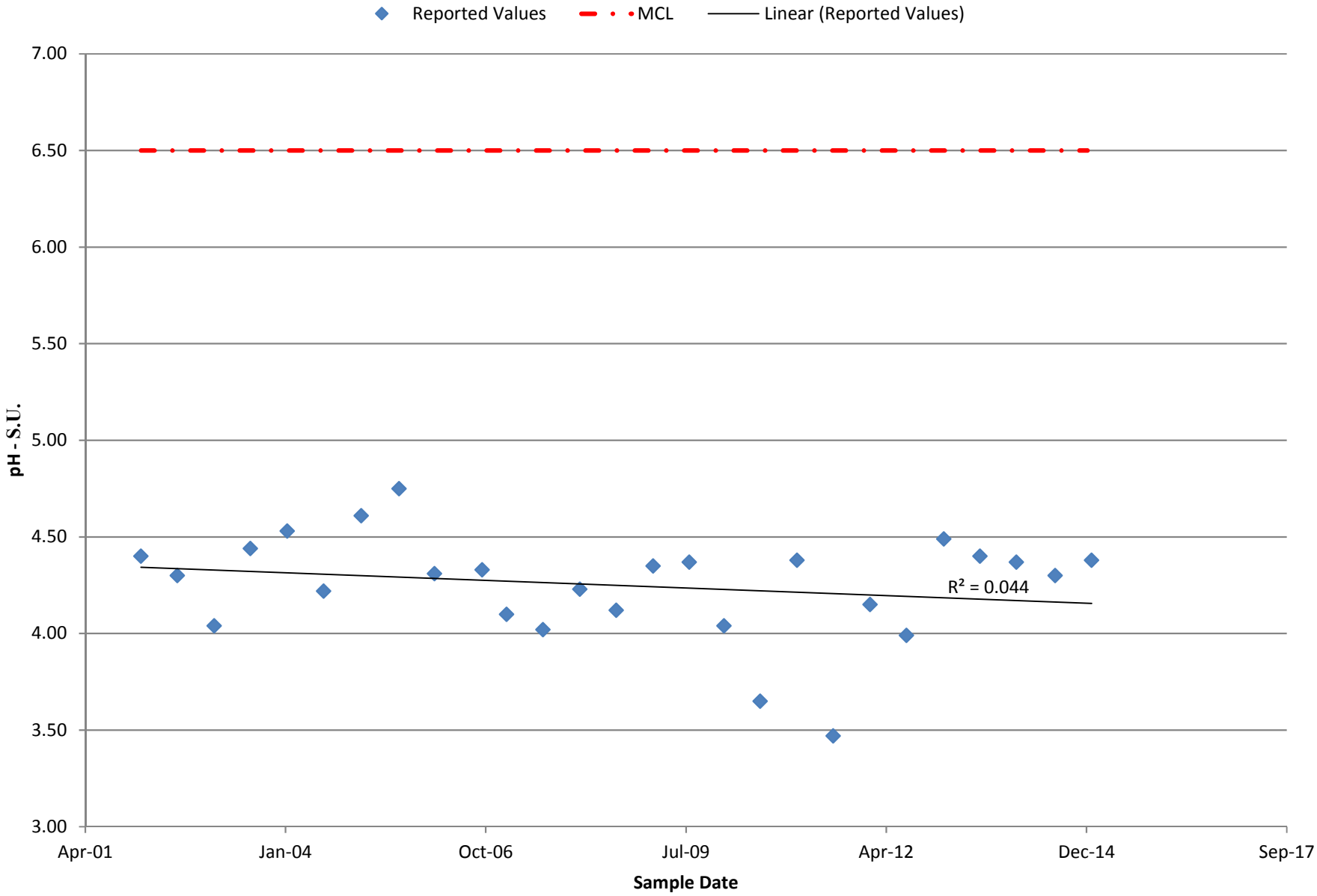


Figure C-2. Time vs Concentration - Iron in Samples from MW-6

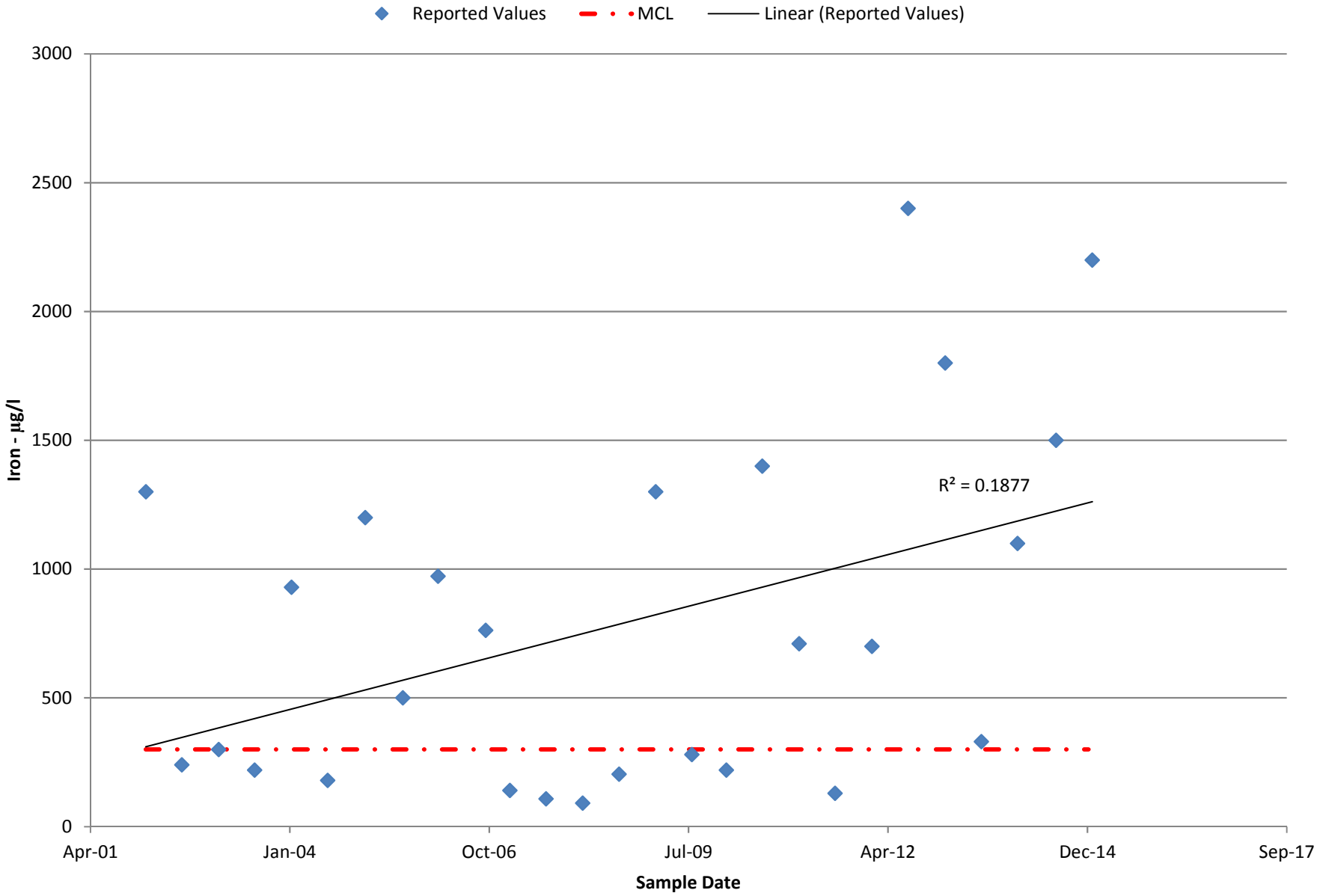


Figure C-3. Time vs Concentration - Chloride in Samples from MW-6

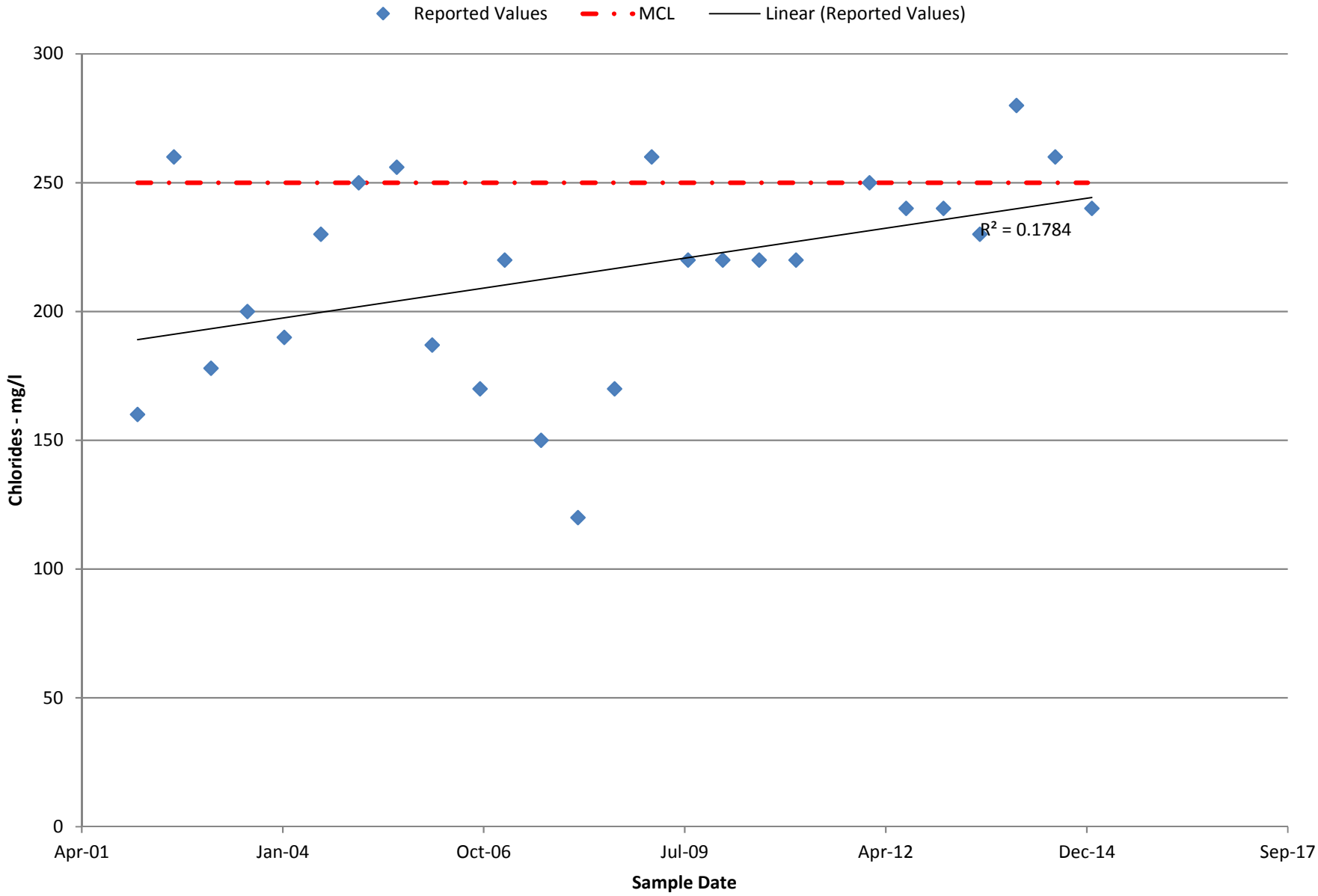


Figure C-4. Time vs Concentration - Sodium in Samples from MW-6

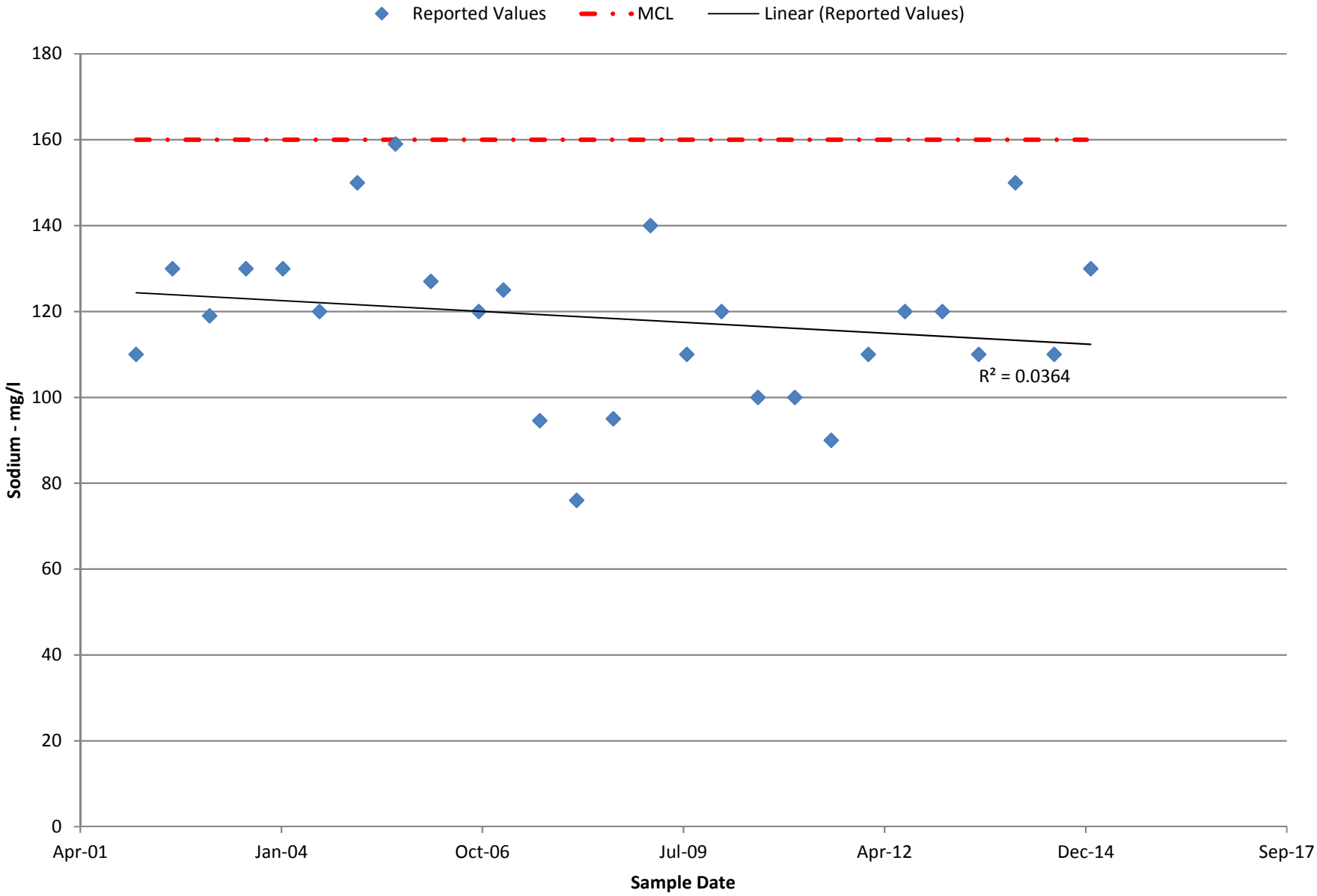


Figure C-5. Time vs Concentration - TDS in Samples from MW-6

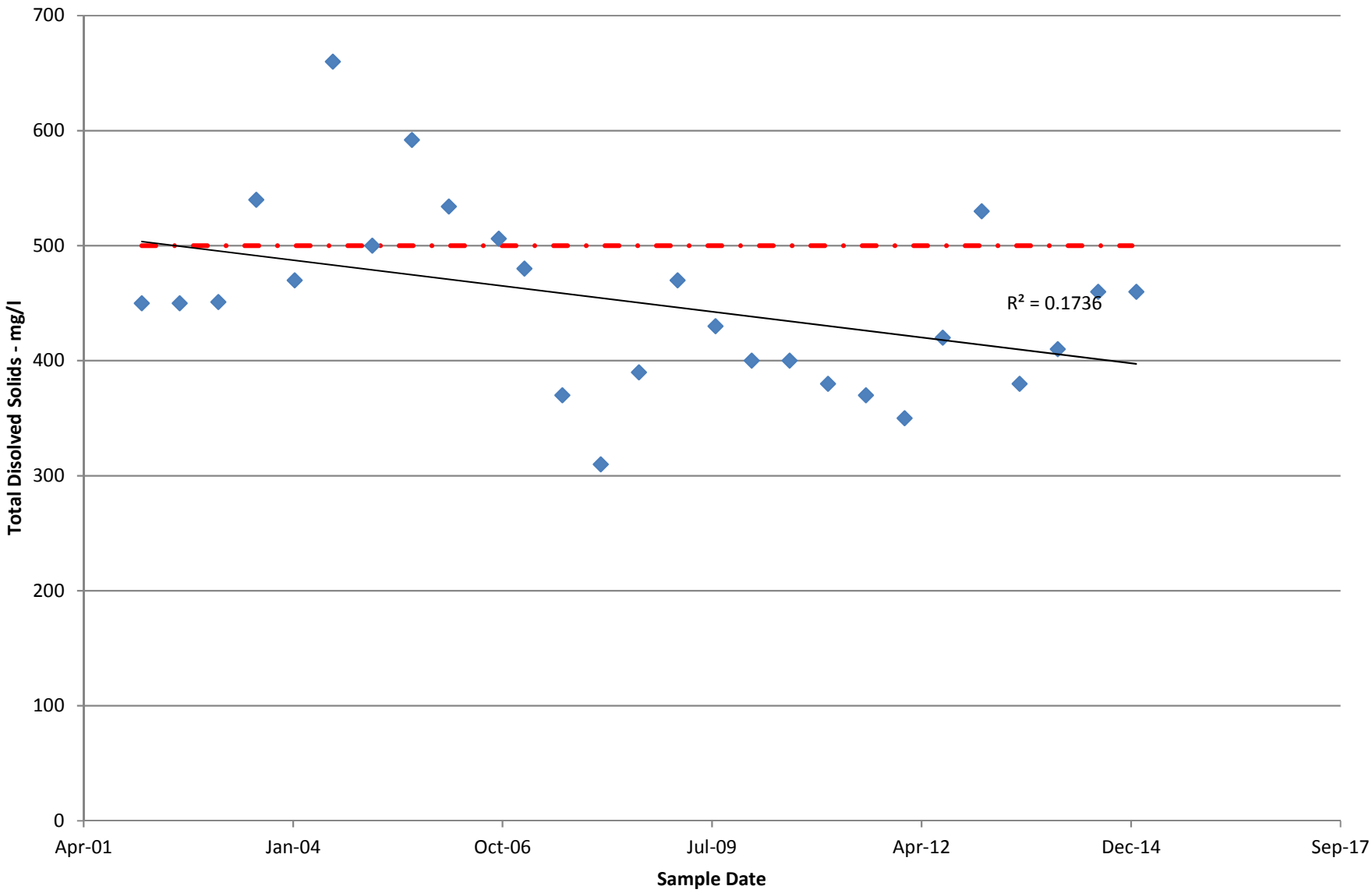


Figure C-6. Time vs Concentration - Arsenic in Samples from MW-6

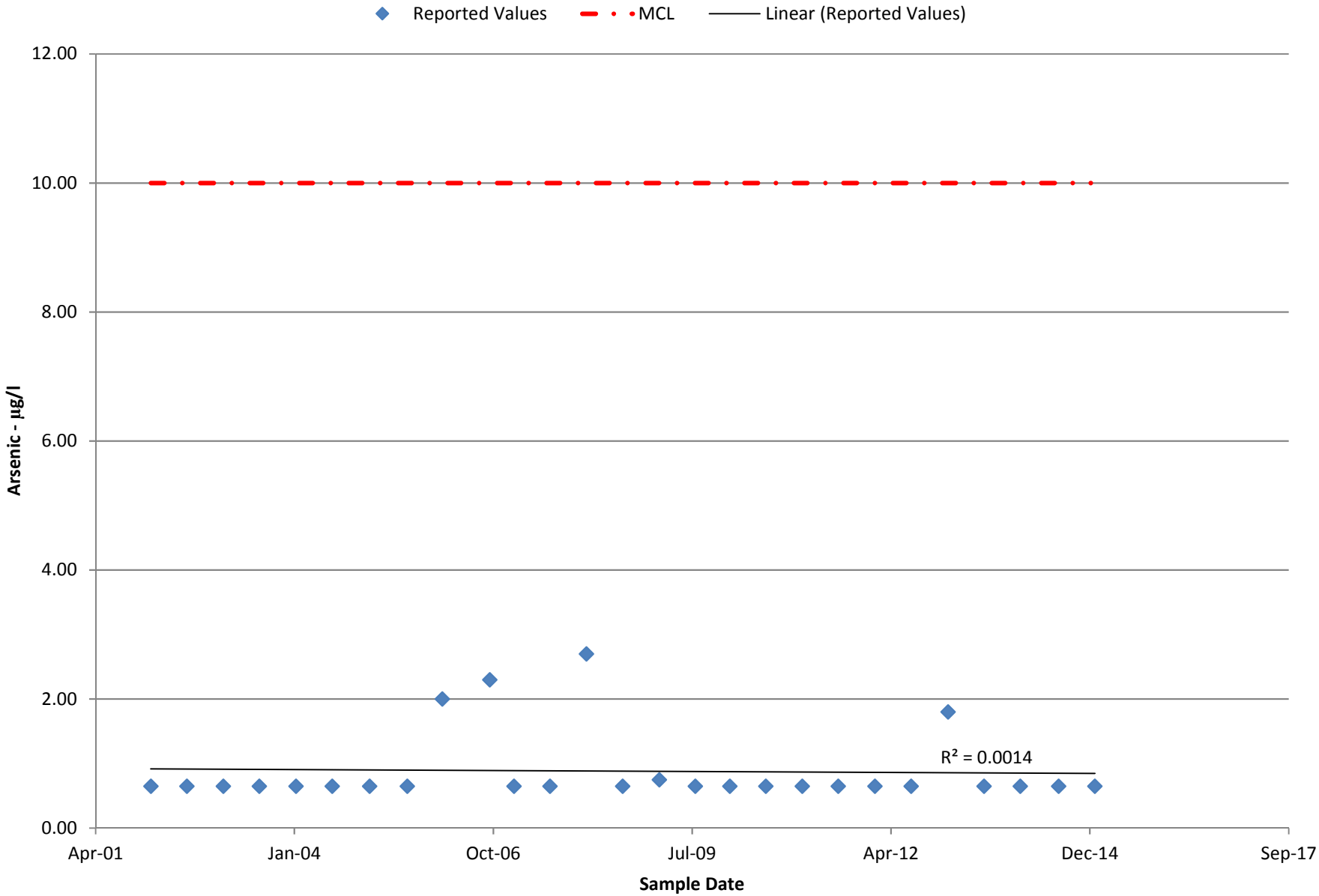


Figure C-7. Time vs Concentration - Total Trihalomethanes in Samples from MW-6

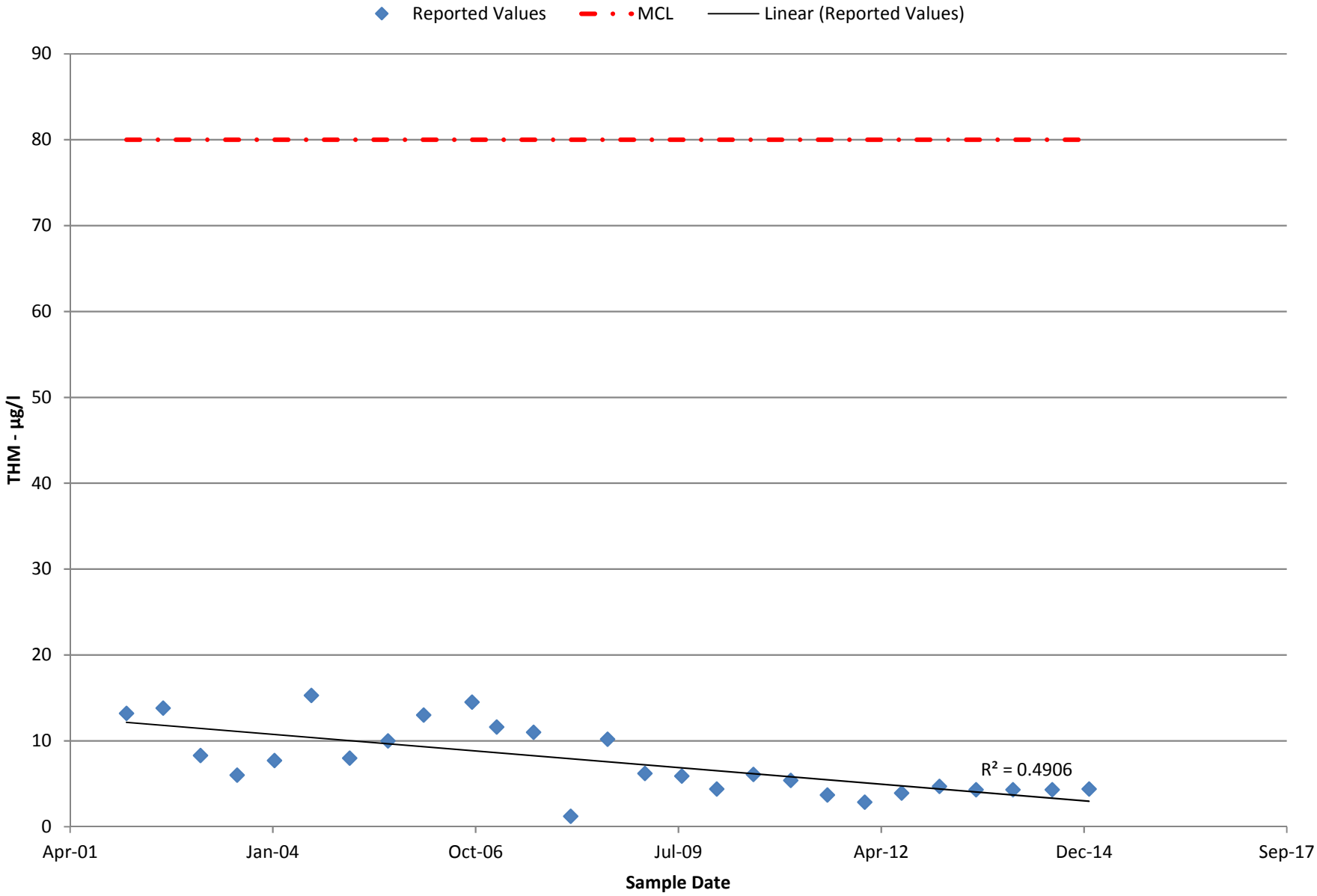


Table C-2 Summary of Leachate Effluent Quality Analytical Results January 2010 - January 2015 Citrus County Central Landfill

Parameter	Units	Leachate Effluent																			
		1/26/2010	5/12/2010	7/27/2010	9/9/2010 Re-sample	10/27/2010	1/19/2011	4/28/2011	5/25/2011 Re-sample	7/20/2011	10/19/2011	1/18/2012	5/1/2012	7/18/2012	10/17/2012	2/20/2013	4/19/2013	7/17/2013	10/16/2013	1/22/2014	7/23/2014	1/21/2015
Volatile Organics																						
Acetone	µg/L	---	---	40	15 I	---	---	---	---	9.9 U J3	---	---	---	9.9 U	---	---	---	---	---	---	---	---
Benzene	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.50 U	---	0.5 U	0.50 U	0.50 U	0.50 U	0.5 U	0.50 U	0.50 U	0.50 U	0.50 U	---	0.50 U	0.50 U	0.50 U
Carbon Tetrachloride	µg/L	---	---	1.2	0.45 I	---	---	---	---	0.42 U	---	---	---	0.42 U	---	---	---	---	---	---	---	---
Chlorobromomethane	µg/L	---	---	5.7	0.58 U	---	---	---	0.58 U	0.58 U	---	---	---	0.58 U	---	---	---	---	---	---	---	---
Chloromethene	µg/L	---	---	2.4 I	1.0 U	---	---	---	---	1.0 U	---	---	---	1.0 U	---	---	---	---	---	---	---	---
Dibromomethane	µg/L	---	---	5.8	0.41 U	---	---	---	---	0.41 U	---	---	---	0.41 U	---	---	---	---	---	---	---	---
Ethylbenzene	µg/L	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	---	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	---	0.44 U	0.44 U	0.44 U
Ethylene Dibromide	µg/L	0.01 U	0.01 U	0.010 U	---	0.010 U	0.01 U	0.010 U	---	0.010 U	0.010 U	0.010 U	0.010 U	0.0096 U	0.0024 U	0.0022 U	0.0023 U	0.0022 U	---	---	---	---
Toluene	µg/L	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	---	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	---	0.51 U	0.51 U	0.51 U
Vinyl chloride	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.50 U	---	0.5 U	0.50 U	0.50 U	0.50 U	0.5 U	0.50 U	0.50 U	0.50 U	0.50 U	---	0.50 U	0.50 U	0.71 U
Xylenes, Total	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.50 U	---	0.5 U	0.50 U	0.50 U	0.50 U	0.5 U	0.50 U	0.50 U	0.50 U	0.50 U	---	0.50 U	0.50 U	0.50 U
Trihalomethanes																						
Bromodichloromethane	µg/L	13	---	870	170	0.35 U	0.35 U	---	---	30	---	8.7	---	0.35 U	---	87	---	19	---	20	19	
Bromoform	µg/L	7	---	190	36	0.58 U	0.58 U	---	---	8.5	---	0.58 U	---	0.58 U	---	17	---	0.79	---	1.3	2	
Chloroform	µg/L	8.3	---	900	110	0.90 U	0.90 U	---	---	25	---	9.9	---	1.6	---	60	---	34	---	32	27	
Dibromochloromethane	µg/L	9.7	---	670	110	0.34 U	0.34 U	---	---	19	---	2.4	---	0.34 U	---	55	---	6.0	---	6.8	8.7	
Total THMs	µg/L	38	---	2630	426	Not Detected	Not Detected	---	---	82.5	---	21	---	1.6	---	220	---	60	---	60	57	120
Metals																						
Antimony	mg/L	---	---	0 I	---	---	---	---	---	0.0092 U	---	---	---	0.0029 I	---	---	---	---	---	---	---	---
Arsenic	mg/L	---	---	0.03	0.02	0.034	0.01	0.04	---	0.046	0.035	0.03	0.03	0.017	0.019	0.012	0.013	0.017	---	0.009 I	0.013	0.011
Barium	mg/L	---	---	0.08	---	---	---	---	---	0.011	---	---	---	0.064	---	---	---	---	0.051	---	0.043	---
Cadmium	mg/L			0 U						9.5E-05 U				0.000095 U	---	---	---	---	0.000095 U	---	0.00093	---
Chromium	mg/L	---	---	0.01	---	---	---	---	---	0.0063	---	---	---	0.0037 I	---	---	---	---	0.0069	---	0.0082	---
Cobalt	mg/L	---	---	0.02	---	---	---	---	---	0.022	---	---	---	0.0045	---	---	---	---	---	---	---	---
Copper	mg/L	---	---	0.02	---	---	---	---	---	0.0027	---	---	---	0.0056	---	---	---	---	---	---	---	---
Iron	mg/L	---	---	0.06 I	---	---	---	---	---	0.076 I	---	---	---	0.260	---	---	---	---	0.300	---	0.430	---
Lead	mg/L	---	---	0	---	---	---	---	---	0.00020 U	---	---	---	0.00020 U	---	---	---	---	0.00020 U	---	0.0022	---
Mercury	mg/L			#### U						0.000091 U				0.000091 U	---	---	---	---	---	---	---	---
Nickel	mg/L	---	---	0.07	---	---	---	---	---	0.077	---	---	---	0.021	---	---	---	---	---	---	---	---
Selenium	mg/L			0 U						0.001 U				0.001 U	---	---	---	---	0.0010 U	---	0.0011 I	---
Silver	mg/L			0 U						0.00025 U				0.00025 U	---	---	---	---	0.00025 U	---	0.00039 I	---
Zinc	mg/L	---	---	0.03	---	---	---	---	---	0.03	---	---	---	0.015 I	---	---	---	---	---	---	---	---
General Chemistry																						
Ammonia, Total	mg/L	0.09	0.17	0.09	---	0.013 I	0.01	10	0.7	0.3	0.22	1.4	0.1	0.91	0.12	0.14	0.28	0.16	---	0.077	0.14	0.29
Chloride	mg/L	1000	1200	1300	---	1000	750	960	---	1200	970	1000	1100	570	570	1300	1400	440	---	620	640	590
Sodium	mg/L	580	750	830	---	670	400	630	---	800	590	760	610	260	380	850	780	270	---	380	380	370
Total Dissolved Solids	mg/L	2200	2900	1500	---	2500	1600	2400	---	2800	1600	2600	2200	1400	1400	2900	2800	1000	---	1500	1400	1600
General Field Parameters																						
Conductivity	µmhos/cm	3475	4752	4617	4167	4358	3176	3780	4701	3963	3675	4526	4181	2281	2702	4247	5068	2351	---	2364	2944	2700
Dissolved Oxygen	mg/L	7.01	0.75	1.22	1.42	1.36	6.01	8.38	0.14	1.81	1.21	2.28	4.34	7.34	5.52	6.76	2.70	3.05	---	5.89	5.08	1.01
pH	S.U.	7.27	7.52	7.37	7.69	8.1	7.52	8.13	7.81	7.65	8.32	7.03	7.44	7.21	8.55	7.73	7.94	7.88	---	8.18	7.98	7.60
Oxygen Reduction Potential	mV	228	25.8	351	-1.8	164.3	40.2	198	217	109.4	182.2	218	58	-118	-185	109	---	---	---	---	---	---
Temperature, Water	°C	17.1	27.2	28.5	29.4	26.2	---	27.3	27.5	29.1	25.3	15.9	26.1	27.2	24.3	18.1	25.7	28.5	---	12.36	30.2	17.9
Turbidity	NTU	1.84	7.94	3.40	2.71	4.55	---	10.8	7.04	2.69	5.36	8.33	3.64	6.34	3.02	3.13	13.1	5.69	---	10.6	4.03	10.21

NOTES:
THMs - Trihalomethanes
--- - Parameter not analyzed
mg/L - milligrams per liter
µg/L - micrograms per liter
NTU - nephelometric turbidity units
I - analyte detected below the quantitation limit
U - analyte concentration is below the laboratory method detection limit (MDL) and the MDL is shown.
J3 - estimated value. The value may not be accurate. Spike recovery or RPD is outside of criteria.

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