CDM Smith

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April 29, 2013

Mr. John Morris, P.G.
Florida Department of Environmental Protection
13051 North Telecom Parkway
Temple Terrace, FL 33637-0926

Subject: West Pasco Class III Landfill
WACS Facility No.: SWD/51/~~45920~~ 45799
Water Quality Monitoring Plan Evaluation Report

Dear Mr. Morris:

CDM Smith is pleased to provide two (2) copies of the attached Water Quality Monitoring Plan Evaluation Report for the West Pasco Class III Landfill as set forth in Specific Condition E.11 of the Permit.

Please let me know if you have any questions or require additional information.

Sincerely,

David R Rojas

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

Attachment

cc: John Power, Pasco County
Candia Mulhern, Pasco County
Aamod Sonawane, CDM Smith
File

Pasco County Florida

Water Quality Monitoring Plan Evaluation Report
Semester II 2010 ~ Semester II 2012
West Pasco Class III Landfill
Permit# 26254-001-SO/T3
WACS ID# SWD/51/~~45920~~ 45799

April 2013

CDM Smith

Water Quality Monitoring Plan Evaluation Report for Semester II 2010 ~ Semester II 2012 West Pasco Class III Landfill Permit# 26254-001-SO/T3 WACS ID# SWD/51/~~45920~~ 45799

April 2013

CERTIFICATION

I hereby certify that I have examined the site, and being familiar with the provisions of 62-701, F.A.C., attest that this evaluation has been prepared in accordance with good engineering practices.

Engineer: David R. Rojas

Signature: David R. Rojas

DAVID R. ROJAS LICENSE No.PG2362 STATE OF FLORIDA PROFESSIONAL GEOLOGIST

Professional Geologist
Registration Number: PG2362

State: Florida

Date: April 29, 2013

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Section 1
Introduction

1.1 Background

The West Pasco Class III Landfill (site) is located at the Pasco County Resource Recovery Facility (PCRRF); 14230 Hays Road, Spring Hill, Florida in northwest Pasco County, approximately 2.5 miles north of State Road 52. **Figure 1-1** is a site plan showing the four approximately five-acre Class III disposal cells, and other nearby features. The Class III landfill is permitted to operate under Permit No. 26254-001-SO/T3.

Construction and demolition (C&D) debris that is received at the facility is directed to the Class III disposal cells. The filling of Cell #1 began in June of 1990 and reached its first lift level in May of 2002. The site is designed to include a second lift after all four cells are filled to the first level. The filling of the first lift in Cell #2 began in June of 2002. Cell #2 is the only cell being filled with debris at this time.

The landfill is equipped with a geosynthetic liner and leachate collection system. Collected leachate is directed to one of the two underground storage tanks referred to as Tanks 1 and 2. The leachate received by the tanks is piped directly to the adjacent Shady Hills Advanced Wastewater Treatment Facility.

1.2 Water Quality Monitoring Plan

Routine groundwater monitoring at the site is performed in accordance with Specific Conditions E.1, E.3, and E.4 of Permit No. 26254-001-SO/T3. Groundwater monitoring is performed semi-annually in accordance with Specific Condition E.4.c. Monitor wells 2MW-7 and 4MW-7 are designated as background groundwater quality monitoring locations. Wells 4MW-21 and 4MW-22 are designated as detection wells. Groundwater samples are collected semi-annually from monitor wells 2MW-7, 4MW-7, 4MW-21, and 4MW-22 as specified in Specific Condition E.4.c. of the permit. In addition, groundwater samples are collected from monitor wells 4MW-3A, 4MW-8, and 4MW-9. Proposed monitor well 4MW-23 is designated in the permit to also be a detection well, but the well is not required to be installed and monitored until 30 days prior to initiation of debris disposal in Cells #3 or #4.

in accordance with Specific Condition E.4.a, groundwater level measurements are collected from all active monitor wells and piezometers during all sampling events. In accordance with Specific Condition E.3 of the permit, monitor wells 2MW-3A, 4MW-3A, 2MW-8, 4MW-8, 2MW-9, 4MW-9, and 2MW-10 are designated as piezometers. However, groundwater samples were collected from piezometers 4MW-3A, 4MW-8, and 4MW-9 by Pasco County and semi-annual reports including the analytical results were submitted to FDEP. Because these data were not required to be submitted, the analytical results for samples from these piezometers are not included or discussed in this report. Locations of wells and piezometers are shown on Figure 1-1. **Table 1-1** is a construction summary of all active monitor wells and piezometers for the Class III landfill. Groundwater and leachate samples are collected and analyzed in accordance with quality assurance requirements specified in Specific

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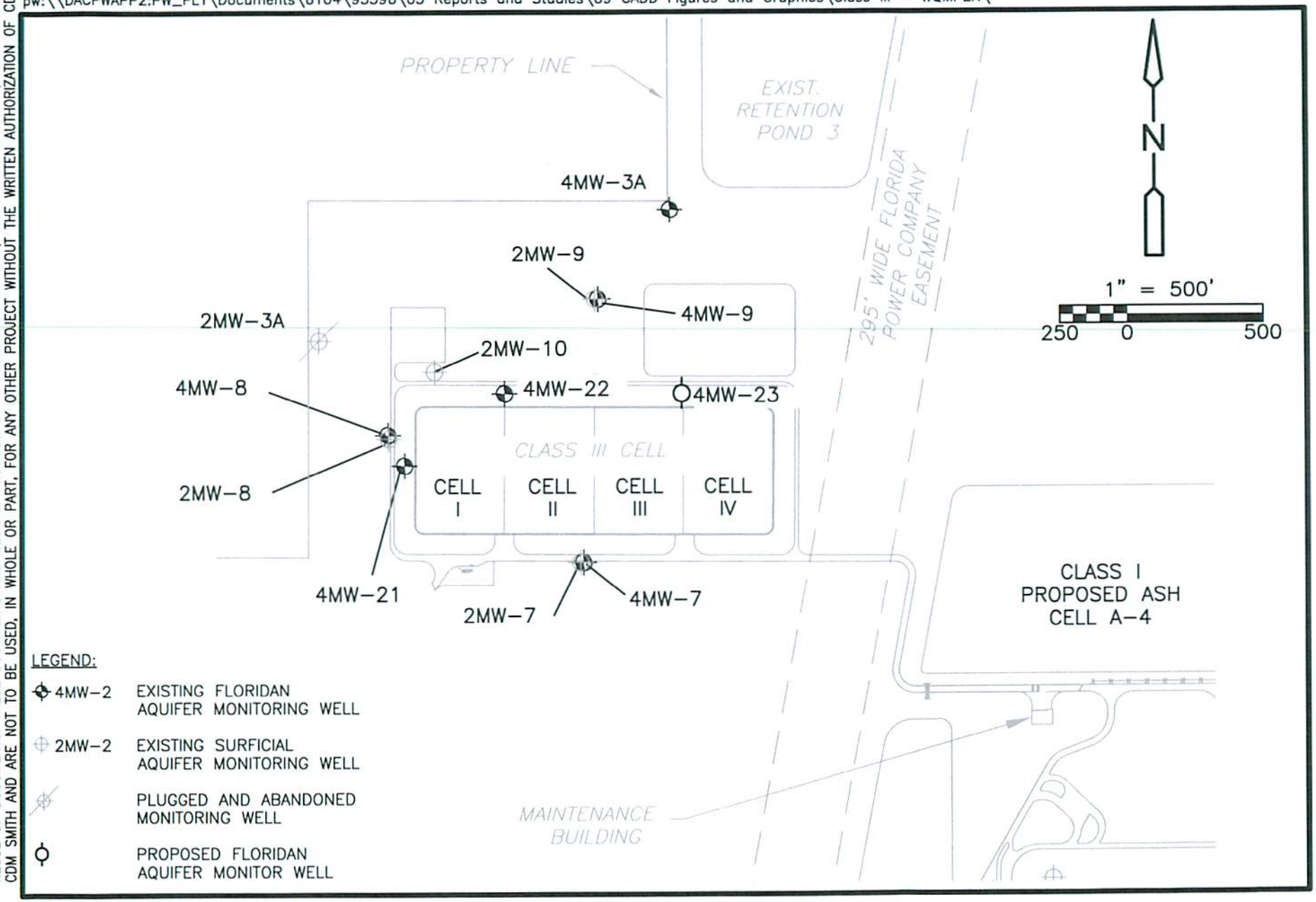

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Figure No. 1-1
Site Plan
West Pasco Class III Landfill
Pasco County Florida

Table 1-1. Construction Summary of Existing Monitor Wells and Piezometers West Pasco Class III Landfill

Well I.D.	Location		Ground Elevation		Top of Casing		Screened Section					Top of LS (ft bls)	Total Depth (ft bls)
	Latitude North	Longitude West	(ft NAVD)	(ft NGVD)	(ft NAVD)	(ft NGVD)	Well Type (dia.)	Length	Depth (ft bls)	Elevation (ft NGVD)	Lithology		
Surficial Aquifer													
2MW-3	28° 22' 26"	82° 34' 18"	45.80	46.79	49.02	50.01	Screened (2")	5	9.5 - 14.5	37.29 to 32.29	SD	23.0	15.0
2MW-7	28° 22' 19"	82° 34' 07"	48.97	49.96	51.76	52.75	Screened (2")	6	6.0 - 12.0	43.96 to 37.96	SD	30.0	12.0
2MW-8	28° 22' 23"	82° 34' 15"	48.43	49.42	50.98	51.97	Screened (2")	5	7.0 - 12.0	42.42 to 37.42	SD & Cly SD	25.0	13.0
2MW-9	28° 22' 28"	82° 34' 06"	49.20	50.19	51.30	52.29	Screened (2")	7	4.0 - 11.0	46.19 to 39.19	SD	28.0	11.0
2MW-10	28° 22' 25"	82° 34' 13"	47.82	48.81	51.64	52.63	Screened (2")	7	5.0 - 12.0	43.81 to 36.81	SD	25.0	12.0
Floridan Aquifer													
4MW-3A	28° 22' 31"	82° 34' 03"	49.55 (conc)	50.54 (conc)	51.93	52.92	Screened (2")	28	22.0 - 50.0	28.54 to 0.54	LS	22.0	50.0
4MW-7	28° 22' 19"	82° 34' 07"	48.76	49.75	51.63	52.62	Screened (2")	25	22.0 - 47.0	27.75 to 2.75	CL & LS	30.0	50.0
4MW-8	28° 22' 23"	82° 34' 15"	48.78	49.77	50.88	51.87	Screened (4")	33	32.0 - 65.0	17.77 to -15.23	LS	25.0	65.0
4MW-9	28° 22' 28"	82° 34' 06"	49.35	50.34	51.79	52.78	Screened (4")	30	30.0 - 60.0	20.34 to -9.66	CL & LS	28.0	60.0
4MW-21	28° 22' 22"	82° 34' 14"	Not Measured	49.10	Not Measured	51.46	Screened (2")	15	24.2 - 39.2	24.90 to 9.90	CL & SD	>40.0	40.0
4MW-22	28° 22' 25"	82° 34' 10"	Not Measured	50.85	Not Measured	53.44	Screened (2")	15	30.3 - 45.3	20.55 to 5.55	CL & LS	29.0	46.0

NOTES:

Lithology of Screened interval and Top of Limestone are based on cross-section interpretation or information from boring logs.

Elevation Data in NAVD are from Pasco County Engineering Sves Survey dated 1/22/07.

Elevation Data in NGVD for all wells except 4MW-21 & 4MW-22 are from Pasco County Engineering Sves Survey dated 1/22/07 converted to NGVD.

Elevation Data in NGVD for 4MW-21 & 4MW-22 are from Pasco County Engineering Sves Survey dated 12/1/08.

Condition E.1 of the permit. The samples are collected by Pasco County personnel and the analyses are performed by the Pasco County Laboratory and a subcontracted laboratory. Pace Analytical Laboratory was the subcontracted laboratory in 2010 and 2011, and Southern Analytical Laboratory was the subcontracted laboratory in 2012.

1.3 Report Contents and Organization

This Water Quality Monitoring Plan Evaluation Report (WQMPER) includes monitoring data from Semester II of 2010 through Semester II of 2012 as specified by Specific Condition E.11 of the permit. As required by Chapter 62-701.510(10)(b), F.A.C., as referenced in the Specific Condition E.11 of the permit, this report includes the following:

- Tabular displays of data, which shows that a monitoring parameter has been detected, graphical displays of any leachate key indicator parameters detected (such as pH, specific conductance, TDS, TOC, sulfate, chloride, sodium and iron), and hydrographs for all monitor wells;
- Trend analyses of monitoring parameters consistently detected;
- Comparisons between data from surficial aquifer and Floridan aquifer wells, as appropriate;
- Comparisons between background water quality and the water quality in samples from detection and 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 is an overview of the water quality monitoring program for the West Pasco Class III 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 Groundwater Levels

Water level measurements were collected in accordance with Specific Condition E.4.a of the permit during each sampling event conducted during the 2010 – 2012 reporting period. Groundwater level elevation and gradient data are in **Table A-1 (Appendix A).** Monitor wells 2MW-3A, 2MW-7, 2MW-8, 2MW-9, and 2MW-10 are screened in the surficial aquifer and have remained dry since 1995. Monitor wells 4MW-3A, 4MW-7, 4MW-8, 4MW-9, 4MW-21, and 4MW-22 are screened in the Floridan aquifer.

Hydrographs are presented in Figure A-1 (Appendix A). Evaluations of the hydrographs indicate seasonal variations in the water levels with the highest water levels occurring in the second semester of 2012 and the lowest water levels occurring in the first semester of 2012. The high water levels measured in the second semester of 2012 are associated with abnormally heavy rainfall during the summer of 2012 including Tropical Storms Beryl and Debby.

2.2 Direction and Rate of Groundwater Movement

Groundwater contour maps of the Floridan aquifer at the facility during the 2010 – 2012 reporting period are **Figures A-1 through A-5 (Appendix A**). The contour maps for 2011 and 2012 were prepared using data from the Floridan aquifer wells listed above and Floridan aquifer wells that are part of the Class I landfill monitoring system. The direction of the groundwater water movement in the Floridan aquifer beneath the Class III landfill is generally from southwest to northeast beneath the westernmost cell and to generally from southeast to northwest beneath the eastern three cells. Overall, the gradient is generally to the north. Based on the gradients determined for each monitoring event for this reporting period, the average hydraulic gradient during the monitoring period was 0.0023. The maximum gradient was 0.0042 and the lowest was 0.0017. The gradient for each event was estimated using a three-point solution using water level data from wells 4MW-3A, 4MW-7, and 4MW-8 (Table A-1).

The average horizontal seepage velocity was 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 average hydraulic gradient during the monitoring period (0.0023), a hydraulic conductivity value of 9.0 feet/day and an effective porosity of 15% (from the March 2008 WQMP prepared by CDM Smith) were used to calculate the horizontal seepage rate. These data indicate that the average groundwater seepage velocity is approximately 0.14 foot/day or just over 50 feet/year.

Section 3
Groundwater and Leachate Quality

3.1 Groundwater Quality

3.1.1 Groundwater Data

Table B-1 (**Appendix B**) summarizes field parameter measurements and detected analytes from groundwater sampling events conducted during the 2010-2012 reporting period. Concentration versus time graphs (**Figures B-1** through **B-16**) for all analytes that were detected consistently (three times or more) in samples from detection and background wells during the 2010-2012 reporting period are also in Appendix B.

3.1.2 Background Wells

Monitor well 2MW-7, the surficial aquifer background well designated in the Specific Condition E.3. of the permit, remained dry throughout the reporting period. Therefore, no background groundwater quality data are available for the surficial aquifer at the Class III landfill. No parameters were detected above MCLs in well 4MW-7, the Floridan aquifer background well designated in Specific Condition E.3. of the permit. The only analyte detected in groundwater samples from 4MW-7 that was also detected in detection wells in concentrations exceeding Maximum Contaminant Levels (MCLs) established in Chapter 62-550, F.A.C. and Groundwater Cleanup Target Levels (GCTLs) established in 62-777, F.A.C. was iron. The pH values in samples collected from 4MW-7 were within the acceptable range.

3.1.3 Detection Wells

The groundwater quality results for the 2010 – 2012 reporting period were compared to Primary Drinking Water Standard (PDWS), Secondary Drinking Water Standard (SDWS) MCLs, GCTLs, and background concentrations. The data indicate that the quality of groundwater generally meets established criteria. There were no exceedances of PDWS criteria in any of the groundwater samples collected during the reporting period. Only iron was detected in concentrations that exceeded the SDWS MCL in samples from 4MW-21 and 4-MW-22 and pH values were below the SDWS acceptable range in samples from 4MW-21 (**Table 3-1**). Iron was detected in concentrations that exceeded the SDWS MCL in the sample collected from Floridan aquifer detection well 4MW-21 in August 2012 and in the sample collected from 4MW-22 in March 2011. These results are nearly three and more than 10 times higher than in other samples collected from these wells during this reporting period and are therefore not considered to be representative. The high concentration of iron in the sample collected from 4MW-22 is attributed to turbidity in the sample. Values for pH were consistently below the acceptable range in all samples collected from detection well 4MW-21 during the 2010 – 2012 reporting period. The low pH values are attributed to the fact that this well is screened in sand and clay rather than in limestone.

Table 3-1. Parameters Detected in Detection Wells at Concentrations Exceeding Regulatory Criteria

Well	Aquifer	Parameter	Units	GCTL/ MCL	Average Background Concentration	Maximum Background Concentration	DATE OF SAMPLE				
							August 2010	March 2011	August 2011	March 2012	August 2012
4MW-21	Floridan	Iron	mg/L	0.3	0.0077	0.0142	0.0730	0.0458	0.0738	0.2910	0.8080
		pH	S.U.	6.6 - 8.5	7.34	7.56	5.27	5.55	5.61	6.24	5.96
4MW-22	Floridan	Iron	mg/L	0.3	0.0077	0.0142	0.0708	0.4730	0.0209	0.0195	0.1480

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

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.

S.U. = Standard Units

3.1.4 Trends and Correlations

Figures B-1 through B-16 (Appendix B) are time versus concentration graphs for parameters that were consistently detected in groundwater samples collected during the 2010 – 2012 reporting period.

Evaluation of these data, including the consideration of data outliers, indicates that groundwater quality is generally stable. There are few correlations other than the usual correlations between specific conductance, TDS, chlorides and TDS. However, the maximum static groundwater level in well 4MW-21 in August 2012 correlates with the lowest concentrations of chlorides, nitrate, barium, cadmium, sodium, and TDS detected in samples from this well during the 2010-2012 monitoring period.

Some minor trends were identified in the iron concentrations and the pH and turbidity values measured in samples collected over the monitoring period. The concentrations of iron in samples from well 4MW-21 increased the last four monitoring events of the reporting period. In this same period, the concentration of chlorides decreased in samples from this well. The exceedance of iron in the sample from 4MW-22 in March 2011 correlates with an elevated turbidity value. Concentrations of other analytes changed little over the monitoring period or did not exhibit significant correlations with other parameters.

3.2 Leachate Quality

3.2.1 Leachate Data

In accordance with Specific Condition E.9.b of the permit, leachate sampling and analyses is required to be conducted annually during the monitoring period. Sampling was performed in February 2011 and March 2012. **Table B-2** (Appendix B) is a summary of field parameters and analytes detected in leachate samples.

3.2.2 Leachate Quality

The leachate quality results of the samples collected during the 2010 – 2012 reporting period were compared to toxicity characteristic criteria in Table 1 of 40 CFR Part 261.24. None of the analytes in any of the leachate samples exceeded the maximum concentrations for the toxicity characteristic listed in Table 1 of 40 CFR Part 261.24.

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 screened in the surficial aquifer (2MW-3A, 2MW-7, 2MW-8, 2MW-9, and 2MW-10) have been dry since 1995. These data indicate that there is no surficial aquifer beneath the Class III landfill.
- There were seasonal variations in the water levels in the Floridan aquifer with highest water levels occurring in the second semester of 2012 and lowest water levels occurring in the first semester of 2012. The high groundwater levels in August 2012 are attributed to heavy rainfall associated with Tropical Storms Beryl and Debby.
- The direction of the groundwater water movement in the Floridan aquifer beneath the Class III landfill is generally from southwest to northeast beneath the westernmost cell and generally from southeast to northwest beneath the eastern three cells. Overall, the gradient is generally to the north.
- The average hydraulic gradient for the Floridan aquifer during the monitoring period was 0.0023. The calculated average rate of groundwater movement in the Floridan aquifer beneath the Class III landfill is 0.14 foot/day or approximately 4.26 feet/month.
- No parameters were detected above MCLs or GCTLs in samples collected from the Floridan aquifer background well 4MW-7, and the pH values were within the acceptable range.
- There were no exceedances of PDWS criteria in any of the groundwater samples collected from any of the detection wells during the reporting period.
- Iron was detected in concentrations that exceeded the SDWS MCL in the sample collected from Floridan aquifer detection well 4MW-21 in August 2012 and in the sample collected from Floridan aquifer detection well 4MW-22 in March 2011. These results are nearly three and more than 10 times higher than in other samples collected from these wells during this reporting period and are therefore not considered to be representative. The high concentration of iron in the sample collected from 4MW-22 is attributed to turbidity in the sample.
- Values for pH were consistently below the acceptable range in all samples collected from detection well 4MW-21 during the 2010 – 2012 reporting period. The low pH values are attributed to the fact that this well is screened in sand and clay rather than in limestone.
- There are few correlations other than the usual correlations between specific conductance, TDS, chlorides and TDS. In general, groundwater quality remained generally stable during this monitoring period.
- There is no evidence of a discharge of leachate into the groundwater at the Class III landfill.

- The groundwater monitoring program is sufficient to detect a release of contaminants into groundwater.
- None of the analytes in any of the leachate samples exceeded the maximum concentrations for the toxicity characteristic listed in Table 1 of 40 CFR Part 261.24.

4.2 Recommendations

Monitoring should continue in accordance with the March 2008 WQMP with the exception of leachate monitoring. Leachate monitoring should be discontinued in response to the changes in Chapter 62-701.510, F.A.C.

Appendix A

Water Level Data

Table A-1. Water Level Elevations From All Monitor Wells and Piezometers From August 2010 To August 2012

Monitor Well	Water Level Measurements (FT NGVD*)				
	2010	2011		2012	
	8/23/10	*2/17/11*	*8/9/11*	*2/28/12*	*8/14/12*
2MW-3A	DRY	DRY	DRY	DRY	DRY
2MW-7	DRY	DRY	DRY	DRY	DRY
2MW-8	DRY	DRY	DRY	DRY	DRY
2MW-9	DRY	DRY	DRY	DRY	DRY
2MW-10	DRY	DRY	DRY	DRY	DRY
4MW-3A	25.54	24.26	24.88	24.04	31.38
4MW-7	28.54	26.57	29.56	26.34	33.57
4MW-8	27.87	26.37	30.29	26.15	33.22
4MW-9	26.18	24.88	27.90	24.67	31.53
4MW-21	27.74	26.18	29.11	25.91	33.36
4MW-22	26.22	24.95	26.59	24.69	32.14
Hydraulic Gradient	0.0022	0.0017	0.0042	0.0017	0.0017

Note:
Hydraulic gradient estimated using a three-point solution with water level elevations from monitor wells 4MW-7, 4MW-8, and 4M
*National Geodetic Vertical Datum of 1929 (NGVD 29)

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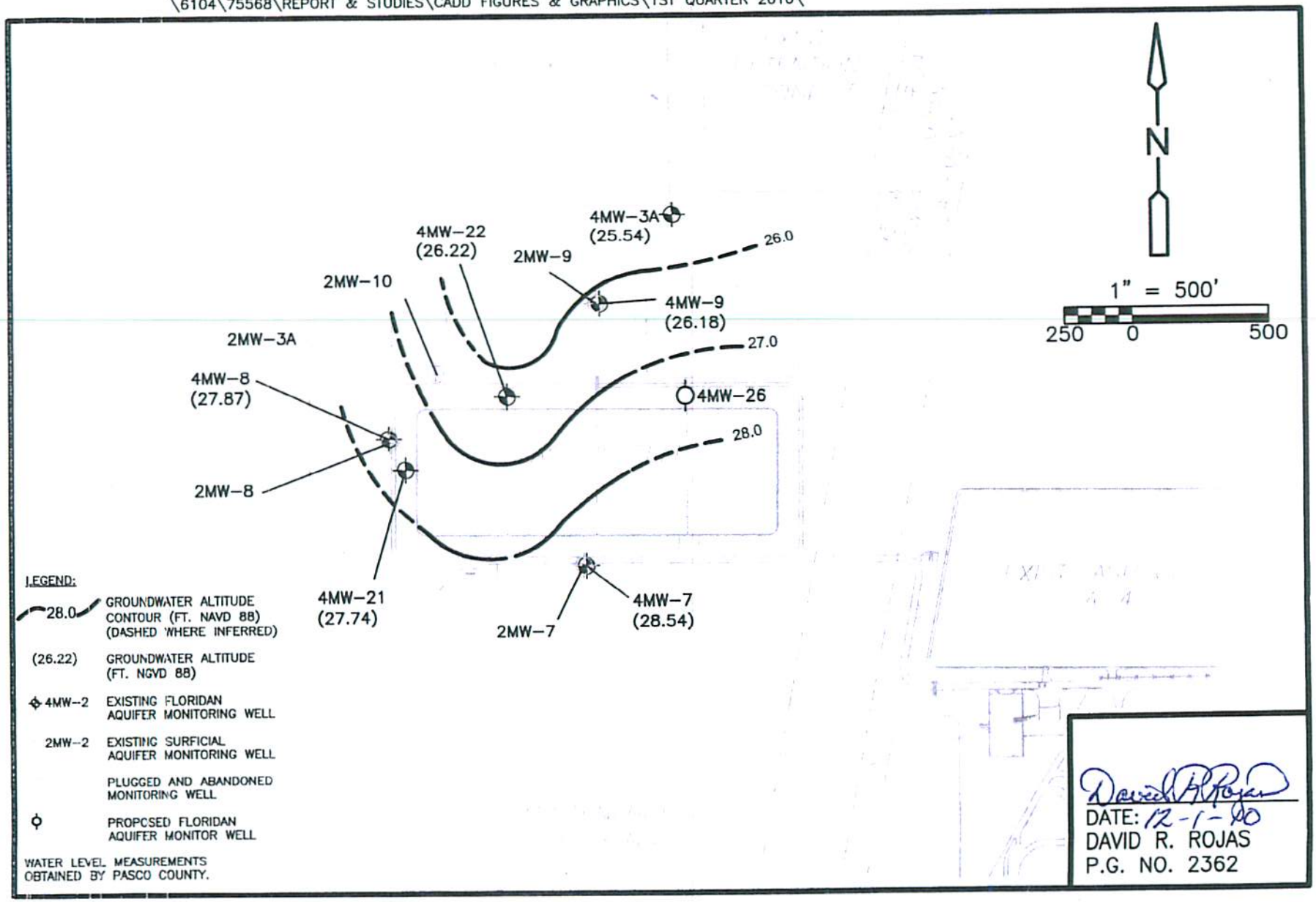

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Floridan Aquifer Groundwater Contour Map - August 23, 2010
Third Quarter, 2010
West Pasco Class III Landfill
Pasco County Florida

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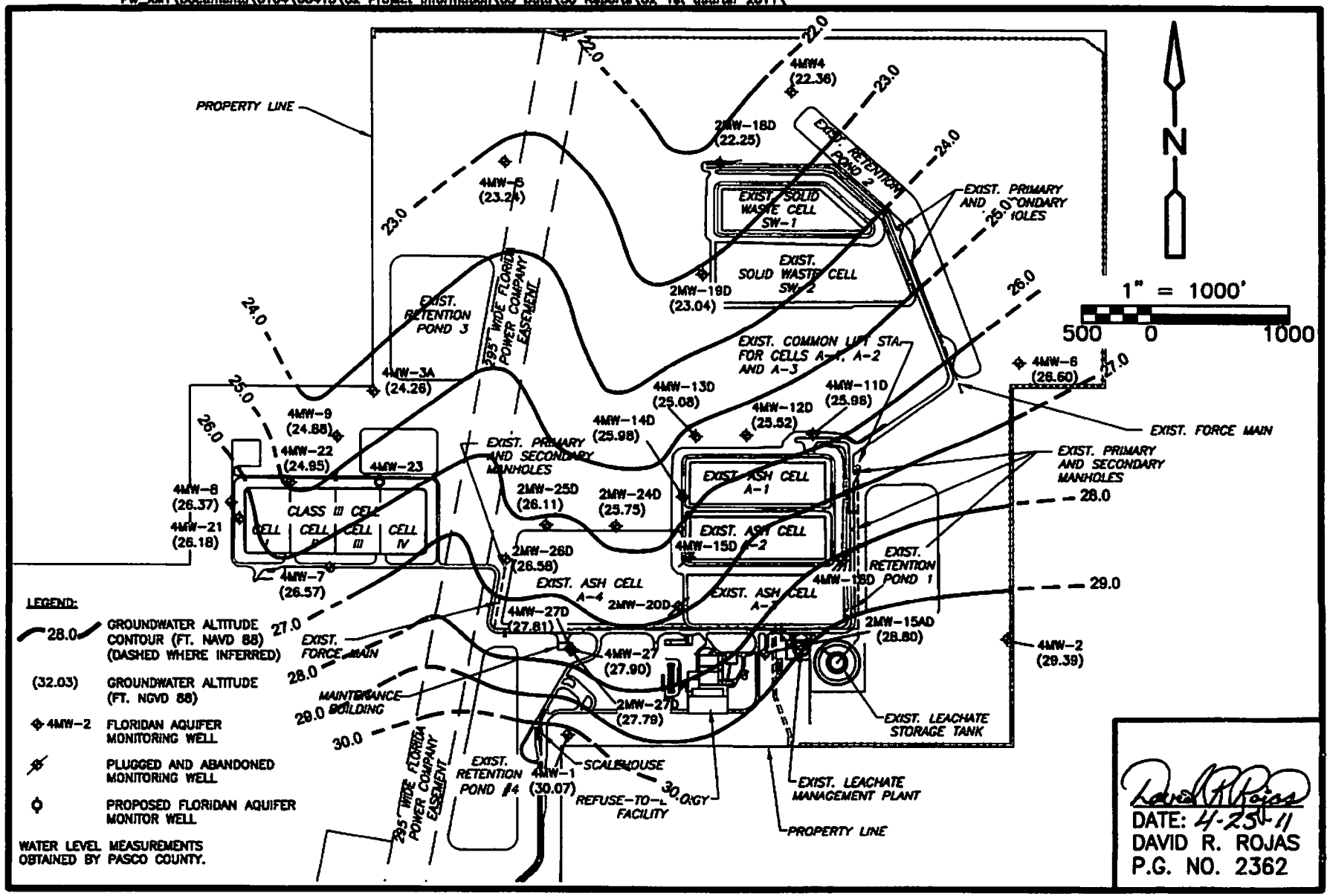

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Floridan Aquifer Groundwater Contour Map - February 17, 2011
First Quarter, 2011
West Pasco Resource Recovery Facility

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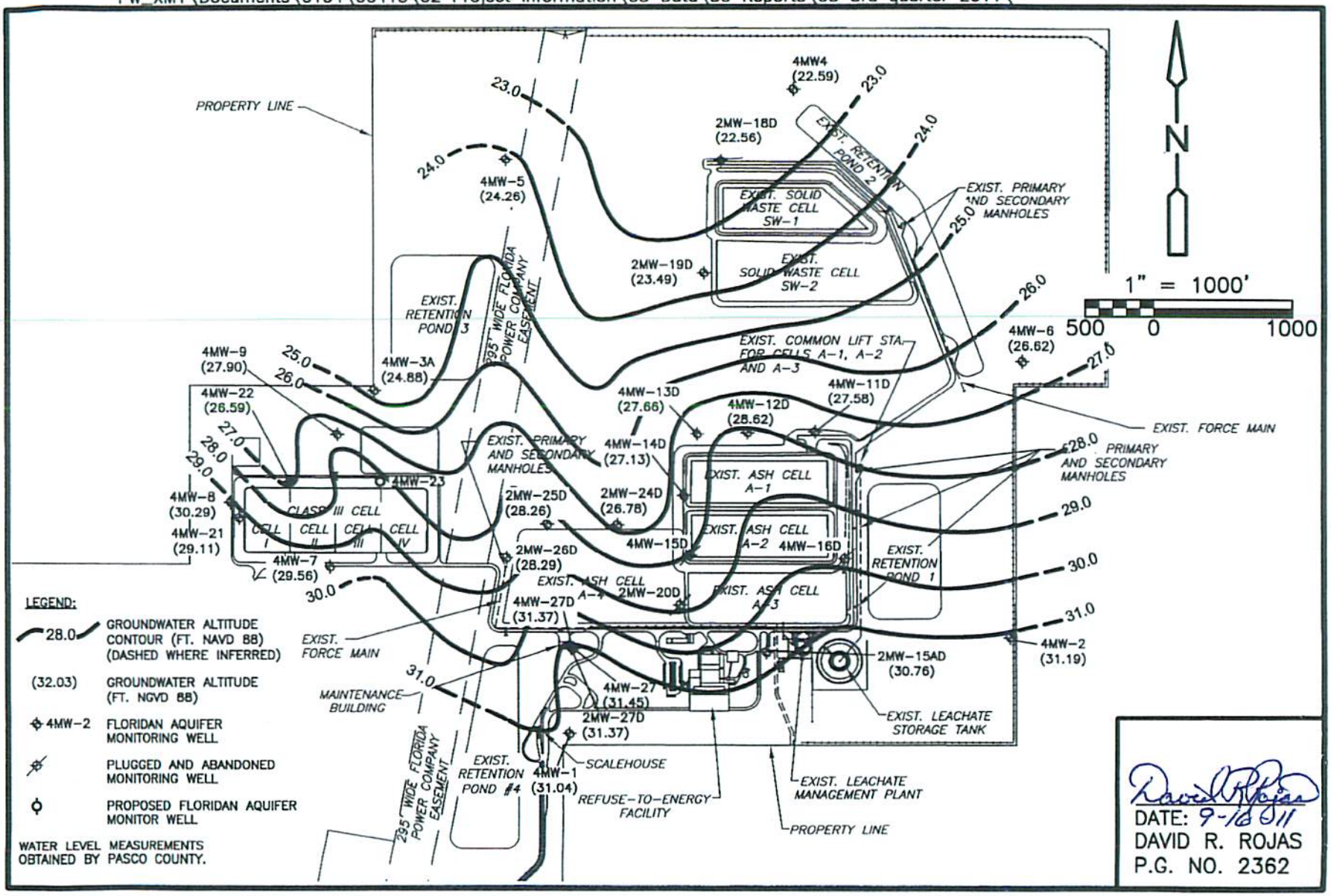

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Floridan Aquifer Groundwater Contour Map - Reference File
Third Quarter, 2011
West Pasco Resource Recovery Facility

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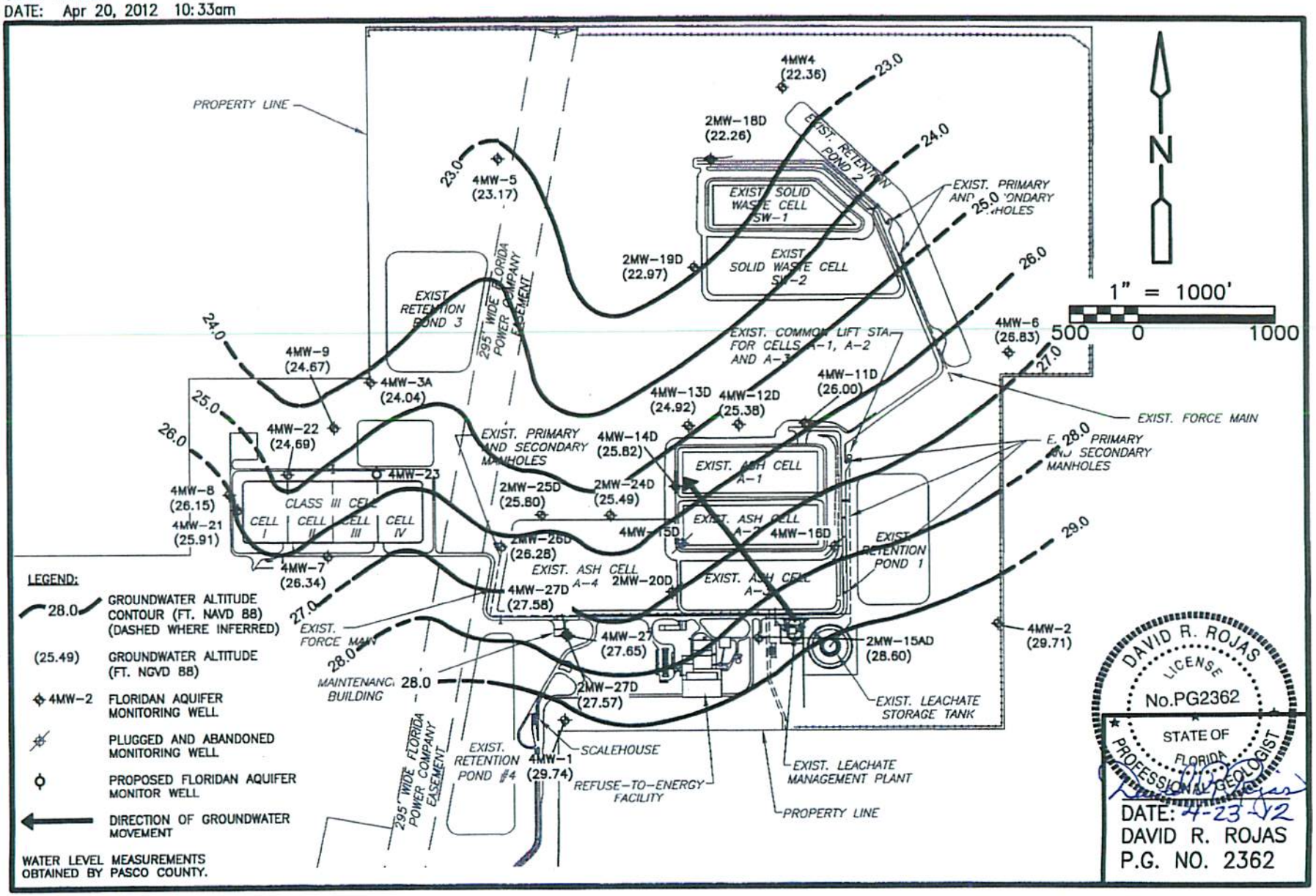

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Floridan Aquifer Groundwater Contour Map - February 28, 2012
First Quarter, 2012
West Pasco Resource Recovery Facility

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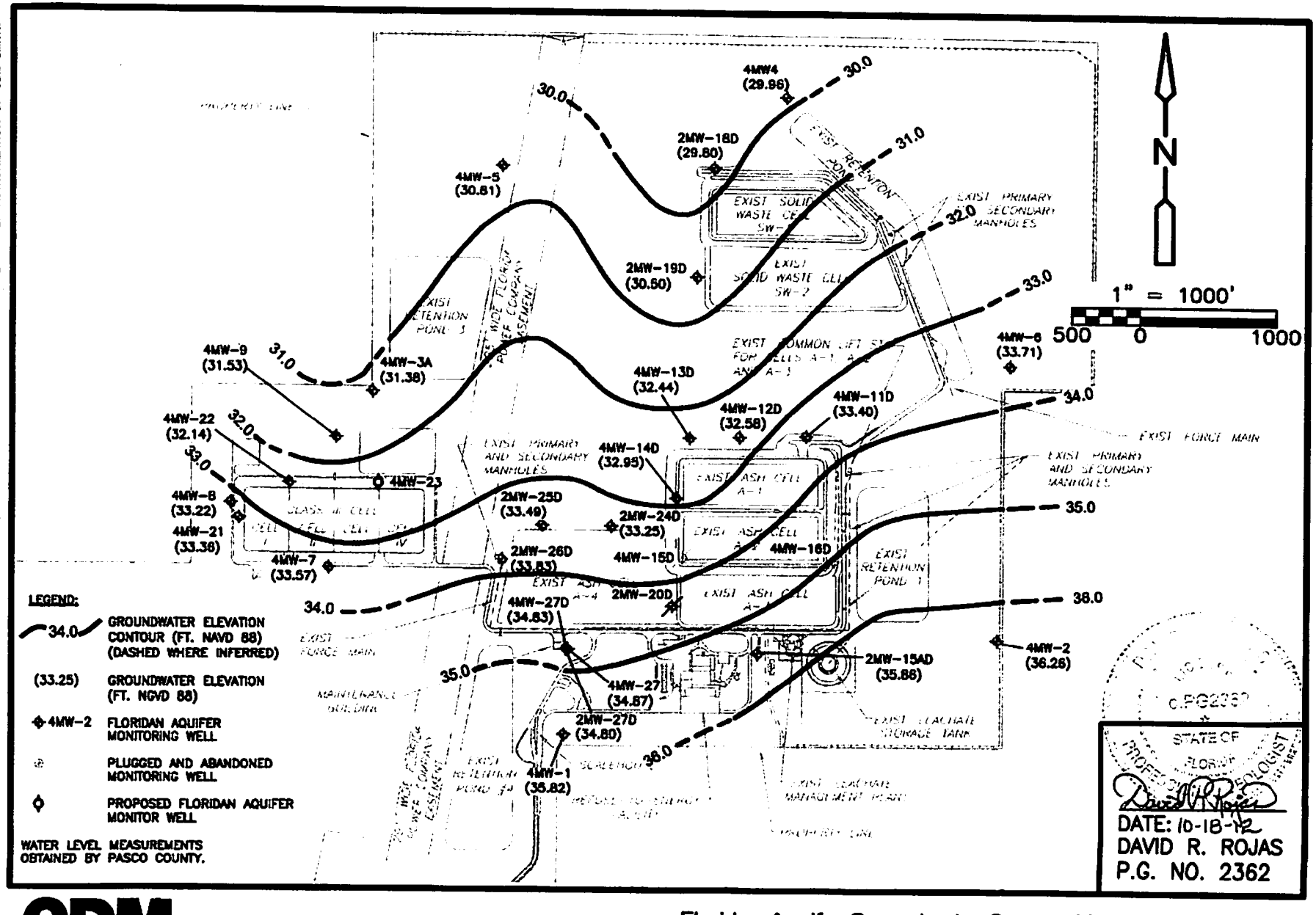

LEGEND:

- 34.0 — GROUNDWATER ELEVATION CONTOUR (FT. NAVD 88) (DASHED WHERE INFERRED)
- (33.25) — GROUNDWATER ELEVATION (FT. NGVD 88)
- 4MW-2 — FLORIDAN AQUIFER MONITORING WELL
- PLUGGED AND ABANDONED MONITORING WELL
- PROPOSED FLORIDAN AQUIFER MONITOR WELL

WATER LEVEL MEASUREMENTS OBTAINED BY PASCO COUNTY.

STATE OF FLORIDA
PROFESSIONAL GEOLOGIST
C.P.G. 2362
DATE: 10-18-12
DAVID R. ROJAS
P.G. NO. 2362

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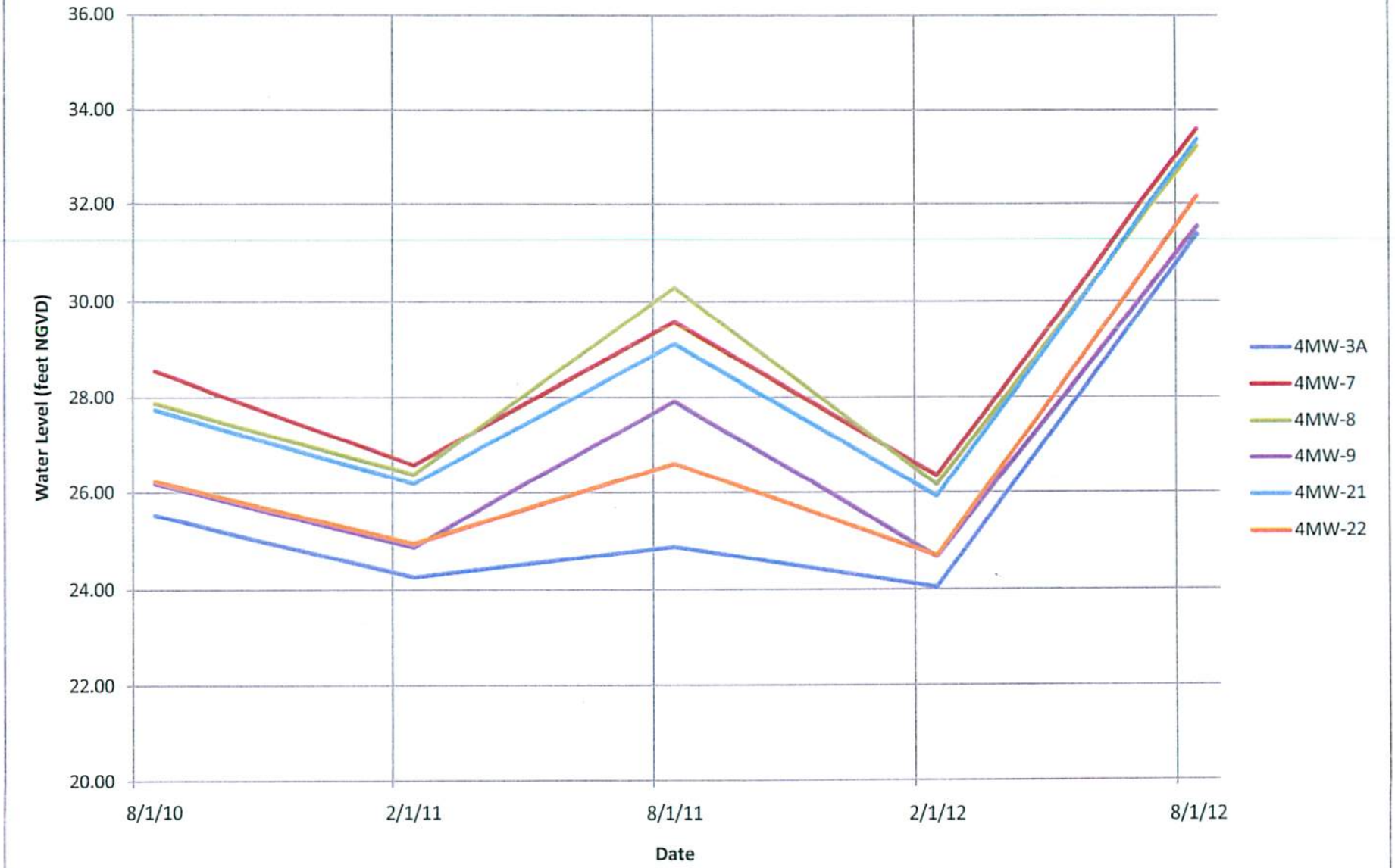
Floridan Aquifer Groundwater Contour Map - August 14, 2012
Third Quarter, 2012
West Pasco Resource Recovery Facility

Figure A-1 Hydrographs of Floridan Aquifer Monitor Wells and Piezometers



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Appendix B

Groundwater and Leachate Quality Data

Table B-1. Analyte Detections in Monitor Wells for West Pasco Class III Landfill from August 2010 to August 2012

Well No.	Well Designation	Parameter	Units	GCTL/MCL	Aug-10	Feb-11	Aug-11	Feb-12	Aug-12
4MW-7	Background	Ammonia (N)	mg/l	2.8					0.06 I
4MW-7	Background	Antimony	mg/l	0.006				0.0013	7.3E-05 I
4MW-7	Background	Barium	mg/l	2.00	0.0079 I	0.0094 I	0.0092 I	0.0082	0.0085
4MW-7	Background	Beryllium	mg/l	0.004					0.00023 I
4MW-7	Background	Chloride	mg/l	250	10.1	16.3	14.9	16.6	15.5
4MW-7	Background	Chromium	mg/l	0.1				0.00150 I	0.00049 I
4MW-7	Background	Copper	mg/l	1.0				0.00025 I	0.00014 I
4MW-7	Background	Dissolved Oxygen	mg/l		1.55	0.65	1.07	0.95	0.9
4MW-7	Background	Iron	mg/l	0.3	0.0036 I	0.0047 I		0.0140	0.0142
4MW-7	Background	Mercury	mg/l	0.002		0.00002 I	0.00005 I	0.00012	
4MW-7	Background	Nickel	mg/l	0.1				0.0025 I	0.0026 I
4MW-7	Background	Nitrate (N)	mg/l	10	1.30		0.27		1.42
4MW-7	Background	pH	SU	6.5 - 8.5	7.29	7.07	7.56	7.22	7.56
4MW-7	Background	Residues- Filterable (TDS)	mg/l	500	170	210	244	204	270
4MW-7	Background	Silver	mg/l	0.1					0.0041 I
4MW-7	Background	Sodium	mg/l	160	4.44	4.60	4.83	4.03	6.02
4MW-7	Background	Specific Conductance	µmhos/cm		285	290	353	295	403
4MW-7	Background	Temperature	°C		23.44	23.03	24.31	22.81	25.74
4MW-7	Background	Turbidity	NTU		1.3	0.0	0.0	0.0	0.0
4MW-7	Background	Vanadium	mg/l	0.049					0.0091 I
4MW-21	Detection	Acetone	ug/l	6,300				14.0	2.7 I
4MW-21	Detection	Ammonia (N)	mg/l	2.8	0.17 I				
4MW-21	Detection	Antimony	mg/l	0.006				0.0017	7.1E-05 I
4MW-21	Detection	Barium	mg/l	2.00	0.0114	0.0119	0.0126	0.0110	0.0100
4MW-21	Detection	Beryllium	mg/l	0.004				0.00056 I	0.00020 I
4MW-21	Detection	Cadmium	mg/l	0.005	0.0016	0.0019	0.0018	0.0017	0.0014
4MW-21	Detection	Chloride	mg/l	250	20.4	23.3	19.2	17.0	14.4
4MW-21	Detection	Chromium	mg/l	0.1	0.0025 I			0.0021 I	0.0012 I
4MW-21	Detection	Copper	mg/l	1.0				0.00033 I	0.00043 I
4MW-21	Detection	Dissolved Oxygen	mg/l		3.6	3.91	1.38	2.75	1.34
4MW-21	Detection	Iron	mg/l	0.3	0.073	0.0458	0.0738	0.291	0.808
4MW-21	Detection	Lead	mg/l	0.015				0.00042 I	0.0004 I
4MW-21	Detection	Mercury	mg/l	0.002		0.00012	0.00012	0.00006 I	0.00007 I
4MW-21	Detection	Nickel	mg/l	0.1				0.0023 I	0.0019 I
4MW-21	Detection	Nitrate (N)	mg/l	10	8.38	8.34	8.83	7.71	7.59
4MW-21	Detection	pH	SU	6.5 - 8.5	5.27	5.55	5.61	6.24	5.96
4MW-21	Detection	Residues- Filterable (TDS)	mg/l	500	160	142	152	150	140
4MW-21	Detection	Silver	mg/l	0.1				0.0027 I	0.0015 I
4MW-21	Detection	Sodium	mg/l	160	4.86	5.32	5.78	6.12	0.81
4MW-21	Detection	Specific Conductance	µmhos/cm		148	116	157	155	156
4MW-21	Detection	Temperature	°C		24.43	23.01	27.54	23.32	27.88
4MW-21	Detection	Turbidity	NTU		1.4	0.1	4.3	5.8	1.6
4MW-21	Detection	Vanadium	mg/l	0.049				0.0085 I	
4MW-21	Detection	Zinc	mg/l	5				0.0077	0.0110
4MW-22	Detection	Ammonia (N)	mg/l	2.8	0.06 I				
4MW-22	Detection	Antimony	mg/l	0.006				0.0018	
4MW-22	Detection	Arsenic	mg/l	0.01				0.0011 I	
4MW-22	Detection	Barium	mg/l	2.00	0.0140	0.0133	0.0141	0.0100	0.0110
4MW-22	Detection	Beryllium	mg/l	0.004				0.00064 I	
4MW-22	Detection	Cadmium	mg/l	0.005					0.00027 I
4MW-22	Detection	Chloride	mg/l	250	19.3	18.3	13.2	20.3	18.7
4MW-22	Detection	Chromium	mg/l	0.1				0.00160 I	0.00081 I
4MW-22	Detection	Copper	mg/l	1.0				0.00014 I	0.00045 I
4MW-22	Detection	Dissolved Oxygen	mg/l		0.94	1.10	1.13	0.74	0.58
4MW-22	Detection	Iron	mg/l	0.3	0.0708	0.4730	0.0209	0.0195	0.1480
4MW-22	Detection	Mercury	mg/l	0.002		0.00004 I	0.00010	0.00007 I	
4MW-22	Detection	Nickel	mg/l	0.1				0.0034 I	0.0034 I
4MW-22	Detection	Nitrate (N)	mg/l	10	0.03 I	0.10	2.41	0.13	
4MW-22	Detection	pH	SU	6.5 - 8.5	7.07	7.08	7.40	7.20	7.62
4MW-22	Detection	Residues- Filterable (TDS)	mg/l	500	260	250	282	266	268
4MW-22	Detection	Silver	mg/l	0.1				0.0017 I	0.0029 I
4MW-22	Detection	Sodium	mg/l	160	6.27	5.98	6.39	6.73	6.39
4MW-22	Detection	Specific Conductance	µmhos/cm		390	357	419	390	402
4MW-22	Detection	Temperature	°C		24.77	24.51	26.51	23.50	27.79
4MW-22	Detection	Turbidity	NTU		1.2	10	0.0	0.0	0.0
4MW-22	Detection	Vanadium	mg/l	0.049				0.0170	
4MW-22	Detection	Zinc	mg/l	5				0.0010 I	0.0029 I

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
NTU - nephelometric turbidity units
°C - degrees Centigrade
I - analyte detected below the quantitation limit
SU - Standard Unit
µmhos/cm - micromohs per centimeter

Table B-2. Summary of Field Parameters and Detected Analytes: 2011-2012 : Leachate

Test Site ID #: 4051A16325

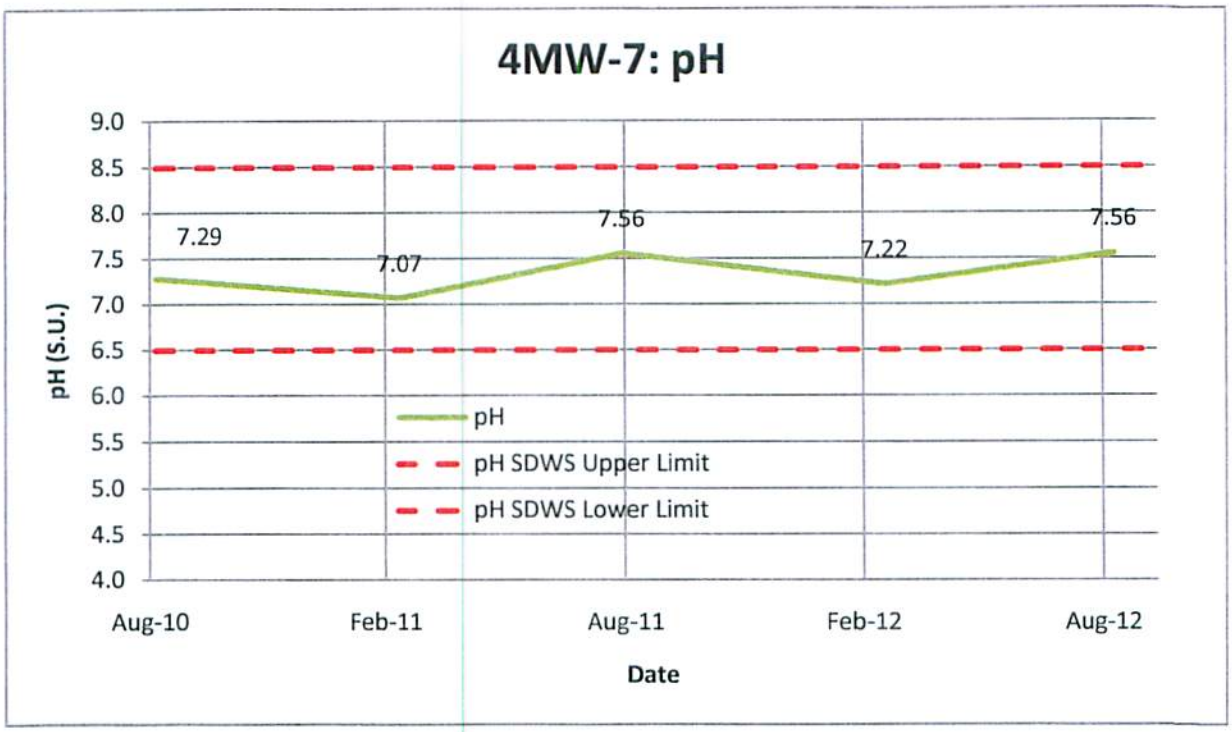
Parameter	Units	Toxicity Characteristic Criteria	2011 2/1/11 Tank 1		2011 2/1/11 Tank 2		2012 3/14/12 Tank 1		2012 3/14/12 Tank 2	
Conductivity	umhos/cm		2410		288		3530		522	
pH	S.U.		7.19		6.97		7.15		7.06	
Temperature	°C		22.77		18.82		24.42		23.47	
Dissolved Oxygen	mg/l		3.01		4.51		0.12		1.50	
Turbidity	NTU		115		102		202.0		79.2	
Bicarbonate	mg/l		1074		914		1626		157	
Total Ammonia	mg/l		27.7		24.1		89.4		3.63	
Chlorides	mg/l		171		52		321		10.2	
Sulfide	mg/l		18.8		1.0	U	12		0.6	
Cyanide, Total	mg/l		0.005	U	0.005	U	0.005	U	0.019	I
Total Phenols	mg/l		N/A		N/A		0.190		0.160	
Nitrate	mg/l		3.87		0.02	U	0.02	U	7.08	
TDS	mg/l		1932		424		2556		310	
Color	PCU		Yellow		Amber		Grey		Amber	
Antimony	mg/l	5.0	0.0017		0.0005	U	0.1900		0.0920	I
Arsenic	mg/l	5.0	0.346		0.0050	U	0.3900		0.0072	
Barium	mg/l	100	0.115		0.0066	I	0.2800		0.0050	U
Beryllium	mg/l		0.0005	U	0.0005	U	0.00030	I	0.00036	I
Cadmium	mg/l	1.0	0.0005	U	0.0005	U	0.0018	I	0.0010	U
Chromium	mg/l	5.0	0.0644		0.0075		0.0740		0.0040	U
Copper	mg/l		0.0030	I	0.0051		0.0030	U	0.0030	U
Iron	mg/l		0.136		0.381		0.284		0.595	
Lead	mg/l	5.0	0.0050	U	0.0050	U	0.063	I	0.046	I
Mercury	mg/l	0.2	0.00013		0.00009	I	0.0001	U	0.0001	U
Selenium	mg/l	1.0	0.0075	U	0.0075	U	0.190	I	0.110	I
Silver	mg/l	5.0	0.0025	U	0.0025	U	0.0011	U	0.0016	I
Sodium	mg/l		154		14.7		271		14.4	
Vanadium	mg/l		0.0050	U	0.0050	U	0.015		0.014	
Acenaphthene	ug/l		16.6	U	16.6	U	1.9		0.21	U
Acetone	ug/l		14.4		5.0	U	8.7		2	U
Acetonitrile	ug/l		5.5	I	5.0	U	2.1	U	2.1	U
Anthracene	ug/l		11.6	U	11.6	U	4.6		0.22	U
Benzene	ug/l	500	7.0		0.50	U	2.6		0.1	U
Bis(2-ethylhexyl)phthalate (DEHP)	ug/l		0.77	U	0.77	U	0.20	U	0.70	I
Carbon disulfide	ug/l		1.8		0.50	U	3.6		0.2	U
Chlorobenzene	ug/l	100,000	0.1	U	0.1	U	0.20	I	0.10	U
cis-1,2-Dichloroethene	ug/l		0.09	U	0.09	U	0.20	I	0.09	U
Ethylbenzene	ug/l		10.1		1.4		4.1		0.08	U
Fluoranthene	ug/l		10.4	U	10.4	U	0.230		0.023	U
Fluorene	ug/l		10.8	U	10.8	U	1.4		0.036	U
1-Methylnaphthalene	ug/l		19.1	U	19.1	U	1.3		0.027	U
Methyl-tert-butyl ether (MTBE)	ug/l		16.4		0.5	U	0.2	U	0.2	U
Napthalene	ug/l		0.1	U	0.1	U	3.9		0.13	U
Pentrachlorophenol	ug/l	100,000	0.23	I	0.016	U	0.4	U	0.4	U
Phenanthrene	ug/l		0.50	U	0.50	U	0.64		0.024	U
Pyrene	ug/l		0.66	U	0.66	U	0.23		0.019	U
Toluene	ug/l		4.20		0.61	I	1.10		0.09	U
Trichlorofluoromethane	ug/l		0.68	I	0.50	U	0.20	U	0.20	U
Xylene	ug/l		12.20		5.30		3.6		0.10	U

NOTE:

- Criteria for Toxicity Characteristic established in Table 1 of 40 CFR Part 261.24
- Concentrations highlighted with yellow represent detections that exceed the established Toxicity Characteristic criteria
- µmhos/cm - micromohs per centimeter
- S.U. - Standard Unit
- °C - degrees Centigrade
- mg/l - milligrams per liter
- NTU - nephelometric turbidity units
- ug/L - micrograms per liter
- PCU = platinum-cobalt units
- U = Analyte was not detected. Concentration presented is the method detection level (MDL)
- I = Analyte concentration is within the method dection accuracy. The reported value is between the laboratory MDL and the laboratory practical quantit

Floridan Aquifer Background Well

4MW – 7



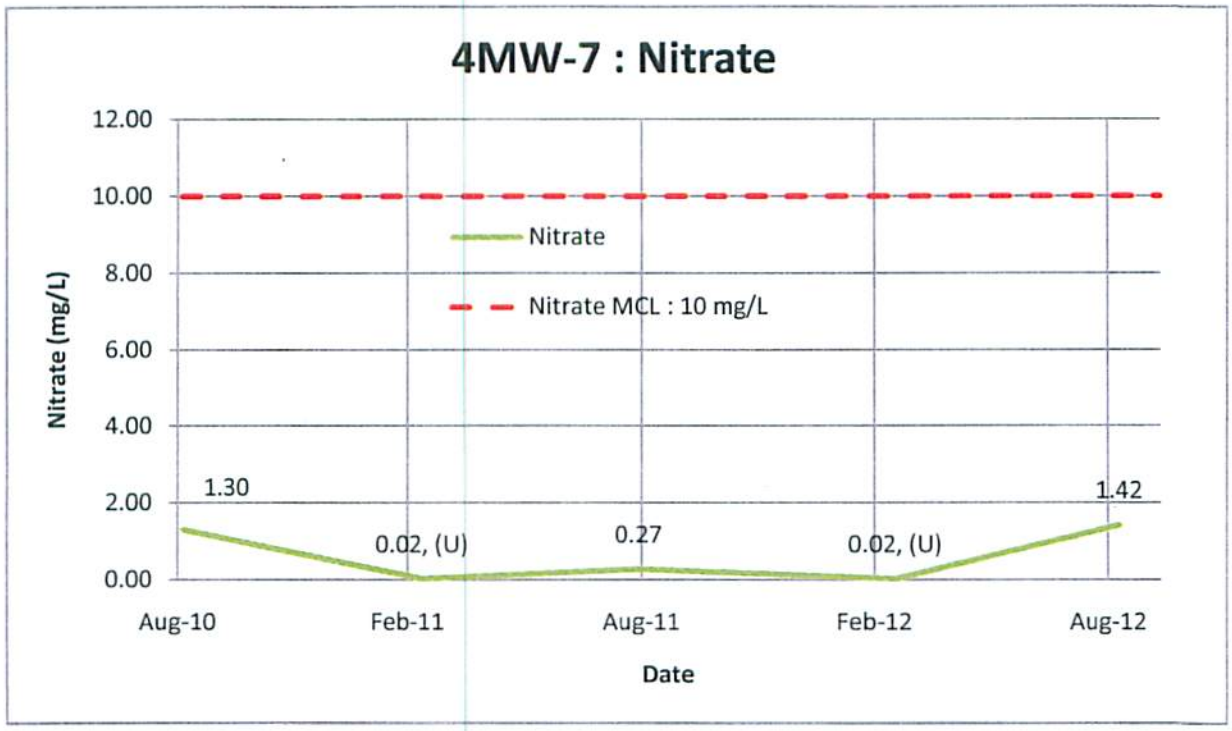


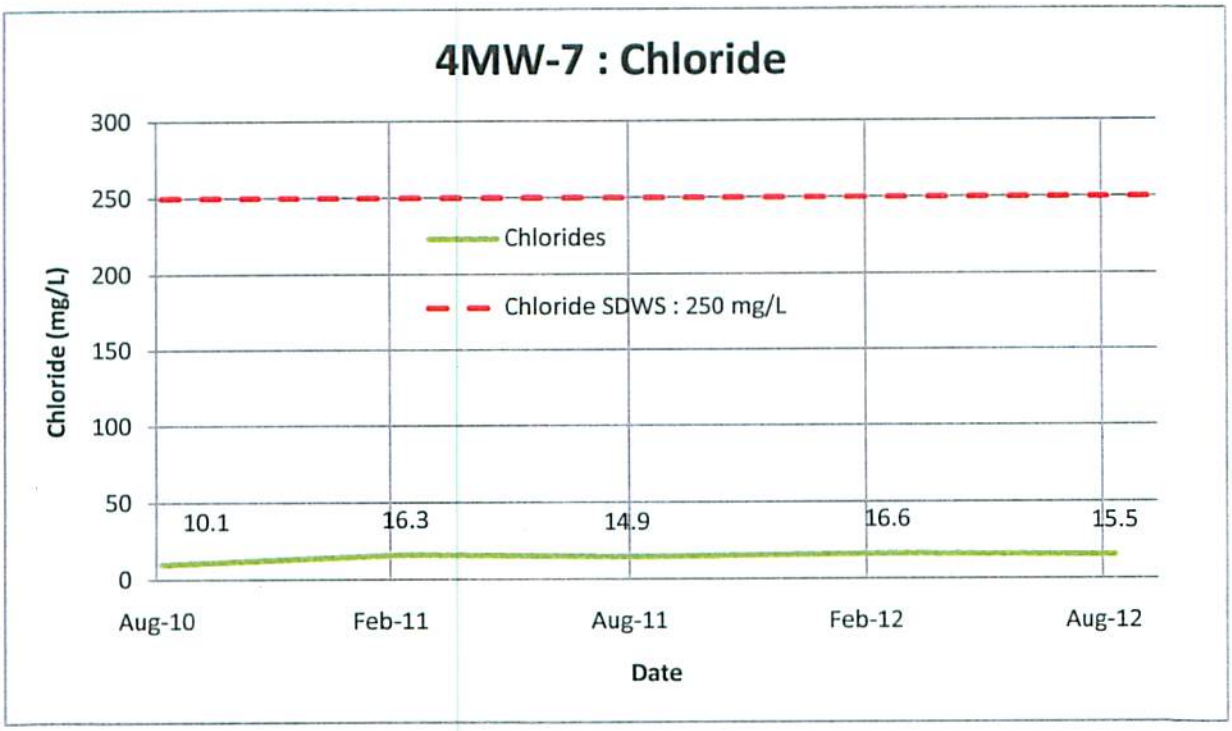
Figure B-1 pH and Nitrate Trends for 4MW-7

SDWS - Secondary Drinking Water Standards per 62-550 F.A.C

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

Based on data provided by Pasco County Lab

CDM Smith



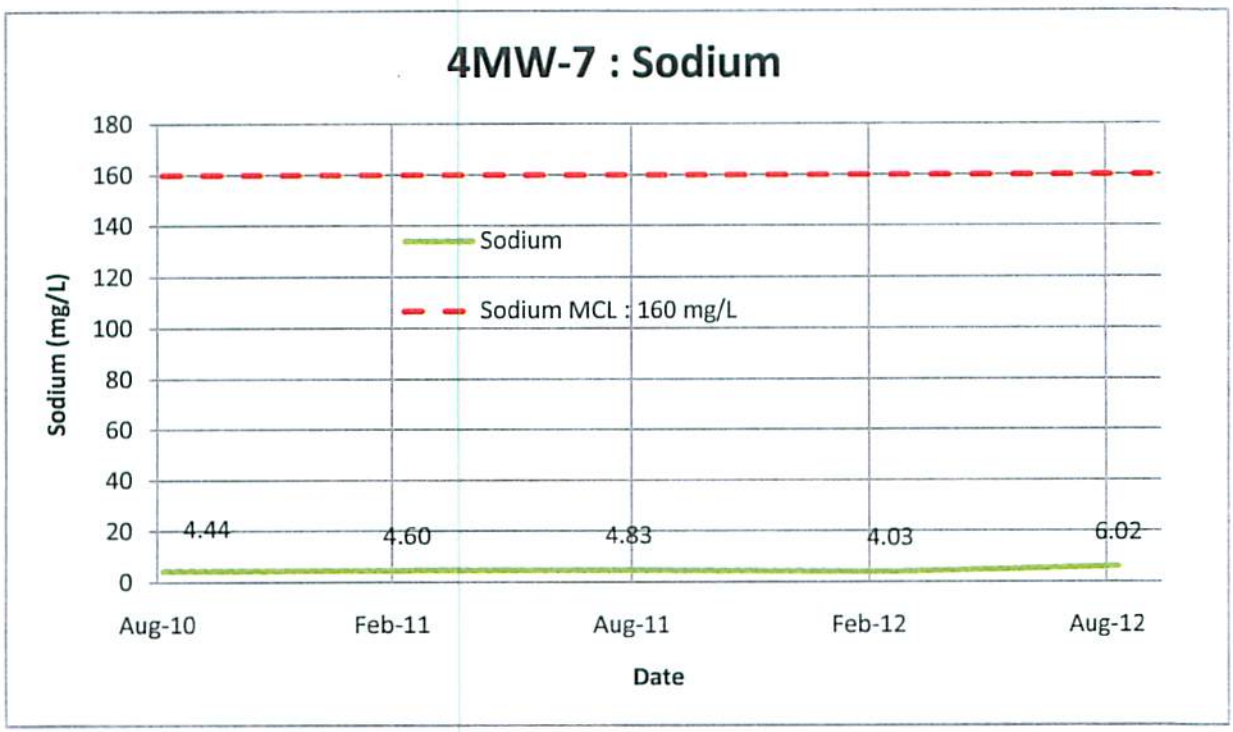
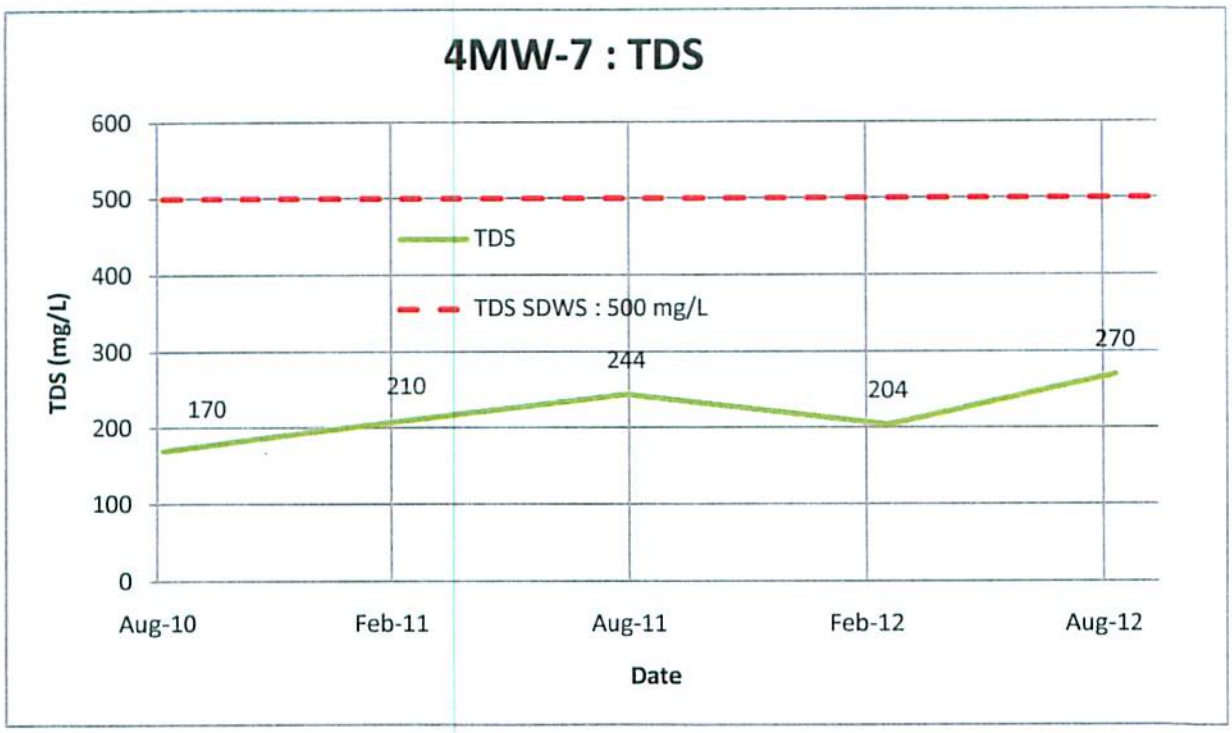


Figure B-2 Chloride and Sodium Trends for 4MW-7

SDWS - Secondary Drinking Water Standards per 62-550 F.A.C

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

Based on data provided by Pasco County Lab



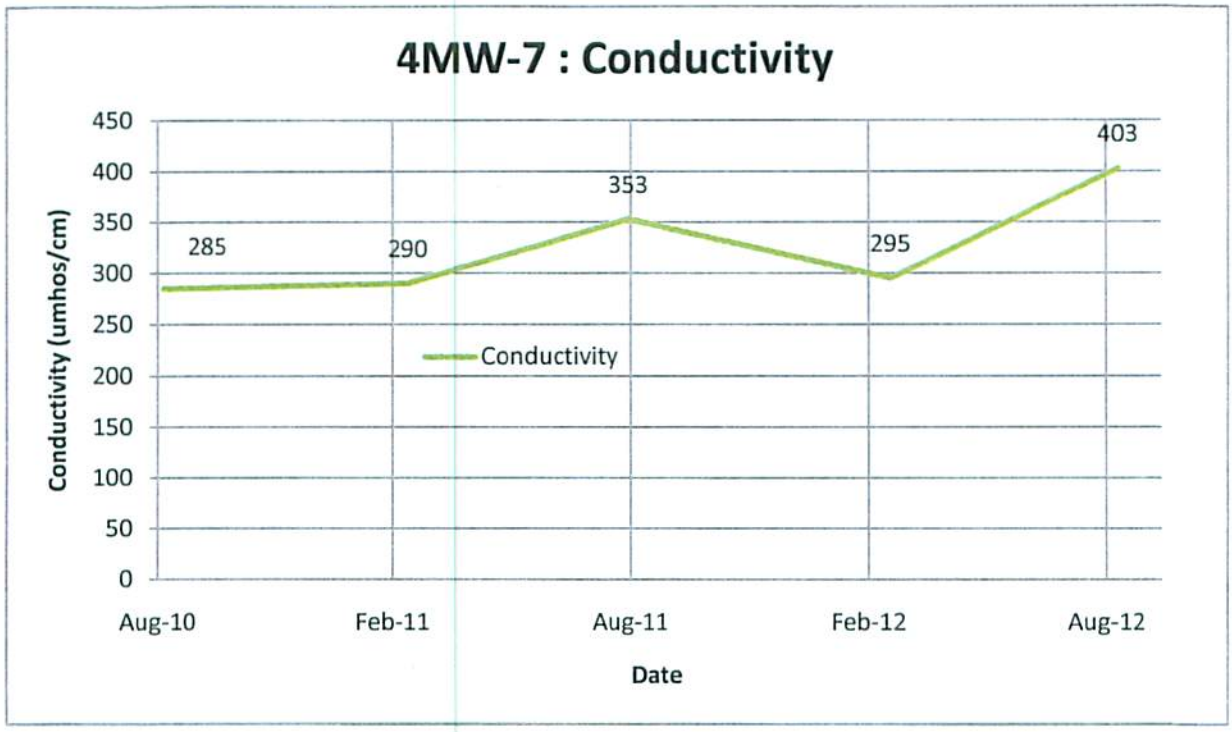
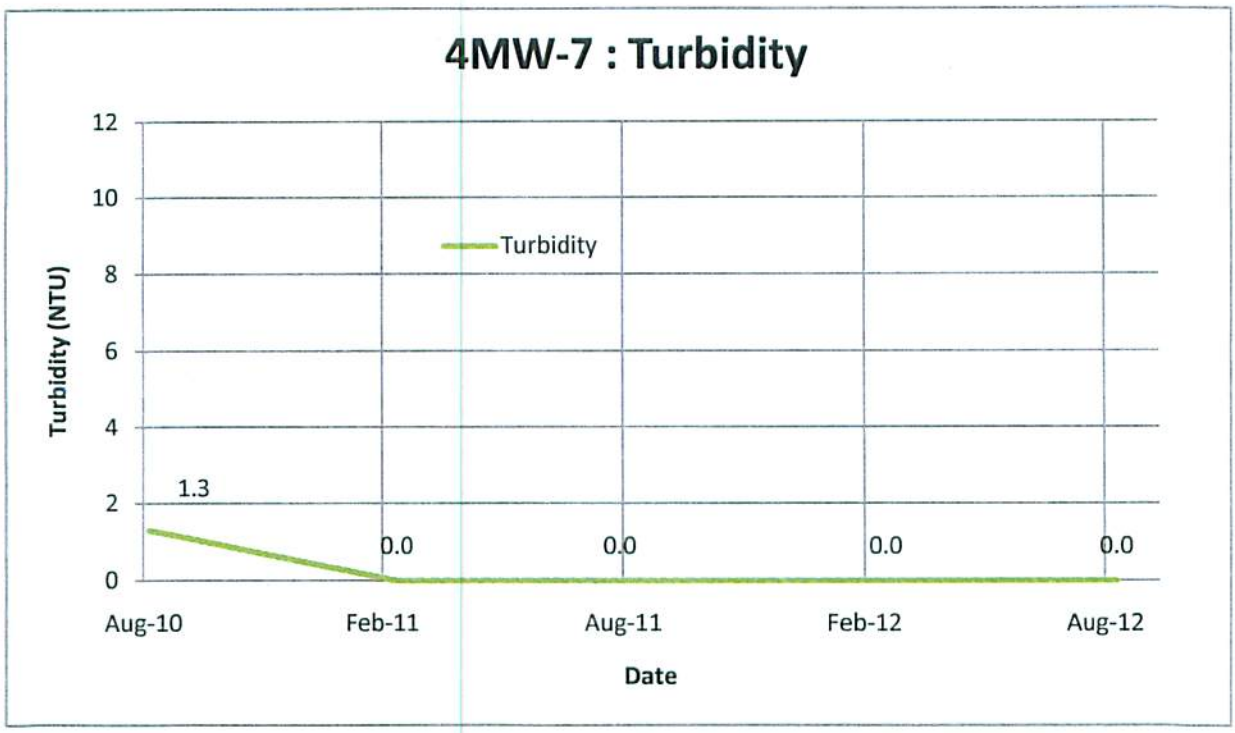


Figure B-3 TDS and Conductivity Trends for 4MW-7

SDWS - Secondary Drinking Water Standards per 62-550 F.A.C

Based on data provided by Pasco County Lab



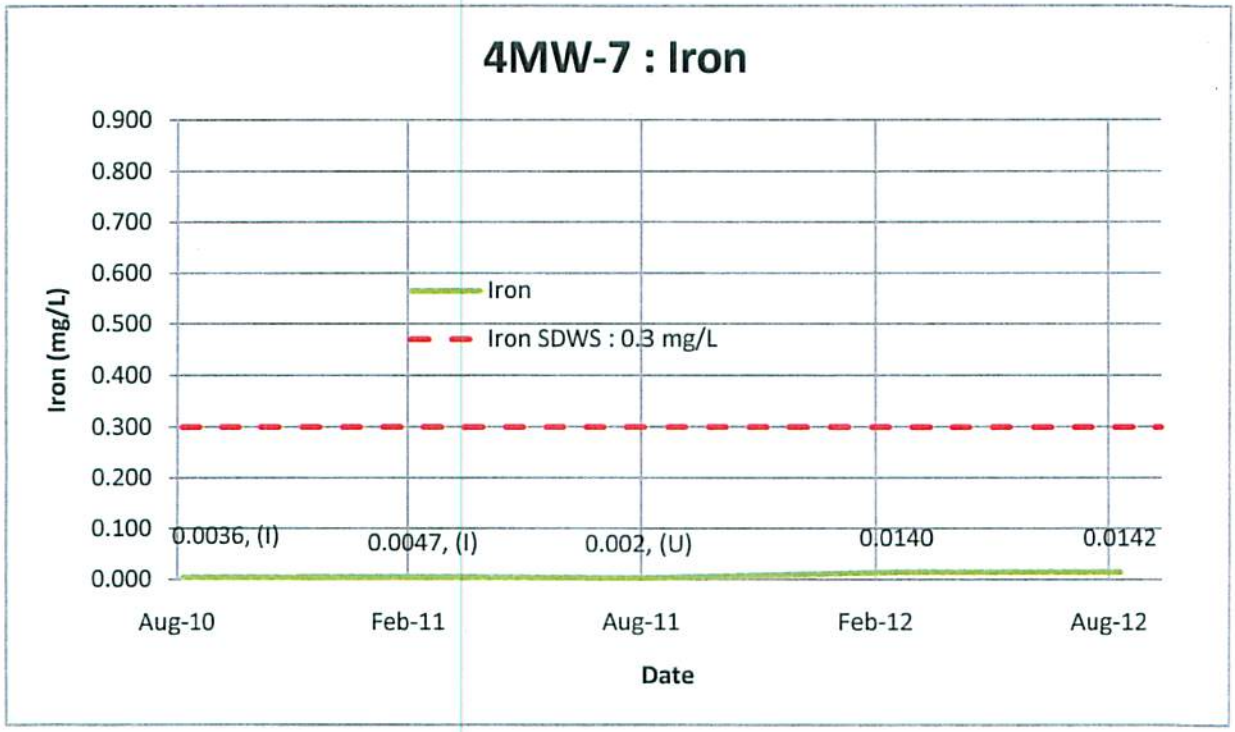
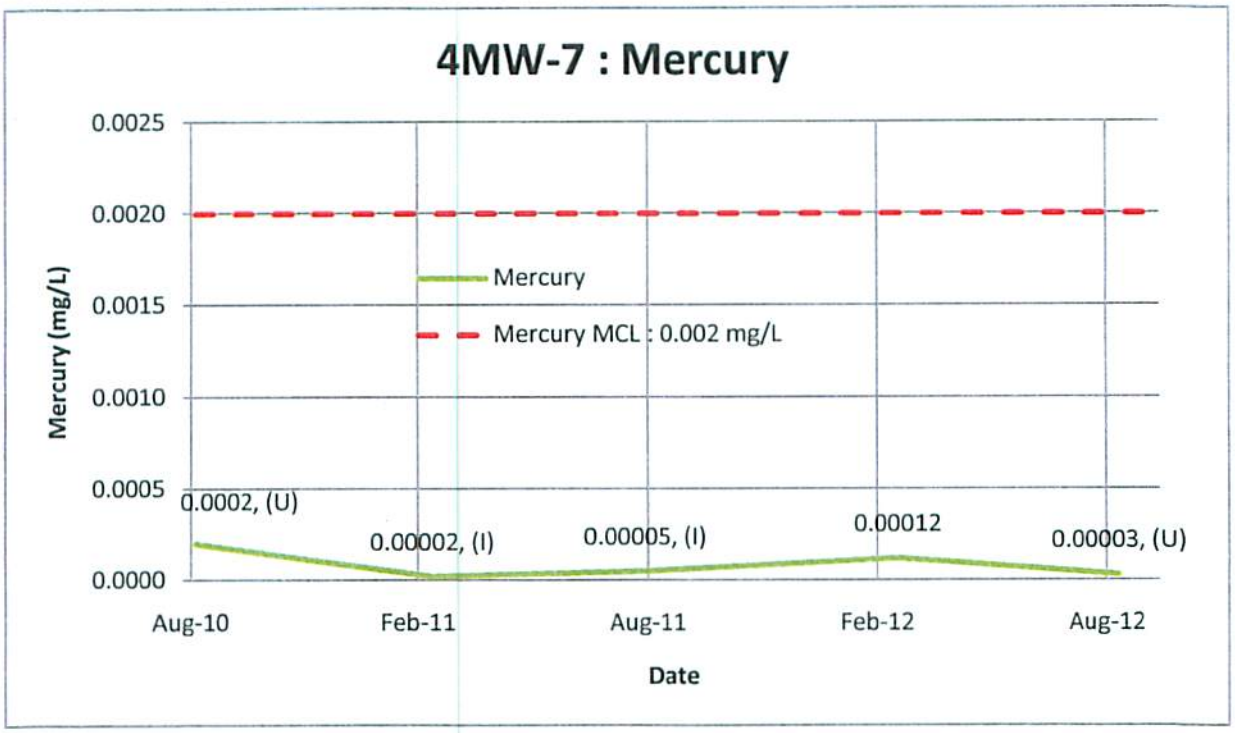


Figure B-4 Turbidity and Iron Trends for 4MW-7

SDWS - Secondary Drinking Water Standards per 62-550 F.A.C

Based on data provided by Pasco County Lab



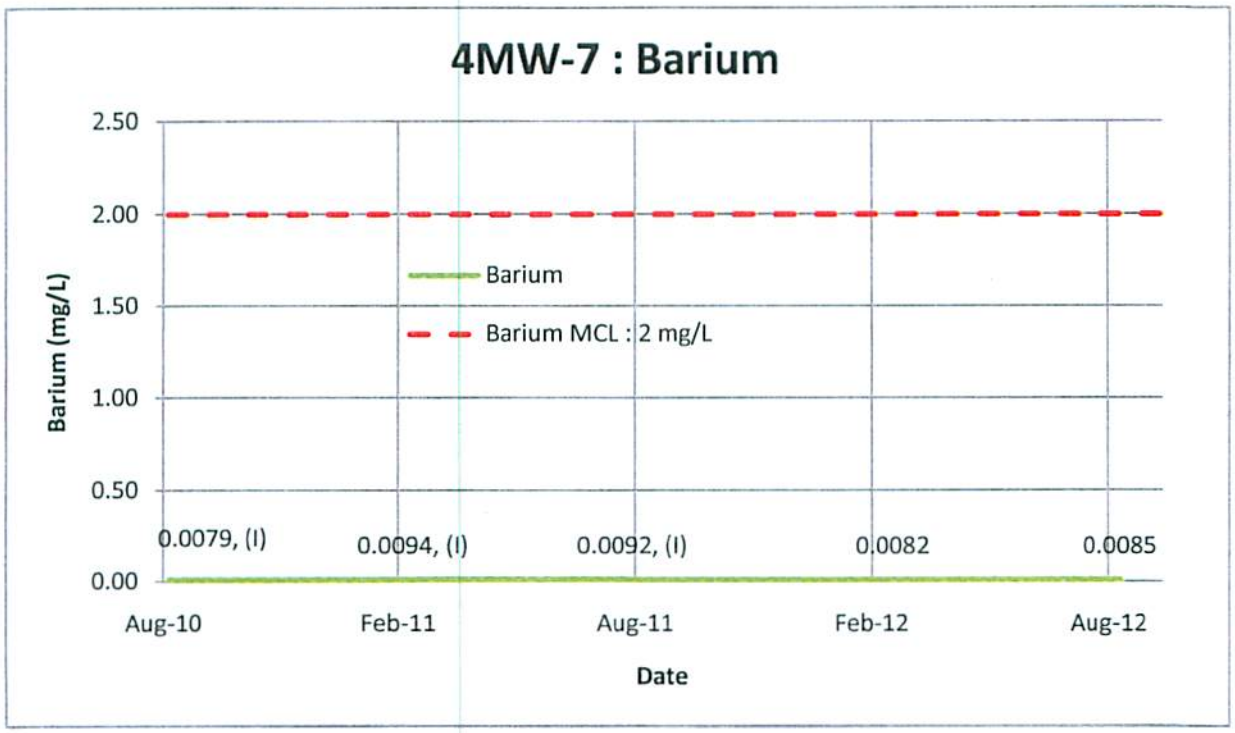


Figure B-5 Mercury and Barium Trends for 4MW-7

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

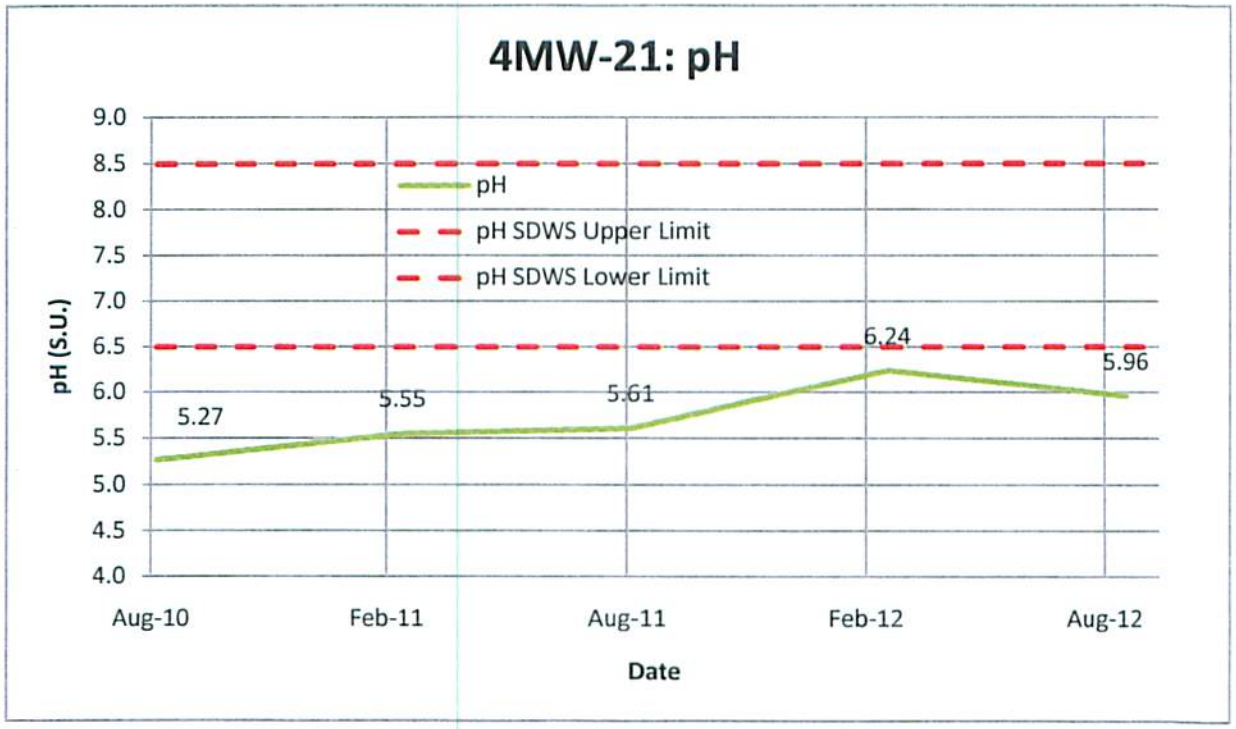
Based on data provided by Pasco County Lab

CDM Smith

Floridan Aquifer Detection Wells

4MW – 21

4MW - 22



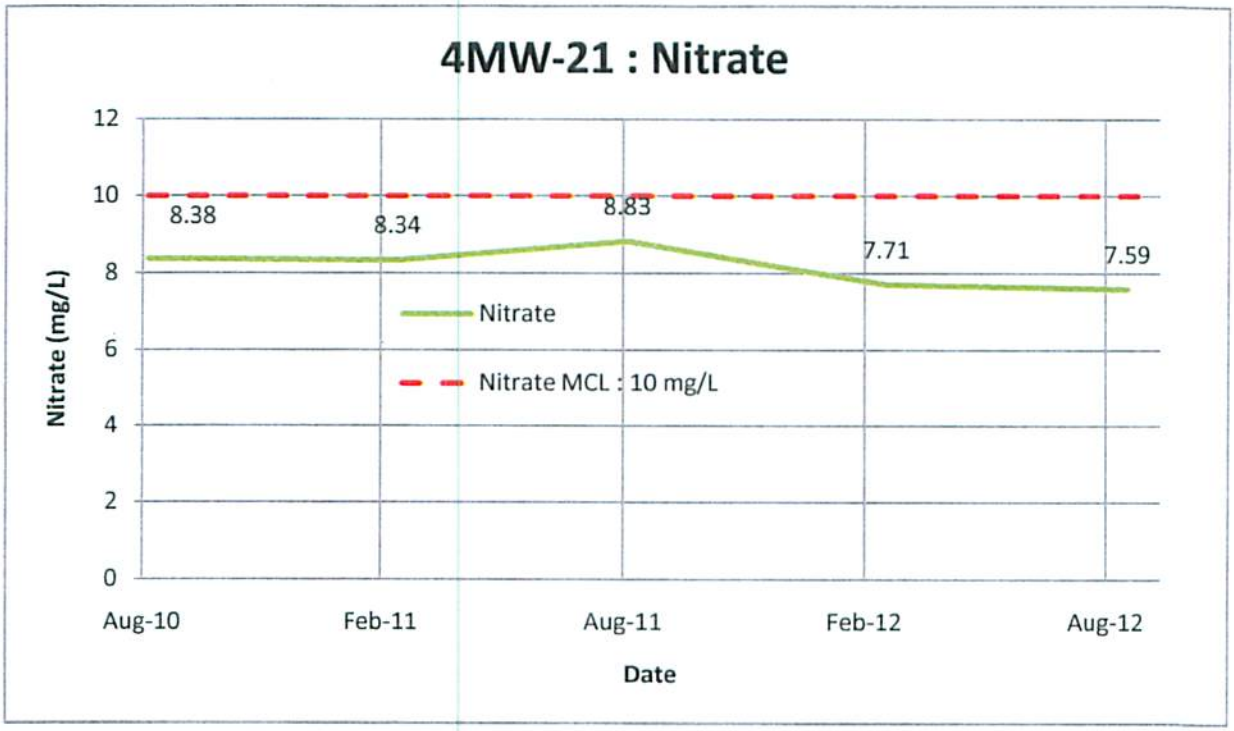
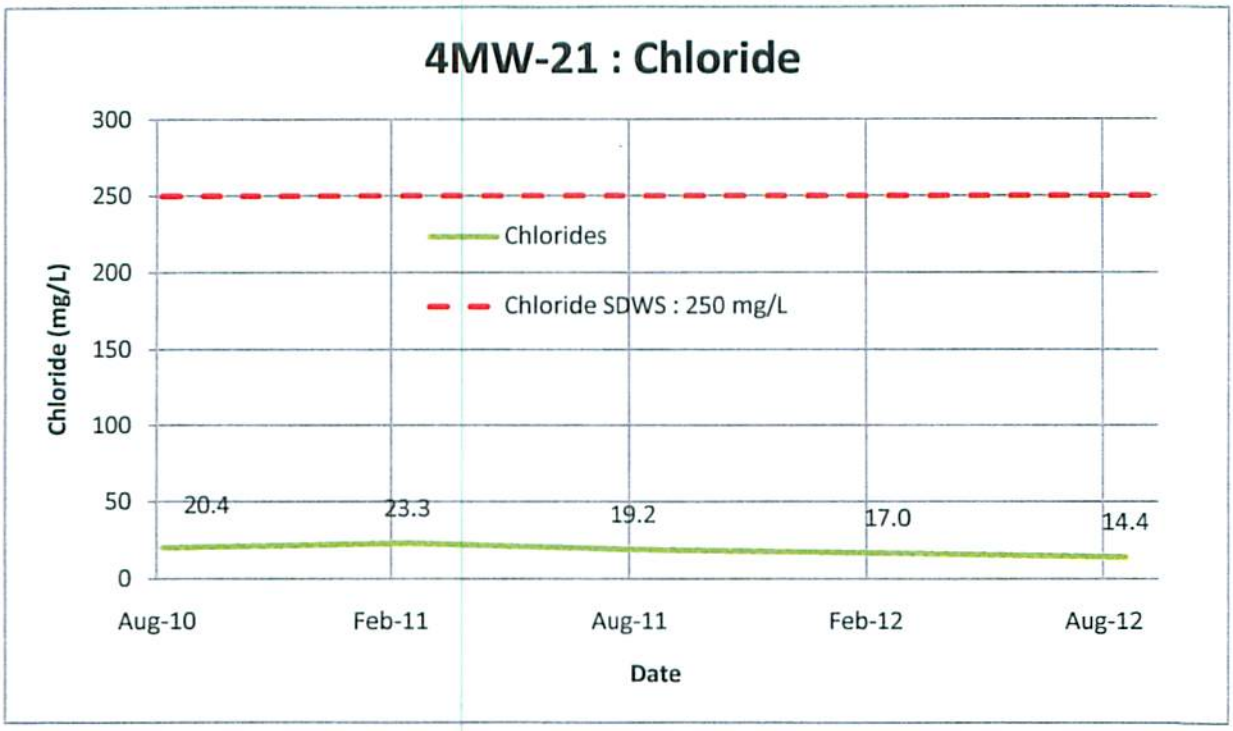


Figure B-6 pH and Nitrate Trends for 4MW-21

SDWS - Secondary Drinking Water Standards per 62-550 F.A.C

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

Based on data provided by Pasco County Lab



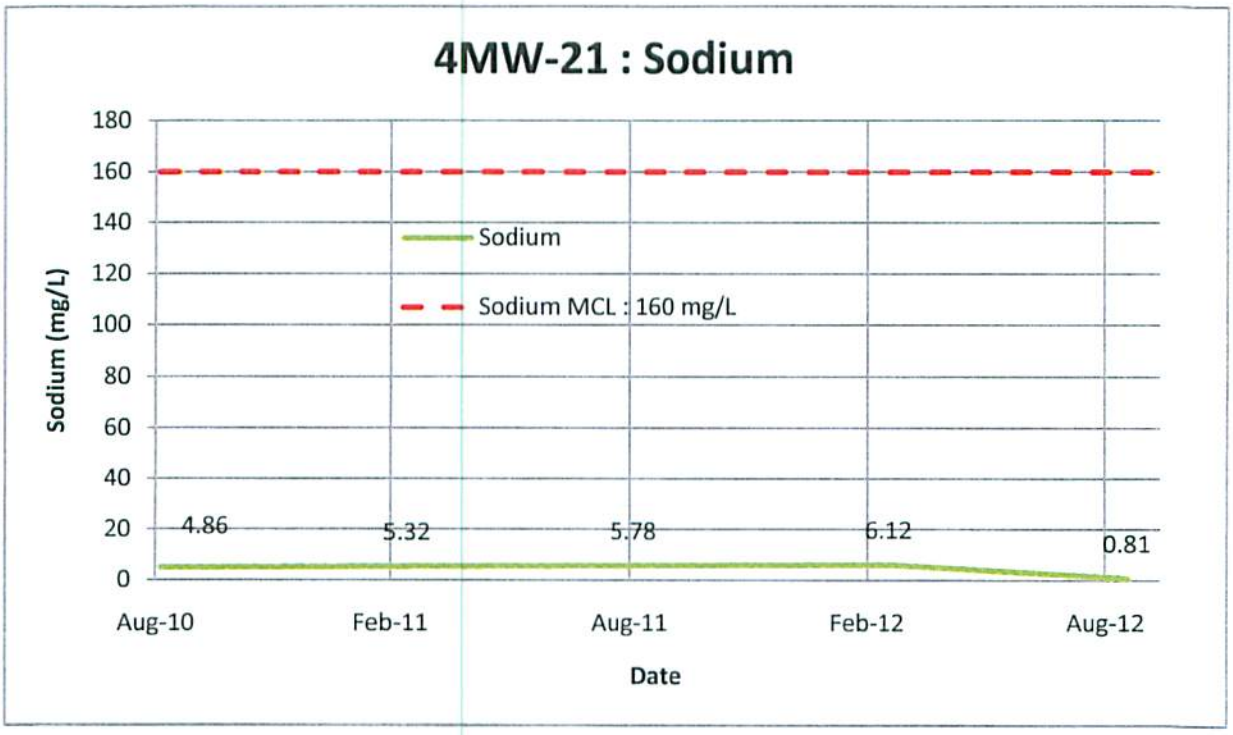


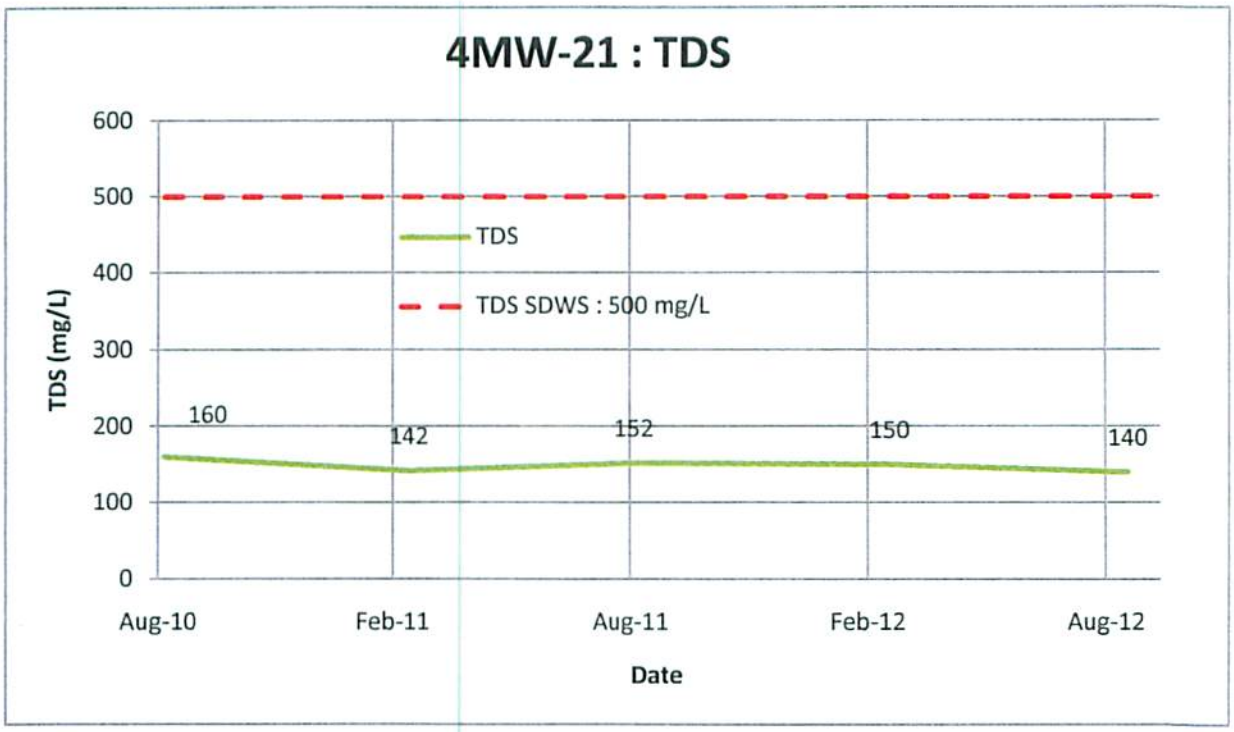
Figure B-7 Chloride and Sodium Trends for 4MW-21

SDWS - Secondary Drinking Water Standards per 62-550 F.A.C

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

Based on data provided by Pasco County Lab

CDM Smith



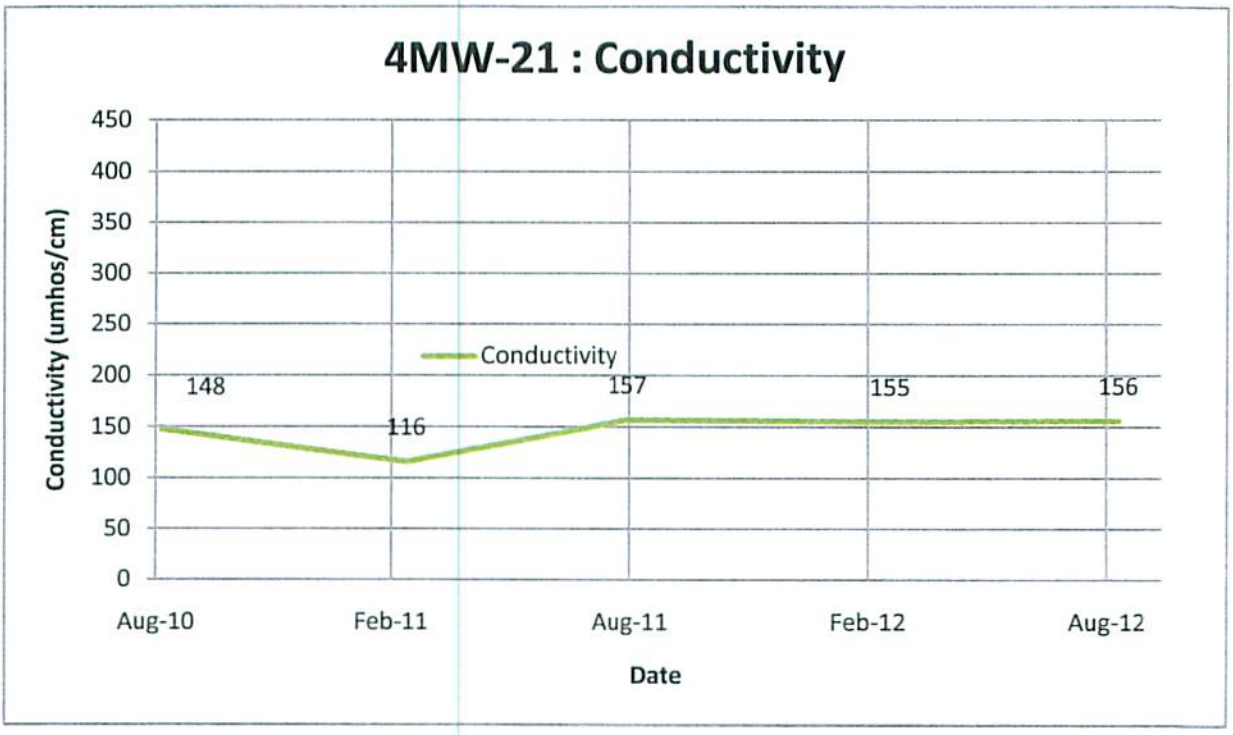
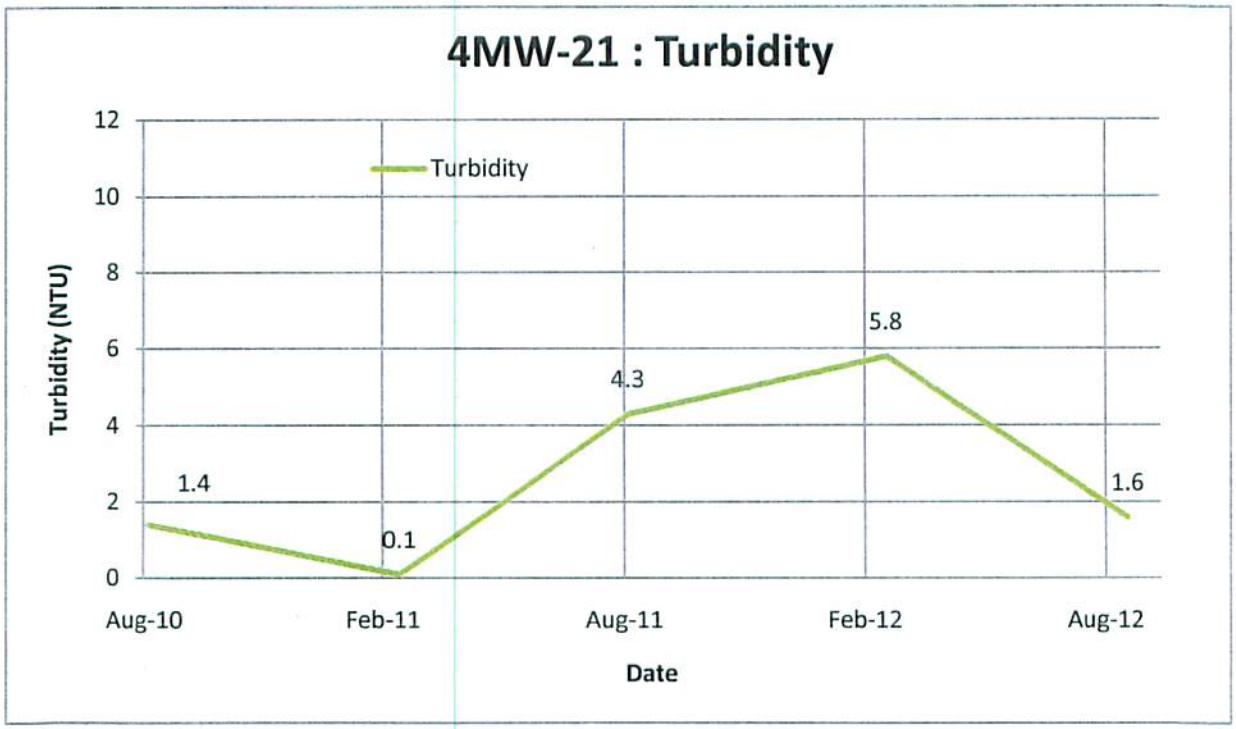


Figure B-8 TDS and Conductivity Trends for 4MW-21

SDWS - Secondary Drinking Water Standards per 62-550 F.A.C

Based on data provided by Pasco County Lab



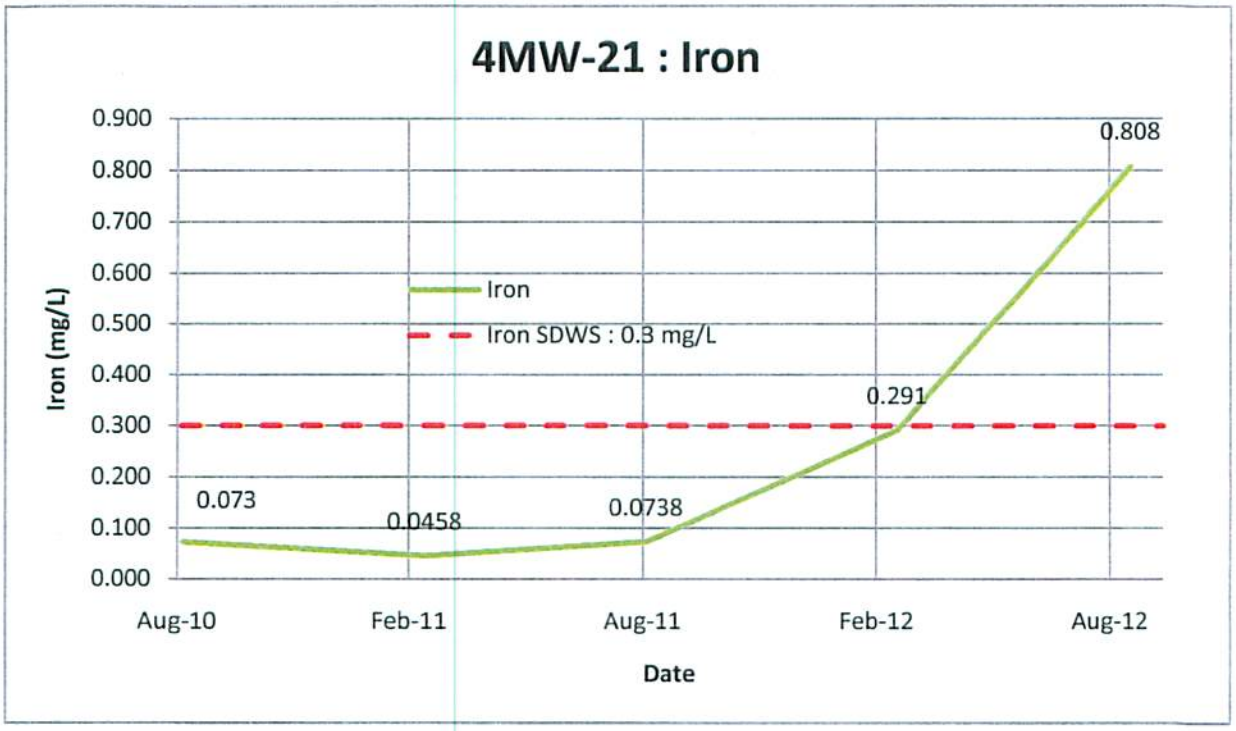
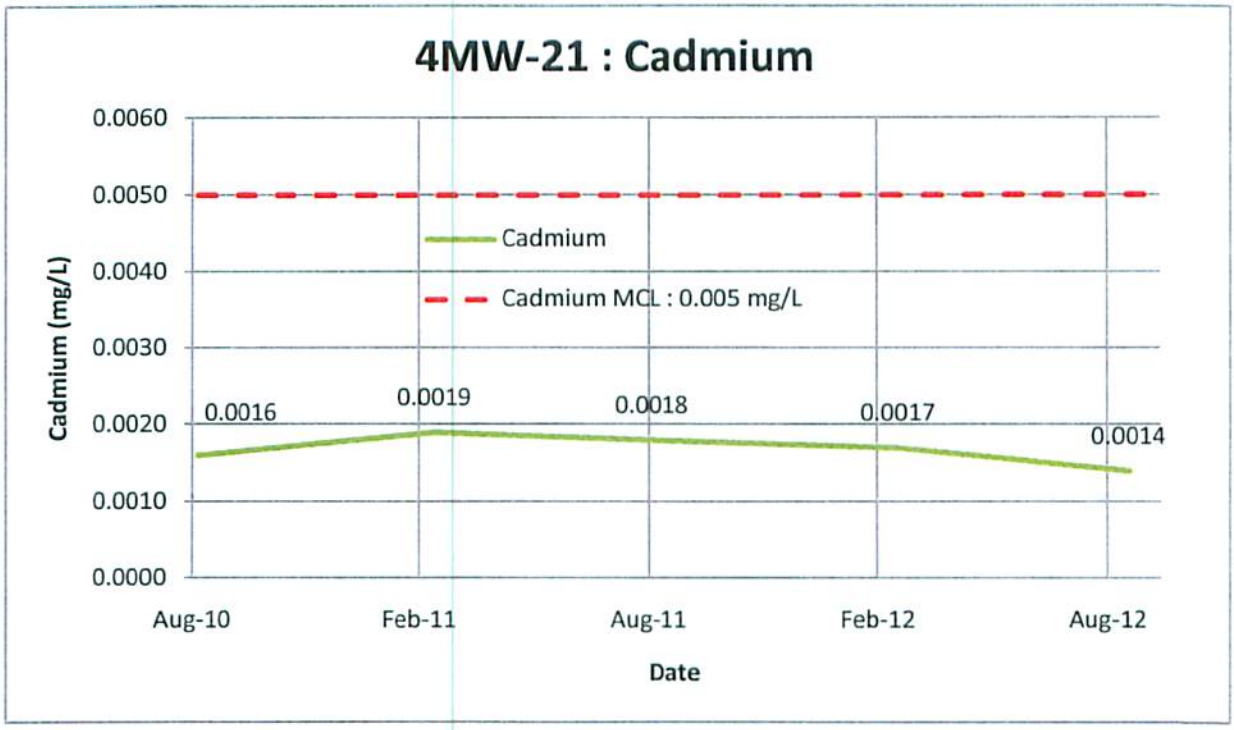


Figure B-9 Turbidity and Iron Trends for 4MW-21

SDWS - Secondary Drinking Water Standards per 62-550 F.A.C

Based on data provided by Pasco County Lab

CDM Smith



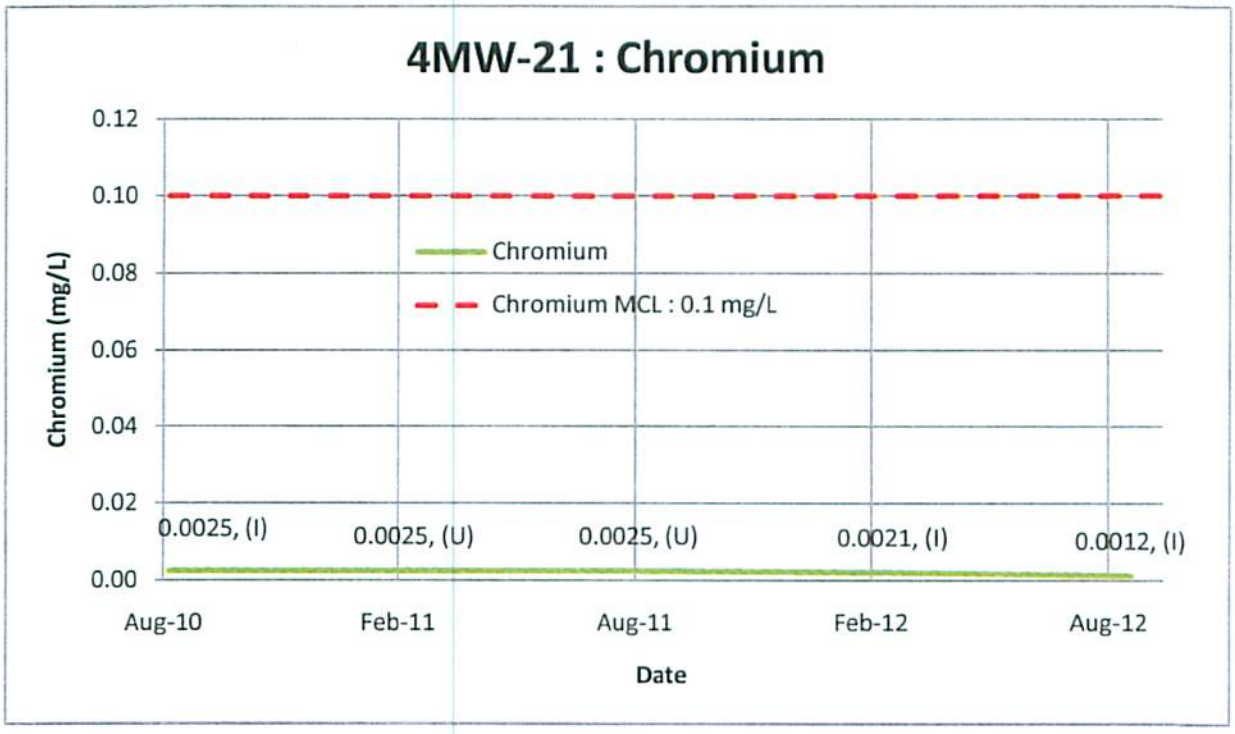
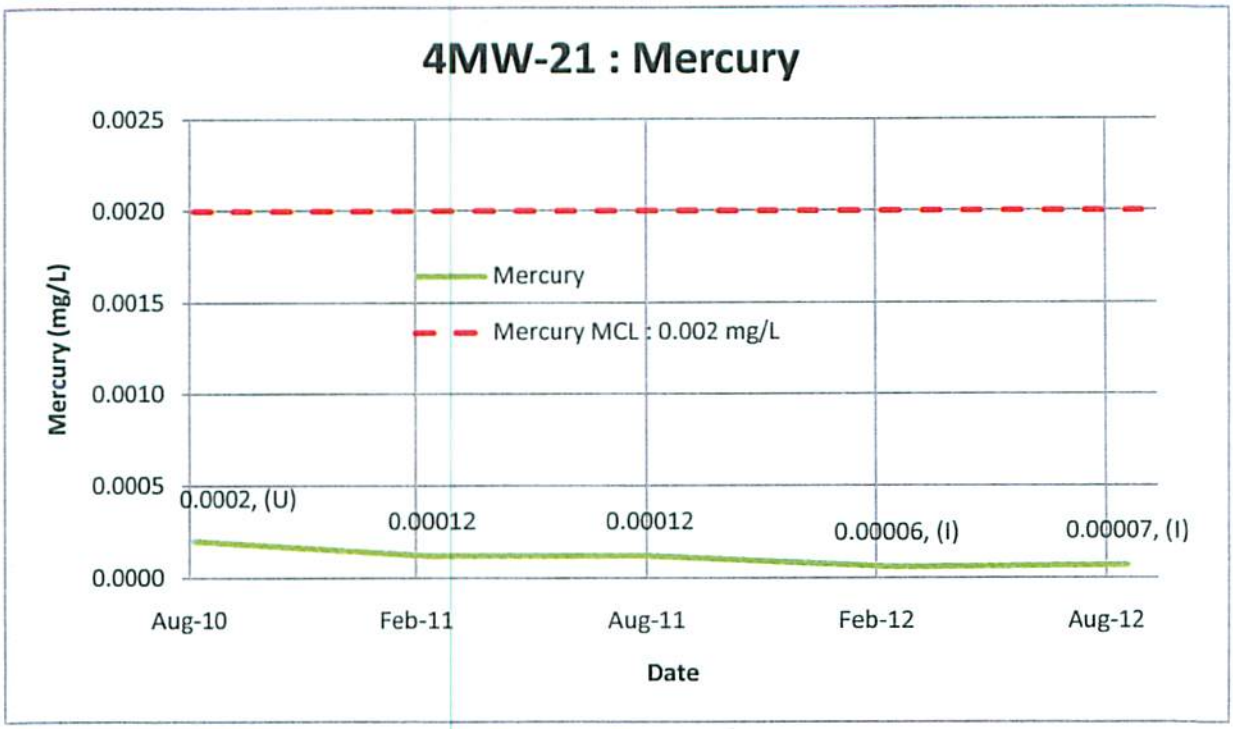


Figure B-10 Cadmium and Chromium Trends for 4MW-21

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

Based on data provided by Pasco County Lab



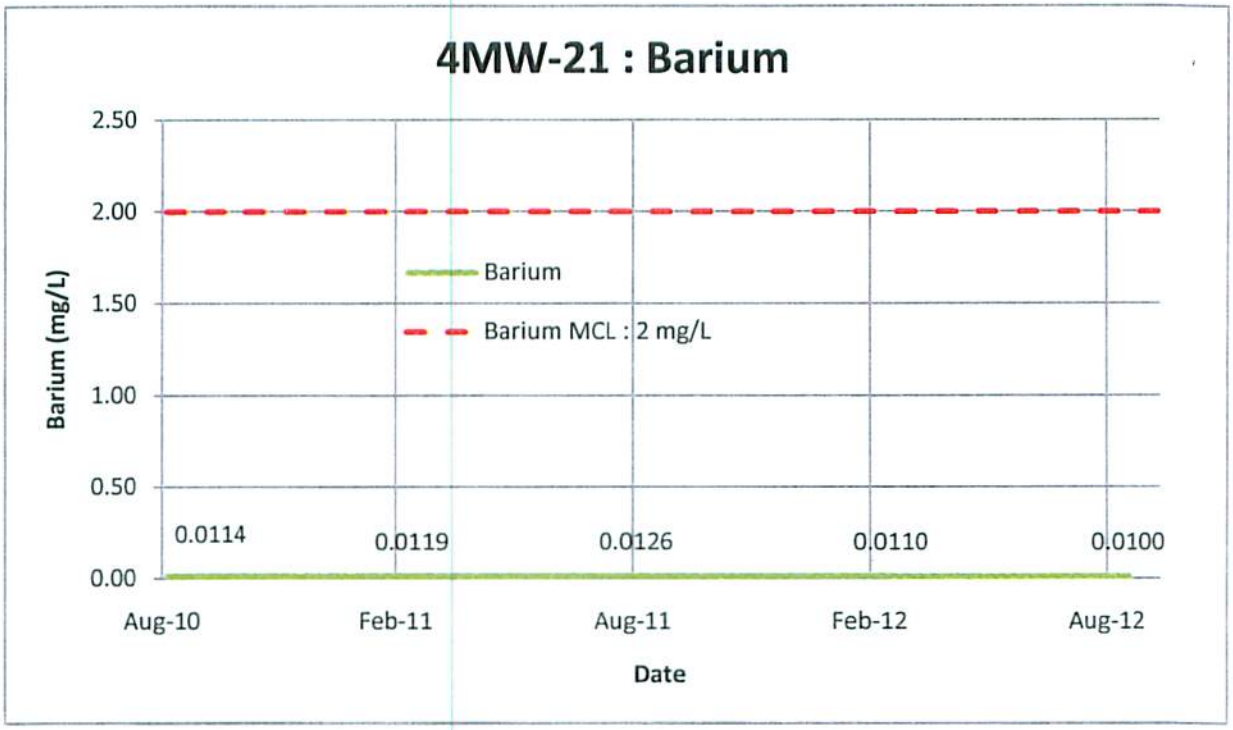
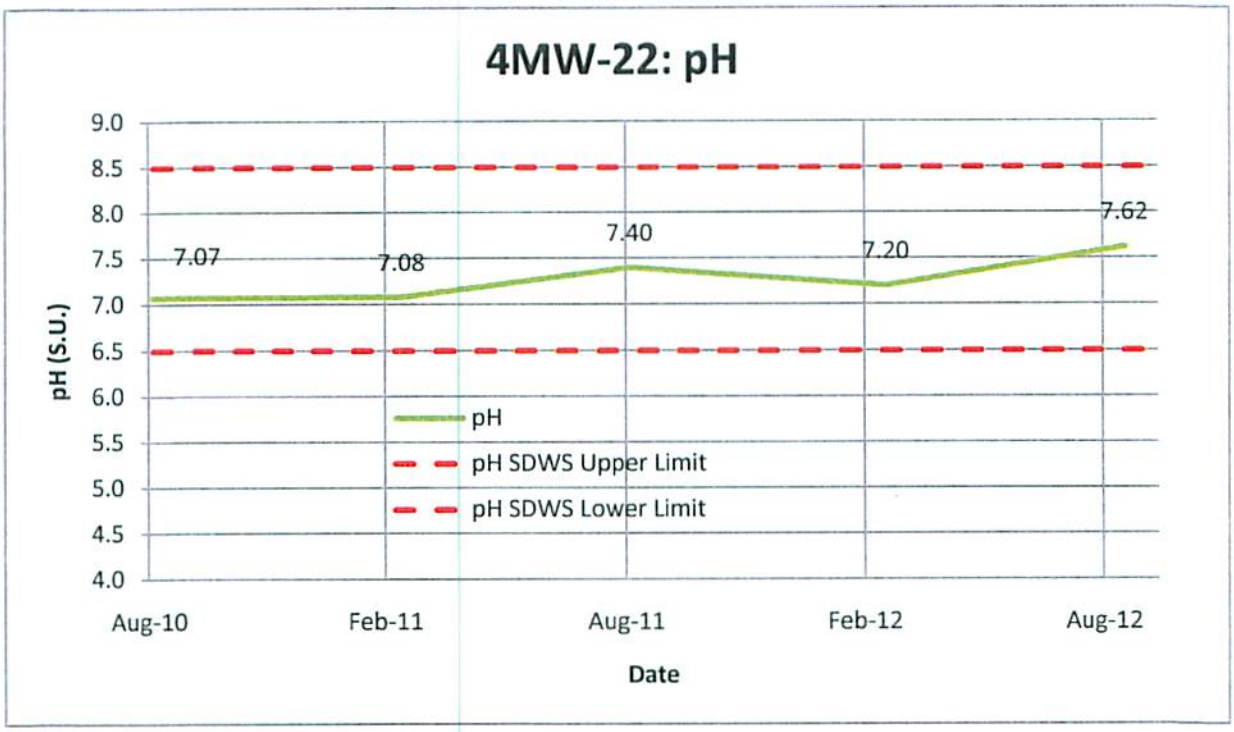


Figure B-11 Mercury and Barium Trends for 4MW-21

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

Based on data provided by Pasco County Lab



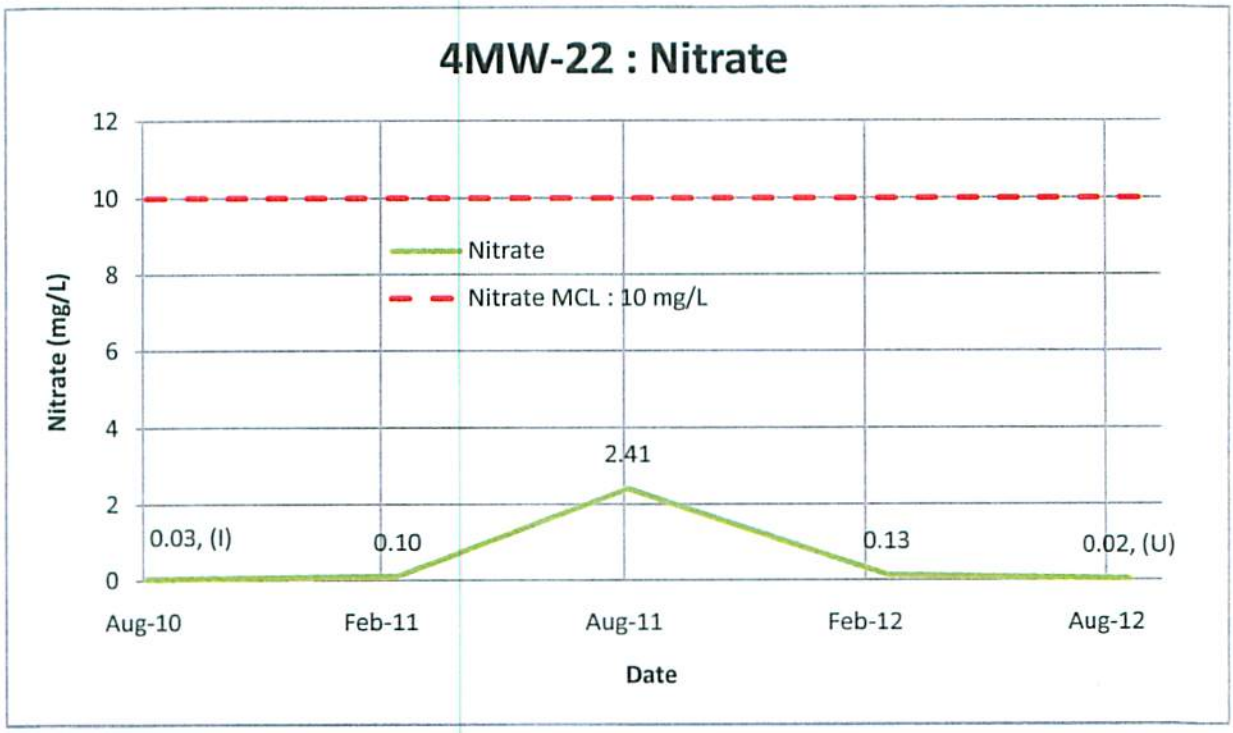


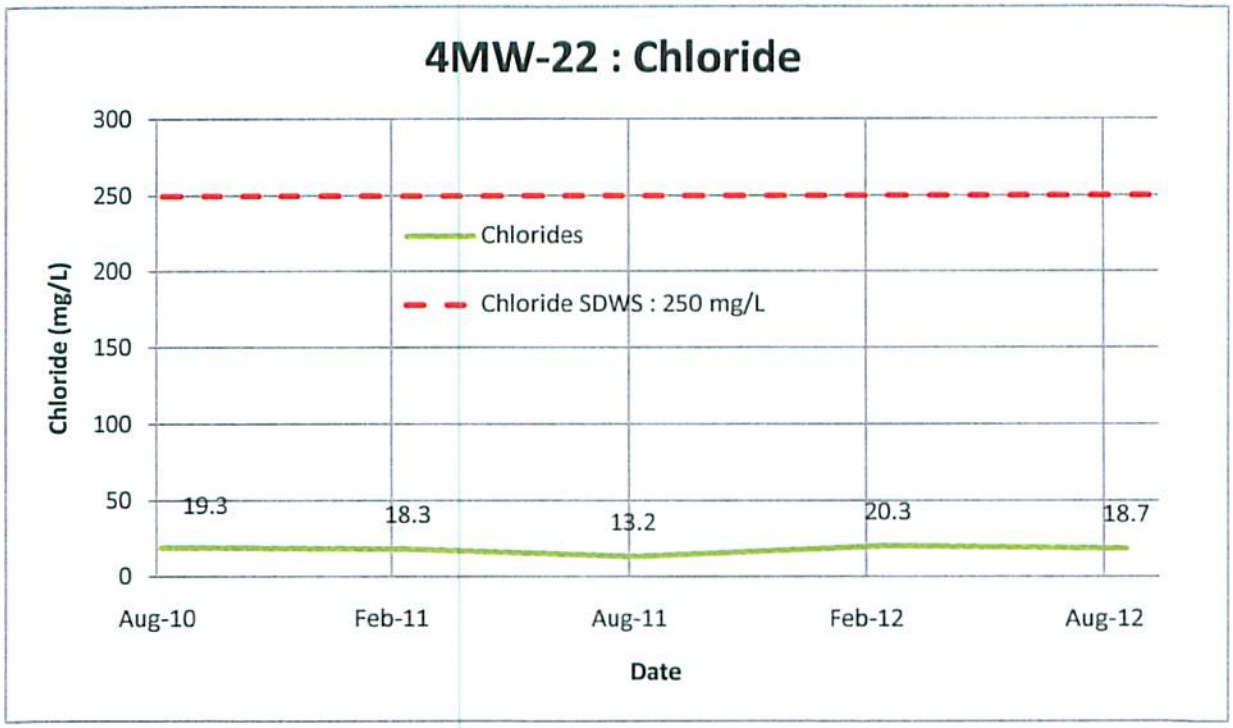
Figure B-12 pH and Nitrate Trends for 4MW-22

SDWS - Secondary Drinking Water Standards per 62-550 F.A.C

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

Based on data provided by Pasco County Lab

CDM Smith



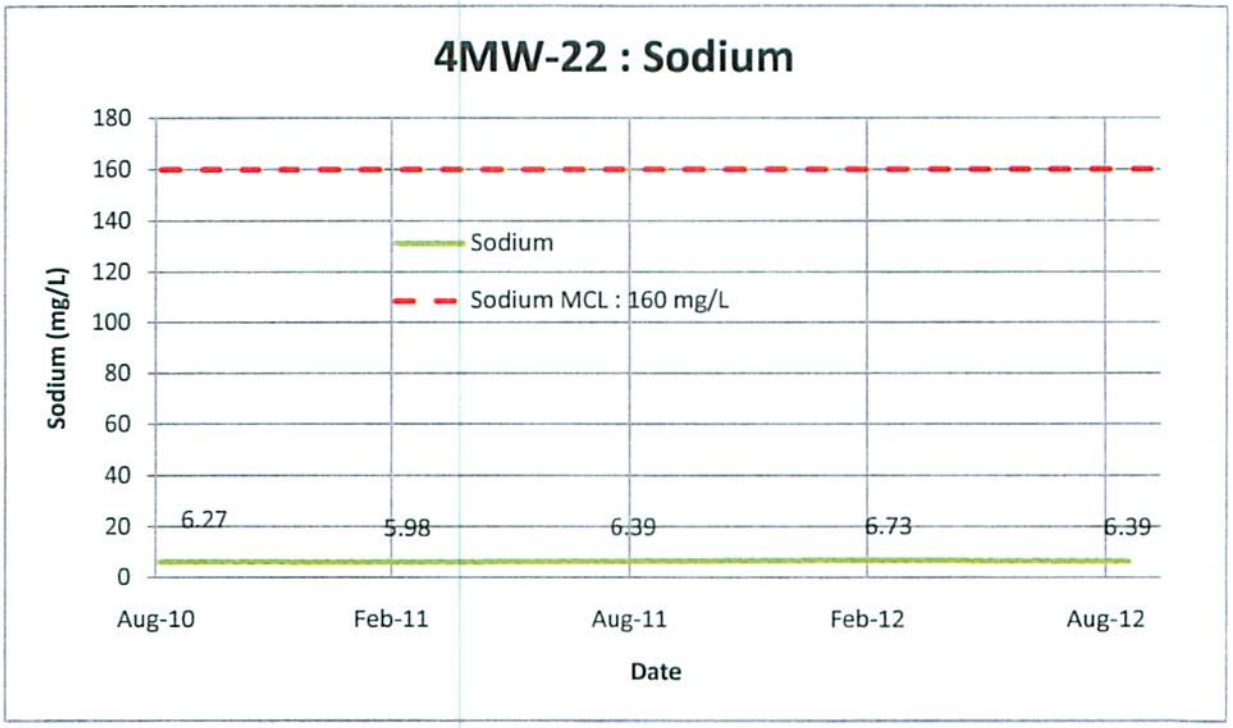
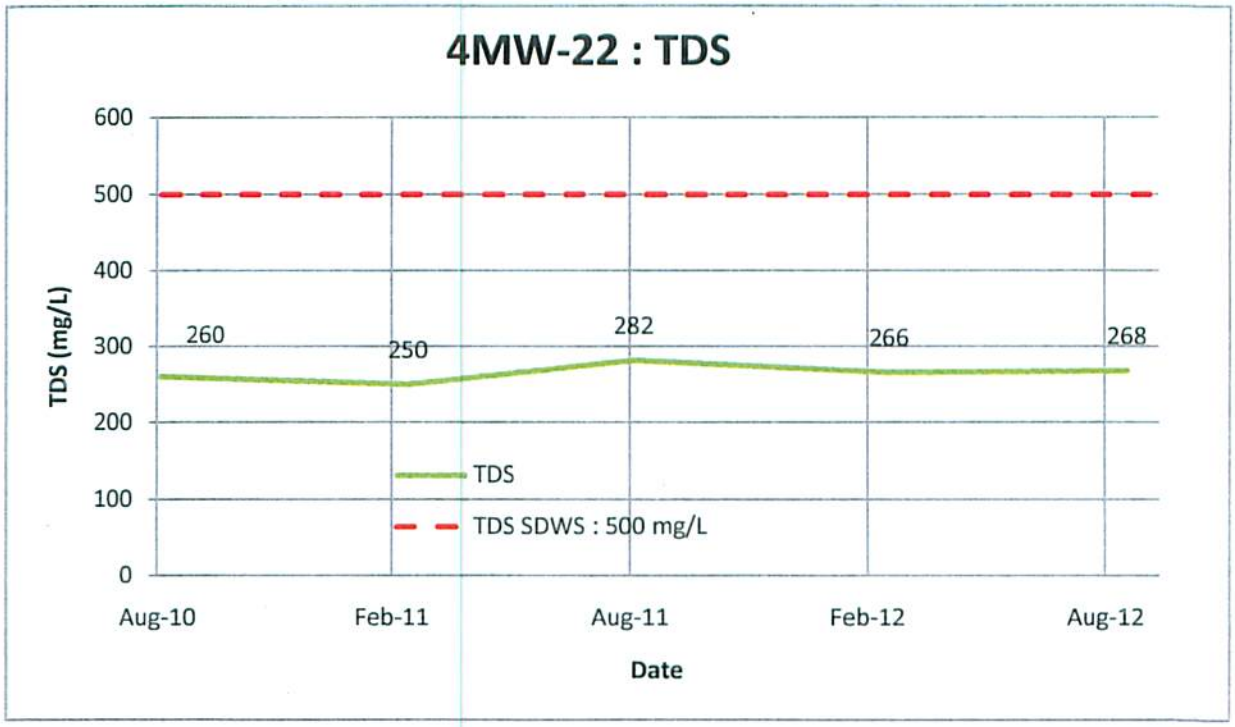


Figure B-13 Chloride and Sodium Trends for 4MW-22

SDWS - Secondary Drinking Water Standards per 62-550 F.A.C

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

Based on data provided by Pasco County Lab



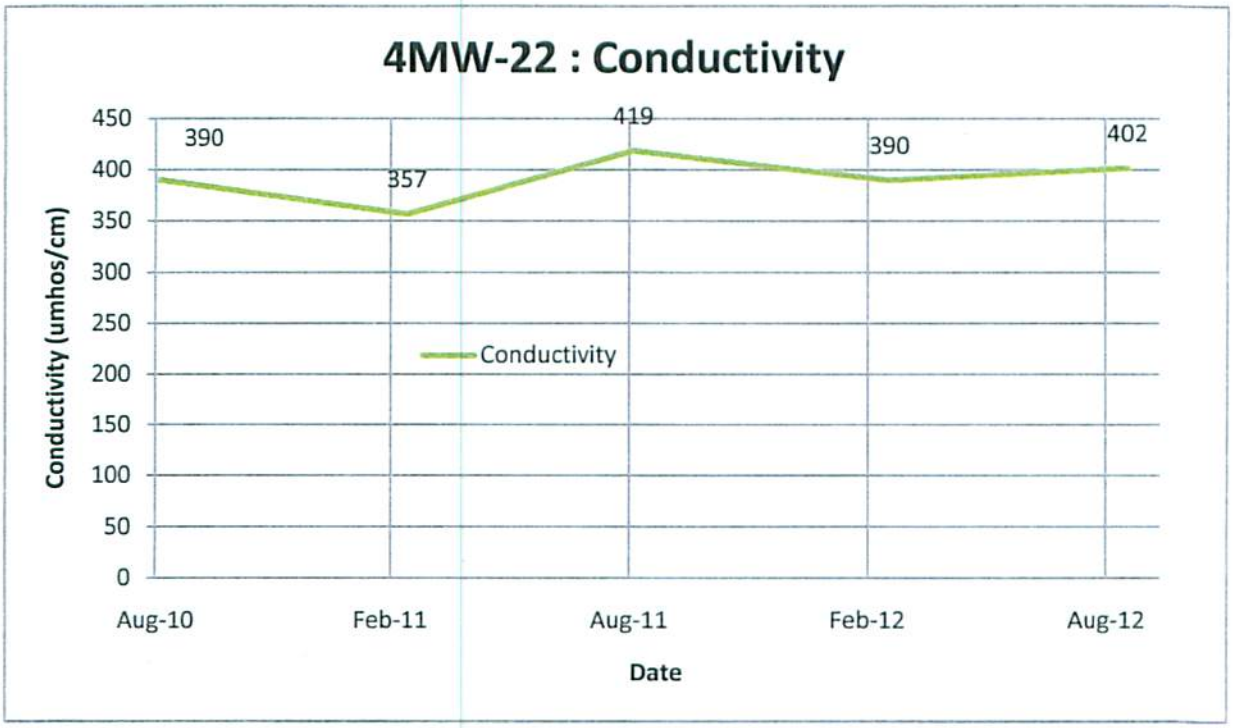
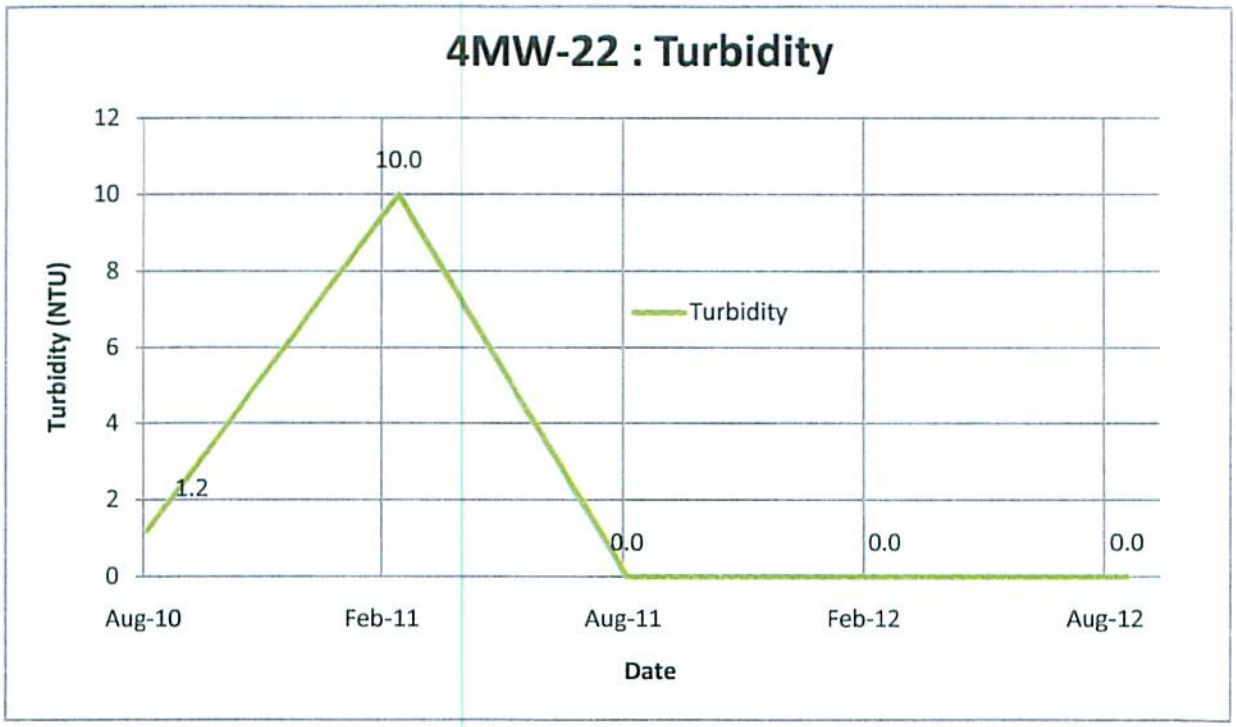


Figure B-14 TDS and Conductivity Trends for 4MW-22

SDWS - Secondary Drinking Water Standards per 62-550 F.A.C

Based on data provided by Pasco County Lab



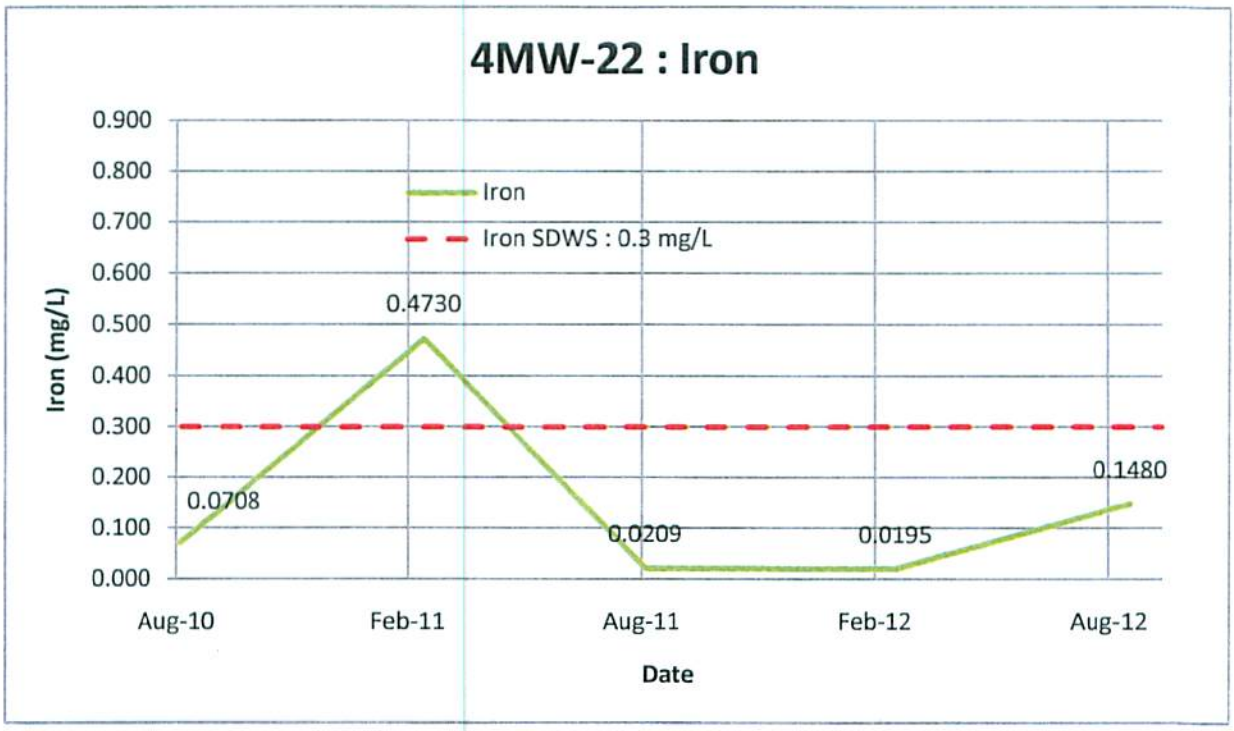
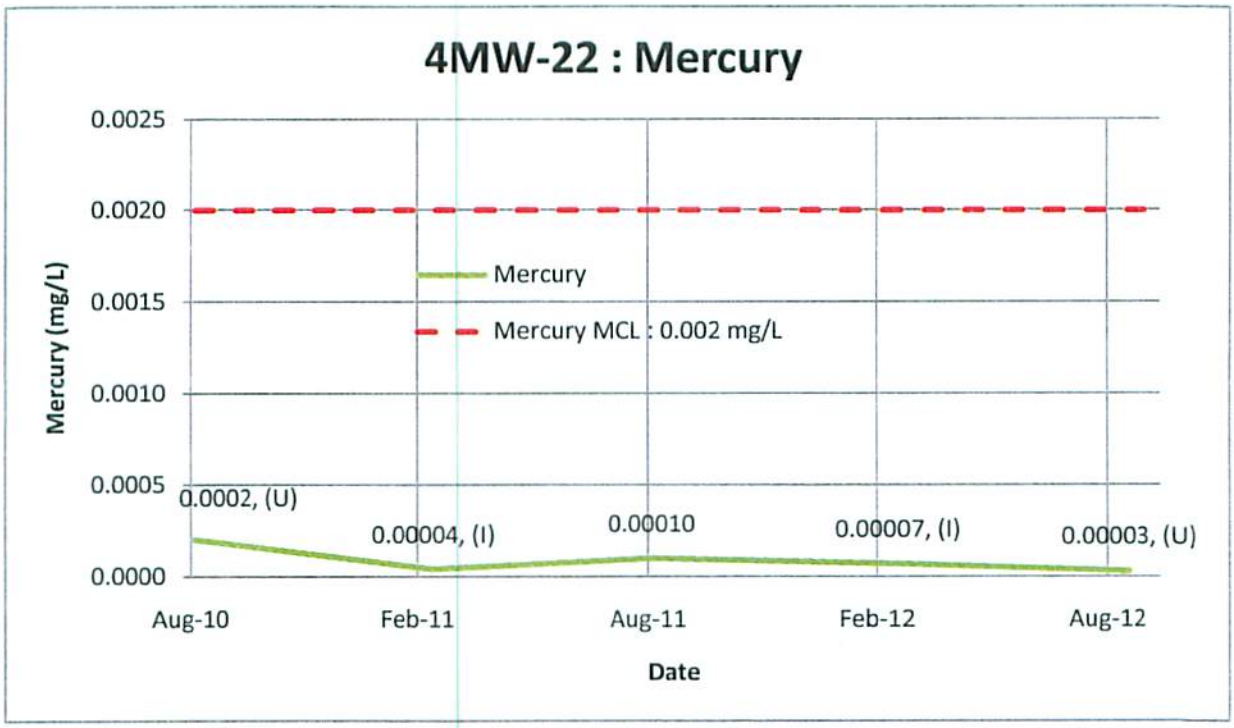


Figure B-15 Turbidity and Iron Trends for 4MW-22

SDWS - Secondary Drinking Water Standards per 62-550 F.A.C

Based on data provided by Pasco County Lab



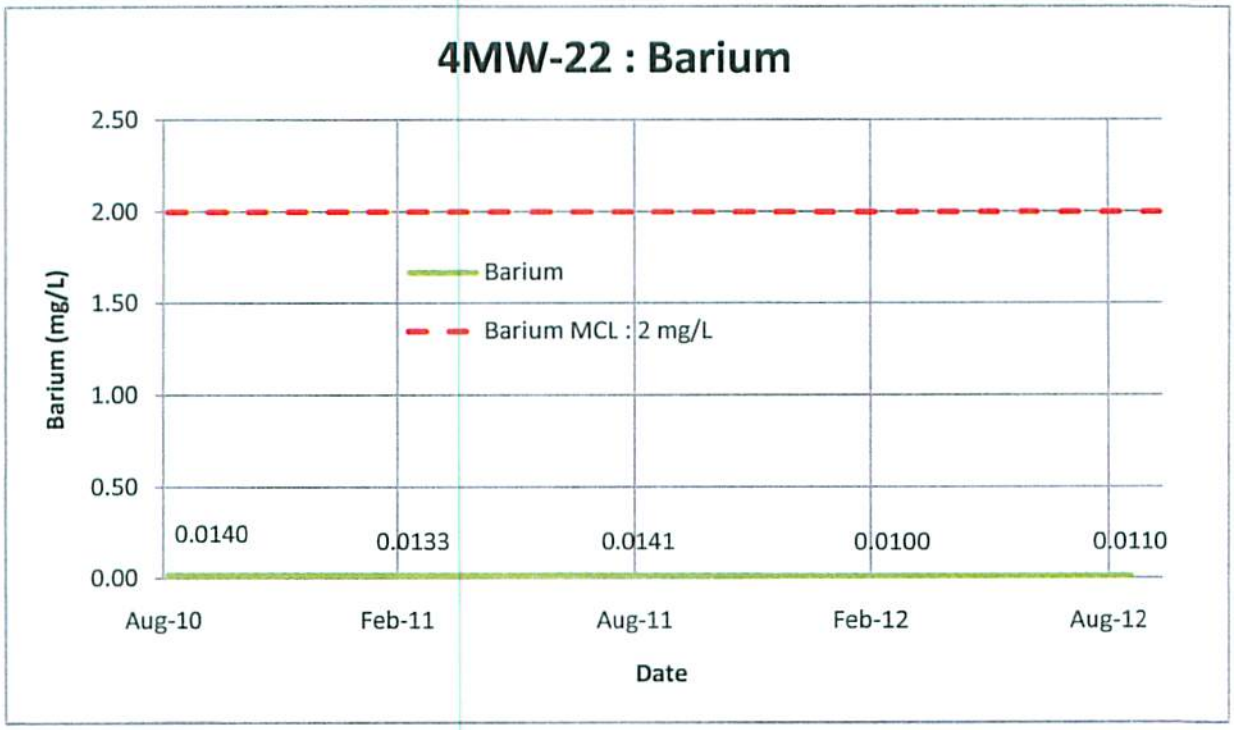


Figure B-16 Mrcury and Barium Trends for 4MW-22

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

Based on data provided by Pasco County Lab

CDM Smith