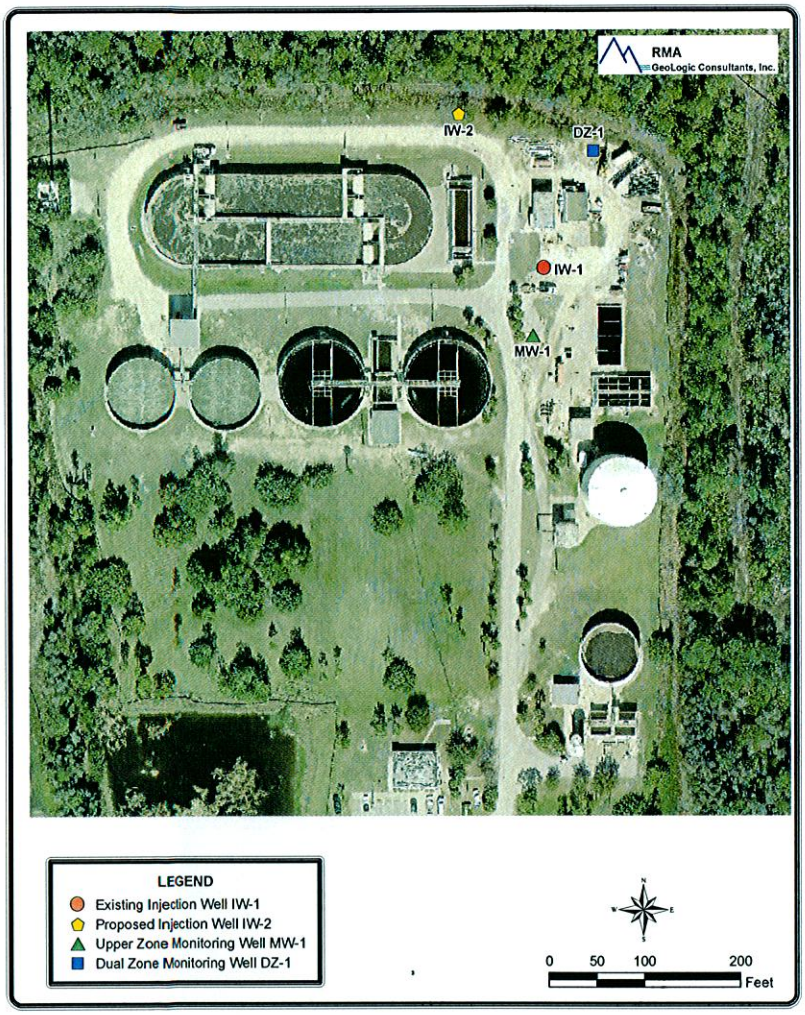
CAPACITY RERATING TEST FOR
NORTH FORT MYERS WASTEWATER TREATMENT PLANT
INJECTION WELL IW-1



December, 2011

Prepared by:

RMA
GeoLogic Consultants, Inc.

12771 World Plaza Lane
Building 87, Suite 1
Fort Myers, Florida 33907

LETTER OF TRANSMITTAL

280 Wekiva Springs Road, Suite 2000
Longwood, Florida 32779

TO: Mr. David Rhodes, P.G.
FDEP Water Facilities
2295 Victoria Ave
Ft. Myers, FL 33901

DATE: December 19, 2011
RE: North Fort Myers DIW IW-1
FDEP Permit # 128646-002-UO
PROJECT NO: NFM 006

ENCLOSED PLEASE FIND:

☐ WORK AUTHORIZATION	☐ AGREEMENT	☒ REPORT	☐ SPECIFICATIONS
☐ CHANGE ORDER	☐ PLANS	☐ INVOICE	☐ OTHER

COPIES	DESCRIPTION OF ITEM(S)
1	CAPACITY RE-RATING TEST REPORT FOR N. FT. MYERS WWTP DIW IW-1
1	FGUA CHECK # 41893 IN THE AMOUNT OF $250

THESE ARE TRANSMITTED:

☐ AS REQUESTED	☐ FOR YOUR FILES/RECORDS	☐ SIGNATURE
☐ ACTION	☐ INFORMATION	☐ USE
☐ APPROVAL	☒ REVIEW	☐ OTHER

If you should have any questions please contact our Engineer of Record, USWWT (Lina Quintero) at 727-858-2396 or their sub-consultant, RMA Geologic Consultants (Daniel Acquaviva) at 239-415-1818.

CC:

Mr. Joseph Haberfield, FDEP
Mr. Ronald Reese, U.S. Geological Survey
Mr. James Alexander, FDEP
Ms. Nancy Marsh, US EPA
Mr. William Foley, SFWMD
Lina Quintero, USW

SIGNED: Janelle D. Kusiolek
Project Assistant

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CAPACITY RERATING TEST FOR
NORTH FORT MYERS WASTEWATER TREATMENT PLANT
INJECTION WELL IW-1

Prepared for:

Wade Trim
8745 Henderson Road
Suite 220, Renaissance 5
Tampa, Florida 33634

December, 2011

Prepared by:

RMA
GeoLogic Consultants, Inc.

12771 World Plaza Lane
Building 87, Suite 1
Ft. Myers, FL 33907

FL Geology Business License #GB560

Omar Rodriguez, P.G
President
FL Licensed Professional Geologist #2273

Daniel J. Acquaviva, P.G.
Vice President
FL Licensed Professional Geologist #1066

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I. INTRODUCTION

The North Fort Myers injection well 1 (IW-1) is a Class I injection well installed in 1988 at the site of the Florida Governmental Utility Authority (FGUA) North Fort Myers wastewater treatment plant (WWTP) (Figure 1-1). An aerial photo showing the locations of IW-1, permitted but not constructed injection well IW-2, single upper zone monitoring well MW-1, and the dual zone monitoring well DZ-1 is provided as Figure 1-2. The WWTP is operated by U.S. Water Services Corporation, under contract to FGUA.

The North Fort Myers WWTP IW-1 is constructed of nominal 12-inch diameter (11.75-inch inside diameter, 12.75 inch outside diameter) steel casing set at 2,340 feet below land surface (BLS), with an open-hole interval to 2,600 feet BLS. The current rated capacity of the well if 4,000,000 gallons per day (4.00 MGD), as stipulated in the facility's Florida Department of Environmental Protection (FDEP) underground injection control (UIC) permit (#128646-002-UO/1M) (Appendix A). FDEP regulations allow for an injection of 10 feet per second if it can be demonstrated that a well is capable of disposing of the associated wastewater volume. For North Fort Myers injection well IW-1, which is equipped with an 11.75-inch inside diameter injection casing, this equates to a rate of 4.87 MGD.

In order to provide for rerating of the disposal capacity to 4.87 MGD in the North Fort Myers WWTP IW-1, RMA GeoLogic Consultants, Inc. (RMA) was contracted by Wade Trim to perform a rerating injection test. A rerating procedure plan was submitted to the Florida Department of Environmental Protection (FDEP) on July 18, 2011. FDEP approval for the rerating injection test was received on August 11, 2011 (Appendix B).

The injection rerating test was successfully conducted on October 26, 2011 at an average injection rate of 3,417 gpm. The injection rerating test included 24 hours of background data, 8 hours of injection, and 24 hours of recovery data. This report provides a detailed description and evaluation of the injection rerating test.

A completed permit application for a minor modification of the UIC permit to allow an injection rate of 4.87 MGD is provided as Appendix C.

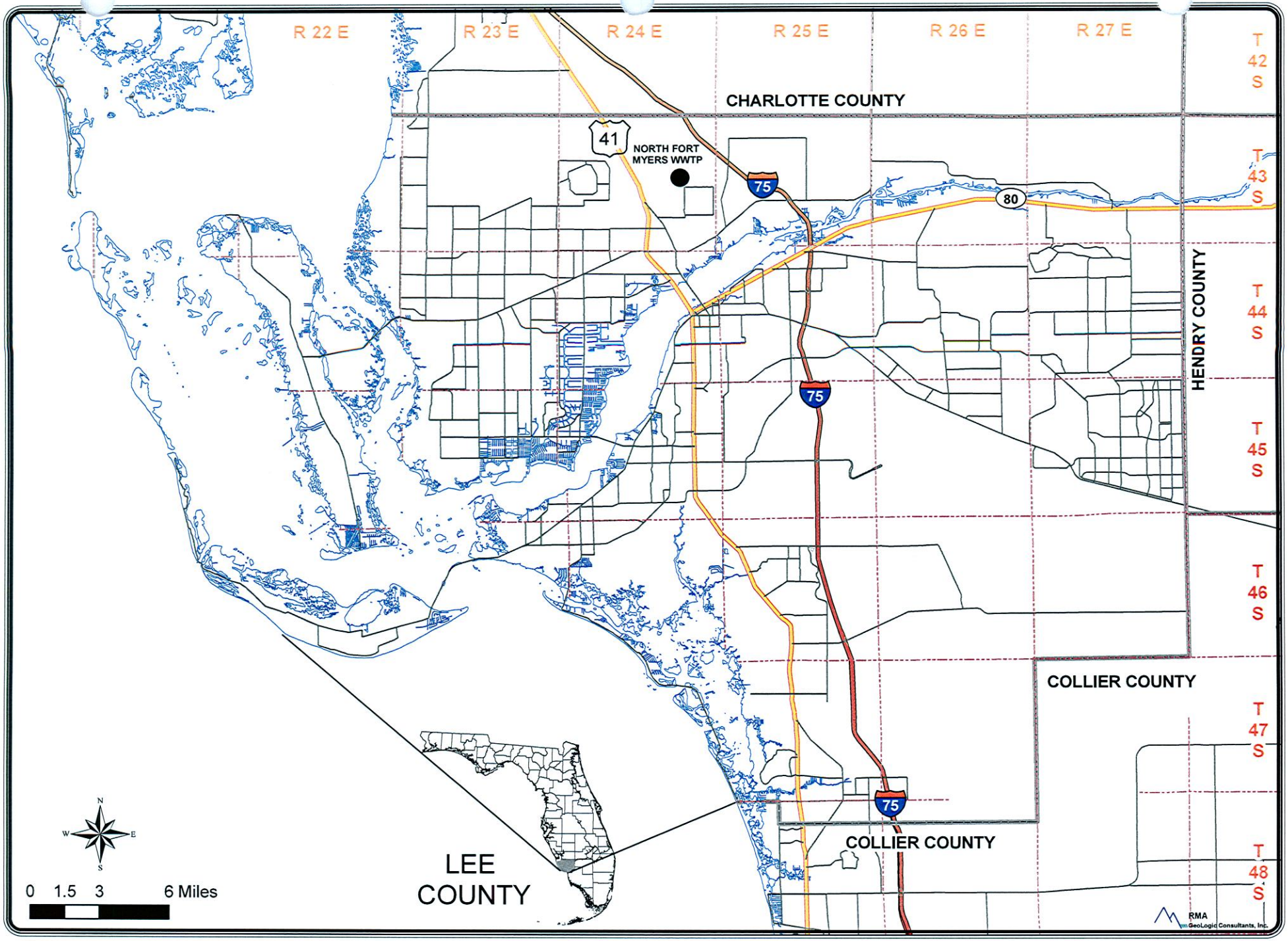


FIGURE 1-1. GENERAL SITE LOCATION MAP.

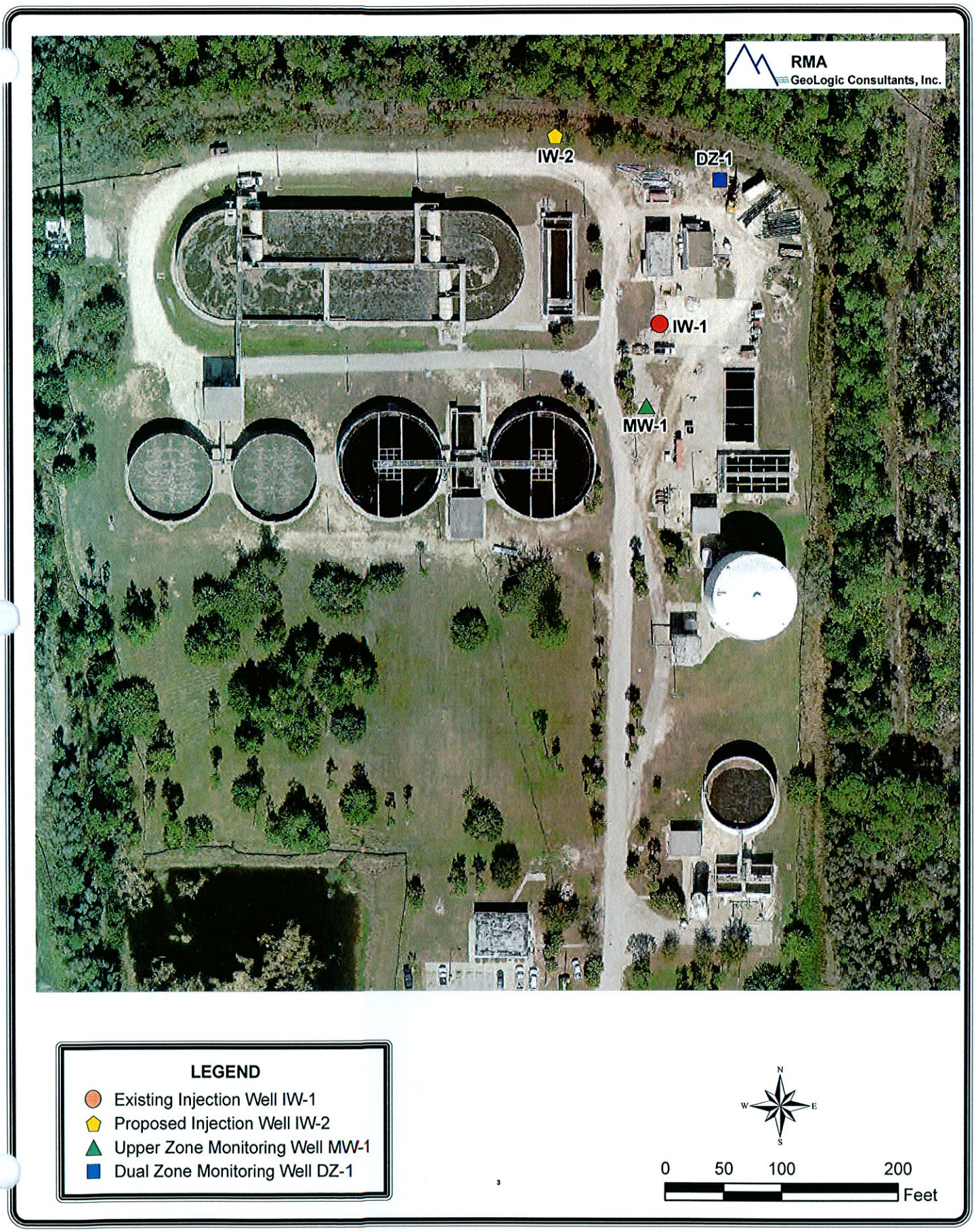


FIGURE 1-2. AERIAL PHOTO SHOWING THE LOCATION OF EXISTING INJECTION WELL IW-1, PROPOSED INJECTION WELL IW-2, UPPER ZONE MONITORING WELL MW-1, AND DUAL ZONE MONITORING WELL DZ-1.

II. INJECTION RERATING TEST

A. Background Data

Prior to conducting the injection test, the required 24 hours of background data was collected. The data included injection wellhead pressure, injection rate, and water level data from the single zone of well MW-1, and in both zones of well DZ-1. The data was collected using the permanent instrumentation for each well. This included a totalizer flowmeter and pressure gauge for the injection well and pressure transducers for each zone of the monitoring wells. In addition, weather data, including barometric pressure, atmospheric temperature, and rainfall were also recorded throughout the required 24 hours of background prior to injection, during injection, and for 24 hours after the injection during the recovery period. During the initial 18 hours of background, the injection well was in normal operation mode. Injection operations ceased approximately six hours prior to the injection portion of the injection rerating test and the well was shut-in by closing the wellhead control valve.

Throughout the 24 hours of the background period, during the injection test, and for 24 hours of post-injection recovery, an RMA geologist was on site to manually record the injection rate and injection pressure; water level data for the monitoring wells; and weather data. Plots of the background, injection, and recovery data for the injection well, the single zone in well MW-1, and both zones of well DZ-1 are provided as Figures 2-1 through 2-4. A tabulation of the background data manually collected by the RMA geologists witnessing the operations is provided on Table 2-1.

Charts for the 56 hours of data collected during the injection test (i.e. background, injection, and recovery) recorded by the WWTP instrumentation are provided in Appendix D. Tidal data for the 56 hours injection test period is provided in Appendix E. Tidal data is real-time information from the United States Department of Interior National Oceanic and Atmospheric Administration (NOAA) Fort Myers tidal station.

FIGURE 2-1. PLOT OF INJECTION PRESSURE RECORDED FOR INJECTION WELL, TIDE, AND BAROMETRIC PRESSURE BEFORE, DURING, AND AFTER INJECTION TEST.

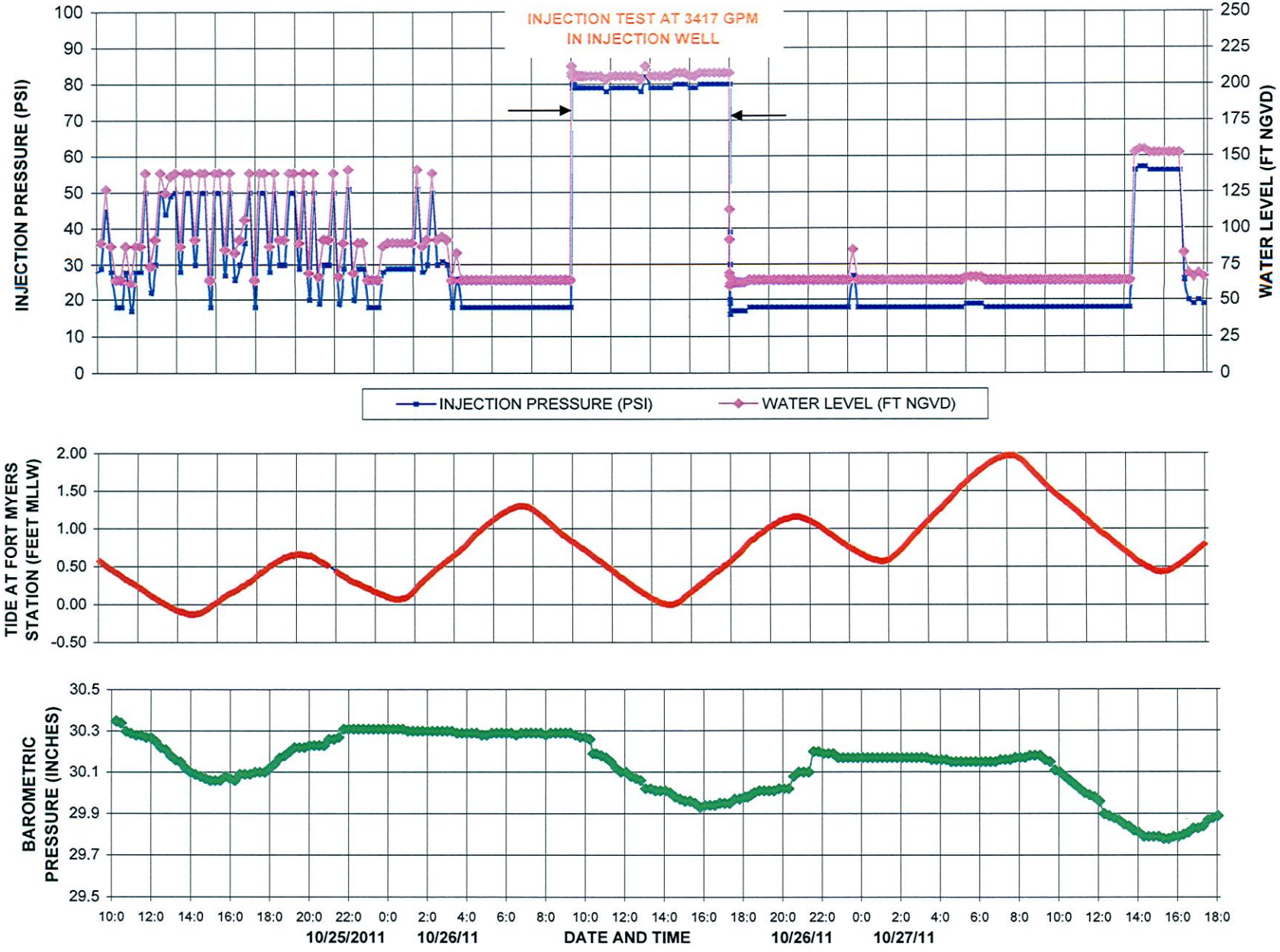


FIGURE 2-2. PLOT OF WATER LEVEL DATA RECORDED FOR SINGLE ZONE IN UPPER ZONE MONITORING WELL (MW-1), TIDE, AND BAROMETRIC PRESSURE BEFORE, DURING, AND AFTER INJECTION TEST

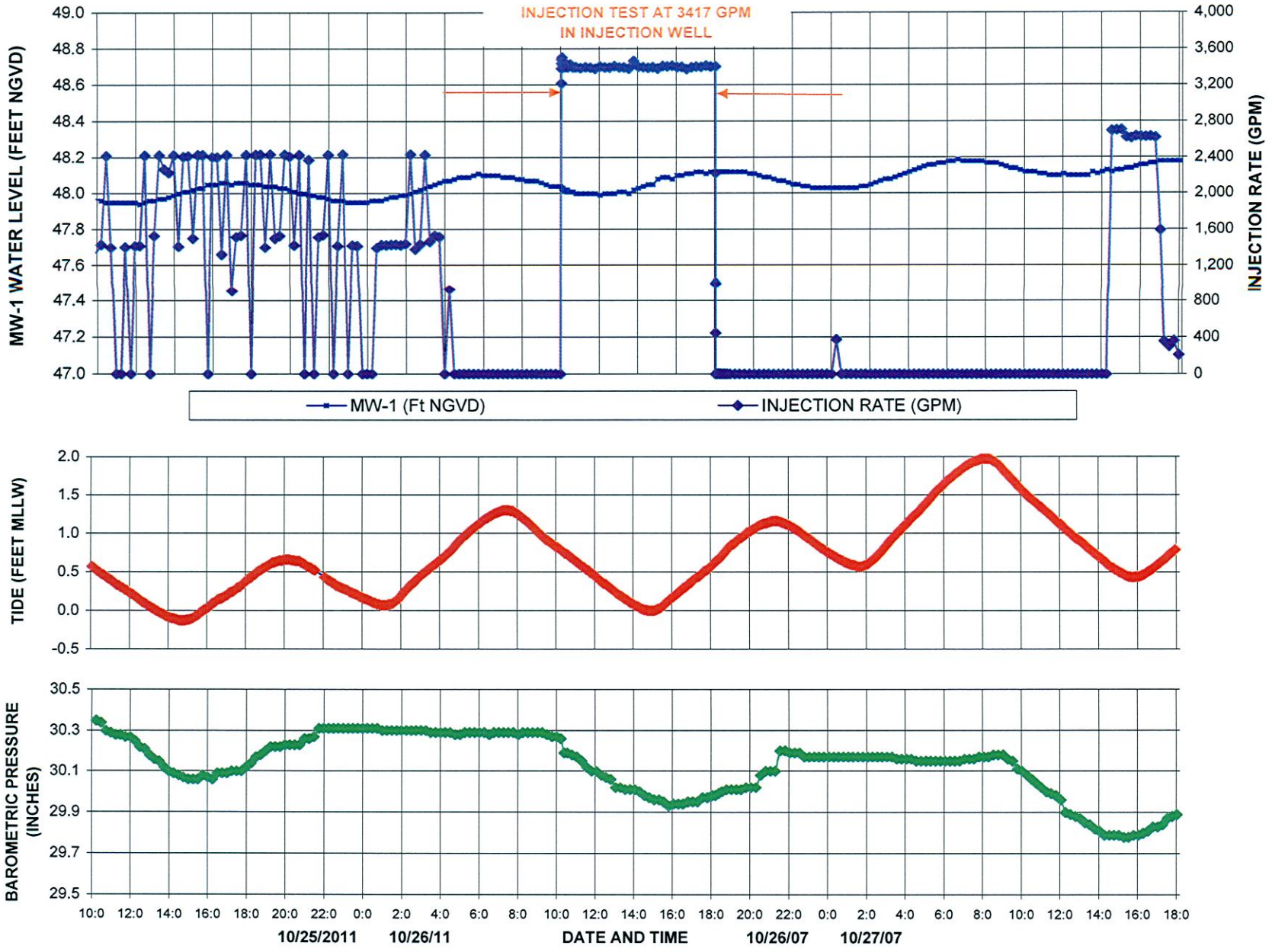


FIGURE 2-3. PLOT OF WATER LEVEL DATA RECORDED FOR UPPER ZONE IN DUAL ZONE MONITORING WELL (DZ-1), TIDE, AND BAROMETRIC PRESSURE BEFORE, DURING, AND AFTER INJECTION TEST

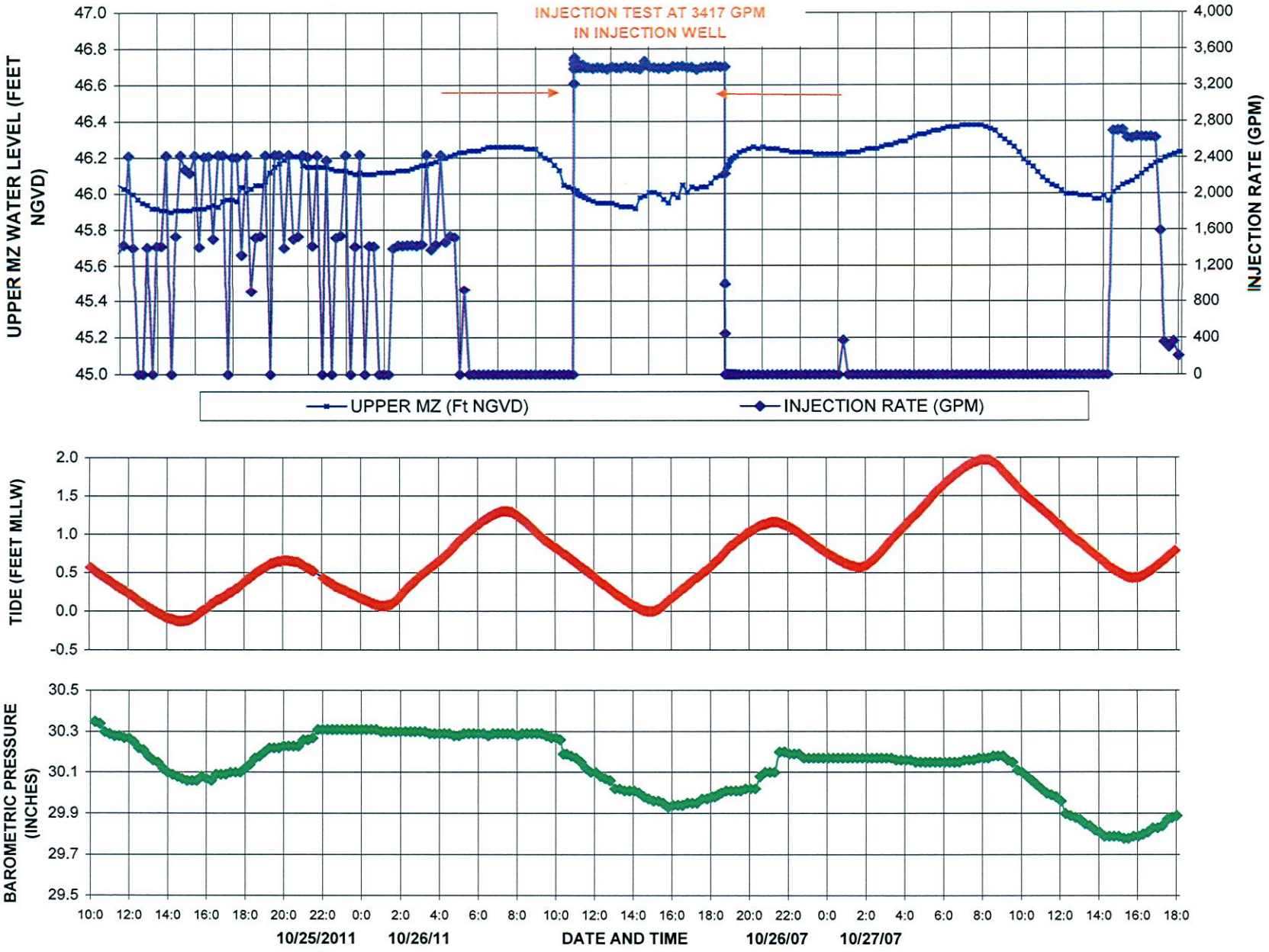


FIGURE 2-4. PLOT OF WATER LEVEL DATA RECORDED FOR LOWER ZONE IN DUAL ZONE MONITORING WELL (DZ-1), TIDE, AND BAROMETRIC PRESSURE BEFORE, DURING, AND AFTER INJECTION TEST

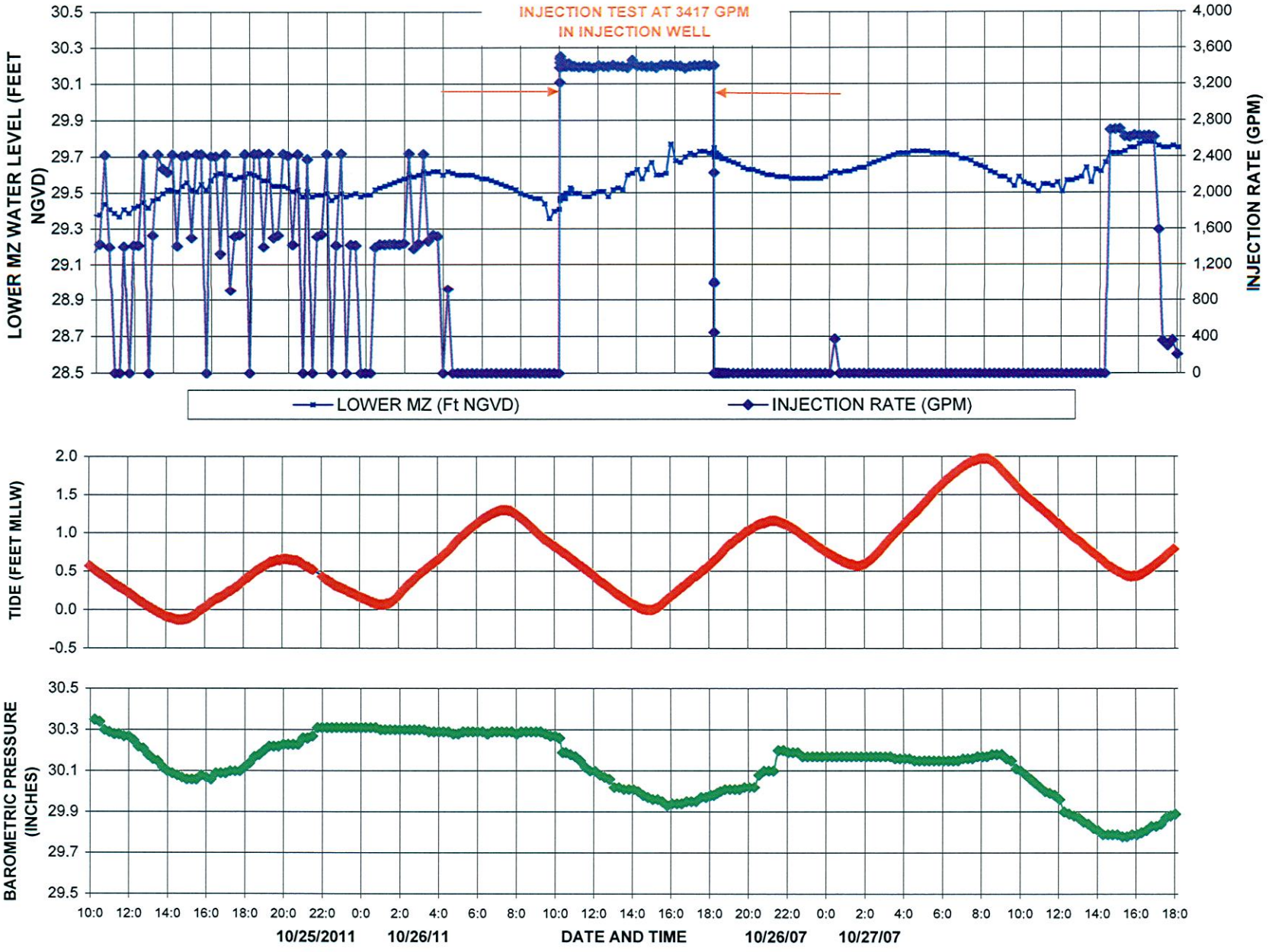


TABLE 2-1. SUMMARY OF BACKGROUND DATA COLLECTED PRIOR TO THE INJECTION TEST IN THE NORTH FORT MYERS WWTP INJECTION WELL IW-1, MONITORING WELLS, AND WEATHER DATA.

	Elapsed	Injection	Injection		Monitoring Wells Water Level (ft NGVD)			Weather		
	Time	Pressure	Rate	Totalizer	Upper Zone	Dual Zone MW (DZ-1)		Temp.	Barometric	Rainfall
Date/Time	(min)	(psi)	(gpm)	Reading	MW (MW-1)	Upper Zone	Lower Zone	(°F)	Press. (in)	(in.)
10/25/11 10:00 AM	0	28	1,342		47.97	46.05	29.38	70.7	30.35	0.0
10/25/11 10:15 AM	15	29	1,431		47.96	46.03	29.38	71.6	30.35	0.0
10/25/11 10:30 AM	30	45	2,420		47.95	46.02	29.44	72.5	30.34	0.0
10/25/11 10:45 AM	45	28	1,400		47.95	46.00	29.41	75.2	30.30	0.0
10/25/11 11:00 AM	60	18	0		47.95	45.97	29.39	75.2	30.29	0.0
10/25/11 11:15 AM	75	18	0		47.95	45.95	29.37	76.1	30.28	0.0
10/25/11 11:30 AM	90	28	1,405		47.95	45.94	29.41	76.1	30.28	0.0
10/25/11 11:45 AM	105	17	0		47.95	45.92	29.39	77.0	30.27	0.0
10/25/11 12:00 PM	120	28	1,416		47.95	45.92	29.42	77.9	30.27	0.0
10/25/11 12:15 PM	135	28	1,420		47.94	45.91	29.43	77.9	30.25	0.0
10/25/11 12:30 PM	150	50	2,425		47.95	45.91	29.45	79.7	30.22	0.0
10/25/11 12:45 PM	165	22	0		47.96	45.90	29.42	82.4	30.21	0.0
10/25/11 1:00 PM	180	30	1,531		47.96	45.91	29.46	85.1	30.18	0.0
10/25/11 1:15 PM	195	50	2,428		47.97	45.91	29.47	86.0	30.16	0.0
10/25/11 1:30 PM	210	44	2,272		47.97	45.91	29.50	83.3	30.15	0.0
10/25/11 1:45 PM	225	49	2,232		47.98	45.91	29.52	83.3	30.12	0.0
10/25/11 2:00 PM	240	50	2,428		47.99	45.92	29.52	83.3	30.10	0.0
10/25/11 2:15 PM	255	28	1,412		48.00	45.92	29.51	85.1	30.09	0.0
10/25/11 2:30 PM	270	50	2,409		48.01	45.92	29.54	86.0	30.08	0.0
10/25/11 2:45 PM	285	50	2,418		48.01	45.93	29.56	86.0	30.07	0.0
10/25/11 3:00 PM	300	30	1,501		48.02	45.94	29.52	86.0	30.06	0.0
10/25/11 3:15 PM	315	50	2,430		48.03	45.93	29.51	88.3	30.06	0.0
10/25/11 3:30 PM	330	50	2,430		48.03	45.96	29.55	86.0	30.06	0.0
10/25/11 3:45 PM	345	18	0		48.05	45.97	29.52	83.3	30.08	0.0
10/25/11 4:00 PM	360	50	2,408		48.05	45.97	29.57	85.1	30.07	0.0
10/25/11 4:15 PM	375	50	2,405		48.05	45.96	29.60	84.2	30.06	0.0
10/25/11 4:30 PM	390	27	1,322		48.06	46.04	29.61	81.5	30.09	0.0
10/25/11 4:45 PM	405	50	2,431		48.06	46.01	29.59	81.5	30.09	0.0
10/25/11 5:00 PM	420	26	910		48.05	46.03	29.60	80.6	30.09	0.0
10/25/11 5:15 PM	435	30	1,518		48.06	46.05	29.58	79.7	30.10	0.0
10/25/11 5:30 PM	450	36	1,536		48.06	46.05	29.59	79.7	30.10	0.0
10/25/11 5:45 PM	465	50	2,431		48.06	46.07	29.59	78.8	30.10	0.0
10/25/11 6:00 PM	480	18	0		48.05	46.12	29.61	77.0	30.12	0.0
10/25/11 6:15 PM	495	50	2,433		48.05	46.15	29.60	75.2	30.14	0.0
10/25/11 6:30 PM	510	50	2,432		48.05	46.17	29.59	74.3	30.17	0.0
10/25/11 6:45 PM	525	28	1,402		48.04	46.19	29.57	73.4	30.18	0.0
10/25/11 7:00 PM	540	50	2,434		48.04	46.21	29.57	71.6	30.20	0.0
10/25/11 7:15 PM	555	30	1,502		48.04	46.21	29.54	70.7	30.22	0.0
10/25/11 7:30 PM	570	30	1,530		48.03	46.21	29.54	69.8	30.22	0.0
10/25/11 7:45 PM	585	50	2,433		48.03	46.16	29.54	68.9	30.22	0.0
10/25/11 8:00 PM	600	50	2,412		48.02	46.15	29.53	67.1	30.23	0.0
10/25/11 8:15 PM	615	29	1,425		48.01	46.15	29.51	66.2	30.23	0.0
10/25/11 8:30 PM	630	50	2,429		48.00	46.15	29.52	66.2	30.23	0.0
10/25/11 8:45 PM	645	20	0		48.00	46.15	29.48	66.2	30.23	0.0
10/25/11 9:00 PM	660	50	2,374		47.99	46.15	29.51	65.3	30.26	0.0
10/25/11 9:15 PM	675	19	0		47.99	46.14	29.48	64.4	30.26	0.0
10/25/11 9:30 PM	690	30	1,514		47.98	46.13	29.49	64.4	30.27	0.0
10/25/11 9:45 PM	705	30	1,541		47.98	46.13	29.49	67.1	30.31	0.0
10/25/11 10:00 PM	720	50	2,431		47.97	46.13	29.50	68.9	30.31	0.0
10/25/11 10:15 PM	735	19	0		47.96	46.12	29.46	68.9	30.31	0.0
10/25/11 10:30 PM	750	29	1,416		47.96	46.11	29.48	68.9	30.31	0.0
10/25/11 10:45 PM	765	51	2,434		47.96	46.12	29.50	68.9	30.31	0.0
10/25/11 11:00 PM	780	20	0		47.95	46.11	29.48	68.9	30.31	0.0
10/25/11 11:15 PM	795	29	1,422		47.95	46.11	29.49	68.9	30.31	0.0

TABLE 2-1. SUMMARY OF BACKGROUND DATA COLLECTED PRIOR TO THE INJECTION TEST IN THE NORTH FORT MYERS WWTP INJECTION WELL IW-1, MONITORING WELLS, AND WEATHER DATA.

	Elapsed	Injection	Injection		Monitoring Wells Water Level (ft NGVD)			Weather		
	Time	Pressure	Rate	Totalizer	Upper Zone	Dual Zone MW (DZ-1)		Temp.	Barometric	Rainfall
Date/Time	(min)	(psi)	(gpm)	Reading	MW (MW-1)	Upper Zone	Lower Zone	(°F)	Press. (in)	(in.)
10/25/11 11:30 PM	810	29	1,417		47.95	46.11	29.50	68.9	30.31	0.0
10/25/11 11:45 PM	825	18	0		47.95	46.12	29.48	68.9	30.31	0.0
10/26/11 12:00 AM	840	18	0		47.95	46.12	29.49	68.0	30.31	0.0
10/26/11 12:15 AM	855	18	0		47.96	46.12	29.49	68.0	30.31	0.0
10/26/11 12:30 AM	870	28	1,394		47.96	46.12	29.52	68.0	30.31	0.0
10/26/11 12:45 AM	885	29	1,427		47.96	46.13	29.53	67.1	30.31	0.0
10/26/11 1:00 AM	900	29	1,425		47.97	46.13	29.54	67.1	30.30	0.0
10/26/11 1:15 AM	915	29	1,429		47.98	46.13	29.55	67.1	30.30	0.0
10/26/11 1:30 AM	930	29	1,432		47.98	46.14	29.56	67.1	30.30	0.0
10/26/11 1:45 AM	945	29	1,424		47.99	46.15	29.57	66.2	30.30	0.0
10/26/11 2:00 AM	960	29	1,439		47.99	46.16	29.58	66.2	30.30	0.0
10/26/11 2:15 AM	975	51	2,434		48.00	46.16	29.60	66.2	30.30	0.0
10/26/11 2:30 AM	990	28	1,378		48.01	46.17	29.59	66.2	30.30	0.0
10/26/11 2:45 AM	1005	30	1,434		48.02	46.18	29.60	66.2	30.30	0.0
10/26/11 3:00 AM	1020	50	2,430		48.03	46.20	29.62	66.2	30.30	0.0
10/26/11 3:15 AM	1035	30	1,468		48.04	46.20	29.61	66.2	30.30	0.0
10/26/11 3:30 AM	1050	31	1,533		48.05	46.21	29.62	66.2	30.29	0.0
10/26/11 3:45 AM	1065	30	1,517		48.06	46.22	29.62	65.3	30.29	0.0
10/26/11 4:00 AM	1080	18	0		48.07	46.23	29.60	65.3	30.29	0.0
10/26/11 4:15 AM	1095	26	929		48.07	46.23	29.62	65.3	30.29	0.0
10/26/11 4:30 AM	1110	18	0		48.08	46.24	29.61	65.3	30.29	0.0
10/26/11 4:45 AM	1125	18	0		48.09	46.24	29.60	65.3	30.28	0.0
10/26/11 5:00 AM	1140	18	0		48.09	46.24	29.60	64.4	30.28	0.0
10/26/11 5:15 AM	1155	18	0		48.09	46.25	29.60	64.4	30.29	0.0
10/26/11 5:30 AM	1170	18	0		48.10	46.26	29.60	64.4	30.29	0.0
10/26/11 5:45 AM	1185	18	0		48.11	46.26	29.59	64.4	30.29	0.0
10/26/11 6:00 AM	1200	18	0		48.10	46.26	29.58	64.4	30.29	0.0
10/26/11 6:15 AM	1215	18	0		48.10	46.26	29.58	64.4	30.29	0.0
10/26/11 6:30 AM	1230	18	0		48.10	46.26	29.57	64.4	30.28	0.0
10/26/11 6:45 AM	1245	18	0		48.10	46.26	29.56	63.5	30.29	0.0
10/26/11 7:00 AM	1260	18	0		48.09	46.26	29.55	63.5	30.29	0.0
10/26/11 7:15 AM	1275	18	0		48.09	46.26	29.54	63.5	30.29	0.0
10/26/11 7:30 AM	1290	18	0		48.09	46.25	29.53	63.5	30.29	0.0
10/26/11 7:45 AM	1305	18	0		48.08	46.25	29.52	63.5	30.29	0.0
10/26/11 8:00 AM	1320	18	0		48.08	46.25	29.50	63.5	30.28	0.0
10/26/11 8:15 AM	1335	18	0		48.07	46.22	29.49	64.4	30.29	0.0
10/26/11 8:30 AM	1350	18	0		48.07	46.20	29.48	66.2	30.29	0.0
10/26/11 8:45 AM	1365	18	0		48.07	46.19	29.47	67.1	30.29	0.0
10/26/11 9:00 AM	1380	18	0		48.06	46.16	29.47	68.0	30.29	0.0
10/26/11 9:15 AM	1395	18	0		48.05	46.13	29.44	68.9	30.29	0.0
10/26/11 9:30 AM	1410	18	0		48.04	46.05	29.36	70.7	30.28	0.0
10/26/11 9:45 AM	1425	18	0		48.04	46.04	29.40	71.6	30.27	0.0
10/26/11 10:00 AM	1440	18	0	17,575,969	48.04	46.03	29.41	72.4	30.27	0.0

No variations of the water level data collected in the three zones of the monitoring wells that cannot be accounted for by tidal influences were recorded during the 56 hours rerating period. Very slight water level changes (i.e. less than 0.1 foot) were observed in the two zones of well DZ-1. Those small variations did not show direct correspondence with injection into the injection well. They may be the result of lack of detailed precision of the permanently installed instrumentation. A review of the historic water quality data from the lower zone of well DZ-1 since the well was constructed shows no variation through time indicating no upward migration of injected water. The lower monitoring zone of well DZ-1 contains groundwater with dissolved chloride concentrations of more than 10,000 mg/l. The treated wastewater injected into the injection well contains dissolved chlorides of less than 250 mg/l. A plot of the historic water quality of the lower zone of well DZ-1 is provided as Figure 2-5.

B. Injection Test

The 8-hour injection test was conducted in the injection well between 10:03 AM and 6:03 PM on October 26, 2011. A total of 1,640,037 gallons of treated wastewater was injected during the 8 hour injection period, for an average injection rate of 3,417 gpm (Figure 2-6).

Injection was performed by pumping treated wastewater from the on-site oxidation ditch. Godwin Pumps, under contract to U.S. Water, installed one 475 HP temporary pump to withdraw water from the oxidation ditch. A discharge hose from the pump was connected to the injection well piping.

The injection well wellhead pressure increased during the injection test from a background of 18 pound per square inch (psi) to approximately 80 psi (Figure 2-6) while injecting at 3,417 gpm, for a pressure increase of 62 psi (approximately 143.2 feet). This equates to a specific injectivity at 3,417 gpm of 55.1 gpm/psi. The permitted maximum injection pressure for the well is 105 psi.

No relevant changes in water level were noted in any monitoring zone of wells MW-1 and DZ-1 during the injection test (the lower monitoring zone of well DZ-1 is 610 feet above the top of the injection zone, the upper monitoring zone of well DZ-1 is 778 feet above the top

FIGURE 2-5. PLOT OF HISTORIC WATER QUALITY FOR LOWER ZONE OF WELL DZ-1.

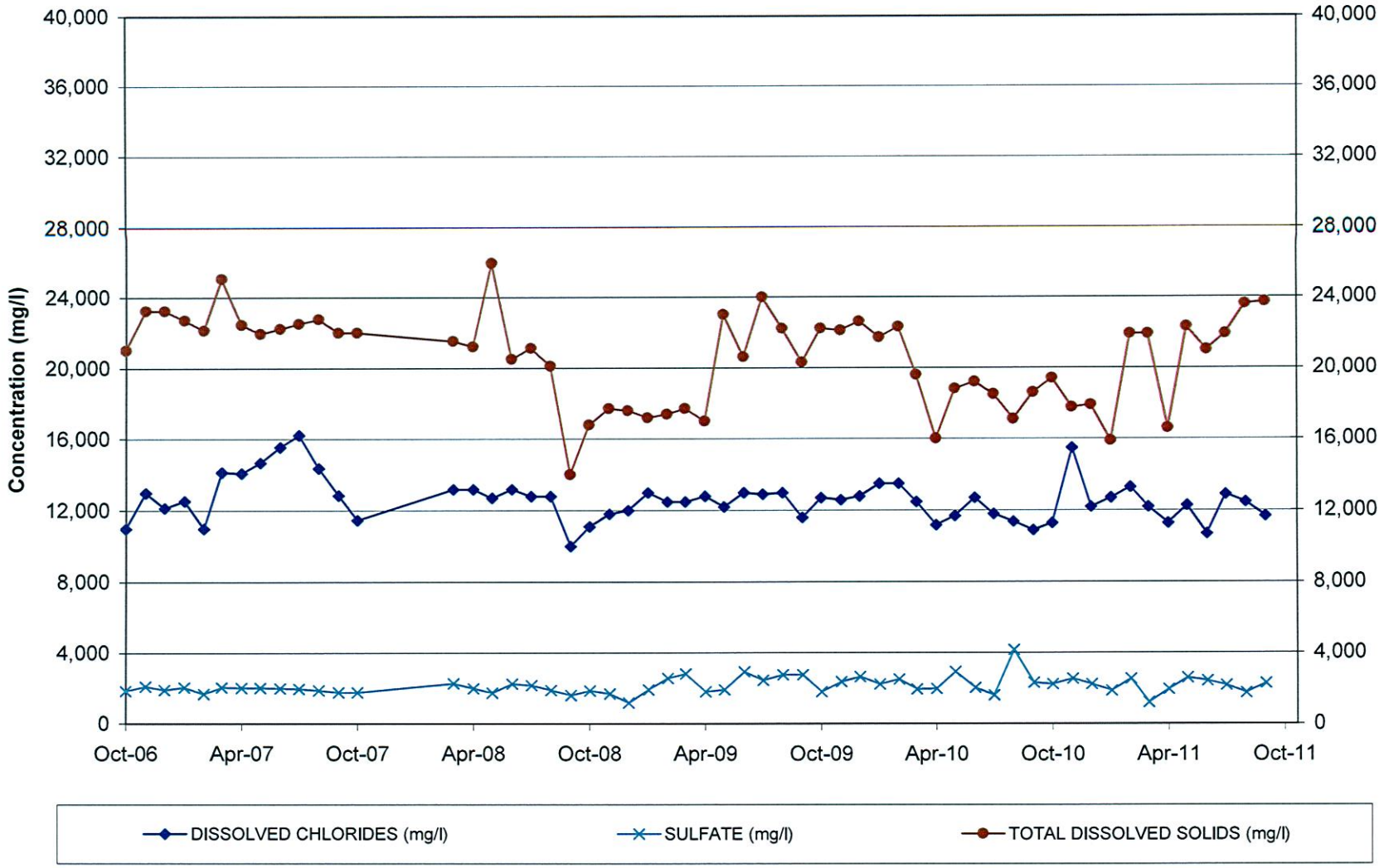
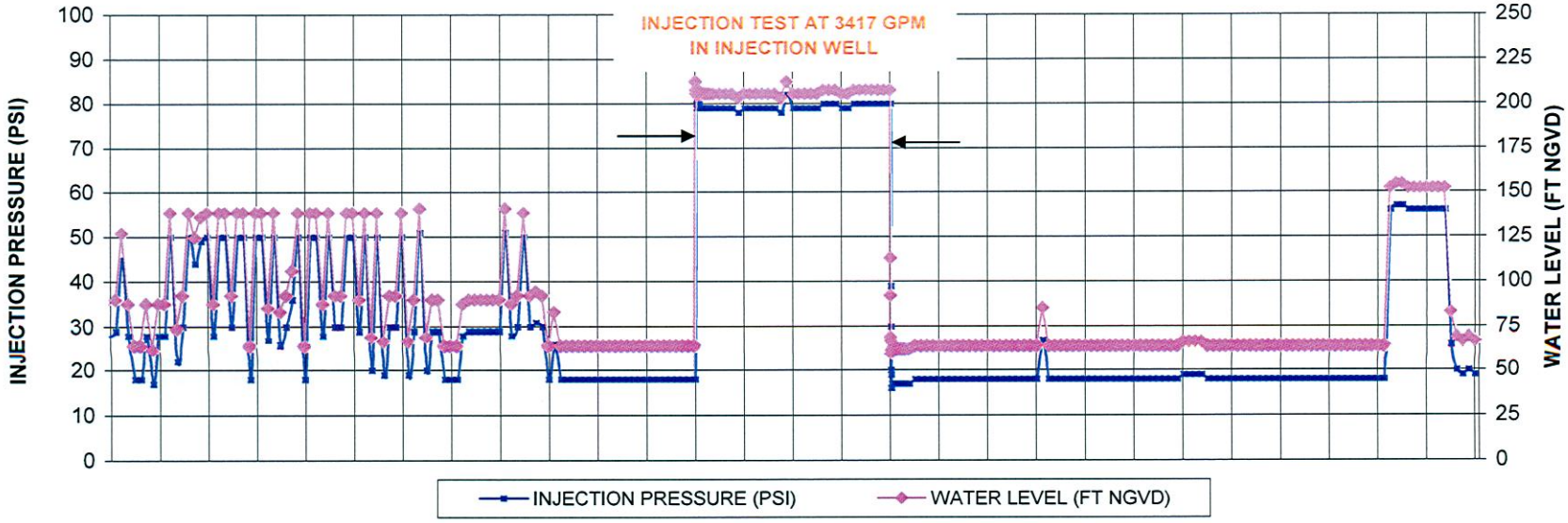
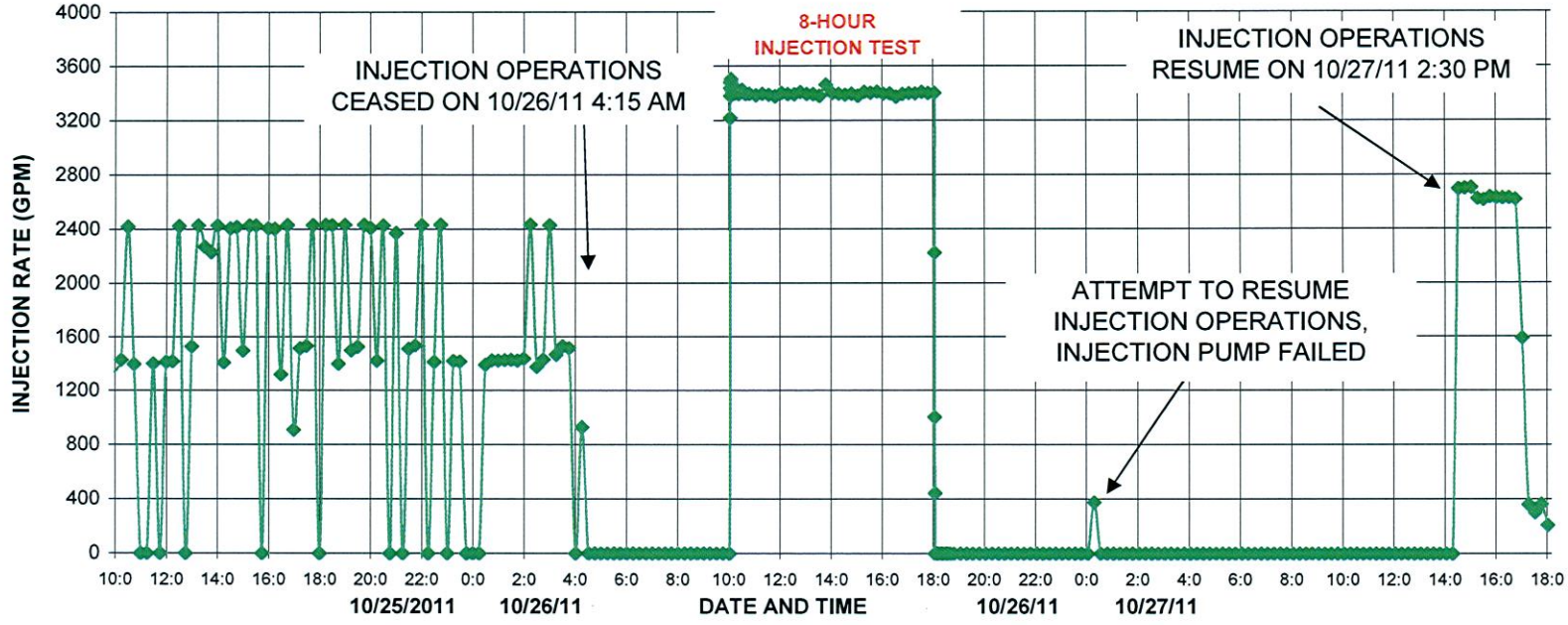


FIGURE 2-6. PLOT OF INJECTION PRESSURE AND INJECTION RATE FOR THE INJECTION WELL BEFORE, DURING, AND AFTER THE INJECTION TEST.





of the injection zone, and the monitoring zone of well MW-1 is approximately 916 feet above the top of the injection zone). Only tidal influences were observed in the three monitoring zones (Figures 2-2 through 2-4).

A tabulation of the injection data collected by the on-site RMA geologists witnessing the operations is provided on Table 2-2. The injection test data collected with the permanent instrumentation at the WTP is provided in Appendix D. A tabulation of the real-time tidal data from the NOAA Fort Myers tide gauge for the period during the injection test is provided in Appendix E.

C. Recovery Data

Recovery water level data after cessation of injection into the injection well was recorded for the injection well and for the three zones of the monitoring wells for the required 24 hour post-injection period. No injection occurred during the initial six hours after cessation of the injection test. An attempt to resume injection operations was made after six hours but the pump failed. Normal injection operations resumed approximately 20 hours after cessation of the injection test.

Plots of recovery water level data for the injection well and the three monitoring zones are included on Figures 2-1 through 2-4. The recovery data manually collected by the RMA geologists witnessing the operations is provided on Table 2-3. The data collected with the permanent instrumentation at the WWTP is provided in Appendix D. The tidal data for the entire 56-hour injection test period from the NOAA Fort Myers tide gauge is provided in Appendix E.

TABLE 2-2. SUMMARY OF DATA COLLECTED DURING THE INJECTION TEST IN THE NORTH FORT MYERS WWTP INJECTION WELL IW-1, MONITORING WELLS, AND WEATHER DATA.

	Elapsed	Injection	Injection		Monitoring Wells Water Level (ft NGVD)			Weather		
	Time	Press.	Rate	Totalizer	Upper Zone	Dual Zone MW (DZ-1)		Temp.	Barom.	Rainfall
Date/Time	(min)	(psi)	(gpm)	Reading	MW (MW-1)	Upper Zone	Lower Zone	(°F)	Press. (in)	(in.)
10/26/11 10:03 AM	0:15	82	3,219		48.03	46.02	29.46			
10/26/11 10:03 AM	0:30	82	3,382		48.03	46.02	29.47			
10/26/11 10:03 AM	0:45	82	3,441		48.03	46.02	29.47			
10/26/11 10:04 AM	1.0	82	3,480		48.03	46.02	29.47			
10/26/11 10:04 AM	1.5	82	3,489		48.03	46.02	29.47			
10/26/11 10:05 AM	2.0	80	3,506		48.03	46.02	29.47			
10/26/11 10:05 AM	2.5	79	3,478		48.03	46.02	29.47			
10/26/11 10:06 AM	3.0	79	3,427		48.02	46.02	29.47			
10/26/11 10:07 AM	4.0	79	3,430		48.03	46.02	29.47			
10/26/11 10:08 AM	5.0	80	3,415		48.02	46.02	29.47			
10/26/11 10:09 AM	6.0	79	3,404		48.02	46.02	29.48			
10/26/11 10:10 AM	7.0	80	3,405		48.02	46.02	29.49			
10/26/11 10:11 AM	8.0	80	3,425		48.02	46.02	29.48			
10/26/11 10:12 AM	9.0	79	3,408		48.02	46.02	29.48			
10/26/11 10:13 AM	10.0	79	3,401	17,617,769	48.02	46.01	29.48	73.4	30.26	0.0
10/26/11 10:14 AM	11.0									
10/26/11 10:15 AM	12.0	79	3,411		48.02	46.00	29.47			
10/26/11 10:16 AM	13.0									
10/26/11 10:17 AM	14.0	79	3,405		48.02	46.00	29.48			
10/26/11 10:18 AM	15.0									
10/26/11 10:19 AM	16.0	79	3,412		48.01	46.00	29.47			
10/26/11 10:20 AM	17.0									
10/26/11 10:21 AM	18.0	79	3,419		48.02	46.00	29.50			
10/26/11 10:22 AM	19.0									
10/26/11 10:23 AM	20.0	79	3,395	17,645,721	48.01	45.99	29.50	75.2	30.19	0.0
10/26/11 10:24 AM	21.0									
10/26/11 10:25 AM	22.0									
10/26/11 10:26 AM	23.0									
10/26/11 10:27 AM	24.0	79	3,410		48.01	45.99	29.50			
10/26/11 10:28 AM	25.0									
10/26/11 10:29 AM	26.0									
10/26/11 10:30 AM	27.0									
10/26/11 10:31 AM	28.0	79	3,427		48.01	45.99	29.50			
10/26/11 10:32 AM	29.0									
10/26/11 10:33 AM	30.0			17,680,870				75.2	30.19	0.0
10/26/11 10:35 AM	32.0	79	3,414		48.01	45.98	29.53			
10/26/11 10:39 AM	36.0	79	3,395		48.01	45.98	29.52			
10/26/11 10:48 AM	45.0	79	3,397	17,727,999	48.00	45.97	29.50	76.4	30.18	0.0
10/26/11 11:03 AM	60.0	79	3,387	17,781,510	48.00	45.96	29.50	77.9	30.17	0.0
10/26/11 11:18 AM	75.0	79	3,397	17,831,020	48.00	45.95	29.48	78.0	30.15	0.0
10/26/11 11:33 AM	90.0	79	3,392	17,884,165	48.00	45.95	29.48	80.6	30.12	0.0
10/26/11 11:48 AM	105.0	78	3,381	17,933,214	48.00	45.95	29.50	80.6	30.10	0.0
10/26/11 12:03 PM	120.0	79	3,404	17,986,113	47.99	45.95	29.51	80.6	30.10	0.0
10/26/11 12:18 PM	135.0	79	3,395	18,035,133	48.00	45.94	29.51	81.5	30.08	0.0
10/26/11 12:33 PM	150.0	79	3,393	18,085,812	48.00	45.93	29.48	82.4	30.07	0.0
10/26/11 12:48 PM	165.0	79	3,411	18,136,495	48.00	45.93	29.52	84.2	30.06	0.0
10/26/11 1:03 PM	180.0	79	3,396	18,189,495	48.01	45.93	29.53	88.7	30.02	0.0
10/26/11 1:18 PM	195.0	79	3,395	18,240,532	48.01	45.92	29.52	88.7	30.02	0.0
10/26/11 1:33 PM	210.0	78	3,383	18,290,740	48.00	45.98	29.60	86.0	30.01	0.0
10/26/11 1:48 PM	225.0	82	3,465	18,339,756	48.02	45.99	29.61	83.3	30.01	0.0
10/26/11 2:03 PM	240.0	79	3,403	18,393,710	48.03	46.01	29.63	83.3	30.01	0.0
10/26/11 2:18 PM	255.0	79	3,397	18,441,927	48.04	46.01	29.58	83.3	30.00	0.0
10/26/11 2:33 PM	270.0	79	3,391	18,497,532	48.05	46.00	29.63	84.2	29.98	0.0
10/26/11 2:48 PM	285.0	79	3,397	18,546,281	48.05	45.97	29.67	84.2	29.97	0.0

TABLE 2-2. SUMMARY OF DATA COLLECTED DURING THE INJECTION TEST IN THE NORTH FORT MYERS WWTP INJECTION WELL IW-1, MONITORING WELLS, AND WEATHER DATA.

Date/Time	Elapsed Time (min)	Injection Press. (psi)	Injection Rate (gpm)	Totalizer Reading	Monitoring Wells Water Level (ft NGVD)			Weather		
					Upper Zone MW (MW-1)	Dual Zone MW (DZ-1)		Temp. (°F)	Barom. Press. (in)	Rainfall (in.)
						Upper Zone	Lower Zone			
10/26/11 3:03 PM	300.0	79	3,382	18,597,040	48.08	45.95	29.60	85.1	29.96	0.0
10/26/11 3:18 PM	315.0	80	3,411	18,648,002	48.09	46.00	29.60	86.0	29.96	0.0
10/26/11 3:33 PM	330.0	80	3,405	18,700,708	48.09	45.98	29.61	87.8	29.95	0.0
10/26/11 3:48 PM	345.0	80	3,413	18,753,781	48.08	46.05	29.77	86.0	29.93	0.0
10/26/11 4:03 PM	360.0	79	3,398	18,805,459	48.10	46.01	29.68	84.4	29.94	0.0
10/26/11 4:18 PM	375.0	79	3,400	18,853,272	48.10	46.04	29.67	83.3	29.94	0.0
10/26/11 4:33 PM	390.0	80	3,375	18,905,164	48.11	46.03	29.70	83.3	29.94	0.0
10/26/11 4:48 PM	405.0	80	3,395	18,957,383	48.11	46.04	29.72	83.3	29.95	0.0
10/26/11 5:03 PM	420.0	80	3,402	19,007,456	48.12	46.04	29.71	83.3	29.95	0.0
10/26/11 5:18 PM	435.0	80	3,399	19,058,499	48.12	46.06	29.73	83.3	29.95	0.0
10/26/11 5:33 PM	450.0	80	3,412	19,111,730	48.11	46.09	29.73	83.3	29.97	0.0
10/26/11 5:48 PM	465.0	80	3,402	19,159,680	48.12	46.10	29.72	82.4	29.97	0.0
10/26/11 6:03 PM	480.0	80	3,405	19,215,006	48.11	46.12	29.75	83.3	29.98	0.0

TABLE 2-3. SUMMARY OF DATA COLLECTED AFTER CESSATION OF THE INJECTION TEST IN THE NORTH FORT MYERS WWTP INJECTION WELL IW-1, MONITORING WELLS, AND WEATHER DATA.

	Elapsed	Injection	Injection	Monitoring Wells Water Level (ft NGVD)			Weather		
	Time	Pressure	Rate	Upper Zone	Dual Zone MW (DZ-1)		Temp.	Barometric	Rainfall
Date/Time	(min)	(psi)	(gpm)	MW (MW-1)	Upper Zone	Lower Zone	(°F)	Pressure (in)	(in.)
10/26/11 6:03 PM	0:15	39	2,225	48.11	46.13	29.72			
10/26/11 6:03 PM	0:30	30	1,005	48.11	46.12	29.71			
10/26/11 6:03 PM	0:45	20	445	48.11	46.12	29.70			
10/26/11 6:04 PM	1.0	19	0	48.11	46.13	29.71			
10/26/11 6:04 PM	1.5	16	0	48.11	46.13	29.71			
10/26/11 6:05 PM	2.0	16	0	48.11	46.13	29.72			
10/26/11 6:05 PM	2.5	17	0	48.11	46.13	29.72			
10/26/11 6:06 PM	3.0	17	0	48.11	46.14	29.72			
10/26/11 6:07 PM	4.0	17	0	48.12	46.14	29.72			
10/26/11 6:08 PM	5.0	17	0	48.12	46.14	29.72			
10/26/11 6:09 PM	6.0	17	0	48.12	46.15	29.72			
10/26/11 6:10 PM	7.0	17	0	48.12	46.15	29.72			
10/26/11 6:11 PM	8.0	17	0	48.12	46.15	29.71			
10/26/11 6:12 PM	9.0	17	0	48.12	46.16	29.71			
10/26/11 6:13 PM	10.0	17	0	48.12	46.16	29.71	81.5	29.98	0.0
10/26/11 6:14 PM	11.0								
10/26/11 6:15 PM	12.0	17	0	48.12	46.16	29.71			
10/26/11 6:16 PM	13.0								
10/26/11 6:17 PM	14.0	17	0	48.12	46.18	29.71			
10/26/11 6:18 PM	15.0								
10/26/11 6:19 PM	16.0	17	0	48.12	46.18	29.70			
10/26/11 6:20 PM	17.0								
10/26/11 6:21 PM	18.0	17	0	48.12	46.19	29.70			
10/26/11 6:22 PM	19.0								
10/26/11 6:23 PM	20.0	17	0	48.12	46.19	29.70	80.6	29.99	0.0
10/26/11 6:24 PM	21.0								
10/26/11 6:25 PM	22.0								
10/26/11 6:26 PM	23.0								
10/26/11 6:27 PM	24.0	17	0	48.12	46.20	29.69			
10/26/11 6:28 PM	25.0								
10/26/11 6:29 PM	26.0								
10/26/11 6:30 PM	27.0								
10/26/11 6:31 PM	28.0	17	0	48.12	46.20	29.69			
10/26/11 6:32 PM	29.0								
10/26/11 6:33 PM	30.0						78.8	30.00	0.0
10/26/11 6:35 PM	32.0	17	0	48.12	46.21	29.69			
10/26/11 6:39 PM	36.0	17	0	48.12	46.21	29.69			
10/26/11 6:48 PM	45.0	17	0	48.12	46.23	29.68	77.9	30.01	0.0
10/26/11 7:03 PM	60.0	18	0	48.12	46.24	29.67	76.1	30.01	0.0
10/26/11 7:18 PM	75.0	18	0	48.12	46.25	29.66	73.4	30.01	0.0
10/26/11 7:33 PM	90.0	18	0	48.12	46.26	29.64	72.5	30.01	0.0
10/26/11 7:48 PM	105.0	18	0	48.11	46.25	29.63	72.5	30.02	0.0
10/26/11 8:03 PM	120.0	18	0	48.11	46.26	29.63	71.6	30.02	0.0
10/26/11 8:18 PM	135.0	18	0	48.10	46.25	29.62	70.7	30.02	0.0
10/26/11 8:33 PM	150.0	18	0	48.09	46.25	29.61	68.0	30.08	0.0
10/26/11 8:48 PM	165.0	18	0	48.09	46.25	29.60	66.2	30.10	0.0
10/26/11 9:03 PM	180.0	18	0	48.08	46.24	29.60	66.2	30.10	0.0
10/26/11 9:18 PM	195.0	18	0	48.07	46.24	29.59	65.3	30.10	0.0
10/26/11 9:33 PM	210.0	18	0	48.07	46.23	29.59	68.9	30.20	0.0
10/26/11 9:48 PM	225.0	18	0	48.06	46.23	29.59	72.5	30.20	0.0
10/26/11 10:03 PM	240.0	18	0	48.05	46.23	29.58	73.4	30.19	0.0
10/26/11 10:18 PM	255.0	18	0	48.05	46.23	29.58	74.3	30.19	0.0
10/26/11 10:33 PM	270.0	18	0	48.04	46.23	29.58	74.3	30.19	0.0
10/26/11 10:48 PM	285.0	18	0	48.04	46.22	29.58	74.3	30.17	0.0

TABLE 2-3. SUMMARY OF DATA COLLECTED AFTER CESSATION OF THE INJECTION TEST IN THE NORTH FORT MYERS WWTP INJECTION WELL IW-1, MONITORING WELLS, AND WEATHER DATA.

	Elapsed	Injection	Injection	Monitoring Wells Water Level (ft NGVD)			Weather		
	Time	Pressure	Rate	Upper Zone	Dual Zone MW (DZ-1)		Temp.	Barometric	Rainfall
Date/Time	(min)	(psi)	(gpm)	MW (MW-1)	Upper Zone	Lower Zone	(°F)	Pressure (in)	(in.)
10/26/11 11:03 PM	300.0	18	0	48.03	46.22	29.58	74.3	30.17	0.0
10/26/11 11:18 PM	315.0	18	0	48.03	46.22	29.58	74.3	30.17	0.0
10/26/11 11:33 PM	330.0	18	0	48.03	46.22	29.58	74.3	30.17	0.0
10/26/11 11:48 PM	345.0	18	0	48.03	46.22	29.59	73.4	30.17	0.0
10/27/11 12:03 AM	360.0	18	0	48.03	46.22	29.61	73.4	30.17	0.0
10/27/11 12:18 AM	375.0	27	375	48.03	46.22	29.62	72.5	30.17	0.0
10/27/11 12:33 AM	390.0	18	0	48.03	46.23	29.61	72.5	30.17	0.0
10/27/11 12:48 AM	405.0	18	0	48.03	46.23	29.62	72.5	30.17	0.0
10/27/11 1:03 AM	420.0	18	0	48.03	46.23	29.62	71.6	30.17	0.0
10/27/11 1:18 AM	435.0	18	0	48.03	46.24	29.63	71.6	30.17	0.0
10/27/11 1:33 AM	450.0	18	0	48.04	46.25	29.64	71.6	30.17	0.0
10/27/11 1:48 AM	465.0	18	0	48.04	46.25	29.64	71.6	30.17	0.0
10/27/11 2:03 AM	480.0	18	0	48.05	46.25	29.66	70.7	30.17	0.0
10/27/11 2:18 AM	495.0	18	0	48.06	46.26	29.67	70.7	30.17	0.0
10/27/11 2:33 AM	510.0	18	0	48.07	46.27	29.68	70.7	30.17	0.0
10/27/11 2:48 AM	525.0	18	0	48.08	46.27	29.69	70.7	30.17	0.0
10/27/11 3:03 AM	540.0	18	0	48.08	46.28	29.70	70.7	30.17	0.0
10/27/11 3:18 AM	555.0	18	0	48.09	46.29	29.71	69.8	30.17	0.0
10/27/11 3:33 AM	570.0	18	0	48.10	46.29	29.72	69.8	30.16	0.0
10/27/11 3:48 AM	585.0	18	0	48.11	46.31	29.72	69.8	30.16	0.0
10/27/11 4:03 AM	600.0	18	0	48.12	46.32	29.72	69.8	30.16	0.0
10/27/11 4:18 AM	615.0	18	0	48.13	46.33	29.73	68.9	30.16	0.0
10/27/11 4:33 AM	630.0	18	0	48.14	46.33	29.73	68.9	30.15	0.0
10/27/11 4:48 AM	645.0	18	0	48.15	46.34	29.73	68.9	30.15	0.0
10/27/11 5:03 AM	660.0	18	0	48.16	46.35	29.73	68.9	30.15	0.0
10/27/11 5:18 AM	675.0	18	0	48.16	46.35	29.72	68.9	30.15	0.0
10/27/11 5:33 AM	690.0	18	0	48.17	46.36	29.72	68.0	30.15	0.0
10/27/11 5:48 AM	705.0	18	0	48.17	46.37	29.72	67.1	30.15	0.0
10/27/11 6:03 AM	720.0	19	0	48.18	46.37	29.72	67.1	30.15	0.0
10/27/11 6:18 AM	735.0	19	0	48.18	46.37	29.71	66.2	30.15	0.0
10/27/11 6:33 AM	750.0	19	0	48.19	46.38	29.71	66.2	30.15	0.0
10/27/11 6:48 AM	765.0	19	0	48.18	46.38	29.69	66.2	30.15	0.0
10/27/11 7:03 AM	780.0	18	0	48.18	46.38	29.69	66.2	30.16	0.0
10/27/11 7:18 AM	795.0	18	0	48.18	46.38	29.68	66.2	30.16	0.0
10/27/11 7:33 AM	810.0	18	0	48.18	46.38	29.66	66.2	30.16	0.0
10/27/11 7:48 AM	825.0	18	0	48.18	46.37	29.65	66.2	30.17	0.0
10/27/11 8:03 AM	840.0	18	0	48.17	46.36	29.64	67.1	30.17	0.0
10/27/11 8:18 AM	855.0	18	0	48.17	46.35	29.62	68.0	30.17	0.0
10/27/11 8:33 AM	870.0	18	0	48.17	46.32	29.61	68.9	30.18	0.0
10/27/11 8:48 AM	885.0	18	0	48.16	46.30	29.59	70.7	30.18	0.0
10/27/11 9:03 AM	900.0	18	0	48.15	46.28	29.59	71.6	30.18	0.0
10/27/11 9:18 AM	915.0	18	0	48.14	46.26	29.57	72.5	30.16	0.0
10/27/11 9:33 AM	930.0	18	0	48.14	46.23	29.54	73.4	30.15	0.0
10/27/11 9:48 AM	945.0	18	0	48.13	46.19	29.59	77.0	30.11	0.0
10/27/11 10:03 AM	960.0	18	0	48.12	46.17	29.56	77.9	30.10	0.0
10/27/11 10:18 AM	975.0	18	0	48.12	46.15	29.55	78.8	30.08	0.0
10/27/11 10:33 AM	990.0	18	0	48.12	46.12	29.54	80.6	30.06	0.0
10/27/11 10:48 AM	1005.0	18	0	48.11	46.09	29.51	83.3	30.04	0.0
10/27/11 11:03 AM	1020.0	18	0	48.11	46.07	29.55	84.2	30.02	0.0
10/27/11 11:18 AM	1035.0	18	0	48.10	46.05	29.55	83.3	30.00	0.0
10/27/11 11:33 AM	1050.0	18	0	48.10	46.04	29.54	84.2	29.99	0.0
10/27/11 11:48 AM	1065.0	18	0	48.10	46.02	29.56	85.1	29.98	0.0
10/27/11 12:03 PM	1080.0	18	0	48.11	46.00	29.51	86.0	29.96	0.0
10/27/11 12:18 PM	1095.0	18	0	48.10	46.00	29.57	91.4	29.90	0.0

TABLE 2-3. SUMMARY OF DATA COLLECTED AFTER CESSATION OF THE INJECTION TEST IN THE NORTH FORT MYERS WWTP INJECTION WELL IW-1, MONITORING WELLS, AND WEATHER DATA.

	Elapsed	Injection	Injection	Monitoring Wells Water Level (ft NGVD)			Weather		
	Time	Pressure	Rate	Upper Zone	Dual Zone MW (DZ-1)		Temp.	Barometric	Rainfall
Date/Time	(min)	(psi)	(gpm)	MW (MW-1)	Upper Zone	Lower Zone	(°F)	Pressure (in)	(in.)
10/27/11 12:33 PM	1110.0	18	0	48.10	46.00	29.57	91.8	29.89	0.0
10/27/11 12:48 PM	1125.0	18	0	48.10	45.99	29.58	92.3	29.88	0.0
10/27/11 1:03 PM	1140.0	18	0	48.10	45.99	29.59	92.3	29.87	0.0
10/27/11 1:18 PM	1155.0	18	0	48.10	45.99	29.64	93.2	29.85	0.0
10/27/11 1:33 PM	1170.0	18	0	48.12	45.97	29.56	92.3	29.84	0.0
10/27/11 1:48 PM	1185.0	18	0	48.11	45.97	29.63	92.3	29.82	0.0
10/27/11 2:03 PM	1200.0	18	0	48.12	45.99	29.62	94.1	29.81	0.0
10/27/11 2:18 PM	1215.0	18	0	48.13	45.96	29.67	95.9	29.79	0.0
10/27/11 2:33 PM	1230.0	56	2,697	48.12	46.01	29.72	96.8	29.79	0.0
10/27/11 2:48 PM	1245.0	57	2,702	48.13	46.03	29.72	95.9	29.79	0.0
10/27/11 3:03 PM	1260.0	57	2,707	48.13	46.05	29.72	95.9	29.79	0.0
10/27/11 3:18 PM	1275.0	56	2,625	48.14	46.06	29.73	95.9	29.78	0.0
10/27/11 3:33 PM	1290.0	56	2,616	48.14	46.07	29.75	95.0	29.78	0.0
10/27/11 3:48 PM	1305.0	56	2,637	48.15	46.09	29.75	94.1	29.79	0.0
10/27/11 4:03 PM	1320.0	56	2,631	48.16	46.11	29.77	93.2	29.79	0.0
10/27/11 4:18 PM	1335.0	56	2,629	48.16	46.13	29.78	90.5	29.80	0.0
10/27/11 4:33 PM	1350.0	56	2,631	48.17	46.15	29.78	88.7	29.81	0.0
10/27/11 4:48 PM	1365.0	56	2,621	48.17	46.17	29.78	88.7	29.83	0.0
10/27/11 5:03 PM	1380.0	26	1,592	48.18	46.18	29.76	87.8	29.83	0.0
10/27/11 5:18 PM	1395.0	20	359	48.18	46.20	29.75	86.9	29.84	0.0
10/27/11 5:33 PM	1410.0	19	302	48.18	46.21	29.75	86.0	29.87	0.0
10/27/11 5:48 PM	1425.0	20	365	48.18	46.22	29.76	85.1	29.88	0.0
10/27/11 6:03 PM	1440.0	19	210	48.18	46.23	29.75	84.2	29.89	0.0

III. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The following conclusions are made as a result of this investigation:

- During the 8-hours injection rerating test, conducted at an average rate of 3,417 gpm, an increase in wellhead pressure of approximately 62 psi from a shut-in wellhead pressure of approximately 18 psi, occurred. This equates to a specific injectivity of approximately 55 gpm/psi and indicates that the North Fort Myers injection well IW-1 can be utilized to dispose of treated wastewater at the maximum rate of 4.87 MGD.

- There were no discernable effects on water levels in the upper zone of well MW-1 and the upper and lower monitoring zones in well DZ-1 as a result of the 8-hour injection into the injection well at an average rate of 3,417 gpm.

B. Recommendations

The following recommendations are made as a result of this investigation:

- The present report, after review by Wade Trim, U.S. Water, and FGUA, should be provided to the FDEP to support modification of the UIC permit to allow for a maximum injection rate of 4.87 MGD for the North Fort Myers injection well IW-1.

APPENDIX A

COPY OF FDEP PERMIT FOR
NORTH FORT MYERS INJECTION WELL IW-1

Florida Department of Environmental Protection

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

SENT VIA ELECTRONIC MAIL:

In the Matter of an
Application for Permit by:

December 31, 2007

Mr. A. A. Reeves, III, Vice President
North Ft Myers Utility Inc.
P.O. Box 2547
Fort Myers, Florida 33902
Email: oldbridge9@aol.com

Lee County – UIC
File Number:128646-002-UO/1M
North Fort Myers Utility IW-1 Operation Permit Renewal
Class 1 Injection Well

NOTICE OF PERMIT ISSUANCE

Enclosed is Permit Number 128646-002-UO/1M to operate a Class I Injection Well (IW-1) system, issued pursuant to Section(s) 403.087, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Lee County, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Jon M. Iglehart
Director of District Management

CERTIFICATE OF SERVICE

The undersigned designated clerk hereby certifies that this PERMIT and all copies were mailed before the close of business on December 31, 2007 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section 120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Julie D. La Mere

Clerk

12/31/07

Date

JMI/DR/jl

Enclosure

Cc Lonnie V. Howard, P.E., (lvh@johnsoneng.com)
Nancy Marsh, EPA (marsh.nancy@epa.gov)
Craig Boomgaard, SFWMD (cboomgaa@sfwmd)
Joe Haberfeld, FDEP (joe.haberfeld@dep.state.fl.us)

Florida Department of Environmental Protection

PERMIT

PERMITTEE:
Mr. A. A. Reeves, III, Vice President
North Ft Myers Utility Inc.
P.O. Box 2547
Fort Myers, Florida 33902
Email: oldbridge9@aol.com

Lee County - UIC
File Number: 128646-002-UO/1M
Date of Issue: **December 31, 2007**
Expiration Date: **December 30, 2012**
Latitude: 26.0° 43.0' 47.70" N
Longitude: - 81.0° 52.0' 51.30" W
Section/Town/Range: 14/T43S/R24E
Project: North Fort Myers Utility IW-1 Operation Permit Renewal
Class 1 Injection Well

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Rules 62-4, 62-520, 62-528, 62-550, 62-600, and 62-601. The above named permitee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the Department and made a part hereof and specifically described as follows:

Operate one nominal twelve-inch (12") diameter Class I injection well (IW-1), with a twelve-inch (12") steel injection casing cemented to 2340 feet below land surface, (bls), and a total depth of 2600 feet bls. Injection is into the Oldsmar Formation for the supplemental means of disposal of non-hazardous secondary treated domestic wastewater from the NFMU WWTP. Existing injection well IW-1 is hereby permitted for a maximum disposal of 4.0 million gallons per day (MGD). The maximum injection rate shall not exceed 2810 gallons per minute, (GPM) and the maximum injection pressure shall not exceed 105 pounds per square inch, (psi).

The existing dual zone monitoring well (DZ-1) is completed 1502 to 1562 feet bls and 1731 to 1781 feet bls. A single zone monitor well (MW-1) is completed from 1300 to 1424 feet bls.

The Application to Construct/Operate/Abandon Class I, III, or V Injection well System, DEP Form 62-528.900(1), F.A.C. was received on August 1, 2002, with supporting documents and additional information last received on July 2, 2007. The demonstration of Financial Responsibility was complete as of August 1, 2007 and remains in effect. The Project is located at the NFMU WWTP, 4000 Del Prado Boulevard, N Ft Myers, Florida 33903, Lee County.

Subject to Specific Conditions 1-10.

SPECIFIC CONDITIONS:

1. GENERAL CRITERIA

   a. Any permit noncompliance constitutes a violation of the Safe Drinking Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

   b. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

   c. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

   d. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures.

   e. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation or reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

   f. When requested by the Department, the permittee shall furnish, within the time specified, any information needed to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit.

   g. Signatories and Certification Requirements

      (1) All reports and other submittals required to comply with this permit shall be signed by a person authorized under Rules 62-528.340(1) or (2), F.A.C.

      (2) In accordance with Rule 62-528.340(4), F.A.C., all reports shall contain the following certification:

      "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

   h. The permittee shall notify the Department and obtain approval prior to any physical alterations or additions to the injection or monitor well, including removal of the wellhead.

   i. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or injection activity that may result in noncompliance with permit requirements.

SPECIFIC CONDITIONS:

j. The permittee shall report any noncompliance that may endanger health or the environment, to include:

(1) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water; or

(2) Any noncompliance with a permit condition or malfunction of the injection system that may cause fluid migration into or between underground sources of drinking water.

(3) Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause, the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

k. No underground injection is allowed that causes or allows movement of fluid into an underground source of drinking water.

l. The permittee shall retain all records of all monitoring information concerning the nature and composition of injected fluid until five years after completion of any plugging and abandonment procedures specified under Rule 62-528.435, F.A.C. The permittee shall deliver the records to the Department office that issued the permit at the conclusion of the retention period unless the permittee elects to continue retention of the records.

2. OPERATING REQUIREMENTS

a. Injection of fluids other than those permitted into the disposal wells(s) will constitute a violation of this permit and shall constitute cause for permit revocation and possible enforcement action for water quality violations.

b. Injection into the well shall not exceed 2810 gallons per minute (4.0 MGD) and injection pressure as measured at the wellhead shall not exceed 105 psi.

c. In the event the permittee is temporarily unable to comply with any of the conditions of a permit due to breakdown of equipment, power outages, destruction by hazard of fire, wind, or by other cause, the permittee of the facility shall notify the Department.

(1) Notification shall be made in person, by telephone, or by electronic mail within 24 hours of breakdown or malfunction to the South District office.

(2) A written report of any noncompliance referenced in Specific Condition 2.c.1) above shall be submitted to the South District and Tallahassee offices within five days after its occurrence. The report shall describe the nature and cause of the breakdown or malfunction, the steps being taken or planned to be taken to correct the problem and prevent its reoccurrence, emergency procedures

SPECIFIC CONDITIONS:

in use pending correction of the problem, and the time when the facility will again be operating in accordance with permit conditions.

d. The permittee shall calibrate all pressure gauges, flow meters, chart recorders, and other related equipment associated with the injection well system on a semiannual basis. The permittee shall maintain all monitoring equipment and shall ensure that the monitoring equipment is calibrated and in proper operating condition at all times. Laboratory equipment, methods, and quality control will follow EPA guidelines as expressed in Standard Methods for the Examination of Water and Wastewater. The pressure gauges, flow meters, and chart recorders shall be calibrated using standard engineering methods. Calibration records shall be kept by the permittee at the permitted facility and be available for inspection by Department personnel upon request.

e. In the event a well must be plugged or abandoned, the permittee shall obtain a permit from the Department as required by Chapter 62-528, Florida Administrative Code. When no longer used for their intended purpose, these wells shall be properly plugged and abandoned. Within 180 days of well abandonment, the permittee shall submit to the Department and the TAC the proposed plugging method, pursuant to Rule 62-528.460, F.A.C.

3. SCHEDULE

The Department has determined that the listed improvement actions are necessary to be completed within the following schedule:

	IMPROVEMENT ACTION	COMPLETION DATE
1	Repair or replace the digital gauge at the wellhead for MW-1.	Within 90 day of the date of issuance of this permit.
2	Repair or replace the digital gauges at the wellhead for DZ-1. The gauge shall be completely readable under normal light conditions.	Within 90 day of the date of issuance of this permit.
3	Relocate the analog pressure gauge currently located on the wellhead for IW-1 to a height and position that is safe to approach and is reasonably accessible such that the gauge is readily readable	Within 90 day of the date of issuance of this permit.
4	Repair or replace the digital readout for the totalizer gauge located at the wellhead of IW-1	Within 90 day of the date of issuance of this permit.
5	Repair the broken neat cement grout at the wellhead for IW-1. The repaired surface shall protect the exposed casings from corrosion.	Within 90 day of the date of issuance of this permit.
6	Repair or replace the continuous chart recorder such that the required daily Maximum, Minimum, and Average data points are collected from the injection and monitor well systems. The continuous recording system should also provide the daily data in hard copy format.	Within 90 day of the date of issuance of this permit.
7	An Operation and Maintenance Manual for the injection well systems shall be produced and submitted.	Within 90 day of the date of issuance of this permit.

SPECIFIC CONDITIONS:

4. TESTING AND REPORTING REQUIREMENTS

a. A specific injectivity test shall be performed quarterly on the injection well as required by Rule 62-528.430(2)(b)1.b., F.A.C. Pursuant to Rule 62-528.430(2)(d), F.A.C., the specific injectivity test shall be performed with the pumping rate to the well set at a predetermined level and reported as the specific injectivity index (gallons per minute/specific pressure). The pumping rate to be used shall be based on the expected flow, the design of the pump types, and the type of pump control used. As part of this test, the well shall be shut-in for a period of time necessary to conduct a valid observation of pressure fall-off. The specific injectivity and pressure fall-off test data shall be submitted along with the monitoring results of the injection and monitoring well data.

b. The permittee shall demonstrate the mechanical integrity pursuant to Rule 62-528.300(6)(b) and (c), Florida Administrative Code (F.A.C.), at least once every five (5) years during the life of the well. As part of the mechanical integrity survey a video television survey shall be conducted from the surface to the bottom of the injection zone or more frequently if deemed necessary by the Department, pursuant to Rule 62-528.425(1)(d), F.A.C. **The last mechanical integrity test for injection well IW-1 was conducted on October 2, 2002. Therefore, the next mechanical integrity test on the injection well shall be completed on or before October 2, 2007.**

c. The Department must be notified seventy-two (72) hours prior to all testing for mechanical integrity on the injection wells. The testing procedure must be approved by the Department before testing begins. All testing must be initiated during daylight hours, Monday through Friday. An evaluation of all test results must be submitted with all test data.

d. The injection system shall be monitored in accordance with Rules 62-528.425(1)(g) and 62-528.430(2), F.A.C. The following injection well performance and monitor zone data shall be recorded and reported in the Monthly Operating Report as indicated below. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

INJECTION WELL IW-1

The specifications for the injection well are as follows:

Casing Diameter and Type	*Depth Cased (bls)*	*Open Hole Interval (bls)*
30" Steel	220'	
24" Steel	1100'	
20" Steel	1570'	
12" Steel	2340'	
		from 2340 to 2600

The injection well shall be monitored in accordance with the parameters and frequencies listed below. The injection pressure and flow rate shall be recorded continuously. The permittee shall submit monthly a summary of the monthly monitoring data developed from the injection well instrumentation. All samples shall be collected and analyzed in accordance with the quality assurance requirements of Chapter 62-160, F.A.C. The report shall include the following data:

SPECIFIC CONDITIONS:

Monitoring Parameters	*Reporting Frequency*
Injection Pressure (p.s.i)	**Frequency**
Injection Pressure (psi)	Daily/Monthly
Maximum Injection Pressure	Daily/Monthly
Minimum Injection Pressure	Daily/Monthly
Average Injection Pressure	Daily/Monthly
Flow Rate (g.p.m.)	**Recording Frequency**
Flow Rate (gpm)	Daily/Monthly
Maximum Flow Rate	Daily/Monthly
Minimum Flow Rate	Daily/Monthly
Average Flow Rate	Daily/Monthly
Volume	**Recording Frequency**
Total Volume WWTP Effluent Injected (gallons)	Daily
Total Volume WWTP Effluent Injected (gallons)	Monthly
WWTP Effluent Water Quality	**Recording Frequency**
TKN (mg/L)	Monthly
Ammonia (mg/L)	Monthly
Nitrate and Nitrite as N (mg/L)	Monthly

MONITOR WELL SYSTEM:

The monitor well system consists of one dual-zone monitoring well as listed below:

Well Name	*Casing Diameter and Type*	*Depth Cased (bls)/Total (bls)*
DZ-1	20" Steel	220'
DZ-1 (Upper)	12" Steel	1502'
DZ-1 (Upper)		1502 to 1562
DZ-1 (Lower)	6.625" O.D. FRP	1731'
DZ-1 (Lower)		1731 to 1781
MW-1	16" Steel	200'
MW-1	10" Steel	1300'
MW-1		From 1300' to 1424'

The monitoring parameters listed below shall be developed and reported for the monitor well listed above. The monitor well pressure or water level shall be recorded continuously. The monitor well casings shall be evacuated of three (3) to five (5) well volumes prior to collection of the water sample for analysis. The volume of water evacuated shall be based on the calculated volume of water in the well casing and sampling interval. The water sample collected shall be of sufficient volume to complete the analysis required. All samples must be analyzed by a laboratory certified in the State of Florida. The laboratory reports shall be submitted; all samples shall be collected and analyzed in accordance with the quality assurance requirements of Chapter 62-160, F.A.C. The report shall include the following data:

SPECIFIC CONDITIONS:

MONITOR WELLS DZMW-1 AND MW-1

Upon the start-up of operational testing for injection well IW-2, the monitor well sampling parameters listed below will be required to be collected from the monitor wells on the same schedule as specified in the IW-2 permit (monthly parameters change to weekly and quarterly parameters become monthly)and reported on a monthly basis. The Department will accept these weekly and quarterly reports as the required MOR submittals for injection well IW-1.

Monitoring Parameters	*Reporting Frequency*
Maximum Water Level/Pressure (Ft NAVD or psi)	Daily/Monthly
Minimum Water Level/Pressure (Ft NAVD or psi)	Daily/Monthly
Average Water Level/Pressure (Ft NAVD or psi)	Monthly

Water level or pressure recorders shall keep a continuous record.

Water Quality

Parameters	*Reporting Frequency*
Specific Conductivity (µmhos/cm)	Monthly
Total Dissolved Solids (mg/L)	Monthly
pH (std. units)	Monthly
Chloride (mg/L)	Monthly
Sulfate (mg/L)	Monthly
Field Temperature (°C)	Monthly
Ammonia (mg/l)	Monthly
Total Kjeldahl Nitrogen (TKN) (mg/L)	Monthly
Sodium (mg/L)	Quarterly
Calcium (mg/L)	Quarterly
Potassium (mg/L)	Quarterly
Magnesium (mg/L)	Quarterly
Iron (mg/L)	Quarterly
Bicarbonate (mg/L)	Quarterly

e. The permittee shall submit to the Department the results of all monitoring data collected no later than the last day of the month immediately following the end of the month of record. The results shall be sent to the Department of Environmental Protection, South District Office, P.O. Box 2549, Fort Myers, Florida 33902-2549. Copies of the results shall also be sent to the Underground Injection Control Program, Bureau of Water Facilities Regulations, Department of Environmental Protection, 2600 Blair Stone Road, Mail Station #3530, Tallahassee, FL 32399-2400.

f. In accordance with Rules 62-4.090(1) and 62-528.455(3)(a), F.A.C., the permittee shall submit an application for renewal of the existing operating permit (a minimum of 5 copies) with the applicable fee at least 60 days prior to the expiration of this operation permit. The application for renewal shall include the items listed in Rule 62-528.455(3)(b), F.A.C.

SPECIFIC CONDITIONS:

5. ABNORMAL EVENTS

   a. In the event the permittee is temporarily unable to comply with any conditions of this permit due to breakdown of equipment, power outages, destruction by hazard of fire, wind, or by other cause, the permittee shall notify the Department. Notification shall be made in person, by telephone or by electronic mail within 24 hours of breakdown or malfunction to the UIC Program staff, South District office.

   b. A written report of any noncompliance referenced in 1) above shall be submitted to the South District office within five days after its occurrence. The report shall describe the nature and cause of the breakdown or malfunction, the steps being taken or planned to be taken to correct the problem and prevent its reoccurrence, emergency procedures in use pending correction of the problem, and the time when the facility will again be operating in accordance with permit conditions.

6. EMERGENCY DISPOSAL

   a. All applicable federal, state and local permits must be in place to allow for any alternate discharges due to emergency or planned outage conditions.

   b. Any changes in emergency disposal methods must be submitted for Technical Advisory Committee (TAC) review and Department approval.

   c. The permittee shall notify the local office of the Department within 24 hours in the event the emergency discharge has been used. The notification should include the reason for using the emergency discharge, the duration of the discharge, and the volume discharged. Written notification shall be provided within 5 days after its occurrence.

7. FINANCIAL RESPONSIBILITY

   a. The permittee shall maintain separately the financial resources necessary to close, plug, and abandon the injection and associated monitor wells, at all times in accordance with Rule 62-528.435(9), F.A.C.

   b. The permittee shall update annually the plugging and abandonment cost estimate. A certified (By Professional Geologist or Professional Engineer) copy of the annual update shall be submitted to the Department's Tallahassee UIC Program each year within 60 days after the anniversary date of issuance of this permit to the following addresses:

   Underground Injection Control Program
   Bureau of Water Facilities Regulation
   Department of Environmental Protection
   2600 Blair Stone Road, Mail Station #3530
   Tallahassee, FL 32399-2400

   Underground Injection Control Program
   Department of Environmental Protection
   South District Office
   2295 Victoria Avenue, Ste 364
   Ft Myers, FL 33902-2549

   c. Upon the occurrence of the annual plugging and abandonment cost estimate exceeding, by 10 percent or more, (Section b. previously), the cost estimate upon which the current financial responsibility is based; the permittee shall submit to the Department certified financial documentation necessary to amend, renew, or otherwise replace the existing financial responsibility pursuant to Rule 62-528.435(9), F.A.C.

SPECIFIC CONDITIONS:

and the conditions of this permit. Local governments shall include an updated *Certificate of Financial Responsibility* form and the comprehensive annual financial report for the latest completed fiscal year of that local entity.

d. In the event that the mechanism used to demonstrate financial responsibility should become insufficient or invalid for any reason, the permittee shall notify the Department of Environmental Protection in writing within 14 days of such insufficiency or invalidation. The permittee shall within 30 days of said notification submit to the Department for approval new financial documentation certifying either the remedy of current financial insufficiency or resolution of the financial instrument invalidation in order to comply with Rule 62-528.435(9), F.A.C., and the conditions of this permit.

8. MECHANICAL INTEGRITY

a. The permittee shall maintain the mechanical integrity of the injection well at all times.

b. If the Department determines that the injection well lacks mechanical integrity, written notice shall be given to the permittee.

c. Unless the Department requires immediate cessation of injection, within 48 hours of receiving written notice that the well lacks mechanical integrity the permittee shall cease injection into the well unless the Department allows continued injection pursuant to d. below.

d. The Department may allow the permittee to continue operation of a well that lacks mechanical integrity if the permittee has made a satisfactory demonstration that fluid movement into or between underground sources of drinking water is not occurring.

9. The permittee is reminded of the necessity to comply with the pertinent regulations of any other regulatory agency, as well as any county, municipal, and federal regulations applicable to the project. These regulations may include, but are not limited to, those of the Federal Emergency Management Agency in implementing flood control measures. This permit should not be construed to imply compliance with the rules and regulations of other regulatory agencies.

Mr. A. A. Reeves, III, Vice President
North Ft Myers Utility Inc.
4000 Del Prado Boulevard

Permit/Cert No.: 128646-002-UO/1M
Date of Issue: December 31, 2007
Expiration Date: December 30, 2012

SPECIFIC CONDITIONS:

10. The permittee shall be aware of and operate under the General Conditions of F.A.C. Rule 62-528.307(1)(a) through (x), and 62-528.307(3)(a) through (e). These General Conditions are binding upon the permittee and enforceable pursuant to Chapter 403 of the Florida Statutes.

Note: In the event of an emergency the permittee shall contact the Department by calling (850) 488-1320. During normal business hours, the permittee shall call (239) 332-6975.

Issued this 31st day of Dec., 2007.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Jon M. Iglehart
Director of
District Management

JMI/DR/jgh

APPENDIX B

COPY OF RERATING PLAN SUBMITTED TO FDEP AND FDEP APPROVAL OF THE PLAN FOR RERATING THE NORTH FORT MYERS INJECTION WELL IW-1

Dan Acquaviva

From: "Rhodes, David" <David.Rhodes@dep.state.fl.us>
To: <dacquaviva@rma-geologic.com>; <cthornberry@uswatercorp.com>; <JMeyer@uswatercorp.com>
Cc: "Haberfeld, Joe" <Joe.Haberfeld@dep.state.fl.us>; "Alexander, James" <James.Alexander@dep.state.fl.us>
Sent: Monday, August 01, 2011 9:28 AM
Subject: Proposed Re-Rate Testing

Dan,

The Department has reviewed the July 18 plan to re-rate the IW-1 injection well and has the following comments:

1. Monitor well water level or pressure records should be kept for 24 hours before and after the 8-hour injection test. Graphs covering the entire 56 hour period should be included with the results.
2. The barometric and tidal records should also cover the 56 hour period.
3. A minor permit modification application to increase the maximum flow rate to IW-1 and $250 application fee should be submitted with the test results.

Thanks

David Rhodes, P.G.
UIC Program Manager/Groundwater
Technical Support Supervisor
FDEP South District Office
2295 Victoria Avenue, Ste 364
Fort Myers, Fl 33902
David.Rhodes@dep.state.fl.us
239/344-5687 - PLEASE NOTE MY NEW PHONE NUMBER

RMA
GeoLogic Consultants, Inc.

12771 World Plaza Lane, Building 87, Suite 1
Fort Myers, FL 33907
(239) 415-1818 | Fax: (239) 415-1919
www.rma-geologic.com | e-mail: info@rma-geologic.com

July 18, 2011

Mr. David Rhodes, P.G.
UIC/GW Technical Support Supervisor
Water Facilities
Florida Department of Environmental Protection
P.O. Box 2549
2295 Victoria Avenue
Fort Myers, FL 33901

Re: North Fort Myers Utility Injection Well IW-1
FDEP Permit # 128646-002-UO

Dear Mr: Rhodes:

On behalf of North Fort Myers Utility, please find enclosed the proposed plan for conducting a rerating test for the above-referenced Class I injection well.

The currently rated maximum injection is 4.0 million gallons per day (MGD). The planned rerating, at an injection rate of 10 feet per second, is 4.87 MGD.

Do not hesitate to call should you have any questions or comments regarding any aspect of this matter.

Sincerely,

Daniel J. Acquaviva 7/18/2011

Daniel J. Acquaviva, P.G.
Vice President
Licensed Professional Geologist # 1066

encl.

pc: J. Haberfeld, FDEP-Tallahassee
W. Foley, SFWMD-Ft. Myers
R. Reese, USGS-Miami
L. Bishop, Wade Trim
J. Alexander, FDEP-Tallahassee
N. Marsh, EPA-Atlanta
L. Quintero, U.S. Water

PLANNED RERATING PROCEDURES FOR
NORTH FORT MYERS UTILITIES INJECTION WELL IW-1

Day One

1. Set up weather station (barometer, thermometer, rain gauge) at 8:00 AM and commence recording measurements every 15 minutes.

2. Cease injection into injection well at 10:00 AM. Close gate valve. Record totalizer flowmeter volume.

3. Record injection well shut-in pressure and water levels in the dual zone monitoring well at 1:55 PM. Open injection well gate valve.

4. At 2:00 PM commence injection into the injection well at 3,380 gallons per minute. Record injection pressure and injection rate every 15 seconds for the first 10 minutes. As necessary, adjust valve to maintain a constant injection rate of 3,380 gpm.

5. Record injection pressures and injection rates every minute after the first 10 minutes for the next 20 minutes (i.e. through 30 minutes cumulative injection), every 5 minutes for the next 30 minutes, and every 15 minutes thereafter for the duration of the 8-hour injection period.

6. Record water levels in the dual zone monitoring well every 15 minutes.

7. At 10:00 PM, after 8 hours of continuous injection at 3,380 gpm, cease injection and close gate valve on wellhead. Record totalizer flowmeter volume. Record falloff pressures at intervals referenced in items 4 and 5 above for a period of two hours (i.e. until 12:00 AM).

Day Two

8. Continue recording weather data, injection well shut-in pressure, and water levels in the dual zone monitoring well every 15 minutes until 4:00 AM.

9. At 4:00 AM resume normal operation of injection well.

Other

10. Obtain projected tidal chart for nearest NOAA tidal gauge for the two days of the injection rerating testing.

Prepared by:

Daniel J. Acquaviva 7/18/2011

Daniel J. Acquaviva, P.G.
FL Licensed Professional Geologist #1066
Vice President
RMA GeoLogic Consultants, Inc.

July 18, 2011

APPENDIX C

COPY OF FDEP PERMIT APPLICATION FOR MINOR MODIFICATION FOR RERATING OF NORTH FORT MYERS INJECTION WELL IW-1 FROM 4.05 TO 4.87 MGD

Florida Department of Environmental Protection

Twin Towers Office Bldg., 2600 Blair Stone Road,
Tallahassee, Florida 32399-2400

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

APPLICATION TO CONSTRUCT/OPERATE/ABANDON
CLASS I, III, OR V INJECTION WELL SYSTEMS

Part I. Directions

A. All applicable items must be completed in full in order to avoid delay in processing this application. Where attached sheets or other technical documentation are utilized in lieu of the blank space provided, indicate appropriate cross-reference in the space and provide copies to the Department in accordance with C. below. Where certain items do not appear applicable to the project, indicate N/A in the appropriate spaces.

B. All information is to be typed or printed in ink.

C. Four (4) copies of this application and four (4) copies of supporting information such as plans, reports, drawings and other documents shall be submitted to the appropriate District/Subdistrict office. An engineering report is also required to be submitted to support this application pursuant to the applicable sections of Rule 62-528, F.A.C. The attached list* shall be used to determine completeness of supporting data submitted or previously received. A check for the application fee in accordance with Rule 62-4.050, F.A.C., made payable to the Department shall accompany the application.

D. For projects involving construction, this application is to be accompanied by four (4) sets of engineering drawings, specifications and design data as prepared by a Professional Engineer registered in Florida, where required by Chapter 471, Florida Statutes.

E. Attach 8 1/2" x 11" USGS site location map indicating township, range and section and latitude/longitude for the project.

PART II. General Information

A. Applicant Name Robert W. Dickson Title Capital Program Manager

Address 280 Wekiva Springs Road

City Longwood State FL Zip 32779

Telephone Number (407) 629-6900

B. Project Status: ☐ New ☒ Existing

☒ Modification (specify) Rerate maximum injection rate

*"Engineering and Hydrogeologic Data Required for Support of Application to Construct, Operate and Abandon Class I, III, or V Injection Wells"

C. Well Type: ☐ Exploratory Well ☒ Test/Injection Well

D. Type of Permit Application

- ☐ Class I Test/Injection Well Construction and Testing Permit
- ☒ Class I Well Operation Permit
- ☐ Class I Well Operation Repermitting
- ☐ Class I Well Plugging and Abandonment Permit
- ☐ Class III Well Construction/Operation/Plugging and Abandonment Permit
- ☐ Class I Exploratory Well Construction and testing Permit
- ☐ Class V Well Construction Permit
- ☐ Class V Well Operation Permit
- ☐ Class V Well Plugging and Abandonment Permit
- ☐ Monitor Well Only

E. Facility Identification:

Name North Fort Myers WWTP Injection Well #1

Facility Location: Street 4000 Del Prado Boulevard

City North Fort Myers, FL 33903 County Lee

SIC Code(s)

F. Proposed facility located on Indian Lands: Yes ☐ No ☒

G. Well Identification:

Well No. 1 of 1 (total #) Wells

Purpose (Proposed Use) Disposal of North Ft. Myers WWTP treated effluent

Well Location: Latitude: 26° 43′ 47.7″ Longitude: 81° 52′ 51.3″
(attach separate sheet(s), if necessary, for multiple wells)

Subpart B. General Project Description:

H. General Project Description: Describe the nature, extent and schedule of the injection well project. Refer to existing and/or future pollution control facilities, expected improvement in performance of the facilities and state whether the project will result in full compliance with the requirements of Chapter 403, F.S., and all rules of the Department. Attach additional sheet(s) if necessary or cross-reference the engineering report.

This is a request for a minor permit modification of allowable injection rate. A rerating of the maximum injection rate from 2,810 to 3,380 gpm is requested.

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

PART III. Statement by Applicant and Engineer

A. Applicant

I, the owner/authorized representative* of FL Gov. Utility Authority, certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I understand that this certification also applies to all subsequent reports submitted pursuant to this permit. Where construction is involved, I agree to retain the design engineer, or other professional engineer registered in Florida, to provide inspection of construction in accordance with Rule 62-528.455(1)(c), F.A.C.

Signed

12-5-11
Date

Robert W. Dickson, Capital Program Manager
Name and Title (Please Type)

(407) 629-6900
Telephone Number

*Attach a Letter of Authorization.

B. Professional Engineer Registered in Florida

This is to certify that the engineering features of this injection well have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgement, that the well, when properly maintained and operated, will discharge the effluent in compliance with all applicable statutes of the State of Florida and the rules of the Department. It is also agreed that the undersigned will furnish the applicant a set of instructions for proper maintenance and operation of the well.

THOMAS S. BRZEZINSKI LICENSE No. 63602 STATE OF FLORIDA PROFESSIONAL ENGINEER

(Please Affix Seal)

Signed

Thomas S. Brzezinski, P.E.
Name (Please Type)

Wade Trim, Inc.
Company Name (Please Type)

8745 Henderson Road, Suite 220 Tampa, FL 33634
Mailing Address (Please Type)

Florida Registration No. 63602 Date 11/22/11 Phone No. (813) 882-8366

ENGINEERING AND HYDROLOGIC DATA REQUIRED FOR SUPPORT OF APPLICATION TO CONSTRUCT, OPERATE, AND ABANDON CLASS I, III, OR V INJECTION WELL SYSTEMS

The following information shall be provided for each type of permit application.

A. CLASS I TEST/INJECTION WELL CONSTRUCTION AND TESTING PERMIT

1. A map showing the location of the proposed injection wells of well field area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, public water systems, mines (surface and subsurface), quarries, water wells and other pertinent surface features including residences and roads. The map should also show faults, if known or suspected. Only information of public record and pertinent information known to the applicant is required to be included on this map.

2. A tabulation of data on all wells within the area of review which penetrate into the proposed injection zone, confining zone, or proposed monitoring zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Department may require.

3. Maps and cross sections indicating the general vertical and lateral limits within the area of review of all underground sources of drinking water, their position relative to the injection formation and the direction of water movement, where known, in each underground source of drinking water which may be affected by the proposed injection.

4. Maps and cross sections detailing the hydrology and geologic structures of the local area.

5. Generalized maps and cross sections illustrating the regional geologic setting.

6. Proposed operating data.

   (a) Average and maximum daily rate and volume of the fluid to be injected;

   (b) Average and maximum injection pressure; and,

   (c) Source and an analysis of the chemical, physical, radiological and biological characteristics of injection fluids.

7. Proposed formation testing program to obtain an analysis of the chemical, physical and radiological characteristics of and other information on the injection zone.

8. Proposed stimulation program.

9. Proposed injection procedure.

10. Engineering drawings of the surface and subsurface construction details of the system.

11. Contingency plans to cope with all shut-ins or well failures, so as to protect the quality of the waters of the State as defined in Rule 62-3 and 62-520, F.A.C., including alternate or emergency discharge provisions.

12. Plans (including maps) and proposed monitoring data to be reported for meeting the monitoring requirements in Rule 62-528.425, F.A.C.

13. For wells within the area of review which penetrate the injection zone but are not properly completed or plugged, the corrective action proposed to be taken under Rule 62-528.300(5), F.A.C.

14. Construction procedures including a cementing and casing program, logging procedures, deviation checks, proposed methods for isolating drilling fluids from surficial aquifers, proposed blowout protection (if necessary), and a drilling, testing and coring program.

15. A certification that the applicant has ensured, through a performance bond or other appropriate means, the resources necessary to close, plug or abandon the well as required by Rule 62-528.435(9), F.A.C.

B. CLASS I INJECTION WELL OPERATION PERMIT

1. A report shall be submitted with each application for a Class I Well operating permit, which shall include, but not be limited to, the following information:

   (a) Results of the information obtained under the construction permit described in A. CLASS I TEST/INJECTION WELL CONSTRUCTION AND TESTING PERMIT, including:

      (1) All available logging and testing program data and construction data on the well or well field;

      (2) A satisfactory demonstration of mechanical integrity for all new wells pursuant to Rule 62-528.300(6), F.A.C;

      (3) The actual operating data, including injection pressures versus pumping rates where feasible, or the anticipated maximum pressure and flow rate at which the permittee will operate, if approved by the Department;

      (4) The actual injection procedure;

      (5) The compatibility of injected waste with fluids in the injection zone and minerals in both the injection zone and the confining zone; and,

      (6) The status of corrective action on defective wells in the area of review.

   (b) Record drawings, based upon inspections by the engineer or persons under his direct supervision, with all deviations noted;

   (c) Certification of completion submitted by the engineer of record;

   (d) If requested by the Department, operation manual including emergency procedures;

(e) Proposed monitoring program and data to be submitted;

(f) Proof that the existence of the well has been recorded on the surveyor's plan at the county courthouse; and,

(g) Proposed plugging and abandonment plan pursuant to Rule 62-528.435(2), F.A.C.

C. CLASS I WELL OPERATION REPERMITTING

1. An updated map showing the location of the injection wells or well field area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, public water systems, mines (surface and subsurface), quarries, water wells and other pertinent surface features including residences and roads. The map should also show faults, if known or suspected. Only information of pubic record and pertinent information known to the applicant is required to be included on this map.

2. A tabulation of data on all wells within the area of review which penetrate into the injection zone, confining zone, or monitoring zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Department may require.

3. Maps and cross sections indicating the general vertical and lateral limits within the area of review of all underground sources of drinking water, their position relative to the injection formation and the direction of water movement, where known, in each underground source of drinking water which may be affected by the injection.

4. Maps and cross sections detailing the hydrology and geologic structures of the local area.

5. Generalized maps and cross sections illustrating the regional geologic setting.

6. Contingency plans to cope with all shut-ins or well failures, so as to protect the quality of the waters of the State as defined in Rule 62-3 and 62-520, F.A.C., including alternate or emergency discharge provisions.

7. For wells within the area of review which penetrate the injection zone but are not properly completed or plugged, the corrective action proposed to be taken under Rule 62-528.300(5), F.A.C.

8. A certification that the applicant has ensured, through a performance bond or other appropriate means, the resources necessary to close, plug or abandon the well as required by Rule 62-528.435(9), F.A.C.

9. A report shall be submitted with each application for repermitting of Class I Well operation which shall include the following information:

   (a) All available logging and testing program data and construction data on the well or well field;

(b) A satisfactory demonstration of mechanical integrity for all wells pursuant to Rule 62-528.300(6), F.A.C.;

(c) The actual operating data, including injection pressures versus pumping rates where feasible, or the anticipated maximum pressure and flow rate at which the permittee will operate, if approved by the Department;

(d) The actual injection procedure;

(e) The compatibility of injected waste with fluids in the injection zone and minerals in both the injection zone and the confining zone;

(f) The status of corrective actin on defective wells in the area of review;

(g) Record drawings, based upon inspections by the engineer or persons under his direct supervision, with all deviations noted;

(h) Certification of completion submitted by the engineer of record;

(i) An updated operation manual including emergency procedures;

(j) Proposed revisions to the monitoring program or data to be submitted; and,

(k) Proposed plugging and abandonment plan pursuant to Rule 62-528.435(2), F.A.C.

D. CLASS I WELL PLUGGING AND ABANDONMENT PERMIT

1. The reasons for abandonment.

2. A proposed plan for plugging and abandonment describing the preferred and alternate methods, and justification for use.

   (a) The type and number of plugs to be used;

   (b) The placement of each plug including the elevation of the top and bottom;

   (c) The type and grade and quantity of cement or any other approved plugging material to be used; and,

   (d) The method for placement of the plugs.

3. The procedure to be used to meet the requirements of Rule 62-528.435, F.A.C.

E. CLASS III WELLS CONSTRUCTION/OPERATION/PLUGGING AND ABANDONMENT PERMIT

Construction Phase

1. A map showing the location of the proposed injection wells or well field area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, public water system, mines (surface and subsurface), quarries, water wells and other pertinent surface features including residences and roads. The map should also show faults, if known or suspected. Only information of public record and pertinent information known to the applicant is required to be included on this map.

2. A tabulation of data on all wells within the area of review which penetrate into the proposed injection zone, confining zone, or proposed monitoring zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Department may require.

3. Maps and cross sections indicating the general vertical and lateral limits within the area of review of all underground sources of drinking water, their position relative to the injection formation and the direction of water movement, where known, in each underground source of drinking water which may be affected by the proposed injection.

4. Maps and cross sections detailing the hydrology and geologic structures of the local area.

5. Generalized maps and cross sections illustrating the regional geologic setting.

6. Proposed operating data:

   (a) Average and maximum daily rate and volume of the fluid to be injected;

   (b) Average and maximum injection pressure; and,

   (c) Source and an analysis of the chemical, physical, radiological and biological characteristics of injection fluids, including any additives.

7. Proposed formation testing program to obtain an analysis of the chemical, physical and radiological characteristics of and other information on the injection zone.

8. Proposed stimulation program.

9. Proposed injection procedure.

10. Engineering drawings of the surface and subsurface construction details of the system.

11. Contingency plans to cope with all shut-ins or well failures or catastrophic collapse, so as to protect the quality of the waters of the State as defined in Rule 62-3 and 62-520, F.A.C., including alternate or emergency discharge provisions.

12. Plans (including maps) and proposed monitoring data to be reported for meeting the monitoring requirements in Rule 62-528.425, F.A.C.

13. For wells within the area of review which penetrate the injection zone but are not properly completed or plugged, the corrective action proposed to be taken under Rule 62-528.300(5), F.A.C.

14. Construction procedures including a cementing and casing program, logging procedures, deviation checks, proposed methods for isolating drilling fluids from surficial aquifers, and a drilling, testing and coring program.

15. A certificate that the applicant has ensured, through a performance bond or other appropriate means, the resources necessary to close, plug or abandon the well as required by Rule 62-528.435(9), F.A.C.

16. Expected changes in pressure, native fluid displacement, direction of movement of injection fluid.

17. A proposed monitoring plan, which includes a plan for detecting migration of fluids into underground sources of drinking water, a plan to detect water quality violation in the monitoring wells, and the proposed monitoring data to be submitted.

Operation Phase

1. The following information shall be provided to the Department prior to granting approval for the operation of the well or well field:

   (a) All available logging and testing program data and construction data on the well or well field;

   (b) A satisfactory demonstration of mechanical integrity for all new wells pursuant to Rule 62-528.300(6), F.A.C.;

   (c) The actual operating data, including injection pressure versus pumping rate where feasible, or the anticipated maximum pressure and flow rate at which the permittee will operate, if approved by the Department;

   (d) The results of the formation testing program;

   (e) The actual injection procedure; and,

   (f) The status of corrective action on defective wells in the area of review.

Plugging and abandonment Phase

1. The justification for abandonment.

2. A proposed plan for plugging and abandonment describing the preferred and alternate methods.

   (a) The type and number of plugs to be used;

   (b) The placement of each plug including the elevation of the top and bottom;

   (c) The type and grade and quantity of cement or any other approved plugging material to be used; and,

   (d) The method for placement of the plugs.

3. The procedure to be used to meet the requirements of Rule 62-528.435, F.A.C.

F. EXPLORATORY WELL CONSTRUCTION AND TESTING PERMIT

1. Conceptual plan of the injection project. Include number of injection wells, proposed injection zone, nature and volume of injection fluid, and proposed monitoring program.

2. Preliminary Area of Review Study. Include the proposed radius of the area of review with justification for that radius. Provide a map showing the location of the proposed injection well or well field area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, public water systems, mines (surface and subsurface), quarries, water wells and other pertinent surface features including residences and roads. The map should also show faults, if known or suspected. Only information of public record and pertinent information known to the applicant is required to be included on this map.

3. Proposed other uses of the exploratory well.

4. Drilling and testing plan for the exploratory well. The drilling plan must specify the proposed drilling program, sampling, coring, and testing procedures.

5. Abandonment Plan.

G. CLASS V WELL CONSTRUCTION PERMIT

(This form should be used for Class V Wells instead of Form 62-528.900(3), F.A.C., when there is a need for a Technical Advisory Committee and an engineering report.)

1. Type and number of proposed Class V Wells:

_____ Wells Receiving Domestic Waste

_____ Desalination Process Concentrate Wells (Reverse Osmosis, etc.)

_____ Aquifer Storage and Recovery Wells

_____ Aquifer Remediation Wells

_____ Salt-water Intrusion Barrier Wells

_____ Cooling Water Return Flow Wells Open-looped System

_____ Subsidence Control Wells

_____ Sand Backfill Wells

_____ Experimental Technology Wells

_____ Wells used to inject spent brine after halogen recovery

_____ Radioactive Waste Disposal Wells*

_____ Borehole Slurry Mining Wells

_____ Other non-hazardous Industrial or Commercial Disposal Wells

(explain) _____

_____ Other (explain) _____

*Provided the concentrations of the waste do not exceed drinking water standards contained in Chapter 62-550, F.A.C.

2. Project Description:

(a) Description and use of proposed injection system;

(b) Nature and volume of injected fluid (the Department may require an analysis including bacteriological analysis) in accordance with Rule 62-528.635(2)(b), F.A.C.; and,

(c) Proposed pretreatment.

3. Water well contractor's name, title, state license number, address, phone number and signature.

4. Well Design and Construction Details. (For multi-casing configurations or unusual construction provisions, an elevation drawing of the proposed well should be attached.)

   (a) Proposed total depth;

   (b) Proposed depth and type of casing(s);

   (c) Diameter of well;

   (d) Cement type, depth, thickness; and,

   (e) Injection pumps (if applicable): _____ gpm @ _____ psi

   Controls: _____

   _____

   _____

5. Water Supply Wells - When required by Rule 62-528.635(1), F.A.C., attach a map section showing the locations of all water supply wells within a one-half (1/2) mile radius of the proposed well. The well depths and casing depths should be included. When required by Rule 62-528.635(2), F.A.C., results of bacteriological examinations of water from all water supply wells within one-half (1/2) mile and drilled to approximate depth of proposed well should be attached.

6. Area of review (When required by Rule 62-528.300(4), F.A.C.)

   Include the proposed radius of the area of review with justification for that radius. Provide a map showing the location of the proposed injection well or well field area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, public water systems, mines (surface and subsurface), quarries, water wells and other pertinent surface features including residences and roads. The map should also show faults, if known or suspected. Only information of public record and pertinent information known to the applicant is required to be included on this map.

H. CLASS V WELL OPERATION PERMIT

(Final report of the construction that includes the following information may be submitted with the application to operate.)

1. Permit Number of Class V Construction Permit: _____

2. Owner's Name: _____

3. Type of Wells: _____

4. Construction and Testing Summary:

(a) Actual Dimensions:

Diameter (inches)	Well Depth (feet)	Casing Depth (feet)

(b) Result of Initial Testing

5. Proposed Operating Data:

(a) Injection Rate (GPM);

(b) Description of injected waste; and,

(c) Injection pressure and pump controls.

6. Proposed Monitoring Plan (if any):

(a) Number of monitoring wells;

(b) Depth(s);

(c) Parameters;

(d) Frequency of sampling; and,

(e) Instrumentation (if applicable) Flow _____

Pressure _____

I. CLASS V WELLS PLUGGING AND ABANDONMENT PERMIT

1. Permit number of Class V construction or operating permit.

2. Type of well.

3. Proposed plugging procedures, plans and specifications.

4. Reasons for abandonment.

J. MONITOR WELL PERMIT

This section should be used only when application is made for a monitor well only. If a monitor well is to be constructed under a Class I, III, or V injection well construction permit, it is necessary to fill in this section.

1. A site map showing the location of the proposed monitor wells for which a permit is sought. The map must be to scale and show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, water wells and other pertinent surface features including structures and roads.

2. Maps and cross sections indicating the general vertical and lateral limits within the area of review of all underground sources of drinking water, their position relative to the injection formation and the direction of water movement, where known, in each underground source of drinking water which may be affected by the proposed injection.

3. Maps and cross sections detailing the hydrology and geologic structures of the local area.

4. Generalized maps and cross sections illustrating the regional geologic setting.

5. Proposed formation testing program to obtain an anlysis of the chemical, physical and radiological characteristics of and other information on the monitor zone(s).

6. Proposed monitoring procedure.

7. Engineering drawings of the surface and subsurface construction details of the monitoring system.

8. Proposed monitoring data to be reported for meeting the monitoring requirements in Rule 62-528.425, F.A.C.

9. Construction procedures including a cementing and casing program, logging procedures, deviation checks, proposed methods for isolating drilling fluids from surficial aquifers, proposed blowout protection (if necessary), and a drilling, testing and coring program

10. Monitor Well Information:

☐ On-site ☐ Multizone ☐ Single-zone

☐ Regional ☐ Other (specify) _____

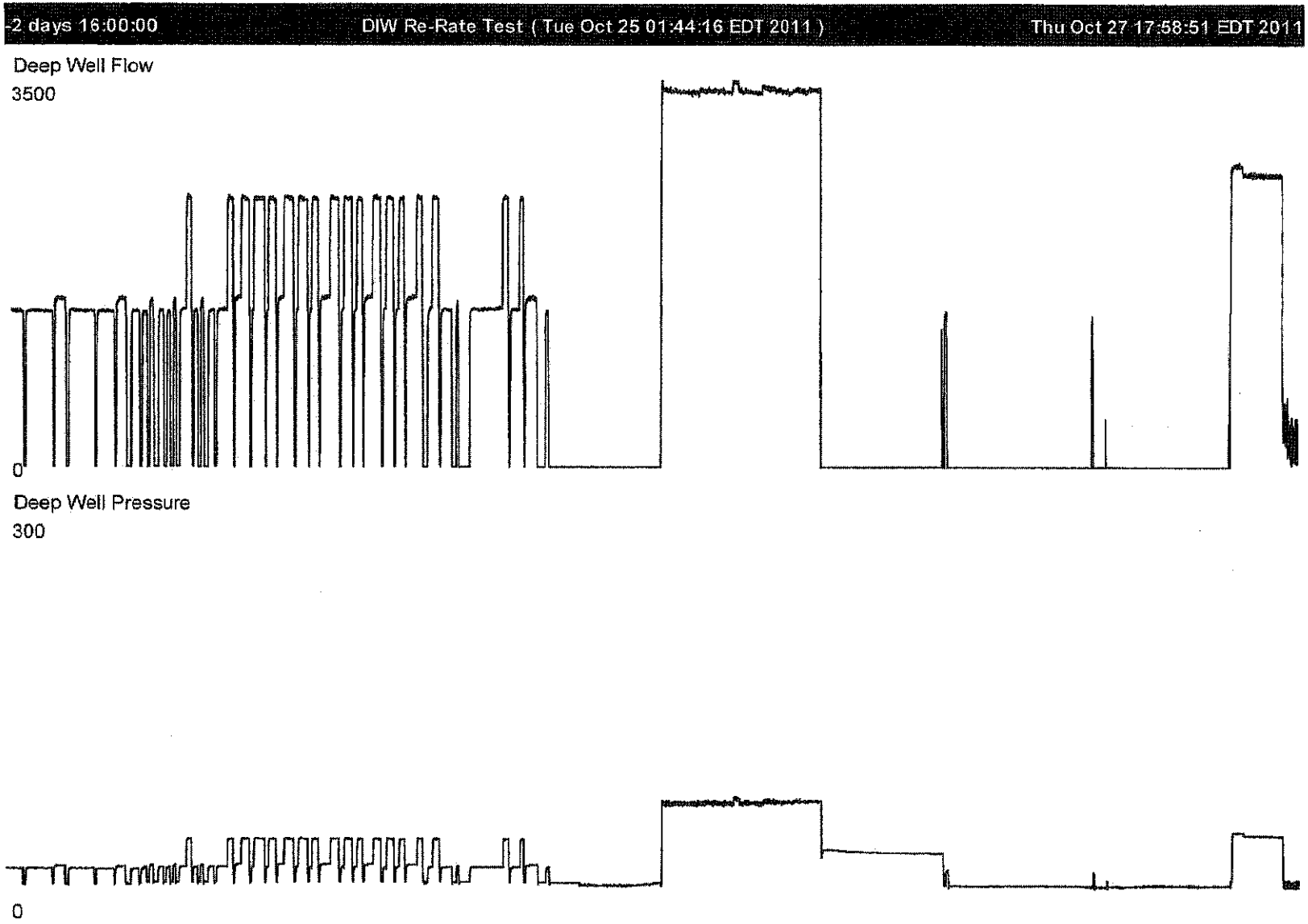
Proposed Monitoring Interval(s) _____

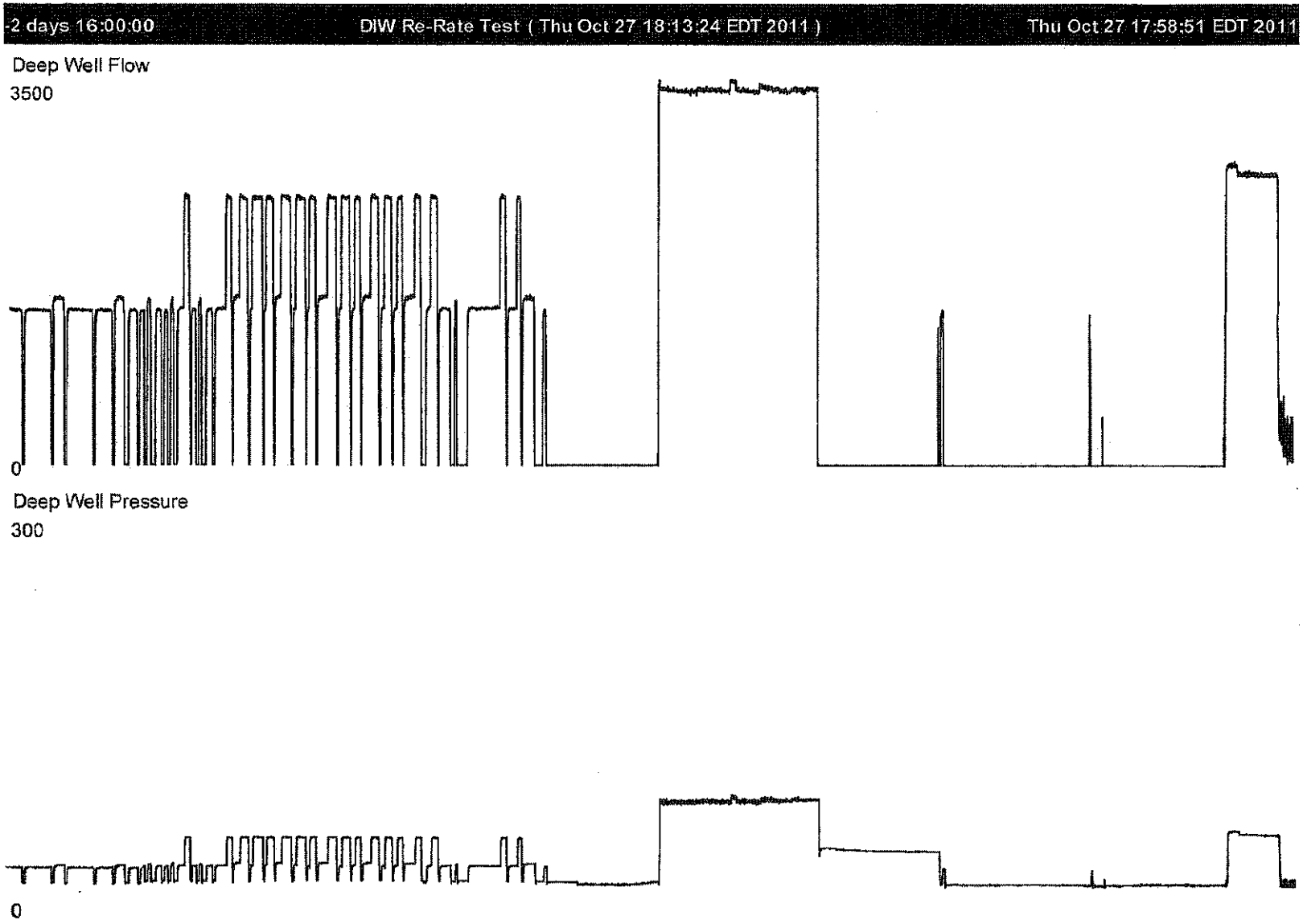
Distance and Direction From Associated Injection Well _____

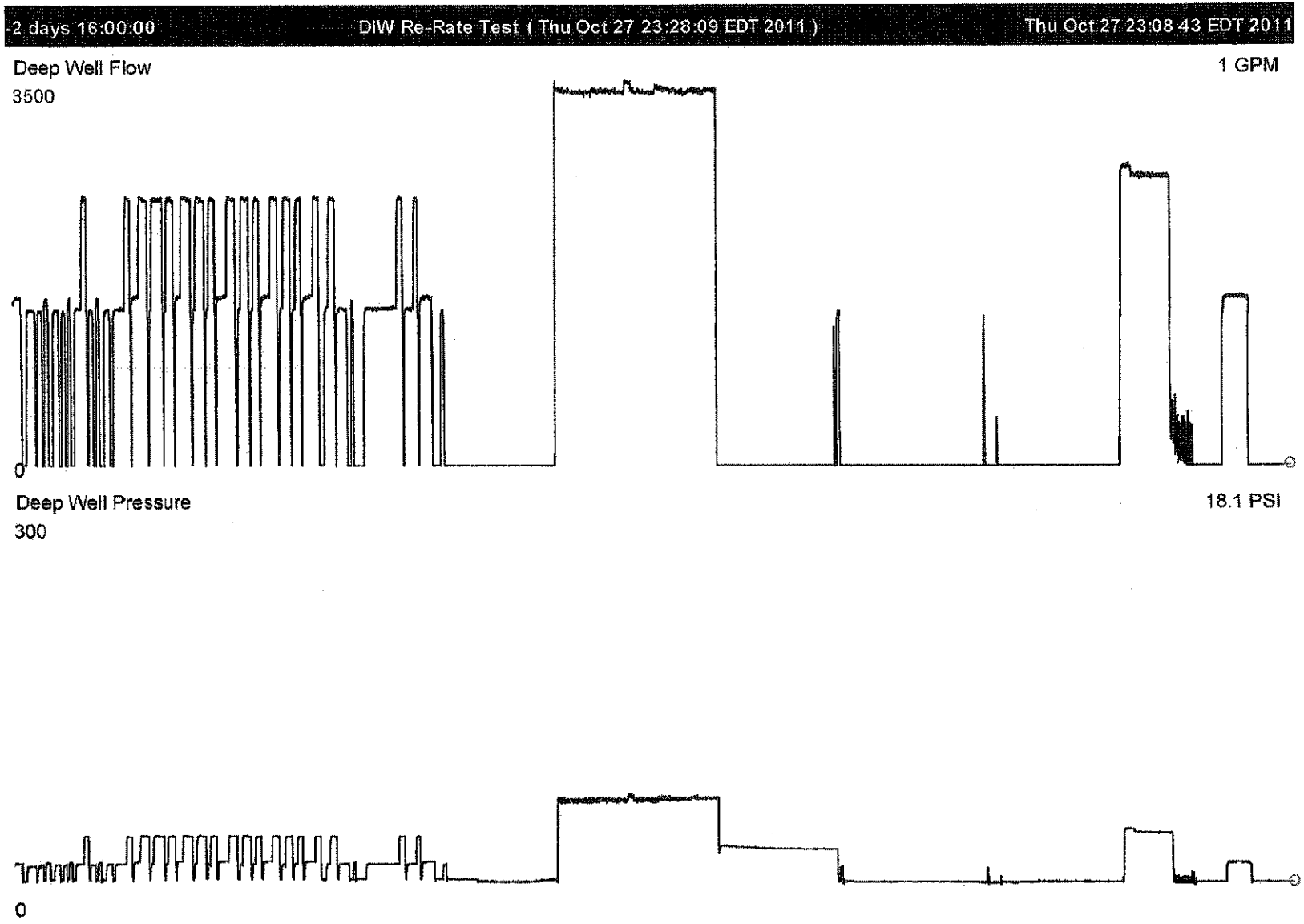
_____

APPENDIX D

CHARTS OF DATA COLLECTED BY THE WASTEWATER TREATMENT PLANT PERMANENT INSTRUMENTATION DURING THE RERATING PERIOD


-2 days 16:00:00
DIW Re-Rate Test (Tue Oct 25 01:44:16 EDT 2011)
Thu Oct 27 17:58:51 EDT 2011
Deep Well Flow
3500
0
Deep Well Pressure
300
0


-2 days 16:00:00
DIW Re-Rate Test (Thu Oct 27 18:13:24 EDT 2011)
Thu Oct 27 17:58:51 EDT 2011
Deep Well Flow
3500
0
Deep Well Pressure
300
0


-2 days 16:00:00
DIW Re-Rate Test (Thu Oct 27 23:28:09 EDT 2011)
Thu Oct 27 23:08:43 EDT 2011
Deep Well Flow
1 GPM
3500
0
Deep Well Pressure
18.1 PSI
300
0

APPENDIX E

TIDAL DATA FOR THE FORT MYERS NOAA STATION DURING THE REARATING PERIOD

NOAA Station #	Date/Time	Predicted	Observed
8725520	10/25/11 10:05 AM	0.83	0.57
8725520	10/25/11 10:11 AM	0.80	0.55
8725520	10/25/11 10:17 AM	0.77	0.53
8725520	10/25/11 10:23 AM	0.74	0.51
8725520	10/25/11 10:29 AM	0.72	0.49
8725520	10/25/11 10:35 AM	0.69	0.47
8725520	10/25/11 10:41 AM	0.66	0.46
8725520	10/25/11 10:47 AM	0.63	0.44
8725520	10/25/11 10:53 AM	0.60	0.42
8725520	10/25/11 10:59 AM	0.58	0.41
8725520	10/25/11 11:05 AM	0.55	0.39
8725520	10/25/11 11:11 AM	0.52	0.37
8725520	10/25/11 11:17 AM	0.50	0.35
8725520	10/25/11 11:23 AM	0.47	0.33
8725520	10/25/11 11:29 AM	0.45	0.32
8725520	10/25/11 11:35 AM	0.42	0.30
8725520	10/25/11 11:41 AM	0.40	0.29
8725520	10/25/11 11:47 AM	0.38	0.27
8725520	10/25/11 11:53 AM	0.36	0.26
8725520	10/25/11 11:59 AM	0.33	0.24
8725520	10/25/11 12:05 PM	0.31	0.22
8725520	10/25/11 12:11 PM	0.30	0.21
8725520	10/25/11 12:17 PM	0.28	0.19
8725520	10/25/11 12:23 PM	0.26	0.17
8725520	10/25/11 12:29 PM	0.24	0.15
8725520	10/25/11 12:35 PM	0.23	0.13
8725520	10/25/11 12:41 PM	0.21	0.11
8725520	10/25/11 12:47 PM	0.20	0.10
8725520	10/25/11 12:53 PM	0.18	0.08
8725520	10/25/11 12:59 PM	0.17	0.06
8725520	10/25/11 1:05 PM	0.16	0.05
8725520	10/25/11 1:11 PM	0.15	0.03
8725520	10/25/11 1:17 PM	0.14	0.02
8725520	10/25/11 1:23 PM	0.14	0.00
8725520	10/25/11 1:29 PM	0.13	-0.01
8725520	10/25/11 1:35 PM	0.13	-0.03
8725520	10/25/11 1:41 PM	0.12	-0.04
8725520	10/25/11 1:47 PM	0.12	-0.05
8725520	10/25/11 1:53 PM	0.12	-0.07
8725520	10/25/11 1:59 PM	0.12	-0.08
8725520	10/25/11 2:05 PM	0.12	-0.09
8725520	10/25/11 2:11 PM	0.12	-0.10
8725520	10/25/11 2:17 PM	0.13	-0.10
8725520	10/25/11 2:23 PM	0.14	-0.11
8725520	10/25/11 2:29 PM	0.14	-0.12
8725520	10/25/11 2:35 PM	0.15	-0.13
8725520	10/25/11 2:41 PM	0.16	-0.13
8725520	10/25/11 2:47 PM	0.17	-0.13
8725520	10/25/11 2:53 PM	0.19	-0.13
8725520	10/25/11 2:59 PM	0.20	-0.12
8725520	10/25/11 3:05 PM	0.22	-0.12
8725520	10/25/11 3:11 PM	0.23	-0.11
8725520	10/25/11 3:17 PM	0.25	-0.10
8725520	10/25/11 3:23 PM	0.27	-0.08
8725520	10/25/11 3:29 PM	0.29	-0.07
8725520	10/25/11 3:35 PM	0.31	-0.05
8725520	10/25/11 3:41 PM	0.33	-0.02
8725520	10/25/11 3:47 PM	0.36	-0.01
8725520	10/25/11 3:53 PM	0.38	0.01
8725520	10/25/11 3:59 PM	0.41	0.02
8725520	10/25/11 4:05 PM	0.43	0.04
8725520	10/25/11 4:11 PM	0.46	0.06
8725520	10/25/11 4:17 PM	0.49	0.09
8725520	10/25/11 4:23 PM	0.51	0.10
8725520	10/25/11 4:29 PM	0.54	0.12
8725520	10/25/11 4:35 PM	0.57	0.14
8725520	10/25/11 4:41 PM	0.60	0.15
8725520	10/25/11 4:47 PM	0.63	0.16
8725520	10/25/11 4:53 PM	0.66	0.17
8725520	10/25/11 4:59 PM	0.68	0.19
8725520	10/25/11 5:05 PM	0.71	0.20
8725520	10/25/11 5:11 PM	0.74	0.23
8725520	10/25/11 5:17 PM	0.77	0.24
8725520	10/25/11 5:23 PM	0.80	0.25
8725520	10/25/11 5:29 PM	0.83	0.27
8725520	10/25/11 5:35 PM	0.85	0.29
8725520	10/25/11 5:41 PM	0.88	0.30
8725520	10/25/11 5:47 PM	0.91	0.32
8725520	10/25/11 5:53 PM	0.93	0.34
8725520	10/25/11 5:59 PM	0.95	0.37
8725520	10/25/11 6:05 PM	0.98	0.39
8725520	10/25/11 6:11 PM	1.00	0.42
8725520	10/25/11 6:17 PM	1.02	0.42
8725520	10/25/11 6:23 PM	1.04	0.45
8725520	10/25/11 6:29 PM	1.06	0.46
8725520	10/25/11 6:35 PM	1.08	0.49
8725520	10/25/11 6:41 PM	1.10	0.51
8725520	10/25/11 6:47 PM	1.11	0.52
8725520	10/25/11 6:53 PM	1.13	0.54
8725520	10/25/11 6:59 PM	1.14	0.55
8725520	10/25/11 7:05 PM	1.15	0.57
8725520	10/25/11 7:11 PM	1.16	0.58
8725520	10/25/11 7:17 PM	1.17	0.60
8725520	10/25/11 7:23 PM	1.18	0.62
8725520	10/25/11 7:29 PM	1.18	0.62
8725520	10/25/11 7:35 PM	1.19	0.63
8725520	10/25/11 7:41 PM	1.19	0.64
8725520	10/25/11 7:47 PM	1.19	0.65
8725520	10/25/11 7:53 PM	1.19	0.64
8725520	10/25/11 7:59 PM	1.19	0.66
8725520	10/25/11 8:05 PM	1.19	0.66
8725520	10/25/11 8:11 PM	1.19	0.66
8725520	10/25/11 8:17 PM	1.18	0.66
8725520	10/25/11 8:23 PM	1.18	0.65
8725520	10/25/11 8:29 PM	1.17	0.65
8725520	10/25/11 8:35 PM	1.16	0.64
8725520	10/25/11 8:41 PM	1.15	0.64
8725520	10/25/11 8:47 PM	1.15	0.64
8725520	10/25/11 8:53 PM	1.14	0.62
8725520	10/25/11 8:59 PM	1.12	0.61
8725520	10/25/11 9:05 PM	1.11	0.59
8725520	10/25/11 9:11 PM	1.10	0.57
8725520	10/25/11 9:17 PM	1.08	0.56
8725520	10/25/11 9:23 PM	1.07	0.55
8725520	10/25/11 9:29 PM	1.05	0.53
8725520	10/25/11 9:35 PM	1.04	0.52
8725520	10/25/11 9:41 PM	1.02	
8725520	10/25/11 9:47 PM	1.00	
8725520	10/25/11 9:53 PM	0.99	
8725520	10/25/11 9:59 PM	0.97	
8725520	10/25/11 10:05 PM	0.95	0.43
8725520	10/25/11 10:11 PM	0.94	0.41
8725520	10/25/11 10:17 PM	0.92	0.39
8725520	10/25/11 10:23 PM	0.90	0.38
8725520	10/25/11 10:29 PM	0.89	0.36
8725520	10/25/11 10:35 PM	0.87	0.35
8725520	10/25/11 10:41 PM	0.85	0.32
8725520	10/25/11 10:47 PM	0.83	0.31
8725520	10/25/11 10:53 PM	0.82	0.30
8725520	10/25/11 10:59 PM	0.80	0.29
8725520	10/25/11 11:05 PM	0.78	0.28
8725520	10/25/11 11:11 PM	0.77	0.27

NOAA Station #	Date/Time	Predicted	Observed
8725520	10/25/11 11:17 PM	0.75	0.26
8725520	10/25/11 11:23 PM	0.73	0.24
8725520	10/25/11 11:29 PM	0.72	0.23
8725520	10/25/11 11:35 PM	0.71	0.22
8725520	10/25/11 11:41 PM	0.70	0.21
8725520	10/25/11 11:47 PM	0.68	0.20
8725520	10/25/11 11:53 PM	0.67	0.18
8725520	10/25/11 11:59 PM	0.66	0.17
8725520	10/26/11 12:05 AM	0.65	0.16
8725520	10/26/11 12:11 AM	0.64	0.15
8725520	10/26/11 12:17 AM	0.63	0.14
8725520	10/26/11 12:23 AM	0.62	0.13
8725520	10/26/11 12:29 AM	0.61	0.12
8725520	10/26/11 12:35 AM	0.61	0.10
8725520	10/26/11 12:41 AM	0.60	0.10
8725520	10/26/11 12:47 AM	0.60	0.08
8725520	10/26/11 12:53 AM	0.59	0.08
8725520	10/26/11 12:59 AM	0.59	0.07
8725520	10/26/11 1:05 AM	0.59	0.07
8725520	10/26/11 1:11 AM	0.59	0.07
8725520	10/26/11 1:17 AM	0.59	0.07
8725520	10/26/11 1:23 AM	0.59	0.08
8725520	10/26/11 1:29 AM	0.60	0.08
8725520	10/26/11 1:35 AM	0.60	0.09
8725520	10/26/11 1:41 AM	0.61	0.11
8725520	10/26/11 1:47 AM	0.61	0.13
8725520	10/26/11 1:53 AM	0.62	0.15
8725520	10/26/11 1:59 AM	0.63	0.18
8725520	10/26/11 2:05 AM	0.64	0.21
8725520	10/26/11 2:11 AM	0.66	0.24
8725520	10/26/11 2:17 AM	0.67	0.27
8725520	10/26/11 2:23 AM	0.68	0.29
8725520	10/26/11 2:29 AM	0.70	0.32
8725520	10/26/11 2:35 AM	0.72	0.34
8725520	10/26/11 2:41 AM	0.73	0.36
8725520	10/26/11 2:47 AM	0.75	0.39
8725520	10/26/11 2:53 AM	0.77	0.41
8725520	10/26/11 2:59 AM	0.79	0.44
8725520	10/26/11 3:05 AM	0.81	0.46
8725520	10/26/11 3:11 AM	0.84	0.48
8725520	10/26/11 3:17 AM	0.86	0.50
8725520	10/26/11 3:23 AM	0.89	0.52
8725520	10/26/11 3:29 AM	0.91	0.54
8725520	10/26/11 3:35 AM	0.94	0.56
8725520	10/26/11 3:41 AM	0.96	0.58
8725520	10/26/11 3:47 AM	0.99	0.60
8725520	10/26/11 3:53 AM	1.02	0.62
8725520	10/26/11 3:59 AM	1.05	0.64
8725520	10/26/11 4:05 AM	1.08	0.66
8725520	10/26/11 4:11 AM	1.11	0.68
8725520	10/26/11 4:17 AM	1.14	0.70
8725520	10/26/11 4:23 AM	1.16	0.73
8725520	10/26/11 4:29 AM	1.19	0.75
8725520	10/26/11 4:35 AM	1.22	0.77
8725520	10/26/11 4:41 AM	1.25	0.80
8725520	10/26/11 4:47 AM	1.28	0.83
8725520	10/26/11 4:53 AM	1.31	0.86
8725520	10/26/11 4:59 AM	1.34	0.89
8725520	10/26/11 5:05 AM	1.36	0.92
8725520	10/26/11 5:11 AM	1.39	0.94
8725520	10/26/11 5:17 AM	1.42	0.96
8725520	10/26/11 5:23 AM	1.44	0.98
8725520	10/26/11 5:29 AM	1.47	1.01
8725520	10/26/11 5:35 AM	1.49	1.03
8725520	10/26/11 5:41 AM	1.51	1.05
8725520	10/26/11 5:47 AM	1.53	1.07

NOAA Station #	Date/Time	Predicted	Observed
8725520	10/26/11 5:53 AM	1.55	1.09
8725520	10/26/11 5:59 AM	1.57	1.11
8725520	10/26/11 6:05 AM	1.59	1.13
8725520	10/26/11 6:11 AM	1.60	1.15
8725520	10/26/11 6:17 AM	1.62	1.17
8725520	10/26/11 6:23 AM	1.63	1.19
8725520	10/26/11 6:29 AM	1.64	1.20
8725520	10/26/11 6:35 AM	1.65	1.22
8725520	10/26/11 6:41 AM	1.66	1.23
8725520	10/26/11 6:47 AM	1.67	1.25
8725520	10/26/11 6:53 AM	1.67	1.26
8725520	10/26/11 6:59 AM	1.67	1.27
8725520	10/26/11 7:05 AM	1.67	1.28
8725520	10/26/11 7:11 AM	1.67	1.29
8725520	10/26/11 7:17 AM	1.67	1.30
8725520	10/26/11 7:23 AM	1.67	1.30
8725520	10/26/11 7:29 AM	1.66	1.30
8725520	10/26/11 7:35 AM	1.65	1.30
8725520	10/26/11 7:41 AM	1.64	1.29
8725520	10/26/11 7:47 AM	1.63	1.29
8725520	10/26/11 7:53 AM	1.62	1.27
8725520	10/26/11 7:59 AM	1.61	1.26
8725520	10/26/11 8:05 AM	1.59	1.24
8725520	10/26/11 8:11 AM	1.57	1.22
8725520	10/26/11 8:17 AM	1.56	1.20
8725520	10/26/11 8:23 AM	1.54	1.18
8725520	10/26/11 8:29 AM	1.52	1.16
8725520	10/26/11 8:35 AM	1.50	1.14
8725520	10/26/11 8:41 AM	1.47	1.11
8725520	10/26/11 8:47 AM	1.45	1.09
8725520	10/26/11 8:53 AM	1.42	1.07
8725520	10/26/11 8:59 AM	1.40	1.04
8725520	10/26/11 9:05 AM	1.37	1.02
8725520	10/26/11 9:11 AM	1.35	0.99
8725520	10/26/11 9:17 AM	1.32	0.97
8725520	10/26/11 9:23 AM	1.29	0.95
8725520	10/26/11 9:29 AM	1.26	0.92
8725520	10/26/11 9:35 AM	1.23	0.91
8725520	10/26/11 9:41 AM	1.20	0.89
8725520	10/26/11 9:47 AM	1.16	0.87
8725520	10/26/11 9:53 AM	1.14	0.85
8725520	10/26/11 9:59 AM	1.10	0.83
8725520	10/26/11 10:05 AM	1.07	0.82
8725520	10/26/11 10:11 AM	1.04	0.80
8725520	10/26/11 10:17 AM	1.01	0.78
8725520	10/26/11 10:23 AM	0.97	0.76
8725520	10/26/11 10:29 AM	0.94	0.74
8725520	10/26/11 10:35 AM	0.91	0.73
8725520	10/26/11 10:41 AM	0.88	0.71
8725520	10/26/11 10:47 AM	0.85	0.69
8725520	10/26/11 10:53 AM	0.82	0.67
8725520	10/26/11 10:59 AM	0.78	0.65
8725520	10/26/11 11:05 AM	0.75	0.63
8725520	10/26/11 11:11 AM	0.72	0.61
8725520	10/26/11 11:17 AM	0.69	0.59
8725520	10/26/11 11:23 AM	0.66	0.57
8725520	10/26/11 11:29 AM	0.63	0.56
8725520	10/26/11 11:35 AM	0.60	0.53
8725520	10/26/11 11:41 AM	0.57	0.52
8725520	10/26/11 11:47 AM	0.54	0.49
8725520	10/26/11 11:53 AM	0.52	0.48
8725520	10/26/11 11:59 AM	0.49	0.46
8725520	10/26/11 12:05 PM	0.46	0.43
8725520	10/26/11 12:11 PM	0.43	0.42
8725520	10/26/11 12:17 PM	0.41	0.39
8725520	10/26/11 12:23 PM	0.38	0.37

NOAA Station #	Date/Time	Predicted	Observed
8725520	10/26/11 12:29 PM	0.36	0.35
8725520	10/26/11 12:35 PM	0.33	0.34
8725520	10/26/11 12:41 PM	0.31	0.32
8725520	10/26/11 12:47 PM	0.29	0.30
8725520	10/26/11 12:53 PM	0.26	0.28
8725520	10/26/11 12:59 PM	0.24	0.26
8725520	10/26/11 1:05 PM	0.22	0.24
8725520	10/26/11 1:11 PM	0.20	0.22
8725520	10/26/11 1:17 PM	0.18	0.20
8725520	10/26/11 1:23 PM	0.16	0.19
8725520	10/26/11 1:29 PM	0.15	0.17
8725520	10/26/11 1:35 PM	0.13	0.15
8725520	10/26/11 1:41 PM	0.12	0.14
8725520	10/26/11 1:47 PM	0.10	0.12
8725520	10/26/11 1:53 PM	0.09	0.10
8725520	10/26/11 1:59 PM	0.08	0.09
8725520	10/26/11 2:05 PM	0.07	0.07
8725520	10/26/11 2:11 PM	0.06	0.06
8725520	10/26/11 2:17 PM	0.05	0.05
8725520	10/26/11 2:23 PM	0.04	0.03
8725520	10/26/11 2:29 PM	0.04	0.02
8725520	10/26/11 2:35 PM	0.04	0.01
8725520	10/26/11 2:41 PM	0.03	0.01
8725520	10/26/11 2:47 PM	0.03	0.00
8725520	10/26/11 2:53 PM	0.03	0.00
8725520	10/26/11 2:59 PM	0.03	0.00
8725520	10/26/11 3:05 PM	0.03	0.00
8725520	10/26/11 3:11 PM	0.04	0.01
8725520	10/26/11 3:17 PM	0.04	0.02
8725520	10/26/11 3:23 PM	0.05	0.03
8725520	10/26/11 3:29 PM	0.06	0.05
8725520	10/26/11 3:35 PM	0.07	0.07
8725520	10/26/11 3:41 PM	0.08	0.10
8725520	10/26/11 3:47 PM	0.10	0.12
8725520	10/26/11 3:53 PM	0.11	0.14
8725520	10/26/11 3:59 PM	0.12	0.16
8725520	10/26/11 4:05 PM	0.14	0.18
8725520	10/26/11 4:11 PM	0.16	0.20
8725520	10/26/11 4:17 PM	0.18	0.22
8725520	10/26/11 4:23 PM	0.20	0.25
8725520	10/26/11 4:29 PM	0.22	0.26
8725520	10/26/11 4:35 PM	0.24	0.29
8725520	10/26/11 4:41 PM	0.27	0.30
8725520	10/26/11 4:47 PM	0.29	0.32
8725520	10/26/11 4:53 PM	0.31	0.35
8725520	10/26/11 4:59 PM	0.34	0.36
8725520	10/26/11 5:05 PM	0.37	0.39
8725520	10/26/11 5:11 PM	0.40	0.41
8725520	10/26/11 5:17 PM	0.43	0.43
8725520	10/26/11 5:23 PM	0.45	0.44
8725520	10/26/11 5:29 PM	0.48	0.46
8725520	10/26/11 5:35 PM	0.51	0.48
8725520	10/26/11 5:41 PM	0.54	0.51
8725520	10/26/11 5:47 PM	0.57	0.52
8725520	10/26/11 5:53 PM	0.60	0.54
8725520	10/26/11 5:59 PM	0.63	0.56
8725520	10/26/11 6:05 PM	0.66	0.59
8725520	10/26/11 6:11 PM	0.69	0.61
8725520	10/26/11 6:17 PM	0.72	0.64
8725520	10/26/11 6:23 PM	0.74	0.66
8725520	10/26/11 6:29 PM	0.77	0.68
8725520	10/26/11 6:35 PM	0.80	0.71
8725520	10/26/11 6:41 PM	0.83	0.74
8725520	10/26/11 6:47 PM	0.85	0.77
8725520	10/26/11 6:53 PM	0.88	0.80
8725520	10/26/11 6:59 PM	0.90	0.83
8725520	10/26/11 7:05 PM	0.92	0.85
8725520	10/26/11 7:11 PM	0.94	0.86
8725520	10/26/11 7:17 PM	0.96	0.88
8725520	10/26/11 7:23 PM	0.98	0.91
8725520	10/26/11 7:29 PM	1.00	0.93
8725520	10/26/11 7:35 PM	1.02	0.94
8725520	10/26/11 7:41 PM	1.03	0.96
8725520	10/26/11 7:47 PM	1.05	0.98
8725520	10/26/11 7:53 PM	1.06	1.01
8725520	10/26/11 7:59 PM	1.07	1.02
8725520	10/26/11 8:05 PM	1.08	1.03
8725520	10/26/11 8:11 PM	1.09	1.05
8725520	10/26/11 8:17 PM	1.10	1.06
8725520	10/26/11 8:23 PM	1.11	1.08
8725520	10/26/11 8:29 PM	1.11	1.10
8725520	10/26/11 8:35 PM	1.12	1.11
8725520	10/26/11 8:41 PM	1.12	1.12
8725520	10/26/11 8:47 PM	1.12	1.13
8725520	10/26/11 8:53 PM	1.12	1.13
8725520	10/26/11 8:59 PM	1.12	1.14
8725520	10/26/11 9:05 PM	1.11	1.15
8725520	10/26/11 9:11 PM	1.11	1.16
8725520	10/26/11 9:17 PM	1.11	1.16
8725520	10/26/11 9:23 PM	1.10	1.16
8725520	10/26/11 9:29 PM	1.09	1.16
8725520	10/26/11 9:35 PM	1.08	1.15
8725520	10/26/11 9:41 PM	1.08	1.14
8725520	10/26/11 9:47 PM	1.07	1.13
8725520	10/26/11 9:53 PM	1.06	1.12
8725520	10/26/11 9:59 PM	1.04	1.11
8725520	10/26/11 10:05 PM	1.03	1.10
8725520	10/26/11 10:11 PM	1.02	1.08
8725520	10/26/11 10:17 PM	1.01	1.07
8725520	10/26/11 10:23 PM	0.99	1.05
8725520	10/26/11 10:29 PM	0.98	1.04
8725520	10/26/11 10:35 PM	0.96	1.02
8725520	10/26/11 10:41 PM	0.95	1.00
8725520	10/26/11 10:47 PM	0.94	0.98
8725520	10/26/11 10:53 PM	0.92	0.96
8725520	10/26/11 10:59 PM	0.91	0.94
8725520	10/26/11 11:05 PM	0.89	0.93
8725520	10/26/11 11:11 PM	0.88	0.91
8725520	10/26/11 11:17 PM	0.86	0.89
8725520	10/26/11 11:23 PM	0.85	0.87
8725520	10/26/11 11:29 PM	0.83	0.85
8725520	10/26/11 11:35 PM	0.82	0.83
8725520	10/26/11 11:41 PM	0.80	0.81
8725520	10/26/11 11:47 PM	0.79	0.80
8725520	10/26/11 11:53 PM	0.77	0.78
8725520	10/26/11 11:59 PM	0.76	0.76
8725520	10/27/11 12:05 AM	0.75	0.75
8725520	10/27/11 12:11 AM	0.73	0.73
8725520	10/27/11 12:17 AM	0.72	0.72
8725520	10/27/11 12:23 AM	0.71	0.70
8725520	10/27/11 12:29 AM	0.70	0.69
8725520	10/27/11 12:35 AM	0.69	0.67
8725520	10/27/11 12:41 AM	0.68	0.66
8725520	10/27/11 12:47 AM	0.67	0.65
8725520	10/27/11 12:53 AM	0.66	0.63
8725520	10/27/11 12:59 AM	0.66	0.62
8725520	10/27/11 1:05 AM	0.65	0.61
8725520	10/27/11 1:11 AM	0.65	0.60
8725520	10/27/11 1:17 AM	0.64	0.59
8725520	10/27/11 1:23 AM	0.64	0.59
8725520	10/27/11 1:29 AM	0.64	0.58
8725520	10/27/11 1:35 AM	0.64	0.57

NOAA Station #	Date/Time	Predicted	Observed
8725520	10/27/11 1:41 AM	0.64	0.57
8725520	10/27/11 1:47 AM	0.64	0.57
8725520	10/27/11 1:53 AM	0.64	0.58
8725520	10/27/11 1:59 AM	0.64	0.59
8725520	10/27/11 2:05 AM	0.65	0.60
8725520	10/27/11 2:11 AM	0.65	0.62
8725520	10/27/11 2:17 AM	0.66	0.64
8725520	10/27/11 2:23 AM	0.67	0.66
8725520	10/27/11 2:29 AM	0.68	0.68
8725520	10/27/11 2:35 AM	0.69	0.71
8725520	10/27/11 2:41 AM	0.70	0.73
8725520	10/27/11 2:47 AM	0.71	0.76
8725520	10/27/11 2:53 AM	0.73	0.79
8725520	10/27/11 2:59 AM	0.74	0.82
8725520	10/27/11 3:05 AM	0.76	0.85
8725520	10/27/11 3:11 AM	0.78	0.88
8725520	10/27/11 3:17 AM	0.80	0.91
8725520	10/27/11 3:23 AM	0.82	0.94
8725520	10/27/11 3:29 AM	0.84	0.96
8725520	10/27/11 3:35 AM	0.86	0.99
8725520	10/27/11 3:41 AM	0.88	1.02
8725520	10/27/11 3:47 AM	0.91	1.04
8725520	10/27/11 3:53 AM	0.93	1.07
8725520	10/27/11 3:59 AM	0.96	1.10
8725520	10/27/11 4:05 AM	0.99	1.12
8725520	10/27/11 4:11 AM	1.01	1.15
8725520	10/27/11 4:17 AM	1.04	1.18
8725520	10/27/11 4:23 AM	1.07	1.20
8725520	10/27/11 4:29 AM	1.10	1.23
8725520	10/27/11 4:35 AM	1.13	1.25
8725520	10/27/11 4:41 AM	1.16	1.27
8725520	10/27/11 4:47 AM	1.19	1.30
8725520	10/27/11 4:53 AM	1.22	1.33
8725520	10/27/11 4:59 AM	1.25	1.36
8725520	10/27/11 5:05 AM	1.29	1.38
8725520	10/27/11 5:11 AM	1.32	1.41
8725520	10/27/11 5:17 AM	1.35	1.44
8725520	10/27/11 5:23 AM	1.38	1.47
8725520	10/27/11 5:29 AM	1.41	1.50
8725520	10/27/11 5:35 AM	1.44	1.53
8725520	10/27/11 5:41 AM	1.47	1.56
8725520	10/27/11 5:47 AM	1.49	1.58
8725520	10/27/11 5:53 AM	1.52	1.60
8725520	10/27/11 5:59 AM	1.55	1.63
8725520	10/27/11 6:05 AM	1.57	1.65
8725520	10/27/11 6:11 AM	1.60	1.68
8725520	10/27/11 6:17 AM	1.62	1.70
8725520	10/27/11 6:23 AM	1.64	1.72
8725520	10/27/11 6:29 AM	1.66	1.74
8725520	10/27/11 6:35 AM	1.68	1.77
8725520	10/27/11 6:41 AM	1.70	1.78
8725520	10/27/11 6:47 AM	1.71	1.80
8725520	10/27/11 6:53 AM	1.73	1.82
8725520	10/27/11 6:59 AM	1.74	1.84
8725520	10/27/11 7:05 AM	1.75	1.86
8725520	10/27/11 7:11 AM	1.76	1.88
8725520	10/27/11 7:17 AM	1.77	1.89
8725520	10/27/11 7:23 AM	1.77	1.91
8725520	10/27/11 7:29 AM	1.78	1.92
8725520	10/27/11 7:35 AM	1.78	1.94
8725520	10/27/11 7:41 AM	1.78	1.94
8725520	10/27/11 7:47 AM	1.78	1.95
8725520	10/27/11 7:53 AM	1.77	1.96
8725520	10/27/11 7:59 AM	1.77	1.97
8725520	10/27/11 8:05 AM	1.76	1.97
8725520	10/27/11 8:11 AM	1.76	1.97
8725520	10/27/11 8:17 AM	1.74	1.97
8725520	10/27/11 8:23 AM	1.73	1.97
8725520	10/27/11 8:29 AM	1.72	1.96
8725520	10/27/11 8:35 AM	1.70	1.94
8725520	10/27/11 8:41 AM	1.69	1.93
8725520	10/27/11 8:47 AM	1.67	1.91
8725520	10/27/11 8:53 AM	1.65	1.89
8725520	10/27/11 8:59 AM	1.63	1.86
8725520	10/27/11 9:05 AM	1.60	1.83
8725520	10/27/11 9:11 AM	1.58	1.80
8725520	10/27/11 9:17 AM	1.56	1.78
8725520	10/27/11 9:23 AM	1.53	1.75
8725520	10/27/11 9:29 AM	1.50	1.72
8725520	10/27/11 9:35 AM	1.48	1.70
8725520	10/27/11 9:41 AM	1.45	1.67
8725520	10/27/11 9:47 AM	1.42	1.64
8725520	10/27/11 9:53 AM	1.39	1.61
8725520	10/27/11 9:59 AM	1.36	
8725520	10/27/11 10:05 AM	1.33	1.56
8725520	10/27/11 10:11 AM	1.29	1.53
8725520	10/27/11 10:17 AM	1.26	1.51
8725520	10/27/11 10:23 AM	1.23	1.48
8725520	10/27/11 10:29 AM	1.20	1.46
8725520	10/27/11 10:35 AM	1.16	1.44
8725520	10/27/11 10:41 AM	1.13	1.42
8725520	10/27/11 10:47 AM	1.10	1.40
8725520	10/27/11 10:53 AM	1.06	1.38
8725520	10/27/11 10:59 AM	1.03	1.35
8725520	10/27/11 11:05 AM	1.00	1.34
8725520	10/27/11 11:11 AM	0.96	1.31
8725520	10/27/11 11:17 AM	0.93	1.29
8725520	10/27/11 11:23 AM	0.90	1.27
8725520	10/27/11 11:29 AM	0.87	1.25
8725520	10/27/11 11:35 AM	0.83	1.23
8725520	10/27/11 11:41 AM	0.80	1.20
8725520	10/27/11 11:47 AM	0.77	1.18
8725520	10/27/11 11:53 AM	0.74	1.15
8725520	10/27/11 11:59 AM	0.71	1.13
8725520	10/27/11 12:05 PM	0.68	1.12
8725520	10/27/11 12:11 PM	0.65	1.09
8725520	10/27/11 12:17 PM	0.62	1.06
8725520	10/27/11 12:23 PM	0.58	1.04
8725520	10/27/11 12:29 PM	0.55	1.02
8725520	10/27/11 12:35 PM	0.53	1.00
8725520	10/27/11 12:41 PM	0.50	0.97
8725520	10/27/11 12:47 PM	0.47	0.95
8725520	10/27/11 12:53 PM	0.44	0.93
8725520	10/27/11 12:59 PM	0.42	0.92
8725520	10/27/11 1:05 PM	0.39	0.90
8725520	10/27/11 1:11 PM	0.36	0.88
8725520	10/27/11 1:17 PM	0.34	0.86
8725520	10/27/11 1:23 PM	0.31	0.83
8725520	10/27/11 1:29 PM	0.29	0.81
8725520	10/27/11 1:35 PM	0.27	0.79
8725520	10/27/11 1:41 PM	0.24	0.77
8725520	10/27/11 1:47 PM	0.22	0.75
8725520	10/27/11 1:53 PM	0.20	0.73
8725520	10/27/11 1:59 PM	0.18	0.71
8725520	10/27/11 2:05 PM	0.16	0.69
8725520	10/27/11 2:11 PM	0.14	0.67
8725520	10/27/11 2:17 PM	0.12	0.65
8725520	10/27/11 2:23 PM	0.10	0.63
8725520	10/27/11 2:29 PM	0.09	0.60
8725520	10/27/11 2:35 PM	0.07	0.58
8725520	10/27/11 2:41 PM	0.06	0.56
8725520	10/27/11 2:47 PM	0.05	0.55

NOAA Station #	Date/Time	Predicted	Observed
8725520	10/27/11 2:53 PM	0.03	0.53
8725520	10/27/11 2:59 PM	0.02	0.52
8725520	10/27/11 3:05 PM	0.01	0.50
8725520	10/27/11 3:11 PM	0.00	0.49
8725520	10/27/11 3:17 PM	0.00	0.48
8725520	10/27/11 3:23 PM	-0.01	0.46
8725520	10/27/11 3:29 PM	-0.01	0.45
8725520	10/27/11 3:35 PM	-0.02	0.44
8725520	10/27/11 3:41 PM	-0.02	0.44
8725520	10/27/11 3:47 PM	-0.02	0.43
8725520	10/27/11 3:53 PM	-0.02	0.44
8725520	10/27/11 3:59 PM	-0.02	0.44
8725520	10/27/11 4:05 PM	-0.01	0.44
8725520	10/27/11 4:11 PM	-0.01	0.45
8725520	10/27/11 4:17 PM	0.00	0.46
8725520	10/27/11 4:23 PM	0.01	0.47
8725520	10/27/11 4:29 PM	0.02	0.49
8725520	10/27/11 4:35 PM	0.03	0.51
8725520	10/27/11 4:41 PM	0.04	0.52
8725520	10/27/11 4:47 PM	0.06	0.54
8725520	10/27/11 4:53 PM	0.07	0.56
8725520	10/27/11 4:59 PM	0.09	0.58
8725520	10/27/11 5:05 PM	0.10	0.60
8725520	10/27/11 5:11 PM	0.12	0.62
8725520	10/27/11 5:17 PM	0.14	0.64
8725520	10/27/11 5:23 PM	0.16	0.66
8725520	10/27/11 5:29 PM	0.18	0.68
8725520	10/27/11 5:35 PM	0.21	0.71
8725520	10/27/11 5:41 PM	0.23	0.73
8725520	10/27/11 5:47 PM	0.26	0.75
8725520	10/27/11 5:53 PM	0.28	0.77
8725520	10/27/11 5:59 PM	0.31	0.79