Sixth Quarterly Monitoring Report

for

Town of Hamilton Well 14
Stone Eden Well
Hamilton, Virginia

Prepared for:
Mayor Greg Wilmoth
Town of Hamilton

Prepared by:

ANALYTICAL SERVICES, INC.
402 N. West Street
Culpeper, Virginia22701

And

TRIAD ENGINEERING, INC.
21641 Beaumeade Circle
Suite 300
Ashburn, Virginia20147

Date: May 21, 2011

TRIAD Project # 05-07-0092

_____
William J. Mikalik, CPG
TRIAD Engineering, Inc.

_____
Andrew Carter, Project Manager
Analytical Services, Inc.

Table of Contents

List of Tables

List of Figures

Appendices

1.0 INTRODUCTION

This Sixth Quarterly Monitoring Report (QMR6) presents the results of the monitoring activities performed during the months of January, February, and March 2011of active pumping operation in Well 14 by the Town of Hamilton. This report is submitted to the Loudoun County Department of Building and Development, in substantial compliance with the approved Town's Pumping, Monitoring, and Mitigation Plan (PMMP, November 2008). The PMMP addresses the groundwater monitoring requirements of Section 6.240, G., I., J., and K. of the Loudoun County Facility Standards Manual (FSM).

This report includes the water level data and water quality field-testing from the following reports previously submitted by ASI:

- "Background and Initial Pump Start-up (30-day) Monitoring Report", dated October 13, 2009 ("30-Day Report"),
- "First Quarterly Monitoring Report" (QMR1), dated November 15, 2009,
- "Second and Third Quarterly Monitoring Report" (QMR3), dated May 10, 2010,
- "Fourth Quarterly Monitoring Report" (QMR4), dated September 29, 2010,
- "Fifth Quarterly Monitoring Report (Revised)" (QMR5), dated April 5, 2011.

Please refer to the 30-Day Report for details regarding monitoring well information, installation of the probes, and the water quality sampling methods. Relevant information on the monitored wells is summarized in Table 1 below.

Table 1
Domestic Well Monitoring Locations

Well ID	Residence Address	PIN	Well Yield (gpm)	Total Depth (feet)	Depth to Bedrock (feet)	Static Water Level (feet)	Water-Bearing Depths (feet)
2	W. Allen Cochran 17889 Sands Road	419260463	30	200	10	30	134
4	Gaston and Kapsang Gutierrez 38286 Alfalfa Ct	419157282	50	380	20	30	180 (2), 365 (48)
5	Robert and Lori Gammache 38280 Alfalfa Ct	419155183	30	400	10	12	190 (4), 360 (26)
6	Hemadri and Aparna Dasari 38274 Alfalfa Ct	419153482	30	275	10	30	253
7	Edward and Courtney Cooke 38268 Alfalfa Ct	419150980	50	250	8	0	225
9	B. and J. Dedekind 17936 Manassas Gap Ct	454105978	60	383	50	30	381
12	James and Amy Walton 17979 Sands Road	454297930	15	380	25	2	365
13	Brian and Sherri Omara 17969 Sands Road	454302227	15	260	51	40	235

18	Mark and Yufen Zha Hyett 38344 Midnight Sky Place	419163547	15	225	20	30	195
29A	Michael and Nancy Dowgiello 17997 Taylor Road	419153482	30	275	10	30	253
32	Maureen A. Omara 17899 Sands Road	454204465	50	260	20	2	235

2.0 WATER QUALITY MONITORING

Section 4.5 of the PMMP recommended that the monitoring program should include an evaluation of water quality. Laboratory results from the sampling of all the initial monitored domestic wells were reported later in the 30-Day Report. The laboratory results from Well 32 were reported in the QMR1. The water samples were tested by calibrated field instrumentation for the following parameters: pH, specific conductivity, turbidity and temperature.

2.1 Field Parameters

Several of the outside spigots of the residences were not operating during the time of the site visit on March 31, 2010; therefore, new field parameters data were not collected during this monitoring period. The historical parameter data for the monitored sites are provided in Appendix A.

2.2 Laboratory Analysis

Laboratory analysis was not conducted for Well 29A during the Q6 period because outside spigots have been turned off for the winter at that location. ASI staff met with the property owner in the residence, but a suitable sampling point that bypassed the filtration system was not available.

3.0 GROUNDWATER LEVEL MONITORING

ASI personnel mobilized to the site on March 31, 2011, to check the operation of the probes and to download data from the probes for the Q6 monitoring period.

Water level monitoring began at Well 32 on November 17, 2009. Water level monitoring began at Wells 2, 18, and 29A on December 14, 2010. All water level measurements were recorded by data-logging transducers on an hourly basis. Water level data collected during the Q6 period (January, February, and March, 2011) have been plotted for each monitor well. Water level data for this report includes the period of December 13-31, 2010, since the previous data download for the Q5 report occurred on December 13, 2010. The plots of background phase and the previous pumping periods have been presented in previous reports. Graphs for each individual monitor well have been included in Appendix B. An electronic copy of the monitoring data has been included in Appendix D.

3.1 Additional Monitoring Locations

On January 4, 2011, a datalogger was installed in Well 7. As in other monitored wells, the pumping assembly in Well 7 caused a partial obstruction and prevented the full length of cable to be installed; however, sufficient submergence of the probes was accomplished for data collection. All monitored wells, including the newly active wells, are identified in Figure 1.

3.2 Discussion of Water Level Monitoring Results

This 6th Quarterly Monitoring Report is the second data submittal from the second year of water supply production from Well 14. Water levels fluctuations in the monitored wells during this quarter were generally consistent with the historical data of the pumping period.

As reported previously, the timing of significant water level fluctuations in Wells 4, 5, 6, 7, and 32 appear correlate closely with dates of Well 14 operation, as shown in Figure 2. Withdrawals from Well 14 appear to have a lesser impact on Wells 9 and 12 (shown in Figure 3) than on the other five historically monitored wells. The operation of Well 14 has continued to be irregularly timed, with variable time-intervals between events.

The monitoring data indicate that two drawdown events were notably longer in duration than other events reported in this monitoring program. These two events occurred on February 12 and February 14. The Well 14 operations log, provided by Town of Hamilton WTP staff, indicates that on these dates that the well was pumped for 5.5 hours and 6.25 hours, respectively. The longer duration events produced the greatest drawdown of the period in Wells 4, 5, 6, 7, and 32. In addition, the events coincided closely with significant drawdowns in Wells 18 and 29A. Some minor drawdown was also noted in Wells 9 and 12 in apparent association with these two pumping events, when historically these wells have not shown notable response to withdrawals from Well 14.

During the monitoring period of January through March 2011, the monitoring data from Well 13 shows frequent and significant drawdown events. The timing of some of these events is such that they may have been associated with withdrawals from Well 14; however, most of the events do not appear to occur around the dates and times of Well 14 withdrawals. For example, the pumping events of February 12 and 14 do not occur coincidentally with the greatest drawdowns in Well 13. This suggests that there may be other factors affecting the water level in Well 13 other than withdrawals from Well 14.

Wells 2, 18, and 29A, installed on December 14, 2010, each appear to have different responses to Well 14 withdrawals. Water level fluctuations in these wells during the Q6 monitoring period are shown in Figure 4. The pump in Well 29A was not active during this period, so major water level fluctuations can be easily identified (Figure 4). The 27 major drawdown events in the Well 29A level data from this monitoring period, which

range from approximately five feet to over twenty feet of drawdown, are all very closely correlated with Well 14 pumping events for the dates when well 14 data are available. The data from Well 18 show drawdown events that vary distance up to twenty feet; however, in contrast to Well 29A, the major drawdowns often do not occur on the same dates as Well 14 pumping events. In further contrast with both Wells 18 and 29A, fluctuations in Well 2 water level are generally less than five feet, and do not appear to be timed closely with Well 14 withdrawals, including the extended pumping events of February 12 and 14.

Recoveries in all of the monitored wells continue to be relatively rapid, with water levels usually re-stabilizing at pre-drawdown levels in most wells. This continued rapid recovery pattern suggests that production from Well 14 has not appeared to significantly impact recharge of the monitored wells by the local aquifer.

3.3 Discharge Data from Well 14

Well 14 discharge data were obtained from the Hamilton Water Treatment Plant (WTP) for the period of February through March 2011. Because of monitoring system malfunction, Well 14 data from January was not available for this report. In response to comments received from the Loudoun County Department of Building and Development, dated March 31, 2010, Hamilton WTP personnel started collected new data types such as start-time and stop-time of pumping at Well 14. In addition, WTP staff have indicated to ASI that the readings from the transducer in Well 14 will be recorded before the start of pumping event and again before the pumping is stopped. This data should be included in the next monitoring report. The additional data provided to ASI by WTP staff for February and March 2011 are included in Table 2 below.

WTP staff provided ASI with daily log data from Well 14 that show 17 pumping events during the period of February through March 2011, which amounted to 27.5 hours, resulting in an estimated withdrawal of approximately 596,000 gallons. Most of the reported pumping events were between one half-hour to two hours in duration. As reported in Section 3.2, the pumping time of two events on February 12 and 14 were significantly longer than the other reported events, lasting 5.5 and 6.25 hours respectively. Examination of the water level data from selected wells (for example, Figure 2) suggests that nine pumping events may have occurred in January. Totals for each month during the pumping period for which data are available are summarized below in Table 2. The pumping data, including daily pumping durations and volumes, are provided in Appendix C. Appendix C contains data identified as “Level” which is the readout of feet of water over the transducer in the well; however, the time associated with these readouts are not known, limiting the value of the data.

Table 2. Well 14
Pumping Data Summary

Month	Pumping Days	Total Hours	Pumpage (gal)
October '09	12	17.7	287,800
November '09	14	20	294,300
December '09	9	14	231,500
January '10	14	14.4	209,900
February '10	7	9	156,300
March '10	14	23	373,900
April '10	10	15	243,300
May '10	11	10.7	167,100
June '10	10	14.9	313,281
July '10	6	15.1	317,486
August '10	5	3.6	75,692
September '10	5	9.6	79,700
October '10	16	12.3	256,800
November '10	11	8.9	193,300
December '10	12	11.4	236,200
January '11	NA	NA	NA
February '11	5	16.8	342,000
March '11	12	10.7	254,000
Total	187	241.5	4,242,459

Note: NA = Not Available

3.4 Well Water Comments from Well Owners

On Monday, March 07, 2011, Ms. Julie Sayles, a resident of 17934 Taylor Road in Hamilton, called the Culpeper office of ASI. This property is located east (across Taylor Road) of Well 4 and south-southeast of Well 2. Having a family of five at home (her husband works at home), well water is in use all day. Ms. Sayles said that she has been having significant water problems that started sometime during the summer of 2010. Their well has not been supplying as much water as it used to. For example, Ms. Sayles reported that they cannot flush a toilet while someone else is taking a shower. They did not notice water shortages before the summer of 2010. She was very concerned that the withdrawals from Well 14 were causing these problems. At the time of the phone call, Ms. Sayles had not examined her pressure tank to check that it was working properly, and was not aware of the depth of her pump (she said that her well depth was 360').

During the ASI site visit on March 30, 2011, Ms. Kapsang Gutierrez, owner of Well 4, indicated to ASI personnel that she had been recently experiencing low water pressure. On the same site visit, Ms. Nancy Dowgiello, owner of Well 29A, also told ASI personnel that she had been experiencing lower water pressure in recent months.

4.0 CONCLUSIONS AND RECOMMENDATIONS

This report documents the monitoring of water levels in eleven residential wells during the period since pumping operations began in Well 14 in August 2009. Approximately simultaneous drops in well water levels during numerous occasions in five (Wells 4, 5, 6, 7, and 32) of the monitored residential wells are believed to be associated with the withdrawal of groundwater from Well 14. Water levels in other monitored wells may also be impacted by Well 14 operations, but the influence appears to be less significant. Recoveries in all wells continue to be strong. Wells 2, 9, and 12 appear to experience relatively minor impacts from the pumping operations. Water levels in the monitored wells have continued to recover to approximately background levels; however, additional monitoring data will be needed to evaluate more long term effects following the continued active operation of Well 14.

ASI continues to work with the Hamilton staff to obtain the Well 14 data requested by the Loudoun County Department of Building and Development in their letter to TRIAD Engineering, dated March 31, 2010. Hamilton staff have indicated to ASI that full compliance with the County's comments regarding well 14 discharge data has been achieved and will be available beginning in the April 2011 monitoring data.

5.0 LIMITATIONS

The work performed in conjunction with this project, and the data developed, are intended as a description of available information at the sample locations indicated and the dates specified. Generally accepted industry standards were used in the preparation of this report.

Laboratory data are intended to approximate actual conditions at the time of sampling. Results from future sampling and testing may vary significantly as a result of natural conditions, a changing environment, or the limits of analytical capabilities. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a specific location not investigated. The limited sampling conducted was intended to approximate subsurface conditions by extrapolation between data points. Actual conditions may vary.

FIGURES

Figure 1: Site Location Map

Legend

- Pumping Well
- Existing Monitoring Well Locations

N

0 250 500 1,000 Feet

ANALYTICAL SERVICES, INC.
102 N. West Street
Culpeper, Virginia 22701
Telephone: (540) 829-5640 * Fax: (540) 829-5641
www.asiva.com

Figure 2. Well 4, 5, 6, 7, and 32 with Well 14 Pumpage: Q6

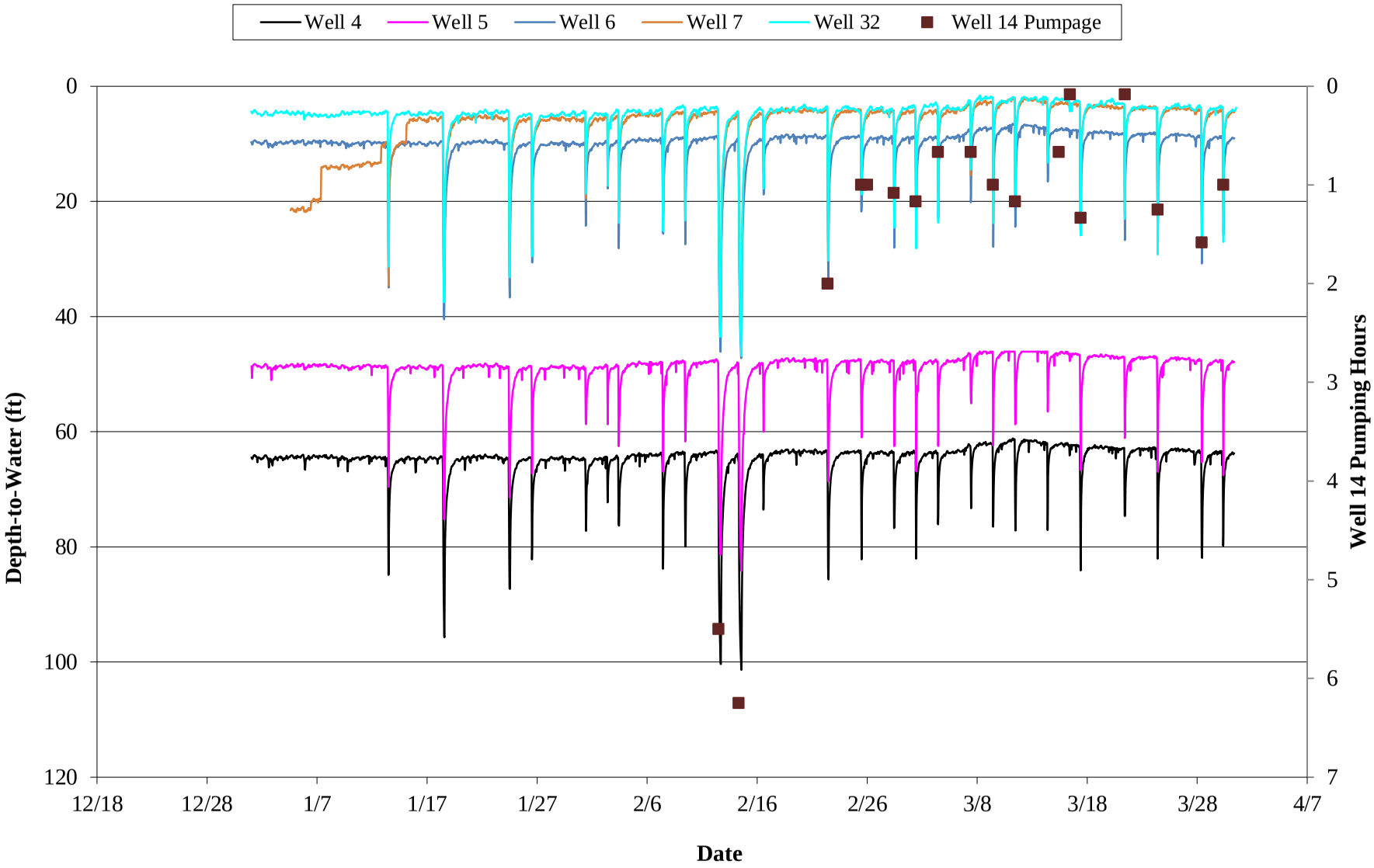
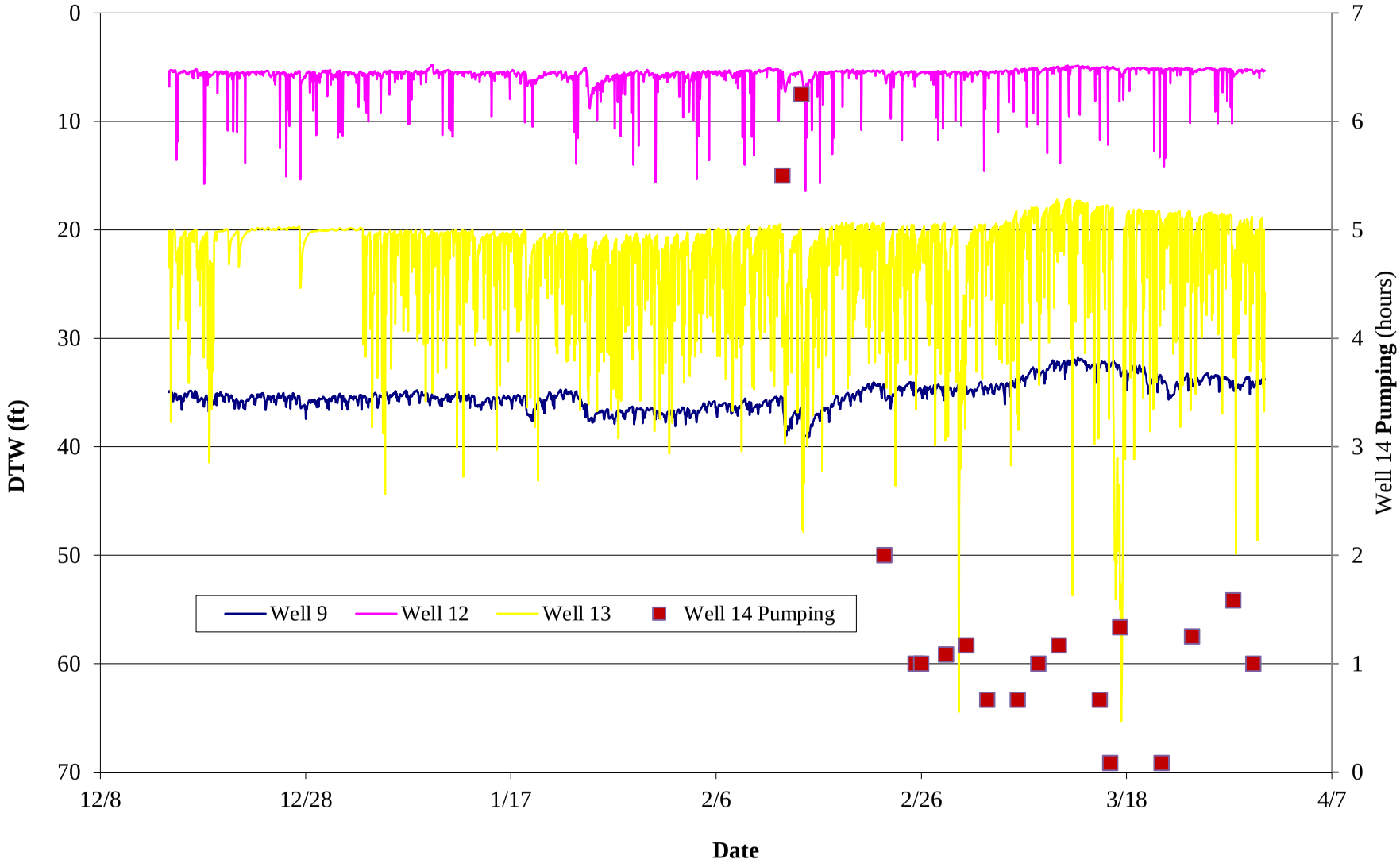


Figure 3. Wells 9, 12, and 13: 6th Quarter



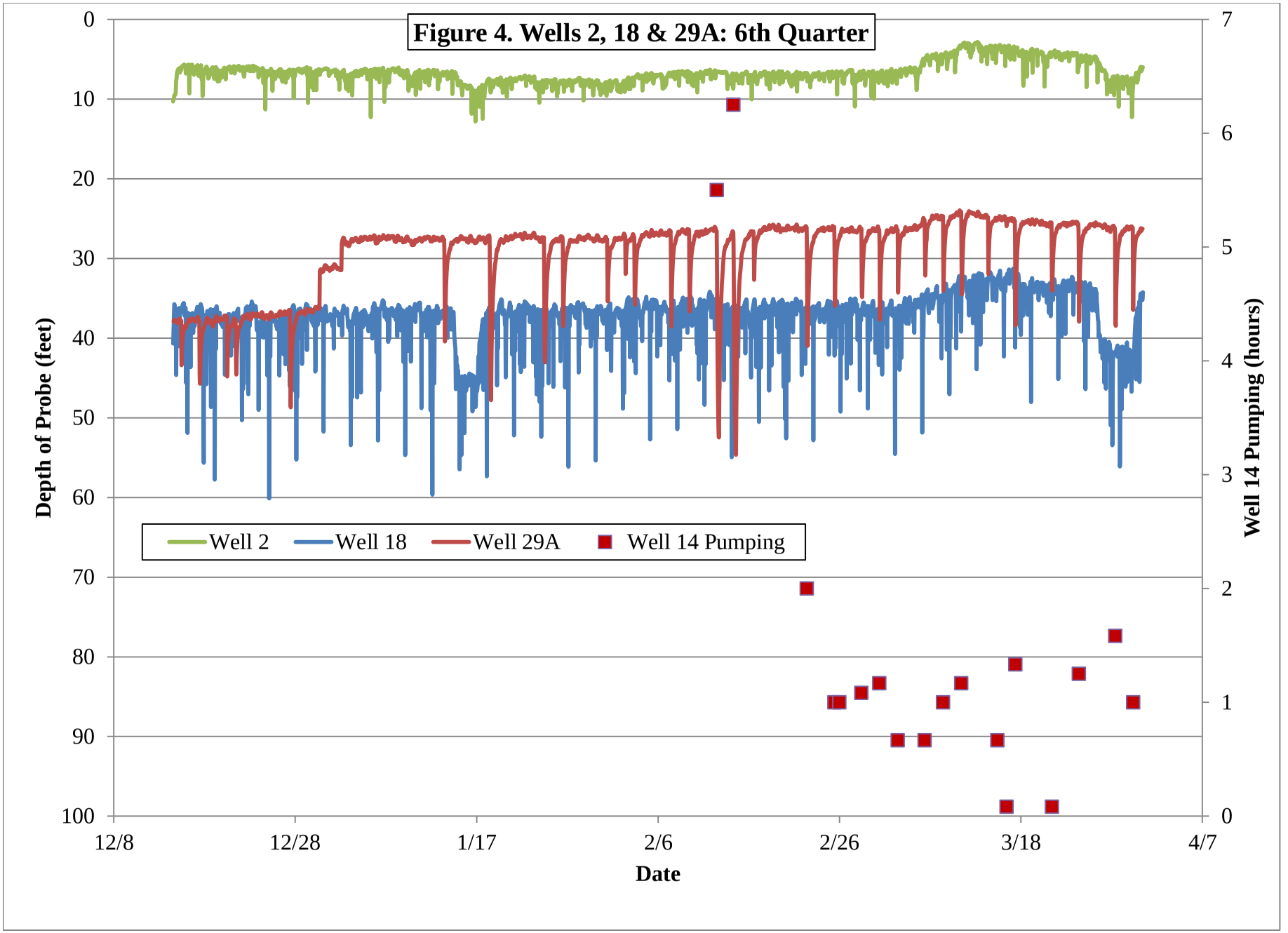


Figure 4. Wells 2, 18 & 29A: 6th Quarter
Depth of Probe (feet)
0
10
20
30
40
50
60
70
80
90
100
Well 14 Pumping (hours)
7
6
5
4
3
2
1
0
12/8
12/28
1/17
2/6
2/26
3/18
4/7
Date
Well 2
Well 18
Well 29A
Well 14 Pumping

APPENDIX A

SUMMARY TABLE OF FIELD PARAMETERS

APPENDIX A. Field Parameters

Date	1/9/09	8/9/09	8/26/09	10/6/09	10/29/09	11/17/09	12/28/09	1/29/10	2/24/10	3/24/10	4/30/10	5/25/10	8/25/10	3/31/11
Well ID														
pH (Standard Units)														
Well 2														6.1
Well 4	6.79	7.8	7.93	8.17	7.84	7.6	7.66	*	*	*	7.24	7.61	7.57	6.84
Well 5	7.27	7.15	7.42	7.1	7.46	7.26	7.44	7.18	*	*	7	6.98	7.15	*
Well 6	6	7.7	7.77	7.61	7.96	7.68	7.86	*	*	*	7.33	7.4	7.34	*
Well 7													6.63	6.8
Well 9	6.1	7.9	8.16	7.77	8.22	7.89	7.95	*	*	8.11	7.52	7.39	7.28	*
Well 12	7.71	7.54	7.37	7.53	7.54	7.23	7.47	*	*	7.27	7.08	6.64	6.47	6.52
Well 13	7.41	7.4	7.5	7.34	7.42	7.45	7.39	6.96	*	6.94	6.77	6.1	6.16	6.28
Well 18														6.22
Well 32						7.6	7.61	*	*	7.18	7.09	6.76	6.45	
Specific Conductance (µS)														
Well 2														284
Well 4	420	288	524	365	424	321	335	*	*	*	466	384	442	350
Well 5	342	355	415	390	416	372	381	381	*	*	387	371	431	*
Well 6	315	271	322	295	290	281	279	*	*	*	282	300	291	*
Well 7													298	282
Well 9	270	229	250	263	244	230	254	*	*	281	248	254	231	*
Well 12	311	286	260	290	277	247	269	*	*	322	278	279	281	279
Well 13	269	284	255	270	333	275	242	243	*	276	255	240	246	251
Well 18														292
Well 32						234	236	*	*	259	270	262	257	*
Temperature (°C)														
Well 2														*
Well 4	16	17.5	21.9	16.3	15.8	15.3	18.9	*	*	*	17.6	21.2	22.8	16.6
Well 5	13.3	19	21	17.8	15.8	16.1	17	14.2	*	*	18.8	19.1	23.5	*
Well 6	11	21	25.7	18.3	15.9	15.6	21.4	*	*	*	18.3	20.5	23.1	*
Well 7													23.1	8.8
Well 9	11.4	24.5	23.1	19.6	16.9	16.9	17.4	*	*	18.2	18.3	22	21.4	*

APPENDIX A. Field Parameters

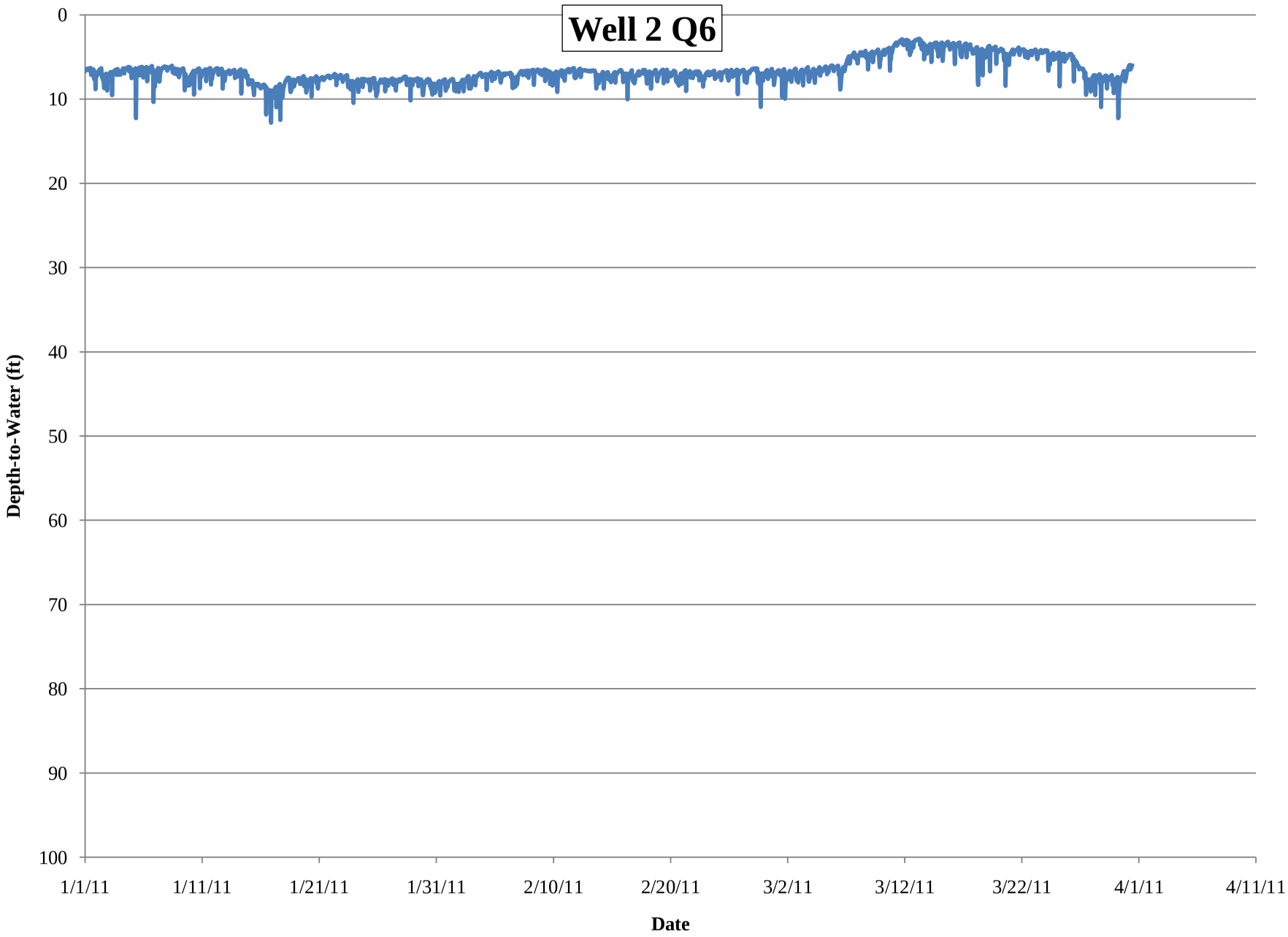
Date	1/9/09	8/9/09	8/26/09	10/6/09	10/29/09	11/17/09	12/28/09	1/29/10	2/24/10	3/24/10	4/30/10	5/25/10	8/25/10	3/31/11
Well 12	12.4	19.5	23.3	18.8	15.7	14.4	12.1	*	*	12.8	17.1	19.8	22.6	8.9
Well 13	13.3	21	23.2	19	16.3	14.7	10.8	10	*	13.7	17.3	21.7	21.9	10.4
Well 18														11.9
Well 32						16.5	13.8	*	*	17.6	19	22	24.6	*
Turbidity (NTUs)														
Well 2														3.78
Well 4	0.08	0.2	1.38	0.005	0.51	10.96	3.59	*	*	*	0.46	0.58	0.66	2.73
Well 5	0.01	0.55	0.77	2.84	0.46	8.47	0	0.03	*	*	2.73	6.17	1.91	*
Well 6	0	0.89	0.6	0.61	0.16	10.33	0	*	*	*	0.24	0.54	2	*
Well 7													2.2	0.58
Well 9	1.23	1.82	0.45	0.64	1.09	15.23	0.18	*	*	1.64	1.28	0.64	2.3	*
Well 12	0.01	0.21	4.5	0.59	0.21	14.22	0.01	*	*	0.71	3.78	1.39	5.9	1.61
Well 13	0.06	0.83	0.75	0.86	0.17	15.62	0	0	*	2.49	0.7	1.17	0.56	1.08
Well 18														2.05
Well 32						15.92	0	*	*	5.29	0.83	0.34	4.74	*

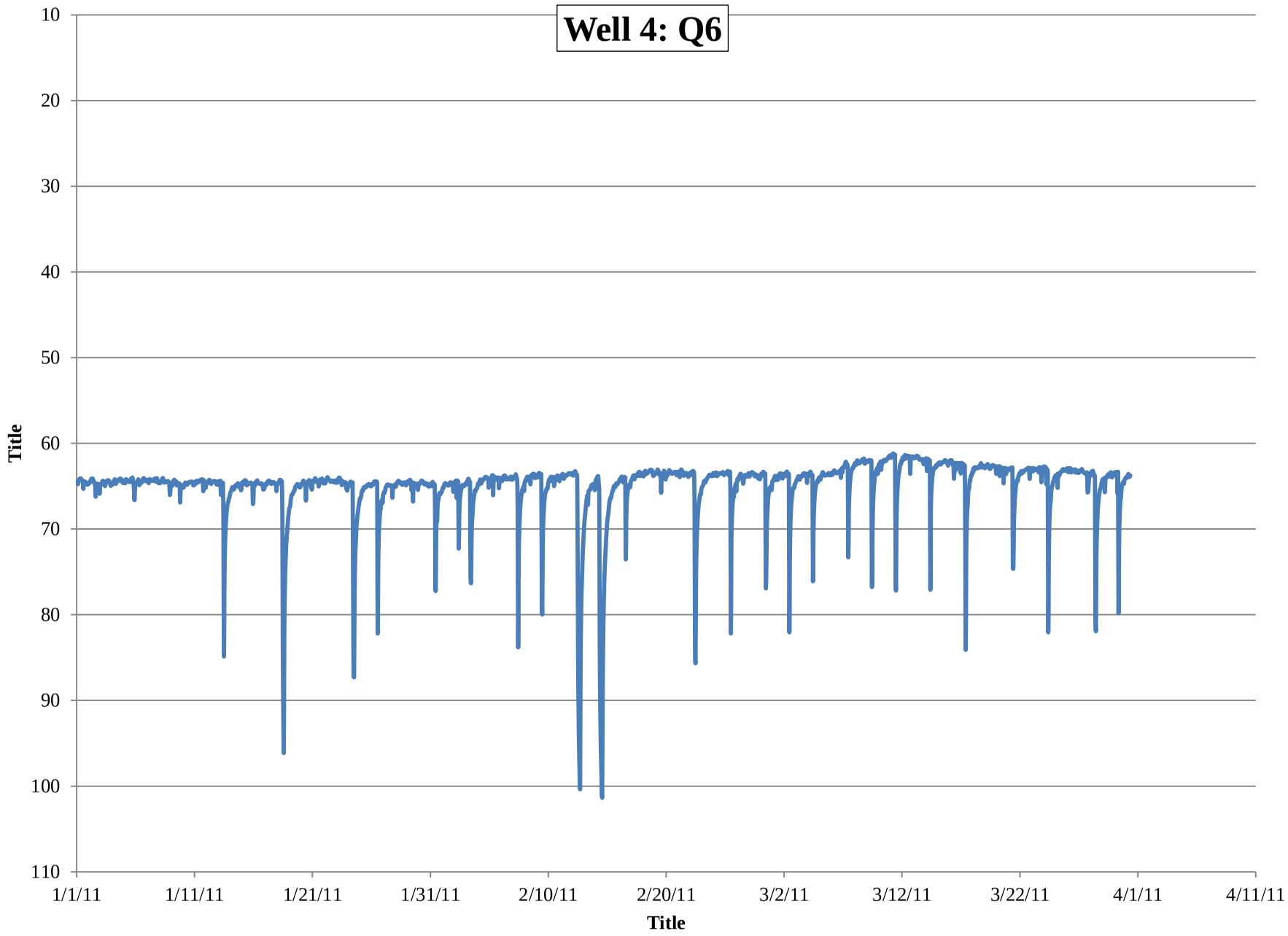
Note: *: Outdoor spigots were shut off because of freezing weather. No sample was collected. Likewise, samples were not collected during the 12/21/11 site visit.

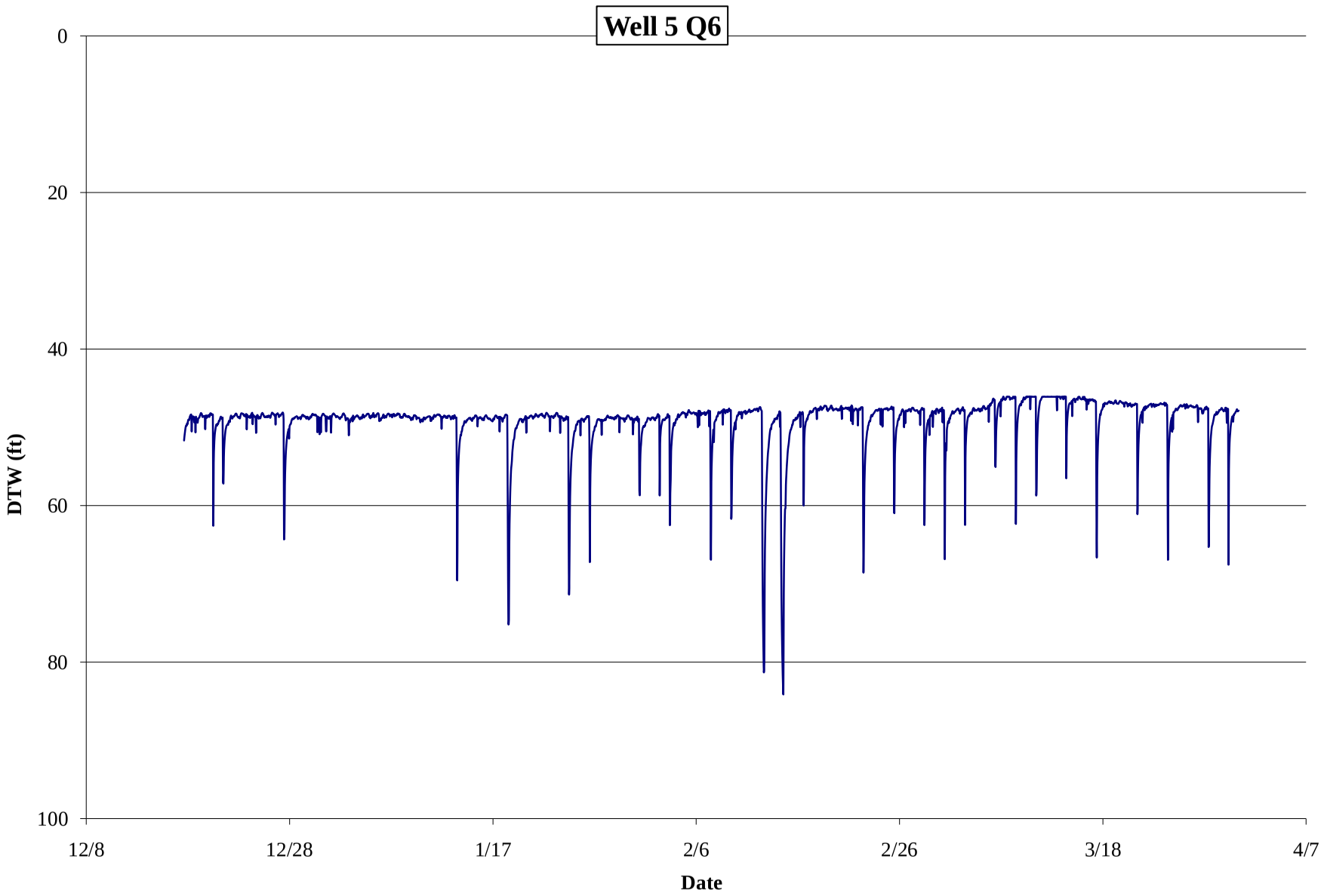
APPENDIX B

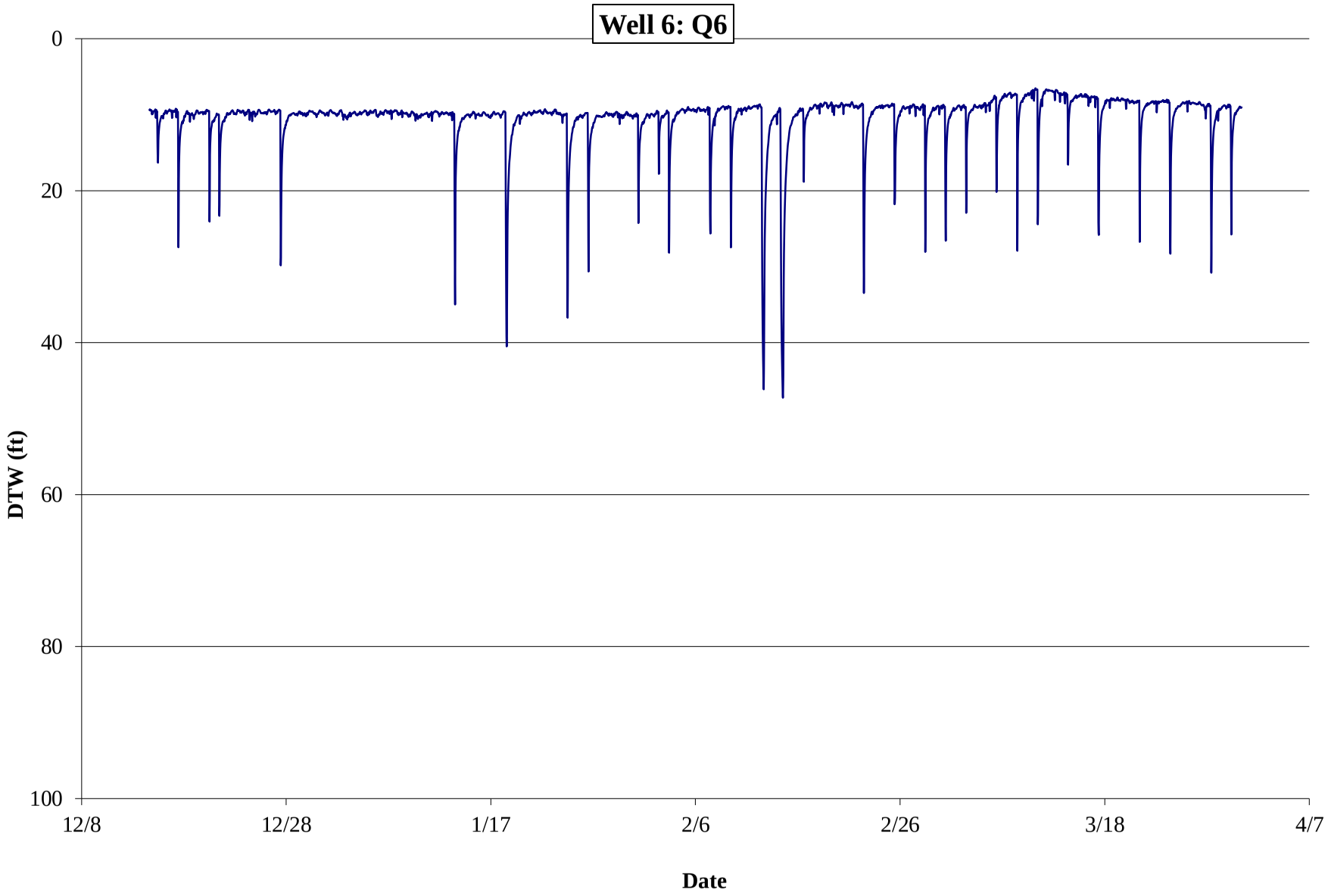
WATER LEVEL GRAPHS FOR INDIVIDUAL WELLS

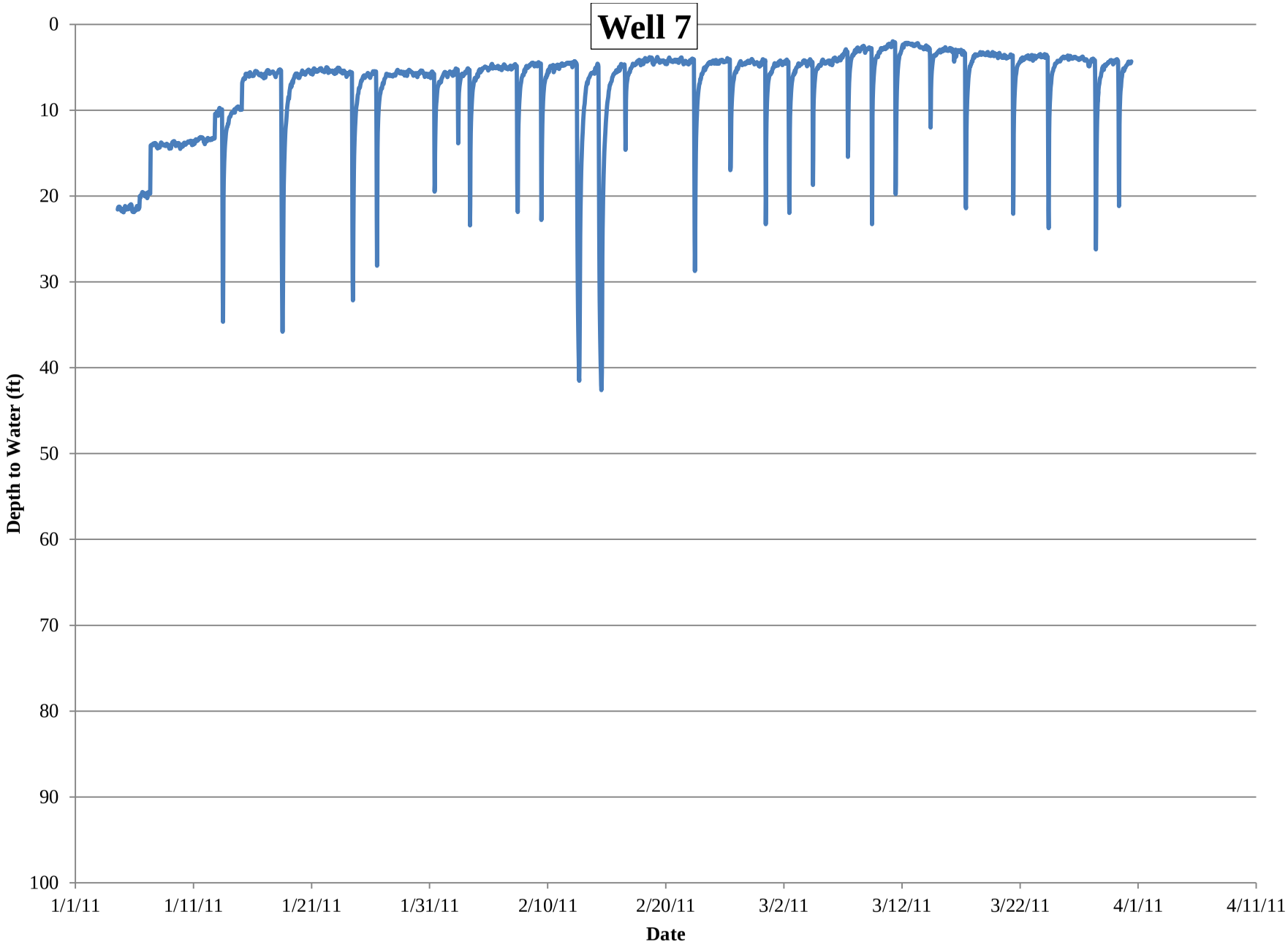
(January, February, March 2011)

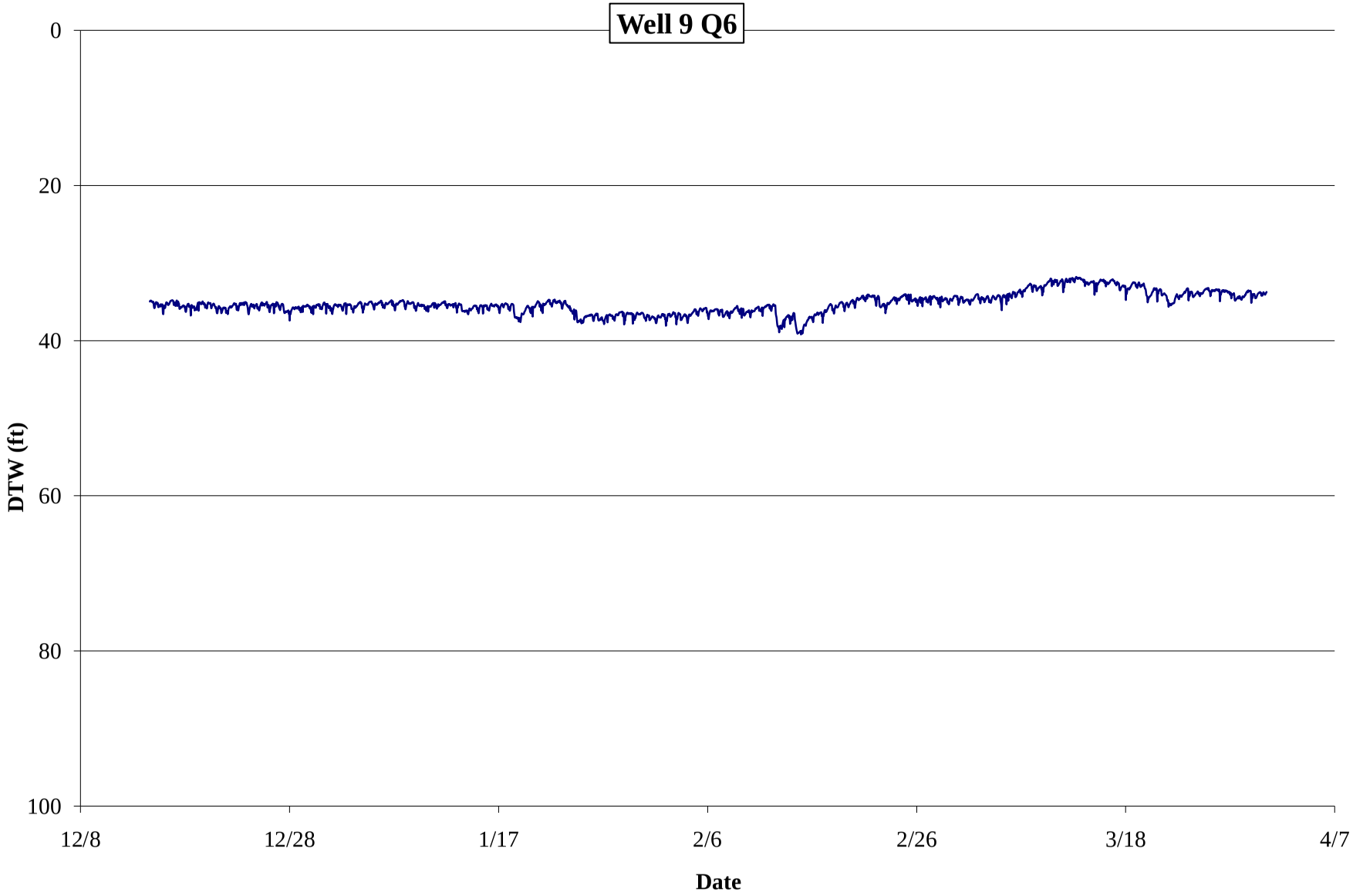

Well 2 Q6
Depth-to-Water (ft)
0
10
20
30
40
50
60
70
80
90
100
1/1/11
1/11/11
1/21/11
1/31/11
2/10/11
2/20/11
3/2/11
3/12/11
3/22/11
4/1/11
4/11/11
Date

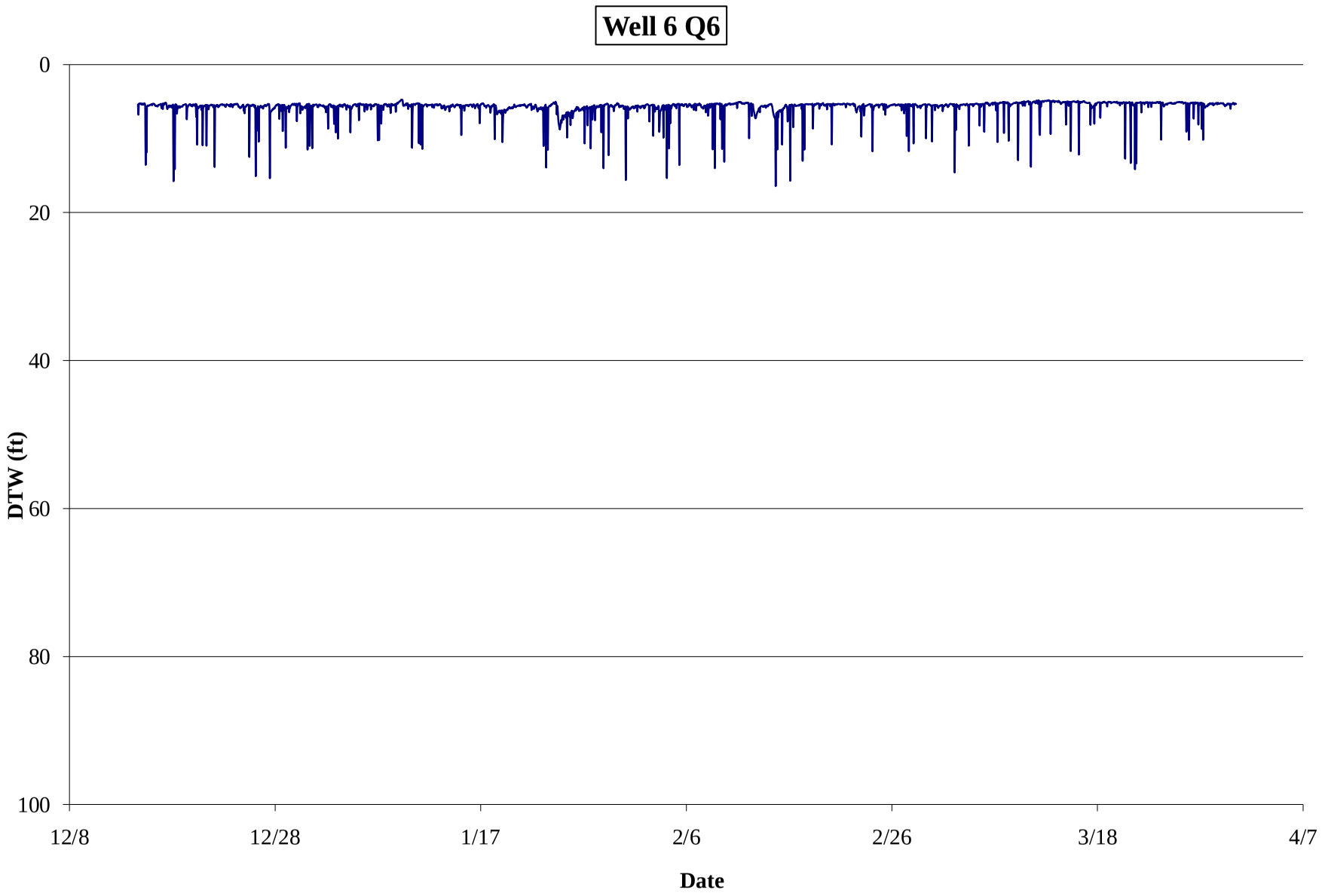

Well 4: Q6
10
20
30
40
50
60
70
80
90
100
110
Title
1/1/11
1/11/11
1/21/11
1/31/11
2/10/11
2/20/11
3/2/11
3/12/11
3/22/11
4/1/11
4/11/11
Title

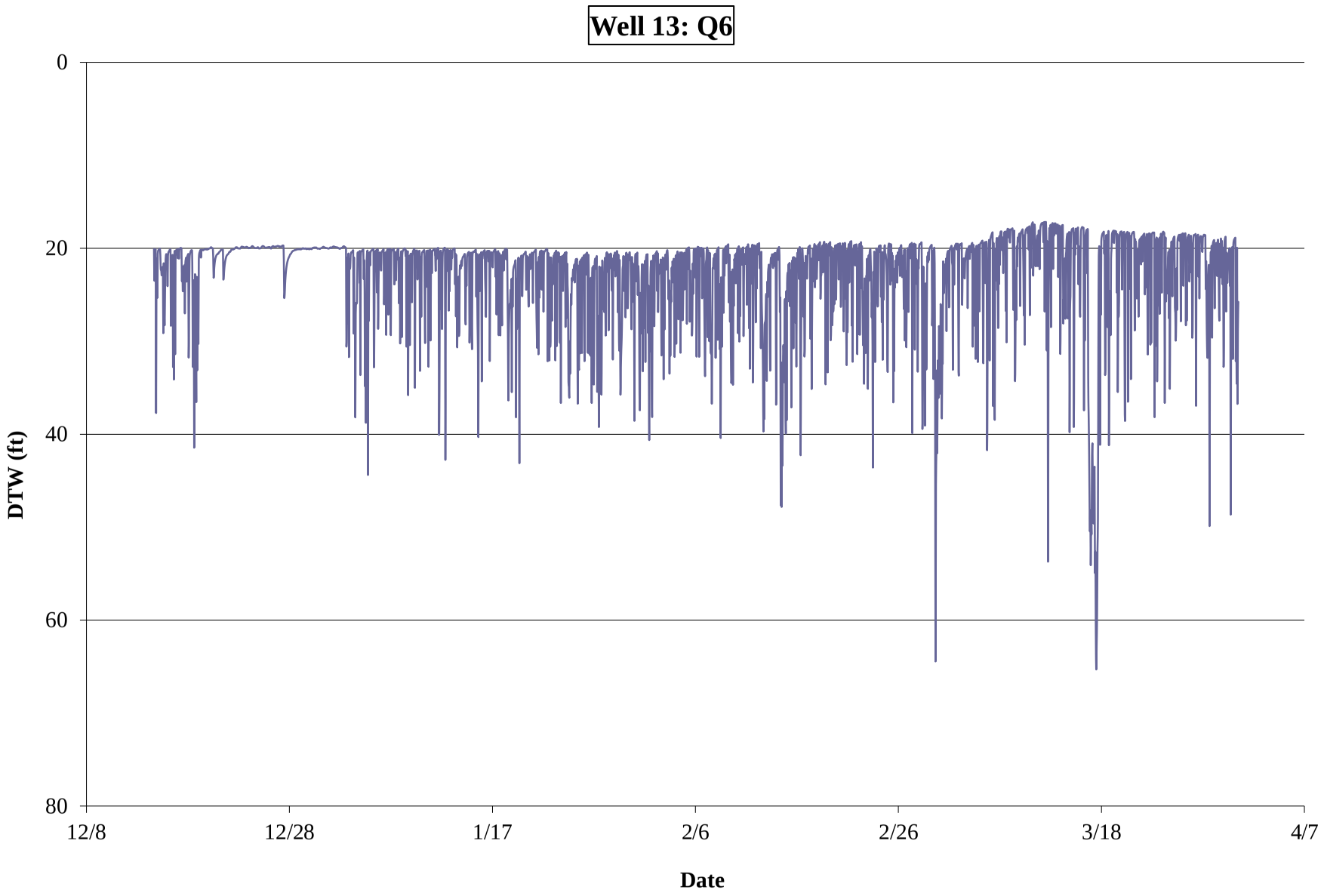

Well 5 Q6
0
20
40
60
80
100
DTW (ft)
12/8
12/28
1/17
2/6
2/26
3/18
4/7
Date

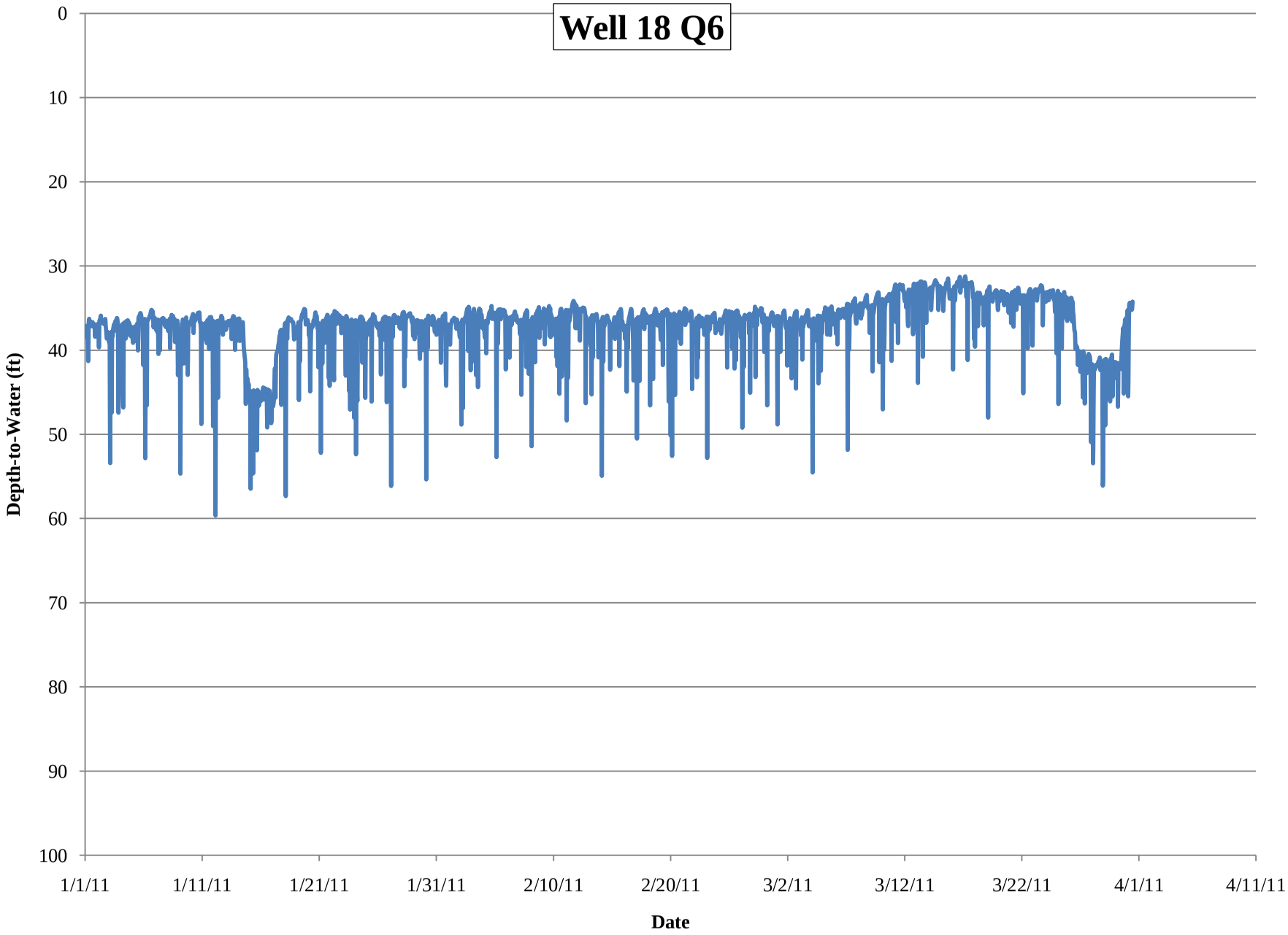

Well 6: Q6
0
20
40
60
80
100
DTW (ft)
12/8
12/28
1/17
2/6
2/26
3/18
4/7
Date

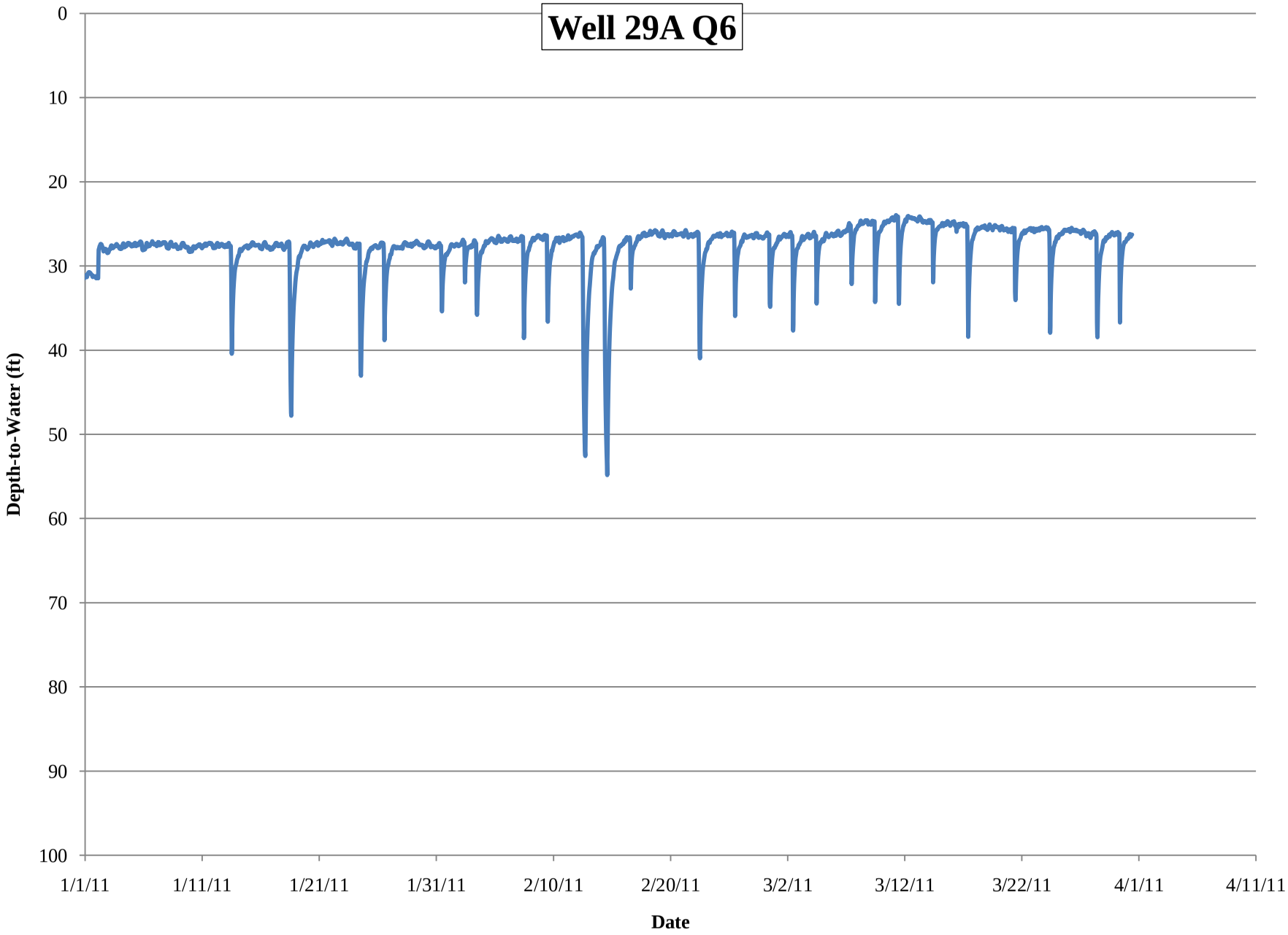

Well 7
Depth to Water (ft)
0
10
20
30
40
50
60
70
80
90
100
1/1/11
1/11/11
1/21/11
1/31/11
2/10/11
2/20/11
3/2/11
3/12/11
3/22/11
4/1/11
4/11/11
Date

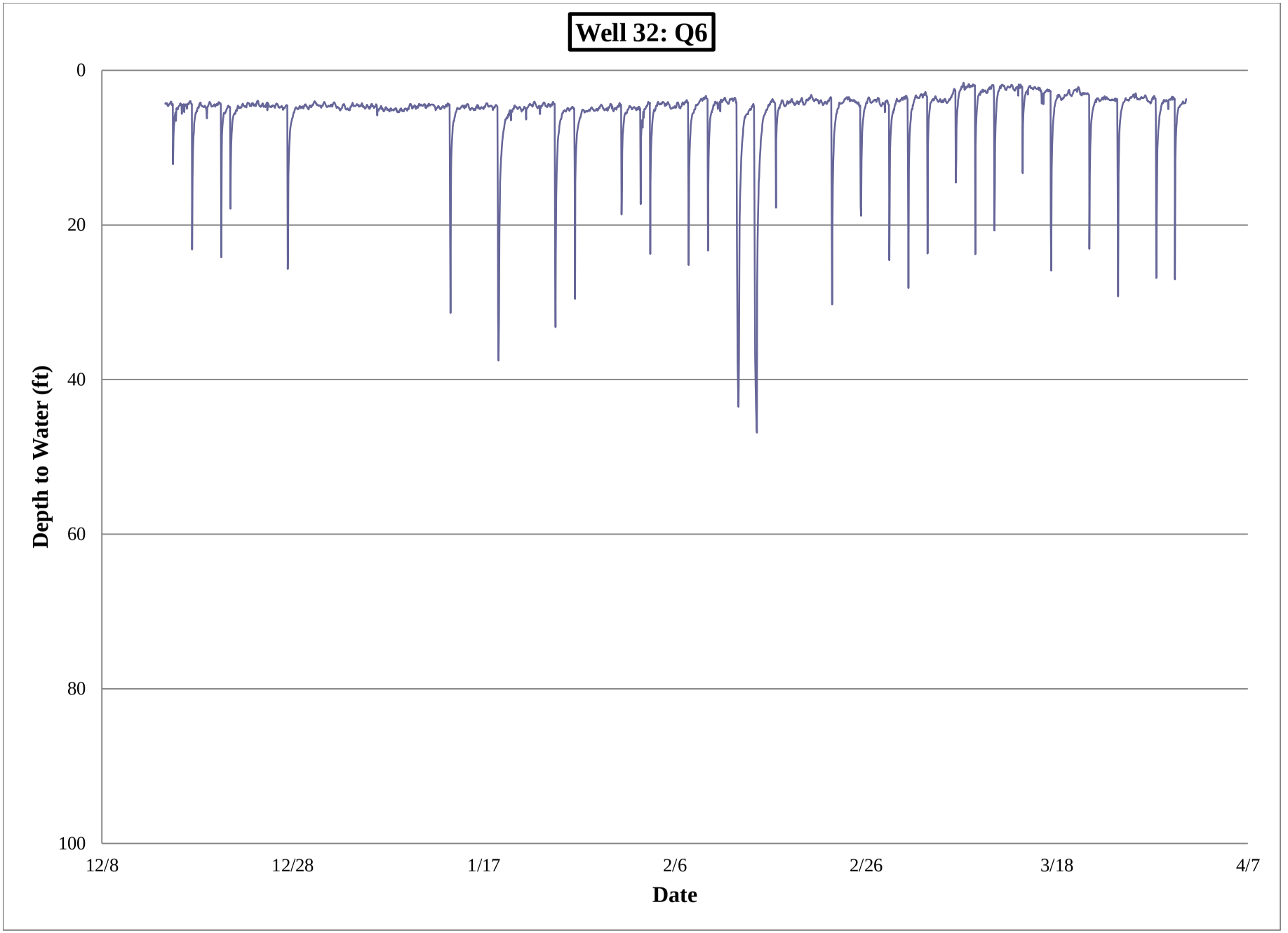

Well 9 Q6
0
20
40
60
80
100
DTW (ft)
12/8
12/28
1/17
2/6
2/26
3/18
4/7
Date


Well 6 Q6
0
20
40
60
80
100
DTW (ft)
12/8
12/28
1/17
2/6
2/26
3/18
4/7
Date


Well 13: Q6
0
20
40
60
80
DTW (ft)
12/8
12/28
1/17
2/6
2/26
3/18
4/7
Date


Well 18 Q6
Depth-to-Water (ft)
0
10
20
30
40
50
60
70
80
90
100
1/1/11
1/11/11
1/21/11
1/31/11
2/10/11
2/20/11
3/2/11
3/12/11
3/22/11
4/1/11
4/11/11
Date


Well 29A Q6
Depth-to-Water (ft)
0
10
20
30
40
50
60
70
80
90
100
1/1/11
1/11/11
1/21/11
1/31/11
2/10/11
2/20/11
3/2/11
3/12/11
3/22/11
4/1/11
4/11/11
Date


Well 32: Q6
0
20
40
60
80
100
Depth to Water (ft)
12/8
12/28
1/17
2/6
2/26
3/18
4/7
Date

APPENDIX C

WELL 14 PUMPING DATA

APPENDIX C.

WELL 14 PUMPING DATA

Date	Gallons Pumped	Well Level (ft)	Pumping Hours
9/1/10		0.0	0
9/2/10	11900	0.0	0.6
9/3/10	0	0.0	0
9/4/10	0	0.0	0
9/5/10	0	0.0	0
9/6/10	0	0.0	0
9/7/10	20400	0.0	0.9
9/8/10	0	0.0	0
9/9/10	15800	0.0	0.8
9/10/10	0	0.0	0
9/11/10	0	0.0	0
9/12/10	0	0.0	0
9/13/10	31600	0.0	1.5
9/14/10	0	0.0	0
9/15/10	0	0.0	0
9/16/10	0	0.0	0
9/17/10	0	0.0	0
9/18/10	0	0.0	0
9/19/10	0	0.0	0
9/20/10	0	151.0	0
9/21/10	0	87.0	1.4
9/22/10	0	50.9	0
9/23/10	0	27.1	2.9
9/24/10		28.0	0.6
9/25/10			
9/26/10	0		
9/27/10	0	42.4	
9/28/10	0	41.7	0.9
9/29/10	0	43.9	0.0
9/30/10		44.0	
September	**79,700**		**9.6**
10/1/10	13300	42.7	0.6
10/2/10	0	44.2	0.0
10/3/10	0	54.3	0.0
10/4/10	11400	57.2	0.6
10/5/10	32800	55.6	1.6
10/6/10	0	60.2	0.0
10/7/10	14300	65.1	0.6
10/8/10	10700	67.6	0.6
10/9/10	0	70.3	0.0
10/10/10	0	71.8	0.0
10/11/10	10100	72.6	0.4
10/12/10	20900	72.2	1.0

APPENDIX C.

Date	Gallons Pumped	Well Level (ft)	Pumping Hours
10/13/10	14600	79.7	0.7
10/14/10	15200	80.0	0.8
10/15/10	0	85.0	0.0
10/16/10	0	81.5	0.0
10/17/10	0	86.6	0.0
10/18/10	0	84.8	0.0
10/19/10	27600	88.4	1.3
10/20/10	0	86.5	0.0
10/21/10	17500	87.8	0.8
10/22/10	13100	94.1	0.7
10/23/10	0	98.2	0.0
10/24/10	0	96.1	0.0
10/25/10	13300	98.1	0.6
10/26/10	0	94.9	0.0
10/27/10	16400	89.6	0.8
10/28/10	9700	99.2	0.4
10/29/10	15900	109.0	0.8
10/30/10	0	123.0	0.0
10/31/10	0	137.0	
October	**256,800**		**12.3**
11/1/10	6100	184.0	0.7
11/2/10	0		0.0
11/3/10	0		0.0
11/4/10	8900		0.4
11/5/10	31400		1.5
11/6/10	0		0.0
11/7/10	0		0.0
11/8/10	27300		1.4
11/9/10	0		0.0
11/10/10	0		0.0
11/11/10	0		0.0
11/12/10	35000		1.6
11/13/10	0		0.0
11/14/10	0		0.0
11/15/10	9600		0.5
11/16/10	0		0.0
11/17/10	27000		1.3
11/18/10	0		0.0
11/19/10	16900		
11/20/10			
11/21/10	0		
11/22/10	13800		0.7
11/23/10	100		0.0
11/24/10	0		0.0
11/25/10	0		0.0

APPENDIX C.

Date	Gallons Pumped	Well Level (ft)	Pumping Hours
11/26/10	0		0.0
11/27/10	0		0.0
11/28/10	0		0.0
11/29/10	17200		0.8
11/30/10	0		
November	**193,300**		**8.9**
12/1/10	56300		2.8
12/2/10	0		0.0
12/3/10	18300		0.8
12/4/10	0		0.0
12/5/10	0		0.0
12/6/10	0		0.0
12/7/10	10000		0.5
12/8/10	11900		0.6
12/9/10	0		0.0
12/10/10	19600		0.9
12/11/10	0		0.0
12/12/10	0		0.0
12/13/10	28600		1.4
12/14/10	3200		0.2
12/15/10	8400		0.4
12/16/10	0		0.0
12/17/10	19800		0.9
12/18/10	0		0.0
12/19/10	0		0.0
12/20/10	14800		0.7
12/21/10	15600		0.8
12/22/10	0		0.0
12/23/10	0		0.0
12/24/10	0		0.0
12/25/10	0		0.0
12/26/10	0		0.0
12/27/10	29700		1.4
12/28/10	0		0.0
12/29/10	0		0.0
12/30/10	0		0.0
12/31/10	0		
December	**236,200**		**11.4**
January	**NA**		**NA**
2/11/11	-		-
2/12/11	112000		5.5
2/14/11	0		6.3
2/22/11	142000		2.0
2/25/11	42000		1.0
2/26/11	22000		1.0

APPENDIX C.

Date	Gallons Pumped	Well Level (ft)	Pumping Hours
2/28/11	24000		1.1
February	**342,000**		**16.8**
3/2/11	0		1.2
3/4/11	24000		0.7
3/7/11	16000		0.7
3/9/11	16000		1.0
3/11/11	21000		1.2
3/15/11	25000		0.7
3/16/11	14000		0.1
3/17/11	3000		1.3
3/21/11	30000		0.1
3/24/11	23000		1.3
3/28/11	27000		1.6
3/30/11	34000		1.0
3/31/11	21000		-
March	**254,000**		**10.7**

APPENDIX D

ELECTRONIC MONITORING DATA

Digital monitoring data have been submitted to

Loudoun County Department of Building and Development