

October 26, 2012

Ms. Sybil Kolon
Environmental Quality Analyst
Department of Environmental Quality
Jackson State Office Building
301 E. Louis Glick Highway
Jackson, MI 49201-1556

Re: Little Lake Area

Dear Ms. Kolon:

Enclosed is Gelman Sciences' (PLS) technical response to the issues/questions raised in DEQ's September 5, 2012 correspondence regarding PLS' Little Lake Area (LLA) Report. Based on this additional information and analysis and the original LLA Report, PLS is more convinced than ever that there is no technical justification for returning to monthly batch purging. It is clear that quarterly batch purging has not negatively affected PLS' ability to satisfy the Consent Judgment's LLA non-expansion objective. PLS is willing to continue quarterly purging through the June, 2013 purge event. At that time, PLS suggests that the parties review what will then be two years of data and determine whether any adjustment to the batch purging frequency, either up or down, is warranted.

Should you have any questions or concerns, please contact me at 734-913-6130.

Sincerely,



Farsad Fotouhi
Vice President
Corporate Environmental Engineering

cc: Ms. Celeste R. Gill, MDAG
Michael Caldwell, Esq.

Response to MDEQ September 5, 2012 comments regarding Pall Life Sciences' August 1, 2012 Evaluation of a Reduction in the Batch Purge Frequencies at the Ann Arbor Cleaning Supply Well

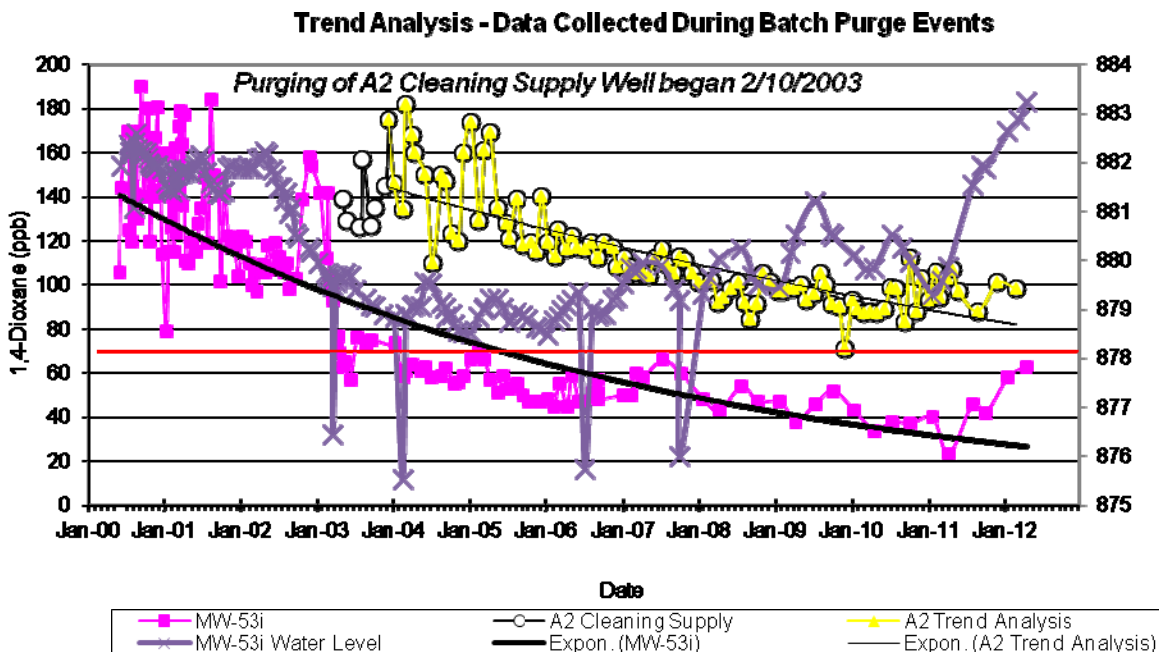
October 26, 2012

1. *MDEQ Comment: The table on page 3, Ann Arbor Cleaning Supply Well While Purging, has a note below it that states the samples were collected mid-way through purging; however, that does not appear to be the case in all instances. During a meeting with Pall Life Sciences (PLS) on August 14, 2012, Mr. Fotouhi indicated that purging does not begin before 8:00 a.m. According to PLS Sample Analysis Reports previously submitted to the DEQ, the samples from the Ann Arbor Cleaning Supply (A2CS) well on March 1, 2012 and June 7, 2012, were collected at 8:00 a.m. and 8:05 a.m., respectively. Therefore, these two samples could not have been collected mid-way through the purging and appear to have been collected before purging began. Any conclusions drawn regarding the effects of purging on 1,4-dioxane concentrations must be reconsidered because two of the five results cited are not consistent with the note below the table. The data should be presented to include the time of sample collection relative to the entire purging event.*

PLS Response: A table showing the sampling times has been included as Attachment 1 and is discussed in the response below.

2. *MDEQ Comment: The report failed to cite the second sample collected on March 1, 2012, at 12:05 p.m., presumably mid-way through the day's purging. That result was 98 parts per billion (ppb). It is unclear why PLS would not have used the second sample from that date to reflect 1,4-dioxane concentration after purging had commenced.*

PLS Response: PLS agrees that the second sample should have been included. An updated graph showing just the A2 data collected during purging events is provided below.



The table below includes the second sample (98 ppb) from March 1, 2012. The pre-purging samples obtained on March 2, 2012 and June 7, 2012 have been removed.¹ These changes do not meaningfully affect the conclusions of the LLA Report, which is that the switch to quarterly purging has not negatively affected either PLS' ability to satisfy the non-expansion objective or the concentrations observed in the A2 well. Since purging went to quarterly frequency in June, 2011, the 1,4-Dioxane concentrations in groundwater sampled from the A2CS well during purge events have been quite stable and consistent with previous data.

Sample Date	Sample Time	1,4-Dioxane Conc. (ug/L)	Comments
3/1/2012	12:05	98	
12/1/2011	13:10	101	
9/1/2011	10:00	88	
6/2/2011	13:00	97	Last Monthly Batch Purge Event
5/5/2011	11:20	107	
4/7/2011	12:00	103	
3/3/2011	13:10	94	
2/10/2011	12:15	106	
1/6/2011	12:00	93	
12/2/2010	12:05	103	
11/9/2010	13:15	88	
10/7/2010	10:45	112	
9/13/2010	13:50	83	
8/5/2010	10:50	98	
7/8/2010	12:25	99	
6/10/2010	12:15	89	
5/6/2010	12:00	87	
4/1/2010	13:20	88	
3/4/2010	13:40	87	
2/4/2010	13:30	89	
1/7/2010	12:30	93	

Immediately prior to the change in purge frequency, the concentration in the A2 well during purging was 107 ppb. Since then, the concentration in the extracted water has ranged between 88 and 101 ppb, consistent with the data obtained prior to the frequency change. These data show that the change in purge frequency

¹ The September 2012 sample was also obtained before purging was commenced and, consequently, this data is not included. PLS will make sure that a sample is obtained after purging has begun during the next batch purge event.

has had little if any effect on concentrations in the A2 well during purging (one way or the other).² The slight decline and then recovery in concentrations that occurred in 2010 pre-dates both the change in purge frequency and any changes in purge rates in the Western Area.

3. *MDEQ Comment: Item 2 on page 7 states that, in calculating the mass removed during purging, PLS assumed that the concentration of 1,4-dioxane in the water purged was approximately 80 ppb. If this was based on the data cited above, it is likely to be underestimated by about 20 percent. The basis for this estimate should be provided and revised if needed.*

PLS Response: PLS' point was that the mass of 1,4-dioxane removed each purge event is small. PLS used 80 ug/L as an approximate concentration of 1,4-dioxane in the purge water. PLS' conclusion does not change if this number were to be slightly higher or lower as illustrated in the table below:

Purge Water 1,4-Dioxane Concentration (ug/L)	Mass Purged per Event (Pounds)
50	0.015
60	0.018
70	0.021
80	0.024
90	0.027
100	0.030

4. *MDEQ Comment: The Report claims there have been no significant changes in Little Lake Area (LLA) compliance monitoring wells (CMWs) and, therefore, the reduced frequency has not affected compliance with the non-expansion objective. The Report does not provide any information about how long it would take for the reduced purging to show an effect, if there were to be one. The DEQ does not have enough information to determine whether PLS' conclusion can be relied upon to predict the long-term effects of the reduced purging frequency.*

PLS Response: As PLS explained in its LLA Report, there is no scientific reason to believe that the change in purge frequency would have any effect on its ability to satisfy the non-expansion objective. PLS indicated the following in Paragraph 2 on Page 7 "Although purging of the A2 well appears to have helped reduce 1,4-dioxane levels at that specific location, purging 0.3 vs. 0.1 pounds of 1,4-dioxane per year is insignificant and would provide no conceivable risk reduction in the Little Lake Area or have any bearing on 1,4-dioxane levels at the Little Lake Area compliance wells." Effectiveness of the Little Lake Area remediation is being judged by the performance of the compliance wells. Even prior to initiation of any purging at the MW-53i/A2 location, 1,4-Dioxane concentrations in what are now the LLA compliance wells had been declining or stable for a considerable length of time. These trends have continued with no noticeable change since purging began in 2003. Trend graphs are provided in Attachment 2. If the change from no purging to monthly purging made no difference in compliance well concentrations, there is no reason whatsoever to believe that merely changing the purge frequency result in significant trend changes at the compliance wells. Moreover, even when concentrations of 1,4-dioxane at the MW-53i/A2 wells were at their peak levels (between 180 – 200 ug/L – more than double their current levels) the compliance well concentrations were well below 85

² PLS acknowledges that the A2 concentrations during purging have not significantly declined following the change in purge frequency as the previous inclusion of the 70 ppb sample from March 1, 2012 and the 77 ppb sample from June 7, 2012 had suggested.

ug/L. As such, it makes little sense that any slight increases in 1,4-dioxane concentrations at MW-53i/A2 would result in increasing the levels at the compliance wells to above 85 ug/L.

As previously observed, the batch purging program – whether monthly or quarterly – was never designed or intended to “capture” the leading edge of a migrating plume, precisely because the plume in this area is contracting, not expanding. The shrinking nature of the plume in this area was observed for many years before any purging occurred in the MW-53i/A2 area. Therefore, even if the minor change in mass removal caused somewhat higher concentrations to exist in the MW-53i/A2 well area, there is no reason to believe that such higher concentrations would suddenly start migrating toward the compliance wells. Predicting whether a minor change in the mass removal would result in a detectable change in the compliance well concentrations is an academic question that would be best answered using fate and transport modeling. Such work is unnecessary for the reasons PLS identified above. PLS would only consider such work if the 1,4-dioxane levels in the MW-53i/A2 well area exceeded their historic high levels (over 180 ug/L) and there was a scientifically valid concern that the level of 1,4-dioxane could exceed 85 ug/L at one of the compliance wells. One simple way to approach the question of how long it would take for a change to be detected is to only consider the groundwater flow velocity (advective transport). The groundwater flow velocity in the Little Lake area is approximately 233 feet/year (PLS Interim Response Work Plan Western System, January 24, 2006). The closest compliance well is MW-93 (approximately 230 feet from the MW-53i/A2 well area). This suggests that it would take approximately 1 year for the effects (if any) of a change in purge frequency to manifest itself at MW-93. Quarterly purging began in June, 2011, approximately 16 months ago. No changes in the concentrations in MW-93 have been observed. The time to reach other wells would be in the 3 to 3.5 year range.

5. *MDEQ Comment: The Report cites a rebound in water levels in the LLA that it attributes to a reduction of purging in the Western Area. Two graphs are provided that include the water level data from MW-53i. No other water level data or graphs are provided. A complete report, at a minimum, should include graphs of water level data from all monitoring wells in the LLA, and any other monitoring wells that are considered relevant to the evaluation.*

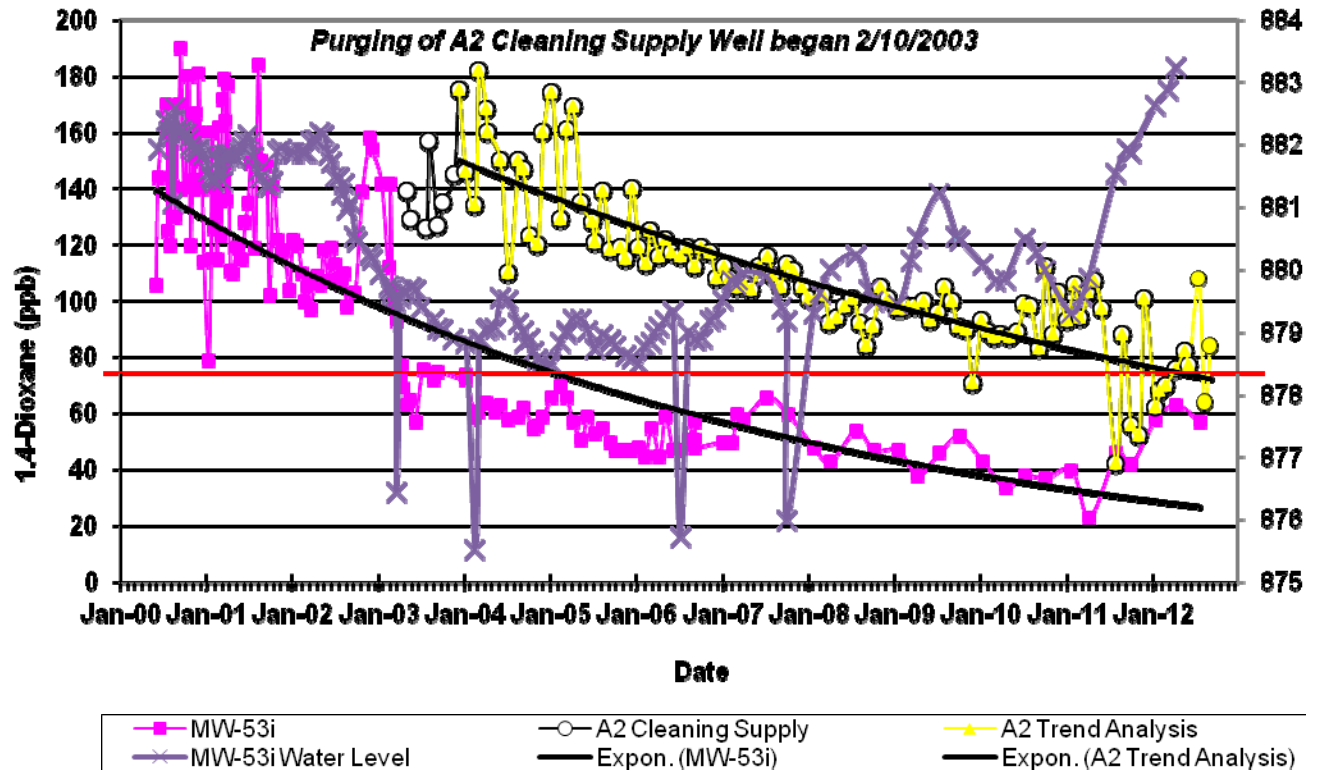
PLS Response: Water level and 1,4-dioxane trend graphs for other wells in the LLA are provided as Attachment 3. The low levels of 1,4-dioxane present in the LLA monitoring wells other than MW-53i/A2 make any correlation between increasing water levels and concentration levels difficult.

6. *MDEQ Comment: The first paragraph on page 6 provides two possible explanations for the increase in 1,4-dioxane in the A2CS well and MW-53i during non-purge sampling: 1) the reduced batch purging frequency or 2) the site-wide rise in water levels. PLS believes this increase is due to increasing water levels, which has been observed before. While this may be the case, it is not possible to draw such a conclusion since there were two known variables that could be affecting the observed increase in 1,4-dioxane concentrations. Continuation of the reduced purging frequency, in combination with increased concentrations during non-purge events, could potentially result in expansion of the plume. A return to monthly purging would allow PLS to better evaluate whether the increase is associated with increasing water levels or decreased purge frequency. Regardless of the cause of the increase in 1,4-dioxane during non-purging conditions, there is a possibility that these concentrations will continue to increase.*

PLS Response: Recent water quality data from MW-53i/A2 wells suggest the 1,4-dioxane levels in groundwater sampled from these wells are beginning to stabilize (see graph below). Before PLS initiated batch purging at the MW-53i/A2 location, concentrations were more than double their current level, while

the concentrations of 1,4-dioxane at what are now the LLA compliance wells were below 85 ug/L. As such, it defies reason to assume a slight increase of 1,4-dioxane at MW-53i/A2 would ever result in exceedances of 85 ug/L at the compliance wells.

Trend Analysis - All Data



Attachment 1 – Water Quality Data for the Ann Arbor Cleaning Supply Well (including sample times)

Analytical Data Report: A2 Cleaning Supply

Aquifer: D0	Date Installed: 09/12/2002	Boring Depth: 110.00 Feet bgl	Screen 1: 110.00 to 100.00 Feet
Map Location: L-8	Well Driller: Cribley	Ground Elevation: Unknown Feet	Screen 1 Length: 10.00
X Coordinate: 13272079.39	Well Type: Monitoring Wells	TOC Elevation: Unknown Feet	Screen 2: NA to NA Feet
Y Coordinate: 285515.50	Sampling Interval: Monthly	TOC to screen bottom: Unknown Feet	
	Static Interval: Not Set	Notes:	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
09/06/2012	08:00	84	1.0							
08/14/2012	14:45	64	1.0							
07/19/2012	15:05	108	1.0							
06/07/2012	08:05	77	1.0							
05/23/2012	09:30	82	1.0							
04/17/2012	09:30	76	1.0							
03/01/2012	08:00	70	1.0							
03/01/2012	12:05	98	1.0							
02/06/2012	11:00	68	1.0							
01/18/2012	14:50	62	1.0							
12/01/2011	13:10	101	1.0							
11/11/2011	14:30	52	1.0					13:30	46.28	
10/07/2011	11:45	56	1.0					10:45		
09/01/2011	10:00	88	1.0							
08/05/2011	11:20	42	1.0					10:45	47.95	
07/29/2011	08:55	45	1.0							
06/02/2011	13:00	97	1.0							
05/05/2011	11:20	107	1.0							
04/07/2011	12:00	103	1.0							
03/03/2011	13:10	94	1.0							
02/10/2011	12:15	106	1.0							
01/06/2011	12:00	93	1.0							

12/02/2010	12:05	103	1.0							
11/09/2010	13:15	88	1.0							
10/07/2010	10:45	112	1.0							
09/13/2010	13:50	83	1.0							
08/05/2010	10:50	98	1.0							
07/08/2010	12:25	99	1.0							
06/10/2010	12:15	89	1.0							
05/06/2010	12:00	87	1.0							
04/01/2010	13:20	88	1.0							
03/04/2010	13:40	87	1.0							
02/04/2010	13:30	89	1.0							
01/07/2010	12:30	93	1.0							
12/03/2009	13:40	71	1.0							
11/05/2009	14:00	90	1.0							
10/01/2009	13:45	91	1.0							
09/03/2009	12:25	100	1.0							
08/06/2009	10:10	105	1.0							
07/09/2009	12:30	96	1.0							
06/04/2009	14:50	93	1.0							
05/07/2009	13:40	100	1.0							
04/02/2009	14:35	98	1.0							
03/05/2009	13:00	98	1.0							
02/05/2009	12:05	97	1.0							
01/13/2009	13:50	97	1.0							
12/09/2008	11:45	101	1.0							
11/05/2008	12:10	105	1.0							
10/02/2008	13:20	91	1.0							
09/04/2008	12:10	84	1.0							
08/07/2008	12:05	92	1.0							
07/10/2008	12:25	101	1.0							
06/05/2008	13:30	98	1.0							
05/01/2008	14:00	94	1.0							
04/03/2008	13:15	92	1.0							
03/06/2008	12:00	102	1.0							
02/14/2008	12:50	93	1.0							
01/03/2008	13:50	101	1.0							

12/06/2007	13:05	105	1.0							
11/01/2007	12:00	111	1.0							
10/04/2007	08:30	113	1.0							
10/04/2007	11:47	108	1.0							
10/04/2007	14:30	106	1.0							
09/06/2007	13:05	105	1.0							
08/07/2007	14:30	109	1.0							
07/12/2007	12:30	116	1.0							
06/07/2007	13:10	112	1.0							
05/03/2007	13:30	104	1.0							
04/05/2007	12:00	106	1.0							
03/06/2007	13:30	105	1.0							
02/01/2007	12:30	108	1.0							
01/11/2007	13:10	112	1.0							
12/07/2006	12:00	108	1.0							
11/14/2006	12:00	117	1.0							
10/05/2006	11:35	119	1.0							
09/06/2006	12:20	112	1.0							
08/03/2006	11:30	119	1.0							
07/07/2006	11:35	116	1.0							
06/01/2006	13:30	117	1.0							
05/04/2006	12:55	122	1.0							
04/10/2006	16:50	116	1.0							
03/02/2006	11:23	125	1.0							
02/14/2006	15:37	113	1.0							
01/12/2006	14:35	119	1.0							
12/14/2005	11:26	140	1.0							
11/15/2005	11:55	115	1.0							
10/24/2005	14:30	119	1.0							
09/12/2005	11:45	118	1.0							
08/11/2005	15:00	139	1.0							
07/08/2005	14:31	121	1.0							
06/27/2005	11:25	128	1.0							
05/13/2005	16:45	135	1.0							
04/07/2005	18:15	169	1.0							
03/10/2005	14:15	161	1.0							

02/14/2005	10:15	129	1.0							
01/07/2005	14:20	174	1.0							
12/01/2004	14:15	160	1.0							
11/09/2004	14:02	120	1.0							
10/07/2004	11:35	123	1.0							
09/07/2004	15:00	147	1.0							
08/18/2004	10:12	150	1.0							
07/07/2004	11:59	110	1.0							
06/02/2004	10:38	150	1.0							
05/11/2004	13:48	160	1.0							
04/01/2004	13:25	168	1.0							
03/02/2004	14:45	182	1.0							
02/16/2004	08:45	134	1.0							
01/06/2004	09:33	146	1.0							
12/09/2003	10:22	175	1.0							
11/20/2003	08:15	145	1.0							
10/02/2003	08:47	135	1.0							
09/11/2003	09:34	127	1.0							
08/04/2003	08:21	157	1.0							
07/23/2003	08:19	126	1.0							
05/19/2003	15:02	129	1.0							
05/02/2003	11:31	139	1.0							

Attachment 2 – 1,4-Dioxane Trend Graphs for Compliance Monitoring Wells



Pall Corporation

Pall Corporation
600 Wagner Road
Ann Arbor, MI 48103-9019 US

Phone: 734.665.0651

Web: www.pall.com

Analytical Data Graph

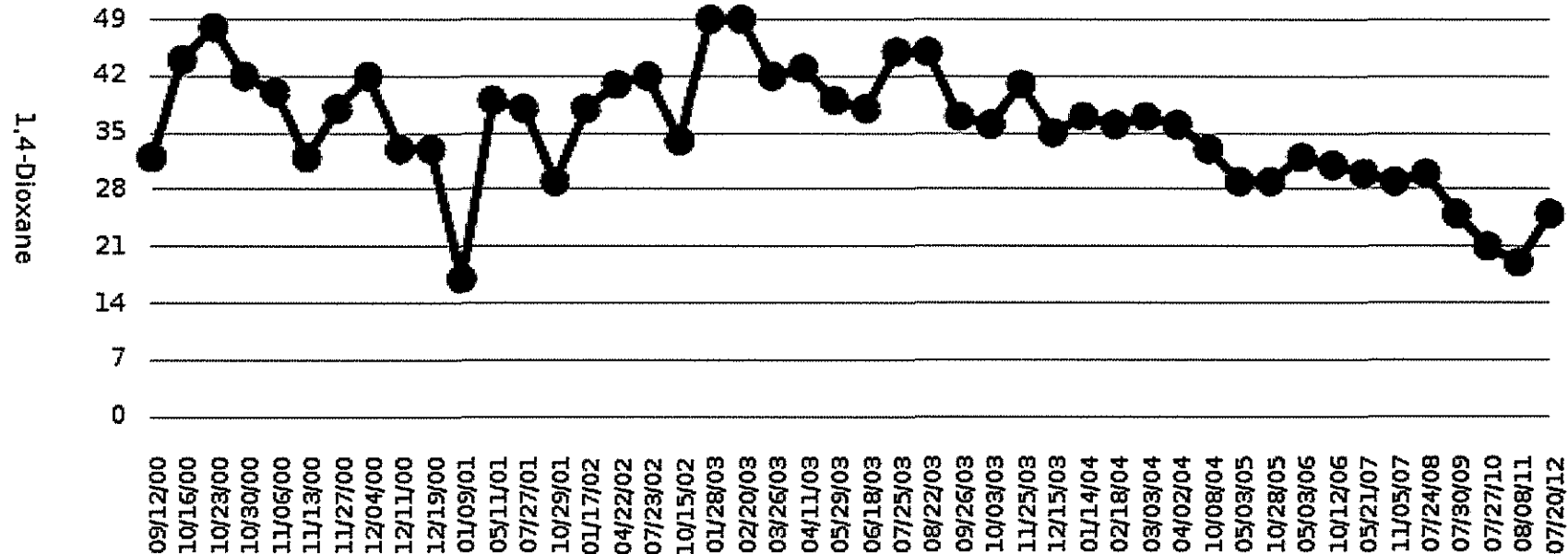
Printed: 10/23/2012

Well Name: MW-61s

Aquifer:	D0	Date Installed:	09/07/2000	Boring Depth:	78.00 Feet bgl	Screen 1:	78.00 to 68.00 Feet
Map Location:	J-7	Well Driller:	Stearns	Ground Elevation:	923.50 Feet	Screen Length:	10.00
X Coordinate:	13271309.11	Well Type:	Monitoring Wells	TOC Elevation:	922.51 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	286194.58	Sampling Interval:	Semi-Annual	TOC to screen bottom:	77.49 Feet		
Comments:							

1,4-Dioxane

■ Concentration (ppb)





Pall Corporation

Pall Corporation
600 Wagner Road
Ann Arbor, MI 48103-9019 US

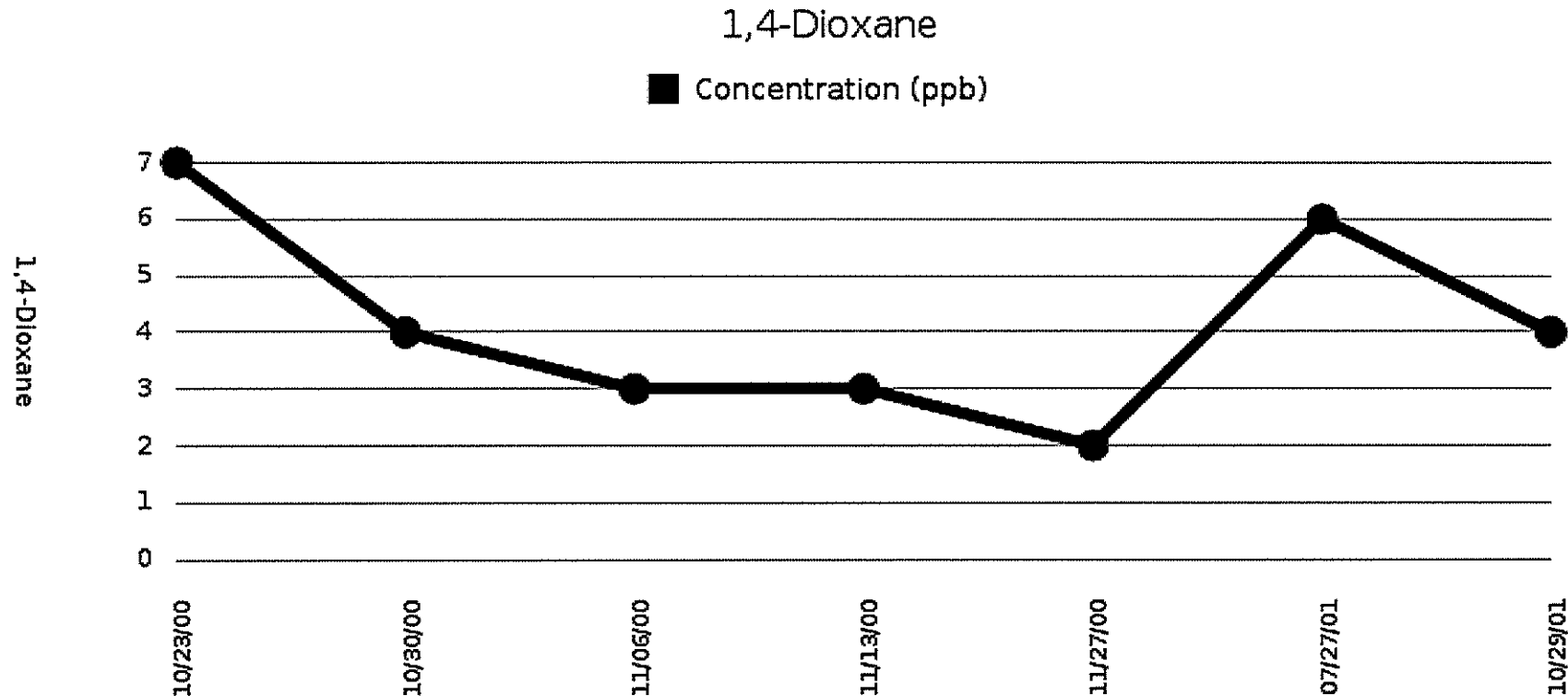
Phone: 734.665.0651
Web: www.pall.com

Analytical Data Graph

Printed: 10/23/2012

Well Name: MW-61d

Aquifer:	D0	Date Installed:	09/07/2000	Boring Depth:	171.00 Feet bgl	Screen 1:	136.00 to 126.00 Feet
Map Location:	J-7	Well Driller:	Stearns	Ground Elevation:	923.40 Feet	Screen Length:	10.00
X Coordinate:	13271323.30	Well Type:	Monitoring Wells	TOC Elevation:	922.37 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	286173.32	Sampling Interval:	Semi-Annual	TOC to screen bottom:	135.45 Feet		
Comments:							





Pall Corporation

Pall Corporation
600 Wagner Road
Ann Arbor, MI 48103-9019 US

Phone: 734.665.0651

Web: www.pall.com

Analytical Data Graph

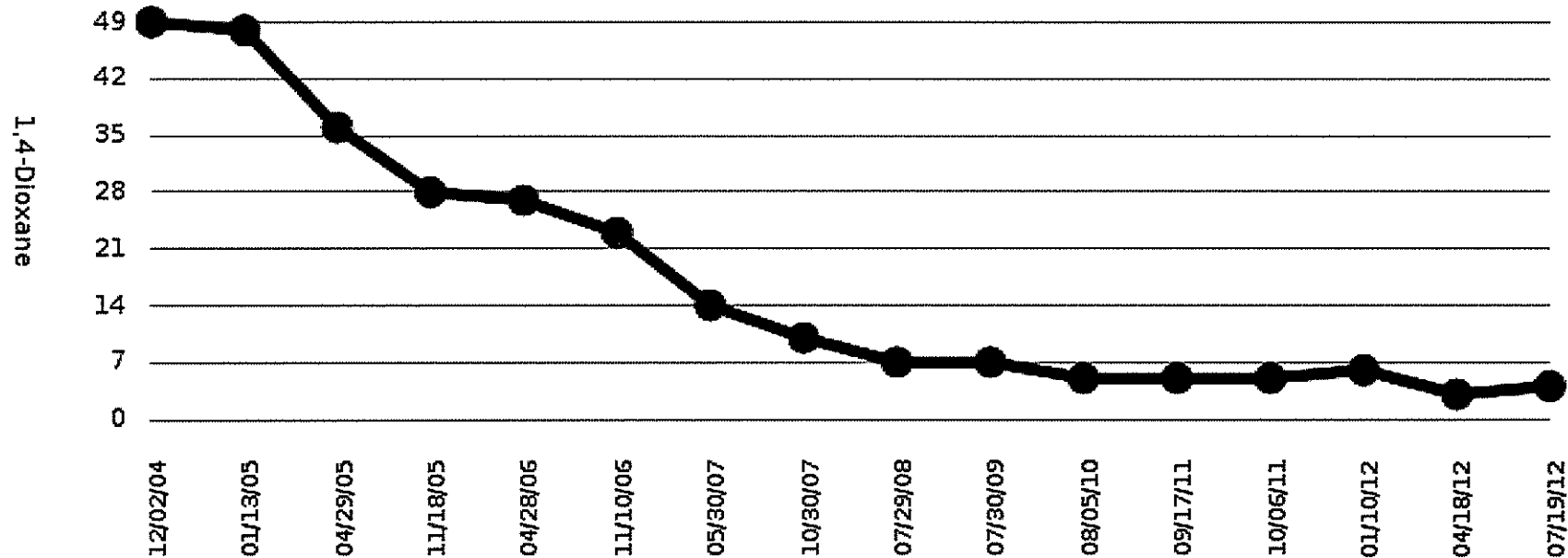
Printed: 10/23/2012

Well Name: MW-93

Aquifer:	D0	Date Installed:	11/17/2004	Boring Depth:	142.00 Feet bgl	Screen 1:	65.00 to 60.00 Feet
Map Location:	K-8	Well Driller:	Stearns	Ground Elevation:	921.00 Feet	Screen Length:	5.00
X Coordinate:	13272008.00	Well Type:	Monitoring Wells	TOC Elevation:	919.89 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	285815.00	Sampling Interval:	Quarterly	TOC to screen bottom:	65.00 Feet		
Comments:							

1,4-Dioxane

■ Concentration (ppb)





Pall Corporation

Pall Corporation
600 Wagner Road
Ann Arbor, MI 48103-9019 US

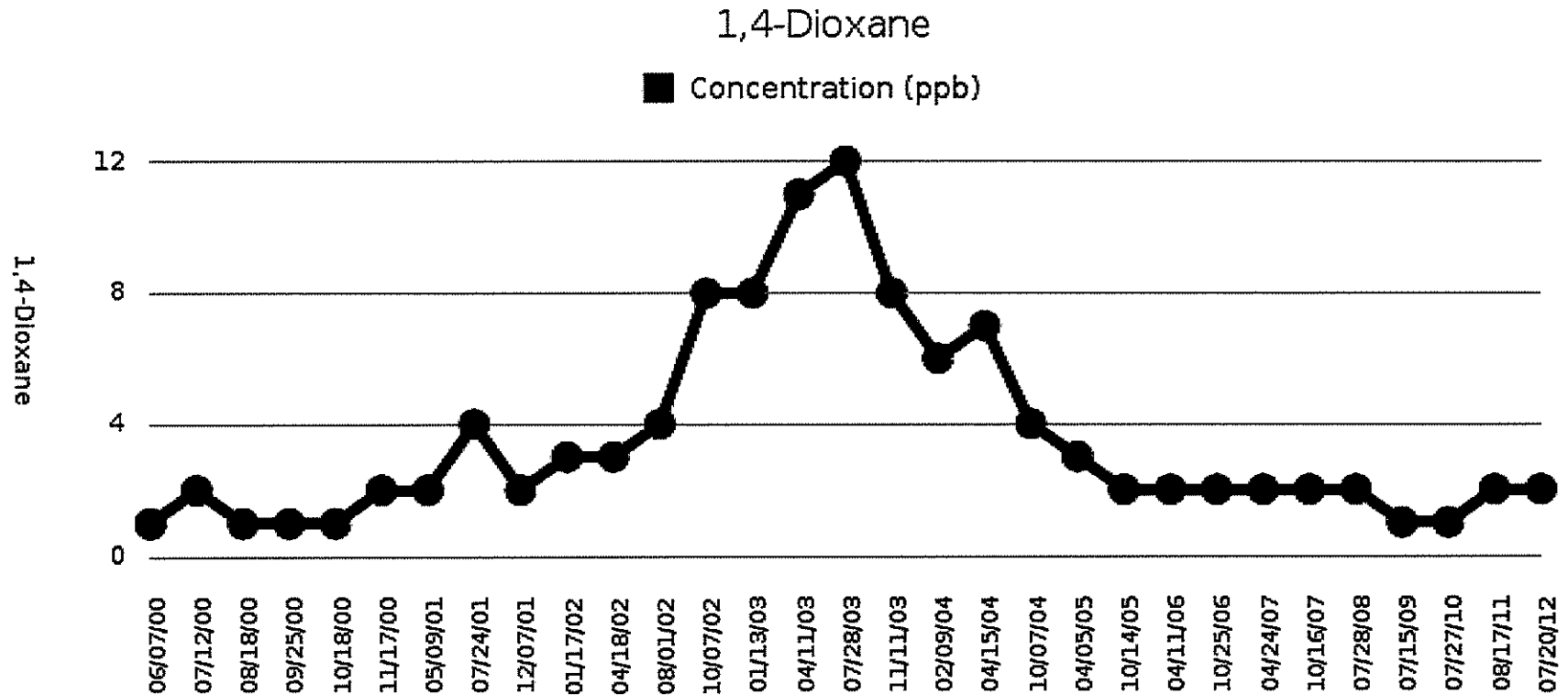
Phone: 734.665.0651
Web: www.pall.com

Analytical Data Graph

Printed: 10/23/2012

Well Name: 4601 Park 4 inch

Aquifer:	D0	Date Installed:		Boring Depth:	Unknown Feet bgl	Screen 1:	Unknown to Unknown Feet
Map Location:	L-6	Well Driller:		Ground Elevation:	899.81 Feet	Screen Length:	Unknown
X Coordinate:	13271049.00	Well Type:	Residential Wells	TOC Elevation:	Unknown Feet	Screen 2:	NA to NA Feet
Y Coordinate:	285553.00	Sampling Interval:	Semi-Annual	TOC to screen bottom:	52.00 Feet		
Comments:							





Pall Corporation

Pall Corporation
600 Wagner Road
Ann Arbor, MI 48103-9019 US

Phone: 734.665.0651
Web: www.pall.com

Analytical Data Graph

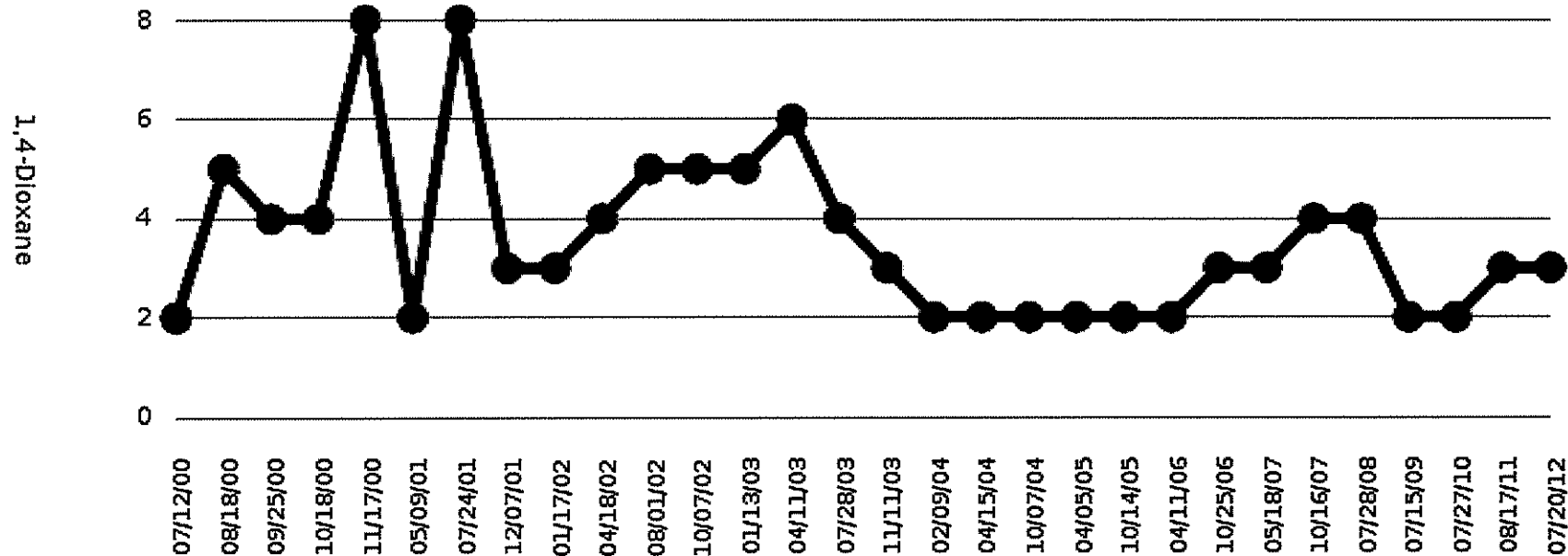
Printed: 10/23/2012

Well Name: 4601 Park 6 inch

Aquifer:	D0	Date Installed:		Boring Depth:	Unknown Feet bgl	Screen 1:	Unknown to Unknown Feet
Map Location:	K-6	Well Driller:		Ground Elevation:	Unknown Feet	Screen Length:	Unknown
X Coordinate:	13271049.00	Well Type:	Residential Wells	TOC Elevation:	Unknown Feet	Screen 2:	NA to NA Feet
Y Coordinate:	285553.00	Sampling Interval:	Semi-Annual	TOC to screen bottom:	42.00 Feet		
Comments:							

1,4-Dioxane

■ Concentration (ppb)



Attachment 3 – Water Level and 1,4-Dioxane Trend Graphs for Selected Little Lake Area Wells



Pall Corporation

Pall Corporation
600 Wagner Road
Ann Arbor, MI 48103-9019 US

Phone: 734.665.0651
Web: www.pall.com

Water Level Elevation Graph

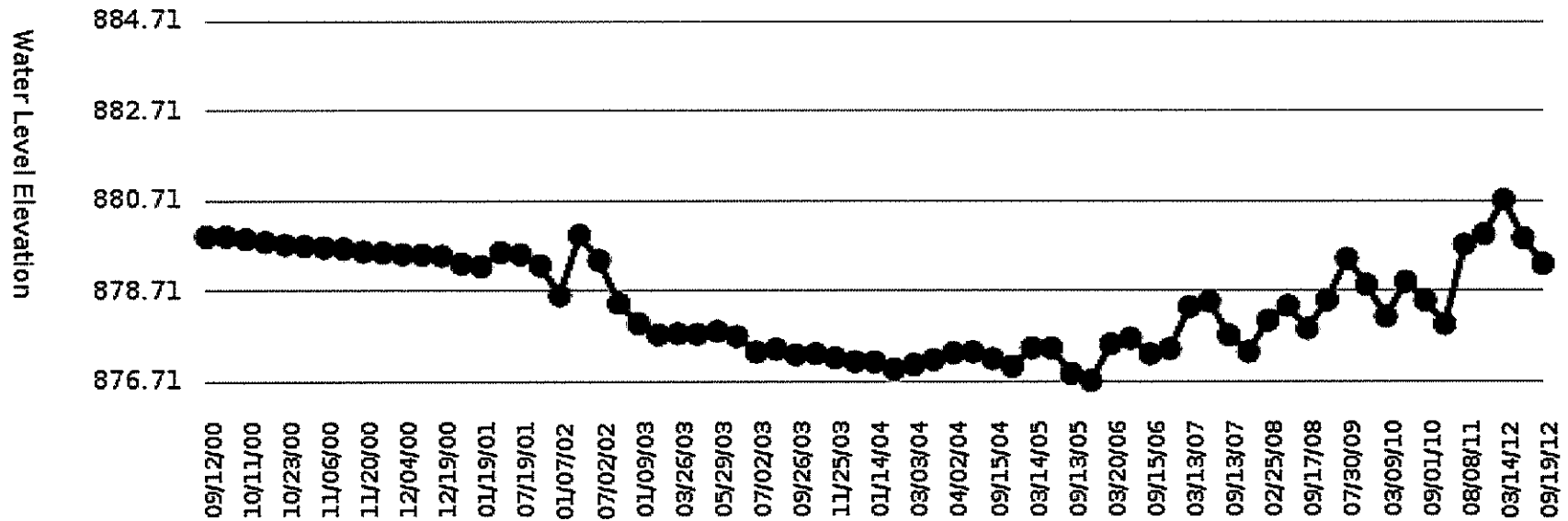
Printed: 10/18/2012

Well Name: MW-61s

Aquifer:	D0	Date Installed:	09/07/2000	Boring Depth:	78.00 Feet bgl	Screen 1:	78.00 to 68.00 Feet
Map Location:	J-7	Well Driller:	Stearns	Ground Elevation:	923.50 Feet	Screen Length:	10.00
X Coordinate:	13271309.11	Well Type:	Monitoring Wells	TOC Elevation:	922.51 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	286194.58	Sampling Interval:	Semi-Annual	TOC to screen bottom:	77.49 Feet		
Comments:							

Water Level Elevation History

■ Water Level Elevation





Pall Corporation

Pall Corporation
600 Wagner Road
Ann Arbor, MI 48103-9019 US

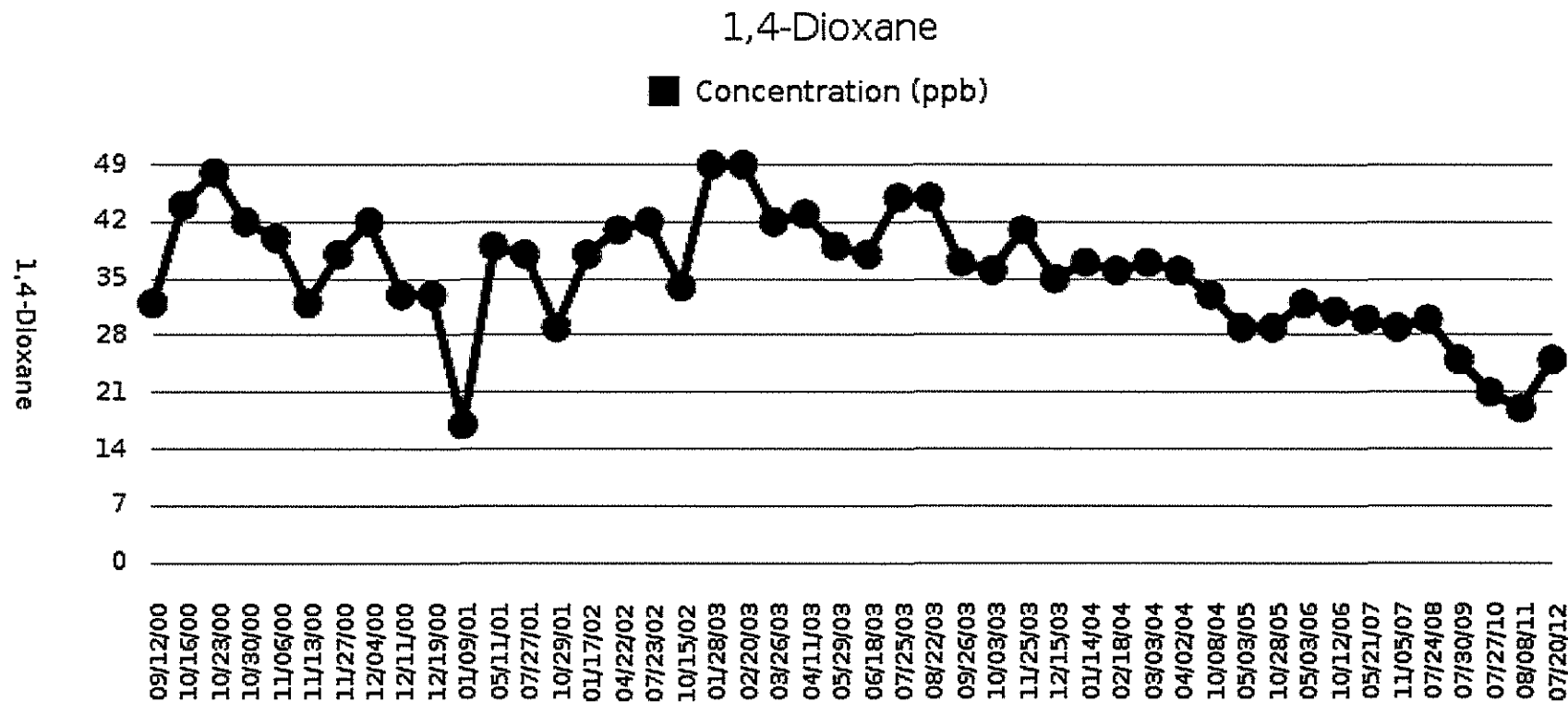
Phone: 734.665.0651
Web: www.pall.com

Analytical Data Graph

Printed: 10/18/2012

Well Name: MW-61s

Aquifer:	D0	Date Installed:	09/07/2000	Boring Depth:	78.00 Feet bgl	Screen 1:	78.00 to 68.00 Feet
Map Location:	J-7	Well Driller:	Stearns	Ground Elevation:	923.50 Feet	Screen Length:	10.00
X Coordinate:	13271309.11	Well Type:	Monitoring Wells	TOC Elevation:	922.51 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	286194.58	Sampling Interval:	Semi-Annual	TOC to screen bottom:	77.49 Feet		
Comments:							





Pall Corporation

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Ann Arbor, MI 48103-9019 US
Phone: 734.665.0651
Web: www.pall.com

Water Level Elevation Graph

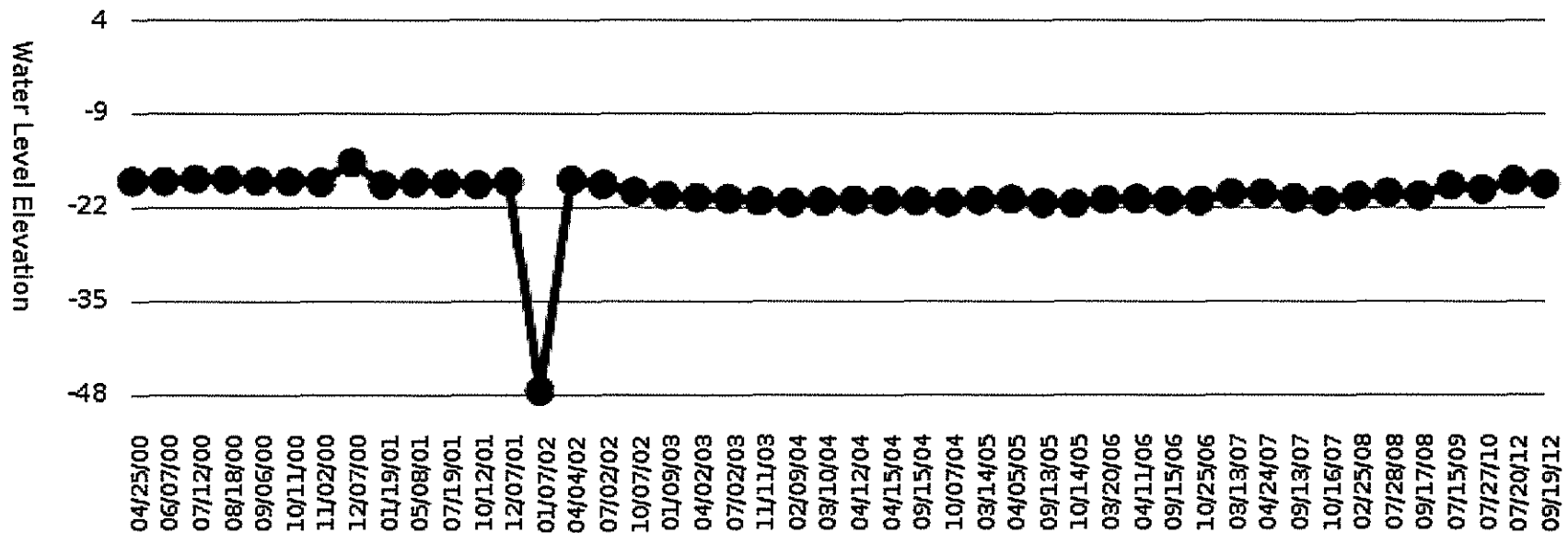
Printed: 10/19/2012

Well Name: 4601 Park 4 inch

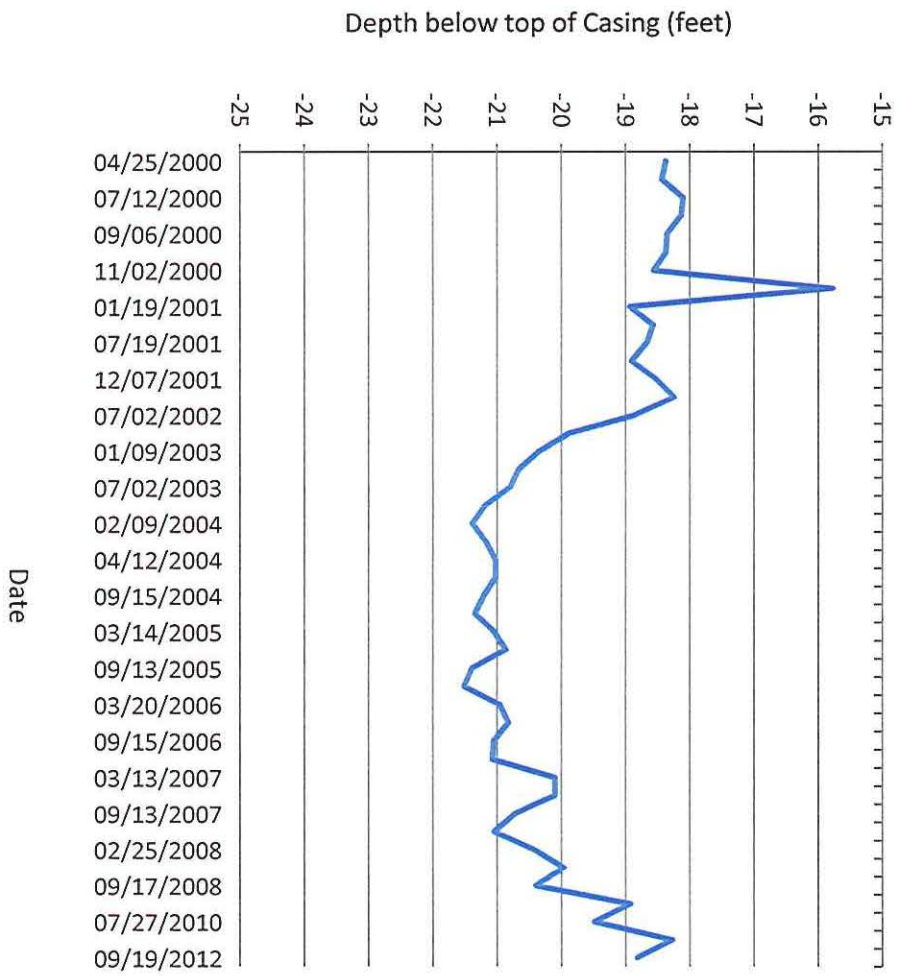
Aquifer:	D0	Date Installed:		Boring Depth:	Unknown Feet bgl	Screen 1:	Unknown to Unknown Feet
Map Location:	L-6	Well Driller:		Ground Elevation:	899.81 Feet	Screen Length:	Unknown
X Coordinate:	13271049.00	Well Type:	Residential Wells	TOC Elevation:	Unknown Feet	Screen 2:	NA to NA Feet
Y Coordinate:	285553.00	Sampling Interval:	Semi-Annual	TOC to screen bottom:	52.00 Feet		
Comments:							

Water Level Elevation History

■ Water Level Elevation



4601 Park 4-inch well





Pall Corporation

Pall Corporation
600 Wagner Road
Ann Arbor, MI 48103-9019 US

Phone: 734.665.0651

Web: www.pall.com

Analytical Data Graph

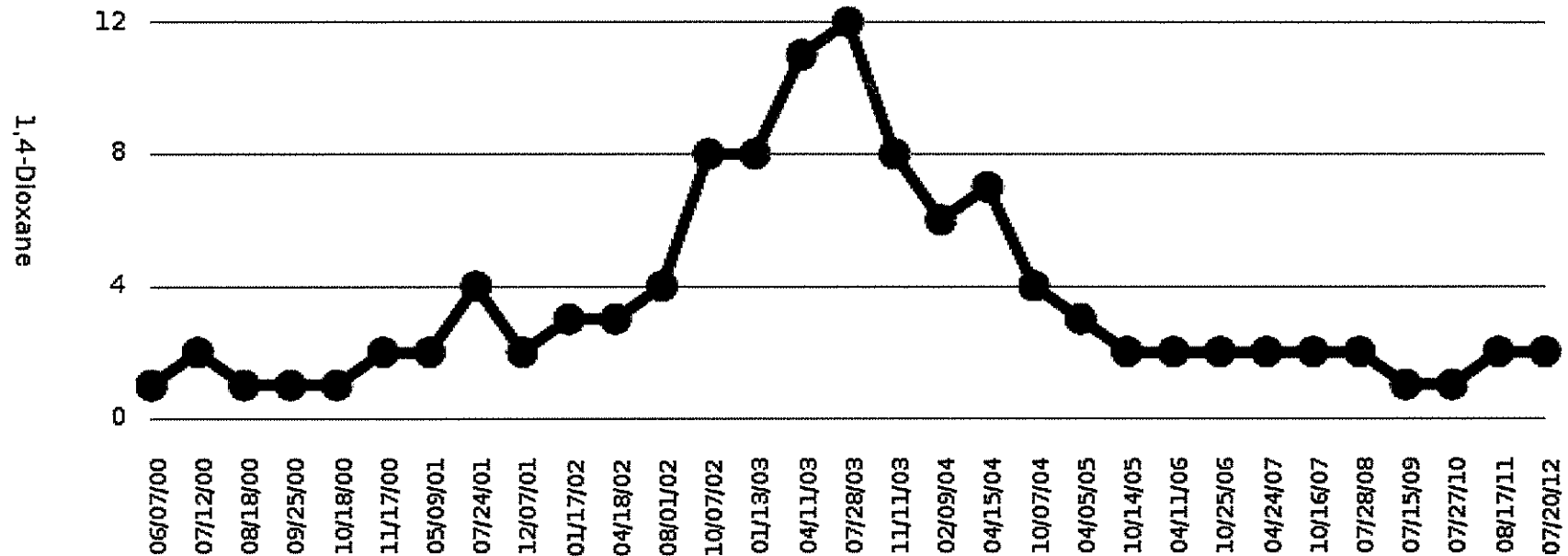
Printed: 10/18/2012

Well Name: 4601 Park 4 inch

Aquifer:	D0	Date Installed:		Boring Depth:	Unknown Feet bgl	Screen 1:	Unknown to Unknown Feet
Map Location:	L-6	Well Driller:		Ground Elevation:	899.81 Feet	Screen Length:	Unknown
X Coordinate:	13271049.00	Well Type:	Residential Wells	TOC Elevation:	Unknown Feet	Screen 2:	NA to NA Feet
Y Coordinate:	285553.00	Sampling Interval:	Semi-Annual	TOC to screen bottom:	52.00 Feet		
Comments:							

1,4-Dioxane

■ Concentration (ppb)





Pall Corporation

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600 Wagner Road
Ann Arbor, MI 48103-9019 US

Phone: 734.665.0651

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Water Level Elevation Graph

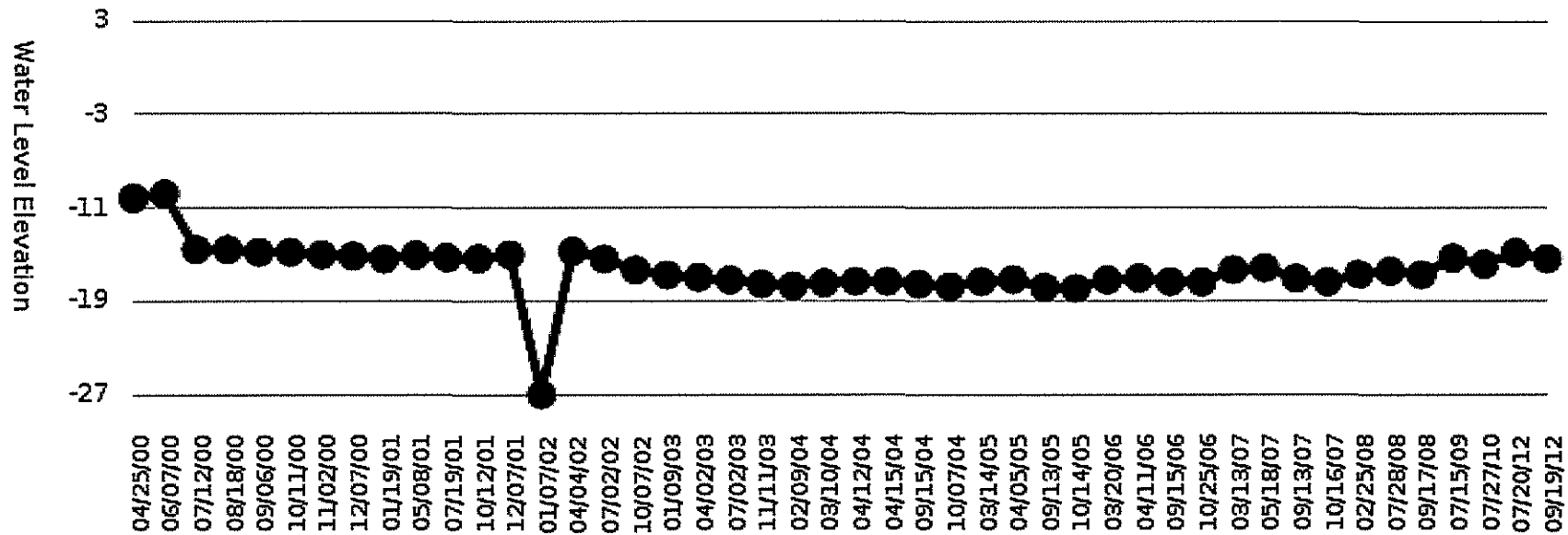
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Well Name: 4601 Park 6 inch

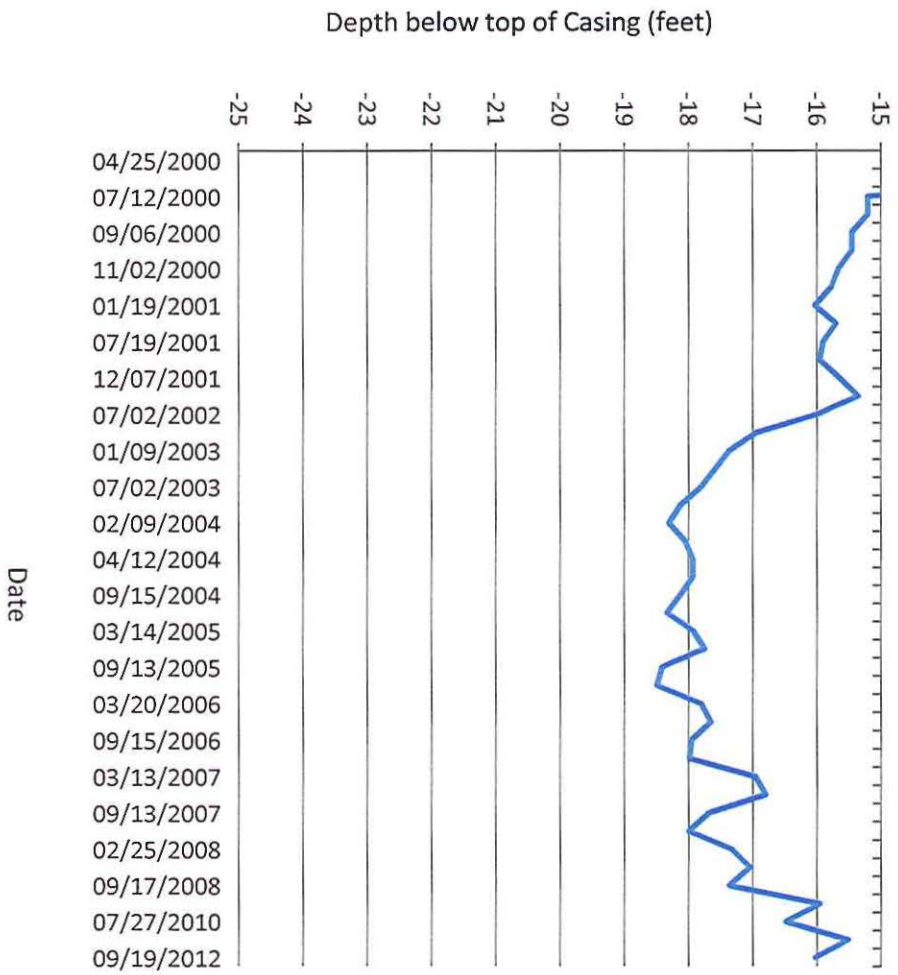
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Map Location:	K-6	Well Driller:		Ground Elevation:	Unknown Feet	Screen Length:	Unknown
X Coordinate:	13271049.00	Well Type:	Residential Wells	TOC Elevation:	Unknown Feet	Screen 2:	NA to NA Feet
Y Coordinate:	285553.00	Sampling Interval:	Semi-Annual	TOC to screen bottom:	42.00 Feet		
Comments:							

Water Level Elevation History

■ Water Level Elevation



4601 Park 6-inch well





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Pall Corporation
600 Wagner Road
Ann Arbor, MI 48103-9019 US
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Analytical Data Graph

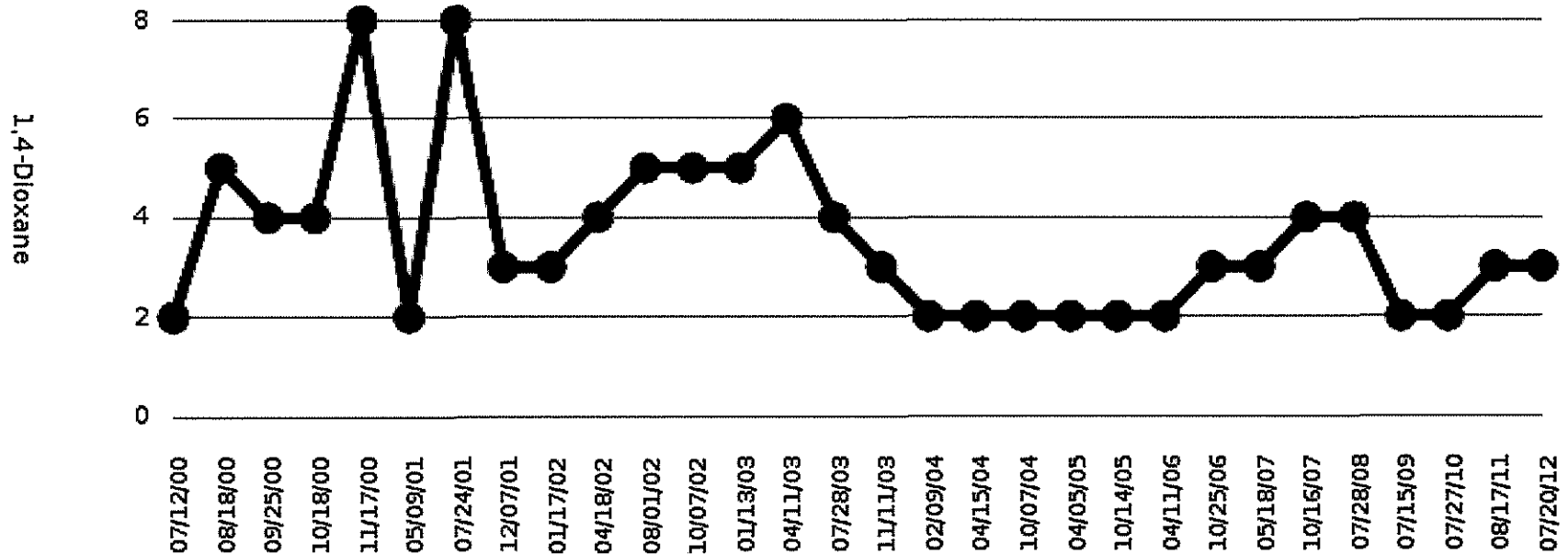
Printed: 10/18/2012

Well Name: 4601 Park 6 inch

Aquifer:	D0	Date Installed:		Boring Depth:	Unknown Feet bgl	Screen 1:	Unknown to Unknown Feet
Map Location:	K-6	Well Driller:		Ground Elevation:	Unknown Feet	Screen Length:	Unknown
X Coordinate:	13271049.00	Well Type:	Residential Wells	TOC Elevation:	Unknown Feet	Screen 2:	NA to NA Feet
Y Coordinate:	285553.00	Sampling Interval:	Semi-Annual	TOC to screen bottom:	42.00 Feet		
Comments:							

1,4-Dioxane

■ Concentration (ppb)





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Ann Arbor, MI 48103-9019 US

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Water Level Elevation Graph

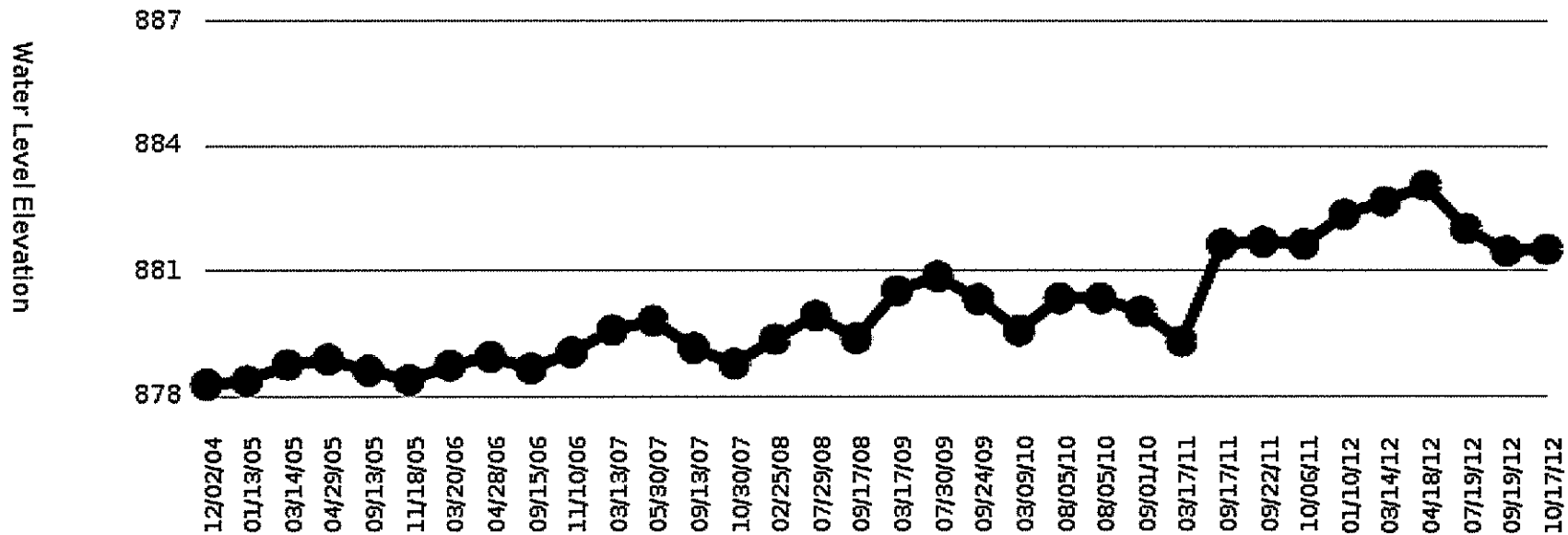
Printed: 10/19/2012

Well Name: MW-93

Aquifer:	D0	Date Installed:	11/17/2004	Boring Depth:	142.00 Feet bgl	Screen 1:	65.00 to 60.00 Feet
Map Location:	K-8	Well Driller:	Stearns	Ground Elevation:	921.00 Feet	Screen Length:	5.00
X Coordinate:	13272008.00	Well Type:	Monitoring Wells	TOC Elevation:	919.89 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	285815.00	Sampling Interval:	Quarterly	TOC to screen bottom:	65.00 Feet		
Comments:							

Water Level Elevation History

■ Water Level Elevation





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600 Wagner Road
Ann Arbor, MI 48103-9019 US

Phone: 734.665.0651
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Analytical Data Graph

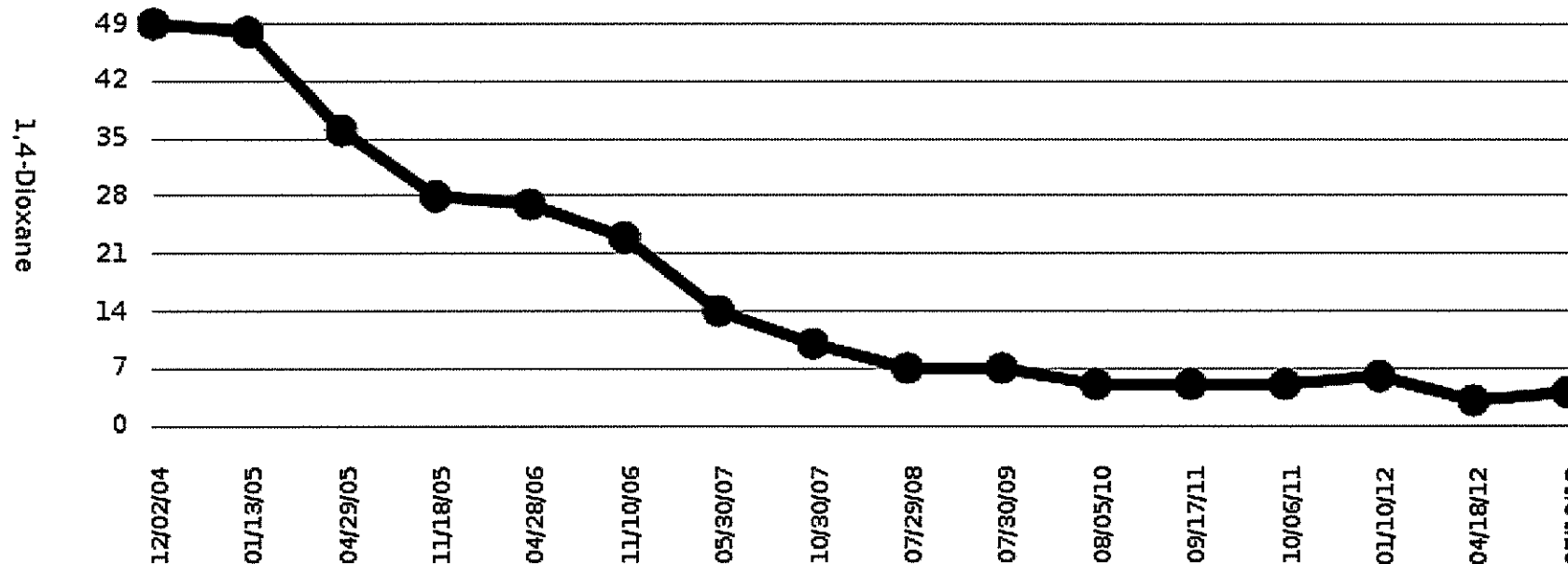
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Well Name: MW-93

Aquifer:	D0	Date Installed:	11/17/2004	Boring Depth:	142.00 Feet bgl	Screen 1:	65.00 to 60.00 Feet
Map Location:	K-8	Well Driller:	Stearns	Ground Elevation:	921.00 Feet	Screen Length:	5.00
X Coordinate:	13272008.00	Well Type:	Monitoring Wells	TOC Elevation:	919.89 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	285815.00	Sampling Interval:	Quarterly	TOC to screen bottom:	65.00 Feet		
Comments:							

1,4-Dioxane

■ Concentration (ppb)





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Ann Arbor, MI 48103-9019 US

Phone: 734.665.0651

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Water Level Elevation Graph

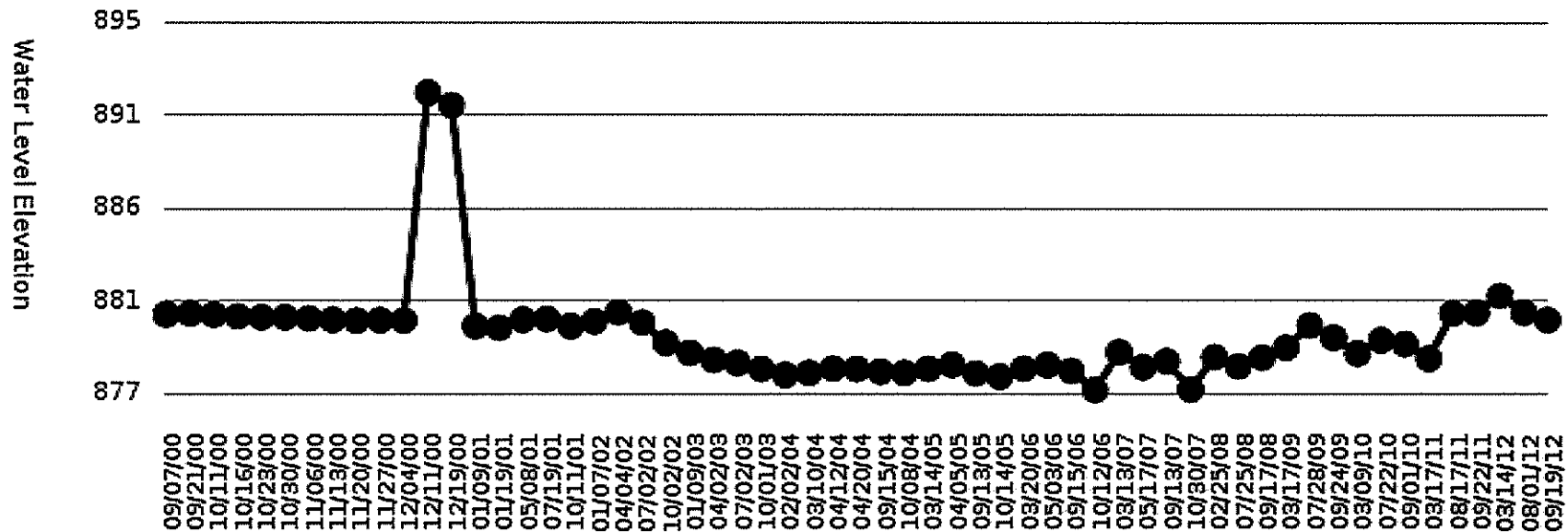
Printed: 10/19/2012

Well Name: MW-60

Aquifer:	D0	Date Installed:	08/30/2000	Boring Depth:	141.00 Feet bgl	Screen 1:	90.00 to 80.00 Feet
Map Location:	J-8	Well Driller:	Stearns	Ground Elevation:	936.40 Feet	Screen Length:	10.00
X Coordinate:	13272170.95	Well Type:	Monitoring Wells	TOC Elevation:	935.26 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	286194.58	Sampling Interval:	Annual	TOC to screen bottom:	89.50 Feet		
Comments:	4401 Park						

Water Level Elevation History

■ Water Level Elevation





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Pall Corporation
600 Wagner Road
Ann Arbor, MI 48103-9019 US

Phone: 734.665.0651

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Analytical Data Graph

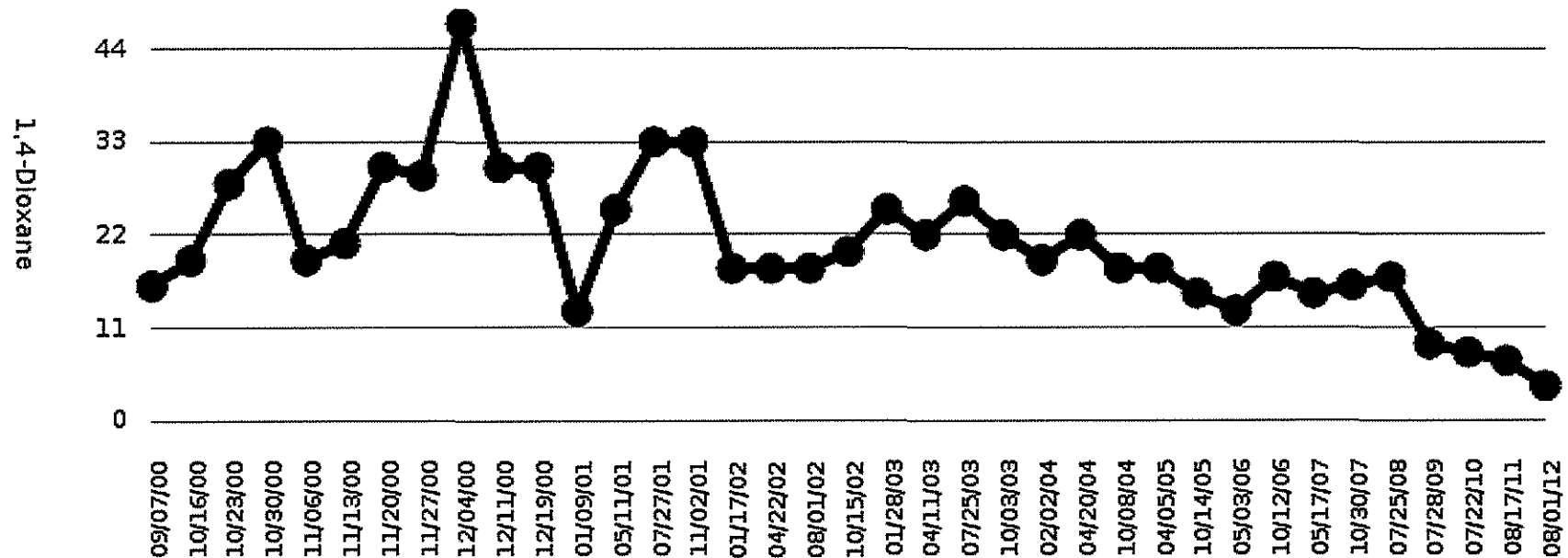
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Well Name: MW-60

Aquifer:	D0	Date Installed:	08/30/2000	Boring Depth:	141.00 Feet bgl	Screen 1:	90.00 to 80.00 Feet
Map Location:	J-8	Well Driller:	Stearns	Ground Elevation:	936.40 Feet	Screen Length:	10.00
X Coordinate:	13272170.95	Well Type:	Monitoring Wells	TOC Elevation:	935.26 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	286194.58	Sampling Interval:	Annual	TOC to screen bottom:	89.50 Feet		
Comments:	4401 Park						

1,4-Dioxane

■ Concentration (ppb)





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600 Wagner Road
Ann Arbor, MI 48103-9019 US

Phone: 734.665.0651

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Water Level Elevation Graph

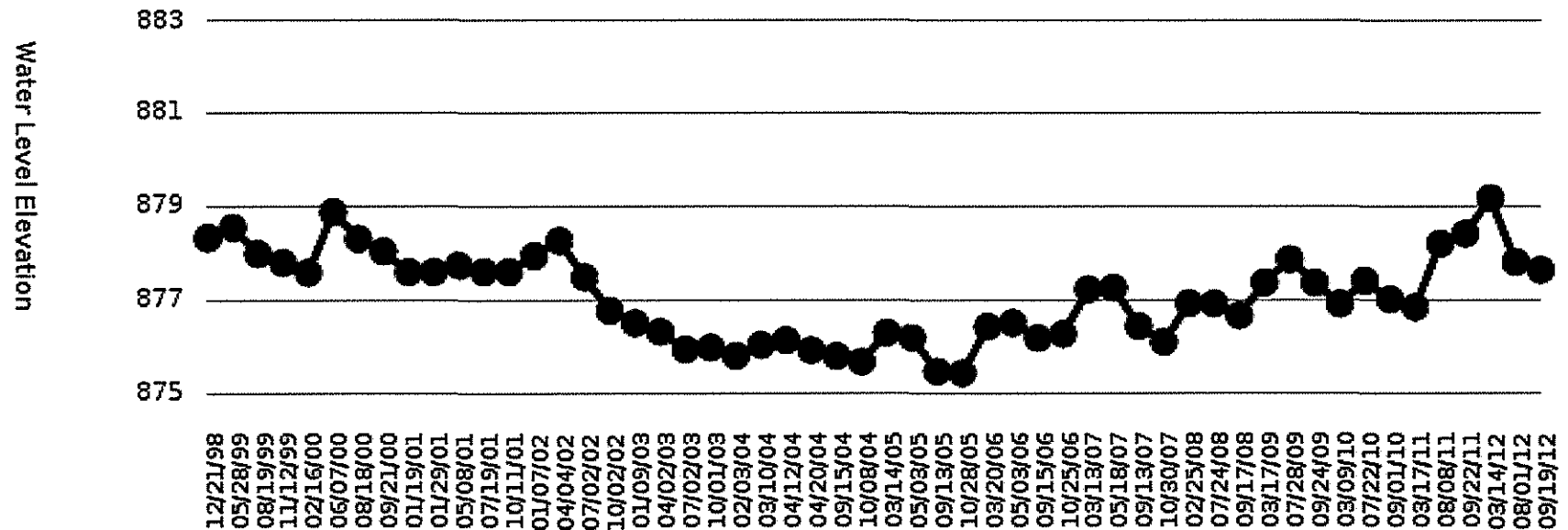
Printed: 10/18/2012

Well Name: 4742 Park Rd

Aquifer:	D0	Date Installed:	10/10/1983	Boring Depth:	50.00 Feet bgl	Screen 1:	50.00 to 46.00 Feet
Map Location:	J-5	Well Driller:	Ann Arbor Well	Ground Elevation:	888.23 Feet	Screen Length:	4.00
X Coordinate:	13270453.00	Well Type:	Residential Wells	TOC Elevation:	888.75 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	286419.50	Sampling Interval:	Annual	TOC to screen bottom:	51.00 Feet		
Comments:							

Water Level Elevation History

■ Water Level Elevation





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600 Wagner Road
Ann Arbor, MI 48103-9019 US

Phone: 734.665.0651

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Analytical Data Graph

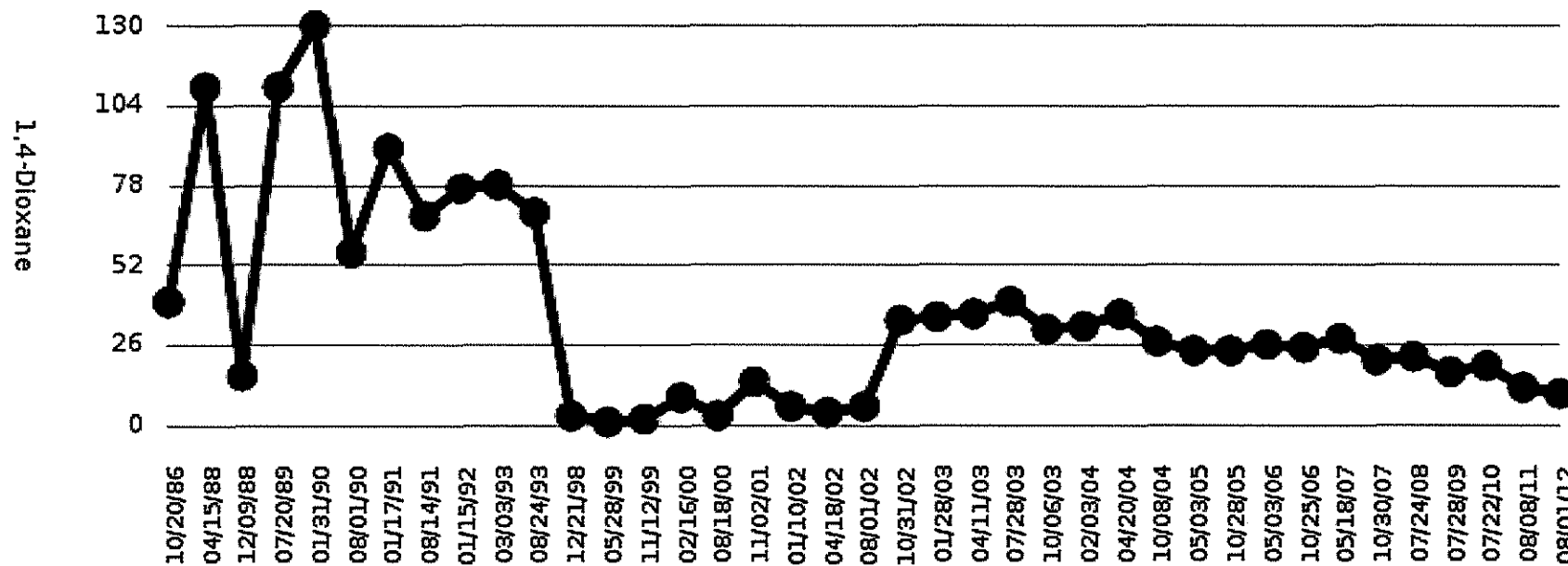
Printed: 10/18/2012

Well Name: 4742 Park Rd

Aquifer:	D0	Date Installed:	10/10/1983	Boring Depth:	50.00 Feet bgl	Screen 1:	50.00 to 46.00 Feet
Map Location:	J-5	Well Driller:	Ann Arbor Well	Ground Elevation:	888.23 Feet	Screen Length:	4.00
X Coordinate:	13270453.00	Well Type:	Residential Wells	TOC Elevation:	888.75 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	286419.50	Sampling Interval:	Annual	TOC to screen bottom:	51.00 Feet		
Comments:							

1,4-Dioxane

■ Concentration (ppb)





Pall Corporation

Pall Corporation
600 Wagner Road
Ann Arbor, MI 48103-9019 US

Phone: 734.665.0651
Web: www.pall.com

Water Level Elevation Graph

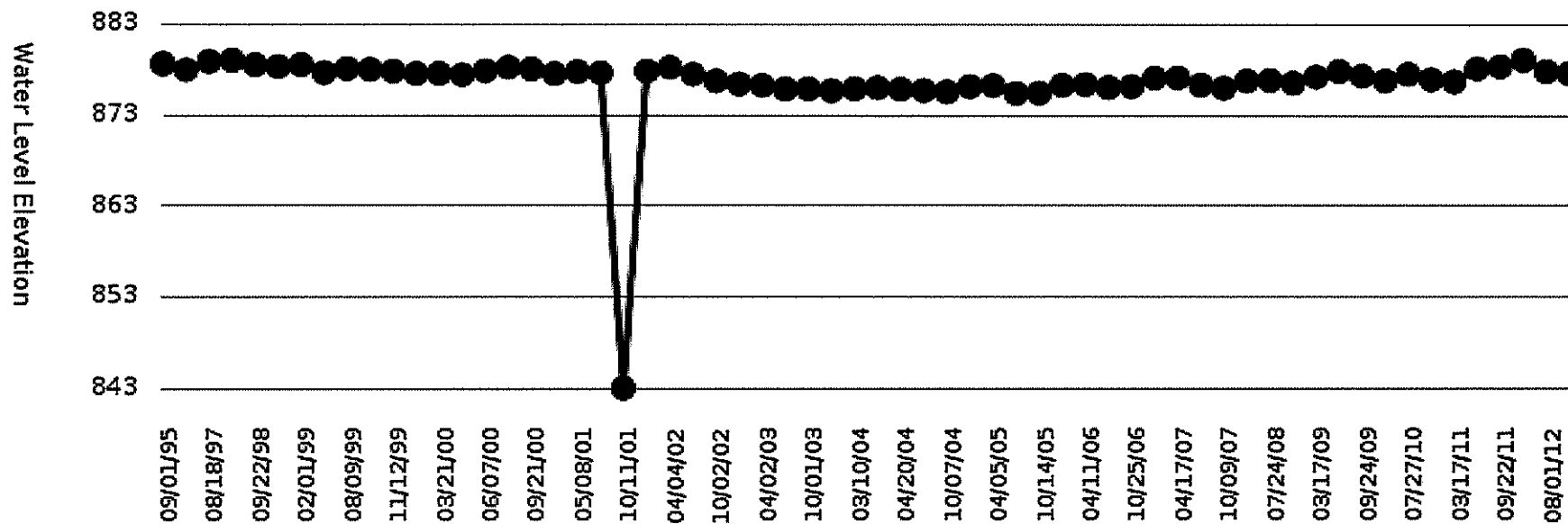
Printed: 10/18/2012

Well Name: MW-31

Aquifer:	D0	Date Installed:	06/16/1989	Boring Depth:	65.00 Feet bgl	Screen 1:	65.00 to 60.00 Feet
Map Location:	J-6	Well Driller:	T & T Drilling	Ground Elevation:	884.08 Feet	Screen Length:	5.00
X Coordinate:	13270905.00	Well Type:	Monitoring Wells	TOC Elevation:	887.05 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	286465.00	Sampling Interval:	Annual	TOC to screen bottom:	68.00 Feet		
Comments:							

Water Level Elevation History

■ Water Level Elevation





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Pall Corporation
600 Wagner Road
Ann Arbor, MI 48103-9019 US

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Analytical Data Graph

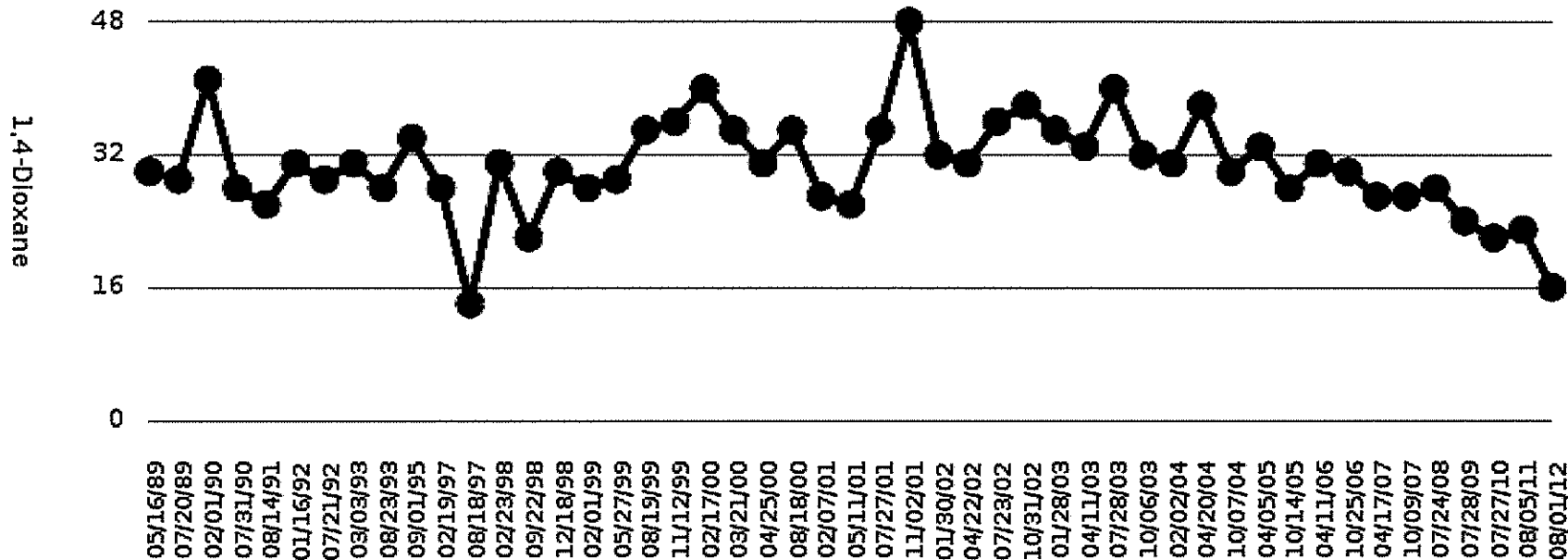
Printed: 10/19/2012

Well Name: MW-31

Aquifer:	D0	Date Installed:	06/16/1989	Boring Depth:	65.00 Feet bgl	Screen 1:	65.00 to 60.00 Feet
Map Location:	J-6	Well Driller:	T & T Drilling	Ground Elevation:	884.08 Feet	Screen Length:	5.00
X Coordinate:	13270905.00	Well Type:	Monitoring Wells	TOC Elevation:	887.05 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	286465.00	Sampling Interval:	Annual	TOC to screen bottom:	68.00 Feet		
Comments:							

1,4-Dioxane

■ Concentration (ppb)





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Ann Arbor, MI 48103-9019 US

Phone: 734.665.0651

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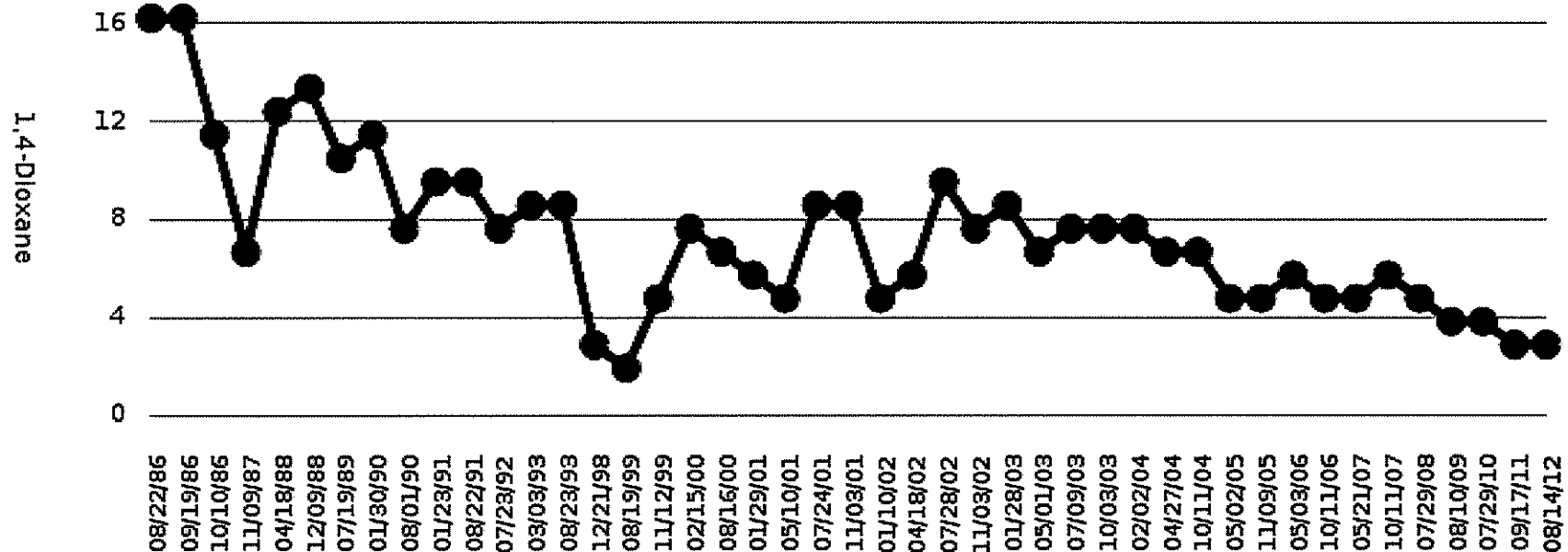
Printed: 10/18/2012

Well Name: 110 Parkland Plaza

Aquifer:	D0	Date Installed:	08/14/1982	Boring Depth:	91.00 Feet bgl	Screen 1:	91.00 to 80.20 Feet
Map Location:	K-10	Well Driller:	O.O. Corsaut Inc.	Ground Elevation:	936.87 Feet	Screen Length:	10.00
X Coordinate:	13272829.00	Well Type:	Residential Wells	TOC Elevation:	936.18 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	285907.00	Sampling Interval:	Annual	TOC to screen bottom:	94.50 Feet		
Comments:							

1,4-Dioxane

■ Concentration (ppb)





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Ann Arbor, MI 48103-9019 US

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Water Level Elevation Graph

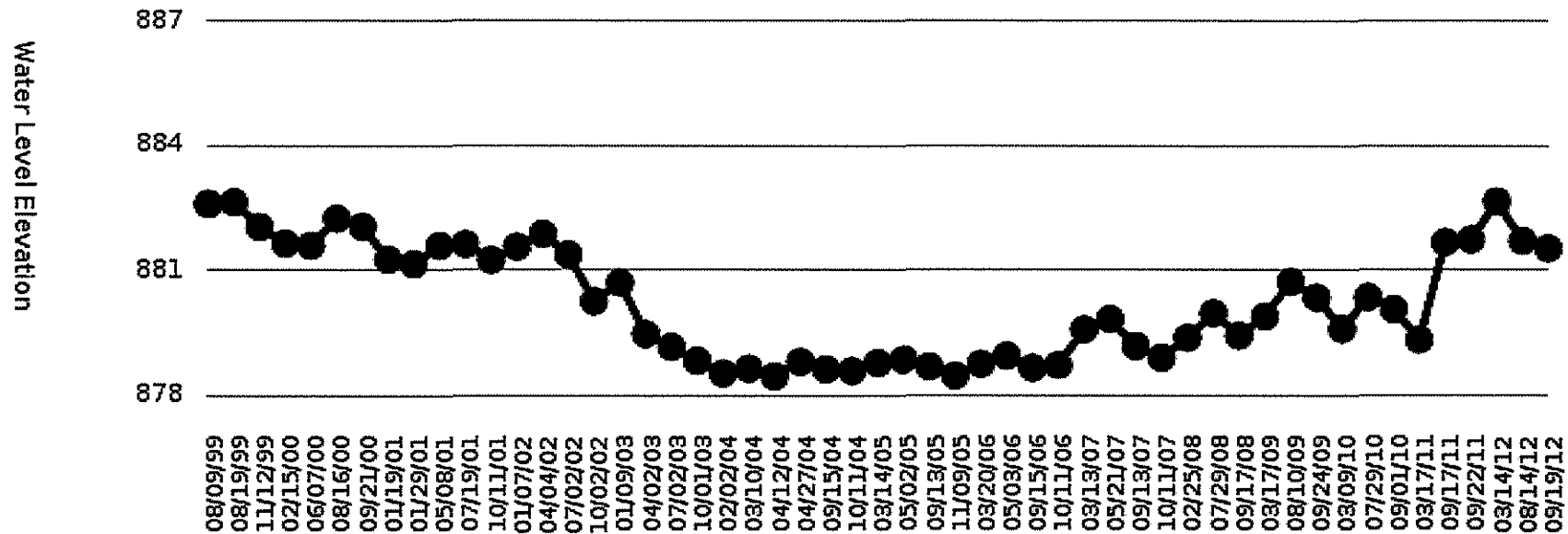
Printed: 10/18/2012

Well Name: 110 Parkland Plaza

Aquifer:	D0	Date Installed:	08/14/1982	Boring Depth:	91.00 Feet bgl	Screen 1:	91.00 to 80.20 Feet
Map Location:	K-10	Well Driller:	O.O. Corsaut Inc.	Ground Elevation:	936.87 Feet	Screen Length:	10.00
X Coordinate:	13272829.00	Well Type:	Residential Wells	TOC Elevation:	936.18 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	285907.00	Sampling Interval:	Annual	TOC to screen bottom:	94.50 Feet		
Comments:							

Water Level Elevation History

■ Water Level Elevation





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Ann Arbor, MI 48103-9019 US
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Water Level Elevation Graph

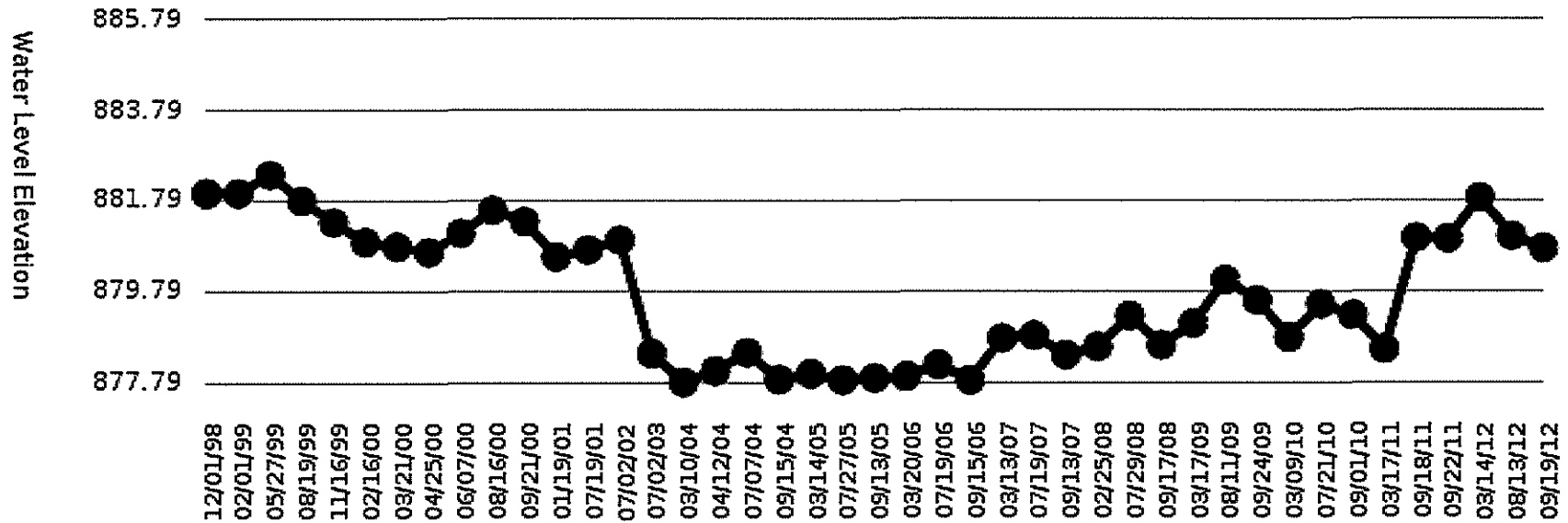
Printed: 10/19/2012

Well Name: 4141 Jackson Rd

Aquifer:	D0	Date Installed:	03/02/1979	Boring Depth:	98.00 Feet bgl	Screen 1:	98.00 to 90.00 Feet
Map Location:	J-11	Well Driller:	Cribley Drilling	Ground Elevation:	937.43 Feet	Screen Length:	8.00
X Coordinate:	13273112.18	Well Type:	Residential Wells	TOC Elevation:	937.95 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	286316.50	Sampling Interval:	Annual	TOC to screen bottom:	99.00 Feet		
Comments:							

Water Level Elevation History

■ Water Level Elevation





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Analytical Data Graph

Printed: 10/19/2012

Well Name: 4141 Jackson Rd

Aquifer:	D0	Date Installed:	03/02/1979	Boring Depth:	98.00 Feet bgl	Screen 1:	98.00 to 90.00 Feet
Map Location:	J-11	Well Driller:	Cribley Drilling	Ground Elevation:	937.43 Feet	Screen Length:	8.00
X Coordinate:	13273112.18	Well Type:	Residential Wells	TOC Elevation:	937.95 Feet	Screen 2:	NA to NA Feet
Y Coordinate:	286316.50	Sampling Interval:	Annual	TOC to screen bottom:	99.00 Feet		
Comments:							

1,4-Dioxane

■ Concentration (ppb)

