

Pall Life Sciences – Little Lake Area

Evaluation of a Reduction in the Batch Purge Frequency at the Ann Arbor Cleaning Supply Well

August 1, 2012

RECEIVED

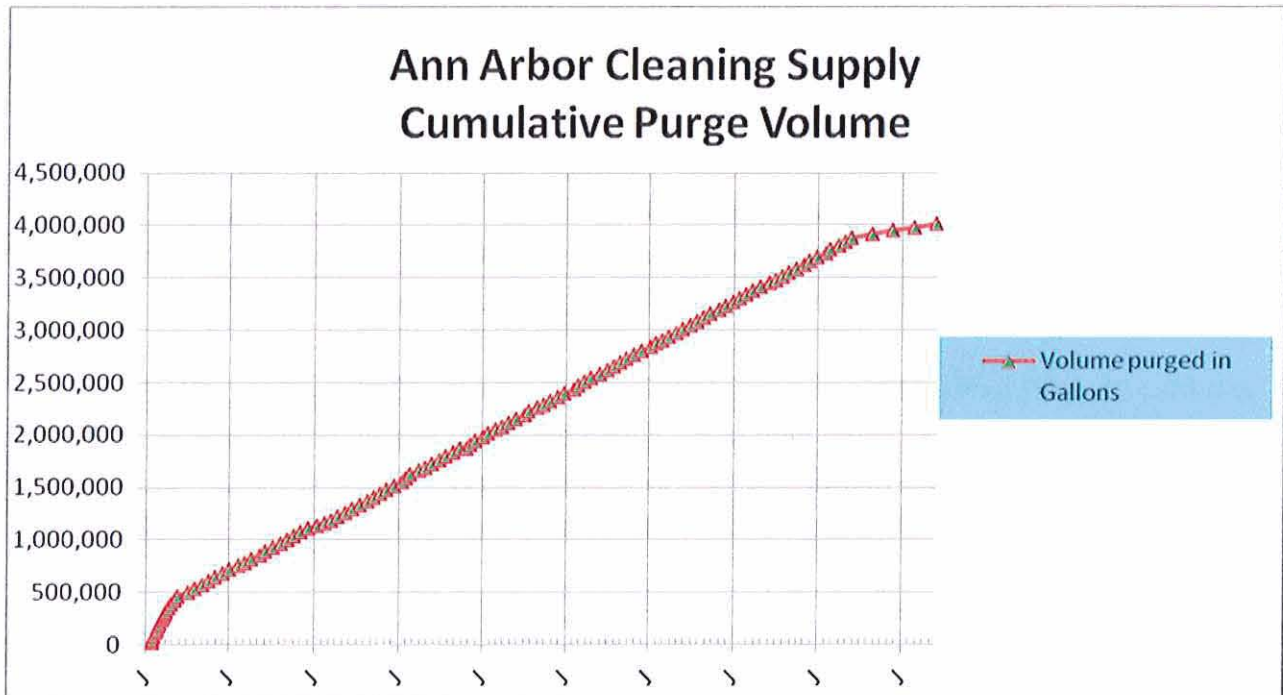
AUG - 6 2012

BACKGROUND

DEQ • RD
JACKSON DISTRICT OFFICE

Pall Life Sciences, Inc. (PLS) “batch” purges from a well in the Little Lake area referred to as the A2 Cleaning Supply Well (A2 Well). The purpose of this active remediation system is to meet the non-expansion objective of the Consent Judgment (CJ) (V.C.1).

In general, the current batch purging involves pumping a volume of water in this case approximately 36,000 gallons of groundwater from the well into a tanker truck and transporting the water to the PLS facility for treatment. PLS has been utilizing this form of active remediation since February of 2003. Over 4,000,000 gallons have been purged/treated using this process. The following graph shows the cumulative volume of water purged from this well.



Pursuant to the recent amendments to the CJ (Section V.C.2), Pall Life Sciences (PLS) resubmitted its November 3, 2010 request to the Michigan Department of Environmental Quality (MDEQ) to reduce the batch purge frequency at the A2 Well from monthly to quarterly for a year.

The following justification was provided in our November 3, 2010 request to reduce the batch purge frequency:

1. There is only one well (the A2 Cleaning Supply [extraction] Well) in the Western System (Little Lake Area) that is near the MDNRE Drinking Water Criterion (85 µg/L). 1,4-Dioxane concentrations in all monitoring wells in the Western System have been below 85 µg/L for a considerable time. The most recent groundwater sample from the Ann Arbor Cleaning Supply Well had a 1,4-dioxane concentration of 83µg/L (September 13, 2010). 1,4-Dioxane trends in this well and MW-53i remain downward. Given the current levels of 1,4-dioxane and the historic trends at this location, reducing the batch purging at this time is appropriate.
2. No matter what the frequency is, batch purging is disruptive to the neighbors. Lowering the frequency will lower the disruption. Additionally, lowering the batch purging frequency reduces the potential for a transportation accident related to this process.
3. Recent drilling by PLS in the area of Eagle Point strongly suggests there is no relationship between 1,4-dioxane in the Western System and other plumes west of Wagner Road.
4. Batch purging appears to have been valuable in reducing 1,4-dioxane levels in groundwater sampled from the Ann Arbor Cleaning Supply Well and MW-53i, although there remains a weak correlation between the purging and 1,4-dioxane trends. Changing the frequency will provide insight into how the 1,4-dioxane trends at this location respond under new conditions, and whether the objective of reducing 1-4-dioxane concentrations can be made with less disruption to the area neighbors.

In a May 31, 2011 letter, MDEQ approved PLS' request to move the frequency of batch purging to quarterly. This approval came with some conditions, including monthly sampling of the A2 Well. Pall switched from a monthly to quarterly batch purging frequency in June 2012. Since that time, PLS has been collecting and evaluating data, the findings of which are discussed in this report.

LITTLE LAKE AREA CJ OBJECTIVE

With the adoption of the Third Amendments to the CJ, the objective of the LLA was amended to preventing expansion of the groundwater contamination in this area, as measured at the compliance wells identified in PLS' April 29, 2011 LLA Monitoring Plan (LLAMP), which the MDEQ approved, with conditions on July 28, 2011. Figure 1 from the LLAMP, which identifies

the compliance wells, is attached as Attachment 1). The MDEQ added MW-51 as a Compliance Well when they approved the LLAMP. Thus, the effectiveness of the A2 Well purging program as a whole and the reduced frequency purge program must be evaluated based on the data from the designated compliance wells.

DATA COLLECTION

Batch purge events took place on the following dates:

Purge Date	Volume Purged (gallons)
6/2/2011	36,000
9/1/2011	36,000
12/1/2011	36,000
3/1/2012	24,000
6/7/2012	42,000

Groundwater samples have been collected from the designated compliance wells, MW 61s/d, MW-93, MW-51, and the Swim Club wells (4601 Park 4 and 6 inch). Supporting water quality data and trend graphs are attached (Attachment 2).

Since reducing the batch purge frequency, there has been no significant 1,4-dioxane trend changes in any of the Little Lake Area Compliance wells and concentrations of 1,4-dioxane in groundwater sampled from these wells remain well below 85 µg/L. These findings indicate that the reduced frequency of batch purging has not affected the Little Lake System's continued compliance with the non-expansion objective of the Consent Judgment (V.C.1).

Non-compliance well locations, the A2 Well and the nearby monitoring well MW-53i, have also been analyzed for 1,4-dioxane. Listed below are the data from the A2 Well that were obtained during the quarterly purge events:

Ann Arbor Cleaning Supply Well While Purging	
Date	1,4-Dioxane Result (µg/L)
6/2/2011	97
9/1/2011	88
12/1/2011	101
3/1/2012	70
6/7/12	77

(Note - Sample collected from the discharge approximately mid-way through the purging).

The following table shows the sampling dates and results for the A2 Well obtained during non-batch purging and MW-53i:

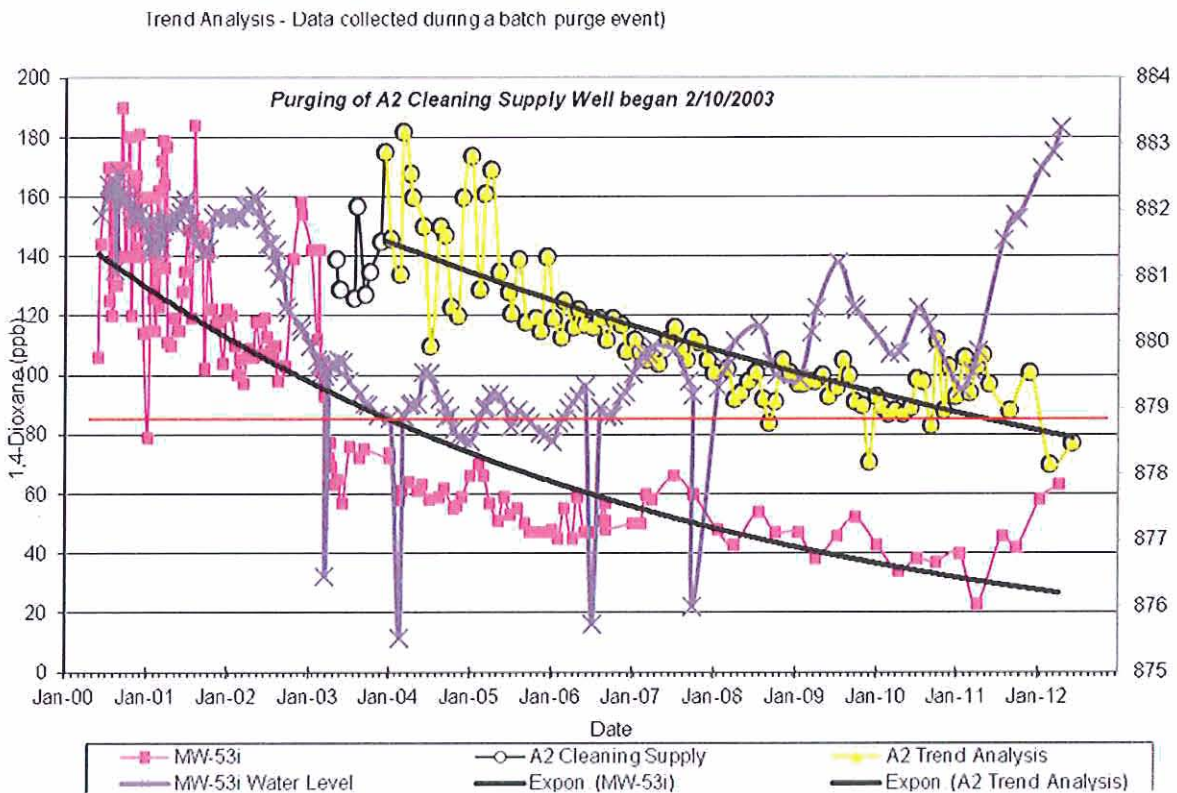
Ann Arbor Cleaning Supply Well (non-batch purging times)	
Date	1,4-Dioxane Result (µg/L)
8/5/2011	42
10/7/2011	56
11/11/2011	52
1/18/2012	62
2/6/2012	68
4/17/2012	76
5/23/2012	82
MW-53i (non-batch purging times)	
Date	1,4-Dioxane Result (µg/L)
8/5/2011	46
10/6/2011	42
1/19/2012	58
4/17/2012	63

Samples that were not collected during batch purging were collected after approximately 100 gallons of purging.

DATA ANALYSIS

1,4-Dioxane concentrations in groundwater sampled from the A2 Well during the monthly purging were on the decline from 2005 until around July of 2010. Around July of 2010, the 1,4-dioxane trend changed and began to slightly increase. This increase, which predates the reduction in batch purge frequency, does not appear to correlate to any specific event in either the Little Lake area or other portions of the PLS site. After June 2011, 1,4-dioxane concentrations in groundwater sampled from the well during purging have decreased. Samples collected on 6/2/11, 9/1/11, 12/1/11, 3/1/12 and 6/7/2012 were collected during batch purging. These data were collected in a manner consistent with prior data and therefore can be compared to previous trend data. The following graph shows only those A2 Well samples collected during batch purging events. This graph suggests 1,4-dioxane concentrations

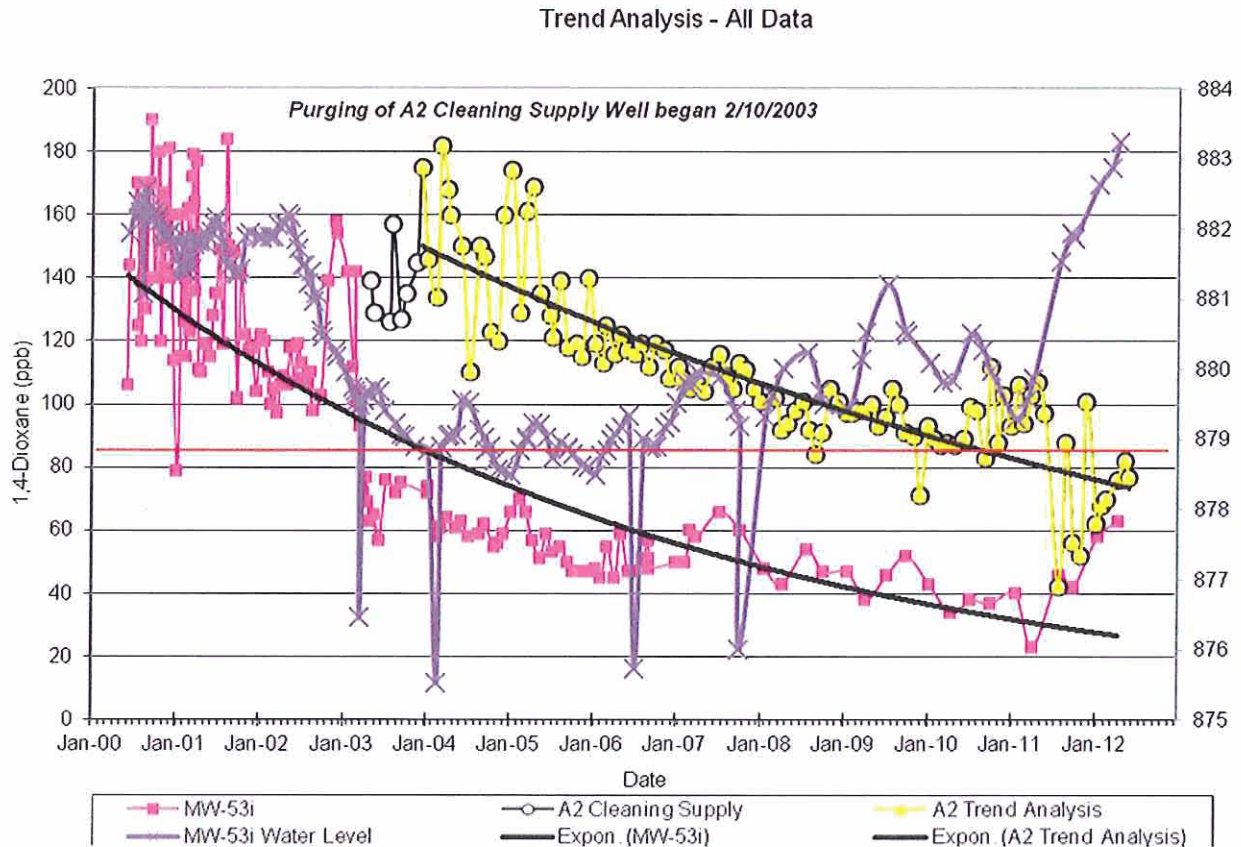
extracted from the A2 well are continuing to decline during the period that batch purging was reduced.



These data show that the data trend in the A2 Well, the only LLA well that has been above 85 ppb in recent years, has continued to trend downward even after the purging frequency was reduced to quarterly. The data from the two most recent purge events have been slightly below the cleanup criterion.

1,4-dioxane levels in samples collected from the A2 Well from August 2011 to May 2012, in-between batch purge events, showed a slight increase. Similarly, the data from MW-53i have shown an increasing 1,4-dioxane trend starting between April and August of 2011.

A graph of the 1,4-dioxane trends at these two well locations is provided below:



Two possible explanations for the increase in these data are: 1) the change in batch purge frequency from monthly to quarterly, and 2) the site-wide rise in water levels related to PLS' reduction in the Western System purge rates in May 11, 2011, after the CJ amendments were approved. The reduction in Western Area purge rates and the resulting rise in site-wide water levels occurred at the same time the batch purging changed from a monthly frequency to a quarterly frequency. Water levels measured at MW-53i are shown on the graph and the increase in water levels after May 2011 is clear.

The continued downward trend in the data from A2 Well during purging after reduction in the frequency of batch purging strongly suggests that the rise in concentrations in the A2 Well during non-purging sampling and MW-53i are unrelated to the purge frequency. The A2 Well draws water from a larger area during the batch purging. The fact that the concentrations of 1,4-dioxane during batch purge events have decreased rather than increased during the relevant time period indicates that the contaminant mass present in the well's capture area has

not increased under a reduced purge frequency. The increasing concentration in MW-53i does, however, correspond very closely to the recent increase in water levels. This relationship can be observed in this well in the past as well. We have noted in the past (PLS Plan for Modifications of Purging Frequency Western System dated January 2008) that there appears to be a correlation between water levels and 1,4-dioxane levels in this area. We believe the increase in concentrations observed since August of 2011 relates to the water level increase and not the fact that the batch purging has been reduced. Similar relationships between water level changes and 1,4-dioxane concentrations have been observed in other portions of the PLS site (wells in the Little Lake, Western and Eastern System areas).

DISCUSSION AND RECOMMENDATIONS

Data collected during the period of reduced (quarterly) batch purging, including the data from the LLAMP's compliance wells, indicate that reducing the frequency of batch purging has had no effect on the LLA System's ability to achieve compliance with the CJ's non-expansion objective. 1,4-Dioxane concentrations in samples collected from the A2 Well during batch purge events continue to decline. Increases in 1,4-dioxane concentrations were observed at MW-53i and in samples collected from the A2 Well during non-batch purge events, but these increases appear to relate to water level increases for the reasons discussed above.

PLS does not believe the reduction from monthly to quarterly batch purging has negatively affected its ability to achieve the CJ's non-expansion objective for the LLA. We offer the following in support of this statement:

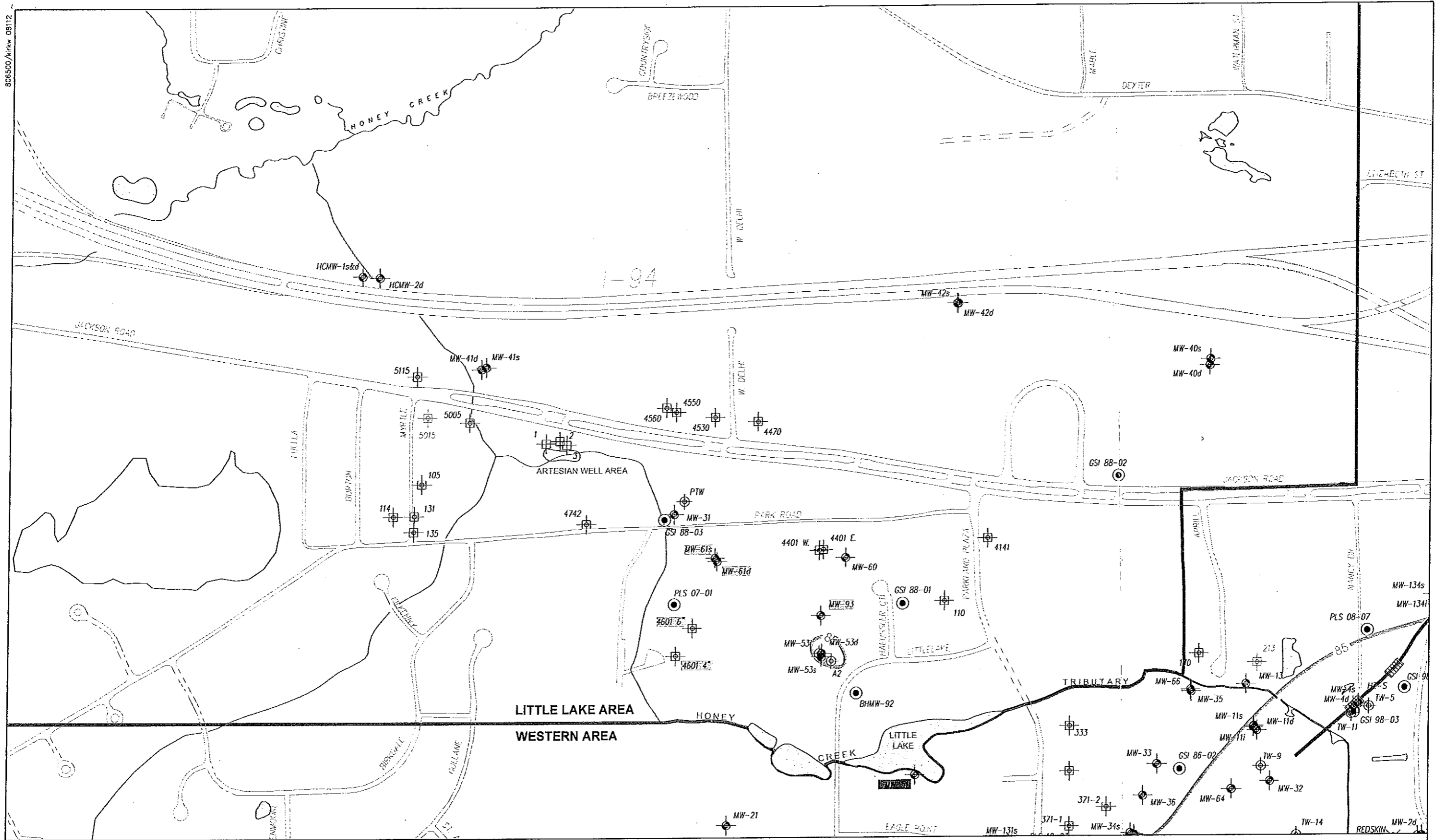
1. Since reducing the batch purge frequency, there has been no significant 1,4-dioxane trend changes in any of the Little Lake Area Compliance wells and concentrations of 1,4-dioxane in groundwater sampled from these wells remain well below 85 µg/L. Supporting information (data trend graphs) are attached. These findings indicate that the Little Lake System continues to meet the non-expansion objective of the Consent Judgment (V.C.1).
2. Most of the batch purging events involves purging an arbitrary volume, in this case of 36,000 gallons of water. 1,4-Dioxane concentrations in the water purged are approximately 80 µg/L. This means that approximately 0.025 pounds of 1,4-dioxane are purged each event. For a monthly purge frequency, the total yearly mass of 1,4-dioxane would be 0.3 pounds. Reducing the purging to quarterly, this mass is reduced to approximately 0.1 pounds/year. 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 (as evidenced by the continued decline in concentrations during purge events) 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.

3. As indicated in our previous justification for reducing the frequency of purging, this batch purging is an annoyance to the neighbors and carries additional risk such as the potential for a transportation accident, especially during winter months.

For these reasons, PLS recommends that the parties discuss further reductions in batch purging frequency and/or volume and a reduction in the current monthly monitoring requirement to a quarterly frequency. This approach is consistent with the terms of the CJ.

Attachment 1



SOME DOMESTIC WELL LOCATIONS PROVIDED BY THE WELLOGIG DATABASE. OTHER WELL LOCATIONS PROVIDED BY PLS.

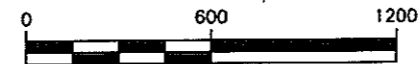


NORTH

- COMPLIANCE MONITOR WELL
- MONITORING WELL
- EXTRACTION WELL
- DOMESTIC WELL

LEGEND

- COMPLIANCE MONITOR WELL ADDED BY DEQ
- HYDROGEOLOGICAL TEST BORING
- AUGUST 2011 INTERPRETATION OF 85 µg/L ISOCONCENTRATION LINE
- LITTLE LAKE AREA SYSTEM



SCALE IN FEET

NOTE: NOT ALL DOMESTIC WELLS ARE ACTIVELY USED FOR DRINKING WATER SUPPLY.

PALL LIFE SCIENCES
WASHTENAW COUNTY, MI

Hard copy is
intended to
be 11"x17"
when plotted.

LITTLE LAKE AREA SYSTEM
MONITORING PLAN (REV. AUG 2012)

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APRIL 2011

806500

Attachment 2

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Analytical Data Report: MW-51

Aquifer: D0	Date Installed: 02/16/2000	Boring Depth: 165.00 Feet bgl	Screen 1: 35.00 to 25.00 Feet
Map Location: M-9	Well Driller: Stearns	Ground Elevation: 898.60 Feet	Screen 1 Length: 10.00
X Coordinate: 13272641.91	Well Type: Monitoring Wells	TOC Elevation: 898.24 Feet	Screen 2: NA to NA Feet
Y Coordinate: 284766.83	Sampling Interval: Annual	TOC to screen bottom: 35.00 Feet	
	Static Interval: Semi-Annual	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
07/18/2012	14:35	nd	1.0					14:15	15.96	
03/14/2012	10:08							10:08	15.35	
09/22/2011	13:37							13:37	16.31	
08/05/2011	13:15	ND	1.0					13:05	16.7	
03/17/2011	09:59							09:59	18.65	
09/01/2010	10:00							10:00	17.97	
07/13/2010	10:35	nd	1.0					10:20	17.72	
03/09/2010	09:37							09:37	18.37	
09/24/2009			1.0					11:08	17.68	
07/13/2009	13:10	nd	1.0					12:55	17.04	
03/17/2009			1.0					10:34	18.05	
09/17/2008			1.0					10:01	18.49	
07/25/2008	09:10	nd	1.0					08:40	18.02	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
02/25/2008			1.0					09:59	18.63	
10/09/2007	12:45	nd	1.0					12:25	19.03	
09/13/2007			1.0					16:50	18.8	
04/03/2007	14:25	nd	1.0					14:05	18.25	
03/13/2007			1.0					10:17	18.42	
10/09/2006	10:05	nd	1.0					09:55	19.3	
09/15/2006			1.0					09:50	19.32	
05/03/2006	11:30	nd	1.0					11:00	19.05	
03/20/2006			1.0					09:21	19.24	
10/25/2005	13:26	nd	1.0					13:18	19.55	
09/13/2005			1.0					09:40	19.29	
04/06/2005	17:27	nd	1.0					17:08	18.94	
03/14/2005			1.0					09:45	19.22	
10/07/2004	12:04	nd	1.0					11:55	19.34	
09/15/2004			1.0					11:31	19.33	
04/15/2004	15:31	nd	1.0					15:09	19.11	
04/12/2004			1.0					11:17	19.12	
03/10/2004			1.0					10:10	19.31	
02/03/2004	14:30	nd	1.0					14:20	19.42	
10/03/2003	09:19	nd	1.0							
10/01/2003			1.0					10:24	19.16	
07/25/2003	09:10	nd	1.0							
07/02/2003			1.0					10:57	18.8	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
04/04/2003	10:45	nd	1.0							
04/02/2003			1.0					09:29	18.62	
01/28/2003	12:56	nd	1.0							
01/09/2003			1.0						18.24	
10/15/2002	08:50	nd	1.0							
10/02/2002			1.0						17.75	
07/23/2002	14:29	nd	1.0							
07/02/2002			1.0					14:24	16.81	
04/26/2002	09:18	nd	1.0							
04/04/2002			1.0					08:15	16.14	
01/30/2002	08:55	nd	1.0							
01/07/2002		NSP	1.0					13:56	16.44	
11/05/2001	13:40	nd	1.0							
10/11/2001			1.0					11:22	16.75	
07/25/2001	08:42	nd	1.0							
07/19/2001			1.0					13:11	16.41	
05/10/2001	16:12	nd	1.0							
05/08/2001		NSP	1.0					15:18	16.42	
02/19/2001	14:33	nd	1.0							
01/19/2001		NSP	1.0						16.77	
09/21/2000		NSP	1.0						16.0	
08/16/2000		nd	1.0						15.79	
06/07/2000		NSP	1.0						16.28	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
04/24/2000		nd	1.0						16.63	
03/21/2000		nd	1.0						16.5	
02/16/2000		nd	1.0						16.9	



Pall Corporation

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Analytical Data Graph

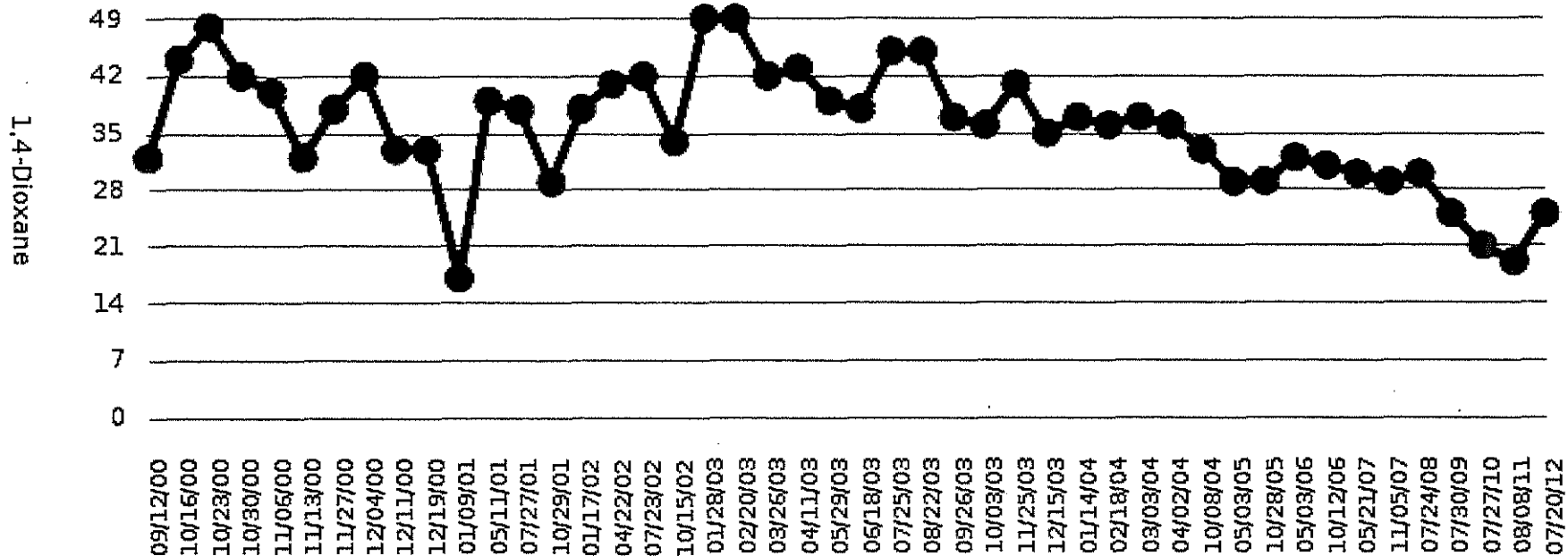
Printed: 08/01/2012

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:	4503 Park						

1,4-Dioxane

■ Concentration (ppb)



Analytical Data Report: 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 1 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	
	Static Interval: Semi-Annual	Notes: 4503 Park	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
07/20/2012	11:45	25	1.0					11:35	42.64	
03/14/2012	09:16							09:16	41.79	
09/22/2011	13:01							13:01	42.55	
08/08/2011	13:55	19	1.0					13:45	42.78	
03/17/2011	09:23							09:23	44.55	
09/01/2010	09:30							09:30	44.02	
07/27/2010	13:35	21	1.0					13:25	43.6	
03/09/2010	11:03							11:03	44.38	
09/24/2009			1.0					10:00	43.67	
07/30/2009	10:55	25	1.0					10:45	43.09	
03/17/2009			1.0					09:37	44.01	
09/17/2008			1.0					09:09	44.65	
07/24/2008	10:15	30	1.0					09:55	44.14	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
02/25/2008			1.0					09:01	44.46	
11/05/2007	10:20	29	1.0					10:00	45.16	
09/13/2007			1.0					15:43	44.79	
05/21/2007	09:55	30	1.0					09:45	44.04	
03/13/2007			1.0					09:40	44.16	
10/12/2006	12:50	31	1.0					12:35	45.1	
09/15/2006			1.0					08:53	45.21	
05/03/2006	09:44	32	1.0					09:28	44.86	
03/20/2006			1.0					08:27	44.99	
10/28/2005	10:25	29	1.0					10:12	45.8	
09/13/2005			1.0					08:30	45.64	
05/03/2005	14:55	29	1.0					14:43	45.08	
03/14/2005			1.0					14:14	45.07	
10/08/2004	11:33	33	1.0					11:22	45.48	
09/15/2004			1.0					10:07	45.31	
04/12/2004			1.0					10:41	45.16	
04/02/2004	10:20	36	1.0					10:12	45.18	
03/10/2004			1.0					09:37	45.33	
03/03/2004	09:35	37	1.0					09:24	45.44	
02/18/2004	10:08	36	1.0					09:56	45.54	
01/14/2004	09:11	37	1.0					08:52	45.38	
12/15/2003	09:51	35	1.0					09:37	45.37	
11/25/2003	10:39	41	1.0					10:17	45.29	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
10/03/2003	11:59	36	1.0							
10/01/2003			1.0					10:47	45.2	
09/26/2003	11:03	37	1.0					10:49	45.22	
08/22/2003	10:27	45	1.0							
08/22/2003			1.0					10:09	45.1	
07/25/2003	10:54	45	1.0							
07/02/2003			1.0					09:16	45.16	
06/18/2003	12:59	38	1.0							
06/18/2003			1.0					12:47	44.81	
05/29/2003	14:57	39	1.0					14:43	44.7	
04/11/2003	11:05	43	1.0							
04/02/2003			1.0					10:06	44.76	
03/26/2003			1.0						44.75	
03/26/2003	14:24	42	1.0							
02/20/2003			1.0						44.77	
02/20/2003	11:46	49	1.0							
01/28/2003	09:39	49	1.0							
01/09/2003			1.0						44.53	
10/15/2002	14:35	34	1.0							
10/02/2002			1.0						44.08	
07/23/2002	10:06	42	1.0							
07/02/2002			1.0					10:36	43.13	
04/22/2002	09:15	41	1.0							

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
04/04/2002			1.0					08:54	42.57	
01/17/2002	10:12	38	1.0							
01/07/2002		NSP	1.0					14:51	43.9	
10/29/2001	12:33	29	1.0							
10/11/2001			1.0					11:59	43.24	
07/27/2001	08:53	38	1.0							
07/19/2001			1.0					12:55	43.0	
05/11/2001	10:00	39	1.0							
05/08/2001		NSP	1.0					14:29	42.95	
01/19/2001		NSP	1.0						43.26	
01/09/2001	15:20	17	1.0					14:54	43.2	
12/19/2000	13:50	33	1.0					13:17	43.03	
12/11/2000	12:20	33	1.0					11:52	43.0	
12/04/2000	14:15	42	1.0					13:37	42.99	
11/27/2000		38	1.0					14:44	42.96	
11/20/2000		See Comments	1.0					12:52	42.93	Analysis Failed
11/13/2000		32	1.0					12:53	42.87	
11/06/2000		40	1.0					11:20	42.84	
10/30/2000		42	1.0					08:55	42.81	
10/23/2000		48	1.0					13:58	42.78	
10/16/2000		44	1.0					14:20	42.72	
10/11/2000		NSP	1.0					11:03	42.66	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
09/21/2000		NSP	1.0						42.6	
09/12/2000		32	1.0					09:30	42.6	



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Web: www.pall.com

Analytical Data Graph

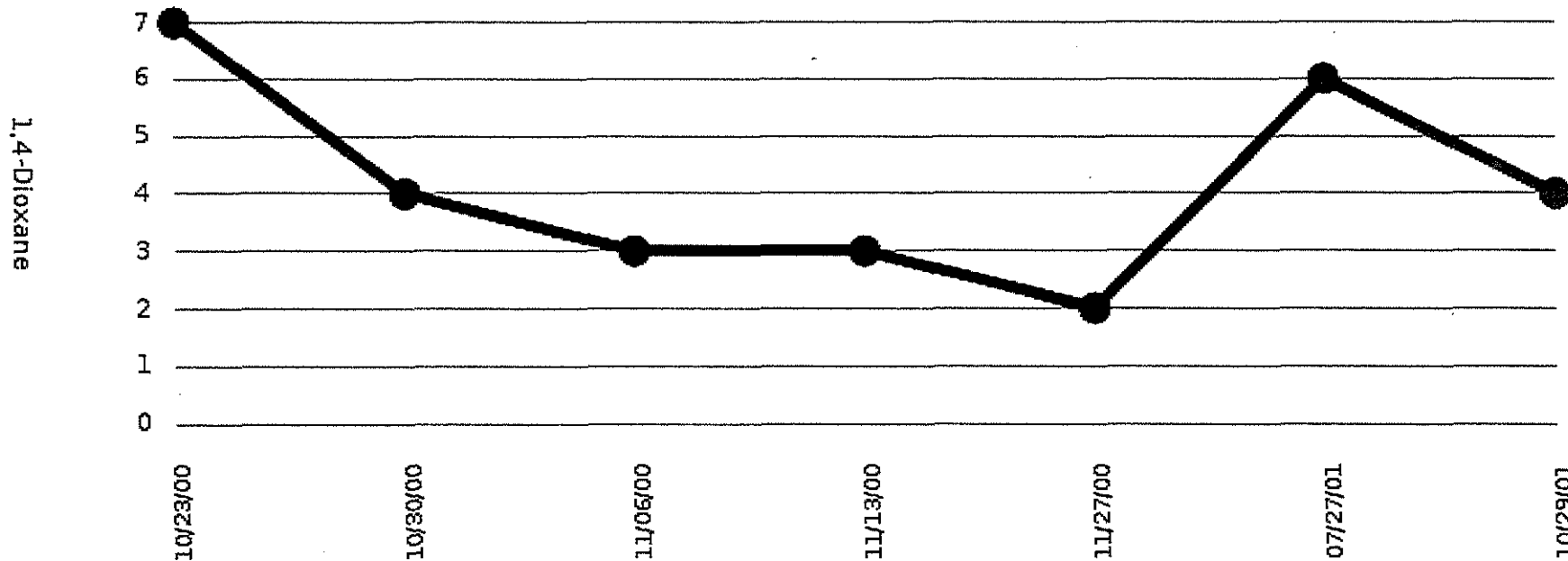
Printed: 08/01/2012

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:	4503 Park						

1,4-Dioxane

■ Concentration (ppb)



Analytical Data Report: 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 1 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	
	Static Interval: Semi-Annual	Notes: 4503 Park	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
07/20/2012	11:30	nd	1.0					11:00	44.02	
03/14/2012	09:18							09:18	42.90	
09/22/2011	13:03							13:03	43.66	
08/08/2011	13:40	nd	1.0					13:15	43.98	
03/17/2011	09:22							09:22	45.27	
09/01/2010	09:29							09:29	45.08	
07/27/2010	13:20	nd	1.0					12:50	44.5	
03/09/2010	11:02							11:02	45.18	
09/24/2009			1.0					09:58	44.72	
07/30/2009	10:35	nd	1.0					10:15	44.21	
03/17/2009			1.0					09:35	44.78	
09/17/2008			1.0					09:08	45.46	
07/24/2008	09:50	nd	1.0					09:25	45.18	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
02/25/2008			1.0					09:04	45.22	
11/05/2007	10:50	nd	1.0					10:25	46.03	
09/13/2007			1.0					15:46	45.69	
05/21/2007	09:35	nd	1.0					09:10	45.05	
03/13/2007			1.0					09:41	44.93	
10/12/2006	12:30	nd	1.0					12:10	45.92	
09/15/2006			1.0					08:55	45.96	
05/03/2006	09:20	nd	1.0					09:00	45.65	
03/20/2006			1.0					08:29	45.72	
10/28/2005	10:03	nd	1.0					09:40	46.7	
09/13/2005			1.0					08:31	46.64	
05/03/2005	14:32	nd	1.0					14:11	45.94	
03/14/2005			1.0					14:15	45.85	
10/08/2004	11:12	nd	1.0					10:50	46.45	
09/15/2004			1.0					10:11	46.36	
04/12/2004			1.0					10:39	45.98	
04/02/2004	09:56	nd	1.0					09:34	45.99	
03/10/2004			1.0					09:34	46.1	
03/03/2004	09:10	nd	1.0					08:50	46.21	
02/18/2004	09:41	nd	1.0					09:18	46.4	
01/14/2004	09:49	nd	1.0					09:32	46.2	
12/15/2003	10:35	nd	1.0					10:35	46.22	
11/25/2003	11:18	nd	1.0					10:00	46.19	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
10/03/2003	11:46	nd	1.0							
10/01/2003			1.0					10:45	46.17	
09/26/2003	10:47	nd	1.0					10:25	46.12	
07/25/2003	10:40	nd	1.0							
07/02/2003			1.0					09:18	46.13	
04/11/2003	10:53	nd	1.0							
04/02/2003			1.0					10:07	45.76	
01/28/2003	09:23	nd	1.0							
01/09/2003			1.0						45.56	
10/15/2002	14:22	nd	1.0							
10/02/2002			1.0						45.32	
07/23/2002	09:47	nd	1.0							
07/02/2002			1.0					10:34	44.55	
04/22/2002	08:55	nd	1.0							
04/04/2002			1.0					08:56	43.82	
01/17/2002	09:54	nd	1.0							
01/07/2002		NSP	1.0					14:56	44.15	
10/29/2001	12:20	4	1.0							
10/11/2001			1.0					11:57	44.45	
07/27/2001	08:15	6	1.0							
07/19/2001			1.0					12:53	44.42	
05/11/2001	10:19	nd	1.0							
05/08/2001		NSP	1.0					14:27	44.27	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
01/19/2001		NSP	1.0						44.48	
01/09/2001	15:05	nd	1.0					14:50	44.44	
12/19/2000	13:35	nd	1.0					13:16	44.25	
12/11/2000	12:12	nd	1.0					11:45	44.32	
12/04/2000	14:00	nd	1.0					13:40	44.3	
11/27/2000		2	1.0					14:40	44.26	
11/20/2000		nd	1.0					13:48	44.25	
11/13/2000		3	1.0					12:48	44.11	
11/06/2000		3	1.0					11:19	44.19	
10/30/2000		4	1.0					08:54	44.11	
10/23/2000		7	1.0					13:06	44.18	
10/16/2000		nd	1.0					14:23	44.1	
10/11/2000		NSP	1.0					11:01	44.0	
09/21/2000		NSP	1.0						49.99	
09/12/2000		nd	1.0					09:27	43.86	



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Analytical Data Graph

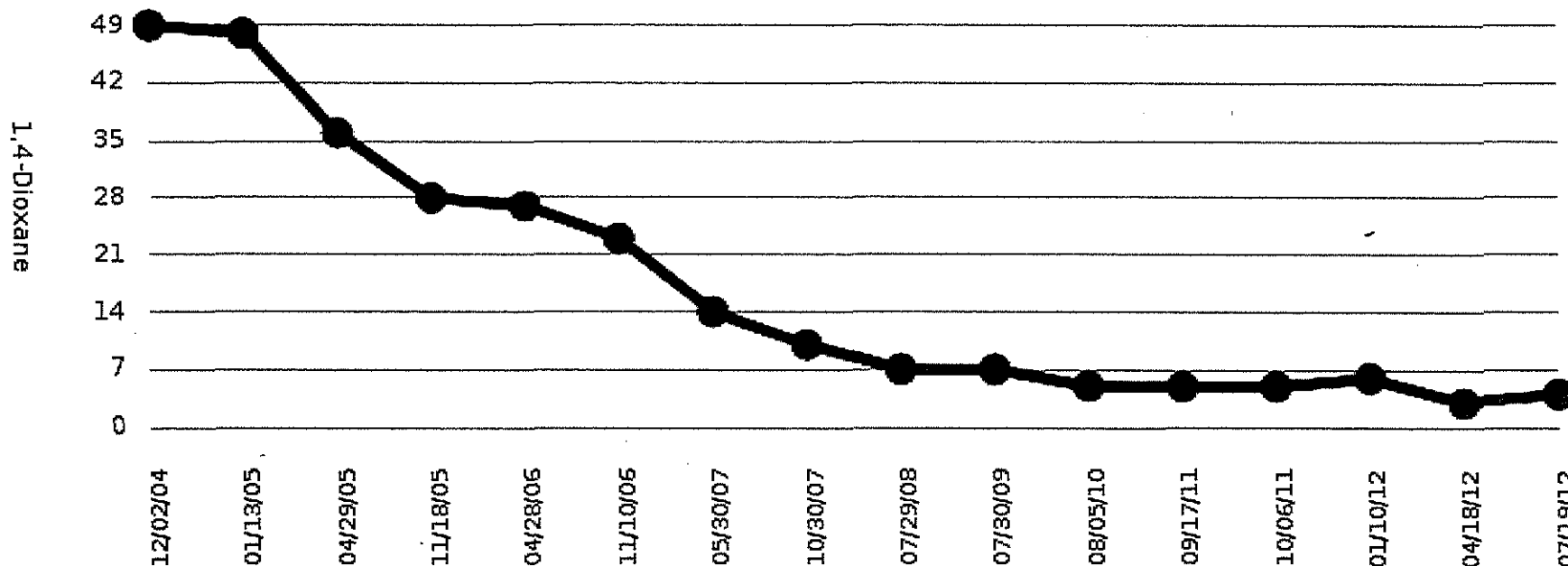
Printed: 08/01/2012

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:	2 galvanized steel pipe with 2 stainless steel screen(10-slot)						

1,4-Dioxane

■ Concentration (ppb)



Analytical Data Report: 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 1 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	
	Static Interval: Quarterly	Notes: 2 galvanized steel pipe with 2 stainless steel screen(10-slot)	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
07/19/2012	13:45	4	1.0					13:35	37.89	
04/18/2012	09:15	3	1.0					09:05	36.85	
03/14/2012	09:57							09:57	37.24	
01/10/2012	09:00	6	1.0					08:50	37.55	
10/06/2011	11:55	5	1.0					11:45	38.26	
09/22/2011	13:29							13:29	38.21	
09/17/2011	14:30	5	1.0					14:20	38.26	
03/17/2011	09:52							09:52	40.59	
09/01/2010	09:50							09:50	39.87	
08/05/2010	10:35	5	1.0					10:25	39.56	
03/09/2010	10:04							10:04	40.33	
09/24/2009			1.0					10:59	39.58	
07/30/2009	12:10	7	1.0					12:00	39.03	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
03/17/2009			1.0					10:25	39.38	
09/17/2008			1.0					09:50	40.51	
07/29/2008	09:25	7	1.0					09:15	39.97	
02/25/2008			1.0					09:46	40.53	
10/30/2007	09:00	10	1.0					08:45	41.12	
09/13/2007			1.0					16:41	40.74	
05/30/2007	09:30	14	1.0					09:15	40.09	
03/13/2007			1.0					10:10	40.31	
11/10/2006	09:25	23	1.0					09:10	40.84	
09/15/2006			1.0					09:24	41.23	
04/28/2006	10:25	27	1.0					10:14	40.95	
03/20/2006			1.0					09:10	41.16	
11/18/2005	13:20	28	1.0					13:09	41.5	
09/13/2005			1.0					09:26	41.28	
04/29/2005	13:23	36	1.0					13:12	41.01	
03/14/2005			1.0					09:35	41.14	
01/13/2005	13:50	48	1.0					13:37	41.52	
12/02/2004	15:33	49	1.0					14:18	41.61	



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Analytical Data Graph

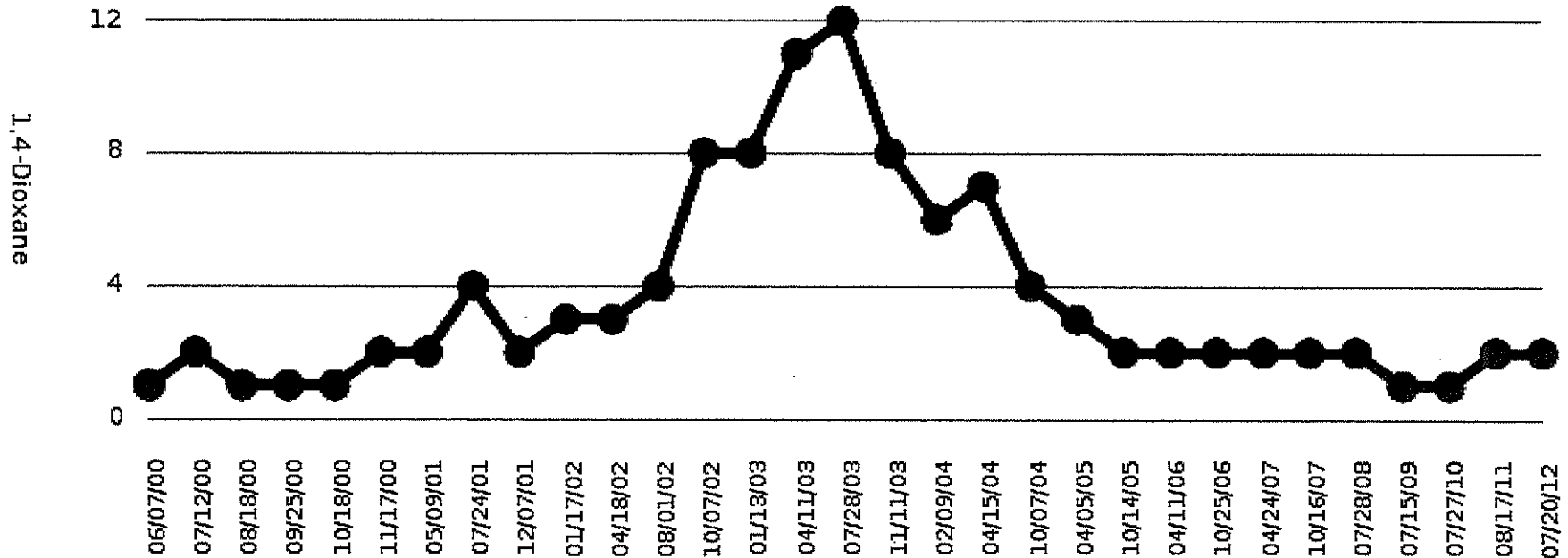
Printed: 08/01/2012

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)



Analytical Data Report: 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 1 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	
	Static Interval: Semi-Annual	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
07/20/2012	08:45	2	1.0					08:45	18.27	
08/17/2011	09:20	2	1.0							
07/27/2010	09:40	1	1.0					09:00	19.48	
07/15/2009	09:00	1	1.0					08:30	18.92	
09/17/2008			1.0					09:22	20.39	
07/28/2008	07:50	2	1.0					07:25	19.96	
02/25/2008			1.0					13:07	20.42	
10/16/2007	11:10	2	1.0					10:35	21.04	
09/13/2007			1.0					16:37	20.71	
04/24/2007	09:50	2	1.0					09:20	20.1	
03/13/2007			1.0					09:47	20.1	
10/25/2006	10:05	2	1.0					09:35	21.07	
09/15/2006			1.0					09:11	21.05	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
04/11/2006	14:45	2	1.0					14:25	20.82	
03/20/2006			1.0					15:43	20.95	
10/14/2005	10:13	2	1.0					09:46	21.51	
09/13/2005			1.0					18:26	21.39	
04/05/2005	14:48	3	1.0					14:25	20.86	
03/14/2005			1.0					14:29	21.04	
10/07/2004	14:04	4	1.0					13:43	21.34	
09/15/2004			1.0					10:31	21.2	
04/15/2004	14:18	7	1.0					14:00	21.02	
04/12/2004			1.0					10:51	21.02	
03/10/2004			1.0					09:21	21.17	
02/09/2004	16:00	6	1.0					15:35	21.38	
11/11/2003	13:59	8	1.0					13:39	21.18	Static originally swiched with 6 inch.
07/28/2003	13:10	12	1.0							
07/02/2003			1.0					07:45	20.79	
04/11/2003	12:08	11	1.0							
04/02/2003			1.0					10:15	20.66	
01/13/2003	11:06	8	1.0							
01/09/2003			1.0						20.34	
10/07/2002			1.0					13:38	19.87	
10/07/2002	14:14	8	1.0							

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
10/02/2002		See Comments	1.0							No Static Taken
08/01/2002	08:56	4	1.0							
07/02/2002			1.0					10:44	18.85	
04/18/2002	08:20	3	1.0							
04/04/2002			1.0					09:06	18.24	
01/17/2002	08:52	3	1.0							
01/07/2002		NSP	1.0					15:28	47.51	
12/07/2001	11:12	2	1.0					10:54	18.52	
10/12/2001			1.0					09:21	18.9	
07/24/2001	11:27	4	1.0							
07/19/2001			1.0					10:55	18.67	
05/09/2001	14:05	2	1.0							
05/08/2001		NSP	1.0					14:14	18.57	
01/19/2001		NSP	1.0						18.92	
12/07/2000		NSP	1.0					08:12	15.77	No snow removal on property
11/17/2000		2	1.0							
11/02/2000		NSP	1.0					11:11	18.56	
10/18/2000		1	1.0							
10/11/2000		NSP	1.0					11:10	18.37	
09/25/2000		1	1.0							
09/06/2000			1.0					14:23	18.35	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
08/18/2000		1	1.0						18.13	
07/12/2000		2	1.0						18.1	
06/07/2000		1	1.0						18.43	
04/25/2000			1.0						18.37	



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Analytical Data Graph

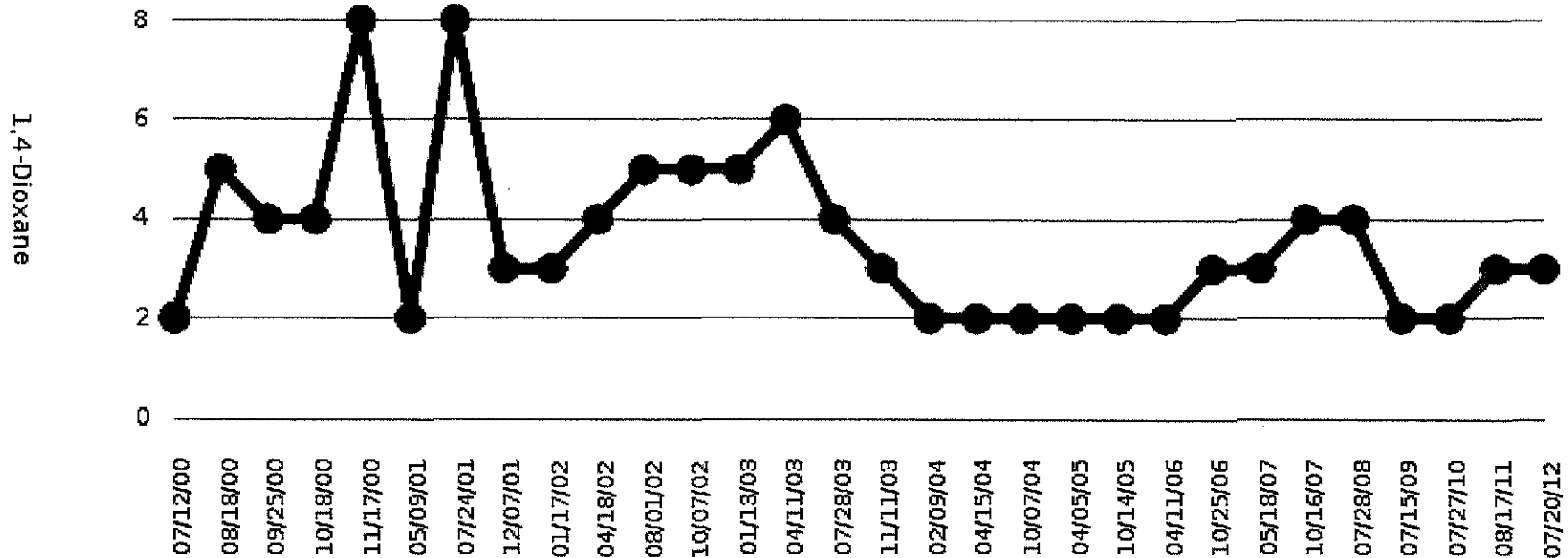
Printed: 08/01/2012

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)



Analytical Data Report: 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 1 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	
	Static Interval: Semi-Annual	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
07/20/2012	09:30	3	1.0					09:30	15.51	
08/17/2011	10:05	3	1.0							
07/27/2010	10:20	2	1.0					09:50	16.48	
07/15/2009	09:40	2	1.0					09:10	15.95	
09/17/2008			1.0					09:27	17.36	
07/28/2008	08:25	4	1.0					08:00	17.04	
02/25/2008			1.0					13:12	17.32	
10/16/2007	11:45	4	1.0					11:20	17.99	
09/13/2007			1.0					16:40	17.68	
05/18/2007	15:40	3	1.0					15:15	16.8	
03/13/2007			1.0					09:49	16.95	
10/25/2006	09:25	3	1.0					09:00	17.98	
09/15/2006			1.0					09:13	17.95	

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
04/11/2006	15:11	2	1.0					14:54	17.65	
03/20/2006			1.0					15:45	17.8	
10/14/2005	10:54	2	1.0					10:27	18.49	
09/13/2005			1.0					18:21	18.41	
04/05/2005	15:23	2	1.0					15:02	17.75	
03/14/2005			1.0					14:28	17.92	
10/07/2004	14:31	2	1.0					14:16	18.33	
09/15/2004			1.0					10:27	18.12	
04/15/2004	14:46	2	1.0					14:31	17.93	
04/12/2004			1.0					10:52	17.93	
03/10/2004			1.0					09:23	18.05	
02/09/2004	15:13	2	1.0					15:00	18.3	
11/11/2003	13:32	3	1.0					13:10	18.12	Static originally swiched with 4 inch.
07/28/2003	12:39	4	1.0							
07/02/2003			1.0					07:41	17.8	
04/11/2003	11:47	6	1.0							
04/02/2003			1.0					10:13	17.58	
01/13/2003	10:38	5	1.0							
01/09/2003			1.0						17.36	
10/07/2002			1.0						16.93	
10/07/2002	14:45	5	1.0							

Date Collected	Time Collected	1,4-Dioxane Results (ppb)	R.L.	Bromate Results	R.L.	Bromide Results	R.L.	Static Time	Static Reading	Comments
06/07/2000		nd	1.0						10.56	
04/25/2000		NSP	1.0						10.9	