

**SEMI ANNUAL REPORT
OPERATION AND MAINTENANCE
JANUARY 2009 TO JUNE 2009
PFOHL BROTHERS LANDFILL
CHEEKTOWAGA, NY**

Submitted to:

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
270 MICHIGAN AVENUE
BUFFALO, NEW YORK 14203**

Prepared by:

**URS CORPORATION
77 GOODELL STREET
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Prepared for:

**TOWN OF CHEEKTOWAGA
ENGINEERING DEPARTMENT
275 ALEXANDER AVE
CHEEKTOWAGA, NEW YORK 14211**

**AUGUST
2009**



August 14, 2009

Mr. Jaspal Singh Walia, P.E.
New York State Department of Environmental Conservation
270 Michigan Ave.
Buffalo, NY 14203

**Re: Semi-Annual Report
Pfohl Brothers Landfill, Town of Cheektowaga, New York**

Dear Mr. Walia:

Enclosed are two copies of the eleventh Semi-Annual Report for the Pfohl Brothers Landfill in Cheektowaga, New York. A copy has also been sent to Ms. Pamela Tames, P.E. of the United States Environmental Protection Agency. Also enclosed are Data Usability Summary Reports for laboratory analyses associated with the sampling events. PDF copies of the reports are also enclosed.

If you have any questions on this report, please feel free to contact me.

Sincerely,

URS CORPORATION

A handwritten signature in black ink, appearing to read "Jon Sundquist".

Jon Sundquist, Ph.D.
Project Manager

Enclosures

cc: Pamela Tames, P.E. - USEPA (w/attachments)
William Pugh, P.E. – Town of Cheektowaga (w/attachments)
File 11172700 (C-1)

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1.0 INTRODUCTION

1.1 Background

The Pfohl Brothers Landfill is located on Aero Drive in the Town of Cheektowaga, New York (Figure 1-1). The site is listed as site No. 9-15-043 on the New York State Department of Environmental Conservation's (NYSDEC's) Registry of Inactive Hazardous Waste Disposal Sites. A Consent Order between NYSDEC and potentially responsible parties (PRPs) for closure of the site was signed in 2001 and remedial construction commenced in 2001. The remedy included consolidation of waste material, capping of the waste disposal and consolidation areas, and encircling the landfill areas with a groundwater collection system to prevent off-site migration. The remedial action was completed in 2002.

Responsibility for implementing the remedy was divided between a "steering committee" of industrial PRPs and the Town of Cheektowaga. The steering committee responsibilities lay generally with the capital construction activities of the remedy including waste consolidation, cap and drainage system installation, etc. The Town of Cheektowaga, which was named as a PRP for disposal of municipal waste at the Pfohl Brothers Landfill when it was operating, is performing the operation and maintenance (O&M) activities at the landfill, pursuant to a settlement agreement between the Town and the steering committee.

1.2 Operation and Maintenance Activities

While construction of the remedy was substantially complete by late 2002, the final O&M manual was not approved by the NYSDEC until March 10, 2006. However, the Town of Cheektowaga and its consultant (URS Corporation) assumed most of the operational responsibilities since 2002. This includes a variety of general maintenance activities as outlined in Section 2 and sampling and other monitoring activities outlined in Section 3.

Beginning in 2004, the Town and URS assumed all of the O&M activities described in the O&M plan. This report is the eleventh semi-annual report as called for by Section 3.6 of the O&M plan.

2.0 GENERAL MAINTENANCE ACTIVITIES

Since completion of construction activities in 2002, personnel from the Town of Cheektowaga Engineering Department have performed general activities to ensure the physical operation of the landfill as intended by the design. The various O&M activities performed by the Town from January 2009 through June 2009 include the following actions.

- The amount of groundwater discharged through the collection system was recorded on a daily basis. The flow rate displayed by each wet well pump at the time of daily inspection and the total cumulative volume of flow was recorded for each wet well on daily inspection sheets. Examples of the daily inspection sheet are attached in Appendix A.
- Total cumulative effluent flow rates and volumes were summarized on a monthly basis starting in February 2003. The monthly totals for the period of January 2009 through June 2009, including graphs showing daily total discharge (gallons) as a function of calendar day, are presented in Appendix B.
- The wet well pumps were shutdown during wet weather flow conditions throughout the year to reduce hydraulic loading to the sewer. Such actions were only taken upon request of the Buffalo Sewer Authority during heavy storm events in order to reduce the hydraulic load on the BSA treatment system during such events. Shutdown events are recorded and included with the monthly flow data as previously requested by NYSDEC.
- Plowed snow to access the Control Building when necessary.
- Activated remote pump station shutdown during wet weather flow conditions as necessary. Shutdown events are recorded and included with the monthly flow data as previously requested by NYSDEC.
- Cleaned/replaced check valves as necessary at all wet wells.

- Prepared bid specifications for mowing landfill cap and awarded new contract for calendar years 2009, 2010, and 2011 (March 2009),
- Purchased and installed replacement flow transmitter in WW-3 (March 2009),
- Engaged wildlife trapper to control woodchuck activity (May 2009),
- Made repairs to discharge hose WW-4 (February 2009),
- Installed post mounted signs to identify all wetwells and manholes (May 2009)

3.0 MONITORING ACTIVITIES

The Town of Cheektowaga retained URS Corporation to perform monitoring activities as outlined in Section 3.1 of the O&M plan. During the period of January 2004 through the present, URS performed groundwater hydraulic monitoring (Section 3.1.1.2 of the O&M plan) and effluent monitoring (Section 3.1.4 of the O&M plan) on a quarterly basis. URS also performed the eleventh semi-annual groundwater quality monitoring event (Section 3.1.1.3 of the O&M plan). A summary of the monitoring activities is presented in the following subsections. Hydraulic and groundwater sampling locations are shown on Figure 3-1.

3.1 Groundwater Hydraulic Monitoring

Groundwater and surface water elevations were monitored on a quarterly basis at all locations listed in Table 3.1 of the O&M Plan. The hydraulic monitoring data tables showing groundwater elevations are presented in Appendix C. Table 1 of this appendix lists the measured elevations. Table 2 provides a comparison of the measured levels in the wells and corresponding manholes/wet wells.

The data presented in Appendix C indicate that groundwater levels outside the collection system were higher than the levels measured in the corresponding wet well or manhole for each measurement date. These data verify that collection system is operating as designed.

3.2 Groundwater Quality Monitoring

The eleventh semi-annual round of groundwater sampling was conducted between May 4, 2009 and May 7, 2009. All wells listed in Table 3.2 of the O&M plan were purged and sampled using dedicated/disposable equipment. Figure 3-1 shows the well locations. Low flow sampling techniques were used on most wells. Three wells, GW-4S, GW-7S, and GW-7D, were purged dry before a sample could be collected. These wells were sampled after their water levels recovered. Purge logs and sampling summary sheets are provided in Appendix D. Measurements of pH, specific conductivity, temperature, dissolved oxygen, oxidation reduction potential, and

turbidity taken during purging are provided in Appendix D. The samples were packed with ice in coolers and transported under chain-of-custody (CoC) control to Test America Laboratories of Amherst, New York.

Groundwater samples were analyzed for the parameters listed in Table 3.2 of the O&M plan as revised in accordance with Table 3-6 in the Semi Annual Report date September 2007 (January through June 2007) and as approved by the December 6, 2006 and November 29, 2007 correspondence from the NYSDEC authorizing a reduction in the parameters list (this table is included in this report as Table 3-2). Table 3-1 of this report presents the groundwater sample results compared with NYSDEC Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Class GA water quality standards.

No VOCs were detected at concentrations above the Class GA water quality standards at any location. One SVOC, bis(2-ethylhexyl)phthalate, was detected at a concentration slightly exceeding its Class GA water quality standard in the upgradient well GW-07D.

Among the metals, iron, magnesium, manganese, and sodium routinely exceed Class GA standards in most site wells. The concentration of iron, magnesium, manganese, and sodium in most site wells was similar to the concentrations found during previous sampling events. Lead exceeded its groundwater standard in upgradient well GW-07D. Nickel was detected at a concentration exceeding its groundwater standard in wells GW-03S and GW-07S.

Sodium concentrations were generally higher in bedrock wells (GW-1D, GW-3D, GW-8D and GW-26D) and shallow wells adjacent to roads (GW-1S and GW-30S). No significant changes in metals concentrations were observed when compared to previous sampling event analytical results. The higher sodium concentrations in the bedrock wells may be attributed to the local bedrock composition and the elevated concentration in the shallow wells may be the result of seasonal road de-icing activities.

Appendix E, Figures E-1 through E-19 presents a trend analysis of groundwater parameters that routinely exceed Class GA groundwater standards. A review of the trend analysis indicated that no significant changes or trends in concentrations of any of the parameters

exceeding groundwater standards have occurred over the eleven semi-annual sampling events except as described below. Figure E-2 for GW-01S, indicates a consistent drop in sodium concentration over the last four sampling events. Figure E-4 for GW-03S indicates an upward trend for manganese over recent sampling events. Figure E-5 for GW-04D, indicates a slight drop in magnesium concentration which had been increasing over several sampling events. Figure E-7 provides a trend analysis for upgradient monitoring well GW-7D for chromium, iron, lead, and sodium. The metals concentrations at this upgradient well had been slowly increasing over several monitoring events but concentrations were drastically lower during the last two events. Figure E-13 for GW-29S, indicates a drop in iron concentration after concentrations had been slowly increasing over the three previous events.

The groundwater analytical data package was prepared by Test America in accordance with NYSDEC Category A deliverable requirements. It was reviewed for compliance with analytical method requirements and the following guidelines: USEPA *Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, EPA-540-R-99-008, October 1999; USEPA *CLP National Functional Guidelines for Inorganic Data Review*, EPA-540-R-01-008, July 2002; and USEPA *Region II Data Validation SOP for SW-846 Method 8290, PCDDs and PCDFs by High Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS)*, SOP No. HW-19, Revision 1, October 1994. Qualifications applied to the data include “J/UJ” (estimated concentration/estimated quantitation limit), “J+” (estimated concentration with possible high bias), “J-” (estimated concentration with possible low bias), and “U” (not detected).

A Data Usability Summary Report (DUSR) was prepared following the guidelines provided in NYSDEC Division of Environmental Remediation *Guidance for the Development of Data Usability Summary Reports*, dated June 1999. The DUSR dated June 2009 is submitted separately from this report.

3.3 Groundwater Discharge Monitoring

URS completed two quarterly sampling events (March 2009 and June 2009) of the groundwater collection system discharge since the previous semi-annual report. The sampling

was performed in accordance with the requirements of Discharge Permit No. 05-12-CH016 between the Buffalo Sewer Authority and the Town of Cheektowaga. A copy of Permit No. 05-12-CH016 is included as Appendix F.

During the sampling events in March 2009 and June 2009, each regulated parameter was below the limits set by the permit. Copies of the data summary tables that were included with the monitoring reports are included as Appendix G.

3.4 Monitoring Well Inspections

During the May 2009 groundwater sampling event, a well inspection was performed. All wells appeared to be in good condition with the exception of previously existing damage to the riser on GW-07D, and new damage to the risers at GW-01S and GW-01D. It appears that the weep holes in the protective casing at GW-01S and GW-01D corroded shut allowing water to accumulate in the annular space between the riser and protective casing and freeze during the winter thus indenting the stainless steel risers. Sampling could still be conducted, however the stainless steel bailer present in GW-01S could not be removed. The weep holes were redrilled during the June quarterly effluent sampling event to prevent further damage. The locks at GW-01S, GW-01D, and GW-07S required lubrication and were functioning properly afterwards. The monitoring well inspection logs may be found in Appendix H.

4.0 SUMMARY AND RECOMMENDATIONS

General Maintenance: The Town will continue to maintain mechanical equipment at the landfill on an as-needed basis and operate the groundwater collection and discharge system as designed. The Town will also continue regular inspections, mow the cap once per year, and plow access to the control building during winter months as necessary.

Groundwater Hydraulic Monitoring: Hydraulic monitoring has been performed on a quarterly basis in conjunction with the discharge monitoring. Water level measurement data demonstrates that the hydraulic gradient is from outside the landfill towards the collection trench. Continued quarterly monitoring is recommended.

Groundwater Quality Monitoring: Groundwater sample results indicate that only low levels of organic compounds and metals are present. Similar concentrations of most parameters were found during previous sampling events. The twelfth round of groundwater sampling will be conducted in November 2009. Low flow sampling techniques will continue to be used on wells that historically have been purged to dryness. A review of the purge logs (Appendix D) has indicated that four wells (GW-4S, GW-7S, GW-7D, and GW-31S) can still be purged to dryness even using low flow sampling techniques.

Groundwater Discharge Monitoring: Groundwater discharges remain within permit limits. Continued quarterly monitoring is recommended.

Surface Water and Sediment Sampling: URS asked that the NYSDEC consider the discontinuation of surface water and sediment sampling at the site in the January to June 2008 Semiannual Report. No future surface water or sediment sampling is planned.

Wetland Inspection Summary: An inspection of the wetlands during the May 2009 event indicated that most of the replanted wetland stock has flourished and the wetland areas are returning to their natural state.

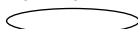
TABLES

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2009

Location ID			GW-01D	GW-01S	GW-03D	GW-03S	GW-04D
Sample ID			GW-1D	GW-1S	GW-3D	GW-3S	GW-4D
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/07/09	05/07/09	05/05/09	05/05/09	05/07/09
Parameter	Units	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	-			0.97 J		
Acetone	UG/L	-					
Vinyl chloride	UG/L	-			0.81 J		
Semivolatile Organic Compounds							
bis(2-Ethylhexyl)phthalate	UG/L	0.6					
Metals							
Arsenic	MG/L	0.15					
Barium	MG/L	-	0.0611	0.154	0.0864	0.154	0.0543
Cadmium	MG/L	-	0.0003 J	0.0007 J		0.0004 J	
Chromium	MG/L	193	0.0028 J	0.0033 J	0.0012 J	0.0275	
Copper	MG/L	24.3		0.0016 J		0.0028 J	
Iron	MG/L	0.3	0.536	11.9	2.13	0.951	0.166
Lead	MG/L	13.1					
Magnesium	MG/L	-	30.8	13.8	19.0	78.2	58.8
Manganese	MG/L	-	0.0216	0.757	0.990	0.521	0.0201
Nickel	MG/L	140		0.0017 J	0.0054 J	0.366	
Sodium	MG/L	-	86.6	163	206	41.0	57.4
Zinc	MG/L	223	0.0103	0.0158	0.0061 J	0.0200	0.0135

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class B. *- Criteria based on sum of the aroclors.

Flags assigned during chemistry validation are shown.

 Concentration Exceeds

UJ - Not detected. The reported quantitation limit is an estimated value.

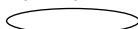
Only Detected Results Reported.

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2009

Location ID			GW-04S	GW-07D	GW-07S	GW-08D	GW-08D
Sample ID			GW-4S	GW-7D	GW-7S	FD-050509	GW-8D
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/07/09	05/05/09	05/05/09	05/05/09	05/05/09
Parameter	Units	*				Field Duplicate (1-1)	
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	-					
Acetone	UG/L	-		7.4			
Vinyl chloride	UG/L	-					
Semivolatile Organic Compounds							
bis(2-Ethylhexyl)phthalate	UG/L	0.6		14			
Metals							
Arsenic	MG/L	0.15	0.0051 J			0.0046 J	0.0057 J
Barium	MG/L	-	0.115	0.0450	0.205	0.0657	0.0659
Cadmium	MG/L	-	0.0004 J	0.0009 J			
Chromium	MG/L	193	0.0204	0.0356		0.0031 J	0.0028 J
Copper	MG/L	24.3	0.0057 J	0.0112			
Iron	MG/L	0.3	4.61	4.04	0.171	2.61	2.60
Lead	MG/L	13.1		0.117			
Magnesium	MG/L	-	25.6	23.3	30.2	15.3	15.3
Manganese	MG/L	-	0.286	0.0560	0.0805	0.510	0.509
Nickel	MG/L	140	0.0160	0.0248	0.111	0.0026 J	0.0030 J
Sodium	MG/L	-	29.9	75.3	56.2	157	158
Zinc	MG/L	223	0.0477	0.0297	0.0079 J	0.0151	0.0154

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class B. *- Criteria based on sum of the aromatics.

Flags assigned during chemistry validation are shown.

 Concentration Exceeds

UJ - Not detected. The reported quantitation limit is an estimated value.

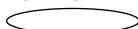
Only Detected Results Reported.

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2009

Location ID			GW-08SR	GW-26D	GW-28S	GW-29S	GW-30S
Sample ID			GW-8S(R)	GW-26D	GW-28S	GW-29S	GW-30S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/05/09	05/07/09	05/06/09	05/06/09	05/06/09
Parameter	Units	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	-		2.0 J			
Acetone	UG/L	-	1.8 J				
Vinyl chloride	UG/L	-	0.91 J	1.8			
Semivolatile Organic Compounds							
bis(2-Ethylhexyl)phthalate	UG/L	0.6					
Metals							
Arsenic	MG/L	0.15	0.0079 J			0.0212	
Barium	MG/L	-	0.506	0.127	0.0563	0.288	0.416
Cadmium	MG/L	-					
Chromium	MG/L	193	0.0009 J	0.0027 J			
Copper	MG/L	24.3					
Iron	MG/L	0.3	20.9	7.02	0.407	15.1	17.1
Lead	MG/L	13.1					
Magnesium	MG/L	-	48.6	19.7	36.9	77.8	51.3
Manganese	MG/L	-	0.982	1.07	1.04	0.727	2.57
Nickel	MG/L	140	0.0021 J	0.0020 J	0.0028 J		
Sodium	MG/L	-	238	222	30.0	13.9	728
Zinc	MG/L	223	0.0050 J	0.0037 J	0.0049 J	0.0184	

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class B. *- Criteria based on sum of the aromatics.

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 Concentration Exceeds

UJ - Not detected. The reported quantitation limit is an estimated value.

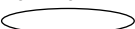
Only Detected Results Reported.

TABLE 3-1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
PFOHL BROTHERS LANDFILL SITE
MAY 2009

Location ID			GW-31S	GW-32S	GW-33S	GW-34S	GW-35S
Sample ID			GW-31S	GW-32S	GW-33S	GW-34S	GW-35S
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			05/06/09	05/06/09	05/06/09	05/04/09	05/07/09
Parameter	Units	*					
Volatile Organic Compounds							
1,2-Dichloroethene (total)	UG/L	-					
Acetone	UG/L	-					
Vinyl chloride	UG/L	-					
Semivolatile Organic Compounds							
bis(2-Ethylhexyl)phthalate	UG/L	0.6					
Metals							
Arsenic	MG/L	0.15					
Barium	MG/L	-	0.0386	0.0557	0.0156	0.137	0.0523
Cadmium	MG/L	-					
Chromium	MG/L	193					0.0009 J
Copper	MG/L	24.3					
Iron	MG/L	0.3	0.443	0.063		0.202	0.019 J
Lead	MG/L	13.1					
Magnesium	MG/L	-	28.9	41.2	37.2	46.8	23.8
Manganese	MG/L	-	0.800	0.561	0.190	0.475	0.403
Nickel	MG/L	140	0.0025 J	0.0015 J	0.0044 J	0.0048 J	0.0018 J
Sodium	MG/L	-	5.7	4.1	5.4	35.9	2.7
Zinc	MG/L	223	0.0059 J	0.0261	0.0124	0.0044 J	0.0217

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class B. *- Criteria based on sum of the aromatics.

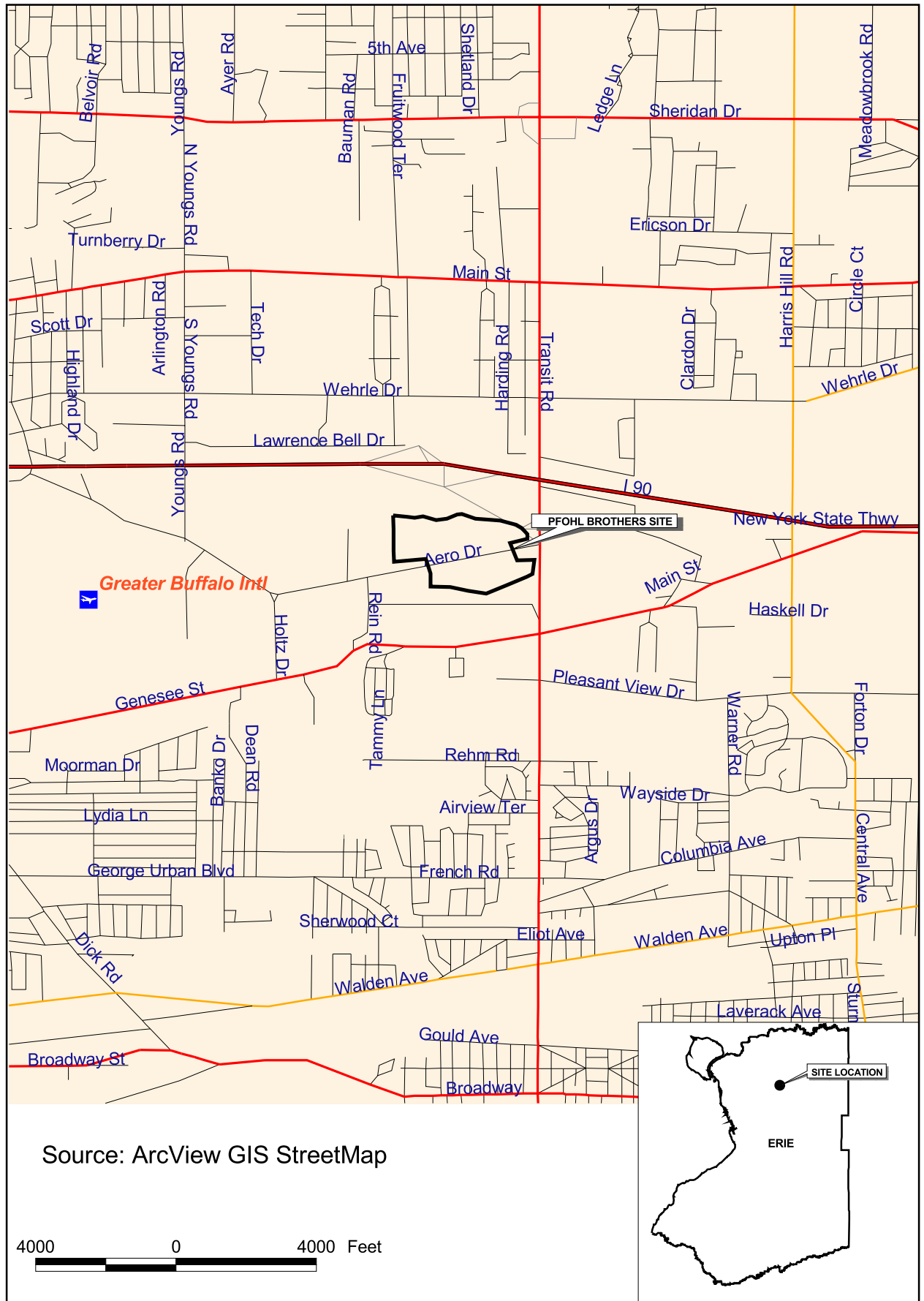
Flags assigned during chemistry validation are shown.

 Concentration Exceeds

UJ - Not detected. The reported quantitation limit is an estimated value.

Only Detected Results Reported.

FIGURES



Source: ArcView GIS StreetMap

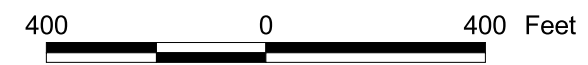
4000 0 4000 Feet



PFOHL BROTHERS LANDFILL
SITE LOCATION MAP

FIGURE 1-1

N:\1172700\00000\GIS\ArcView\pfohl.apr WELL LOCATIONS
12/15/2005



PFOHL BROTHERS LANDFILL
MONITORING LOCATIONS



FIGURE 3-1

APPENDIX A

EXAMPLE DAILY INSPECTION SHEETS

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date 2-6-09

Weather conditions

SUNNY
COLD 30°

Time 1:50

Read by:

B. PUGH

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	<u>5.2</u>	<u>0</u>	<u>208,888</u>	<u>1295</u>
WW-2	<u>4.6</u>	<u>0</u>	<u>41,496</u>	<u>30</u>
WW-1	<u>3.9</u>	<u>0</u>	<u>588,770</u>	<u>1171</u>
WW-6	<u>6.5</u>	<u>57.0</u>	<u>3,512,522</u>	<u>2318</u>
WW-4	<u>7.0</u>	<u>0</u>	<u>470,980</u>	<u>3337</u>
WW-5	<u>7.1</u>	<u>0</u>	<u>3,089,491</u>	<u>1157</u>

Flow Totalizer at Meter chamber

8,255,964

Heat Trace

Outside temp T = 30

Set point SP = 40

Current A = 2.3

Surge Suppressor events

168

Motor Control Center

Volts 480 volts

Which WW was running?

Amps 5 amps

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☒

Filter

Checked ☒

Changed ☐

Comments and/or Current Conditions

J. NICHY ALSO AT SITE TO TROUBLESHOOT WW 4.
HOSE CONNECTION AT BASE OF PUMP NEEDS
REPAIR. WILL REVISIT SITE NEXT WEEK TO
REPAIR. POWER TURNED OFF TO PUMP #4.

SIGNIFICANT DRIFTED SNOW COVER ON SITE.

Pfohl Brothers Landfill Site

Daily Logsheet

Town of Cheektowaga

Date 3-27-09

Weather conditions SUNNY 55°

Time 1:00

Read by: B. PUGH

	Level of Water from bottom (ft.)	Flow gallons / minute	Flow Totals gallons	Pump Run Time Hrs.
WW-3	4.1	35.5	284,005	1337
WW-2	4.7	0	40,745	30
WW-1	4.1	0	1,147,272	1390
WW-6	6.8	48.2	3,985,096	2459
WW-4	7.1	0	541,976	3379
WW-5	7.8	0	4,139,076	1574

Flow Totalizer at Meter chamber

10,478,551

Heat Trace

Outside temp T = 55
Current A = 0

Set point SP = 40°

Surge Suppressor events

208

Motor Control Center

Volts 480 volts
Amps 7 amps

Which WW was running?

1 ☐ 2 ☐ 3 ☒ 4 ☐ 5 ☐ 6 ☒

Filter

Checked ☒

Changed ☐

Comments and/or Current Conditions

- * WW 3 & WW 6 - LEVEL ALARM (99) RESET AND PUMPS BOTH CAME ON - OK FOR NOW
- * KEEP EYE ON WW2 - FLOW TOTAL THIS VISIT LESS THAN PRIOR VISIT - NEG. FLOW ALARM RESET
- * CLEARED ALL ALARM HISTORY
- * CLOCK NEEDS TO BE MOVED FORWARD 1 HOUR ON COMPUTER PROCESS DISPLAY

APPENDIX B

MONTHLY FLOW SUMMARIES
JANUARY 2009 – JUNE 2009

THE TOWN OF
CHEEKTOWAGA



JON W. NICHY
Superintendent

Main Pump Station
171 Central Boulevard
Cheektowaga, NY 14225
Phone: 716-896-1777
Fax: 716-896-6437

February 7, 2009

Mr. William R. Pugh, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

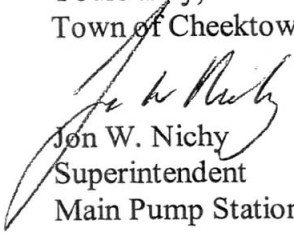
Dear Mr. Pugh,

Enclosed for your review, please find a copy of the **January 2009** Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

There were no instances of inhibiting pumping operation, during this period.

Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly,
Town of Cheektowaga


Jon W. Nichy
Superintendent
Main Pump Station

RECEIVED

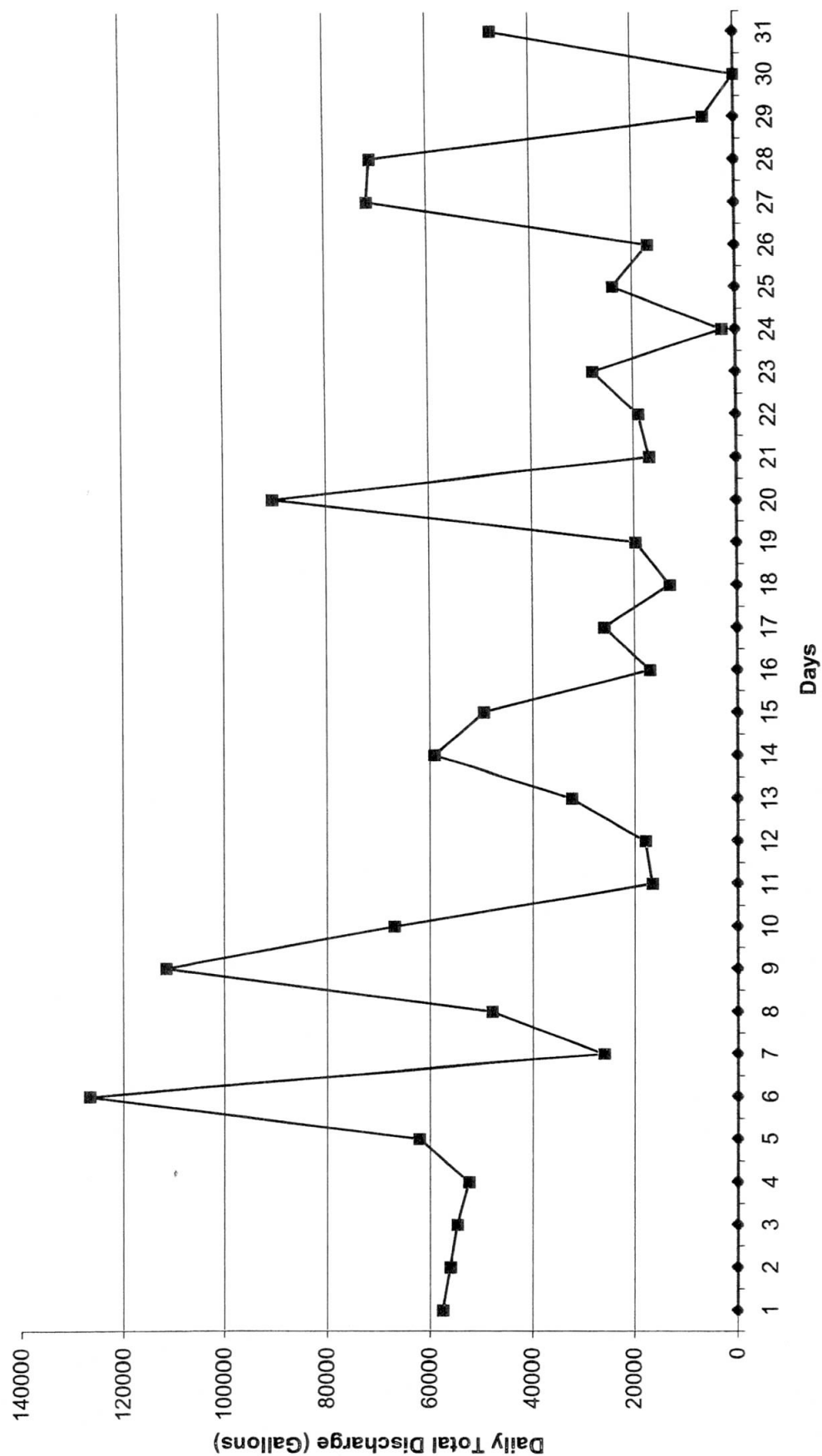
FEB - 9 2009

ENGINEERING
DEPT

Direct Discharge Flow Data

12/31/2008		6755366	64,538	6,755,391	
January-09	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)		Notes
1		6812926	57,560	6,812,951	
2		6868979	56,053	6,869,004	
3		6923737	54,758	6,923,762	
4		6976166	52,429	6,976,191	
5		7038272	62,106	7,038,297	
6		7164863	126,591	7,164,888	
7		7190956	26,093	7,190,981	
8		7238847	47,892	7,238,873	
9		7350287	111,440	7,350,313	
10		7417174	66,888	7,417,201	
11		7433800	16,626	7,433,827	
12		7451806	18,006	7,451,833	
13		7484257	32,451	7,484,284	
14		7543346	59,090	7,543,374	
15		7592796	49,450	7,592,824	
16		7609879	17,083	7,609,907	
17		7635814	25,935	7,635,842	
18		7648882	13,069	7,648,911	
19		7668564	19,682	7,668,593	
20		7758789	90,226	7,758,819	
21		7775754	16,965	7,775,784	
22		7794722	18,968	7,794,752	
23		7822681	27,959	7,822,711	
24		7825342	2,662	7,825,373	
25		7849238	23,896	7,849,269	
26		7866142	16,904	7,866,173	
27		7937676	71,535	7,937,708	
28		8008592	70,916	8,008,624	
29		8014598	6,007	8,014,631	
30		8014598	0	8,014,631	
31		8061906	47,308	8,061,939	
		1,306,540	1,306,548	1,306,548	

Pfohl Bros.
January
2009



THE TOWN OF
CHEEKTOWAGA



JON W. NICHY
Superintendent

Main Pump Station
171 Central Boulevard
Cheektowaga, NY 14225
Phone: 716-896-1777
Fax: 716-896-6437

March 6, 2009

Mr. William R. Pugh, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

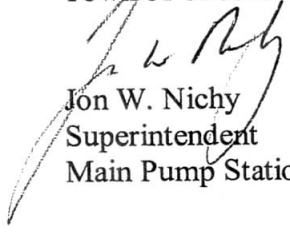
Dear Mr. Pugh,

Enclosed for your review, please find a copy of the **February 2009** Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

A monthly log sheet indicating inhibiting and enabling of pumping operation at the site is included with this package.

Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly,
Town of Cheektowaga


Jon W. Nichy
Superintendent
Main Pump Station

RECEIVED

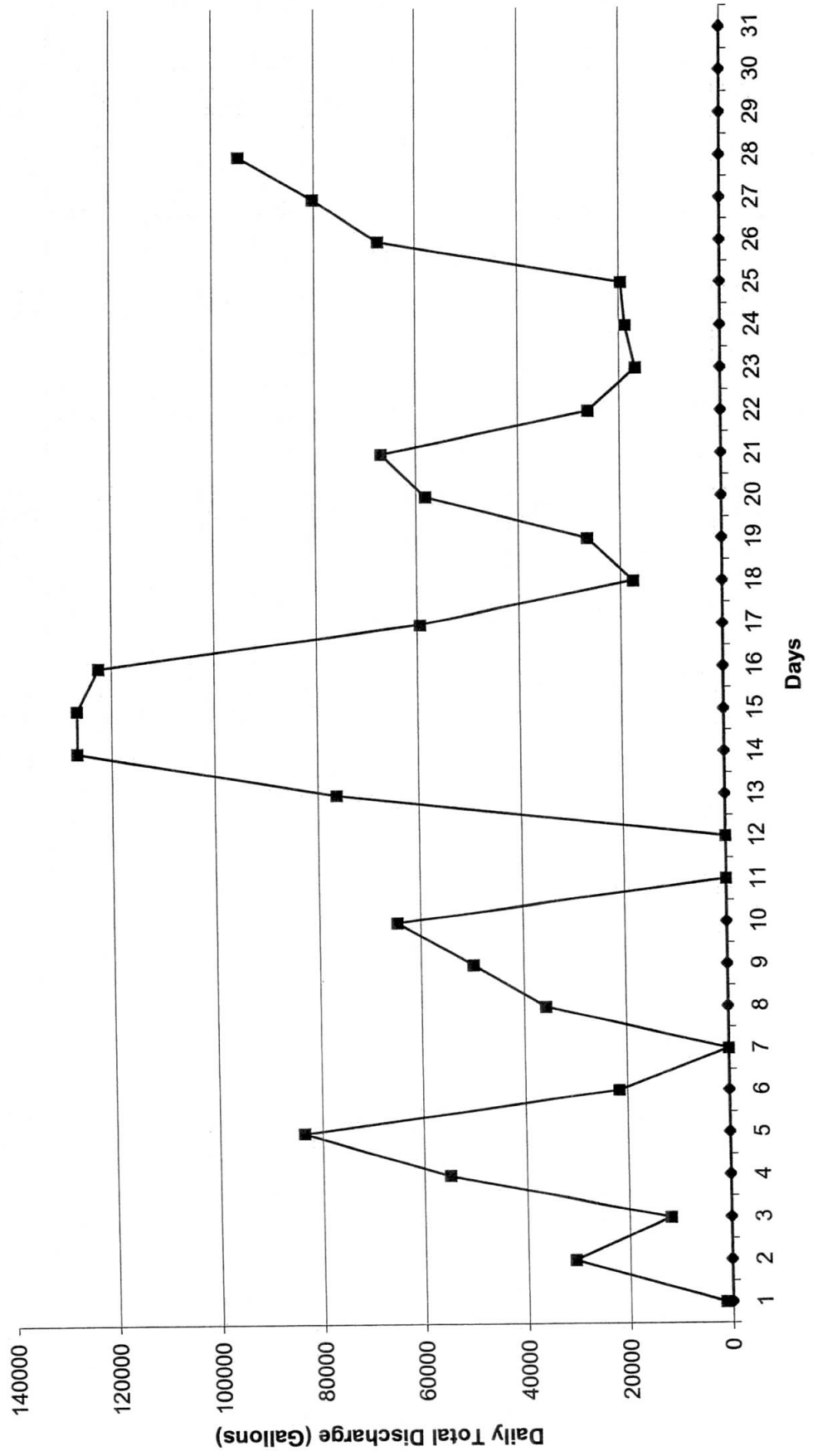
MAR 10 2009

ENGINEERING
DEPT

Direct Discharge Flow Data

1/31/2009		8061906	47,308	8,061,939	
February-09	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)		Notes
1		8063154	1,249	8,063,188	
2		8093747	30,593	8,093,781	
3		8105566	11,820	8,105,601	
4		8160494	54,928	8,160,529	
5		8244018	83,525	8,244,054	
6		8265577	21,559	8,265,613	
7		8265577	0	8,265,613	
8		8301294	35,717	8,301,330	
9		8351039	49,746	8,351,076	
10		8415614	64,575	8,415,651	
11		8415614	0	8,415,651	
12		8415614	0	8,415,651	
13		8491851	76,237	8,491,888	
14		8618571	126,720	8,618,608	
15		8745291	126,720	8,745,328	
16		8867706	122,415	8,867,743	
17		8927103	59,397	8,927,140	
18		8944643	17,540	8,944,680	
19		8971168	26,525	8,971,205	
20		9029334	58,166	9,029,371	
21		9096229	66,895	9,096,266	
22		9122375	26,146	9,122,412	
23		9139164	16,789	9,139,201	
24		9158014	18,850	9,158,051	
25		9177684	19,670	9,177,721	
26		9244972	67,288	9,245,009	
27		9325156	80,184	9,325,193	
28		9419879	94,722	9,419,915	
29					
30					
31					
		1,357,973	1,357,976	1,357,976	

Pfohl Bros.
February
2009



Auto Dialer System Log

[illegible]

THE TOWN OF
CHEEKTOWAGA



JON W. NICHY
Superintendent

Main Pump Station
171 Central Boulevard
Cheektowaga, NY 14225
Phone: 716-896-1777
Fax: 716-896-6437

April 9, 2009

Mr. William R. Pugh, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

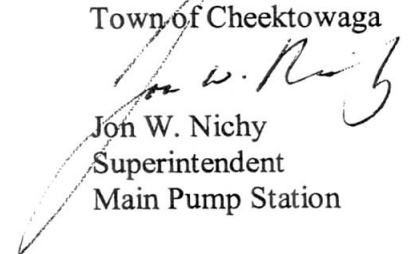
Dear Mr. Pugh,

Enclosed for your review, please find a copy of the **March 2009** Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

A monthly log sheet indicating inhibiting and enabling of pumping operation at the site is included with this package.

Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly,
Town of Cheektowaga


Jon W. Nichy
Superintendent
Main Pump Station

RECEIVED

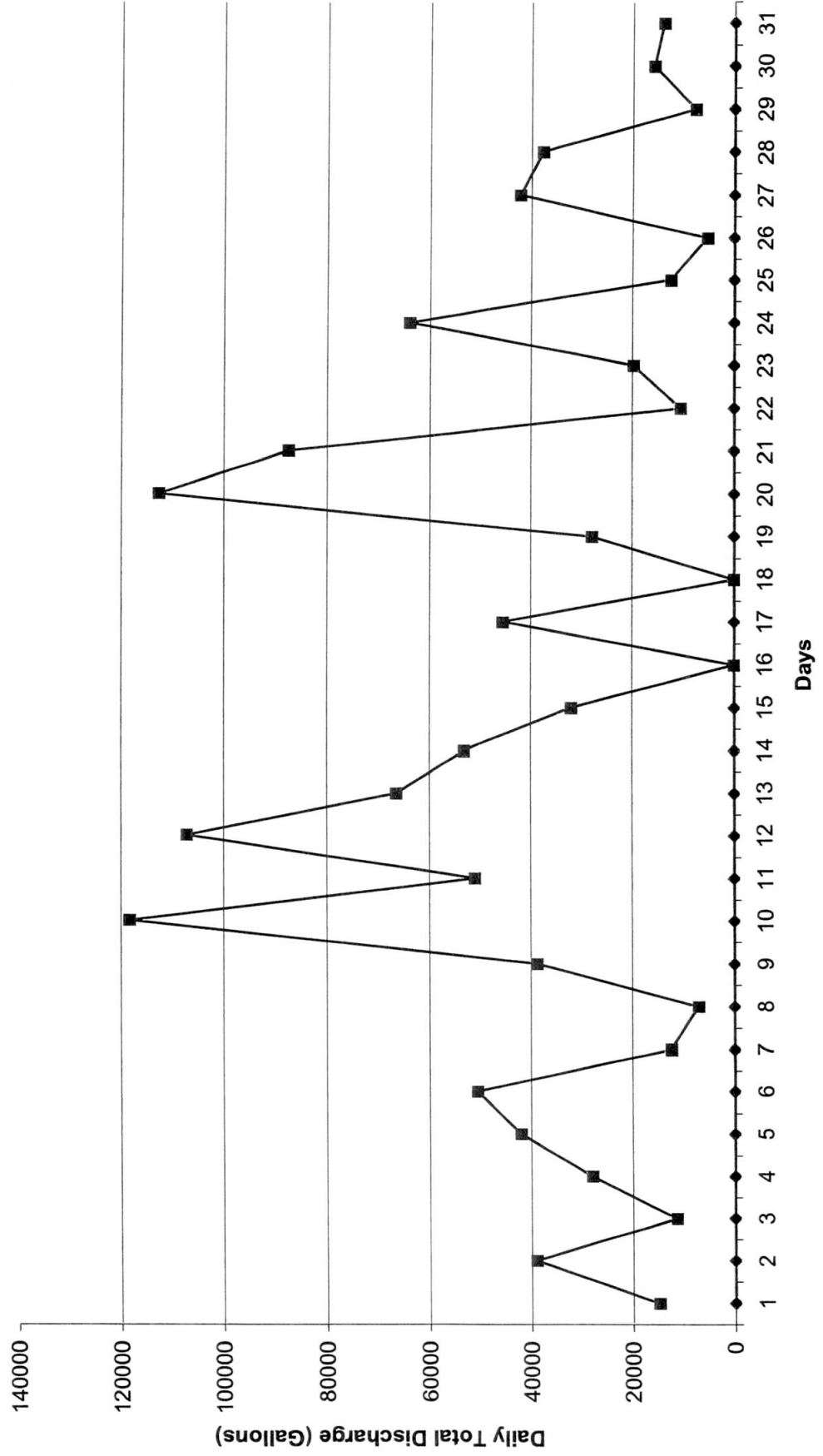
APR 13 2009

ENGINEERING
DEPT

Direct Discharge Flow Data

2/21/09		9419879	94,722	9,419,915	
March-09	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)		Notes
1		9434859	14,981	9,434,896	
2		9473804	38,945	9,473,841	
3		9485190	11,386	9,485,227	
4		9513135	27,945	9,513,172	
5		9555142	42,007	9,555,179	
6		9605616	50,474	9,605,653	
7		9618049	12,433	9,618,086	
8		9625160	7,111	9,625,197	
9		9663859	38,699	9,663,896	
10		9782194	118,335	9,782,231	
11		9833138	50,944	9,833,175	
12		9940270	107,132	9,940,307	
13		10006723	66,453	10,006,760	
14		10059888	53,165	10,059,925	
15		10091862	31,974	10,091,899	
16		10091862	0	10,091,899	
17		10137402	45,540	10,137,439	
18		10137402	0	10,137,439	
19		10165357	27,955	10,165,394	
20		10278062	112,705	10,278,099	
21		10365459	87,397	10,365,496	
22		10376045	10,586	10,376,082	
23		10395919	19,874	10,395,956	
24		10459862	63,943	10,459,899	
25		10472392	12,530	10,472,429	
26		10477666	5,274	10,477,703	
27		10519832	42,166	10,519,869	
28		10557567	37,735	10,557,604	
29		10565235	7,668	10,565,272	
30		10581174	15,939	10,581,211	
31		10595179	14,005	10,595,216	
		1,175,300	1,175,301	1,137,689	

Pfohl Bros.
March
2009



Auto Dialer System Log

[illegible]

THE TOWN OF
CHEEKTOWAGA



JON W. NICHY
Superintendent

Main Pump Station
171 Central Boulevard
Cheektowaga, NY 14225
Phone: 716-896-1777
Fax: 716-896-6437

May 2, 2009

Mr. William R. Pugh, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

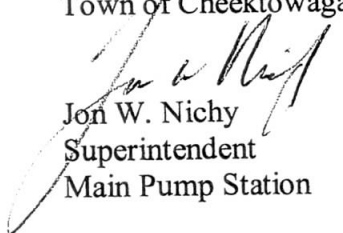
Dear Mr. Pugh,

Enclosed for your review, please find a copy of the **April 2009** Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

A monthly log sheet indicating inhibiting and enabling of pumping operation at the site is included with this package.

Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly,
Town of Cheektowaga


Jon W. Nichy
Superintendent
Main Pump Station

RECEIVED

MAY 4 - 2009

ENGINEERING
DEPT

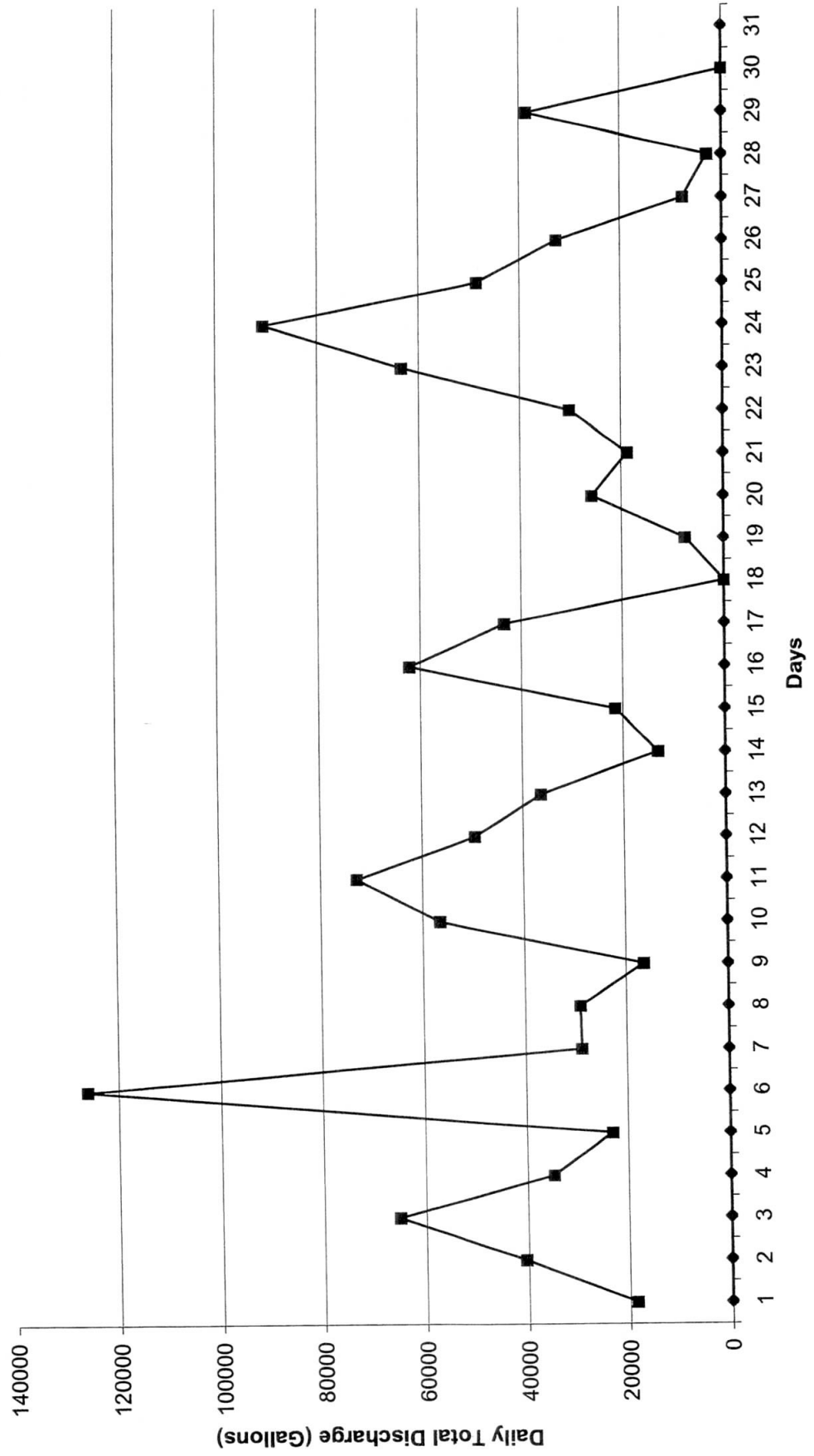
Direct Discharge Flow Data

3/31//09		10595179	14,005	10,595,216	
April-09	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)		Notes
1		10613816	18,637	10,613,853	
2		10654202	40,386	10,654,239	
3		10719287	65,085	10,719,324	
4		10753943	34,656	10,753,980	
5		10753943	23,022	10,777,002	
6		10879841	125,898	10,902,900	
7		10908678	28,837	10,931,737	
8		10937720	29,042	10,960,779	
9		10954182	16,462	10,977,241	
10		11010830	56,648	11,033,889	
11		11083600	72,770	11,106,659	
12		11133051	49,451	11,156,110	
13		11169439	36,388	11,192,498	
14		11182619	13,180	11,205,678	
15		11204080	21,461	11,227,139	
16		11289245	62,143	11,289,282	
17		11332528	43,283	11,332,565	
18		11332528	0	11,332,565	
19		11340161	7,633	11,340,198	
20		11366044	25,883	11,366,081	
21		11384820	18,776	11,384,857	
22		11414958	30,138	11,414,995	
23		11478276	63,318	11,478,313	
24		11568815	90,539	11,568,852	
25		11617229	48,414	11,617,266	
26		11649859	32,630	11,649,896	
27		11657526	7,667	11,657,563	
28		11660429	2,903	11,660,466	
29		11698973	38,544	11,699,010	
30		11698973	0	11,699,010	
31					
		1,103,794	1,103,794	1,103,794	

Auto Dialer System Log

[illegible]

Pfohl Bros.
April
2009



THE TOWN OF
CHEEKTOWAGA



JON W. NICHY
Superintendent

Main Pump Station
171 Central Boulevard
Cheektowaga, NY 14225
Phone: 716-896-1777
Fax: 716-896-6437

June 9, 2009

Mr. William R. Pugh, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

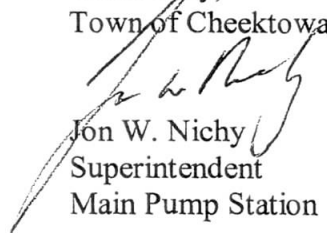
Dear Mr. Pugh,

Enclosed for your review, please find a copy of the **May 2009** Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

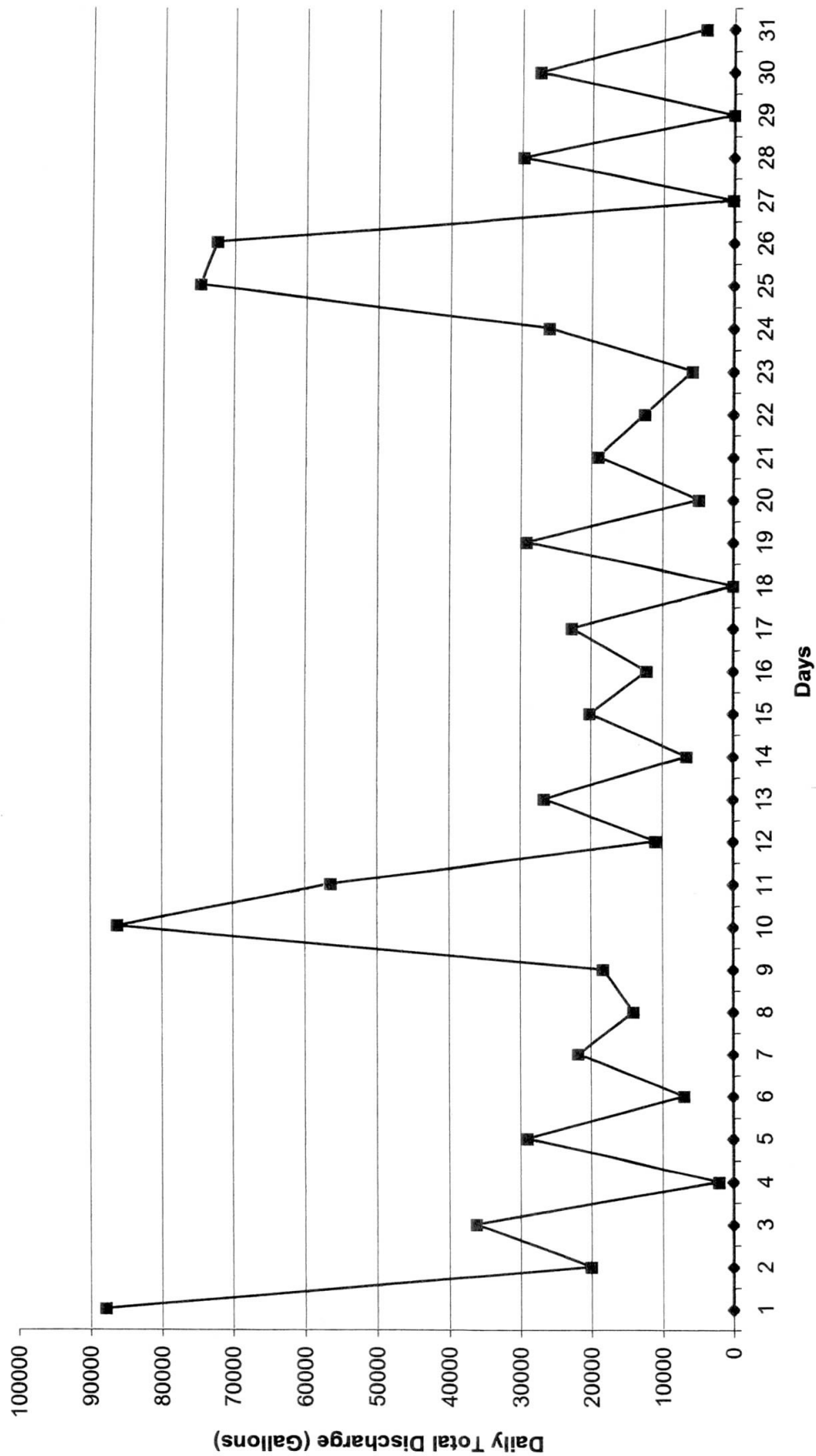
A monthly log sheet indicating inhibiting and enabling of pumping operation at the site is included with this package.

Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly,
Town of Cheektowaga


Jon W. Nichy
Superintendent
Main Pump Station

Pfohl Bros.
May
2009



Direct Discharge Flow Data

4/30/09		11698973	0	11,699,010	
May-09	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)		Notes
1		11786788	87,815	11,786,825	
2		11806814	20,026	11,806,851	
3		11842959	36,145	11,842,996	
4		11845026	2,067	11,845,063	
5		11874033	29,007	11,874,070	
6		11881029	6,996	11,881,066	
7		11902838	21,809	11,902,875	
8		11935227	14,068	11,916,943	
9		11935227	18,321	11,935,264	
10		12021421	86,194	12,021,458	
11		12077867	56,446	12,077,904	
12		12088832	10,965	12,088,869	
13		12115464	26,632	12,115,501	
14		12122045	6,581	12,122,082	
15		12142190	20,145	12,142,227	
16		12154464	12,274	12,154,501	
17		12177191	22,727	12,177,228	
18		12177191	0	12,177,228	
19		12206352	29,161	12,206,389	
20		12211235	4,883	12,211,272	
21		12230324	19,089	12,230,361	
22		12242845	12,521	12,242,882	
23		12248676	5,831	12,248,713	
24		12274710	26,034	12,274,747	
25		12349483	74,773	12,349,520	
26		12421956	72,473	12,421,993	
27		12422078	122	12,422,115	
28		12451800	29,722	12,451,837	
29		12451800	0	12,451,837	
30		12479256	27,456	12,479,293	
31		12483226	3,970	12,483,263	
		784,253	784,253	784,253	

Auto Dialer System Log

[illegible]

THE TOWN OF
CHEEKTOWAGA



JON W. NICHY
Superintendent

Main Pump Station
171 Central Boulevard
Cheektowaga, NY 14225
Phone: 716-896-1777
Fax: 716-896-6437

July 10, 2009

Mr. William R. Pugh, P.E.
Town Engineer
Town of Cheektowaga

Re: Pfohl Bros. Flow Data

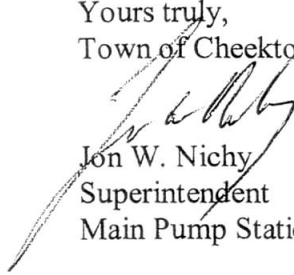
Dear Mr. Pugh,

Enclosed for your review, please find a copy of the **June 2009** Direct Discharge Flow Data Report, prepared by Jon W. Nichy.

A monthly log sheet indicating inhibiting and enabling of pumping operation at the site is included with this package.

Should you have any other questions or comments regarding this submittal, please contact this office @ 896-1777.

Yours truly,
Town of Cheektowaga

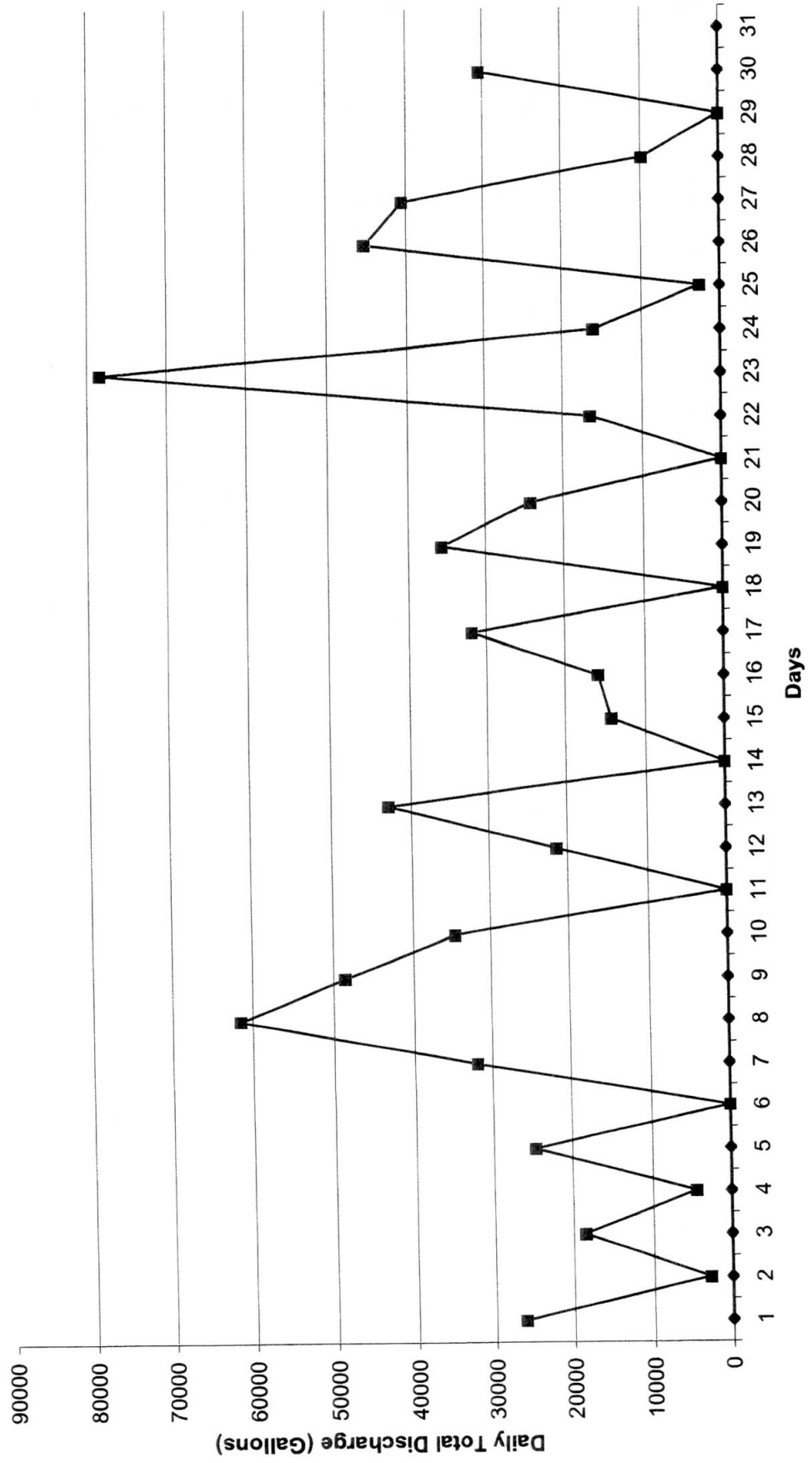

Jon W. Nichy
Superintendent
Main Pump Station

RECEIVED

JUL 13 2009

ENGINEERING
DEPT

Pfohl Bros.
June
2009



Direct Discharge Flow Data

5/31//09		12483226	3,970	12,483,263	
June-09	Time; 11:58pm unless otherwise stated	Totalizer Reading (Gallons)	Daily Total Discharge (Gallons)		Notes
1		12509360	26,134	12,509,397	
2		12512150	2,790	12,512,187	
3		12530662	18,512	12,530,699	
4		12535134	4,472	12,535,171	
5		12559764	24,630	12,559,801	
6		12559764	0	12,559,801	
7		12591586	31,822	12,591,623	
8		12653055	61,469	12,653,092	
9		12701608	48,553	12,701,645	
10		12736214	34,606	12,736,251	
11		12736214	0	12,736,251	
12		12757593	21,379	12,757,630	
13		12800465	42,872	12,800,502	
14		12800465	0	12,800,502	
15		12814769	14,304	12,814,806	
16		12830654	15,885	12,830,691	
17		12862486	31,832	12,862,523	
18		12862486	0	12,862,523	
19		12898213	35,727	12,898,250	
20		12922351	24,138	12,922,388	
21		12922351	0	12,922,388	
22		12938883	16,532	12,938,920	
23		13017267	78,384	13,017,304	
24		13033358	16,091	13,033,395	
25		13035929	2,571	13,035,966	
26		13081164	45,235	13,081,201	
27		13121665	40,501	13,121,702	
28		13131574	9,909	13,131,611	
29		13131574	0	13,131,611	
30		13161919	30,345	13,161,956	
31					
		678,693	678,693	678,693	

Auto Dialer System Log

[illegible]

APPENDIX C

HYDRAULIC MONITORING TABLES

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2009

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-03S	1073812.622	1114605.762	692.61	NM	693.80	S	1						
MNW								3/19/2009 0000	2.43	691.37	0.00	691.37	
MNW								5/4/2009 0000	2.5	691.30	0.00	691.30	
MNW								6/22/2009 0000	4.92	688.88	0.00	688.88	
GW-04S	1072284.456	1114685.127	690.76	NM	692.72	S	1						
MNW								3/19/2009 0000	4.05	688.67	0.00	688.67	
MNW								5/4/2009 0000	4.3	688.42	0.00	688.42	
MNW								6/22/2009 0000	5.47	687.25	0.00	687.25	
GW-07S	1071238.157	1117666.265	697.47	NM	699.51	S	1						
MNW								3/19/2009 0000	4.28	695.23	0.00	695.23	
MNW								5/4/2009 0000	5.02	694.49	0.00	694.49	
MNW								6/22/2009 0000	5.98	693.53	0.00	693.53	
GW-08SR	1073714.172	1116786.343	695.08	NM	697.50	S	1						
MNW								3/19/2009 0000	5.38	692.12	0.00	692.12	
MNW								5/4/2009 0000	5.37	692.13	0.00	692.13	
MNW								6/22/2009 0000	5.42	692.08	0.00	692.08	
GW-28S	1073129.479	1117648.927	698.60	NM	700.95	S	1						
MNW								3/19/2009 0000	8.97	691.98	0.00	691.98	
MNW								5/4/2009 0000	9.58	691.37	0.00	691.37	
MNW								6/22/2009 0000	10.74	690.21	0.00	690.21	
GW-29S	1072552.638	1117761.993	697.50	NM	699.63	S	1						
MNW								3/19/2009 0000	8.12	691.51	0.00	691.51	
MNW								5/4/2009 0000	9.07	690.56	0.00	690.56	
MNW								6/22/2009 0000	10.21	689.42	0.00	689.42	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2009

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
GW-30S	1072096.109	1117743.563	693.67	NM	696.58	S	1						
MNW								3/19/2009 0000	8.36	688.22	0.00	688.22	
MNW								5/4/2009 0000	8.34	688.24	0.00	688.24	
MNW								6/22/2009 0000	8.47	688.11	0.00	688.11	
GW-31S	1071786.280	1117191.441	695.84	NM	698.62	S	1						
MNW								3/19/2009 0000	2.60	696.02	0.00	696.02	
MNW								5/4/2009 0000	3.33	695.29	0.00	695.29	
MNW								6/22/2009 0000	5.76	692.86	0.00	692.86	
GW-32S	1071613.793	1116364.200	696.19	NM	698.37	S	1						
MNW								3/19/2009 0000	2.80	695.57	0.00	695.57	
MNW								5/4/2009 0000	3.57	694.80	0.00	694.80	
MNW								6/22/2009 0000	5.13	693.24	0.00	693.24	
GW-33S	1072165.625	1115561.866	695.94	NM	698.24	S	1						
MNW								3/19/2009 0000	4.21	694.03	0.00	694.03	
MNW								5/4/2009 0000	4.88	693.36	0.00	693.36	
MNW								6/22/2009 0000	6.55	691.69	0.00	691.69	
GW-34S	1072979.205	1114730.200	692.51	NM	694.77	S	1						
MNW								3/19/2009 0000	2.74	692.03	0.00	692.03	
MNW								5/4/2009 0000	2.92	691.85	0.00	691.85	
MNW								6/22/2009 0000	3.62	691.15	0.00	691.15	
GW-35S	1071701.925	1115985.585	696.19	NM	697.39	S	1						
MNW								3/19/2009 0000	2.96	694.43	0.00	694.43	
MNW								5/4/2009 0000	3.67	693.72	0.00	693.72	
MNW								6/22/2009 0000	5.36	692.03	0.00	692.03	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2009

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MH-01 MH	1073806.665	1114810.501	698.62	NM	698.62	NA	1	3/19/2009 0000	9.72	688.90	0.00	688.90	
								5/4/2009 0000	10.31	688.31	0.00	688.31	
								6/22/2009 0000	9.82	688.80	0.00	688.80	
MH-03 MH	1073736.789	1115259.334	699.40	NM	699.40	NA	1	3/19/2009 0000	10.60	688.80	0.00	688.80	
								5/4/2009 0000	11.18	688.22	0.00	688.22	
								6/22/2009 0000	10.70	688.70	0.00	688.70	
MH-07 MH	1073838.229	1116243.757	696.82	NM	696.82	NA	1	3/19/2009 0000	8.79	688.03	0.00	688.03	
								5/4/2009 0000	9.39	687.43	0.00	687.43	
								6/22/2009 0000	8.9	687.92	0.00	687.92	
MH-10 MH	1073540.729	1117381.524	703.01	NM	703.01	NA	1	3/19/2009 0000	14.48	688.53	0.00	688.53	
								5/4/2009 0000	14.46	688.55	0.00	688.55	
								6/22/2009 0000	14.43	688.58	0.00	688.58	
MH-15 MH	1072531.567	1117761.125	699.02	NM	699.02	NA	1	3/19/2009 0000	14.53	684.49	0.00	684.49	
								5/4/2009 0000	14.67	684.35	0.00	684.35	
								6/22/2009 0000	14.68	684.34	0.00	684.34	
MH-16 MH	1072133.714	1117748.238	698.57	NM	698.57	NA	1	3/19/2009 0000	14.21	684.36	0.00	684.36	
								5/4/2009 0000	14.46	684.11	0.00	684.11	
								6/22/2009 0000	14.41	684.16	0.00	684.16	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2009

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MH-17	1071813.137	1117180.019	702.16	NM	702.16	NA	1						
MH								3/19/2009 0000	17.83	684.33	0.00	684.33	
MH								5/4/2009 0000	18.12	684.04	0.00	684.04	
MH								6/22/2009 0000	18.05	684.11	0.00	684.11	
MH-20	1071756.395	1115997.024	706.20	NM	706.20	NA	1						
MH								3/19/2009 0000	19.72	686.48	0.00	686.48	
MH								5/4/2009 0000	19.72	686.48	0.00	686.48	
MH								6/22/2009 0000	19.72	686.48	0.00	686.48	
MH-22	1072158.023	1115589.309	698.05	NM	698.05	NA	1						
MH								3/19/2009 0000	9.00	689.05	0.00	689.05	
MH								5/4/2009 0000	8.97	689.08	0.00	689.08	
MH								6/22/2009 0000	8.98	689.07	0.00	689.07	
MH-25	1072483.928	1114820.313	698.17	NM	698.17	NA	1						
MH								3/19/2009 0000	9.35	688.82	0.00	688.82	
MH								5/4/2009 0000	9.90	688.27	0.00	688.27	
MH								6/22/2009 0000	9.40	688.77	0.00	688.77	
SG-01	1073882.887	1114813.101	NM	NM	690.00	NA	1						
SG								3/19/2009 0000	-1.20	691.20	0.00	691.20	
SG								5/4/2009 0000	-1.0	691.00	0.00	691.00	
SG								6/22/2009 0000	NM	-	NM	-	DRY
SG-02	1073738.27	1116805.85	NM	NM	690.00	NA	1						
SG								3/19/2009 0000	-2.18	692.18	0.00	692.18	
SG								5/4/2009 0000	-3.2	693.20	0.00	693.20	
SG								6/22/2009 0000	-3.1	693.10	0.00	693.10	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE 1
PFOHL BROTHERS LANDFILL SITE
GROUNDWATER ELEVATIONS
JANUARY - JUNE 2009

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
WW-01 MH	1073676.903	1115710.476	NM	NM	684.02	NA	1	3/19/2009 0000	-4.7	688.72	0.00	688.72	
								5/4/2009 0000	-4.0	688.02	0.00	688.02	
								6/22/2009 0000	-4.5	688.52	0.00	688.52	
WW-02 MH	1073684.724	1116792.311	NM	NM	684.18	NA	1	3/19/2009 0000	-4.7	688.88	0.00	688.88	
								5/4/2009 0000	-4.6	688.78	0.00	688.78	
								6/22/2009 0000	-4.7	688.88	0.00	688.88	
WW-03 MH	1073140.339	1117618.499	NM	NM	683.80	NA	1	3/19/2009 0000	-5.5	689.30	0.00	689.30	
								5/4/2009 0000	-5.6	689.40	0.00	689.40	
								6/22/2009 0000	-5.6	689.40	0.00	689.40	
WW-04 MH	1072057.563	1117610.508	NM	NM	676.62	NA	1	3/19/2009 0000	-7.3	683.92	0.00	683.92	
								5/4/2009 0000	-7.0	683.62	0.00	683.62	
								6/22/2009 0000	-7.1	683.72	0.00	683.72	
WW-05 MH	1071661.368	1116370.876	NM	NM	676.14	NA	1	3/19/2009 0000	-8.0	684.14	0.00	684.14	
								5/4/2009 0000	-7.5	683.64	0.00	683.64	
								6/22/2009 0000	-7.8	683.94	0.00	683.94	
WW-06 MH	1072988.420	1114811.518	NM	NM	681.89	NA	1	3/19/2009 0000	NM	-	0.00	-	PLC Error
								5/4/2009 0000	-6.8	688.69	0.00	688.69	
								6/22/2009 0000	-7.2	689.09	0.00	689.09	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Type:

MH	Manhole Monitoring Point
MNW	Monitoring Well
SG	Staff Gauge

TABLE 2
PFOHL BROTHERS LANDFILL SITE
OVERBURDEN HYDRAULIC GRADIENT

WELL PAIR:	WW-1	*	Level	WW-2	GW-8SR	Level	SG-02	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft)
3/19/2009	688.72	---	---	688.88	692.12	3.24	692.18	3.30
5/4/2009	688.02	---	---	688.78	692.13	3.35	693.20	4.42
6/22/2009	688.52	---	---	688.88	692.08	3.20	693.10	4.22

WELL PAIR:	WW-3	GW-28S	Level	WW-4	*	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/19/2009	689.30	691.98	2.68	683.92	---	---
5/4/2009	689.40	691.37	1.97	683.62	---	---
6/22/2009	689.40	690.21	0.81	683.72	---	---

WELL PAIR:	WW-5	GW-32S	Level	WW-6	GW-34S	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/19/2009	684.14	695.57	11.43	**	692.03	NA
5/4/2009	683.64	694.80	11.16	688.69	691.85	3.16
6/22/2009	683.94	693.24	9.30	689.09	691.15	2.06

WELL PAIR:	MH-1	SG-1	Level	MH-15	GW-29S	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/19/2009	688.90	691.20	2.30	684.49	691.51	7.02
5/4/2009	688.31	691.00	2.69	684.35	690.56	6.21
6/22/2009	688.80	DRY	--	684.34	689.42	5.08

WELL PAIR:	MH-16	GW-30S	Level	MH-17	GW-31S	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/19/2009	684.36	688.22	3.86	684.33	696.02	11.69
5/4/2009	684.11	688.24	4.13	684.04	695.29	11.25
6/22/2009	684.16	688.11	3.95	684.11	692.86	8.75

WELL PAIR:	MH-20	GW-35S	Level	MH-22	GW-33S	Level
	Water Level	Water Level	Difference	Water Level	Water Level	Difference
DATE	(ft amsl)	(ft amsl)	(ft)	(ft amsl)	(ft amsl)	(ft)
3/19/2009	686.48	694.43	7.95	686.48	694.03	7.55
5/4/2009	686.48	693.72	7.24	689.08	693.36	4.28
6/22/2009	686.48	692.03	5.55	689.07	691.69	2.62

Notes:

* = No corresponding monitoring well.

** = PLC Level gauge malfunctioning

APPENDIX D

**GROUNDWATER PURGE AND SAMPLE COLLECTION
LOGS**

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-1S

Date: 5/7/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/
Sampling
Device: Geopump 2 Tubing Type: LDPE/Silicone Pump/Tubing
Inlet
Location: Screen midpoint

Measuring Below Top of Initial Depth Depth to Well Well Screen
Point: Riser to Water: 3.80' Bottom: 14.94' Diameter: 2" Length:

Casing Volume in 1
Type: Stainless Steel Well Casing (liters): 6.9 Estimated Purge Volume (liters): 6.9

Sample ID: GW-1S Sample Time: 9:48 QA/QC: None

Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Riser pipe is bulged inwards, could not remove stainless steel bailer from within well, sampled around it.
Weep hole in protective casing may have corroded shut.

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
9:03	Start pumping, bypassed flow through cell due to abundant orange particulates						250	3.80
9:12	6.79	9.38	1.136	4.31	442	-81.0	130	4.41
9:17	6.78	9.19	1.131	1.36	335	-75.5	130	4.45
9:22	6.78	9.17	1.116	1.32	226	-71.5	130	4.46
9:27	6.80	9.04	1.091	1.00	142	-63.0	130	4.47
9:32	6.79	8.98	1.086	0.92	113	-65.3	130	4.48
9:37	6.78	9.02	1.086	0.84	95	-68.6	130	4.43
9:42	6.77	9.06	1.089	0.82	84	-68.9	130	4.41
9:45	6.76	9.06	1.095	0.78	77	-71.6	130	4.40
9:48	6.75	9.10	1.100	0.75	72	-73.1	130	4.39
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
 4 inch diameter well = 2470 ml/ft ($vq_{d_i} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-1D

Date: 5/7/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.93'	Depth to Well Bottom:	39.63'	Well Diameter:	4"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	90.6	Estimated Purge Volume (liters):	66.2
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Sample ID:	GW-1D	Sample Time:	11:25	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Sulfur odor

PURGE PARAMETERS

[illegible]

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($v_{ql} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-3S

Date: 5/5/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.56'	Depth to Well Bottom:	13.24'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	6.6	Estimated Purge Volume (liters):	7.4
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Sample ID:	GW-3S	Sample Time:	9:47	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($v_{ql} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-3D

Date: 5/5/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	1.91'	Depth to Well Bottom:	35.69'	Well Diameter:	4"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	83.4	Estimated Purge Volume (liters):	85.0
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Sample ID:	GW-3D	Sample Time:	11:58	QA/QC:	MS/MSD
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($v_{ql} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-4S

Date: Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	4.41'	Depth to Well Bottom:	16.25'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	7.3	Estimated Purge Volume (liters):	28.7
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Sample ID:	GW-4S	Sample Time:	14:25	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

Well historically goes dry at very low purge rates (<75ml/min). Pumped dry and sampled after recovery.

PURGE PARAMETERS

[illegible]

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($vql_w = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-4D

Date: 5/7/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	12.46'	Depth to Well Bottom:	45.57'	Well Diameter:	4"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	81.8	Estimated Purge Volume (liters):	8.4
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Sample ID:	GW-4D	Sample Time:	13:59	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($vql_w = \pi r^2 h$)

WELL PURGING LOG

URS Corporation

SITE NAME:	Pfohl Brothers Landfill	WELL NO.:	GW-7S
PROJECT NO.:	11175616.00000		
STAFF:	Rob Murphy, Tim Ifkovich		
DATE(S):	5/4/09, 5/5/09		

1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	<u>35.04</u>	WELL ID. 1"	VOL. (GAL/FT) 0.040
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	<u>5.02</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	<u>30.02</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	<u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	<u>5.1</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	<u></u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	<u>7.5</u>	8"	2.60

V=0.0408 x (CASING DIAMETER [INCHES])²

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Initial	2	4	6	7						
pH	8.00	7.96	7.96	7.95	7.91						
SPEC. COND. (mS/cm)	0.397	0.378	0.384	0.388	0.391						
DO (mg/l)	8.81	11.02	8.72	9.95	7.14						
TEMPERATURE (°C)	11.21	9.35	10.19	10.81	11.61						
TURBIDITY (NTU)	139	39	27	135	116						
ORP (millivolts)	-3.1	4.6	15.5	7.3	1.9						
TIME	14:05	14:12	14:20	14:27	14:35						

COMMENTS: 14:05 - Begin handbailing well.
 14:40 - Well dry after removing 7.5 gallons

5/5/2009 16:05 - return to well, depth to water = 5.26 feet.
 16:40 - Collect sample.

WELL PURGING LOG

URS Corporation

SITE NAME:	Pfohl Brothers Landfill	WELL NO.:	GW-7D
PROJECT NO.:	11175616.00000		
STAFF:	Rob Murphy, Tim Ifkovich		
DATE(S):	5/4/09, 5/5/09		

1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	<u>60.30</u>	WELL ID. 1"	VOL. (GAL/FT) 0.040
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	<u>41.95</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	<u>18.35</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	<u>0.66</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	<u>12.1</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	<u></u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	<u>12.0</u>	8"	2.60

V=0.0408 x (CASING DIAMETER [INCHES])²

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	Initial	3	6	9	12					
pH	8.48	8.23	7.81	7.82	7.90					
SPEC. COND. (mS/cm)	0.644	0.727	0.483	0.474	0.480					
DO (mg/l)	3.19	7.17	7.45	7.54	9.41					
TEMPERATURE (°C)	13.83	12.67	12.66	11.98	11.98					
TURBIDITY (NTU)	4	3	15	39	45					
ORP (millivolts)	-195.4	-194.8	-63.2	-53.8	-48.1					
TIME	12:45	12:51	13:40	13:49	13:56					

COMMENTS: 13:00 - Difficulty with whale pump, try another vehicle/battery and had same result of low flow.
 13:30 - Begin handbailing the well to dryness.

5/5/2009 16:05 - return to well, depth to water = 59.19 feet.
 16:10 - Collect sample, only enough volume to fill 3 voa vials, 1 metals container and 1-1 liter Amber container.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-8SR

Date: 5/5/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.38'	Depth to Well Bottom:	13.03'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	4.7	Estimated Purge Volume (liters):	7.8
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Sample ID:	GW-8SR	Sample Time:	13:50	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($vql_w = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-8D

Date: 5/5/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.88'	Depth to Well Bottom:	36.60'	Well Diameter:	4"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	75.9	Estimated Purge Volume (liters):	65.0
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Sample ID:	GW-8D	Sample Time:	15:35	QA/QC:	Duplicate (FD-050509)
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($vql_w = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-26D

Date: 5/7/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	6.69'	Depth to Well Bottom:	40.71'	Well Diameter:	4"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	84.0	Estimated Purge Volume (liters):	42.8
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Sample ID:	GW-26D	Sample Time:	15:50	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

Occasional pulses of iron stained particulates in purge water.

PURGE PARAMETERS

[illegible]

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($vql_w = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-28S

Date: 5/6/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	9.65'	Depth to Well Bottom:	15.55'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	3.6	Estimated Purge Volume (liters):	6.3
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Sample ID:	GW-28S	Sample Time:	9:30	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($vql_w = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-29S

Date: 5/6/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	9.11'	Depth to Well Bottom:	19.98'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	6.7	Estimated Purge Volume (liters):	7.2
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Sample ID:	GW-29S	Sample Time:	10:47	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information: Water red brown at beginning of purge.

PURGE PARAMETERS

[illegible]

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($v_{ql} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-30S

Date: 5/6/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	8.35'	Depth to Well Bottom:	17.95'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	5.9	Estimated Purge Volume (liters):	10.8
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Sample ID:	GW-30S	Sample Time:	12:05	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O₂ (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:35	6.48	11.06	4.093	1.49	162	-60.3	360	8.35
11:40	6.26	10.17	4.160	0.50	53	-56.4	360	8.40
11:45	6.21	9.68	4.180	0.32	23	-60.2	360	8.40
11:50	6.22	9.59	4.205	0.21	13	-68.5	360	8.40
11:55	6.20	9.54	4.234	0.15	12	-67.6	360	8.40
12:00	6.19	9.34	4.252	0.14	5	-72.4	360	8.40
12:05	6.17	9.42	4.259	0.13	4	-75.1	360	8.40
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($vql_w = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-31S

Date: 5/6/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.61'	Depth to Well Bottom:	9.57'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	2.4	Estimated Purge Volume (liters):	9.1
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Sample ID:	GW-31S	Sample Time:	13:36	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
12:30	7.08	12.48	0.710	3.62	652	-7.3	195	5.61
12:35	6.75	11.15	0.655	0.91	449	5.6	195	6.32
12:40	6.70	11.18	0.613	0.98	141	7.8	195	7.18
12:45	6.68	11.25	0.573	2.31	116	10.4	145	7.73
12:50	6.67	11.25	0.575	2.82	96	13.0	145	8.09
12:55	6.65	11.54	0.570	3.04	36	14.2	115	8.26
13:00	6.64	11.37	0.588	3.16	29	15.1	115	8.39
13:05	6.61	11.49	0.607	2.82	31	14.5	115	8.48
13:10	6.59	11.39	0.623	2.67	35	13.2	115	8.56
13:15	6.62	11.53	0.641	2.57	23	10.1	115	8.62
13:20	6.60	11.21	0.652	2.26	16	8.7	115	8.67
13:25	6.60	11.40	0.661	2.06	15	7.3	115	8.75
13:30	6.61	11.32	0.664	1.86	12	4.4	115	8.82
13:33	6.61	11.15	0.669	1.79	11	2.4	115	8.86
13:36	6.62	10.99	0.671	1.67	10	1.8	115	8.90
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($v_{ql} = \pi r^2 h$)

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-32S

Date: 5/6/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2		Tubing Type:	LDPE/Silicone		Pump/Tubing Inlet Location:	Screen midpoint					
Measuring Point:	Below Top of Riser	Initial Depth to Water:	3.79'		Depth to Well Bottom:	9.92'		Well Diameter:	2"		Screen Length:	
Casing Type:	Stainless Steel		Volume in 1 Well Casing (liters):		3.8		Estimated Purge Volume (liters):		6.0			

Sample ID:	GW-32S	Sample Time:	14:55	QA/QC:	None
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Other Information:

[illegible]

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($vql_w = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-33S

Date: 5/6/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	5.22'	Depth to Well Bottom:	8.20'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	1.8	Estimated Purge Volume (liters):	4.1
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Sample ID:	GW-33S	Sample Time:	15:55	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($v_{ql} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-34S

Date: 5/4/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	2.92'	Depth to Well Bottom:	10.00'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	4.4	Estimated Purge Volume (liters):	16.5
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Sample ID:	GW-34S	Sample Time:	16:33	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O ₂ (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
15:32	6.50	7.85	1.314	9.08	26	3.3	500	4.48
15:37	6.38	8.87	1.337	6.81	21	8.7	300	4.60
15:42	6.38	8.36	1.200	5.09	5	8.0	300	4.72
15:47	6.38	8.45	1.150	4.50	1	12.7	240	4.51
15:52	6.37	8.41	1.147	4.11	1	12.9	240	4.48
15:57	6.34	8.42	1.142	3.27	1	17.5	240	4.48
16:02	6.34	8.42	1.112	2.69	1	14.4	240	4.52
16:07	6.33	8.40	1.078	2.28	1	14.5	240	4.55
16:12	6.34	8.30	1.059	2.02	1	15.2	240	4.56
16:17	6.35	8.47	1.032	1.65	1	15.6	240	4.57
16:22	6.35	8.42	1.025	1.36	1	14.6	240	4.61
16:27	6.35	8.43	1.022	1.06	1	9.6	240	4.62
16:30	6.35	8.34	1.025	0.98	1	6.1	240	4.65
16:33	6.35	8.36	1.023	0.96	1	5.4	240	4.66
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($v_{ql} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11175616.00000 Site: Pfohl Brothers Well I.D.: GW-35S

Date: 5/7/2009 Sampling Personnel: Rob Murphy, Tim Ifkovich Company: URS Corporation

Purging/ Sampling Device:	Geopump 2	Tubing Type:	LDPE/Silicone	Pump/Tubing Inlet Location:	Screen midpoint
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Measuring Point:	Below Top of Riser	Initial Depth to Water:	3.52'	Depth to Well Bottom:	7.45'	Well Diameter:	2"	Screen Length:
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Casing Type:	Stainless Steel	Volume in 1 Well Casing (liters):	2.4	Estimated Purge Volume (liters):	9.2
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Sample ID:	GW-35S	Sample Time:	16:36	QA/QC:	None
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Sample Parameters: VOCs, SVOCs, and TAL Metals

Other Information:

PURGE PARAMETERS

[illegible]

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft;
4 inch diameter well = 2470 ml/ft ($vql_w = \pi r^2 h$)

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: *Pfohl Brothers*

Project Number: *11175616.00000*

Sampling Crew Members: *R. Murphy, T. Ifkovich*

Supervisor: *J. Sundquist*

Date of Sampling: *May 4, 2009*

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of- Custody Number
GW-34S	GW-34S	4.4	16.5	16:33	Groundwater	VOCs/SVOCs/ Metals	Not Applicable

Additional Comments: All wells were purged using low flow methods until parameter stabilization.
Some wells went dry even at very low flow conditions.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: *Pfohl Brothers* Project Number: *11175616.00000*

Sampling Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date of Sampling: *May 5, 2009*

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of- Custody Number
GW-3S	GW-3S	6.6	7.4	9:47	Groundwater		Not Applicable
GW-3D	GW-3D	83.4	85	11:58	Groundwater		Not Applicable
GW-3D MS	GW-3D	83.4	85	11:58	Matrix Spike	VOCs/SVOCs/ Metals	Not Applicable
GW-3D MSD	GW-3D	83.4	85	11:58	Matrix Spike Duplicate		Not Applicable
GW-8SR	GW-8SR	4.7	7.8	13:50	Groundwater		Not Applicable
GW-8D	GW-8D	75.9	65	15:35	Groundwater		Not Applicable
FD-050509	GW-8D	75.9	65	15:35	Blind Duplicate		Not Applicable

Additional Comments: All wells were purged using low flow methods until parameter stabilization.
Some wells went dry even at very low flow conditions.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: *Pfohl Brothers* Project Number: *11175616.00000*

Sampling Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date of Sampling: *May 5, 2009 (continued)*

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of- Custody Number
GW-7D	GW-7D	45.8	45.4	16:10	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-7S	GW-7S	19.3	28.4	16:40	Groundwater		Not Applicable
TB-050509	---	---	---	---	Trip Blank	VOCs	Not Applicable

Additional Comments: All wells were purged using low flow methods until parameter stabilization.
Some wells went dry even at very low flow conditions.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: *Pfohl Brothers* Project Number: *11175616.00000*

Sampling Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date of Sampling: *May 6, 2009*

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of- Custody Number
GW-28S	GW-28S	3.6	6.3	9:30	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-29S	GW-29S	6.7	7.2	10:47	Groundwater		Not Applicable
GW-30S	GW-30S	5.9	10.8	12:05	Groundwater		Not Applicable
GW-31S	GW-31S	2.4	9.1	13:36	Groundwater		Not Applicable
GW-32S	GW-32S	3.8	6	14:55	Groundwater		Not Applicable
GW-33S	GW-33S	1.8	4.1	15:55	Groundwater		Not Applicable
TB-050609	---	---	---	---	Trip Blank	VOCs	Not Applicable

Additional Comments: All wells were purged using low flow methods until parameter stabilization.
Some wells went dry even at very low flow conditions.

GROUNDWATER SAMPLING - SAMPLE COLLECTION DATA SHEET

Project Name: *Pfohl Brothers* Project Number: *11175616.00000*

Sampling Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date of Sampling: *May 7, 2009*

Sample I.D. Number	Well Number	Well Volume (liters)	Volume Purged (liters)	Sample Time	Sample Description	Analysis Required	Chain-of- Custody Number
GW-1S	GW-1S	6.9	6.9	9:48	Groundwater	VOCs/SVOCs/ Metals	Not Applicable
GW-1D	GW-1D	90.6	66.2	11:25	Groundwater		Not Applicable
GW-4D	GW-4D	81.8	8.4	13:59	Groundwater		Not Applicable
GW-4S	GW-4S	7.3	28.7	14:25	Groundwater		Not Applicable
GW-26D	GW-26D	84	42.8	15:50	Groundwater		Not Applicable
GW-35S	GW-35S	2.4	9.2	16:36	Groundwater		Not Applicable
TB-050709	---	---	---	---	Trip Blank	VOCs	Not Applicable

Additional Comments: All wells were purged using low flow methods until parameter stabilization.
Some wells went dry even at very low flow conditions.

APPENDIX E

HISTORICAL ANALYTICAL RESULTS

FIGURE E-1
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-1D

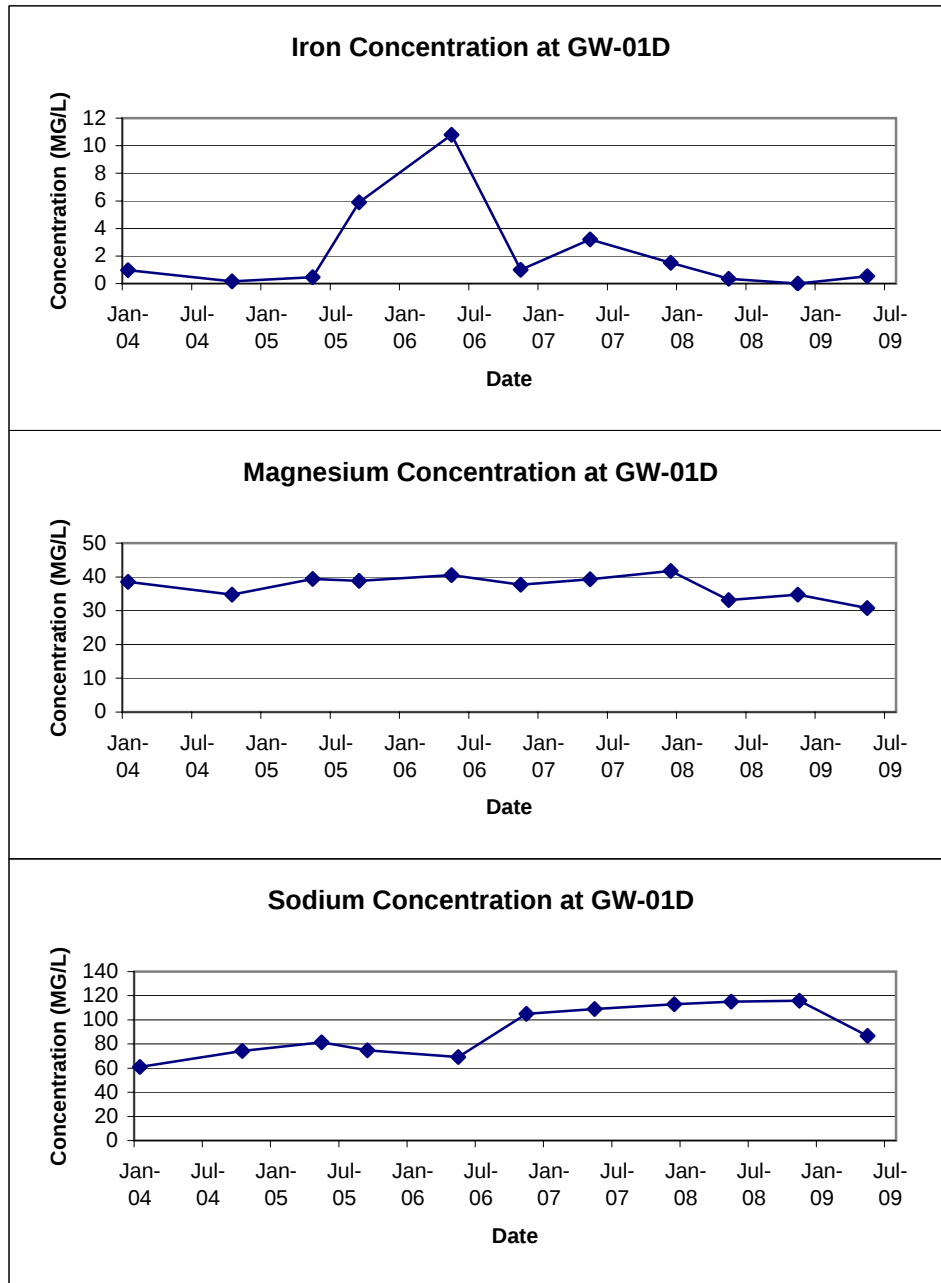


FIGURE E-2
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-1S

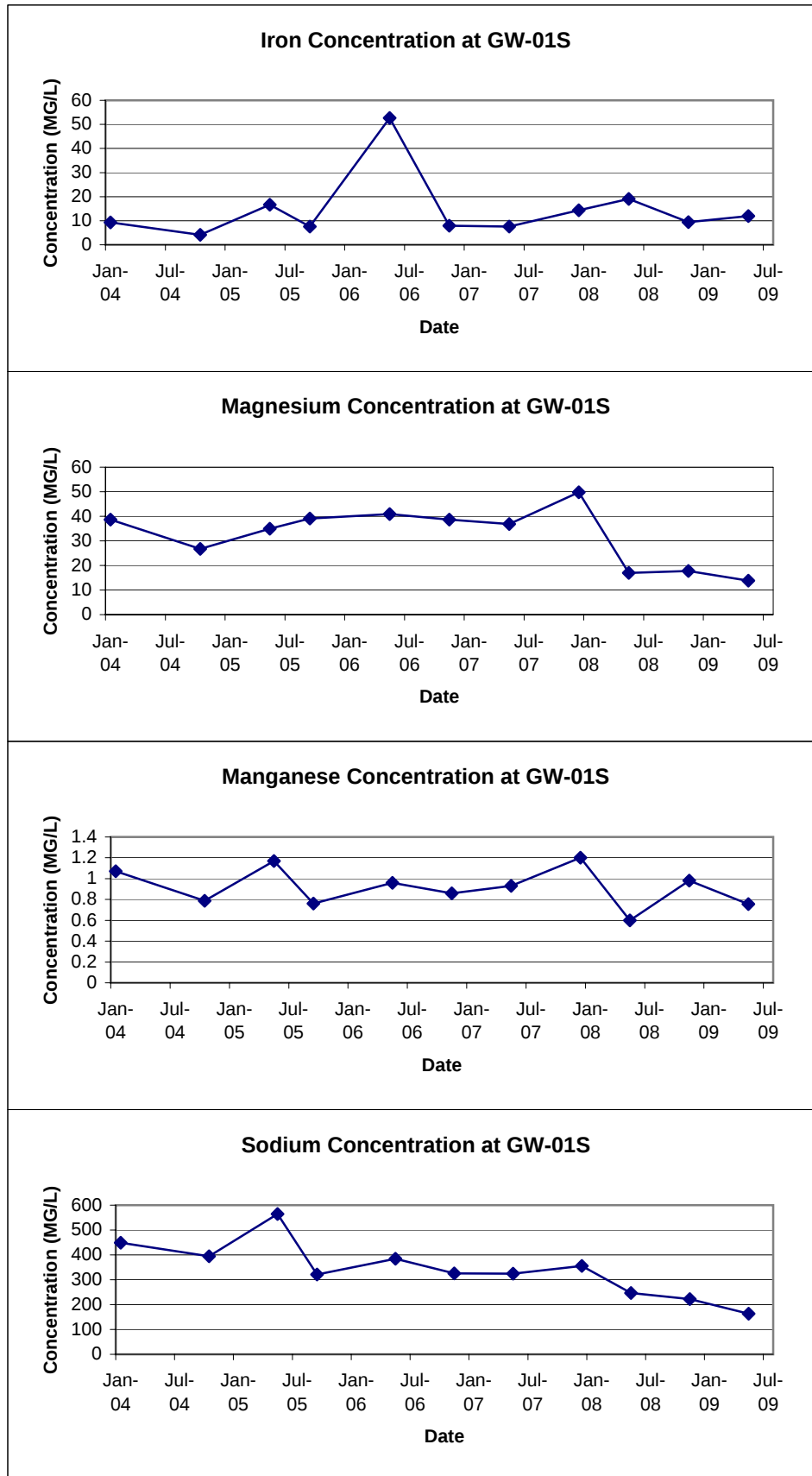


FIGURE E-3
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-3D

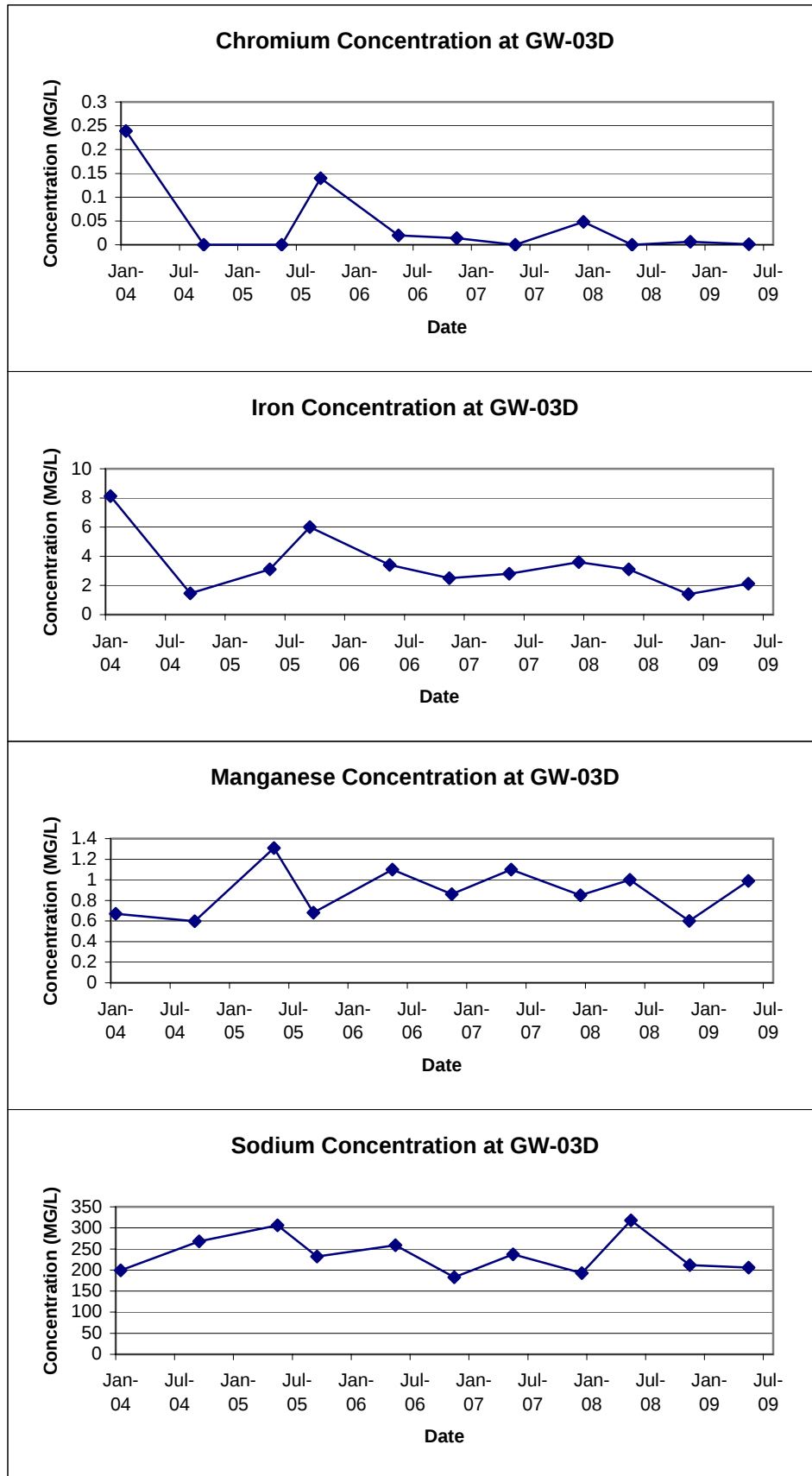


FIGURE E-4
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-3S

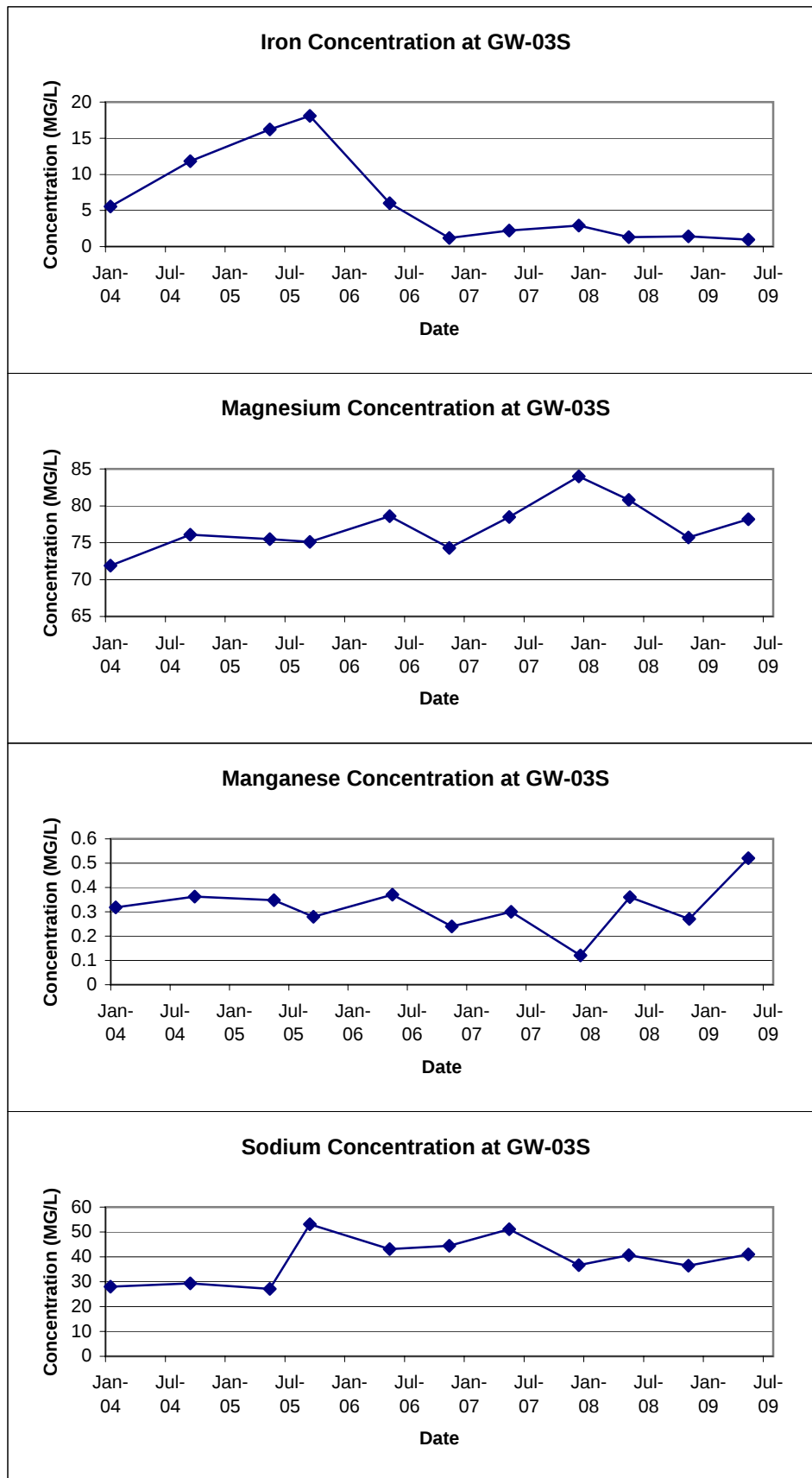


FIGURE E-5
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-4D

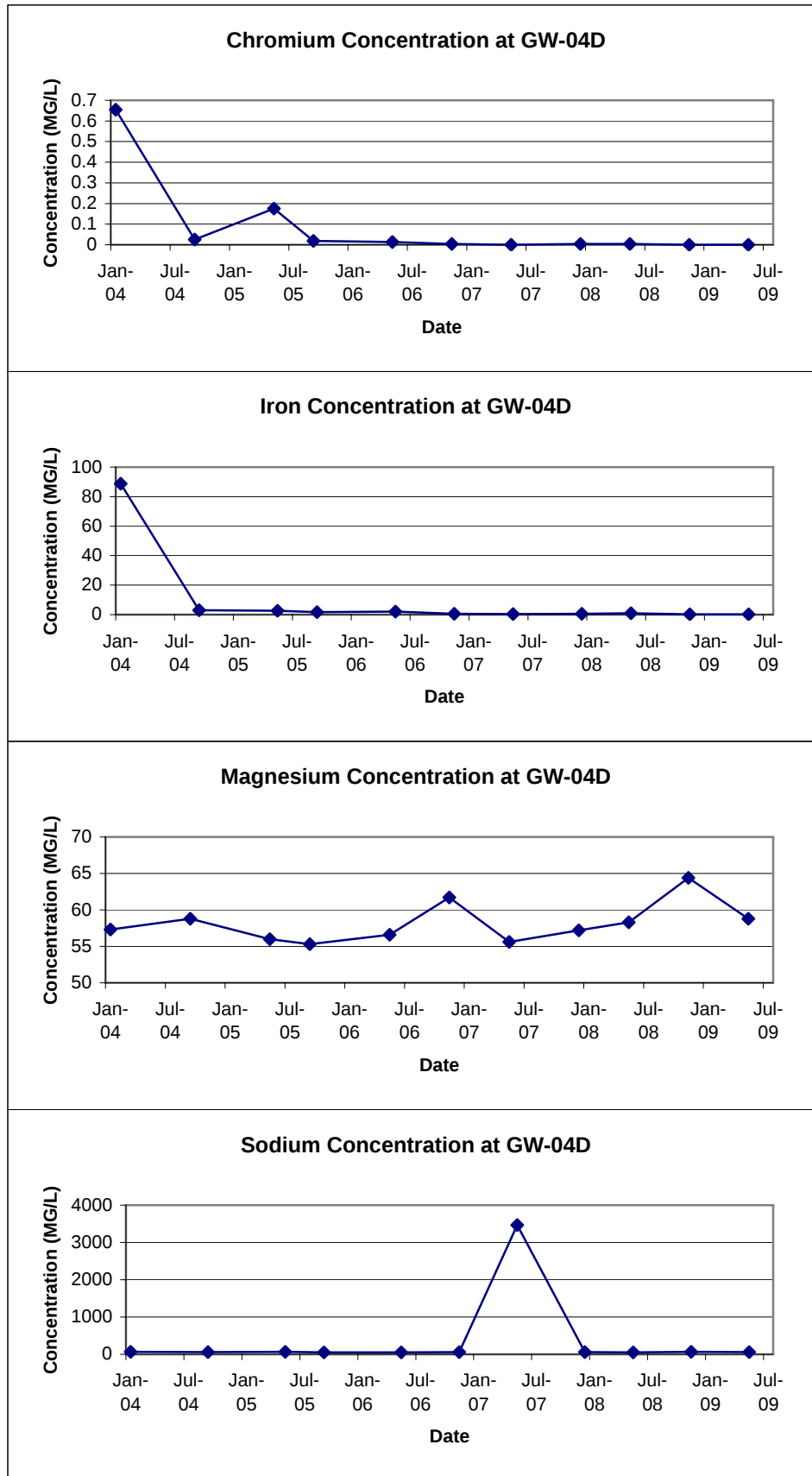


FIGURE E-6
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-4S

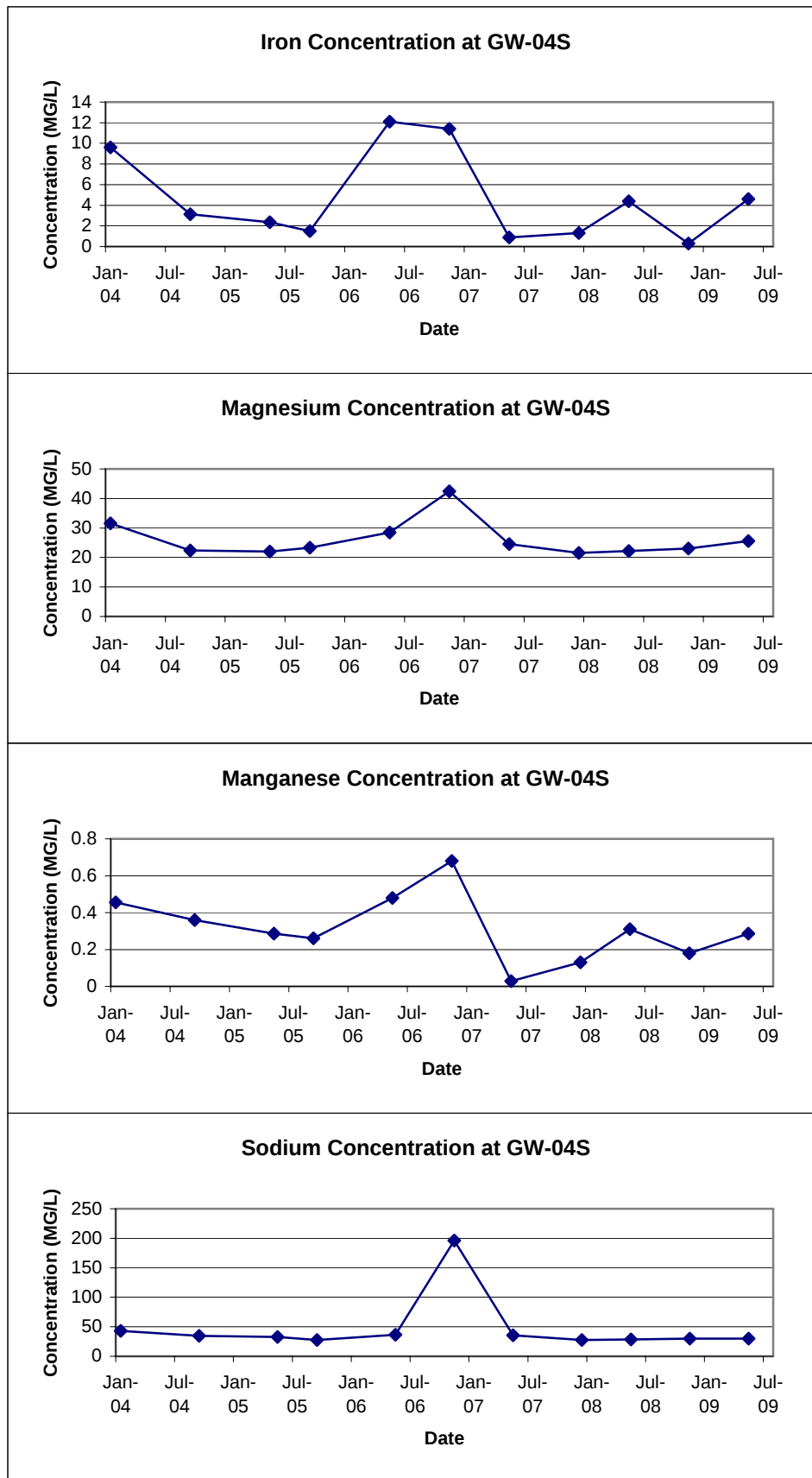


FIGURE E-7
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-7D

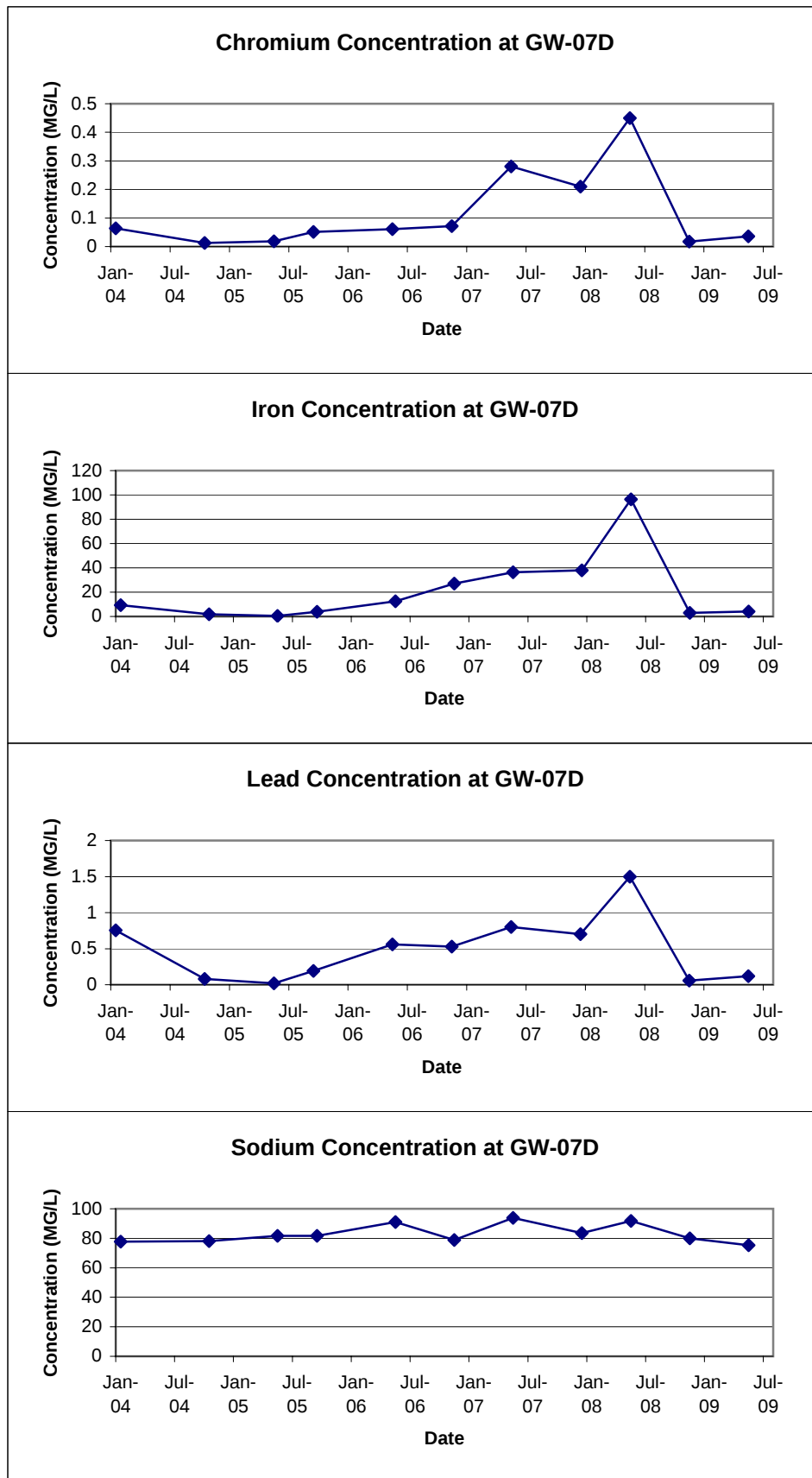


FIGURE E-8
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-7S

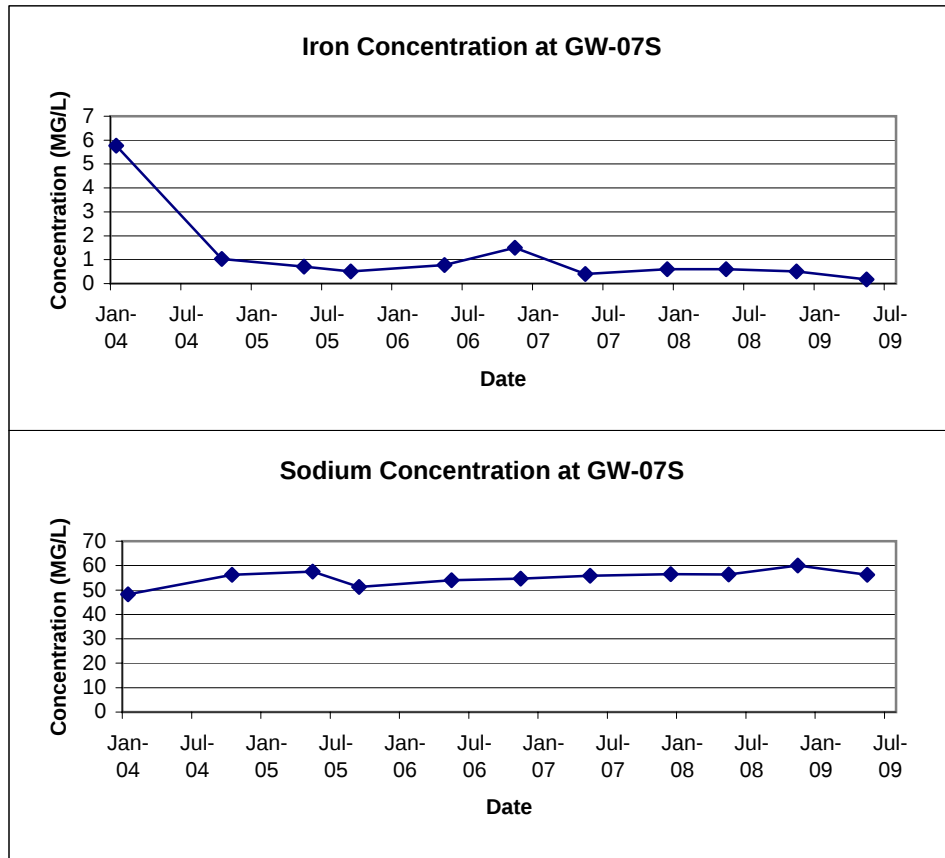


FIGURE E-9
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-8D

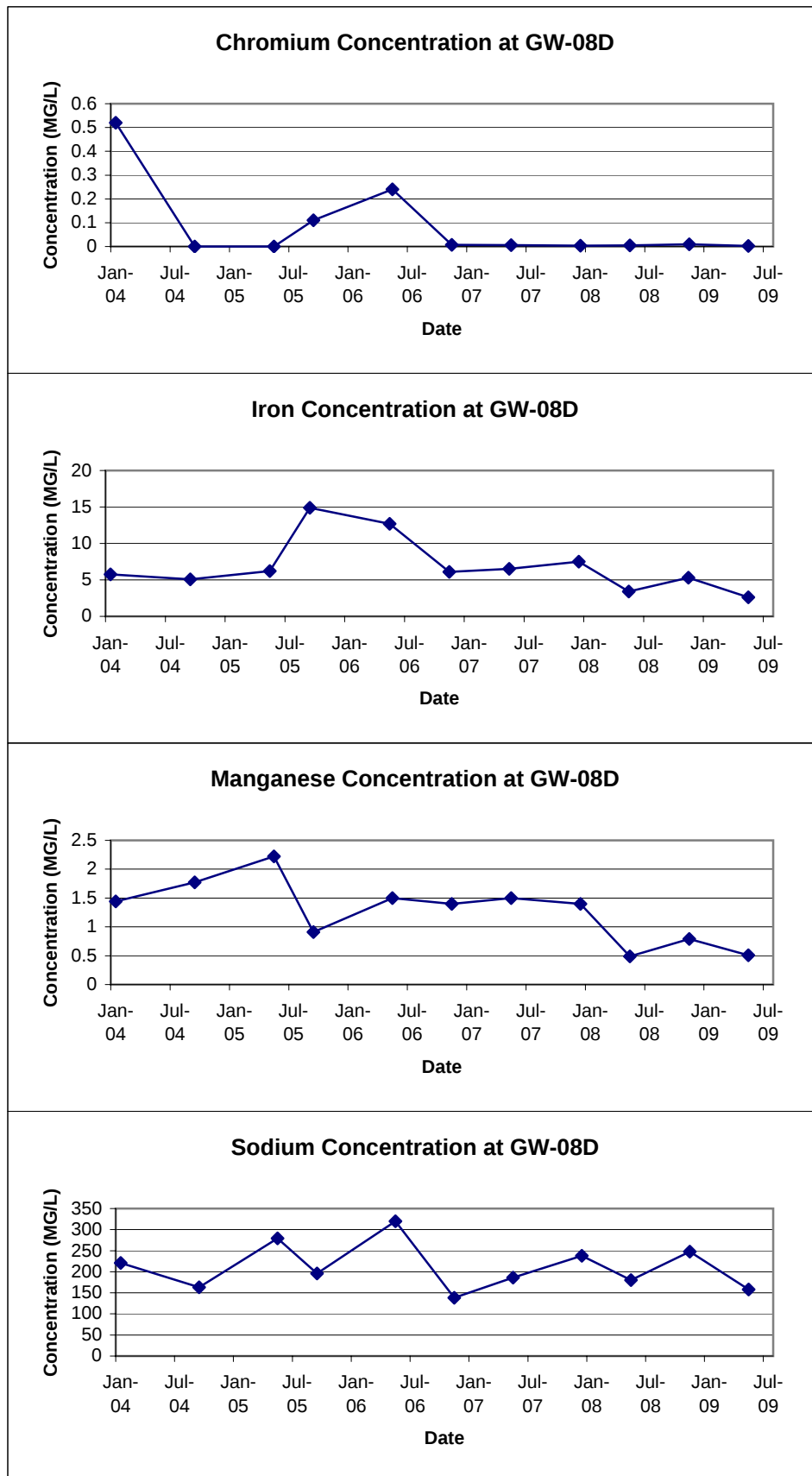


FIGURE E-10
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-8SR

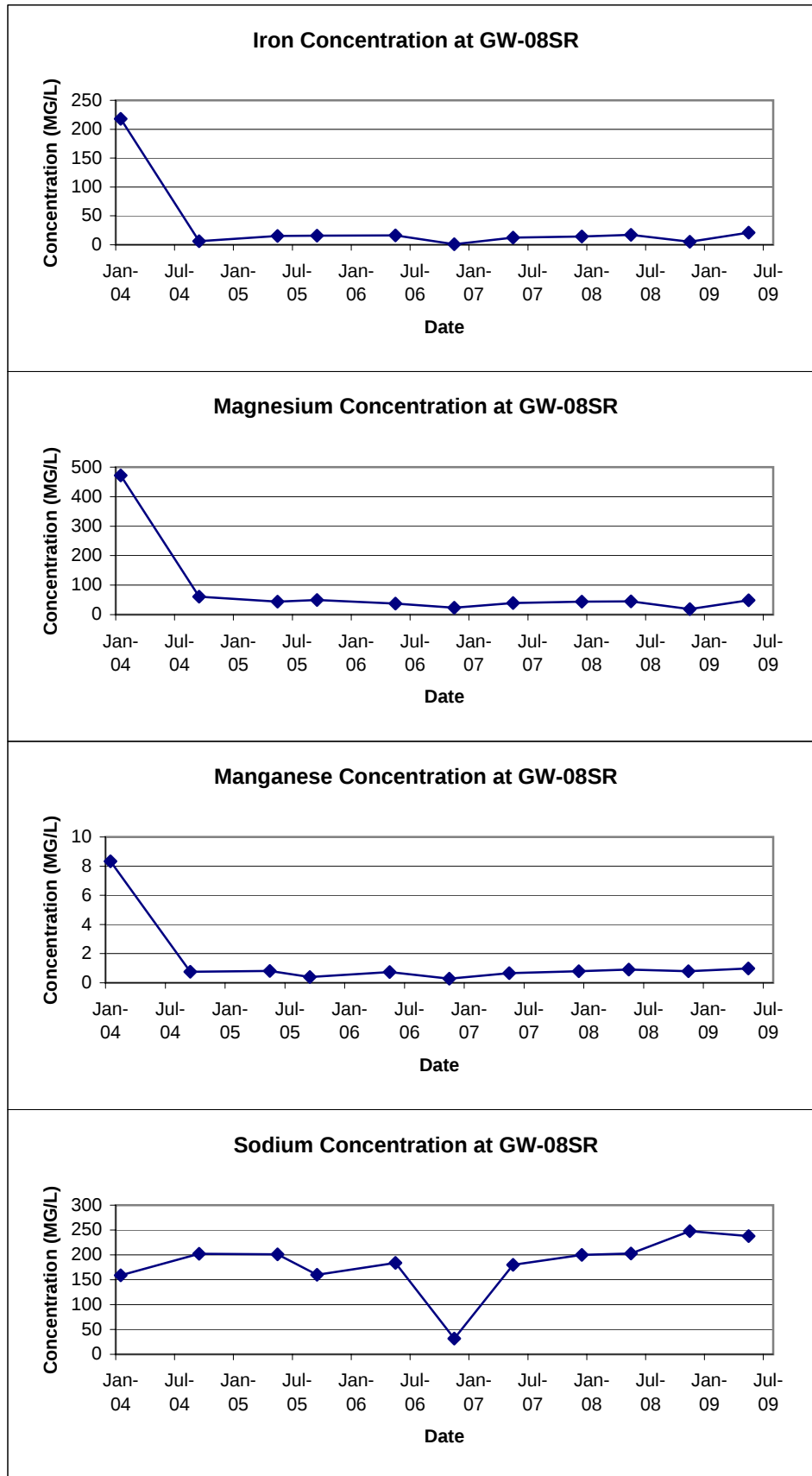


FIGURE E-11
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-26D

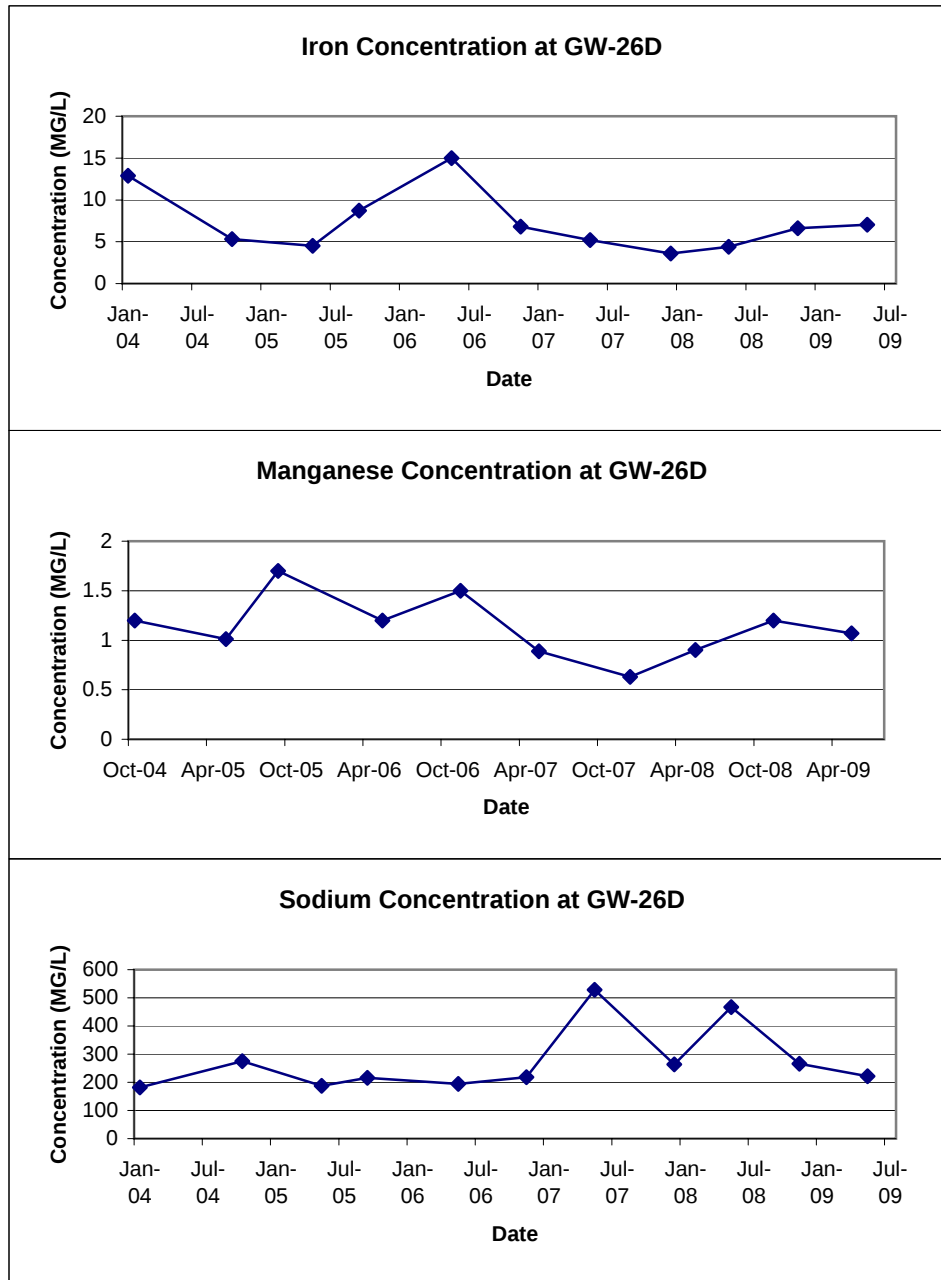


FIGURE E-12
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-28S

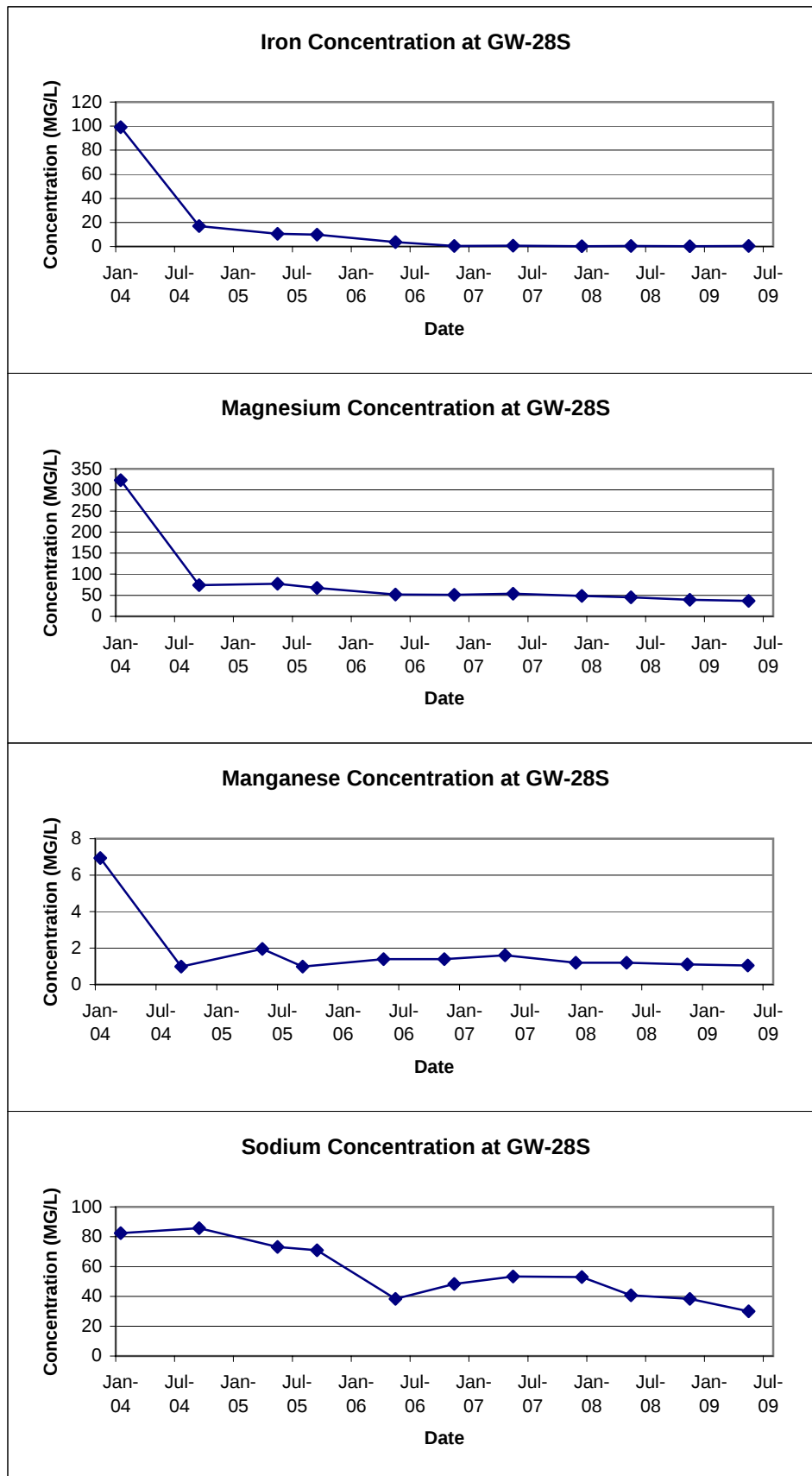


FIGURE E-13
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-29S

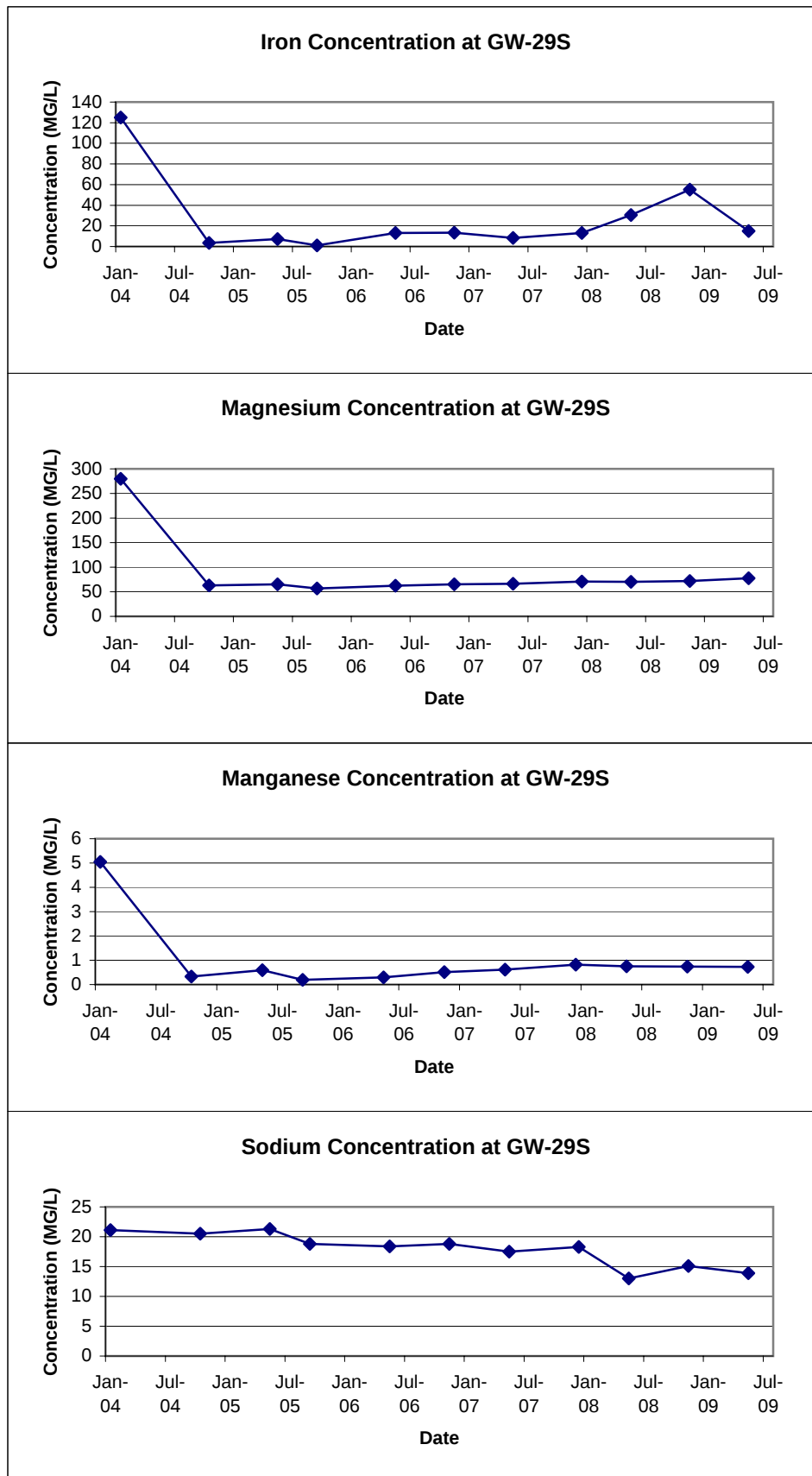


FIGURE E-14
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-30S

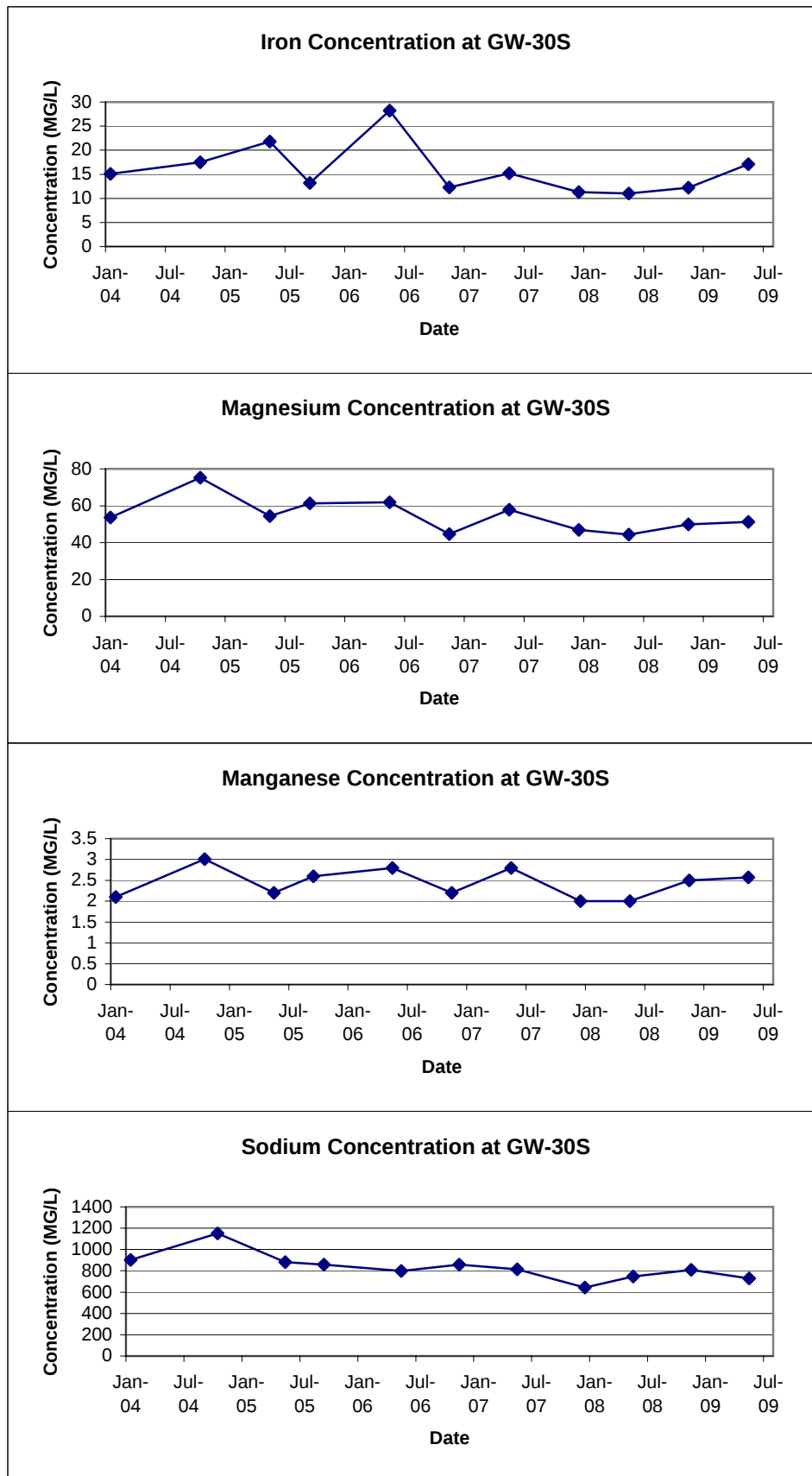


FIGURE E-15
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-31S

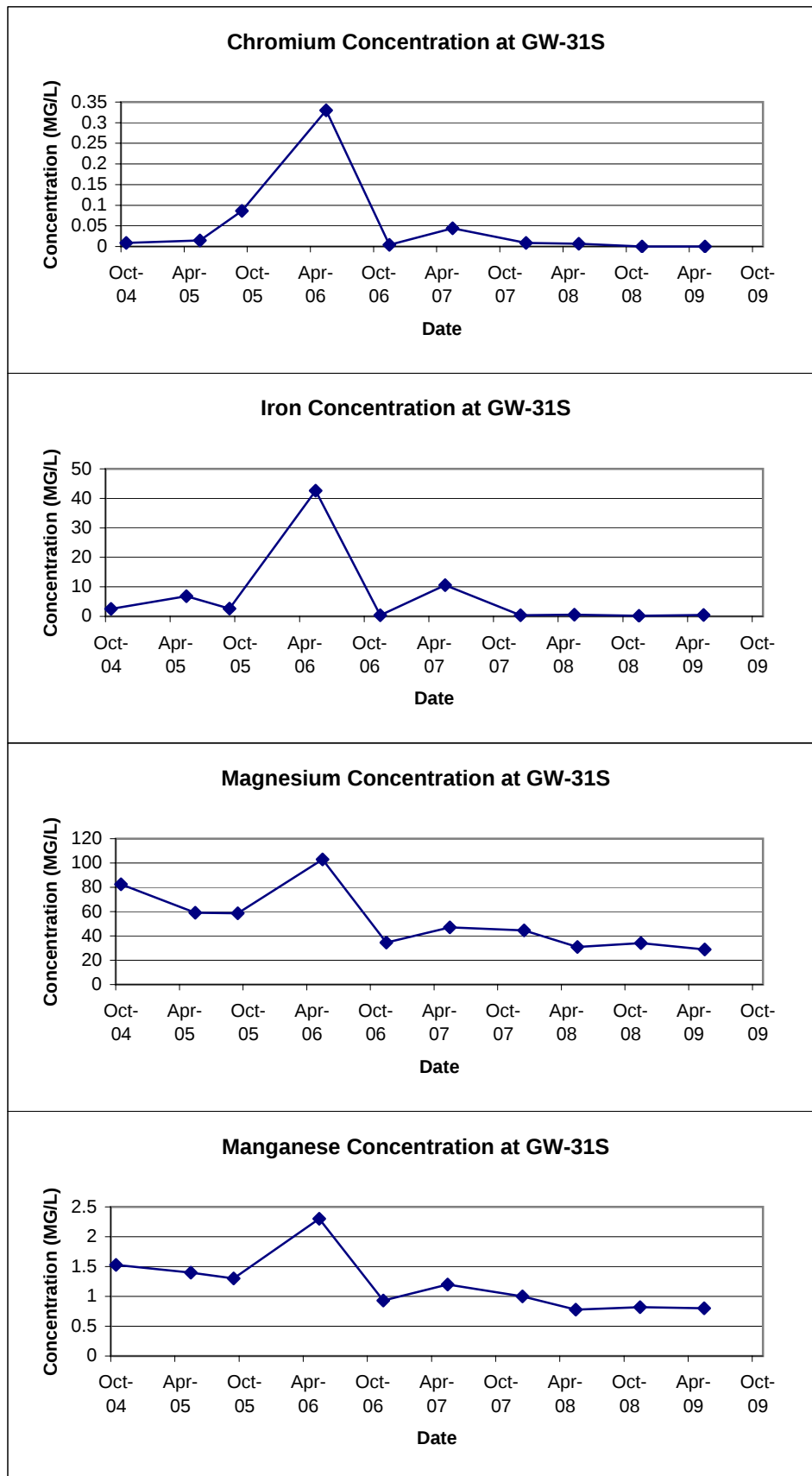


FIGURE E-16
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-32S

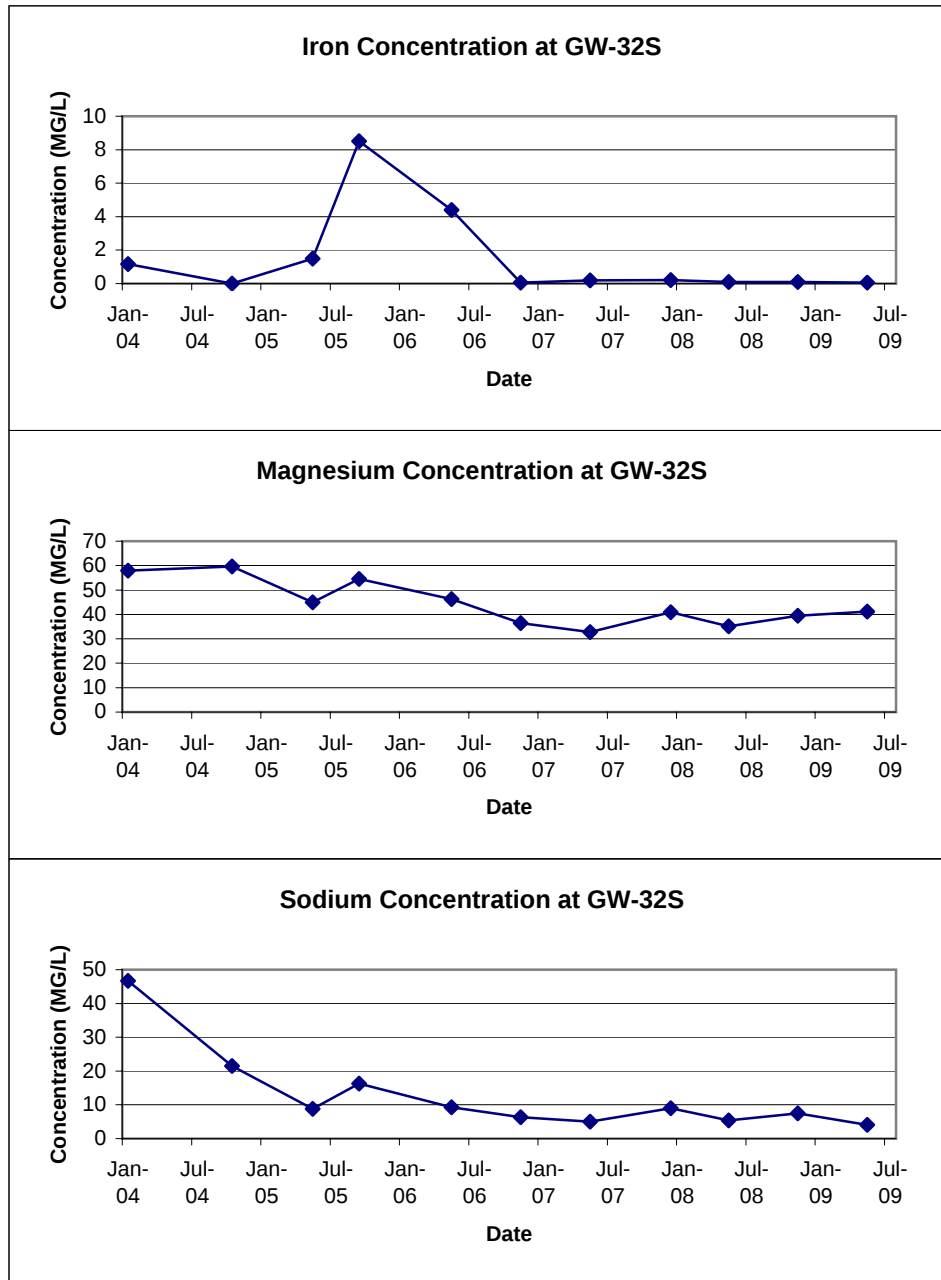


FIGURE E-17
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-33S

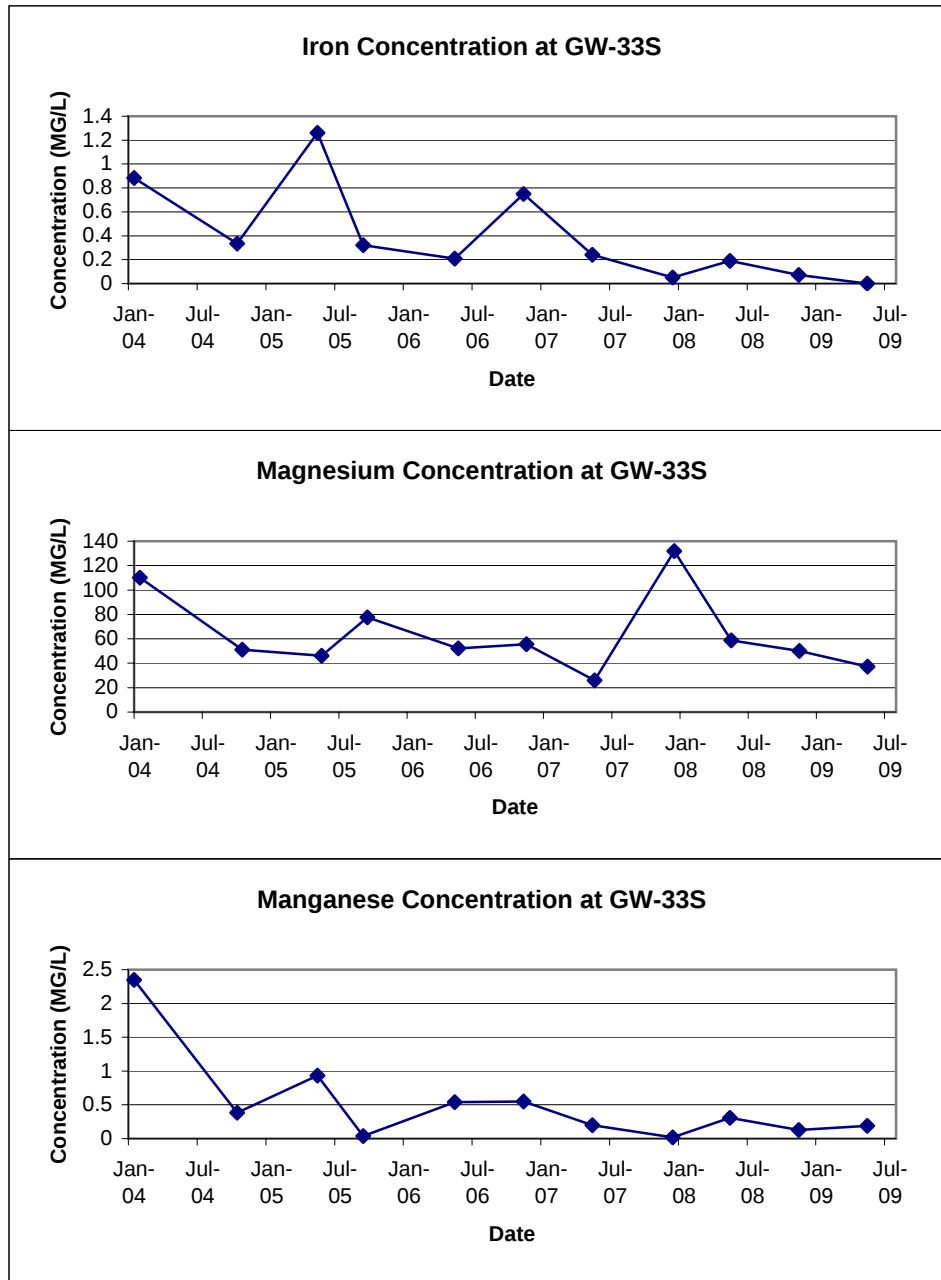


FIGURE E-18
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-34S

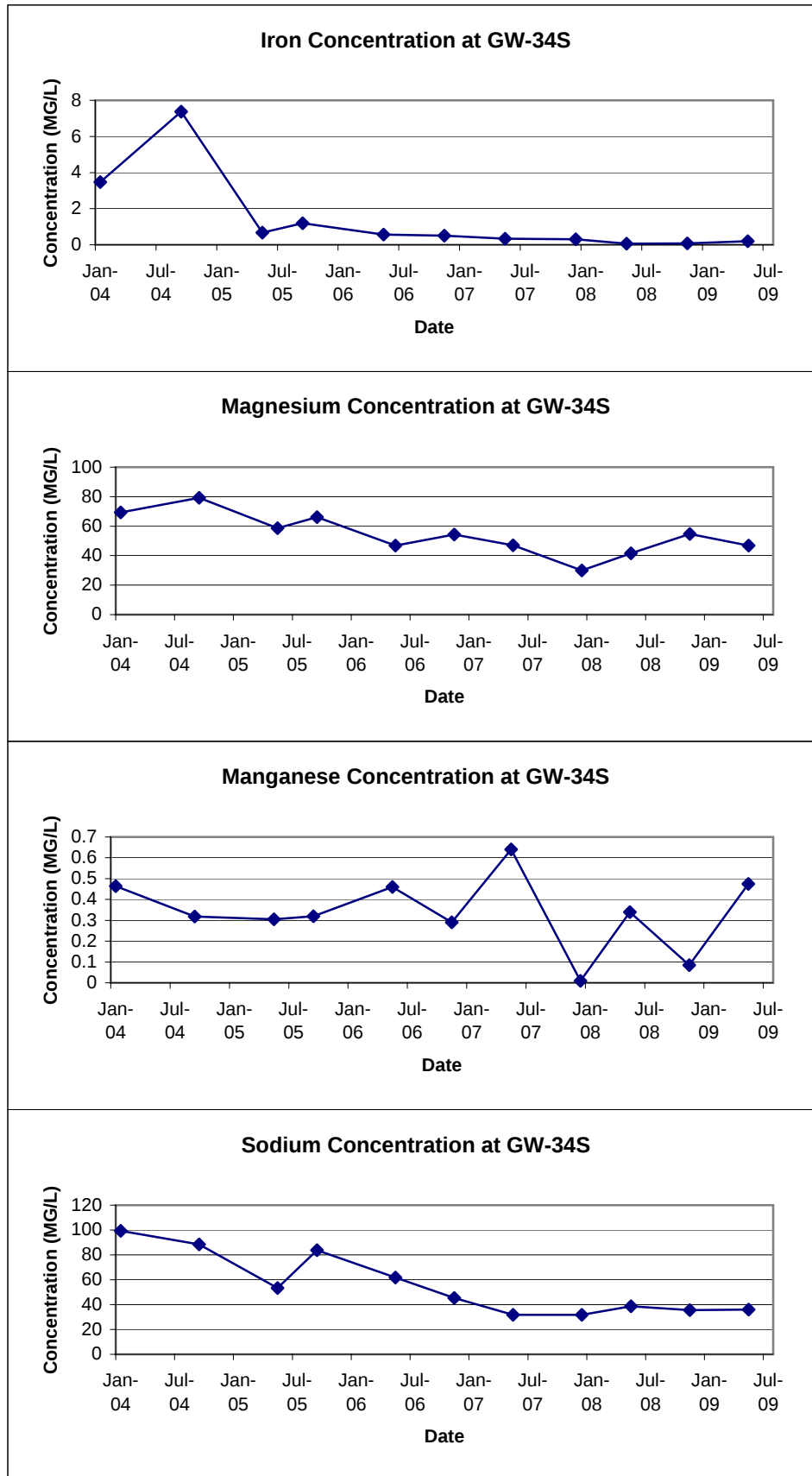
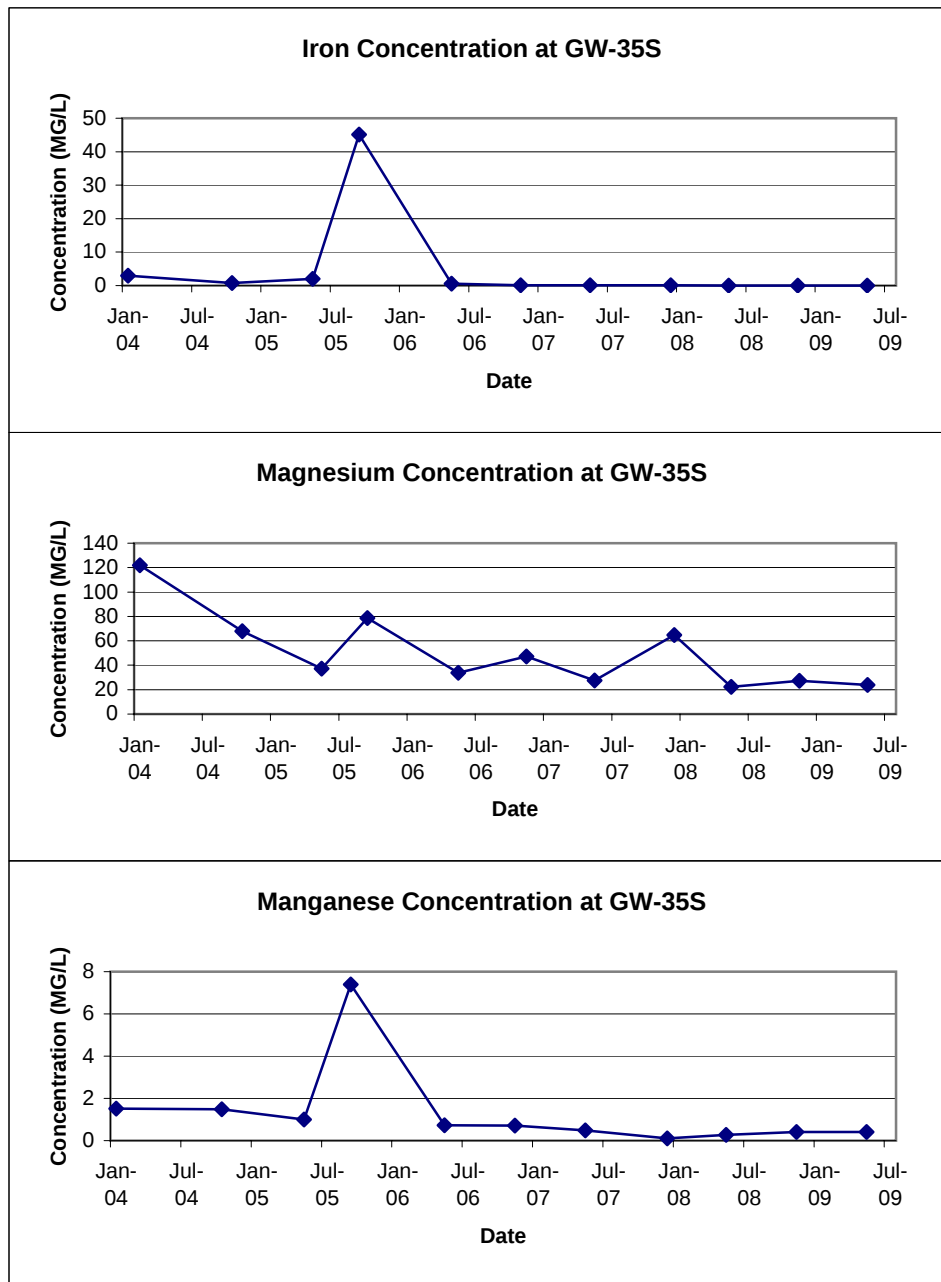


FIGURE E-19
TRENDS OF PARAMETERS ROUTINELY EXCEEDING GROUNDWATER STANDARDS
IN MONITORING WELL GW-35S



APPENDIX F

BSA PERMIT NO. 05-12-CH016

**AUTHORIZATION TO DISCHARGE UNDER THE BUFFALO
POLLUTANT DISCHARGE ELIMINATION SYSTEM**

PERMIT NO. 05-12-CH016

USEPA Category 40 CFR Part 403

In accordance with the provisions of the Federal Water Pollution Control Act, as amended, and the Sewer Regulations of the Buffalo Sewer Authority, authorization is hereby granted to:

THE TOWN OF CHEEKTOWAGA

to discharge wastewater from a facility located at:

PFOHL BROTHERS LANDFILL REMEDIATION SITE

1000 AERO DRIVE

CHEEKTOWAGA, NEW YORK 14225

The wastewater permitted herein shall be discharged to the Town of Cheektowaga sewer system, which is connected to the Buffalo Municipal Sewer System and Treatment facilities, and which wastewater will be treated at the Buffalo Sewer Authority's Treatment Plant.

Issuance of this permit is based upon a permit application filed on **November 3, 2005** analytical data.

This permit is granted in accordance with discharge limitations, monitoring requirements and other conditions set forth in Parts I and II hereof.

Effective this 1st day of April, 2006

To Expire the 31st day of March, 2009



General Manager

Signed this 30th day of March, 2006

PART I: SPECIFIC CONDITIONS**A. DISCHARGE LIMITATIONS & MONITORING REQUIREMENTS**

During the period beginning the effective date of this Permit and lasting until the expiration date, discharge from the permitted facility outfall (see attached map) shall be limited and monitored **quarterly** by the permittee as specified below.

Sample Point	Parameter	Discharge Limitations ⁽¹⁾	Sampling Requirements	
		Daily Max	Period	Type
001	pH	5.0 – 12.0 S.U.	1 day	Composite ²
	Total Cadmium	1.17 lbs.	1 day	Composite ²
	Total Chromium	1.17 lbs.	1 day	Composite ²
	Total Copper	3.74 lbs.	1 day	Composite ²
	Total Lead	1.17 lbs.	1 day	Composite ²
	Total Nickel	3.27 lbs.	1 day	Composite ²
	Total Zinc	5.84 lbs.	1 day	Composite ²
	Total Barium	2.34 lbs.	1 day	Composite ²
	Total Suspended Solids ⁵	250 mg/l	1 day	Composite ²
	Total Flow	140,100 gallons ⁶	1 day	Discharge meter reading

Footnotes are explained on page 5.

PART I: SPECIFIC CONDITIONS**A. DISCHARGE LIMITATIONS & MONITORING REQUIREMENTS**

During the period beginning the effective date of this Permit and lasting until the expiration date, discharge from the permitted facility outfall (see attached map) shall be limited and monitored **once** by the permittee as specified below.

Sample Point	Parameter	Discharge Limitations ⁽¹⁾	Sampling Requirements	
		Daily Max	Period	Type
001	Total Mercury	0.001 lbs.	1 day	Composite ²
	USEPA Test Method 608 ⁴	To be monitored	1 day	Grab ³
	USEPA Test Method 624 ⁴	To be monitored	1 day	Grab ³
	USEPA Test Method 625 ⁴	To be monitored	1 day	Grab ³

Footnotes are explained on page 5.

PART I: SPECIFIC CONDITIONS

B. DISCHARGE MONITORING REPORTING REQUIREMENTS

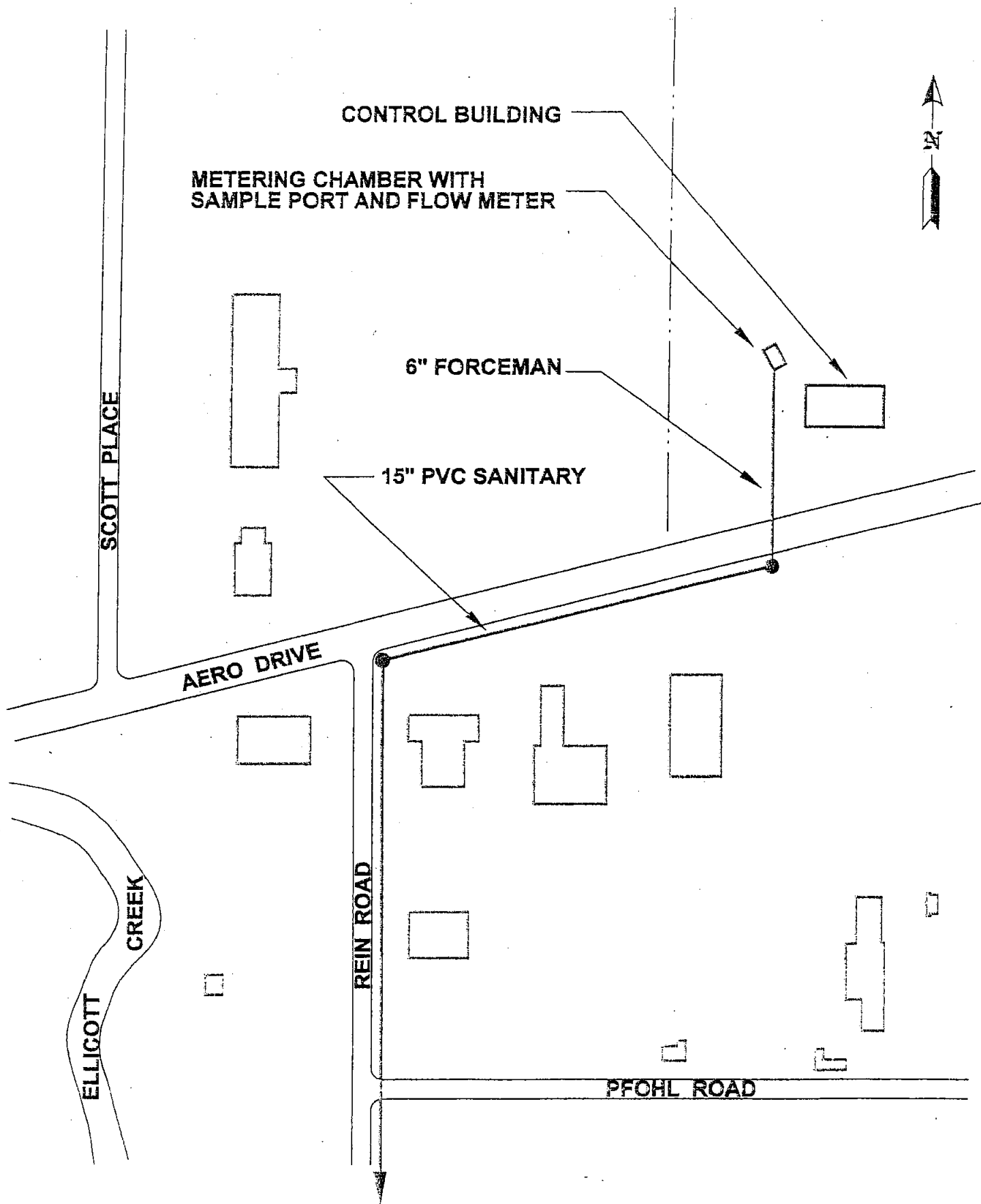
During the period beginning the effective date of this permit and lasting until the expiration date, discharge monitoring results shall be summarized and reported **quarterly** by the permittee on the days specified below:

Sample Point	Parameter	Reporting Requirements	
		Initial Report	Subsequent Reports
001	All except USEPA Test Methods 608, 624, 625 & T Mercury	June 30, 2006	Every March 31 st , June 30 th , September 30 th and December 31 st
	USEPA Test Methods 608, 624 and 625 & T Mercury	March 31, 2008	

PART I: SPECIFIC CONDITIONS

C. SPECIAL REQUIREMENTS

1. Mass limits based on an average discharge of 140,100 gpd.
2. Composite samples may be time proportioned.
3. Four grab samples must be collected at equally spaced intervals throughout the sample day. The four (4) grab samples must be composited by a NYSDOH certified laboratory prior to analysis.
4. The permittee must report any compound whose concentration is equal to or greater than 0.01 mg/L. The permittee is not authorized to discharge any of the parameters evaluated by these test procedures which may cause or contribute to a violation of water quality standards or harm the sewerage system. Any parameter detected may, at the discretion of the BSA, be specifically limited and incorporated in this permit.
5. Surchargeable over 250 mg/L.
6. Flow is an action level only. If the permittee consistently exceeds this level, the BSA must be notified so that this permit can be modified.



TOWN OF CHEEKTOWAGA
CHEEKTOWAGA ENGINEERING DEPT.
ALEXANDER COMMUNITY CENTER
275 ALEXANDER AVE.
CHEEKTOWAGA, NEW YORK 14221
PHONE: (716) 897-7288
FAX: (716) 897-7299

PFOHL BROTHERS LANDFILL SITE

DRAWN BY:	MARK J. CHRISTEL
DATE:	10/28/2002
REVISED:	-
SCALE:	NONE

EXHIBIT

1

FILE: (M: PFOHL BROS.)

APPENDIX G

DISCHARGE REPORT SUMMARY TABLES

SAMPLING FIELD SHEET

URS

Client Name: Pfohl Brothers Landfill

Address: Aero Drive, Cheektowaga, NY

Contact: Bill Pugh, P.E. Phone: 716-897-7288

Installation:

Sample Point: SP-001

Sample Location: Meter Chamber - ball valve on 6" HDPE forcemain

Date: 3/19/09 Crew: R. Murphy, R. Piurek, T. Ifkovich

Weather: 45° F, clear

Sampling Device: NA

Time of Installation: 11:25 Type of Sample: Composite

Sample Interval: NA Sample Volume: NA

Comments and Observations: No wells were pumping at the time of sample setup.

PLC display volumes: WW-01 (1,147,272 gals), WW-02 (41,144 gals), WW-03 (208,888 gals),
WW-04 (519,696 gals), WW-05 (4,029,357 gals), WW-06 (3,850,787 gals) & MH-25 (10,137,402 gals).

Date: 3/20/09 Crew: R. Murphy, R. Piurek, T. Ifkovich

Weather: 35° F, clear

Time of Collection: 11:25

Field Measurements:

11:30/RJM pH Calibration: Buffer 7- 7 Buffer 4- 4 Buffer 10- 10
(time/initial)

pH Measurement: 7.3

Temperature: 10.3°C

Identification: EFF-032009

Physical Observations: _____

Laboratory: TestAmerica, Buffalo, NY

Comments: Wells WW-3, WW-4, and WW-6 were pumping at the time of sample pickup.

PLC display volumes: WW-01 (1,147,272 gals), WW-02 (41,144 gals), WW-03 (213,086 gals),
WW-04 (523,838 gals), WW-05 (4,070,839 gals), WW-06 (3,857,339 gals) & MH-25 (10,193,776 gals).

Reviewed By: _____ Date: _____
(Supervisor)

TABLE 1

**PFOHL BROTHERS LANDFILL - EFFLUENT MONITORING
ANALYTICAL RESULTS, TOTAL FLOW, AND MASS LOADINGS
MARCH 2009**

Sample ID	EFF-032009			
Matrix	Effluent Water			
Date Sampled	3/20/2009			
Parameter	Result	Mass Loading	Discharge Limitation	Violations
	(mg/L)	(lbs/day)	(lbs/day)	(Y/N)
Total Barium	0.32	0.15	2.34	No
Total Cadmuim	ND ⁽¹⁾	NA ⁽²⁾	1.17	No
Total Chromium	0.00096	0.0005	1.17	No
Total Copper	0.0025	0.001	3.74	No
Total Lead	ND	NA	1.17	No
Total Nickel	0.0047	0.002	3.27	No
Total Zinc	0.013	0.006	5.84	No
Total Suspended Solids	7.2	NA	250 ⁽³⁾	No
pH ⁽⁴⁾	7.3	NA	5.0 - 12.0	No
Total Flow ⁽⁵⁾		56,374	140,000	No

Notes:

- (1) ND = Not Detected
- (2) NA = Not Applicable
- (3) Discharge Limitation in units of mg/L
- (4) pH measurement and Discharge Limitation in Standard Units
- (5) Total Flow reported in gallons, sample was collected over a 24 hour period

$$\text{Calculation: } \left(\frac{x \text{ mg}}{\text{L}} \right) \left(\frac{y \text{ gal}}{\text{day}} \right) \left(\frac{1 \text{ lb}}{453,600 \text{ mg}} \right) \left(\frac{3.785 \text{ L}}{\text{gal}} \right) = \frac{x \times y}{119,841} \frac{\text{lb}}{\text{day}}$$

SAMPLING FIELD SHEET

URS

Client Name: Pfohl Brothers Landfill

Address: Aero Drive, Cheektowaga, NY

Contact: Bill Pugh, P.E. Phone: 716-897-7288

Installation:

Sample Point: SP-001

Sample Location: Meter Chamber - ball valve on 6" HDPE forcemain

Date: 6/22/09 Crew: R. Murphy, R. Piurek, T. Ifkovich

Weather: 77° F, partly cloudy

Sampling Device: NA

Time of Installation: 14:25 Type of Sample: Composite

Sample Interval: NA Sample Volume: NA

Comments and Observations: No wells were pumping at the time of sample setup.

PLC display volumes: WW-01 (1,448,245 gals), WW-02 (40,004 gals), WW-03 (297,176 gals),
WW-04 (619,260 gals), WW-05 (5,440,913 gals), WW-06 (4,728,854 gals) & MH-25 (12,922,351 gals).

Date: 6/23/09 Crew: R. Murphy, R. Piurek, T. Ifkovich

Weather: 84° F, clear

Time of Collection: 14:35

Field Measurements:

14:40/RJM pH Calibration: Buffer 7- 7 Buffer 4- 4 Buffer 10- 10
(time/initial)

pH Measurement: 6.7

Temperature: 16.6°C

Identification: EFF-062309

Physical Observations: _____

Laboratory: TestAmerica, Buffalo, NY

Comments: Wells WW-1 and WW-5 were pumping at the time of sample pickup.

PLC display volumes: WW-01 (1,497,032 gals), WW-02 (40,004 gals), WW-03 (297,176 gals),
WW-04 (619,260 gals), WW-05 (5,446,397 gals), WW-06 (4,728,854 gals) & MH-25 (12,975,944 gals).

Reviewed By: _____ Date: _____
(Supervisor)

TABLE 1

**PFOHL BROTHERS LANDFILL - EFFLUENT MONITORING
ANALYTICAL RESULTS, TOTAL FLOW, AND MASS LOADINGS
JUNE 2009**

Sample ID	EFF-062309			
Matrix	Effluent Water			
Date Sampled	6/23/2009			
Parameter	Result	Mass Loading	Discharge Limitation	Violations
	(mg/L)	(lbs/day)	(lbs/day)	(Y/N)
Total Barium	0.433	0.19	2.34	No
Total Cadmuim	ND ⁽¹⁾	NA ⁽²⁾	1.17	No
Total Chromium	0.0004	0.0002	1.17	No
Total Copper	0.0022	0.001	3.74	No
Total Lead	0.0012	0.001	1.17	No
Total Nickel	0.006	0.003	3.27	No
Total Zinc	0.0115	0.005	5.84	No
Total Suspended Solids	28.8	NA	250 ⁽³⁾	No
pH ⁽⁴⁾	6.7	NA	5.0 - 12.0	No
Total Flow ⁽⁵⁾		53,593	140,000	No

Notes:

- (1) ND = Not Detected
- (2) NA = Not Applicable
- (3) Discharge Limitation in units of mg/L
- (4) pH measurement and Discharge Limitation in Standard Units
- (5) Total Flow reported in gallons, sample was collected over a 24 hour period

$$\text{Calculation: } \left(\frac{x \text{ mg}}{\text{L}} \right) \left(\frac{y \text{ gal}}{\text{day}} \right) \left(\frac{1 \text{ lb}}{453,600 \text{ mg}} \right) \left(\frac{3.785 \text{ L}}{\text{gal}} \right) = \frac{x \times y}{119,841} \frac{\text{lb}}{\text{day}}$$

APPENDIX H

MONITORING WELL INSPECTION LOGS

WELL INSPECTION SUMMARY

Project Name: *Pfohl Brothers Landfill* Project Number: *11175616.00000*

Inspection Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date(s) of Inspection: *May 4-7, 2009*

<i>Well I.D. Number</i>	<i>Lock</i>	<i>Surface Seal</i>	<i>Protective Casing</i>	<i>Riser</i>	<i>Water Level (ft. BTOC)</i>	<i>Well Depth (ft. BTOC)</i>	<i>Other Comments</i>
GW-1S	OK	OK	OK	Bulged	3.80	14.94	Lubricated lock
GW-1D	OK	OK	OK	Bulged	2.93	39.63	Lubricated lock
GW-3S	OK	OK	OK	OK	2.56	13.24	
GW-3D	OK	OK	OK	OK	1.91	35.69	
GW-4S	OK	OK	OK	OK	4.41	16.25	Lubricated lock
GW-4D	OK	OK	OK	OK	12.46	45.57	
GW-7S	OK	OK	OK	OK	5.02	35.04	
GW-7D	OK	OK	OK	Damaged	41.95	60.30	

Additional Comments: The weep holes in the protective casing appear to have corroded shut, allowing water to freeze within the annular space, bulging the riser pipe this past winter.

WELL INSPECTION SUMMARY

Project Name: *Pfohl Brothers Landfill* Project Number: *11175616.00000*

Inspection Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date(s) of Inspection: *May 4-7, 2009*

<i>Well I.D. Number</i>	<i>Lock</i>	<i>Surface Seal</i>	<i>Protective Casing</i>	<i>Riser</i>	<i>Water Level (ft. BTOC)</i>	<i>Well Depth (ft. BTOC)</i>	<i>Other Comments</i>
GW-8SR	OK	OK	OK	OK	5.38	13.03	
GW-8D	OK	OK	OK	OK	5.88	36.60	
GW-26D	OK	OK	OK	OK	6.69	40.71	
GW-28S	OK	OK	OK	OK	9.65	15.55	
GW-29S	OK	OK	OK	OK	9.11	19.98	
GW-30S	OK	OK	OK	OK	8.35	17.95	
GW-31S	OK	OK	OK	OK	5.61	9.57	
GW-32S	OK	OK	OK	OK	3.79	9.92	

Additional Comments:

WELL INSPECTION SUMMARY

Project Name: *Pfohl Brothers Landfill* Project Number: *11175616.00000*

Inspection Crew Members: *R. Murphy, T. Ifkovich* Supervisor: *J. Sundquist*

Date(s) of Inspection: *May 4-7, 2009*

Well I.D. Number	Lock	Surface Seal	Protective Casing	Riser	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Other Comments
GW-33S	OK	OK	OK	OK	5.22	8.20	
GW-34S	OK	OK	OK	OK	2.92	10.00	
GW-35S	OK	OK	OK	OK	3.52	7.45	

Additional Comments:
