CONESTOGA-ROVERS
& ASSOCIATES

2009 ANNUAL PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

GLENN SPRINGS HOLDINGS, INC.
NIAGARA FALLS, NEW YORK

MAY 2010
REF. NO. 001431 (86)

EXECUTIVE SUMMARY

The following report describes the Operation and Maintenance (O&M) activities for 2009 at the 102nd Street Landfill Site (Site) located in Niagara Falls, New York. The Site covers approximately 22.1 acres and consists of two separate properties owned by Occidental Chemical Corporation (OCC) (15.6 acres) and Olin Corporation (Olin) (6.5 acres). Both OCC's and Olin's responsibilities at the Site are currently operated by Conestoga-Rovers & Associates (CRA), under the direct supervision of Glenn Springs Holdings, Inc. (GSH), an affiliate of OCC.

During 2009, the Remedial Action (RA) system components at the Site performed as designed. The leachate collection system removed 393,509 gallons Aqueous Phase Leachate (APL) from the Site. Water level monitoring showed that an inward gradient continues to be maintained at nine of the well pairs. Only one well pair (PCM-07R/PZ-07) on the north side of the Site indicated an outward gradient for each of the four monitoring events. However, analytical results indicate no Site parameters were observed above the survey levels (Site baseline guidance values from Table 2.1 of the Site O&M Manual, 2001) outside of the slurry wall at PCM-07R.

In 2009, 7,253 gallons of Non-Aqueous Phase Leachate (NAPL) were recovered from the Site NAPL Recovery Wells. The recovered NAPL was then sent to an off-Site incinerator (Clean Harbors, Deer Park, Texas) for final destruction.

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1.0 INTRODUCTION

The following report describes the Operation and Maintenance (O&M) activities for 2009 at the 102nd Street Landfill Site (Site) located in Niagara Falls, New York. Both Occidental Chemical Corporation's (OCC's) and Olin Corporation's (Olin's) responsibilities at the Site are currently operated by Conestoga-Rovers &Associates (CRA), under the direct supervision of Glenn Springs Holdings, Inc. (GSH), an affiliate of OCC.

The Site covers approximately 22.1 acres and consists of two separate properties owned by OCC (15.6 acres) and Olin (6.5 acres). The Site is bordered by the Niagara River to the south, Buffalo Avenue to the north, Griffon Park to the west, and privately owned land to the east. A perimeter fence restricts Site access. Authorized vehicular traffic access is provided from Buffalo Avenue by locked fence gates.

Remedial construction at the Site was completed in 1999, and groundwater pumping began in March 1999. The groundwater collection system at the Site is shown on Figure 1.1.

Final responses to the comments for the Final Closure Report for the Site were submitted to the New York State Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (USEPA) (collectively, the "Agencies") on September 22, 2000. Final approval of the O&M (CRA, 2001) was received on October 24, 2001. The Certificate of Completion for the Site was accepted by the Agencies on March 13, 2002, signifying that all remedial work had been completed. Subsequently, the formal initiation of the O&M for the Site occurred in April 2002. This report is the eighth annual report for the Site.

The Remedial Action (RA) system components at the Site that have associated O&M activities are as follows:

- Landfill cap
- Perimeter slurry wall
- Aqueous Phase Liquid (APL) collection and discharge system
- Non-Aqueous Phase Liquid (NAPL) recovery system
- Post-RA system performance monitoring
- Perimeter fence

At the NYSDEC's request, the annual report title, 2009 Annual Report, was changed to Periodic Review Report for this and all future annual reports. The completed Institutional and Engineering Control Certification Form is included as Appendix A.

2.0 SITE MONITORING PROGRAMS

The post-RA system performance monitoring program includes quarterly groundwater level monitoring events, semiannual groundwater quality monitoring events, and quarterly NAPL presence monitoring. It was established to monitor the effectiveness of the RA system components.

2.1 HYDRAULIC MONITORING PROGRAM

Hydraulic monitoring at the Site consists of the measurement of water levels in monitoring wells to determine groundwater elevations. This monitoring includes ten piezometers (PZ-01 through PZ-10) inside the slurry wall and ten monitoring wells (PCM-01 through PCM-10) outside the slurry wall. The measurements are used to evaluate Site performance toward establishment of an inward gradient by pairing wells (one inside the slurry wall and one outside the slurry wall) and demonstrating an inward gradient at each well pair. The established well pairs are listed in Table 2.1.

Water level measurements in the piezometers and monitoring wells were measured quarterly in 2009, in accordance with the O&M manual. The 2009 water level measurements have been converted to elevations and are presented in Table 2.2. The elevations for each of the well pairings and the gradients achieved for the quarterly events throughout the year are presented in Table 2.3.

Water level data have been converted to elevations and are listed on the Annual Report Forms (Appendix B). Data for 2002 through 2009 have also been graphed to show groundwater elevation trends (Appendix C). The quarterly groundwater elevations are presented on Figures 2.1 through 2.4.

2.2 GROUNDWATER QUALITY MONITORING PROGRAM

The groundwater quality monitoring program consists of ten overburden monitoring wells (PCM-01 through PCM-10) and three bedrock wells (PCBM-01 through PCBM-03). These wells were sampled quarterly for the first 2 years following the initiation of the O&M, and then scheduled for semiannual sampling for 8 years thereafter. Semiannual sampling will continue through 2011. In 2012, sampling will be completed annually in accordance with the O&M Plan.

Groundwater quality monitoring was performed semiannually in March and October 2009. Table 2.4 presents the results of these groundwater monitoring events.

Concentrations present in the groundwater have been graphed to determine if any of the levels are increasing. These graphs are presented in Appendix D.

2.3 NAPL PRESENCE MONITORING PROGRAM

The NAPL presence monitoring program consists of eight NAPL Recovery (NR) wells (NR-01 through NR-05, NR-07, NR-08, and NR-10). NAPL presence monitoring began in these wells in April 2002, immediately after the USEPA approved the Certificate of Completion. In accordance with the O&M manual (CRA, 2001), NAPL presence was checked each month for the first 3 months. This monthly monitoring ended in June 2002. Since June 2002, the NAPL presence monitoring has been completed quarterly. Results of the NAPL presence monitoring are presented on the Annual Report Forms presented in Appendix B.

3.0 SITE MONITORING RESULTS

3.1 HYDRAULIC MONITORING RESULTS

The 2009 quarterly groundwater elevations are shown on Figures 2.1 through 2.4. Inward gradients towards the landfill were demonstrated at all wells pairs with the exception of well pair 7 (PCM-07R/PZ-07) (see Table 2.3). An inward gradient was not maintained at any of the quarterly events for well pair 7, as demonstrated in Table 2.3.

Review of Table 2.3 appears to indicate that well pairs 6, 8, 9, and 10 do not demonstrate inward gradients for all four quarterly events, due to either one or both of the well pairs being dry or the inner well having an elevated groundwater level; however, where water level data is available, an inward gradient exists at all four of these well pairs. It is only the absence of water level data (wells were dry) that would indicate that an inward gradient may not have been present at these well pairs. When the bottom elevations of PZ-06, PZ-08 and PZ-09 are taken into account when those wells were measured as dry, it is apparent that an inward gradient was being maintained (the water level elevation in the wells outside the slurry wall is higher than the elevation of the bottom of the dry wells inside the slurry wall).

During the first and second quarters of 2009, well pair 6 (PCM-06/PZ-06) was dry. Therefore, it is unknown whether an inward gradient was maintained during those events. During the fourth quarter event, well pair 6 did demonstrate an inward gradient.

Well pair 10 (PCM-10 / PZ-10) demonstrated an inward gradient in three of the four quarterly events. This well had a slight outward gradient in the first quarter of 2009.

PCM-07R was installed as a replacement for PCM-07 in October 2007. Evaluation of PCM-07 in 2006 demonstrated that the well was not monitoring the same interval as PZ-07. The well pairs at the Site were installed such that they monitored the same intervals in order to demonstrate inward gradients. However, the overlap of the screens in PCM-07 and PZ-07 was only 0.83 foot. Therefore, PCM-07 was abandoned and replaced with PCM-07R. PZ-07 is screened from 564.8 feet above mean sea level (AMSL) to 569.8 feet AMSL. PCM-07R is screened from 564.12 feet AMSL to 569.12 feet AMSL. The overlap of the well screens is now 4.6 feet, which will insure an accurate calculation of inward hydraulic gradients. However, even with the replacement of PCM-07, the calculations in Table 2.3 demonstrate that an inward gradient is not being maintained at this well pair.

Well pairs 6, 7, 8, 9, and 10 are located along the northern side of the Site, and as shown on Figures 2.1 through 2.4, exhibit groundwater elevations ranging from approximately 564 ft. AMSL to 568 ft AMSL. The remaining wells on the Site (well pairs 1, 2, 3, 4, 5, NR-01 to NR-08, NR-10, and Wet Wells 1 through 4) to the south of well pairs 6, 7, 8, 9, and 10 exhibit groundwater elevations ranging from approximately 560 ft AMSL to 564 AMSL. Although well pairs 7 and 10 exhibit a potential outward groundwater gradient, Figures 2.1 through 2.4 demonstrate that a north to south groundwater gradient towards the APL collection trench (located on the south side of the Site along the Niagara River) exists across the Site, and therefore, contaminant flow would be southwards toward the APL collection trench. Analytical results from the groundwater collected from wells PCM-7R through PCM-10 (located outside the slurry wall) demonstrates that there are no contaminants present at these locations with concentrations exceeding the Site groundwater survey criteria.

3.2 GROUNDWATER QUALITY MONITORING RESULTS

Overburden Monitoring Wells

In 2009, groundwater samples were obtained from all ten monitoring wells included in the semiannual analytical program. However, well PCM-09 did not yield sufficient volume for collection of samples in October 2009. Site groundwater survey criteria were exceeded in three of the ten overburden monitoring wells in 2009. Wells PCM-03, PCM-04, and PCM-05 demonstrated exceedances of volatile organic compounds (VOCs) (benzene, chlorobenzene, and dichlorobenzene), and PCM-03 and PCM-04 demonstrated exceedances of semi-volatile organic compounds (SVOCs) (chlorophenol and dichlorophenol).

Bedrock Monitoring Wells

Site groundwater survey criteria were not exceeded in any of the three bedrock monitoring wells that were sampled for groundwater quality in 2009.

3.3 NAPL PRESENCE MONITORING RESULTS

NAPL presence monitoring of the eight NR wells (NR-01, NR-02, NR-03, NR-04, NR-05, NR-07, NR-08, and NR-10) began in April 2002 immediately after USEPA approved the Certificate of Completion. In accordance with the approved O&M manual, NAPL presence was checked each month for the first 3 months (ending in 2002) and has been

checked quarterly thereafter. Results of this monitoring are presented in the Annual Report Forms presented in Appendix B.

NAPL was present in five of the eight NR wells in 2009. Thickness of the NAPL ranged from 0.27 foot (NR-05) to 4.35 feet (NR-01).

4.0 OPERATION OF 102ND STREET LANDFILL SYSTEMS

4.1 APL COLLECTION AND DISCHARGE SYSTEM OPERATION

The individual APL pumps in the APL collection wet wells operated throughout 2009 on level control. All well pumps were set to start up at an elevation of 562.1 AMSL (1 foot below the average Niagara River water level) and shut down when elevations in the wells reached 561.8 AMSL.

A total of 393,509 gallons of APL were removed from the Site and pumped to the Love Canal Treatment Facility (LCTF). There, the APL was treated and discharged to the City of Niagara Falls Sanitary Sewer System. A total of approximately 7.7 million gallons have been recovered from the Site since pumping was initiated in March 1999.

Wet Wells 1 through 4 collect APL at the Site. In 2009, Wet Well 1 collected 7,822 gallons of APL (2.0 percent of the total for the Site), Wet Well 2 collected 364,642 gallons of APL (92.7 percent), Wet Well 3 collected 30 gallons of APL (less than 1 percent), and Wet Well 4 collected 21,015 gallons of APL (5.3 percent).

4.2 NAPL RECOVERY

7,253 gallons of NAPL was removed from the NR wells at the Site in 2009. The majority of the NAPL was pumped from NR-02. The NAPL (7,228 gallons collected in 2009 and approximately 1500 gallons collected at the end of 2008) was transported to Clean Harbors Facility in Deer Park, Texas for incineration.

A concentrated effort was implemented in 2004 to extract NAPL using NR-02, in accordance with the approved Work Plan "NAPL Extraction Program Work Plan for Accelerated Recovery" submitted to the NYSDEC in December 2003. This task was achieved by concentrating on the known quick recharge well NR-02. In 2009, NAPL was recovered continuously from April through December from NR-02 for a total NAPL recovery of 7,164 gallons.

Table 4.1 shows the current and historical NAPL recoveries from the on-Site NR wells.

5.0 SITE MAINTENANCE AND INSPECTIONS

5.1 SITE INSPECTIONS

The 2009 annual Site inspection was held on May 27, 2009 with representatives from NYSDEC, GSH and CRA. The Site inspection reviews the Remedial Action System Components to ensure Site compliance.

The inspection included a general walk-around the Site and covered all portions of the landfill remediation including the APL Collection System, APL Discharge System, Landfill Cap, Bulkhead, and Storm Sewer.

In general, the NYSDEC commented that the Site looked well maintained and in very good order, with no evidence of erosion. Listed below are items that the NYSDEC indicated would need to be addressed:

- Clean out of drifted wood and debris along shoreline and near grating at storm sewer outlet in warmer weather (i.e., July).
- Clean Wet Well 2 level controller.

These activities were completed during the summer and winter of 2009.

5.2 MAINTENANCE

Maintenance performed at the Site in 2009 included the following:

- Mowing the landfill vegetation to inhibit the growth of woody material
- Filling of holes found in the soil cover made by burrowing animals
- Maintenance (including scheduled preventative maintenance) of all pumps and on-Site control equipment to ensure proper function
- Replacement of well PCM-06
- Replacement of road box and riser for PCM-01

5.3 SITE BEAUTIFICATION/WILDLIFE

Wildlife/beautification enhancements to the Site continue to provide wildlife habitat and beneficial reuse.

5.4 PCM-06 REPLACEMENT

On October 13, 2009, PCM-06 was decommissioned and replaced due to well failure. During the third quarter hydraulic monitoring event, field personnel discovered that PCM-06 had silted in, most likely due to the screen separating from the riser pipe. With NYSDEC approval, PCM-06 was replaced with well PCM-06R, installed to the same depth as PCM-06 and with the same well design. PCM-06 was decommissioned and replaced in accordance with NYSDEC Monitoring Well Decommissioning Policy.

The Stratigraphic and Instrumentation Log for PCM-06R is presented in Appendix E.

The development of PCM-06R was attempted on Tuesday, October 20, 2009. The water level in the well was measured to be 12.55 feet below top of riser (ft btr.) and the well depth is 13.75 ft btr. The well volume was calculated to be 0.19 gallons. Approximately one well volume of water was purged from the well before the well went dry. The well was allowed to recharge for two hours and no water accumulated in the well. The water level was checked on Friday, October 23 and the well was found to be dry. It is assumed that the water found in the well was due to water added to hydrate the bentonite seal during well installation. When PCM-06R was checked for the fourth quarter hydraulic monitoring event conducted on December 16, 2009, groundwater was present in the well at a depth of 13.5 ft btr.

6.0 CONCLUSION

The 2009 data indicate that there has been no significant change in chemical and hydrogeological conditions at the Site. A total of 393,509 gallons of APL were removed from the Site and pumped to the LCTF for treatment and disposal. A total of 7,253 gallons of NAPL were recovered from the Site in 2009 and approximately 8,800 gallons (the combination of 7,253 gallons collected in 2009 and 1,500 gallons collected at the end of 2008) was sent off Site for incineration. The forcemain system continues to pump sufficient leachate from the landfill so as to maintain an inward gradient across the slurry wall. The slurry wall is functioning as designed, preventing off-Site migration and influx of groundwater.

FIGURES

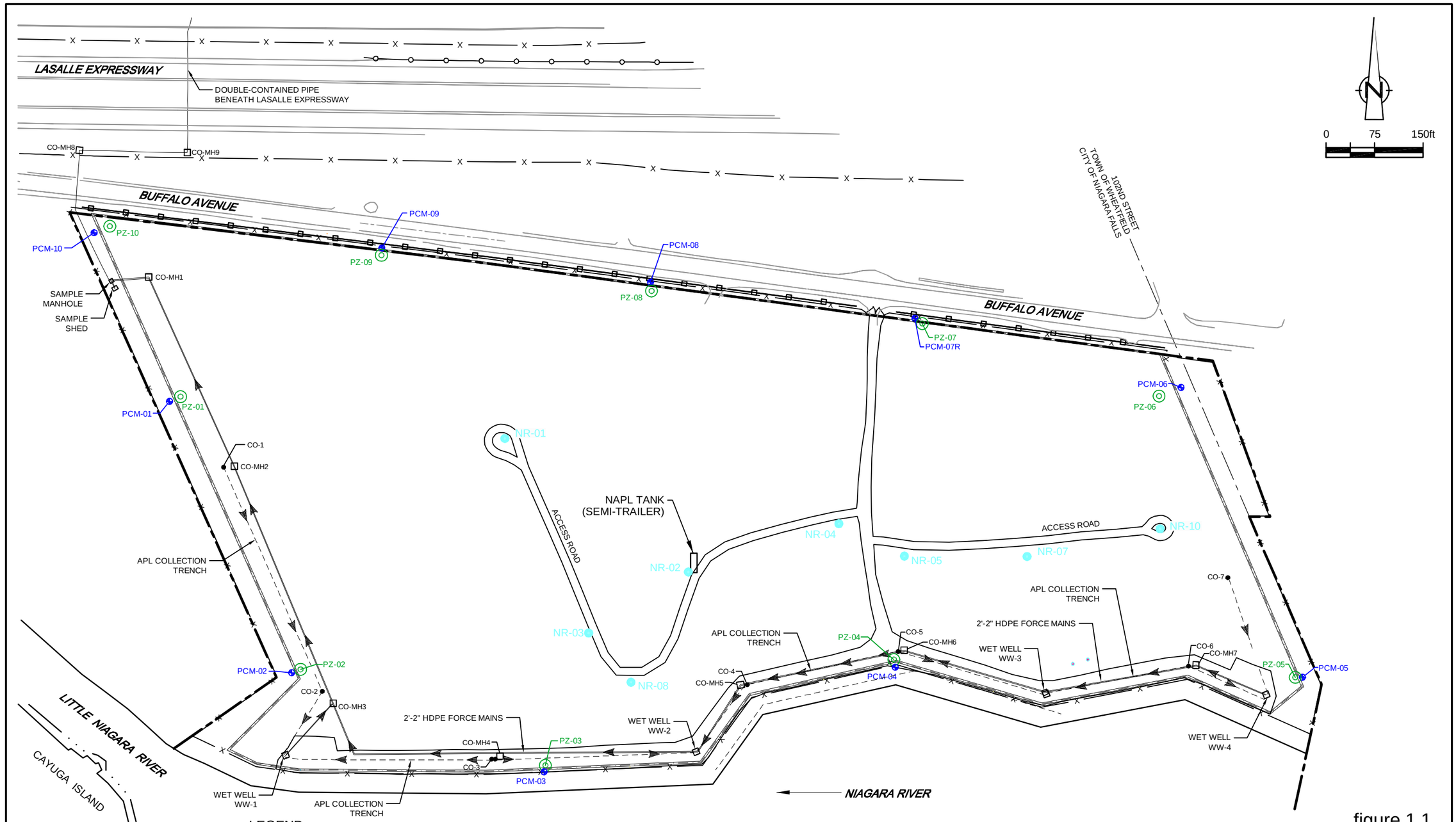

figure 1.1

FACILITY LAYOUT
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

01431-D23101(086)GN-WA001 MAY 27/2010

LASALLE EXPRESSWAY

DOUBLE-CONTAINED PIPE
BENEATH LASALLE EXPRESSWAY

BUFFALO AVENUE

BUFFALO AVENUE

102ND STREET
CITY OF NIAGARA FALLS
TOWN OF WHEATFIELD

0 75 150ft

CO-MH8
CO-MH9
CO-MH1
CO-MH2
CO-MH3
CO-MH4
CO-MH5
CO-MH6
CO-MH7
CO-1
CO-2
CO-3
CO-4
CO-5
CO-6
CO-7

PZ-10 (565.05)
PZ-09 (DRY)
PZ-08 (564.78)
PZ-07 (566.30)
PZ-06 (DRY)
PZ-01 (562.47)
PZ-02 (561.65)
PZ-03 (561.02)
PZ-04 (561.39)
PZ-05 (560.98)

PCM-10 (564.84)
PCM-09 (567.74)
PCM-08 (567.65)
PCM-07R (566.21)
PCM-06 (DRY)
PCM-01 (563.76)
PCM-02 (564.37)
PCM-03 (563.23)
PCM-04 (563.21)
PCM-05 (562.92)

NR-01 (561.20)
NR-02 (561.00)
NR-03 (560.91)
NR-04 (560.98)
NR-05 (560.95)
NR-07 (562.18)
NR-08 (560.81)
NR-10 (561.07)

WW-1 (560.96)
WW-2 (560.66)
WW-3 (561.04)
WW-4 (561.06)

SAMPLE MANHOLE
SAMPLE SHED

NAPL TANK
(SEMI-TRAILER)

ACCESS ROAD
ACCESS ROAD

APL COLLECTION TRENCH
APL COLLECTION TRENCH
APL COLLECTION TRENCH
APL COLLECTION TRENCH

2'-2" HDPE FORCE MAINS
2'-2" HDPE FORCE MAINS

LITTLE NIAGARA RIVER
CAYUGA ISLAND

NIAGARA RIVER (563.71)

565 564 563 562 561 566

LEGEND

PROPERTY LINE	APL COLLECTION TRENCH	CO-MH3	FORCEMAIN CLEAN OUT MANHOLE
FENCE LINE	PZ-02 PIEZOMETER LOCATION		NAPL RECOVERY WELL LOCATION
CRIB WALL	PCM-02 MONITORING WELL LOCATION	(560.91)	GROUNDWATER ELEVATION
FORCEMAIN	CO-2 TRENCH CLEAN OUT	563	GROUNDWATER CONTOUR
SLURRY WALL AND CENTERLINE			

figure 2.1

GROUNDWATER ELEVATIONS - MARCH 13, 2009
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

01431-D23101(086)GN-WA003 MAY 27/2010

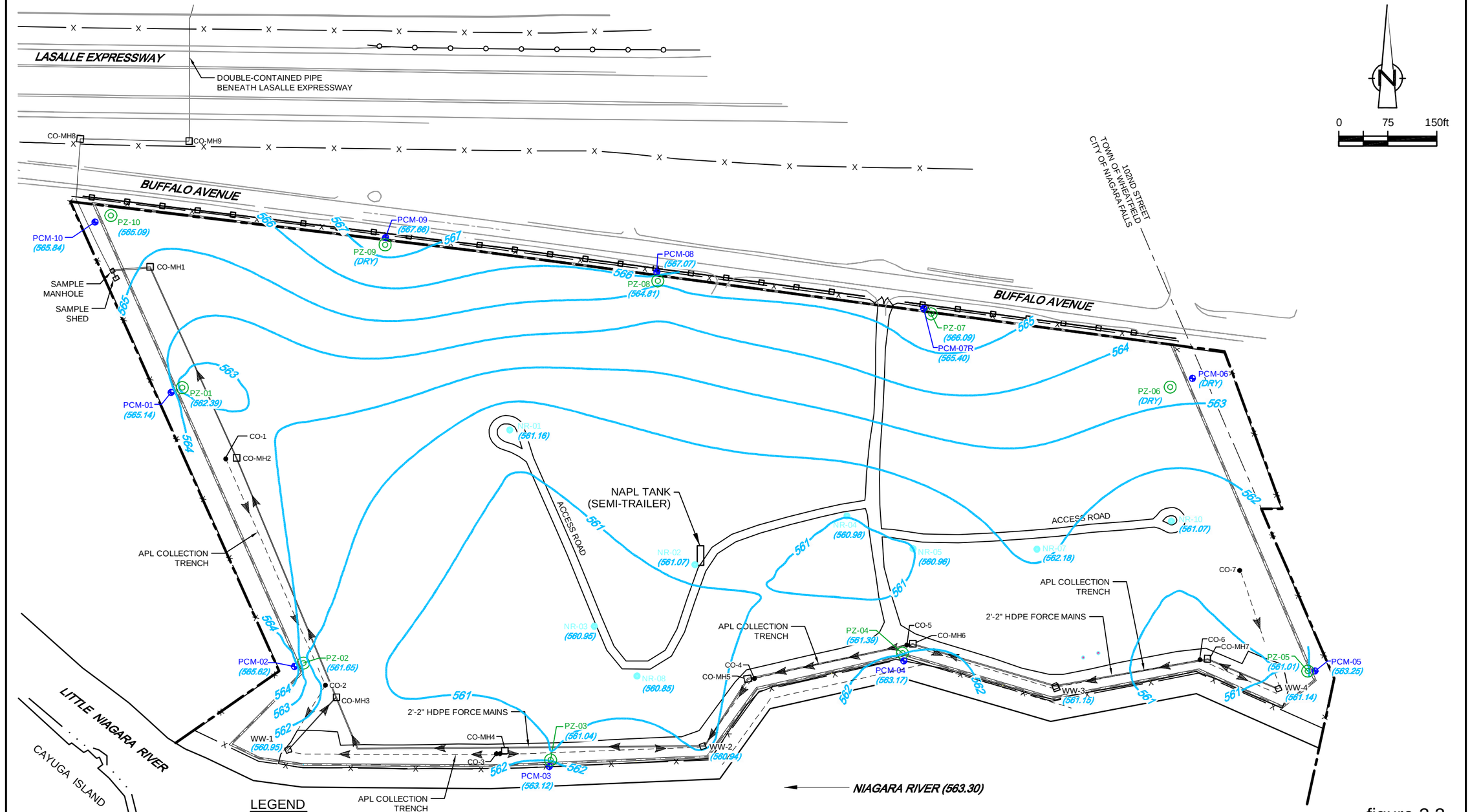

figure 2.2

GROUNDWATER ELEVATIONS - JUNE 17, 2009
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

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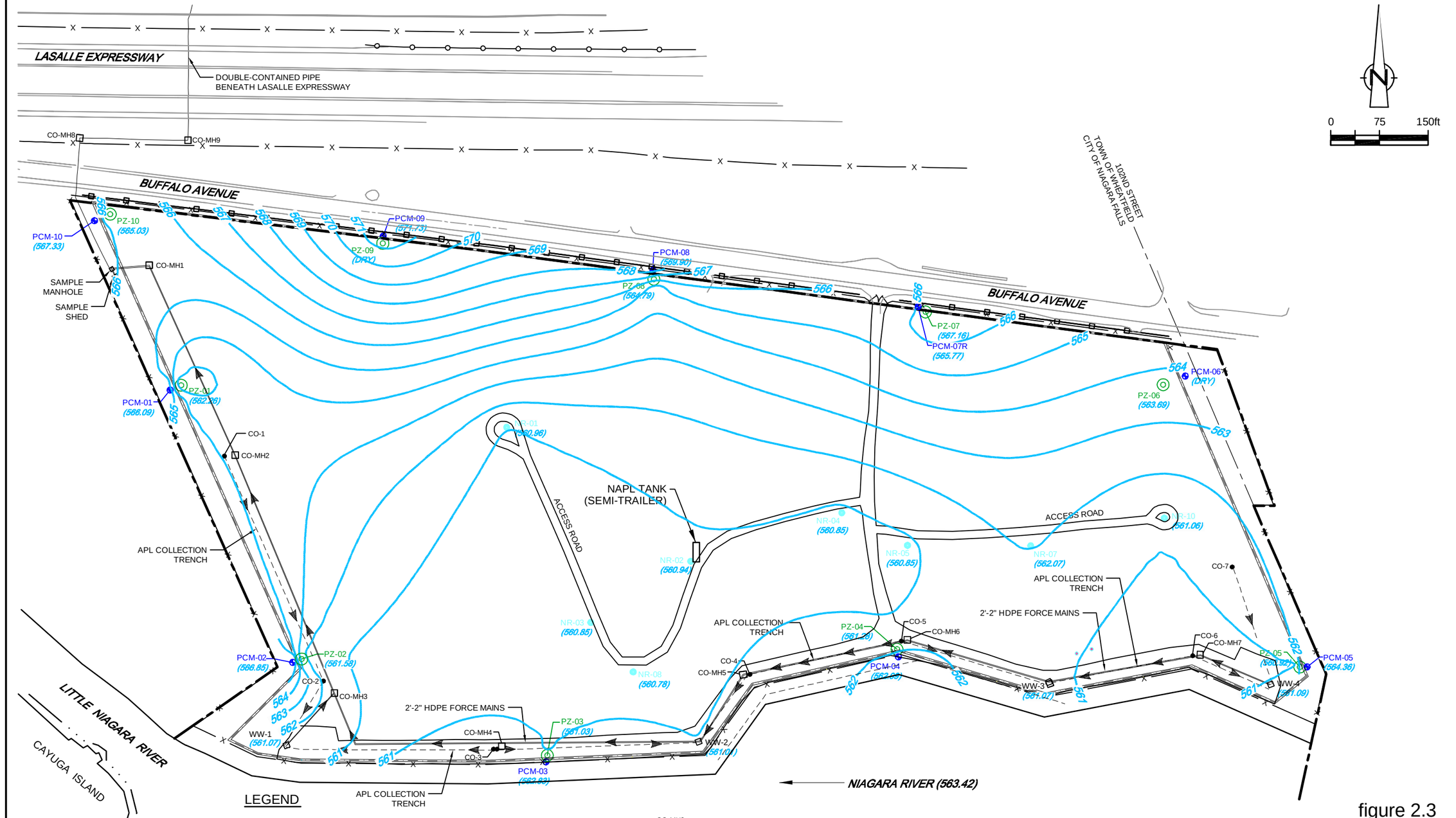

figure 2.3

GROUNDWATER ELEVATIONS - SEPTEMBER 15, 2009
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

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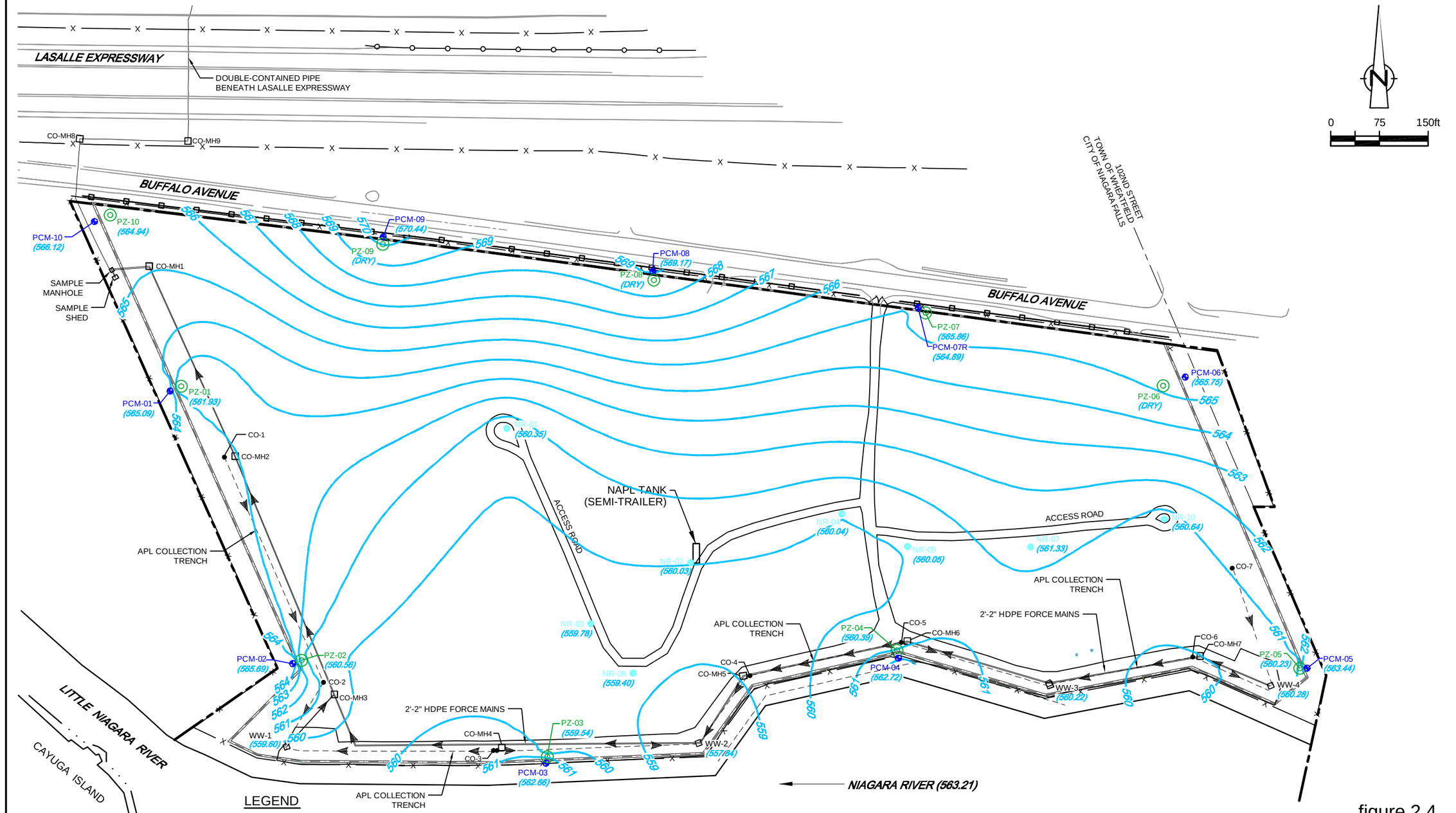

figure 2.4

GROUNDWATER ELEVATIONS - DECEMBER 16, 2009
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

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TABLES

TABLE 2.1

HYDRAULIC GRADIENT WELL PAIRS
GLENN SPRINGS HOLDINGS, INC.
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

Pair	*Outside*	*Inside*	*Location*
1	PCM-01	PZ-01	West Side
2	PCM-02	PZ-02	Southwest Side
3	PCM-03	PZ-03	South Side
4	PCM-04	PZ-04	South Side
5	PCM-05	PZ-05	Southeast Side
6	PCM-06	PZ-06	Northeast Side
7	PCM-07R	PZ-07	North Side
8	PCM-08	PZ-08	North Side
9	PCM-09	PZ-09	North Side
10	PCM-10	PZ-10	Northwest Side

TABLE 2.2

QUARTERLY WATER LEVEL ELEVATIONS - 2009
GLENN SPRINGS HOLDINGS, INC.
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

Location	*Ref Elev.*	*March 13, 2009*	*June 17, 2009*	*September 15, 2009*	*December 16, 2009*
NR-1	595.96	561.20	561.16	560.96	560.35
NR-2	588.39	561.00	561.07	560.94	560.03
NR-3	593.09	560.91	560.95	560.85	559.78
NR-4	581.06	560.98	560.98	560.85	560.04
NR-5	580.33	560.95	560.96	560.85	560.05
NR-7	587.21	562.18	562.18	562.07	561.33
NR-8	590.72	560.81	560.85	560.78	559.40
NR-10	586.77	561.07	561.07	561.06	560.64
PCBM-1	576.19	563.63	563.50	563.41	563.31
PCBM-2	575.21	563.32	563.24	563.27	562.95
PCBM-3	579.34	563.43	563.42	563.72	563.37
PCM-01	577.02	563.76	565.14	566.09	565.09
PCM-02	576.22	564.37	565.62	566.85	565.69
PCM-03	576.14	563.23	563.12	562.83	562.66
PCM-04	574.90	563.21	563.17	562.99	562.72
PCM-05	575.21	562.92	563.25	564.36	563.44
PCM-06	579.26	Dry	Dry	Dry	565.75
PCM-07R	578.80	566.21	565.40	565.77	564.89
PCM-08	578.34	567.65	567.07	569.90	569.17
PCM-09	578.05	567.74	567.66	571.73	570.44
PCM-10	578.44	564.84	565.84	567.33	566.12
PZ-01	580.98	562.47	562.39	562.26	561.93
PZ-02	577.10	561.65	561.65	561.58	560.56
PZ-03	575.82	561.02	561.04	561.03	559.54
PZ-04	575.99	561.39	561.39	561.28	560.39
PZ-05	575.92	560.98	561.01	560.92	560.23
PZ-06	583.70	Dry	Dry	563.69	Dry
PZ-07	578.48	566.30	566.09	567.16	565.86
PZ-08	579.71	564.78	564.81	564.79	Dry
PZ-09	579.51	Dry	Dry	Dry	Dry
PZ-10	581.61	565.05	565.09	565.03	564.94
RIVERNPIER	567.02	563.71	563.30	563.42	563.21
WW-1	574.97	560.96	560.95	561.07	559.60
WW-2	574.43	560.89	560.94	561.01	557.84
WW-3	574.78	561.04	561.15	561.07	560.22
WW-4	575.20	561.06	561.14	561.09	560.28

TABLE 2.3

WELL PAIR GRADIENTS - 2009
GLENN SPRINGS HOLDINGS, INC.
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

		Elevation (ft AMSL)						
	Pairs	*TOC*	*Bottom*	*March 13, 2009*	*June 17, 2009*	*September 15, 2009*	*December 16, 2009*	*Quarters Maintaining Inward Gradient*
Pair 1	PCM-01	577.02	549.05	563.76	565.14	566.09	565.09	
	PZ-01	580.98	549.64	562.47	562.39	562.26	561.93	
				-1.29	-2.75	-3.83	-3.16	4
Pair 2	PCM-02	576.22	547.90	564.37	565.62	566.85	565.69	
	PZ-02	577.10	548.43	561.65	561.65	561.58	560.56	
				-2.72	-3.97	-5.27	-5.13	4
Pair 3	PCM-03	576.14	545.15	563.23	563.12	562.83	562.66	
	PZ-03	575.82	545.63	561.02	561.04	561.03	559.54	
				-2.21	-2.08	-1.80	-3.12	4
Pair 4	PCM-04	574.90	545.74	563.21	563.17	562.99	562.72	
	PZ-04	575.99	545.63	561.39	561.39	561.28	560.39	
				-1.82	-1.78	-1.71	-2.33	4
Pair 5	PCM-05	575.21	550.00	562.92	563.25	564.36	563.44	
	PZ-05	575.92	550.50	560.98	561.01	560.92	560.23	
				-1.94	-2.24	-3.44	-3.21	4
Pair 6	PCM-06	579.26	566.50	Dry	Dry	Dry	565.75	
	PZ-06	583.70	564.05	Dry	Dry	563.69	Dry	
				NA	NA	NA	NA	0*
Pair 7	PCM-07R	578.80	557.63	566.21	565.40	565.77	564.89	
	PZ-07	578.48	564.80	566.30	566.09	567.16	565.86	
				0.09	0.69	1.39	0.97	0
Pair 8	PCM-08	578.34	564.43	567.65	567.07	569.90	569.17	
	PZ-08	579.71	565.38	564.78	564.81	564.79	Dry	
				-2.87	-2.26	-5.11	NA	3**
Pair 9	PCM-09	578.05	567.87	567.74	567.66	571.73	570.44	
	PZ-09	579.51	566.28	Dry	Dry	Dry	Dry	
				NA	NA	NA	NA	0**
Pair 10	PCM-10	578.44	556.39	564.84	565.84	567.33	566.12	
	PZ-10	581.61	561.56	565.05	565.09	565.03	564.94	
				0.21	-0.75	-2.30	-1.18	3

Notes:
ft AMSL Feet above mean sea level.
-3.53 Negative number indicates an inward gradient.
Dry No water in well during time of measurement.
NA Gradient unable to be calculated due to dry well.
* When the bottom elevation of the well is taken into account, one of four quarters demonstrate inward gradients.

TABLE 2.4

ANALYTICAL RESULTS SUMMARY - 2009
GLENN SPRINGS HOLDINGS, INC.
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

				Sample Location:	*PCBM-01*			*PCBM-02*			*PCBM-03*	
				Sample ID:	*PCBM-01-309*	*PCM-13-309*	*PCBM-011009*	*PCBM-02-309*	*PCBM-021009*	*PCM-121009*	*PCBM-03-309*	*PCBM-031009*
				Sample Date:	*3/18/2009*	*3/18/2009 (Duplicate)*	*10/21/2009*	*3/18/2009*	*10/21/2009*	*10/21/2009 (Duplicate)*	*3/18/2009*	*10/21/2009*
Parameters	*NYSDEC Class GA GW Criteria*	*Survey Level*	*Units*									
Volatile Organic Compounds												
1,2,3-Trichlorobenzene	5	10	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	5	10	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	3	10	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	3	10	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	5	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	1	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	5	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Semi-volatile Organic Compounds												
1,2,4,5-Tetrachlorobenzene	5	10	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	1	50	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	1	10	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,5-Dichlorophenol	1	10	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	1	10	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenol	1	10	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	1	10	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Metals												
Arsenic	25	50	ug/L	10 U	10 U	10 U	10 U	10 U	3.3 J	2.0 J	10 U	3.4 J
Mercury	0.7	0.10	ug/L	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Pesticides												
alpha-BHC	0.01	10	ug/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
beta-BHC	0.04	10	ug/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
delta-BHC	0.04	10	ug/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
gamma-BHC (Lindane)	0.05	10	ug/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U

Notes:
µg/L Micrograms per liter.
J Estimated concentration.
U Not present at or above the associated value.
UJ Estimated reporting limit.
Exceedance of NYSDEC Class GA GW Criteria and/or Survey Level.

TABLE 2.4

ANALYTICAL RESULTS SUMMARY - 2009
GLENN SPRINGS HOLDINGS, INC.
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

				Sample Location:	PCM-01		PCM-02		PCM-03		PCM-04		PCM-05	
				Sample ID:	PCM-01-309	PCM-011009	PCM-02-309	PCM-021009	PCM-03-309 03180	PCM-031009	PCM-04-309	PCM-041009	PCM-05-309	PCM-051009
				Sample Date:	3/18/2009	10/21/2009	3/18/2009	10/23/2009	3/18/2009	10/23/2009	3/18/2009	10/23/2009	3/18/2009	10/23/2009
Parameters	*NYSDEC Class GA GW Criteria*	*Survey Level*	*Units*											
Volatile Organic Compounds														
1,2,3-Trichlorobenzene	5	10	ug/L		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	5	10	ug/L		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	3	10	ug/L		1.0 U	1.0 U	1.0 U	1.0 U	97	90	1.0 U	18 J	1.0 U	1.0 U
1,4-Dichlorobenzene	3	10	ug/L		1.0 U	1.0 U	1.0 U	1.0 U	440	500	290	300	1.0 U	1.0 U
2-Chlorotoluene	5	5	ug/L		1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	2.1 U	1.0 U	1.0 U	1.0 U
Benzene	1	5	ug/L		1.0 U	1.0 U	1.0 U	1.0 U	84	73	41 J	25 J	9.2	4.5
Chlorobenzene	5	5	ug/L		1.0 U	1.0 U	1.0 U	1.0 U	4300	4900	10000	10000	190	150
Semi-volatile Organic Compounds														
1,2,4,5-Tetrachlorobenzene	5	10	ug/L		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	1	50	ug/L		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	1	10	ug/L		10 U	10 U	10 U	10 U	28	11 J	1.8 J	10 U	10 U	10 U
2,5-Dichlorophenol	1	10	ug/L		10 U	10 U	10 U	10 U	6.1 J	3.9 J	1.9 J	1.4 J	10 U	10 U
2-Chlorophenol	1	10	ug/L		10 U	10 U	10 U	10 U	41	16	34	24	0.78 J	10 U
4-Chlorophenol	1	10	ug/L		10 U	10 U	10 U	10 U	93	71	66	49	2.9 J	10 U
Phenol	1	10	ug/L		10 U	10 U	10 U	10 U	4.2 J	1.3 J	2.4 J	7.2 J	10 U	10 U
Metals														
Arsenic	25	50	ug/L		10 U	3.8 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Mercury	0.7	0.10	ug/L		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Pesticides														
alpha-BHC	0.01	10	ug/L		0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
beta-BHC	0.04	10	ug/L		0.050 U	0.050 U	0.050 U	0.050 U	0.072	0.12	0.050 U	0.050 U	0.050 U	0.050 U
delta-BHC	0.04	10	ug/L		0.050 U	0.050 U	0.050 U	0.050 U	2.0	1.5	1.2	0.050 U	0.050 U	0.050 U
gamma-BHC (Lindane)	0.05	10	ug/L		0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U

Notes:
µg/L Micrograms per liter.
J Estimated concentration.
U Not present at or above the associated value.
UJ Estimated reporting limit.
Exceedance of NYSDEC Class GA GW Criteria and/or Survey Level.

TABLE 2.4

ANALYTICAL RESULTS SUMMARY - 2009
GLENN SPRINGS HOLDINGS, INC.
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

			Sample Location:	PCM-07R		PCM-08		PCM-9	PCM-10	
			Sample ID:	PCM-7R-309	PCM-071009	PCM-08-309	PCM-081009	PCM-09-309	PCM-10-309	PCM-101009
			Sample Date:	3/19/2009	10/23/2009	3/19/2009	10/21/2009	3/19/2009	3/19/2009	10/21/2009
Parameters	*NYSDEC Class GA GW Criteria*	*Survey Level*	*Units*							
Volatile Organic Compounds										
1,2,3-Trichlorobenzene	5	10	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	5	10	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	3	10	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	3	10	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	5	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	1	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	5	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Semi-volatile Organic Compounds										
1,2,4,5-Tetrachlorobenzene	5	10	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	1	50	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	1	10	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,5-Dichlorophenol	1	10	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	1	10	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenol	1	10	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	1	10	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Metals										
Arsenic	25	50	ug/L	10 U	1.8 J	10 U	10 U	10 U	10 U	2.9 J
Mercury	0.7	0.10	ug/L	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Pesticides										
alpha-BHC	0.01	10	ug/L	0.052	0.060	0.050 U	0.050 U	0.050 U	0.050 U	0.040 J
beta-BHC	0.04	10	ug/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.13
delta-BHC	0.04	10	ug/L	0.038 J	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
gamma-BHC (Lindane)	0.05	10	ug/L	0.051	0.028 J	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U

Notes:
µg/L Micrograms per liter.
J Estimated concentration.
U Not present at or above the associated value.
UJ Estimated reporting limit.
Exceedance of NYSDEC Class GA GW Criteria and/or Survey Level.

TABLE 4.1

NAPL RECOVERY (NR) WELLS CURRENT AND HISTORICAL NAPL RECOVERIES
GLENN SPRINGS HOLDINGS, INC.
102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

	AMOUNT OF NAPL REMOVED IN GALLONS										
YEAR / *WELL*	**1999**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	***Totals***
NR-1	-	55	0	60	0	0	30	85	44	46	320
NR-2	-	200	1,490	1,355	12,151	18,153	8,738	9,421	6,189	7,164	64,861
NR-3	-	40	0	0	0	0	10	42	22	12	126
NR-4	-	0	0	0	0	0	0	0	0	0	0
NR-5	-	40	0	20	0	0	10	36	21	15	142
NR-7	-	0	0	0	0	0	0	0	0	0	0
NR-8	-	0	0	5	0	0	8	43	22	16	94
NR-10	-	0	0	0	0	0	0	0	0	0	0
Total	**--**	**335**	**1,490**	**1,440**	**12,151**	**18,153**	**8,796**	**9,627**	**6,298**	**7,253**	**65,543**

Notes:
* 2006: 4th tanker shipped January 9, 2007 after first of the year.
* 2006: NAPL slightly heavier.
* 2006: Inspection to daily instead of 2x more down time .

APPENDIX A

INSTITUTIONAL AND ENGINEERING CONTROLS CERTIFICATION FORM

Enclosure 1

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Site Management Periodic Review Report Notice

Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site No. 932022

Site Name Hooker-102nd Street Landfill

Site Address: 102nd Street, South of River Road Zip Code: 14304
City/Town: Niagara Falls
County: Niagara
Allowable Use(s) (if applicable, does not address local zoning):
Site Acreage: ~~16.5~~ 22.1
Owner: Occidental Chemical Corporation, 5005 LBJ Freeway, Dallas, TX 75244
Olin Corporation, 3855 North Ocoee Street, Cleveland, TN 37312

Reporting Period: ~~April 14, 2009 to April 14, 2010~~
January 1, 2009 to December 31, 2009

Verification of Site Details **Box 2**

	YES	NO
1. Is the information in Box 1 correct?	☐	☒
If NO, are changes handwritten above or included on a separate sheet?	☒	
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	☒
If YES, is documentation or evidence that documentation has been previously submitted included with this certification?	☐	
3. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☐	☒
If YES, is documentation (or evidence that documentation has been previously submitted) included with this certification?	☐	
4. If use of the site is restricted, is the current use of the site consistent with those restrictions?	☒	☐
If NO, is an explanation included with this certification?	☐	
5. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), has any new information revealed that assumptions made in the Qualitative Exposure Assessment regarding offsite contamination are no longer valid? N/A	☐	☐
If YES, is the new information or evidence that new information has been previously submitted included with this Certification?	☐	
6. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), are the assumptions in the Qualitative Exposure Assessment still valid (must be certified every five years)? N/A	☐	☐
If NO, are changes in the assessment included with this certification?	☐	

SITE NO. 932022

Description of Institutional Controls

Parcel	Institutional Control
S_B_L Image: **174.07-1-1**	Landuse Restriction
S_B_L Image: **174.07-1-2**	Landuse Restriction
S_B_L Image: **161.18-1-34.2**	Landuse Restriction
S_B_L Image: **161.19-3-1**	Landuse Restriction
S_B_L Image: **161.19-3-2**	Landuse Restriction
S_B_L Image: **174.07-1-3**	Landuse Restriction
S_B_L Image: **174.07-1-4**	Landuse Restriction

Description of Engineering Controls

Parcel	Engineering Control
S_B_L Image: **174.07-1-1**	Cover System Fencing/Access Control Groundwater Containment Leachate Collection Pump & Treat Subsurface Barriers
S_B_L Image: **174.07-1-2**	Cover System Fencing/Access Control Groundwater Containment Leachate Collection Pump & Treat Subsurface Barriers
S_B_L Image: **161.18-1-34.2**	Cover System Fencing/Access Control Groundwater Containment Leachate Collection Pump & Treat Subsurface Barriers
S_B_L Image: **161.19-3-1**	Cover System Fencing/Access Control Groundwater Containment Leachate Collection Pump & Treat Subsurface Barriers
S_B_L Image: **161.19-3-2**	Cover System Fencing/Access Control Groundwater Containment Leachate Collection Pump & Treat Subsurface Barriers
S_B_L Image: **174.07-1-3**	Cover System Fencing/Access Control Groundwater Containment Leachate Collection Pump & Treat

Parcel	Engineering Control
S_B_L Image: **174.07-1-4**	Subsurface Barriers Cover System Fencing/Access Control Groundwater Containment Leachate Collection Pump & Treat Subsurface Barriers

Attach documentation if IC/ECs cannot be certified or why IC/ECs are no longer applicable. (See instructions)

Control Description for Site No. 932022

Parcel: 161.18-1-34.2

The engineering controls consist of a containment system for the landfill, including: perimeter fencing; NAPL recovery wells; a groundwater collection system; a perimeter sub-surface slurry wall; and a landfill cap. Groundwater collected from the containment system is pumped north for treatment at the Love Canal Leachate Treatment Facility. NAPL is pumped seasonally (April - Nov.) from select NAPL recovery wells into a waste tanker and sent off site for proper disposal. OCC/Olin, or their representative has perfomed the required O&M activities since 1999.

The Institutional Controls include a January 2000 deed restriction that prohibits the use of site groundwater or disturbance of landfill cover.

Parcel: 161.19-3-1

The engineering controls consist of a containment system for the landfill, including: perimeter fencing; NAPL recovery wells; a groundwater collection system; a perimeter sub-surface slurry wall; and a landfill cap. Groundwater collected from the containment system is pumped north for treatment at the Love Canal Leachate Treatment Facility. NAPL is pumped seasonally (April - Nov.) from select NAPL recovery wells into a waste tanker and sent off site for proper disposal. OCC/Olin has perfomed the required O&M activities since 1999.

The Institutional Controls include a January 2000 deed restriction that prohibits the use of site groundwater or disturbance of landfill cover.

text edits as above

Parcel: 161.19-3-2

The engineering controls consist of a containment system for the landfill, including: perimeter fencing; NAPL recovery wells; a groundwater collection system; a perimeter sub-surface slurry wall; and a landfill cap. Groundwater collected from the containment system is pumped north for treatment at the Love Canal Leachate Treatment Facility. NAPL is pumped seasonally (April - Nov.) from select NAPL recovery wells into a waste tanker and sent off site for proper disposal. OCC/Olin has perfomed the required O&M activities since 1999.

The Institutional Controls include a January 2000 deed restriction that prohibits the use of site groundwater or disturbance of landfill cover.

text edits as above

Parcel: 174.07-1-1

The engineering controls consist of a containment system for the landfill, including: perimeter fencing; NAPL recovery wells; a groundwater collection system; a perimeter sub-surface slurry wall; and a landfill cap. Groundwater collected from the containment system is pumped north for treatment at the Love Canal Leachate Treatment Facility. NAPL is pumped seasonally (April - Nov.) from select NAPL recovery wells into a waste tanker and sent off site for proper disposal. OCC/Olin has perfomed the required O&M activities since 1999.

text edits as above

The Institutional Controls include a January 2000 deed restriction that prohibits the use of site groundwater or disturbance of landfill cover.

Control Description for Site No. 932022

Parcel: 174.07-1-2

The engineering controls consist of a containment system for the landfill, including: perimeter fencing; NAPL recovery wells; a groundwater collection system; a perimeter sub-surface slurry wall; and a landfill cap. Groundwater collected from the containment system is pumped north for treatment at the Love Canal Leachate Treatment Facility. NAPL is pumped seasonally (April - Nov.) from select NAPL recovery wells into a waste tanker and sent off site for proper disposal. OCC/Olin has perfomed the required O&M activities since 1999.

text edits as above

The Institutional Controls include a January 2000 deed restriction that prohibits the use of site groundwater or disturbance of landfill cover.

Parcel: 174.07-1-3

The engineering controls consist of a containment system for the landfill, including: perimeter fencing; NAPL recovery wells; a groundwater collection system; a perimeter sub-surface slurry wall; and a landfill cap. Groundwater collected from the containment system is pumped north for treatment at the Love Canal Leachate Treatment Facility. NAPL is pumped seasonally (April - Nov.) from select NAPL recovery wells into a waste tanker and sent off site for proper disposal. OCC/Olin has perfomed the required O&M activities since 1999.

text edits as above

The Institutional Controls include a January 2000 deed restriction that prohibits the use of site groundwater or disturbance of landfill cover.

Parcel: 174.07-1-4

The engineering controls consist of a containment system for the landfill, including: perimeter fencing; NAPL recovery wells; a groundwater collection system; a perimeter sub-surface slurry wall; and a landfill cap. Groundwater collected from the containment system is pumped north for treatment at the Love Canal Leachate Treatment Facility. NAPL is pumped seasonally (April - Nov.) from select NAPL recovery wells into a waste tanker and sent off site for proper disposal. OCC/Olin has perfomed the required O&M activities since 1999.

text edits as above

The Institutional Controls include a January 2000 deed restriction that prohibits the use of site groundwater or disturbance of landfill cover.

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted

YES	NO
☒	☐

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

(a) the Institutional Control and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

(b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

(c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

(d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

(e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES	NO
☒	☐

3. If this site has an Operation and Maintenance (O&M) Plan (or equivalent as required in the Decision Document);

   I certify by checking "YES" below that the O&M Plan Requirements (or equivalent as required in the Decision Document) are being met.

☒	☐

4. If this site has a Monitoring Plan (or equivalent as required in the remedy selection document);

   I certify by checking "YES" below that the requirements of the Monitoring Plan (or equivalent as required in the Decision Document) is being met.

YES	NO
☒	☐

IC CERTIFICATIONS
SITE NO. 932022

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 2 and/or 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Clint Babcock (print name) at Glenn Springs Holdings Inc 5005 LBJ Freeway Suite 1350 Dallas, TX 75244 (print business address),

am certifying as Remedial Party (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Clinton J Babcock
Signature of Owner or Remedial Party Rendering Certification

5/28/10
Date

IC/EC CERTIFICATIONS

Box 7

QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP) SIGNATURE

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I James Thornton (print name) at 285 Delaware Ave Buffalo, NY (print business address),

am certifying as a Qualified Environmental Professional for the Remedial Party

(Owner or Remedial Party) for the Site named in the Site Details Section of this form.

STATE OF NEW YORK
JAMES C. THORNTON
No. 60462
LICENSED PROFESSIONAL ENGINEER

James Thornton
Signature of Qualified Environmental Professional, for the Owner or Remedial Party, Rendering Certification

Stamp (if Required)

5/26/10
Date

APPENDIX B

ANNUAL REPORT FORMS

ANNUAL OPERATION AND MAINTENANCE REPORT

102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

YEAR: **2009**

MONITORING - Water Level Measurements

Month	*Day*	*Inspector*	*PCM-01*	*PZ-01*	*PCM-02*	*PZ-02*	*PCM-03*	*PZ-03*
1st Qtr.	3/3/2009	D. Tyran	563.76	562.47	564.37	561.65	563.23	561.02
2nd Qtr.	6/17/2009	D. Tyran	565.14	562.39	565.62	561.65	563.12	561.04
3rd Qtr.	9/15/2009	D. Tyran	566.09	562.26	566.85	561.58	562.83	561.03
4th Qtr.	12/16/2009	D. Tyran	565.09	561.93	565.69	560.56	562.66	559.54

Month	*Day*	*Inspector*	*PCM-04*	*PZ-04*	*PCM-05*	*PZ-05*	*PCM-06*	*PZ-06*
1st Qtr.	3/3/2009	D. Tyran	563.21	561.39	562.92	560.98	Dry	Dry
2nd Qtr.	6/17/2009	D. Tyran	563.17	561.39	563.25	561.01	Dry	Dry
3rd Qtr.	9/15/2009	D. Tyran	562.99	561.28	564.36	560.92	Dry	563.69
4th Qtr.	12/16/2009	D. Tyran	562.72	560.39	563.44	560.23	565.75	Dry

Month	*Day*	*Inspector*	*PCM-07R*	*PZ-07*	*PCM-08*	*PZ-08*	*PCM-09*	*PZ-09*
1st Qtr.	3/3/2009	D. Tyran	566.21	566.30	567.65	564.78	567.74	Dry
2nd Qtr.	6/17/2009	D. Tyran	565.40	566.09	567.07	564.81	567.66	Dry
3rd Qtr.	9/15/2009	D. Tyran	565.77	567.16	569.90	564.79	571.73	Dry
4th Qtr.	12/16/2009	D. Tyran	564.89	565.86	569.17	Dry	570.44	Dry

Month	*Day*	*Inspector*	*PCM-10*	*PZ-10*
1st Qtr.	3/3/2009	D. Tyran	564.84	565.05
2nd Qtr.	6/17/2009	D. Tyran	565.84	565.09
3rd Qtr.	9/15/2009	D. Tyran	567.33	565.03
4th Qtr.	12/16/2009	D. Tyran	566.12	564.94

FORM 1

ANNUAL OPERATION AND MAINTENANCE REPORT

102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

YEAR: **2009**

GROUNDWATER - Quality Monitoring

Quarter	*Date Sample Taken*	*Inspector*	*Comments*
1st			
2nd	3/18,19/09	D. Tyran	Semiannual sampling event.
3rd			
4th	12/21-23/09	D. Tyran	Semiannual sampling event.

Results of analyses are attached.

NAPL PRESENCE - Monitoring

			NR-01		*NR-02*		*NR-03*	
	Date	*Inspector*	*Depth of NAPL (ft)*	*Gallons Removed*	*Depth of NAPL (ft)*	*Gallons Removed*	*Depth of NAPL (ft)*	*Gallons Removed*
1st Quarter	3/13/2009	D. Tyran	4.35	36.00	1.70	0.00	1.90	2.50
2nd Quarter	6/17/2009	D. Tyran	1.40	0.00	1.75	3164.00	1.60	0.00
3rd Quarter	9/15/2009	D. Tyran	1.70	10.25	0.50	4000.00	1.55	9.50
4th Quarter	12/16/2009	D. Tyran	1.20	0.00	1.70	0.00	1.20	0.00

			NR-04		*NR-05*		*NR-07*	
	Date	*Inspector*	*Depth of NAPL (ft)*	*Gallons Removed*	*Depth of NAPL (ft)*	*Gallons Removed*	*Depth of NAPL (ft)*	*Gallons Removed*
1st Quarter	3/13/2009	D. Tyran	NO NAPL		1.90	9.50	NO NAPL	
2nd Quarter	6/17/2009	D. Tyran	NO NAPL		0.00	0.00	NO NAPL	
3rd Quarter	9/15/2009	D. Tyran	NO NAPL		1.15	5.25	NO NAPL	
4th Quarter	12/16/2009	D. Tyran	NO NAPL		0.27	0.00	NO NAPL	

			NR-08		*NR-10*	
	Date	*Inspector*	*Depth of NAPL (ft)*	*Gallons Removed*	*Depth of NAPL (ft)*	*Gallons Removed*
1st Quarter	3/13/2009	D. Tyran	1.60	16.00	NO NAPL	
2nd Quarter	6/17/2009	D. Tyran	0.00	0.00	NO NAPL	
3rd Quarter	9/15/2009	D. Tyran	0.48	0.00	NO NAPL	
4th Quarter	12/16/2009	D. Tyran	0.65	0.00	NO NAPL	

FORM 1

ANNUAL OPERATION AND MAINTENANCE REPORT

102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

YEAR: **2009**

OPERATION

APL COLLECTION AND DISCHARGE SYSTEM

APL Flow for Previous Year (gallons)	*APL Flow for Current Year (gallons)*
289,738	393,509

NAPL REMOVAL SYSTEM

	NAPL Removed for Previous Year (gallons)	*NAPL Removed for Current Year (gallons)*
NR-01	44	46.25
NR-02	6189	7164
NR-03	22	12
NR-04	0	0
NR-05	21	14.75
NR-07	0	0
NR-08	22	16
NR-10	0	0
Total	6298	7253

Where was NAPL treated/disposed?

Facility	Clean Harbors , Deer Park, Texas	Date	1/7/09
Facility	Clean Harbors , Deer Park, Texas	Date	9/4/09
Facility	Clean Harbors , Deer Park, Texas	Date	11/25/09
Facility		Date	
Facility		Date	
Facility		Date	

FORM 1

ANNUAL OPERATION AND MAINTENANCE REPORT

102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

YEAR: **2009**

INSPECTION AND MAINTENANCE

Scheduled inspections performed:

	Date	*Inspectors*
May	**27**	Brian Sadowski (NYSDEC); Clint Babcock (GSH), John Pentilchuk (CRA), Darrell Crockett (CRA)

Was maintenance required?

	Yes	*No*
May	[X]	[ ]

What maintenance was required?	Date Performed
Clean out of drifted wood and debris along shoreline and near grating at storm sewer outlet in warmer weather.	Summer 2009
Clean Wet Well 2 level controller.	Winter 2009

Describe any maintenance activity that required an activity specific work plan and health and safety plan.

At this time no other concerns or issues conveyed.

Form Completed By:

Ralph Schupp, GSH Operations Coordinator		May 13, 2010
NAME	SIGNATURE	DATE

FORM 1

ANNUAL OPERATION AND MAINTENANCE REPORT

102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

YEAR: 2009

Send completed copies of this form to the following for review:

Clint J. Babcock
Glenn Springs Holdings, Inc.
5005 LBJ Freeway, Suite 1350
Dallas, TX 75244-6119

and

Lorraine Miller
Olin Chemical Group
3855 North Ocoee Street, Suite 200
Cleveland, TN 37312

and

Michael J. Bellotti
Olin Chemical Group
3855 North Ocoee Street, Suite 200
Cleveland, TN 37312

After review is complete, send 5 copies to the following:

Chief-New York Remedial Branch
Emergency and Remedial Response Davison
U.S. Environmental Protection Agency - Region II
290 Broadway, 20th Floor
New York, NY 10007-1866
Attn: 102nd Street Landfill Superfund Site Manager

and

Mr. Gerald Rider
Chief, Section D
New York State Dept. of Environmental Conservation
625 Broadway
8th Floor
Albany, NY 12233-7252

and

Mr. Gregory P. Sutton
Regional Remediation Engineer
New York State Dept. of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203-2999

FORM 1

APPENDIX C

GRAPHS OF GROUNDWATER LEVEL ELEVATIONS 2002-2009

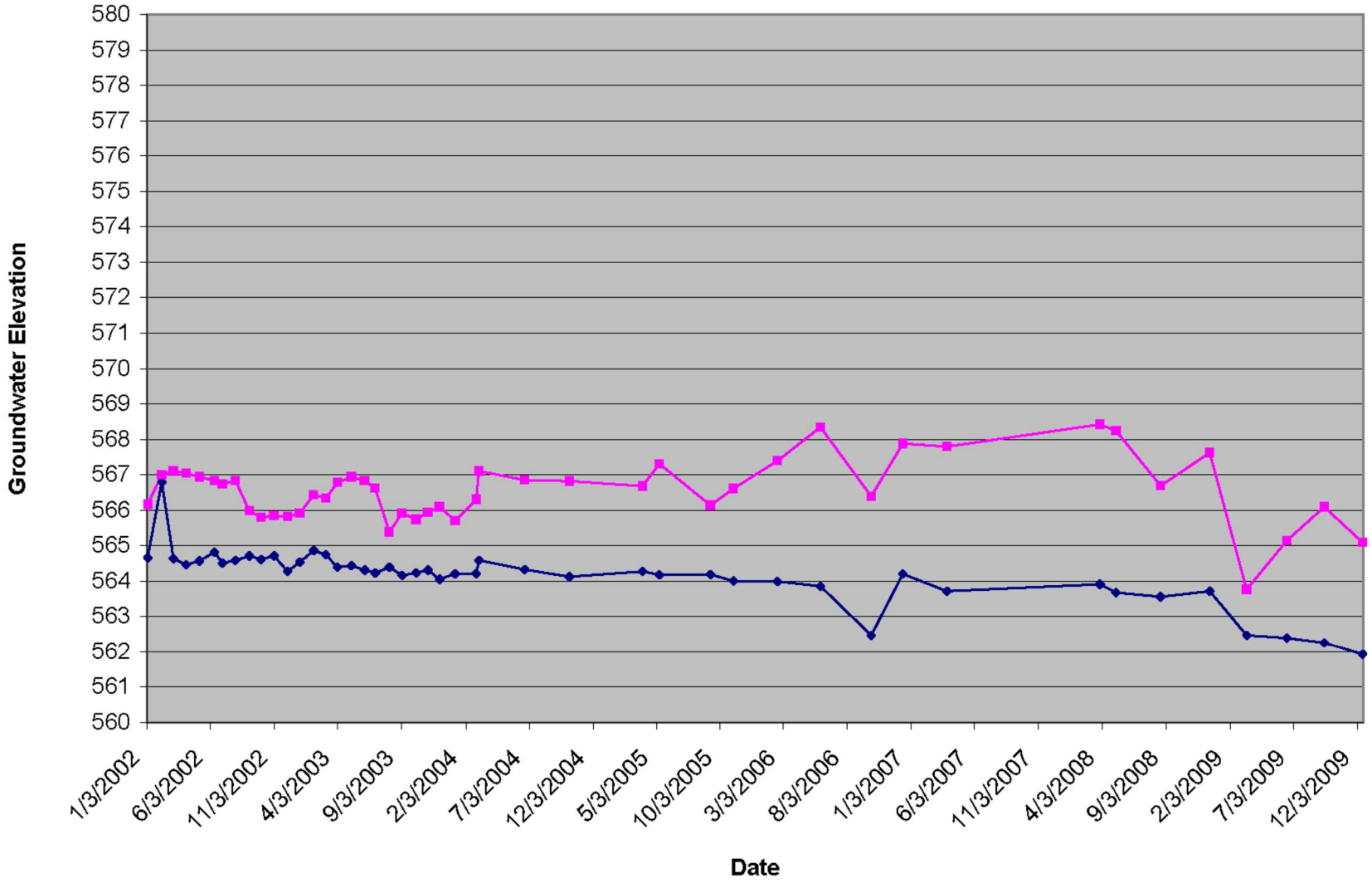


figure C.1

GROUNDWATER LEVELS WELL PAIR 1
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

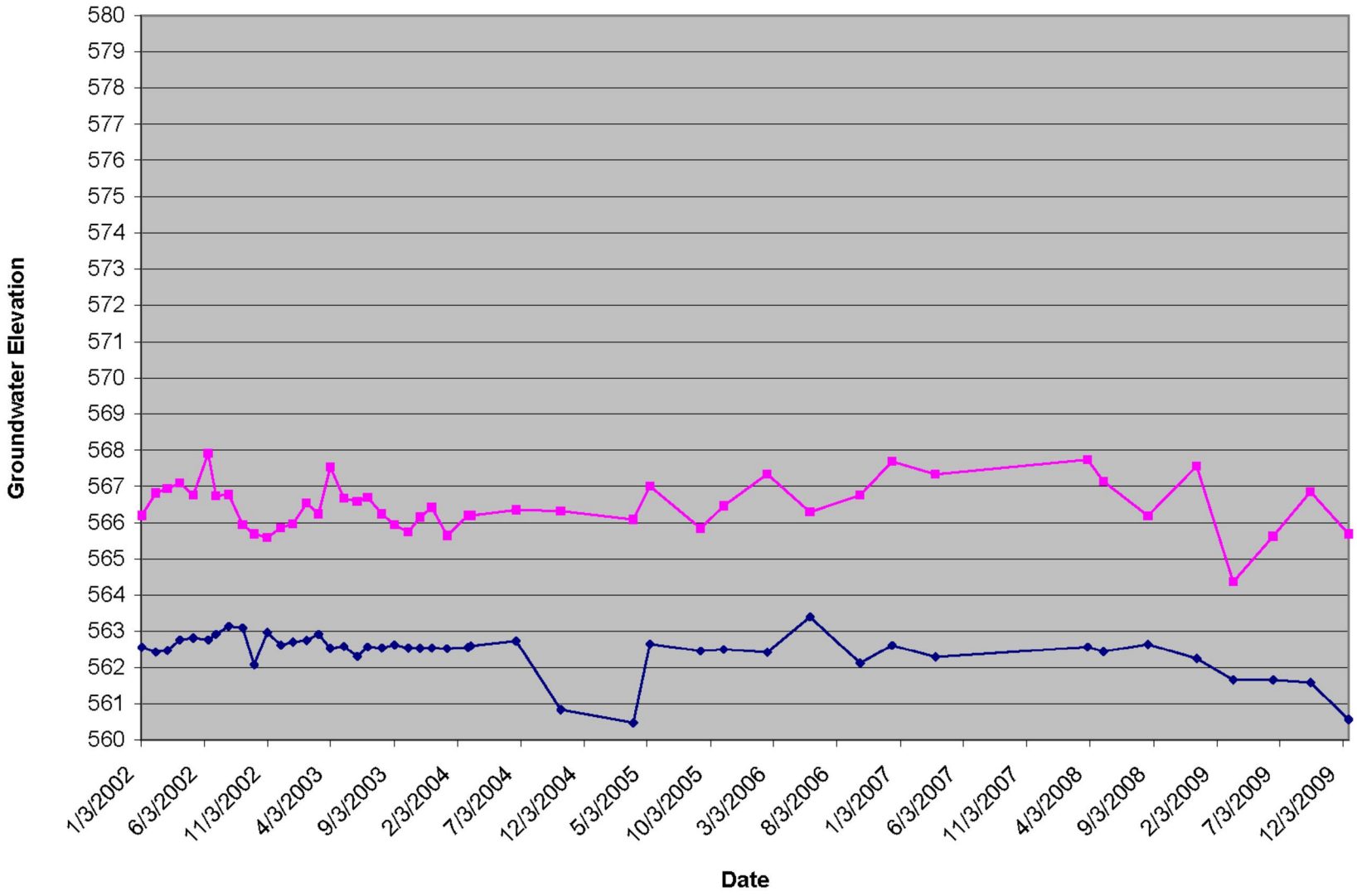


figure C.2

GROUNDWATER LEVELS WELL PAIR 2
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

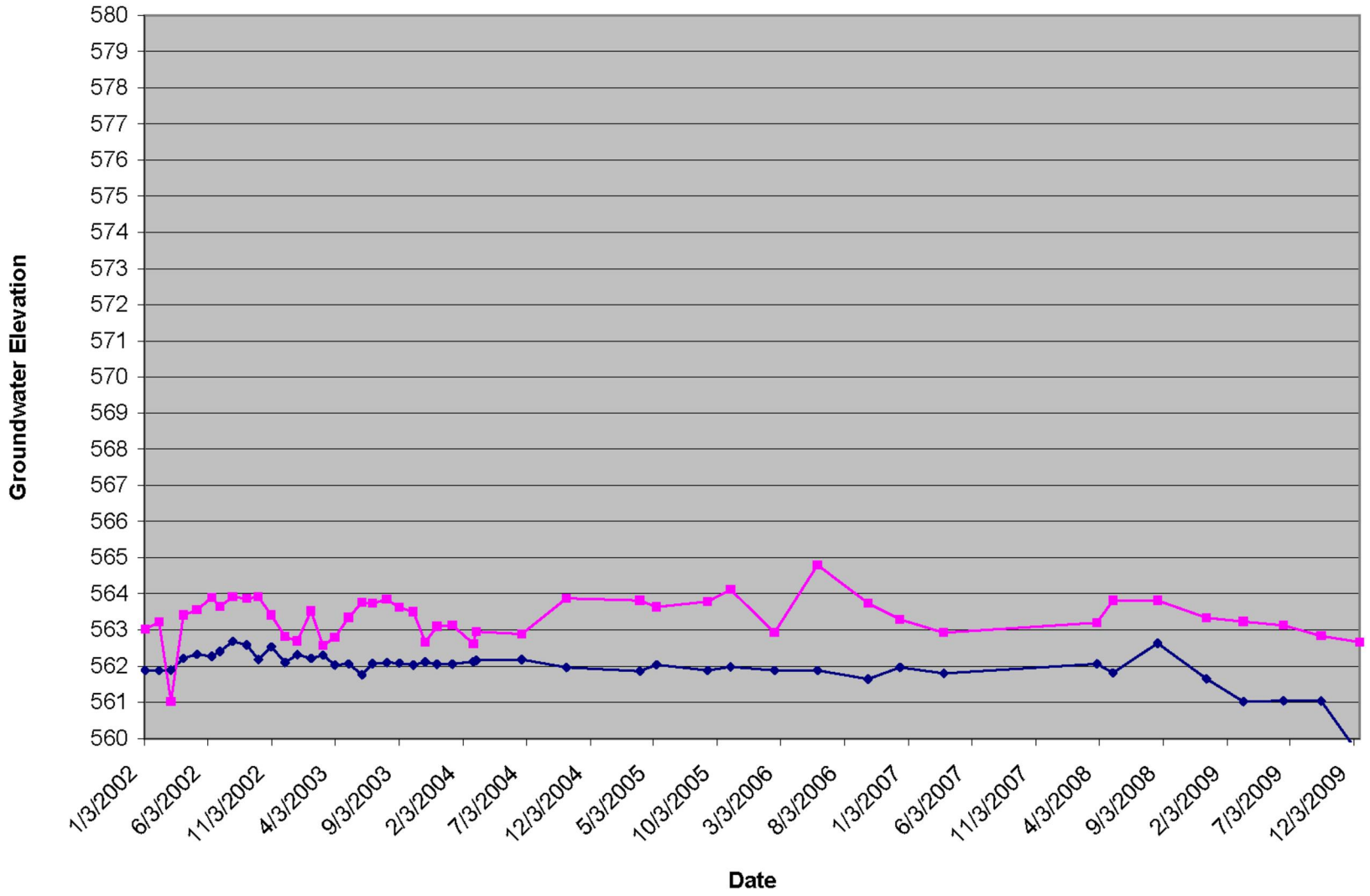


figure C.3

GROUNDWATER LEVELS WELL PAIR 3
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

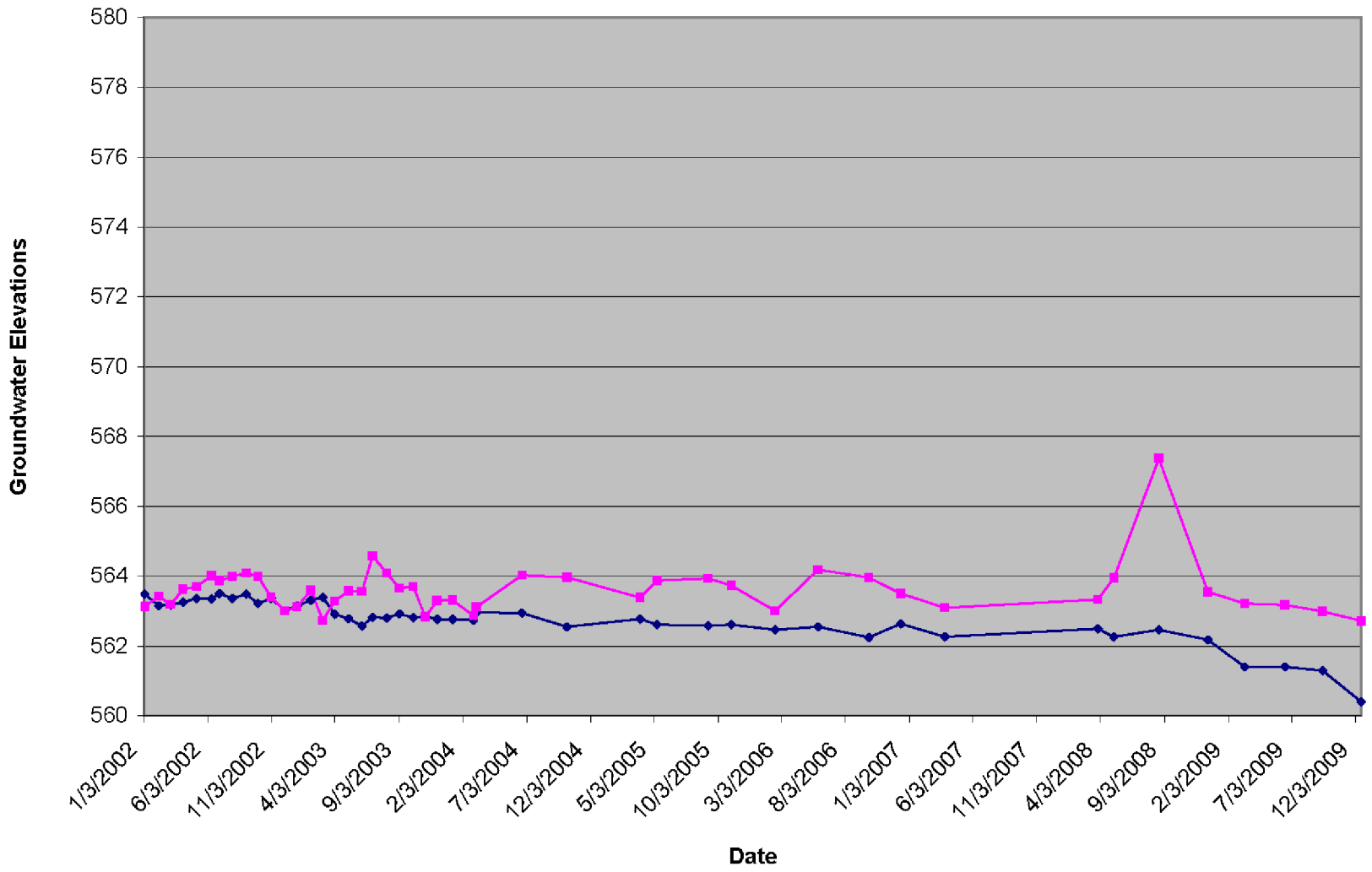


figure C.4

GROUNDWATER LEVELS WELL PAIR 4
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

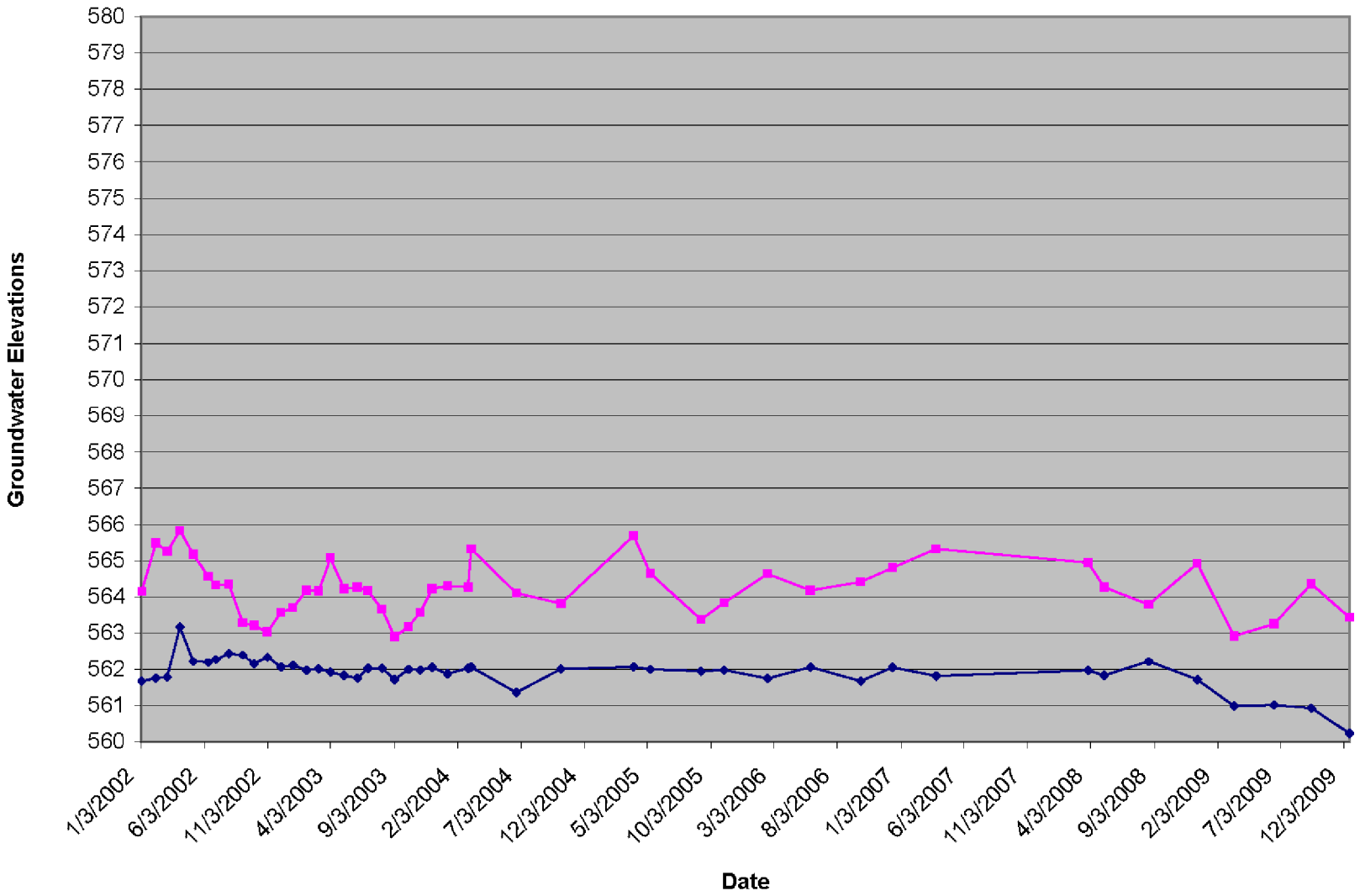


figure C.5

GROUNDWATER LEVELS WELL PAIR 5
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

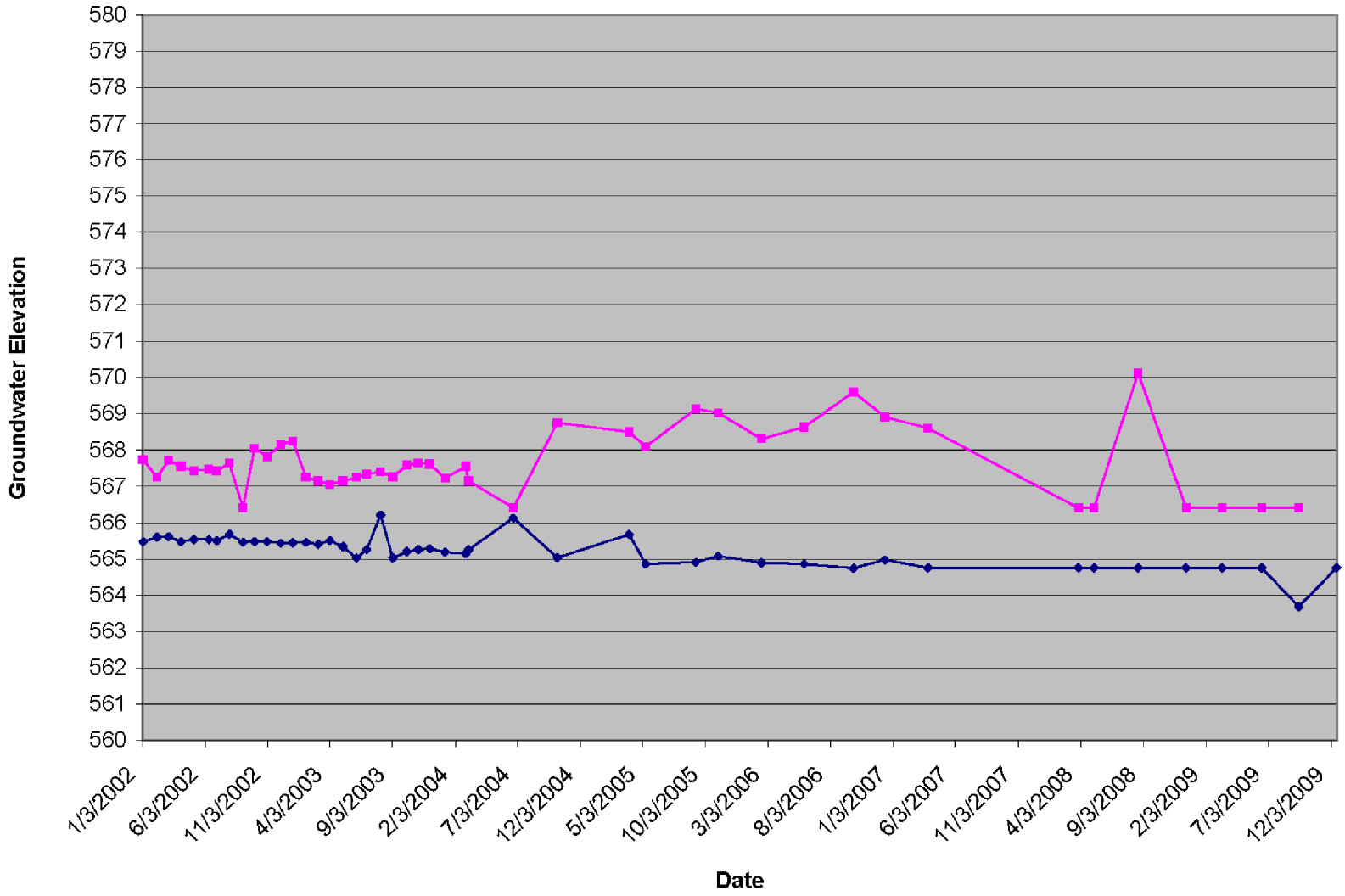
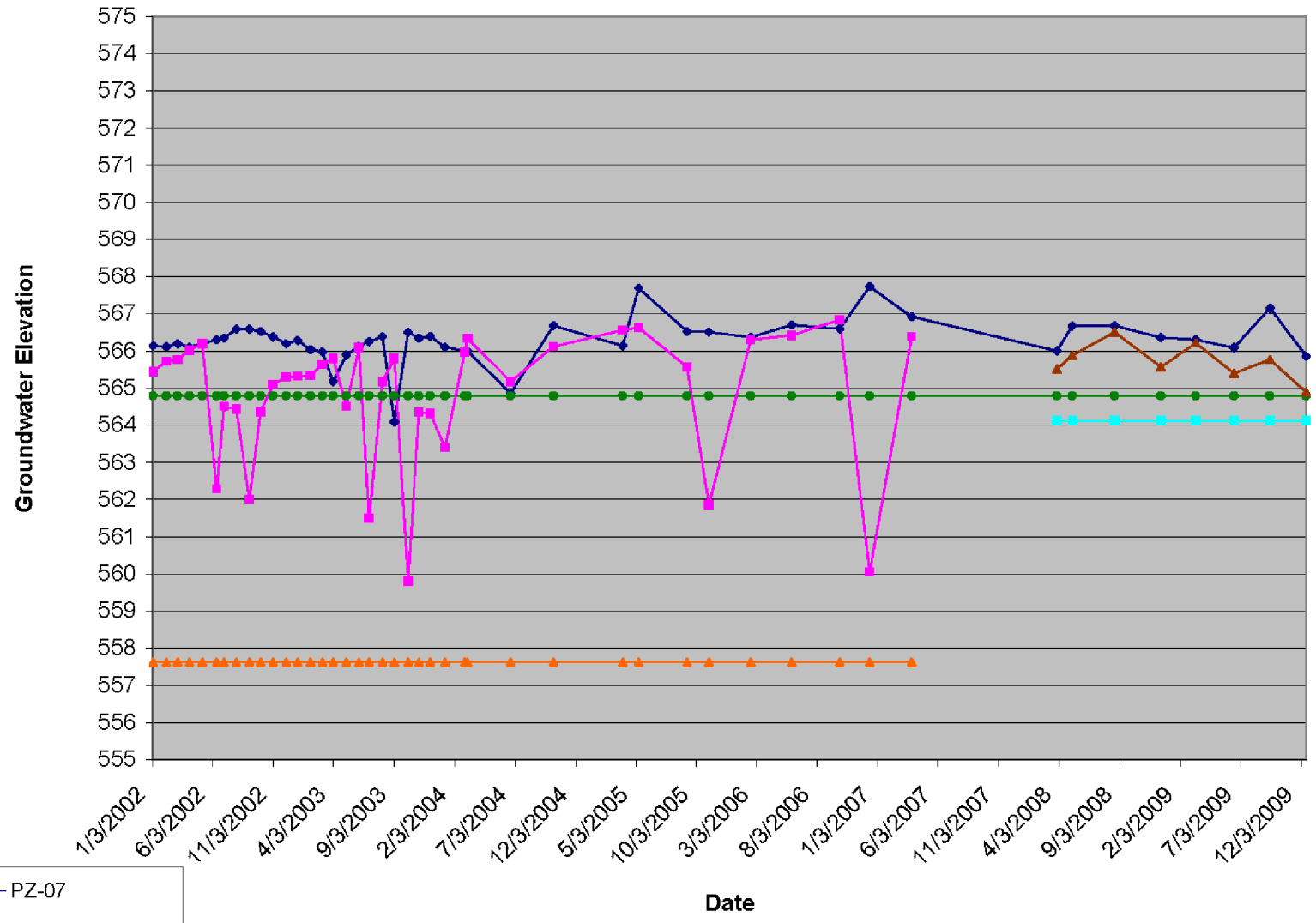


figure C.6

GROUNDWATER LEVELS WELL PAIR 6
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York



Note: PCM-07R was installed in October 2007 to replace well PCM-07.

figure C.7

GROUNDWATER LEVELS WELL PAIR 7
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

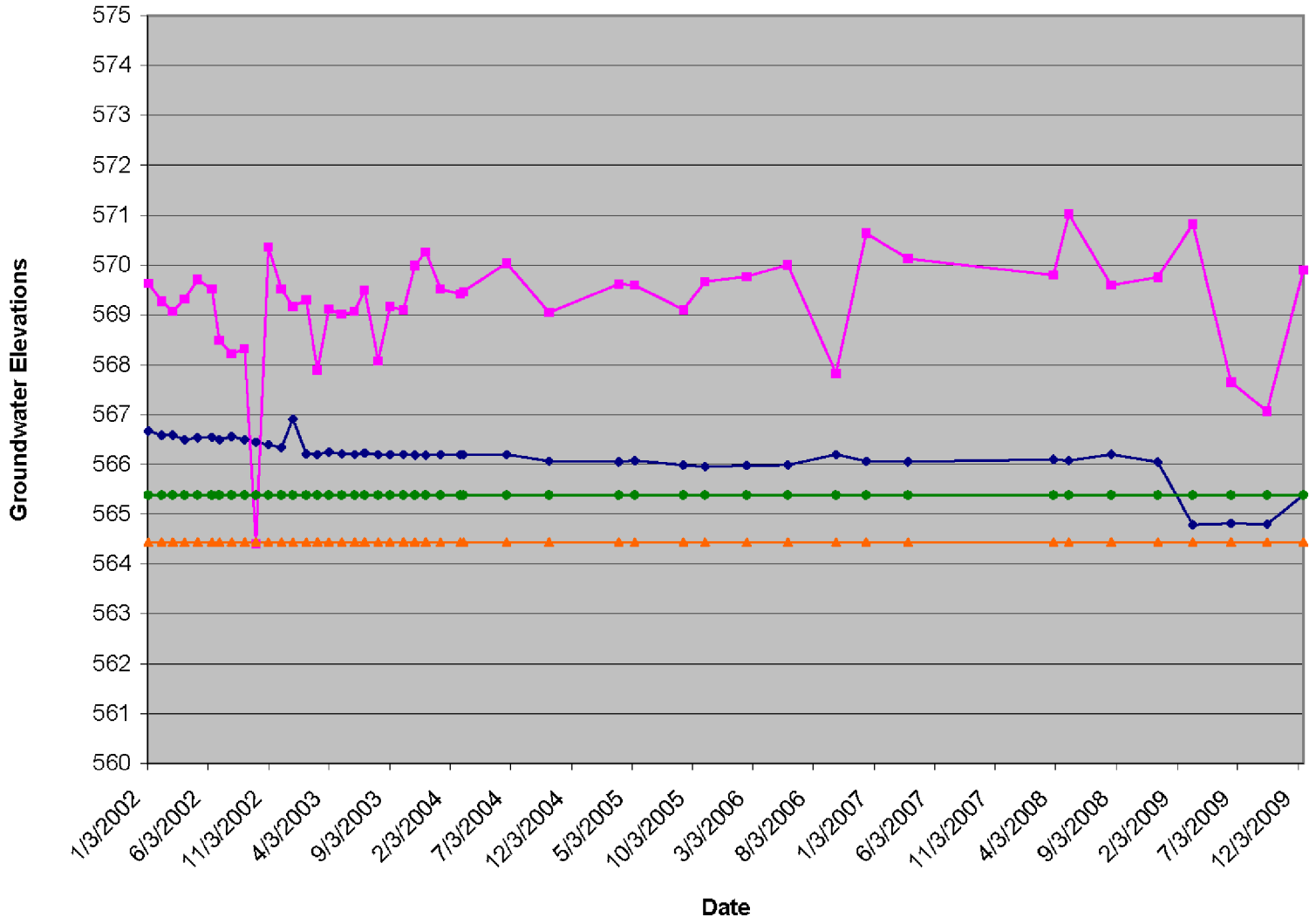


figure C.8

GROUNDWATER LEVELS WELL PAIR 8
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

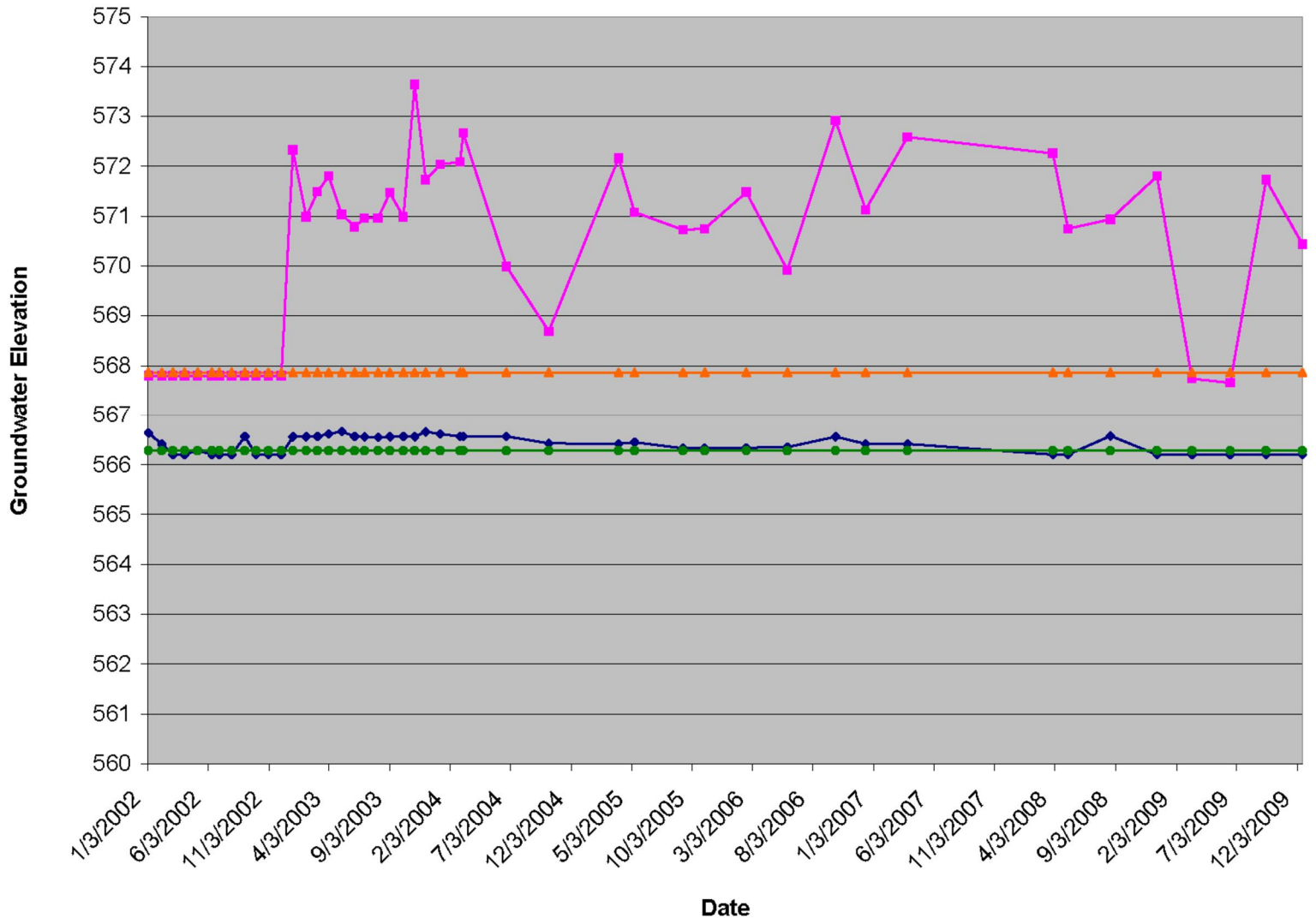


figure C.9

GROUNDWATER LEVELS WELL PAIR 9
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

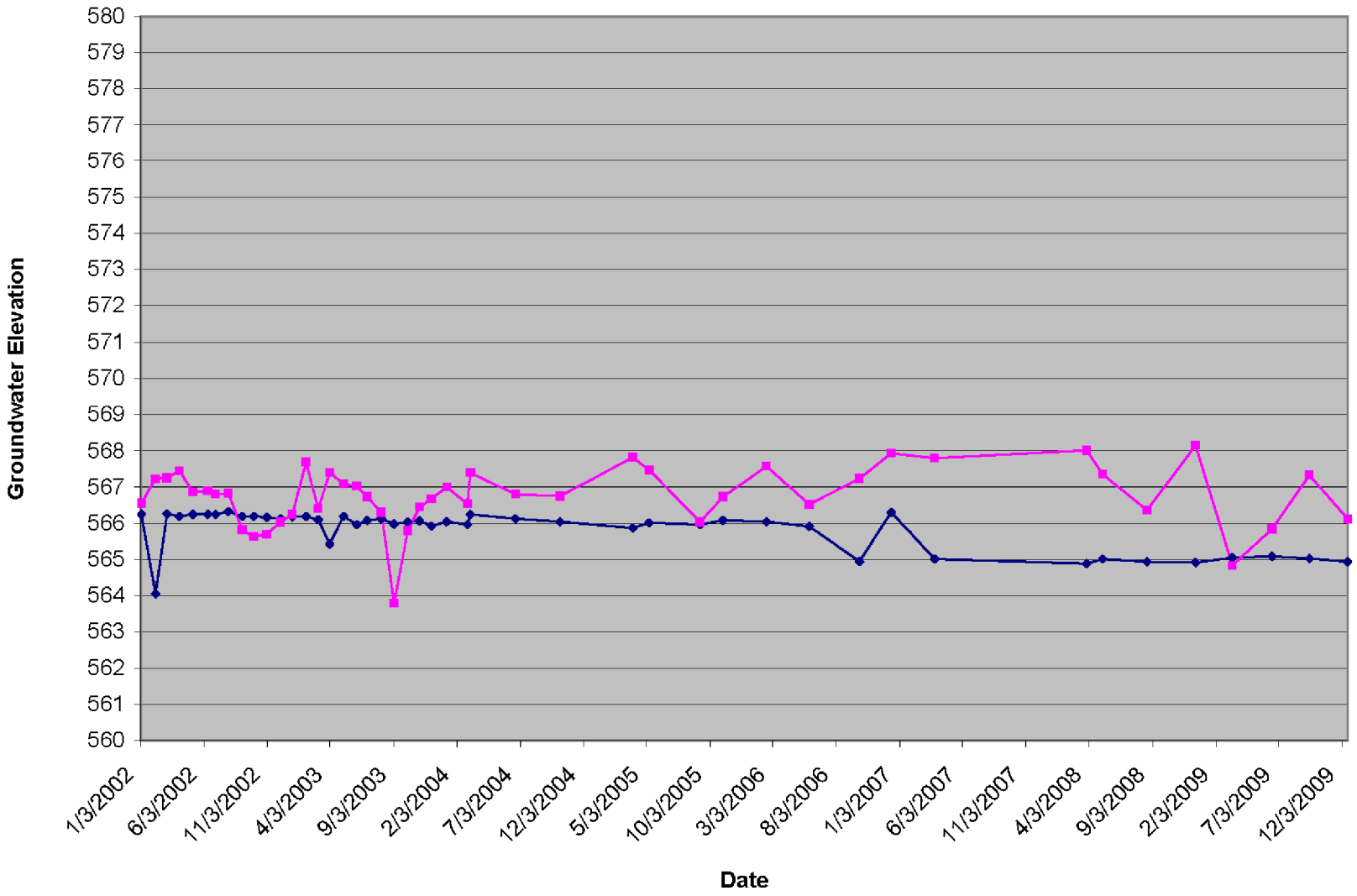


figure C.10

GROUNDWATER LEVELS WELL PAIR 10
2009 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

APPENDIX D

CONCENTRATION TREND GRAPHS

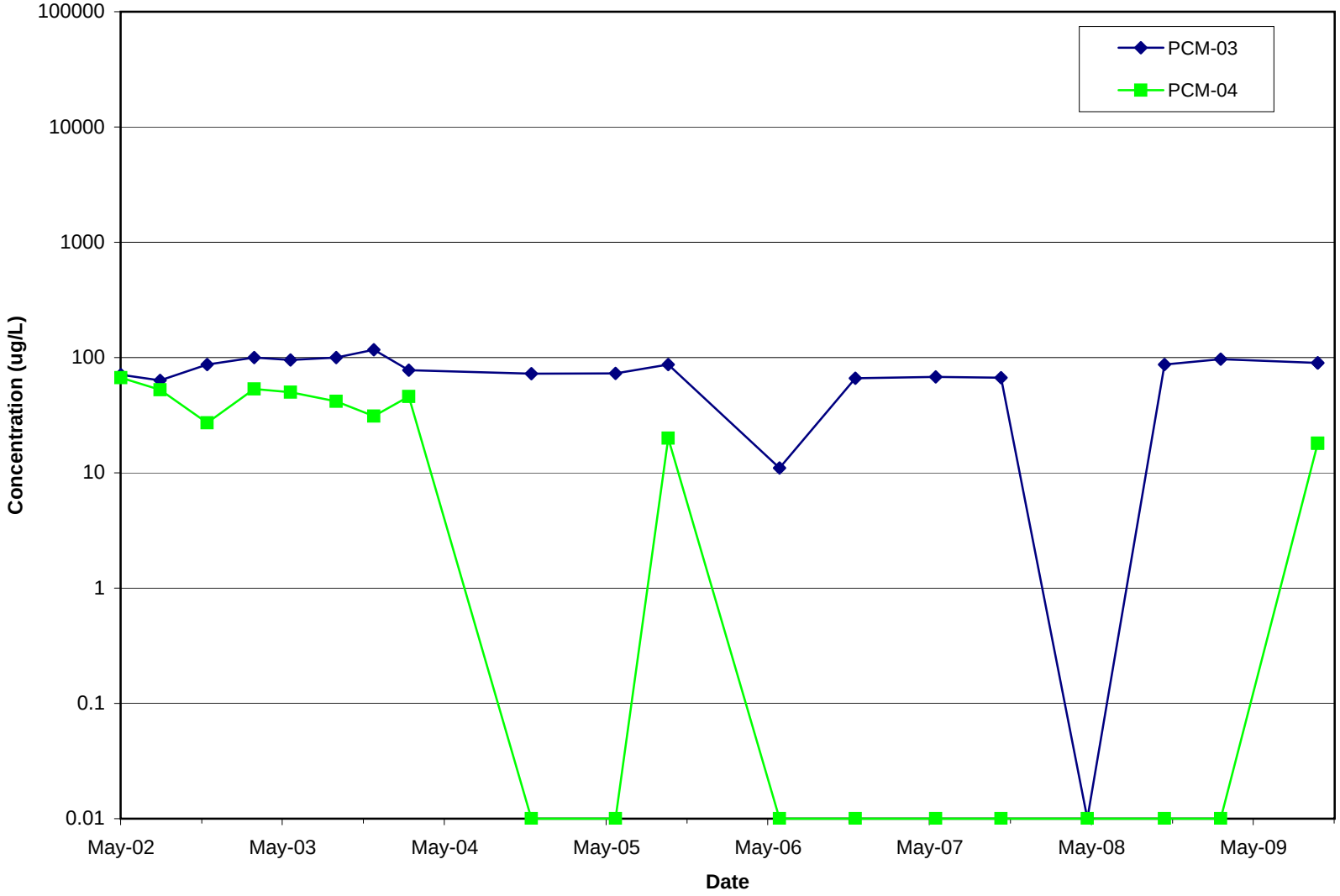


figure D.1
CONCENTRATION OF 1,2-DICHLOROBENZENE vs. TIME
102ND STREET LANDFILL

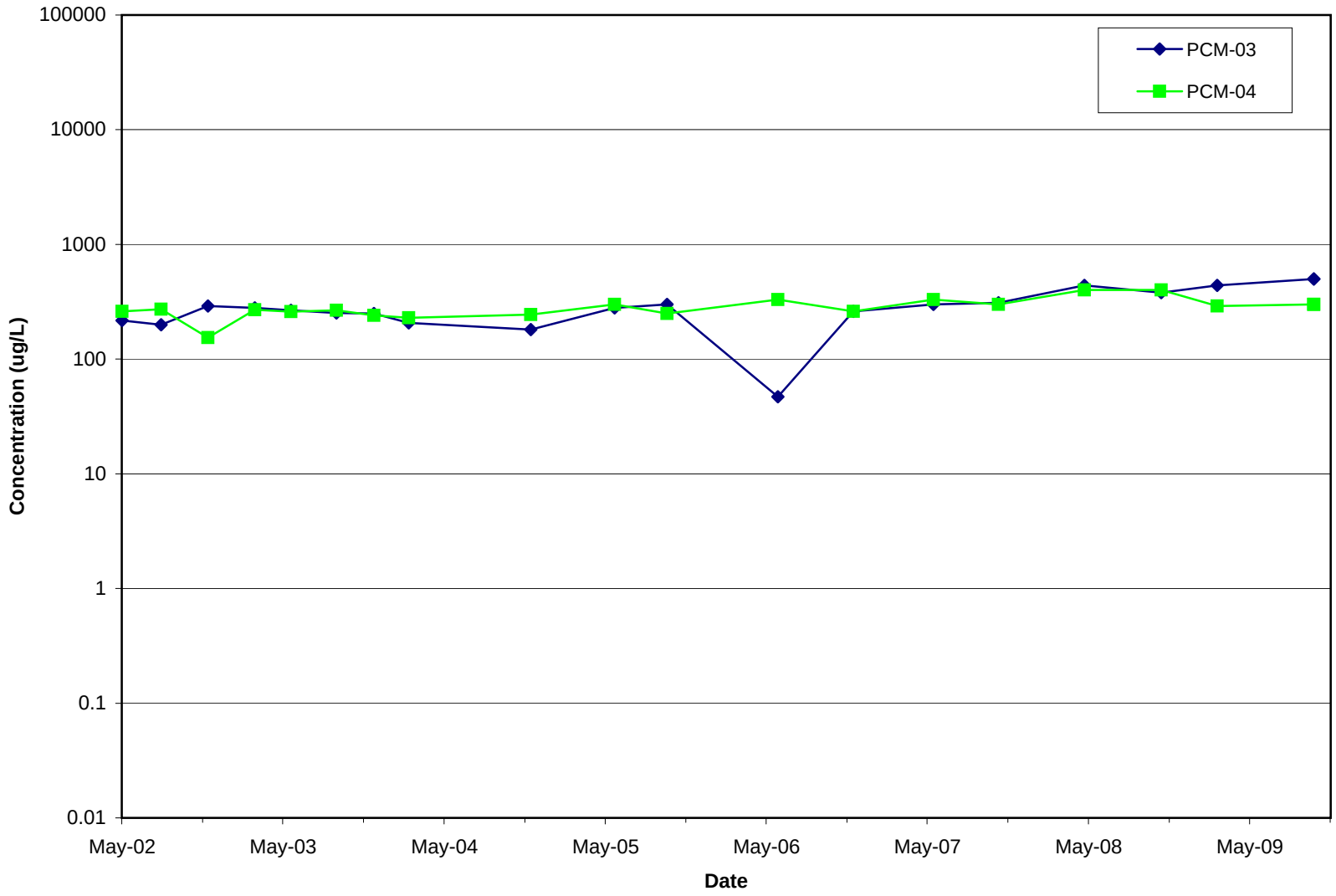


figure D.2
CONCENTRATION OF 1,4-DICHLOROBENZENE vs. TIME
102ND STREET LANDFILL

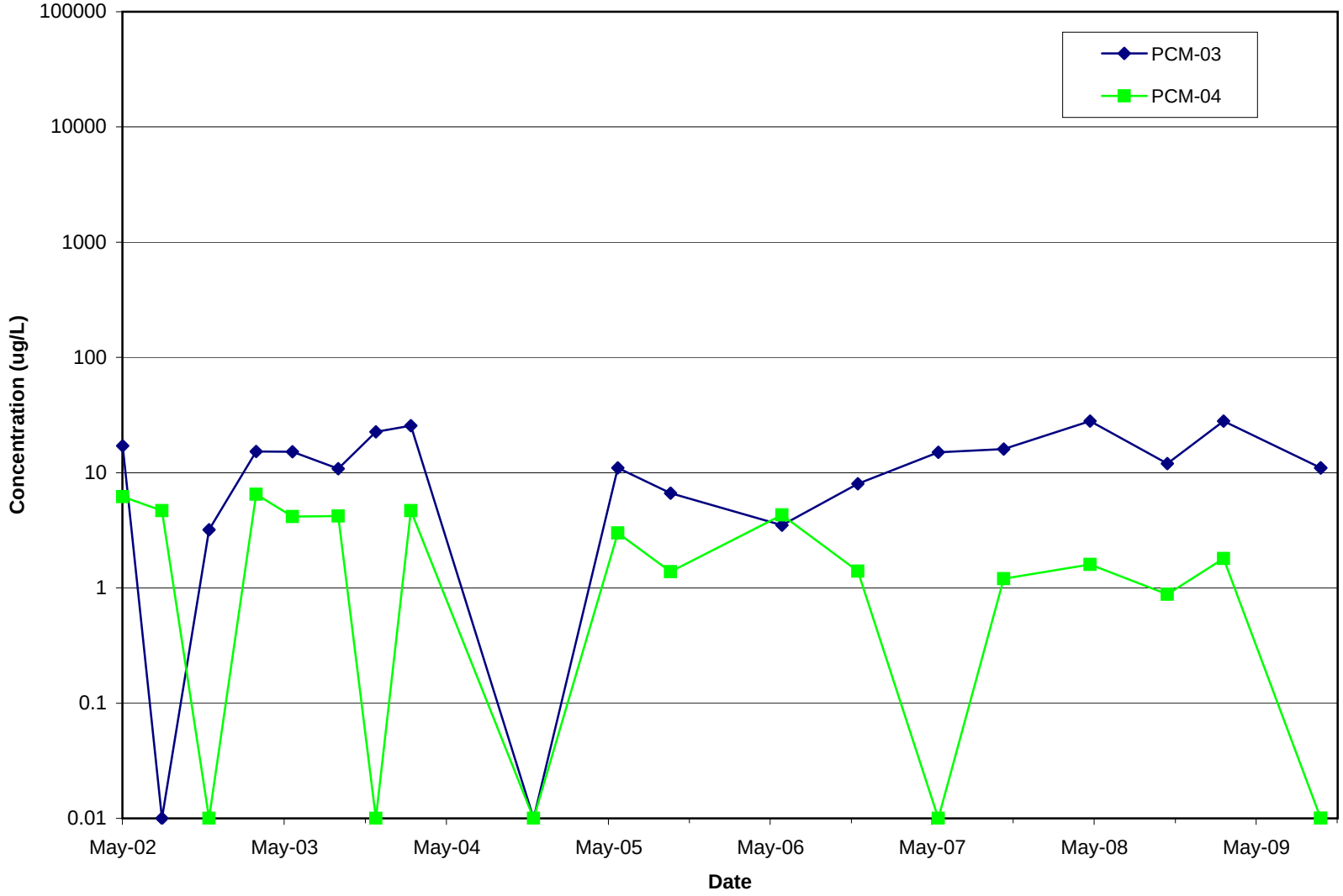


figure D.3
CONCENTRATION OF 2,4-DICHLOROPHENOL vs. TIME
102ND STREET LANDFILL

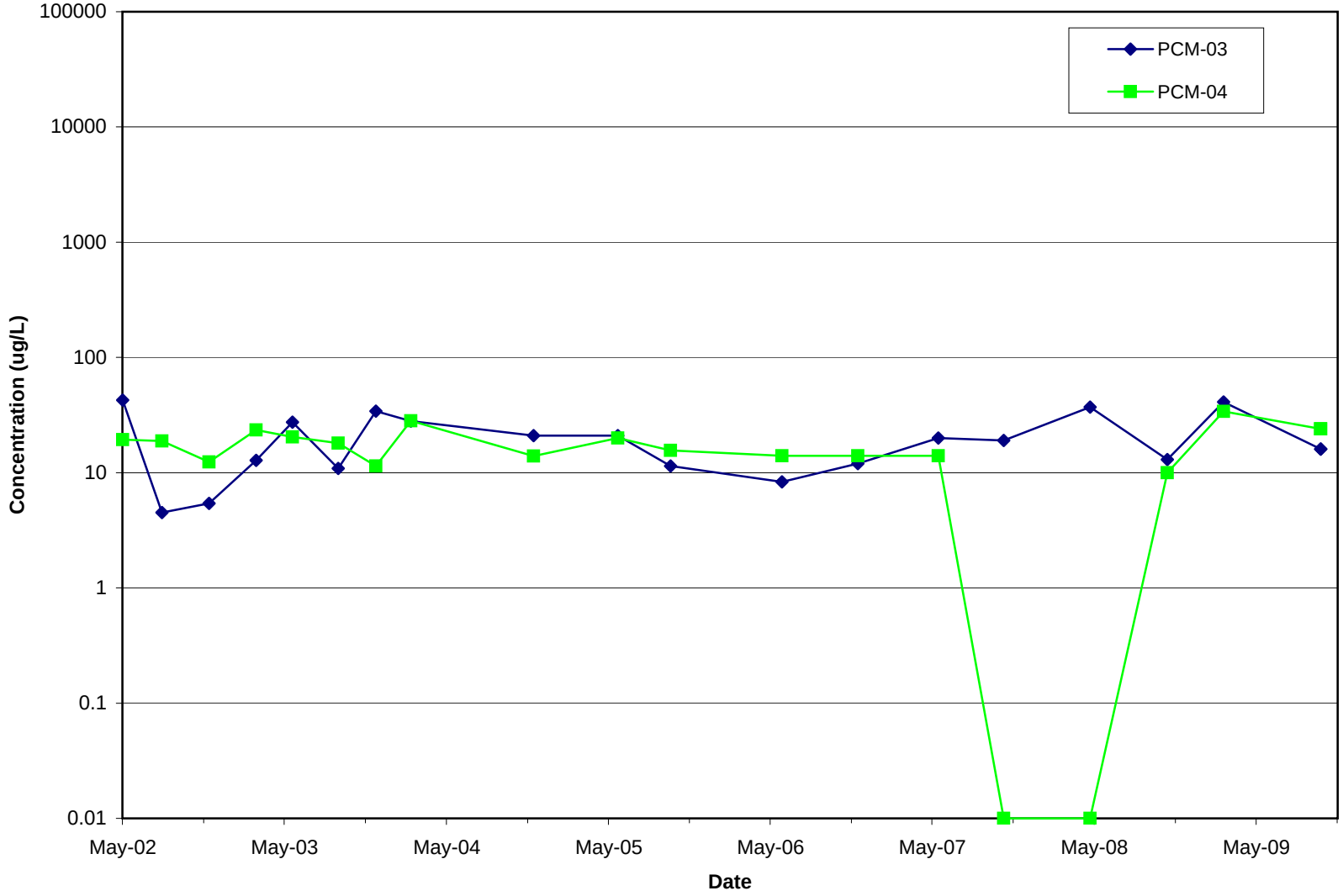


figure D.4
CONCENTRATION OF 2-CHLOROPHENOL vs. TIME
102ND STREET LANDFILL

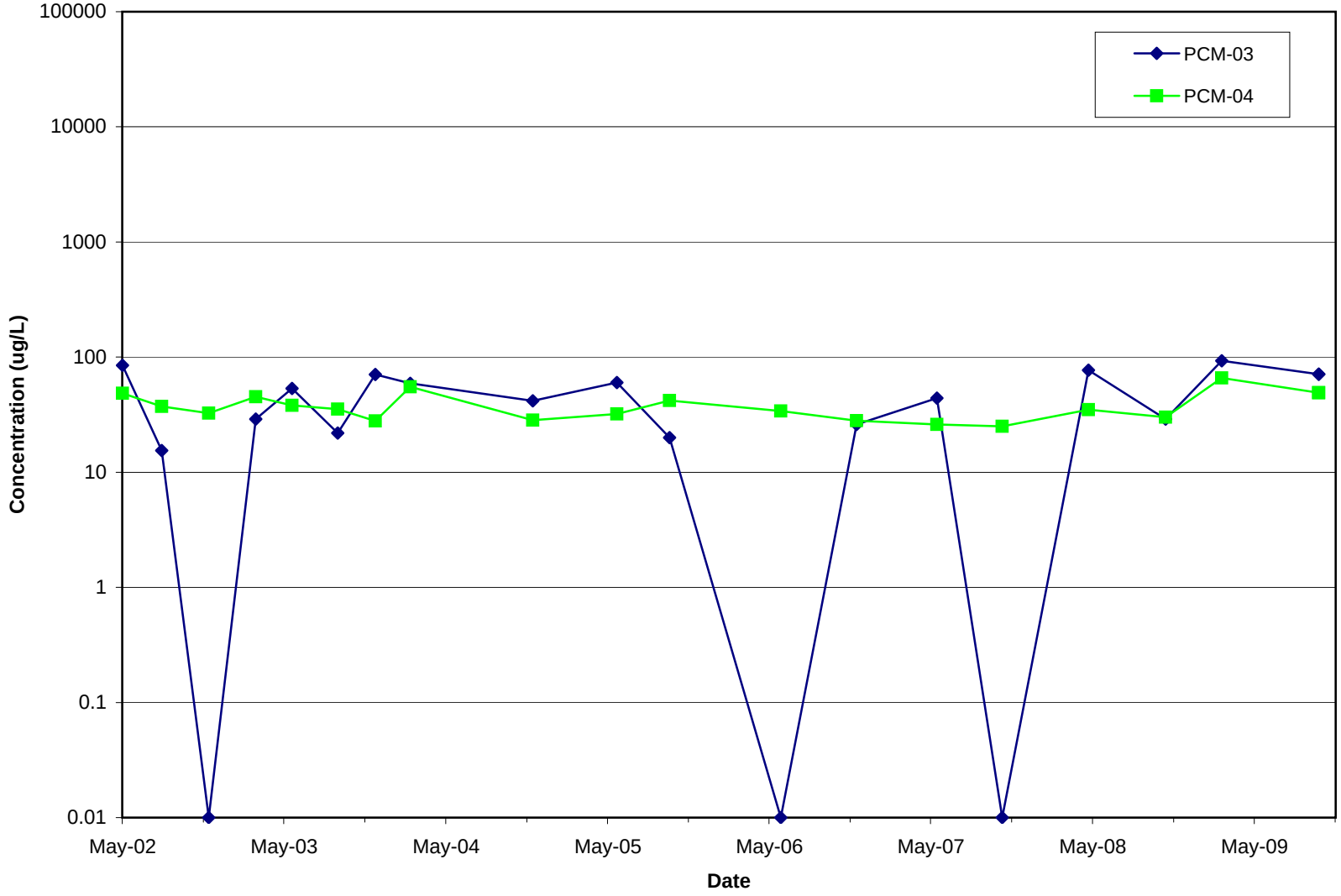


figure D.5
CONCENTRATION OF 4-CHLOROPHENOL vs. TIME
102ND STREET LANDFILL

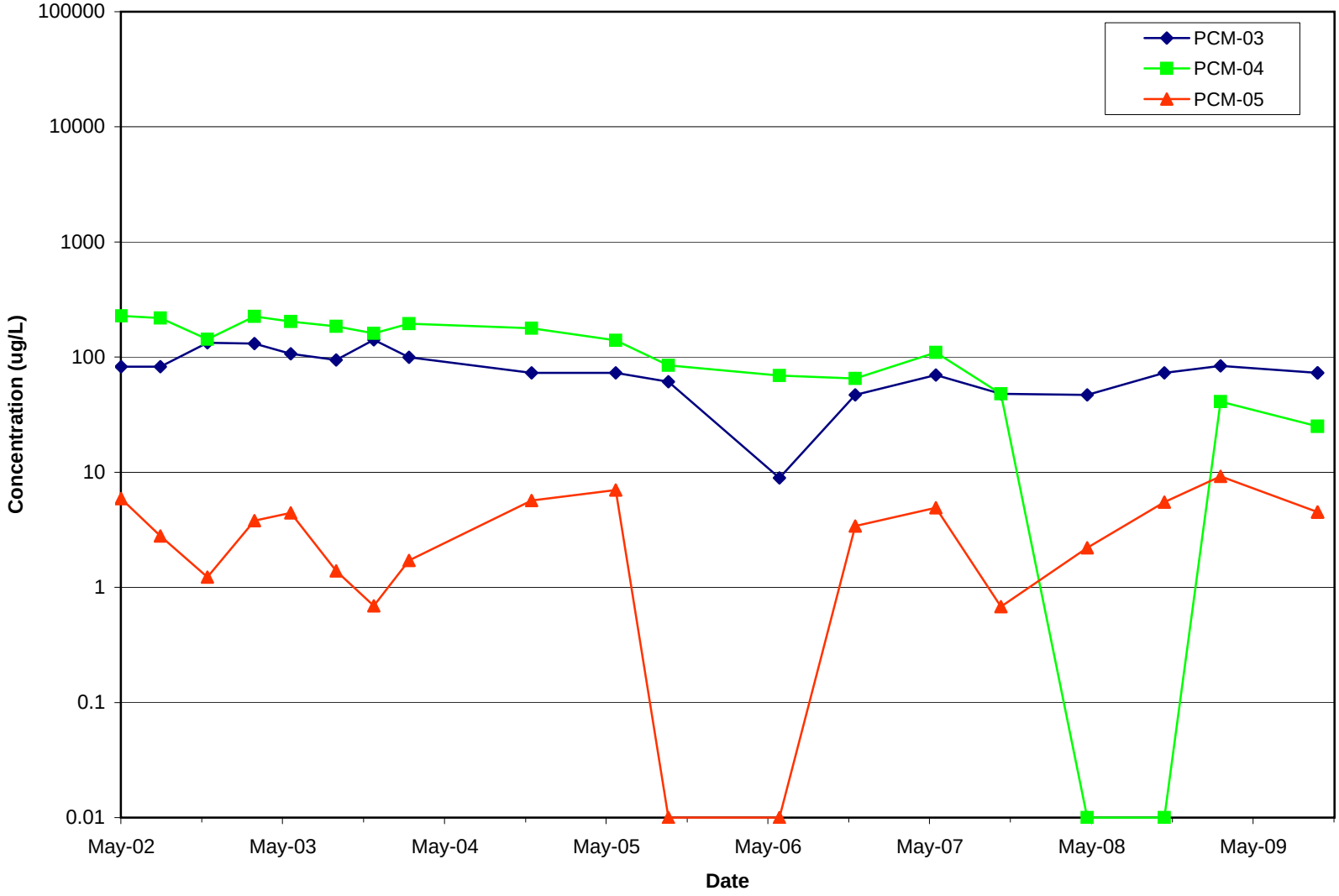


figure D.6
CONCENTRATION OF BENZENE vs. TIME
102ND STREET LANDFILL

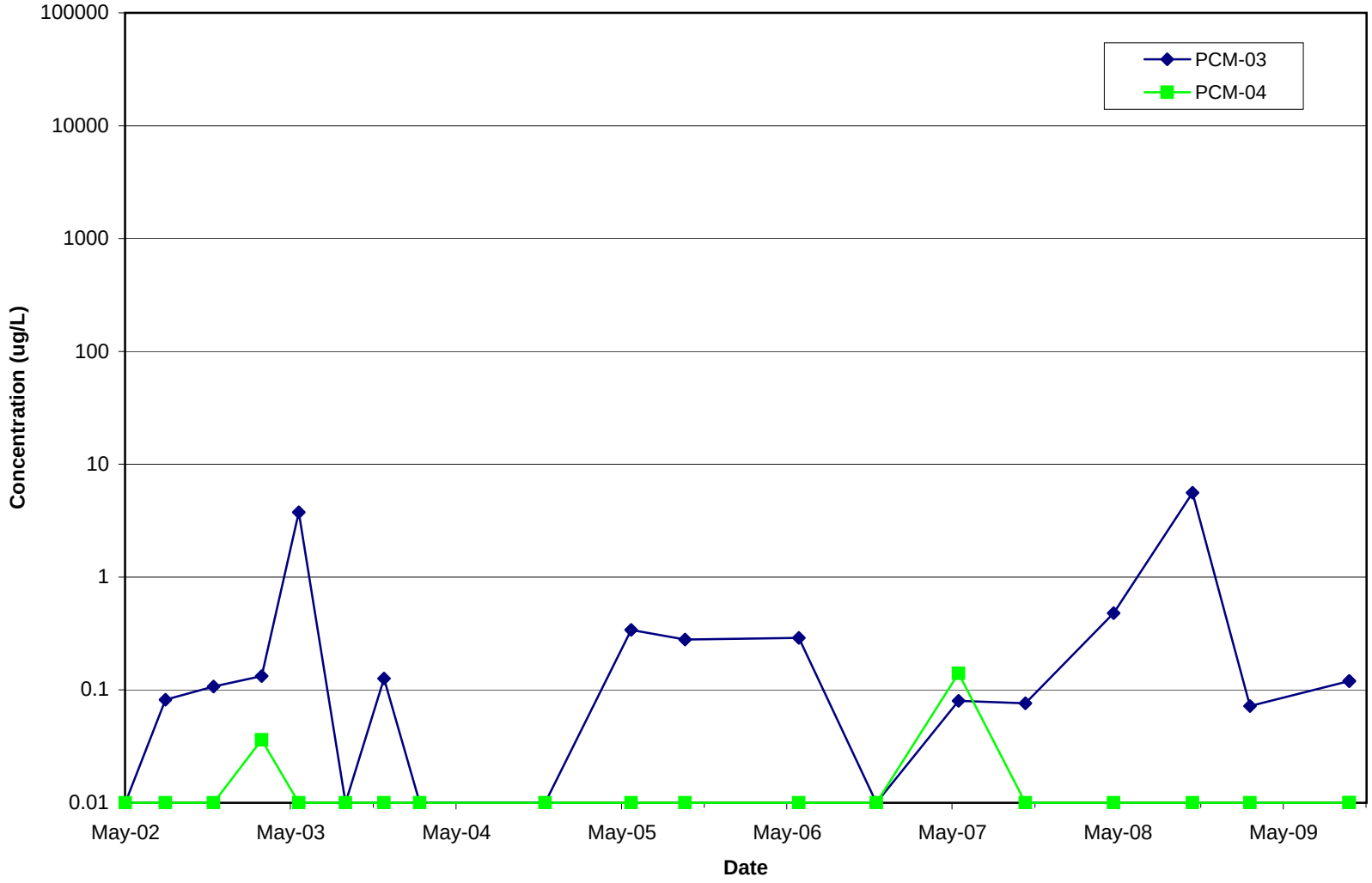


figure D.7
CONCENTRATION OF BETA-BHC vs. TIME
102ND STREET LANDFILL

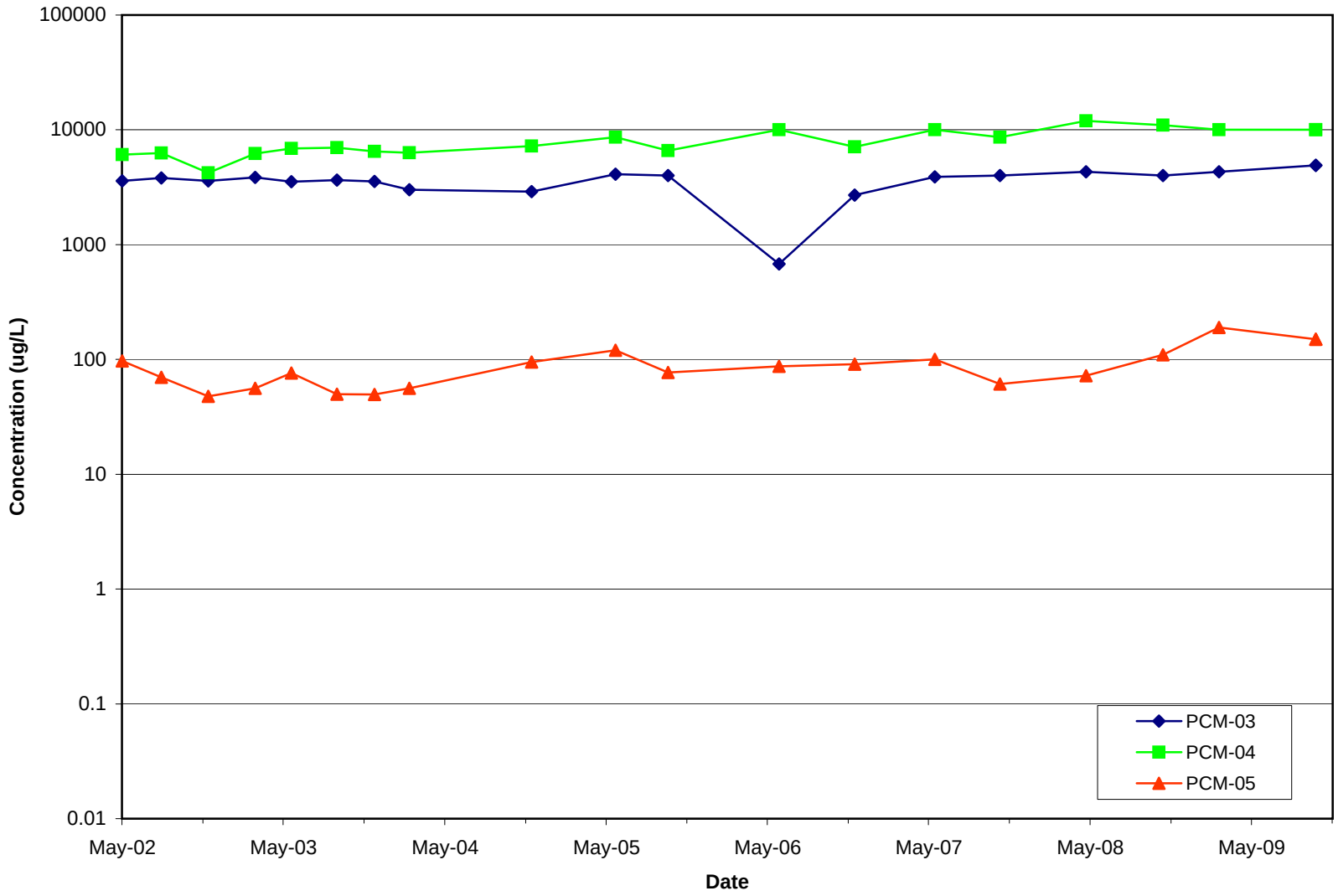


figure D.8
CONCENTRATION OF CHLOROBENZENE vs. TIME
102ND STREET LANDFILL

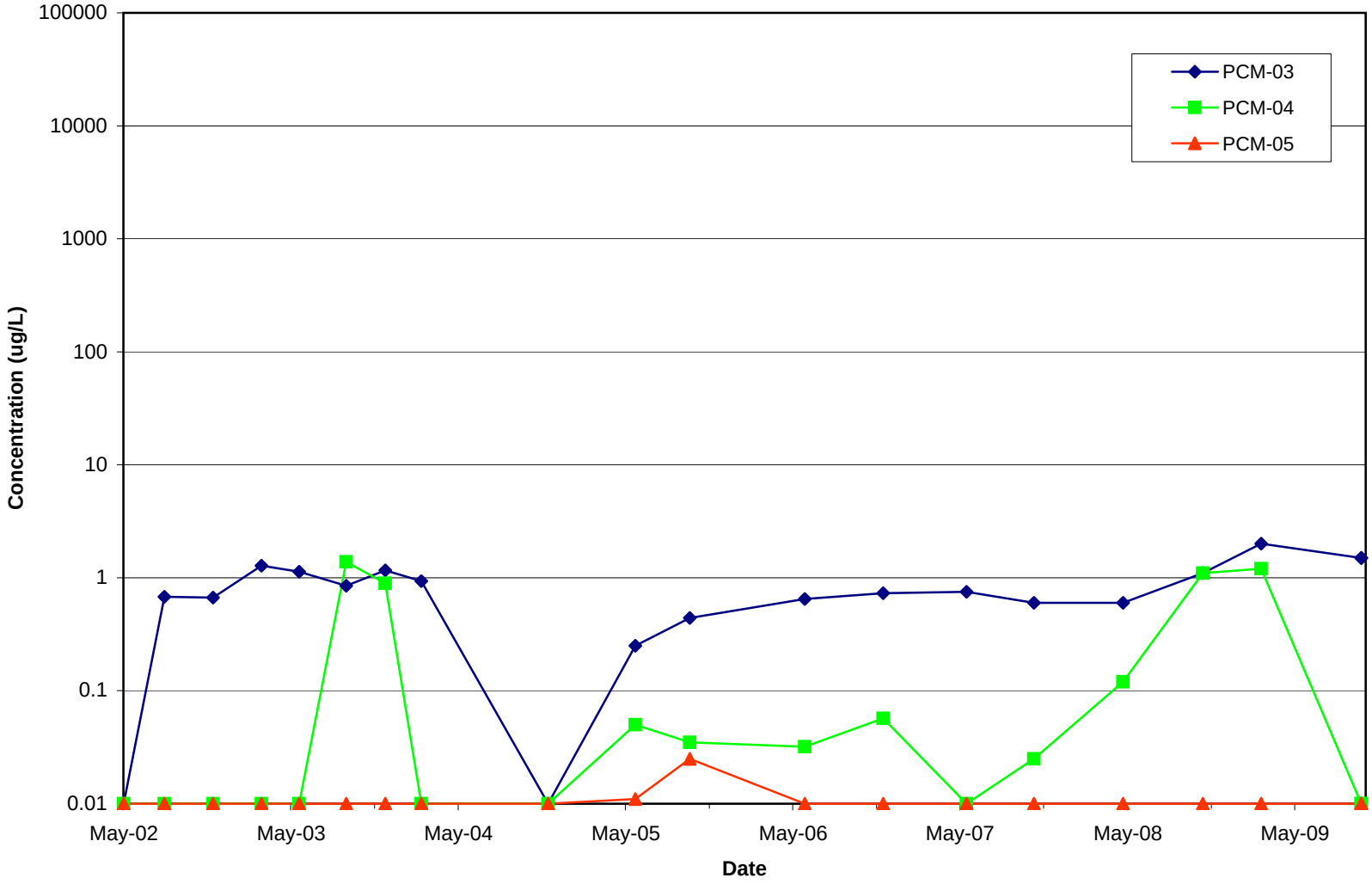


figure D.9
CONCENTRATION OF DELTA-BHC vs. TIME
102ND STREET LANDFILL

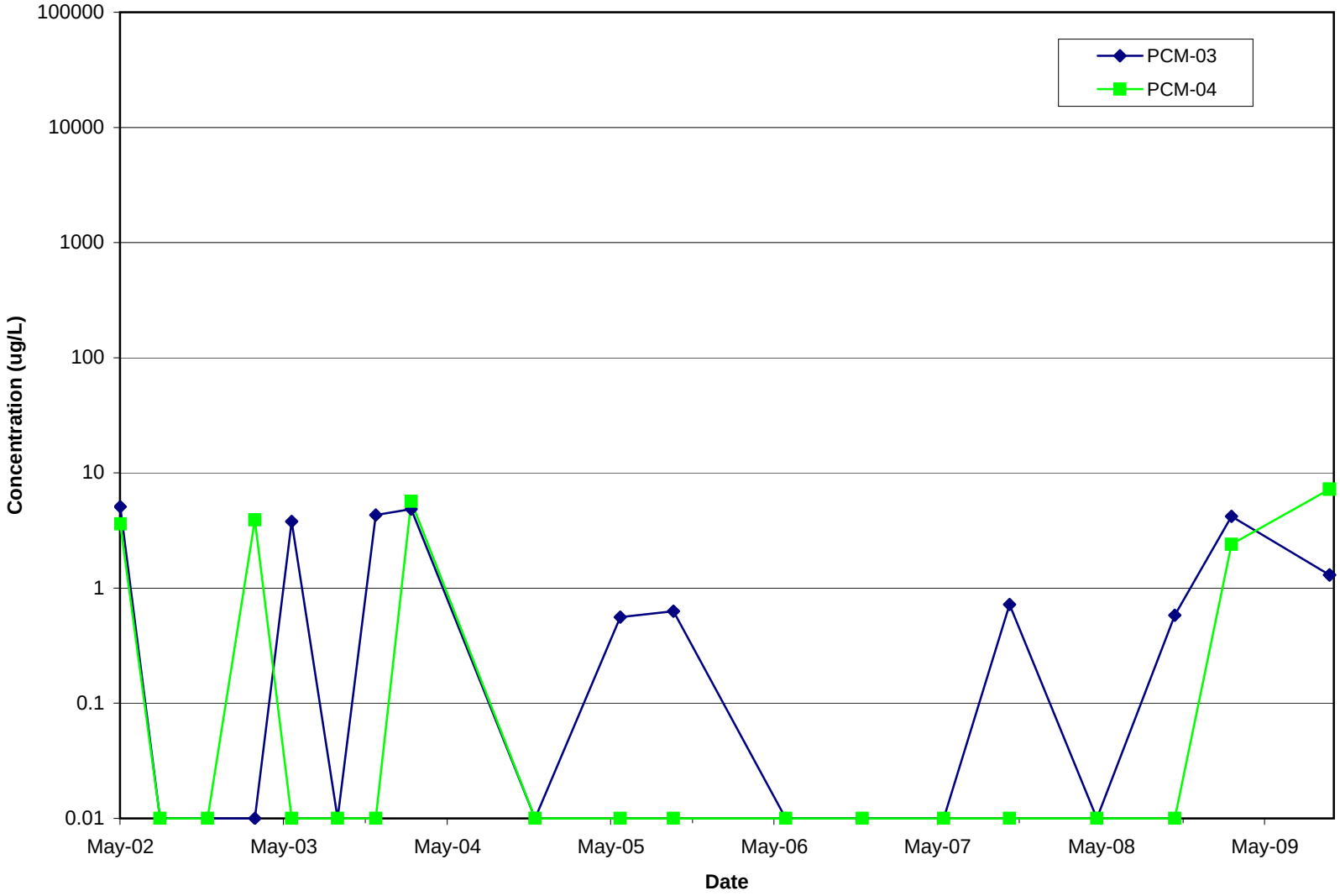


figure D.10
CONCENTRATION OF PHENOL vs. TIME
102ND STREET LANDFILL

APPENDIX E

STRATIGRAPHIC AND INSTRUMENTATION LOG – PCM-06R

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 102nd Street Landfill
PROJECT NUMBER: 01431
CLIENT: GSHI
LOCATION: Niagara Falls, NY

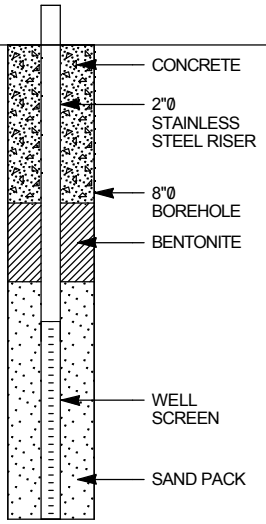
HOLE DESIGNATION: PCM-06R
DATE COMPLETED: October 30, 2007
DRILLING METHOD: 4 1/4 HSA
FIELD PERSONNEL: J. Raby

NORTHING: 1120172.52
EASTING: 1051213.37

NOT SAMPLED

END OF BOREHOLE @ 12.0ft BGS

12.00



WELL DETAILS
Screened interval:
7.00 to 12.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 6
Material: STAINLESS STEEL
Seal:
4.00 to 6.00ft BGS
Material: BENTONITE
Sand Pack:
6.00 to 12.00ft BGS
Material: 00 SAND

NUMBER	INTERVAL	REC (ft)	'N' VALUE
SS1		0.8	
SS2		1.4	
SS3		1.7	
SS4		1.6	
SS5		2.0	
SS6		2.0	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE