2018 Annual Periodic Review Report

102nd Street Landfill Site
Niagara Falls, New York
NYSDEC Site No. 932022

Glenn Springs Holdings, Inc.

Executive Summary

The following report describes the Operation, Maintenance, and Monitoring (OM&M) activities for 2018 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). Management of the Site is performed on behalf of OCC and Olin by Glenn Springs Holdings, Inc. (GSH), an affiliate of OCC. Since October 1, 2008, GHD Services, Inc. (GHD), formerly Conestoga-Rovers & Associates (CRA), has performed operation, maintenance, monitoring, and reporting activities for the Site under contract to and direct management of GSH.

During 2018, the Remedial Action (RA) system components at the Site performed as designed. The leachate collection system removed 116,364 gallons of Aqueous Phase Liquid (APL) from the Site. The slurry wall installed at the Site continued to function as designed. Water level monitoring showed that an inward gradient, with respect to the potential for groundwater to flow across the slurry wall, continued to be maintained throughout the year at all 10 well pairs with the exception of one location during the December 2018 monitoring event. An inward gradient is demonstrated by a lower water elevation inside the slurry wall as compared to water elevations outside the slurry wall. In the case of well pairs with a dry inside well, the bottom elevation of the dry inside well was compared to the elevation of the water level at the outside well. At the one location, the December 2018 monitoring event showed a slight outward gradient. Groundwater potentiometric contours demonstrate that groundwater flows in a north-to-south direction towards the APL collection trench.

In 2018, approximately 520.2 gallons of Non-Aqueous Phase Liquid (NAPL) were recovered from the Site NAPL Recovery (NR) Wells. The recovered NAPL was stored temporarily on Site in two 2,500-gallon accumulation containers and periodically containerized and shipped to the Clean Harbors Aragonite facility in Grantsville, Utah for incineration.

The 2018 data indicate that there has been no significant change in chemical and hydrogeological conditions at the Site. The APL collection trench continues to collect sufficient leachate from the landfill to maintain an inward gradient across the slurry wall and create a depressed water table inside the slurry wall. As mentioned above, the slurry wall is functioning as designed, preventing off-Site migration and influx of groundwater.

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1. Introduction

The following report describes the Operation, Maintenance, and Monitoring (OM&M) activities for 2018 at the 102nd Street Landfill Site (Site) located in Niagara Falls, New York (Figure 1.1). Management of the Site is performed on behalf of Occidental Chemical Corporation (OCC) and Olin Corporation (Olin) by Glenn Springs Holdings, Inc. (GSH), an affiliate of OCC. Since October 1, 2008, GHD Services, Inc. (GHD), formerly Conestoga-Rovers & Associates (CRA), has performed operation, maintenance, monitoring, and reporting activities for the Site under contract to and direct management of GSH.

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 1.2.

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. 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 OM&M for the Site occurred in April 2002.

The Remedial Action (RA) system components at the Site that have associated OM&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

This report describes the OM&M activities conducted in accordance with the OM&M Manual and presents the data collected at the Site between January 1, 2018 and December 31, 2018. The completed NYSDEC Institutional and Engineering Control Certification (ICEC) Form is included as Appendix A.

2. Site Monitoring Programs

The Site monitoring program was established to monitor the effectiveness of the RA system components and includes the following activities/programs:

- Quarterly groundwater level measurements
- Annual groundwater quality monitoring
- Quarterly NAPL presence monitoring
- Accelerated NAPL Recovery Program (ANRP)

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 includes 10 monitoring well pairs, each with a monitoring well located inside the slurry wall (PZ-01 through PZ-10) and a corresponding monitoring well located outside the slurry wall (PCM-01 through PCM-10). The measurements are used to evaluate RA system performance toward establishment of a depressed water table inside the slurry wall by comparing the water levels in each monitoring well pair. A lower water elevation inside the slurry wall than the water elevation outside the slurry wall at each monitoring well pair demonstrates that the water table has been depressed and that an "inward gradient" with respect to groundwater flow across the slurry wall has been created. The established monitoring well pairs are listed in Table 2.1, and the locations of the monitoring wells and slurry wall are shown on Figure 1.2.

Groundwater level measurements in the monitoring wells were measured quarterly in 2018, in accordance with the OM&M Manual. The 2018 water level measurements have been converted to elevations and are presented in Table 2.2. Table 2.2 also presents measured groundwater elevations for Site NAPL recovery (NR) wells and wet wells. The elevations for each of the monitoring well pairs and the gradients achieved for the quarterly events throughout the year are presented in Table 2.3.

Groundwater elevations are listed on the Annual Report Forms (Appendix B). Data for 2002 through 2018 have been graphed to show groundwater elevation trends (Appendix C). The quarterly groundwater elevations and associated potentiometric groundwater contours 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 monitoring wells (PCBM-01 through PCBM-03). These wells were sampled quarterly for the first 2 years following initiation of the OM&M in 2002, and then semiannually for the next 8 years through 2011. In 2012, sampling frequency decreased to annually in accordance with the approved OM&M Manual.

Annual groundwater quality monitoring was performed in October 2018. Samples were analyzed for Site-Specific volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides (i.e., hexachlorocyclohexanes), mercury, and arsenic. Table 2.4 presents the results of the current groundwater monitoring event. Historical groundwater monitoring results are presented in Tables D-1 and D-2 of Appendix D. The next groundwater quality monitoring event will occur in October 2019.

Chemical concentrations present in the groundwater have been graphed for select monitoring wells (PCM-03, PCM-04, and PCM-05) to evaluate concentration trends and determine if any of the levels are increasing. These graphs are presented in Appendix E. The monitoring well locations and parameters presented were selected based on the historical detection of compounds. Those monitoring well locations and parameters not included in Appendix E are typically non-detect with the occasional low level detections and, therefore, do not present any useful data with regard to a discussion of historical analytical trends at the Site.

The monitoring well purge records for the 2018 groundwater quality monitoring event are presented in Appendix F.

2.3 NAPL Presence Monitoring Program

The NAPL presence monitoring program consists of eight 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 Agencies accepted the Certificate of Completion. In accordance with the OM&M Manual, NAPL presence was checked each month for the first 3 months. The monthly monitoring ended in June 2002. Since June 2002, the NAPL presence monitoring has been completed quarterly. If during the quarterly monitoring more than 3 gallons of NAPL (6 inches deep in the 12-inch diameter well) is present in a NR well, the NAPL will be removed. NAPL removal will occur from April through October, during the warmer months of the year.

In December 2003, GSH submitted the "NAPL Extraction Program Work Plan for Accelerated Recovery" to determine the production capability and possible accelerated extraction of NAPL at NR-02 (known to have a quick recharge rate). As a result of the pumping tests conducted per the Work Plan, the ANRP was implemented in 2004. This program involved the continuous removal of NAPL from NR-02 through the use of a low-flow, automated pump installed in the NR-02 well with daily measurements, while the remaining NR wells were monitored quarterly and NAPL removed as necessary, per the OM&M Manual.

On June 23, 2010, CRA, on behalf of GSH, submitted a memorandum documenting modifications to the ANRP at the Site. The memo summarized March 10, 2011 discussions with Mr. Brian Sadowski of NYSDEC regarding a reduction in frequency of NAPL removal at NR-02 and the addition of NR-03 to the ANRP. Quarterly NAPL presence and removal data in 2010 indicated that NAPL presence in the vicinity of NR-02 may be diminishing, either due to a decrease in NAPL in the area of NR-02 (indicating a successful implementation of the recovery program), or possibly a result of creating a "de-NAPLed" (absence of NAPL) area around NR-02 due to the long-term pumping at this location and a decreased recharge rate of the NAPL.

Due to the reduction in NAPL removed from NR-02, it was proposed to reduce the frequency of monitoring at NR-02 from continuous to weekly. Historic amounts of NAPL removed from NR-03, along with quarterly NAPL measurements during 2010, indicated that there may be sufficient NAPL present at NR-03 such that additional NAPL removal would be beneficial. Therefore, NR-03 was proposed to be added to the ANRP on a temporary basis. NYSDEC agreed to the modification to the program, effective immediately, with the addition of NR-03 and with the stipulation that NR-02 would be checked, and NAPL removed as necessary, no less than on a weekly frequency. The modification was further discussed and confirmed during the May 27, 2010 NYSDEC annual Site inspection. The addition of NR-03 to the ANRP was originally to be on a continuous basis. Monitoring and continuous removal of NAPL from NR-03 (in addition to weekly removal from NR-02) began in May 2010. A low NAPL recharge rate at NR-03 resulted in the pumping frequency at this NR well being reduced from continuous to twice weekly (NAPL checks and pumping as necessary), and subsequently from twice weekly to its current weekly frequency as approved by the NYSDEC. Subsequently, the high recharge rate in NR-02 resulted in an increase in NAPL check and pumping frequency from weekly to its current twice weekly frequency as approved by NYSDEC.

Results of the 2018 NAPL presence monitoring are included on the Annual Report Forms presented in Appendix B.

3. Site Monitoring Results

3.1 Hydraulic Monitoring Results

The 2018 quarterly groundwater elevations and potentiometric groundwater contours are shown on Figures 2.1 through 2.4. Where groundwater was present, inward gradients across the slurry wall towards the landfill (as indicated by a lower water elevation inside the slurry wall than outside the slurry wall) were demonstrated at all monitoring wells pairs for each event with the exception of well pair 7 (PCM-07R and PZ-07) during the December 2018 event. During the December 2018 monitoring event, well pair 7 exhibited an outward gradient of 2.88 feet.

In the 2017 PRR, GSH recommended redeveloping PZ-07 in 2018 in an attempt to strengthen the hydraulic connections between PZ-07, PCM-07R, and the surrounding formation. In their letter accepting the 2017 PRR dated May 17, 2018, the NYSDEC concurred with the recommendation to redevelop PZ-07.

On June 5, 2018, GHD redeveloped PZ-07 using a foot valve and surge block attached to rigid poly tubing. Very little sediment was removed during the redevelopment, and a hard well bottom was sounded at a depth of 14.78 feet below top of casing (BTOC) both before and after redevelopment. Two quarterly water level gauging events were completed following the redevelopment - on September 11 and December 6 of 2018. The groundwater elevation in PZ-07 was approximately 0.20 feet lower than the groundwater elevation in PCM-07R during the September gauging event, indicating an inward gradient. During the December gauging event, the groundwater elevation in PZ-07 was approximately 2.88 feet higher than the groundwater elevation in PCM-07R, indicating an outward gradient. The reason for the higher water levels in PZ-07 relative to PCM-07R observed during certain quarters historically is not known.

However, given the thickness and the low permeability of the slurry wall that separates the two wells, and that the natural and current groundwater flow direction along the northern portion of the Site (where PCM-07R and PZ-07 are located) is from the north (off-Site) to the south (on-Site), the potential for chemical migration to occur through the wall is negligible. This is confirmed by the fact that there is no chemical evidence to suggest that contaminants are migrating from the landfill at this location. Water levels will continue to be monitored on a quarterly basis at this location.

PZ-06 and PZ-08 were dry during all of the quarterly events. The difference in elevation used to demonstrate an inward gradient at these monitoring well pairs during dry events was calculated using the bottom elevation of each dry monitoring well, with the rationale that if the monitoring well was dry, the water elevation would have to be at an elevation below the bottom of the monitoring well. The water level elevations in the monitoring wells outside the slurry wall were higher than the elevation of the bottom of the dry monitoring wells inside the slurry wall; therefore, regardless of the dry conditions at PZ-06 and PZ-08, an inward gradient across the slurry wall was maintained at these two monitoring well pairs in 2018.

Piezometers PZ-06, PZ-07, PZ-08, PZ-09R, and PZ-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 564.46 feet above mean sea level (AMSL) to 569.91 feet AMSL. The remaining wells inside the slurry wall at the Site (piezometers PZ-01, PZ-02, PZ-03R, PZ-04, PZ-05), NAPL recovery wells (NR-01, NR-02, NR-03, NR-04, NR-05, NR-07, NR-08, NR-10), and Wet Wells (1 through 4) to the south of piezometers PZ-06, PZ-07, PZ-08, PZ-09R, and PZ-10 exhibit groundwater elevations ranging from 560.06 feet AMSL to 561.79 feet AMSL. Groundwater potentiometric contours presented on Figures 2.1 through 2.4 demonstrate that within the landfill, groundwater flows in a north-to-south direction towards the APL collection trench (located on the south side of the Site along the Niagara River and portions of the east and west sides of the Site). Therefore, the water table is depressed inside the slurry wall and any groundwater impacts would migrate to the APL collection trench.

3.2 Groundwater Quality Monitoring Results

Overburden Monitoring Wells

In 2018, groundwater samples were collected from all ten of the monitoring wells included in the annual analytical program. However, due to insufficient volumes of water to collect samples for all required analytes, monitoring wells PCM-06 and PCM-09 were only sampled for VOCs and metals, and monitoring well PCM-07R was only sampled for VOCs, SVOCs, and metals. Chemical concentrations in groundwater samples exceeded NYSDEC Class GA groundwater criteria in 5 of the 10 overburden monitoring wells sampled in 2018 (PCM-03, PCM-04, PCM-05, PCM-09, and PCM-10). Concentrations in these five wells were consistent with previous sampling results. The exceedances of the NYSDEC Class GA groundwater criteria were as follows:

VOCs

- Benzene, chlorobenzene, 2-chlorotoluene, and dichlorobenzenes in well PCM-03
- Benzene, chlorobenzene, and dichlorobenzenes in well PCM-04
- Chlorobenzene in well PCM-05

SVOCs

- 2-chlorophenol, 2,4-dichlorophenol, and 2,5-dichlorophenol in well PCM-03
- 2-chlorophenol and 4-chlorophenol in well PCM-04

Metals

- Arsenic in well PCM-09

Pesticides

- Delta-hexachlorocyclohexane (delta-BHC) in well PCM-03
- Beta-hexachlorocyclohexane (beta-BHC) in well PCM-10

The criteria exceedances at all of these locations are consistent with, or lower than, historical concentrations at these wells (see Appendix D).

In the 30 sampling events in which arsenic has been analyzed for, from 2002 through 2018, arsenic has only exceeded the NYSDEC Class GA groundwater criteria of 25 µg/L during three events. Arsenic was detected at a concentration of 25.4 µg/L in PCM-07 on October 6, 2003; at a concentration of 52 µg/L (estimated) in PCM-09 on October 22, 2014; and at a concentration of 50 µg/L in PCM-09 on October 7, 2018. In the 17 sampling events in which mercury has been analyzed for, from 2007 through 2018, mercury has only exceeded the NYSDEC Class GA groundwater criteria of 0.7 µg/L during one sampling event, during which mercury was detected at a concentration of 0.95 µg/L in PCM-03 on April 6, 2010. Based on the sporadic, low concentrations of arsenic and mercury detected in the overburden wells during historical sampling events, GSH recommends removing arsenic and mercury from the list of analytes to be sampled for in the overburden during the annual monitoring events, starting with the 2019 annual monitoring event.

Bedrock Monitoring Wells

The NYSDEC Class GA groundwater criteria were not exceeded in any of the three bedrock monitoring wells that were sampled for groundwater quality in 2018.

In the 30 sampling events in which arsenic has been analyzed for, from 2002 through 2018, arsenic has only exceeded the NYSDEC Class GA groundwater criteria of 25 µg/L during one sampling event. During this event, which occurred from March 31 to April 1, 2003, arsenic concentrations were detected in PCBM-01, PCBM-02, and PCBM-03 at concentrations of 27.7 µg/L, 30.7 µg/L, and 31.1 µg/L, respectively. Mercury has never been detected at concentrations above the reporting limits in the 17 sampling events in which it has been analyzed for, from 2007 through 2018. Based on the sporadic, low concentrations of arsenic detected in the bedrock wells and lack of mercury detected in the bedrock wells during historical sampling events, GSH recommends removing arsenic and mercury from the list of analytes to be sampled for in bedrock during the annual monitoring events, starting with the 2019 annual monitoring event.

3.3 NAPL Presence Monitoring Results

Monitoring for the presence of NAPL at the eight NR wells is checked quarterly. Results of the quarterly NAPL monitoring events are presented in the Annual Report Forms included in Appendix B.

NAPL was present in six of the eight NR wells in 2018 (NR-01 through NR-05 and NR-08). The thickness of NAPL in these five wells measured during the quarterly NAPL checks ranged from 0.33 (NR-05) to 1.92 feet (NR-02) (see page B-2 of Appendix B). NAPL was removed from the wells between April and October 2018 when it was present in quantities of more than 3 gallons or at a thickness greater than 6 inches.

The most efficient method for NAPL removal is via a waterra pump system consisting of rigid, dedicated down-hole tubing attached to a footvalve. The rigid tubing is mechanically raised and lowered several inches which forces the NAPL up the tubing. When pumping a well that only has approximately 6 inches of NAPL at the bottom of the well, the position of the tubing creates a situation in which more groundwater and less NAPL is being pumped than desired, rendering the effort inefficient. Furthermore, when pumping NAPL that is present so close the bottom of the well, sediment and other debris is also pumped, which often clogs the tubing. Based on these factors, GSH recommends that NAPL only be pumped from a NR well when the NAPL thickness is greater than or equal to one foot.

4. Operation of 102nd Street Landfill Systems

4.1 APL Collection and Discharge System Operation

The individual APL pumps in the four APL collection wet wells operated throughout 2018 on level control. The pump in Wet Well 2 is set to start up at an elevation of 560.4 feet AMSL (2.6 feet below the average Niagara River water level) and to shut down when the elevation in the well reaches 560.2 feet AMSL. Over the years, the set points on the pumps in Wet Wells 1, 3, and 4 have been lowered to encourage pumping in the wells. The pumps in Wet Wells 1, 3, and 4 are set to start up at elevations of 561.3, 561.4, and 561.4, respectively, and to shut down when the elevations in the wells reach 561.1, 561.2, and 561.2, respectively.

A total of 116,364 gallons of APL was 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, under the Niagara Falls Water Board Significant Industrial User (SIU) Permit #44. A total of approximately 9.7 million gallons of APL have been recovered from the Site since pumping was initiated in March 1999.

In 2018, Wet Well 1 collected 1.1 percent of the total APL for the Site, Wet Well 2 collected 97.7 percent, Wet Well 3 collected 0.8 percent, and Wet Well 4 collected 0.4 percent.

4.2 NAPL Recovery

The total volume of NAPL removed from the NR wells at the Site in 2018 was approximately 520.2 gallons (Table 4.1). The majority of the NAPL (485.8 gallons) was pumped from NR-02 (Table 4.2).

Table 4.1 shows the current and historical NAPL recoveries from the on-Site NR wells. Approximately 72,140 gallons of NAPL have been recovered at the Site to date.

4.2.1 NR-02 and NR-03 NAPL Recovery

As discussed in Section 2.3, in 2010 a temporary change to the ANRP at the Site was implemented. Previous to June 2010, the ANRP consisted of continuous NAPL recovery at well NR-02 and quarterly NAPL presence checks and recovery (if necessary) from NR-01, NR-03, NR-04, NR-05, NR-07, NR-08, and NR-10 between April and October of each year. The June 2010 modification and the evaluations of data collected thereafter resulted in the current schedule of NAPL removal at NR-02 twice weekly, NR-03 weekly, and quarterly at the remaining NR wells.

As per the approved modification to the ANRP, pumping at NR-02 was conducted twice weekly during the second and third quarters of 2018 and resulted in a total NAPL recovery of 485.8 gallons. Table 4.2 presents a summary of NAPL removed from NR-02 during 2018.

The removal of NAPL from NR-02 will continue to be evaluated, and options to maximize NAPL removal and optimize the pumping schedule at NR-02 will be considered.

Weekly NAPL checks at well NR-03 were conducted from early April through the middle of September during 2018. Approximately 30.1 gallons of NAPL were removed from NR-03 and approximately 4.25 gallons were removed from NR-01 in 2018.

4.2.2 NAPL Storage and Disposal

NAPL removed from the NR wells during 2018 was pumped into one of two 2,500-gallon double-walled skid-mounted steel tanks with internal secondary containment. The tanks are located at NR-02 and NR-03 due to the current pumping schedule and can be easily moved depending on the productivity of the two wells during pumping events. The two 2,500-gallon NAPL tanks are inspected as part of the 102nd Street daily inspections. The 2018 daily inspections of the NAPL tanks did not identify any issues.

Approximately 5,000 pounds of accumulated NAPL were containerized and transported to the Clean Harbors Aragonite facility in Grantsville, Utah for incineration in 2018.

5. Site Maintenance and Inspections

5.1 Site Inspections

Daily inspections were conducted at the Site in 2018, as per the OM&M Manual. Copies of the daily inspection forms are available upon request.

The 2018 annual NYSDEC Site inspection was conducted on July 12, 2018 by representatives from NYSDEC, GSH, and GHD. During the Site inspection, the RA system components are reviewed to ensure Site compliance. The inspection included a general Site walk and covered all portions of the landfill remediation including the APL Collection System, APL Discharge System, Landfill Cap, Bulkhead, and Storm Sewer. No deficiencies were noted.

5.2 Monitoring Well Inspections

The monitoring wells, NAPL recovery wells, and wet wells are inspected on an annual basis. The well depth is sounded, and the probe inspected for signs of NAPL. Additionally, the physical condition of each well is assessed, and any necessary repairs are noted as part of the water level measurement and groundwater sampling procedures. The 2018 well inspections were conducted on October 7 and 8, 2018. No issues requiring immediate attention with the wells were noted. Several minor routine maintenance items were noted and were/will be repaired as time permits.

5.3 Activities

Activities performed at the Site in 2018 included the following:

- Mowed the landfill vegetation once after August 15th to inhibit the growth of woody material
- Cleaned debris and removed rocks from the fence line around 102nd Street storm sewer inlet
- Maintained (including scheduled preventative maintenance) all pumps and on-Site control equipment to ensure proper function
- Redeveloped well PZ-07
- Replaced Wet Well 4 flow indicator
- Cleaned the inlet to the 102nd Street outfall
- Repaired the heater and the heater thermostat in the control room

5.4 Site Beautification/Wildlife

Wildlife/beautification enhancements implemented at the Site in the past continue to provide wildlife habitat and beneficial reuse.

These enhancements have included the following:

- Inspection, observation, and documentation of animal houses and wildlife
- Planting of lancer pea on a large portion of the landfill cap at the beginning of O&M activities at the Site to provide food for waterfowl
- Replanting the embayment area with water celery to enhance fish habitat
- Growth of native grasses and flowers on the landfill cap
- Installation of bluebird houses and bat boxes on the perimeter of the landfill cap
- Daily inspection of perimeter fencing and Site cover and removal of litter as necessary, which enhances the aesthetics of the Site when viewed from the Niagara River, from Buffalo Avenue, and from Griffon Park

- Other than the once yearly mowing that occurs after August 15th of the landfill cap vegetation, periodic mowing of only the space necessary to safely access the Site groundwater and NR wells. This is done to minimize the disruption of wildlife habitat in the native growth of the landfill cover vegetation.

6. Conclusions and Recommendations

During 2018, the RA system components at the Site performed as designed. The leachate collection system removed 116,364 gallons of APL from the Site. Water level monitoring showed that an inward gradient, with respect to groundwater flow across the slurry wall, continues to be maintained throughout the year as indicated by a lower water elevation inside the slurry wall than outside the slurry wall with the exception of one location during the December 2018 monitoring event. Well pair 7 did exhibit a slight outward gradient during the December monitoring event. This well was redeveloped on June 5, 2018, which had no obvious impact on elevated water levels measured in this well. The reason for the higher water levels in PZ-07 relative to PCM-07R observed during certain quarters historically is not known. However, given the thickness and the low permeability of the slurry wall that separates the two wells, and that the natural and current groundwater flow direction along the northern portion of the Site (where PCM-07R and PZ-07 are located) is from the north (off-Site) to the south (on-Site), the potential for chemical migration to occur through the wall is negligible. This is confirmed by the fact that there is no chemical evidence to suggest that contaminants are migrating from the landfill at this location. Based on this, GHD recommends continuing to monitor the water levels in this well on a quarterly basis for one additional year and then providing a recommendation for further evaluation (if needed) in the 2019 PRR. Groundwater potentiometric contours demonstrate that groundwater flows in a north-to-south direction towards the APL collection trench.

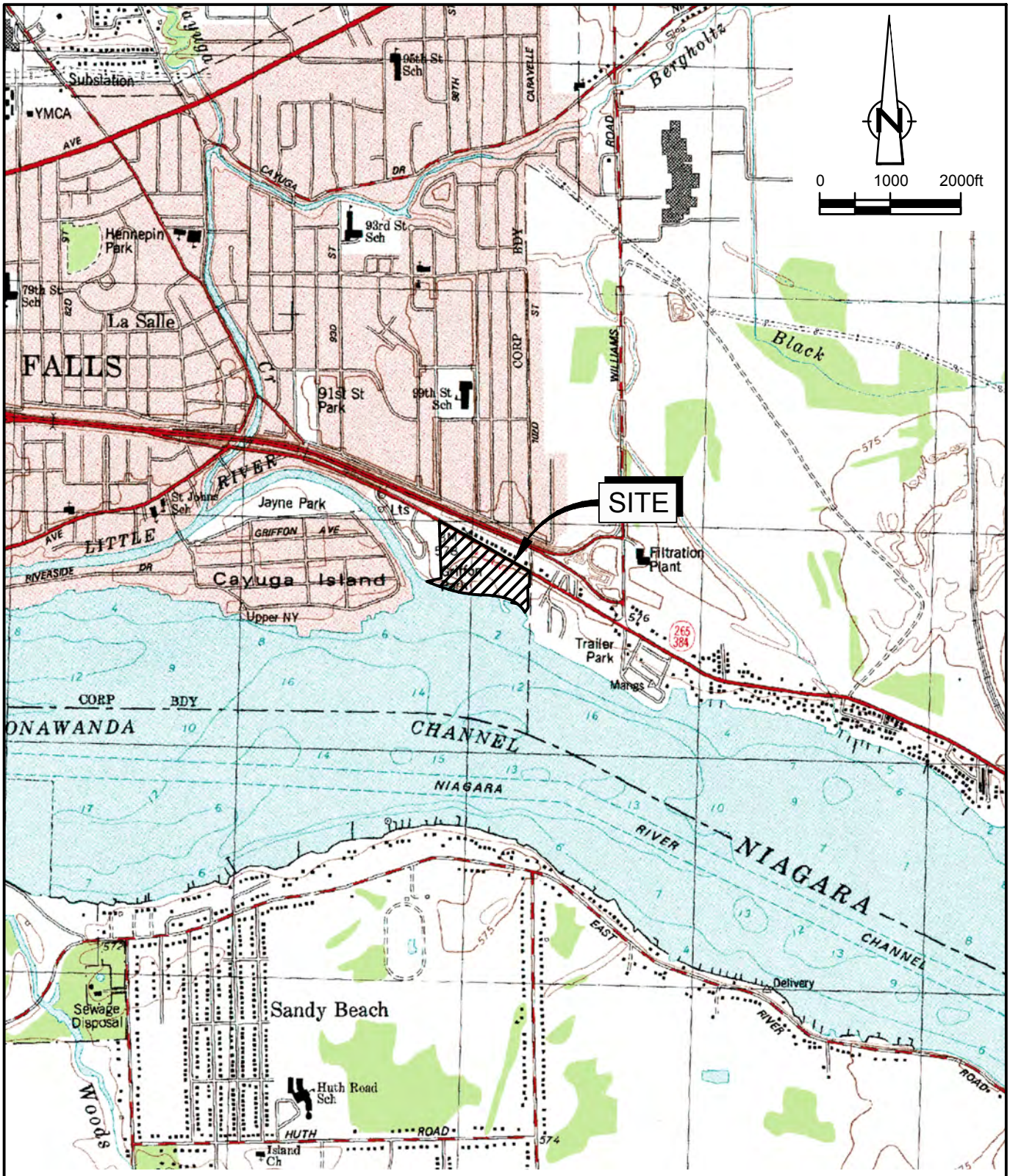
In 2018, approximately 520.2 gallons of NAPL were recovered from the Site NR wells. The recovered NAPL was stored temporarily on Site in one of two 2,500-gallon containers during 2018, containerized, and was shipped to an off-Site disposal facility (incinerators) (Clean Harbors Aragonite facility in Grantsville, Utah) for final destruction.

The 2018 data indicate that there has been no significant change in chemical and hydrogeological conditions at the Site. Based on the sporadic, low concentrations of arsenic and mercury collectively detected in the Site monitoring wells from 2002 through 2018, with only isolated exceedances (refer to Section 3.2), GSH recommends removing arsenic and mercury from the list of analytes to be sampled for in both overburden and bedrock, starting with the 2019 annual monitoring event. The APL collection trench continues to collect sufficient leachate from the landfill to maintain an inward gradient across the slurry wall and create a depressed water table inside the slurry wall. The slurry wall is functioning as designed, preventing off-Site migration and the influx of off-Site groundwater.

In summary, GSH recommends the following:

- Continue to monitor the water levels in PZ-07 relative to PCM-07R on a quarterly basis for one additional year and provide a recommendation for further evaluation (if needed) in the 2019 PRR.

- Remove arsenic and mercury from the list of analytes to be sampled for in both overburden and bedrock, starting with the 2019 annual monitoring event.
- Pump NAPL from a NR well when it has reached a thickness of at least one foot, instead of six inches, due to difficulties encountered in the field when trying to pump such a small thickness of NAPL.



SOURCE: USGS QUADRANGLE MAP;
TONAWANDA WEST, NEW YORK, 1980

figure 1.1

SITE LOCATION
2018 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

LASALLE EXPRESSWAY

DOUBLE-CONTAINED PIPE
BENEATH LASALLE EXPRESSWAY

CO-MH8

CO-MH9

BUFFALO AVENUE

PCM-09

PZ-10

PCM-10

PZ-09R

PCM-08

PCBM-03

PZ-08

PCM-07R

BUFFALO AVENUE

TOWN OF WHEATFIELD
CITY OF NIAGARA FALLS

102ND STREET

0 75 150ft

CO-MH1

SAMPLE
MANHOLE

SAMPLE
SHED

MAIN GATE

PZ-07

ASSEMBLY AREA

PCM-06

PZ-06

PCM-01

PZ-01

NR-01

CO-1

CO-MH2

ACCESS ROAD

2,500 GALLON
SKID TANK

NR-04

NR-02

ACCESS ROAD

NR-10

NR-05

NR-07

APL COLLECTION
TRENCH

2,500 GALLON
SKID TANK

CO-7

APL COLLECTION
TRENCH

2'-2" HDPE FORCE MAINS

APL COLLECTION
TRENCH

PZ-04

CO-5

CO-MH6

WET WELL
WW-3

CO-6

CO-MH7

PZ-05

PCM-05

PCBM-02

PCM-02

PZ-02

CO-2

CO-MH3

NR-03

NR-08

CO-4

CO-MH5

PCM-04

LITTLE RIVER

CAYUGA ISLAND

2'-2" HDPE FORCE MAINS

CO-MH4

PZ-03R

WET WELL
WW-2

WET WELL
WW-4

CO-3

PCBM-01

PCM-03

WET WELL
WW-1

APL COLLECTION
TRENCH

NIAGARA RIVER

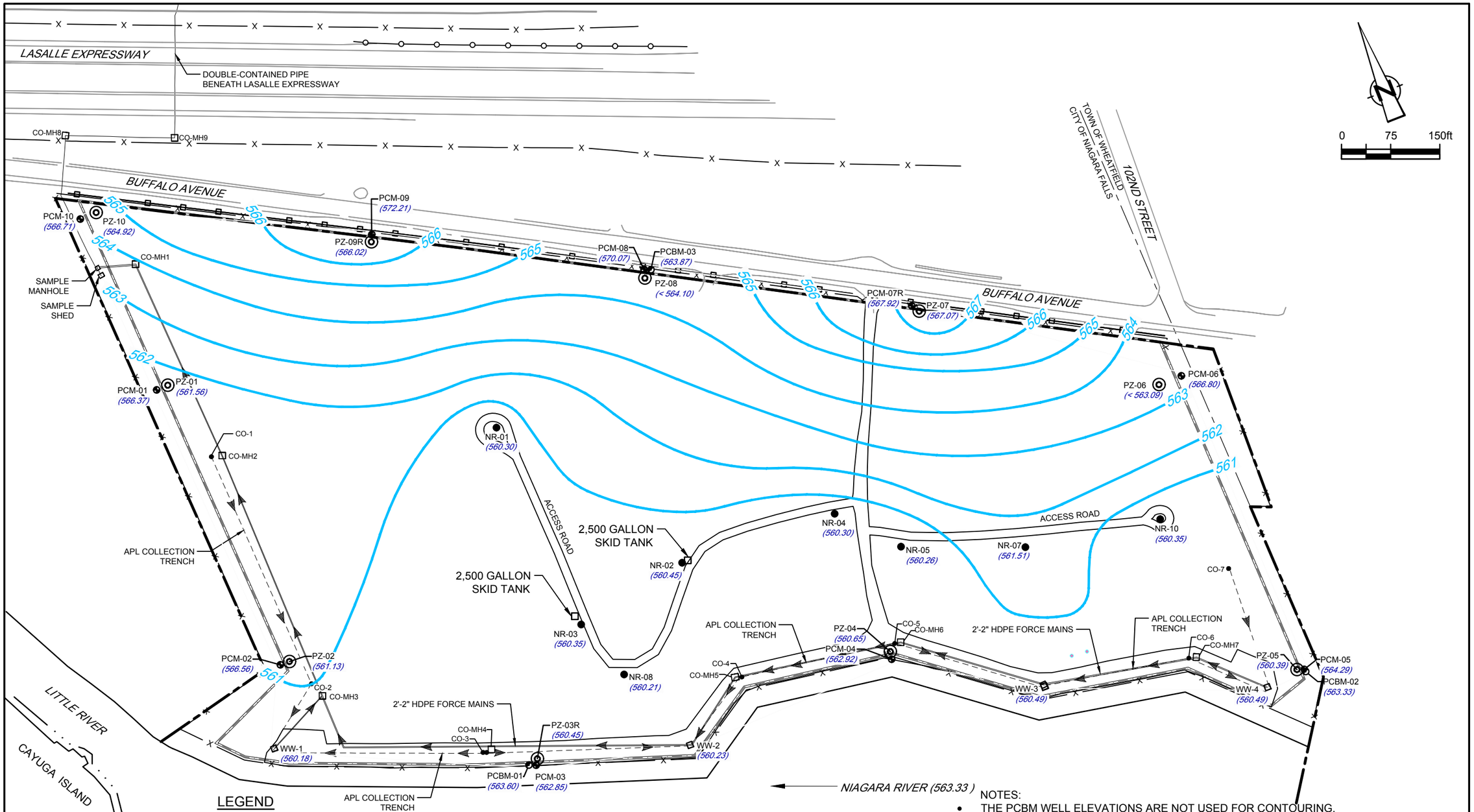
LEGEND

- PROPERTY LINE
- CITY LINE
- FENCE LINE
- CRIB WALL
- FORCEMAIN AND FLOW DIRECTION
- SLURRY WALL AND CENTERLINE
- APL COLLECTION TRENCH AND FLOW DIRECTION
- PZ-02 PIEZOMETER LOCATION
- PCM-02 MONITORING WELL LOCATION
- CO-2 TRENCH CLEAN OUT
- CO-MH3 FORCEMAIN CLEAN OUT MANHOLE
- NAPL RECOVERY WELL LOCATION
- PCBM-01 BEDROCK MONITORING WELL LOCATION

GHD

figure 1.2

SITE PLAN
2018 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York



LEGEND

- PROPERTY LINE
- CITY LINE
- FENCE LINE
- CRIB WALL
- FORCEMAIN AND FLOW DIRECTION
- SLURRY WALL AND CENTERLINE
- APL COLLECTION TRENCH AND FLOW DIRECTION
- PCBM-01 BEDROCK MONITORING WELL LOCATION
- PZ-02 PIEZOMETER LOCATION
- PCM-03 MONITORING WELL LOCATION
- CO-2 TRENCH CLEAN OUT
- CO-MH3 FORCEMAIN CLEAN OUT MANHOLE
- NAPL RECOVERY WELL LOCATION
- (562.85) GROUNDWATER ELEVATION
- 561 GROUNDWATER CONTOUR

NOTES:

- THE PCBM WELL ELEVATIONS ARE NOT USED FOR CONTOURING.

figure 2.1

GROUNDWATER ELEVATIONS - MARCH 5, 2018
2018 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

P:\drawings\01000s\01431\01431-REPORTS\01431-D23101(095)\01431-D23101(095)GN\01431-D23101(095)GN-WA003.DWG Plot Date: FEB 14, 2019

LASALLE EXPRESSWAY

DOUBLE-CONTAINED PIPE
BENEATH LASALLE EXPRESSWAY

CO-MH8

CO-MH9

BUFFALO AVENUE

PZ-10 (564.72)

PCM-10 (566.28)

PCM-09 (569.23)

PZ-09R (565.56)

PCM-08 (567.72)

PCBM-03 (564.07)

PZ-08 (< 564.10)

BUFFALO AVENUE

PCM-07R (567.99)

PZ-07 (566.50)

TOWN OF WHEATFIELD
CITY OF NIAGARA FALLS

102ND STREET

0 75 150ft

SAMPLE MANHOLE

SAMPLE SHED

CO-MH1

PZ-01 (561.51)

PCM-01 (565.44)

CO-1

CO-MH2

APL COLLECTION TRENCH

NR-01 (560.33)

ACCESS ROAD

2,500 GALLON SKID TANK

NR-02 (560.50)

NR-04 (560.27)

NR-05 (560.24)

NR-07 (561.49)

ACCESS ROAD

NR-10 (560.35)

APL COLLECTION TRENCH

2'-2" HDPE FORCE MAINS

CO-7

2,500 GALLON SKID TANK

NR-03 (560.33)

NR-08 (560.25)

APL COLLECTION TRENCH

CO-5

CO-MH6

PZ-04 (560.63)

PCM-04 (563.58)

CO-MH7

CO-6

WW-3 (560.57)

PZ-05 (560.51)

PCM-05 (563.74)

PCBM-02 (563.77)

WW-4 (560.58)

PZ-06 (< 563.09)

PCM-06 (567.41)

PZ-02 (561.00)

PCM-02 (565.77)

CO-2

CO-MH3

CO-4

CO-MH5

2'-2" HDPE FORCE MAINS

CO-MH4

PZ-03R (560.50)

WW-1 (560.36)

CO-3

WW-2 (560.28)

PCBM-01 (563.97)

PCM-03 (563.54)

APL COLLECTION TRENCH

LITTLE RIVER

CAYUGA ISLAND

NIAGARA RIVER (564.02)

NOTE:
- THE PCBM WELL ELEVATIONS ARE NOT USED FOR CONTOURING.

LEGEND

- PROPERTY LINE
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- CRIB WALL
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- SLURRY WALL AND CENTERLINE
- APL COLLECTION TRENCH AND FLOW DIRECTION
- PCBM-01 BEDROCK MONITORING WELL LOCATION
- PZ-02 PIEZOMETER LOCATION
- PCM-03 MONITORING WELL LOCATION
- CO-2 TRENCH CLEAN OUT
- CO-MH3 FORCEMAIN CLEAN OUT MANHOLE
- NAPL RECOVERY WELL LOCATION
- (563.54) GROUNDWATER ELEVATION
- 561 GROUNDWATER CONTOUR

GHD

figure 2.2

GROUNDWATER ELEVATIONS - MAY 29, 2018
2018 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

P:\drawings\01000s\01431\01431-REPORTS\01431-D23101(095)\01431-D23101(095)GN\01431-D23101(095)GN-WA004.DWG Plot Date: FEB 14, 2019

LASALLE EXPRESSWAY

DOUBLE-CONTAINED PIPE
BENEATH LASALLE EXPRESSWAY

CO-MH8

CO-MH9

BUFFALO AVENUE

PZ-10 (564.51)

PCM-10 (565.05)

PCM-09 (567.90)

PZ-09R (565.68)

PCM-08 (568.22)

PCBM-03 (563.59)

PZ-08 (< 564.71)

PCM-07R (566.56)

PZ-07 (566.36)

BUFFALO AVENUE

TOWN OF WHEATFIELD
CITY OF NIAGARA FALLS

102ND STREET

0 75 150ft

SAMPLE MANHOLE

SAMPLE SHED

CO-MH1

PZ-01 (561.61)

PCM-01 (564.33)

CO-1

CO-MH2

APL COLLECTION TRENCH

NR-01 (560.57)

ACCESS ROAD

2,500 GALLON SKID TANK

NR-02 (560.48)

NR-04 (560.46)

NR-05 (560.43)

NR-07 (561.69)

ACCESS ROAD

NR-10 (560.48)

2,500 GALLON SKID TANK

NR-03 (560.58)

NR-08 (560.06)

APL COLLECTION TRENCH

CO-5

CO-MH6

PZ-04 (560.85)

PCM-04 (563.63)

CO-4

CO-MH5

2'-2" HDPE FORCE MAINS

APL COLLECTION TRENCH

CO-MH7

CO-6

CO-7

PZ-05 (560.60)

PCM-05 (562.77)

PCBM-02 (563.50)

WW-3 (560.73)

WW-4 (560.75)

PCM-06 (568.69)

PZ-06 (< 563.58)

PZ-02 (561.30)

PCM-02 (564.73)

CO-2

CO-MH3

2'-2" HDPE FORCE MAINS

CO-MH4

PZ-03R (560.64)

WW-1 (560.54)

CO-3

WW-2 (560.25)

PCBM-01 (563.78)

PCM-03 (563.50)

APL COLLECTION TRENCH

LITTLE RIVER

CAYUGA ISLAND

NIAGARA RIVER (564.00)

NOTE:
- THE PCBM WELL ELEVATIONS ARE NOT USED FOR CONTOURING.

LEGEND

- PROPERTY LINE
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- SLURRY WALL AND CENTERLINE
- APL COLLECTION TRENCH AND FLOW DIRECTION
- PCBM-01 BEDROCK MONITORING WELL LOCATION
- PZ-02 PIEZOMETER LOCATION
- PCM-03 MONITORING WELL LOCATION
- CO-2 TRENCH CLEAN OUT
- CO-MH3 FORCEMAIN CLEAN OUT MANHOLE
- NAPL RECOVERY WELL LOCATION
- (563.50) GROUNDWATER ELEVATION
- 561 GROUNDWATER CONTOUR

GHD

figure 2.3

GROUNDWATER ELEVATIONS - SEPTEMBER 11, 2018
2018 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

P:\drawings\01000s\01431\01431-REPORTS\01431-D23101(095)\01431-D23101(095)GN\01431-D23101(095)GN-WA005.DWG Plot Date: FEB 14, 2019

LASALLE EXPRESSWAY

DOUBLE-CONTAINED PIPE
BENEATH LASALLE EXPRESSWAY

CO-MH8

CO-MH9

BUFFALO AVENUE

TOWN OF WHEATFIELD
CITY OF NIAGARA FALLS

102ND STREET

0 75 150ft

PZ-10 (564.46)

PCM-10 (566.04)

PCM-09 (571.74)

PZ-09R (565.71)

PCM-08 (569.21)

PCBM-03 (563.85)

PZ-08 (< 564.71)

PCM-07R (567.03)

PZ-07 (569.91)

BUFFALO AVENUE

PZ-06 (< 563.52)

PCM-06 (566.76)

SAMPLE MANHOLE

SAMPLE SHED

CO-MH1

PZ-01 (561.74)

PCM-01 (565.11)

CO-1

CO-MH2

NR-01 (560.59)

2,500 GALLON SKID TANK

ACCESS ROAD

NR-04 (560.57)

NR-02 (560.72)

NR-05 (560.56)

NR-07 (561.79)

ACCESS ROAD

NR-10 (560.71)

CO-7

APL COLLECTION TRENCH

2,500 GALLON SKID TANK

NR-03 (560.58)

NR-08 (560.41)

APL COLLECTION TRENCH

CO-5

CO-MH6

PZ-04 (560.92)

PCM-04 (563.19)

2'-2" HDPE FORCE MAINS

APL COLLECTION TRENCH

CO-MH7

CO-6

PZ-05 (560.69)

PCM-05 (563.83)

PCBM-02 (563.52)

WW-3 (560.76)

WW-4 (560.79)

PCM-02 (565.69)

PZ-02 (561.18)

CO-2

CO-MH3

CO-4

CO-MH5

LITTLE RIVER

CAYUGA ISLAND

2'-2" HDPE FORCE MAINS

CO-MH4

PZ-03R (560.57)

WW-1 (560.24)

CO-3

WW-2 (560.14)

PCBM-01 (563.69)

PCM-03 (563.11)

APL COLLECTION TRENCH

NIAGARA RIVER (563.58)

564 563 562 561 565 566 567 568 569

LEGEND

- PROPERTY LINE
- CITY LINE
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- CRIB WALL
- FORCEMAIN AND FLOW DIRECTION
- SLURRY WALL AND CENTERLINE
- APL COLLECTION TRENCH AND FLOW DIRECTION
- PCBM-01 BEDROCK MONITORING WELL LOCATION
- PZ-02 PIEZOMETER LOCATION
- PCM-03 MONITORING WELL LOCATION
- CO-2 TRENCH CLEAN OUT
- CO-MH3 FORCEMAIN CLEAN OUT MANHOLE
- NAPL RECOVERY WELL LOCATION
- (563.11) GROUNDWATER ELEVATION
- 561 GROUNDWATER CONTOUR

NOTE:
- THE PCBM WELL ELEVATIONS ARE NOT USED FOR CONTOURING.

figure 2.4

GROUNDWATER ELEVATIONS - DECEMBER 6, 2018
2018 PERIODIC REVIEW REPORT
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC.
Niagara Falls, New York

P:\drawings\01000s\01431\01431-REPORTS\01431-D23101(095)\01431-D23101(095)GN\01431-D23101(095)GN-WA006.DWG Plot Date: FEB 14, 2019

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*/PZ-03R	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*/PZ-09R	North Side
10	PCM-10	PZ-10	Northwest Side

Notes:

* - These wells are no longer present and were replaced with the "R" well of the same name

Table 2.2

Quarterly Water Level Elevations
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Location	Ref Elev. (ft AMSL)	March 5, 2018	May 29, 2018	September 11, 2018	December 6, 2018
NR-01	595.96	560.30	560.33	560.57	560.59
NR-02	588.39	560.45	560.50	560.48	560.72
NR-03	593.09	560.35	560.33	560.58	560.58
NR-04	581.06	560.30	560.27	560.46	560.57
NR-05	580.33	560.26	560.24	560.43	560.56
NR-07	587.21	561.51	561.49	561.69	561.79
NR-08	590.72	560.21	560.25	560.06	560.41
NR-10	586.77	560.35	560.35	560.48	560.71
PCBM-01	576.19	563.60	563.97	563.78	563.69
PCBM-02	575.21	563.33	563.77	563.50	563.52
PCBM-03	579.34	563.87	564.07	563.59	563.85
PCM-01	577.02	566.37	565.44	564.33	565.11
PCM-02	576.22	566.56	565.77	564.73	565.69
PCM-03	576.14	562.85	563.54	563.50	563.11
PCM-04	574.90	562.92	563.58	563.63	563.19
PCM-05	575.21	564.29	563.74	562.77	563.83
PCM-06	579.26	566.80	567.41	568.69	566.76
PCM-07R	578.80	567.92	567.99	566.56	567.03
PCM-08	578.34	570.07	567.72	568.22	569.21
PCM-09	578.05	572.21	569.23	567.90	571.74
PCM-10	578.44	566.71	566.28	565.05	566.04
PZ-01	580.98	561.56	561.51	561.61	561.74
PZ-02	577.10	561.13	561.00	561.30	561.18
PZ-03R	576.15	560.45	560.50	560.64	560.57
PZ-04	575.99	560.65	560.63	560.85	560.92
PZ-05	575.92	560.39	560.51	560.60	560.69
PZ-06	583.70	Dry	Dry	Dry	Dry
PZ-07	578.48	567.07	566.50	566.36	569.91
PZ-08	579.71	Dry	Dry	Dry	Dry
PZ-09R	580.37	566.02	565.56	565.68	565.71
PZ-10	581.61	564.92	564.72	564.51	564.46
RIVERNPIER	567.02	563.33	564.02	564.00	563.58
WW-1	574.97	560.18	560.36	560.54	560.24
WW-2	574.43	560.23	560.28	560.25	560.14
WW-3	574.78	560.49	560.57	560.73	560.76
WW-4	575.20	560.49	560.58	560.75	560.79

Notes:

Dry - No water in well during time of measurement
ft AMSL - Feet above mean sea level

Table 2.3

Well Pair Gradients
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Pairs	Well IDs	Elevation (ft AMSL) TOC	Elevation (ft AMSL) Bottom	March 5, 2018	May 29, 2018	September 11, 2018	December 6, 2018	Quarters Maintaining Inward Gradient
Pair 1	PCM-01	577.02	549.05	566.37	565.44	564.33	565.11	
	PZ-01	580.98	549.64	561.56	561.51	561.61	561.74	
				-4.81	-3.93	-2.72	-3.37	4
Pair 2	PCM-02	576.22	547.90	566.56	565.77	564.73	565.69	
	PZ-02	577.10	548.43	561.13	561.00	561.30	561.18	
				-5.43	-4.77	-3.43	-4.51	4
Pair 3	PCM-03	576.14	545.15	562.85	563.54	563.50	563.11	
	PZ-03R	576.15	542.75	560.45	560.50	560.64	560.57	
				-2.40	-3.04	-2.86	-2.54	4
Pair 4	PCM-04	574.90	545.74	562.92	563.58	563.63	563.19	
	PZ-04	575.99	545.63	560.65	560.63	560.85	560.92	
				-2.27	-2.95	-2.78	-2.27	4
Pair 5	PCM-05	575.21	550.00	564.29	563.74	562.77	563.83	
	PZ-05	575.92	550.50	560.39	560.51	560.60	560.69	
				-3.90	-3.23	-2.17	-3.14	4
Pair 6	PCM-06	579.26	565.51	566.80	567.41	568.69	566.76	
	PZ-06	583.70	563.09	Dry	Dry	Dry	Dry	
				< -3.71	< -4.32	< -5.60	< -3.67	4*

Table 2.3

Well Pair Gradients
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Pairs	Well IDs	Elevation (ft AMSL) TOC	Elevation (ft AMSL) Bottom	March 5, 2018	May 29, 2018	September 11, 2018	December 6, 2018	Quarters Maintaining Inward Gradient
Pair 7	PCM-07R	578.80	557.63	567.92	567.99	566.56	567.03	
	PZ-07	578.48	563.72	567.07	566.50	566.36	569.91	
				-0.85	-1.49	-0.20	2.88	3
Pair 8	PCM-08	578.34	564.43	570.07	567.72	568.22	569.21	
	PZ-08	579.71	564.10	Dry	Dry	Dry	Dry	
				< -5.97	< -3.62	< -4.12	< -5.11	4*
Pair 9	PCM-09	578.05	566.93	572.21	569.23	567.90	571.74	
	PZ-09R	580.37	563.27	566.02	565.56	565.68	565.71	
				-6.19	-3.67	-2.22	-6.03	4
Pair 10	PCM-10	578.44	556.39	566.71	566.28	565.05	566.04	
	PZ-10	581.61	561.56	564.92	564.72	564.51	564.46	
				-1.79	-1.56	-0.54	-1.58	4

Notes:

ft AMSL - Feet above mean sea level
TOC - Top of casing
-3.53 - Negative number indicates an inward gradient
Dry - No water in well during time of measurement. Assumed to be less than bottom of well for gradient calculation.
* - When the bottom elevation of the well is taken into account, all four quarters demonstrate inward gradients
Bottom - Bottom of well screen elevation

Table 2.4

Analytical Results Summary
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Parameters	NYSDEC Class GA GW Criteria	Units	Overburden Wells									
Sample Location:			PCM-01	PCM-02	PCM-03	PCM-04	PCM-05	PCM-06	PCM-07R	PCM-08	PCM-09	PCM-10
Sample ID:			PCM-01-1018	PCM-02-1018	PCM-03-1018	PCM-04-1018	PCM-05-1018	PCM-06-1018	PCM-07R-1018	PCM-08-1018	PCM-09-1018	PCM-10-1018
Sample Date:			10/08/2018	10/07/2018	10/07/2018	10/07/2018	10/05/2018	10/07/2018	10/05/2018	10/05/2018	10/07/2018	10/08/2018
Volatile Organic Compounds												
1,2,3-Trichlorobenzene	5	µg/L	1.0 U	1.0 U	25 U	50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	5	µg/L	1.0 U	1.0 U	25 U	50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	3	µg/L	1.0 U	1.0 U	58	16 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	3	µg/L	1.0 U	1.0 U	370	170	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	5	µg/L	1.0 U	1.0 U	13 J	50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	1	µg/L	1.0 U	1.0 U	37	24 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	5	µg/L	1.0 U	1.0 U	3800	7100	83	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	µg/L	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	--	9.4 U	9.4 U	--	9.4 U
2,4,5-Trichlorophenol	1	µg/L	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	--	9.4 U	9.4 U	--	9.4 U
2,4-Dichlorophenol	1	µg/L	9.4 U	9.4 U	13	9.4 U	9.4 U	--	9.4 U	9.4 U	--	9.4 U
2,5-Dichlorophenol	1	µg/L	4.7 U	4.7 U	5.2	4.7 U	4.7 U	--	4.7 U	4.7 U	--	4.7 U
2-Chlorophenol	1	µg/L	9.4 U	9.4 U	9.8	17	9.4 U	--	9.4 U	9.4 U	--	9.4 U
4-Chlorophenol	1	µg/L	9.4 U	9.4 U	9.4 U	33	9.4 U	--	9.4 U	9.4 U	--	9.4 U
Phenol	1	µg/L	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	--	9.4 U	9.4 U	--	9.4 U
Metals (Totals)												
Arsenic	25	µg/L	10 U	10 U	10 U	10 U	10 U	4 J	10 U	10 U	50	10 U
Mercury	0.7	µg/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	µg/L	0.047 UJ	0.047 UJ	0.050 UJ	0.047 UJ	0.047 U	--	--	0.047 U	--	0.047 U
beta-BHC	0.04	µg/L	0.047 UJ	0.047 UJ	0.050 UJ	0.047 UJ	0.047 U	--	--	0.047 U	--	0.022 J
delta-BHC	0.04	µg/L	0.047 UJ	0.047 UJ	0.24 J	0.047 UJ	0.047 U	--	--	0.047 U	--	0.047 U
gamma-BHC (lindane)	0.05	µg/L	0.047 UJ	0.047 UJ	0.050 UJ	0.047 UJ	0.047 U	--	--	0.047 U	--	0.047 U

Notes:

J - Estimated Concentration
U - Not present at or above the associated value
UJ - Not detected; associated reporting limit is estimated
"--" - Well not sampled due to insufficient volume (Dry)
µg/L - Micrograms per liter
□ - Concentration exceeds the NYSDEC Class GA GW Criteria

Table 2.4

Analytical Results Summary
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

			Bedrock Wells			
	Sample Location:		PCBM-01	PCBM-02	PCBM-03	PCBM-03
	Sample ID:		PCBM-01-1018	PCBM-02-1018	PCBM-03-1018	PCM-12-1018
	Sample Date:		10/05/2018	10/05/2018	10/05/2018	10/05/2018
						Duplicate
Parameters	**NYSDEC Class GA GW Criteria**	**Units**				
Volatile Organic Compounds						
1,2,3-Trichlorobenzene	5	µg/L	1.0 U	1.0 U	5.0 U	1.0 U
1,2,4-Trichlorobenzene	5	µg/L	1.0 U	1.0 U	5.0 U	1.0 U
1,2-Dichlorobenzene	3	µg/L	1.0 U	1.0 U	5.0 U	1.0 U
1,4-Dichlorobenzene	3	µg/L	1.0 U	1.0 U	5.0 U	1.0 U
2-Chlorotoluene	5	µg/L	1.0 U	1.0 U	5.0 U	1.0 U
Benzene	1	µg/L	1.0 U	1.0 U	5.0 U	1.0 U
Chlorobenzene	5	µg/L	1.0 U	1.0 U	5.0 U	1.0 U
Semi-volatile Organic Compounds						
1,2,4,5-Tetrachlorobenzene	5	µg/L	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	1	µg/L	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	1	µg/L	9.4 U	9.4 U	9.4 U	9.4 U
2,5-Dichlorophenol	1	µg/L	4.7 U	4.7 U	4.7 U	4.7 U
2-Chlorophenol	1	µg/L	9.4 U	9.4 U	9.4 U	9.4 U
4-Chlorophenol	1	µg/L	9.4 U	9.4 U	9.4 U	9.4 U
Phenol	1	µg/L	9.4 U	9.4 U	9.4 U	9.4 U
Metals (Totals)						
Arsenic	25	µg/L	10 U	10 U	10 U	10 U
Mercury	0.7	µg/L	0.20 U	0.20 U	0.20 U	0.20 U
Pesticides						
alpha-BHC	0.01	µg/L	0.047 U	0.047 U	0.047 U	0.047 UJ
beta-BHC	0.04	µg/L	0.047 U	0.047 U	0.047 U	0.047 UJ
delta-BHC	0.04	µg/L	0.047 U	0.047 U	0.047 U	0.047 UJ
gamma-BHC (lindane)	0.05	µg/L	0.047 U	0.047 U	0.047 U	0.047 UJ

Notes:

J - Estimated Concentration
U - Not present at or above the associated value
UJ - Not detected; associated reporting limit is estimated
"--" - Well not sampled due to insufficient volume (Dry)
µg/L - Micrograms per liter
□ - Concentration exceeds the NYSDEC Class GA GW Criteria

Table 4.1

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	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
NR-01	55.0	0	60.0	0	0	30.0	85.0	44.0	46.0	7.0
NR-02	200.0	1,490.0	1,355.0	12,150.6	18,153.0	8,738.0	9,421.0	6,189.0	7,164.0	477.7
NR-03	40.0	0	0	0	0	10.0	42.0	22.0	12.0	0
NR-04	0	0	0	0	0	0	0	0	0	0
NR-05	40.0	0	20.0	0	0	10.0	36.0	21.0	15.0	0
NR-07	0	0	0	0	0	0	0	0	0	0
NR-08	0	0	5.0	0	0	8.0	43.0	22.0	16.0	0
NR-10	0	0	0	0	0	0	0	0	0	0
Total	**335.0**	**1,490.0**	**1,440.0**	**12,150.6**	**18,153.0**	**8,796.0**	**9,627.0**	**6,298.0**	**7,253.0**	**484.7**

	Amount of NAPL Removed in Gallons								
Year / Well	2011	2012	2013	2014	2015	2016	2017	2018	Totals
NR-01	10.5	7.0	4.5	4.8	7.0	6.0	4.5	4.25	375.5
NR-02	953.0	1,185.0	787.0	799.8	692.4	620.6	467.2	485.8	71,329.0
NR-03	7.0	6.0	5.3	5.9	5.8	2.8	5.0	30.1	193.7
NR-04	0	0	0	0	0	0	0	0	0.0
NR-05	2.5	0	0	0	0	0	0	0	144.5
NR-07	0	0	0	0	0	0	0	0	0.0
NR-08	3.5	0	0	0	0	0	0	0	97.5
NR-10	0	0	0	0	0	0	0	0	0.0
Total	**976.5**	**1,198.0**	**796.8**	**810.4**	**705.2**	**629.4**	**476.7**	**520.2**	**72,140**

Notes:

NAPL - Non-Aqueous Phase Liquid
* 2010 - NR-2 inspections/pumping frequency reduced from daily to twice weekly, NR-3 increased to weekly

Table 4.2

NAPL Recovery From NR-02
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Date	NAPL Removed (gallons)
04/09/2018	22.4
04/12/2018	20.1
04/17/2018	26.1
04/20/2018	17.8
04/26/2018	23.0
05/02/2018	19.1
05/16/2018	20.4
05/29/2018	21.4
06/04/2018	18.0
06/08/2018	18.0
07/03/2018	26.5
07/09/2018	20.6
07/17/2018	22.8
07/24/2018	16.3
08/07/2018	19.1
08/13/2018	20.4
08/17/2018	15.3
08/21/2018	20.4
08/27/2018	16.3
08/31/2018	21.4
09/07/2018	21.4
09/10/2018	18.0
09/13/2018	22.4
09/17/2018	18.6
TOTAL	**485.8**

Notes:

NAPL - Non-Aqueous Phase Liquid

Appendices

Appendix A
Institutional and Engineering Controls Certification Form

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Environmental Remediation
625 Broadway, 11th Floor, Albany, NY 12233-7020
P: (518)402-9543 | F: (518)402-9547
www.dec.ny.gov

11/20/2018

Joseph Branch
Project Manager
OCC/Glenn Springs Holdings Inc.
7601 Old Channel Trail
Montague, MI 49437

Re: Reminder Notice: Site Management Periodic Review Report and IC/EC Certification Submittal
Site Name: Hooker-102nd Street Landfill
Site No.: 932022
Site Address: 102nd Street, South of River Road
Niagara Falls, NY 14304

Dear Joseph Branch:

This letter serves as a reminder that sites in active Site Management (SM) require the submittal of a periodic progress report. This report, referred to as the Periodic Review Report (PRR), must document the implementation of, and compliance with, site-specific SM requirements. Section 6.3(b) of DER-10 *Technical Guidance for Site Investigation and Remediation* (available online at http://www.dec.ny.gov/regulations/67386.html) provides guidance regarding the information that must be included in the PRR. Further, if the site is comprised of multiple parcels, then you as the Certifying Party must arrange to submit one PRR for all parcels that comprise the site. The PRR must be received by the Department no later than **January 30, 2019**. Guidance on the content of a PRR is enclosed.

Site Management is defined in regulation (6 NYCRR 375-1.2(at)) and in Chapter 6 of DER-10. Depending on when the remedial program for your site was completed, SM may be governed by multiple documents (e.g., Operation, Maintenance, and Monitoring Plan; Soil Management Plan) or one comprehensive Site Management Plan.

A Site Management Plan (SMP) may contain one or all of the following elements, as applicable to the site: a plan to maintain institutional controls and/or engineering controls ("IC/EC Plan"); a plan for monitoring the performance and effectiveness of the selected remedy ("Monitoring Plan"); and/or a plan for the operation and maintenance of the selected remedy ("O&M Plan"). Additionally, the technical requirements for SM are stated in the decision document (e.g., Record of Decision) and, in some cases, the legal agreement directing the remediation of the site (e.g., order on consent, voluntary agreement, etc.).

When you submit the PRR (by the due date above), include the enclosed forms documenting that all SM requirements are being met. The Institutional Controls (ICs) portion of the form (Box 6) must be signed by you or your designated representative. The Engineering Controls (ECs) portion of the form (Box 7) must be signed by a Professional Engineer (PE). If you cannot certify that all SM requirements are being met, you must submit a Corrective Measures Work Plan that identifies the actions to be taken to restore compliance. The work plan must include a schedule to be approved by the Department. The Periodic Review process will not be considered complete until all necessary corrective measures are completed and all required controls are certified. Instructions for completing the certifications are enclosed.

All site-related documents and data, including the PRR, must be submitted in electronic format to the Department of Environmental Conservation. The required format for documents is an Adobe PDF file with optical character recognition and no password protection. Data must be submitted as an electronic data deliverable (EDD) according to the instructions on the following webpage:

https://www.dec.ny.gov/chemical/62440.html

Documents may be submitted to the project manager either through electronic mail or by using the Department's file transfer service at the following webpage:

https://fts.dec.state.ny.us/fts/

The Department will not approve the PRR unless all documents and data generated in support of the PRR have been submitted using the required formats and protocols.

You may contact Brian Sadowski, the Project Manager, at 716-851-7220 or brian.sadowski@dec.ny.gov with any questions or concerns about the site. Please notify the project manager before conducting inspections or field work. You may also write to the project manager at the following address:

New York State Department of Environmental Conservation
270 Michigan Ave
Buffalo, NY 14203-2915

Enclosures

PRR General Guidance
Certification Form Instructions
Certification Forms

ec: w/ enclosures
Brian Sadowski, Project Manager
Chad Staniszewski, Hazardous Waste Remediation Supervisor, Region 9

GHD Group - Dennis Hoyt - dhoyt@ghd.com 716-345-1978 Mobile
GHD - John Pentilchuk; Principal Engineer - John.Pentilchuk@ghd.com

Enclosure 1

Certification Instructions

I. Verification of Site Details (Box 1 and Box 2):

Answer the three questions in the Verification of Site Details Section. The Owner and/or Qualified Environmental Professional (QEP) may include handwritten changes and/or other supporting documentation, as necessary.

II. Certification of Institutional Controls/ Engineering Controls (IC/ECs)(Boxes 3, 4, and 5)

1.1.1. Review the listed IC/ECs, confirming that all existing controls are listed, and that all existing controls are still applicable. If there is a control that is no longer applicable the Owner / Remedial Party should petition the Department separately to request approval to remove the control.

2. In Box 5, complete certifications for all Plan components, as applicable, by checking the corresponding checkbox.

3. If you cannot certify "YES" for each Control listed in Box 3 & Box 4, sign and date the form in Box 5. Attach supporting documentation that explains why the **Certification** cannot be rendered, as well as a plan of proposed corrective measures, and an associated schedule for completing the corrective measures. Note that this **Certification** form must be submitted even if an IC or EC cannot be certified; however, the certification process will not be considered complete until corrective action is completed.

If the Department concurs with the explanation, the proposed corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Department's Project Manager. Once the corrective measures are complete, a new Periodic Review Report (with IC/EC Certification) must be submitted within 45 days to the Department. If the Department has any questions or concerns regarding the PRR and/or completion of the IC/EC Certification, the Project Manager will contact you.

III. IC/EC Certification by Signature (Box 6 and Box 7)**:**

If you certified "YES" for each Control, please complete and sign the IC/EC Certifications page as follows:

- For the Institutional Controls on the use of the property, the certification statement in Box 6 shall be completed and may be made by the property owner or designated representative.

- For the Engineering Controls, the certification statement in Box 7 must be completed by a Professional Engineer or Qualified Environmental Professional, as noted on the form.

Enclosure 2

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
Site Acreage: ~~10.500~~ 22.1

Reporting Period: December 31, 2017 to December 31, 2018

	YES	NO
1. Is the information above correct?	☑	☐
If NO, include handwritten above or 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?	☐	☑
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	☑
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☐	☑
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. Is the site currently undergoing development?	☐	☑

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Closed Landfill	☑	☐
7. Are all ICs/ECs in place and functioning as designed?	☑	☐

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative Date

SITE NO. 932022 **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
161.18-1-34.2	Occidental Chemical Corporation	Landuse Restriction Ground Water Use Restriction Building Use Restriction Monitoring Plan O&M Plan

1. Record of Decision; September 26, 1990.

2. Deed Restriction; January 25, 2000. Prohibits the use of site groundwater or disturbance of the landfill cover.

161.19-3-1	Occidental Chemical Corporation	Monitoring Plan O&M Plan Building Use Restriction Landuse Restriction Ground Water Use Restriction

1. Record of Decision; September 26, 1990.

2. Deed Restriction; January 25, 2000. Prohibits the use of site groundwater or disturbance of the landfill cover.

161.19-3-2	Occidental Chemical Corporation	Landuse Restriction Ground Water Use Restriction Building Use Restriction Monitoring Plan O&M Plan

1. Record of Decision (ROD) September 26, 1990.

2. Deed Restriction; January 25, 2000. Prohibits the use of site groundwater or disturbance of the landfill cover.

174.07-1-1	Occidental Chemical Corporation	Ground Water Use Restriction Building Use Restriction O&M Plan Monitoring Plan Landuse Restriction

1. Record of Decision; September 26, 1990.

2. Deed Restriction; January 25, 2000. Prohibits the use of site groundwater or disturbance of the landfill cover.

174.07-1-2 Occidental Chemical Corporation

Ground Water Use Restriction
Building Use Restriction

Landuse Restriction

Monitoring Plan
O&M Plan

1. Record of Decision; September 26, 1990.

2. Deed Restriction; January 25, 2000. Prohibits the use of site groundwater or disturbance of the landfill cover.

174.07-1-3 Olin Corporation

Monitoring Plan
O&M Plan
Ground Water Use Restriction
Building Use Restriction
Landuse Restriction

1. Record of Decision; September 26, 1990.

2. Deed Restriction; January 25, 2000. Prohibits the use of site groundwater or disturbance of the landfill cover.

174.07-1-4 Olin Corporation

Landuse Restriction
Monitoring Plan
O&M Plan

Ground Water Use Restriction
Building Use Restriction

1. Record of Decision; September 26, 1990.

2. Deed Restriction; January 25, 2000. Prohibits the use of site groundwater or disturbance of the landfill cover.

Box 4

Description of Engineering Controls

Parcel	Engineering Control
161.18-1-34.2	Groundwater Treatment System Groundwater Containment Subsurface Barriers Cover System Fencing/Access Control Leachate Collection

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 NAPL recovery wells into two double walled skid mounted tanks with internal secondary containment and sent off site for proper disposal. OCC/Olin, or their consultant has perfomed the required OM&M activities since 1999.

161.19-3-1	Leachate Collection Cover System Fencing/Access Control Groundwater Treatment System Groundwater Containment Subsurface Barriers

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 NAPL recovery wells into two double walled skid mounted tanks with internal secondary containment and sent off site for proper disposal. OCC/Olin, or their consultant has performed the required OM&M activities since 1999.

161.19-3-2	Groundwater Treatment System Groundwater Containment Subsurface Barriers Cover System Fencing/Access Control Leachate Collection

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 NAPL recovery wells into two double walled skid mounted tanks with internal secondary containment and sent off site for proper disposal. OCC/Olin, or their consultant has performed the required OM&M activities since 1999.

174.07-1-1	Leachate Collection Cover System Fencing/Access Control Groundwater Treatment System Groundwater Containment Subsurface Barriers

The engineering controls consist of a containment system for the landfill, including: a perimeter sub-surface slurry wall, groundwater collection system, NAPL recovery wells, landfill cap and perimeter fencing. Groundwater collected from the containment system is pumped north for treatment at the Love Canal Leachate Treatment Facility. NAPL is pumped seasonally (April-October) from NAPL recovery wells into two, 2,500 gallon, double walled skid mounted tanks with internal secondary containment. Accumulated NAPL is shipped off site for proper disposal. OCC/Olin, or their consultant has performed the required OM&M activities since 1999.

174.07-1-2	Leachate Collection Cover System Fencing/Access Control Groundwater Treatment System Groundwater Containment Subsurface Barriers

Parcel	Engineering Control

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 NAPL recovery wells into two double walled skid mounted tanks with internal secondary containment and sent off site for proper disposal. OCC/Olin, or their consultant has performed the required OM&M activities since 1999.

174.07-1-3

Groundwater Treatment System
Cover System
Groundwater Containment
Leachate Collection
Subsurface Barriers
Fencing/Access Control

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 NAPL recovery wells into two double walled skid mounted tanks with internal secondary containment and sent off site for proper disposal. OCC/Olin, or their consultant has perfomed the required OM&M activities since 1999.

174.07-1-4

Groundwater Treatment System
Cover System
Groundwater Containment
Leachate Collection
Subsurface Barriers
Fencing/Access Control

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 NAPL recovery wells into two double walled skid mounted tanks with internal secondary containment and sent off site for proper disposal. OCC/Olin, or their consultant has performed the required OM&M activities since 1999.

Box 5

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 engineering practices; and the information presented is accurate and compete.

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
☑	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative

Date

IC CERTIFICATIONS
SITE NO. 932022

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 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 Joseph A. Branch (print name) at 7601 Old Channel Trail, Montague, MI 49437 (print business address).

am certifying as Owner (Owner or Remedial Party)

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

Signature of Owner, Remedial Party, or Designated Representative Rendering Certification

2/27/2019
Date

IC/EC CERTIFICATIONS

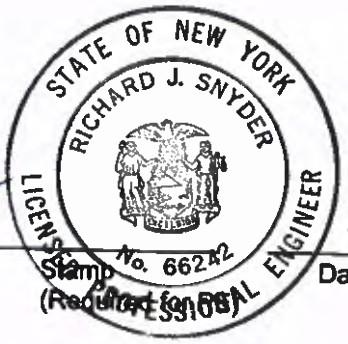
Box 7

Professional Engineer 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 Richard J. Snyder (print name) at 2055 Niagara Falls Boulevard, Niagara Falls, NY 14304 (print business address)

am certifying as a Professional Engineer for the Remedial Party (Owner or Remedial Party)



Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification

Stamp (Required for PE)

February 28, 2019
Date

Enclosure 3
Periodic Review Report (PRR) General Guidance

I. Executive Summary: (1/2-page or less)
   A. Provide a brief summary of site, nature and extent of contamination, and remedial history.
   B. Effectiveness of the Remedial Program - Provide overall conclusions regarding;
      1. progress made during the reporting period toward meeting the remedial objectives for the site
      2. the ultimate ability of the remedial program to achieve the remedial objectives for the site.
   C. Compliance
      1. Identify any areas of non-compliance regarding the major elements of the Site Management Plan (SMP, i.e., the Institutional/Engineering Control (IC/EC) Plan, the Monitoring Plan, and the Operation & Maintenance (O&M) Plan).
      2. Propose steps to be taken and a schedule to correct any areas of non-compliance.
   D. Recommendations
      1. recommend whether any changes to the SMP are needed
      2. recommend any changes to the frequency for submittal of PRRs (increase, decrease)
      3. recommend whether the requirements for discontinuing site management have been met.

II. Site Overview (one page or less)
   A. Describe the site location, boundaries (figure), significant features, surrounding area, and the nature and extent of contamination prior to site remediation.
   B. Describe the chronology of the main features of the remedial program for the site, the components of the selected remedy, cleanup goals, site closure criteria, and any significant changes to the selected remedy that have been made since remedy selection.

III. Evaluate Remedy Performance, Effectiveness, and Protectiveness
   Using tables, graphs, charts and bulleted text to the extent practicable, describe the effectiveness of the remedy in achieving the remedial goals for the site. Base findings, recommendations, and conclusions on objective data. Evaluations and should be presented simply and concisely.

IV. IC/EC Plan Compliance Report (if applicable)
   A. IC/EC Requirements and Compliance
      1. Describe each control, its objective, and how performance of the control is evaluated.
      2. Summarize the status of each goal (whether it is fully in place and its effectiveness).
      3. Corrective Measures: describe steps proposed to address any deficiencies in ICECs.
      4. Conclusions and recommendations for changes.
   B. IC/EC Certification
      1. The certification must be complete (even if there are IC/EC deficiencies), and certified by the appropriate party as set forth in a Department-approved certification form(s).

V. Monitoring Plan Compliance Report (if applicable)
   A. Components of the Monitoring Plan (tabular presentations preferred) - Describe the requirements of the monitoring plan by media (i.e., soil, groundwater, sediment, etc.) and by any remedial technologies being used at the site.
   B. Summary of Monitoring Completed During Reporting Period - Describe the monitoring tasks actually completed during this PRR reporting period. Tables and/or figures should be used to show all data.
   C. Comparisons with Remedial Objectives - Compare the results of all monitoring with the remedial objectives for the site. Include trend analyses where possible.
   D. Monitoring Deficiencies - Describe any ways in which monitoring did not fully comply with the monitoring plan.
   E. Conclusions and Recommendations for Changes - Provide overall conclusions regarding the monitoring completed and the resulting evaluations regarding remedial effectiveness.

VI. Operation & Maintenance (O&M) Plan Compliance Report (if applicable)
   A. Components of O&M Plan - Describe the requirements of the O&M plan including required activities, frequencies, recordkeeping, etc.
   B. Summary of O&M Completed During Reporting Period - Describe the O&M tasks actually completed during this PRR reporting period.

C. Evaluation of Remedial Systems - Based upon the results of the O&M activities completed, evaluated the ability of each component of the remedy subject to O&M requirements to perform as designed/expected.

D. O&M Deficiencies - Identify any deficiencies in complying with the O&M plan during this PRR reporting period.

E. Conclusions and Recommendations for Improvements - Provide an overall conclusion regarding O&M for the site and identify any suggested improvements requiring changes in the O&M Plan.

VII. Overall PRR Conclusions and Recommendations

A. Compliance with SMP - For each component of the SMP (i.e., IC/EC, monitoring, O&M), summarize;
   1. whether all requirements of each plan were met during the reporting period
   2. any requirements not met
   3. proposed plans and a schedule for coming into full compliance.

B. Performance and Effectiveness of the Remedy - Based upon your evaluation of the components of the SMP, form conclusions about the performance of each component and the ability of the remedy to achieve the remedial objectives for the site.

C. Future PRR Submittals
   1. Recommend, with supporting justification, whether the frequency of the submittal of PRRs should be changed (either increased or decreased).
   2. If the requirements for site closure have been achieved, contact the Departments Project Manager for the site to determine what, if any, additional documentation is needed to support a decision to discontinue site management.

VIII. Additional Guidance

Additional guidance regarding the preparation and submittal of an acceptable PRR can be obtained from the Departments Project Manager for the site.

Appendix B
Annual Report Forms

Annual Operation And Maintenance Report

102nd Street Landfill Site
Niagara Falls, New York

YEAR: **2018**

MONITORING - Water Level Elevations (ft. AMSL)

Month	Day	Inspector	PCM-01	PZ-01	PCM-02	PZ-02	PCM-03	PZ-03R
1st Qtr.	3/5/2018	S. Gardner	566.37	561.56	566.56	561.13	562.85	560.45
2nd Qtr.	5/29/2018	S. Gardner	565.44	561.51	565.77	561.00	563.54	560.50
3rd Qtr.	9/11/2018	S. Gardner	564.33	561.61	564.73	561.30	563.50	560.64
4th Qtr.	12/6/2018	S. Gardner	565.11	561.74	565.69	561.18	563.11	560.57

Month	Day	Inspector	PCM-04	PZ-04	PCM-05	PZ-05	PCM-06	PZ-06
1st Qtr.	3/5/2018	S. Gardner	562.92	560.65	564.29	560.39	566.80	Dry
2nd Qtr.	5/29/2018	S. Gardner	563.58	560.63	563.74	560.51	567.41	Dry
3rd Qtr.	9/11/2018	S. Gardner	563.63	560.85	562.77	560.60	568.69	Dry
4th Qtr.	12/6/2018	S. Gardner	563.19	560.92	563.83	560.69	566.76	Dry

Month	Day	Inspector	PCM-07R	PZ-07	PCM-08	PZ-08	PCM-09	PZ-09R
1st Qtr.	3/5/2018	S. Gardner	567.92	567.07	570.07	Dry	572.21	566.02
2nd Qtr.	5/29/2018	S. Gardner	567.99	566.50	567.72	Dry	569.23	565.56
3rd Qtr.	9/11/2018	S. Gardner	566.56	566.36	568.22	Dry	567.90	565.68
4th Qtr.	12/6/2018	S. Gardner	567.03	569.91	569.21	Dry	571.74	565.71

Month	Day	Inspector	PCM-10	PZ-10
1st Qtr.	3/5/2018	S. Gardner	566.71	564.92
2nd Qtr.	5/29/2018	S. Gardner	566.28	564.72
3rd Qtr.	9/11/2018	S. Gardner	565.05	564.51
4th Qtr.	12/6/2018	S. Gardner	566.04	564.46

FORM 1

Annual Operation And Maintenance Report

102nd Street Landfill Site
Niagara Falls, New York

YEAR: **2018**

GROUNDWATER - Quality Monitoring

Quarter	Date Sample Taken	Inspector	Comments
1st			
2nd			
3rd			
4th	10/5, 10/7, 10/8	D. Tyran, S. Gardner	Annual Event

Results of analyses are attached.

NAPL PRESENCE - Monitoring

	Date	Inspector	NR-01		NR-02		NR-03	
			Thickness of NAPL (ft)	Gallons Removed	Thickness of NAPL (ft)	Gallons Removed	Thickness of NAPL (ft)	Gallons Removed
1st Quarter	3/5/2018	S. Gardner	0.90	0.00	1.92	0.00	0.99	0.00
2nd Quarter	5/29/2018	S. Gardner	1.09	4.25	1.90	206.30	0.68	28.60
3rd Quarter	9/11/2018	S. Gardner	0.83	0.00	1.70	279.50	0.71	1.50
4th Quarter	12/6/2018	S. Gardner	0.82	0.00	1.65	0.00	0.71	0.00

	Date	Inspector	NR-04		NR-05		NR-07	
			Thickness of NAPL (ft)	Gallons Removed	Thickness of NAPL (ft)	Gallons Removed	Thickness of NAPL (ft)	Gallons Removed
1st Quarter	3/5/2018	S. Gardner	NO NAPL	0.00	0.33	0.00	NO NAPL	0.00
2nd Quarter	5/29/2018	S. Gardner	0.51	0.00	0.56	0.00	NO NAPL	0.00
3rd Quarter	9/11/2018	S. Gardner	0.48	0.00	0.52	0.00	NO NAPL	0.00
4th Quarter	12/6/2018	S. Gardner	NO NAPL	0.00	0.48	0.00	NO NAPL	0.00

	Date	Inspector	NR-08		NR-10	
			Thickness of NAPL (ft)	Gallons Removed	Thickness of NAPL (ft)	Gallons Removed
1st Quarter	3/5/2018	S. Gardner	0.69	0.00	NO NAPL	0.00
2nd Quarter	5/29/2018	S. Gardner	0.68	0.00	NO NAPL	0.00
3rd Quarter	9/11/2018	S. Gardner	0.61	0.00	NO NAPL	0.00
4th Quarter	12/6/2018	S. Gardner	0.69	0.00	NO NAPL	0.00

Notes:
ft. - Feet
Yellow shading indicates that the volume of NAPL removed is the total from all of the weekly NAPL inspection/pumping events performed during the quarter.

FORM 1

Annual Operation And Maintenance Report

102nd Street Landfill Site
Niagara Falls, New York

YEAR: **2018**

OPERATION

APL COLLECTION AND DISCHARGE SYSTEM

APL Flow for Previous Year (gallons)	APL Flow for Current Year (gallons)
168,368	116,364

NAPL REMOVAL SYSTEM

	NAPL Removed for Previous Year (gallons)	NAPL Removed for Current Year (gallons)
NR-01	4.5	4.25
NR-02	467.2	485.8
NR-03	5.00	30.1
NR-04	1	0
NR-05	0	0
NR-07	0	0
NR-08	0	0
NR-10	0	0
Total	477.69	520.2

Where was NAPL treated/disposed?

Facility	5 Drums shipped to Clean Harbors Aragonite, Grantsville, Utah	Date	6/28/2018
Facility	5 Drums shipped to Clean Harbors Aragonite, Grantsville, Utah	Date	9/20/2018
Facility		Date	
Facility		Date	
Facility		Date	
Facility		Date	

FORM 1

Annual Operation And Maintenance Report

102nd Street Landfill Site
Niagara Falls, New York

YEAR: **2018**

INSPECTION AND MAINTENANCE

Scheduled inspections performed:

	Date	*Inspectors*
DEC Inspection	**7/12/2018**	Brian Sadowski (NYSDEC); Darrell Crockett (GHD); John Pentilchuk (GHD); Clint Babcock (GSH); Joe Branch (GSH)
Well Inspection	**10/7/2018, 10/8/2018**	Dave Tyran (GHD); Shawn Gardner (GHD)

Was maintenance required?

Yes	*No*
X	

What maintenance was required?	**Date Performed**
Repaired heater in control room	2/15/2018
Repaired heater thermostat in control room	2/21/2018
Replaced flow indicator in WW-4	6/19/2018
Cleaned inlet to 102nd Street outfall	6/28/2018

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

None

FORM 1

Annual Operation And Maintenance Report

102nd Street Landfill Site
Niagara Falls, New York

YEAR: 2018

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

Mr. Joseph Branch
Glenn Springs Holdings, Inc.
7601 Old Channel Trail
Montague, MI 49437

and

Mr. Dave M. Share
Olin Corporation
3855 North Ocoee Street, Suite 200
Cleveland, TN 37312

After review is complete, send 1 copy to the following:

Ms. Gloria M. Sosa
Site Investigation and Compliance Branch
U.S. Environmental Protection Agency - Region II
290 Broadway, 20th Floor
New York, NY 10007-1866

and

Mr. Brian Sadowski (electronic/email copy only)
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203-2999

FORM 1

Appendix C
Graphs of Groundwater Level Elevations: 2002 through 2018

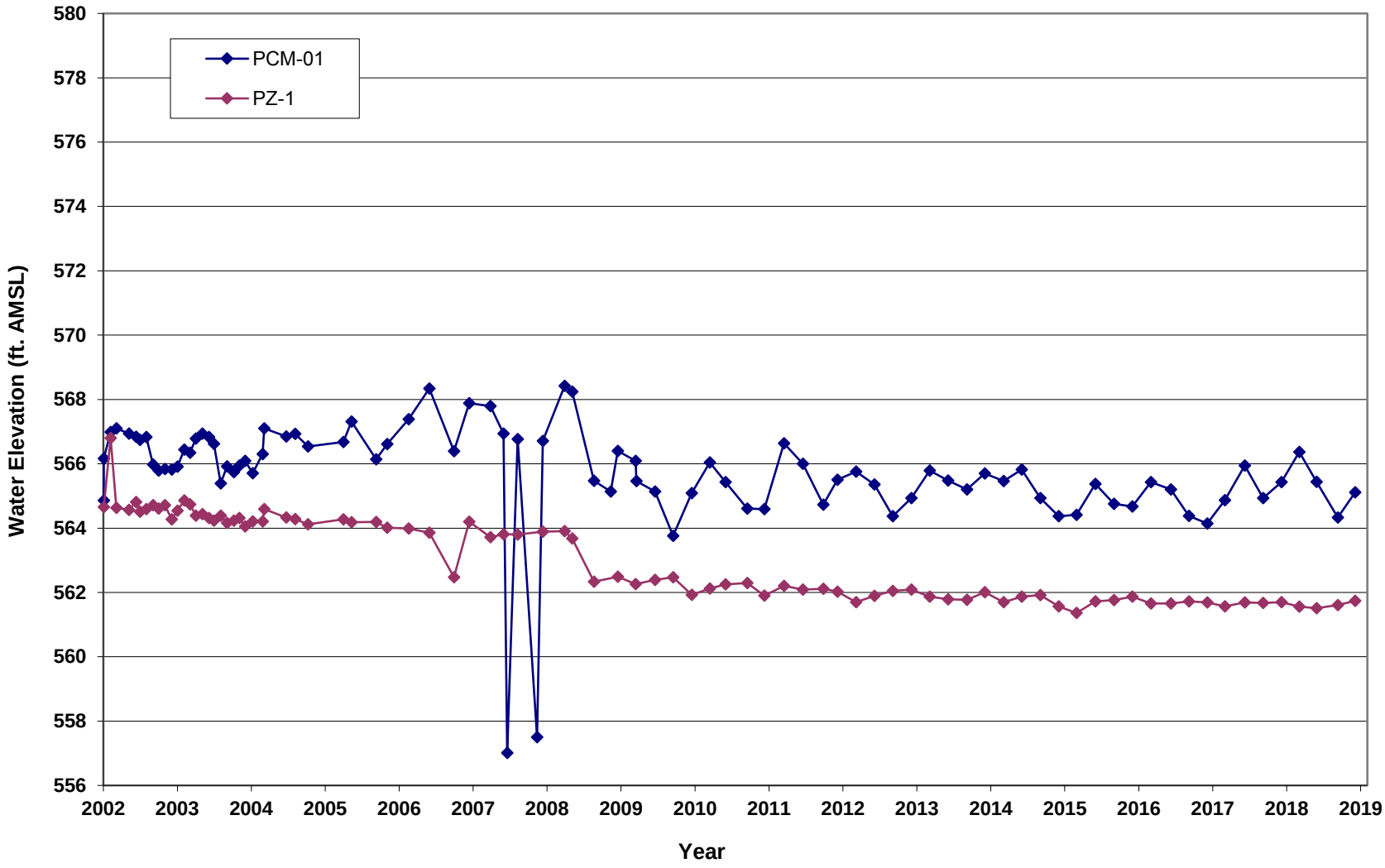


figure C.1
GROUNDWATER LEVELS WELL PAIR 1
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC
Niagara Falls, New York

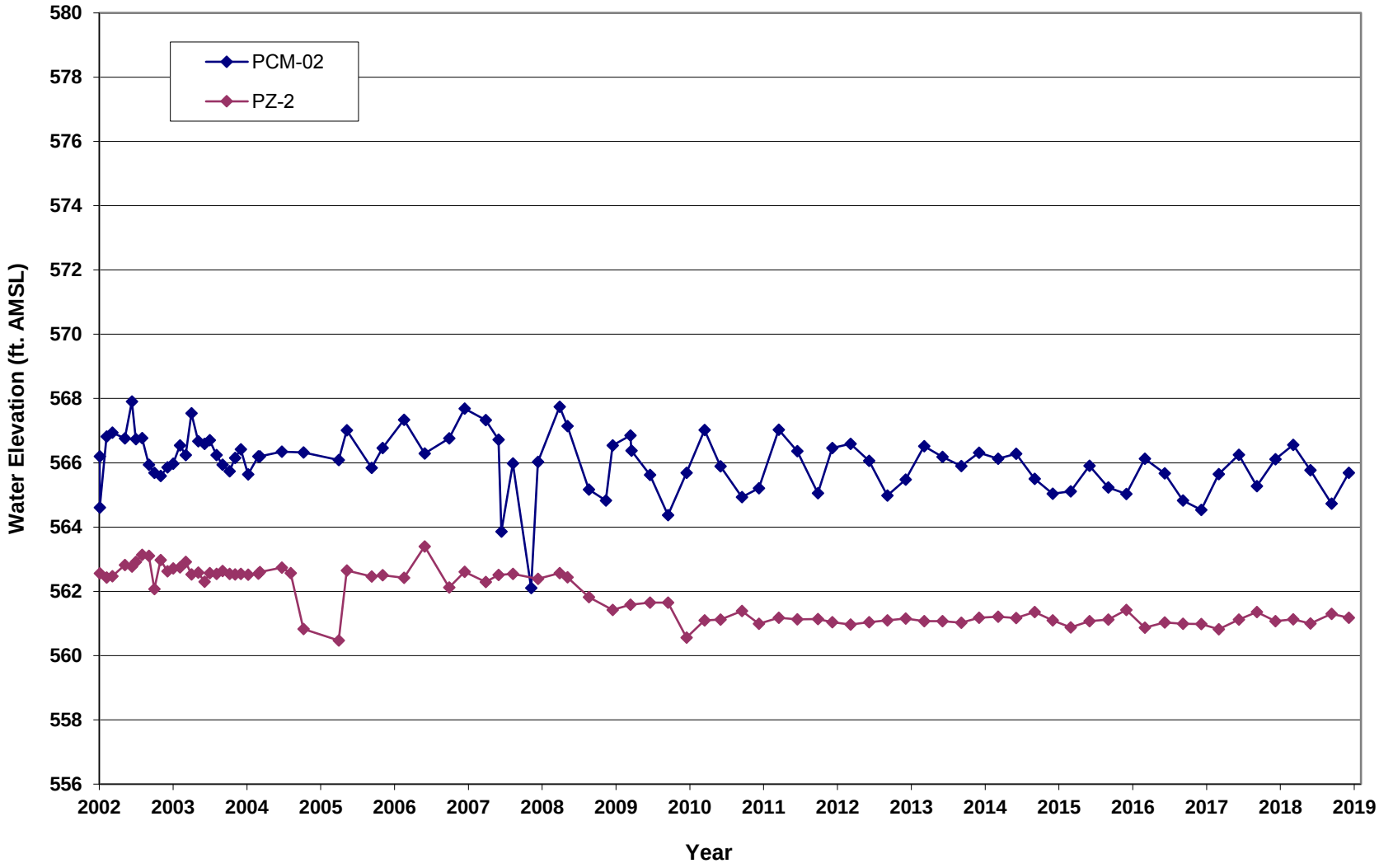


figure C.2
GROUNDWATER LEVELS WELL PAIR 2
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC
Niagara Falls, New York

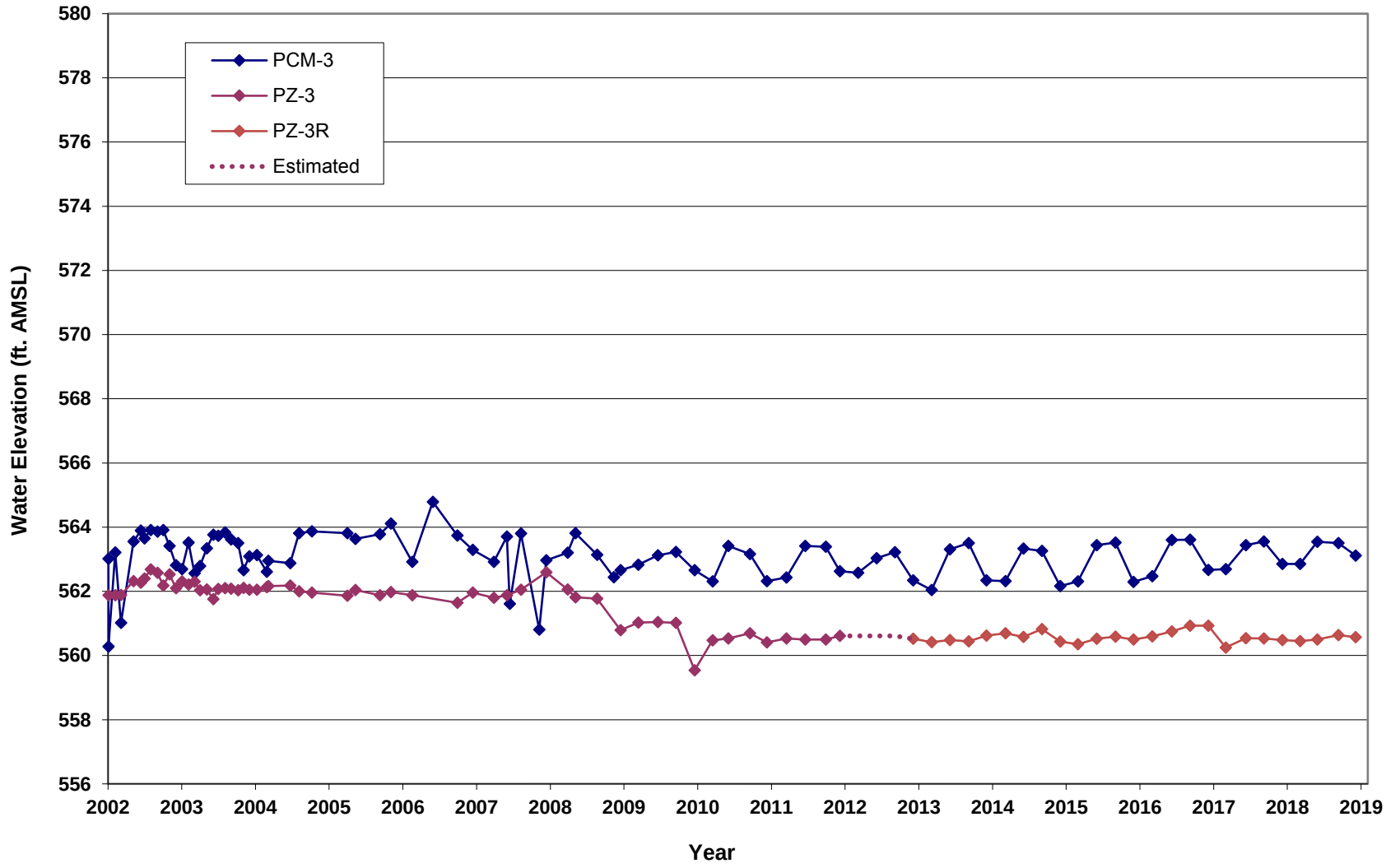


figure C.3
GROUNDWATER LEVELS WELL PAIR 3
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC
Niagara Falls, New York

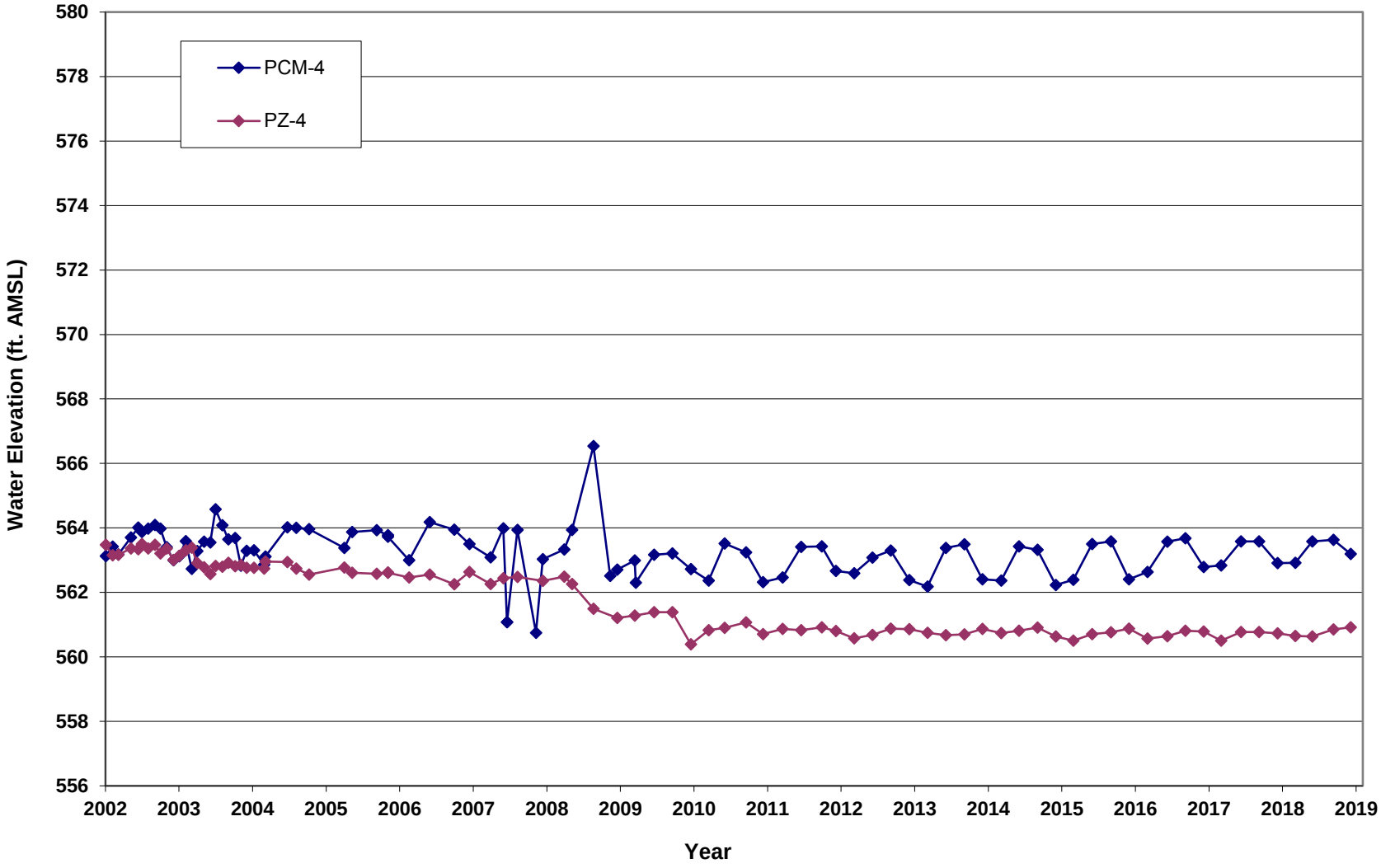


figure C.4
GROUNDWATER LEVELS WELL PAIR 4
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC
Niagara Falls, New York

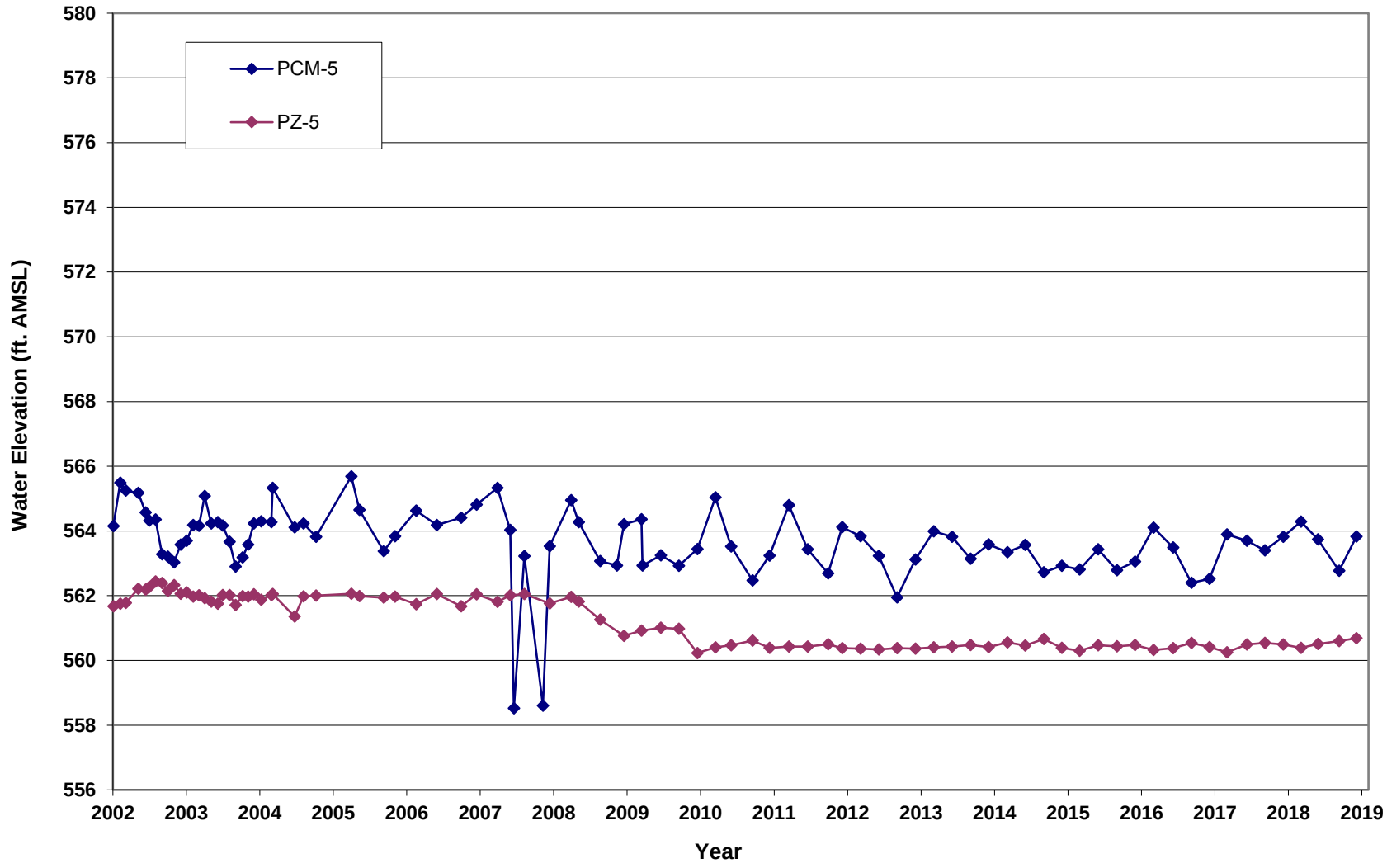


figure C.5
GROUNDWATER LEVELS WELL PAIR 5
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC
Niagara Falls, New York

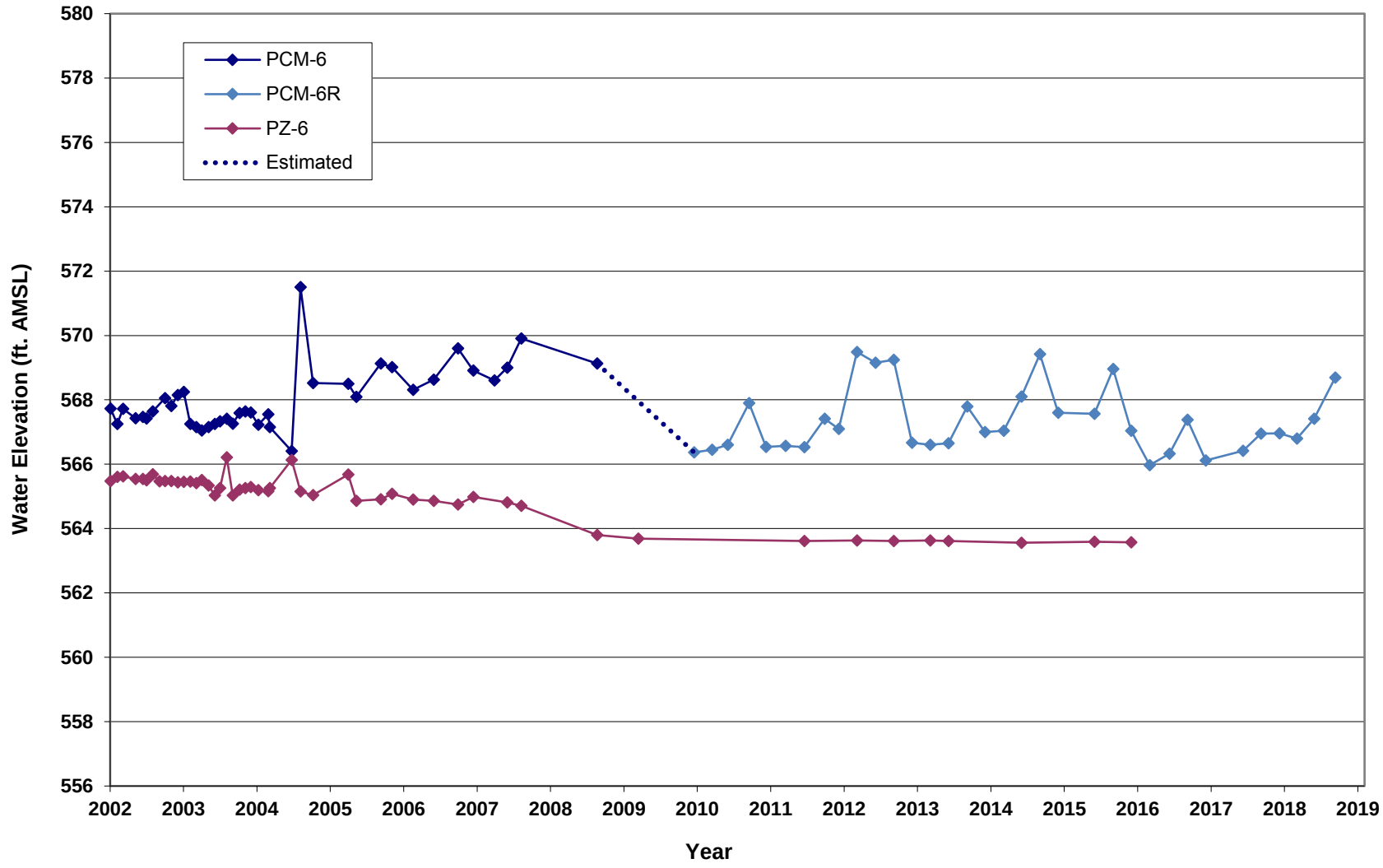


figure C.6
GROUNDWATER LEVELS WELL PAIR 6
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC
Niagara Falls, New York

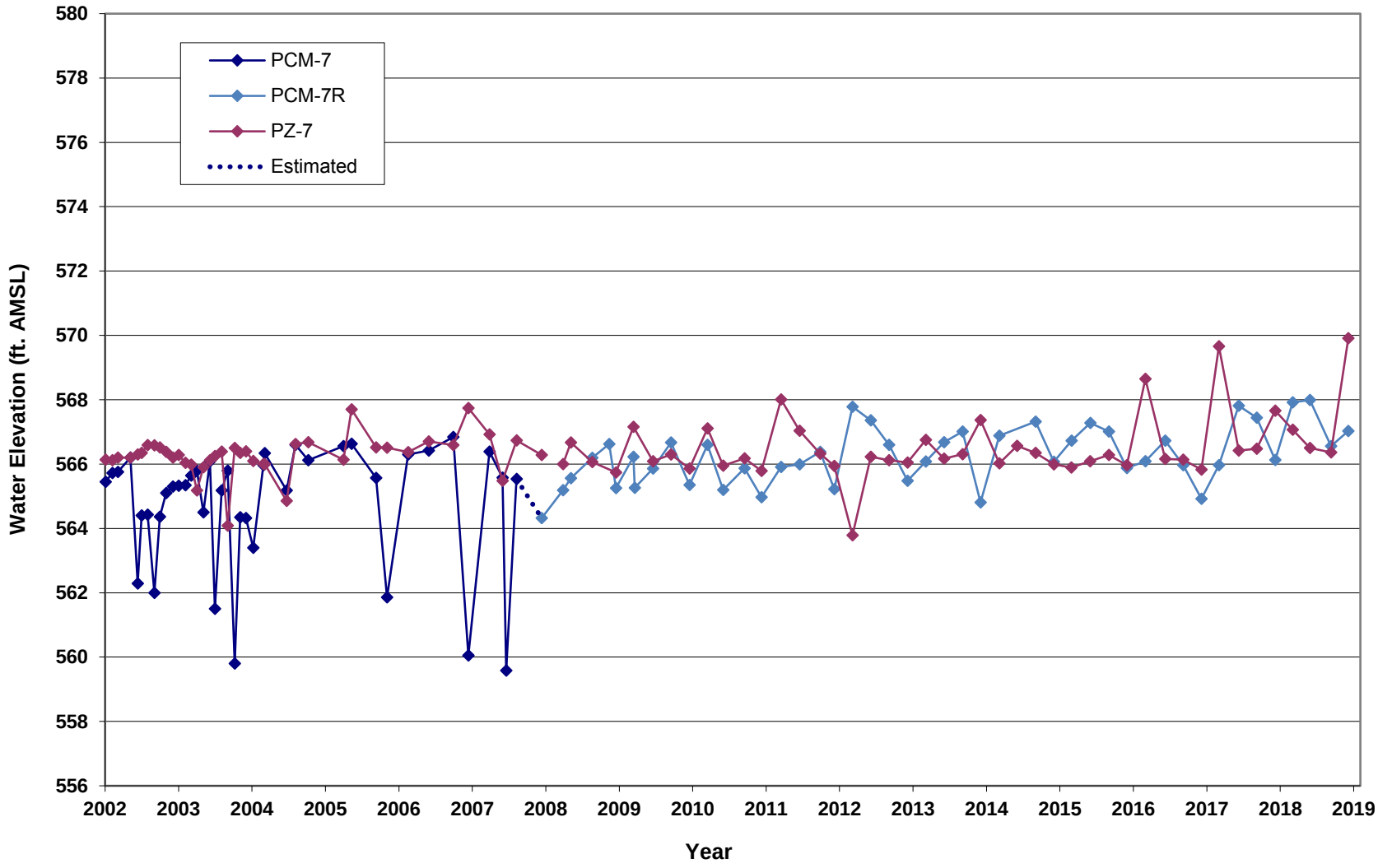
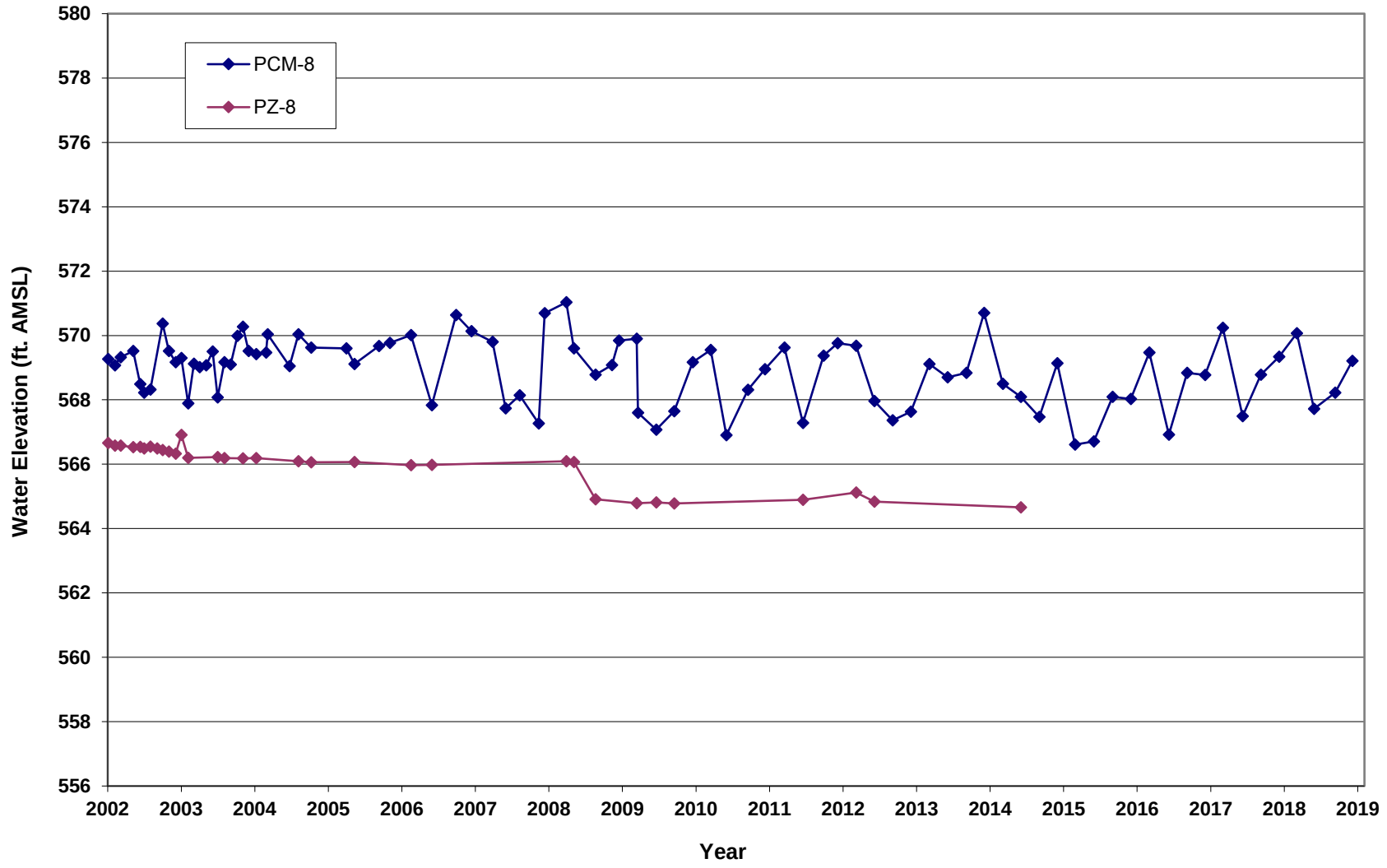


figure C.7
GROUNDWATER LEVELS WELL PAIR 7
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC
Niagara Falls, New York



Note: PZ-8 dry during all four quarters of the 2016 quarterly monitoring.

figure C.8
GROUNDWATER LEVELS WELL PAIR 8
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC
Niagara Falls, New York

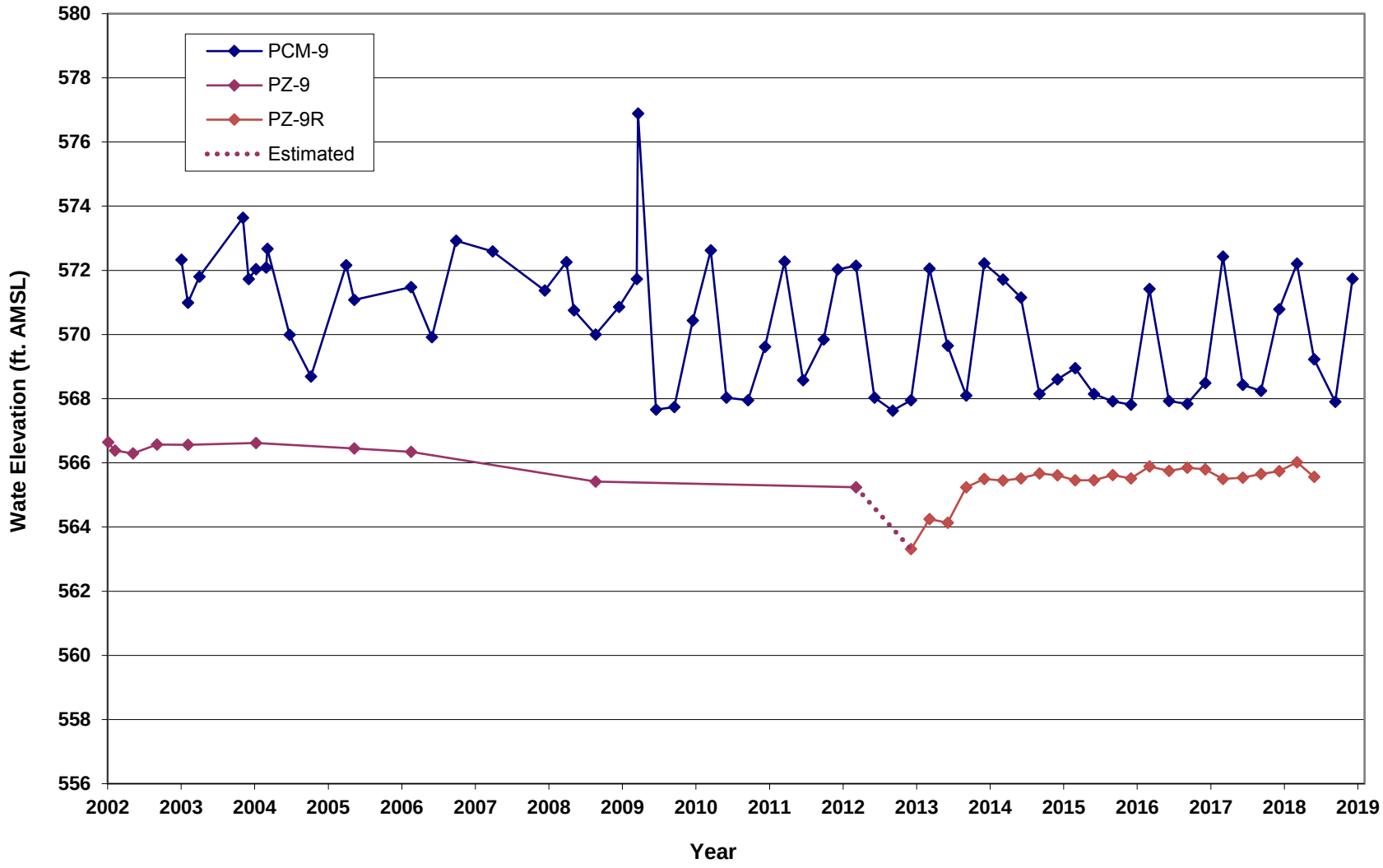


figure C.9
GROUNDWATER LEVELS WELL PAIR 9
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC
Niagara Falls, New York

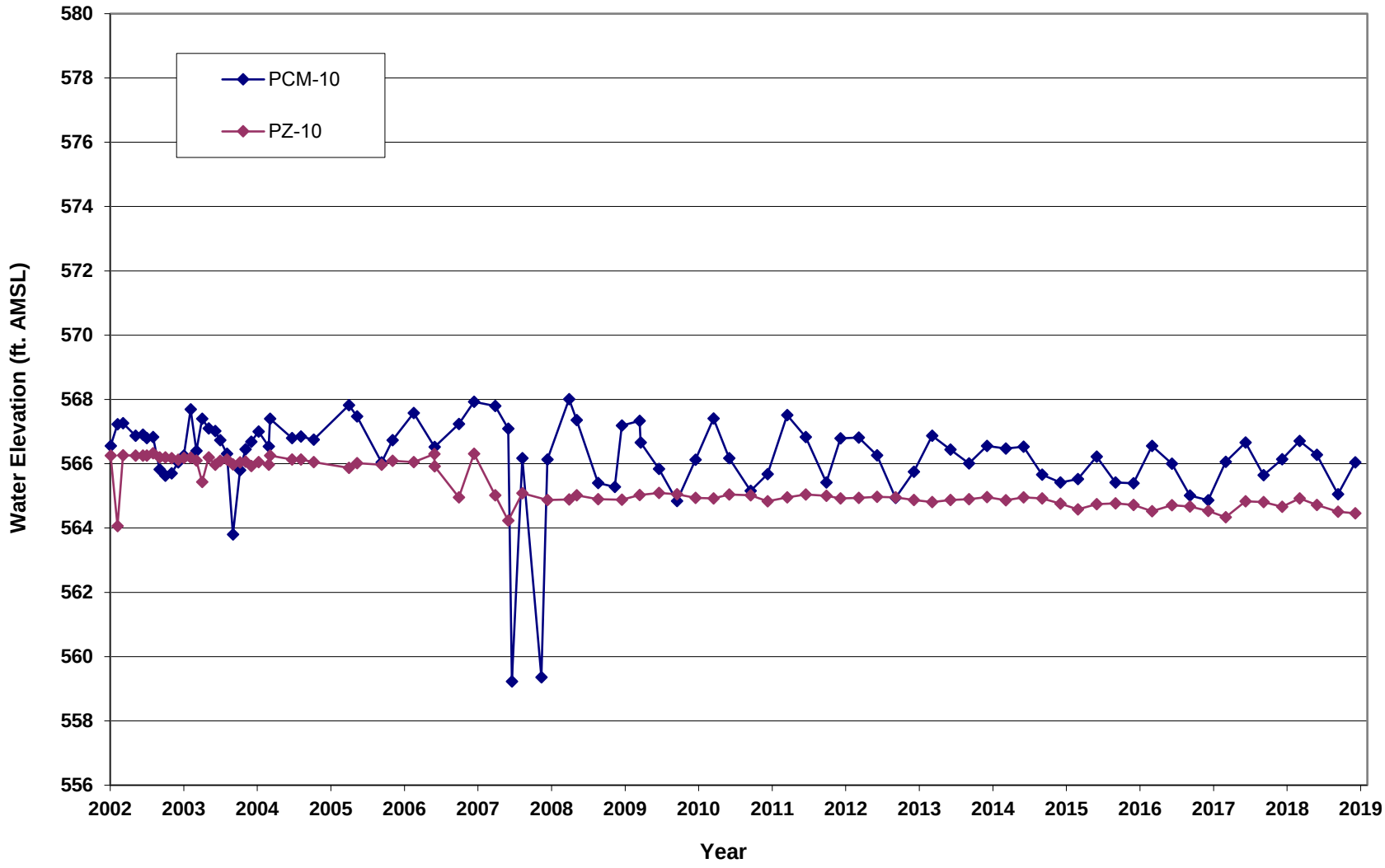


figure C.10
GROUNDWATER LEVELS WELL PAIR 10
102ND STREET LANDFILL SITE
GLENN SPRINGS HOLDINGS, INC
Niagara Falls, New York

Appendix D
Historic Groundwater Monitoring Results

Table D.1

Historical Bedrock Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01
Sample ID:		PCBM-01-502	PCBM-01-802	PCM-12-802	PCBM-01-1202	PCBM-01-303	PCBM-01-603	PCBM-01-903	PCBM-01-1203	PCBM-01-304
Sample Date:		5/31/2002	8/29/2002	8/29/2002 (Duplicate)	12/10/2002	3/31/2003	6/23/2003	9/29/2003	12/23/2003	3/11/2004
Parameters	**Units**									
Volatile Organic Compounds										
1,2,3-Trichlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,4-Trichlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,4-Dichlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Chlorotoluene	µg/L	5.00 U	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Benzene	µg/L	5.00 U	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Semi-volatile Organic Compounds										
1,2,4,5-Tetrachlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	5.05 U	4.72 U	4.67 U	4.72 U	4.72 U	4.67 U
2,4,5-Trichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	10.1 U	9.43 U	9.35 U	9.43 U	9.43 U	9.35 U
2,4-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	10.1 U	9.43 U	9.35 U	9.43 U	9.43 U	9.35 U
2,5-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	10.1 U	9.43 U	9.35 U	9.43 U	9.43 U	9.35 U
2-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	10.1 U	9.43 U	9.35 U	9.43 U	9.43 U	9.35 U
4-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	10.1 U	9.43 U	9.35 U	9.43 U	9.43 U	9.35 U
Phenol	µg/L	10.0 U	10.0 U	10.0 U	10.1 U	9.43 U	9.35 U	9.43 U	9.43 U	9.35 U
Metals										
Arsenic	µg/L	50.0 U	8.35 J	10.0 U	10.0 U	27.7	10.0 U	10.0 U	10.0 U	10.0 U
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	NR	NR
Pesticides										
alpha-BHC	µg/L	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0467 U	0.0467 U	0.0467 U	0.0377 U	0.0374 U
beta-BHC	µg/L	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0467 U	0.0467 U	0.0467 U	0.0472 U	0.0467 U
delta-BHC	µg/L	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0467 U	0.0467 U	0.0467 U	0.0566 U	0.0561 U
gamma-BHC (lindane)	µg/L	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0467 U	0.0467 U	0.0467 U	0.0377 U	0.0374 U

Table D.1

Historical Bedrock Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01
Sample ID:		PCBM-01-1204	PCBM-01-605	PCM-12-605	PCBM-01-1005	PCBM-01-606	PCM-12-606	PCBM-01-1206	PCBM-01-607	PCBM-01-1107
Sample Date:		12/13/2004	6/21/2005	6/21/2005 (Duplicate)	10/18/2005	6/26/2006	6/26/2006 (Duplicate)	12/14/2006	6/14/2007	11/8/2007
Parameters	**Units**									
Volatile Organic Compounds										
1,2,3-Trichlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.5 U
1,2,4-Trichlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.5 U
1,2-Dichlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.5 U
1,4-Dichlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.5 U
2-Chlorotoluene	µg/L	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.22 J	0.50 U	2.5 U
Benzene	µg/L	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.5 U
Chlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.98 J
Semi-volatile Organic Compounds										
1,2,4,5-Tetrachlorobenzene	µg/L	4.67 U	10 U	10 U	10.0 U	10 U	10 U	10 U	10 U	5.0 U
2,4,5-Trichlorophenol	µg/L	9.35 U	10 U	10 U	10.0 U	10 U	10 U	10 U	10 U	5.0 U
2,4-Dichlorophenol	µg/L	9.35 U	10 U	10 U	10.0 U	10 U	10 U	10 U	10 U	5.0 U
2,5-Dichlorophenol	µg/L	9.35 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
2-Chlorophenol	µg/L	9.35 U	10 U	10 U	10.0 U	10 U	10 U	10 U	10 U	5.0 U
4-Chlorophenol	µg/L	9.35 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U
Phenol	µg/L	9.35 U	10 U	10 U	10.0 U	10 U	10 U	10 U	10 UJ	5.0 U
Metals										
Arsenic	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10 U	10 U	10 U	10 U	10.0 U
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	0.20 U	0.20 U
Pesticides										
alpha-BHC	µg/L	0.0377 U	0.013 U	0.013 U	0.063 UJ	0.013 U	0.013 U	0.039J	0.042 J	0.054
beta-BHC	µg/L	0.0472 U	0.025 U	0.025 U	0.13 J	0.025 U	0.025 U	0.05 U	0.013 J	0.013 J
delta-BHC	µg/L	0.0566 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.014 J	0.02 J	0.017 J
gamma-BHC (lindane)	µg/L	0.0377 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.022 J	0.029 J	0.033 J

Table D.1

Historical Bedrock Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01
Sample ID:		PCBM-01-0508	PCBM-01-1108	PCBM-01-309	PCM-13-309	PCBM-011009	PCBM-01-310	PCM-12	PCBM-01-1010	PCM-12-1010
Sample Date:		5/21/2008	11/11/2008	3/18/2009	3/18/2009 (Duplicate)	10/21/2009	4/6/2010	4/6/2010 (Duplicate)	10/9/2010	10/9/2010 (Duplicate)
Parameters	**Units**									
Volatile Organic Compounds										
1,2,3-Trichlorobenzene	µg/L	2.5 U	0.50 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	µg/L	2.5 U	0.50 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	µg/L	2.5 U	0.50 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	µg/L	2.5 U	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	µg/L	2.5 U	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	2.5 U	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	2.5 U	0.50 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	µg/L	5.0 U	5.0 U	10 U	10 U	10 U	9.4 U	9.5 U	9.6 U	9.4 U
2,4,5-Trichlorophenol	µg/L	5.0 U	5.0 U	10 U	10 U	10 U	9.4 U	9.5 U	9.6 U	9.4 U
2,4-Dichlorophenol	µg/L	5.0 U	5.0 U	10 U	10 U	10 U	9.4 U	9.5 U	9.6 U	9.4 U
2,5-Dichlorophenol	µg/L	5.0 U	5.0 U	10 U	10 U	10 U	9.4 U	9.5 U	9.6 U	9.4 U
2-Chlorophenol	µg/L	5.0 U	5.0 U	10 U	10 U	10 U	9.4 U	9.5 U	9.6 U	9.4 U
4-Chlorophenol	µg/L	5.0 U	5.0 U	10 U	10 U	10 U	9.4 U	9.5 U	9.6 U	9.4 U
Phenol	µg/L	5.0 U	5.0 U	10 U	10 U	10 U	9.4 U	9.5 U	9.6 U	9.4 U
Metals										
Arsenic	µg/L	10.0 U	10.0 U	10 U	10 U	10 U	10.0 U	10.0 U	10.0 U	10.0 U
Mercury	µg/L	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.26 U	0.20 U	0.20 U	0.20 U
Pesticides										
alpha-BHC	µg/L	0.25 U	0.01 J	0.050 U	0.050 U	0.050 U	0.048 U	0.048 U	0.048 U	0.048 U
beta-BHC	µg/L	0.56	0.050 U	0.050 U	0.050 U	0.050 U	0.048 U	0.048 U	0.048 U	0.048 U
delta-BHC	µg/L	0.81	0.050 U	0.050 U	0.050 U	0.050 U	0.048 U	0.048 U	0.048 U	0.048 U
gamma-BHC (lindane)	µg/L	0.25 U	0.050 U	0.050 U	0.050 U	0.050 U	0.048 U	0.048 U	0.048 U	0.048 U

Table D.1

Historical Bedrock Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01	PCBM-01
Sample ID:		PCBM-01-0411	PCBM-01-1011	PCBM-01-1012	PCBM-01-1013	PCBM-01-1114	PCBM-01-1015	PCBM-01-1016	PCBM-01-1017	PCBM-01-1018
Sample Date:		4/13/2011	10/19/2011	10/2/2012	10/3/2013	10/27/2014	10/15/2015	10/19/2016	10/23/2017	10/05/2018
Parameters	**Units**									
Volatile Organic Compounds										
1,2,3-Trichlorobenzene	µg/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	µg/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	µg/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	µg/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	µg/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	µg/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	µg/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	µg/L	9.4 U	9.5 U	9.5 U	9.6 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	µg/L	9.4 U	9.5 U	9.5 U	9.6 U	9.4 U	9.5 U	9.4 U	9.4 UJ	9.4 U
2,4-Dichlorophenol	µg/L	9.4 U	9.5 U	9.5 U	9.6 U	9.4 U	9.5 U	9.4 U	9.4 UJ	9.4 U
2,5-Dichlorophenol	µg/L	9.4 U	9.5 UJ	9.5 U	9.6 U	9.4 U	9.5 U	4.7 U	4.7 U	4.7 U
2-Chlorophenol	µg/L	9.4 U	9.5 U	9.5 U	9.6 U	9.4 U	9.5 U	9.4 U	9.4 UJ	9.4 U
4-Chlorophenol	µg/L	9.4 U	9.5 U	9.5 U	9.6 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
Phenol	µg/L	9.4 U	9.5 U	9.5 U	9.6 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
Metals										
Arsenic	µg/L	10.0 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Mercury	µg/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	µg/L	0.048 U	0.048 U	0.048 U	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 U
beta-BHC	µg/L	0.048 U	0.048 U	0.048 U	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 U
delta-BHC	µg/L	0.048 U	0.055	0.048 U	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 U
gamma-BHC (lindane)	µg/L	0.048 U	0.048 U	0.048 U	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 U

Table D.1

Historical Bedrock Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02
Sample ID:		PCBM-02-602	PCBM-02-802	PCBM-02-1202	PCBM-02-303	PCBM-02-603	PCBM-02-903	PCBM-02-1203	PCBM-02-304	PCBM-02-1204
Sample Date:		6/4/2002	8/29/2002	12/12/2002	3/31/2003	6/26/2003	9/30/2003	12/29/2003	3/15/2004	12/14/2004
Parameters	**Units**									
Volatile Organic Compounds										
1,2,3-Trichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,4-Trichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,4-Dichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Chlorotoluene	µg/L	5.00 U	5.00 U	1.78 U	1.00 U	1.00 U	1.00 U	0.513 J	0.285 J	1.00 U
Benzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	0.855 J	1.00 U	1.00 U
Semi-volatile Organic Compounds										
1,2,4,5-Tetrachlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	4.72 U	4.67 U	4.72 U	4.76 U	4.76 U	4.81 U
2,4,5-Trichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.43 U	9.52 U	9.52 U	9.62 U
2,4-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.43 U	9.52 U	9.52 U	9.62 U
2,5-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.43 U	9.52 U	9.52 U	9.62 U
2-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.43 U	9.52 U	9.52 U	9.62 U
4-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.43 U	9.52 U	9.52 U	9.62 U
Phenol	µg/L	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.43 U	9.52 U	9.52 U	9.62 U
Metals										
Arsenic	µg/L	10.0 U	10.0 U	10.0 U	30.7	4.39 J	10.0 U	10.0 U	9.84 J	10.0 U
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	NR	NR
Pesticides										
alpha-BHC	µg/L	0.0510 U	0.0500 U	0.0500 U	0.0467 U	0.0467 U	0.0467 U	0.0374 U	0.0377 U	0.0400 U
beta-BHC	µg/L	0.0510 U	0.0500 U	0.0500 U	0.0467 U	0.0467 U	0.0467 U	0.0467 U	0.0472 U	0.0500 U
delta-BHC	µg/L	0.0510 U	0.0500 U	0.0500 U	0.0467 U	0.0467 U	0.0467 U	0.0561 U	0.0566 U	0.0600 U
gamma-BHC (lindane)	µg/L	0.0510 U	0.0500 U	0.0500 U	0.0467 U	0.0467 U	0.0467 U	0.0374 U	0.0377 U	0.0400 U

Table D.1

Historical Bedrock Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02
Sample ID:		PCBM-02-605	PCBM-02-1005	PCBM-02-706	PCBM-02-1206	PCM-12-1206	PCBM-02-607	PCBM-02-1107	PCM-12-1107	PCBM-02-0508
Sample Date:		6/22/2005	10/19/2005	7/5/2006	12/13/2006	12/13/2006 (Duplicate)	6/18/2007	11/9/2007	11/9/2007 (Duplicate)	5/22/2008
Parameters	**Units**									
Volatile Organic Compounds										
1,2,3-Trichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	6.3 U	0.50 U	0.50 U	0.50 U
1,2,4-Trichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	6.3 U	0.18 J	0.50 U	0.50 U
1,2-Dichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	6.3 U	0.50 U	0.50 U	0.50 U
1,4-Dichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	6.3 U	0.50 U	0.50 U	0.50 U
2-Chlorotoluene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	6.3 U	1.2 U	0.50 U	0.50 U
Benzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	6.3 U	0.50 U	0.50 U	0.50 U
Chlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	6.3 U	0.50 U	0.50 U	0.50 U
Semi-volatile Organic Compounds										
1,2,4,5-Tetrachlorobenzene	µg/L	10 U	10.0 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	10 U	10.0 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U	5.0 U
2,4-Dichlorophenol	µg/L	10 U	10.0 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U	5.0 U
2,5-Dichlorophenol	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U	5.0 U
2-Chlorophenol	µg/L	10 U	10.0 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U	5.0 U
4-Chlorophenol	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U	5.0 U
Phenol	µg/L	10 U	10.0 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U	5.0 UJ
Metals										
Arsenic	µg/L	10.0 U	10.0 U	10 U	10 U	10 U	10 U	10.0 U	10.0 U	10.0 U
Mercury	µg/L	NR	NR	NR	NR	NR	0.2 U	0.20 U	0.20 U	0.20 U
Pesticides										
alpha-BHC	µg/L	0.013 U	0.013 U	0.013 U	0.05 U	0.05 U	0.05 U	0.050 U	0.050 U	0.050 U
beta-BHC	µg/L	0.025 U	0.025 U	0.025 U	0.05 U	0.05 U	0.05 U	0.050 U	0.050 U	0.050 U
delta-BHC	µg/L	0.013 U	0.013 U	0.013 U	0.05 U	0.05 U	0.05 U	0.050 UJ	0.050 UJ	0.050 U
gamma-BHC (lindane)	µg/L	0.013 U	0.013 U	0.013 U	0.05 U	0.05 U	0.05 U	0.050 U	0.050 U	0.050 U

Table D.1

Historical Bedrock Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02
Sample ID:		PCBM-02-1108	PCBM-02-309	PCBM-021009	PCM-121009	PCBM-02-310	PCBM-02-1010	PCBM-02-0411	PCBM-02-1011	PCBM-02-1012
Sample Date:		11/11/2008	3/18/2009	10/21/2009	10/21/2009 (Duplicate)	4/6/2010	10/9/2010	4/13/2011	10/18/2011	10/2/2012
Parameters	**Units**									
Volatile Organic Compounds										
1,2,3-Trichlorobenzene	µg/L	0.50 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	µg/L	0.50 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	µg/L	0.50 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	µg/L	0.50 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	µg/L	0.50 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	µg/L	0.50 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	µg/L	0.50 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	µg/L	5.0 U	10 U	10 U	10 U	9.4 U	9.5 U	9.5 U	9.6 U	9.7 U
2,4,5-Trichlorophenol	µg/L	5.0 U	10 U	10 U	10 U	9.4 U	9.5 U	9.5 U	9.6 U	9.7 U
2,4-Dichlorophenol	µg/L	5.0 U	10 U	10 U	10 U	9.4 U	9.5 U	9.5 U	9.6 U	9.7 U
2,5-Dichlorophenol	µg/L	5.0 U	10 U	10 U	10 U	9.4 U	9.5 U	9.5 U	9.6 U	9.7 U
2-Chlorophenol	µg/L	5.0 U	10 U	10 U	10 U	9.4 U	9.5 U	9.5 U	9.6 U	9.7 U
4-Chlorophenol	µg/L	5.0 U	10 U	10 U	10 U	9.4 U	9.5 U	9.5 U	9.6 U	9.7 U
Phenol	µg/L	5.0 U	10 U	10 U	10 U	9.4 U	9.5 U	9.5 U	9.6 U	9.7 U
Metals										
Arsenic	µg/L	10.0 U	10 U	3.3 J	2.0 J	10.0 U	10.0 U	10.0 U	10 U	10 U
Mercury	µg/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	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.048 U	0.048 U	0.047 U	0.047 U	0.048 U
beta-BHC	µg/L	0.031 J	0.050 U	0.050 U	0.050 U	0.048 U	0.048 U	0.047 U	0.047 U	0.048 U
delta-BHC	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.048 U	0.048 U	0.047 UJ	0.047 U	0.048 U
gamma-BHC (lindane)	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.048 U	0.048 U	0.047 UJ	0.047 U	0.048 U

Table D.1

Historical Bedrock Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02	PCBM-02
Sample ID:		PCBM-02-1013	PCBM-02-1114	PCBM-02-1015	PCBM-02-1016	PCBM-02-1017	PCBM-02-1018
Sample Date:		10/3/2013	10/22/2014	10/14/2015	10/19/2016	10/23/2017	10/05/2018
Parameters	**Units**						
Volatile Organic Compounds							
1,2,3-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	0.40 J	1.0 U	1.0 U
Semi-volatile Organic Compounds							
1,2,4,5-Tetrachlorobenzene	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 UJ	9.4 U
2,4-Dichlorophenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 UJ	9.4 U
2,5-Dichlorophenol	µg/L	9.6 U	9.5 U	9.4 U	4.7 U	4.7 U	4.7 U
2-Chlorophenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 UJ	9.4 U
4-Chlorophenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
Phenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
Metals							
Arsenic	µg/L	10 U	10 U	10 U	10 U	10 U	10 U
Mercury	µg/L	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Pesticides							
alpha-BHC	µg/L	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 U
beta-BHC	µg/L	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 U
delta-BHC	µg/L	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 U
gamma-BHC (lindane)	µg/L	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 U

Table D.1

Historical Bedrock Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03
Sample ID:		PCBM-03-502	PCBM-03-802	PCBM-03-1202	PCBM-03-303	PCBM-03-603	PCBM-03-1003	PCBM-03-1203	PCM-12-1203	PCBM-03-304
Sample Date:		6/3/2002	8/30/2002	12/13/2002	4/1/2003	6/24/2003	10/1/2003	12/30/2003	12/30/2003 (Duplicate)	4/14/2004
Parameters	**Units**									
Volatile Organic Compounds										
1,2,3-Trichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,4-Trichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.24 U	1.00 U	1.00 U	1.00 U
1,2-Dichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,4-Dichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Chlorotoluene	µg/L	5.00 U	5.00 U	1.08 U	1.00 U	1.00 U	3.54 U	1.00 U	0.398 J	1.00 U
Benzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Semi-volatile Organic Compounds										
1,2,4,5-Tetrachlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	4.67 U	4.67 U	4.67 U	4.67 U	4.67 U	4.67 U
2,4,5-Trichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.35 U	9.35 U	9.35 U	9.35 U	9.35 U	9.35 U
2,4-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.35 U	9.35 U	9.35 U	9.35 U	9.35 U	9.35 U
2,5-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.35 U	9.35 U	9.35 U	9.35 U	9.35 U	9.35 U
2-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.35 U	9.35 U	9.35 U	9.35 U	9.35 U	9.35 U
4-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.35 U	9.35 U	9.35 U	9.35 U	9.35 U	9.35 U
Phenol	µg/L	10.0 U	9.86 J	10.0 U	9.35 U	9.35 U	9.35 U	9.35 U	9.35 U	9.35 U
Metals										
Arsenic	µg/L	50.0 U	9.20 J	10.0 U	31.1	10.0 U	10.0 U	10.0 U	10.0 U	9.39 J
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	NR	NR
Pesticides										
alpha-BHC	µg/L	0.0500 U	0.0500 U	0.0500 U	0.0476 U	0.0467 U	0.0467 U	0.0374 U	0.0374 U	0.0374 UJ
beta-BHC	µg/L	0.0500 U	0.0500 U	0.0500 U	0.0476 U	0.0467 U	0.0467 U	0.0467 U	0.0467 U	0.0467 UJ
delta-BHC	µg/L	0.0500 U	0.0500 U	0.0500 U	0.0476 U	0.0467 U	0.0467 U	0.0561 U	0.0561 U	0.0561 UJ
gamma-BHC (lindane)	µg/L	0.0500 U	0.0500 U	0.0500 U	0.0590	0.0467 U	0.0467 U	0.0374 U	0.0374 U	0.0374 UJ

Notes:

Table D.1

Historical Bedrock Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03
Sample ID:		PCM-12-304	PCBM-03-1204	PCBM-03-605	PCBM-03-1005	PCBM-03-706	PCBM-03-1206	PCBM-03-607	PCBM-03-1107	PCBM-03-0508
Sample Date:		4/14/2004 (Duplicate)	12/15/2004	6/27/2005	10/31/2005	7/6/2006	12/12/2006	6/19/2007	11/12/2007	5/23/2008
Parameters	**Units**									
Volatile Organic Compounds										
1,2,3-Trichlorobenzene	µg/L	1.00 U	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.5 U
1,2,4-Trichlorobenzene	µg/L	1.00 U	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.5 U
1,2-Dichlorobenzene	µg/L	1.00 U	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.5 U
1,4-Dichlorobenzene	µg/L	1.00 U	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.5 U
2-Chlorotoluene	µg/L	1.00 U	1.00 U	0.26 J	0.50 U	0.37 J	0.50 U	0.50 U	0.50 U	2.5 U
Benzene	µg/L	1.00 U	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.5 U
Chlorobenzene	µg/L	1.00 U	1.00 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	2.5 U
Semi-volatile Organic Compounds										
1,2,4,5-Tetrachlorobenzene	µg/L	5.05 U	5.05 U	10 U	10.0 U	10 U	10 U	10 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	10.1 U	10.1 U	10 U	10.0 U	10 U	10 U	10 U	5.0 U	5.0 U
2,4-Dichlorophenol	µg/L	10.1 U	10.1 U	10 U	10.0 U	10 U	10 U	10 U	5.0 U	5.0 U
2,5-Dichlorophenol	µg/L	10.1 U	10.1 U	10 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U
2-Chlorophenol	µg/L	10.1 U	10.1 U	10 U	10.0 U	10 U	10 U	10 U	5.0 U	5.0 U
4-Chlorophenol	µg/L	10.1 U	10.1 U	10 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U
Phenol	µg/L	10.1 U	10.1 U	10 U	10.0 U	10 U	10 U	10 UJ	5.0 U	5.0 U
Metals										
Arsenic	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10 U	10 U	10 U	10.0 U	10.0 U
Mercury	µg/L	NR	NR	NR	NR	NR	NR	0.20 U	0.20 U	0.20 U
Pesticides										
alpha-BHC	µg/L	0.0374 UJ	0.0400 U	0.019	R	0.013 U	0.05 U	0.05 U	0.050 U	0.050 U
beta-BHC	µg/L	0.0467 UJ	0.0500 U	0.025 U	R	0.016 J	0.05 U	0.05 U	0.050 U	0.050 U
delta-BHC	µg/L	0.0561 UJ	0.0600 U	0.013 U	R	0.013 U	0.05 U	0.05 U	0.050 UJ	0.050 U
gamma-BHC (lindane)	µg/L	0.0374 UJ	0.0400 U	0.012 J	R	0.013 U	0.05 U	0.05 U	0.050 U	0.050 U

Notes:

Table D.1

Historical Bedrock Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03
Sample ID:		PCBM-03-1108	PCBM-03-309	PCBM-031009	PCBM-03-310	PCBM-03-1010	PCBM-03-0411	PCM-12-0411	PCBM-03-1011	PCM-12-1011
Sample Date:		11/10/2008	3/18/2009	10/21/2009	4/6/2010	10/9/2010	4/14/2011	4/14/2011 (Duplicate)	10/19/2011	10/19/2011 (Duplicate)
Parameters	**Units**									
Volatile Organic Compounds										
1,2,3-Trichlorobenzene	µg/L	0.50 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	µg/L	0.50 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	µg/L	0.50 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	µg/L	0.50 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	µg/L	0.10 J	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	µg/L	0.50 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	µg/L	0.50 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	µg/L	5.0 U	10 U	10 U	9.4 U	9.4 U	9.5 U	9.5 U	48 U	9.6 U
2,4,5-Trichlorophenol	µg/L	5.0 U	10 U	10 U	9.4 U	9.4 U	9.5 U	9.5 U	48 U	9.6 U
2,4-Dichlorophenol	µg/L	5.0 U	10 U	10 U	9.4 U	9.4 U	9.5 U	9.5 U	48 U	9.6 U
2,5-Dichlorophenol	µg/L	5.0 U	10 U	10 U	9.4 U	9.4 U	9.5 U	9.5 U	48 U	9.6 U
2-Chlorophenol	µg/L	5.0 U	10 U	10 U	9.4 U	9.4 U	9.5 U	9.5 U	17 J	9.6 U
4-Chlorophenol	µg/L	5.0 U	10 U	10 U	9.4 U	9.4 U	9.5 U	9.5 U	48 U	9.6 U
Phenol	µg/L	5.0 U	10 U	10 U	9.4 U	9.4 U	9.5 U	9.5 U	48 U	9.6 U
Metals										
Arsenic	µg/L	10.0 U	10 U	3.4 J	10.0 U	10.0 U	10.0 U	10.0 U	3.9 J	10 U
Mercury	µg/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	µg/L	0.050 U	0.050 U	0.050 U	0.047 U	0.048 U	0.048 U	0.048 U	0.048 U	0.048 U
beta-BHC	µg/L	0.050 U	0.050 U	0.050 U	0.16	0.048 U	0.048 U	0.048 U	0.054	0.048 U
delta-BHC	µg/L	0.050 U	0.050 U	0.050 U	0.047 U	0.048 U	0.048 U	0.048 U	0.52	0.048 U
gamma-BHC (lindane)	µg/L	0.050 U	0.050 U	0.050 U	0.047 U	0.048 U	0.048 U	0.048 U	0.048 U	0.048 U

Notes:

Table D.1

Historical Bedrock Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03
Sample ID:		PCBM-03-1012	PCM-12-1012	PCBM-03-1013	PCM-12-1013	PCBM-03-1114	PCM-12-1114	PCBM-03-1015	PCM-12-1015	PCBM-03-1016
Sample Date:		10/1/2012	10/1/2012 (Duplicate)	10/9/2013	10/9/2013 (Duplicate)	10/22/2014	10/22/2014 (Duplicate)	10/14/2015	10/14/2015 (Duplicate)	10/18/2016
Parameters	**Units**									
Volatile Organic Compounds										
1,2,3-Trichlorobenzene	µg/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	µg/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	µg/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	µg/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	µg/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	µg/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	µg/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	µg/L	9.6 U	9.5 U	9.6 U	9.6 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	µg/L	9.6 U	9.5 U	9.6 U	9.6 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	µg/L	9.6 U	9.5 U	9.6 U	9.6 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
2,5-Dichlorophenol	µg/L	9.6 U	9.5 U	9.6 U	9.6 U	9.4 U	9.5 U	9.4 U	9.4 U	4.7 U
2-Chlorophenol	µg/L	9.6 U	9.5 U	9.6 U	9.6 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
4-Chlorophenol	µg/L	9.6 U	9.5 U	9.6 U	9.6 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
Phenol	µg/L	9.6 U	9.5 U	9.6 U	9.6 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
Metals										
Arsenic	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	3.8 J	10 U
Mercury	µg/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	µg/L	0.047 U	0.047 U	0.047 U	0.048 U	0.050 U	0.050 U	0.052 U	0.050 U	0.047 U
beta-BHC	µg/L	0.047 U	0.047 U	0.047 U	0.048 U	0.050 U	0.050 U	0.052 U	0.050 U	0.047 U
delta-BHC	µg/L	0.047 U	0.047 U	0.047 U	0.048 U	0.050 U	0.050 U	0.052 U	0.050 U	0.047 U
gamma-BHC (lindane)	µg/L	0.047 U	0.047 U	0.047 U	0.048 U	0.050 U	0.050 U	0.052 U	0.050 U	0.047 U

Notes:

Table D.1

Historical Bedrock Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCBM-03	PCBM-03	PCBM-03	PCBM-03	PCBM-03
Sample ID:		PCM-12-1016	PCBM-03-1017	PCM-12-1017	PCBM-03-1018	PCM-12-1018
Sample Date:		10/18/2016 (Duplicate)	10/17/2017	10/17/2017 (Duplicate)	10/05/2018	10/05/2018 (Duplicate)
Parameters	**Units**					
Volatile Organic Compounds						
1,2,3-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
2-Chlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
Semi-volatile Organic Compounds						
1,2,4,5-Tetrachlorobenzene	µg/L	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	µg/L	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	µg/L	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
2,5-Dichlorophenol	µg/L	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U
2-Chlorophenol	µg/L	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chlorophenol	µg/L	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Phenol	µg/L	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
Metals						
Arsenic	µg/L	10 U	10 U	10 U	10 U	10 U
Mercury	µg/L	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Pesticides						
alpha-BHC	µg/L	0.047 U	0.047 U	0.047 U	0.047 U	0.047 UJ
beta-BHC	µg/L	0.047 U	0.047 U	0.047 U	0.047 U	0.047 UJ
delta-BHC	µg/L	0.047 U	0.047 U	0.047 U	0.047 U	0.047 UJ
gamma-BHC (lindane)	µg/L	0.047 U	0.047 U	0.047 U	0.047 U	0.047 UJ

Notes:

NR- Not Required
µg/L - Micrograms per liter
U - Not detected at the associated reporting limit
"-" - Data not available
J - Estimated concentration
R - Data rejected

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:	PCM-01	PCM-01	PCM-01	PCM-01	PCM-01	PCM-01	PCM-01	PCM-01
Sample ID:	PCM-01-502	PCM-01-802	PCM-01-1202	PCM-01-303	PCM-01-603	PCM-01-1003	PCM-01-1203	PCM-01-304
Sample Date:	6/3/2002	8/29/2002	12/18/2002	4/1/2003	6/27/2003	10/1/2003	12/31/2003	4/13/2004
Parameters	**Units**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,4-Trichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,4-Dichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Chlorotoluene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	0.751 J	0.332 J
Benzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Semi-volatile Organic Compounds								
1,2,4,5-Tetrachlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	4.67 U	4.67 U	4.67 U	4.72 U	5.05 U
2,4,5-Trichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.35 U	9.35 U	9.35 U	9.43 U	10.1 U
2,4-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.35 U	9.35 U	9.35 U	9.43 U	10.1 U
2,5-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.35 U	9.35 U	9.35 U	9.43 U	10.1 U
2-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.35 U	9.35 U	9.35 U	9.43 U	10.1 U
4-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.35 U	9.35 U	9.35 U	9.43 U	10.1 U
Phenol	µg/L	10.0 U	10.0 U	10.0 U	9.35 U	9.35 U	9.35 U	9.43 U	10.1 U
Metals								
Arsenic	µg/L	50.0 U	100 U	20.0 U	20.0 U	7.45 J	10.0 U	10.0 U	10.0 U
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	NR
Pesticides								
alpha-BHC	µg/L	0.0146 J	0.0500 U	0.0500 U	0.0623	0.0467 U	0.0467 U	0.0374 U	0.0551 J
beta-BHC	µg/L	0.141	0.0500 U	0.0500 U	0.0472 U	0.0467 U	0.0467 U	0.0467 U	0.0505 UJ
delta-BHC	µg/L	0.864	0.0500 U	0.0500 U	0.0613	0.0467 U	0.0467 U	0.0561 U	0.0669 J
gamma-BHC (lindane)	µg/L	0.0103 J	0.0500 U	0.0500 U	0.0472 U	0.0467 U	0.0467 U	0.0374 U	0.0404 UJ

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-01	PCM-01	PCM-01	PCM-01	PCM-01	PCM-01	PCM-01	PCM-01
Sample ID:		PCM-01-1204	PCM-01-605	PCM-01-1005	PCM-01-706	PCM-01-1206	PCM-01-607	PCM-01-1107	PCM-01-0508
Sample Date:		12/16/2004	6/23/2005	10/27/2005	7/7/2006	12/12/2006	6/19/2007	11/13/2007	5/27/2008
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	0.50 UJ	0.50 UJ
1,2,4-Trichlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	0.50 UJ	0.50 UJ
1,2-Dichlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	0.50 UJ	0.50 UJ
1,4-Dichlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.12 J	0.5 U	0.5 U	0.50 UJ	0.50 UJ
2-Chlorotoluene	µg/L	1.00 U	0.50 U	0.19 J	0.5 U	0.5 U	0.5 U	0.50 UJ	0.50 UJ
Benzene	µg/L	1.00 U	0.50 U	0.17 J	0.5 U	0.5 U	0.5 U	0.50 UJ	0.50 UJ
Chlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	0.50 UJ	0.50 UJ
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	5.05 U	10 U	10.5 U	10 U	10 U	10 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	10.1 U	10 U	10.5 U	10 U	10 U	10 U	5.0 U	5.0 U
2,4-Dichlorophenol	µg/L	10.1 U	10 U	10.5 U	10 U	10 U	10 U	5.0 U	5.0 U
2,5-Dichlorophenol	µg/L	10.1 U	10 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U
2-Chlorophenol	µg/L	10.1 U	10 U	10.5 U	10 U	10 U	10 U	5.0 U	5.0 U
4-Chlorophenol	µg/L	10.1 U	10 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U
Phenol	µg/L	10.1 U	10 U	10.5 U	10 U	10 U	10 UJ	5.0 U	5.0 U
Metals									
Arsenic	µg/L	10.0 U	5.6 J	2.6 J	10 U	10 U	10 U	10.0 U	10.0 U
Mercury	µg/L	NR	NR	NR	NR	NR	0.2 U	0.20 U	0.20 U
Pesticides									
alpha-BHC	µg/L	0.0404 UJ	0.051 J	R	0.013 U	0.05 UJ	0.05 UJ	0.050 UJ	0.050 UJ
beta-BHC	µg/L	0.0505 UJ	0.025 UJ	R	0.025 U	0.05 UJ	0.05 UJ	0.050 UJ	0.050 UJ
delta-BHC	µg/L	0.0606 UJ	0.012 J	R	0.013 U	0.05 UJ	0.05 UJ	0.050 UJ	0.050 UJ
gamma-BHC (lindane)	µg/L	0.0404 UJ	0.024 J	R	0.013 U	0.05 UJ	0.05 UJ	0.050 UJ	0.050 UJ

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-01	PCM-01	PCM-01	PCM-01	PCM-01	PCM-01	PCM-01	PCM-01
Sample ID:		PCM-01-1108	PCM-01-309	PCM-011009	PCM-01-310	PCM-01-1010	PCM-01-0411	PCM-01-1011	PCM-01-1012
Sample Date:		11/10/2008	3/18/2009	10/21/2009	4/13/2010	10/11/2010	4/14/2011	10/19/2011	10/2/2012
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	0.50 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	µg/L	0.50 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	µg/L	0.50 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	µg/L	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	µg/L	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	0.50 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	µg/L	5.0 U	10 U	10 U	9.6 U	9.4 U	9.5 U	9.6 U	9.5 U
2,4,5-Trichlorophenol	µg/L	5.0 U	10 U	10 U	9.6 U	9.4 U	9.5 U	9.6 U	9.5 U
2,4-Dichlorophenol	µg/L	5.0 U	10 U	10 U	9.6 U	9.4 U	9.5 U	9.6 U	9.5 U
2,5-Dichlorophenol	µg/L	5.0 U	10 U	10 U	9.6 U	9.4 U	9.5 U	9.6 U	9.5 U
2-Chlorophenol	µg/L	5.0 U	10 U	10 U	9.6 U	9.4 U	9.5 U	9.6 U	9.5 U
4-Chlorophenol	µg/L	5.0 U	10 U	10 U	9.6 U	9.4 U	9.5 U	9.6 U	9.5 U
Phenol	µg/L	5.0 U	10 U	10 U	9.6 U	9.4 U	9.5 U	9.6 U	9.5 U
Metals									
Arsenic	µg/L	10.0 UJ	10 U	3.8 J	7.1 J	6.6 J	10.0 U	2.9 J	10 U
Mercury	µg/L	0.20 UJ	0.20 U	0.20 U	0.20 U	0.060 J	0.20 U	0.20 U	0.20 U
Pesticides									
alpha-BHC	µg/L	0.050 UJ	0.050 U	0.050 U	0.048 U	0.047 U	0.048 U	0.047 U	0.047 U
beta-BHC	µg/L	0.050 UJ	0.050 U	0.050 U	0.048 U	0.047 U	0.048 U	0.047 U	0.047 U
delta-BHC	µg/L	0.050 UJ	0.050 U	0.050 U	0.048 U	0.047 U	0.048 U	0.047 U	0.047 U
gamma-BHC (lindane)	µg/L	0.050 UJ	0.050 U	0.050 U	0.048 U	0.047 U	0.048 U	0.047 U	0.047 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-01	PCM-01	PCM-01	PCM-01	PCM-01	PCM-01
Sample ID:		PCM-01-1013	PCM-01-1114	PCM-01-1015	PCM-01-1016	PCM-01-1017	PCM-01-1018
Sample Date:		10/9/2013	10/27/2014	10/15/2015	10/18/2016	10/18/2017	10/8/2018
Parameters	**Units**						
Volatile Organic Compounds							
1,2,3-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	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	µg/L	9.5 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	µg/L	9.5 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	µg/L	9.5 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
2,5-Dichlorophenol	µg/L	9.5 U	9.4 U	9.5 U	4.7 U	4.7 U	4.7 U
2-Chlorophenol	µg/L	9.5 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
4-Chlorophenol	µg/L	9.5 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
Phenol	µg/L	9.5 U	9.4 U	9.5 U	9.4 U	9.4 U	9.4 U
Metals							
Arsenic	µg/L	10 U	10 U	10 U	10 U	10 U	10 U
Mercury	µg/L	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Pesticides							
alpha-BHC	µg/L	0.048 U	0.050 U	0.050 U	0.047 U	0.047 U	0.047 UJ
beta-BHC	µg/L	0.048 U	0.050 U	0.050 U	0.047 U	0.047 U	0.047 UJ
delta-BHC	µg/L	0.048 U	0.050 U	0.050 U	0.047 U	0.047 U	0.047 UJ
gamma-BHC (lindane)	µg/L	0.048 U	0.050 U	0.050 U	0.047 U	0.047 U	0.047 UJ

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-02	PCM-02	PCM-02	PCM-02	PCM-02	PCM-02	PCM-02	PCM-02
Sample ID:		PCM-02-502	PCM-12-502	PCM-02-802	PCM-02-1202	PCM-02-303	PCM-02-603	PCM-02-1003	PCM-02-1203
Sample Date:		6/3/2002	6/3/2002 (Duplicate)	8/28/2002	12/17/2002	3/31/2003	6/26/2003	10/2/2003	12/30/2003
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,4-Trichlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,4-Dichlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	1.00 U	1.00 U	0.246 J	1.00 U	0.221 J
2-Chlorotoluene	µg/L	5.00 U	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	0.639 J
Benzene	µg/L	5.00 U	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	1.00 U	1.00 U	0.178 J	1.00 U	1.00 U
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	5.00 U	4.72 U	4.67 U	4.67 U	4.72 U
2,4,5-Trichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.35 U	9.43 U
2,4-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.35 U	9.43 U
2,5-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.35 U	9.43 U
2-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.35 U	9.43 U
4-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.35 U	9.43 U
Phenol	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.35 U	9.43 U
Metals									
Arsenic	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	12.1 U	14.4
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	NR
Pesticides									
alpha-BHC	µg/L	0.0500 U	0.0500 U	0.0500 U	0.0505 U	0.0660	0.0467 U	0.0541 U	0.0374 U
beta-BHC	µg/L	0.0500 U	0.00720 J	0.0500 U	0.0505 U	0.0472 U	0.0467 U	0.0748 J	0.0467 U
delta-BHC	µg/L	0.0500 U	0.0384 J	0.0500 U	0.0505 U	0.0783	0.0467 U	0.0991 J	0.0561 U
gamma-BHC (lindane)	µg/L	0.0500 U	0.0500 U	0.0500 U	0.0505 U	0.0472 U	0.0467 U	0.0467 U	0.0374 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-02	PCM-02	PCM-02	PCM-02	PCM-02	PCM-02	PCM-02	PCM-02
Sample ID:		NA	PCM-02-1204	PCM-02-605	PCM-02-1005	PCM-02-706	PCM-02-1206	PCM-02-607	PCM-02-1107
Sample Date:		3/15/2004	12/16/2004	6/23/2005	10/27/2005	7/7/2006	12/12/2006	6/14/2007	11/8/2007
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	OW-NS	1.00 U	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	0.50 U
1,2,4-Trichlorobenzene	µg/L	OW-NS	1.00 U	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	0.50 U
1,2-Dichlorobenzene	µg/L	OW-NS	1.00 U	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	0.50 U
1,4-Dichlorobenzene	µg/L	OW-NS	1.00 U	0.50 U	0.50 U	0.26 J	0.2 J	0.27 J	0.33 J
2-Chlorotoluene	µg/L	OW-NS	1.00 U	0.27 J	0.15 J	0.5 U	0.5 U	0.5 U	0.85 U
Benzene	µg/L	OW-NS	1.00 U	0.20 J	0.16 J	0.15 J	0.5 U	0.14 J	0.19 J
Chlorobenzene	µg/L	OW-NS	1.00 U	0.50 U	0.16 J	0.22 J	0.19 J	0.5 U	0.50 U
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	OW-NS	5.05 U	10 U	10.0 U	10 U	10 U	10 U	5.0 U
2,4,5-Trichlorophenol	µg/L	OW-NS	10.1 U	10 U	10.0 U	10 U	10 U	10 U	5.0 U
2,4-Dichlorophenol	µg/L	OW-NS	10.1 U	10 U	10.0 U	10 U	10 U	10 U	5.0 U
2,5-Dichlorophenol	µg/L	OW-NS	10.1 U	10 U	10 U	10 U	10 U	10 U	5.0 U
2-Chlorophenol	µg/L	OW-NS	10.1 U	10 U	10.0 U	10 U	10 U	10 U	5.0 U
4-Chlorophenol	µg/L	OW-NS	10.1 U	10 U	10 U	10 U	10 U	10 U	5.0 U
Phenol	µg/L	OW-NS	10.1 U	10 U	10.0 U	10 U	10 U	10 U	5.0 U
Metals									
Arsenic	µg/L	OW-NS	10.0 U	7.2 J	10.0 U	10 U	10 U	10 U	11.2
Mercury	µg/L	NR	NR	NR	NR	NR	NR	0.2 U	0.20 U
Pesticides									
alpha-BHC	µg/L	OW-NS	0.0404 UJ	0.019 J	R	0.0047 J	0.05 UJ	0.05 UJ	0.050 U
beta-BHC	µg/L	OW-NS	0.0505 UJ	0.025 UJ	0.0074 J	0.025 U	0.05 UJ	0.05 UJ	0.01 J
delta-BHC	µg/L	OW-NS	0.0606 UJ	0.013 UJ	R	0.008 J	0.05 UJ	0.05 UJ	0.050 U
gamma-BHC (lindane)	µg/L	OW-NS	0.0404 UJ	0.0064 J	R	0.013 U	0.05 UJ	0.05 UJ	0.050 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:	PCM-02	PCM-02	PCM-02	PCM-02	PCM-02	PCM-02	PCM-02	PCM-02
Sample ID:	PCM-02-0508	PCM-02-1108	PCM-02-309	PCM-021009	PCM-02-310	PCM-02-1010	PCM-02-0411	PCM-02-1011
Sample Date:	5/27/2008	11/11/2008	3/18/2009	10/23/2009	4/13/2010	10/11/2010	4/15/2011	10/19/2011
Parameters	**Units**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/L	0.50 U	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	0.50 U	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	0.50 U	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	0.50 U	0.20 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	µg/L	0.50 U	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	0.50 U	0.13 J	1.0 U	1.0 U	1.0 U	0.12 J	1.0 U	1.0 U
Chlorobenzene	µg/L	0.21 J	0.19 J	1.0 U	1.0 U	1.0 U	0.16 J	1.0 U	0.16 J
Semi-volatile Organic Compounds								
1,2,4,5-Tetrachlorobenzene	µg/L	5.0 U	5.0 U	10 U	10 U	9.7 U	9.5 U	9.5 U	9.7 U
2,4,5-Trichlorophenol	µg/L	5.0 U	5.0 U	10 U	10 U	9.7 U	9.5 U	9.5 U	9.7 U
2,4-Dichlorophenol	µg/L	5.0 U	5.0 U	10 U	10 U	9.7 U	9.5 U	9.5 U	9.7 U
2,5-Dichlorophenol	µg/L	5.0 U	5.0 U	10 U	10 U	9.7 U	9.5 U	9.5 U	9.7 U
2-Chlorophenol	µg/L	5.0 U	5.0 U	10 U	10 U	9.7 U	9.5 U	9.5 U	9.7 U
4-Chlorophenol	µg/L	5.0 U	5.0 U	10 U	10 U	9.7 U	9.5 U	9.5 U	9.7 U
Phenol	µg/L	5.0 U	5.0 U	10 U	10 U	9.7 U	9.5 U	9.5 U	9.7 U
Metals								
Arsenic	µg/L	10.0 U	10.0 U	10 U	10 U	4.6 J	2.7 J	10.0 U	2.8 J
Mercury	µg/L	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 UJ	0.20 U	0.20 U
Pesticides								
alpha-BHC	µg/L	0.050 UJ	0.050 U	0.050 U	0.050 U	0.048 U	0.045 J	0.048 U	0.048 U
beta-BHC	µg/L	0.050 UJ	0.050 U	0.050 U	0.050 U	0.048 U	0.047 U	0.048 U	0.048 U
delta-BHC	µg/L	0.050 UJ	0.050 U	0.050 U	0.050 U	0.048 U	0.047 U	0.048 U	0.048 U
gamma-BHC (lindane)	µg/L	0.050 UJ	0.050 U	0.050 U	0.050 U	0.048 U	0.047 U	0.048 U	0.048 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-02	PCM-02	PCM-02	PCM-02	PCM-02	PCM-02	PCM-02
Sample ID:		PCM-02-1012	PCM-02-1013	PCM-02-1114	PCM-02-1015	PCM-02-1016	PCM-02-1017	PCM-02-1018
Sample Date:		10/2/2012	10/9/2013	10/27/2014	10/15/2015	10/19/2016	10/18/2017	10/07/2018
Parameters	**Units**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/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	µg/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	µg/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	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	0.22 J	1.0 U	1.0 U
2-Chlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	0.14 J	1.0 U	0.15 J	0.16 J	1.0 U	1.0 U	1.0 U
Semi-volatile Organic Compounds								
1,2,4,5-Tetrachlorobenzene	µg/L	9.6 U	9.7 U	9.5 U	9.5 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	µg/L	9.6 U	9.7 U	9.5 U	9.5 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	µg/L	9.6 U	9.7 U	9.5 U	9.5 U	9.4 U	9.4 U	9.4 U
2,5-Dichlorophenol	µg/L	9.6 U	9.7 U	9.5 U	9.5 U	4.7 U	4.7 U	4.7 U
2-Chlorophenol	µg/L	9.6 U	9.7 U	9.5 U	9.5 U	9.4 U	9.4 U	9.4 U
4-Chlorophenol	µg/L	9.6 U	9.7 U	9.5 U	9.5 U	9.4 U	9.4 U	9.4 U
Phenol	µg/L	9.6 U	9.7 U	9.5 U	9.5 U	9.4 U	9.4 U	9.4 U
Metals								
Arsenic	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Mercury	µg/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	µg/L	0.047 U	0.047 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 UJ
beta-BHC	µg/L	0.047 U	0.047 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 UJ
delta-BHC	µg/L	0.047 U	0.047 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 UJ
gamma-BHC (lindane)	µg/L	0.047 U	0.047 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 UJ

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-03	PCM-03	PCM-03	PCM-03	PCM-03	PCM-03	PCM-03	PCM-03
Sample ID:		PCM-03-502	PCM-03-802	PCM-03-1202	PCM-12-1202	PCM-03-303	PCM-12-303	PCM-03-603	PCM-03-903
Sample Date:		5/31/2002	8/28/2002	12/12/2002	12/12/2002 (Duplicate)	3/28/2003	3/28/2003 (Duplicate)	6/18/2003	9/29/2003
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	125 U	100 U	10.0 U	10.0 U	1.00 U	20.0 U	1.00 U	1.00 U
1,2,4-Trichlorobenzene	µg/L	125 U	100 U	10.0 U	10.0 U	1.00 U	20.0 U	1.00 U	1.00 U
1,2-Dichlorobenzene	µg/L	71.1 J	63.4 J	86.9	84.7	99.8	79.0	95.4	99.9
1,4-Dichlorobenzene	µg/L	217	199	291	281	280	273	267	252
2-Chlorotoluene	µg/L	125 U	100 U	9.36 U	9.91 U	11.4	20.0 U	8.93	10.4 U
Benzene	µg/L	82.6 J	82.4 J	133	131	131	105	107	94.2
Chlorobenzene	µg/L	3600	3810	3590	3790	3860	3830	3540	3640
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	5.00 U	5.00 UJ	5.00 U	5.00 U	4.72 U	4.72 U	4.72 U	4.72 U
2,4,5-Trichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	9.43 U	9.43 U	9.43 U	9.43 U
2,4-Dichlorophenol	µg/L	17.1	10.0 U	3.20 J	10.0 U	15.3	7.25 J	15.2 J	10.8
2,5-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	9.43 U	9.43 U	9.43 U	9.43 U
2-Chlorophenol	µg/L	42.7	4.51 J	5.40 J	4.20 J	12.8	7.40 J	27.4 J	10.9
4-Chlorophenol	µg/L	84.7	15.4	10.0 U	10.0 U	28.9	17.0	53.5 J	21.9
Phenol	µg/L	5.10 J	10.0 U	10.0 U	10.0 U	9.43 U	9.43 U	3.79 J	9.43 U
Metals									
Arsenic	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	20.0 U	10.0 U	7.34 J
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	NR
Pesticides									
alpha-BHC	µg/L	0.0500 U	0.0500 U	0.0505 U	0.0501 U	0.0688	0.0685	0.0469 U	0.0509 U
beta-BHC	µg/L	0.0500 U	0.0820	0.107	0.0870	0.133	0.130	3.75 J	0.0467 U
delta-BHC	µg/L	0.0500 U	0.679	0.666 J	0.353 J	1.28	1.25	1.13 J	0.848
gamma-BHC (lindane)	µg/L	0.0500 U	0.0500 U	0.0505 U	0.0500 U	0.0472 U	0.0472 U	0.0469 U	0.0467 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-03	PCM-03	PCM-03	PCM-03	PCM-03	PCM-03	PCM-03	PCM-03
Sample ID:		PCM-03-1203	PCM-03-304	PCM-03-1204	PCM-03-605	PCM-03-1005	PCM-03-606	PCM-03-1206	PCM-03-607
Sample Date:		12/23/2003	3/11/2004	12/13/2004	6/21/2005	10/18/2005	6/26/2006	12/14/2006	6/14/2007
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	1.00 U	1.00 U	1.00 U	0.50 U	36 J	25 U	25 U	250 U
1,2,4-Trichlorobenzene	µg/L	0.412 J	1.00 U	1.00 U	0.22 J	41 J	25 U	25 U	250 U
1,2-Dichlorobenzene	µg/L	117	77.6	72.4	73 J	87 J	11 J	66	68 J
1,4-Dichlorobenzene	µg/L	250	207	181	280	300	47	260	300
2-Chlorotoluene	µg/L	12.5	8.24	8.10	9.5 J	28 J	25 U	8.5 J	250 U
Benzene	µg/L	141	99.8	72.8	73 J	61 J	8.9 J	47	70 J
Chlorobenzene	µg/L	3550	3010	2890	4100	4000	680	2700	3900
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	4.76 U	4.72 U	4.67 U	10 U	10.0 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	µg/L	9.52 U	9.43 U	9.35 U	10 U	10.0 U	10 U	10 U	10 U
2,4-Dichlorophenol	µg/L	22.6	25.6	9.35 U	11	6.62 J	3.5 J	8 J	15
2,5-Dichlorophenol	µg/L	9.52 U	9.43 U	17.1	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	µg/L	34.2	28.0	21.0	21	11.4	8.3 J	12	20
4-Chlorophenol	µg/L	70.6	59.1	41.8	60	20	10 U	26	44
Phenol	µg/L	4.32 J	4.84 J	9.35 U	0.56 J	0.628 J	10 U	10 U	10 U
Metals									
Arsenic	µg/L	8.61 J	10.0 U	10.0 U	10.0 UJ	10.0 U	10 U	10 U	10 UJ
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	.2 UJ
Pesticides									
alpha-BHC	µg/L	0.0377 U	0.0374 UJ	0.0377 U	0.026 J	0.025 U	.019	.25 U	.5 U
beta-BHC	µg/L	0.126	0.0467 UJ	0.236 U	0.34 J	0.28	.29	.25 U	0.08 J
delta-BHC	µg/L	1.16	0.933 J	1.12 U	0.25 J	0.44	.65	.73	0.75
gamma-BHC (lindane)	µg/L	0.0377 U	0.0374 UJ	0.0377 U	0.013 UJ	0.013 U	.013 U	.25 U	.5 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:	PCM-03	PCM-03	PCM-03	PCM-03	PCM-03	PCM-03	PCM-03	PCM-03
Sample ID:	PCM-03-1107	PCM-03-0508	PCM-12-0508	PCM-03-1108	PCM-03-309 031809	PCM-031009	PCM-03-310	PCM-03-1010
Sample Date:	11/8/2007	5/21/2008	5/21/2008 (Duplicate)	11/11/2008	3/18/2009	10/23/2009	4/6/2010	10/9/2010
Parameters	**Units**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/L	130 U	130 U	130 U	130 U	1.0 U	1.0 U	250 U	200 U
1,2,4-Trichlorobenzene	µg/L	130 U	51 J	130 U	130 U	1.0 U	1.0 U	250 U	200 U
1,2-Dichlorobenzene	µg/L	67 J	130 U	130 U	87 J	97	90	100 J	66 J
1,4-Dichlorobenzene	µg/L	310	440	430	380	440	500	510	340
2-Chlorotoluene	µg/L	130 U	130 U	130 U	130 U	12 U	1.0 U	120 J	200 U
Benzene	µg/L	48 J	47 J	51 J	73 J	84	73	76 J	50 J
Chlorobenzene	µg/L	4000	4300	4300	4000	4300	4900	5000	3500
Semi-volatile Organic Compounds								
1,2,4,5-Tetrachlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	9.4 U	9.6 U
2,4,5-Trichlorophenol	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	9.4 U	9.6 U
2,4-Dichlorophenol	µg/L	16	28	26	12	28	11 J	6.0 J	18
2,5-Dichlorophenol	µg/L	5.0 U	5.0 U	7.5	22	6.1 J	3.9 J	9.4 U	9.6 U
2-Chlorophenol	µg/L	19	37	35	13	41	16	5.9 J	14
4-Chlorophenol	µg/L	5.0 U	77	67	29	93	71	9.0 J	31
Phenol	µg/L	0.72 J	5.0 U	1.1 J	0.58 J	4.2 J	1.3 J	9.4 U	1.7 J
Metals								
Arsenic	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10 U	10 U	5.7 J	10.0 U
Mercury	µg/L	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.95	0.20 U
Pesticides								
alpha-BHC	µg/L	0.25 U	0.25 U	0.25 U	1.0 U	0.050 U	0.050 U	0.048 U	0.048 U
beta-BHC	µg/L	0.076 J	0.48	0.46	5.6	0.072	0.12	0.060	0.046 J
delta-BHC	µg/L	0.6 J	0.6	0.68	1.1	2.0	1.5	1.0	0.59
gamma-BHC (lindane)	µg/L	0.25 U	0.25 U	0.25 U	1.0 U	0.050 U	0.050 U	0.048 U	0.048 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:	PCM-03	PCM-03	PCM-03	PCM-03	PCM-03	PCM-03	PCM-03	PCM-03
Sample ID:	PCM-03-0411	PCM-03-1011	PCM-03-1012	PCM-03-1013	PCM-03-1113	PCM-03-1015	PCM-03-1016	PCM-03-1017
Sample Date:	4/13/2011	10/19/2011	10/2/2012	10/3/2013	10/28/2014	10/15/2015	10/19/2016	10/23/2017
Parameters	**Units**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/L	120 U	130 U	130 U	4.0 U	200 U	200 U	5.0 U	25 U
1,2,4-Trichlorobenzene	µg/L	120 U	130 U	130 U	4.0 U	200 U	200 U	5.0 U	25 U
1,2-Dichlorobenzene	µg/L	61 J	46 J	49 J	82	59 J	50 J	52	59
1,4-Dichlorobenzene	µg/L	310	220	260	450	310	310	320	390
2-Chlorotoluene	µg/L	120 U	130 U	130 U	16	200 U	200 U	12	13 J
Benzene	µg/L	62 J	34 J	44 J	58	64 J	49 J	34	44
Chlorobenzene	µg/L	3400	3000	3200	4600	3700	3700	3500	3700
Semi-volatile Organic Compounds								
1,2,4,5-Tetrachlorobenzene	µg/L	9.5 U	9.6 U	48 U	38 U	9.5 U	9.5 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	µg/L	9.5 U	9.6 U	48 U	38 U	9.5 U	9.5 U	9.4 U	9.4 UJ
2,4-Dichlorophenol	µg/L	9.5 U	9.6 U	48 U	27 J	9.5 U	5.6 J	24	9.4 UJ
2,5-Dichlorophenol	µg/L	13	9.6 U	48 U	38 U	9.5 U	9.5 U	4.7 U	4.7 U
2-Chlorophenol	µg/L	9.0 J	9.6 U	16 J	18 J	9.5 U	5.0 J	24	11 J
4-Chlorophenol	µg/L	16	9.6 U	31 J	31 J	3.1 J	8.2 J	53	24
Phenol	µg/L	0.91 J	9.6 U	48 U	38 U	9.5 U	9.5 U	9.4 U	9.4 U
Metals								
Arsenic	µg/L	10.0 U	10 U	10 U	10 U	10 U	3.7 J	10 U	10 U
Mercury	µg/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
Pesticides								
alpha-BHC	µg/L	0.048 U	0.048 U	0.047 U	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U
beta-BHC	µg/L	0.059	0.048 U	0.061	0.093	0.064	0.059	0.068	0.092
delta-BHC	µg/L	0.075	0.048 U	0.91	0.86	0.79	0.76	0.047 U	0.62
gamma-BHC (lindane)	µg/L	0.048 U	0.048 U	0.047 U	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-04	PCM-04	PCM-04	PCM-04	PCM-04	PCM-04	PCM-04	PCM-04
Sample ID:		PCM-04-602	PCM-04-802	PCM-04-1202	PCM-04-303	PCM-04-603	PCM-12-603	PCM-04-903	PCM-04-1203
Sample Date:		6/4/2002	8/30/2002	12/10/2002	3/28/2003	6/23/2003	6/23/2003 (Duplicate)	9/30/2003	12/29/2003
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	5.00 U	5.00 U	20.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,4-Trichlorobenzene	µg/L	5.00 U	5.00 U	20.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichlorobenzene	µg/L	66.9	52.5	27.2	53.4	50.0	48.7	41.7 J	31.1
1,4-Dichlorobenzene	µg/L	261	272	154	269	259	266	267 J	240
2-Chlorotoluene	µg/L	5.00 U	5.00 U	20.0 U	2.73	1.57 U	1.61 U	3.25 U	3.17
Benzene	µg/L	228 J	218	143	225	204	202	185 J	161
Chlorobenzene	µg/L	6080	6290	4210	6210	6870	6760	7010 J	6470
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	5.00 U	5.00 U	5.05 U	4.72 U	4.67 U	4.67 U	4.72 U	4.76 U
2,4,5-Trichlorophenol	µg/L	10.0 U	10.0 U	10.1 U	9.43 U	9.35 U	9.35 U	9.43 U	9.52 U
2,4-Dichlorophenol	µg/L	6.19 J	4.69 J	10.1 U	6.48 J	4.15 J	3.79 J	4.20 J	9.52 U
2,5-Dichlorophenol	µg/L	10.0 U	10.0 U	10.1 U	9.43 U	9.35 U	9.35 U	9.43 U	9.52 U
2-Chlorophenol	µg/L	19.3	18.8	12.4 J	23.5	20.4	20.1	18.0	11.4
4-Chlorophenol	µg/L	48.6	37.3	32.6 J	45.2	38.0	38.4	35.4	27.9
Phenol	µg/L	3.60 J	10.0 U	10.1 U	3.91 J	9.35 U	9.35 U	9.43 U	9.52 U
Metals									
Arsenic	µg/L	10.0 U	10.0 U	10.0 U	20.0 U	10.0 U	10.0 U	12.8	7.61 J
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	NR
Pesticides									
alpha-BHC	µg/L	0.0500 U	0.0500 U	0.0505 U	0.0642	0.0467 U	0.0467 U	0.0479 U	0.0374 U
beta-BHC	µg/L	0.0500 U	0.0500 U	0.0505 U	0.0361 J	0.0467 U	0.0467 U	0.0467 U	0.0467 U
delta-BHC	µg/L	0.0500 U	0.0500 U	0.0505 U	0.0472 U	0.0467 U	0.0467 U	1.38	0.895
gamma-BHC (lindane)	µg/L	0.0500 U	0.0500 U	0.0505 U	0.0472 U	0.0467 U	0.0467 U	0.0467 U	0.0374 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-04	PCM-04	PCM-04	PCM-04	PCM-04	PCM-04	PCM-04	PCM-04
Sample ID:		PCM-04-304	PCM-04-1204	PCM-04-605	PCM-04-1005	PCM-12-1005	PCM-04-606	PCM-04-1206	PCM-04-607
Sample Date:		3/12/2004	12/15/2004	6/22/2005	10/19/2005	10/19/2005 (Duplicate)	6/26/2006	12/14/2006	6/18/2007
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	1.00 U	1.00 U	250 U	13 U	13 U	250 U	250 U	310 U
1,2,4-Trichlorobenzene	µg/L	1.00 U	1.00 U	250 U	13 U	13 U	250 U	250 U	310 U
1,2-Dichlorobenzene	µg/L	45.9	1.00 U	250 U	20	21	250 U	250 U	310 U
1,4-Dichlorobenzene	µg/L	229	245	300	250	260	330	260	330
2-Chlorotoluene	µg/L	2.45	2.13 U	250 U	13 U	13 U	250 U	250 U	310 U
Benzene	µg/L	195	178	140 J	85	86	69 J	65 J	110 J
Chlorobenzene	µg/L	6330 J	7220	8600	6600	8000	10000	7100	10000
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	4.67 U	5.05 U	10 U	10.0 U	10.0 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	µg/L	9.35 U	10.1 U	10 U	10.0 U	10.0 U	10 U	10 U	10 U
2,4-Dichlorophenol	µg/L	4.69 J	10.1 U	3.0 J	1.38 J	1.36 J	4.3 J	1.4 J	10 U
2,5-Dichlorophenol	µg/L	9.35 U	10.1 U	10 U	10 U	10 U	10 U	1.5 J	10 U
2-Chlorophenol	µg/L	28.1	13.9	20	15.6	15.0	14	14	14
4-Chlorophenol	µg/L	55.3	28.3	32	42	32	34	28	26
Phenol	µg/L	5.67 J	10.1 U	10 U	10.0 U	10.0 U	10 U	10 U	10 U
Metals									
Arsenic	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10 U	10 U	10 U
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	0.10 J
Pesticides									
alpha-BHC	µg/L	0.0374 UJ	0.0400 U	0.013 U	0.013 U	0.013 U	.013 U	.05 UJ	0.0081 J
beta-BHC	µg/L	0.0467 UJ	0.0500 U	0.025 U	0.025 U	0.025 U	.025 U	.05 UJ	0.14 J
delta-BHC	µg/L	0.0561 UJ	1.40 U	0.05	0.035	0.035	.032	.057 J	.05 UJ
gamma-BHC (lindane)	µg/L	0.0374 UJ	0.0400 U	0.013 U	0.013 U	0.013 U	.013 U	.05 UJ	.05 UJ

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-04	PCM-04	PCM-04	PCM-04	PCM-04	PCM-04	PCM-04	PCM-04
Sample ID:		PCM-12-607	PCM-04-1107	PCM-04-0508	PCM-04-1108	PCM-04-309	PCM-041009	PCM-04-310	PCM-04-1010
Sample Date:		6/18/2007 (Duplicate)	11/9/2007	5/21/2008	11/11/2008	3/18/2009	10/23/2009	4/6/2010	10/9/2010
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	310 U	210 U	500 U	360 U	1.0 U	1.0 U	500 U	500 U
1,2,4-Trichlorobenzene	µg/L	310 U	210 U	500 U	360 U	1.0 U	1.0 U	500 U	500 U
1,2-Dichlorobenzene	µg/L	310 U	210 U	500 U	360 U	1.0 U	18 J	500 U	500 U
1,4-Dichlorobenzene	µg/L	320	300	400 J	400	290	300	380 J	210 J
2-Chlorotoluene	µg/L	310 U	210 U	500 U	360 U	2.1 U	1.0 U	500 U	500 U
Benzene	µg/L	100 J	48 J	500 U	360 U	41 J	25 J	500 U	500 U
Chlorobenzene	µg/L	11000	8600	12000	11000	10000	10000	12000	7700
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	10 U	5.0 U	5.0 U	5.0 U	10 U	10 U	9.4 U	9.5 U
2,4,5-Trichlorophenol	µg/L	10 U	5.0 U	5.0 U	5.0 U	10 U	10 U	9.4 U	9.5 U
2,4-Dichlorophenol	µg/L	10 U	1.2 J	1.6 J	0.88 J	1.8 J	10 U	1.1 J	0.98 J
2,5-Dichlorophenol	µg/L	10 U	5.0 U	2.0 J	5.0 U	1.9 J	1.4 J	9.4 U	9.5 U
2-Chlorophenol	µg/L	15	5.0 U	5.0 U	10	34	24	14	14
4-Chlorophenol	µg/L	26	25	35	30	66	49	24	27
Phenol	µg/L	10 U	5.0 U	5.0 U	5.0 U	2.4 J	7.2 J	9.4 U	9.5 U
Metals									
Arsenic	µg/L	10 U	10.0 U	10.0 U	10.0 U	10 U	10 U	3.2 J	10.0 U
Mercury	µg/L	.2 U	0.11 J	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.060 J
Pesticides									
alpha-BHC	µg/L	.05 U	0.050 U	0.050 U	0.25 U	0.050 U	0.050 U	0.048 U	0.048 U
beta-BHC	µg/L	0.16	0.050 U	0.050 U	0.25 U	0.050 U	0.050 U	0.048 U	0.048 U
delta-BHC	µg/L	.05 U	0.025 J	0.12	1.1	1.2	0.050 U	0.10	0.13 J
gamma-BHC (lindane)	µg/L	.05 U	0.050 U	0.050 U	0.25 U	0.050 U	0.050 U	0.048 U	0.048 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:	PCM-04	PCM-04	PCM-04	PCM-04	PCM-04	PCM-04	PCM-04	PCM-04
Sample ID:	PCM-04-0411	PCM-04-1011	PCM-04-1012	PCM-04-1013	PCM-04-1113	PCM-04-1015	PCM-04-1016	PCM-04-1017
Sample Date:	4/13/2011	10/19/2011	10/2/2012	10/3/2013	10/28/2014	10/15/2015	10/19/2016	10/23/2017
Parameters	**Units**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/L	500 U	500 U	400 U	4.0 U	500 U	500 U	10 U	50 U
1,2,4-Trichlorobenzene	µg/L	500 U	500 U	400 U	4.0 U	500 U	500 U	10 U	50 U
1,2-Dichlorobenzene	µg/L	500 U	500 U	400 U	20	500 U	500 U	14	21 J
1,4-Dichlorobenzene	µg/L	220 J	200 J	170 J	340	250 J	200 J	230	200
2-Chlorotoluene	µg/L	500 U	500 U	400 U	4.0 U	500 U	500 U	2.2 J	50 U
Benzene	µg/L	500 U	500 U	400 U	33	500 U	500 U	27	22 J
Chlorobenzene	µg/L	8400	8000	7000	10000 J	9500	8500	7700	6700
Semi-volatile Organic Compounds								
1,2,4,5-Tetrachlorobenzene	µg/L	9.5 U	48 U	9.6 U	9.6 U	9.5 U	9.5 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	µg/L	9.5 U	48 U	9.6 U	9.6 U	9.5 U	9.5 U	9.4 U	9.4 UJ
2,4-Dichlorophenol	µg/L	0.90 J	48 U	0.54 J	0.71 J	9.5 U	0.54 J	1.4 J	1.6 J
2,5-Dichlorophenol	µg/L	9.5 U	48 U	9.6 U	9.6 U	9.5 U	9.5 U	4.7 U	4.7 U
2-Chlorophenol	µg/L	12	39 J	8.0 J	11	4.5 J	8.0 J	23	22 J
4-Chlorophenol	µg/L	28	48 U	18	18	8.9 J	14	46	43
Phenol	µg/L	9.5 U	48 U	9.6 U	9.6 U	9.5 U	9.5 U	9.4 U	9.4 U
Metals								
Arsenic	µg/L	10.0 U	10 U	10 U	10 U	10 U	10 U	10 U	4 J
Mercury	µg/L	0.11 J	0.064 J	0.071 J	0.20 U	0.060 J	0.097 J	0.04 J	0.20 U
Pesticides								
alpha-BHC	µg/L	0.048 U	0.047 U	0.048 U	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U
beta-BHC	µg/L	0.048 U	0.047 U	0.048 U	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U
delta-BHC	µg/L	0.13	0.090	0.053	0.81	1.8	0.13	0.047 U	0.047 U
gamma-BHC (lindane)	µg/L	0.048 U	0.047 U	0.048 U	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-05	PCM-05	PCM-05	PCM-05	PCM-05	PCM-05	PCM-05	PCM-05
Sample ID:		PCM-05-602	PCM-05-802	PCM-05-1202	PCM-05-303	PCM-05-603	PCM-05-903	PCM-12-903	PCM-05-1203
Sample Date:		6/4/2002	8/29/2002	12/12/2002	3/28/2003	6/24/2003	9/30/2003	9/30/2003 (Duplicate)	12/29/2003
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,4-Trichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,4-Dichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Chlorotoluene	µg/L	5.00 U	5.00 U	2.00 U	1.00 U	1.00 U	1.13 U	1.01 U	1.00 U
Benzene	µg/L	5.91	2.79 J	1.23	3.79	4.44	1.39	1.22	0.690 J
Chlorobenzene	µg/L	96.8	69.9	47.8	56.2	76.2	49.7	45.3	49.6
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	4.72 U	4.67 U	4.72 U	4.72 U	4.81 U
2,4,5-Trichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.43 U	9.43 U	9.62 U
2,4-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.43 U	9.43 U	9.62 U
2,5-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.43 U	9.43 U	9.62 U
2-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.43 U	9.43 U	9.62 U
4-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.43 U	9.43 U	9.62 U
Phenol	µg/L	10.0 U	10.0 U	10.0 U	9.43 U	9.35 U	9.43 U	9.43 U	9.62 U
Metals									
Arsenic	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	15.4	18.5	7.09 J
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	NR
Pesticides									
alpha-BHC	µg/L	0.0500 U	0.0500 U	0.0505 U	0.0613	0.0472 U	0.0511 U	0.0471 U	0.0374 U
beta-BHC	µg/L	0.0500 U	0.0500 U	0.0505 U	0.0472 U	0.0472 U	0.0467 U	0.0467 U	0.0467 U
delta-BHC	µg/L	0.0500 U	0.0500 U	0.0505 U	0.0472 U	0.0472 U	0.0467 U	0.0467 U	0.0561 U
gamma-BHC (lindane)	µg/L	0.0500 U	0.0500 U	0.0505 U	0.0472 U	0.0472 U	0.0467 U	0.0467 U	0.0374 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-05	PCM-05	PCM-05	PCM-05	PCM-05	PCM-05	PCM-05	PCM-05
Sample ID:		PCM-05-304	PCM-05-1204	PCM-05-605	PCM-05-1005	PCM-05-706	PCM-05-1206	PCM-05-607	PCM-05-1107
Sample Date:		3/15/2004	12/14/2004	6/20/2005	10/20/2005	7/5/2006	12/13/2006	6/18/2007	11/9/2007
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	1.00 U	1.00 U	4.2 U	3.1 U	13 U	0.5 U	0.5 U	1.8 U
1,2,4-Trichlorobenzene	µg/L	1.00 U	1.00 U	4.2 U	3.1 U	13 U	0.5 U	0.5 U	1.8 U
1,2-Dichlorobenzene	µg/L	1.00 U	1.00 U	4.2 U	3.1 U	13 U	0.5 U	0.5 U	1.8 U
1,4-Dichlorobenzene	µg/L	1.00 U	1.00 U	4.2 U	3.1 U	13 U	0.79 J	0.5 U	1.8 U
2-Chlorotoluene	µg/L	0.288 J	1.00 U	4.2 U	3.1 U	13 U	0.5 U	0.5 U	1.8 U
Benzene	µg/L	1.71	5.68	7.0	3.1 U	13 U	3.4	4.9	0.68 J
Chlorobenzene	µg/L	56.1	94.9	120	77	87	91	100	61
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	4.76 U	4.67 U	10 U	10.0 U	10 U	10 U	10 U	5.0 U
2,4,5-Trichlorophenol	µg/L	9.52 U	9.35 U	10 U	10.0 U	10 U	10 U	10 U	R
2,4-Dichlorophenol	µg/L	9.52 U	9.35 U	10 U	10.0 U	10 U	10 U	10 U	R
2,5-Dichlorophenol	µg/L	9.52 U	9.35 U	10 U	10 U	10 U	10 U	10 U	R
2-Chlorophenol	µg/L	9.52 U	9.35 U	10 U	10.0 U	10 U	10 U	10 U	R
4-Chlorophenol	µg/L	9.52 U	9.35 U	10 U	10 U	1.4 J	10 U	10 U	R
Phenol	µg/L	9.52 U	9.35 U	10 U	10.0 U	10 U	10 U	10 U	R
Metals									
Arsenic	µg/L	8.71 J	10.0 U	10.0 UJ	10.0 U	10 UJ	10 U	10 U	10.0 U
Mercury	µg/L	NR	NR	NR	NR	NR	NR	0.2 U	0.20 U
Pesticides									
alpha-BHC	µg/L	0.0374 U	0.0377 U	0.022	0.013 U	.013 U	0.05 U	0.05 U	0.050 U
beta-BHC	µg/L	0.0467 U	0.0472 U	0.025 U	0.025 U	.025 U	0.05 U	0.05 U	0.050 U
delta-BHC	µg/L	0.0561 U	0.0566 U	0.011 J	0.025	.013 U	0.05 U	0.05 U	0.050 UJ
gamma-BHC (lindane)	µg/L	0.0374 U	0.0377 U	0.015	0.013 U	.013 U	0.05 U	0.05 U	0.050 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-05	PCM-05	PCM-05	PCM-05	PCM-05	PCM-05	PCM-05	PCM-05
Sample ID:		PCM-05-0508	PCM-05-1108	PCM-05-309	PCM-051009	PCM-05-310	PCM-05-1010	PCM-05-0411	PCM-05-1011
Sample Date:		5/22/2008	11/11/2008	3/18/2009	10/23/2009	4/16/2010	10/9/2010	4/13/2011	10/18/2011
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	2.5 U	3.6 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	µg/L	2.5 U	3.6 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichlorobenzene	µg/L	2.5 U	3.6 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	µg/L	2.5 U	3.6 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Chlorotoluene	µg/L	2.5 U	3.6 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Benzene	µg/L	2.2 J	5.5	9.2	4.5	4.3 J	1.8 J	2.4 J	5.0 U
Chlorobenzene	µg/L	72	110	190	150	130	100	87	81
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	5.0 UJ	R	10 U	10 U	9.4 U	9.5 U	9.5 U	9.7 U
2,4,5-Trichlorophenol	µg/L	5.0 UJ	R	10 U	10 U	9.4 U	9.5 U	9.5 U	9.7 U
2,4-Dichlorophenol	µg/L	5.0 UJ	R	10 U	10 U	9.4 U	9.5 U	9.5 U	9.7 U
2,5-Dichlorophenol	µg/L	5.0 UJ	R	10 U	10 U	9.4 U	9.5 U	9.5 U	9.7 U
2-Chlorophenol	µg/L	5.0 UJ	R	0.78 J	10 U	9.4 U	9.5 U	9.5 U	9.7 U
4-Chlorophenol	µg/L	5.0 UJ	R	2.9 J	10 U	1.5 J	9.5 U	1.7 J	2.8 J
Phenol	µg/L	5.0 UJ	R	10 U	10 U	9.4 U	9.5 U	9.5 U	9.7 U
Metals									
Arsenic	µg/L	10.0 U	10.0 U	10 U	10 U	10.0 U	6.7 J	10.0 U	10 U
Mercury	µg/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
Pesticides									
alpha-BHC	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.048 U	0.048 U	0.048 U	0.048 U
beta-BHC	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.048 U	0.048 U	0.048 U	0.048 U
delta-BHC	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.048 U	0.048 U	0.048 U	0.048 U
gamma-BHC (lindane)	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.048 U	0.048 U	0.048 U	0.048 U

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-05	PCM-05	PCM-05	PCM-05	PCM-05	PCM-05	PCM-05
Sample ID:		PCM-05-1012	PCM-05-1013	PCM-05-1113	PCM-05-1015	PCM-05-1016	PCM-05-1017	PCM-05-1018
Sample Date:		10/2/2012	10/3/2013	10/28/2014	10/14/2015	10/29/2016	10/18/2017	10/05/2018
Parameters	**Units**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/L	4.0 U	4.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	4.0 U	4.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	4.0 U	4.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	4.0 U	4.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	µg/L	4.0 U	4.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	4.0 U	4.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	80	150	130	110	110	110	83
Semi-volatile Organic Compounds								
1,2,4,5-Tetrachlorobenzene	µg/L	9.6 U	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	µg/L	9.6 U	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	µg/L	9.6 U	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
2,5-Dichlorophenol	µg/L	9.6 U	9.6 U	9.5 U	9.4 U	4.7 U	4.7 U	4.7 U
2-Chlorophenol	µg/L	9.6 U	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chlorophenol	µg/L	9.6 U	1.1 J	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
Phenol	µg/L	9.6 U	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
Metals								
Arsenic	µg/L	5.0 J	10 U	10 U	4.6 J	10 U	10 U	10 U
Mercury	µg/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	µg/L	0.048 U	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 U
beta-BHC	µg/L	0.048 U	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 U
delta-BHC	µg/L	0.048 U	0.048 U	0.031 J	0.052 U	0.047 U	0.047 U	0.047 U
gamma-BHC (lindane)	µg/L	0.048 U	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	0.047 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-06	PCM-06	PCM-06	PCM-06	PCM-06	PCM-06	PCM-06	PCM-06
Sample ID:		NA	NA	NA	NA	NA	NA	NA	NA
Sample Date:		06/03/2002	08/29/2002	12/13/2002	3/31/2003	6/24/2003	9/30/2003	12/29/2003	3/15/2004
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/L	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	µg/L	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	µg/L	-	-	-	-	-	-	-	-
2-Chlorotoluene	µg/L	-	-	-	-	-	-	-	-
Benzene	µg/L	-	-	-	-	-	-	-	-
Chlorobenzene	µg/L	-	-	-	-	-	-	-	-
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	µg/L	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	µg/L	-	-	-	-	-	-	-	-
2,5-Dichlorophenol	µg/L	-	-	-	-	-	-	-	-
2-Chlorophenol	µg/L	-	-	-	-	-	-	-	-
4-Chlorophenol	µg/L	-	-	-	-	-	-	-	-
Phenol	µg/L	-	-	-	-	-	-	-	-
Metals									
Arsenic	µg/L	-	-	-	-	-	-	-	-
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	NR
Pesticides									
alpha-BHC	µg/L	-	-	-	-	-	-	-	-
beta-BHC	µg/L	-	-	-	-	-	-	-	-
delta-BHC	µg/L	-	-	-	-	-	-	-	-
gamma-BHC (lindane)	µg/L	-	-	-	-	-	-	-	-

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-06	PCM-06	PCM-06	PCM-06	PCM-06	PCM-06	PCM-06	PCM-06
Sample ID:		NA	NA	NA	NA	NA	NA	NA	NA
Sample Date:		12/16/2004	6/20/2005	10/20/2005	7/5/2006	12/13/2006	6/19/2007	11/12/2007	5/23/2008
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/L	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	µg/L	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	µg/L	-	-	-	-	-	-	-	-
2-Chlorotoluene	µg/L	-	-	-	-	-	-	-	-
Benzene	µg/L	-	-	-	-	-	-	-	-
Chlorobenzene	µg/L	-	-	-	-	-	-	-	-
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	µg/L	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	µg/L	-	-	-	-	-	-	-	-
2,5-Dichlorophenol	µg/L	-	-	-	-	-	-	-	-
2-Chlorophenol	µg/L	-	-	-	-	-	-	-	-
4-Chlorophenol	µg/L	-	-	-	-	-	-	-	-
Phenol	µg/L	-	-	-	-	-	-	-	-
Metals									
Arsenic	µg/L	-	-	-	-	-	-	-	-
Mercury	µg/L	NR	NR	NR	NR	NR	-	-	-
Pesticides									
alpha-BHC	µg/L	-	-	-	-	-	-	-	-
beta-BHC	µg/L	-	-	-	-	-	-	-	-
delta-BHC	µg/L	-	-	-	-	-	-	-	-
gamma-BHC (lindane)	µg/L	-	-	-	-	-	-	-	-

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:	PCM-06	PCM-06	PCM-06	PCM-06	PCM-06	PCM-06	PCM-06	PCM-06
Sample ID:	NA	NA	NA	NA	PCM-06-1010	NA	NA	PCM-06-1012
Sample Date:	11/10/2008	3/19/2009	10/21/2009	4/12/2010	10/11/2010	4/14/2011	10/18/2011	10/1/2012
Parameters	**Units**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/L	-	-	-	-	1.0 U	-	-	1.0 U
1,2,4-Trichlorobenzene	µg/L	-	-	-	-	1.0 U	-	-	1.0 U
1,2-Dichlorobenzene	µg/L	-	-	-	-	1.0 U	-	-	1.0 U
1,4-Dichlorobenzene	µg/L	-	-	-	-	1.0 U	-	-	1.0 U
2-Chlorotoluene	µg/L	-	-	-	-	1.0 U	-	-	1.0 U
Benzene	µg/L	-	-	-	-	1.0 U	-	-	1.0 U
Chlorobenzene	µg/L	-	-	-	-	1.0 U	-	-	1.0 U
Semi-volatile Organic Compounds								
1,2,4,5-Tetrachlorobenzene	µg/L	-	-	-	-	IV-NS	-	-	11 U
2,4,5-Trichlorophenol	µg/L	-	-	-	-	IV-NS	-	-	11 U
2,4-Dichlorophenol	µg/L	-	-	-	-	IV-NS	-	-	11 U
2,5-Dichlorophenol	µg/L	-	-	-	-	IV-NS	-	-	11 U
2-Chlorophenol	µg/L	-	-	-	-	IV-NS	-	-	11 U
4-Chlorophenol	µg/L	-	-	-	-	IV-NS	-	-	11 U
Phenol	µg/L	-	-	-	-	IV-NS	-	-	11 U
Metals								
Arsenic	µg/L	-	-	-	-	IV-NS	-	-	10 U
Mercury	µg/L	-	-	-	-	IV-NS	-	-	0.20 U
Pesticides								
alpha-BHC	µg/L	-	-	-	-	IV-NS	-	-	0.048 U
beta-BHC	µg/L	-	-	-	-	IV-NS	-	-	0.048 U
delta-BHC	µg/L	-	-	-	-	IV-NS	-	-	0.048 U
gamma-BHC (lindane)	µg/L	-	-	-	-	IV-NS	-	-	0.048 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:	PCM-06	PCM-06	PCM-06	PCM-06	PCM-06	PCM-06
Sample ID:	PCM-06-1013	PCM-06-1114	PCM-06-1015	PCM-06-1016	NA	PCM-06-1018
Sample Date:	10/10/2013	10/22/2014	10/14/2015	10/29/2016	10/19/2017	10/07/2018
Parameters	**Units**					
Volatile Organic Compounds						
1,2,3-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	-	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	-	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	-	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	-	1.0 U
2-Chlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	-	1.0 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	-	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	-	1.0 U
Semi-volatile Organic Compounds						
1,2,4,5-Tetrachlorobenzene	µg/L	IV-NS	9.5 U	9.5 U	-	-	IV-NS
2,4,5-Trichlorophenol	µg/L	IV-NS	9.5 U	9.5 U	-	-	IV-NS
2,4-Dichlorophenol	µg/L	IV-NS	9.5 U	9.5 U	-	-	IV-NS
2,5-Dichlorophenol	µg/L	IV-NS	9.5 U	9.5 U	-	-	IV-NS
2-Chlorophenol	µg/L	IV-NS	9.5 U	9.5 U	-	-	IV-NS
4-Chlorophenol	µg/L	IV-NS	9.5 U	9.5 U	-	-	IV-NS
Phenol	µg/L	IV-NS	9.5 U	9.5 U	-	-	IV-NS
Metals						
Arsenic	µg/L	IV-NS	10 U	10 U	-	-	4 J
Mercury	µg/L	IV-NS	0.20 U	0.20 U	-	-	0.20 U
Pesticides						
alpha-BHC	µg/L	IV-NS	0.050 U	0.052 U	-	-	IV-NS
beta-BHC	µg/L	IV-NS	0.050 U	0.052 U	-	-	IV-NS
delta-BHC	µg/L	IV-NS	0.050 U	0.052 U	-	-	IV-NS
gamma-BHC (lindane)	µg/L	IV-NS	0.050 U	0.052 U	-	-	IV-NS

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-07	PCM-07	PCM-07	PCM-07	PCM-07	PCM-07	PCM-07	PCM-07
Sample ID:		PCM-07-502	PCM-07-802	PCM-07-1202	PCM-07-303	PCM-07-603	PCM-07-1003	PCM-07-1203	PCM-07-304
Sample Date:		6/3/2002	8/29/2002	12/18/2002	4/3/2003	6/27/2003	10/6/2003	12/31/2003	4/14/2004
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,4-Trichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,4-Dichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Chlorotoluene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	2.32 U	0.490 J	1.00 U
Benzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	5.81 U	4.67 U	4.67 U	4.67 U	5.05 U
2,4,5-Trichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	11.6 U	9.35 U	9.35 U	9.35 U	10.1 U
2,4-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	11.6 U	9.35 U	9.35 U	9.35 U	10.1 U
2,5-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	11.6 U	9.35 U	9.35 U	9.35 U	10.1 U
2-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	11.6 U	9.35 U	9.35 U	9.35 U	10.1 U
4-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	11.6 U	9.35 U	9.35 U	9.35 U	10.1 U
Phenol	µg/L	10.0 U	10.0 U	10.0 U	11.6 U	9.35 U	3.49 J	9.35 U	10.1 U
Metals									
Arsenic	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	4.61 J	25.4	19.8	9.55 J
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	NR
Pesticides									
alpha-BHC	µg/L	0.0500 U	0.0500 U	0.0510 U	0.0642	0.0467 U	0.0467 U	0.0374 U	0.0404 U
beta-BHC	µg/L	0.0500 U	0.0500 U	0.0510 U	0.0472 U	0.0467 U	0.0467 U	0.0467 U	0.0505 U
delta-BHC	µg/L	0.0500 U	0.0500 U	0.0510 U	0.0472 U	0.0467 U	0.0561 U	0.0664	0.0606 U
gamma-BHC (lindane)	µg/L	0.00810 J	0.0500 U	0.0510 U	0.0575	0.0467 U	0.0374 U	0.0374 U	0.0404 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:	PCM-07	PCM-07	PCM-07	PCM-07	PCM-07	PCM-07	PCM-07R	PCM-07R
Sample ID:	PCM-07-1204	PCM-07-605	PCM-07-1005	PCM-07-706	PCM-07-1206	PCM-07-607	NA	NA
Sample Date:	12/21/2004	6/23/2005	10/31/2005	7/5/2006	12/13/2006	6/19/2007	11/12/2007	5/23/2008
Parameters	**Units**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	-	-
1,2,4-Trichlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	-	-
1,2-Dichlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	-	-
1,4-Dichlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	-	-
2-Chlorotoluene	µg/L	1.00 U	0.32 J	0.50 U	0.5 U	0.5 U	0.5 U	-	-
Benzene	µg/L	1.00 U	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	-	-
Chlorobenzene	µg/L	1.00 U	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	-	-
Semi-volatile Organic Compounds								
1,2,4,5-Tetrachlorobenzene	µg/L	4.72 U	10 U	10.0 U	10 U	10 U	10 U	-	-
2,4,5-Trichlorophenol	µg/L	9.43 U	10 U	10.0 U	10 U	10 U	10 U	-	-
2,4-Dichlorophenol	µg/L	9.43 U	10 U	10.0 U	10 U	10 U	10 U	-	-
2,5-Dichlorophenol	µg/L	9.43 U	10 U	10 U	10 U	10 U	10 U	-	-
2-Chlorophenol	µg/L	9.43 U	10 U	10.0 U	10 U	10 U	10 U	-	-
4-Chlorophenol	µg/L	9.43 U	10 U	10 U	10 U	10 U	10 U	-	-
Phenol	µg/L	9.43 U	10 U	10.0 U	10 U	10 U	10 UJ	-	-
Metals								
Arsenic	µg/L	10.0 U	10.0 U	10.0 U	10 U	10 U	10 U	-	-
Mercury	µg/L	NR	NR	NR	NR	NR	0.2 U	-	-
Pesticides								
alpha-BHC	µg/L	0.0377 UJ	0.055	R	0.013 U	0.05 U	0.013 J	-	-
beta-BHC	µg/L	0.0472 UJ	0.025 U	R	0.025 U	0.05 U	0.05 U	-	-
delta-BHC	µg/L	0.0566 UJ	0.013 U	R	0.013 U	0.05 U	0.011 J	-	-
gamma-BHC (lindane)	µg/L	0.0377 UJ	0.024	R	0.013 U	0.05 U	0.05 U	-	-

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:	PCM-07R	PCM-07R	PCM-07R	PCM-07R	PCM-07R	PCM-07R	PCM-07R	PCM-07R
Sample ID:	PCM-7R-1108	PCM-7R-309	PCM-071009	PCM-07R-310	PCM-07R-1010	PCM-07R-0411	PCM-07R-1011	PCM-07R-1012
Sample Date:	11/12/2008	3/19/2009	10/23/2009	4/16/2010	10/11/2010	4/14/2011	10/18/2011	10/1/2012
Parameters	**Units**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/L	0.50 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	µg/L	0.21 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	0.50 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	µg/L	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	µg/L	0.79	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	0.18 J	1.0 U	1.0 U
Semi-volatile Organic Compounds								
1,2,4,5-Tetrachlorobenzene	µg/L	5.0 U	10 U	10 U	9.6 U	9.6 U	9.6 U	9.7 U	9.8 U
2,4,5-Trichlorophenol	µg/L	5.0 U	10 U	10 U	9.6 U	9.6 U	9.6 U	9.7 U	9.8 U
2,4-Dichlorophenol	µg/L	5.0 U	10 U	10 U	9.6 U	9.6 U	9.6 U	9.7 U	9.8 U
2,5-Dichlorophenol	µg/L	5.0 U	10 U	10 U	9.6 U	9.6 U	9.6 U	9.7 U	9.8 U
2-Chlorophenol	µg/L	5.0 U	10 U	10 U	9.6 U	9.6 U	9.6 U	9.7 U	9.8 U
4-Chlorophenol	µg/L	5.0 U	10 U	10 U	9.6 U	9.6 U	9.6 U	9.7 U	9.8 U
Phenol	µg/L	5.0 U	10 U	10 U	9.6 U	9.6 U	9.6 U	9.7 U	9.8 U
Metals								
Arsenic	µg/L	10.0 U	10 U	1.8 J	10.0 U	IV-NS	10.0 U	10 U	10 U
Mercury	µg/L	0.20 U	0.20 U	0.20 U	0.20 U	IV-NS	0.20 U	0.20 U	0.20 U
Pesticides								
alpha-BHC	µg/L	0.11	0.052	0.060	0.048 U	0.053 J	0.033 J	0.048 U	0.048 U
beta-BHC	µg/L	0.19	0.050 U	0.050 U	0.048 U	0.048 U	0.048 U	0.048 U	0.048 U
delta-BHC	µg/L	0.062	0.038 J	0.050 U	0.048 U	0.048 U	0.032 J	0.057 J	0.048 U
gamma-BHC (lindane)	µg/L	0.11	0.051	0.028 J	0.048 U	0.048 U	0.048 U	0.048 U	0.048 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-07R	PCM-07R	PCM-07R	PCM-07R	PCM-07R	PCM-07R
Sample ID:		PCM-07R-1013	PCM-07R-1114	PCM-07R-1015	PCM-07R-1016	PCM-07R-1017	PCM-07R-1018
Sample Date:		10/9/2013	10/22/2014	10/14/2015	10/29/2016	10/18/2017	10/05/2018
Parameters	**Units**						
Volatile Organic Compounds							
1,2,3-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	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	µg/L	9.6 U	9.5 U	9.5 U	IV-NS	9.4 U	9.4 U
2,4,5-Trichlorophenol	µg/L	9.6 U	9.5 U	9.5 U	IV-NS	9.4 U	9.4 U
2,4-Dichlorophenol	µg/L	9.6 U	9.5 U	9.5 U	IV-NS	9.4 U	9.4 U
2,5-Dichlorophenol	µg/L	9.6 U	9.5 U	9.5 U	IV-NS	4.7 U	4.7 U
2-Chlorophenol	µg/L	9.6 U	9.5 U	9.5 U	IV-NS	9.4 U	9.4 U
4-Chlorophenol	µg/L	9.6 U	9.5 U	9.5 U	IV-NS	9.4 U	9.4 U
Phenol	µg/L	9.6 U	9.5 U	9.5 U	IV-NS	9.4 U	9.4 U
Metals							
Arsenic	µg/L	10 U	10 U	10 U	IV-NS	10 U	10 U
Mercury	µg/L	0.20 U	0.20 U	0.20 U	IV-NS	0.20 U	0.20 U
Pesticides							
alpha-BHC	µg/L	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	IV-NS
beta-BHC	µg/L	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	IV-NS
delta-BHC	µg/L	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	IV-NS
gamma-BHC (lindane)	µg/L	0.048 U	0.050 U	0.052 U	0.047 U	0.047 U	IV-NS

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:	PCM-08	PCM-08	PCM-08	PCM-08	PCM-08	PCM-08	PCM-08	PCM-08
Sample ID:	PCM-08-602	NA	PCM-08-1202	NA	NA	NA	NA	NA
Sample Date:	6/4/2002	8/29/2002	12/13/2002	3/31/2003	6/24/2003	9/30/2003	12/29/2003	3/15/2004
Parameters	**Units**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/L	5.00 U	-	1.00 U	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/L	5.00 U	-	1.00 U	-	-	-	-	-
1,2-Dichlorobenzene	µg/L	5.00 U	-	1.00 U	-	-	-	-	-
1,4-Dichlorobenzene	µg/L	5.00 U	-	1.00 U	-	-	-	-	-
2-Chlorotoluene	µg/L	5.00 U	-	1.47 U	-	-	-	-	-
Benzene	µg/L	5.00 U	-	1.00 U	-	-	-	-	-
Chlorobenzene	µg/L	5.00 U	-	1.00 U	-	-	-	-	-
Semi-volatile Organic Compounds								
1,2,4,5-Tetrachlorobenzene	µg/L	IV-NS	-	5.00 U	-	-	-	-	-
2,4,5-Trichlorophenol	µg/L	IV-NS	-	10.0 U	-	-	-	-	-
2,4-Dichlorophenol	µg/L	IV-NS	-	10.0 U	-	-	-	-	-
2,5-Dichlorophenol	µg/L	IV-NS	-	10.0 U	-	-	-	-	-
2-Chlorophenol	µg/L	IV-NS	-	10.0 U	-	-	-	-	-
4-Chlorophenol	µg/L	IV-NS	-	10.0 U	-	-	-	-	-
Phenol	µg/L	IV-NS	-	10.0 U	-	-	-	-	-
Metals								
Arsenic	µg/L	10.0 U	-	10.0 U	-	-	-	-	-
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	NR
Pesticides								
alpha-BHC	µg/L	IV-NS	-	0.0500 U	-	-	-	-	-
beta-BHC	µg/L	IV-NS	-	0.0500 U	-	-	-	-	-
delta-BHC	µg/L	IV-NS	-	0.0500 U	-	-	-	-	-
gamma-BHC (lindane)	µg/L	IV-NS	-	0.0500 U	-	-	-	-	-

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-08	PCM-08	PCM-08	PCM-08	PCM-08	PCM-08	PCM-08	PCM-08
Sample ID:		NA	NA	NA	NA	NA	NA	PCM-08-1107	PCM-08-0508
Sample Date:		12/16/2004	6/20/2005	10/20/2005	7/5/2006	12/13/2006	6/19/2007	11/12/2007	5/23/2008
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	-	-	-	-	-	-	0.50 U	0.50 U
1,2,4-Trichlorobenzene	µg/L	-	-	-	-	-	-	0.50 U	0.50 U
1,2-Dichlorobenzene	µg/L	-	-	-	-	-	-	0.50 U	0.50 U
1,4-Dichlorobenzene	µg/L	-	-	-	-	-	-	0.50 U	0.50 U
2-Chlorotoluene	µg/L	-	-	-	-	-	-	0.50 U	0.50 U
Benzene	µg/L	-	-	-	-	-	-	0.50 U	0.50 U
Chlorobenzene	µg/L	-	-	-	-	-	-	0.50 U	0.50 U
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	-	-	-	-	-	-	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	-	-	-	-	-	-	5.0 U	5.0 U
2,4-Dichlorophenol	µg/L	-	-	-	-	-	-	5.0 U	5.0 U
2,5-Dichlorophenol	µg/L	-	-	-	-	-	-	5.0 U	5.0 U
2-Chlorophenol	µg/L	-	-	-	-	-	-	5.0 U	5.0 U
4-Chlorophenol	µg/L	-	-	-	-	-	-	5.0 U	5.0 U
Phenol	µg/L	-	-	-	-	-	-	5.0 U	5.0 U
Metals									
Arsenic	µg/L	-	-	-	-	-	-	10.0 U	10.0 U
Mercury	µg/L	NR	NR	NR	NR	NR	-	0.20 U	0.20 U
Pesticides									
alpha-BHC	µg/L	-	-	-	-	-	-	0.050 U	0.050 U
beta-BHC	µg/L	-	-	-	-	-	-	0.050 U	0.050 U
delta-BHC	µg/L	-	-	-	-	-	-	0.0073 J	0.050 U
gamma-BHC (lindane)	µg/L	-	-	-	-	-	-	0.050 U	0.050 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

	Sample Location:	PCM-08	PCM-08	PCM-08	PCM-08	PCM-08	PCM-08	PCM-08	PCM-08
	Sample ID:	PCM-08-1108	PCM-08-309	PCM-081009	PCM-08-310	PCM-08-1010	PCM-08-0411	PCM-08-1011	PCM-08-1012
	Sample Date:	11/10/2008	3/19/2009	10/21/2009	4/6/2010	10/11/2010	4/14/2011	10/19/2011	10/1/2012
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	0.50 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	µg/L	0.50 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	µg/L	0.50 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	µg/L	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	µg/L	2.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	0.50 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	µg/L	5.0 U	10 U	10 U	10 U	9.4 U	9.6 U	9.6 U	9.6 U
2,4,5-Trichlorophenol	µg/L	5.0 U	10 U	10 U	10 U	9.4 U	9.6 U	9.6 U	9.6 U
2,4-Dichlorophenol	µg/L	5.0 U	10 U	10 U	10 U	9.4 U	9.6 U	9.6 U	9.6 U
2,5-Dichlorophenol	µg/L	5.0 U	10 U	10 U	10 U	9.4 U	9.6 U	9.6 U	9.6 U
2-Chlorophenol	µg/L	5.0 U	10 U	10 U	10 U	9.4 U	9.6 U	9.6 U	9.6 U
4-Chlorophenol	µg/L	5.0 U	10 U	10 U	10 U	9.4 U	9.6 U	9.6 U	9.6 U
Phenol	µg/L	5.0 U	10 U	10 U	10 U	9.4 U	9.6 U	9.6 U	9.6 U
Metals									
Arsenic	µg/L	10.0 U	10 U	10 U	10.0 U	10.0 U	10.0 U	10 U	10 U
Mercury	µg/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
Pesticides									
alpha-BHC	µg/L	0.014 J	0.050 U	0.050 U	0.047 U	0.048 U	0.048 U	0.048 U	0.047 U
beta-BHC	µg/L	0.072	0.050 U	0.050 U	1.0	0.048 U	0.048 U	0.048 U	0.047 U
delta-BHC	µg/L	0.050 U	0.050 U	0.050 U	0.047 U	0.048 U	0.048 U	0.048 U	0.047 U
gamma-BHC (lindane)	µg/L	0.050 U	0.050 U	0.050 U	0.047 U	0.048 U	0.048 U	0.048 U	0.047 U

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-08	PCM-08	PCM-08	PCM-08	PCM-08	PCM-08
Sample ID:		PCM-08-1013	PCM-08-1114	PCM-08-1015	PCM-08-1016	PCM-08-1017	PCM-08-1018
Sample Date:		10/9/2013	10/22/2014	10/14/2015	10/18/2016	10/17/2017	10/05/2018
Parameters	**Units**						
Volatile Organic Compounds							
1,2,3-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	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	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
2,5-Dichlorophenol	µg/L	9.6 U	9.5 U	9.4 U	4.7 U	4.7 U	4.7 U
2-Chlorophenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chlorophenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
Phenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
Metals							
Arsenic	µg/L	10 U	10 U	10 U	10 U	10 U	10 U
Mercury	µg/L	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Pesticides							
alpha-BHC	µg/L	0.047 U	0.050 U	0.050 U	0.030 J	0.047 U	0.047 U
beta-BHC	µg/L	0.047 U	0.050 U	0.050 U	0.047 U	0.047 U	0.047 U
delta-BHC	µg/L	0.047 U	0.050 U	0.050 U	0.047 U	0.047 U	0.047 U
gamma-BHC (lindane)	µg/L	0.047 U	0.050 U	0.050 U	0.047 U	0.047 U	0.047 U

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-09	PCM-09	PCM-09	PCM-09	PCM-09	PCM-09	PCM-09	PCM-09
Sample ID:		NA	NA	NA	NA	NA	NA	NA	NA
Sample Date:		6/3/2002	8/29/2002	12/13/2002	3/31/2003	6/24/2003	9/30/2003	12/29/2003	3/15/2004
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/L	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	µg/L	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	µg/L	-	-	-	-	-	-	-	-
2-Chlorotoluene	µg/L	-	-	-	-	-	-	-	-
Benzene	µg/L	-	-	-	-	-	-	-	-
Chlorobenzene	µg/L	-	-	-	-	-	-	-	-
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	µg/L	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	µg/L	-	-	-	-	-	-	-	-
2,5-Dichlorophenol	µg/L	-	-	-	-	-	-	-	-
2-Chlorophenol	µg/L	-	-	-	-	-	-	-	-
4-Chlorophenol	µg/L	-	-	-	-	-	-	-	-
Phenol	µg/L	-	-	-	-	-	-	-	-
Metals									
Arsenic	µg/L	-	-	-	-	-	-	-	-
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	NR
Pesticides									
alpha-BHC	µg/L	-	-	-	-	-	-	-	-
beta-BHC	µg/L	-	-	-	-	-	-	-	-
delta-BHC	µg/L	-	-	-	-	-	-	-	-
gamma-BHC (lindane)	µg/L	-	-	-	-	-	-	-	-

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-09	PCM-09	PCM-09	PCM-09	PCM-09	PCM-09	PCM-09	PCM-09
Sample ID:		NA	NA	NA	NA	NA	NA	NA	NA
Sample Date:		12/16/2004	6/20/2005	10/20/2005	7/5/2006	12/13/2006	6/19/2007	11/12/2007	5/23/2008
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/L	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	µg/L	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	µg/L	-	-	-	-	-	-	-	-
2-Chlorotoluene	µg/L	-	-	-	-	-	-	-	-
Benzene	µg/L	-	-	-	-	-	-	-	-
Chlorobenzene	µg/L	-	-	-	-	-	-	-	-
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	µg/L	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	µg/L	-	-	-	-	-	-	-	-
2,5-Dichlorophenol	µg/L	-	-	-	-	-	-	-	-
2-Chlorophenol	µg/L	-	-	-	-	-	-	-	-
4-Chlorophenol	µg/L	-	-	-	-	-	-	-	-
Phenol	µg/L	-	-	-	-	-	-	-	-
Metals									
Arsenic	µg/L	-	-	-	-	-	-	-	-
Mercury	µg/L	NR	NR	NR	NR	NR	-	-	-
Pesticides									
alpha-BHC	µg/L	-	-	-	-	-	-	-	-
beta-BHC	µg/L	-	-	-	-	-	-	-	-
delta-BHC	µg/L	-	-	-	-	-	-	-	-
gamma-BHC (lindane)	µg/L	-	-	-	-	-	-	-	-

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:	PCM-09	PCM-09	PCM-09	PCM-09	PCM-09	PCM-09	PCM-09	PCM-09
Sample ID:	NA	PCM-09-309	NA	PCM-09-310	NA	PCM-09-0411	PCM-09-1011	NA
Sample Date:	11/10/2008	3/19/2009	10/21/2009	4/6/2010	10/11/2010	4/14/2011	10/18/2011	10/1/2012
Parameters	**Units**							
Volatile Organic Compounds								
1,2,3-Trichlorobenzene	µg/L	-	1.0 U	-	1.0 U	-	1.0 U	1.0 U	-
1,2,4-Trichlorobenzene	µg/L	-	1.0 U	-	1.0 U	-	1.0 U	1.0 U	-
1,2-Dichlorobenzene	µg/L	-	1.0 U	-	1.0 U	-	1.0 U	1.0 U	-
1,4-Dichlorobenzene	µg/L	-	1.0 U	-	1.0 U	-	1.0 U	1.0 U	-
2-Chlorotoluene	µg/L	-	1.0 U	-	1.0 U	-	1.0 U	1.0 U	-
Benzene	µg/L	-	1.0 U	-	1.0 U	-	1.0 U	1.0 U	-
Chlorobenzene	µg/L	-	1.0 U	-	1.0 U	-	1.0 U	1.0 U	-
Semi-volatile Organic Compounds								
1,2,4,5-Tetrachlorobenzene	µg/L	-	10 U	-	9.5 U	-	9.5 U	9.7 U	-
2,4,5-Trichlorophenol	µg/L	-	10 U	-	9.5 U	-	9.5 U	9.7 U	-
2,4-Dichlorophenol	µg/L	-	10 U	-	9.5 U	-	9.5 U	9.7 U	-
2,5-Dichlorophenol	µg/L	-	10 U	-	9.5 U	-	9.5 U	9.7 U	-
2-Chlorophenol	µg/L	-	10 U	-	9.5 U	-	9.5 U	9.7 U	-
4-Chlorophenol	µg/L	-	10 U	-	9.5 U	-	9.5 U	9.7 U	-
Phenol	µg/L	-	10 U	-	9.5 U	-	9.5 U	9.7 U	-
Metals								
Arsenic	µg/L	-	10 U	-	10.0 U	-	10.0 U	10 U	-
Mercury	µg/L	-	0.20 U	-	0.20 U	-	0.20 U	0.20 U	-
Pesticides								
alpha-BHC	µg/L	-	0.050 U	-	0.048 U	-	0.048 U	0.047 U	-
beta-BHC	µg/L	-	0.050 U	-	0.25	-	0.048 U	0.047 U	-
delta-BHC	µg/L	-	0.050 U	-	0.048 U	-	0.048 U	0.047 U	-
gamma-BHC (lindane)	µg/L	-	0.050 U	-	0.048 U	-	0.048 U	0.047 U	-

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-09	PCM-09	PCM-09	PCM-09	PCM-09	PCM-09
Sample ID:		PCM-09-1013	PCM-09-1114	PCM-10-1015	PCM-10-1016	PCM-09-1017	PCM-09-1018
Sample Date:		10/9/2013	10/22/2014	10/14/2015	10/18/2016	10/17/2017	10/07/2018
Parameters	**Units**						
Volatile Organic Compounds							
1,2,3-Trichlorobenzene	µg/L	1.0 U	1.0 U	-	-	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	-	-	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	-	-	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	-	-	1.0 U	1.0 U
2-Chlorotoluene	µg/L	1.0 U	1.0 U	-	-	1.0 U	1.0 U
Benzene	µg/L	1.0 U	1.0 U	-	-	1.0 U	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	-	-	1.0 U	1.0 U
Semi-volatile Organic Compounds							
1,2,4,5-Tetrachlorobenzene	µg/L	9.7 U	9.5 U	-	-	9.4 U	IV-NS
2,4,5-Trichlorophenol	µg/L	9.7 U	9.5 U	-	-	9.4 U	IV-NS
2,4-Dichlorophenol	µg/L	9.7 U	9.5 U	-	-	9.4 U	IV-NS
2,5-Dichlorophenol	µg/L	9.7 U	9.5 U	-	-	4.7 U	IV-NS
2-Chlorophenol	µg/L	9.7 U	9.5 U	-	-	9.4 U	IV-NS
4-Chlorophenol	µg/L	9.7 U	9.5 U	-	-	9.4 U	IV-NS
Phenol	µg/L	9.7 U	9.5 U	-	-	9.4 U	IV-NS
Metals							
Arsenic	µg/L	10 U	52 J	-	-	10 U	50
Mercury	µg/L	0.20 U	0.41	-	-	0.20 U	0.20 U
Pesticides							
alpha-BHC	µg/L	0.048 U	0.050 U	-	-	0.047 U	IV-NS
beta-BHC	µg/L	0.048 U	0.050 U	-	-	0.047 U	IV-NS
delta-BHC	µg/L	0.048 U	0.050 U	-	-	0.047 U	IV-NS
gamma-BHC (lindane)	µg/L	0.048 U	0.050 U	-	-	0.047 U	IV-NS

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-10	PCM-10	PCM-10	PCM-10	PCM-10	PCM-10	PCM-10	PCM-10
Sample ID:		PCM-10-602	PCM-10-802	PCM-10-1202	PCM-10-303	PCM-10-603	PCM-10-1003	PCM-10-1203	PCM-10-304
Sample Date:		6/4/2002	8/29/2002	12/18/2002	4/2/2003	6/24/2003	10/2/2003	12/31/2003	4/13/2004
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,4-Trichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,4-Dichlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Chlorotoluene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.16 U	0.805 J	1.00 U
Benzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chlorobenzene	µg/L	5.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	5.00 U	5.00 U	5.00 U	4.95 U	4.67 U	4.67 U	4.67 U	4.67 U
2,4,5-Trichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.90 U	9.35 U	9.35 U	9.35 U	9.35 U
2,4-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.90 U	9.35 U	9.35 U	9.35 U	9.35 U
2,5-Dichlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.90 U	9.35 U	9.35 U	9.35 U	9.35 U
2-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.90 U	9.35 U	9.35 U	9.35 U	9.35 U
4-Chlorophenol	µg/L	10.0 U	10.0 U	10.0 U	9.90 U	9.35 U	9.35 U	9.35 U	9.35 U
Phenol	µg/L	10.0 U	10.0 U	10.0 U	9.90 U	9.35 U	9.35 U	9.35 U	9.35 U
Metals									
Arsenic	µg/L	10.0 U	10.0 U	20.0 U	8.98 J	5.48 J	10.0 U	23.5	16.1
Mercury	µg/L	NR	NR	NR	NR	NR	NR	NR	NR
Pesticides									
alpha-BHC	µg/L	0.0500 U	0.0500 U	0.0500 U	0.0791	0.0472 U	0.0837 U	0.0374 U	0.0662
beta-BHC	µg/L	0.0662	0.0500 U	0.0677	0.122	0.138	0.126	0.0467 U	0.0725
delta-BHC	µg/L	0.0500 U	0.0500 U	0.0500 U	0.0640	0.0472 U	0.0467 U	0.0561 U	0.0676
gamma-BHC (lindane)	µg/L	0.0500 U	0.0500 U	0.0500 U	0.0594	0.0472 U	0.0467 U	0.0374 U	0.0404 U

Notes:

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-10	PCM-10	PCM-10	PCM-10	PCM-10	PCM-10	PCM-10	PCM-10
Sample ID:		NA	PCM-10-605	PCM-10-1005	PCM-10-706	PCM-10-1206	PCM-10-607	PCM-10-1107	PCM-10-0508
Sample Date:		12/16/2004	6/23/2005	10/31/2005	7/6/2006	12/12/2006	6/19/2007	11/12/2007	5/23/2008
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	Frozen - No sample	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	0.50 U	0.50 U
1,2,4-Trichlorobenzene	µg/L	Frozen - No sample	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	0.50 U	0.50 U
1,2-Dichlorobenzene	µg/L	Frozen - No sample	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	0.50 U	0.50 U
1,4-Dichlorobenzene	µg/L	Frozen - No sample	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	0.50 U	0.50 U
2-Chlorotoluene	µg/L	Frozen - No sample	0.17 J	0.11 J	0.5 U	0.5 U	0.53 U	0.50 U	0.50 U
Benzene	µg/L	Frozen - No sample	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	0.50 U	0.50 U
Chlorobenzene	µg/L	Frozen - No sample	0.50 U	0.50 U	0.5 U	0.5 U	0.5 U	0.50 U	0.50 U
Semi-volatile Organic Compounds									
1,2,4,5-Tetrachlorobenzene	µg/L	Frozen - No sample	10 U	10.0 U	10 U	10 U	10 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	µg/L	Frozen - No sample	10 U	10.0 U	10 U	10 U	10 U	5.0 U	5.0 U
2,4-Dichlorophenol	µg/L	Frozen - No sample	10 U	10.0 U	10 U	10 U	10 U	5.0 U	5.0 U
2,5-Dichlorophenol	µg/L	Frozen - No sample	10 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U
2-Chlorophenol	µg/L	Frozen - No sample	10 U	10.0 U	10 U	10 U	10 U	5.0 U	5.0 U
4-Chlorophenol	µg/L	Frozen - No sample	10 U	10 U	10 U	10 U	10 U	5.0 U	5.0 U
Phenol	µg/L	Frozen - No sample	10 U	10.0 U	10 U	10 U	10 UJ	5.0 U	5.0 U
Metals									
Arsenic	µg/L	Frozen - No sample	10.0 U	10.0 U	10 U	10 U	10 U	10.0 U	10.0 U
Mercury	µg/L	NR	NR	NR	NR	NR	0.2 U	0.20 U	0.20 U
Pesticides									
alpha-BHC	µg/L	Frozen - No sample	0.038	R	0.026	0.03 J	0.014 J	0.0054 J	0.019 J
beta-BHC	µg/L	Frozen - No sample	0.078	0.062 J	0.06	0.06 U	0.022 J	0.02 J	0.058 U
delta-BHC	µg/L	Frozen - No sample	0.0062 J	R	0.0062 J	0.05 U	0.0089 J	0.050 UJ	0.050 U
gamma-BHC (lindane)	µg/L	Frozen - No sample	0.0092 J	R	0.013 U	0.05 U	0.05 U	0.050 U	0.050 U

Notes:

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-10	PCM-10	PCM-10	PCM-10	PCM-10	PCM-10	PCM-10	PCM-10
Sample ID:		PCM-101108	PCM-10-309	PCM-101009	PCM-10-310	PCM-10-1010	PCM-10-0411	PCM-10-1011	PCM-10-1012
Sample Date:		11/10/2008	3/19/2009	10/21/2009	4/13/2010	10/11/2010	4/15/2011	10/18/2011	10/1/2012
Parameters	**Units**								
Volatile Organic Compounds									
1,2,3-Trichlorobenzene	µg/L	0.50 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	µg/L	0.50 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	µg/L	0.50 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	µg/L	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	µg/L	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	0.50 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	0.50 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	µg/L	5.0 U	10 U	10 U	9.7 U	9.5 U	9.5 U	9.6 U	9.6 U
2,4,5-Trichlorophenol	µg/L	5.0 U	10 U	10 U	9.7 U	9.5 U	9.5 U	9.6 U	9.6 U
2,4-Dichlorophenol	µg/L	5.0 U	10 U	10 U	9.7 U	9.5 U	9.5 U	9.6 U	9.6 U
2,5-Dichlorophenol	µg/L	5.0 U	10 U	10 U	9.7 U	9.5 U	9.5 U	9.6 U	9.6 U
2-Chlorophenol	µg/L	5.0 U	10 U	10 U	9.7 U	9.5 U	9.5 U	9.6 U	9.6 U
4-Chlorophenol	µg/L	5.0 U	10 U	10 U	9.7 U	9.5 U	9.5 U	9.6 U	9.6 U
Phenol	µg/L	5.0 U	10 U	10 U	9.7 U	9.5 U	9.5 U	9.6 U	9.6 U
Metals									
Arsenic	µg/L	10.0 U	10 U	2.9 J	10.0 U	10.0 U	10.0 U	10 U	2.7 J
Mercury	µg/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
Pesticides									
alpha-BHC	µg/L	0.064 J	0.050 U	0.040 J	0.048 U	0.055 J	0.047 U	0.048 U	0.048 U
beta-BHC	µg/L	0.19 J	0.050 U	0.13	0.048 U	0.048 U	0.047 U	0.045 J	0.048 U
delta-BHC	µg/L	0.016 J	0.050 U	0.050 U	0.048 U	0.048 U	0.047 U	0.048 U	0.048 U
gamma-BHC (lindane)	µg/L	0.050 UJ	0.050 U	0.050 U	0.048 U	0.048 U	0.047 U	0.048 U	0.048 U

Notes:

Table D.2

Historical Overburden Groundwater Monitoring Results
Glenn Springs Holdings, Inc.
102nd Street Landfill Site
Niagara Falls, New York

Sample Location:		PCM-10	PCM-10	PCM-10	PCM-10	PCM-10	PCM-10
Sample ID:		PCM-10-1013	PCM-10-1114	PCM-10-1114	PCM-10-1016	PCM-10-1017	PCM-10-1018
Sample Date:		10/9/2013	10/22/2014	10/14/2015	10/18/2016	10/18/2017	10/08/2018
Parameters	**Units**						
Volatile Organic Compounds							
1,2,3-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	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	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4,5-Trichlorophenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
2,4-Dichlorophenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
2,5-Dichlorophenol	µg/L	9.6 U	9.5 U	9.4 U	4.7 U	4.7 U	4.7 U
2-Chlorophenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
4-Chlorophenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
Phenol	µg/L	9.6 U	9.5 U	9.4 U	9.4 U	9.4 U	9.4 U
Metals							
Arsenic	µg/L	10 U	3.1 J	6.4 J	10 U	10 U	10 U
Mercury	µg/L	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Pesticides							
alpha-BHC	µg/L	0.048 U	0.050 U	0.050 U	0.047 U	0.047 U	0.047 U
beta-BHC	µg/L	0.048 U	0.050 U	0.050 U	0.022 J	0.026 J	0.022 J
delta-BHC	µg/L	0.048 U	0.050 U	0.050 U	0.047 U	0.047 U	0.047 U
gamma-BHC (lindane)	µg/L	0.048 U	0.050 U	0.050 U	0.047 U	0.047 U	0.047 U

Notes:

NA - Not Applicable
NR - Not Required
µg/L - Micrograms per liter
U - Not detected at the associated reporting limit
"-" - Well Dry, No Sample Collected
OW-NS - Obstructed Well, No Sample
IV-NS - Insufficient Volume, No Sample
J - Estimated concentration
R - Data rejected

Appendix E
Concentration Trend Graphs

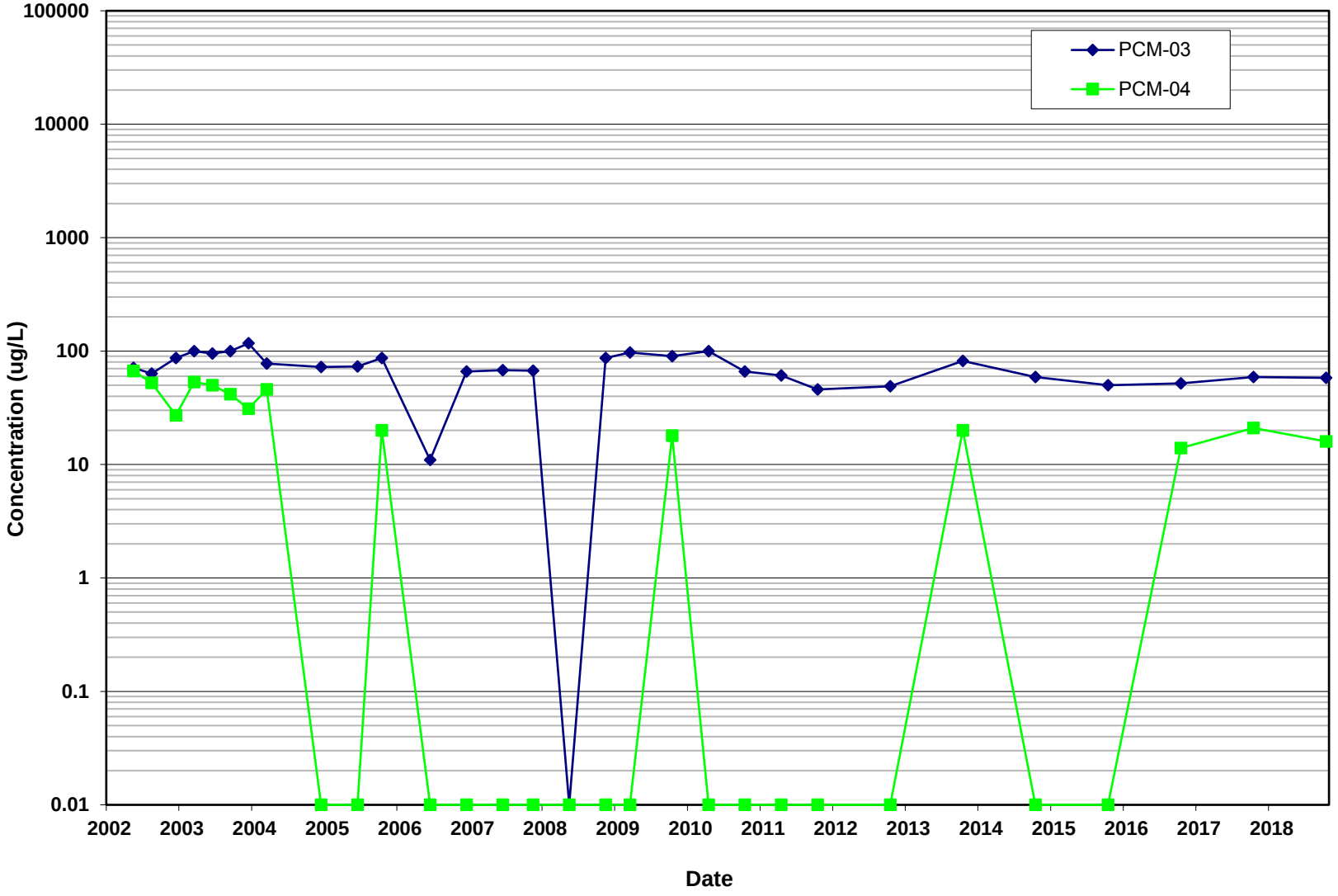


figure E.1
CONCENTRATION OF 1,2-DICHLOROBENZENE vs. TIME
102ND STREET LANDFILL

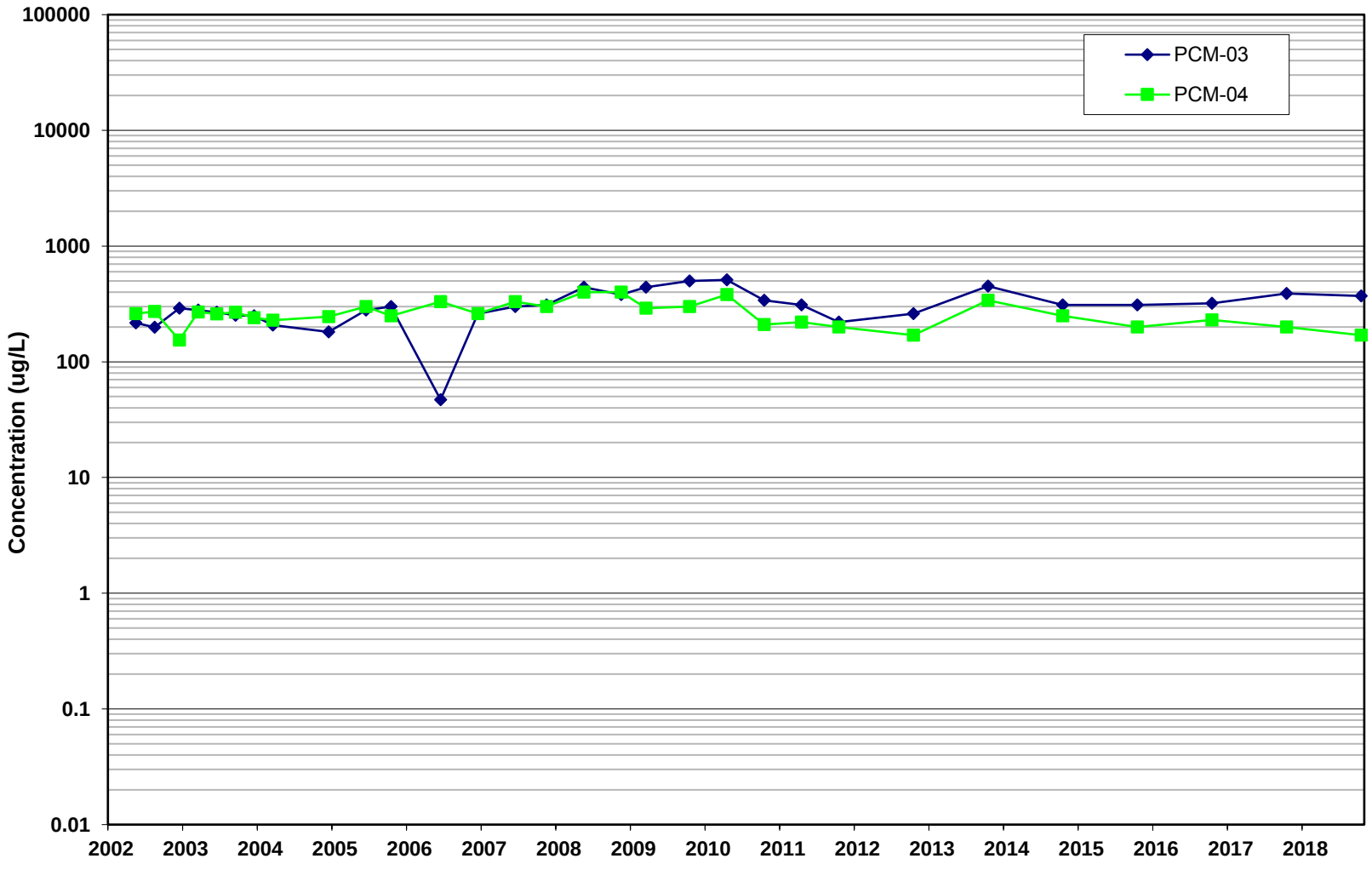


figure E.2
CONCENTRATION OF 1,4-DICHLOROBENZENE vs. TIME
102ND STREET LANDFILL

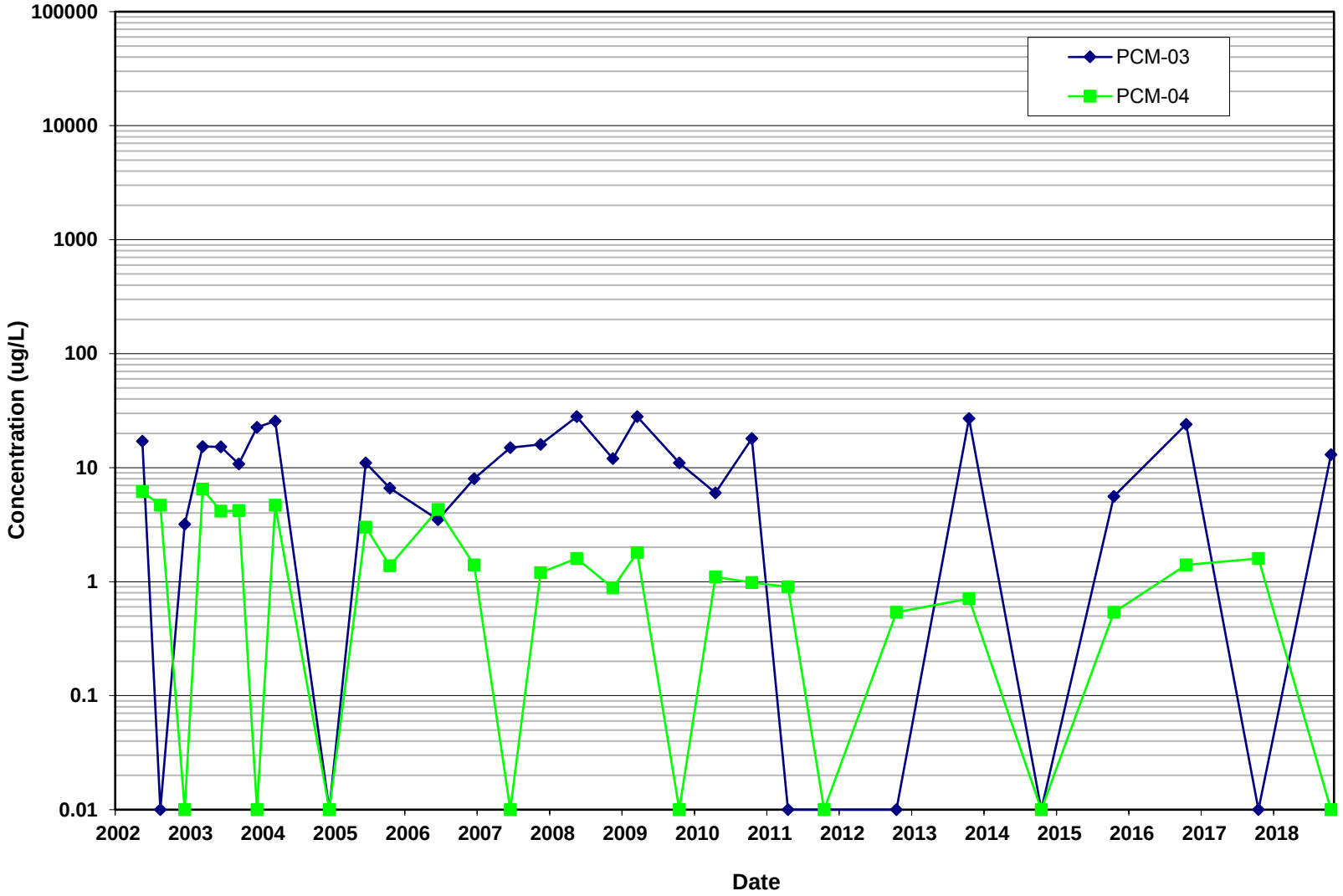


figure E.3
CONCENTRATION OF 2,4-DICHLOROPHENOL vs. TIME
102ND STREET LANDFILL

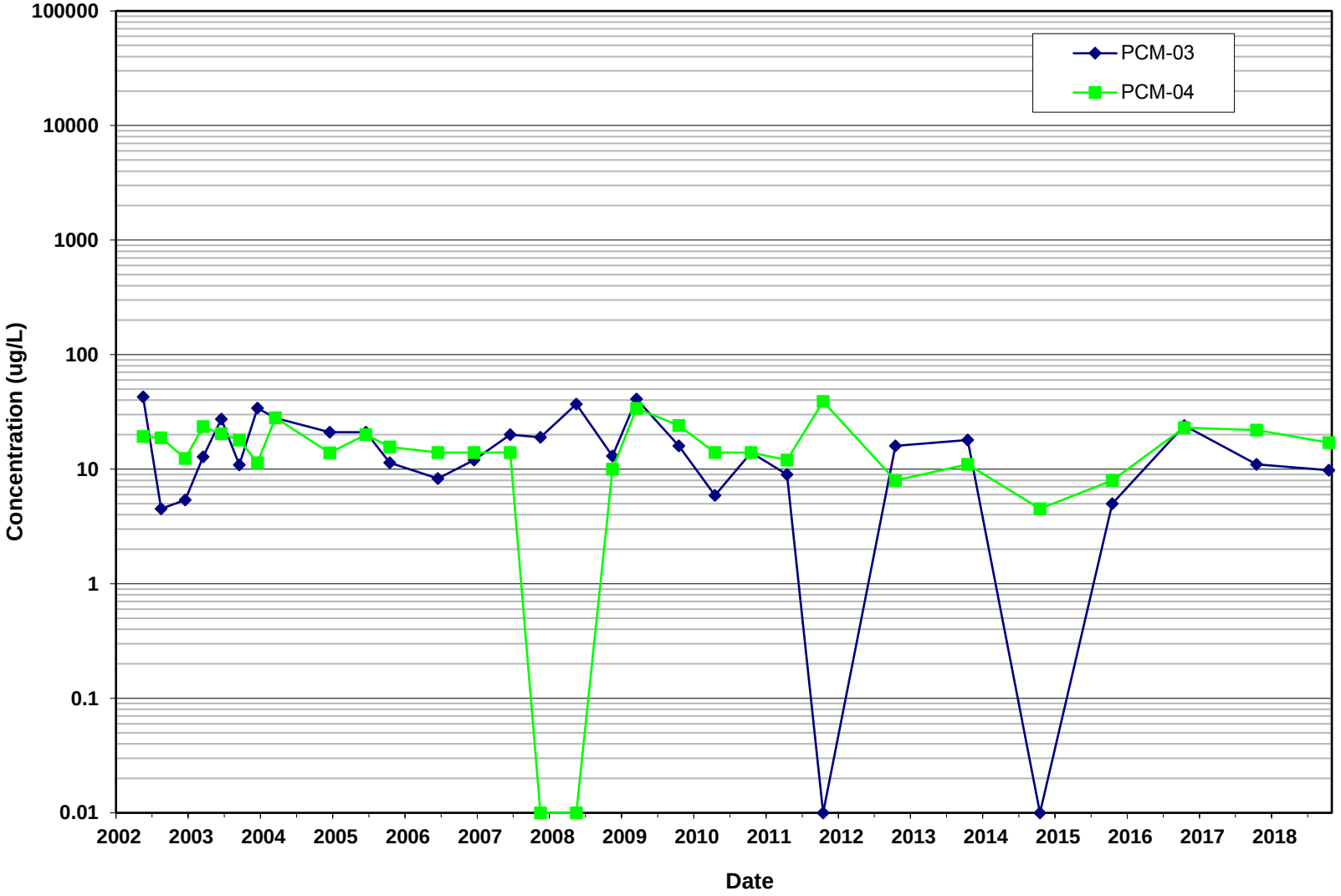


figure E.4
CONCENTRATION OF 2-CHLOROPHENOL vs. TIME
102ND STREET LANDFILL

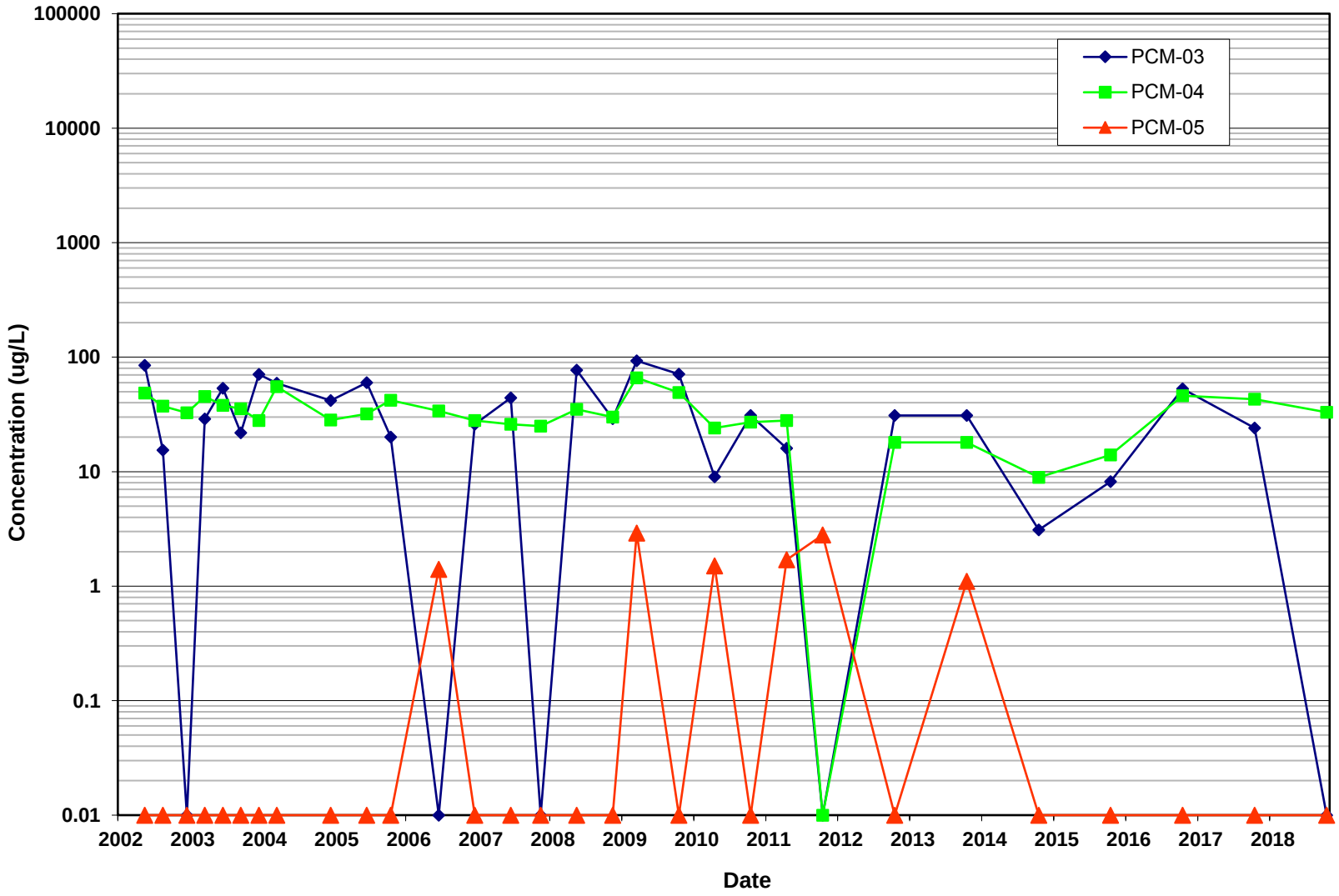


figure E.5
CONCENTRATION OF 4-CHLOROPHENOL vs. TIME
102ND STREET LANDFILL

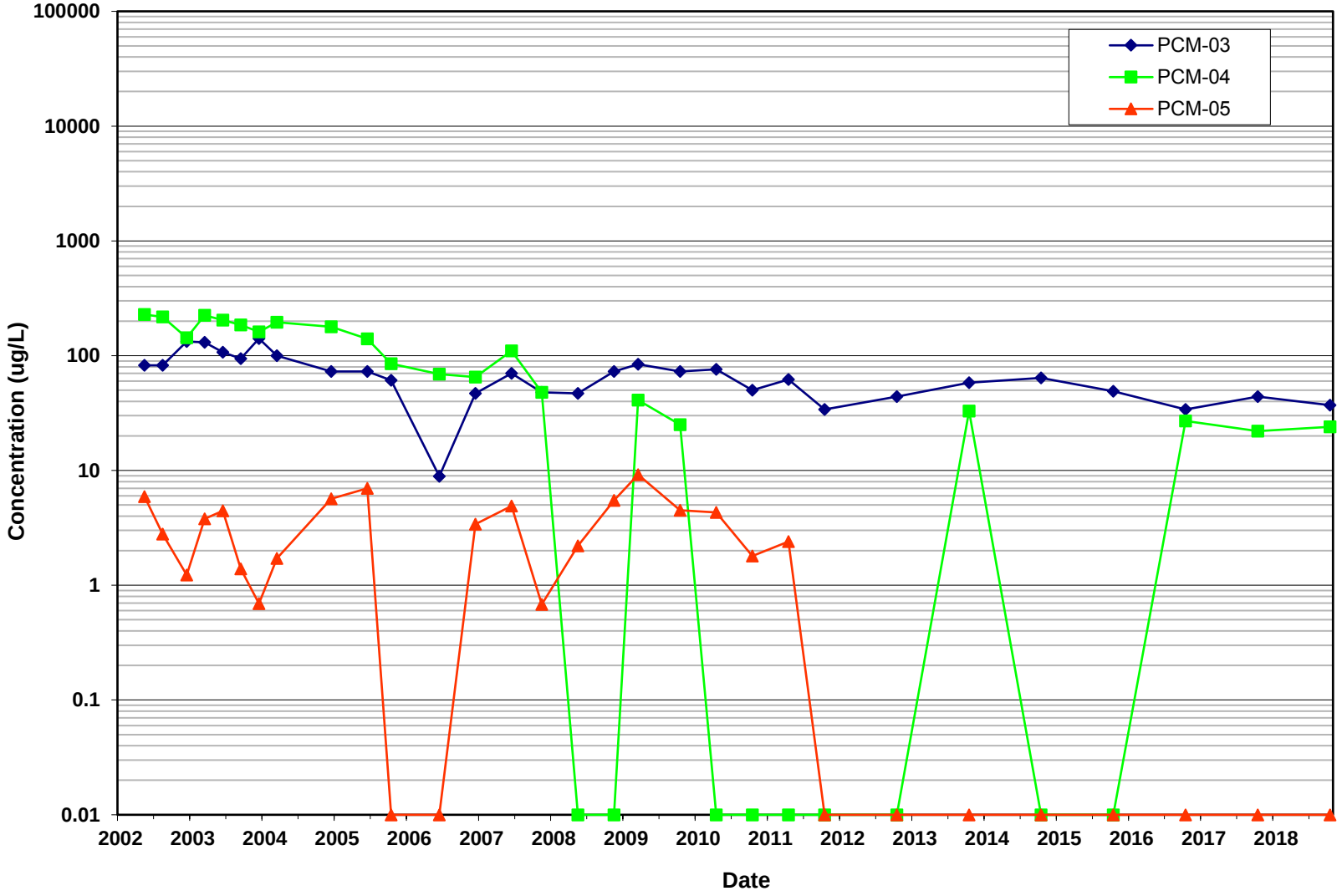


figure E.6
CONCENTRATION OF BENZENE vs. TIME
102ND STREET LANDFILL

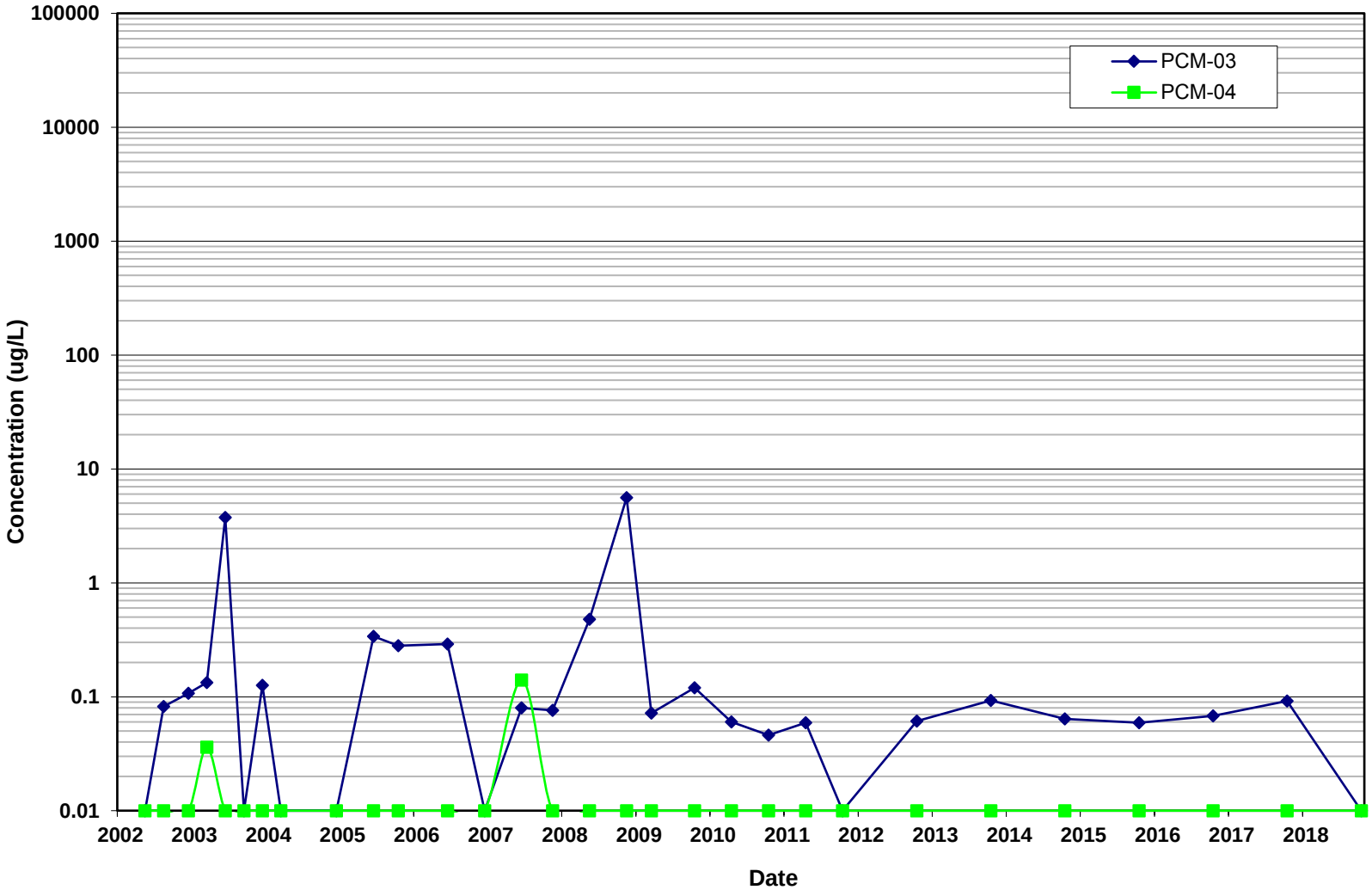


figure E.7
CONCENTRATION OF BETA-BHC vs. TIME
102ND STREET LANDFILL

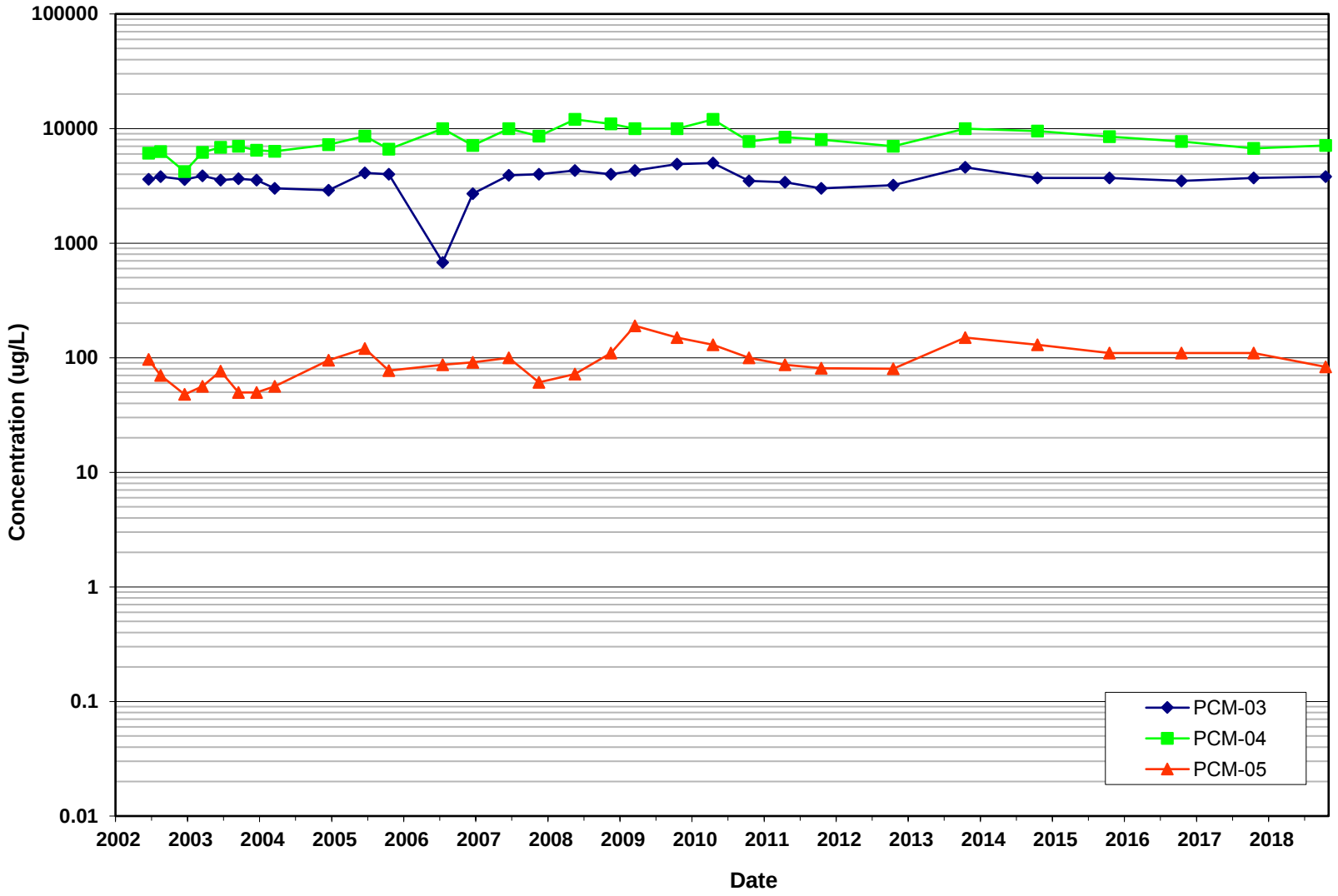


figure E.8
CONCENTRATION OF CHLOROBENZENE vs. TIME
102ND STREET LANDFILL

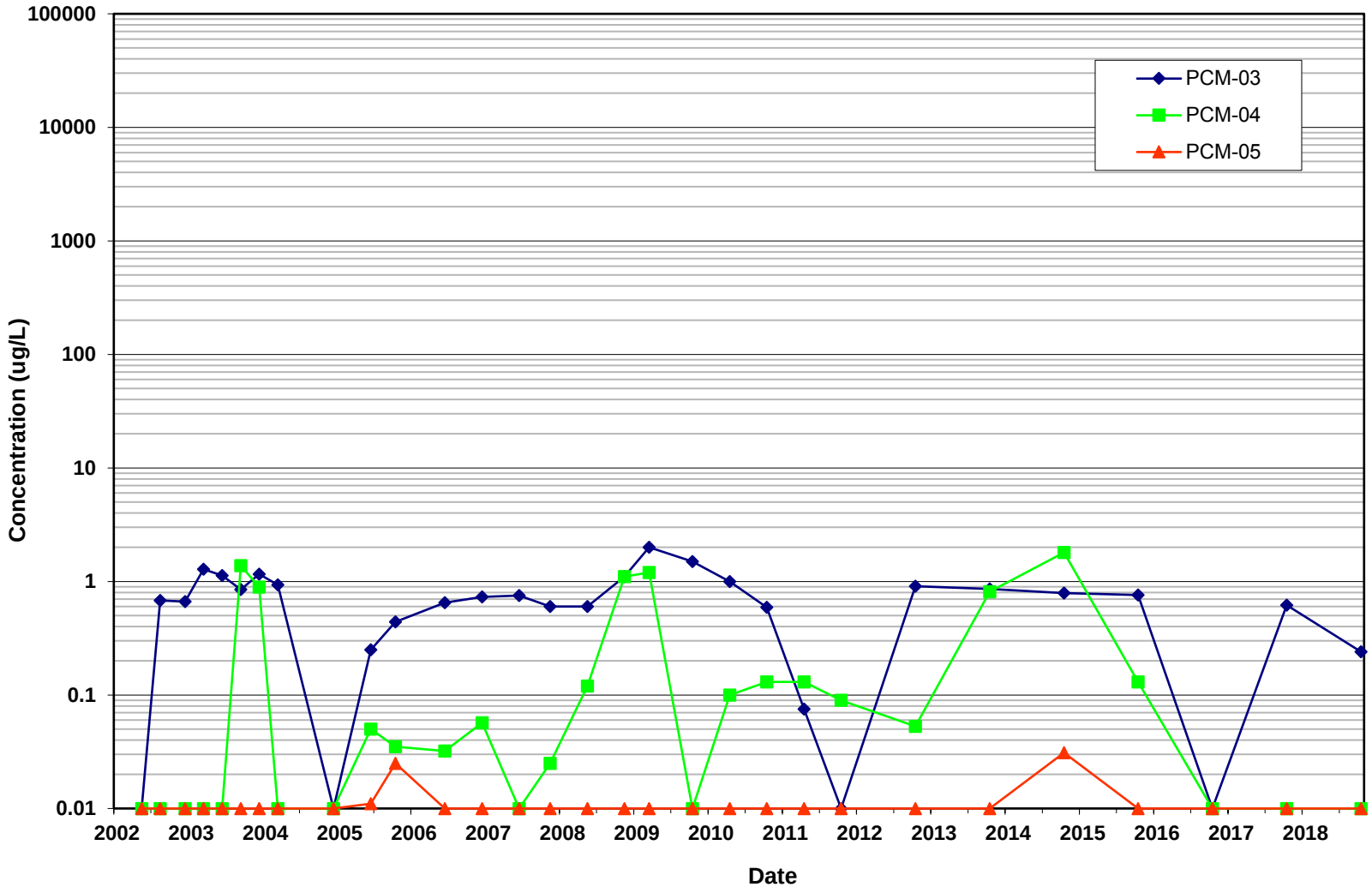


figure E.9
CONCENTRATION OF DELTA-BHC vs. TIME
102ND STREET LANDFILL

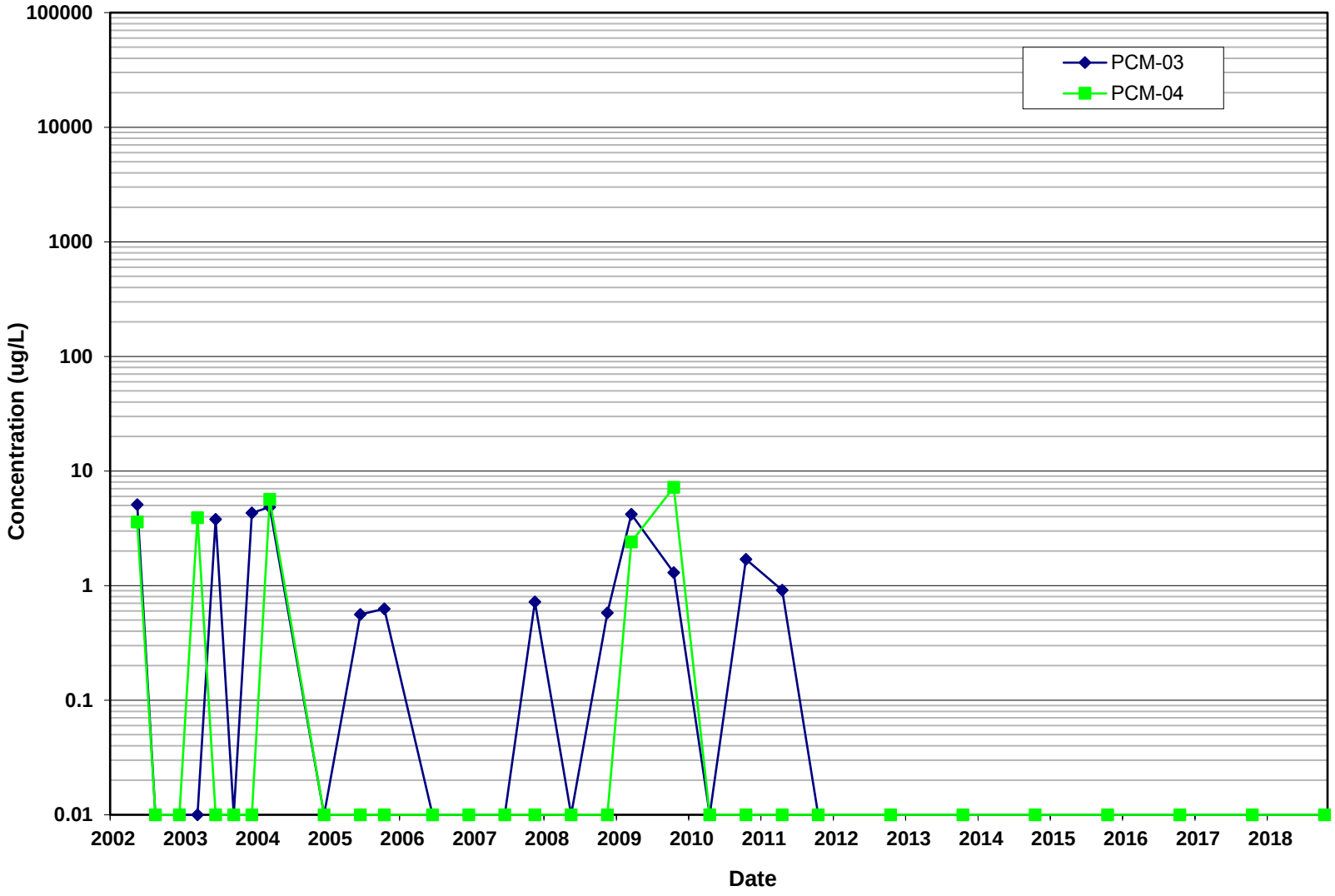


figure E.10
CONCENTRATION OF PHENOL vs. TIME
102ND STREET LANDFILL

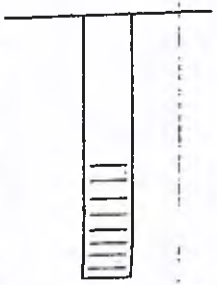
Appendix F
Monitoring Well Purge Records

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

Project Name: 102ND ST ANNUAL
Ref. No.:

Date: 10/5/18
Personnel: SG



Monitoring Well Data:

Well No.: PCM-08
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 9.29

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[6]	±10 %	±10 %	±0.1 Units	±10 mV		
0922	100	9.58	0.29	14.7	1.20	5.72	4.29	6.96	-0.4		
0927	96	9.73	0.44	15.0	1.17	2.76	3.58	6.97	-6.3		
0932		9.82	0.53	15.2	1.15	1.27	3.15	6.97	-8.6		
0937	96	9.88	0.59	14.6	1.13	0.87	3.37	6.97	-10.1		
0942		10.00	0.71	14.8	1.09	0.97	2.93	6.96	-14.2		
0947		10.13	0.84	14.9	1.08	0.64	2.97	6.96	-15.2		

Sample ID: PCM-08-1018

Sample Time: 0955

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

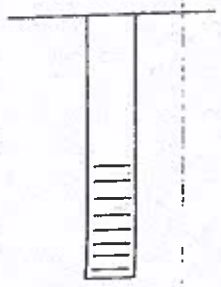
START PURGE @ 0914

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

Project Name: 102nd Street Annual
Ref. No.: 53716-50-410

Date: 10/5/18
Personnel: D. Tyran



Monitoring Well Data:

Well No.: PCM-05
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 12.29

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[8]	±10 %	±10 %	±0.1 Units	±10 mV		
1231		12.74	0.45	14.8	2.67	21.6	0.98	7.48	-164.3		
1236	55			14.7	2.67	8.35	0.56	7.49	-168.6		
1241		12.89	0.60	14.7	2.66	6.30	0.45	7.53	-168.3		
1246	50			14.6	2.66	4.89	0.40	7.49	-167.5		
1251				15.0	2.65	4.92	0.42	7.45	-163.8		

Sample ID: PCM-05-1018

Sample Time: 1255

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Inst. Control #5
W/L Meter NF06117
Turb GSH06215
YSI GSH06214

Start purge @ 1218

Sharon Davidson

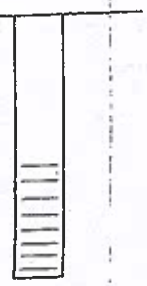
Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:
Project Name: 102nd Street Annual
Ref. No.: 53716-50-410

Date: 10/5/18
Personnel: D. Tyson

Monitoring Well Data:
Well No.: PCM-07R
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft): 15.20
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 12.79



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
		Precision Required[5]:		±3 %	±0.005 or 0.01[6]	±10 %	±10 %	±0.1 Units	±10 mV		
0911		13.10	0.31	14.9	1.66	0.72	3.23	6.81	31.0		
0916	50	13.23	0.44	14.5	1.63	1.57	2.41	6.94	-6.2		
0921		13.32	0.53	14.9	1.62	0.70	2.13	6.95	-12.6		
0926	70			15.1	1.61	0.58	1.91	6.93	-19.9		
0931		13.54	0.75	15.1	1.61	0.34	1.63	6.88	-25.3		
0936	50			15.0	1.59	0.28	1.48	6.87	-28.6		
0941				15.2	1.57	0.25	1.50	6.84	-30.7		
		Well went dry during sampling									
10/7/18	Well still dry no further samples taken										

Sample ID: PCM-07R-1018
Sample Time: 0945

Notes:
(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Inst. Control #'s
W/L Heter NF06117
Turb GSH 06215
YSI GSH 06214

10/5/18 2x 125ml Metals
3x 40ml VOCs
1L SVOCs

Start Purge @ 0903

D. Tyson

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

DUP

Project Data:

Project Name: 102ND ST ANNUAL
Ref. No.: 53716-50-410

Date: 10/5/18
Personnel: SG

Monitoring Well Data:

Well No.: PCBM-03
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 15.79

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
1134	100	16.01	0.22	12.8	5.39	1.94	4.88	6.96	-299.8		
1139	100	16.02	0.23	12.6	5.40	1.56	1.51	7.06	-306.2		
1144		16.02	0.23	12.6	5.41	1.73	1.14	7.07	-317.3		
1149	100	16.02	0.23	12.7	5.39	1.25	0.88	7.07	-338.1		
1154		16.02	0.23	12.6	5.37	1.14	0.74	7.08	-355.0		
1159		16.02	0.23	12.7	5.39	1.29	0.64	7.10	-373.1		
1204	98	16.02	0.23	12.8	5.39	1.42	0.58	7.08	-380.3		
1209		16.02	0.23	12.8	5.39	1.76	0.52	7.13	-381.2		
1214		16.02	0.23	12.7	5.39	1.48	0.50	7.13	-383.5		
1219	100	16.02	0.23	12.8	5.39	1.93	0.50	7.11	-380.7		

Sample ID: PCBM-03-1018
Sample Time: 1225

Notes: * BLIND DUPLICATE - PCM-12-1018
TIME 1225

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

START PURGE @ 1128

MS/MSD

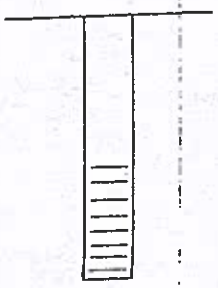
Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:
Project Name: 102nd Street Annual
Ref. No.: 53716-50-410

Date: 10/5/18
Personnel: D. Tyrsa

Monitoring Well Data:
Well No.: PCBM-02
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 11.78



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[6]	±10 %	±10 %	±0.1 Units	±10 mV		
1310	315			12.2	3.69	7.49	2.07	7.24	-316.4		
1315		11.78	0.00	12.1	3.75	3.62	0.45	7.36	-328.1		
1320	315			12.2	3.78	4.68	0.31	7.39	-328.7		
1325		11.78	0.00	12.2	3.78	3.02	0.19	7.29	-328.8		
1330	315			12.1	3.78	3.61	0.20	7.25	-328.9		
1335				12.2	3.76	4.80	0.20	7.35	-328.8		

Sample ID: PCBM-02-1018
Sample Time: 1335

Notes:
(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Inst. Control #'s
WL Meter NF 06117
YSI GSH 06214
Turb GSH 06215

Start purge @ 1305

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

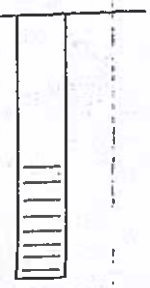
Project Name: 102nd Street Annual
Ref. No.: 53716-50-40

Date: 10/5/18
Personnel: D. Tyrgo

Monitoring Well Data:

Well No.: PCBM-01
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 12.51



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
1449	375			12.3	4.05	0.83	15.12	7.27	-289.3		
1454		12.62	0.11	12.3	4.06	1.74	1.70	7.66	-318.7		
1459	375			12.3	4.38	1.04	0.64	7.86	-334.9		
1504		12.62	0.11	12.3	4.40	0.79	0.45	8.03	-336.2		
1509				12.2	4.40	0.82	0.30	8.05	-336.2		
1514	375			12.2	4.40	0.58	0.30	8.01	-336.1		
1519				12.1	4.40	1.18	0.31	7.92	-336.0		

Sample ID: PCBM-01-1018

Sample Time: 1522

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Inst. Control #'s
YSI GSH06214
Turb GSH06215
W/L Meter NF06117

Start Purge @ 1446

Project Data:

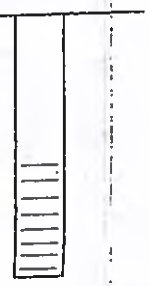
Project Name: 102ND ST ANNUAL
Ref. No.: 53716-50-410

Date: 10/5/18
Personnel: SG

Monitoring Well Data:

Well No.: PCM-09
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft): 10.76
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 10.35



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[6]	±10 %	±10 %	±0.1 Units	±10 mV		
1505	42	10.40	0.05	17.5	1.05	731	3.19	7.27	-62.3		
1510	38	10.48	0.13	17.4	1.02	118	2.30	7.23	-65.8		
1515	48	10.60	0.25	17.00	1.01	27.1	1.97	7.20	-66.5		
	WELL WENT DRY WHILE PURGING BOTTOM						10.69				
10/7/18	w/l 10.49	Take partial sample well went dry no further Samples taken									
		3x40ml VOCs		1x125ml Metals							

Sample ID: PCM-09-1018
Sample Date 10/7/18

Sample Time: 0920

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

START PURGE @ 1502

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

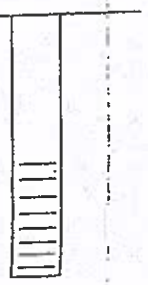
Project Name: 102nd Street Annual
Ref. No.: 53716-50-410

Date: 10/5/18
Personnel: D. Tyran

Monitoring Well Data:

Well No.: PCM-06
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 11.24



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[6]	±10 %	±10 %	±0.1 Units	±10 mV		
1042	50	11.49	0.25	15.7	4.49	780	1.66	7.25	-125.6		
1047		11.54	0.30	15.9	4.33	382	0.84	7.39	-136.6		
1052	50			16.2	4.28	276	0.67	7.45	-142.5		
1057		11.69	0.45	15.5	4.31	199	0.59	7.41	-142.7		
1102	50			16.0	4.24	211	0.57	7.42	-131.1		
1107		11.81	0.57	16.0	4.23	148	0.46	7.42	-130.2		
1112	50			15.9	4.24	130	0.46	7.37	-110.2		
1117		11.96	0.72	15.8	4.23	45.4	0.69	7.34	-101.2		
1122	70			16.5	4.21	325	0.57	7.26	-110.1		
1127		12.21	0.97	16.4	4.20	888	0.47	7.20	-118.0		
1132	80			16.4	4.19	480	0.49	7.35	-115.8		
1137		12.41	1.17	16.4	4.19	331	0.56	7.39	-116.2		
1142	80			16.4	4.19	142	0.63	7.38	-105.2		

Sample ID: _____ Sample Time: _____

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Inst. Control #'s
Turb GSH06215
YSI GSH06214
W/L Meter NF06117

Start Purge @ 1034

D. Tyran

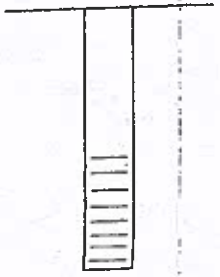
Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:
Project Name: 102nd Street Annual
Ref. No.: 53716-50-410

Date: 10/5/18
Personnel: D. Tyran

Monitoring Well Data:
Well No.: PCM-06
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft): 13.76
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 11.24



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[6]	±10 %	±10 %	±0.1 Units	±10 mV		
1147		12.75	1.51	16.3	4.18	85.9	0.54	7.35	-101.7		
1152	70			16.5	4.17	89.0	0.70	7.31	-97.1		
1157		13.59	2.35	16.6	4.16	159	1.40	7.22	-107.6		
		Well Dry		W/L 13.57							
10/7/18	w/L	12.80	Take	Partial sample			3x40ml 2x125ml	VOCs Metals			

Sample ID: PCM-06-1018
Sample Date 10/7/18

Sample Time: 0825

Notes:
(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Inst. Control #'s
Turb GSH 06215
YSI GSH 06214
W/L Meter NF06117

D. Tyran

Project Data:

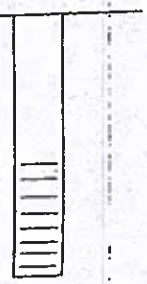
Project Name: 102nd Street Annual
Ref. No.: 53716-50-410

Date: 10/7/18
Personnel: D. Tyran

Monitoring Well Data:

Well No.: PCM-02
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 11.62



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[6]	±10 %	±10 %	±0.1 Units	±10 mV		
1236	70	12.08	0.46	14.4	1.05	5.85	0.43	7.11	-110.5		
1241		12.09	0.47	14.4	1.04	4.95	0.40	6.99	-110.8		
1246				14.3	1.04	4.23	0.42	7.03	-115.1		

Sample ID: PCM-02-1018

Sample Time: 1250

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Inst. Control #'s
YSI GSH06214
Turb NF05040
w/L Meter NF06117

Start Purge @ 1209

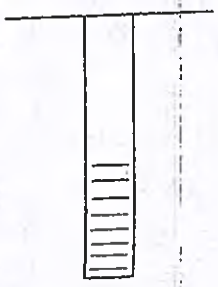
D. Tyran

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

Project Name: 102nd Street Annual
Ref. No.: 53716-50-410

Date: 10/7/18
Personnel: D. Tyran



Monitoring Well Data:

Well No.: PCM-03
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 12.88

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
1124	85	12.97	0.09	14.4	5.24	3.92	0.31	6.98	-138.9		
1129	100	13.02	0.14	14.1	5.24	2.46	0.29	6.96	-140.0		
1134				14.1	5.22	2.02	0.30	6.95	-139.3		

Sample ID: PCM-03-1018

Sample Time: 1135

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Inst. Control #5
Turb NFO5040
w/c Meter NFO6117
YSI GSH 06214

Start Purge @ 1034

Dave J Tyran

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

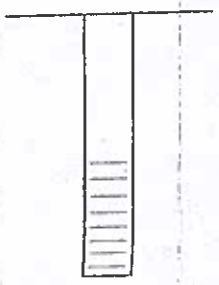
Project Name: Ft. 102nd Street Annual
Ref. No.: 53716-50-410

Date: 10/7/18
Personnel: D. Tynan

Monitoring Well Data:

Well No.: PCM-04
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 11.79



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[6]	±10 %	±10 %	±0.1 Units	±10 mV		
0933		12.11	0.32	14.9	4.50	1.55	0.60	6.99	-141.8		
0938	55			14.8	4.52	1.48	0.57	6.98	-142.6		
0943		12.09	0.30	15.0	4.53	1.10	0.57	6.99	-143.8		

Sample ID: PCM-04-1018

Sample Time: 0945

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Inst. Control #'s
W/L Meter NF06117
Turb. NF05040
YSI GS#06214

Start Purge @ 0847

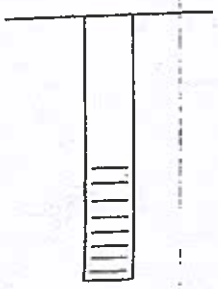
Dave Tynan

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

Project Name: 102nd Street Annual
Ref. No.: 53716-50-410

Date: 10/8/18
Personnel: D. Tyran



Monitoring Well Data:

Well No.: PCM-01
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 12.71

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
0912	70	13.51	0.80	13.1	9.87	5.35	1.07	6.39	-136.6		
0917		13.60	0.89	13.2	9.86	4.87	0.87	6.19	-135.6		
0922	65			13.3	9.85	4.29	0.80	6.16	-139.2		
0927		13.69	0.98	13.3	9.84	3.98	0.67	6.13	-140.1		
0932	60			13.4	9.84	3.28	0.65	6.16	-143.8		
0937					9.84	3.40	0.59	6.13	-142.0		

Sample ID: PCM-01-1018

Sample Time: 0940

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Inst. Control #'s
W/L Meter NF06117
Turbo NF05040
YSI GSH06214

Start Purge @ 0900

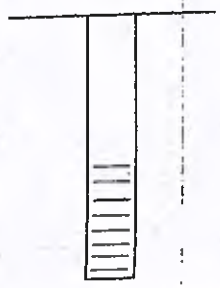
D. Tyran

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

Project Name: 102ND ST ANNUAL
Ref. No.: 53716-50-410

Date: 10/8/18
Personnel: SG



Monitoring Well Data:

Well No.: PCM-10
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 13.42

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
0912	80	13.75	0.33	13.0	2.84	4.01	2.99	6.84	24.4		
0917	76	13.83	0.41	12.9	2.84	3.64	1.88	6.83	21.5		
0922		13.92	0.50	12.9	2.83	4.04	1.32	6.81	19.3		
0927	76	13.97	0.55	12.9	2.75	2.14	1.10	6.79	17.1		
0932	72	14.09	0.67	13.0	2.59	2.00	0.99	6.78	14.9		
0937		14.14	0.72	13.1	2.44	1.49	0.90	6.78	12.9		
0942		14.16	0.74	13.1	2.32	2.00	0.76	6.77	10.3		
0947	72	14.23	0.81	13.2	2.24	1.52	0.69	6.77	7.3		
0952		14.26	0.84	13.3	2.13	1.69	0.62	6.75	3.1		
0957		14.33	0.91	13.3	2.06	1.62	0.57	6.74	-3.7		
1002	72	14.39	0.97	13.3	2.04	2.17	0.53	6.73	-12.6		
1007		14.48	1.06	13.4	2.02	2.24	0.55	6.72	-13.6		

Sample ID: PCM-10-1018

Sample Time: 1010

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

START PURGE @ 0904

Shawn Haubrich

about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

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