GLENN SPRINGS HOLDINGS, INC.
MILLER SPRINGS REMEDIATION MANAGEMENT INC.

QUARTERLY MONITORING REPORT
SECOND QUARTER -- 2001

- NAPL AND APL PLUME CONTAINMENT SYSTEM
- OVERBURDEN BARRIER COLLECTION SYSTEM
- RESIDENTIAL COMMUNITY MONITORING PROGRAM
- LEACHATE TREATMENT SYSTEM
- NAPL ACCUMULATION AND RECOVERY

HYDE PARK RRT PROGRAM
NIAGARA FALLS, NEW YORK

MARCH 2002
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1.0 INTRODUCTION

Reporting of monitoring data for the Non-Aqueous Phase Liquid (NAPL) Plume Containment System, Aqueous Phase Liquid (APL) Plume Containment System, and Overburden Barrier Collection System (OBCS) began in 1993. Monitoring reports for the NAPL and APL Plume Containment Systems as well as the OBCS have been submitted quarterly since 1996. These quarterly monitoring reports have also included data from the Leachate Treatment System, Residential Community Monitoring Program, and NAPL accumulation and recovery.

All monitoring data presented in this report have been collected and presented in accordance with the following documents:

i) "Stipulation on Requisite Remedial Technology Program" (RRT), dated November 13, 1995; and

ii) "Long-Term Monitoring Manual, Hydraulic (Water Levels), Physical (NAPL Presence-Seeps), Chemical (Groundwater Sampling), Hyde Park Landfill Site", dated October 9, 1998.

Miller Springs Remediation Management, Inc. (MSRM), has been assigned the responsibility of managing the Hyde Park RRT Program under the direction of Glenn Springs Holdings, Inc. (GSHI), a subsidiary of Occidental Petroleum Corporation.

1.1 REPORT ORGANIZATION

This report has been prepared to present monitoring data collected during the second quarter (April through June) 2001. The report is organized as follows:

- **Section 1.0 Introduction:** Section 1.0 presents a summary of the project, its administration, and the organization of the report.
- **Section 2.0 NAPL Plume Containment System:** Section 2.0 presents NAPL purge well operations data, performance monitoring data, statistical analyses of analytical data, and descriptions of non-routine investigations and activities performed during this reporting period. Recommendations for further investigation of the Site groundwater flow system are also presented in Section 2.0.
- **Section 3.0 APL Plume Containment System:** Section 3.0 presents APL purge well operations data, performance monitoring data, APL plume flux calculations where required, and descriptions of non-routine investigations and activities performed

during this reporting period. Recommendations for further investigation of the APL Plume Containment System, if deemed necessary, are also presented in Section 3.0.

- **Section 4.0 Overburden Monitoring Data:** Section 4.0 presents performance data from the Overburden Barrier Collection System and Residential Community Monitoring Well Network, and descriptions of non-routine investigations and activities performed during this reporting period. Recommendations for further investigation, if deemed necessary, are also presented in Section 4.0.
- **Section 5.0 Leachate Treatment Facility:** Section 5.0 presents analytical data collected from the Leachate Treatment Facility.
- **Section 6.0 NAPL Accumulation:** Section 6.0 presents a summary of the volume of NAPL collected from the Bedrock and Overburden Containment Systems and volumes of NAPL shipped off-Site for incineration.

2.0 NAPL PLUME CONTAINMENT SYSTEM

The NAPL Plume Containment System consists of a number of purge and performance monitoring wells installed in bedrock. The locations of the NAPL plume containment and NAPL purge wells are shown on Figure 2.1. The locations of the monitoring wells in the upper, middle, and lower bedrock zones are shown on Figures 2.2 through 2.4, respectively.

The objectives of the NAPL Plume Containment System are:

- Containment of the APL and NAPL plumes through the maintenance of an inward hydraulic gradient; and
- Collection of mobile NAPL.

Operation of the NAPL Plume Containment System commenced in 1994 and consisted of extraction from a series of six purge wells. The system has been modified over time to better achieve its objectives. The system presently consists of 12 NAPL Plume Containment Purge Wells (PWs) and one NAPL Purge Well (PW-7U) as shown on Figure 2.1. These wells are installed in three separate waterbearing zones within the Lockport bedrock formation. The zones are designated as upper, middle, and lower.

2.1 PURGE WELL OPERATIONS

The PW system was not operated continuously during the second quarter of 2001. The PW system was shut-down on May 4, 2001 in order to upgrade the treatment plant capacity from 150 gallons per minute (GPM) to 400 GPM. Re-start of the PW system occurred over the two-week period between May 21, 2001 and June 4, 2001.

Maintenance of the PW system was required as noted below.

- PW-4U pump and motor were removed and replaced on June 22, 2001. Accumulated NAPL and sediment were removed from the well during pump replacement.
- PW-5UR pump and motor were removed and replaced on June 14, 2001. Accumulated NAPL and sediment were removed from the well during each pump replacement event.

- PW-6MR pump and motor were removed and replaced on June 11, 2001. Accumulated NAPL and sediment were removed from well during pump replacement.

The average operating pumping rates and set point elevations at each of the bedrock purge wells during the past 3 months are presented in Table 2.1. Purge well PW-4M is typically dewatered when the pumping system is operating. Upon restart following the "shutdown" period, PW-4M produced a measurable flow of water. It has been previously reported that the open intervals of PW-6UR and/or PW-6MR intercept the flow zones feeding PW-4M, thus resulting in no flow at PW-4M. As PW-6UR and PW-6MR were not operating and therefore not influencing PW-4M when it was restarted, it seems likely that this assessment is correct. When PW-6UR and PW-6MR were restarted the flow rate at PW-4M decreased to 0 GPM.

The average operating pumping rate of the NAPL Plume Containment System during days of operation over the second quarter was 52.7 GPM. This flow rate is consistent with the flow in previous quarters.

2.2 CONTAINMENT SYSTEM MONITORING

Performance monitoring conducted during this quarter consisted of hydraulic, chemical, and NAPL presence monitoring. The performance monitoring well network is as presented in the "NAPL Plume Assessment and System Design Recommendations" report, dated July 1995, and modified most recently during the fourth quarter of 2000.

During this reporting period, routine hydraulic, chemical and NAPL presence monitoring were conducted as described in Sections 2.2.1, 2.2.2, and 2.2.3 of this report.

2.2.1 HYDRAULIC MONITORING

Hydraulic monitoring of well pairs located at the perimeter of the NAPL plumes (referred to as bedrock performance well pairs) was established in the RRT to gather the data necessary to verify the effective performance of the NAPL Plume Containment System.

Two methods of data interpretation, groundwater contours, and hydraulic gradients have been used in the past to assess the effectiveness of the NAPL Plume Containment System. Over the past year and a half, GSHI/MSRM has undertaken a significant effort to better understand the inter-relationship of the three bedrock zones and to develop monitoring methods which will provide representative data for the evaluation of the performance of the NAPL Plume Containment System. This work included the review of all monitoring wells to determine if they provide data representative of the monitored interval and a groundwater modeling study. The results of the groundwater modeling study have hypothesized that significant downward vertical groundwater flow occurs from the upper bedrock zone to the middle and lower bedrock zones and from the middle bedrock zone to the lower bedrock zone. In addition, the evaluations of the monitoring wells have shown that they are, in general, completed over a number of flow zones. As a result of these findings, use of either groundwater contours or hydraulic gradients, with the current monitoring network include several potential inconsistencies that make the data suspect. A more detailed discussion of the effectiveness of the monitoring network will be applicable following submission of the Revised Site Characterization in February 2002.

The hydraulic monitoring and data evaluation performed during this quarter are described in the following subsections.

2.2.1.1 WATER LEVEL MEASUREMENTS

Routine hydraulic monitoring was performed on April 9, and June 13, 2001 during PW operation. Routine hydraulic monitoring was not performed during May 2001 due to the shutdown of the PW system for treatment plant upgrades. The measured water level depths were recorded on field data sheets and then converted to elevations based on surveyed reference points (tops of casings). The cumulative hydraulic monitoring data for the Site from 1993 through this report are included on the enclosed CD under the filename HIST.pdf.

2.2.1.2 CONTOUR EVALUATION

The use of groundwater contours to demonstrate the effectiveness of the NAPL Plume Containment System was not contemplated in the RRT. This method was proposed by MSRM as an alternate tool for assessment. However, as noted above, the recently completed groundwater modeling study has hypothesized that a significant downward vertical flow component exists from the upper bedrock zone to the middle and. The use of groundwater contours for a bedrock zone, e.g., the upper bedrock zone, implicitly assumes that groundwater flow is horizontal in the plane of the map. As a result of the significant vertical flow component present at the Site, the conclusions derived from contour maps of horizontal water level analyses are suspect. Therefore, contour maps have not been prepared as part of this report.

2.2.1.3 HYDRAULIC GRADIENT EVALUATION

The RRT requires that the performance of the NAPL Plume Containment system be evaluated through the calculation and review of horizontal hydraulic gradients across the limits of the NAPL plumes. The gradient evaluation criteria are specified in the RRT, Section 4.3.7.3 (NAPL Plume Containment Performance Monitoring). Based on the evaluation of the monitoring wells and the groundwater modeling study, it appears that the hydraulic gradient evaluation prescribed in the RRT may not be applicable in its present form. Nevertheless, the hydraulic gradient evaluation was conducted in accordance with the requirements of the RRT. MSRM/GSHI are continuing to evaluate monitoring programs that would be both practical and satisfactory to the Governments.

Many of the monitoring wells that are used to make gradient calculations have been classified as representative of the aquifer that they are intended to monitor. However, it was determined during the Non-Representative Wells Investigation (NRWI) that the wells within a gradient pairing do not necessarily monitor the same groundwater flow zones. When this is the case the data from the gradient pairings will yield misleading gradient data.

Horizontal hydraulic gradient head differentials were calculated using the water level elevation data collected during the April and June 2001 hydraulic monitoring events. Horizontal hydraulic gradient head differentials were not calculated for May as the PW system was only fully operational for four days. For the purpose of this report, the calculated head differentials will be referred to as hydraulic gradients. Table 2.2 presents the calculated horizontal hydraulic gradients for the representative well pairs in the three bedrock zones.

A summary of the horizontal hydraulic gradients recorded for the second quarter 2001 is provided below.

Upper Bedrock Zone

All monitoring wells in the upper bedrock zone have been used in this quarter’s gradient evaluations. Two wells (CMW-12SH and CD3U) were not included in the

NWRI and two wells (D3U and E5U) were classified in the investigation as questionable, all due to limited data. Nonetheless, these wells were retained for evaluation.

The representative monitoring well pairs that are used for the gradient evaluations in the upper bedrock zone are: A1U-A2U, BC3U-B1U, CMW-12SH-CD3U, D4U-D3U, E5U-E3U, F5UR-F4U, G3U-G4U, H3U-H1U, and J3U-J1U. The locations of these monitoring well pairs are shown on Figure 2.2.

Inward horizontal hydraulic gradients were present at six of the nine monitoring well pairs (Vectors B, D, F, G, H, and J) during both monitoring events of the second quarter 2001.

Middle Bedrock Zone

All monitoring wells in the middle bedrock zone have been used for the gradient evaluations this quarter. Monitoring well F1M was noted as having inconsistent fluctuations in water level in the NWRI; however, this well was not classified as non-representative and is included in this gradient evaluation.

The monitoring well pairs that are used for the gradient evaluations in the middle bedrock zone are: BC3M-B1M, BC3M-C1M, D1M-D2M, E4M-E3M, F4M-F1M, G3M-G1M, H1M-H2M, and J1M-J2M. The locations of the monitoring wells used in the gradient evaluation of the middle bedrock zone are shown on Figure 2.3.

Inward horizontal hydraulic gradients were present at six of the eight well pairs (Vectors B, C, D, F, G, and J) during the first quarter. Inward gradients were observed along the B, C, D, G, and J vectors during both monitoring events and along the F Vector during the June monitoring event only. No inward gradient was observed along the H Vector during either of the events of this quarter.

Lower Bedrock Zone

The NWRI classified lower bedrock zone monitoring wells G3L, H3L, H4L, J3L, and J4L as non-representative. Therefore, these wells were not used in the gradient evaluation.

The representative monitoring well pairs that are used for the gradient evaluations in the lower bedrock zone are: B1L-B2L, C1L-C2L, and D4L-D1L. The locations of the monitoring well pairs used in the gradient evaluation of the lower bedrock zone are shown on Figure 2.4.

In the lower bedrock zone, an inward hydraulic gradient was present along the B and D Vectors during the second quarter 2001. Inward hydraulic gradients were observed along the B vector during the April monitoring event and along the D vector during the June monitoring event.

2.2.1.4 GROUNDWATER CAPTURE SIMULATION

The First Quarter 2001 Monitoring Report presented an assessment of capture using the Site groundwater flow model and the average flow rate data for the quarter. It was anticipated that this type of assessment would be performed during each quarterly monitoring period, however, due to the shutdown of the pumping system during the treatment plant upgrade, the data collected this quarter were not sufficient to perform the assessment. Assessments of capture will be presented in future quarterly monitoring reports.

2.2.2 NAPL MONITORING

NAPL monitoring is performed to provide information to assist in the evaluation of containment system effectiveness. NAPL monitoring consists of:

i) the physical inspection of monitoring wells located both inside and outside the NAPL plumes for the presence of NAPL; and
ii) determination of the volume of NAPL removed by the NAPL Plume Containment System.

2.2.2.1 NAPL PRESENCE CHECKS

Prior to any purging or sampling activities, a check for NAPL presence was performed at each well using a weighted tape measure with a length of cotton rope attached. This NAPL presence check methodology was summarized in the memorandum entitled "NAPL Presence Check Method Comparison, Hyde Park RRT Program" dated January 12, 2001. NAPL was not observed in any of the outer wells or those inner wells that are located beyond the limits of the bedrock NAPL plume definitions. Table 2.3 summarizes the findings of the NAPL presence checks.

2.2.2.2 NAPL ACCUMULATION RATIO

In accordance with the Future Monitoring and Assessment Requirements document (1996), Section 4.1.2.2, a determination of the ratio of NAPL/APL extracted through the operation of the bedrock NAPL plume containment system this quarter was made. Approximately 5.69 million gallons of APL were removed from the bedrock purge wells. During the same period, no NAPL was removed from the bedrock purge wells. The current NAPL/APL ratio (0.00) and the ratios calculated from previous quarters are presented in Table 2.4.

2.2.3 CHEMICAL MONITORING

Groundwater samples are collected and analyzed each quarter to obtain data for use in the evaluation of the NAPL Plume Containment System. The groundwater monitoring consists of the collection of samples from the outer well of each of the bedrock performance well pairs. The results of the analyses of these samples were used for the quarterly comparisons presented in Section 2.2.3.2 of this report. The analytical data are also used in the statistical analyses presented in Section 2.2.3.3 of this report. The chemical monitoring was conducted between June 14 and 29, 2001.

2.2.3.1 FIELD PROCEDURES

All monitoring well purging and sample collection activities were conducted in accordance with the procedures presented in the report entitled "Long-Term Monitoring Manual, Hydraulic (Water Levels), Physical (NAPL Presence-Seeps), Chemical (Groundwater Sampling), Hyde Park Landfill Site", dated October 9, 1998. Purging methods and well volumes removed from each well are summarized in Table 2.5. All purged groundwater was transported to the Hyde Park treatment facility for treatment and disposal. Table 2.6 presents a sample key and water quality observations and measurements for the samples collected.

2.2.3.2 ANALYTICAL RESULTS

The analytical results for the second quarter 2001 chemical monitoring event are summarized in Table 2.7. The cumulative analytical data for all quarterly chemical monitoring events dating back through 1996 are included on the enclosed CD under the filename HIST.pdf. The analytical data were reviewed for conformance to standard Quality Assurance/Quality Control (QA/QC) protocols and copies of the resultant data validations are kept on file at the Western New York MSRM Administration office. The second quarter 2001 results are similar to historical results.

2.2.3.3 STATISTICAL ANALYSIS OF ANALYTICAL RESULTS

In accordance with Section 4.3.8.1-Lateral NAPL Plume Migration of the RRT Stipulation, a statistical evaluation on the NAPL Plume Containment Effectiveness Parameters (phenol, benzoic acid, chlorendic acid, total chlorobenzoic acid, and total organic halides [TOX]) analytical data from the outer well of each gradient pair was performed. This evaluation was presented in the First Quarter 2001 Monitoring Report.

The statistical analysis of the data is typically conducted in the First Quarter Monitoring Report; and was previously presented in the 1999, 2000, and 2001 First Quarter Monitoring Reports. The statistical analysis of the analytical data is performed to look for evidence of increasing trend in gradient monitoring wells. A linear regression analysis, using all available data, was previously used to evaluate the trends in the data. MSRM, GSHI and CRA recognized that the use of linear regression method with all the data may be overly simplified given the magnitude of the data set. As a result, other statistical methods were reviewed. The following paragraphs describe the revised statistical methods and present the results of the analyses. It is MSRM's and GSHI's intent to include a statistical evaluation of the data in each quarterly report.

Helsel and Hirsch (1992) recommend a number of statistical trend analysis methods for application to environmental data sets. A typical pattern in groundwater constituent concentrations is a rapid decline in concentration immediately following a remedial action, which then slows and observed concentrations fluctuate up and down at a much lower level. This type of pattern has been observed at a number of Site monitoring wells, and may be observed in the concentration vs. time plots contained in Appendix A of this report.

A recommended statistical procedure commonly applied to environmental monitoring data for trend assessment is the Mann-Kendall trend test. The Mann-Kendall test is a non-parametric (rank based) method that evaluates a set of data for a monotonic (unidirectional) trend. The procedure makes no assumptions regarding the shape of the trend (e.g., linear, log-linear, etc.), except that it is in a single direction (i.e., either consistently upward or downward). However, the Mann-Kendall procedure loses sensitivity if a large proportion of non-detected results is present.

For data sets with large (>50 percent) proportions of non-detect data, logistic regression is recommended by Helsel and Hirsch. In this procedure, the numerical values of the monitoring data are not used, and instead the presence or absence of a detectable concentration of the analyte of interest is used. Thus, the hypothesis tested is a measure of trend by logistic regression is that more detectable results are occurring later than earlier (increasing trend), or earlier than later (decreasing trend).

The Site groundwater monitoring data were assessed for trends (on an individual well basis) using either the Mann-Kendall trend test (if <50 percent non-detects) or logistic regression (for 50-99 percent non-detects). For the purposes of the second quarter 2001 data analysis, the analytical data from the 10 most recent sampling events (from January 1999 to present) were used. Analytes that were not detected at a given well (i.e., 100 percent non-detects) during 1999 to present were not evaluated. Once four quarters of monitoring have been completed for 2001, the 1999 monitoring results will be removed from the analysis, providing a moving 2-year comparison window. The results of the trend analysis are presented in Table 2.8.

No statistically significant ($P<0.05$) increasing trends were identified using either the Mann-Kendall trend test or the logistic regression test. There were eight statistically significant ($P<0.05$) decreasing trends identified by the Mann-Kendall trend test. Of these statistically significant decreasing trends, five were observed for TOX, at wells B1M, C1M, C1L, G1L, and H3L. Two statistically significant decreasing trends were observed for total phenolics, at C1U and J2M, and one statistically significant decreasing trend was observed for total chlorobenzoic acid, at C1U.

The absence of increasing trends in parameter concentrations over time indicates compliance with the objectives of the RRT Stipulation.

2.3 NON-ROUTINE INVESTIGATIONS AND FIELD ACTIVITIES

Field activities associated with non-routine monitoring that were completed during the second quarter of 2001 with respect to the NAPL Plume Containment System were:

i) a hydraulic monitoring program was conducted in conjunction with the treatment plant shutdown. A copy of the Shutdown Monitoring Program Work Plan was presented in Appendix E of the First Quarter 2001 Monitoring Report.

A summary of the data collected during this monitoring event was submitted to the governments in a letter dated August 24, 2001; and

ii) a drilling program commenced on June 18, 2001. The Scope of Work for this drilling program was submitted to the governments on June 15, 2001 and is attached as Appendix B of this report. The drilling program consists of the installation of three new upper bedrock zone purge wells, conversion of PW-7U to a 12-inch diameter purge well, installation of one new middle bedrock zone purge well, and the installation of eight new upper bedrock zone monitoring wells.

No other investigations were performed with respect to the NAPL plume containment system during the second quarter of 2001.

2.4 SUMMARY

The water levels in the operating bedrock purge wells were generally at or very close to their set point elevations during April and June 2001. The average pumping rate for the system during operation over the second quarter was 52.7 GPM, very close to the pumping rates observed in previous quarters.

The hydraulic gradient evaluation indicates that six of nine Upper Bedrock Zone monitoring well pairs and five of eight Middle Bedrock Zone monitoring well pairs achieved inward horizontal gradients during April and June 2001, the only months hydraulic monitoring was performed. In the lower bedrock zone a consistent inward hydraulic gradient was not observed during the second quarter of 2001. MSRM considers the current gradient monitoring program to be in need of further review. This review will be conducted following completion of the Site re-characterization due for submittal in February 2002.

NAPL monitoring indicates that NAPL is not present in any monitoring well located outside of the NAPL plume boundary in any of the three bedrock zones.

Chemical monitoring and statistical analyses indicate that chemical concentrations, where detected, are not increasing.

2.5 ACTION ITEMS

A number of investigations are scheduled to be performed during the third and fourth quarters of 2001. These investigations have been designed to collect additional data to allow an improved characterization of the groundwater flow system at the Site. Results of these investigations will be used to aid in revising the site characterization and subsequently the groundwater flow model that has been developed for the Site. The investigations that are currently scheduled are:

i) as previously stated, a drilling program commenced during the second quarter of 2001. This program is ongoing and will likely continue into the fourth quarter of 2001;

ii) a geophysical investigation will be performed utilizing a number of existing and newly installed Site monitoring and purge wells. The intent of this geophysical investigation is to determine the depths of fractures in the open intervals of the monitoring and purge wells and to determine the waterbearing properties of these fractures (waterbearing / non-waterbearing); and

iii) a borehole flow investigation will be performed using an electromagnetic borehole flowmeter. A number of Site monitoring wells will be selected for investigation with this instrument. The intent of this investigation is to determine the characteristics of flow in waterbearing fractures (inflow or outflow).

3.0 APL PLUME CONTAINMENT SYSTEM

The APL Plume Containment System consists of two purge wells (APW-1 and APW-2) and four monitoring well pairs (ABP-1/ABP-2, ABP-3/ABP-4, ABP-5/ABP-6, and ABP-7/ABP-8). The locations of these wells are shown on Figure 3.1. The performance criteria for the APL Plume Containment System (remediated APL plume) is to achieve flow convergence towards the purge wells and eliminate seepage at the gorge face to the extent practicable.

Three clusters of APL Flux Monitoring Wells (AFW-1U/M/L, AFW-2U/M/L, and AFW-3U/M/L) oriented toward the west of the Site and located south of the remediated APL plume (as shown on Figure 3.2) monitor the remainder of the APL plume. The performance criteria for the APL Flux Monitoring Wells (AFWs) is to monitor the APL plume flux to the Niagara River through chemical monitoring and to determine whether the flux measured in these wells exceeds the Flux Action Levels specified in the RRT Stipulation.

3.1 APL PURGE WELL OPERATIONS

As previously stated in Section 2.1 of this report, a treatment plant upgrade was performed during the second quarter of 2001. During this upgrade all purge wells, including the APWs, were shutdown on May 4, 2001. The APWs were re-started on June 7, 2001. During their operational periods, the APW automated pump operations were uninterrupted and groundwater levels within each purge well were generally maintained within their respective design settings. No maintenance activities were performed on the APWs during this quarter.

3.2 PERFORMANCE MONITORING

3.2.1 WATER LEVEL MEASUREMENTS

Outward hydraulic gradients were observed between the ABP-1/ABP-2 and ABP-5/ABP-6 monitoring well pairs during the fourth quarter of 2000; therefore, hydraulic monitoring was performed weekly during operating periods of the first and second quarters of 2001. The cumulative hydraulic monitoring data from March 1997 to present is included on the enclosed CD under the filename HIST.pdf.

Groundwater levels were also measured at the nine AFW monitoring wells prior to sample collection for APL flux monitoring. These levels are required as part of the hydraulic monitoring program, as well as to calculate the standing volume of groundwater in each well to determine the purge volume prior to sample collection. The cumulative monitoring data for the AFW monitoring wells from 1993 to present is included on the enclosed CD under the filename HIST.pdf.

3.2.2 CONTOUR EVALUATION

As previously stated in Section 2.2.1.2 of this report, groundwater contour maps have not been prepared using second quarter 2001 hydraulic monitoring data.

3.2.3 GRADIENT EVALUATION

As previously stated, water level measurements were collected weekly at the ABP monitoring wells. Seven (7) sets of water level elevation data were collected from these wells during the second quarter of 2001. Weekly water level measurements were not collected during the period when the APWs were shutdown. The calculated hydraulic head gradient differentials (referred to herein as hydraulic gradients) for the four ABP monitoring well pairs in the second quarter are presented in Table 3.1.

Monitoring well pairs ABP-3/ABP-4 and ABP-7/ABP-8 maintained inward horizontal hydraulic gradients during each of the seven monitoring events. Outward horizontal hydraulic gradients were observed at well pair ABP-1/ABP-2 during six of the seven monitoring events of this quarter. Outward horizontal hydraulic gradients were observed at well pair ABP-5/ABP-6 during each of the seven monitoring events of this quarter.

The inability to maintain inward hydraulic gradients between monitoring well pairs ABP-1/ABP-2 and ABP-5/ABP-6 may be due to the orientation of these well pairs relative to the direction of groundwater flow and the direction of groundwater flow (northwest). Monitoring well pairs ABP-1/ABP-2 and ABP-5/ABP-6 are oriented perpendicular to the direction of groundwater flow rather than with the direction of flow. Therefore, comparisons made between these well pairs indicate gradient reversals that do not necessarily reflect an impact of pumping. Further review of these pairs will be conducted following submission of the Revised Site Characterization.

3.2.4 SEEP FLOWS

The four gorge face seeps (GF-S1, GF-S2, GF-S3, and GF-S4 shown on Figure 3.3) were inspected monthly in conjunction with hydraulic monitoring events and the flow rate of each seep was visually estimated. A cumulative history of the flow rate estimations is included on the enclosed CD under the filename HIST.pdf. During the second quarter monitoring events the estimated gorge face seep flow rates were:

i) April - 1 GPM at GF-S1, 2 GPM at GF-S2, 0 GPM at GF-S3, and 4 GPM at GF-S4;
ii) May - 0 GPM at GF-S1, 2 GPM at GF-S2, 0 GPM at GF-S3, and 2 GPM at GF-S4; and
iii) June - 0 GPM at GF-S1, 1 GPM at GF-S2, 0 GPM at GF-S3, and 1 GPM at GF-S4.

Seep GF-S4 originates below the Rochester formation and is below any known Hyde Park influences.

3.2.5 CHEMICAL MONITORING

Analytical groundwater samples are collected each quarter from the APW and AFW wells in order to assist in the evaluation of the APL Plume Containment System and calculate the APL Plume flux when required. The APW wells are also sampled semi-annually for analysis of the Collected Liquids Monitoring Parameters as described in Section 9.9 of the RRT. The chemical monitoring was conducted on June 21, 2001.

3.2.5.1 FIELD PROCEDURES

All monitoring well purging and sample collection activities were conducted in accordance with the procedures presented in the report entitled "Long-Term Monitoring Manual, Hydraulic (Water Levels), Physical (NAPL Presence-Seeps), Chemical (Groundwater Sampling), Hyde Park Landfill Site ", dated October 9, 1998. Purging methods and well volumes removed from each well are summarized in Table 3.2. All purged groundwater was transported to the Hyde Park treatment facility for treatment and disposal.

3.2.5.2 AFW/APW FLUX COMPOSITE SAMPLING AND ANALYSES

In order to determine the APL flux to the Niagara River, a volume composite sample consisting of water from five AFW monitoring wells and the two APW purge wells is prepared. The required volume of the aliquot from each well for the composite sample is calculated prior to initiation of groundwater sample collection. The volumes presented in Table 3.3 were calculated based on the percentage of cross-sectional contributing area of groundwater flow past each well as compared to the total groundwater flow toward the Niagara River Gorge Face represented by all seven wells.

Groundwater sampling was performed using the protocols previously described for the bedrock performance monitoring wells (Section 2.4.2), with the exception of the two APWs where samples are collected directly from the discharge of the operating pumps. The sample key, pH, conductivity, temperature, and water quality observations are summarized in Table 3.4.

The composite sample was prepared by collecting an individual water sample from each of the monitoring wells. The volume of sample collected from each well is listed in Table 3.3. Each individual sample was poured into a large glass container for mixing. Following mixing, the composite was poured into individual containers for shipment to the analytical laboratories. Samples collected for analysis of volatile organic compounds (VOCs), were submitted in individual containers for compositing at the analytical laboratory to ensure that any VOCs present were not lost due to field compositing. The laboratory was provided with the predetermined percentages listed in Table 3.3 for compositing. Analyses were performed by Severn Trent Laboratories (STL) for the APL Plume Flux Parameters and APL Plume Monitoring Parameters that are defined in the RRT Stipulation (Sections 9.3 and 9.4) while the 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) analyses were performed by Alta Labs and polychlorinated biphenyls (PCB) analyses were performed by Triangle Labs. The results of the AFW/APW composite sampling are presented in Table 3.5.

3.2.5.3 APW CLMP/ACIDS SAMPLING AND ANALYSES

In accordance with the RRT Stipulation (Section 11.1.3 Collected APL Monitoring and Section 9.9 Collected Liquids Monitoring Parameters), the APWs are sampled semi-annually during the first and third quarters for analysis of the Collected Liquids Monitoring Parameters (CLMP) as well as benzoic, monochlorobenzoic (sum o, p, and m isomers) and chlorendic acids. This sampling was conducted and reported during the first quarter of 2001.

3.2.5.4 APL PLUME FLUX CALCULATIONS

As discussed previously, the performance criteria for the APL Plume Containment System beyond the boundary of the remediated APL Plume is based on no exceedance of the Flux Action Levels. If a parameter from the composite sample collected from the two APWs and five AFWs is reported at a level which exceeds the respective APL Plume Flux Parameter's detection level, the grams per year (g/year) or pounds per day (lbs./day) of chemical flux for the respective parameter to the Niagara River from the Lockport bedrock must be calculated and compared to its Flux Action Level as required under the RRT Stipulation.

The composite sample analysis indicated that the concentration of 2,3,7,8-TCDD during the second quarter of 2001 was 541 pg/L. This concentration exceeds the APL Plume Flux Detection Level of 500 pg/L, therefore; calculation of the flux of this parameter to the Niagara River is required.

The flux to the Niagara River for 2,3,7,8-TCDD was calculated using the following equation:

Flux (g/year) = Q X 3.785 gal/L X Conc. X 10^{-12} (g/pg) X 365 days/year

Where:
Q = groundwater flow in gallons per day; and
Conc. = reported concentration of exceedant parameter in pg/L.

The groundwater flow (Q) is based on the cross-sectional area of the bedrock flow of the wells along the face of the gorge (AFWs and APWs). The calculation of the flow used in the equation (60 GPD) is presented in the Third Quarter 1997 Bedrock Monitoring Report, Sections 3.4 and 3.5.

The resultant APL Plume Flux for the 2,3,7,8-TCDD reported concentration is 7.5×10^{-7} g/year, which is considerably below the allowable APL Plume Flux Action value of 0.5 g/year.

3.3 NON-ROUTINE INVESTIGATIONS AND ACTIVITIES

As previously stated, the treatment system was shut down for upgrades during the second quarter of 2001. As a result, the APWs were shut-off from May 4, 2001 to June 7, 2001. During this period a monitoring program was performed which included all wells associated with the APL Plume Collection System.

3.4 SUMMARY

Based on the hydraulic monitoring at the ABP monitoring wells, the APL Plume Containment System (remediated APL plume) did not achieve flow convergence throughout the system during this monitoring period. However, the reductions in flow at seeps GF-S3 and GF-S4 indicate that the APWs are working properly in reducing APL migration to the Niagara River.

The significant individual results from the APL Plume Containment System observed during this reporting period are:

i) inward horizontal gradients were achieved at two of the four ABP monitoring well pairs for all hydraulic monitoring events of this quarter; and

ii) during the second quarter, Gorge Face Seep flows remained lower than historic events.

Aliquots from the same five AFWs along with the two APWs will form the composite sample during future APL Plume Containment System monitoring events.

3.5 ACTION ITEMS

As discussed in Section 2.3 of this report, a drilling program commenced in June 2001. As part of this drilling program a new APL Purge Well (APW-3) will be installed in the vicinity of the AFW-1 monitoring well cluster. This purge well is being installed in order to address the detection of 2,3,7,8-TCDD that has been observed in the AFW-1 monitoring well cluster.

4.0 OVERBURDEN MONITORING DATA

The required overburden monitoring reporting includes monitoring data for the following programs:

i) Overburden Barrier Collection System (Section 4.1); and

ii) Residential Community Monitoring Program (Section 4.2).

4.1 OVERBURDEN BARRIER COLLECTION SYSTEM

The Overburden Barrier Collection System (OBCS) consists of an overburden collection trench that extends around the north, west, and south of the Site and is located within the limits of the overburden APL plume. Eight pairs of OBCS monitoring wells (OMWs) are located beyond the OBCS alignment, with one well from each pair installed within the overburden APL plume limits and the second well from each pair installed outside of the overburden APL plume limits. The locations of the OMWs are shown on Figure 4.1.

4.1.1 PERFORMANCE MONITORING

Hydraulic and NAPL monitoring are performed at the OMWs in order to assess the performance of the OBCS system. Hydraulic data are used to determine whether or not an inward horizontal gradient across the APL plume boundary is being created by the OBCS. NAPL monitoring is performed as an additional assessment in order to determine whether or not horizontal migration of overburden NAPL is occurring.

4.1.1.1 GRADIENT EVALUATION

Hydraulic monitoring of the OBCS is performed by collecting water level measurements from the 16 OMWs installed around the Hyde Park Landfill. Hydraulic monitoring of the 16 OMWs was performed weekly in April, May and June 2001. Additionally, in order to demonstrate the presence of a downward vertical hydraulic gradient, some Upper Bedrock Zone monitoring wells were monitored monthly at locations where inward horizontal hydraulic gradients were historically not achieved. Table 4.1 summarizes the second quarter hydraulic head differential gradients (referred to herein as hydraulic gradients). The cumulative hydraulic monitoring data for the OBCS from 1992 to present are included on the enclosed CD under the filename HIST.pdf.

The data presented in Table 4.1 demonstrate that an inward horizontal hydraulic gradient within the overburden regime has been achieved for all monitoring events this quarter at five of the eight monitoring well pairs as follows:

i) OMW-1 / OMW-2;

ii) OMW-3 / OMW-4R;

iii) OMW-5R / OMW-6;

iv) OMW-10R / OMW-9; and

v) OMW-15 / OMW-16R

The data in Table 4.1 also indicate the presence of a downward vertical hydraulic gradient from the overburden to the upper bedrock at each of the monitoring well pairs that did not meet the inward hydraulic gradient criteria as follows:

i) B1U / OMW-8R2;

ii) D1U / OMW-11R; and

iii) E4U / OMW-14R.

4.1.1.2 OVERBURDEN NAPL PRESENCE CHECKS

In accordance with Section 3.6.2.3 of the RRT Stipulation, a NAPL presence check was conducted at all overburden wells within the overburden APL plume but outside the defined (1996) overburden NAPL plume limit. Table 4.2 summarizes the results of the NAPL presence checks conducted since 1998. During the second quarter of 2001, NAPL was not observed in any of the overburden monitoring wells.

4.2 RESIDENTIAL COMMUNITY MONITORING PROGRAM

Eleven pairs of Community Monitoring Wells (CMWs), consisting of one overburden and one shallow bedrock well, are located in the residential community areas around the Hyde Park Landfill Site. These wells provide an early warning for possible APL plume migration towards residential areas. The overburden (OB) wells are screened to within 1-foot of the bottom of the clay layer overlying the bedrock, while the shallow bedrock (SH) wells extend approximately 15 feet below the top of bedrock.

4.2.1 PERFORMANCE MONITORING

The performance monitoring activities required for the Residential Community Monitoring Program are as follows:

i) quarterly monitoring of overburden and bedrock groundwater elevations;

ii) where no overburden groundwater is present, soil air samples are collected and analyzed; and

iii) annual groundwater sampling and analysis of CMW-2OB.

4.2.1.1 HYDRAULIC MONITORING AND GRADIENT EVALUATION

For the second quarter of 2001 hydraulic monitoring of the CMWs was performed monthly on April 9, May 11, and June 13, 2001. Table 4.3 summarizes the vertical hydraulic head differential gradients (referred to herein as hydraulic gradients) for the second quarter. The cumulative hydraulic monitoring data for the CMWs from 1987 to present are included on the enclosed CD under the filename HIST.pdf.

The calculation of vertical hydraulic gradients shows that the required downward hydraulic gradients were present this past quarter at all of the well pairs where water was present in the overburden. Five overburden wells, CMW-7OB, CMW-8OB, CMW-9OB, CMW-11OB, and CMW-12OB, were dry for all or part of the second quarter. At each of the overburden wells that were dry, the elevation of the bottom of the well was higher than the groundwater elevation in the shallow bedrock well of the pair during each monitoring event. Under these conditions downward vertical gradients would be observed if water were present in the overburden well.

4.2.1.2 SOIL VAPOR SAMPLING

At two CMW well pair locations (CMW-7 and CMW-8), the overburden wells have historically contained little to no groundwater, indicating unsaturated conditions in the overburden soils in these areas. As a result, soil vapor samples are collected each quarter from the wells at these locations. Table 4.4 presents the analytical data for the soil vapor samples collected from CMW-7OB and CMW-8OB on June 29, 2001. All parameters were non-detect at each of these locations during the second quarter and have historically been non-detect.

4.2.1.3 ANNUAL GROUNDWATER SAMPLING

Sampling of CMW-2OB is performed annually during the fourth quarter of each calendar year. Therefore, the sampling was not performed during this reporting period.

4.3 NON-ROUTINE INVESTIGATIONS AND ACTIVITIES

During the second quarter of 2001, there were no non-routine investigations or field activities conducted with regards to the overburden systems.

4.4 SUMMARY

4.4.1 OVERBURDEN BARRIER COLLECTION SYSTEM

A review of the hydraulic monitoring data for the second quarter of 2001 indicates that inward horizontal hydraulic gradients were present at five of the eight monitoring well pairs. Downward vertical gradients were present at the three monitoring well pairs where an inward horizontal gradient was not maintained.

NAPL was not observed in any of the overburden monitoring wells, indicating that the OBCS continues to serve as an effective barrier to off-Site NAPL migration.

4.4.2 RESIDENTIAL COMMUNITY MONITORING PROGRAM

Downward vertical gradients were achieved at all of the monitored well pairs during the first quarter of 2001. Two monitoring wells, CMW-7OB and CMW-8OB remained dry for each of the monitoring events of the second quarter. No analytes were detected in the soil vapor samples collected from these wells.

4.5 ACTION ITEMS

From the monitoring data obtained during the second quarter of 2001, it has been determined that the overburden systems are operating properly and no further investigation or maintenance issues are evident at this time.

5.0 LEACHATE TREATMENT SYSTEM

In accordance with Section 11.1.4 of the RRT and Addendum I of the Settlement Agreement, the midpoint and effluent of the APL treatment system are monitored. Sampling is required at daily, weekly, and monthly intervals for various parameter groups in order to determine whether the APL Plume Flux is below the Flux Action Levels and whether and when the carbon beds need to be replaced or other maintenance activities need to be undertaken.

5.1 EFFLUENT ANALYSIS

The APL treatment system effluent was sampled daily, weekly, and monthly during the second quarter of 2001. Sampling was not performed during the system shutdown which occurred between May 4 and May 15, 2001. The sample data is grouped by frequency of sample collection for discussion in the following subsections.

5.1.1 DAILY SAMPLING

Table 5.1 summarizes the results of the daily composite sampling. No exceedances of the treatment levels were reported this quarter for any of the three daily parameters; pH, total organic carbon (TOC), and phenol.

5.1.2 WEEKLY SAMPLING

Table 5.2 summarizes the results of the weekly composite sampling. No exceedances of the treatment levels were reported this quarter for any of the five weekly parameters or their isomers from the collected effluent samples.

5.1.3 MONTHLY SAMPLING

Table 5.3 summarizes the results of the monthly composite sampling. No exceedances of the treatment levels were reported this quarter for any of the eight parameters or their isomers.

6.0 NAPL ACCUMULATION

The well extraction systems and manual NAPL removal did not collect any NAPL during the second quarter of 2001. Monthly NAPL recovery identified by source is summarized in Table 6.1.

6.1 DECANTERS

Manual NAPL level measurements are conducted monthly in the three decanters. The levels are extrapolated to estimate the quantity of NAPL present in each of the decanters. A description of each decanter's source is provided below:

- Decanter No. 1 Bedrock Purge Well System
- Decanter No. 2 Overburden Barrier Collection System
- Decanter No. 3 Source Control System

NAPL accumulated during the second quarter of 2001 was 0 gallons.

NAPL measurements in the decanters are subject to a measurement error of ±6 inches which equates to ±188 gallons of NAPL.

6.2 MANUAL RECOVERY

In an effort to enhance NAPL recovery at the Site, MSRM has voluntarily initiated manual NAPL removal from monitoring wells where sufficient NAPL volumes exist. During the second quarter of 2001, MSRM did not recover any NAPL from monitoring wells at the Hyde Park Landfill Site.

6.3 INCINERATION

During the second quarter of 2001, approximately 1,512 gallons of NAPL was shipped from the Hyde Park Site for incineration.

FIGURES

TABLES

TABLE 2.1

MONTHLY AVERAGE PURGE WELL PUMPING RATES (GPM)
NAPL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Bedrock Purge Wells	*Set Points (Ft. AMSL)*	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*June*	*July*	*Aug*	*Sept*	*Oct*	*Nov*	*Dec*	*Monthly Average*
PW-1U	**549**	0.4	0.4	0.4	0.4	0.0 (4)	0.3							0.3
PW-1L	**527**	5.6	6.2	6.7	8.9	4.0 (4)	8.9							1.2
PW-2UR	**559**	1.1	1.2	1.2	1.1	0.1 (4)	3.5							1.4
PW-2M	**532**	25.4	26.8	27.4	24.0	5.1 (4)	26.0							5.2
PW-2L	**505**	1.1	1.3	1.4	1.6	0.4 (4)	1.2							1.2
PW-3M	**522**	0.6	0.7	0.6	0.6	0.1 (4)	0.5							2.9
PW-3L	**525**	4.8	5.2	5.6	7.3	3.4 (4)	8.2							5.7
PW-4U	**573**	0.5	0.6	0.7	0.7	0.1 (4)	0.5 (7)							0.5
PW-4M	**522**	0.0 (1)	0.0	0.0	0.0	0.8 (4)	0.3							0.2
PW-5UR	**555**	3.9	3.5 (2)	4.7	5.2	0.6 (4)	3.7 (5)							3.6
PW-6UR	**560**	2.0	2.8 (3)	4.0	4.2	0.4 (4)	4.0 (6							2.9
PW-6MR	**505**	3.9	3.9	3.8	3.3	0.2 (4)	1.8							2.8
Individual Total		49.3	52.4	56.5	57.2	15.1	58.9							48.3
Combined Meter		53.5	55.0	61.3	64.9	15.4	66.1							52.7

Notes:

(1) Pump and Motor Replaced 1/16

(2) Pump and Motor Replacedon 2/14 and 2/27, Well bailed of NAPL/Sediment both times.

(3) Pump and Motor Replacedon 2/16, Well bailed of NAPL/Sediment.

(4) All Pumps Shut down May 4 for pump test.
Pumps restarted: 1L 5/21; 1U 6/3; 2L 5/25; 2M 5/29; 2UR 6/3; 3L 5/25; 3M 6/1; 4M 5/27; 4U 6/3; 5UR 6/4; 6MR 6/1; and 6UR 6/3.

(5) Pump and Motor Replaced 6/05 & 6/14

(6) Pump and Motor Replaced 6/11

(7) Pump and Motor Replaced 6/22

GPM Gallons per Minute

N/A Not Available

TABLE 2.2

HYDRAULIC GRADIENT SUMMARY
NAPL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well Pair	*Hydraulic Gradient (1)*	
	April	*June*
A1U - A2U	0.29	0.97
BC3U - B1U	-0.15	-0.36
CMW-12SH - CD3U	0.56	0.32
D4U - D3U	-3.60	-0.28
E5U - E3U	1.61	1.62
F5UR - F4U	-5.96	-0.71
G3U - G4U	-6.74	-6.49
H3U - H1U	-5.77	-6.16
J3U - J1U	#N / A	#N / A
BC3M - B1M	-0.23	-0.20
BC3M - C1M	-0.36	-0.33
D1M - D2M	-0.32	-0.16
E4M - E3M	9.67	2.24
F4M - F1M	0.00	-9.82
G3M - G1M	-31.43	-34.12
H1M - H2M	0.00	0.00
J1M - J2M	-0.67	-0.82
B1L - B2L	-0.41	31.58
C1L - C2L	0.05	0.10
D4L - D1L	NA	-1.61

Notes:
(1) - Negative number indicates an inward gradient measured in feet.
N / A - Not Available

TABLE 2.3
NAPL PRESENCE CHECK
NAPL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well I.D.	*1st Quarter 1998*	*2nd Quarter 1998*	*3rd Quarter 1998*	*4th Quarter 1998*	*1st Quarter 1999*	*2nd Quarter 1999*	*3rd Quarter 1999*	*4th Quarter 1999*	*1st Quarter 2000*	*2nd Quarter 2000*	*3rd Quarter 2000*	*4th Quarter 2000*	*1st Quarter 2001*
A1U	-	-	-	-	-	-	NO	NO	NO	YES	NO	YES	YES
A2U	-	-	-	-	-	-	NO	NO	NO	NO	NO	NO	NO
B1L	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
B1M	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
B1U	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
BC3L	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
BC3M	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
BC3U	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
C1L	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
C1M	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
C1U	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CD1L	-	-	-	-	-	-	NO	NO	NO	NO	NO	NO	NO
CD1M	-	-	-	-	-	-	NO	NO	NO	NO	NO	-	NO
CD1U	-	-	-	-	-	-	YES	NO	NO	YES	NO	YES	YES
CD2U	-	-	-	-	-	-	-	-	NO	YES	NO	YES	YES
CD3U	-	-	-	-	-	-	-	-	-	NO	NO	NO	NO
D1L	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D1M	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D2M	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D3U	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO
D4L	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO
D4U	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO
D5L	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO
E3M	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
E3U	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
E4L	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO
E4U	YES	YES	YES	NO *	NO	YES	NO	NO	NO	NO	NO	NO	NO
E5U	-	-	-	-	-	-	-	-	-	NO	NO	NO	NO
F1M	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F4L	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO

TABLE 2.3
NAPL PRESENCE CHECK
NAPL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well I.D.	*1st Quarter 1998*	*2nd Quarter 1998*	*3rd Quarter 1998*	*4th Quarter 1998*	*1st Quarter 1999*	*2nd Quarter 1999*	*3rd Quarter 1999*	*4th Quarter 1999*	*1st Quarter 2000*	*2nd Quarter 2000*	*3rd Quarter 2000*	*4th Quarter 2000*	*1st Quarter 2001*
F4M	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO
F4U	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO
F5UR (2)	YES	NO	NO	NO *	NO	NO	YES	YES	YES	YES	YES	NO	NO
G1L	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G1M	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G3L	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G3M	YES	YES	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
G3U	NO	NO	NO	NO	YES	YES	YES	NO	NO	NO	NO	NO	NO
G4U	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
GH1U	-	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
H1L	-	NO	NO	NO	NO	NO	NO	NO	NO	-	-	NO	NO
H1M	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
H1U	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO
H2L	-	NO	NO	NO	NO	NO	NO	NO	NO	-	-	NO	NO
H2M	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO
H3L	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	-
H3U	YES	NO	YES	YES *	YES	YES	YES	YES	NO	NO	YES	NO	YES
J1M	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
J1U	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
J2M	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
J3L	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
J3U	NO	NO	YES	YES	YES	YES	YES	YES	NO	YES	YES	YES	YES
J4L	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW-1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW-10R	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW-11	NO	NO	NO	NO *	NO	NO	NO	NO	NO	-	-		NO
OMW-11R	-	-	-	-	-	-	-	-	-	NO	NO	NO	NO
OMW-12R	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW-13R	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW14R	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO

TABLE 2.3
NAPL PRESENCE CHECK
NAPL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well I.D.	*1st Quarter 1998*	*2nd Quarter 1998*	*3rd Quarter 1998*	*4th Quarter 1998*	*1st Quarter 1999*	*2nd Quarter 1999*	*3rd Quarter 1999*	*4th Quarter 1999*	*1st Quarter 2000*	*2nd Quarter 2000*	*3rd Quarter 2000*	*4th Quarter 2000*	*1st Quarter 2001*
OMW-15	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW-16R	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW-2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW-3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW-4R	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW-5	NO	NO	NO	NO	NO	NO	NO	NO	NO	-	-	-	NO
OMW-5R	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW-6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW-7	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW-8R	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW-8R2	-	-	-	-	-	-	-	-	-	-	NO	NO	NO
OMW-9	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
PMW-1L	-	-	-	-	-	-	-	-	-	NO	YES	YES	YES
PMW-3M	-	-	-	-	-	-	-	-	NO	YES	YES	YES	YES
PW-2L	-	-	-	-	-	-	-	-	-	NO	NO	NO	NO
PW-3UM	-	-	-	-	-	-	-	-	-	YES	-	YES	YES
PW-6UMR	-	-	-	-	-	-	YES	YES	NO	YES	NO	NO	YES

Notes:
(1) LNAPL found in well, no DNAPL (due to historic diesel fuel spill in well area).
(2) Not NAPL but Fuel Oil
\- Not Available
* Wells checked on 12/10/98, strike at TAM (wells located on TAM property).
Manual NAPL recoveries listed in Table 5.1 of this report.
LNAPL Light Aqueous Phase Liquid.
NAPL Non-Aqueous Phase Liquid.
NO Not Observed.

TABLE 2.3
NAPL PRESENCE CHECK
NAPL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well I.D.	***2nd Quarter 2001***
A1U	YES
A2U	NO
B1L	NO
B1M	NO
B1U	NO
BC3L	NO
BC3M	NO
BC3U	NO
C1L	NO
C1M	NO
C1U	NO
CD1L	NO
CD1M	NO
CD1U	YES
CD2U	YES
CD3U	NO
D1L	NO
D1M	NO
D2M	NO
D3U	NO
D4L	NO
D4U	NO
D5L	NO
E3M	NO
E3U	NO
E4L	NO
E4U	NO
E5U	NO
F1M	NO
F4L	NO

TABLE 2.3
NAPL PRESENCE CHECK
NAPL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well I.D.	***2nd Quarter 2001***
F4M	NO
F4U	NO
F5UR (2)	NO
G1L	NO
G1M	NO
G3L	NO
G3M	NO
G3U	NO
G4U	NO
GH1U	NO
H1L	NO
H1M	NO
H1U	NO
H2L	NO
H2M	NO
H3L	-
H3U	NO
J1M	NO
J1U	NO
J2M	NO
J3L	NO
J3U	YES
J4L	NO
OMW-1	NO
OMW-10R	NO
OMW-11	NO
OMW-11R	NO
OMW-12R	NO
OMW-13R	NO
OMW14R	NO

TABLE 2.3
NAPL PRESENCE CHECK
NAPL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well I.D.	***2nd Quarter 2001***
OMW-15	NO
OMW-16R	NO
OMW-2	NO
OMW-3	NO
OMW-4R	NO
OMW-5	NO
OMW-5R	NO
OMW-6	NO
OMW-7	NO
OMW-8R	NO
OMW-8R2	NO
OMW-9	NO
PMW-1L	YES
PMW-3M	YES
PW-2L	NO
PW-3UM	YES
PW-6UMR	YES

Notes:
(1) LNAPL foun
(2) Not NAPL bu
- Not Availabl
* Wells checke
Manual NAP
LNAPL Light Aqueou
NAPL Non-Aqueou
NO Not Observe

TABLE 2.4

NAPL/APL RATIO
NAPL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

	NAPL Gallons	***APL Gallons***	***NAPL/APL Ratio***
First Quarter 1999	940	5,426,453	**0.000173**
Second Quarter 1999	376	6,520,094	**0.000058**
Third Quarter 1999	899	6,408,207	**0.000140**
Fourth Quarter 1999	376	7,160,202	**0.000053**
First Quarter 2000	0	7,791,656	**0.000000**
Second Quarter 2000	188	7,259,189	**0.000026**
Third Quarter 2000	94	6,506,615	**0.000014**
Fourth Quarter 2000	2,350	6,642,719	**0.000354**
First Quarter 2001	1,034	6,838,819	**0.000151**
Second Quarter 2001	0	5,692,242	**0.000000**

Notes:
APL Aqueous Phase Liquid.
NAPL Non-Aqueous Phase Liquid.

TABLE 2.5

WELL PURGING SUMMARY
NAPL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well I.D.	*Starting Date*	*Initial Water Level (Ft. BTOC)*	*Depth of Well (Ft. BTOC)*	*Standing Volume (1) (Gallons)*	*Purge Volume (Gallons)*	*Purge Method*
B1L	6/27/2001	76.83	104.0	19.0	95.0	Submersible (2-inch)
B1M	6/14/2001	62.34	83.0	13.0	65.0	Submersible (2-inch)
BIU	6/14/2001	24.05	57.0	21.5	107.5	Submersible (2-inch)
C1L	6/14/2001	75.80	104.0	18.3	91.5	Submersible (2-inch)
C1M	6/14/2001	64.93	81.5	11.0	55.0	Submersible (2-inch)
C1U	6/14/2001	27.07	55.5	18.4	92.0	Submersible (2-inch)
D1L	6/15/2001	75.20	110.0	22.6	113.0	Submersible (2-inch)
D1U	6/15/2001	12.60	50.1	24.3	121.5	Submersible (2-inch)
D2M	6/15/2001	59.78	85.8	17.0	85.0	Submersible (2-inch)
D3U	6/18/2001	14.30	48.3	190.0	1010.0	Submersible (2-inch)
E1U	6/15/2001	18.33	55.6	24.0	120.0	Submersible (2-inch)
E3M	6/15/2001	64.27	94.0	19.4	96.8	Submersible (2-inch)
E3U	6/28/2001	5.55	46.7	240.0	1200.0	Centrifugal Trash Pump
F1M	6/25/2001	66.57	110.0	34.0	170.0	Submersible (2-inch)
F4U	6/25/2001	11.10	69.2	38.0	190.0	Submersible (2-inch)
G1L	6/27/2001	33.60	147.0	73.0	365.0	Submersible (2-inch)
G1M	6/27/2001	51.41	124.0	47.0	235.0	Submersible (2-inch)
G4U	6/27/2001	18.06	57.0	25.0	125.0	Submersible (2-inch)
H1U	6/25/2001	13.75	57.0	28.0	138.0	Submersible (2-inch)
H2M	6/25/2001	44.00	129.0	55.0	275.0	Submersible (2-inch)
H3L	6/25/2001	55.20	138.0	53.0	265.0	Submersible (2-inch)
J1U	6/18/2001	14.67	45.4	20.0	100.0	Submersible (2-inch)
J2M	6/27/2001	51.50	101.0	32.0	160.0	Submersible (2-inch)
J3L	6/27/2001	45.75	120.5	48.0	240.0	Submersible (2-inch)

Note:

(1) All wells are 4 inches in diameter, except D3U and E3U (former purge wells PW-2U and PW-5U) which are 12 inches in diameter.

BTOC Below Top of Casing.

TABLE 2.6

WELL SAMPLING SUMMARY
NAPL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well I.D.	*Sample I.D.*	*Sample Date*	*Sample Time*	*Depth to Water (Ft. BTOC)*	*Well Volume (Gallons)*	*Volume Removed (Gallons)*	*pH (su)*	*Specific Conductivity (uS/cm)*	*Temperature (°C)*	*DEC Split*	*Final Water Quality/Turbidity (NTU)*	*Comments*
B1L	B1L601	06/27/01	9:22	89.14	19	95	6.72	388	15.40	No	50	
B1M	B1M601	06/14/01	9:50	62.39	13	65	6.88	3500	17.40	No	CLEAR	
B1U	B1U601	06/14/01	10:05	24.95	22	108	6.87	252	14.10	No	9.04	
C1L	C1L601	06/14/01	9:15	77.24	18	92	6.95	3470	12.80	No	CLEAR	
C1M	C1M601	06/14/01	7:50	65.02	11	55	6.99	199	13.30	No	3.42	
C1U	C1U601	06/14/01	7:45	28.40	28	92	6.75	1224	12.60	No	CLEAR	MS/MSD
D1L	D1L601	06/15/01	9:25	77.25	23	113	6.18	443	15.60	No	15	
D1U	D1U601	06/15/01	8:25	17.45	24	122	7.14	1014	12.90	No	CLEAR	Duplicate Sample L1U601
D2M	D2M601	06/15/01	9:15	59.90	17	85	7.16	45100	12.90	No	CLEAR	
D3U	D3U601	06/20/01	9:30	44.15	190	1010	7.61	2340	13.30	No	27.1	MS/MSD
E1U	E1U601	06/15/01	10:40	19.11	24	120	7.28	1899	12.80	No	CLEAR	
E3M	E3M601	06/15/01	10:00	64.42	19	97	7.01	204	13.70	No	4.57	
E3U	E3U601	06/28/01	11:30	10.60	240	1200	7.34	3150	15.70	No	40	
F1M	F1M601	06/25/01	11:30	65.30	34	170	7.25	2930	13.20	No	CLEAR	
F4U	F4U601	06/25/01	11:05	27.40	38	190	7.19	76	14.60	No	17	
G1L	G1L601	06/27/01	7:30	45.00	73	365	6.82	39100	12.40	No	CLEAR	
G1M	G1M601	06/27/01	7:25	51.56	47	235	6.93	89	11.30	No	4.9	
G4U	G4U601	06/27/01	10:20	18.11	25	125	7.04	33	11.70	No	4.9	
H1U	H1U601	06/25/01	9:20	27.32	28	138	6.58	1343	11.20	No	CLEAR	
H2M	H2M601	06/25/01	9:40	60.10	55	129	6.96	164	12.00	No	N/A	
H3L	H3L601	06/25/01	10:25	57.49	53	265	6.97	18650	N/A	No	CLEAR	
J1U	J1U-2601	06/22/01	10:30	33.80	20	100	7.66	7230	11.40	No	26.4	Duplicate Sample L3U601
J2M	J2M601	06/27/01	10:30	51.42	32	160	7.38	2390	13.10	No	CLEAR	
J3L	J3L-2601	06/29/01	10:00	68.40	48	240	6.92	74000	13.90	No	N/A	

Notes:
°C Degree Centigrade.
DEC Department of Environmental Conservation.
Ft. BTOC Feet Below Top of Casing.
MS/MSD Matrix Spike/Matrix Spike Duplicate.
N/A Not Available.
NTU Normal Turbidity Units.
su Standard pH Units
uS/cm Micro Siemens per Centimeter.

TABLE 2.7

ANALYTICAL RESULTS SUMMARY
NPW QUARTERLY SAMPLING
GLENN SPRINGS HOLDINGS, INC.
HYDE PARK LANDFILL
JUNE 2001

Sample Location:		***B1L601***	***B1M601***	***BIU601***	***C1L601***	***C1M601***	***C1U601***	***D1L601***	***D1U601***
Sample ID:		***B1L***	***B1M***	***B1U***	***C1L***	***C1M***	***C1U***	***D1L***	***D1U***
Sample Date:		***6/27/2001***	***6/14/2001***	***6/14/2001***	***6/14/2001***	***6/14/2001***	***6/14/2001***	***6/15/2001***	***6/15/2001***
Parameter	***Unit***								
Semi-Volatiles									
2-Chlorobenzoic acid	mg/L	0.32	2.0	0.25	0.095	0.030 U	0.14	0.030 U	0.030 U
3-Chlorobenzoic acid	mg/L	0.030 U	0.13	0.030 U	0.030 U	0.030 U	0.033	0.030 U	0.030 U
4-Chlorobenzoic acid	mg/L	0.030 U	0.36	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U
Benzoic acid	mg/L	0.10 U	0.48 J	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chlorendic acid	mg/L	0.90	1.8	7.8	0.62	0.59	1.3	0.25 U	0.25 U
General Chemistry									
Phenolics (Total)	mg/L	0.017	1.5	0.14	0.0090	0.0050	0.0050 U	0.18	0.0050 U
Total Organic Halides (TOX)	ug/L	2100	2680	37500	1140	958	1730	1000	131

Notes:
U - Non-detect at associated value.
J - Estimated.

TABLE 2.7

ANALYTICAL RESULTS SUMMARY
NPW QUARTERLY SAMPLING
GLENN SPRINGS HOLDINGS, INC.
HYDE PARK LANDFILL
JUNE 2001

Sample Location:		***D2M601***	***D3U601***	***E1U601***	***E3M601***	***E3U601***	***F1M601***	***F4U601***	***G1L601***
Sample ID:		***D2M***	***D3U***	***E1U***	***E3M***	***E3U***	***F1M***	***F4U***	***G1L***
Sample Date:		***6/15/2001***	***6/20/2001***	***6/15/2001***	***6/15/2001***	***6/28/2001***	***6/25/2001***	***6/25/2001***	***6/27/2001***
Parameter	***Unit***								
Semi-Volatiles									
2-Chlorobenzoic acid	mg/L	0.20	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U
3-Chlorobenzoic acid	mg/L	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U
4-Chlorobenzoic acid	mg/L	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U
Benzoic acid	mg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chlorendic acid	mg/L	0.87	0.96	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
General Chemistry									
Phenolics (Total)	mg/L	0.022	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.072
Total Organic Halides (TOX)	ug/L	1130	998	292	92.5	331	95.3	55.0	367

Notes:
U - Non-detect at associated value.
J - Estimated.

TABLE 2.7

ANALYTICAL RESULTS SUMMARY
NPW QUARTERLY SAMPLING
GLENN SPRINGS HOLDINGS, INC.
HYDE PARK LANDFILL
JUNE 2001

Sample Location:		***G1M601***	***G4U601***	***H1U601***	***H2M601***	***H3L601***	***J1U-2601***	***J2M601***	***J3L-2601***
Sample ID:		***G1M***	***G4U***	***H1U***	***H2M***	***H3L***	***J1U***	***J2M***	***J3L***
Sample Date:		***6/27/2001***	***6/27/2001***	***6/25/2001***	***6/25/2001***	***6/25/2001***	***6/22/2001***	***6/27/2001***	***6/29/2001***
Parameter	***Unit***								
Semi-Volatiles									
2-Chlorobenzoic acid	mg/L	0.030 U	0.030 U	0.094	0.25	0.039	0.030 U	1.1	17
3-Chlorobenzoic acid	mg/L	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.57	0.66
4-Chlorobenzoic acid	mg/L	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.91	0.67
Benzoic acid	mg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	22
Chlorendic acid	mg/L	0.25 U	0.25 U	0.40	0.25 U	0.25 U	0.25 U	2.7	0.25 U
General Chemistry									
Phenolics (Total)	mg/L	0.0050 U	0.0050 U	0.0050 U	0.015	0.027	0.0050 U	5.5	32.0
Total Organic Halides (TOX)	ug/L	34.6	16.1	983	429	291	27.8	15200	24300

Notes:
U - Non-detect at associated value.
J - Estimated.

TABLE 2.7

ANALYTICAL RESULTS SUMMARY
NPW QUARTERLY SAMPLING
GLENN SPRINGS HOLDINGS, INC.
HYDE PARK LANDFILL
JUNE 2001

Sample Location:		***L1U601***	***L3U601***
Sample ID:		***D1U***	***J1U***
Sample Date:		***6/15/2001***	***6/20/2001***
		Duplicate	***Duplicate***
Parameter	***Unit***		
Semi-Volatiles			
2-Chlorobenzoic acid	mg/L	0.030 U	0.030 U
3-Chlorobenzoic acid	mg/L	0.030 U	0.030 U
4-Chlorobenzoic acid	mg/L	0.030 U	0.030 U
Benzoic acid	mg/L	0.10 U	0.10 U
Chlorendic acid	mg/L	0.25 U	0.25 U
General Chemistry			
Phenolics (Total)	mg/L	0.0050 U	0.0050 U
Total Organic Halides (TOX)	ug/L	173	16.4

Notes:
U - Non-detect at associated value.
J - Estimated.

TABLE 2.8

COMPARISON OF STATISTICAL TREND ANALYSES -- 1999 TO PRESENT
SECOND QUARTER 2001
HYDE PARK LANDFILL
NIAGARA FALLS, NEW YORK

Location	*Analyte*	*Number of Observations*	*Percentage Non-Detect*	*Trend Test*			
				Method	*Test Statistic*	*Probability*	*Conclusion*
B1U	Benzoic Acid	10	90%	Logistic	-0.001	0.843	NST
	Chlorendic Acid	10	10%	Mann-Kendall	11	0.380	NST
	Phenolics	10	20%	Mann-Kendall	5	0.728	NST
	Total Chlorobenzoic Acid	10	10%	Mann-Kendall	-16	0.186	NST
	Total Organic Halides	10	0%	Mann-Kendall	-5	0.728	NST
B1M	Benzoic Acid	10	80%	Logistic	0.251	0.933	NST
	Chlorendic Acid	10	10%	Mann-Kendall	-9	0.484	NST
	Phenolics	10	50%	Logistic	-0.001	0.629	NST
	Total Chlorobenzoic Acid	10	10%	Mann-Kendall	-19	0.108	NST
	Total Organic Halides	10	0%	Mann-Kendall	-23	**0.046**	Decreasing
B1L	Benzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	10	10%	Mann-Kendall	-15	0.216	NST
	Phenolics	10	30%	Mann-Kendall	-9	0.484	NST
	Total Chlorobenzoic Acid	10	0%	Mann-Kendall	-17	0.156	NST
	Total Organic Halides	10	0%	Mann-Kendall	-6	0.642	NST
C1U	Benzoic Acid	10	60%	Logistic	-0.006	0.117	NST
	Chlorendic Acid	10	10%	Mann-Kendall	-20	0.084	NST
	Phenolics	10	40%	Mann-Kendall	-27	**0.0166**	Decreasing
	Total Chlorobenzoic Acid	10	10%	Mann-Kendall	-27	**0.0166**	Decreasing
	Total Organic Halides	10	0%	Mann-Kendall	-19	0.108	NST
C1M	Benzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	10	0%	Mann-Kendall	-22	0.054	NST
	Phenolics	10	70%	Logistic	-0.001	0.777	NST
	Total Chlorobenzoic Acid	10	50%	Logistic	-0.247	0.948	NST
	Total Organic Halides	10	0%	Mann-Kendall	-30	**0.0040**	Decreasing
C1L	Benzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	10	10%	Mann-Kendall	-22	0.054	NST
	Phenolics	10	50%	Logistic	-0.001	0.631	NST
	Total Chlorobenzoic Acid	10	0%	Mann-Kendall	-19	0.108	NST
	Total Organic Halides	10	0%	Mann-Kendall	-37	**3.60E-04**	Decreasing
D3U	Benzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	10	10%	Mann-Kendall	9	0.484	NST
	Phenolics	10	90%	Logistic	-0.00924	0.339	NST
	Total Chlorobenzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Total Organic Halides	10	0%	Mann-Kendall	10	0.436	NST
D2M	Benzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	10	30%	Mann-Kendall	7	0.600	NST
	Phenolics	10	30%	Mann-Kendall	-5	0.728	NST
	Total Chlorobenzoic Acid	10	10%	Mann-Kendall	13	0.292	NST
	Total Organic Halides	10	0%	Mann-Kendall	5	0.728	NST
D1L	Benzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	10	100%	Non-Detect	ND	ND	ND
	Phenolics	10	20%	Mann-Kendall	4	0.782	NST
	Total Chlorobenzoic Acid	10	90%	Logistic	0.002	0.591	NST
	Total Organic Halides	10	0%	Mann-Kendall	-13	0.292	NST

TABLE 2.8

COMPARISON OF STATISTICAL TREND ANALYSES -- 1999 TO PRESENT
SECOND QUARTER 2001
HYDE PARK LANDFILL
NIAGARA FALLS, NEW YORK

Location	*Analyte*	*Number of Observations*	*Percentage Non-Detect*	*Trend Test*			
				Method	*Test Statistic*	*Probability*	*Conclusion*
E3U	Benzoic Acid	9	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	9	78%	Logistic	0.002	0.518	NST
	Phenolics	10	100%	Non-Detect	ND	ND	ND
	Total Chlorobenzoic Acid	9	89%	Logistic	-0.002	0.654	NST
	Total Organic Halides	10	10%	Mann-Kendall	13	0.292	NST
E3M	Benzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	10	100%	Non-Detect	ND	ND	ND
	Phenolics	10	90%	Logistic	0.007	0.319	NST
	Total Chlorobenzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Total Organic Halides	10	30%	Mann-Kendall	-5	0.728	NST
E2L	Benzoic Acid	0	--	--	--	--	--
	Chlorendic Acid	0	--	--	--	--	--
	Phenolics	0	--	--	--	--	--
	Total Chlorobenzoic Acid	0	--	--	--	--	--
	Total Organic Halides	0	--	--	--	--	--
F4U	Benzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	10	70%	Logistic	-1.35E-02	0.138	NST
	Phenolics	10	70%	Logistic	-0.001	0.699	NST
	Total Chlorobenzoic Acid	10	80%	Logistic	-5.22E-03	0.227	NST
	Total Organic Halides	10	10%	Mann-Kendall	-21	0.072	NST
F1M	Benzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	10	100%	Non-Detect	ND	ND	ND
	Phenolics	10	100%	Non-Detect	ND	ND	ND
	Total Chlorobenzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Total Organic Halides	10	30%	Mann-Kendall	-21	0.072	NST
F2L	Benzoic Acid	0	--	--	--	--	--
	Chlorendic Acid	0	--	--	--	--	--
	Phenolics	0	--	--	--	--	--
	Total Chlorobenzoic Acid	0	--	--	--	--	--
	Total Organic Halides	0	--	--	--	--	--
G4U	Benzoic Acid	7	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	7	100%	Non-Detect	ND	ND	ND
	Phenolics	7	100%	Non-Detect	ND	ND	ND
	Total Chlorobenzoic Acid	8	100%	Non-Detect	ND	ND	ND
	Total Organic Halides	7	71%	Logistic	0.002	0.392	NST
G1M	Benzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	10	100%	Non-Detect	ND	ND	ND
	Phenolics	10	90%	Logistic	0.007	0.315	NST
	Total Chlorobenzoic Acid	10	70%	Logistic	-0.252	0.938	NST
	Total Organic Halides	10	40%	Mann-Kendall	-13	0.292	NST
G1L	Benzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	10	100%	Non-Detect	ND	ND	ND
	Phenolics	10	40%	Mann-Kendall	7	0.600	NST
	Total Chlorobenzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Total Organic Halides	10	0%	Mann-Kendall	-29	**0.0092**	Decreasing

TABLE 2.8

COMPARISON OF STATISTICAL TREND ANALYSES -- 1999 TO PRESENT
SECOND QUARTER 2001
HYDE PARK LANDFILL
NIAGARA FALLS, NEW YORK

Location	*Analyte*	*Number of Observations*	*Percentage Non-Detect*	*Trend Test* *Method*	*Test Statistic*	*Probability*	*Conclusion*
H1U	Benzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	10	50%	Logistic	-0.001	0.764	NST
	Phenolics	10	100%	Non-Detect	ND	ND	ND
	Total Chlorobenzoic Acid	10	70%	Logistic	-0.001	0.606	NST
	Total Organic Halides	10	0%	Mann-Kendall	-15	0.216	NST
H2M	Benzoic Acid	10	90%	Logistic	0.004	0.433	NST
	Chlorendic Acid	10	100%	Non-Detect	ND	ND	ND
	Phenolics	10	70%	Logistic	0.003	0.291	NST
	Total Chlorobenzoic Acid	10	0%	Mann-Kendall	-1	1.000	NST
	Total Organic Halides	10	0%	Mann-Kendall	19	0.108	NST
H3L	Benzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	10	100%	Non-Detect	ND	ND	ND
	Phenolics	10	50%	Logistic	3.23E-04	0.890	NST
	Total Chlorobenzoic Acid	10	40%	Mann-Kendall	-14	0.254	NST
	Total Organic Halides	10	0%	Mann-Kendall	-28	**0.0160**	Decreasing
J1U	Benzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Chlorendic Acid	10	100%	Non-Detect	ND	ND	ND
	Phenolics	10	100%	Non-Detect	ND	ND	ND
	Total Chlorobenzoic Acid	10	100%	Non-Detect	ND	ND	ND
	Total Organic Halides	10	70%	Logistic	0.003	0.280	NST
J2M	Benzoic Acid	10	50%	Logistic	-0.245	0.947	NST
	Chlorendic Acid	10	50%	Logistic	-0.004	0.154	NST
	Phenolics	10	10%	Mann-Kendall	-29	**0.0092**	Decreasing
	Total Chlorobenzoic Acid	10	0%	Mann-Kendall	-19	0.108	NST
	Total Organic Halides	10	0%	Mann-Kendall	-15	0.216	NST
J3L	Benzoic Acid	10	10%	Mann-Kendall	0	1.000	NST
	Chlorendic Acid	10	100%	Non-Detect	ND	ND	ND
	Phenolics	10	10%	Mann-Kendall	-8	0.540	NST
	Total Chlorobenzoic Acid	10	10%	Mann-Kendall	-4	0.782	NST
	Total Organic Halides	10	0%	Mann-Kendall	1	1.000	NST

Notes:

ND	Parameter not detected at this location. No trend analysis performed.
NST	No statistically significant (P<0.05) trend detected.
Decreasing	Statistically significant (P<0.05) decreasing trend detected.
Logistic	Logistic regression used for trend test (>= 50%ND).
Mann-Kendall	Mann Kendall method used for trend test (<50%ND).
--	No data collected at wells E2L and F2L during the past 2 years.

TABLE 3.1

HYDRAULIC GRADIENT SUMMARY
APL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well Pair		*Hydraulic Gradient* [(1)]						
Inner	***Outer***	***04/09/2001***	***04/18/2001***	***04/25/2001***	***05/11/2001***	***06/13/2001***	***06/20/2001***	***06/27/2001***
ABP-2 -	ABP-1	3.96	4.42	8.09	12.91	3.71	5.67	-1.35
ABP-4 -	ABP-3	-8.53	-9.60	-10.19	-11.80	-13.14	-0.48	-9.45
ABP-6 -	ABP-5	2.44	21.67	2.79	1.66	2.87	2.62	2.93
ABP-8 -	ABP-7	-13.10	-11.46	-13.01	-9.83	-13.06	-12.34	-12.88

Notes:

(1) Negative number indicates an inward gradient measured in feet.

TABLE 3.2

AFW WELL PURGING SUMMARY
APL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well I.D.	***Starting Date***	***Initial Water Level (Ft. BTOC)***	***Depth of Well (Ft. BTOC)***	***Standing Volume [(1)] (Gallons)***	***Purge Volume (Gallons)***	***Purge Method***
AFW-1U	6/18/2001	18.79	28.5	6.3	15.1	Submersible (2-inch)
AFW-1M	6/18/2001	47.90	55.1	4.6	10.2	Submersible (2-inch)
AFW-2U	6/18/2001	15.65	59.20	28.3	200	Submersible (2-inch)
AFW-3U	6/21/2001	18.90	47.70	18.0	90	Submersible (2-inch)
AFW-3L	6/21/2001	98.77	105.00	4.0	20	Submersible (2-inch)

Notes:
[(1)] All wells are 4-inch diameter.
Ft. BTOC Feet Below Top of Casing.

TABLE 3.3

COMPOSITE SAMPLE VOLUME DETERMINATION
APL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well Identification	*Cross-Sectional Flow Area*			*Percent of Total*	*Approximate Volume Required (L)*
	Width (Ft.)	*Depth (Ft.)*	*Total (Ft.2)*		
APW-1	640	64	40,960	13.9	1.25
APW-2	830	34	28,220	9.2	0.83
AFW-1U	1,470	22	32,340	11.1	1.00
AFW-1M	1,470	26	38,220	13.0	1.17
AFW-2U	1,550	45	69,750	24.1	2.17
AFW-3U	1,460	35	51,100	17.6	1.58
AFW-3L	1,460	22	32,120	11.1	1.00
		Totals	292,710	100	9.0

TABLE 3.4

WELL SAMPLING SUMMARY
APL PLUME CONTAINMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well I.D.	*Sample I.D.*	*Sample Date*	*Sample Time*	*Depth to Water (Ft. BTOC)*	*Well Volume (Gallons)*	*Volume Removed (Gallons)*	*pH (su)*	*Specific Conductivity (uS/cm)*	*Temperature (°C)*	*DEC Split*	*Final Water Quality/Turbidity (NTU)*
AFW-1U	Composite #1	06/21/01	9:00	19.82	6.3	15.1	7.38	4180	11.60	No	65
AFW-1M	Composite #1	06/21/01	9:15	49.37	4.6	10.2	7.36	4640	12.90	No	240
AFW-2U	Composite #1	06/21/01	8:35	15.91	28.3	200	7.41	1490	11.70	No	190
AFW-3U	Composite #1	06/21/01	7:50	19.13	18.0	90	7.34	1490	12.20	No	340
AFW-3L	Composite #1	06/21/01	8:10	99.03	4.0	20	7.21	2600	13.20	No	310
APW-1	Composite #1	NA	NA	NA	NA	NA	NA	NA	NA	No	NA
APW-2	Composite #1	NA	NA	NA	NA	NA	NA	NA	NA	No	NA

Notes:

°C Degree Centigrade.
DEC Department of Environmental Conservation.
Ft. BTOC Feet Below Top of Casing.
N/A Not Available.
NTU Normal Turbidity Units.
su Standard pH Units
uS/cm Micro Siemens per Centimeter.

TABLE 3.5
ANALYTICAL RESULTS
APL PLUME CONTAINMENT SYSTEM AFW/APW COMPOSITES
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

		Sample Location:	*Composite1*
		Sample ID:	*#1COMP601*
		Sample Date:	*6/21/2001*
APL Plume Monitoring Parameter Units	***Unit***	***Monitoring Level***	
Phenolics (Total)	mg/L	50	ND 0.0050
2,4,5-Trichlorophenol	ug/L	10	9 UJ
2,4-Dichlorophenol	ug/L	10	9 UJ
2-Chlorophenol	ug/L	10	9 UJ
Benzene	ug/L	10	ND 5.0
Hexachlorocyclohexanes	ug/L	10	0.152 J
APL Flux Parameters			
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	pg/L	500	541
Perchlorobiphenyls (Aroclor 1248**)	ppb	1.0	ND 0.031
Perchloropentacyclodecane(Mirex)	ug/L	1.0	0.090 J
Chloroform (Trichloromethane)	ug/L	1.0	ND 5.0

Notes:
NDx-Non-detect at or above x.
* - Analyzed for alpha-,beta-,gamma-, and delta-hexachlorocyclohexanes.
** - Analyzed for tri-,tetra-,and penta-chlorobiphenyls and reported as Aroclor 1248.

TABLE 4.1

HYDRAULIC GRADIENT SUMMARY
OVERBURDEN BARRIER COLLECTION SYSTEM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well Pair			*Horizontal Gradients* [1]							*Well Pair*			*Vertical Gradients* [1]		
Inner		*Outer*	*04/08/97*	*04/17/97*	*04/24/97*	*05/10/97*	*06/12/97*	*06/19/97*	*06/26/97*	*Bedrock*		*Overburden*	*04/08/97*	*05/10/97*	*06/12/97*
OMW-1	-	OMW-2	-3.29	-3.41	-3.80	-0.99	-3.69	-3.35	-3.04	N / A	-	N / A	N / A	N / A	N / A
OMW-3	-	OMW-4R	-1.22	-1.30	-1.34	-1.31	-1.39	-1.44	-1.48	N / A	-	N / A	N / A	N / A	N / A
OMW-5R	-	OMW-6	-2.09	-2.01	-1.87	-3.73	-3.33	-4.40	-5.25	B1U	-	OMW-6	-16.66	-16.74	-17.48
OMW-8R2	-	OMW-7	3.15	3.09	2.96	2.33	2.30	2.06	1.75	B1U	-	OMW-8R2	-18.43	-17.61	-18.39
OMW-10R	-	OMW-9	-1.05	-1.23	-0.90	-0.78	-0.85	-0.76	-0.79	B1U	-	OMW-9	-18.23	-18.02	-18.80
OMW-11R	-	OMW-12R	-0.27	-0.68	-0.58	1.12	-0.82	-0.74	-0.63	D1U	-	OMW-11R	-9.93	-10.13	-10.06
OMW-13R	-	OMW-14R	2.13	2.02	1.80	2.62	1.80	1.52	1.30	E4U	-	OMW-14R	-2.54	-2.22	-2.70
OMW-15	-	OMW-16R	-0.67	-0.79	-0.71	-0.97	-0.65	-0.92	-1.23	N / A	-	N / A	N / A	N / A	N / A

Notes:

(1) Negative number indicates an inward / downward gradient measured in feet.

N / A Not Applicable

TABLE 4.2

OVERBURDEN BARRIER COLLECTION SYSTEM
NAPL PRESENCE MONITORING
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well I.D.	*1st Quarter 1998*	*2nd Quarter 1998*	*3rd Quarter 1998*	*4th Quarter 1998*	*1st Quarter 1999*	*2nd Quarter 1999*	*3rd Quarter 1999*	*4th Quarter 1999*	*1st Quarter 2000*	*2nd Quarter 2000*	*3rd Quarter 2000*	*4th Quarter 2000*	*1st Quarter 2001*	*1st Quarter 2001*
OMW1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW4	NO	NO	NO	NO	NO	-	-	-	-	-	-	-	-	-
OMW4R	-	-	-	-	-	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW5	NO	NO	NO	NO	NO	-	-	-	-	-	-	-	-	-
OMW5R	-	-	-	-	-	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW7	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW8	NO	NO	NO	NO	NO	-	-	-	-	-	-	-	-	-
OMW8R	-	-	-	-	-	NO	-	-	-	-	-	-	-	-
OMW8R2	-	-	-	-	-	-	NO	NO	NO	NO	NO	NO	NO	NO
OMW9	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW10	NO	NO	NO	NO	NO	-	-	-	-	-	-	-	-	-
OMW10R	-	-	-	-	-	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW11	NO	NO	NO	NO *	NO	NO	NO	NO	-	-	-	-	-	-
OMW11R	-	-	-	-	-	-	-	-	NO	NO	NO	NO	NO	NO
OMW12	NO	NO	NO	NO *	NO	-	-	-	-	-	-	-	-	-
OMW12R	-	-	-	-	-	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW13	NO	NO	NO	NO *	NO	NO	-	-	-	-	-	-	-	-
OMW13R	-	-	-	-	-	-	NO	NO	NO	NO	NO	NO	NO	NO
OMW14	NO	NO	NO	NO *	NO	-	-	-	-	-	-	-	-	-
OMW14R	-	-	-	-	-	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW15	NO	NO	NO	NO *	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
OMW16	NO	NO	NO	NO *	NO	-	-	-	-	-	-	-	-	-
OMW16R	-	-	-	-	-	NO	NO	NO	NO	NO	NO	NO	NO	NO

Notes:

* NAPL checks performed on 12/10/98 due to work stoppage at TAM Ceramics (wells located on TAM's property).

\- Not available.

TABLE 4.3

VERTICAL HYDRAULIC GRADIENT SUMMARY
COMMUNITY MONITORING WELL NETWORK
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

Well Pair			*Vertical Hydraulic Gradient* [1]		
			April	*May*	*June*
CMW-1SH	-	CMW-1OB	-5.68	-1.54	-6.65
CMW-2SH	-	CMW-2OB	-20.27	-19.12	-20.75
CMW-3SH	-	CMW-3OB	-22.10	-30.86	-24.09
CMW-4SH	-	CMW-4OB	-6.64	-6.81	-7.48
CMW-5SH	-	CMW-5OB	-2.61	-1.10	-1.27
CMW-6SH	-	CMW-6OB	-6.74	-7.19	-8.08
CMW-7SH	-	CMW-7OB	NA	-7.21	NA
CMW-8SH	-	CMW-8OB	NA	NA	NA
CMW-9SH	-	CMW-9OB	NA	-10.12	-10.14
CMW-11SH	-	CMW-11OB	NA	-4.49	-12.21
CMW-12SH	-	CMW-12OB	NA	-11.87	-12.24

Notes:

(1) Negative number indicates an inward gradient measured in feet.

NA Not Available - one or both wells dry during monitoring event.

TABLE 4.4

QUARTERLY SOIL AIR MONITORING ANALYTICAL RESULTS
COMMUNITY MONITORING PROGRAM
SECOND QUARTER - 2001
HYDE PARK RRT PROGRAM

	Sample Location:	*CMW-7*	*CMW-8*
	Sample ID:	*CMW7601*	*CMW8601*
	Sample Date:	*6/29/2001*	*6/29/2001*
Parameter	***Unit***		
2-Chlorotoluene	mg/m3	ND 0.14	ND 0.17
Chlorobenzene	mg/m3	ND 0.14	ND 0.17
m-Monochlorobenzotrifluoride	mg/m3	ND 0.14	ND 0.17
o-Monochlorobenzotrifluoride	mg/m3	ND 0.14	ND 0.17
p-Monochlorobenzotrifluoride	mg/m3	ND 0.14	ND 0.17

Notes:
NDx Non-detect at associated value.

TABLE 5.1
LEACHATE TREATMENT SYSTEM DAILY EFFLUENT MONITORING DATA
SECOND QUARTER 2001 - APRIL
HYDE PARK RRT PROGRAM

Date	*Operating Hours*	*TOC [(1)] - mg/L*				*Phenol [(2)] - mg/L*				*Effluent pH 5-10*	*Gallons*
		C.B. Feed	*1st Instg.*	*2nd Instg.*	*Effluent*	*C.B. Feed*	*1st Instg.*	*2nd Instg.*	*Effluent*		
3 / 31 / 1997	24	0.0	0.0	0.0	2.3	0.10	0.17	0.08	0.16	7.45	214,070
4 / 1 / 1997	24	0.0	0.0	0.0	3.3	0.10	0.23	0.10	0.07	7.39	202,600
4 / 2 / 1997	24	0.0	0.0	0.0	2.7	2.20	0.72	0.32	0.04	7.04	208,461
4 / 3 / 1997	24	0.0	0.0	0.0	2.8	0.10	0.40	0.10	0.02	7.21	210,116
4 / 4 / 1997	24	17.8	12.2	8.7	3.9	0.10	0.84	0.10	0.03	7.3	208,123
4 / 5 / 1997	24	0.0	0.0	0.0	2.2	0.10	0.72	0.15	0.03	7.22	143,700
4 / 8 / 1997	24	0.0	0.0	0.0	2.3	0.10	0.42	0.10	0.12	7.57	150,866
4 / 11 / 1997	24	0.0	0.0	0.0	2.4	0.10	0.38	0.10	0.03	7.32	210,713
4 / 12 / 1997	24	0.0	0.0	0.0	2.8	0.10	0.10	0.10	0.00	7.39	162,812
4 / 13 / 1997	24	0.0	0.0	0.0	0.0	0.10	0.10	0.10	0.00	0.0	0.00
4 / 14 / 1997	24	0.0	0.0	0.0	0.0	0.10	0.10	0.10	0.00	0.0	16,988
4 / 15 / 1997	24	0.0	0.0	0.0	3.6	0.10	0.39	0.29	0.03	7.51	217,144
4 / 18 / 1997	24	0.0	0.0	0.0	3.0	0.10	0.35	0.10	0.04	7.33	200,150
4 / 19 / 1997	24	0.0	0.0	0.0	4.7	0.10	0.30	0.10	0.02	7.37	251,753
4 / 20 / 1997	24	0.0	0.0	0.0	0.0	0.10	0.10	0.10	0.00	0.0	0.0
4 / 21 / 1997	24	0.0	0.0	0.0	0.0	0.10	0.10	0.10	0.00	0.0	0.0
4 / 22 / 1997	24	0.0	0.0	0.0	0.0	0.10	0.58	0.10	0.02	7.63	166,940
4 / 23 / 1997	24	0.0	0.0	0.0	6.1	0.10	0.39	0.10	0.07	7.63	201,466
4 / 24 / 1997	24	0.0	0.0	0.0	3.8	0.10	0.77	0.10	0.05	7.39	213,624
4 / 25 / 1997	24	0.0	0.0	0.0	3.6	0.10	0.61	0.10	0.04	7.45	206,384
4 / 26 / 1997	24	0.0	0.0	0.0	4.2	0.10	0.81	0.10	0.04	7.6	194,975
4 / 27 / 1997	24	0.0	0.0	0.0	0.0	0.10	0.10	0.10	0.00	0.00	0.00
4 / 28 / 1997	24	0.0	0.0	0.0	0.0	0.10	0.10	0.10	0.00	0.00	0.00
4 / 29 / 1997	24	0.0	0.0	0.0	5.6	0.10	1.90	0.17	0.055	7.64	193,794
4 / 30 / 1997	24	15.4	9.9	7.5	6.7	7.90	1.30	0.13	0.13	7.44	185,609
5 / 1 / 1997	24	0.0	0.0	0.0	4.0	0.10	1.20	0.10	0.08	7.46	208,455
5 / 2 / 1997	24	0.0	0.0	0.0	4.3	0.10	0.97	0.10	0.13	7.5	191,286
5 / 3 / 1997	24	0.0	0.0	0.0	4.0	0.10	0.87	0.10	0.09	7.66	77,538
5 / 5 / 1997	0	0.0	0.0	0.0	0.0	0.10	0.10	0.10	0.00	7.88	15,500
5 / 6 / 1997	0	0.0	0.0	0.0	5.5	0.10	0.04	0.10	0.01	8.02	4,800
5 / 7 / 1997	0	0.0	0.0	0.0	3.7	0.10	0.03	0.10	0.01	8.45	16,900
5 / 8 / 1997	0	0.0	0.0	0.0	2.5	0.10	0.02	0.10	0.01	8.2	11,600
5 / 9 / 1997	0	0.0	0.0	0.0	1.4	0.10	0.01	0.10	0.01	8.48	12,200
5 / 10 / 1997	0	0.0	0.0	0.0	2.9	0.10	0.01	0.10	0.01	8.1	10,900.00
5 / 13 / 1997	0	0.0	0.0	0.0	0.0	0.10	0.01	0.10	0.01	8.0	50,000

TABLE 5.1
LEACHATE TREATMENT SYSTEM DAILY EFFLUENT MONITORING DATA
SECOND QUARTER 2001 - APRIL
HYDE PARK RRT PROGRAM

	Operating	TOC [1] - mg/L				Phenol [2] - mg/L				Effluent	
Date	***Hours***	***C.B. Feed***	***1st Instg.***	***2nd Instg.***	***Effluent***	***C.B. Feed***	***1st Instg.***	***2nd Instg.***	***Effluent***	***pH 5-10***	***Gallons***
5/14/1997	0	0.0	0.0	0.0	2.5	0.10	0.01	0.10	0.01	7.89	9,000
5/22/1997	24	0.0	0.0	1.6	0.0	0.10	0.05	0.10	0.04	8.09	167,435
5/23/1997	24	0.0	0.0	15.8	0.0	0.10	0.13	0.10	0.10	7.8	283,734
5/24/1997	24	0.0	0.0	16.9	0.0	0.10	0.11	0.10	0.12	7.5	19240.0
5/28/1997	24	0.0	0.0	21.2	0.0	0.08	0.24	0.20	0.22	7.5	336320.0
5/29/1997	24	0.0	0.0	21.4	0.0	0.10	0.10	0.10	0.00	7.8	276,890
5/30/1997	16	10.7	5.4	5.6	5.9	0.08	0.09	0.07	0.03	7.5	207,540
5/31/1997	24	0.0	0.0	0.0	0.0	0.10	0.06	0.07	0.03	7.37	111,700
6/3/1997	16	0.0	0.0	0.0	0.0	0.10	0.07	0.10	0.04	7.07	285,870
6/4/1997	16	0.0	0.0	0.0	2.8	0.10	0.08	0.10	0.09	7.27	202,790
6/5/1997	16	0.0	0.0	0.0	2.6	0.10	0.06	0.10	0.06	7.1	86,770
6/6/1997	16	0.0	0.0	0.0	2.0	0.10	0.09	0.10	0.06	7	130,690
6/7/1997	16	0.0	0.0	0.0	2.8	0.10	0.10	0.10	0.00	7.1	117,570
6/10/1997	16	0.0	0.0	0.0	3.0	0.10	0.16	0.13	0.05	7.03	273,710
6/11/1997	0	0.0	0.0	0.0	2.9	0.10	0.15	0.10	0.06	7.27	125,550
6/12/1997	0	0.0	0.0	0.0	3.6	0.10	0.13	0.10	0.17	7.28	133,325
6/13/1997	0	0.0	0.0	0.0	3.7	9.30	0.09	0.10	0.07	7.2	115,000.00
6/14/1997	0	0.0	0.0	0.0	3.9	0.10	0.10	0.10	0.05	7.4	142,000
6/17/1997	0	0.0	0.0	0.0	3.3	0.10	0.16	0.13	0.08	7.46	216,000
6/18/1997	24	0.0	0.0	0.0	0.0	0.10	0.08	0.10	0.06	7.2	154,000
6/19/1997	24	0.0	0.0	0.0	0.0	0.10	0.09	0.10	0.06	7.31	118,000
6/20/1997	24	0.0	0.0	0.0	0.0	0.10	0.07	0.10	0.06	7.4	112000.0
6/21/1997	24	0.0	0.0	0.0	1.7	0.10	0.07	0.10	0.05	7.2	149000.0
6/24/1997	24	0.0	0.0	0.0	3.2	0.10	0.14	0.13	0.05	7.2	213,000
6/25/1997	24	0.0	0.0	0.0	2.4	0.10	0.08	0.10	0.05	7.44	184,000
6/26/1997	24	0.0	0.0	0.0	0.0	0.10	0.09	0.10	0.05	7.3	138,000
6/27/1997	24	0.0	0.0	0.0	3.3	0.10	0.12	0.10	0.04	7.24	116,000
6/28/1997	24	0.0	0.0	0.0	3.2	0.10	0.05	0.10	0.03	7.27	92,542

Notes:
(1) TOC treatment level = 1000 mg/L.
(2) Phenol treatment level = 1 mg/L.
NA Not Available.
TOC Total Organic Compound.

TABLE 5.2
WEEKLY SAMPLING ANALYTICAL RESULTS
LEACHATE TREATMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK LANDFILL SITE

Composite Effluent Samples

Parameter	*Treatment Level (µg/L)*	*04/09/01*	*04/16/01*	*04/20/01*	*04/27/01*	*05/04/01*	*05/14/01*	*05/21/01*
2-Chlorotoluene	10	ND 3.0	ND 5.0	ND 5.0	1.9 J	ND 3.0	ND 3.0	ND 3.0
3-Chlorotoluene	10	ND 3.0	ND 5.0	ND 5.0	ND 5.0	ND 3.0	ND 3.0	ND 3.0
4-Chlorotoluene	10	ND 3.0	ND 5.0	ND 5.0	ND 5.0	ND 3.0	ND 3.0	ND 3.0
Chlorobenzene	10	ND 10	ND 5.0	ND 5.0	ND 5.0	ND 10	ND 10	ND 10
m-Monochlorobenzotrifluoride	10	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0
o-Monochlorobenzotrifluoride	10	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0
p-Monochlorobenzotrifluoride	10	ND 3.0	ND 3.0	ND 3.0	1.3 J	ND 3.0	ND 3.0	ND 3.0
Tetrachloroethene	10	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Trichloroethene	10	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0

Notes:
All concentrations are in µg/L.
-- Not applicable
J Associated value is estimated.
ND Non-detect at associated value.

TABLE 5.2
WEEKLY SAMPLING ANALYTICAL RESULTS
LEACHATE TREATMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK LANDFILL SITE

Composite Effluent Samples

Parameter	*Treatment Level (µg/L)*	*05/29/01*	*06/05/01*	*06/11/01*	*06/18/01*	*06/26/01*	*07/02/01*
2-Chlorotoluene	10	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 3.0
3-Chlorotoluene	10	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 3.0
4-Chlorotoluene	10	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 3.0
Chlorobenzene	10	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 10
m-Monochlorobenzotrifluoride	10	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0
o-Monochlorobenzotrifluoride	10	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0
p-Monochlorobenzotrifluoride	10	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0	ND 3.0
Tetrachloroethene	10	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0
Trichloroethene	10	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0	ND 5.0

Notes:
All concentrations are in µg/L.
-- Not applicable
J Associated value is estimated.
ND Non-detect at associated value.

TABLE 5.3
MONTHLY SAMPLING ANALYTICAL RESULTS
LEACHATE TREATMENT SYSTEM
SECOND QUARTER - 2001
HYDE PARK LANDFILL SITE

Parameter	***Treatment Level (µg/L)***	***Effluent Data April***	***Effluent Data May***	***Effluent Data June***
1,2,3,4-Tetrachlorobenzene	10	ND 5	ND 51	ND 6
1,2,3-Trichlorobenzene	10	ND 3	ND 31	ND 4
1,2,4,5-Tetrachlorobenzene	10	ND 5	6 J	ND 6
1,2,4-Trichlorobenzene	10	ND 3	ND 31	ND 4
1,3,5-Trichlorobenzene	10	ND 3	ND 31	ND 4
2,4,5-Trichlorophenol	10	ND 9	17 J	ND 12
Hexachlorobenzene	10	ND 3	ND 31	ND 4
Hexachlorobutadiene	10	ND 9	ND 100	ND 12
Hexachlorocyclopentadiene	10	ND 9	ND 100	ND 12
Octachlorocyclopentene	10	ND 3	ND 31	ND 4
Pesticides				
alpha-BHC	10	ND 0.052	ND 0.11	ND 0.071
beta-BHC	10	ND 0.052	ND 0.11	ND 0.071
delta-BHC	10	ND 0.052	ND 0.11	ND 0.071
gamma-BHC (Lindane)	10	ND 0.052	ND 0.11	ND 0.071

Notes:
All concentrations are in µg/L
NDx-Not detected at or above x.

TABLE 6.1

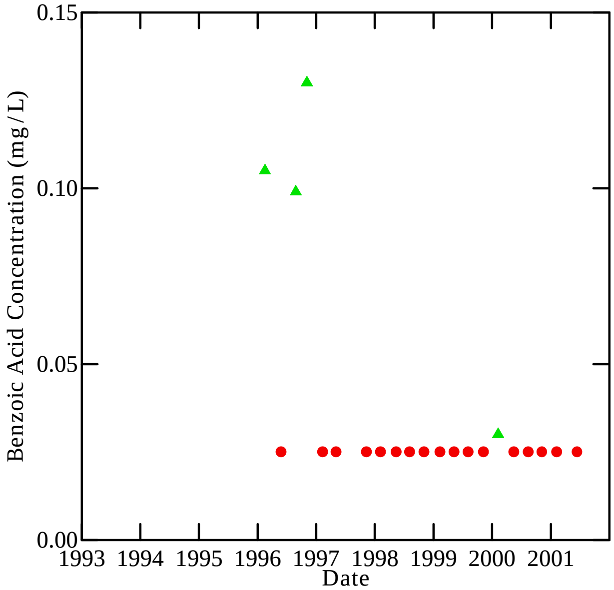
MONTHLY NAPL ACCUMULATION
HYDE PARK RRT PROGRAM

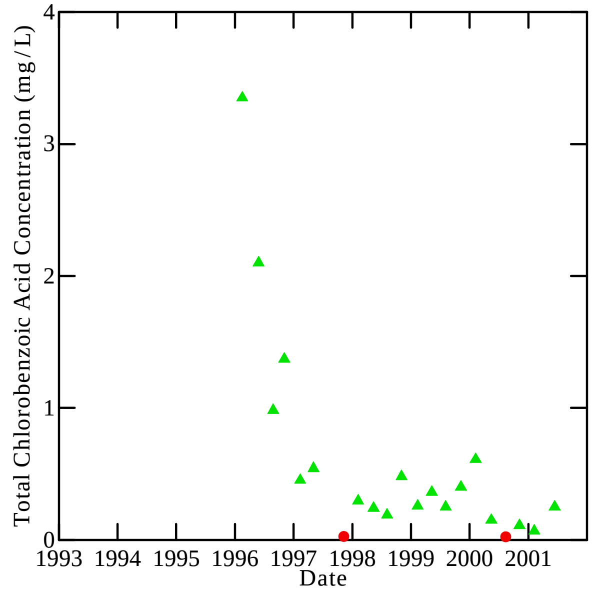
	NAPL Volume Per Decanter			*Manually Recovered NAPL*	*NAPL Removed*				*Disposed Total Shipped*
	Decanter				*Decanter*			*Total*	
	1	*2*	*3*		*1*	*2*	*3*		
	(Gallons)			*(Gallons)*	*(Gallons)*				*(Gallons)*
Dec-00	2350	3508	3384	0	0	0	0	0	0
Jan-01	2,444	3,760	3,384	30 (1)	0	0	0	0	0
Feb-01	3,196	3,572	3,384	0	0	0	0	0	0
Mar-01	3,384	3,760	3,384	0	0	0	0	0	0
1st Quarter	1,034	252	0	0	0	0	0	0	0
Apr-01	3,384	3,760	3,384	0	0	0	0	0	0
May-01	3,384	3,760	3,384	0	504	504	504	1,512	1,512
Jun-01	2,880	3,256	2,880	0	0	0	0	0	0
2nd Quarter	0	0	0	0	504	504	504	1,512	1,512
Jul-01	-	-	-	-	-	-	-	-	-
Aug-01	-	-	-	-	-	-	-	-	-
Sep-01	-	-	-	-	-	-	-	-	-
3rd Quarter	-	-	-	-	-	-	-	-	-
Oct-01	-	-	-	-	-	-	-	-	-
Nov-01	-	-	-	-	-	-	-	-	-
Dec-01	-	-	-	-	-	-	-	-	-
4th Quarter	-	-	-	-	-	-	-	-	-
			YTD	0	504	504	504	1,512	1,512

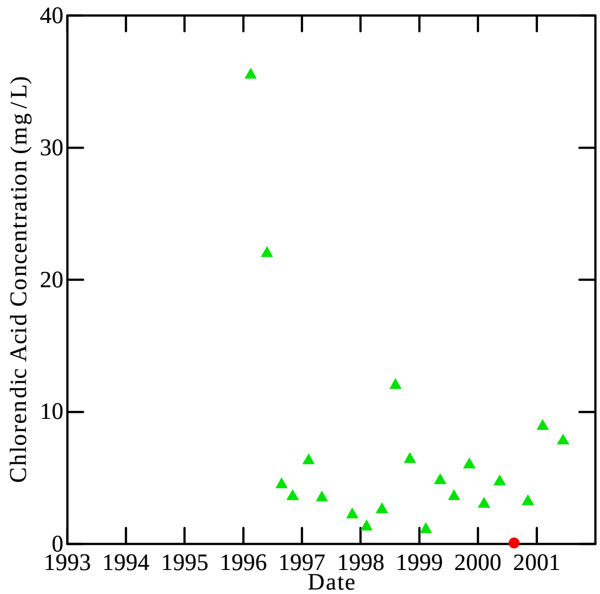
Manual Recoveries:
(1) January 25: CD1U 10.0gals; and PMW-3U 20.0 gals.

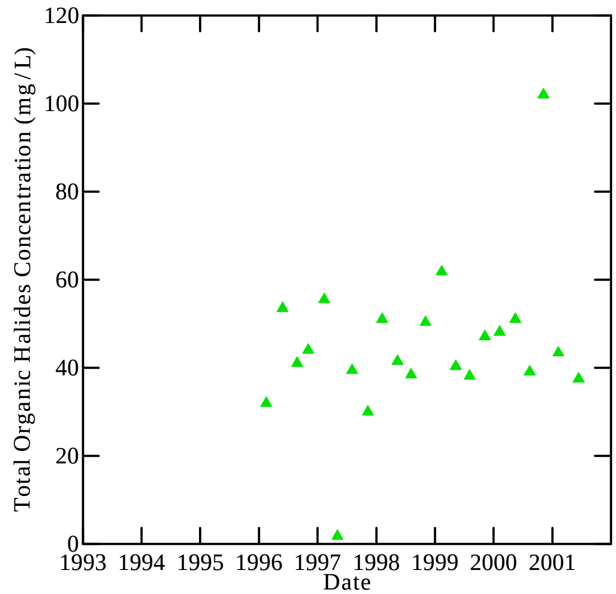
APPENDIX A

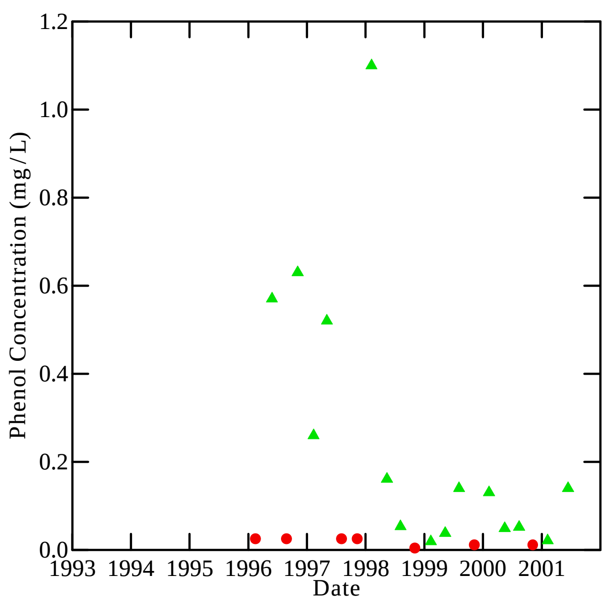
CONCENTRATION VS. TIME PLOTS









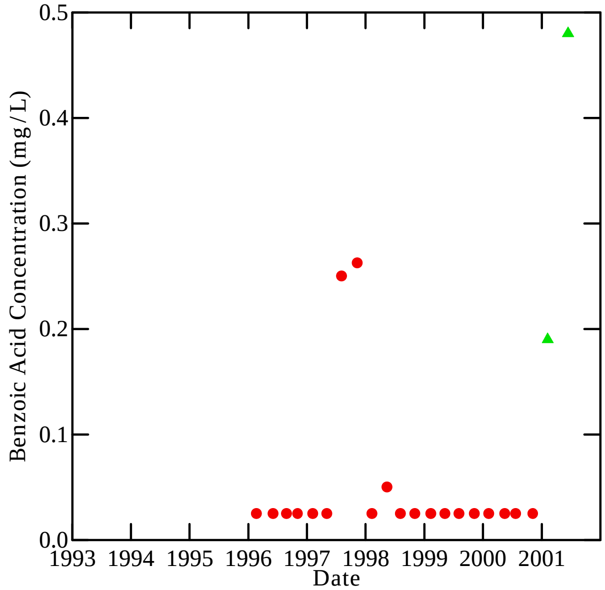


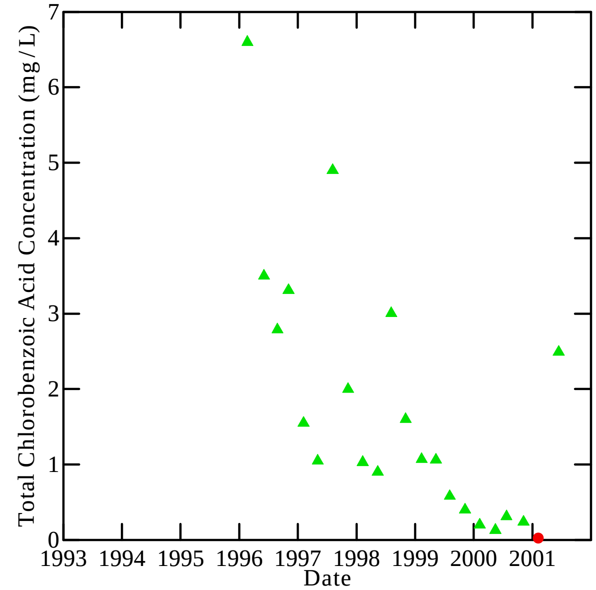
Notes:

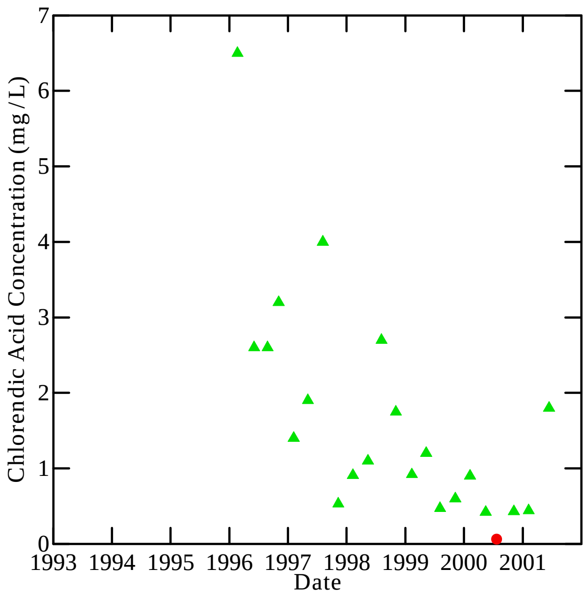
- ● Non-detect result
- ▲ Detected result

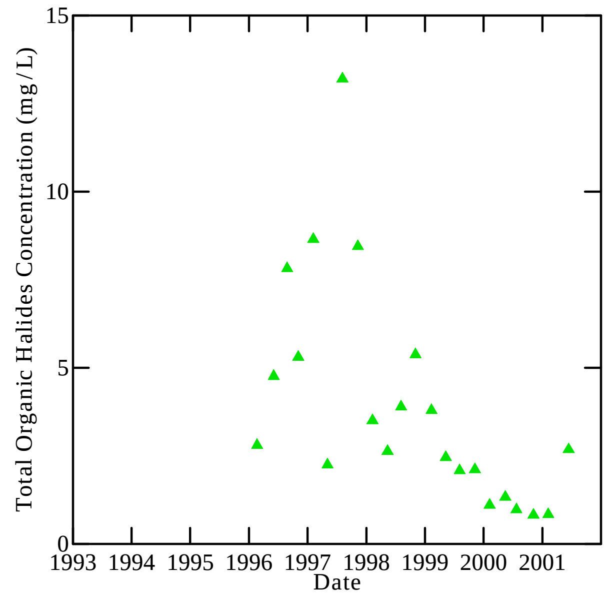
figure 1

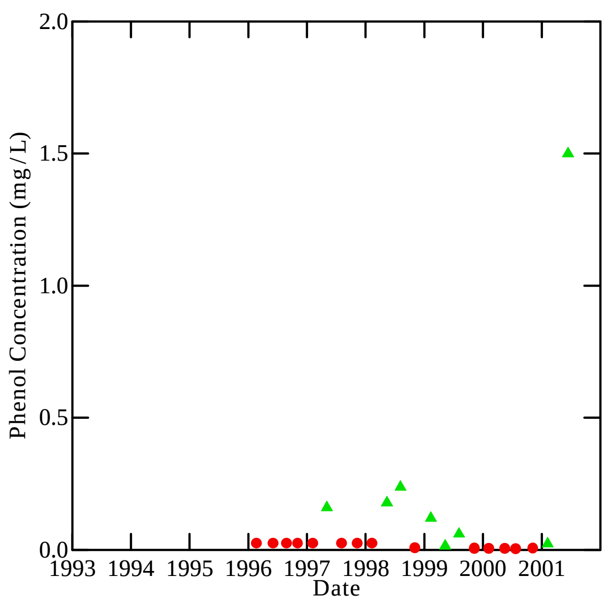
Well B1U
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill











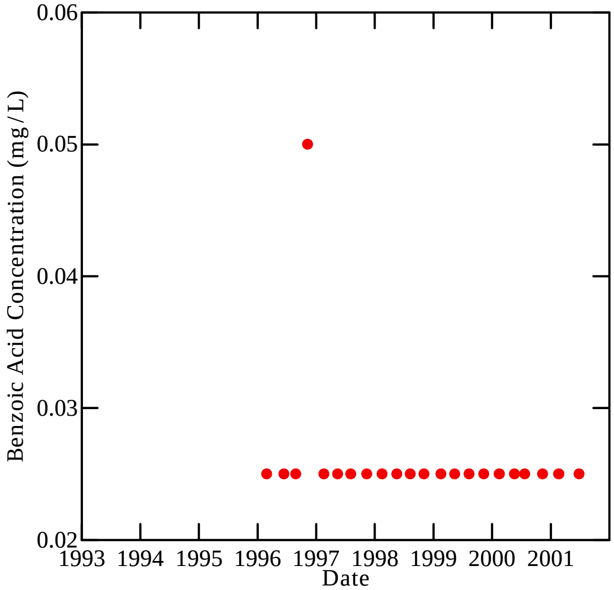
Notes:

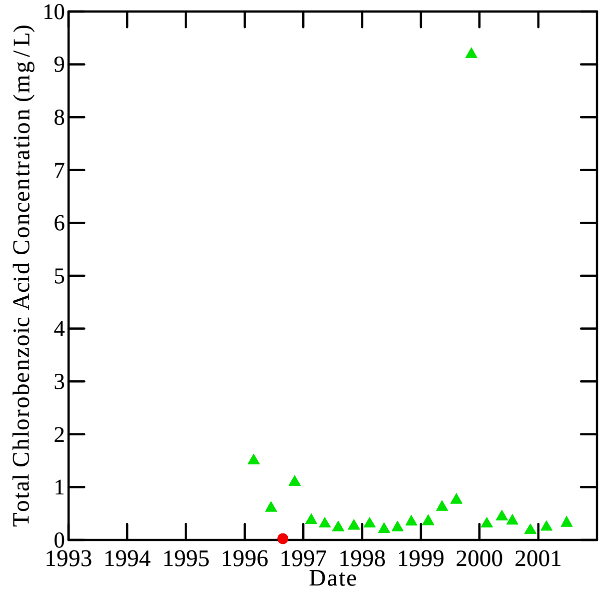
● Non-detect result

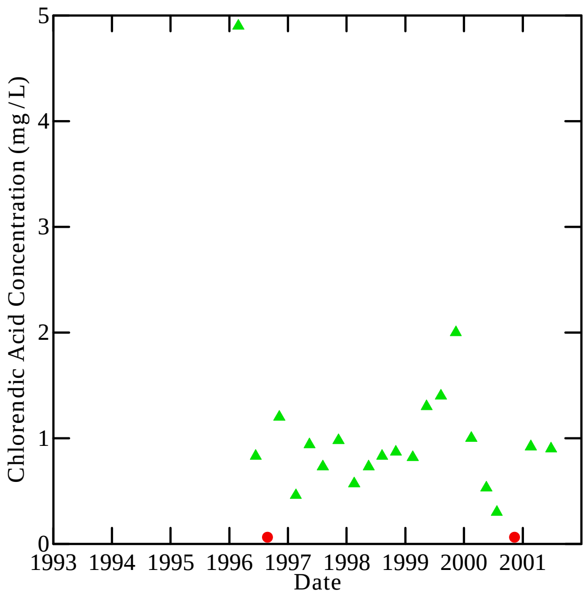
▲ Detected result

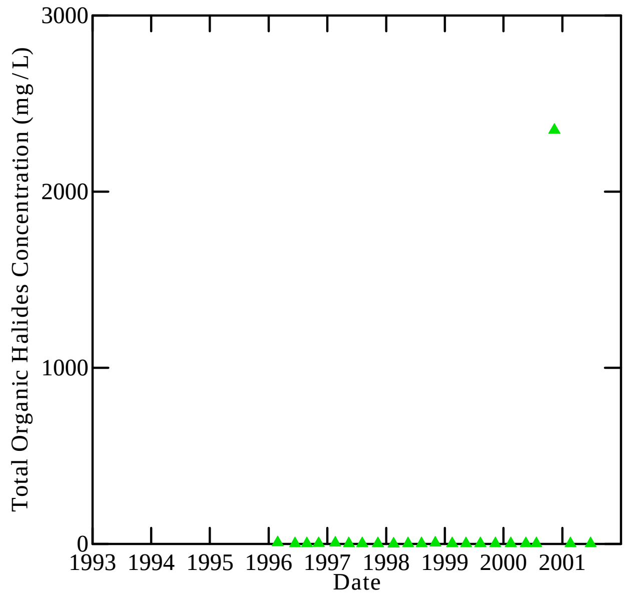
figure 2

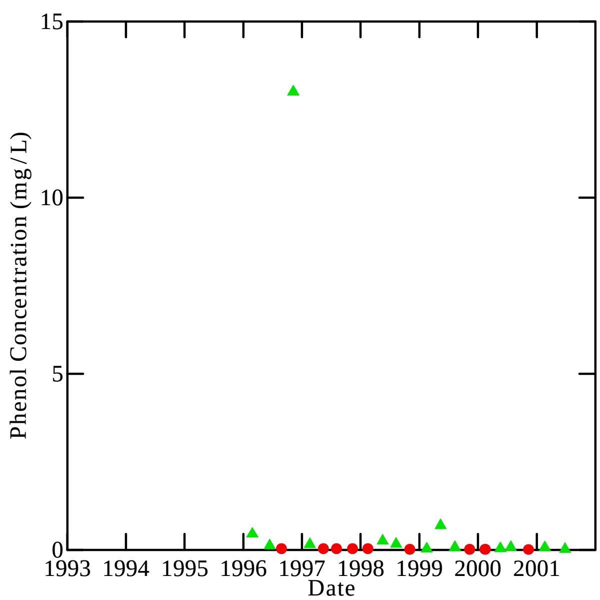
Well B1M
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill











Notes:

● Non-detect result

▲ Detected result

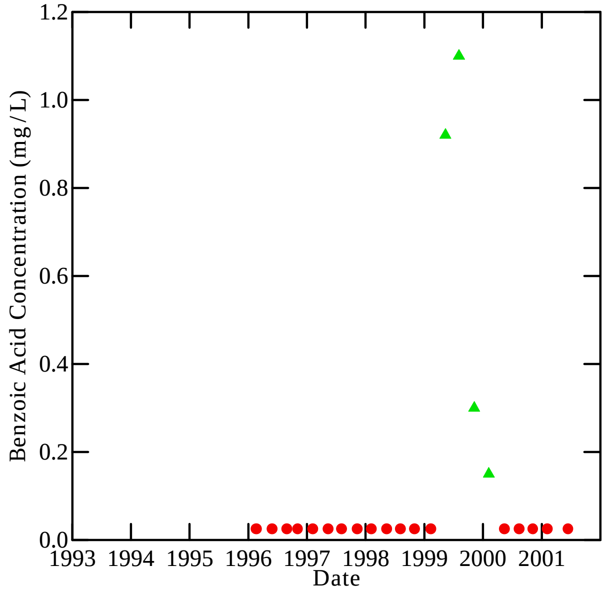
figure 3

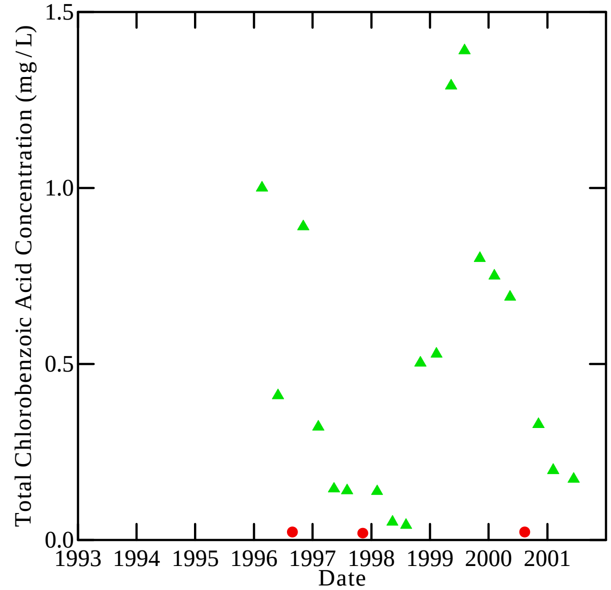
Well B1L

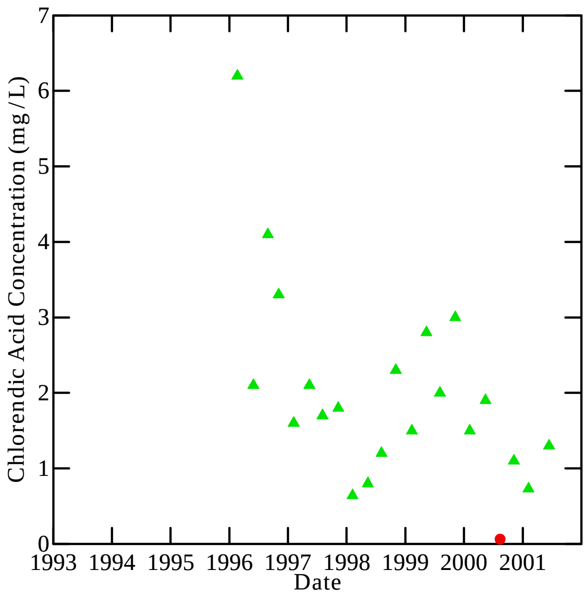
Analyte Concentration vs. Time

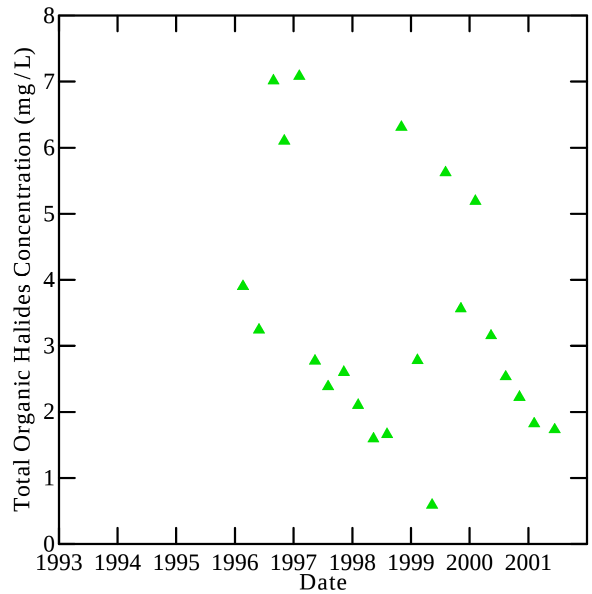
Second Quarter 2001

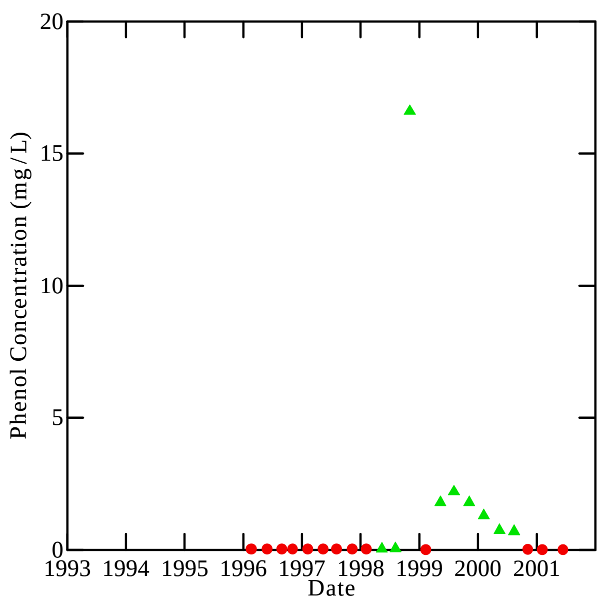
Hyde Park Landfill











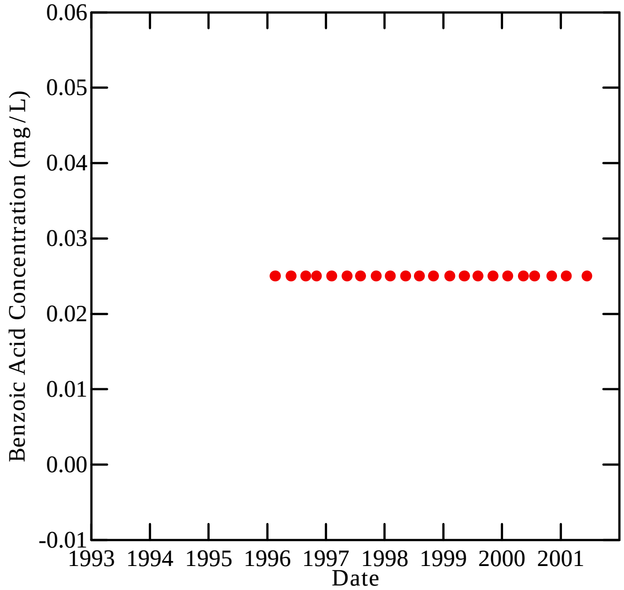
Notes:

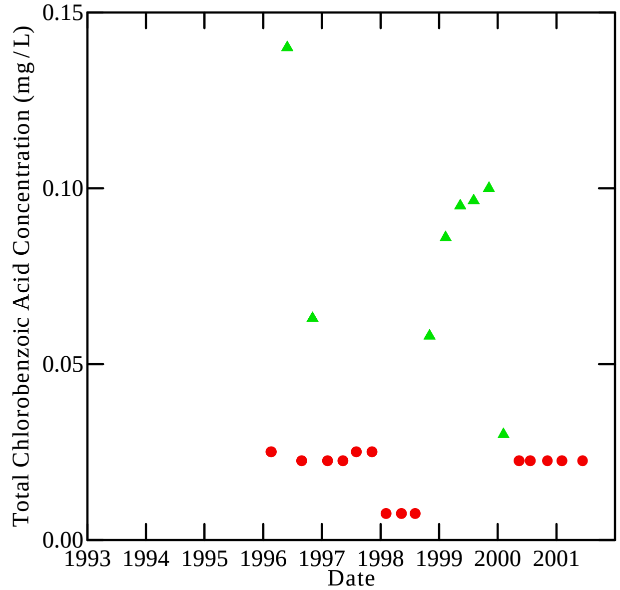
● Non-detect result

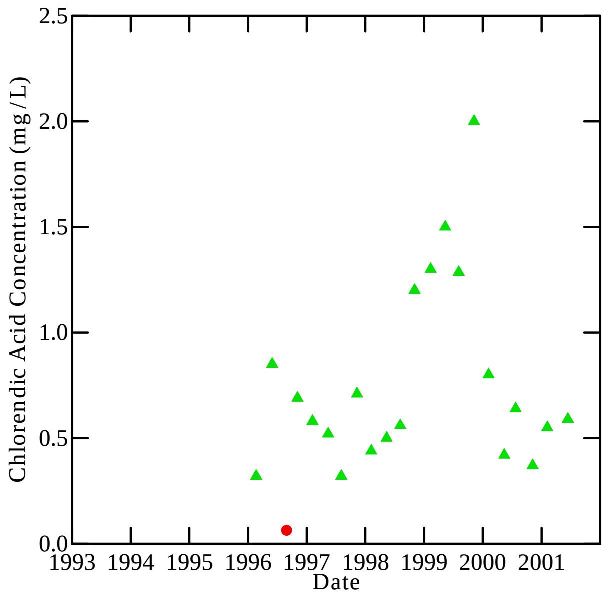
▲ Detected result

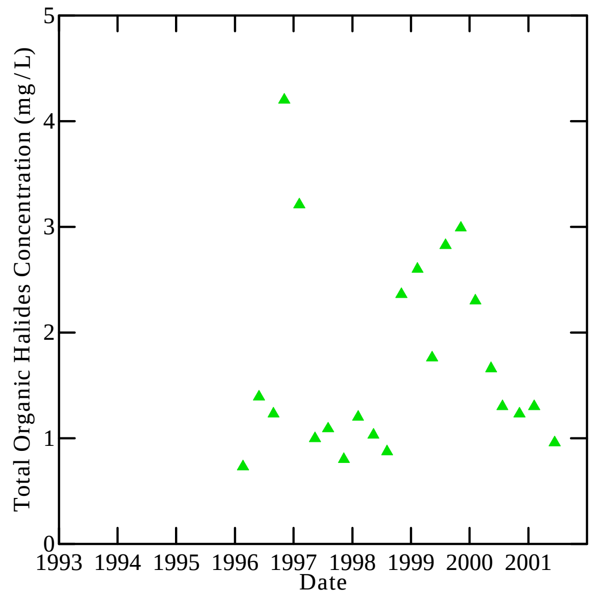
figure 4

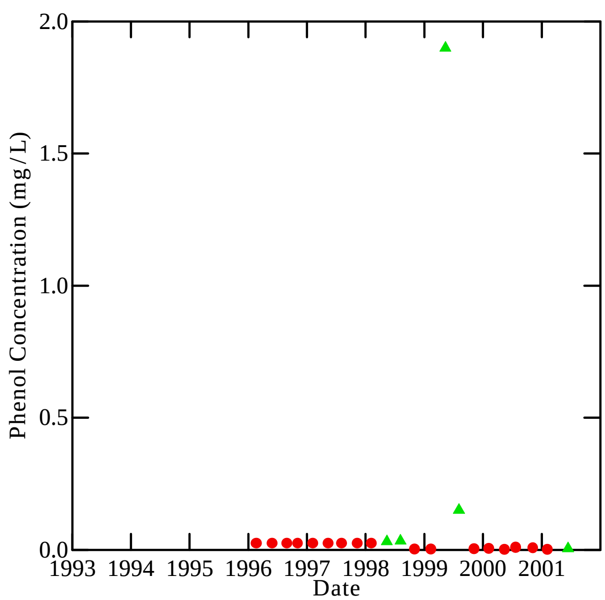
Well C1U
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill







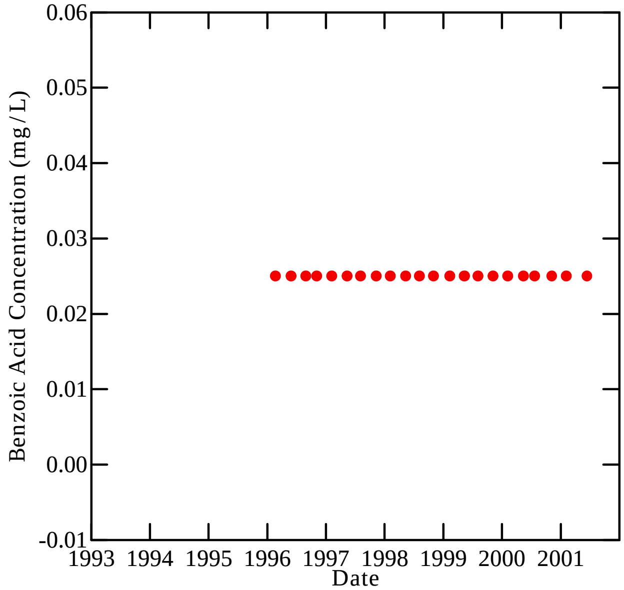


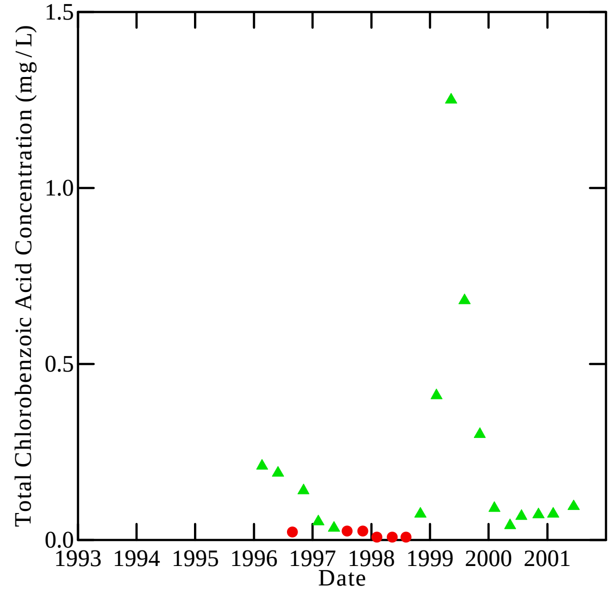


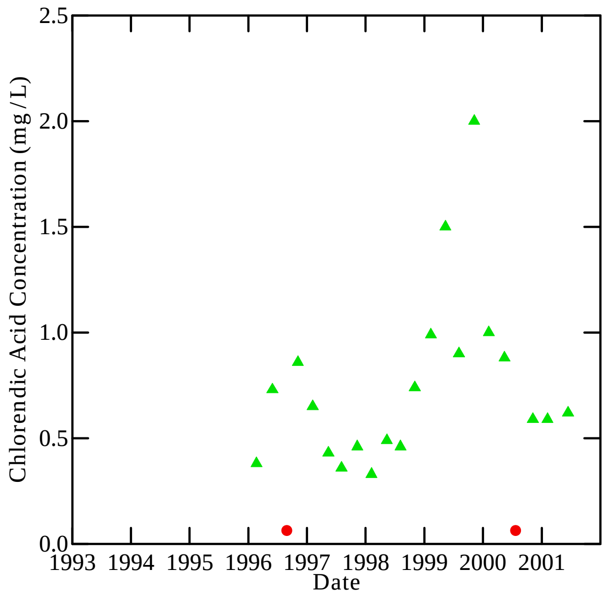
Notes:
● Non-detect result
▲ Detected result

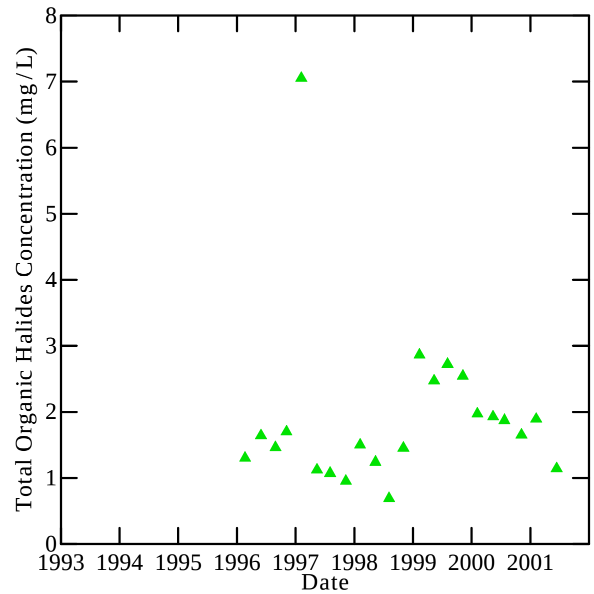
figure 5

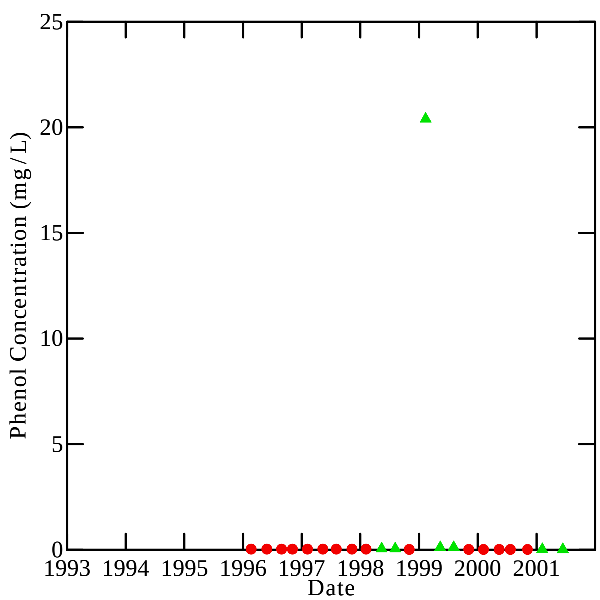
Well C1M
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill











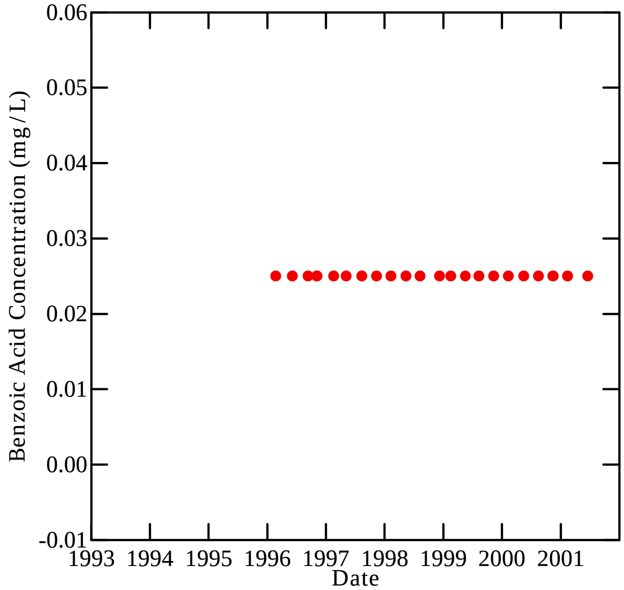
Notes:

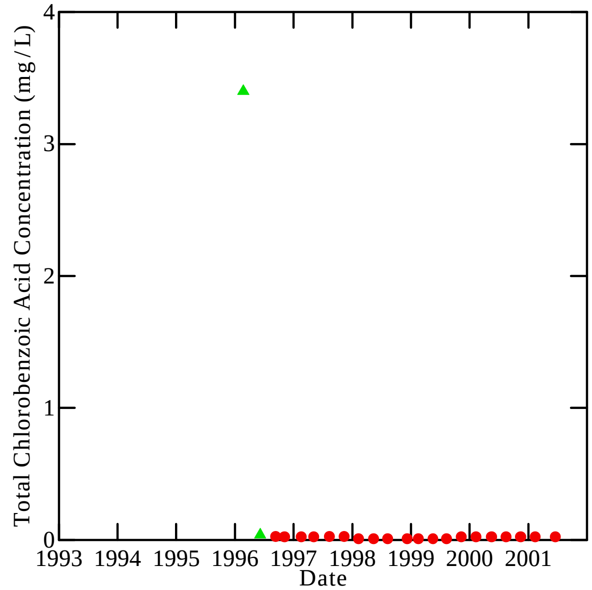
● Non-detect result

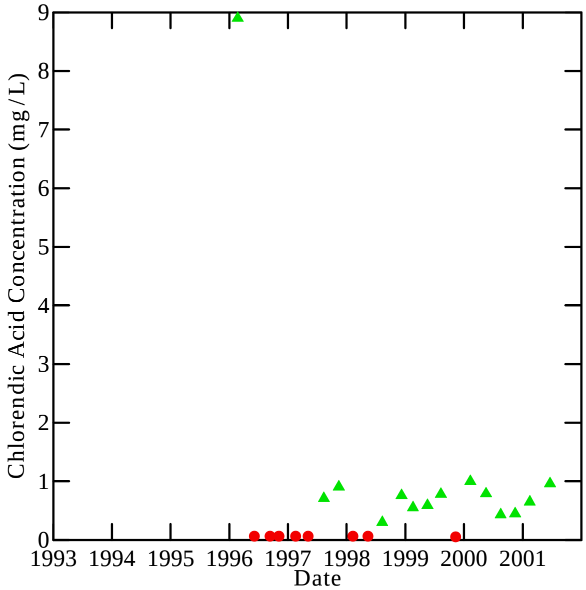
▲ Detected result

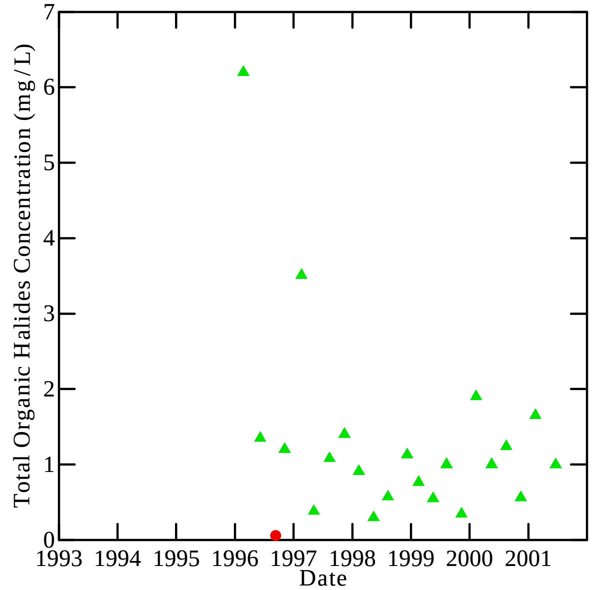
figure 6

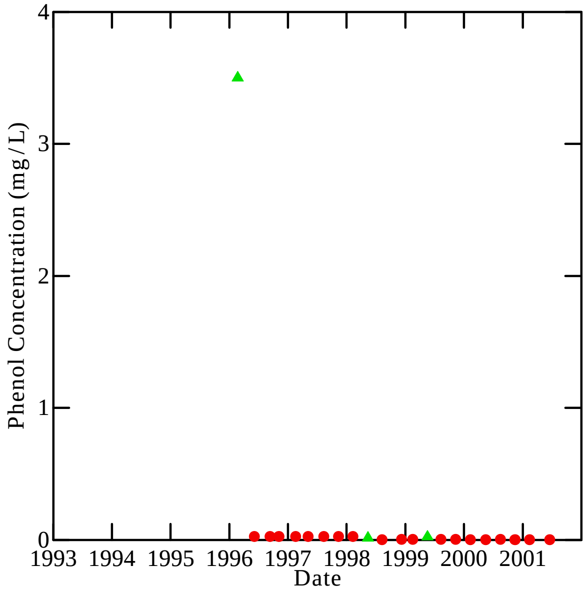
Well C1L
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill











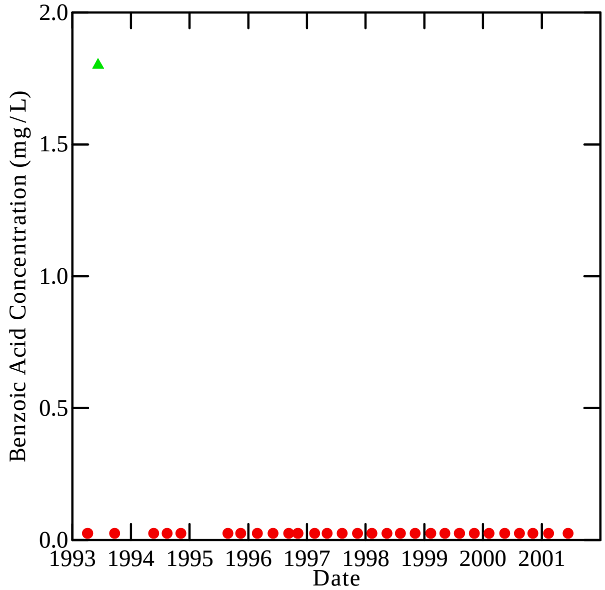
Notes:

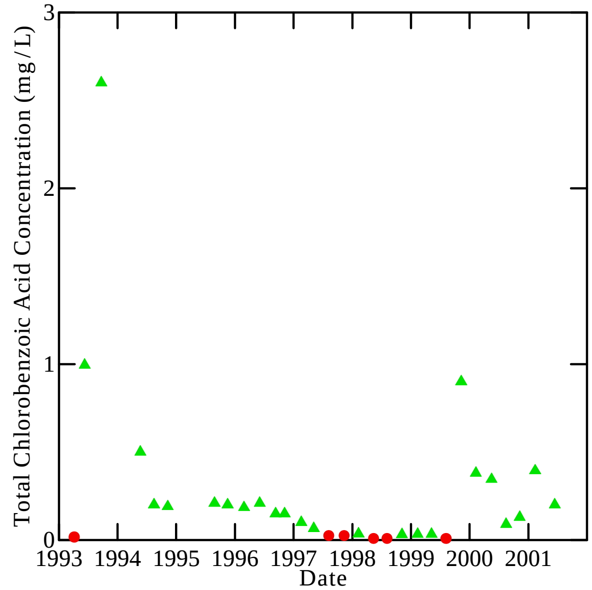
● Non-detect result

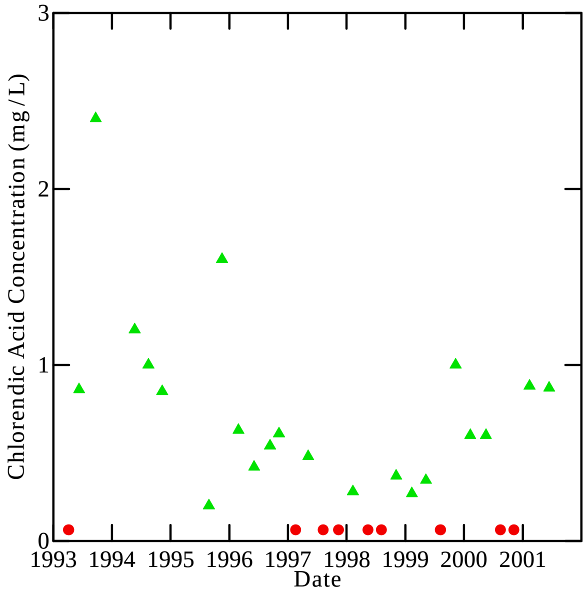
▲ Detected result

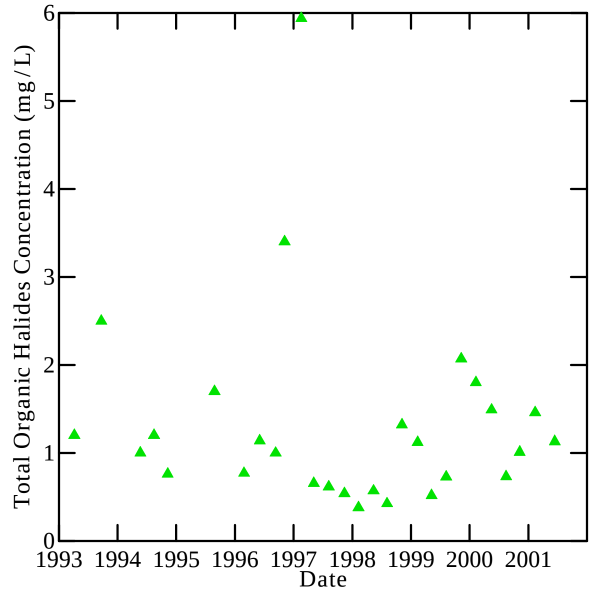
figure 7

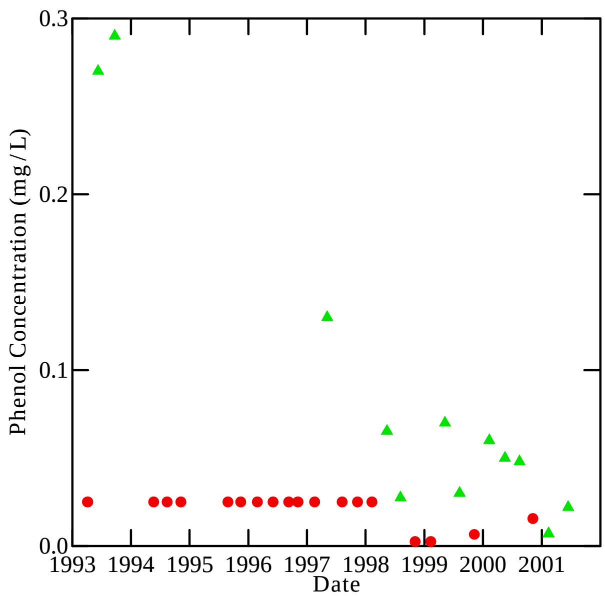
Well D3U
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill









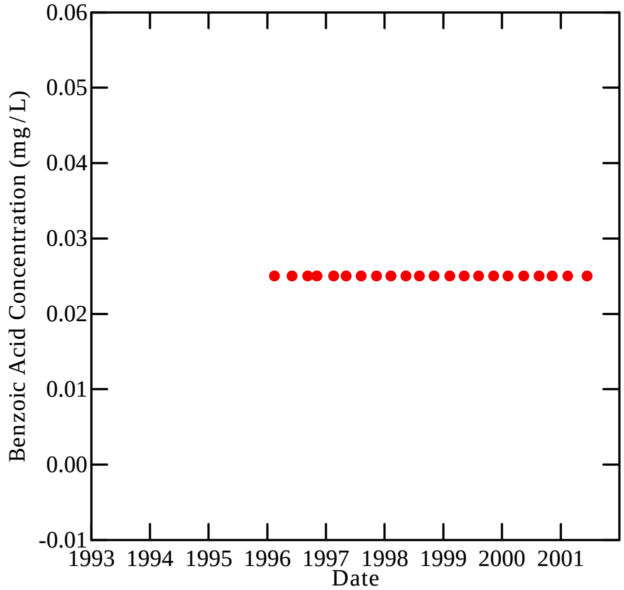


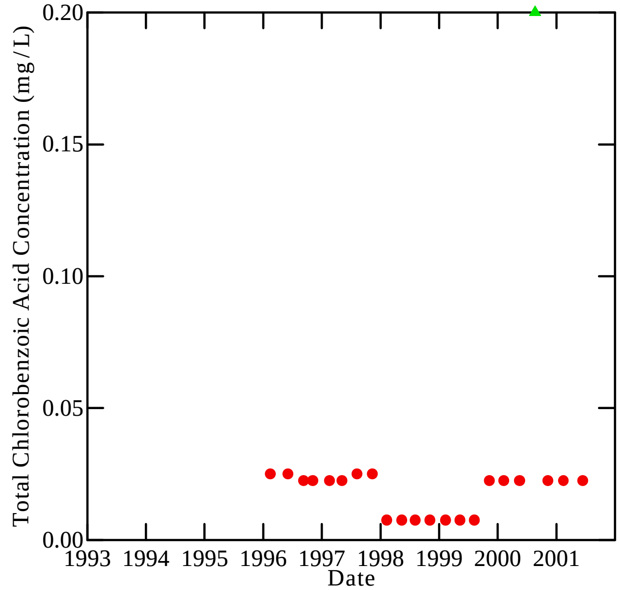
Notes:

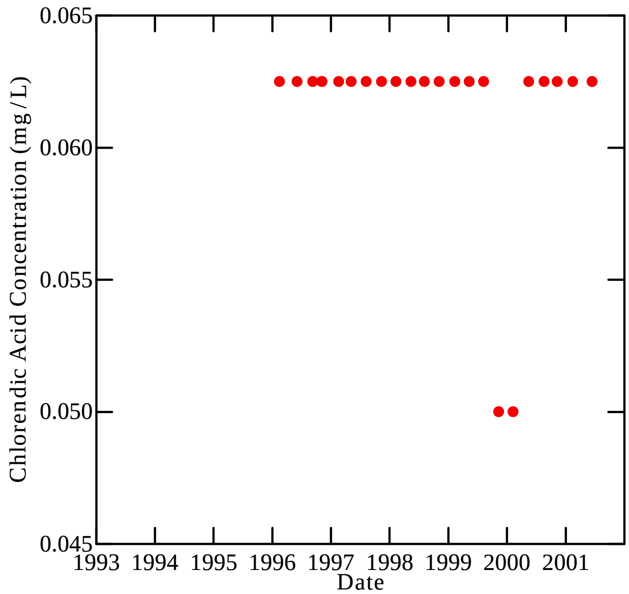
- ● Non-detect result
- ▲ Detected result

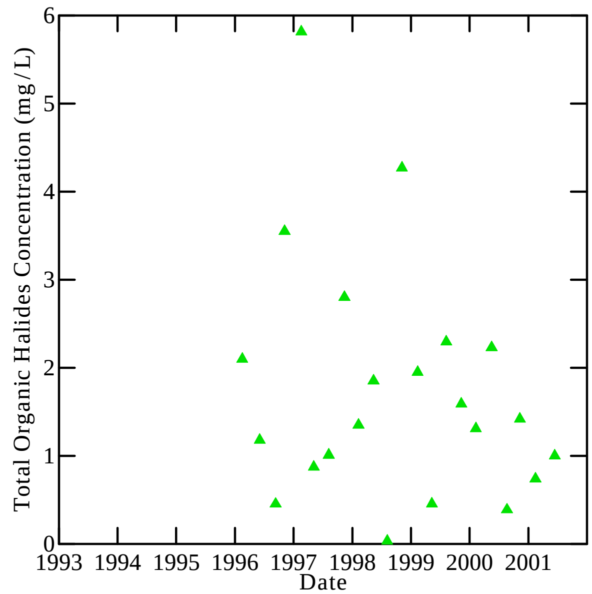
figure 8

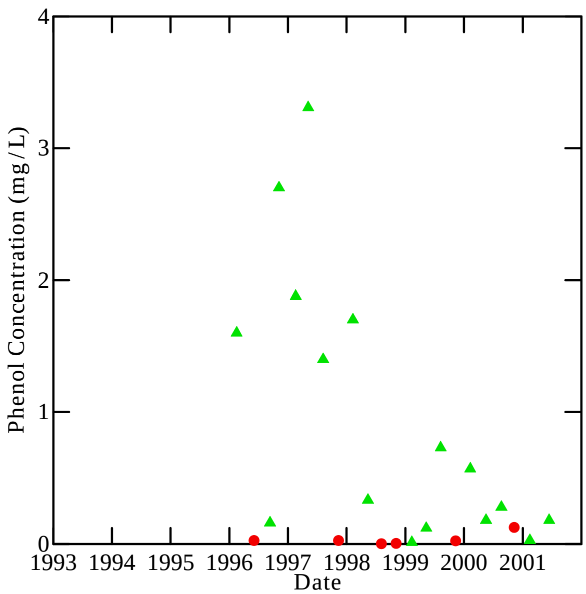
Well D2M
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill









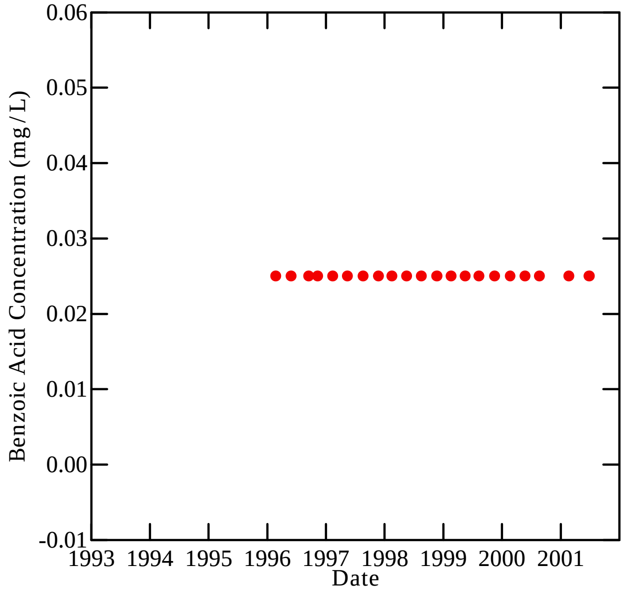


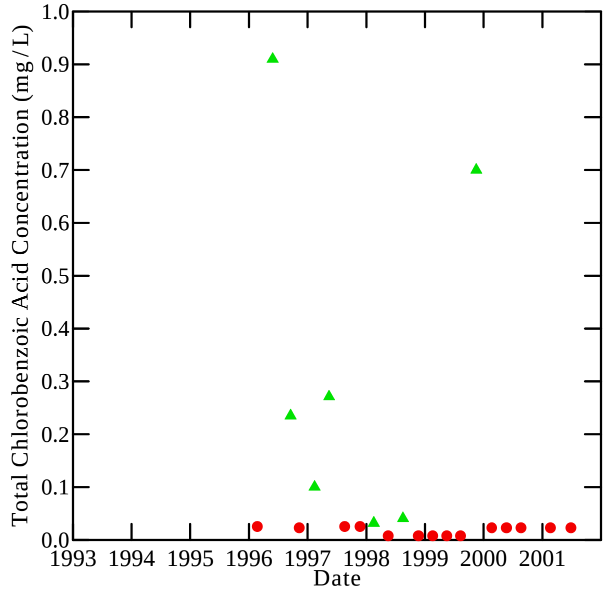
Notes:

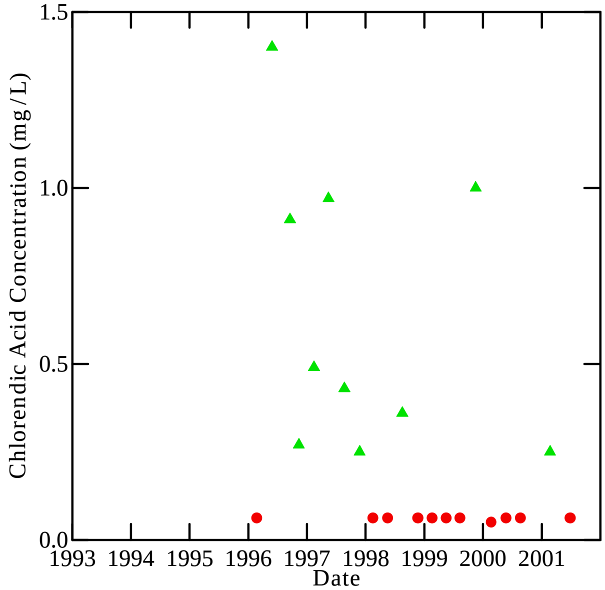
- ● Non-detect result
- ▲ Detected result

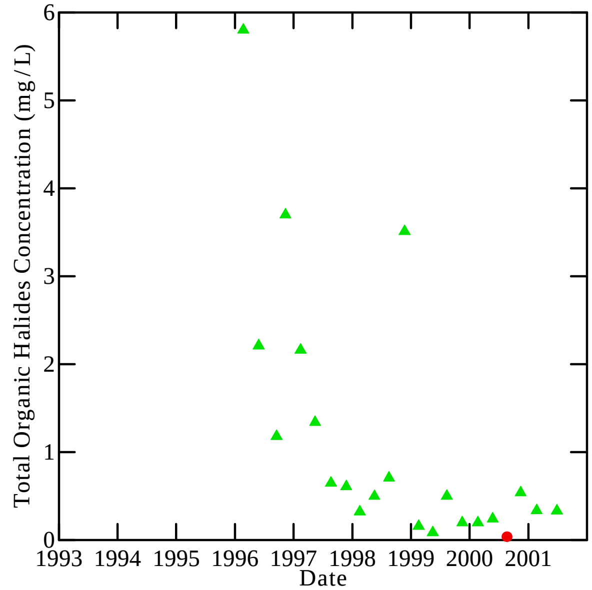
figure 9

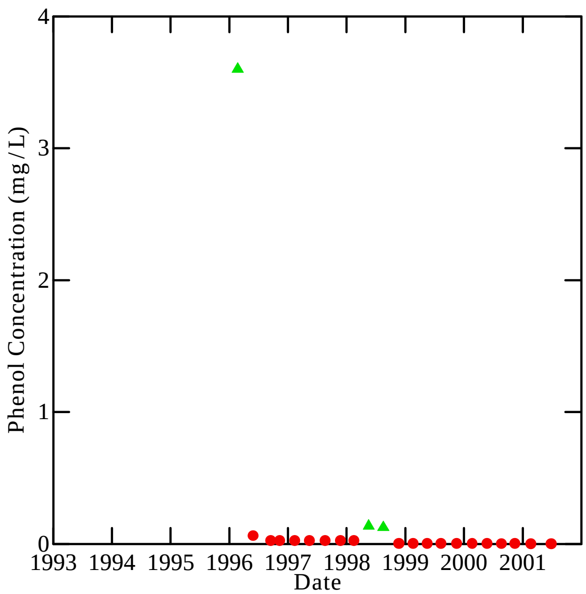
Well D1L
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill









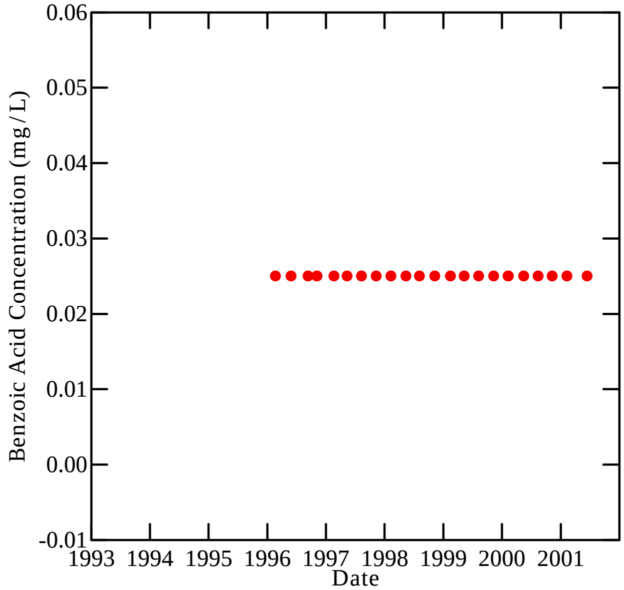


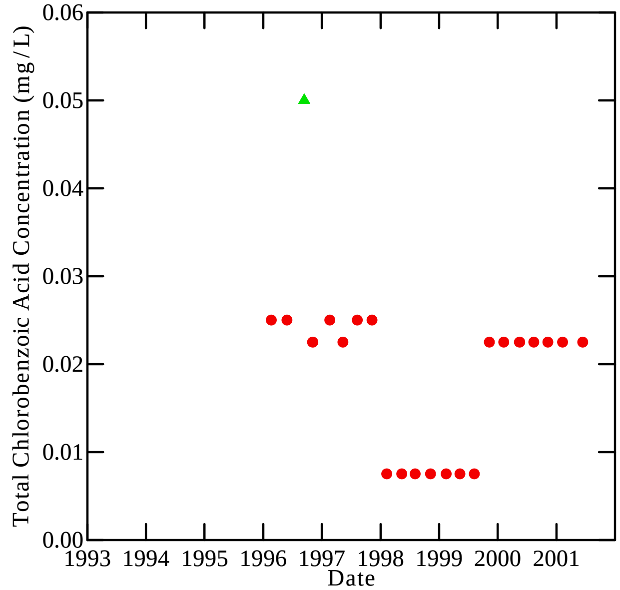
Notes:

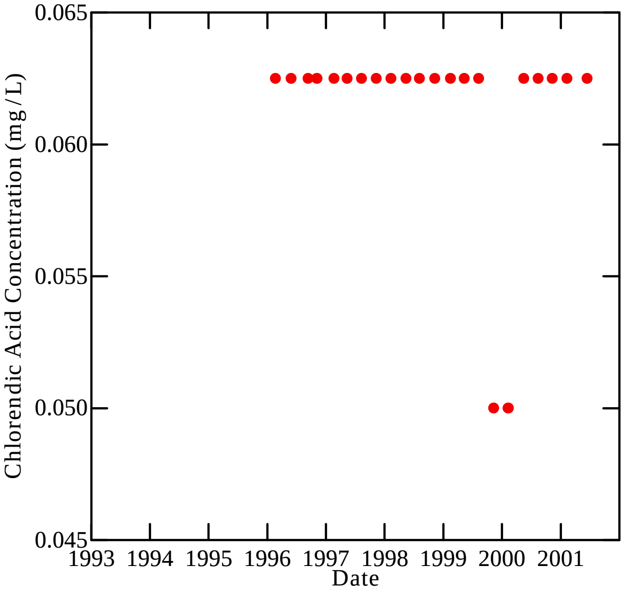
- ● Non-detect result
- ▲ Detected result

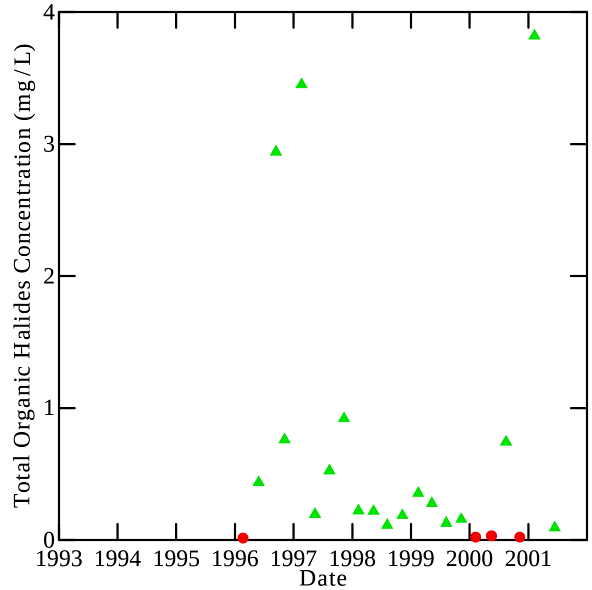
figure 10

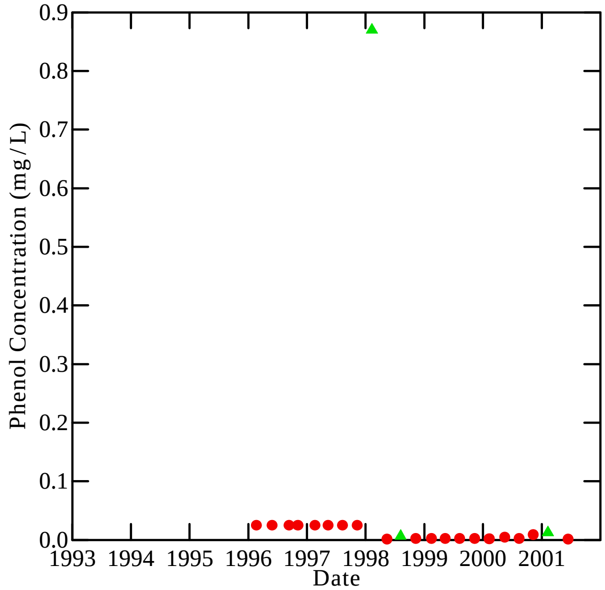
Well E3U
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill











Notes:

● Non-detect result

▲ Detected result

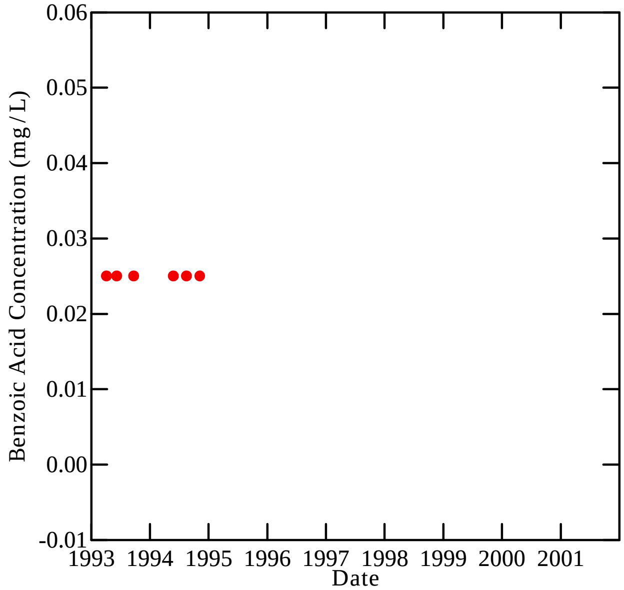
figure 11

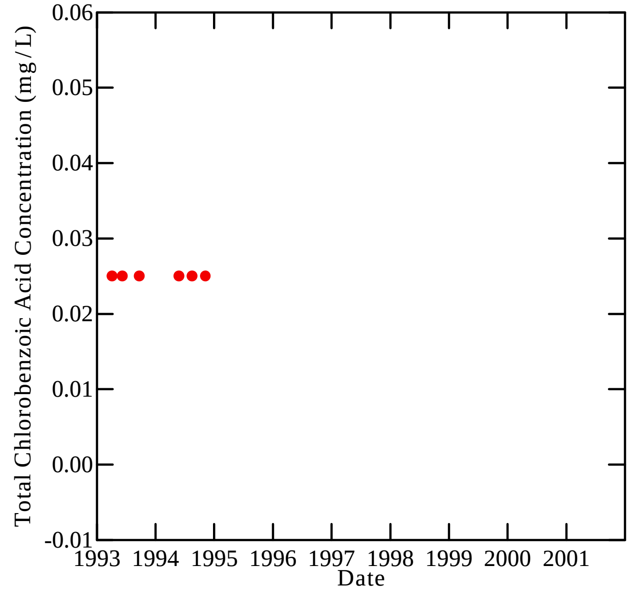
Well E3M

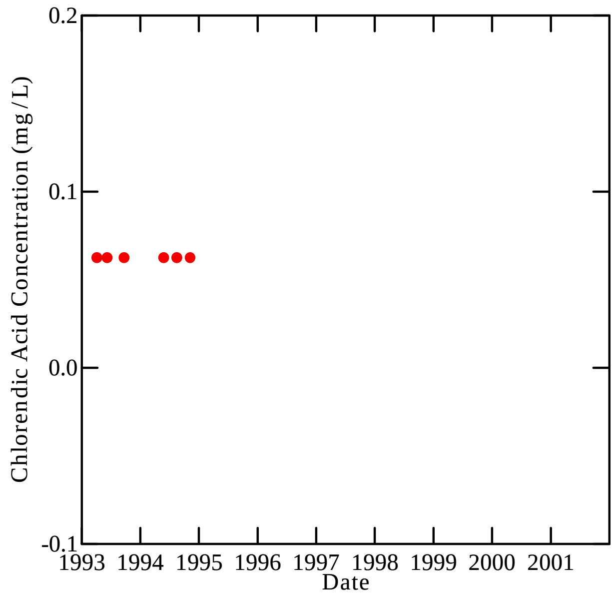
Analyte Concentration vs. Time

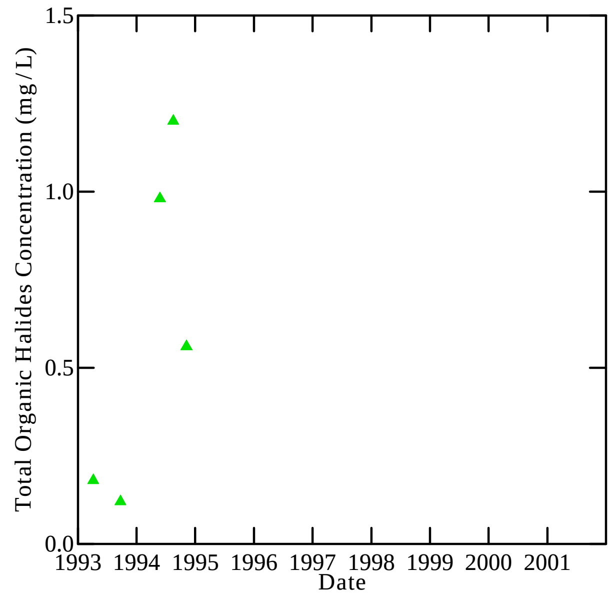
Second Quarter 2001

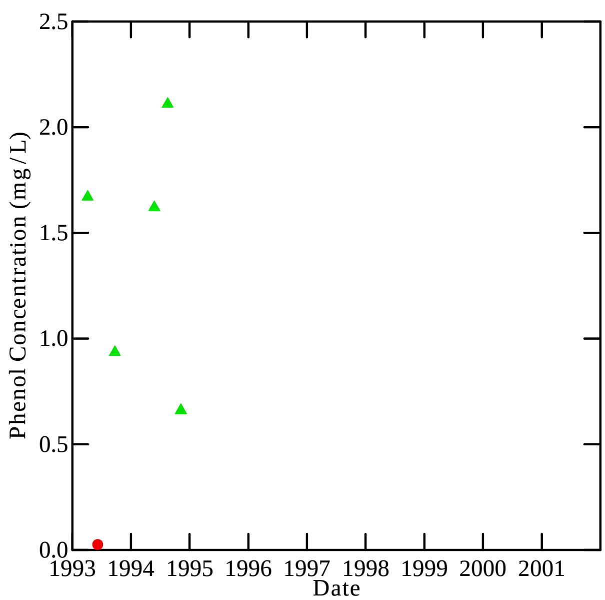
Hyde Park Landfill











Notes:

● Non-detect result

▲ Detected result

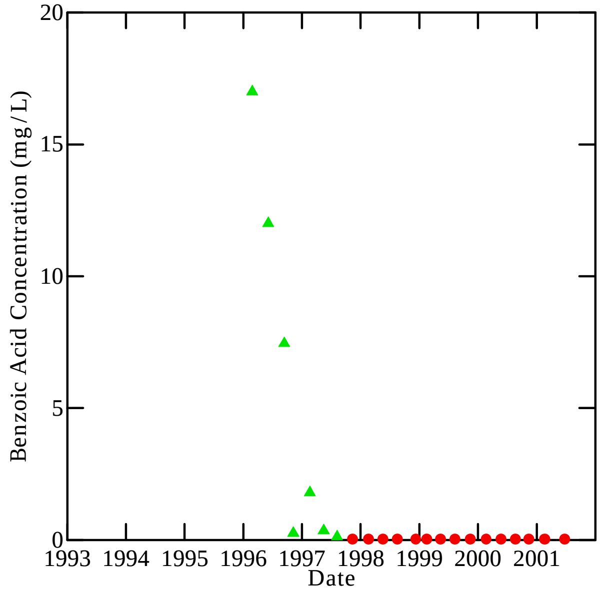
figure 12

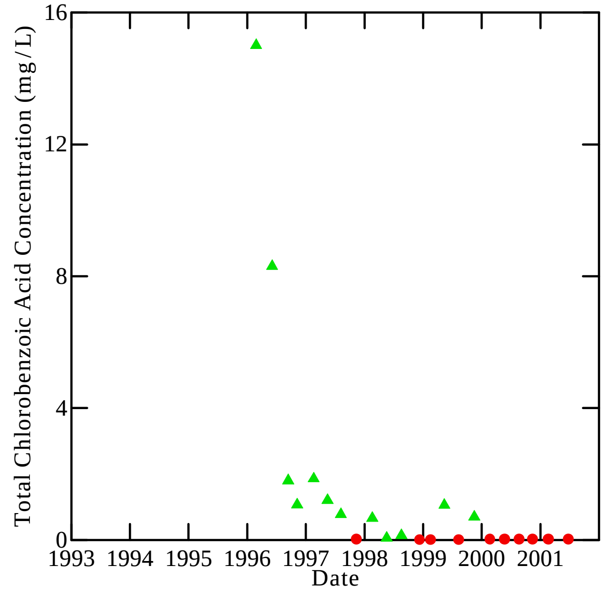
Well E2L

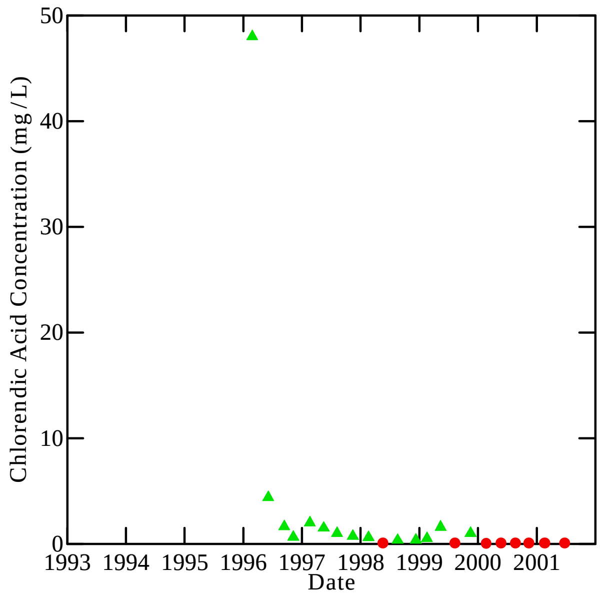
Analyte Concentration vs. Time

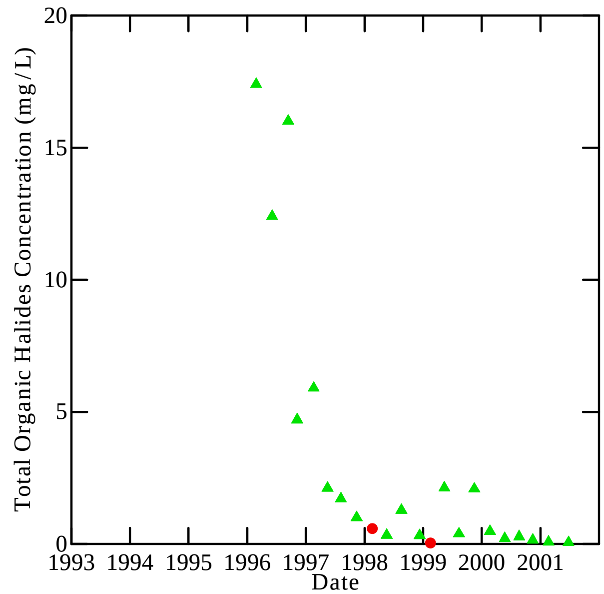
Second Quarter 2001

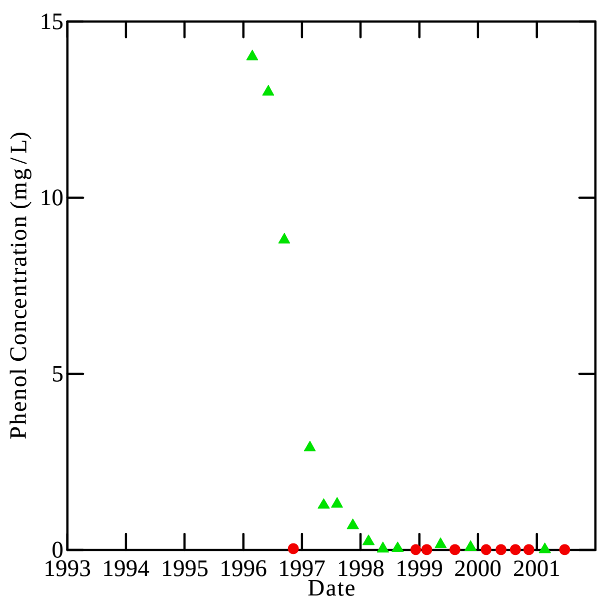
Hyde Park Landfill









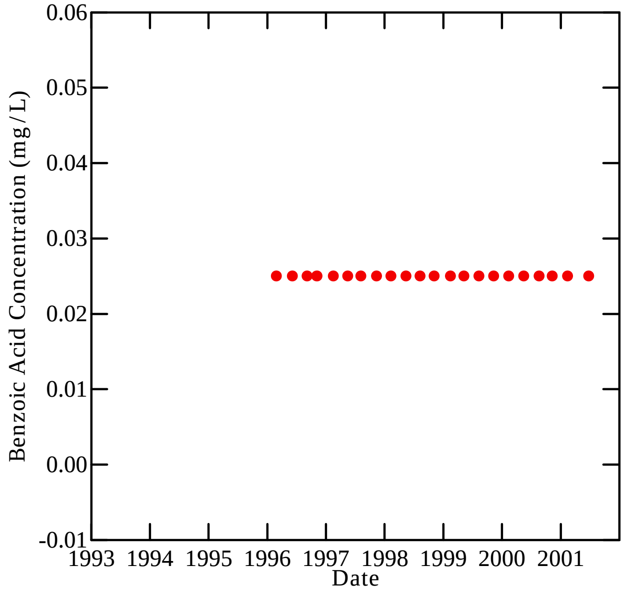


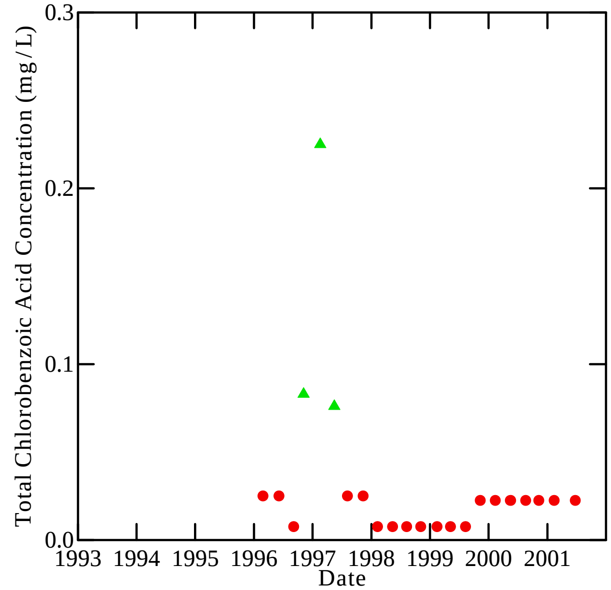
Notes:

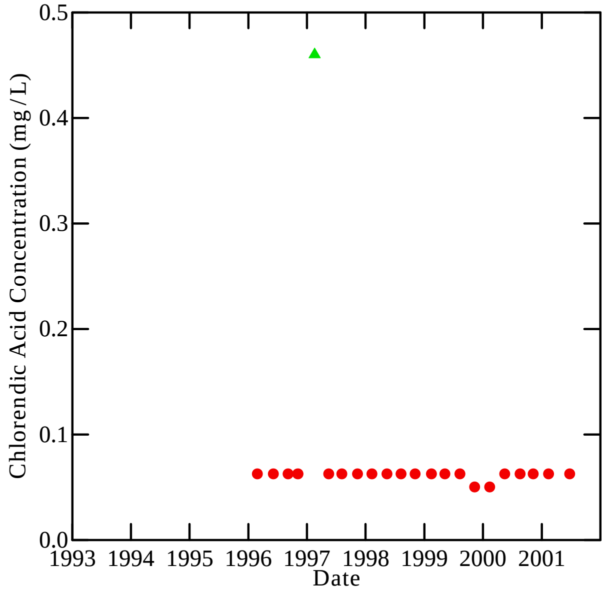
- ● Non-detect result
- ▲ Detected result

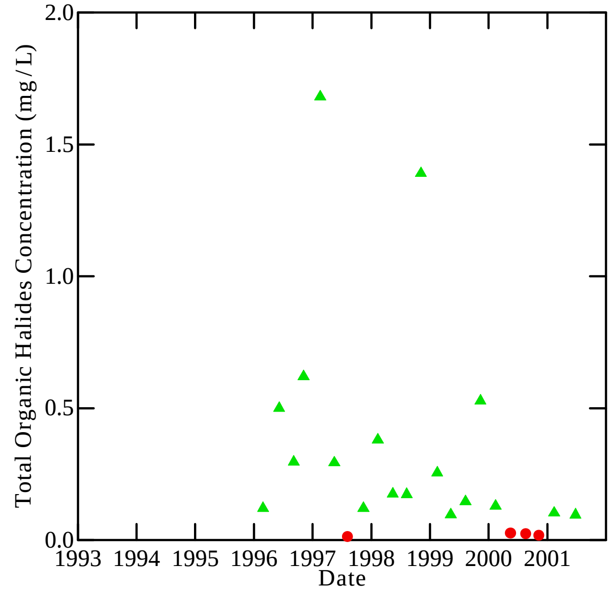
figure 13

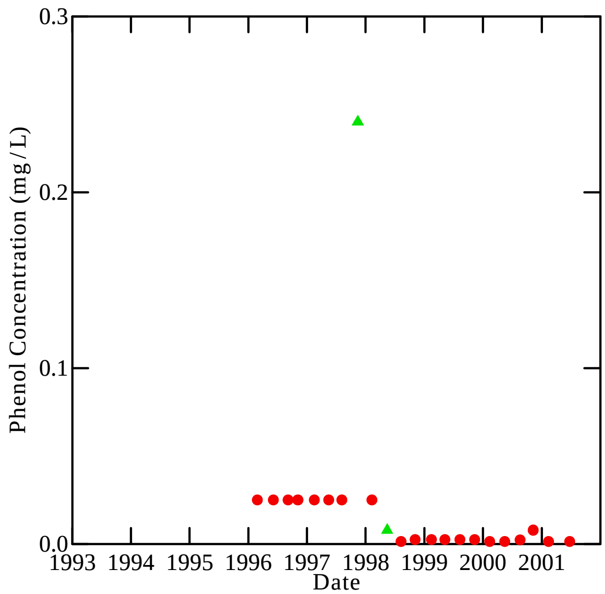
Well F4U
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill











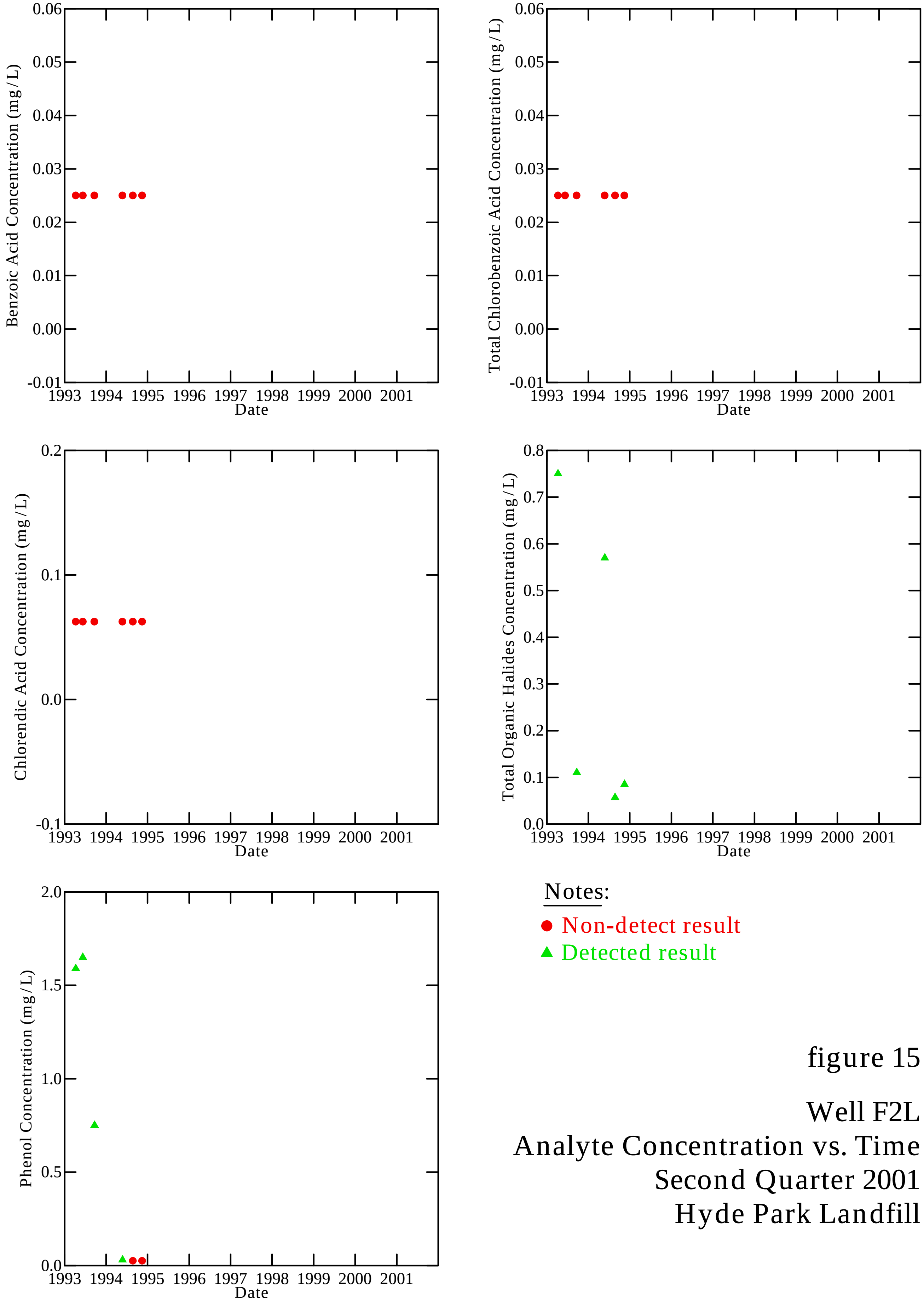
Notes:

● Non-detect result

▲ Detected result

figure 14

Well F1M
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill



Notes:

● Non-detect result

▲ Detected result

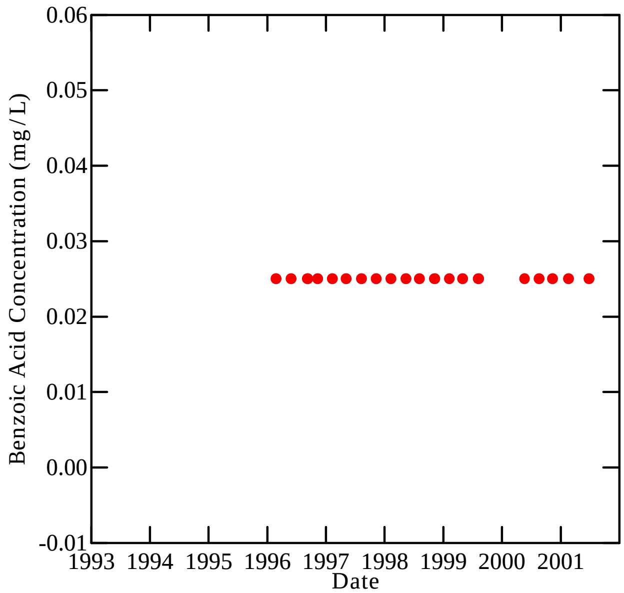
figure 15

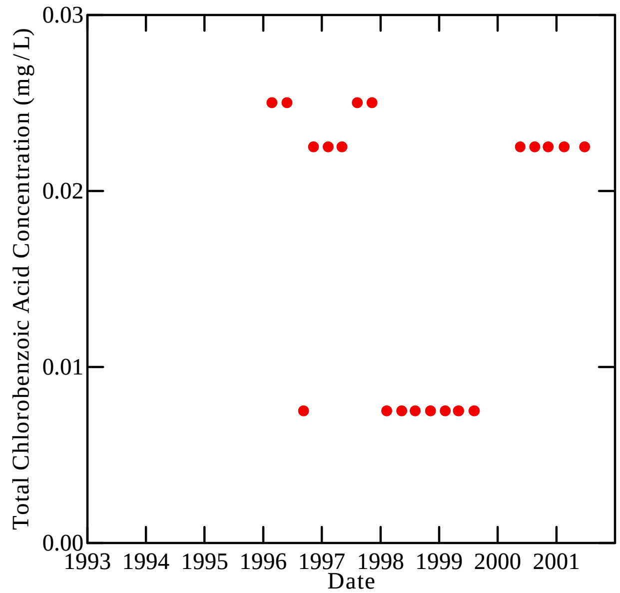
Well F2L

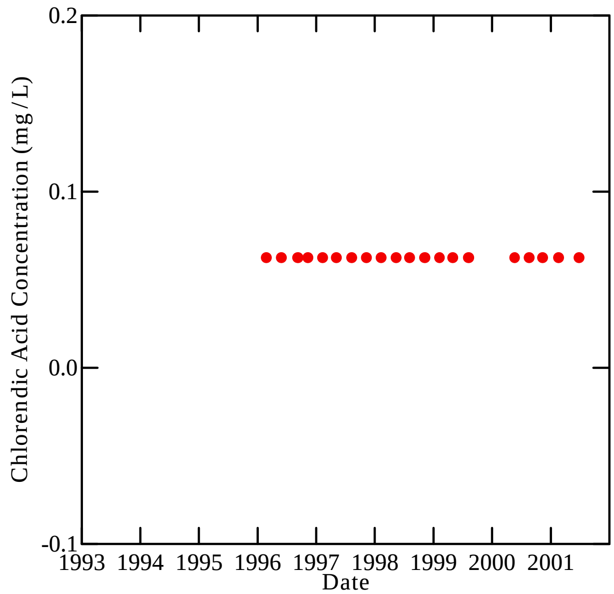
Analyte Concentration vs. Time

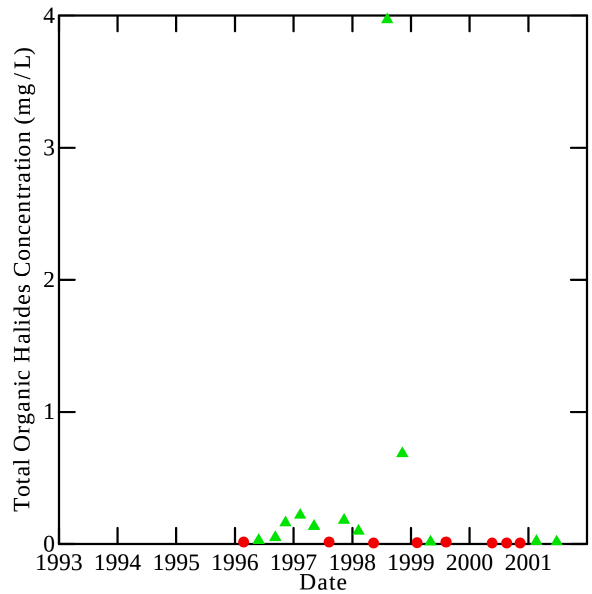
Second Quarter 2001

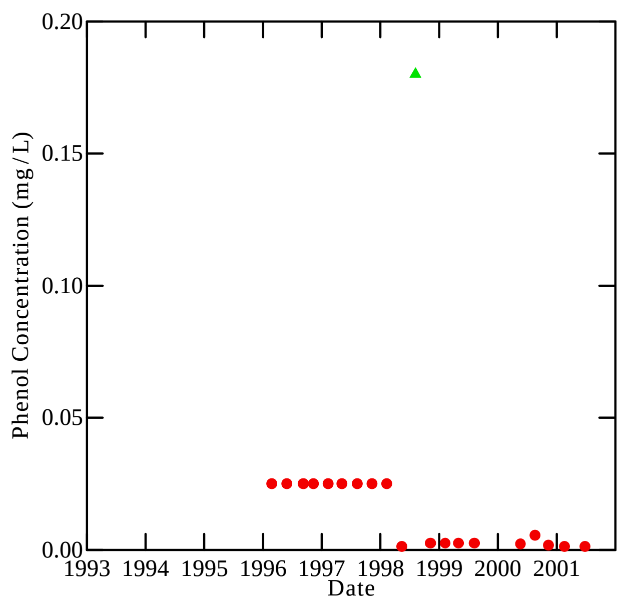
Hyde Park Landfill











Notes:

● Non-detect result

▲ Detected result

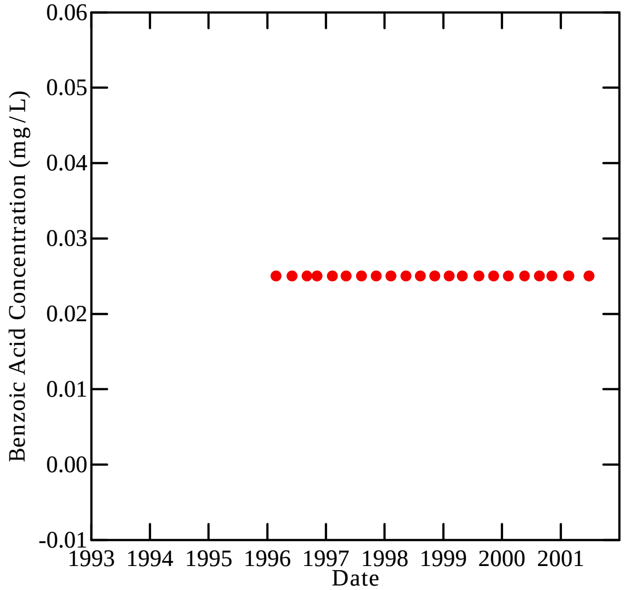
figure 16

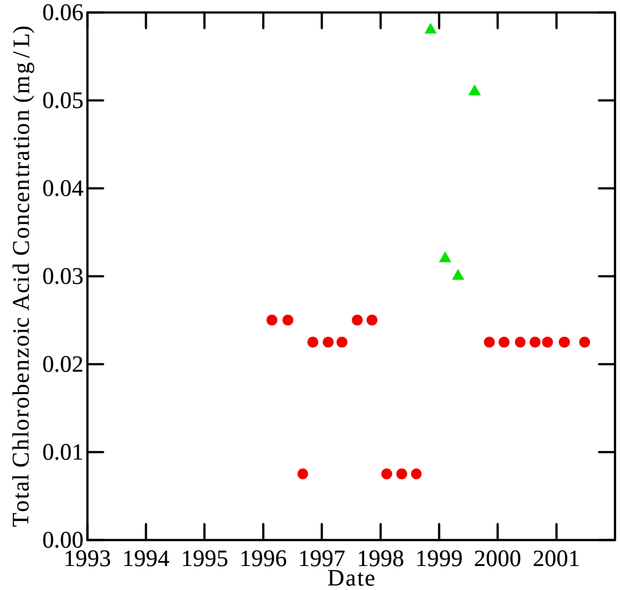
Well G4U

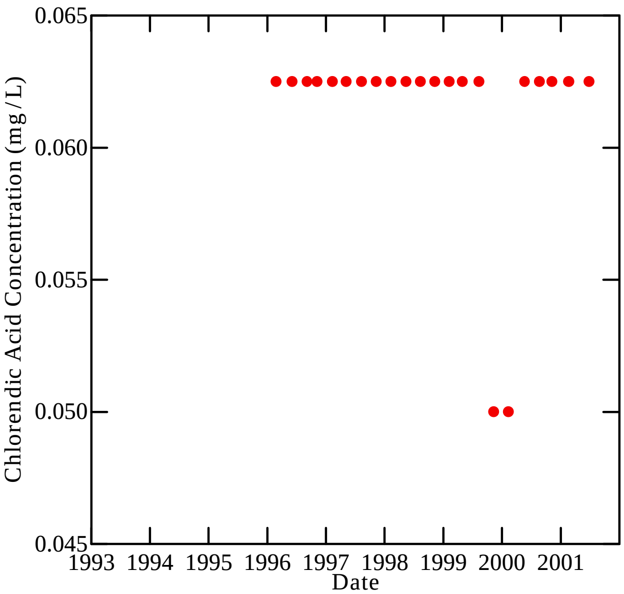
Analyte Concentration vs. Time

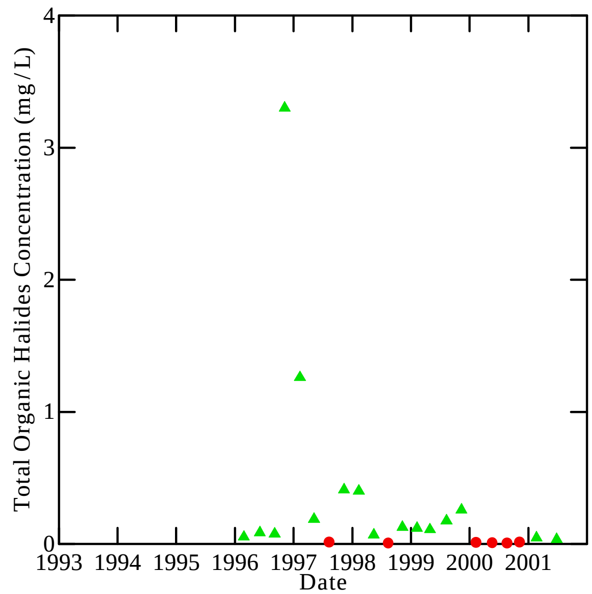
Second Quarter 2001

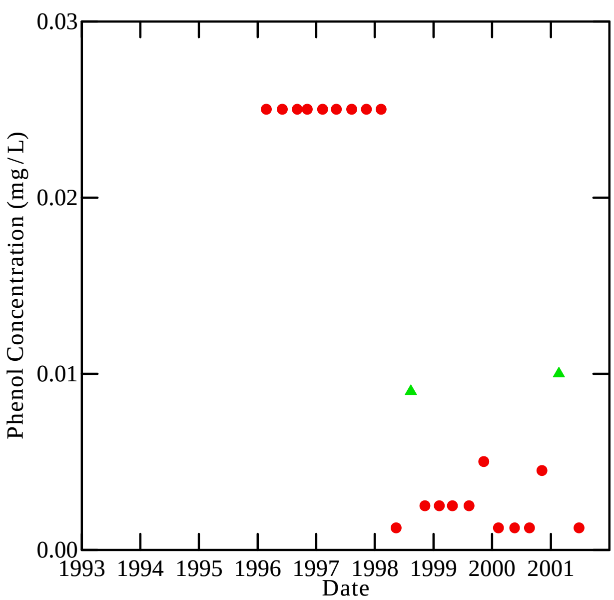
Hyde Park Landfill







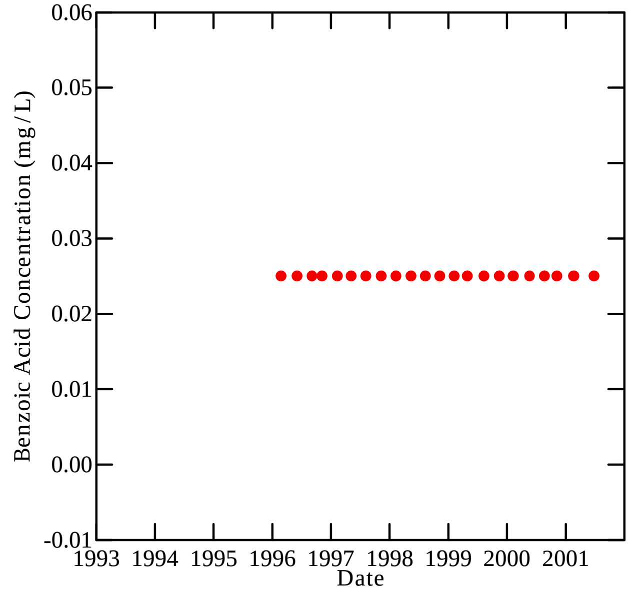


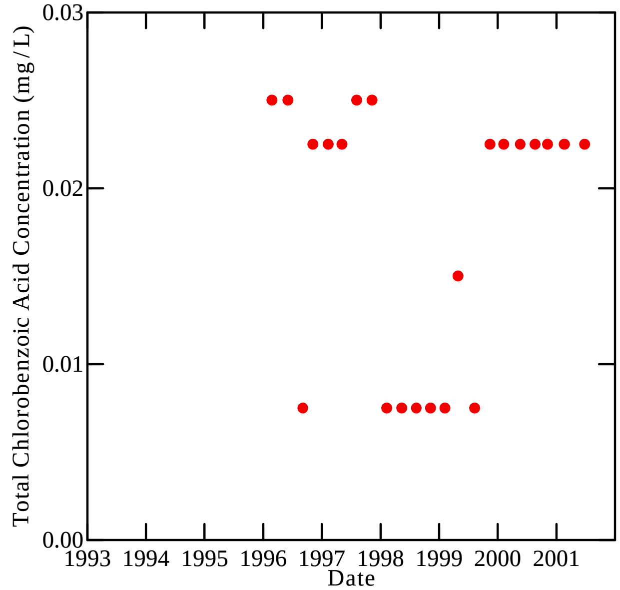


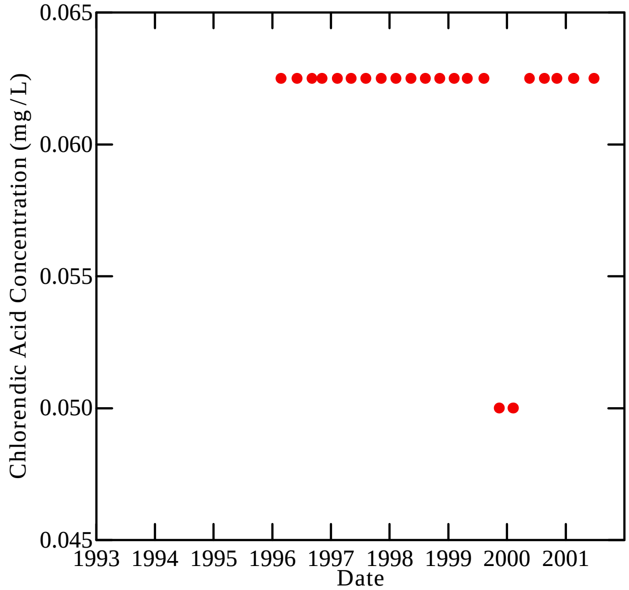
Notes:
- ● Non-detect result
- ▲ Detected result

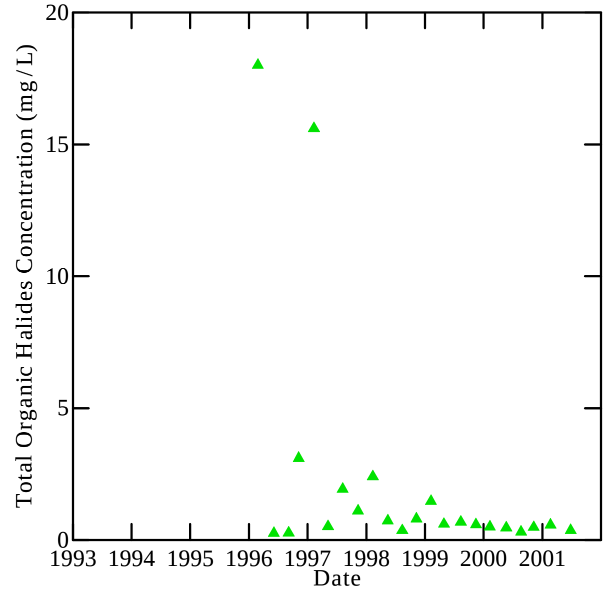
figure 17

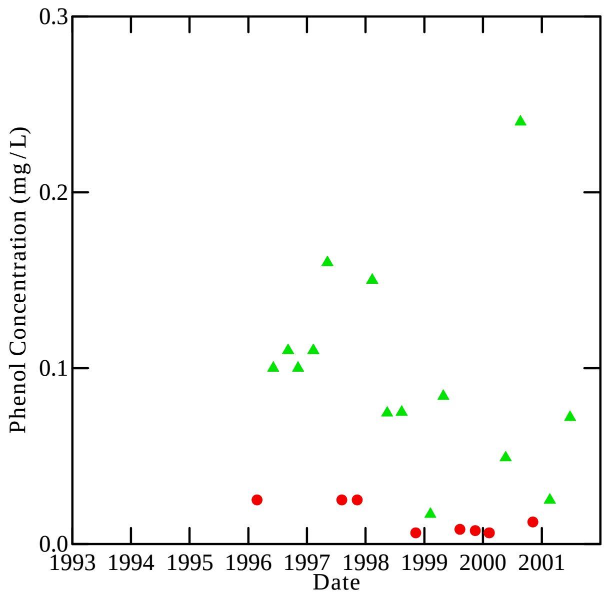
Well G1M
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill











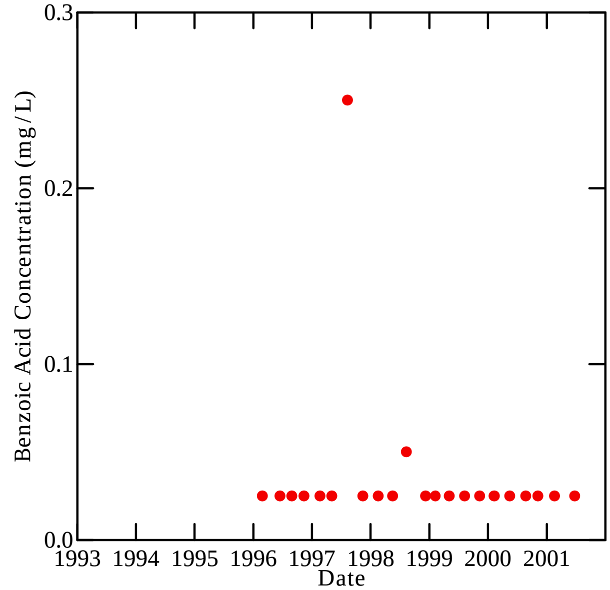
Notes:

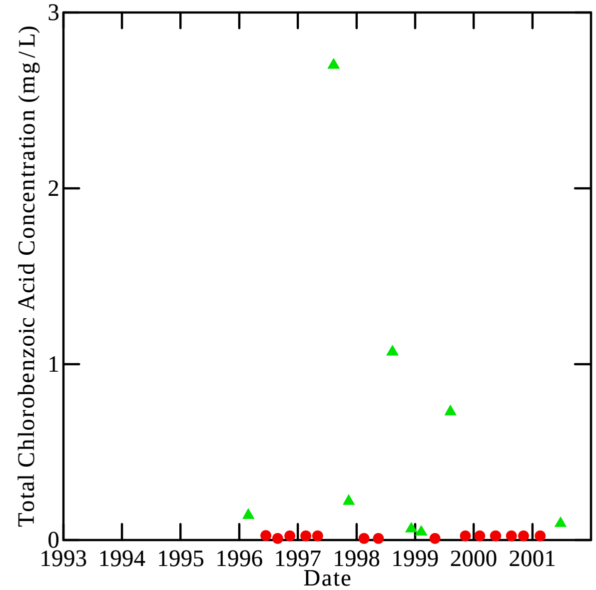
● Non-detect result

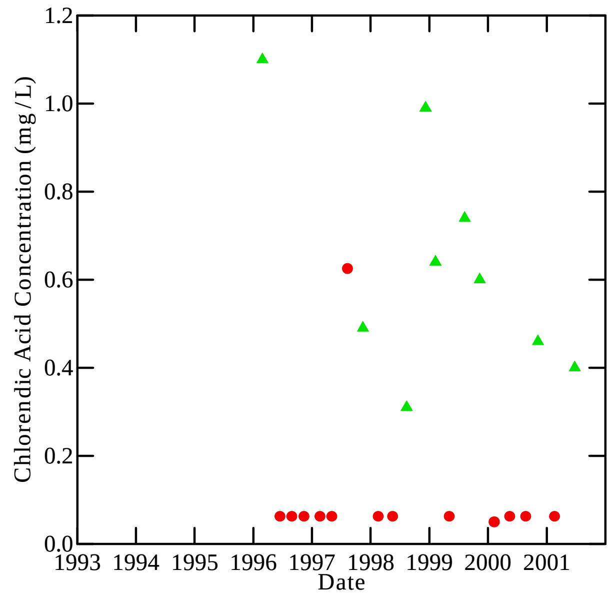
▲ Detected result

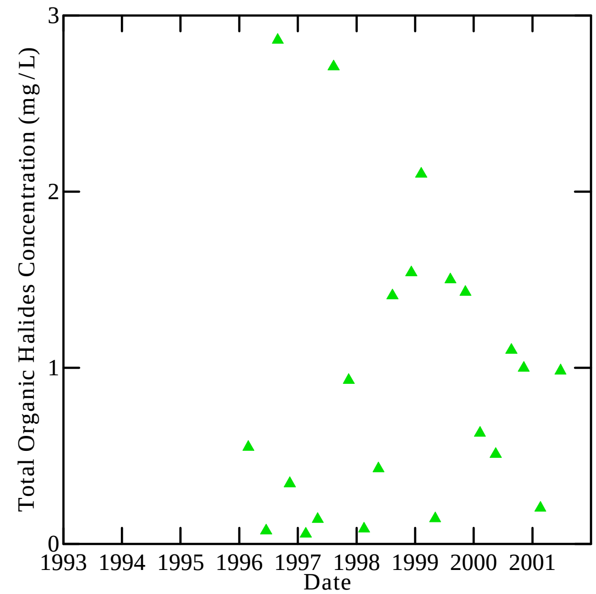
figure 18

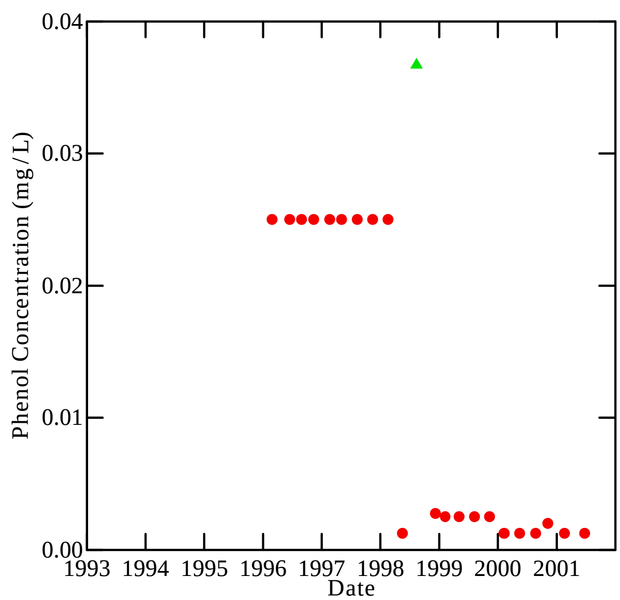
Well G1L
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill











Notes:

● Non-detect result

▲ Detected result

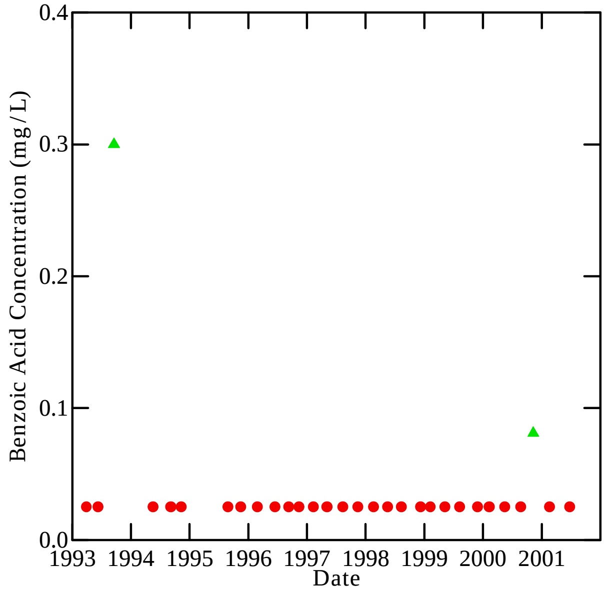
figure 19

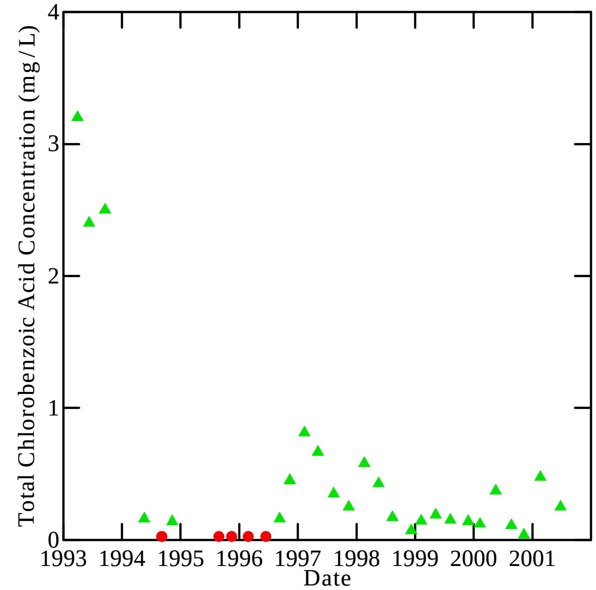
Well H1U

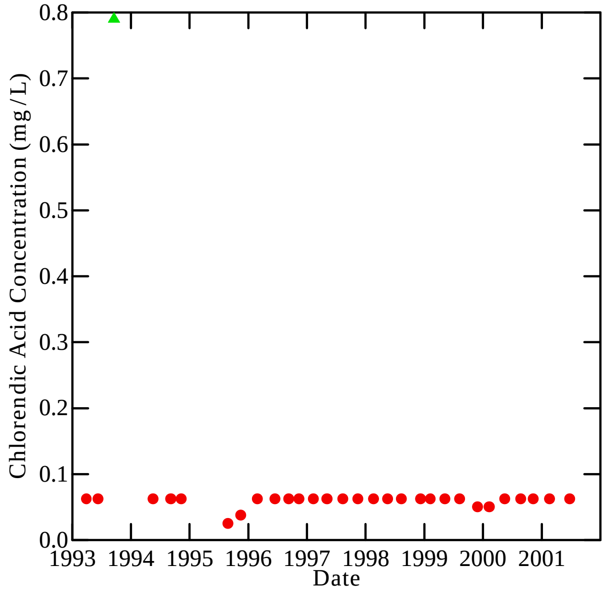
Analyte Concentration vs. Time

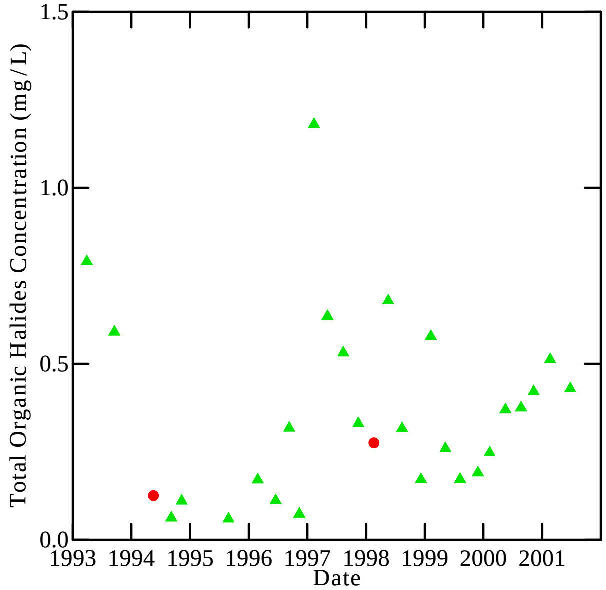
Second Quarter 2001

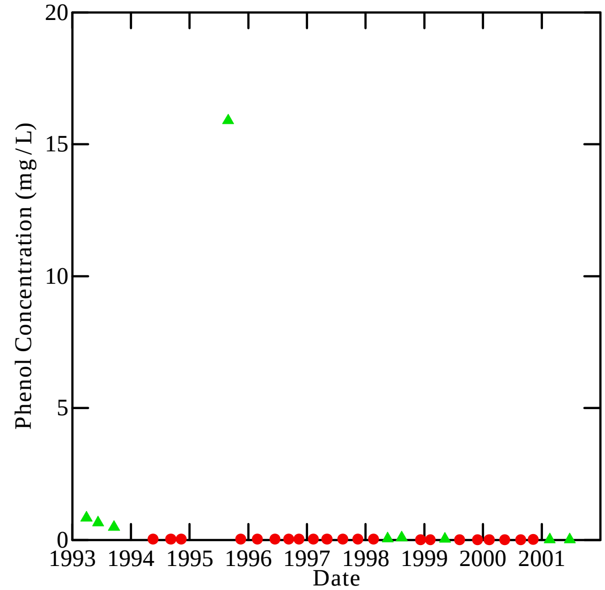
Hyde Park Landfill











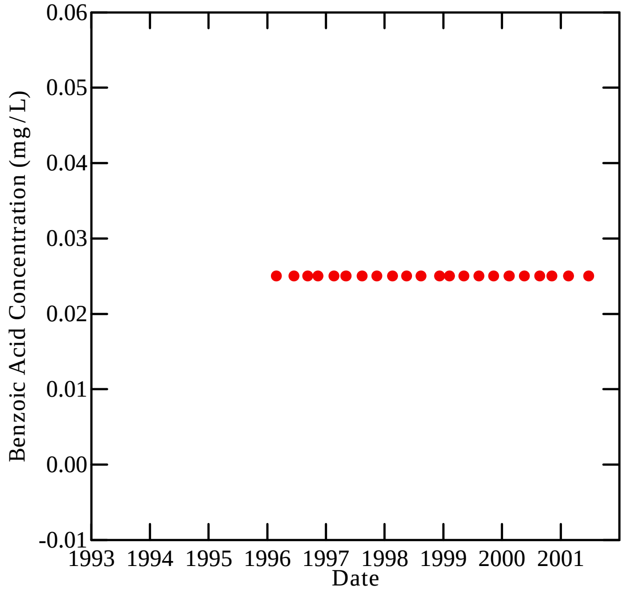
Notes:

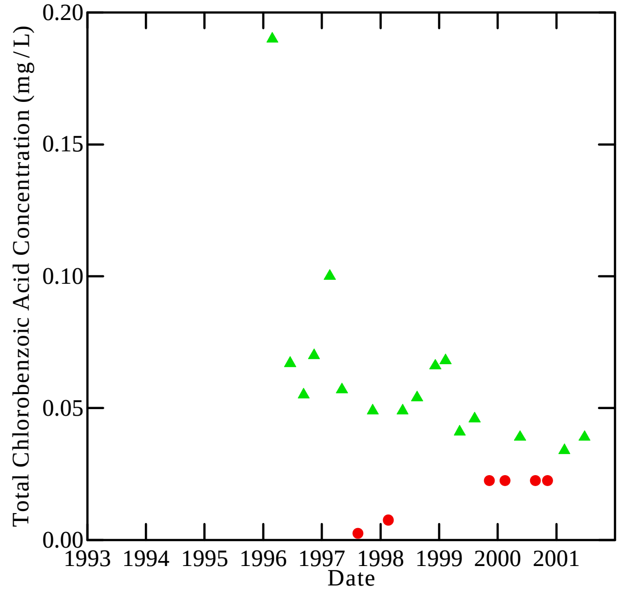
● Non-detect result

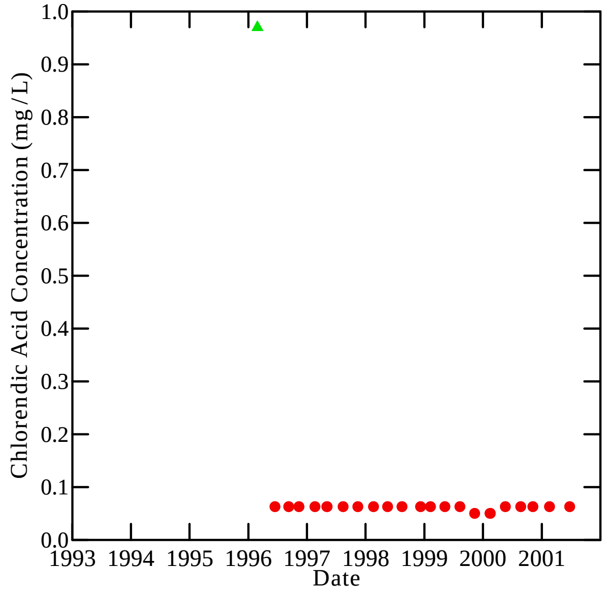
▲ Detected result

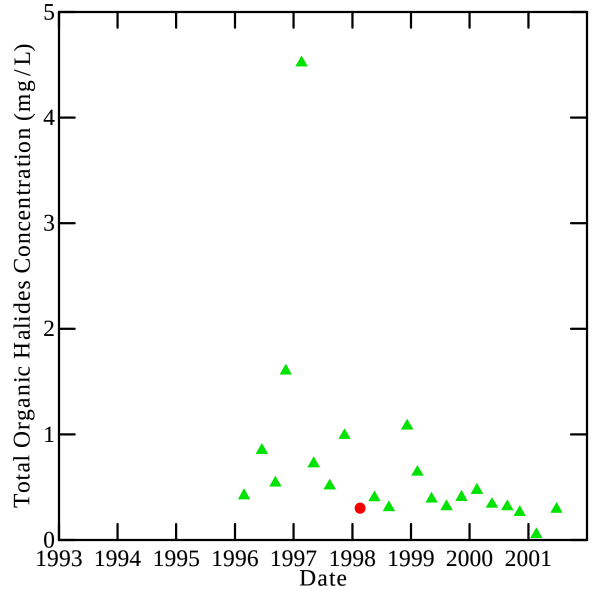
figure 20

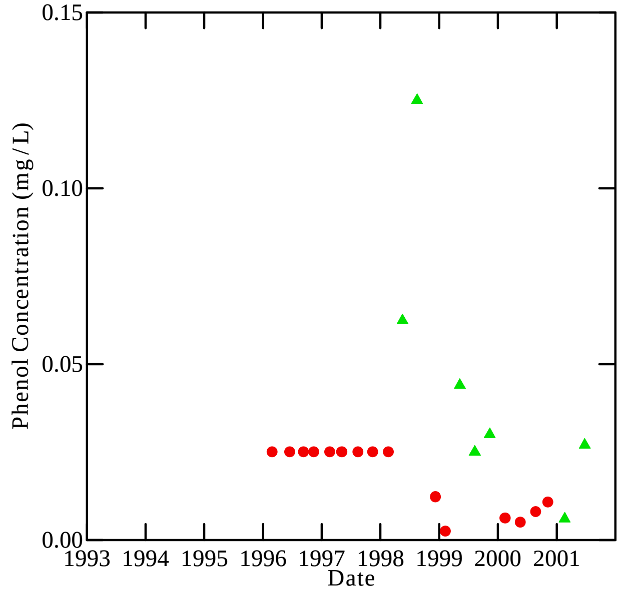
Well H2M
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill











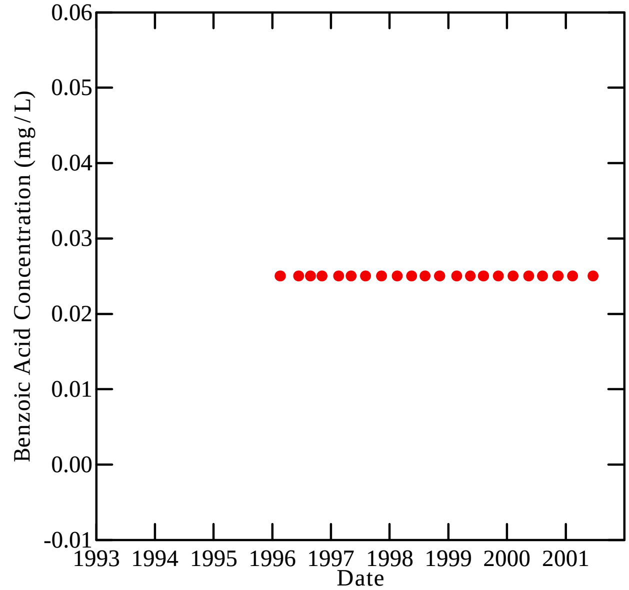
Notes:

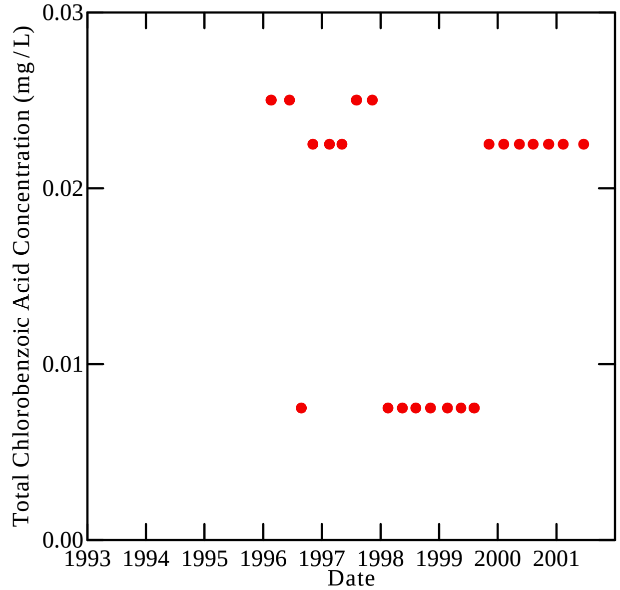
● Non-detect result

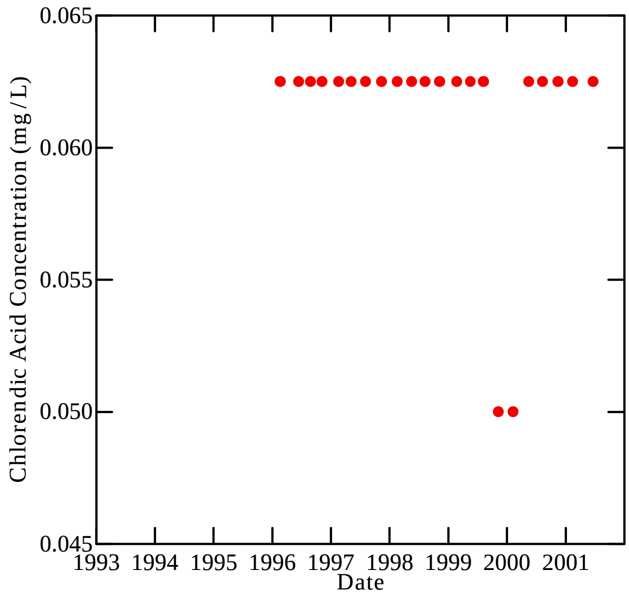
▲ Detected result

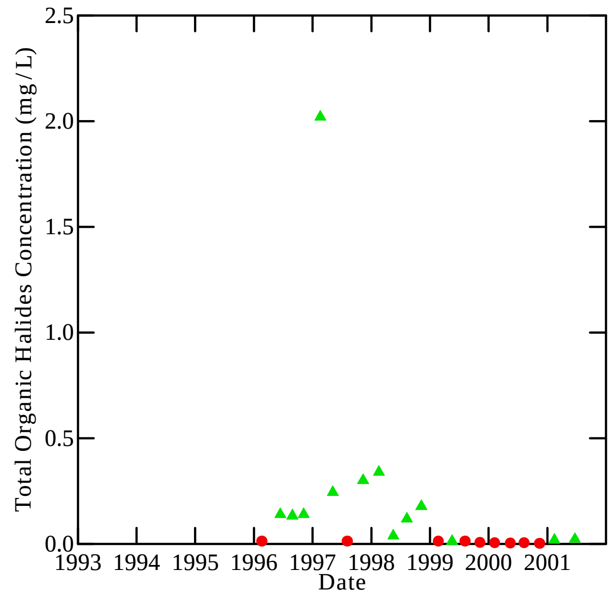
figure 21

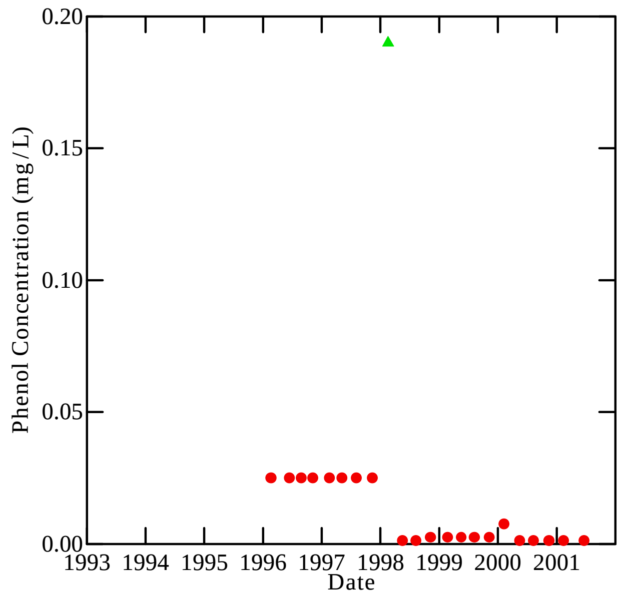
Well H3L
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill











Notes:

● Non-detect result

▲ Detected result

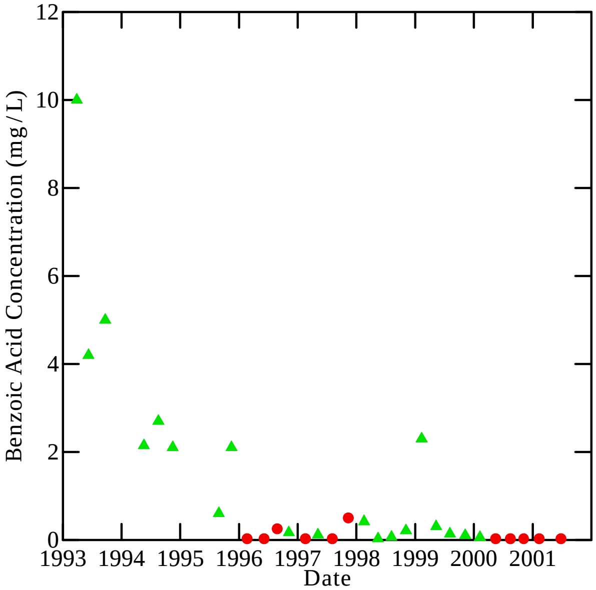
figure 22

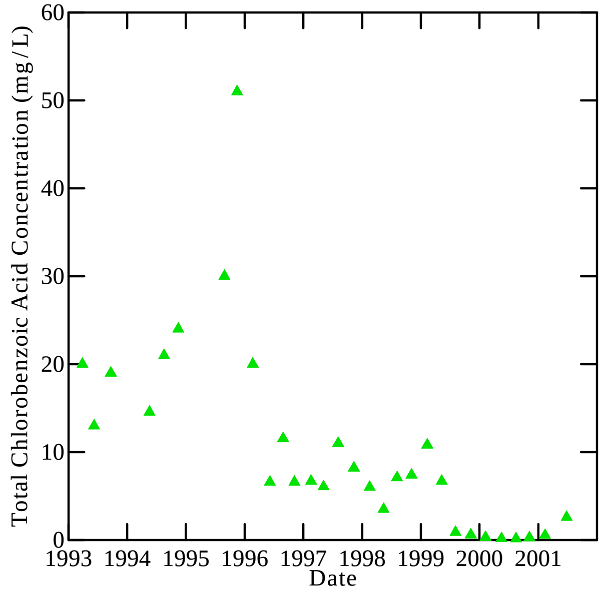
Well J1U

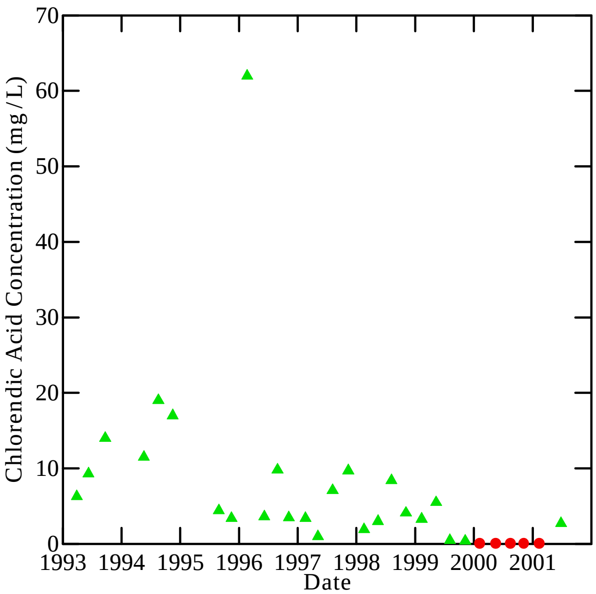
Analyte Concentration vs. Time

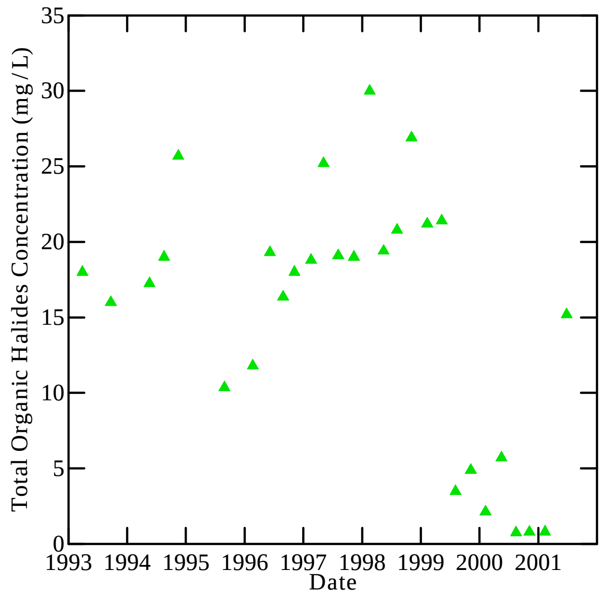
Second Quarter 2001

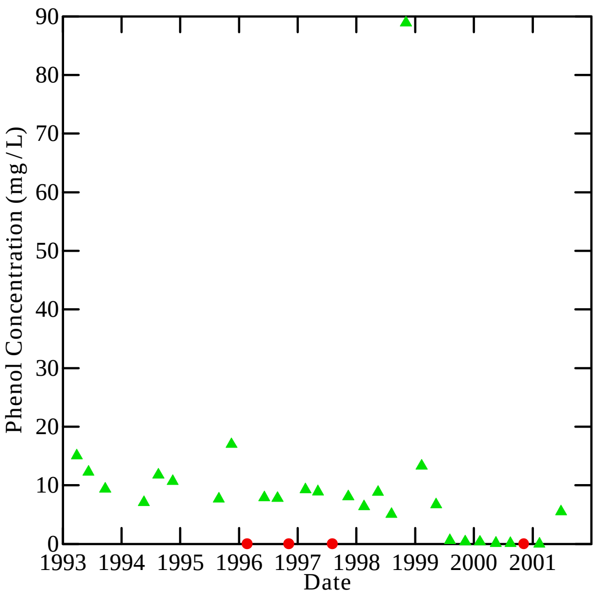
Hyde Park Landfill









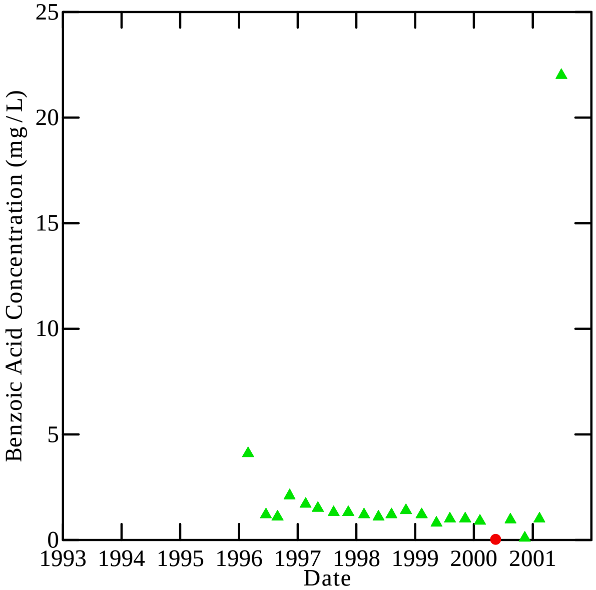


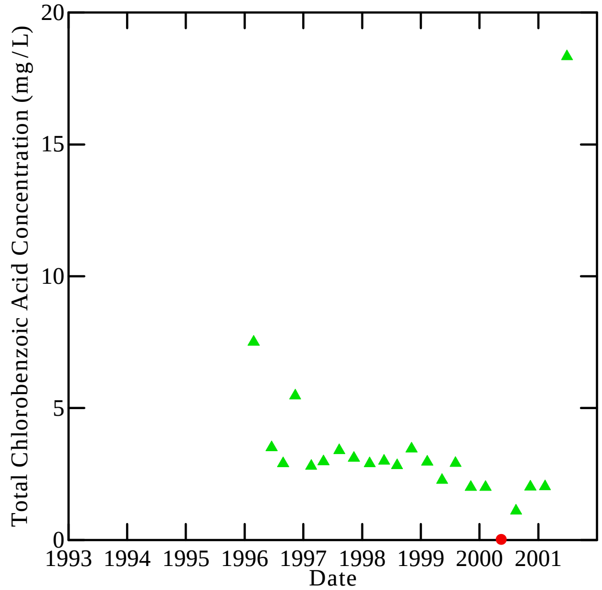
Notes:

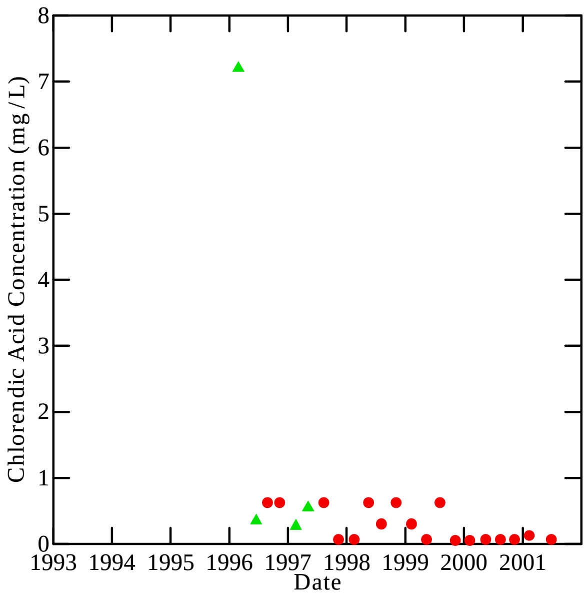
- ● Non-detect result
- ▲ Detected result

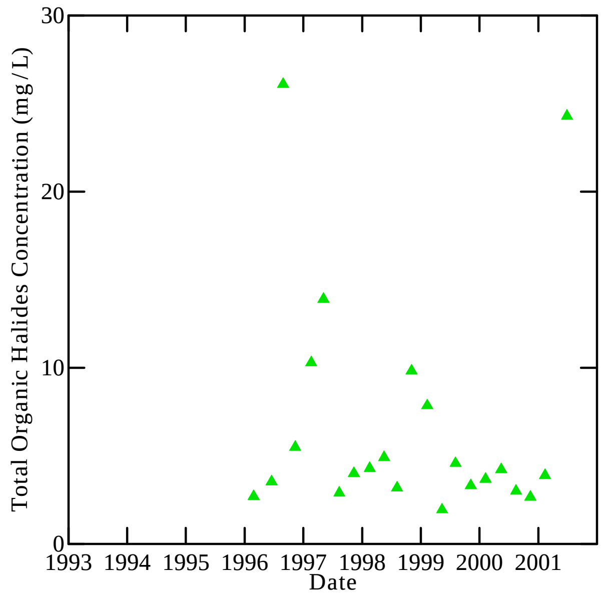
figure 23

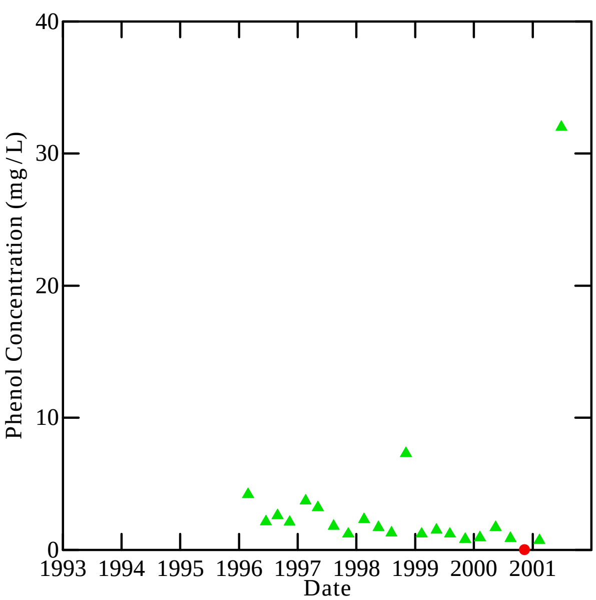
Well J2M
Analyte Concentration vs. Time
Second Quarter 2001
Hyde Park Landfill











Notes:

● Non-detect result

▲ Detected result

figure 24

Well J3L

Analyte Concentration vs. Time

Second Quarter 2001

Hyde Park Landfill

APPENDIX B

DRILLING PROGRAM SCOPE OF WORK

GLENN SPRINGS HOLDINGS, INC.

2480 Fortune Dr. - Suite 300 - Lexington, KY 40509

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June 15, 2001

Ms. Gloria M. Sosa
Site Investigation & Compliance Branch
U.S. EPA, Region II
290 Broadway, 20th Floor
Conservation
New York, New York 10007-1866

Mr. Craig D. Jackson, P.E.
Technical Support Section
Bureau of Western Remedial Action
Dept. of Environmental

50 Wolf Road, Room 222
Albany, New York 12233-7010

Re: Hyde Park Remedial Program
Purge Well Scope of Work Summary

Dear Ms. Sosa and Mr. Jackson:

As referenced in George Luxbacher's letter of June 11, 2001, attached is the Purge Well Scope of Work Summary with the current schedule. Since this program will likely be an iterative process, GSH/MSRM will setup a weekly field review meeting with the Government's field representative to review activities and schedule for the coming week.

As previously transmitted fieldwork will begin on Monday June 18, 2001. Jon Williams of CRA will be acting as the Field Coordinator for the project. He will be working out of the Grief Bros. Office building. If you have any questions please feel free to contact me.

Sincerely,

Richard Passmore
Manager Processes and Control

c.c.: G. Sosa, EPA –2
C. Jackson, DEC – 2
M. Derby, TAMS Consulting
G. Pietraszek, DEC
R. Passmore, GSHI
D. Tubridy, MSRM
C. Neville, SSP&A
S. Sayko, SEDA
J. Thornton, CRA NF

J. Williams, CRA NF
M. Mateyk, CRA Waterloo

6/15/01

HYDE PARK
2001 PURGE WELL PROGRAM
Scope of Work Summary

Purge Wells

Four new Upper Bedrock NAPL Containment Purge Wells (PWs), one Middle Bedrock PW, and one APL Plume Containment Purge Well (APW) will be installed and brought on-line in 2001. One of new PWs, PW-7U, was installed as CD2U in December 1999 and was operated as a NAPL Collection well between October 2000 and March 13, 2001 when the pump was removed to assess NAPL recovery. NAPL was no longer being recovered. PW-7U will be modified to a conventional Site PW. This will require reaming to 12" and installation of a new pump and controls. The three remaining Upper Bedrock PWs (PW-8U, PW-9U, and PW-10U) will be installed this summer along the northern Upper Bedrock NAPL plume boundary as defined in the Fourth Quarter – 2000 Quarterly Monitoring Report. Each new Upper Bedrock Purge Well will be accompanied by two monitoring wells to verify PW performance. The Middle Bedrock PW, PW-8M, will be installed just south of the NYPA access road and 250 feet west of PW-1L. Figure 1 presents the locations of the new PWs. The new APW, APW-3, will be installed in the vicinity of the AFW-1 well nest.

Each of the new wells will be fit with an electric submersible pump, controlled with a variable frequency drive (VFD). The VFD allows precise control of the pumping rate. A fixed water level will be predetermined and defined in the computer control system. The flow rate from a pump will be automatically adjusted to maintain the target water level (the set point).

Well Construction

All drilling and well construction activities will be performed in accordance the 1999 Drilling Work Plan with the exception of the minimum corehole size. All PWs and APW-3 will be completed with 12-inch diameter open boreholes with steel casing into competent bedrock. The following bullets summarize the proposed construction:

- The three Upper Bedrock PWs, PW-8U, PW-9U, and PW-10U, will be cased 2 feet into competent bedrock. Initially, boreholes will be completed by coring an NQ-size borehole. The open interval will be drilled to approximately 30 feet below the bottom of the well casing. The wells will be enlarged to a 12-inch diameter after testing is completed to assess their hydraulic performance.

- A pair of observation wells will be constructed approximately 20 feet and 50 feet North of each new Upper Bedrock Purge Well (PW-8U, 9U and 10U). The completion depths of the observation wells will be field determined based on the relationship of the waterbearing zones and observed bedrock features in the observation well and the relevant Purge Well.

- PW-7U will be overdrilled to provide a 12-inch diameter borehole.

- The Middle Bedrock well, PW-8M, will be open across the bottom 5 feet of the Eramosa formation and across the full thickness of the Goat Island (approximately 40 feet, from 550 ft msl to 510 ft msl).

- APW-3 shall be completed with approximately a 70-foot open interval from 560 ft msl to 490 ft msl, covering the aquifer zones currently monitored by AFW-1U, AFW-1M and AFW-1L.

Performance Monitoring

As discussed in the June 6, 2001 meeting in Niagara Falls with the USEPA, NYSDEC, MSRM, CRA, SSP&A, and SEDA, testing will be performed to assess the viability of the new wells. SSP&A has simulated the capture zones for the new PWs at pre-defined pumping rates. The pumping rates achieved in the field may not match the rates simulated by the model. Therefore, it is necessary to assess whether or not the sustainable yield for each new PW location is sufficient to warrant completion of the well, or whether the well should be relocated to improve performance. To assess the performance of the PWs, short-duration pumping tests are proposed.

For PW-7U, the agencies requested that two additional monitoring wells and tracer testing be performed. MSRM agrees to perform the tracer testing once the well is on-line (December 2001). Tracers will be injected at CD3U and at one of the two new monitoring wells to be located along the CSX railroad tracks. A separate workplan will be provided.

For PW-8U, PW-9U, and PW-10U, two observation wells will be installed adjacent to each PW. The observation wells will be located approximately 20 and 50 feet north of the PWs. After installation of the new PWs and observation wells, each PW well will be pumped for approximately 8 hours at a fixed pumping level approximately 10 feet above the bottom of the well, or a maximum of 6 gpm. The flow rate from the PW and the water levels in the PW and observation wells will be measured every 15 minutes for the duration of the test. Based on the estimated hydraulic properties of the formation in the vicinity of the new Upper Bedrock PW wells, the following criterion has been defined for viability:

- At least 0.2 feet of drawdown in the 20-foot observation well and at least 0.1 feet of drawdown in the 50-foot observation well.

If the tests of PW-8U, PW-9U, and PW-10U fail to satisfy this criterion, then a replacement well will be drilled nearby, such that the observation wells are still useful for the performance test. The performance test will be repeated and the original PW borehole will be monitored. If the replacement well fails to satisfy the above criterion, then the more productive of the two will be selected for use as the PW.

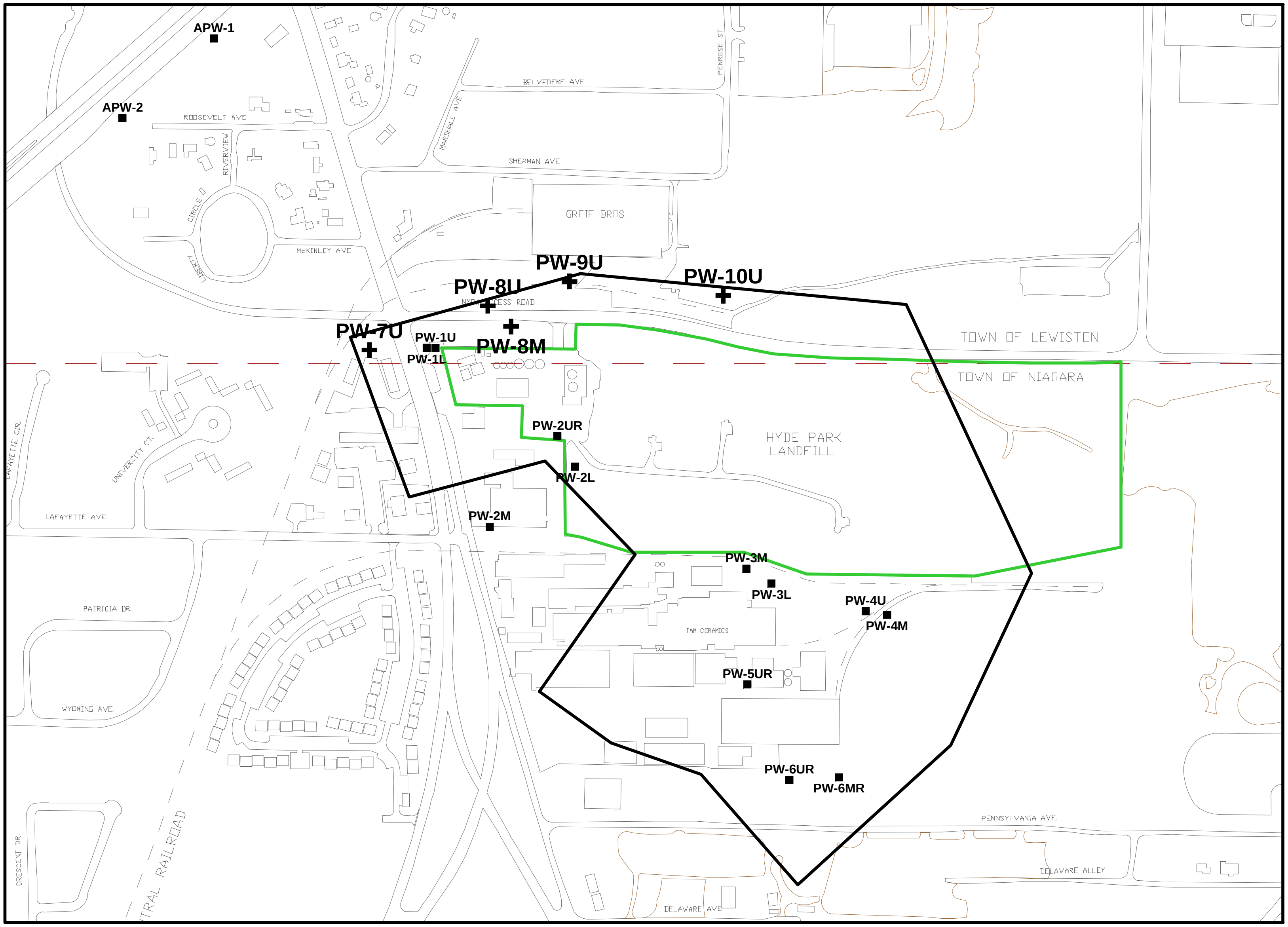
No performance monitoring is proposed for APW-3 or PW-8M. Both wells are expected to produce the desired groundwater flow rates and there is likely little that could be done if they did not.

Startup

Each well will be brought on-line independently. Startup will proceed as a step test. The well set point will be fixed such that 4 uniformly spaced pumping elevations are tested. The pump will operate for 24 hours at each elevation. Electronic flow and water level data will be evaluated to estimate the efficiency of the well.

Reporting

Progress on the drilling and testing will be reported in regular quarterly reports. Upon completion of the wells, a report describing the well construction procedures, results of testing, survey coordinates, and well completion logs will be submitted to the agencies.



EXPLANATION

2000 Upper NAPL Boundary

PW-7U Proposed Purge Well

PW-1L Existing Purge Well

Figure 1 - Proposed Remedial Alternative - Well Locations

HP018n 8-Jun-2001