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

# ANNUAL MONITORING REPORT – 2001

## HYDE PARK RRT PROGRAM
## NIAGARA FALLS, NEW YORK

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## 1.0 INTRODUCTION

The groundwater pumping activities conducted at the Hyde Park Landfill Site are regularly monitored for containment performance and the results are reported quarterly. In addition to the quarterly monitoring activities, there are several miscellaneous programs that are performed semi-annually or annually.

This report presents the monitoring data collected during the 15-month period between October 2000 and December 2001 for the programs which are conducted at annual and semi-annual frequencies. Future annual reports will present data collected over a 12 month period between January and December. Reporting of data from quarterly monitoring programs are presented in separate quarterly monitoring reports.

This report is organized as follows:

i) Introduction (Section 1.0);

ii) Source Control System (Section 2.0);

iii) Intermediate Formations (Section 3.0);

iv) Gorge Face Seep Survey (Section 4.0);

v) Bloody Run Monitoring (Section 5.0);

vi) Collected Liquids Monitoring (Section 6.0);

vii) Bedrock NAPL / APL Ratio Testing (Section 7.0);

viii) Annual Monitoring Well Inspection (Section 8.0); and

ix) Overburden Barrier Collection System Inspection (Section 9.0).

This report has been prepared for Miller Springs Remediation Management, Inc. (MSRM), which has been assigned the responsibility for managing the Hyde Park Requisite Remedial Technology (RRT) Program under the direction of Glenn Springs Holdings, Inc. (GSHI), a subsidiary of Occidental Petroleum Corporation.

An electronic copy of the full text, figures, tables and historic data associated with this report are included on the attached CD as Adobe Acrobat ".pdf" files. All quality assurance / quality control (QA / QC) reports associated with the analytical data described in this report are kept on file for review at the MSRM office in Niagara Falls, New York and are included on the attached CD as Adobe Acrobat ".pdf" files.

## 2.0 SOURCE CONTROL SYSTEM

Six Source Control (SC) extraction wells and nine monitoring wells were installed in the Hyde Park Landfill at the locations presented on Figure 2.1. One extraction well (SC-1) has subsequently been converted into a monitoring well due to insufficient non-aqueous phase liquid (NAPL) volume being present at this location. The purpose of the SC extraction wells is to reduce the amount of chemicals migrating downward from the landfill by removing any remaining NAPL from within the landfill waste materials. The activities performed to ensure achievement of this objective are described in the following subsections. The data collected to demonstrate and/or evaluate the effectiveness of the activities are also presented in the following subsections.

### 2.1 SOURCE CONTROL WELL PUMPING

Routine SC well pumping activity for the year was as follows:

| ***Well No.*** | ***Date*** | ***Volume*** |
|---|---|---|
| 2, 3 & 4 | 10-25-00 | 17 gallons |
| 2, 3 & 4 | 12-04-00 | 32 gallons |
| 2, 3 & 4 | 01-23-01 | 49 gallons |
| 2 & 4 | 03-02-01 | 37 gallons |
| 2 & 4 | 03-06-01 | 22 gallons |
| 2 | 05-03-01 | 6 gallons |
| 2 & 4 | 06-29-01 | 0 gallons |
| 2, 3 & 4 | 08-24-01 | 0 gallons |
| 2, 3 & 4 | 12-07-01 | 0 gallons |

Note: SC well pumping is based on hydraulic recovery in each of the wells. SC-5 and SC-6 did not recover to sufficient levels for pumping between October 2000 and December 2001. All flow from the SC system was measured from one in-line flow meter during the 2001 reporting period. A total of 163 gallons of liquid were removed.

### 2.2 NAPL VOLUME EVALUATION

In order to determine the amount of NAPL contributed by each SC well, ratios of NAPL to aqueous phase liquid (APL) are determined annually at each SC well. The determination of the NAPL/APL ratio is conducted by pumping each well dry, once per

day on three consecutive days. The pumped liquid from each well is collected in a 55-gallon drum. Upon completion of the pumping, the volumes of APL and NAPL removed from each well are measured and these volumes form the ratios.

The NAPL/APL ratio field tests were conducted at the SC wells over the three day period between August 29 and August 31, 2001. The NAPL/APL ratio field sheets are attached as Appendix B of this report. The results of the individual well NAPL/APL ratio determinations for 2001 are presented below:

| ***Extraction Well*** | ***Total Volume Extracted (gallons)*** | ***APL Volume (gallons)*** | ***NAPL Volume (gallons)*** | ***%NAPL*** |
|---|---|---|---|---|
| SC-2 | 16.3 | 0 | 16.3 | 100 |
| SC-3 | 21.5 | 0 | 21.5 | 100 |
| SC-4 | 9.5 | 0 | 9.5 | 100 |
| SC-5 | 0 | 0 | 0 | 0 |
| SC-6 | 0 | 0 | 0 | 0 |

Based on the NAPL/APL ratio field testing data from the SC wells, the volume of collected NAPL per SC well has been estimated as follows:

| | ***NAPL Volume (gallons)*** | | |
|---|---|---|---|
| ***Extraction Well*** | ***NAPL/APL Test 3 Day Recovery*** | ***Assumed Bi-Monthly Volume*** | ***Approximate Extrapolated Annual Total*** |
| SC-2 | 16.3 | 16.3 | 97.8 |
| SC-3 | 21.5 | 21.5 | 129 |
| SC-4 | 9.5 | 9.5 | 57 |
| SC-5 | - | - | - |
| SC-6 | - | - | - |
| | | ***Total:*** | **283.8** |

The measured total volume of liquid collected by the SC system of 163 gallons (assumed to consist entirely of NAPL) and the volume of NAPL manually removed during the NAPL/APL ratio testing of 47.3 gallons represents a total of 210.3 gallons of NAPL collected by the SC System during the 2001 annual monitoring period. During the 2000 annual monitoring period, the NAPL/APL ratio testing predicted that 408 gallons of NAPL would be collected by the SC System. This estimate corresponds with the measured volume collected and falls within the potential estimation error.

Based on the current rate of recharge into the Source Control Wells, it is anticipated that the wells will be pumped once every two months. Assuming a yield equivalent to the recovery during the NAPL/APL Ratio Test, approximately 284 gallons of NAPL are expected to be recovered from the Source Control System. This estimate represents a significant decline from historic NAPL recovery estimates and represents a gradual decline in NAPL recovery in more recent years. Much of the decline is a result of reduced operating head of APL within the landfill driving less NAPL coupled with the removal of NAPL from the vicinity of the extraction wells.

## 2.3 HYDRAULIC MONITORING

Table 2.1 presents recorded water levels for the Source Control System monitoring wells during the 2001 annual monitoring period. These water levels indicate groundwater table fluctuations beneath the landfill cap that range from 0 to 2.3 feet, however, these changes in groundwater elevation correspond to pumping of the SC wells. Historical water level data dating back to 1992 are presented on the enclosed CD under the filename OEW.pdf. It is evident from the historic water level data that the combination of capping of the landfill and pumping from the Source Control Wells has de-watered the landfill to the approximate level of the bottoms of the OEW monitoring wells.

## 3.0 INTERMEDIATE FORMATIONS

Chemical monitoring of the Intermediate Formations is performed annually, along with a calculation of the associated bedrock flux, if required. Seven Intermediate Formations Wells (IFWs) were installed as shown on Figure 3.1. However, as per the Hyde Park Future Monitoring and Assessment Requirements (April 1996), monitoring is currently performed only at IFW-5. The Hyde Park Future Monitoring and Assessment Requirements states, "The Intermediate Formations have proven to be a bedrock unit with very low transmissivity. Repeated monitoring events indicated that well IFW-5 was the only monitoring well which could consistently yield sufficient water to collect a sample, and even at this location sampling efforts typically spanned two to four days. Therefore, future hydraulic and chemical monitoring will be based on data from IFW-5 only."

### 3.1 HYDRAULIC MONITORING AND GROUNDWATER SAMPLING

Purging of IFW-5 began on August 13, 2001, with the static water level being measured prior to any water removal. Historical water level data from each of the seven IFWs dating back to 1990 is presented on the enclosed CD under the filename IFW.pdf. As required by established protocols, IFW-5 was purged to dryness on 3 consecutive days. Sample collection was completed on August 16, 2000. The sample was submitted for analysis of the following parameters:

| ***APL Plume Flux Parameters*** | ***Sample Volume*** | ***Detection Level*** |
|---|---|---|
| Chloroform | 3 x 40 ml | 1.0 µg/L |
| Aroclor 1248(Total PCBs) | 2 x 1L | 1.0 µg/L |
| Mirex | 1 x 1L | 1.0 µg/L |
| 2,3,7,8-TCDD | 3 x 1L | 500 pg/L |

### 3.2 ANALYTICAL RESULTS

The analytical results for the August 16, 2001 sample are presented in Table 3.1.

From the analytical data results it can be seen that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) was observed at a detectable concentration (28 picograms/liter (pg/L)), however, the concentration of this analyte is well below the RRT required detection level of 500 pg/L No other analytes were detected in the Intermediate Formations monitoring sample.

## 3.3 IFW - APL PLUME FLUX

The RRT Stipulation identifies the procedure for which the APL Plume Flux from the Hyde Park Landfill through the Intermediate Formations is to be calculated. The stipulated procedure is to collect aliquots from each of the IFWs based on the proportion of the groundwater flow and composite them for one analysis. As IFW-5 is the only well to produce water, the "composite" consists only of the sample from IFW-5.

The levels of the APL Plume Flux Parameters Aroclor 1248 (total PCBs), 2,3,7,8-TCDD, chloroform, and mirex in the collected sample were below the respective detection levels; therefore, the flux for these parameters is not calculated.

## 3.4 CONCLUSION

No compounds were detected above APL Plume monitoring levels. Thus, no APL Plume flux calculations were performed. The Rochester Formation continues to serve as an effective barrier to vertical migration of the Hyde Park contaminants. Intermediate Formations, therefore, no further action is required at this time.

The next Intermediate Formations sampling round (IFW-5) will be conducted in August 2002.

## 4.0 GORGE FACE SEEP SURVEY

The annual field survey of the accessible pathways along the Niagara Gorge between the New York Power Authority (NYPA) fence on the Lower Access Road and the Garfield Avenue Outfall Sewer was conducted by MSRM, along with representatives of the New York State Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (EPA). The purpose of the survey is to monitor the status of previously identified seeps / wet areas and to identify new flowing seeps / wet areas. The team of survey members who participated on July 24, 2001 consisted of:

- Gerry Pietraszek - NYSDEC;
- Rick Passmore – GSHI;
- Martin Derby - TAMS Consultants (for EPA);
- Don Booth (MSRM);
- Chris Neville – SSP&A;
- Jim Thornton - CRA (for MSRM); and
- Jon Williams - CRA (for MSRM).

The weather was warm (~85° F), humid, and partly cloudy.

### 4.1 SEEP SURVEY RESULTS

During the survey, all of the seep / wet areas identified during previous surveys were re-examined and a re-evaluation of the proposed remedial action was conducted. The seep locations are presented on Figure 4.1. It should be noted that NYPA added slope stability fence fabric along portions of the gorge face in the spring of 2000 to protect the access road.

A total of 29 seep locations and eight culverts, as well as the Garfield Street Outfall Sewer and the Bloody Run outlet, were visited and inspected for variations in flow and exposed wet areas. Descriptions of the observations from each remaining seep are listed in the following summary of survey results.

A more extensive survey of the area from the NYPA Guardhouse to the Garfield Street Tunnel was also completed to determine whether or not additional seeps could be located. During the survey a potential new seep was spotted near the river approximately 25 feet south of Seep 21. Further investigation revealed that it was not a

new seep but just standing water remaining from an earlier rain shower the morning of July 24.

It should be noted that in the summary odor is only mentioned if the seep or culvert had an odor in the past. If odor is not mentioned it was never a problem.

**SEEP SURVEY RESULTS**

| *Seep No.* | *Description* | *Notes* |
|---|---|---|
| 1 | Dry, sparse vegetation, seep basin is clear, no odor. | APW 1 and 2 in operation since April 1997 |
| 2 (Culv. 6) | Damp area 0 to 30 feet north of seep (from Lockport / Rochester contact) Steady flow (~1 gpm), minor green algae and grass on face of Rochester Shale, several wet and dripping areas, seep basin totally full of rock. | Sampled August 15, 2001 ND for all parameters no fence present |
| 2.(Ditch line) | Intermittent ditch flow, 160 feet in length (begins 75 feet south of south wall of Seep 2 and ends 35 feet north of north wall of Seep 2), no odor, green moss, heavy vegetation. Heavy talus in ditch line. | |
| 3 (Top) | Very heavy phragmities reeds on north and south sides of Bloody Run concrete box culvert. Dryer than normal. | Fenced |
| 3 (Bottom) (Culv. 5) | Wet, heavy vegetation, seep basin is clear. (At Bloody Run box culvert) | Remediated Same as 2000. |
| 4 | Numerous dripping areas (2 to 3 gpm), heavy vegetation, no odor. 90 feet south of south wall of Seep 4, heavy vegetation to Seep 4, face of Medina is damp. Ditch line is wet. | Fence in place |
| 5 | Damp rock face, occasional light dripping (upper area) (Figure 4.2). | Remediated Same as 2000. |
| 6 | Damp rock face (lower area) (Figure 4.2). | Remediated Same as 2000. |
| 7a | Covered with local rock, heavy vegetation. | Remediated |

| *Seep No.* | *Description* | *Notes* |
|---|---|---|
| 7b | Covered with local rock. | Remediated |
| 7c | Exposed channel, flow between rocks (~10-15 gpm). | Remediated |
| 7d | Wet and flowing (~10-15 gpm) over top of Irondequoit (waterfall), no odor. | Sampled August 15, 2001<br>ND for all parameters<br>(ND in 1999 and 2000) |
| 7e | Flowing water beneath rocks, heavy vegetation. | No action required. |
| 7f | Exposed channel flow. | Refer to 7e |
| 7g | Open flow area. | Refer to 7e |
| 7h | Medium / light vegetation, open channel flow. | Refer to 7e |
| 7i | Heavy vegetation, no apparent flow.<br>One or two minor damp areas. | Refer to 7e |
| 8 | No flow, heavy vegetation, no odor. | No action required |
| 11a | Inlet area at waters edge covered with local rock, sediment infilling. | Remediated<br>Same as 2000. |
| 11b | Dry (south of south Bloody Run fence). | Same as 2000. |
| 12 | Steady flow out of culvert from NYPA south tunnel, ~25 gpm, no odor. | Sampled August 15, 2001<br>ND for all parameters<br>(ND in 1999 and 2000) |
| 14 | North - approximately 80 to 100 feet south of south fence line of Seep 3, wet face on Reynales approximately 30' wide, water originates from Irondequoit / Reynales contact. | Same as 2000. |
| 16 | Approximately 320 feet north of the North fence line of Seep 1, slightly moist rock face at north and south ends. Moisture from the Lockport / Rochester contact onto the Rochester. | Same as 2000. |
| 17a | North - area approximately 150 feet north of north wall of Seep 2, slight dripping at Irondequoit / Reynales contact. | No action required |

| *Seep No.* | *Description* | *Notes* |
|---|---|---|
| 17b | South - damp area over bottom portion of Rochester Shale at approximately 100 feet north of north wall of Seep 2. | No action required Same as 2000. |
| 18 | 0 to 75' north of north wall of Seep 3 Heavy vegetation on rock face but no visible seepage observed. Ditch line wet with <1 gpm flow coming from Seep 3. | 18 a and b consolidated into one seep in 2001. |
| 19 | Approximately 120 feet south of south end of wing wall, rock face dry. No visible flow in ditch, some vegetation. | No action required |
| 20 | Area 80 to 100 feet north of north fence line of Seep 4 at base of Grimsby Sandstone down into the Power Glenn Shale. Presently dry. | No action required |
| 21 | Area 375 feet south of Seep 7 (Devil's Hole stairs), by river, dry | Remediated |
| Bloody Run | No visible flow. No odor. Heavy talus. | Area fenced along shoreline and upslope. Fence in good condition. Rock continuing to pile up against fence. |

During the seep survey, the following culverts were also inspected and the observed conditions were as follows:

**CULVERT SURVEY RESULTS**

| *Culvert No.* | *Description* | *Notes* |
|---|---|---|
| 1 | Picks up ditch flow to DI at station 0+00, Dry. | No action required |
| 2 | Inlet is open. Standing water, no odor Outlet has heavy vegetation no flow and no odor. | No action required |
| 3 | Inlet is open. Damp soil. Outlet is wet. No flow. | No action required |
| 4 | Inlet is open and dry. Outlet is dry. No flow. | No action required |

| *Culvert No.* | *Description* | *Notes* |
|---|---|---|
| 5 | Inlet is open. Dry, no flow. At outlet slight flow (<1 gpm) 40' west (downstream of outlet). No odor. | No action required. |
| 6 | Standing water at the outlet, water is clear, no odor, inlet buried at Seep 2. | No action required. Same as 2000 |
| 7 | Dry, no flow, inlet buried, heavy vegetation at outlet. | No action required. Same as 2000. |
| 8 | Dry, outlet visible. Inlet visible and open. | No action required |
| Garfield Avenue Sewer | Slight flow (<1 gpm) at exposed original outlet, typical sewer odor, continual caving into former archway (Whirlpool Sandstone) | No action required.<br><br>Additional washouts since 1998. Parks Dept built a pedestrian walkway (with culverts) across the path in the summer of 1999. |

Figure 4.1 shows the general locations of all the seep / wet areas and culverts discussed in this report. Figures 4.2 and 4.3 show some specific details about Seeps 5 and 6 as well as 7 and 8, respectively.

## 4.2 SEEP SAMPLING

Three seeps identified as No. 2, No. 7d, and No. 12 were sampled on August 15, 2001 and analyzed for the APL Plume Definition Parameters. The analytical results for these samples are presented in Table 4.1 showing no detections of any of the APL Plume Flux Parameters.

## 4.3 RECOMMENDATIONS

The water in the area above the waterfall at Seep 7d was sampled. The sample was non-detect and as such, the waterfall will not be diverted and Seep 7f does not need to be covered with local rock.

The sample from Seep 12 was non-detect for all parameters. Therefore, no remedial action is required to prevent access to this open channel flow.

The sample from Seep 2 was non-detect for all parameters. Therefore, no remedial action is required to prevent access to this open channel flow.

## 5.0 BLOODY RUN MONITORING

Subsequent to remediation of the Bloody Run overburden soils north of the Hyde Park Landfill Site, four Bloody Run Monitoring Wells (BRs) were installed to determine if Hyde Park chemicals remain in the upper 15 feet of bedrock at concentrations above the Bloody Run Monitoring Levels. The BR well locations are presented on Figure 5.1. Groundwater samples were collected quarterly in 1994, semi-annually in 1995 and 1996, and annually in 1997, 1998, 1999, and 2000. Sampling continues to be performed on an annual basis. This report presents the analytical data collected during the 2001 annual sampling event.

### 5.1 GROUNDWATER SAMPLING

The 2001 sampling event was conducted on August 27, 2001. During this event, a total of five samples were collected, including four groundwater well samples and one duplicate sample. A summary of all samples collected is presented in Table 5.1.

The Bloody Run monitoring wells (BR-1, BR-2, BR-3, and BR-4) were all purged following measurement of static water levels using a submersible pump. Upon completion of purging activities, each well was sampled using a dedicated Teflon bailer.

Each of the collected samples was analyzed for the Bloody Run Monitoring Parameters. Sample sets for each well, as well as the duplicate sample, consisted of two 40 mL vials for monochlorobenzene (MCB) and monochlorotoluene (MCT) analyses and one 1-liter amber glass bottle for hexachlorobutadiene (HCB) and trichlorophenol (TCP) analyses.

### 5.2 ANALYTICAL RESULTS

The analytical results for the Bloody Run monitoring well samples are presented in Table 5.2. None of the compounds of interest were detected in any of the wells at levels exceeding the Bloody Run Monitoring Levels or above the laboratory detection limits. Table 5.2 presents the analytical results for the Bloody Run monitoring wells.

### 5.3 HYDRAULIC MONITORING RESULTS

Water level elevations measured prior to purging the Bloody Run monitoring wells are presented on Table 5.3. The water level data continues to show that a hydraulic head

differential of approximately 15 feet from east to west exists within the upper 15 feet of bedrock beneath the Bloody Run area. Historical water level data dating back to 1995 is presented on the enclosed CD under the filename BR.pdf.

## 6.0 COLLECTED LIQUIDS MONITORING

Monitoring of the collected liquids from the various remedial systems was performed as required. The systems monitored were as follows:

i) APL Containment System;

ii) Existing OBCS System (On-Site System);

iii) RRT OBCS (Off-Site System);

iv) SC System; and

v) Decanters.

### 6.1 APL CONTAINMENT SYSTEM

Operation of the APL Plume Containment System commenced on March 3, 1997. Monitoring data is provided in the individual Quarterly Monitoring Reports.

### 6.2 EXISTING OBCS SYSTEM (ON-SITE SYSTEM)

An annual sample was collected from Wet Well A on August 1, 2001. The analytical results are summarized in Table 6.1. The reported concentrations are comparable to those observed in 2000.

### 6.3 RRT OBCS (OFF-SITE SYSTEM)

The sampling frequency for the OBCS was reduced from semi-annual to annual in 1998. Samples were collected from Wet Wells C and D on August 1, 2001. Table 6.2 summarizes the sample analytical results for Wet Well C and Table 6.3 summarizes the results for Wet Well D. The reported concentrations were comparable to those observed in 2000 and also with concentrations of APL collected from Decanter No. 2 as described in Section 6.5 of this report.

## 6.4 SC SYSTEM

The volume of NAPL collected by the SC system is described in Section 2.0 of this report. Samples of APL that is collected by the SC system are collected from Decanter No. 3 for chemical analysis as described in Section 6.5 of this report.

## 6.5 DECANTERS

Representative APL samples are collected from the three decanters monthly and submitted for analysis of the collected liquids monitoring program (CLMP) parameters. Tables 6.4, 6.5, and 6.6 present the sample analytical results for Decanters 1, 2, and 3 respectively for the annual reporting period. A description of each decanter's source is provided below:

- Decanter No. 1 Bedrock Purge Well System (PWs and APWs)
- Decanter No. 2 Overburden Barrier Collection System
- Decanter No. 3 Source Control System

Using the analytical results from the monthly decanter samples (Tables 6.4 through 6.6) and semi-annual APW CLMP samples (Tables 6.1 through 6.3) with the monthly flow totals for each of the systems, chemical mass loadings were calculated for each of the collection systems. Chemical mass was not calculated for the SC system because this system pumps nearly 100 percent NAPL as is evident by the results of the annual NAPL/APL ratio testing. Table 6.7 presents a summary of the monthly chemical mass removed by each of the other collection systems during the 2001 annual reporting period.

It can be seen on Table 6.7 that the majority of chemical mass removed is from the NAPL Plume Containment System Bedrock Purge Wells (PWs) with a total of 1,427 pounds of contaminants removed during the 2001 annual reporting period. The Overburden Collection Systems (OBCS and EBCS) removed a total of 344 pounds of contaminants during the 2001 annual reporting period. Only 2.6 pounds of contaminants were collected by the APL Plume Containment System during the 2001 annual reporting period. It is expected that the chemical mass removed by the APL Plume Containment System will remain minimal as the NAPL Plume Containment Purge Wells are preventing the migration of contaminants away from the Site.

Chemical mass loading data will continue to be collected and reported in future annual monitoring reports.

## 7.0 BEDROCK NAPL/APL RATIO TESTING

NAPL/APL ratio determinations are performed annually for each bedrock purge well (PW) at the Site. The locations of the PWs are presented on Figure 7.1. This annual testing program is used to evaluate where effective pumping for NAPL is being accomplished. This report presents the seventh annual NAPL/APL ratio-testing program.

### 7.1 NAPL/APL RATIO TESTING PROGRAM PROTOCOLS

The individual purge well NAPL/APL ratio tests were performed using a trailer mounted 300-gallon polyethylene storage tank. The tests were conducted by diverting pumped groundwater into the storage tank using a sampling port at the well head. The storage tank is graduated for volume determination. The collected liquid was allowed to settle for a minimum of four hours prior to NAPL/APL quantification to ensure maximum phase separation.

NAPL, when present, was removed from the bottom of the tank using a peristaltic pump following decanting. The NAPL was pumped into a graduated bucket so that the volume could be accurately determined. The peristaltic pump was turned off and the remaining APL was removed from the tank using a centrifugal trash pump. The APL volume was calculated by subtracting the decanted NAPL volume from the previously measured storage tank volume. All collected NAPL was drummed for off-Site disposal and the APL was pumped into a sump at the Hyde Park Storage Facility from which liquids are collected and treated.

The storage tank was decontaminated following each individual test. The tank was cleaned with a water spray if NAPL was not present. The water was then removed with the centrifugal pump and discharged to the Hyde Park Storage Facility sump. The tank was cleaned with solvents (i.e., Bio-T-Max) and rinsed with water following tests where NAPL was present. The centrifugal pump was used to remove the wash water for discharge to the Hyde Park Storage Facility sump.

### 7.2 NAPL/APL RATIO TEST RESULTS

The 2001 annual purge well NAPL/APL ratio tests were completed between August 13 and September 21, 2001.

Twelve operational wells were tested initially following a period during which the particular purge well pump had not experienced extensive shutdowns (more than several hours) during the previous week. If no NAPL was recovered during the initial test, a second test was conducted for confirmation. During the retest, the purge well pump was shut down for a minimum of 24 hours prior to commencing the second test. This shutdown period allowed any NAPL present in the well to accumulate prior to pumping. A second test was completed at six wells (PW-2M, PW-2L, PW-3L, PW-5UR, PW-6UR, and PW-6MR).

The results of the NAPL/APL ratio testing are summarized in Table 7.1.

## 7.3 CONCLUSIONS AND RECOMMENDATIONS

The 2001 NAPL/APL ratio tests indicated that measurable NAPL volumes were available from five of the twelve purge wells tested. The purge wells which produced measurable NAPL volumes during normal operating conditions were PW-1L (0.25 gallons), PW-2UR (3.5 gallons), PW-3M (8 gallons), PW-4U (1 gallon), and PW-4M (40 milliliters). In addition, PW-1U produced trace NAPL volume indicated as a sheen on the pumped water. Historically, it is these same six purge wells that produce measurable quantities of NAPL.

Table 7.1 summarizes this information including the calculated NAPL/APL ratios at each purge well and projected annual NAPL volumes. The total estimated NAPL volume that could be removed via the Bedrock NAPL Plume Containment System was approximately 15,769 gallons over the past year. Manual NAPL level measurements were made monthly in Decanter No. 1, over the past year 2,666 gallons of NAPL were removed from the Bedrock NAPL Plume Containment System. The projected volume of NAPL that could be removed from the NAPL Plume Containment System and the actual volume of NAPL removed are significantly different, the reason for this difference is believed to be in the NAPL/APL ratio test method. Specifically, for wells that are turned off prior to testing. When the wells are turned off NAPL accumulates at the bottom of the well and upon restarting the pumps for the test a large volume of NAPL is collected indicating a much larger NAPL/APL ratio than what is occurring during normal pump operation. When these ratios are extrapolated to estimate an annual total, the volume of NAPL determined is unrealistically high.

## 8.0 EXISTING WELL SURVEY

An annual inspection of all Hyde Park purge and monitoring wells was performed. This includes an assessment of whether well repairs and / or replacement are required.

### 8.1 SURVEY RESULTS

The well inspection survey was performed in August 2001. The inspection results are summarized in Table 8.1. A total of eight wells were identified as requiring minor repairs (indicated with boxes in Table 8.1). No major repairs were required. All repairs have been completed.

## 9.0 SEMI-ANNUAL MANHOLE INSPECTION

During the 2001 annual reporting period a semi-annual inspection of OBCS, Existing Barrier Collection System (EBCS) and wet well manholes was established. The purpose of this program is to identify maintenance issues and potential leaks within these systems. The inspections consist of visually inspecting the integrity of the manholes and the security of the surface completions (manhole covers). The depth of each manhole and the amount of water within each manhole are also measured. Notes are also recorded as to sludge buildup in the manholes and the presence of chemical odors.

During the 2001 reporting period one round of manhole inspections was performed on July 26, 2001. Table 9.1 presents a summary of the manhole inspection. One manhole (OBCS manhole 33) was identified as needing repairs; these repairs have been made.

In general, the inspection revealed that the OBCS is performing as designed. The water level elevations observed indicate that the system is draining properly.

The manhole inspections will be performed semi-annually and reported in future annual reports.

TABLES

**TABLE 2.1**

**SOURCE CONTROL SYSTEM HYDRAULIC MONITORING DATA**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| ***Well ID:*** | ***OEW-1*** | ***OEW-1*** | ***OEW-2*** | OEW-3 | OEW-4 | OEW-5 | OEW-6 | OEW-7 | OW33-82 | OW35-82 |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Type:*** | ***O*** | ***O*** | ***O*** | O | O | O | O | O | O | O |
| ***Casing Elevation:*** | ***619.88*** | ***619.88*** | ***630.17*** | 637.61 | 639.16 | 636.00 | 630.97 | 630.51 | 627.49 | 632.47 |
| ***Ground Elevation:*** | ***611.80*** | ***611.80*** | ***617.60*** | 615.70 | 630.50 | 628.40 | 623.50 | 620.90 | 621.60 | 618.90 |
| 09/07/00 | 600.66 | 600.66 | 596.12 | 596.86 | 610.86 | NAPL | Dry | NAPL | Obstructed | Obstructed |
| 10/05/00 | 602.10 | 602.10 | 598.02 | 598.74 | 612.74 | NAPL | Dry | NAPL | Obstructed | Obstructed |
| 11/03/00 | 601.58 | 601.58 | 598.07 | 598.71 | 612.69 | NAPL | Dry | NAPL | Obstructed | Obstructed |
| 12/06/00 | 600.88 | 600.88 | 598.15 | 598.58 | 612.66 | NAPL | Dry | NAPL | Obstructed | Obstructed |
| 01/11/01 | 600.55 | 600.55 | 598.17 | 598.71 | - | NAPL | Dry | NAPL | | |
| 02/01/01 | 600.13 | 600.13 | 598.17 | 598.56 | 612.64 | NAPL | Dry | NAPL | Obstructed | Obstructed |
| 03/01/01 | 599.58 | 599.58 | 598.17 | 598.76 | 612.63 | NAPL | | NAPL | Obstructed | Obstructed |
| 04/09/01 | 599.95 | 599.95 | 598.23 | 598.71 | 612.66 | NAPL | Dry | Dry | Obstructed | Obstructed |
| 05/11/01 | 599.22 | 599.22 | 598.34 | 598.78 | 612.69 | NAPL | Dry | NAPL | | |
| 06/13/01 | 599.03 | 599.03 | 598.37 | 598.69 | 612.67 | NAPL | Dry | NAPL | Obstructed | Obstructed |
| 07/02/01 | 598.93 | 598.93 | 598.35 | 598.61 | 612.66 | NAPL | Dry | NAPL | Obstructed | Obstructed |
| 08/03/01 | 598.81 | 598.81 | 598.17 | 598.51 | 612.64 | NAPL | Dry | NAPL | Obstructed | Obstructed |
| 09/06/01 | 598.61 | 598.61 | 598.39 | 598.61 | 612.69 | NAPL | Dry | NAPL | Obstructed | Obstructed |
| 10/19/01 | 598.41 | 598.41 | 598.42 | 598.63 | 612.71 | 636.00 | Dry | 630.51 | Obstructed | Obstructed |
| 11/06/01 | 598.33 | 598.33 | 598.42 | 598.65 | 612.71 | 636.00 | Dry | 630.51 | Obstructed | Obstructed |
| 12/05/01 | 598.22 | 598.22 | 598.45 | 598.61 | 612.66 | NAPL | Dry | NAPL | Obstructed | Obstructed |

Notes:
All elevations in Feet Above Mean Sea Level.
O - Overburden Well

**TABLE 3.1**

**INTERMEDIATE FORMATIONS ANALYTICAL RESULTS**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| | | ***Sample Location:*** | ***IFW-5*** |
|---|---|---|---|
| | | ***Sample ID:*** | ***IFW5801*** |
| | | ***Sample Date:*** | ***08/16/01*** |
| ***Parameter*** | ***Unit*** | ***Action Level*** | |
| Aroclor 1248 (Total PCBs) | ug/L | 1 | 1.0 U |
| Perchloropentacyclodecane (Mirex) | ug/L | 1 | 1.0 U |
| Chloroform | ug/L | 10 | 10.0 U |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) | pg/L | 500 | 28 |

Notes:
U - Non-detect at associated value.
pg/L - Picograms per Liter.
ug/L - Micrograms per Liter.

**TABLE 4.1**

**GORGE FACE SEEP ANALYTICAL RESULTS**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| | ***Sample Location:*** | ***Seep-2*** | ***Seep-7D*** | ***Seep-12*** |
|---|---|---|---|---|
| | ***Sample ID:*** | ***SEEP-2801*** | ***SEEP-7D801*** | ***SEEP-12801*** |
| | ***Sample Date:*** | ***08/15/01*** | ***08/15/01*** | ***08/15/01*** |
| ***Parameter*** | ***Unit*** | | | |
| ***Volatiles*** | | | | |
| 2-Chlorotoluene | ug/L | 3.00 U | 3.00 U | 3.00 U |
| 3-Chlorotoluene | ug/L | 3.00 U | 3.00 U | 3.00 U |
| 4-Chlorotoluene | ug/L | 3.00 U | 3.00 U | 3.00 U |
| Monochlorotoluenes (MCT), Total | ug/L | 3.00 U | 3.00 U | 3.00 U |
| Monochlorobenzene (MCB) | ug/L | 10.0 U | 10.0 U | 10.0 U |
| m-Monochlorobenzotrifluoride | ug/L | 3.00 U | 3.00 U | 3.00 U |
| o-Monochlorobenzotrifluoride | ug/L | 3.00 U | 3.00 U | 3.00 U |
| p-Monochlorobenzotrifluoride | ug/L | 3.00 U | 3.00 U | 3.00 U |
| Monochlorobenzotriflourides (MCBTF), Total | ug/L | 3.00 U | 3.00 U | 3.00 U |
| ***Semi-Volatiles*** | | | | |
| 1,2,3-Trichlorobenzene | ug/L | 3.00 U | 3.00 U | 3.00 U |
| 1,2,4-Trichlorobenzene | ug/L | 3.00 U | 3.00 U | 3.00 U |
| 1,3,5-Trichlorobenzene | ug/L | 3.00 U | 3.00 U | 3.00 U |
| 1,2,3,4-Tetrachlorobenzene | ug/L | 5.00 U | 5.00 U | 5.00 U |
| 1,2,4,5-Tetrachlorobenzene | ug/L | 5.00 U | 5.00 U | 5.00 U |
| 2,4,5-Trichlorophenol (TCP) | ug/L | 10.0 U | 10.0 U | 10.0 U |
| Trichlorobenzenes (TCB), Total | ug/L | 3.00 U | 3.00 U | 3.00 U |
| Tetrachlorobenzenes (TTCB), Total | ug/L | 5.00 U | 5.00 U | 5.00 U |
| Octachlorocyclopentene (C-58) | ug/L | 10.0 U | 10.0 U | 10.0 U |
| ***Pesticides*** | | | | |
| alpha-BHC | ug/L | 0.250 U | 0.250 U | 0.250 U |
| beta-BHC | ug/L | 0.250 U | 0.250 U | 0.250 U |
| delta-BHC | ug/L | 0.250 U | 0.250 U | 0.250 U |
| gamma-BHC (Lindane) | ug/L | 0.250 U | 0.250 U | 0.250 U |
| Hexachlorocyclohexane (BHC), Total | ug/L | 0.250 U | 0.250 U | 0.250 U |
| ***General Chemistry*** | | | | |
| Total Organic Carbon (TOC) | mg/L | 2.8 | 3.0 | 2.0 |
| Phenolics (Total) | mg/L | 0.005 U | 0.00808 | 0.00607 |
| Total Organic Halides (TOX) | ug/L | 583 | 121 | 101 |

Notes:
J - Estimated at associated value.
U - Not detect at associated value.

**TABLE 5.1**

**BLOODY RUN MONITORING PROGRAM SAMPLE KEY AND FIELD OBSERVATIONS**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| *Sample ID* | *Well No.* | *Date* | *Time* | *pH (su)* | *Conductivity (uS/cm)* | *Temperature (°C)* | *Turbidity (NTU)* | *Water Quality* | *Comment* |
|---|---|---|---|---|---|---|---|---|---|
| BR1801 | BR-1 | 08/27/01 | 9:40 | 8.44 | 78 | 13.2 | - | Cloudy | MS/MSD |
| BR2801 | BR-2 | 08/27/01 | 8:55 | 7.22 | 73 | 12.1 | - | Clear | |
| BR3801 | BR-3 | 08/27/01 | 10:30 | 7.14 | 1306 | 13.1 | 160 | Cloudy, Odorless | |
| BR4801 | BR-4 | 08/27/01 | 9:45 | 7.14 | 1299 | 12.1 | 150 | Cloudy, Odorless | |
| BR5801 | BR-1 | 08/27/01 | 8:00 | 7.14 | 1299 | 12.1 | 150 | - | Duplicate BR-4 |

Notes:

| | |
|---|---|
| - | Not available. |
| °C | Degrees Celsius. |
| MS/MSD | Matrix Spike / Matrix Spike Duplicate. |
| NTU | Normal Turbidity Units. |
| su | Standard pH units. |
| uS/cm | MicroSiemens per centimeter. |

**TABLE 5.2**

**BLOODY RUN MONITORING PROGRAM ANALYTICAL RESULTS**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| | | | | | | |
|---|---|---|---|---|---|---|
| | ***Sample Location:*** | ***BR-1*** | ***BR-2*** | ***BR-3*** | ***BR-4*** | ***BR-5*** |
| | ***Sample ID:*** | ***BR1801*** | ***BR2801*** | ***BR3801*** | ***BR4801*** | ***BR5801*** |
| | ***Sample Date:*** | ***08/27/01*** | ***08/27/01*** | ***08/27/01*** | ***08/27/01*** | ***08/27/01*** |
| ***Parameter*** | ***Unit*** | | | | | |
| ***Volatiles*** | | | | | | |
| 2-Chlorotoluene | ug/L | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U |
| 3-Chlorotoluene | ug/L | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U |
| 4-Chlorotoluene | ug/L | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U |
| Chlorobenzene | ug/L | 10.0 U | 10.0 U | 10.0 U | 10.0 U | 10.0 U |
| ***Semi-Volatiles*** | | | | | | |
| 2,4,5-Trichlorophenol | ug/L | 10.0 U | 10.0 U | 10.0 U | 10.0 U | 10.0 U |
| Hexachlorobenzene | ug/L | 10.0 U | 10.0 U | 10.0 U | 10.0 U | 10.0 U |

Notes:
U - Non-detect at associated value.
ug/L - Micrograms per Liter.

**TABLE 5.3**
**BLOODY RUN MONITORING PROGRAM HYDRAULIC MONITORING DATA**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| *Well I.D.* | *Date* | *Top of Casing Elevation (ft. AMSL)* | *Water Level Depth (ft. BTOC)* | *Water Level Elevation (ft. AMSL)* |
|---|---|---|---|---|
| BR-1 | 8/27/01 | 583.35 | 11.95 | 571.4 |
| BR-2 | 8/27/01 | 582.07 | 22.46 | 559.61 |
| BR-3 | 8/27/01 | 582.55 | 22.12 | 560.43 |
| BR-4 | 8/27/01 | 583.84 | 28.02 | 555.82 |

Notes:
Ft. AMSL Feet Above Mean Sea Level.
Ft. BTOC Feet Below Top of Casing.

**TABLE 6.1**

**WET WELL A ANALYTICAL RESULTS**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| | |
|---|---|
| ***Sample Location:*** | ***Wet Well A*** |
| ***Sample ID:*** | ***WWA801*** |
| ***Sample Date:*** | ***08/01/01*** |

| ***Parameter*** | ***Unit*** | |
|---|---|---|
| ***Volatiles*** | | |
| 2-Chlorotoluene | ug/L | 3750 |
| 3-Chlorotoluene | ug/L | 75.0 U |
| 4-Chlorotoluene | ug/L | 2560 |
| Monochlorotoluenes (MCT), Total | ug/L | 6310 |
| Monochlorobenzenes (MCB) | ug/L | 1720 |
| o-Monochlorobenzotrifluoride | ug/L | 1150 |
| m-Monochlorobenzotrifluoride | ug/L | 356 |
| p-Monochlorobenzotrifluoride | ug/L | 1660 |
| Monochlorobenzotriflourides (MCBTF), Total | ug/L | 3166 |
| ***Semi-Volatiles*** | | |
| 1,2,3-Trichlorobenzene | ug/L | 101 |
| 1,2,4-Trichlorobenzene | ug/L | 495 |
| 1,3,5-Trichlorobenzene | ug/L | 75.0 U |
| Trichlorobenzenes (TCB), Total | ug/L | 596 |
| 1,2,3,4-Tetrachlorobenzene | ug/L | 570 |
| 1,2,4,5-Tetrachlorobenzene | ug/L | 292 |
| Tetrachlorobenzenes (TTCB), Total | ug/L | 862 |
| 2,4,5-Trichlorophenol | ug/L | 2980 |
| Octachlorocyclopentene | ug/L | 150 U |
| ***Pesticides*** | | |
| alpha-BHC | ug/L | 497 |
| beta-BHC | ug/L | 25.3 |
| delta-BHC | ug/L | 246 |
| gamma-BHC (Lindane) | ug/L | 174 |
| Hexachlorocyclohexanes (BHC), Total | ug/L | 942.3 |
| ***General Chemistry*** | | |
| Chloride | mg/L | 5000 |
| Phenolics (Total) | mg/L | 386 |
| Total Organic Carbon (TOC) | mg/L | 1800 |
| Total Organic Halides (TOX) | ug/L | 3260000 |

Notes:
U - Non-detect at associated value.
ug/L - Micrograms per Liter.
mg/L - Milligrams per Liter.

**TABLE 6.2**

**WET WELL C ANALYTICAL RESULTS**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| | |
|---|---|
| ***Sample Location:*** | ***Wet Well C*** |
| ***Sample ID:*** | ***WWC801*** |
| ***Sample Date:*** | ***08/01/01*** |

| ***Parameter*** | ***Unit*** | |
|---|---|---|
| ***Volatiles*** | | |
| 2-Chlorotoluene | ug/L | 500 |
| 3-Chlorotoluene | ug/L | 15.0 U |
| 4-Chlorotoluene | ug/L | 358 |
| Monochlorotoluenes (MCT), Total | ug/L | 858 |
| Monochlorobenzenes (MCB) | ug/L | 325 |
| o-Monochlorobenzotrifluoride | ug/L | 131 |
| m-Monochlorobenzotrifluoride | ug/L | 50.3 |
| p-Monochlorobenzotrifluoride | ug/L | 186 |
| Monochlorobenzotriflourides (MCBTF), Total | ug/L | 367.3 |
| ***Semi-Volatiles*** | | |
| 1,2,3-Trichlorobenzene | ug/L | 76.3 |
| 1,2,4-Trichlorobenzene | ug/L | 364 |
| 1,3,5-Trichlorobenzene | ug/L | 15.0 U |
| Trichlorobenzenes (TCB), Total | ug/L | 440.3 |
| 1,2,3,4-Tetrachlorobenzene | ug/L | 930 |
| 1,2,4,5-Tetrachlorobenzene | ug/L | 452 |
| Tetrachlorobenzenes (TTCB), Total | ug/L | 1382 |
| 2,4,5-Trichlorophenol | ug/L | 583 |
| Octachlorocyclopentene | ug/L | 15.0 U |
| ***Pesticides*** | | |
| alpha-BHC | ug/L | 85.2 |
| beta-BHC | ug/L | 15.9 |
| delta-BHC | ug/L | 33.7 |
| gamma-BHC (Lindane) | ug/L | 48.3 |
| Hexachlorocyclohexanes (BHC), Total | ug/L | 183.1 |
| ***General Chemistry*** | | |
| Chloride | mg/L | 360 |
| Phenolics (Total) | mg/L | 44.6 |
| Total Organic Carbon (TOC) | mg/L | 25 |
| Total Organic Halides (TOX) | ug/L | 589000 |

Notes:
U - Non-detect at associated value.
ug/L - Micrograms per Liter.
mg/L - Milligrams per Liter.

**TABLE 6.3**

**WET WELL C ANALYTICAL RESULTS**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| | |
|---|---|
| ***Sample Location:*** | ***Wet Well D*** |
| ***Sample ID:*** | ***WWD801*** |
| ***Sample Date:*** | ***08/01/01*** |

| ***Parameter*** | ***Unit*** | |
|---|---|---|
| ***Volatiles*** | | |
| 2-Chlorotoluene | ug/L | 310 |
| 3-Chlorotoluene | ug/L | 6.00 U |
| 4-Chlorotoluene | ug/L | 142 |
| Monochlorotoluenes (MCT), Total | ug/L | 452 |
| Monochlorobenzenes (MCB) | ug/L | 93.0 |
| o-Monochlorobenzotrifluoride | ug/L | 62.6 |
| m-Monochlorobenzotrifluoride | ug/L | 28.7 |
| p-Monochlorobenzotrifluoride | ug/L | 95.2 |
| Monochlorobenzotriflourides (MCBTF), Total | ug/L | 186.5 |
| ***Semi-Volatiles*** | | |
| 1,2,3-Trichlorobenzene | ug/L | 34.2 |
| 1,2,4-Trichlorobenzene | ug/L | 134 |
| 1,3,5-Trichlorobenzene | ug/L | 6.00 U |
| Trichlorobenzenes (TCB), Total | ug/L | 168.2 |
| 1,2,3,4-Tetrachlorobenzene | ug/L | 70.7 |
| 1,2,4,5-Tetrachlorobenzene | ug/L | 42.8 |
| Tetrachlorobenzenes (TTCB), Total | ug/L | 113.5 |
| 2,4,5-Trichlorophenol | ug/L | 35.9 |
| Octachlorocyclopentene | ug/L | 3.00 U |
| ***Pesticides*** | | |
| alpha-BHC | ug/L | 17.4 |
| beta-BHC | ug/L | 2.87 |
| delta-BHC | ug/L | 9.46 |
| gamma-BHC (Lindane) | ug/L | 7.33 |
| Hexachlorocyclohexanes (BHC), Total | ug/L | 37.06 |
| ***General Chemistry*** | | |
| Chloride | mg/L | 390 |
| Phenolics (Total) | mg/L | 0.437 |
| Total Organic Carbon (TOC) | mg/L | 31 |
| Total Organic Halides (TOX) | ug/L | 4270 |

Notes:
U - Non-detect at associated value.
ug/L - Micrograms per Liter.
mg/L - Milligrams per Liter.

**TABLE 6.4**

**DECANTER NO.1 (BEDROCK) ANALYTICAL RESULTS**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| *Sample Location:* | | *Bedrock* | *Bedrock* | *Bedrock* | *Bedrock* | *Bedrock* | *Bedrock* | *Bedrock* | *Bedrock* | *Bedrock* | *Bedrock* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Sample ID:* | | *MD1-0900* | *MD1-01000* | *MD1 - 1100* | *MD1* | *MD1-101* | *MD1-0201* | *MD1-301* | *MD1-401* | *MD1-501* | *MD1-601* |
| *Sample Date:* | | *09/06/00* | *10/03/00* | *11/01/00* | *12/01/00* | *01/02/01* | *02/15/01* | *03/02/01* | *04/03/01* | *05/01/01* | *06/04/01* |
| ***Parameter*** | ***Unit*** | | | | | | | | | | |
| ***Volatiles*** | | | | | | | | | | | |
| 2-Chlorotoluene | ug/L | 1800 | 1600 | 1600 J | 1300 | 1800 | 1100 J | 890 | 1100 | 850 | 180 |
| 3-Chlorotoluene | ug/L | 8.0 U | 8.0 U | 8.0 U | 30 U | 30 U | 30 U | 15 U | 30 U | 15 U | 3.0 U |
| 4-Chlorotoluene | ug/L | 820 | 1500 | 920 J | 850 | 1300 | 840 J | 690 | 810 | 590 | 130 |
| Monochlorotoluenes (MCT), Total | ug/L | 2620 | 3100 | 2520 | 2150 | 3100 | 1940 | 1580 | 1910 | 1440 | 310 |
| Monochlorobenzenes (MCB) | ug/L | 550 | 920 | 600 J | 560 | 470 | 780 | 630 | 670 | 570 | 98 |
| o-Monochlorobenzotrifluoride | ug/L | 400 | 410 | 260 | 270 | 260 | 260 | 410 | 420 | 330 | 69 |
| m-Monochlorobenzotrifluoride | ug/L | 130 | 130 | 82 | 83 | 120 | 99 | 140 | 170 | 100 | 22 |
| p-Monochlorobenzotrifluoride | ug/L | 600 | 560 | 350 | 330 | 620 | 380 | 630 | 730 | 470 | 100 |
| Monochlorobenzotriflourides (MCBTF), Total | ug/L | 1130 | 1100 | 692 | 683 | 1000 | 739 | 1180 | 1320 | 900 | 191 |
| ***Semi-Volatiles*** | | | | | | | | | | | |
| 1,2,3-Trichlorobenzene | ug/L | 47 | 69 | 54 | 86 | 42 | 47 | 54 | 740 | 69 | 54 |
| 1,2,4-Trichlorobenzene | ug/L | 180 | 240 | 190 | 330 | 310 | 240 J | 250 | 3900 | 300 J | 260 |
| 1,3,5-Trichlorobenzene | ug/L | 5 U | 5 U | 5 U | 14 U | 3 U | 14 U | 14 U | 56 U | 15 U | 28 U |
| Trichlorobenzenes (TCB), Total | ug/L | 227 | 309 | 244 | 416 | 352 | 287 | 304 | 4640 | 369 | 314 |
| 1,2,3,4-Tetrachlorobenzene | ug/L | 240 | 240 | 220 | 420 | 140 | 180 | 220 | 6100 | 220 | 290 |
| 1,2,4,5-Tetrachlorobenzene | ug/L | 72 | 110 | 100 | 170 | 70 | 75 | 85 | 2600 | 120 | 140 |
| Tetrachlorobenzenes (TTCB), Total | ug/L | 312 | 350 | 320 | 590 | 210 | 255 | 305 | 8700 | 340 | 430 |
| 2,4,5-Trichlorophenol | ug/L | 300 | 280 J | 200 | 360 | 330 | 42 J | 320 | 700 J | 290 | 320 |
| Octachlorocyclopentene | ug/L | 10 U | 10 U | 10 U | 47 U | 10 U | 47 U | 47 U | 190 U | 50 U | 94 U |
| ***Pesticides*** | | | | | | | | | | | |
| alpha-BHC | ug/L | 80 | 87 | 100 | 130 J | 98 | 100 | 100 | 430 | 100 | 120 J |
| beta-BHC | ug/L | 42 | 10 | 11 | 17 J | 58 | 10 | 9.5 | 47 | 14 | 18 J |
| delta-BHC | ug/L | 40 | 33 | 38 | 42 J | 34 | 31 | 27 | 110 | 34 | 33 J |
| gamma-BHC (Lindane) | ug/L | 47 | 48 | 53 | 68 J | 55 | 55 | 50 | 210 | 58 | 64 J |
| Hexachlorocyclohexanes (BHC), Total | ug/L | 209 | 178 | 202 | 257 | 245 | 196 | 186.5 | 797 | 206 | 235 |
| ***General Chemistry*** | | | | | | | | | | | |
| Chloride | mg/L | 673 | 575 | 674 | 824 | 596 | 614 | 710 | 572 | 458 | 487 |
| Phenolics (Total) | mg/L | 8.5 | 7.7 | 7.5 | 8.7 | 7.3 J | 7.6 | 9.0 | 7.7 | 7.0 | 10.2 |
| Total Organic Carbon (TOC) | mg/L | 30.9 | 34.0 | 28.9 | 38.4 | 28.4 | 35.4 | 33.7 | 28.3 | 30.8 | 45.0 |
| Total Organic Halides (TOX) | ug/L | 12600 | 10900 | 13000 | 14600 | 8940 | 14400 | 13600 | 13500 | 16600 | 15400 |

Notes:
J - Estimated at associated value.
U - Non-detect at associated value.
ug/L - Micrograms per Liter.
mg/L - Milligrams per Liter.

**TABLE 6.4**

**DECANTER NO.1 (BEDROCK) ANALYTICAL RESULTS**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | ***Sample Location:*** | ***Bedrock*** | ***Bedrock*** | ***Bedrock*** | ***Bedrock*** | ***Bedrock*** | ***Bedrock*** |
| | ***Sample ID:*** | ***MD1-701*** | ***MD1 0801*** | ***MD1-901*** | ***MD1-1001*** | ***MD1-1101*** | ***MD1-1201*** |
| | ***Sample Date:*** | ***07/03/01*** | ***08/01/01*** | ***09/04/01*** | ***10/01/01*** | ***11/15/01*** | ***12/03/01*** |
| ***Parameter*** | ***Unit*** | | | | | | |
| ***Volatiles*** | | | | | | | |
| 2-Chlorotoluene | ug/L | 430 | 917 | 1710 | 1530 | 223 | 564 |
| 3-Chlorotoluene | ug/L | 6.0 U | 11.1 | 3.00 U | 3.00 U | 3.00 U | 3.00 U |
| 4-Chlorotoluene | ug/L | 320 | 424 | 1210 | 423 | 95.8 | 371 |
| Monochlorotoluenes (MCT), Total | ug/L | 750 | 1352.1 | 2920 | 1953 | 318.8 | 935 |
| Monochlorobenzenes (MCB) | ug/L | 400 | 415 | 1090 | 387 | 146 | 345 |
| o-Monochlorobenzotrifluoride | ug/L | 270 | 223 | 730 | 173 | 82.0 | 183 |
| m-Monochlorobenzotrifluoride | ug/L | 90 | 92.8 | 252 | 85.5 | 24.5 | 89.1 |
| p-Monochlorobenzotrifluoride | ug/L | 390 | 321 | 975 | 271 | 86.2 | 276 |
| Monochlorobenzotriflourides (MCBTF), Total | ug/L | 750 | 636.8 | 1957 | 529.5 | 192.7 | 548.1 |
| ***Semi-Volatiles*** | | | | | | | |
| 1,2,3-Trichlorobenzene | ug/L | 52 | 92.7 | 162 | 83.0 | 21.2 | 77.7 |
| 1,2,4-Trichlorobenzene | ug/L | 220 | 371 | 736 | 323 | 71.3 | 312 |
| 1,3,5-Trichlorobenzene | ug/L | 15 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U | 3.00 U |
| Trichlorobenzenes (TCB), Total | ug/L | 272 | 463.7 | 898 | 406 | 92.5 | 389.7 |
| 1,2,3,4-Tetrachlorobenzene | ug/L | 250 | 120 | 339 | 154 | 30.0 | 188 J |
| 1,2,4,5-Tetrachlorobenzene | ug/L | 120 | 44.3 | 137 | 58.3 | 13.1 J | 79.9 J |
| Tetrachlorobenzenes (TTCB), Total | ug/L | 370 | 164.3 | 476 | 212.3 | 43.1 | 267.9 |
| 2,4,5-Trichlorophenol | ug/L | 240 | 153 | 561 | 152 | 254 J | 271 J |
| Octachlorocyclopentene | ug/L | 50 U | 3.00 U | 10.0 U | 10.0 U | 10.0 UJ | 10.0 UJ |
| ***Pesticides*** | | | | | | | |
| alpha-BHC | ug/L | 120 | 97.3 | 230 | 69.2 | 174 J | 68.4 J |
| beta-BHC | ug/L | 12 | 11.4 | 20.3 | 10.2 | 27.5 J | 9.28 J |
| delta-BHC | ug/L | 34 | 39.4 | 87.2 | 23.6 | 69.7 J | 13.1 J |
| gamma-BHC (Lindane) | ug/L | 62 | 55.6 | 139 | 38.0 | 99.1 J | 44.0 |
| Hexachlorocyclohexanes (BHC), Total | ug/L | 228 | 203.7 | 476.5 | 141 | 370.3 | 134.78 |
| ***General Chemistry*** | | | | | | | |
| Chloride | mg/L | 378 | 460 | 740 J | 540 | 580 J | 500 |
| Phenolics (Total) | mg/L | 6.8 | 8.70 | 16.0 | 3.97 | 0.382 | 5.38 |
| Total Organic Carbon (TOC) | mg/L | 27.0 | 34 | 65 | 17 | 18 | 20 |
| Total Organic Halides (TOX) | ug/L | 12200 | 2060000 J | 18200 J | 5970 | 6710 J | 7050 |

Notes:
J - Estimated at associated value.
U - Non-detect at associated value.
ug/L - Micrograms per Liter.
mg/L - Milligrams per Liter.

**TABLE 6.5**

**DECANTER NO.2 (OVERBURDEN) ANALYTICAL RESULTS**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| *Sample Location:* | *Overburden* | *Overburden* | *Overburden* | *Overburden* | *Overburden* | *Overburden* | *Overburden* | *Overburden* |
|---|---|---|---|---|---|---|---|---|
| *Sample ID:* | *MD2-0900* | *MD2-01000* | *MD2 - 1100* | *MD2* | *MD2-101* | *MD2-0201* | *MD2-301* | *MD2-401* |
| *Sample Date:* | *09/06/00* | *10/03/00* | *11/01/00* | *12/01/00* | *01/02/01* | *02/15/01* | *03/02/01* | *04/03/01* |
| ***Parameter*** | ***Unit*** | | | | | | | |
| ***Volatiles*** | | | | | | | | |
| 2-Chlorotoluene | ug/L | 1400 | 1400 | 1100 | 500 D | 1100 | 270 | 640 | 360 |
| 3-Chlorotoluene | ug/L | 3.2 U | 3.0 UJ | 6.4 U | 6.0 U | 24 U | 6.0 U | 15 U | 12 U |
| 4-Chlorotoluene | ug/L | 330 | 370 | 400 | 200 | 600 | 180 | 460 | 230 |
| Monochlorotoluenes (MCT), Total | ug/L | 1730 | 1770 | 1500 | 200 | 1700 | 450 | 1100 | 590 |
| Monochlorobenzenes (MCB) | ug/L | 150 | 320 J | 250 | 90 | 66 J | 250 | 410 | 140 |
| o-Monochlorobenzotrifluoride | ug/L | 150 | 150 J | 120 | 68 | 54 | 35 | 280 | 130 |
| m-Monochlorobenzotrifluoride | ug/L | 55 | 48 J | 40 | 23 | 32 | 12 | 58 | 52 |
| p-Monochlorobenzotrifluoride | ug/L | 240 | 230 J | 150 | 100 | 290 | 60 | 360 | 260 |
| Monochlorobenzotriflourides (MCBTF), Total | ug/L | 445 | 428 | 310 | 191 | 376 | 107 | 698 | 442 |
| ***Semi-Volatiles*** | | | | | | | | |
| 1,2,3-Trichlorobenzene | ug/L | 26 | 26 | 25 | 20 | 37 | 6 J | 26 | 12 |
| 1,2,4-Trichlorobenzene | ug/L | 74 | 95 | 87 | 78 | 220 | 31 | 130 | 51 |
| 1,3,5-Trichlorobenzene | ug/L | 5 U | 5 U | 5 U | 14 U | 14 U | 14 U | 14 U | 3 U |
| Trichlorobenzenes (TCB), Total | ug/L | 100 | 121 | 112 | 98 | 257 | 37 | 156 | 63 |
| 1,2,3,4-Tetrachlorobenzene | ug/L | 140 | 110 | 120 | 150 | 150 | 19 J | 120 | 36 |
| 1,2,4,5-Tetrachlorobenzene | ug/L | 40 | 52 | 56 | 62 | 67 | 11 J | 57 | 17 |
| Tetrachlorobenzenes (TTCB), Total | ug/L | 180 | 162 | 176 | 212 | 217 | 30 | 177 | 53 |
| 2,4,5-Trichlorophenol | ug/L | 280 | 210 J | 150 | 150 | 250 | 110 | 280 | 220 |
| Octachlorocyclopentene | ug/L | 10 U | 10 U | 10 U | 47 U | 47 U | 47 U | 47 U | 9 U |
| ***Pesticides*** | | | | | | | | |
| alpha-BHC | ug/L | 25 | 55 | 51 | 32 J | 44 | 16 | 79 | 29 |
| beta-BHC | ug/L | 16 | 6.8 | 6.2 | 4.9 J | 21 | 2.8 | 18 | 4.3 |
| delta-BHC | ug/L | 13 | 20 | 16 | 13 J | 18 | 8.4 | 22 | 11 |
| gamma-BHC (Lindane) | ug/L | 11 | 24 | 22 | 13 J | 19 | 7.4 | 40 | 10 |
| Hexachlorocyclohexanes (BHC), Total | ug/L | 65 | 105.8 | 95.2 | 62.9 | 102 | 34.6 | 159 | 54.3 |
| ***General Chemistry*** | | | | | | | | |
| Chloride | mg/L | 541 | 566 | 665 | 518 | 505 | 482 | 640 | 345 |
| Phenolics (Total) | mg/L | 8.8 | 4.1 | 5.0 | 3.2 | 0.015 | 2.6 | 4.5 | 5.6 |
| Total Organic Carbon (TOC) | mg/L | 42.4 | 35.8 | 28.7 | 26.2 | 6.5 | 17.3 | 25.2 | 20.4 |
| Total Organic Halides (TOX) | ug/L | 13000 | 10300 | 7890 | 7110 | 11400 | 4060 | 8060 | 6120 |

Notes:
J - Estimated at associated value.
U - Non-detect at associated value.
ug/L - Micrograms per Liter.
mg/L - Milligrams per Liter.

**TABLE 6.5**

**DECANTER NO.2 (OVERBURDEN) ANALYTICAL RESULTS**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| *Sample Location:* | *Overburden* | *Overburden* | *Overburden* | *Overburden* | *Overburden* | *Overburden* | *Overburden* | *Overburden* |
|---|---|---|---|---|---|---|---|---|
| *Sample ID:* | *MD2-501* | *MD2-601* | *MD2-701* | *MD2-0801* | *MD2-0801DL* | *MD3-0801-3DL* | *MD2 0801* | *MD2-901* |
| *Sample Date:* | *05/01/01* | *06/04/01* | *07/03/01* | *08/01/01* | *08/01/01* | *08/01/01* | *08/01/01* | *09/04/01* |
| ***Parameter*** | ***Unit*** | | | | | | | |
| ***Volatiles*** | | | | | | | | |
| 2-Chlorotoluene | ug/L | 1500 | 24 | 520 | - | - | - | 3680 | 3850 |
| 3-Chlorotoluene | ug/L | 38 U | 0.60 U | 12 U | - | - | - | 15.0 U | 3.00 U |
| 4-Chlorotoluene | ug/L | 240 | 11 | 54 | - | - | - | 280 | 283 |
| Monochlorotoluenes (MCT), Total | ug/L | 1740 | 35 | 574 | - | - | - | 3960 | 4133 |
| Monochlorobenzenes (MCB) | ug/L | 220 | 6.7 | 41 | - | - | - | 126 | 117 |
| o-Monochlorobenzotrifluoride | ug/L | 110 | 5.1 | 31 | - | - | - | 125 | 139 |
| m-Monochlorobenzotrifluoride | ug/L | 37 J | 1.4 | 15 | - | - | - | 51.6 | 57.7 |
| p-Monochlorobenzotrifluoride | ug/L | 170 | 7.7 | 52 | - | - | - | 198 | 196 |
| Monochlorobenzotriflourides (MCBTF), Total | ug/L | 317 | 14.2 | 98 | - | - | - | 374.6 | 392.7 |
| ***Semi-Volatiles*** | | | | | | | | |
| 1,2,3-Trichlorobenzene | ug/L | 25 J | 5 J | 6 | - | - | - | 47.7 | 43.7 |
| 1,2,4-Trichlorobenzene | ug/L | 130 | 31 | 24 | - | - | - | 184 | 167 |
| 1,3,5-Trichlorobenzene | ug/L | 56 U | 14 U | 3 U | - | - | - | 15.0 U | 3.00 U |
| Trichlorobenzenes (TCB), Total | ug/L | 155 | 36 | 30 | - | - | - | 231.7 | 210.7 |
| 1,2,3,4-Tetrachlorobenzene | ug/L | 190 | 28 | 32 | - | - | - | 83.3 | 75.6 |
| 1,2,4,5-Tetrachlorobenzene | ug/L | 98 | 14 J | 21 | - | - | - | 33.8 | 36.9 |
| Tetrachlorobenzenes (TTCB), Total | ug/L | 288 | 42 | 53 | - | - | - | 117.1 | 112.5 |
| 2,4,5-Trichlorophenol | ug/L | 400 | 85 | 61 | - | - | - | 171 | 191 |
| Octachlorocyclopentene | ug/L | 190 U | 47 U | 9 U | - | - | - | 3.00 U | 10.0 U |
| ***Pesticides*** | | | | | | | | |
| alpha-BHC | ug/L | 65 | 20 J | 15 | - | - | - | 72.2 | 47.1 |
| beta-BHC | ug/L | 11 | 2.5 J | 2.0 | - | - | - | 9.57 | 5.85 |
| delta-BHC | ug/L | 22 | 5.7 J | 3.9 | - | - | - | 29.4 | 19.8 |
| gamma-BHC (Lindane) | ug/L | 30 | 9.8 J | 6.2 | - | - | - | 26.1 | 19.0 |
| Hexachlorocyclohexanes (BHC), Total | ug/L | 128 | 38 | 27.1 | - | - | - | 137.27 | 91.75 |
| ***General Chemistry*** | | | | | | | | |
| Chloride | mg/L | 454 | 330 | 451 | - | - | - | 390 | 460 J |
| Phenolics (Total) | mg/L | 12.6 | 1.3 | 1.4 | - | - | - | 3.47 | 0.185 |
| Total Organic Carbon (TOC) | mg/L | 63.2 | 11.1 | 15.8 | - | - | - | 28 | 20 |
| Total Organic Halides (TOX) | ug/L | 20900 | 4570 | 6500 | - | - | - | 10500000 | 8190 J |

Notes:
J - Estimated at associated value.
U - Non-detect at associated value.
ug/L - Micrograms per Liter.
mg/L - Milligrams per Liter.

**TABLE 6.5**

**DECANTER NO.2 (OVERBURDEN) ANALYTICAL RESULTS**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| | ***Sample Location:*** | ***Overburden*** | ***Overburden*** | ***Overburden*** |
|---|---|---|---|---|
| | ***Sample ID:*** | ***MD2-1001*** | ***MD2-1101*** | ***MD2-1201*** |
| | ***Sample Date:*** | ***10/01/01*** | ***11/01/01*** | ***12/03/01*** |
| ***Parameter*** | ***Unit*** | | | |
| ***Volatiles*** | | | | |
| 2-Chlorotoluene | ug/L | 39700 J | 669 | 355 |
| 3-Chlorotoluene | ug/L | 3.00 J | 3.00 U | 3.00 U |
| 4-Chlorotoluene | ug/L | 600 J | 60.4 | 74.2 |
| Monochlorotoluenes (MCT), Total | ug/L | 40303 | 729.4 | 429.2 |
| Monochlorobenzenes (MCB) | ug/L | 107 J | 50.0 U | 28.8 |
| o-Monochlorobenzotrifluoride | ug/L | 88.9 J | 46.8 | 52.6 |
| m-Monochlorobenzotrifluoride | ug/L | 35.8 J | 27.7 | 3.00 U |
| p-Monochlorobenzotrifluoride | ug/L | 130 J | 80.7 | 88.4 |
| Monochlorobenzotriflourides (MCBTF), Total | ug/L | 254.7 | 155.2 | 141 |
| ***Semi-Volatiles*** | | | | |
| 1,2,3-Trichlorobenzene | ug/L | 40.6 J | 17.1 | 22.8 |
| 1,2,4-Trichlorobenzene | ug/L | 151 J | 37.3 | 81.2 |
| 1,3,5-Trichlorobenzene | ug/L | 3.00 J | 3.00 U | 3.00 U |
| Trichlorobenzenes (TCB), Total | ug/L | 194.6 | 54.4 | 104 |
| 1,2,3,4-Tetrachlorobenzene | ug/L | 113 | 20.5 | 105 J |
| 1,2,4,5-Tetrachlorobenzene | ug/L | 56.6 | 9.91 | 40.7 J |
| Tetrachlorobenzenes (TTCB), Total | ug/L | 169.6 | 30.41 | 145.7 |
| 2,4,5-Trichlorophenol | ug/L | 178 | 58.3 | 84.2 J |
| Octachlorocyclopentene | ug/L | 10.0 U | 10.0 U | 10.0 UJ |
| ***Pesticides*** | | | | |
| alpha-BHC | ug/L | 35.1 J | 14.3 J | 23.2 J |
| beta-BHC | ug/L | 8.39 J | 4.56 J | 4.33 J |
| delta-BHC | ug/L | 14.4 J | 7.20 J | 9.38 |
| gamma-BHC (Lindane) | ug/L | 16.6 J | 6.15 J | 11.4 J |
| Hexachlorocyclohexanes (BHC), Total | ug/L | 74.49 | 32.21 | 48.31 |
| ***General Chemistry*** | | | | |
| Chloride | mg/L | 340 | 190 J | 120 |
| Phenolics (Total) | mg/L | 0.573 | 0.577 | 0.456 |
| Total Organic Carbon (TOC) | mg/L | 24 | 6.1 | 6.5 |
| Total Organic Halides (TOX) | ug/L | 15300 | 2340 J | 1690 |

Notes:
J - Estimated at associated value.
U - Non-detect at associated value.
ug/L - Micrograms per Liter.
mg/L - Milligrams per Liter.

**TABLE 6.6**

**DECANTER NO.3 (SOURCE CONTROL) ANALYTICAL RESULTS**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| *Sample Location:* | *Source Control* | *Source Control* | *Source Control* | *Source Control* | *Source Control* | *Source Control* | *Source Control* | *Source Control* |
|---|---|---|---|---|---|---|---|---|
| *Sample ID:* | *MD3-0900* | *MD3-01000* | *MD3 - 1100* | *MD3* | *MD3-101* | *MD3-0201* | *MD3-301* | *MD3-401* |
| *Sample Date:* | *09/06/00* | *10/03/00* | *11/01/00* | *12/01/00* | *01/02/01* | *02/15/01* | *03/02/01* | *04/03/01* |
| ***Parameter*** | ***Unit*** | | | | | | | |
| ***Volatiles*** | | | | | | | | |
| 2-Chlorotoluene | ug/L | 1600 J | 1500 | 1200 | 840 | 950 | 270 | 220 | 510 |
| 3-Chlorotoluene | ug/L | 16 U | 8.0 U | 8.0 U | 30 U | 15 U | 6.0 U | 6.0 U | 60 U |
| 4-Chlorotoluene | ug/L | 360 J | 550 | 580 | 430 | 630 | 180 | 130 | 320 |
| Monochlorotoluenes (MCT), Total | ug/L | 1960 | 2050 | 1780 | 1270 | 1580 | 450 | 350 | 830 |
| Monochlorobenzenes (MCB) | ug/L | 120 J | 10 U | 280 | 140 | 20 J | 330 | 190 | 200 |
| o-Monochlorobenzotrifluoride | ug/L | 160 | 130 | 180 | 130 | 16 | 17 | 34 | 180 |
| m-Monochlorobenzotrifluoride | ug/L | 44 | 41 | 46 | 50 | 9.2 J | 6.0 | 9.1 | 50 J |
| p-Monochlorobenzotrifluoride | ug/L | 240 | 160 | 210 | 190 | 250 | 49 | 110 | 310 |
| Monochlorobenzotriflourides (MCBTF), Total | ug/L | 444 | 331 | 436 | 370 | 275.2 | 72 | 153.1 | 540 |
| ***Semi-Volatiles*** | | | | | | | | |
| 1,2,3-Trichlorobenzene | ug/L | 29 | 16 | 16 | 13 J | 12 J | 3 | 4 | 20 |
| 1,2,4-Trichlorobenzene | ug/L | 100 | 91 | 82 | 85 | 72 | 11 | 21 | 94 |
| 1,3,5-Trichlorobenzene | ug/L | 9 U | 10 U | 10 U | 28 U | 14 U | 3 U | 3 U | 11 U |
| Trichlorobenzenes (TCB), Total | ug/L | 129 | 107 | 98 | 98 | 84 | 14 | 25 | 114 |
| 1,2,3,4-Tetrachlorobenzene | ug/L | 150 | 72 | 85 | 94 | 68 | 10 | 19 | 74 |
| 1,2,4,5-Tetrachlorobenzene | ug/L | 56 | 57 | 71 | 78 | 29 | 6 | 7 | 33 |
| Tetrachlorobenzenes (TTCB), Total | ug/L | 206 | 129 | 156 | 172 | 97 | 16 | 26 | 107 |
| 2,4,5-Trichlorophenol | ug/L | 520 | 480 J | 410 J | 430 | 140 | 61 | 47 | 340 |
| Octachlorocyclopentene | ug/L | 19 U | 20 U | 20 U | 93 U | 47 U | 9 U | 9 U | 37 U |
| ***Pesticides*** | | | | | | | | |
| alpha-BHC | ug/L | 62 | 45 | 67 | 38 J | 7.5 | 6.8 | 17 | 53 |
| beta-BHC | ug/L | 59 | 2.5 U | 11 | 3.6 J | 3.4 | 0.91 | 3.0 | 8.4 |
| delta-BHC | ug/L | 17 | 11 | 17 | 8.8 J | 2.4 | 2.3 | 4.3 | 5.6 |
| gamma-BHC (Lindane) | ug/L | 33 | 18 | 30 | 10 J | 2.5 | 2.1 | 8.4 | 19 |
| Hexachlorocyclohexanes (BHC), Total | ug/L | 171 | 74 | 125 | 60.4 | 15.8 | 12.11 | 32.7 | 86 |
| ***General Chemistry*** | | | | | | | | |
| Chloride | mg/L | 502 | 937 | 683 | 746 | 312 | 441 | 452 | 327 |
| Phenolics (Total) | mg/L | 18.7 | 29.0 | 31.0 | 31.6 | 0.0050 U | 2.0 | 0.67 | 3.5 |
| Total Organic Carbon (TOC) | mg/L | 66.8 | 192 | 90.2 | 100 | 4.0 | 14.1 | 6.7 | 24.6 |
| Total Organic Halides (TOX) | ug/L | 14600 | 38600 | 20200 | 18500 | 1110 | 5090 | 2380 | 7810 |

Notes:
J - Estimated at associated value.
U - Non-detect at associated value.
ug/L - Micrograms per Liter.
mg/L - Milligrams per Liter.

**TABLE 6.6**

**DECANTER NO.3 (SOURCE CONTROL) ANALYTICAL RESULTS**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| *Sample Location:* | *Source Control* | *Source Control* | *Source Control* | *Source Control* | *Source Control* | *Source Control* | *Source Control* | *Source Control* |
|---|---|---|---|---|---|---|---|---|
| *Sample ID:* | *MD3-501* | *MD3-601* | *MD3-701* | *MD3 0801* | *MD3-901* | *MD3-1001* | *MD3-1101* | *MD3-1201* |
| *Sample Date:* | *05/01/01* | *06/04/01* | *07/03/01* | *08/01/01* | *09/04/01* | *10/01/01* | *11/01/01* | *12/03/01* |
| ***Parameter*** ***Unit*** | | | | | | | | |
| ***Volatiles*** | | | | | | | | |
| 2-Chlorotoluene ug/L | 270 | 180 | 1700 | 989 | 1170 | 2190 | 1000 J | 347 |
| 3-Chlorotoluene ug/L | 6.0 U | 4.8 U | 30 U | 15.0 U | 3.00 U | 30.0 U | 3.00 U | 3.00 U |
| 4-Chlorotoluene ug/L | 180 | 63 | 620 | 292 | 571 | 357 | 298 | 145 |
| Monochlorotoluenes (MCT), Total ug/L | 450 | 243 | 2320 | 1281 | 1741 | 2547 | 1298 | 492 |
| Monochlorobenzenes (MCB) ug/L | 180 | 28 | 300 | 182 | 338 | 194 | 184 | 193 |
| o-Monochlorobenzotrifluoride ug/L | 81 | 28 | 320 | 148 | 304 | 171 | 166 | 86.5 |
| m-Monochlorobenzotrifluoride ug/L | 27 | 6.7 | 80 | 46.8 | 100 | 56.9 | 52.8 | 28.1 |
| p-Monochlorobenzotrifluoride ug/L | 140 | 36 | 360 | 182 | 366 | 219 | 194 | 109 |
| Monochlorobenzotriflourides (MCBTF), Total ug/L | 248 | 70.7 | 760 | 376.8 | 770 | 446.9 | 412.8 | 223.6 |
| ***Semi-Volatiles*** | | | | | | | | |
| 1,2,3-Trichlorobenzene ug/L | 9 J | 22 | 46 J | 104 | 131 | 70.0 | 74.3 | 53.0 |
| 1,2,4-Trichlorobenzene ug/L | 48 | 120 | 270 | 422 | 524 | 375 | 367 | 177 |
| 1,3,5-Trichlorobenzene ug/L | 14 U | 14 U | 56 U | 15.0 U | 3.00 U | 30.0 U | 3.00 U | 3.00 U |
| Trichlorobenzenes (TCB), Total ug/L | 57 | 142 | 316 | 526 | 655 | 445 | 441.3 | 230 |
| 1,2,3,4-Tetrachlorobenzene ug/L | 49 | 81 | 350 | 265 | 295 | 159 | 44.7 J | 121 J |
| 1,2,4,5-Tetrachlorobenzene ug/L | 26 | 76 | 210 | 114 | 124 | 63.2 | 24.0 J | 66.4 J |
| Tetrachlorobenzenes (TTCB), Total ug/L | 75 | 157 | 560 | 379 | 419 | 222.2 | 68.7 | 187.4 |
| 2,4,5-Trichlorophenol ug/L | 150 | 390 | 510 | 138 | 396 | 115 | 56.3 J | 107 J |
| Octachlorocyclopentene ug/L | 47 U | 47 U | 190 U | 3.00 U | 10.0 U | 10.0 U | 10.0 UJ | 10.0 UJ |
| ***Pesticides*** | | | | | | | | |
| alpha-BHC ug/L | 36 | 56 J | 130 | 154 | 166 | 85.8 | 83.8 | 44.7 J |
| beta-BHC ug/L | 3.5 | 7.6 J | 18 | 17.2 | 16.2 | 9.82 | 9.05 | 4.77 |
| delta-BHC ug/L | 8.9 | 14 J | 39 | 58.2 | 49.2 | 26.4 | 23.1 | 13.5 |
| gamma-BHC (Lindane) ug/L | 16 | 26 J | 67 | 72.7 | 72.7 | 35.3 | 41.0 | 27.5 J |
| Hexachlorocyclohexanes (BHC), Total ug/L | 64.4 | 103.6 | 254 | 302.1 | 304.1 | 157.32 | 156.95 | 90.47 |
| ***General Chemistry*** | | | | | | | | |
| Chloride mg/L | 390 | 781 | 796 | 520 | 790 J | 590 | 500 J | 670 |
| Phenolics (Total) mg/L | 5.1 | 28.8 | 56.5 | 8.97 | 8.29 | 3.29 | 4.74 | 5.21 |
| Total Organic Carbon (TOC) mg/L | 25.8 | 128 | 198 | 28 | 35 | 15 | 17 | 47 |
| Total Organic Halides (TOX) ug/L | 5540 | 24100 | 36500 | 922000 | 8460 J | 5520 | 5060 J | 11700 |

Notes:
J - Estimated at associated value.
U - Non-detect at associated value.
ug/L - Micrograms per Liter.
mg/L - Milligrams per Liter.

**TABLE 6.7**

**MONTHLY CHEMICAL MASS LOADING SUMMARY**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| | *CHEMICAL MASS REMOVED (lbs.)* | | |
|---|---|---|---|
| ***Month*** | ***Bedrock Purge Wells (PWs)*** | ***APL Purge Wells (APWs)*** | ***Overburden Collection System (OBCS)*** |
| Oct-00 | 121 | 0.15 | 4 |
| Nov-00 | 86 | 0.17 | 3 |
| Dec-00 | 93 | 0.14 | 8 |
| Jan-01 | 106 | 0.17 | 14 |
| Feb-01 | 76 | 0.26 | 14 |
| Mar-01 | 96 | 0.24 | 46 |
| Apr-01 | 392 | 0.24 | 17 |
| May-01 | 24 | 0.07 | 23 |
| Jun-01 | 44 | 0.09 | 1 |
| Jul-01 | 63 | 0.11 | 0 |
| Aug-01 | 25 | 0.31 | 2 |
| Sep-01 | 120 | 0.25 | 3 |
| Oct-01 | 82 | 0.17 | 197 |
| Nov-01 | 32 | 0.1 | 3 |
| Dec-01 | 67 | 0.11 | 9 |
| ***Total*** | **1427** | **2.58** | **344** |

**TABLE 7.1**

**NAPL PLUME CONTAINMENT SYSTEM PURGE WELLS NAPL/APL RATIO TEST RESULTS SUMMARY**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| | *Test No. 1* | | | *Test No. 2* | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | *Volume (gallons)* | | | *Volume (gallons)* | | *NAPL/APL Ratio (% NAPL by Volume of APL)* | *Aproximate Annual Flow Rate (gpm)* | *Estimated Annual NAPL Volume (gallons)* |
| *Well I.D.* | *Date (Time)* | *APL* | *NAPL* | *Date (Time)* | *APL* | *NAPL* | | | |
| PW-1U | August 7, 2001 (15 min.) | 50 | Sheen | - | - | - | 0.000000 | 0.30 | 0 |
| PW-1L | September 21, 2001 (15 min.) | 300 | 0.25 | - | - | - | 0.000833 | 6.80 | 2,978 |
| PW-2UR | September 21, 2001 (60 min.) | 300 | 3.50 | - | - | - | 0.011667 | 1.10 | 6,745 |
| PW-2M | September 19, 2001 (10 min.) | 300 | 0 | September 20, 2001 (10 min.) | 300 | 0 | 0.000000 | 24.00 | 0 |
| PW-2L | August 7, 2001 (80 min.) | 300 | 0 | August 13, 2001 (30 min.) | 300 | 0 | 0.000000 | 1.30 | 0 |
| PW-3M | August 14, 2001 (25 min.) | 300 | 8.00 | - | - | - | 0.026667 | 0.30 | 4,205 |
| PW-3L | August 13, 2001 (18 min.) | 300 | 0 | August 14, 2002 (20 min.) | 300 | 0 | 0.000000 | 4.40 | 0 |
| PW-4U | September 11, 2001 (45 min.) | 200 | 1 | - | - | - | 0.005000 | 0.70 | 1,840 |
| PW-4M | September 11, 2001 (25 min.) | 300 | 0.001 | - | - | - | 0.000003 | 0.40 | 1 |
| PW-5UR | September 19, 2001 (25 min.) | 300 | 0 | September 20, 2001 (35 min.) | 300 | 0 | 0.000000 | 3.10 | 0 |
| PW-6UR | September 6, 2001 (22 min.) | 250 | 0 | September 7, 2001 (30 min.) | 250 | 0 | 0.000000 | 2.00 | 0 |
| PW-6MR | September 6, 2001 (25 min.) | 300 | 0 | September 7, 2001 (20 min.) | 300 | 0 | 0.000000 | 3.00 | 0 |
| | | | | | | | | | 15,769 |

**TABLE 8.1**

**MONITORING WELL INSPECTION SURVEY SUMMARY**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| *Well I.D.* | *Sounded Depth (ft. BTOC)* | *Installed Depth (ft. BTOC)* | *NAPL Present* | *Road Box* | *Grout Seal* | *Lid/ Center Bolt* | *Expandable Cap* | *Lid 9/16 Bolts* | *Protective Casing* | *Labeled* | *Last Development Date* | *How Identified* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***OMW Wells*** | | | | | | | | | | | | |
| OMW-1 | 8.27 | 9.07 | N | G | G | N | G | N | G | G | | W |
| OMW-2 | 6.04 | 6.89 | N | G | G | N | G | N | G | G | | W |
| OMW-3 | 9.75 | 13.77 | N | G | G | N | G | N | G | G | | W |
| OMW-4R | 15.52 | 17.88 | N | G | G | N | G | N | G | G | | W |
| OMW-5R | 13.35 | 11.83 | N | G | G | N | G | N | G | G | | W |
| OMW-6 | 7.64 | 8.27 | N | G | G | R | G | N | G | G | | W |
| OMW-7 | 13.77 | 14.59 | N | G | G | N | G | N | G | G | | W |
| OMW-8R | 18.62 | 20.94 | N | G | G | N | G | N | G | G | | W |
| OMW-8R2 | 18.92 | | N | G | G | N | G | N | G | G | | W |
| OMW-9 | 14.14 | 15.67 | N | G | G | N | G | N | G | G | | W |
| OMW-10 | 14.11 | | N | G | G | N | G | N | G | G | | W |
| OMW-10R | 15.56 | 17.19 | N | G | G | N | G | N | G | G | | W |
| OMW-11R | 13.52 | | N | G | G | N | G | N | G | G | | W |
| OMW-12R | 8.60 | 9.75 | N | G | G | N | G | N | G | G | | W |
| OMW-13R | 15.01 | 13.63 | N | G | G | N | G | N | G | G | | W |
| OMW-14R | 8.99 | 13.21 | N | G | G | N | G | N | G | G | | W |
| OMW-15 | 7.42 | 5.94 | N | G | G | N | G | N | G | G | | W |
| OMW-16R | 7.96 | 9.16 | N | G | G | N | G | N | G | G | | W |
| ***PMW Wells*** | | | | | | | | | | | | |
| PMW-1U | 62.73 | 64.76 | N | N | G | N | G | G | G | G | | W |
| PMW-1M | 91 | 93.17 | N | N | G | N | G | G | G | G | | W |
| PMW-1L | 112.34 | 114.71 | Y | N | G | N | G | G | G | G | | W |
| PMW-2U | 49.8 | 54.19 | N | N | G | G | G | N | G | G | | W |
| PMW-2M | 83.55 | 95.13 | N | N | G | G | G | N | G | G | | W |
| PMW-2L | 112.34 | 126.59 | Y | N | G | N | N | N | G | G | | W |
| PMW-3U | 49.16 | 50.20 | Y | N | G | N | G | N | G | G | | W |
| PMW-3M | 105.35 | 108.87 | Y | N | G | N | G | N | G | G | | W |
| PMW-3L | 124.62 | 128.01 | N | N | G | N | G | N | G | G | | W |
| PW6UMR | 102.25 | | N | N | G | N | N | N | G | G | | W |

**TABLE 8.1**

**MONITORING WELL INSPECTION SURVEY SUMMARY**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| *Well I.D.* | *Sounded Depth (ft. BTOC)* | *Installed Depth (ft. BTOC)* | *NAPL Present* | *Road Box* | *Grout Seal* | *Lid/ Center Bolt* | *Expandable Cap* | *Lid 9/16 Bolts* | *Protective Casing* | *Labeled* | *Last Development Date* | *How Identified* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***AFW Wells*** | | | | | | | | | | | | |
| AFW-1U | 27.71 | 28.54 | N | G | G | G | G | N | G | G | | W |
| AFW-1M | 53.8 | 55.13 | N | G | G | G | G | N | G | G | | W |
| AFW-1L | 79.32 | 80.31 | N | G | G | G | G | N | G | G | | W |
| AFW-2U | 55.38 | 59.19 | N | G | G | G | G | N | G | G | | W |
| AFW-2M | 86.18 | 87.13 | N | G | G | G | G | N | G | G | | W |
| AFW-2L | 103.20 | 105.03 | N | G | G | G | G | N | G | G | | W |
| AFW-3U | 46.22 | 47.70 | N | G | G | G | G | N | G | G | | W |
| AFW-3M | 82.30 | 83.36 | N | G | G | G | G | N | G | G | | W |
| AFW-3L | 107.46 | 105.53 | N | G | G | G | G | N | G | G | | W |
| ***AGW Wells*** | | | | | | | | | | | | |
| AGW-1U | 52.57 | 54.74 | N | G | G | N | G | N | G | G | | W |
| AGW-1M | 92.93 | 96.16 | N | G | G | N | G | N | G | G | | W |
| AGW-1L | 114.78 | 115.32 | N | G | G | N | G | N | G | G | | W |
| AGW-2U | 66.00 | 66.44 | DIESEL | G | G | N | G | N | G | G | | W |
| AGW-2M | 105.05 | 108.69 | N | G | G | N | G | N | G | G | | W |
| AGW-2L | 132.04 | 133.24 | N | G | G | N | G | N | G | G | | W |
| AGW-3U | 65.00 | 72.33 | N | G | G | N | G | N | G | G | | W |
| AGW-3M | 127.5 | 128.1 | N | G | G | N | G | N | G | G | | W |
| AGW-3L | TAR | 148.43 | N | G | G | N | G | N | G | G | | W |
| ***IFW Wells*** | | | | | | | | | | | | |
| IFW-1 | 14.7 | | N | G | G | G | G | G | G | G | | W |
| IFW-2 | 199.10 | | N | G | G | N | G | N | G | G | | W |
| IFW-3 | BLOCKED | | | | | | | | | | | W |
| IFW-4 | 61.1 | | N | N | G | R | G | N | G | G | | W |
| IFW-5 | 240 | | N | G | G | N | G | N | G | G | | W |
| IFW-6 | BLOCKED | | | | | | | | | | | |
| IFW-7 | 181.4 | | N | G | G | N | G | N | G | G | | |

**TABLE 8.1**

**MONITORING WELL INSPECTION SURVEY SUMMARY**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| *Well I.D.* | *Sounded Depth (ft. BTOC)* | *Installed Depth (ft. BTOC)* | *NAPL Present* | *Road Box* | *Grout Seal* | *Lid/ Center Bolt* | *Expandable Cap* | *Lid 9/16 Bolts* | *Protective Casing* | *Labeled* | *Last Development Date* | *How Identified* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***CMW Wells*** | | | | | | | | | | | | |
| CMW-1OB | 13.55 | | N | G | G | N | G | G | G | G | | W |
| CMW-1SH | 18.02 | | N | G | G | N | G | G | G | G | | W |
| CMW-2OB | 17.82 | | N | G | G | N | G | G | G | G | | W |
| CMW-2SH | 40.28 | | N | G | G | N | G | G | G | G | | W |
| CMW-3OB | 15.90 | | N | G | G | N | G | G | G | G | | W |
| CMW-3SH | 36.15 | | N | G | G | N | G | G | G | G | | W |
| CMW-4OB | 6.99 | | N | G | G | N | G | G | G | G | | W |
| CMW-4SH | 17.80 | | N | G | G | N | G | G | G | G | | W |
| CMW-5OB | 6.78 | | N | G | G | N | G | G | G | G | | W |
| CMW-5SH | 28.00 | | N | G | G | N | G | G | G | G | | W |
| CMW-6OB | 2.20 | | N | G | G | N | G | G | G | G | | W |
| CMW-6SH | 18.70 | | N | G | G | N | G | G | G | G | | W |
| CMW-7OB | 3.89 | | N | G | G | N | G | G | G | G | | W |
| CMW-7SH | 23.30 | | N | G | G | N | G | G | G | G | | W |
| CMW-8OB | 3.23 | | N | G | G | N | G | G | G | G | | W |
| CMW-8SH | 10.76 | | N | G | G | N | G | G | G | G | | W |
| CMW-9OB | 1.54 | | N | G | G | N | G | G | G | G | | W |
| CMW-9SH | 11.53 | | N | G | G | N | G | G | G | G | | W |
| CMW-11SH | 15.62 | | N | G | G | N | G | G | G | G | | W |
| CMW-11OB | 2.99 | | N | G | G | N | G | G | G | G | | W |
| CMW-12SH | 40.30 | | Y | G | G | N | G | G | G | G | | W |
| CMW-12OB | 21.60 | | N | G | G | N | G | G | G | G | | W |
| ***Bloody Run Wells*** | | | | | | | | | | | | |
| BR-1 | 35.13 | | N | G | G | N | G | N | G | G | | W |
| BR-2 | 39.04 | | N | G | G | N | G | N | G | G | | W |
| BR-3 | 36.86 | | N | G | G | N | G | N | G | G | | W |
| BR-4 | 34.42 | | N | G | G | N | G | N | G | G | | W |

**TABLE 8.1**

**MONITORING WELL INSPECTION SURVEY SUMMARY**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| *Well I.D.* | *Sounded Depth (ft. BTOC)* | *Installed Depth (ft. BTOC)* | *NAPL Present* | *Road Box* | *Grout Seal* | *Lid/ Center Bolt* | *Expandable Cap* | *Lid 9/16 Bolts* | *Protective Casing* | *Labeled* | *Last Development Date* | *How Identified* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***ABP Wells*** | | | | | | | | | | | | |
| ABP-1 | 45.83 | | N | G | G | N | G | N | G | G | | W |
| ABP-2 | 47.76 | | N | G | G | N | G | N | G | G | | W |
| ABP-3 | 58.70 | | N | G | G | N | G | N | G | G | | W |
| ABP-4 | 57.90 | | N | G | G | N | G | N | G | G | | W |
| ABP-5 | 57.77 | | N | G | G | N | G | N | G | G | | W |
| ABP-6 | 52.27 | | N | G | G | N | G | N | G | G | | W |
| ABP-7 | 61.33 | | N | G | G | N | G | N | G | G | | W |
| ABP-8 | 57.74 | | N | G | G | N | G | N | G | G | | W |
| ***OEW Wells*** | | | | | | | | | | | | |
| OEW-1 | NAPL | | Y | G | G | N | N | N | G | G | | W |
| OEW-2 | NAPL | | Y | G | G | N | N | N | G | G | | W |
| OEW-3 | NAPL | | Y | G | G | N | N | N | G | G | | W |
| OEW-4 | NAPL | | Y | G | G | N | N | N | G | G | | W |
| OEW-5 | NAPL | | Y | G | G | N | N | N | G | G | | W |
| OEW-6 | NAPL | | Y | G | G | N | N | N | G | G | | W |
| OEW-7 | NAPL | | Y | G | G | N | N | N | G | G | | W |
| OEW-33 | NAPL | | Y | G | G | N | N | N | G | G | | W |
| OEW-35 | NAPL | | Y | G | G | N | N | N | G | G | | W |
| ***NAPL PLUME CONTAINMENT SYSTEM MONITORING WELLS*** | | | | | | | | | | | | |
| A2U | 51.47 | | N | N | G | N | G | G | G | G | | W |
| AIU | 56.10 | | Y | G | G | N | G | N | G | G | | W |
| B1U | 56.50 | 59.6 | N | G | G | N | G | N | G | G | | W |
| B1M | 81.92 | 84.81 | N | G | G | N | G | N | G | G | | W |
| B1L | 100.10 | 106.54 | N | G | G | N | G | N | G | G | | W |
| B2U | 48.70 | 51.27 | N | G | G | N | G | N | G | G | | W |
| B2M | 74.57 | 74.96 | N | G | G | N | G | N | G | G | | W |
| B2L | 97.34 | 98.38 | N | G | G | N | G | N | G | G | | W |
| BC3U | 52.20 | 54.68 | N | G | G | N | G | G | G | G | | W |
| BC3M | 85.66 | 87.41 | N | G | G | G | G | N | G | G | | W |
| BC3L | 100.50 | 106.38 | N | G | G | N | G | G | G | G | | W |
| C1U | 55.08 | 57.56 | N | G | G | N | G | N | G | G | | W |

**TABLE 8.1**

**MONITORING WELL INSPECTION SURVEY SUMMARY**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| *Well I.D.* | *Sounded Depth (ft. BTOC)* | *Installed Depth (ft. BTOC)* | *NAPL Present* | *Road Box* | *Grout Seal* | *Lid/ Center Bolt* | *Expandable Cap* | *Lid 9/16 Bolts* | *Protective Casing* | *Labeled* | *Last Development Date* | *How Identified* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C1M | 80.40 | 84.04 | N | G | G | N | G | N | G | G | | W |
| CD4U | 41.1 | | N | N | G | N | G | G | G | G | | W |
| C1L | 85.20 | 105.76 | N | G | G | N | G | N | G | G | | W |
| C2U (ABP-6) | 52.27 | 55.11 | N | G | G | N | G | N | G | G | | W |
| C2M | 78.55 | 79.8 | N | N | G | R | G | N | G | G | | W |
| C2L | 94.36 | 100.71 | N | N | G | G | G | N | G | G | | W |
| CD1L | 106.83 | | N | N | G | N | G | G | G | G | | W |
| CD1M | 85.4 | | N | N | G | N | G | G | G | G | | W |
| CD1U | 63.3 | | Y | N | G | N | R | G | G | G | | W |
| CD2M | 91.55 | | N | G | G | N | G | N | G | G | | W |
| CD3U | 61.78 | | N | G | G | N | G | N | G | G | | W |
| D1U | 50.10 | 50.69 | N | G | G | N | G | G | G | G | | W |
| D1M | 84.97 | 85.63 | N | N | G | G | G | G | G | G | | W |
| D1L | 103.47 | 109.67 | N | N | G | N | G | G | G | G | | W |
| D2U | 47.51 | 47.71 | N | N | G | G | G | G | G | G | | W |
| D2M | 85.22 | 85.80 | N | N | G | G | G | G | G | G | | W |
| D2L | 108.10 | 109.52 | N | N | G | G | G | N | G | G | | W |
| D3U | 46.00 | | N | N | N | N | N | N | G | G | | W |
| D4L | 111.95 | | N | N | G | N | G | N | G | G | | W |
| D5L | 117.25 | 119.50 | N | N | G | N | G | G | G | G | | W |
| E1U | 54.50 | 55.92 | N | G | G | N | G | N | G | G | | W |
| E1M | 91.11 | 95.95 | N | G | G | N | G | N | G | G | | W |
| E1L | 120.87 | 121.29 | N | G | G | N | G | N | G | G | | W |
| E2U | 43.45 | 48.17 | N | G | G | N | G | N | G | G | | W |
| E2M | 77.10 | 89.49 | N | G | G | N | G | N | G | G | | W |
| E2L | 115.00 | 117.48 | N | G | G | N | G | N | G | G | | W |
| E3M | 92.63 | 93.93 | N | N | G | N | G | G | G | G | | W |
| E3L | 118.90 | | N | N | G | G | G | N | G | G | | W |
| F1U | 61.54 | 64.71 | N | N | G | G | G | N | G | G | | W |
| F1M | 108.70 | 110.28 | N | N | G | G | G | N | G | G | | W |
| F1L | 134.00 | 134.12 | N | G | G | N | R | N | G | G | | W |
| F2U | 41.70 | 60.37 | N | N | G | G | G | N | G | G | | W |
| F2M | 98.40 | 101.22 | N | N | G | G | G | N | G | G | | W |
| F2L | 126.10 | 126.53 | N | N | G | G | G | N | G | G | | W |

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| *Well I.D.* | *Sounded Depth (ft. BTOC)* | *Installed Depth (ft. BTOC)* | *NAPL Present* | *Road Box* | *Grout Seal* | *Lid/ Center Bolt* | *Expandable Cap* | *Lid 9/16 Bolts* | *Protective Casing* | *Labeled* | *Last Development Date* | *How Identified* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1U | 71.10 | 71.53 | N | G | G | N | G | N | G | G | | W |
| G1M | 125.77 | 126.48 | N | G | G | N | G | N | G | G | | W |
| G1L | 147.50 | 148.93 | N | G | G | N | G | N | G | G | | W |
| G2U | 68.10 | 68.77 | N | N | G | N | R | G | G | G | | W |
| G2M | 121.77 | 122.77 | N | N | G | G | G | N | G | G | | W |
| G2L | 138.00 | 140.85 | N | N | G | G | G | N | G | G | | W |
| JH1L | 144.10 | | N | G | G | N | G | N | G | G | | W |
| F4U | 55.95 | 58.97 | N | N | G | N | G | G | G | G | | W |
| F4M | 103.10 | 103.82 | N | N | G | N | G | G | G | G | | W |
| F4L | 119.10 | 125.46 | N | G | G | N | G | N | G | G | | W |
| F5UR | 56.00 | 58.50 | DIESEL | N | G | N | G | G | G | G | | W |
| F3L | 122.10 | | N | N | G | G | G | N | G | G | | W |
| GHIU | 38.1 | | N | G | G | N | R | G | G | G | | W |
| E4U | 57.69 | 59.75 | N | N | G | N | G | G | G | G | | W |
| E4M | 87.88 | 99.78 | N | N | G | N | G | G | G | G | | W |
| E4L | 117.04 | 119.57 | N | N | G | N | G | G | G | G | | W |
| E5U | 49.11 | | N | N | G | N | G | G | G | G | | W |
| G3U | 61.57 | 65.44 | N | G | G | N | G | N | G | G | | W |
| G3M | 121.78 | 127.76 | N | G | G | N | G | N | G | G | | W |
| G3L | 148.51 | | N | G | G | N | G | N | G | G | | W |
| G4U | 52.10 | | N | G | G | N | G | N | G | G | | W |
| G5U | 63.40 | | N | G | G | N | N | N | N | G | | W |
| G5L | 131.50 | | N | G | G | N | G | G | G | G | | W |
| H1U | 55.45 | 58.73 | N | G | G | N | G | N | G | G | | W |
| H1M | 120.07 | 129.34 | N | G | G | N | G | N | G | G | | W |
| H1L | 143.16 | 144.94 | N | G | G | N | G | N | G | G | | W |
| H2U | 50.6 | 58.10 | N | G | R | N | G | N | G | G | | W |
| H2M | 126.09 | 128.97 | N | G | R | N | G | N | G | G | | W |
| H2L | 149.17 | 152.37 | N | G | G | N | G | N | G | G | | W |
| H3U | 66.20 | 73.35 | Y | G | G | N | G | N | G | G | | W |
| H3L | 137.18 | 140.05 | N | G | G | N | G | N | G | G | | W |
| H4L | 133.38 | 135.69 | N | G | G | N | G | N | G | G | | W |
| HT-1 | 23.96 | | N | G | G | N | G | N | G | G | | W |
| HT-2 | 37.10 | | N | G | G | N | G | N | G | G | | W |

**TABLE 8.1**

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**2001 ANNUAL REPORT**

| *Well I.D.* | *Sounded Depth (ft. BTOC)* | *Installed Depth (ft. BTOC)* | *NAPL Present* | *Road Box* | *Grout Seal* | *Lid/ Center Bolt* | *Expandable Cap* | *Lid 9/16 Bolts* | *Protective Casing* | *Labeled* | *Last Development Date* | *How Identified* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HT-3 | 12.08 | | N | G | G | N | G | N | G | G | | W |
| J1U | 44.32 | 47.36 | N | G | G | N | G | N | G | G | | W |
| J1M | 100.40 | 90.19 | N | G | G | N | G | N | G | G | | W |
| J1L | 122.5 | 125.48 | N | G | G | N | G | N | G | G | | W |
| J2U | 45.34 | 47.58 | N | G | G | N | G | N | G | G | | W |
| J2M | 97.48 | 103.18 | N | G | G | N | G | N | G | G | | W |
| J2L | 127.25 | 127.23 | N | G | G | N | G | N | G | G | | W |
| J3U | 46.92 | | Y | G | G | N | G | N | G | G | | W |
| J3L | 121.60 | 122.70 | N | G | G | N | G | N | G | G | | W |
| J4L | 122.10 | 122.64 | N | G | G | N | G | N | G | G | | W |
| PPW2M | 92.10 | | N | N | G | N | N | N | G | G | | W |
| PW5UR | 52.72 | | Y | N | G | N | N | N | G | G | | W |
| PW6U | 51.40 | | N | N | G | N | N | N | G | G | | W |
| | | | W | | | | | | | | | |

Notes:

R Replace.
P Poor Condition.
G Good Condition.
Y Yes
N No
W Well Label
* No Repairs Required, Well to be Replaced.
Indicates Well to be Repaired.

**TABLE 9.1**

**SEMI-ANNUAL MANHOLE INSPECTION**
**HYDE PARK RRT PROGRAM**
**2001 ANNUAL REPORT**

| *Manhole I.D.* | *Integrity* | *Security* | *Depth to Bottom (feet)* | *Standing Water Height (feet)* | *Notes* |
|---|---|---|---|---|---|
| ***EBCS*** | | | | | |
| 1 | OK | OK | 10 | 0 | NAPL Odor Present |
| 2 | OK | OK | 12.1 | 0.7 | NAPL Present on Bottom |
| 3 | OK | OK | 21.5 | 0.2 | |
| 4 | OK | OK | 17.8 | 1 | Sludge Present on Bottom |
| 5 | OK | OK | 19.4 | 0.5 | Sludge Present on Bottom |
| 6 | OK | OK | 12 | 0.1 | Sludge Present on Bottom |
| 7 | OK | OK | 12.5 | 0.1 | Clear Water |
| 8 | OK | OK | 20.1 | 1 | Clear Water |
| 9 | OK | OK | 25 | 0.2 | Sludge Present on Bottom |
| 10 | OK | OK | 19 | 0.025 | Clear Water |
| 11 | OK | OK | 12.2 | 0.4 | Mud and Sludge |
| 12 | OK | OK | 13.2 | 0.1 | Sludge Present on Bottom |
| 13 | OK | OK | 6.5 | 0.5 | Sludge Present on Bottom |
| 14 | OK | OK | 12.5 | 0.2 | Slight NAPL Odor and Sludge on Bottom |
| 15 | OK | OK | 17.2 | 1 | Sheen on Water, NAPL Odor, Sludge |
| 16 | OK | OK | 8.85 | 3.5 | Clear Water |
| 18 | OK | OK | 20 | 1.5 | Clear Water, Sheen, NAPL Odor |
| ***OBCS*** | | | | | |
| 20 | OK | OK | 4.8 | 0.6 | Clear Water |
| 21 | OK | OK | 6 | 0.2 | Clear Water |
| 22 | OK | OK | 6.8 | 0.4 | Clear Water |
| 23 | OK | OK | 11 | Dry | |
| 24 | OK | OK | 9.8 | 1 | Clear Water |
| 25 | OK | OK | 8.4 | 0 | Sludge Present on Bottom |
| 26 | OK | OK | 9 | 0.6 | Clay Present on Bottom |
| 27 | OK | OK | 10 | 0.3 | Sludge Present on Bottom |
| 28 | OK | OK | 17 | 2.2 | Clear Water |
| 29 | OK | OK | 15.9 | 0.8 | Sludge, NAPL present, Odor |
| 30 | OK | OK | 10 | 0.2 | Sludge, NAPL present, Odor |
| 31 | OK | OK | 9.8 | 0.7 | NAPL 3-inches |
| 32 | OK | OK | 9.9 | 1 | NAPL 1-inch |
| 33 | NO | OK | 8 | 0.6 | 6-inch Collar Broken, NAPL on Bottom |
| 34 | NA | NA | NA | NA | Blocked, could not access |
| 35 | OK | OK | 6.8 | 0.5 | Clear Water |
| 35A | OK | OK | 7.3 | 0.2 | Clear Water |
| 38 | OK | OK | 8 | 1 | Clear Water |
| ***Wet Wells*** | | | | | |
| A | OK | OK | 11.5 | 5 | NAPL Present |
| C | OK | OK | 18.5 | 4.5 | Clear Water |
| D | OK | OK | 22 | 5 | Clear Water, Sludge on Bottom |

Notes:
NAPL Non-Aqueous Phase Liquid.

FIGURES

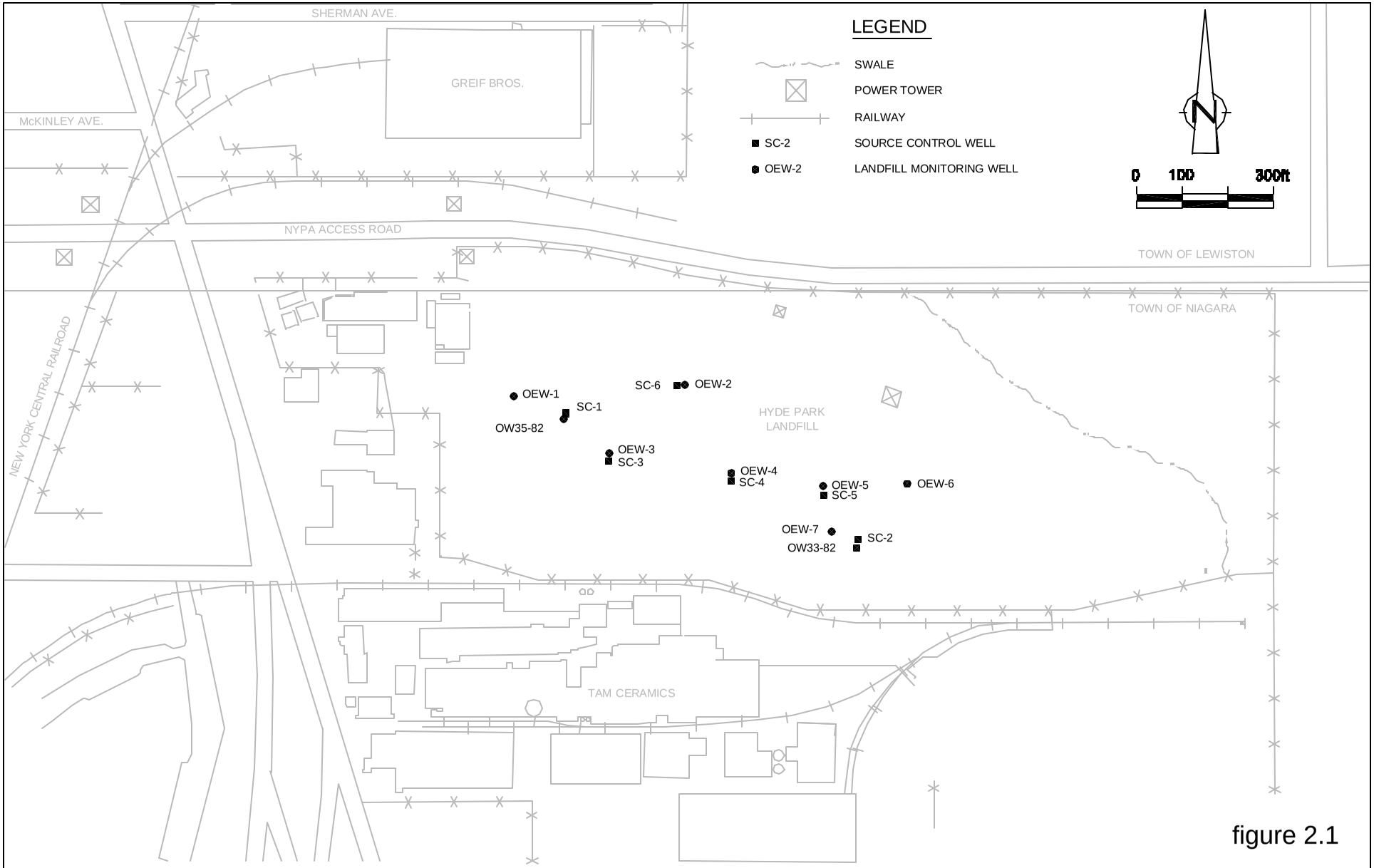


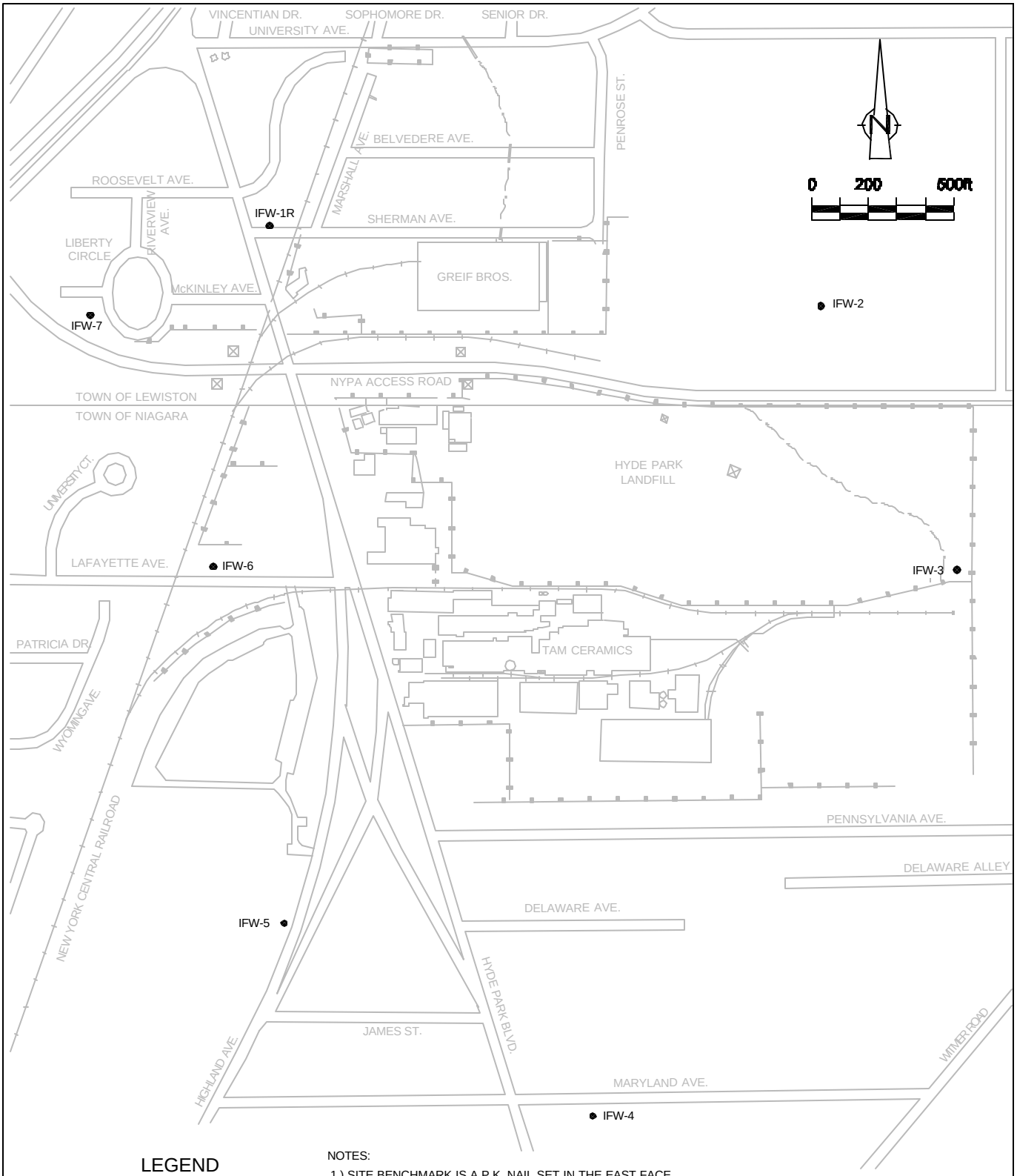

figure 2.1

SOURCE CONTROL SYSTEM WELL LOCATION
HYDE PARK RRT PROGRAM
***Hyde Park Landfill Site***

NOTES:

1.) SITE BENCHMARK IS A P.K. NAIL SET IN THE EAST FACE OF A POWER POLE LOCATED AT THE WEST END OF THE EXISTING HYDE PARK LANDFILL, ELEVATION = 612.77. DATUM NOT VERIFIED.

01069-20(303)GN-NF001 MAY 24/2002




LEGEND

- SWALE
- POWER TOWER
- RAILWAY
- IFW-2 INTERMEDIATE FORMATIONS WELL

NOTES:

1.) SITE BENCHMARK IS A P.K. NAIL SET IN THE EAST FACE OF A POWER POLE LOCATED AT THE WEST END OF THE EXISTING HYDE PARK LANDFILL, ELEVATION = 612.77. DATUM NOT VERIFIED.

figure 3.1

# IFW MONITORING WELL LOCATION MONITORING PROGRAM STATUS HYDE PARK RRT PROGRAM

***Hyde Park Landfill Site***

01069-20(303)GN-NF002 MAY 24/2002

DEVIL'S HOLE STATE PARK

GF-S21

200'

GF-S8

GF-S5

GF-S6

GF-S7

NIAGARA RIVER

ACCESS ROAD

LOWER ACCESS ROAD

GF-S1

8

GF-S16

7

6

GF-S2

GF-S17

GF-S14

GF-S11

FENCE

BLOODY RUN

5

4

GF-S3

GF-S18

BLOODY RUN CULVERT

3

GF-S4

2

GF-S20

GF-S19

1

GF-S12

GUARD HOUSE

ROBERT MOSES GENERATING STATION

ROBERT MOSES PARKWAY

LIBERTY CIRCLE

RIVERVIEW AVE.

ROOSEVELT AVE.

HYDE PARK BOULEVARD

VINCENTIAN DR.

UNIVERSITY AVE.

LEWISTON ROAD

MARSHALL AVE.

CRA

0 100 200ft

LEGEND

- FLOWING SEEP
- WET AREA
- COMBINED FLOWING & WET AREA
- FORMER WET AREA
- 2 CULVERT

figure 4.1

GORGE SEEP LOCATIONS
NIAGARA RIVER GORGE FACE REMEDIATION
HYDE PARK RRT PROGRAM
***Hyde Park Landfill Site***

01069-20(303)GN-NF003 MAY 24/2002

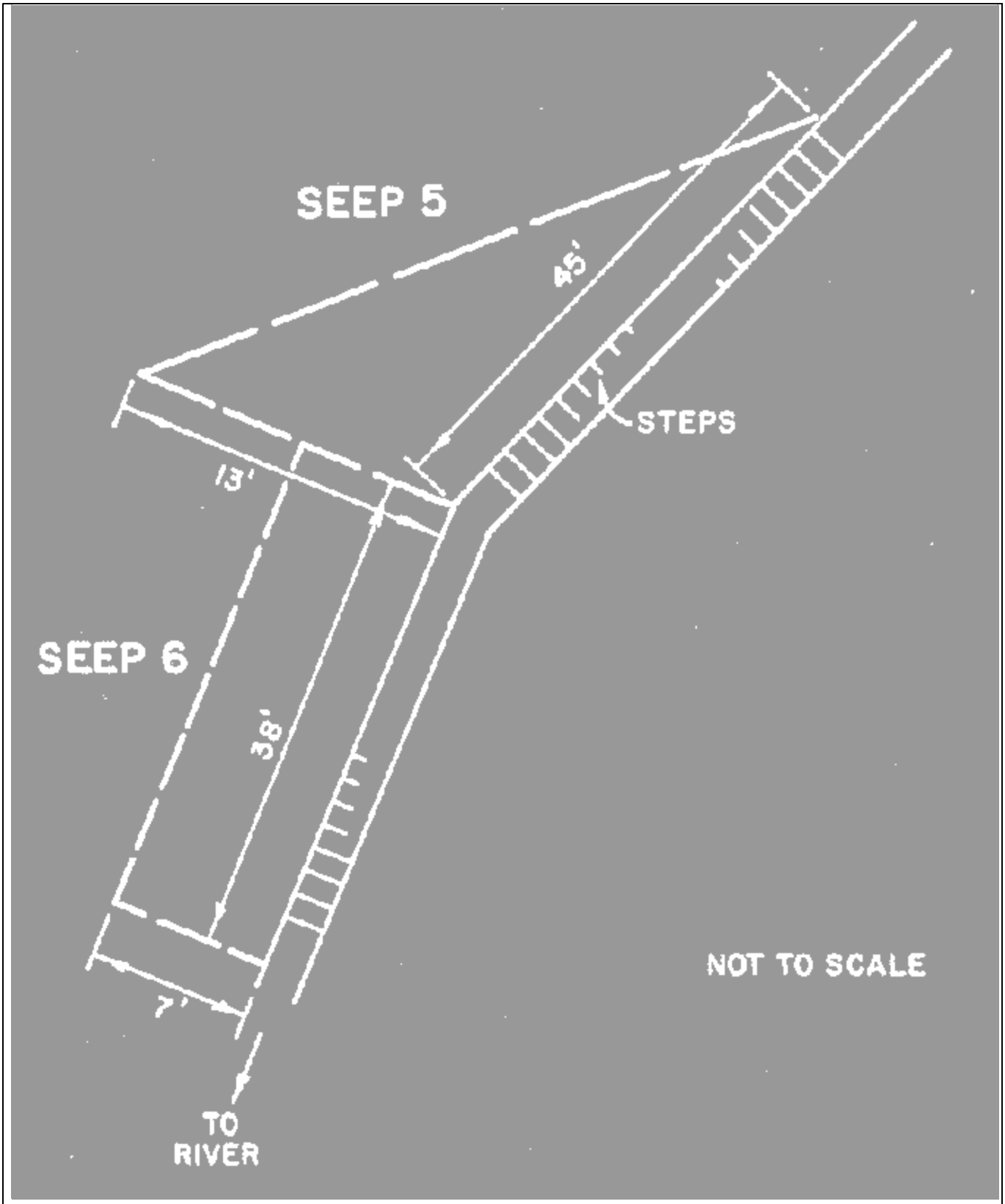
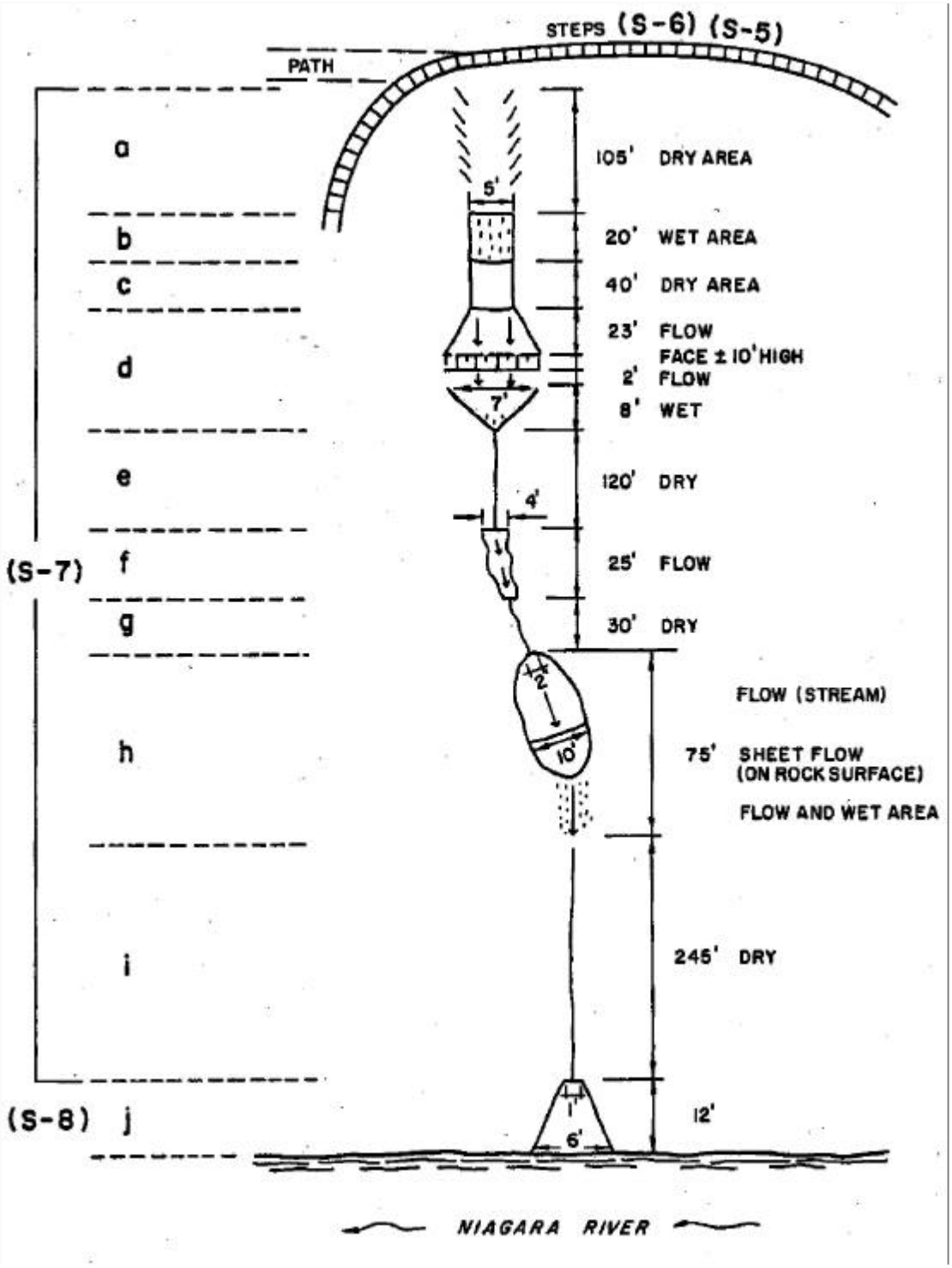



figure 4.2

SEEPS 5 AND 6
HYDE PARK RRT PROGRAM
***Hyde Park Landfill Site***




N

N.T.S.

figure 4.3

SEEPS 7 AND 8
HYDE PARK RRT PROGRAM
*Hyde Park Landfill Site*

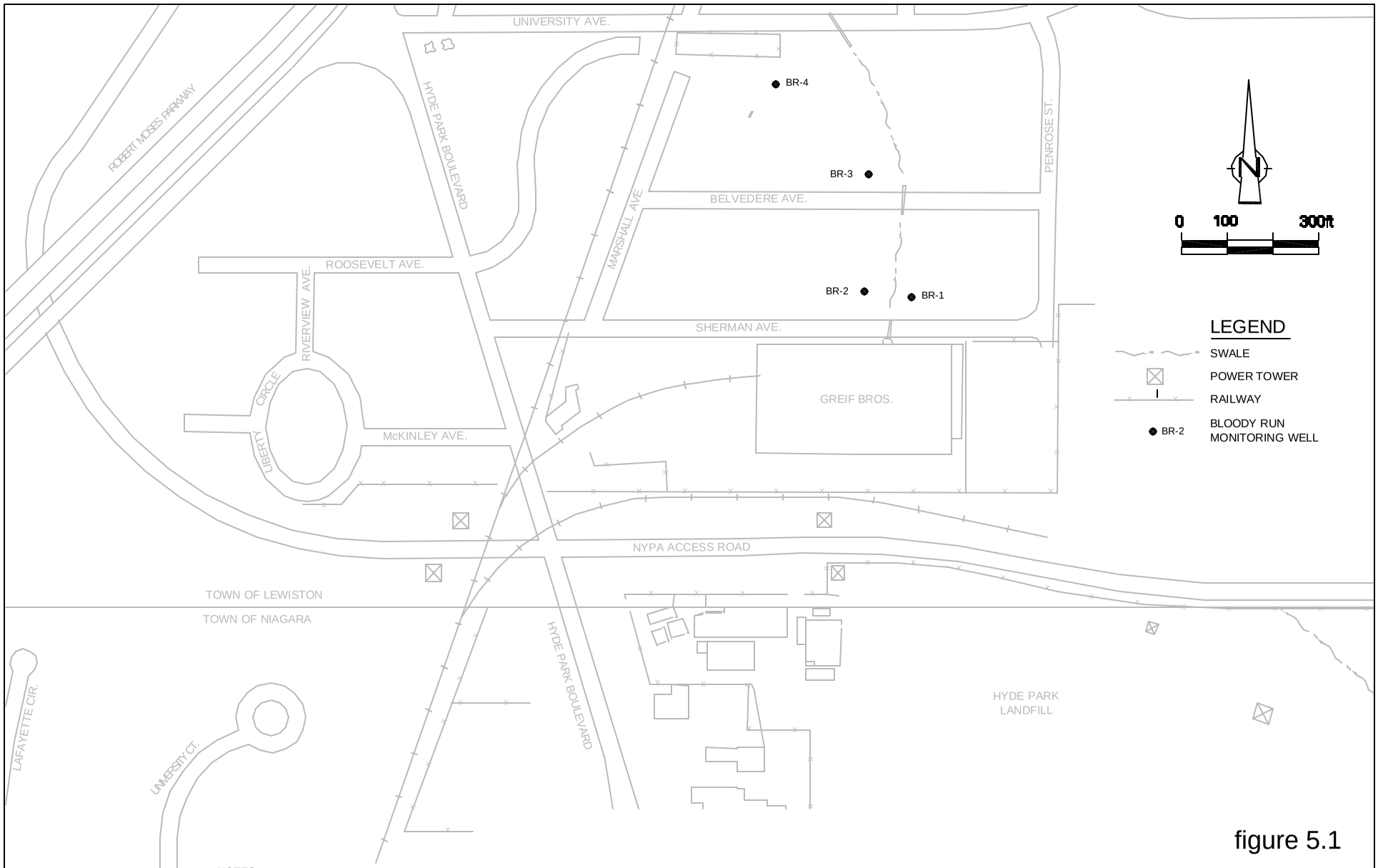


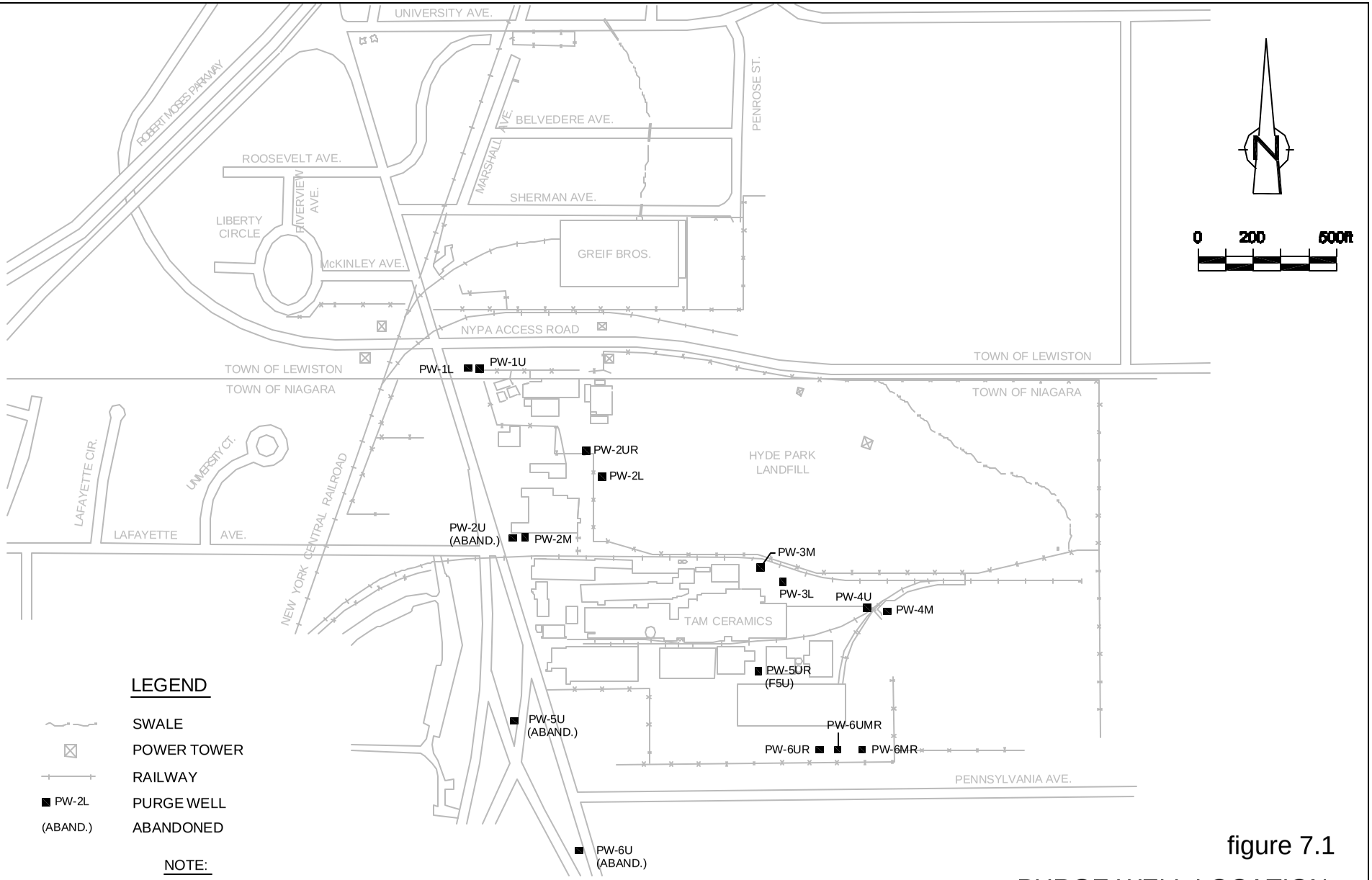

figure 5.1

# BLOODY RUN MONITORING WELL LOCATION
# HYDE PARK RRT PROGRAM
## *Hyde Park Landfill Site*

NOTES:

1.) SITE BENCHMARK IS A P.K. NAIL SET IN THE EAST FACE OF A POWER POLE LOCATED AT THE WEST END OF THE EXISTING HYDE PARK LANDFILL, ELEVATION = 612.77. DATUM NOT VERIFIED.

01069-20(303)GN-NF006 MAY 24/2002




NOTE:

SITE BENCHMARK IS A P.K. NAIL SET IN THE EAST FACE OF A POWER POLE LOCATED AT THE WEST END OF THE EXISTING HYDE PARK LANDFILL, ELEVATION = 612.77. DATUM NOT VERIFIED.

figure 7.1

# PURGE WELL LOCATION
# HYDE PARK RRT PROGRAM
## *Hyde Park Landfill Site*

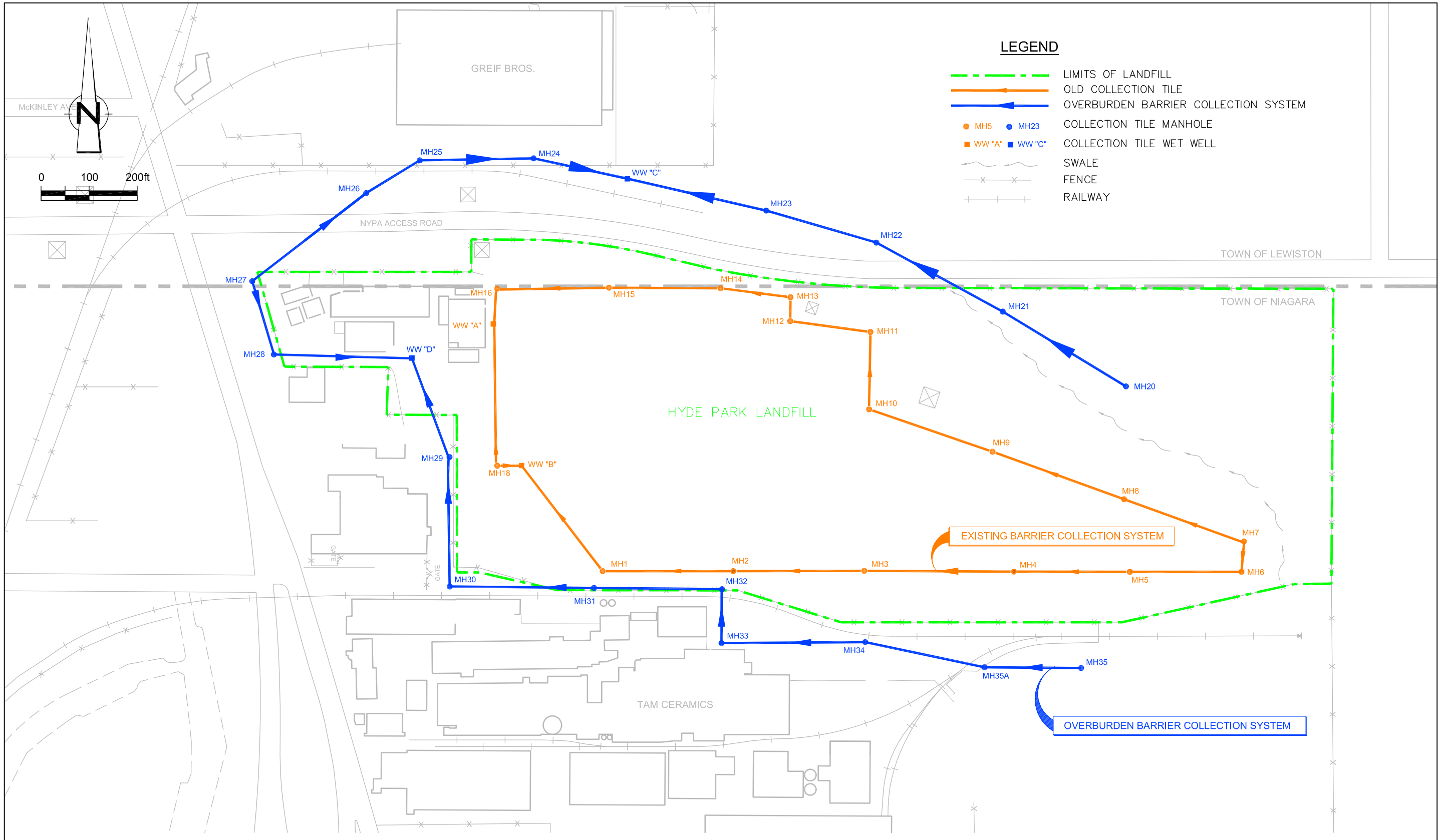



figure 9.1

MANHOLE LOCATIONS
HYDE PARK LANDFILL SITE
*Miller Springs Remediation Management*

01069-20(303)GN-NF008 JUL 29/2002

# APPENDIX A

# QUARTERLY NAPL ACCUMULATION

**APPENDIX A**

**MONTHLY NAPL ACCUMULATION**
**HYDE PARK RRT PROGRAM**

| | *NAPL Volume Per Decanter* | | | *Manually Recovered NAPL* | | *NAPL Removed* | | | | *Disposed Total Shipped* |
|---|---|---|---|---|---|---|---|---|---|---|
| | *1* | *2* | *3* | | | *Decanter* 1 | 2 | 3 | *Total* | |
| | *(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 | 30 | | 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 | 4,512 | 3,132 | 1,316 | 0 | | 0 | 0 | 0 | 0 | 0 |
| Aug-01 | 3,760 | 3,132 | 1,316 | 0 | | 0 | 0 | 0 | 0 | 0 |
| Sep-01 | 4,512 | 3,384 | 1,504 | 38 | (2) | 0 | 0 | 0 | 0 | 0 |
| 3rd Quarter | 1,632 | 128 | 0 | 38 | | 0 | 0 | 0 | 0 | 0 |
| Oct-01 | 2,162 | 3,290 | 1,252 | - | | - | - | - | - | - |
| Nov-01 | 0 | 1,628 | 1,252 | - | | 2,162 | 1,662 | - | 3,824 | - |
| Dec-01 | 0 | 1,628 | 1,252 | 1 | (3) | - | - | - | - | - |
| 4th Quarter | 0 | 0 | 0 | 1 | | 2,162 | 1,662 | 0 | 3,824 | 3,824 |
| | | | *Year to Date:* | 69 | | 2,666 | 2,166 | 504 | 5,336 | 5,336 |

Notes:

Manual Recoveries:

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

(2) September 15: CD1U 8.0 gals; and PMW-3U 30.0 gals.

(3) December 06: CD1U 1.0 gals.