MILLER SPRINGS REMEDIATION MANAGEMENT, INC.

ANNUAL MONITORING REPORT – 2002

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 semiannually or annually.

This report presents the monitoring data collected during the 12-month period between January 1, 2002 and December 31, 2002 for the programs which are conducted at annual and semiannual frequencies. 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); and

viii) Annual Monitoring Well Inspection (Section 8.0).

This report has been prepared for Miller Springs Remediation Management, Inc. (MSRMI), 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 is 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 MSRMI 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*
SC-2 and -4	01-10-02	27 gallons
SC-2, -3 and -4	02-14-02	27 gallons
SC-2, -3, and -4	03-14-02	41 gallons
SC-2, -3, and -4	05-30-02	36 gallons
SC-2 and -4	06-25-02	27 gallons
SC-2, -3, and -4	10-09-02	45 gallons
SC-2, -3, and -4	12-10-02	34 gallons

Note: SC well pumping is based on hydraulic recovery in each of the wells. SC-5 and SC-6 did not recover from previous pumping to sufficient levels for pumping between January 2002 and December 2002. All flow from the SC system was measured from individual in-line flow meters during the 2002 reporting period. A total of 237 gallons of liquid were removed, an increase of approximately 74 gallons from the 2001 monitoring period.

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. The determination of the NAPL/APL ratio is conducted by pumping each well dry, once per day on

3 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 3-day period between August 19 and August 21, 2002. The NAPL/APL Ratio Field Sample/Purge Records are attached in Appendix A of this report. The results of the individual well NAPL/APL ratio determinations for 2002 are presented below:

Extraction Well	***Total Volume Extracted (gallons)***	***APL Volume (gallons)***	***NAPL Volume (gallons)***	***% NAPL***
SC-2	11.5	3.5	8	70
SC-3	27	8.5	18.5	68.5
SC-4	29	10.8	18.2	62.8
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 Bimonthly Volume***	***Approximate Extrapolated Annual Total***
SC-2	8	8	48
SC-3	18.5	18.5	111
SC-4	18.2	18.2	109
SC-5	-	-	-
SC-6	-	-	-
		Total:	**268**

The measured total volume of liquid collected by the SC system of 237 gallons (assumed to consist entirely of NAPL) and the volume of NAPL manually removed during the NAPL/APL ratio testing of 44.7 gallons represents a total of 281.7 gallons of NAPL collected by the SC System during the 2002 annual monitoring period. During the 2001 annual monitoring period, the NAPL/APL ratio testing predicted that 283.8 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 SC wells, it is anticipated that the wells will be pumped once every 2 months. Assuming a yield equivalent to the recovery during the NAPL/APL Ratio Test, approximately 268 gallons of NAPL are expected to be recovered from the Source Control System during 2003. 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 2002 annual monitoring period. During 2002, four water level monitoring events were conducted (January through April). The measured water level elevations indicate groundwater table fluctuations beneath the landfill of approximately 0.1 foot. Historical water level data dating back to 1992 are presented on the enclosed CD under the file name, OEW.pdf. It is evident from the historic water level data and monitoring well construction details that the combination of capping of the landfill and pumping from the SC wells has dewatered 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 state, "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 2 to 4 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 12, 2002, 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 file name, IFW.pdf. As required by established protocols, IFW-5 was purged to dryness on 3 consecutive days. Sample collection was completed on August 15 and 20, 2002. The sample was submitted for analysis of the following parameters:

APL Plume Flux Parameters	***Sample Volume***	***Survey 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 2002 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 (21 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. The next Intermediate Formations sampling round (IFW-5) will be conducted in August 2003.

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 MSRMI, 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 17, 2002 consisted of:

- Gerry Pietraszek - NYSDEC;
- Rick Passmore – GSHI;
- Stephanie Baker – GSHI;
- Martin Derby – TAMS / Earth Tech Consultants (for EPA);
- Tamara Hauptfleisch - TAMS / Earth Tech Consultants (for EPA);
- Bob Green - MSRMI;
- Steve Sayko – Services Environmental (for GSHI);
- Matt Forcucci - New York State Department of Health (NYSDOH);
- Jim Thornton - CRA (for MSRMI); and
- Jon Williams - CRA (for MSRMI).

The weather was warm (~87°F), humid, with clear skies.

4.1 SEEP AND CULVERT SURVEY RESULTS

During the survey, all of the seep / wet areas identified during previous surveys were reexamined, and a reevaluation 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 8 culverts, as well as the Garfield Street Outfall Sewer and the Bloody Run outlet, were visited and inspected for changes in flow versus previous inspections and exposed wet areas. Descriptions of the observations from each seep and culvert are listed in the following summaries of survey results.

Due to vegetation and rock covering large portions of Seep 7, this seep is no longer composed of nine distinct parts (labeled a through i). Therefore, the summary has combined areas of this seep together under common descriptions.

Odor is only mentioned in the following summary if the seep or culvert exhibited an odor in the past or during the 2002 inspection. If odor is not mentioned, it had not been indicated in the past and was not present at the time of this inspection.

SEEP SURVEY RESULTS

Seep No.	*Description*	*Notes*
1	Dry, sparse vegetation, seep basin is clear and dry, 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 14, 2002 ND for all parameters. No fence present. Same as 2001.
2 (Ditch Line)	No odor, green moss, heavy vegetation. More talus in ditch than in 2001.	Low flow from Seep 2 into Culvert 6.
3 (Top)	Very heavy phragmities reeds on north and south sides of Bloody Run concrete box culvert. Drier than normal.	Fenced.
3 (Bottom) (Culv. 5)	Heavy vegetation, seep basin is clear. Standing water in basin (deepest portion) at Bloody Run Culvert.	Remediated.
4	Flowing water (7 to 10 gpm), heavy vegetation, no odor. Ninety feet south of south wall of Seep 4, heavy vegetation to Seep 4, face of Medina is dry. Ditch line is dry.	Fence in place.
5	Damp rock face, occasional light dripping (upper area) (see Figure 4.2).	Remediated. Same as 2001.
6	Damp rock face (lower area) (see Figure 4.2).	Remediated. Same as 2001.
7a, b	Covered with local rock, heavy vegetation.	Remediated.
7c	Some exposed channel flow between rocks.	Remediated.

Seep No.	*Description*	*Notes*
7d	Wet and flowing (~40 to 50 gpm) over top of Irondequoit (waterfall), no odor.	Sampled August 14, 2002 ND for all parameters (ND in 1999, 2000, and 2001).
7e, f, g, h, i	Flowing water beneath rocks, heavy vegetation. Some exposed channel flow.	No action required.
8	No flow, heavy vegetation, no odor. Same as 2001.	No action required.
11a	Inlet area at water's edge covered with local rock, sediment infilling.	Remediated. Same as 2000 and 2001.
11b	Dry (south of south Bloody Run fence).	Same as 2000 and 2001.
12	Steady flow out of culvert from NYPA south tunnel, ~40–50 gpm, no odor. Heavy algae in pipe.	Sampling not required in 2002.
14	North - approximately 80 to 100 feet south of south fence line of Seep 3, wet face on Reynales approximately 10 feet wide, water originates from Irondequoit / Reynales contact.	No action required.
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.	Same as 2000 and 2001.
17a	North - area approximately 150 feet north of north wall of Seep 2, now dry at Irondequoit / Reynales contact.	No action required.
17b	South - totally dry.	No action required.
18	0 to 75 feet north of north wall of Seep 3. Vegetation on damp rock face (Upper Grimsby), but no flowing water. Ditch line dry.	18a and b consolidated into one seep in 2001.
19	Approximately 120 feet south of south end of wing wall, Queenston / Whirlpool rock face dry. No visible flow in ditch, some vegetation.	No action required.

Seep No.	*Description*	*Notes*
20	Area 80 to 100 feet north of north fence line of Seep 4 at base of Grimsby Sandstone down into the Power Glen Shale. Presently damp.	No action required.
21	Area 375 feet south of Seep 7 (Devil's Hole stairs) by river, dry.	Remediated. Same as 2001.
Bloody Run	No visible flow. Slight intermittent odor. Heavy talus.	Area fenced along shoreline and upslope. Fence in good condition. Rock continuing to pile up against fence.

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 buried. No odor. Outlet has heavy vegetation dripping with wet face, moss, no odor.	No action required.
3	Inlet is open. Dry soil. Outlet is dry.	No action required.
4	Inlet is open and dry. Outlet is dry. No flow.	No action required.
5	Inlet is open. Standing water, no flow. Outlet has standing water, no visible flow. 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 and 2001.
7	Dry, no flow, inlet buried, heavy vegetation at outlet. Not actually observed due to heavy vegetation.	No action required. Same as 2000.
8	Inlet and outlet clear and dry.	No action required.
Garfield Avenue Sewer	No flow at exposed original outlet, typical sewer odor, continual caving into former archway (Whirlpool Sandstone). Standing water in pipe.	No action required. Additional washouts since 1998. Parks Department 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

Two (2) seeps identified as No. 2 and No. 7d were sampled on August 14, 2002 and analyzed for the APL Plume Definition Parameters. The analytical results for these samples are presented in Table 4.1. No APL Plume Flux Parameters were detected in the seep samples.

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 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, semiannually in 1995 and 1996, and annually thereafter. Sampling continues to be performed on an annual basis. The following subsections present the analytical data collected during the 2002 annual sampling event.

5.1 GROUNDWATER SAMPLING

The 2002 sampling event was conducted on August 7, 2002. During this event, a total of five samples were collected. The samples collected included all four groundwater well samples and one duplicate sample. A summary of all samples collected is presented in Table 5.1.

The monitoring wells were purged using a submersible pump following measurement of static water levels. 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.

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 Plume Containment System;

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

iii) RRT OBCS (Off-Site System);

iv) SC System; and

v) Decanters.

6.1 APL PLUME CONTAINMENT SYSTEM

Operation of the APL Plume Containment System commenced on March 3, 1997. Monitoring data have been provided previously 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 13, 2002. The analytical results are summarized in Table 6.1. The reported concentrations are comparable to those observed during the 2001 monitoring period.

6.3 RRT OBCS (OFF-SITE SYSTEM)

The sampling frequency for the OBCS was reduced from semiannual to annual in 1998. Samples were collected from Wet Wells C and D on August 13, 2002. 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 during the 2001 monitoring period 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 are 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; and
- Decanter No. 3 Source Control System.

Note that Decanter No. 1 was not sampled from August through December because it was out of service undergoing maintenance work.

Using the analytical results from the monthly decanter samples (Tables 6.4 through 6.6) and semiannual APW CLMP samples 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 2002 annual reporting period.

It can be seen in 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 1,535 pounds of contaminants removed during the 2002 annual reporting period. The Overburden Collection Systems (OBCS and EBCS) removed a total of 117 pounds of contaminants during the 2002 annual reporting period. Only 0.6 pounds of contaminants were collected by the APL Plume Containment System during the 2002 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 continuing 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 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 4 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 2002 annual purge well NAPL/APL ratio tests were completed during two events, the first between August 19 and August 27, 2002 and the second between November 25 and December 31, 2002.

Seventeen operational wells were initially tested 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 eight wells (PW-1L, PW-2M, PW-5UR, PW-6UR, PW-6MR, PW-7U, PW-8U, and PW-8M). The NAPL/APL Ratio Sample/Purge Records are attached in Appendix A of this report.

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

7.3 CONCLUSIONS AND RECOMMENDATIONS

The 2002 NAPL/APL ratio tests indicated that measurable NAPL volumes were available from 8 of the 17 purge wells tested. The purge wells which produced measurable NAPL volumes during normal operating conditions were PW-1U (0.05 gallons), PW-2UR (1.3 gallons), PW-3M (0.07 gallons), PW-3L (0.04 gallons), PW-4U (0.07 gallons), PW-4M (0.01 gallons), PW-9U (0.03 gallons), and PW-10U (0.01 gallons).

Table 7.1 summarizes this information including the calculated NAPL/APL ratios at each purge well and projected 2003 annual NAPL volumes.

The total projected Bedrock NAPL Plume Containment System NAPL volume from the 2001 Annual Report was approximately 15,769 gallons. Based on manual NAPL level measurements made monthly in Decanters No. 1 and No. 3 over the past year, 2,650 gallons of NAPL were removed from the Bedrock NAPL Plume Containment System in 2002. 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 2002. The inspection results are summarized in Table 8.1. Two wells required minor repairs during the 2002 monitoring period. These repairs were made shortly after the well inspection was completed.