CONESTOGA-ROVERS
& ASSOCIATES

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September 24, 2013

Reference No. 006029-10

Mr. Pablo Valentin
Remedial Project Manager
United States Environmental Protection Agency
77 West Jackson Blvd. (SR-6J)
Chicago, Illinois 60604-3590

Dear Mr. Valentin:

Re: Response to July 2013 Five-Year Review Report
Summit National Superfund Site, Deerfield Township of Portage County, Ohio

Conestoga-Rovers & Associates (CRA), on behalf of the Summit National Facility Trust (SNFT), acknowledges receipt of US EPA's Five-Year Review Report (Report), dated July 2013, for the Summit National Superfund Site (Site) in Deerfield Township of Portage County, Ohio.

US EPA has indicated in the Report that Long-Term Stewardship procedures need to be put in place to assure compliance with the Site's use restrictions. SNFT proposes the following actions to address US EPA's Long-Term Stewardship requirements:

1) On a quarterly basis, SNFT will conduct an inspection of the four Institutional Controls (ICs) shown in Table 6 of the Report (Summary of Institutional Controls for Restricted Areas). The inspection will be noted accordingly on the attached Quarterly Institutional Controls Inspection Report form. Copies of the inspection reports will be filed on-Site.

2) A certification statement by SNFT to US EPA will be included in the annual groundwater monitoring report to acknowledge the ICs and their effectiveness.

3) Per our discussion on August 19, 2013, the use of a communication plan and a one-call system as suggested in the Report is not necessary, given the weekly Site inspections that are being conducted and that the groundwater extraction and treatment system is not operational on the Site.

If there are other requirements that US EPA requires of SNFT following its fourth five-year review, please advise. Otherwise, SNFT considers this response as addressing all required action items presented by US EPA in the Report. Also, SNFT considers that this letter will serve as an addendum to the OMMP and no other documentation of the Long-Term Stewardship requirements is required.

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Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Nicholas J. Schapman

NJS/po/VALE-01
Encl.

cc: Regan Williams, OEPA
Jeff Sussman, SNFT (e-mail)
Joe Montello, SNFT (e-mail)
Robert Casselberry, SNFT (e-mail)
Steve Whillier, CRA (e-mail)

# SUMMIT NATIONAL SUPERFUND SITE

***Quarterly Institutional Controls Inspection Report***

Completed By: _____ Company: D&M Contracting Date: _____

| Areas / Site Components | Acceptable | | Initials | Comments/Observations |
|---|---|---|---|---|
| | Yes | No | | |
| **Institutional Controls** | | | | |
| **Land - On Site**<br>- No filling, grading, excavating, building, drilling, mining, farming or other development on property within the Site was observed. | | | DM | |
| **Groundwater - On Site**<br>- No use, extraction, or development of groundwater on the Site was observed. | | | DM | |
| **Surface Water - On Site**<br>- No use of surface water within the Site was observed. | | | DM | |
| **Other Remedial Action Components**<br>- No inconsistent uses of the Site were observed nor changes to the integrity of the remedial components identified. | | | DM | |

**GENERAL NOTES:**

Environmental Covenant (EC), per the Uniform Environmental Covenants Act (UECA), was recorded with Portage County Ohio Recorder on June 5, 2013.

*E-mail quarterly report to: Nick Schapman, CRA, nschapman@craworld.com* Updated: 9-24-2013

006029-60

# OPERATION, MAINTENANCE AND MONITORING PLAN

## VOLUME I

**Summit National Superfund Site**
**Deerfield Township of Portage County, Ohio**

OCTOBER 1995
REF. NO. 2372 (35)
This report is printed on recycled paper.

CONESTOGA-ROVERS & ASSOCIATES

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# PREFACE

The Operation, Maintenance and Monitoring Plan (OMMP) for the Summit National Superfund Site (Site) presented herein has been finalized after completion of the Remedial Action (RA) implemented at the Site. In the future, the OMMP will be revised on an "as needed" basis to maintain the Summit National Facility Trusts (SNFT) long term requirements for the operation, maintenance and monitoring of the Site's activities. The United States Environmental Protection Agency (USEPA) and Ohio Environmental Protection Agency (OEPA) will be informed of any future changes to the OMMP and organizational structure for the Site.

| Revision | Date | Initial |
|---|---|---|
| 0 | October 1995 | GHK |
| 1 | March 1996 | SAW |
| 2 | May 1996 | SAW |

# 1.0 INTRODUCTION

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# 1.0 INTRODUCTION

## 1.1 BACKGROUND INFORMATION

The Summit National Superfund Site (Site) is located in Deerfield Township of Portage County, Ohio, at the intersection of Ohio Route 225 and U.S. Route 224, approximately 45 miles southeast of Cleveland, Ohio. The location of the Site is illustrated on Figure 1.1. The address for the Site is 8186 US Route 224, P.O. Box 217, Deerfield, Ohio, 44411.

The Site was originally used as a coal strip mine and contained a coal wash pond and coal stockpile. The Site was then used by Donald Georgehoff, Summit National Services and/or Summit National Liquid Disposal Services for the operation of a hazardous waste treatment, recycling, storage and disposal facility.

Prior to implementation of remedial work activities, operations at the Site resulted in uncontrolled releases of hazardous materials. Subsequent Site investigations indicated that there was significant contamination in Site soils, and that groundwater contamination existed both on Site and off Site.

Potentially Responsible Parties (PRPs) entered into negotiations with the United States Environmental Protection Agency (USEPA) and the Ohio Environmental Protection Agency (OEPA) to complete a Remedial Design/Remedial Action (RD/RA) for the Site. The negotiations culminated in an agreement between a group of Settling Defendants and USEPA, which agreement has been incorporated into a Consent Decree. The United States District Court for the Northern District of Ohio, Eastern Division, by Judge David D. Dowd entered the Consent Decree on June 11, 1991, in Civil Action No. C81-1961. Pursuant to the terms of the Consent Decree, the Consent Decree was recorded with the Portage County Recorder in the Portage County Record of Deeds, Volume III, page 780-1140.

The RA implemented at the Site is detailed in the "Statement of Work (SOW) and Appendices to Statement of Work,

Appendix A - Soil Removal and Treatment, Appendix B - Groundwater Extraction System, Appendix C - Site Cover, Appendix D - Groundwater Treatment System, Appendix E - Schedule of Activities, Summit National Superfund Site, Deerfield Township of Portage County, Ohio", dated on December 14, 1989, and included as Appendix B to the Consent Decree.

The RA implemented at the Site is detailed in the reports entitled "Final Design Report, Summit National Superfund Site, Deerfield Township of Portage County, Ohio" dated May 27, 1993 and "Remedial Construction Work Plan, Summit National Superfund Site, Deerfield Township of Portage County, Ohio", dated on May 27, 1993, both of which were approved by USEPA and OEPA on June 22, 1993.

Implementation of the RA and implementation of the long term operation, maintenance and monitoring for the Site requires access onto adjacent properties. All access agreements have been obtained for the properties adjacent to the Site.

## 1.2 PURPOSE AND ORGANIZATION

The purpose of the Operation, Maintenance and Monitoring Plan (OMMP) presented herein is to provide a summary of the operation, maintenance and monitoring requirements for the various components of the RA implemented at the Site. The OMMP is organized in five volumes as follows:

Volume I - Operation, Maintenance and Monitoring Plan

Volume I presents the detailed operation, maintenance and monitoring activities for the Site and is organized as follows:

- Section 1 presents a general introduction to the Site and the purpose and organization of the OMMP;
- Section 2 presents a description of the various remedial action subsystems constructed at the Site for which long-term operation, maintenance and monitoring is required;

- Section 3 presents reference drawings which illustrate the construction features of the various subsystems;
- Section 4 presents the Site organizational structure for operation, maintenance and monitoring requirements;
- Section 5 presents the startup and operation procedures for the groundwater extraction, treatment and discharge subsystems, and various other procedures which are required for the Site;
- Section 6 presents a listing of major equipment items;
- Section 7 presents the Site maintenance requirements;
- Section 8 presents a summary of the Site monitoring requirements;
- Section 9 presents the criteria for the termination of groundwater extraction and treatment systems and the basis for project closeout;
- Section 10 presents the Site Health and Safety Plan;
- Section 11 presents a summary of the reports which document in detail the investigations, remediation programs and construction programs which have been conducted at the Site.

Volume II - Quality Assurance Project Plan

Volume II presents Section 12 of the OMMP and consists of the USEPA and OEPA approved Site Quality Assurance Project Plan, including sampling and analysis procedures for the Site monitoring requirements specified in the Consent Decree.

Volume III - Equipment

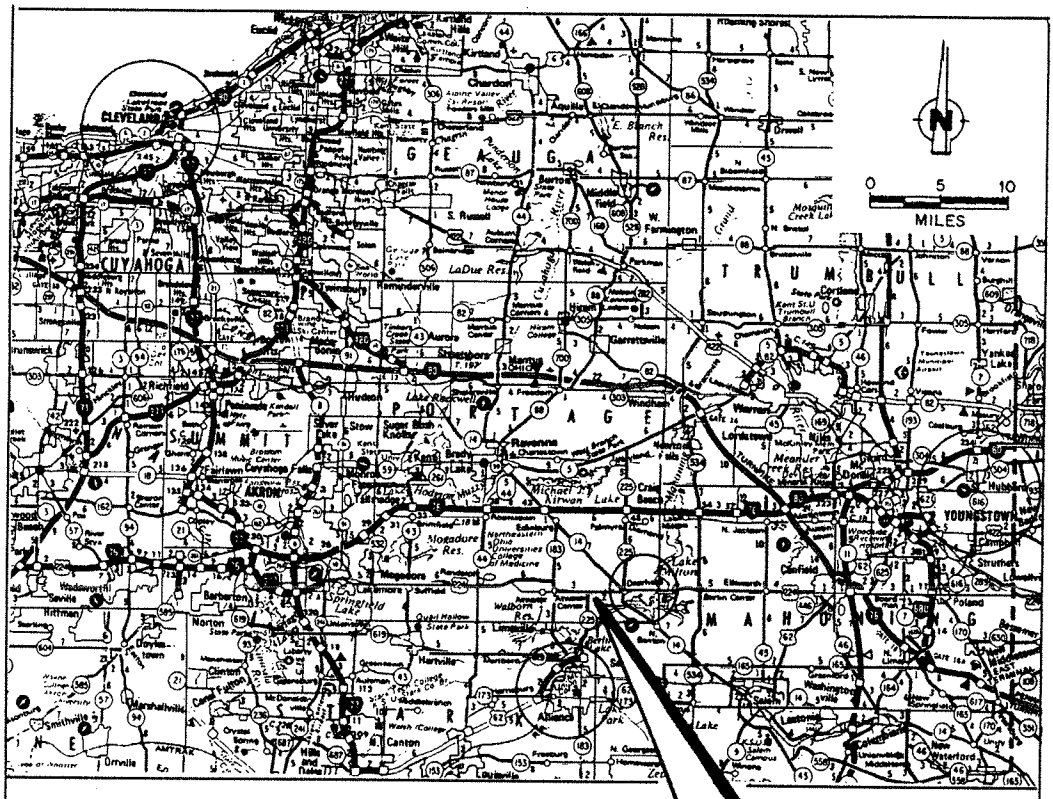
Volume III presents a summary of the vendor information regarding construction, installation, operation and maintenance of the major equipment installed at the Site.

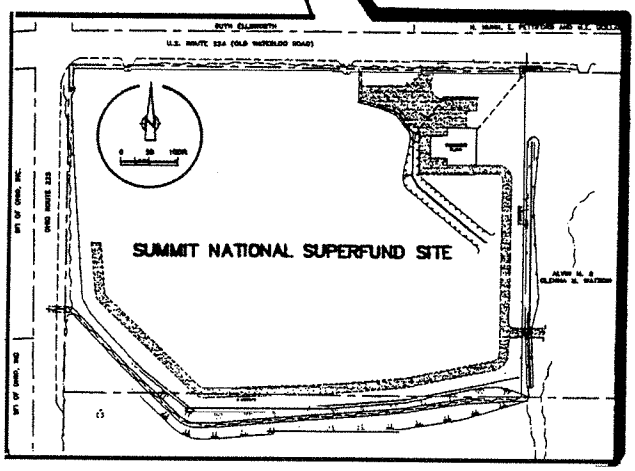
Volume IV - Electrical

Volume IV presents a summary of the vendor information regarding design, operation and maintenance of the major electrical components installed at the Site.

Volume V - Instrumentation

Volume V presents a summary of the vendor information regarding the design, operation and maintenance of the major instrumentation installed at the Site.






SOURCE:
OHIO OFFICIAL TRANSPORTATION MAP, 1987

figure 1.1

SITE LOCATION
SUMMIT NATIONAL SUPERFUND SITE
*Deerfield Township of Portage County, Ohio*

**CRA**

2372 (35) JUNE 15/95(W) REV. 1

# 2.0 DESCRIPTION

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## 2.0 DESCRIPTION

The implemented remedial design and long-term operation, maintenance and monitoring activities are designed to address three major environmental objectives, namely:

- protection and enhancement of the quality of the groundwater and recovery of the natural resource of groundwater in the vicinity of the Site;
- protection of the quality of surface waters in the vicinity of the Site; and
- protection of the public from direct contact with contaminated material on or near the Site, and from the migration of surficial Site contaminants from the Site via surface runoff, wind erosion and volatization.

Implementation of remedial work activities at the Site resulted in the construction of a number of subsystems, which as a whole, are designed to accomplish the above objectives, and which require long-term operation, maintenance and monitoring. These subsystems include the following:

- Groundwater Extraction Subsystem;
- Groundwater Treatment Subsystem;
- Treated Water Discharge Subsystem;
- Computer Subsystem;
- Building Subsystem; and
- Site Cover Subsystem.

A general description of each of the Site subsystems is presented in the following sections. Section 3.0 presents reference drawings which show the construction details for the various subsystems. These reference drawings are referenced in the following descriptions.

Containment and extraction of the groundwater beneath the Site is accomplished by an overburden 6-inch diameter pipe and media groundwater collection drain constructed in the Water Table Unit (WTU). Groundwater collected by the pipe and media drain, drains into a wet well

located approximately mid-way on the pipe and media drain. Groundwater collected in the wet well is pumped through an underground 3-inch diameter High Density Polyethylene (HDPE) forcemain to an on-Site groundwater treatment plant, where the groundwater is treated by aeration, pH adjustment and solids removal, biological degradation (when required), media filtration and liquid phase carbon adsorption. Finally, the treated water is discharged to the surface water drainage ditch at the northeast boundary of the Site. Drawing D-3 illustrates the extent of the groundwater extraction subsystem, the location of the groundwater treatment subsystem and the treated water discharge subsystem layout. Drawing C16 presents the layout of the groundwater treatment subsystem and Drawing C27 presents the process and instrumentation diagram for the groundwater collection and groundwater treatment system.

The Site is covered by a permeable vegetated soil cover within the perimeter security fence, and is graded for stormwater management. The entire Site is secured by a perimeter chain link security fence with three strands of barbed wire across the top.

## 2.1 GROUNDWATER EXTRACTION SUBSYSTEM

The groundwater extraction subsystem for the Site has been designed to provide hydraulic containment and collection of Site-related contaminated groundwater in the Water Table Unit (WTU) at the Site, and consists of the following components:

- a pipe and media groundwater collection drain [design flow 36 gallons per minute (gpm)] located along the southern side of the Site and part way up the east and west sides of the Site for the extraction and collection of groundwater in the WTU, with eight access cleanout manholes (MH1 to MH8) located along the pipe and media drain; and
- one wet well located approximately at the midpoint and lowest point of the pipe and media drain with duplex submersible pumps to pump the groundwater extracted and collected by the pipe and media drain to the on-Site groundwater treatment facility.

### 2.1.1 Pipe and Media Drain

The location of the pipe and media drain and associated manholes and wet well are presented on Drawing D-3. The perforated drain pipe has been positioned as close as possible to the base of the WTU. The minimum slope of the perforated drain pipe is 0.4 percent, ensuring positive drainage to the collection sump in the wet well.

A profile of the groundwater extraction system is shown on Drawing D-5. The bedding material for the perforated drain pipe has a minimum hydraulic conductivity of $1 \times 10^{-2}$ centimeters per second (cm/s). A non-woven, polypropylene filter cloth is wrapped around the perforated drain pipe and encompasses the bedding material.

### 2.1.2 Collection and Transfer System

#### 2.1.2.1 Wet Well Manhole

The groundwater collected in the pipe and media drain pipe flows into a wet well located on the pipe and media drain, as shown on Drawing D-5. Details of the wet well manhole are provided on Drawing D-6. The wet well manhole is constructed of 6-foot diameter precast concrete manhole units with steps, safety landings, and a lockable hinged access door. The base of the wet well is constructed to a total depth of approximately 42 feet below the surrounding ground surface.

#### 2.1.2.2 Wet Well Pumps

The wet well is equipped with two 5 hp electrical submersible pumps. The pumps are rated for 40 to 80 gpm. The duplex pumping system is designed for single or dual pump operation based on the

water level in the wet well and the alternate operation as the lead/lag pump on a weekly basis.

#### 2.1.2.3 Riser Pipe and Pitless Adaptor

Each wet well pump and 2-inch HDPE riser pipe are contained in an 8-inch diameter steel support pipe. The HDPE riser pipe extends to an HDPE to steel adaptor fitting connected to a pitless adaptor. The pitless adaptor allows removal of the pump and riser pipe from the wet well by pulling on a pull rod which connects into the top of the pitless adaptor. The pitless adaptor outlet connects into the discharge pipe header with an O-ring gasket providing a leaktight seal.

#### 2.1.2.4 Discharge Piping

The discharge piping in the wet well consists of two 2-inch diameter discharge lines, one from each wet well pump, converging into a single 3-inch diameter tee fitting connected to the discharge forcemain. Located on the two 2-inch diameter discharge lines, next to the outlets of the pitless adaptors are union fittings followed by flow indicators equipped with electronic flow transmitters and remote reading indicators which display instantaneous flow rates. The flow transmitters also send a signal to the Programmable Logic Controller (PLC) located in the treatment building electrical room for flow rate display on the WEB graphics display system.

Following each flow indicator is a gate valve and union which may be used to isolate the corresponding section of the discharge piping from the discharge forcemain. The two union fittings at each end of the two control piping lines allow for removal and servicing of the control piping components. The two 2-inch control piping lines are connected to a 3-inch tee fitting followed by a steel/HDPE adaptor connected to the HDPE discharge forcemain.

2.1.2.5 Forcemain

Water from the wet well is pumped through a below-grade 3-inch diameter butt-fusion welded HDPE forcemain to the groundwater treatment building as shown on Drawing D-3. The forcemain is installed with generally 3 feet of soil cover, to ensure that the forcemain remains below frost penetration level. The flow is typically discharged at the treatment plant into the Equalization Tank (T2) (see Section 2.2), but can also be by-passed to the carbon adsorbers when placed in the by-pass mode.

2.1.2.6 Electrical Controls

The manholes on the pipe and media drain are equipped with high-level alarm float switches connected to the PLC which is programmed to provide an alarm signal on high water level in the manholes.

The wet well is equipped with a water level sensor/signal transmitter connected to the PLC. The PLC is programmed to provide control of the wet well water level at a set point level of 1.5 feet below the invert of the drain pipe. The lead pump is also started at 1.5 feet below the invert of the pipe drain and the second pump is started when the water level reaches the invert level of the pipe drain. The second pump is shut down when the water level decreases to 1.5 feet below the pipe drain and the lead pump is shut down when the water level decreases to 4.5 feet below the pipe drain.

Control of the flow rate from the wet well is controlled by the process flow control valve located in the GWTS. The wet well is equipped with a high-high level switch which is connected to the PLC and the PLC is programmed to provide an alarm signal at a wet well water level which corresponds to a downgradient hydraulic capture exceedance.

The groundwater wet well system is serviced from the central motor control center (MCC) located in the on-Site treatment plant. Separate 460 volt/3 phase power fed to the two wet well pump motors from

the MCC provides remote and independent operation of the pumps. A separate low-voltage direct burial signal wire system is installed to provide connection between the flow transmitters and liquid level sensors located in the manholes and the wet well. Drawing D-8 shows the layout of the PVC, power, control, and telemetry conduits to groundwater extraction system components.

## 2.2 GROUNDWATER TREATMENT SUBSYSTEM

### 2.2.1 Unit Operations

The groundwater treatment subsystem is comprised of the following unit operations:

- influent control system;
- pH paced caustic addition for pH adjustment;
- equalization/aeration of influent groundwater;
- flow paced polymer addition to aid solids coagulation;
- clarification for solids removal via an inclined plate settler;
- pH paced acid addition for pH adjustment;
- biological treatment for removal of organic compounds (by-passed at organic loadings below 1 mg/L);
- sand filtration for removal of solids;
- bag filter filtration for removal of solids carried over from the sand filter;
- activated carbon filtration for effluent polishing;
- sludge dewatering for removal of solids; and
- compressed air for operation of various pieces of equipment.

Drawing C16 shows the layout of the groundwater treatment subsystem equipment.

During normal operation of the groundwater treatment subsystem, influent groundwater will be treated by the above treatment process. When influent flow rates to the wet well exceed 50 gpm, which may occur during periods of heavy rainfall, a manually settable flow control valve

on the influent control subsystem can be set to direct water through the normal process treatment train for the flow rates of up to approximately 50 gpm, and any additional flow above 50 gpm to a total of 100 gpm can be directed through a partial system by-pass to the carbon adsorber units. The influent control subsystem consists of two automatic control valves and two flow meters as shown on Drawing C16.

The groundwater treatment train unit operations are described in the following sections.

### 2.2.2 Caustic Addition

The caustic addition system is designed to adjust the groundwater influent pH to 8 to 10 using a caustic solution. The pH is adjusted to enhance precipitation of the inorganic solids from the groundwater for subsequent removal by the inclined plate settler (X1).

The caustic addition subsystem is comprised of a 3,000-gallon caustic storage tank (T1) with a 2,500-gallon design operating volume, and a caustic addition metering pump (P1) which adds the caustic solution into the equalization/aeration tank (T2) to mix with the influent extracted groundwater. A pH probe located in the discharge piping from the equalization/aeration tank after pump P2 provides an indication of the pH of the water pumped to the clarifier to facilitate automatic adjustment of the pH.

### 2.2.3 Equalization/Aeration

The groundwater flow from the groundwater extraction subsystem is discharged at the treatment plant into T2 up to a maximum flow rate of 50 gpm. Flows above 50 gpm by-pass T2 to provide a maximum of 50 gpm to the influent flow to the parallel plate settler and the bioreactor. The aeration provided in T2 is designed to remove approximately 90 percent of the chlorinated organic compounds in the groundwater influent.

The E/A subsystem is comprised of T2 which is a 3,800-gallon fibreglass tank with a 3,000-gallon design operating volume, a blower B1 which is 100 cubic foot per minute (cfm), one 2,000-pound vapor phase activated carbon adsorber unit (Cl) which is designed to remove approximately 95 percent of the chlorinated organic compounds in the air flow effluent from T2, and a transfer pump (P2) which discharges water from T2 to the inclined plate settler (X1) unit. A in line basket style strainer with a removable basket is installed prior to P2 to ensure that large solids do not block the P2 impeller.

The flow rate to the X1 is maintained by manual setting of the hand valve located between P2 and X1, and the automatic recycle valve (LV109) located between P2 and T2. A level sensor in T2 is tied in with the treatment plant PLC which controls LV109 to maintain a constant level in the T2 via adjustment of the recycle.

### 2.2.4 Polymer Addition

The polymer addition subsystem is designed to add polymer to the water entering the inclined plate settler to provide for solids coagulation. The polymer subsystem consists of a magnetic flow meter to measure the flow rate to the inclined plate settler, 200-gallon polymer mix tank and a flow paced metering pump.

### 2.2.5 Inclined Plate Settler (X1)

The clarifier subsystem is comprised of a 10 feet x 4 feet x 14 feet high gravity flow inclined plate settler (X1) with a flash mix tank and slow mix coagulation tank X1 contains 125 square feet of fiberglass reinforced plastic plates, and has an air operated diaphragm sludge pump (P11) which pumps settled sludge from X1 to the bottom of the sludge handling tank (T9). The sludge pump on X1 is controlled by manual adjustment of the air pressure regulator for P11 which in turn controls the stroke rate of 11.

The E/A subsystem is comprised of T2 which is a 3,800-gallon fibreglass tank with a 3,000-gallon design operating volume, a blower B1 which is 100 cubic foot per minute (cfm), one 2,000-pound vapor phase activated carbon adsorber unit (Cl) which is designed to remove approximately 95 percent of the chlorinated organic compounds in the air flow effluent from T2, and a transfer pump (P2) which discharges water from T2 to the inclined plate settler (X1) unit. A in line basket style strainer with a removable basket is installed prior to P2 to ensure that large solids do not block the P2 impeller.

The flow rate to the X1 is maintained by manual setting of the hand valve located between P2 and X1, and the automatic recycle valve (LV109) located between P2 and T2. A level sensor in T2 is tied in with the treatment plant PLC which controls LV109 to maintain a constant level in the T2 via adjustment of the recycle.

### 2.2.4 Polymer Addition

The polymer addition subsystem is designed to add polymer to the water entering the inclined plate settler to provide for solids coagulation. The polymer subsystem consists of a magnetic flow meter to measure the flow rate to the clarifier, 200-gallon polymer mix tank and a flow paced metering pump.

### 2.2.5 Inclined Plate Settler (X1)

The clarifier subsystem is comprised of a 10 feet x 4 feet x 14 feet high gravity flow inclined plate settler (X1) with a flash mix tank and slow mix coagulation tank X1 contains 125 square feet of fiberglass reinforced plastic plates, and has an air operated diaphragm sludge pump (P11) which pumps settled sludge from X1 to the bottom of the sludge handling tank (T9). The sludge pump on X1 is controlled by manual adjustment of the air pressure regulator for P11 which in turn controls the stroke rate of 11.

An anionic emulsified polymer is added to the influent to the flash mixing tank. The polymer is flash mixed in the flash mixer to promote coagulation of the precipitated inorganic compounds. The influent continues to flow through the slow mix tank where coagulation takes place. The influent then flows to the settling section of X1.

X1 is designed to remove approximately 60 percent of iron, 40 percent of calcium, 20 percent of magnesium from the extracted groundwater. The effluent water flow from X1 is gravity discharged to surge tank #1 (T4).

### 2.2.6 Acid Addition

The acid addition subsystem is designed to readjust the pH of the clarified water discharged from the X1 to 6.5-7.5 using a hydrochloric acid (HCl) solution. This range of pH is necessary for proper operation of the biotower unit (X2) when X2 is in operation.

The acid addition subsystem is comprised of a 3,000-gallon acid storage tank (T3) with a 2,500-gallon operating volume, an acid metering pump (P4), and a 2,000-gallon surge tank #1 (T4) with a 1,500-gallon operating volume. Effluent from X1 is mixed with the HCl solution which is injected directly into T4.

Two pH sensors, one located in the piping between the X1 and T4, and one located in the discharge piping downstream of P3 serve to monitor the pH and, along with the P4, provide for neutralization of the X1 effluent to pH 7. This readjustment of the pH is necessary during operation of X2.

### 2.2.7 Biotower (X2)

The biotower subsystem is comprised of the following:

- a 20,300-gallon upflow bioreactor with an 18,190-gallon operating volume;
- a 1.5 hp feed pump (P3);
- one 110-gallon potassium phosphate and one 110-gallon ammonium chloride nutrient addition tank (T5 and T6) complete with electric mixers (M1 and M2);
- two biotower nutrient metering pumps (P6 and P7);
- 250-gallon rotary air inoculum addition tank (T7) with an air operated metering pump (P5);
- two 15 hp rotary air blowers (B2 and B3) which deliver 170 cfm during normal operation and 282 cfm during bump cycle;
- one 2,000-pound vapor phase carbon adsorber (C2) for odor control;
- an air operated diaphragm sludge pump (P12); and
- a recirculation pump (P8). The X2 will only be operated when the organics in the groundwater are above 1 part per million (ppm).

P3, pumps water from surge tank #1 (T4), by-passing X2, to the sand filter when X2 is shut down or through the X2 when the X2 is operational.

The X2 is designed to remove approximately 80 percent of the organics and 5 percent of the metals in the influent. P6 and P7 when in operation add 0.1 gpm of nutrient to the influent to X2. Sludge from X2 is pumped by P12 to the sludge handling tank (T9). During startup of X2, or when in recycle mode, the flow in X2 is recirculated P8.

### 2.2.8 Sand Filter (X3)

The continuous backflushing X3 is designed to remove the solids carried over from the X1 when X2 is shut down or biomass carried over from X2 when X2 is operating. In addition, X3 is used to filter the water which is by-passed when the groundwater extraction rate exceeds 50 gpm. X3 has 12 square feet of filtration area. Effluent from the X1, X2 and the process system by-pass enters the bottom of X3, and overflows from X3 by gravity into surge tank #2 (T8). A continuous backwash flow of approximately 5 to

10 percent of the influent flow to X3 exits the top of X3 and gravity flows into the T2 recycling filtered solids to X1.

T8 is a 1,200-gallon polypropylene tank with a 1,100-gallon operating volume. Two 2 hp transfer pumps (P9 and P10) are connected to T8 to pump water from T8 to the liquid phase carbon adsorbers (X4 and X5).

### 2.2.9 Bag Filters

The bag filters subsystem consists of two liquid filter housings and bag filters piped for series or parallel operation. The liquid filter housings are valved for series operation and contain 25 micron and 10 micron polypropylene filter bags for removal of solids.

### 2.2.10 Activated Carbon Adsorbers (X4 and X5)

The aqueous phase activated carbon adsorber subsystem is designed to provide final polishing of the extracted groundwater. The aqueous phase activated carbon adsorber subsystem is comprised of X4 and X5 each containing 20,000 pounds of granular activated carbon. X4 and X5 are connected in series mode and are designed to remove approximately 95 percent of the organics present in the influent as the adsorbers. The adsorbers will provide approximately 100 minutes of retention time at the normal design flow rate of 42 gpm.

The treated water effluent from the carbon adsorber subsystem flows into the 1,200-gallon surge tank #3 (T10) with an operating volume of 1,100 gallons and gravity drains from T10 to the Treated Water Discharge Subsystem. The surge tank by-pass pump (P15) may be used to discharge treated water from T10.

### 2.2.11 Sludge Dewatering

Sludge pumped from X2 by P11, from X3 (when in operation) by P12, and the water collected by the floor drain sump is discharged to the 4,200-gallon holding tank (T9) which has a 3,900-gallon operating volume. One or two times a day, 7 days per week, the sludge in T9 is pumped out using the moyno sludge dewatering pump (P13) which pumps sludge into a bag sludge dewatering unit (X6). In X6 a polyelectrolyte is added to the sludge to aid sludge coagulation and dewatering. The filtered effluent from X6 is discharged into a floor sump (T11) and is pumped by the sump pump (P14) to T2 or T9, depending on the amount of sludge carry-over from the bag dewatering unit.

### 2.2.12 Compressed Air

The compressed air subsystem is comprised of a 60 cubic feet per minute (cfm), 80 psi air compressor (X7), an air dryer and associated compressed air supply lines which supply compressed air to the air operated diaphram sludge pumps, P11, P12 and P13, the sand filter, and the carbon adsorbers (X4 and X5) to assist with carbon removal from the adsorbers. A refrigerated air dryer reduces the dew point of the compressed air to approximately 40°F. The air compressor automatic removes accumulated moisture from the receiver tank and the refrigerated air drier. The moisture removal is pumped to the floor drain sump T11.

## 2.3 TREATED WATER DISCHARGE SUBSYSTEM

Treated effluent from the treatment plant is collected in the 1,100-gallon surge tank #3 (T10). The treated effluent is discharged from T10 through a 6-inch diameter HDPE gravity discharge pipe to a riprap discharge structure located on Site at the northeast boundary of the Site. The treated water flows off Site into a series of existing surface drainage ditches which convey the treated water approximately 1 1/2 miles, discharging to the northwest limit of Berlin Lake.

## 2.4 COMPUTER SUBSYSTEM

### 2.4.1 General

The flow of groundwater from the groundwater extraction system and through the groundwater treatment system is controlled by a programmable logic controller (PLC). A process monitoring computer graphically displays the operations of the plant on a monitor screen located in the Control Room. The computer graphics based display provides a real-time display of the extraction and treatment system operation parameters. The graphics displays for the process unit operations is accessed on the computer screen by entering function keys on the keyboard and also, by using the computer mouse. The graphics display panels are as follows:

| *Function Key* | *Display Panel* |
|---|---|
| F1 | Extraction system |
| F2 | E/A Tank |
| F3 | Inclined Plate Settler and Surge Tank |
| F4 | Bioreactor |
| F5 | Sand Filter and Surge Tank |
| F6 | Sludge Holding Tank/Sludge Dewatering |

The graphics display uses a Full Web Configuration and Run Time Package graphics-based monitoring and control software package developed by Trihedral Engineering Ltd. The PLC, computer and control philosophy is described in the following sections.

### 2.4.2 Program Controller

The programmable controller is a Texas Instruments Series 405 Model 435 including the following:

- 435 CPU Processor - 435 CP4;

- 8 meg memory Cartridge - G-14M;
- 2-Base units 8 slots - U-08B;
- 6-16 point input AC - U-25N;
- 4-8 point relay output - U-01T;
- 4-8 channel analog input - 405-8ADC;
- 3-4 channel analog output - 405-4DAC;
- 1-PID module - 405-PID;
- 1-Power supply - 405-ID EX; and
- 1-TISOFT Programming software

The controller and equipment is mounted in the PLC cabinet located in the Electrical Room.

### 2.4.3 Computer

The process monitoring computer consists of the following components:

- 386 DX-2S Processor;
- 387 DX math co-processor;
- 120 meg hard drive;
- main memory 8 meg;
- SVGA graphics with TRIDENT 8900 c/w 1 meg video memory;
- Enhanced keyboard;
- mouse and drives;
- parallel, 2 serial ports controller card;
- SVGA monitor flat screen 17 inch;
- 3 1/2 inch floppy 1.44 meg;
- 5 1/4 inch floppy 1.2 meg; and
- dot matrix printer.

### 2.4.4 Control Philosophy

Flow through the extraction and treatment system is based on the following:

- water level in the manholes (alarm on high water level);
- water level in wet well (works to maintain water level at a set point level of 1.5 feet below the drain pipe invert);
- automatically adjusted flow rate from each pump in the wet well;
- flow rate through the forcemain to the treatment system;
- a maximum flow rate through the E/A, plate settler and biotower of up to 50 gpm; and
- a manually enabled by-pass for flow rates exceeding 50 gpm to the sand filter and carbon adsorber.

Drawing C27 presents the process and instrumentation diagram for the groundwater extraction and groundwater treatment systems.

### 2.4.5 Process Controls

MH-1, MH-2 and MH-8

High water level switch will alarm during high water level conditions.

MH-3 to MH-7 and Wet Well

High water level switch in each manhole and in wet well will alarm during high water level conditions;

- increasing water level in wet well will start first wet well pump at 1.5 feet below drain pipe invert;
- low water level of 4.5 feet below drain pipe invert in wet well will stop first wet well pump;
- increasing water level in wet well at drain pipe invert will start second wet well pump;
- decreasing water level in wet well at drain pipe invert will stop second pump;

- wet well pumps will start alternately as lead pump after 168 hours of operation;
- flow rate of wet well pumps is automatically set by the automatic process flow control valve located in the treatment plant; and
- instantaneous flow is displayed and flow totalization is recorded in the wet well and the instantaneous flow is displayed on the process monitor.

Treatment System

Flow into the treatment systems is monitored by process flow meter on influent forcemain;

- normal flow rate up to 50 gpm is directed to aeration/equalization tank with manually set system by-pass valve closed; and
- flow rate above 50 gpm manually diverted to system by-pass.

NaOH Addition (T1, P1)

pH of groundwater inflow to treatment system is adjusted in T2 by pumping NaOH into T2 at a constant rate based on the pH at the suction line to P2.

E/A Tank (T2) and Pump (P2)

Level in the tank controls the flow out of the tank by regulating the control valve (LV 109) in the recycle line;

- at low level pump P2 is off and the control valve (LV 109) is fully open;
- as the water level in T2 rises, P2 is turned on with flow initially being recycled back into T2;
- as the water level continues to rise in T2, LV 109 closes directing flow forward to the inclined plate settler (X1); and
- if the water level in T2 continues to rise, a high level alarm is given and if the water level in T2 rises even further the wet well pumps are shut off and will not operate until normal water level in T2 is restored.

Polymer Addition

The addition of polymer is flow paced in accordance with the flow rate to the inclined plate settler. Polymer is mixed in the polymer tank and metered into the influent pipe to the inclined plate settler.

HCl Addition (T3, P4)

pH of water from X1 is monitored and at a high set point of 10 pH the acid metering pump when operational P4 will run to readjust pH to 7.0, only when the biotower is operational;

- a second pH sensor located upstream of the biotower serves to check the pH of the biotower influent and the acid metering pump P4 will operate to further adjust pH to 7.0, as required.

Surge Tank #1 (T4) and Pump (P3)

The water level in the surge tank controls the flow out of T4 by regulating the control valve (LV120) in the recycle line;

- at low level, pump P3 is off and LV120 is fully open;
- as the water level in T4 rises, P3 is turned on with initially flow being recycled back into T4, as the water level in T4 continues to rise, LV120 closes directing flow forward to the bioreactor (X2), or the bioreactor by-pass; and
- if the water level in T4 continues to rise, a high level alarm is given, and if the water level in T4 rises even further, pump P2 is shut off and will not turn on again until the water level in T4 is down to a set point where P3 turns on initially.

Bio-tower (X2)

The bio-tower when in operation overflows by gravity to the sand filter. A high level alarm is initiated on a high water level in the bio-tower.

Surge Tank #2 (T8) and pumps (P9 and P10)

The water level in surge tank #2 (T8) is maintained by regulating the control valve (LV 142) in the recycle line;

- at low level, pumps P9 and P10 are both off, and LV 142 is fully open; and
- as the water level in T8 increased, P9 is started with flow being recycled back into T8;
- as the water level continues to increase, LV 142 closes, directing flow to the activated carbon adsorption units (X4 and X5);
- if the water level in T8 continues to increase, pump P10 is started;
- if the water level in T8 rises further, a high level alarm is initiated;

- if the water level in T8 rises even further, pump P3 is shut off and will not start again until the level is down to a set point where P9 starts; and
- pump P10 shuts down once the level has dropped, while P9 continues to run.

Bag Filter Differential Pressure Transmitter

The pressure differential between the influent pipe to the bag filters and the effluent pipe to the carbon adsorbers is monitored by the differential pressure transmitter. The transmitter is connected to the PLC and the PLC is programmed to provide an alarm at a selected differential pressure which can be reset through the PLC.

The process controls are monitored and controlled in accordance with the software programs developed for the PLC and WEB computer graphics-based package.

## 2.5 BUILDING SUBSYSTEM

### 2.5.1 Building Description

A layout of the groundwater treatment building subsystem is presented on Drawing C16.

The building foundation consists of piles driven to bedrock and concrete grade beams. Similarly, the major pieces of treatment equipment are located on equipment housekeeping pads which are supported by piles driven to bedrock. The building floor consists of a self-supporting concrete slab poured within the limits of the grade beams and major equipment housekeeping pads.

The treatment building consists of a pre-engineered steel frame building. The roof is galvalume, a standing seam roof, the exterior walls are prepainted roll-formed panels with insulation on the inside. The interior walls of the treatment area are white prepainted panels.

The office and maintenance area are constructed using steel stud partitions and gypsum drywall panels.

The sanitary sewer system for the Site empties to a 1,500-gallon holding tank. The water level in the tank is monitored by a high level switch which turns on a high level indicator light in the washroom/change room.

### 2.5.2 Security of Treatment Building

The treatment building is normally open when occupied, and securely locked during off hours. The building is monitored for unauthorized entry by a security system which is energized during off hours. The exterior doors of the treatment building are provided with contact monitor switches, the windows are provided with sensor switches. Together, these monitoring devices are wired to a central security monitoring station. The security system is programmed to detect unauthorized entry during unmanned hours and upon such detection, relay a message to an off-Site security firm. The security firm then informs the Site off-duty operator of treatment building security breaches and/or notifies the Portage County sheriffs office.

## 2.6 SITE COVER SUBSYSTEM

### 2.6.1 Site Cover

As discussed in Section 2.0, the Site is covered by a permeable final soil cover. This cover is comprised of an 18-inch layer of sandy loam covered by a 6-inch layer of vegetated topsoil. The Site has been graded for stormwater management with the majority of surface water runoff directed to the south and east drainage ditches along the Site perimeter.

### 2.6.2 Site Security

The Site is surrounded by an 6-foot high, 2-inch chain-link security fence with three strands of barbed wire across the top. The chain-link security fence has lockable man gates and traffic gates to provide access to the Site. In addition, a security camera is mounted on an elevated pole at the main Site gate and is operated 24 hours a day. The security camera is connected to a VHS recorder located in the treatment building.

# 3.0 REFERENCE DRAWINGS

## TABLE OF CONTENTS

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3.0 REFERENCE DRAWINGS ..... 3-1

## LIST OF TABLES

Following Page

TABLE 3.1 AS-RECORDED REFERENCE DRAWINGS 3-1

## 3.0 REFERENCE DRAWINGS

Conestoga-Rovers and Associates (CRA) prepared reference drawings of the various remedial construction programs undertaken at the Site during the period from June 1993 to September 1995, as shown in Table 3.1. Also noted in Table 3.1 are the reference drawings which are included with this manual. The reference drawings not included in this manual are included in the final construction reports for the five phases of remedial construction at the Site.

**TABLE 3.1**

**AS-RECORDED REFERENCE DRAWINGS**
**SUMMIT NATIONAL SUPERFUND SITE**

| *DRAWING NO.* | *TITLE* | *ENGINEER* | *INCLUDED IN THIS MANUAL* |
|---|---|---|---|
| Groundwater Treatment System | | | |
| C1 | Pre-Construction Conditions | CRA | |
| C2 | Work Areas | CRA | √ |
| C3 | Grading Plan | CRA | |
| C4 | Site Sections | CRA | |
| C5 | Site Work Details | CRA | |
| C6 | Erosion Control | CRA | |
| C7 | Chemical Unloading Pad | CRA | |
| C8 | Foundation Plan Pile Layout | CRA | √ |
| C9 | Floor Plan | CRA | √ |
| C10 | Foundations Sections | CRA | √ |
| C11 | North and East Elevations | CRA | |
| C12 | West and South Elevations | CRA | |
| C13 | Sections and Details | CRA | |
| C14 | Structural Roof Plan | CRA | |
| C15 | Room Door and Window Schedule | CRA | |
| C16 | Process Equipment Layout | CRA | √ |
| C17 | Mechanical Sections "B" and "C" | CRA | √ |
| C18 | Mechanical Sections "A" and "D" | CRA | √ |
| C19 | Hydraulic Gradient | CRA | √ |
| C20 | HVAC and Plumbing Layout | CRA | √ |
| C21 | Site Electrical Service | CRA | √ |
| C22 | Lighting and Recepticals | CRA | √ |
| C23 | Motor and Disconnect Location | CRA | √ |
| C24 | MCC Layout and Single Line Diagram | CRA | √ |
| C25 | PLC and I/O Layout | CRA | √ |
| C26 | PLUC I/O Cabinet and Control Stations | CRA | √ |
| C27 | Process and Instrumentation Diagram | CRA | √ |
| S1 | Platforms and Sections | CRA | |
| S2 | Platforms and Sections | CRA | |
| Sheet 1 to 9 | Building Drawings | Behlen Mfg. Co. | |

**TABLE 3.1**

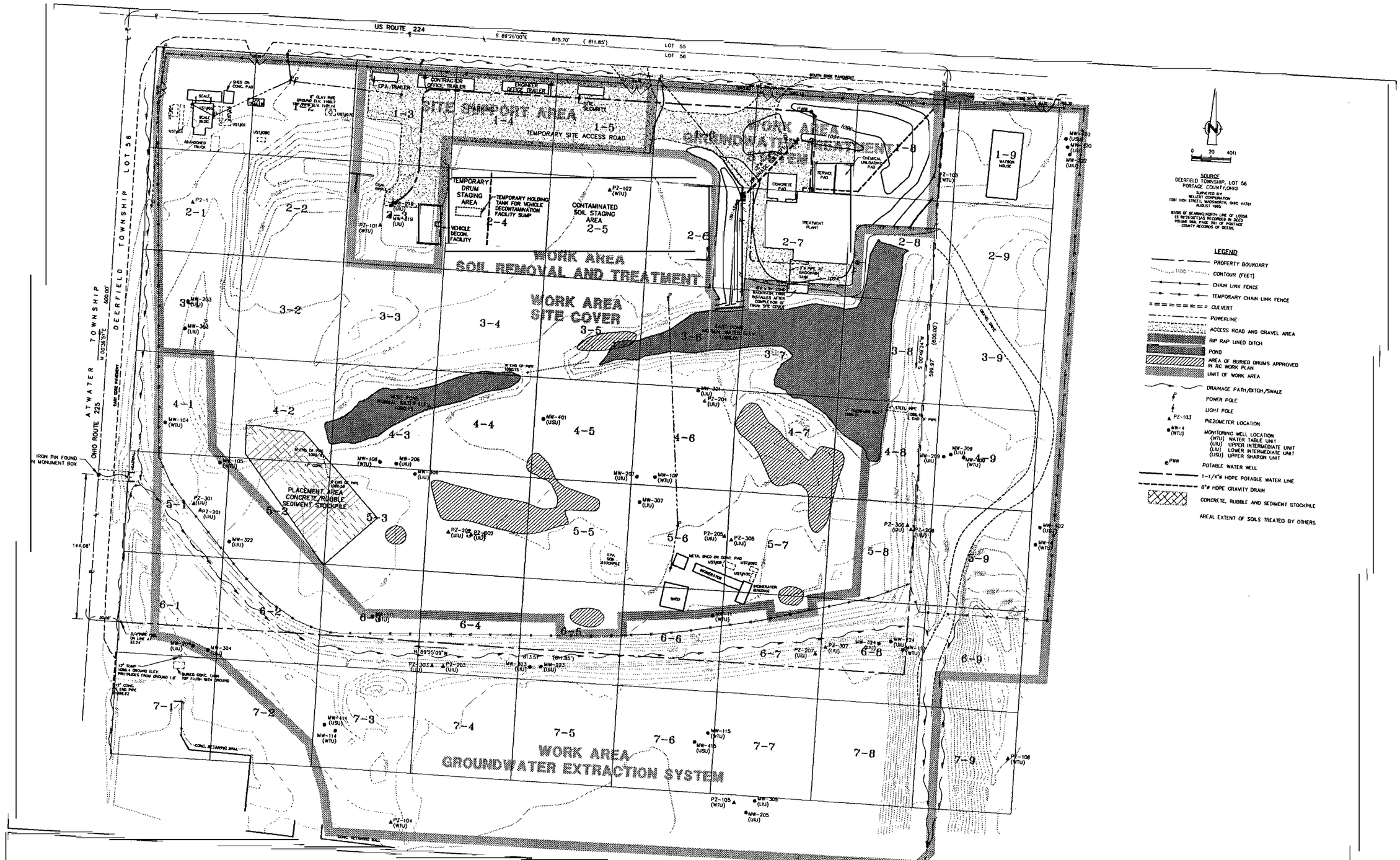
**AS-RECORDED REFERENCE DRAWINGS**
**SUMMIT NATIONAL SUPERFUND SITE**

| *DRAWING NO.* | *TITLE* | *ENGINEER* | *INCLUDED IN THIS MANUAL* |
|---|---|---|---|
| Groundwater Extraction System | | | |
| D-1 | Pre-Construction Conditions | CRA | |
| D-2 | Site Preparation and Demolition | CRA | |
| D-3 | Site Work | CRA | |
| D-4 | Grading Plan | CRA | |
| D-5 | Pipe & Media Drain Profile | CRA | √ |
| D-6 | Wet Well Details | CRA | √ |
| D-7 | Typical Details | CRA | √ |
| D-8 | Typical Sections and Electrical Conduit Details | CRA | √ |
| D-9 | Manhole Details | CRA | √ |
| Soil Removal and Treatment | | | |
| E-1 | Pre-Construction Conditions | CRA | |
| E-2 | Site Preparation and Demolition | CRA | |
| E-3 | Excavation of Contaminated Soils and Buried Drums | CRA | |
| E-4 | Typical Details | CRA | |
| E-5 | Subgrading Plan | CRA | |
| E-6 | Cross-Section Locations | CRA | |
| E-7 | Cross-Sections 0 and 100 | CRA | |
| E-8 | Cross-Sections 200 and 300 | CRA | |
| E-9 | Cross-Sections 400 and 500 | CRA | |
| E-10 | Cross-Sections 600 and 700 | CRA | |
| Site Cover | | | |
| F-1 | Pre-Construction Conditions | CRA | |
| F-2 | Final Grading Plan | CRA | √ |
| F-3 | Typical Details | CRA | |

**TABLE 3.1**

**AS-RECORDED REFERENCE DRAWINGS**
**SUMMIT NATIONAL SUPERFUND SITE**

| *DRAWING NO.* | *TITLE* | *ENGINEER* | *INCLUDED IN THIS MANUAL* |
|---|---|---|---|
| Well Installation and Abandonment | | | |
| G-1 | Pre-Construction Conditions | CRA | |
| G-2 | Site Work | CRA | |
| G-3 | Remedial Construction Work Areas | CRA | |
| G-4 | Final Grading Plan | CRA | |
| G-5 | Well Details | CRA | √ |
| G-6 | Typical Monitoring Well/Piezometer Extension Detail | CRA | |




| No | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT 1995 | GHK |

Approved

SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

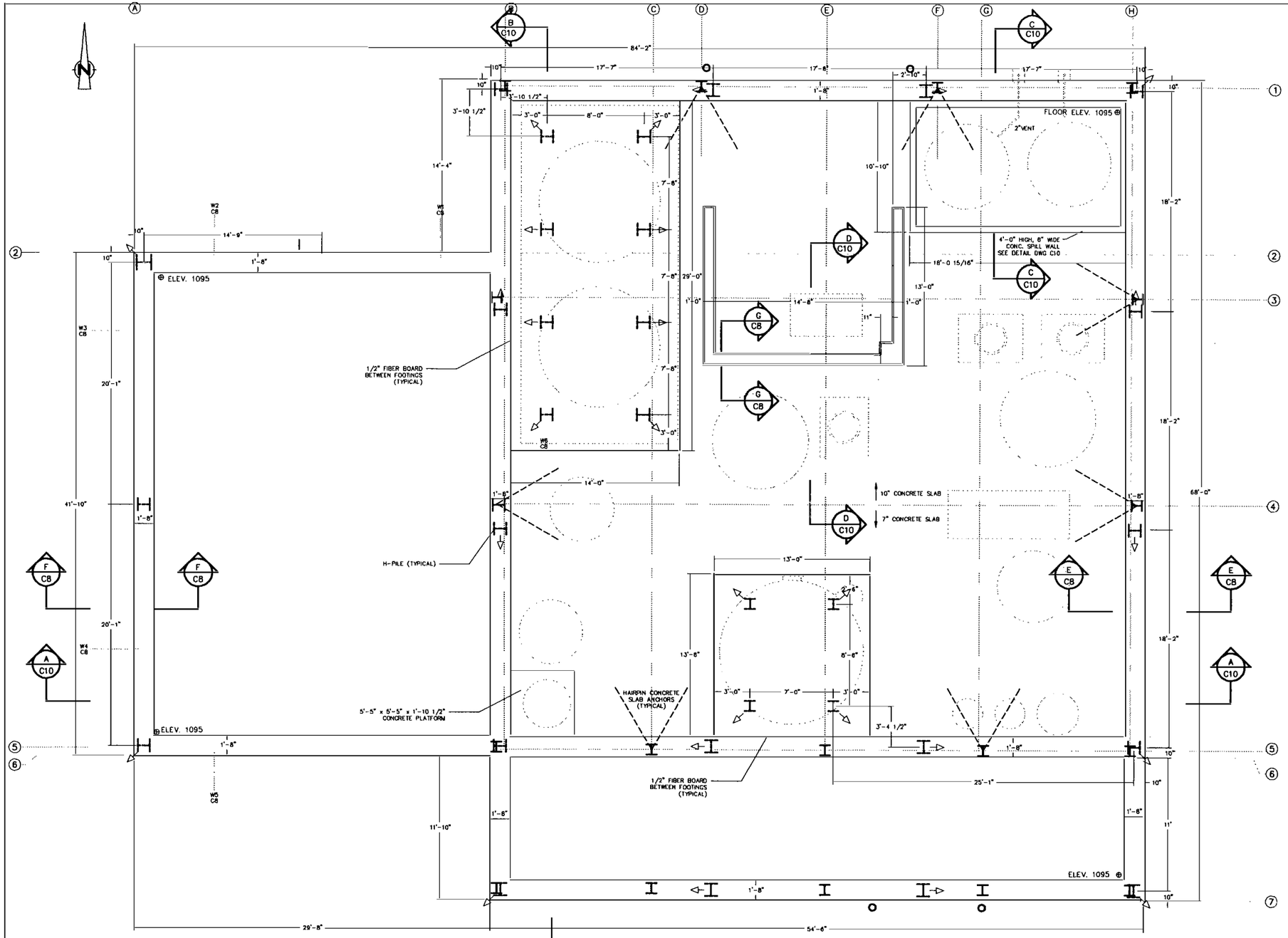
GROUNDWATER TREATMENT SYSTEM

WORK AREAS

**CRA**
**CONESTOGA-ROVERS & ASSOCIATES**

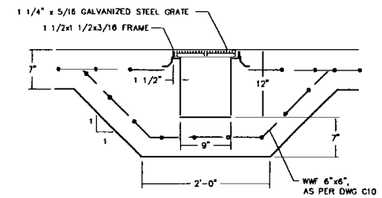
| | | | | |
|---|---|---|---|---|
| Drawn by: JRV | Scale: 1"=40' | Date: OCTOBER 1995 | File No: P165 | Rev No: 0 |
| Designed by: GHK | | | | |
| Checked by: GHK | Field book: | Project No: 2372 | Drawing No: C2 | |

NOV. 07/95(W)



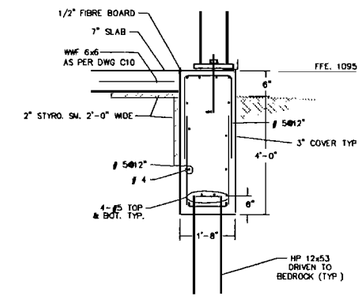

FOUNDATION PLAN

SCALE 1/4" = 1'-0"



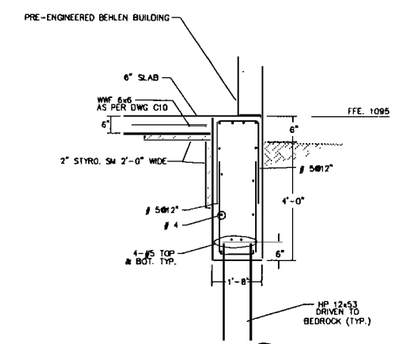

SECTION G/C8

N.T.S.




SECTION E/C8

SCALE N.T.S.




SECTION F/C8

EXTERIOR PERIMETER GRADE BEAM
LOW ROOF BUILDING

SCALE N.T.S.

DENOTES VERTICAL PILE

DENOTES BATTERED PILE AND DIRECTION OF 1:10 BATTER

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SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

GROUNDWATER TREATMENT SYSTEM

FOUNDATION PLAN
PILE LAYOUT

CRA
CONESTOGA-ROVERS & ASSOCIATES

| Drawn by: BMM | Scale: AS SHOWN | Date: OCTOBER 1995 | File Nº: P169 | Rev.Nº: 0 |
|---|---|---|---|---|
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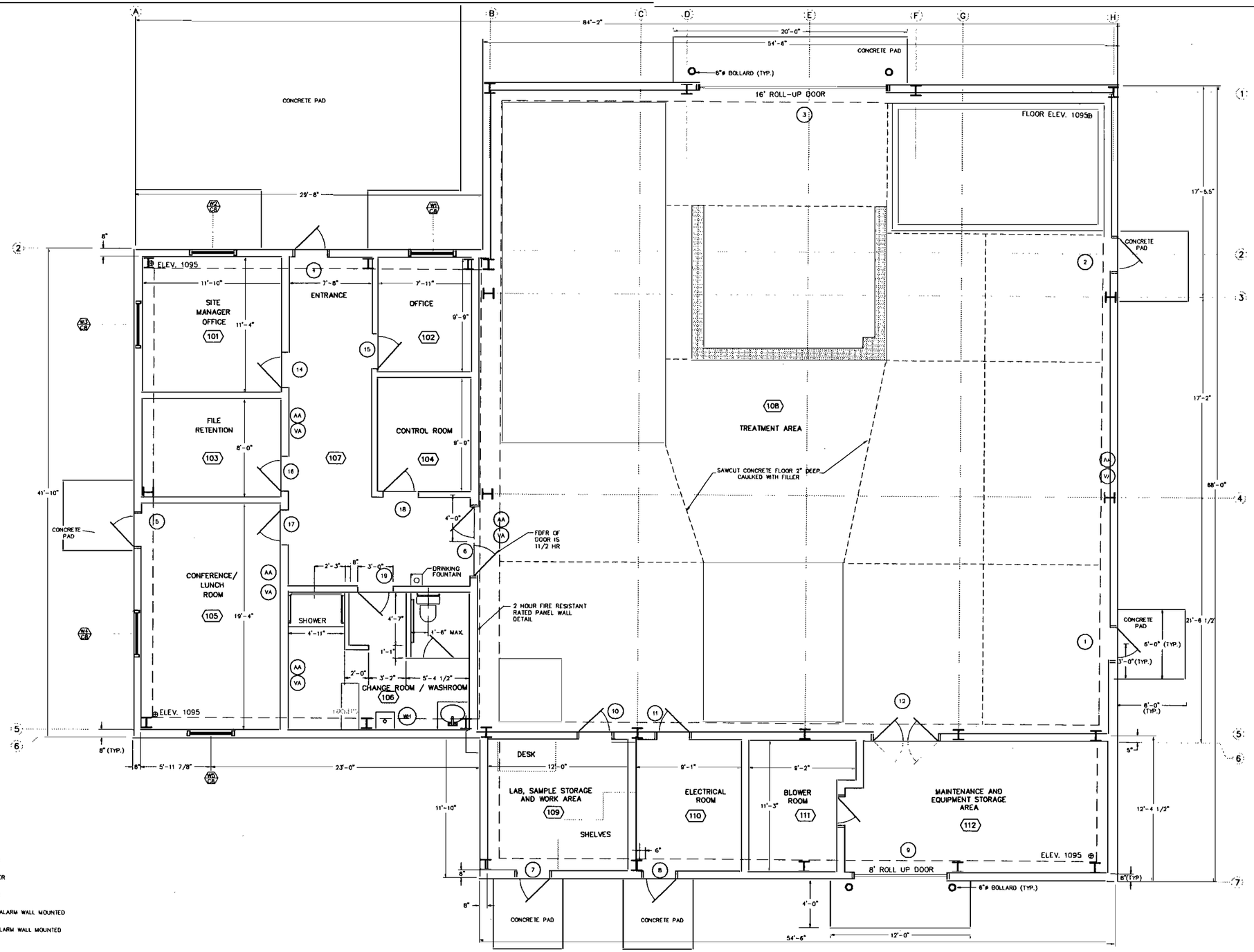
| Checked by: GHK | Field book: | Project Nº: 2372 | Drawing Nº: C8 | |

OCT 10/95(KW)




NOTE: SEE DWG. C15 FOR DOOR SCHEDULE

NOTE: SEE DWG. C11 FOR RAMP DETAILS

105 DENOTES ROOM NUMBER

W1 DENOTES WINDOW NUMBER

14 DENOTES DOOR NUMBER

AA DENOTES AUDIBLE FIRE ALARM WALL MOUNTED

VA DENOTES VISUAL FIRE ALARM WALL MOUNTED

| Nº | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT. 1995 | CHK |

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# SUMMIT NATIONAL SUPERFUND SITE
## DEERFIELD, OHIO

GROUNDWATER TREATMENT SYSTEM

## FLOOR PLAN

**CRA**
CONESTOGA-ROVERS & ASSOCIATES

| Drawn by: BMM | Scale: 1/4"=1'-0" | Date: OCTOBER 1995 | File Nº: P170 | Rev Nº: 0 |
|---|---|---|---|---|
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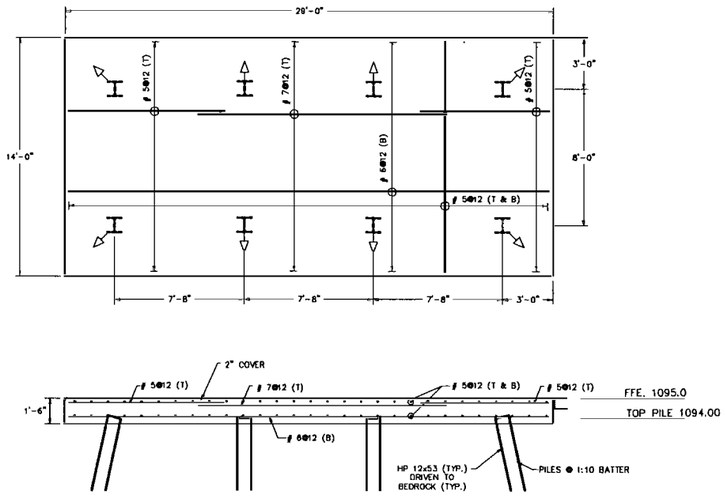
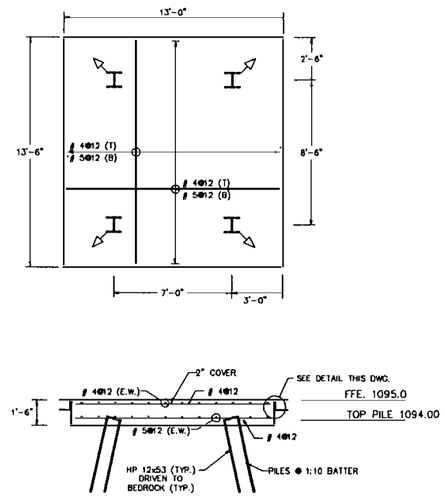
| Checked by: CHK | Field book: | Project Nº: 2372 | Drawing Nº: C9 | |

OCT 12/95(W)




CARBON ADSORBER TANK
STRUCTURAL BASE
1/4"=1'-0"




BIO REACTOR TANK
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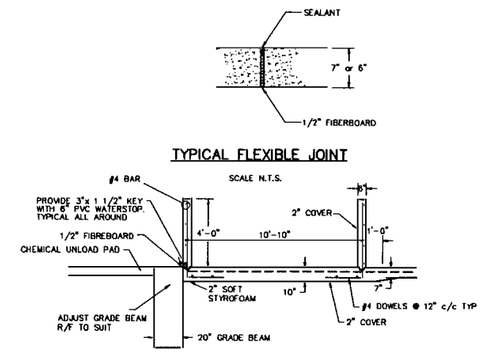
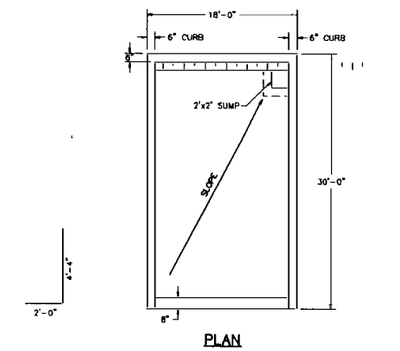
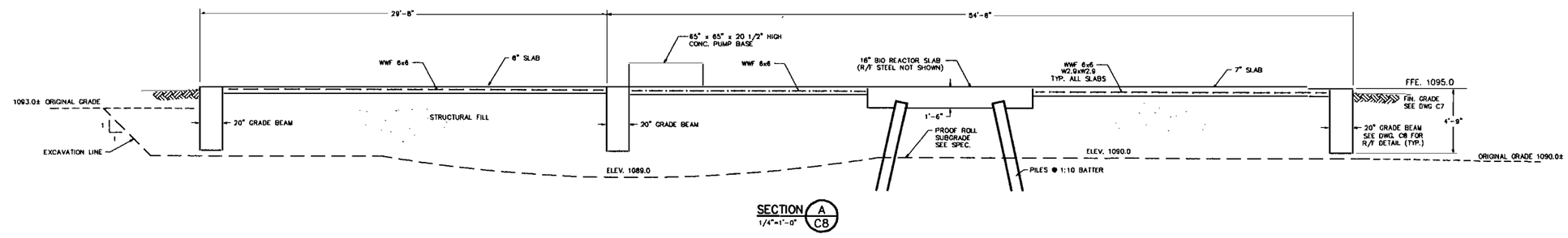
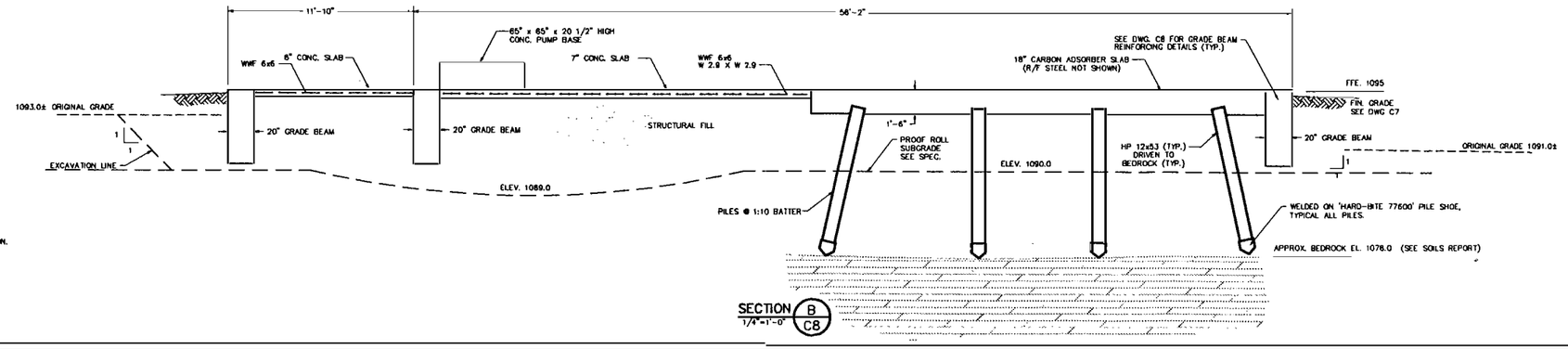
1/4"=1'-0"




SECTION A C8
1/4"=1'-0"




SECTION B C8
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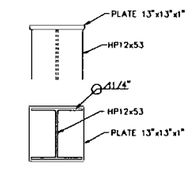


PILE CAP DETAIL
N.T.S.

CONCRETE GENERAL NOTES

1. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS AND OHIO BASIC BUILDING CODE, ACI 318 AND ACI 301.
2. CONCRETE STRENGTH AT 28 DAYS TO BE 4,000 psi.
3. REINFORCING STEEL TO BE 60,000 psi YIELD DEFORMED BARS.
4. MIN. REINFORCING STEEL SPLICE LENGTH SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL LATEST EDITION.
5. CHAMFER ALL EXPOSED EDGES 3/4".

| Nº | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT. 1995 | GHK |

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SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

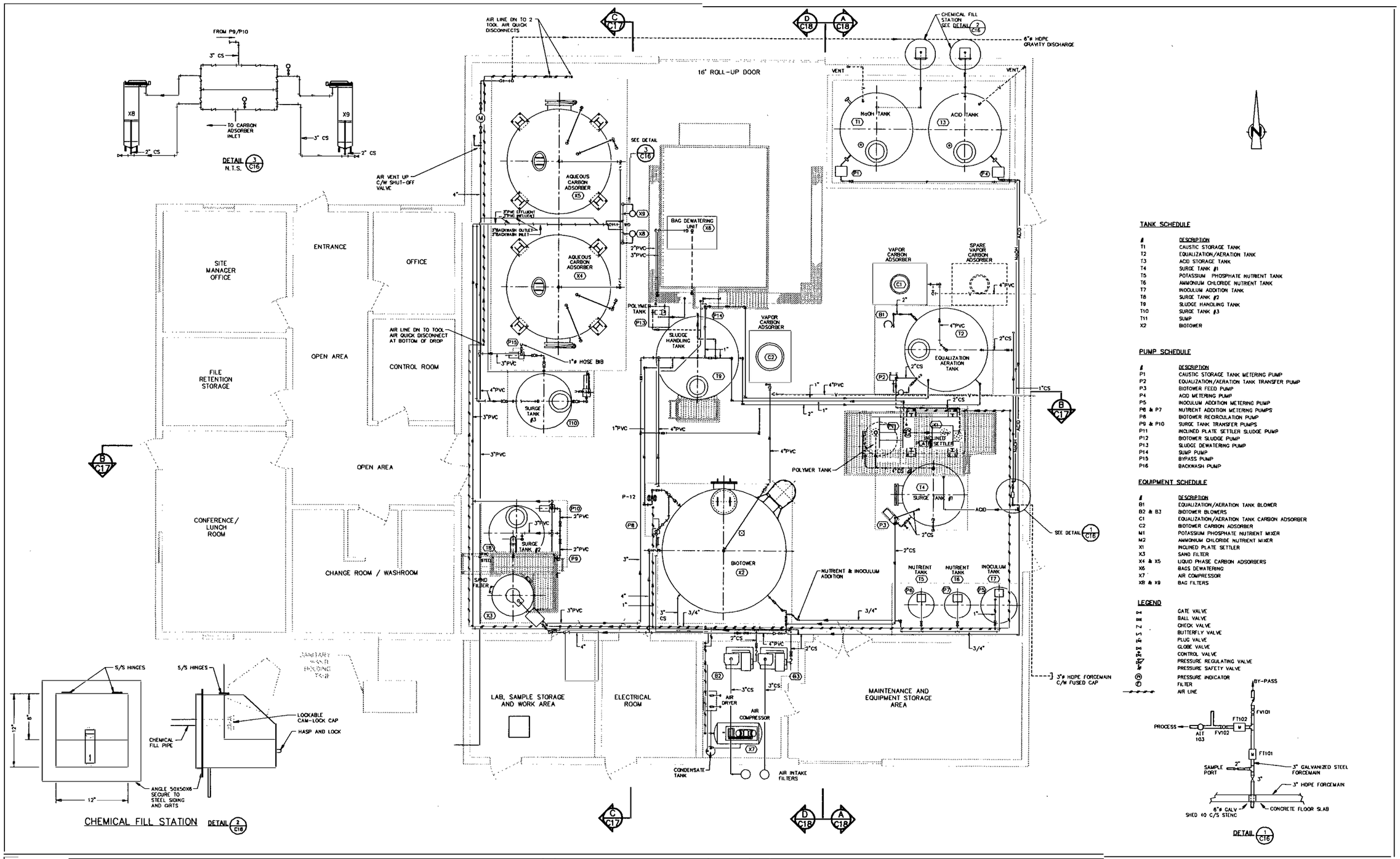
GROUNDWATER TREATMENT SYSTEM

FOUNDATION SECTIONS

CRA
CONESTOGA-ROVERS & ASSOCIATES

| Drawn by: BMW | Scale: AS SHOWN | Date: OCTOBER 1995 | File Nº: P171 | Rev.Nº: 0 |
|---|---|---|---|---|
| Designed by: GHK | Field book: | Project Nº: 2372 | Drawing Nº: C10 | |
| Checked by: GHK | | | | |

OCT 10/96(W)




## TANK SCHEDULE

| # | DESCRIPTION |
|---|---|
| T1 | CAUSTIC STORAGE TANK |
| T2 | EQUALIZATION/AERATION TANK |
| T3 | ACID STORAGE TANK |
| T4 | SURGE TANK #1 |
| T5 | POTASSIUM PHOSPHATE NUTRIENT TANK |
| T6 | AMMONIUM CHLORIDE NUTRIENT TANK |
| T7 | INOCULUM ADDITION TANK |
| T8 | SURGE TANK #2 |
| T9 | SLUDGE HANDLING TANK |
| T10 | SURGE TANK #3 |
| T11 | SUMP |
| X2 | BIOTOWER |

## PUMP SCHEDULE

| # | DESCRIPTION |
|---|---|
| P1 | CAUSTIC STORAGE TANK METERING PUMP |
| P2 | EQUALIZATION/AERATION TANK TRANSFER PUMP |
| P3 | BIOTOWER FEED PUMP |
| P4 | ACID METERING PUMP |
| P5 | INOCULUM ADDITION METERING PUMP |
| P6 & P7 | NUTRIENT ADDITION METERING PUMPS |
| P8 | BIOTOWER RECIRCULATION PUMP |
| P9 & P10 | SURGE TANK TRANSFER PUMPS |
| P11 | INCLINED PLATE SETTLER SLUDGE PUMP |
| P12 | BIOTOWER SLUDGE PUMP |
| P13 | SLUDGE DEWATERING PUMP |
| P14 | SUMP PUMP |
| P15 | BYPASS PUMP |
| P16 | BACKWASH PUMP |

## EQUIPMENT SCHEDULE

| # | DESCRIPTION |
|---|---|
| B1 | EQUALIZATION/AERATION TANK BLOWER |
| B2 & B3 | BIOTOWER BLOWERS |
| C1 | EQUALIZATION/AERATION TANK CARBON ADSORBER |
| C2 | BIOTOWER CARBON ADSORBER |
| M1 | POTASSIUM PHOSPHATE NUTRIENT MIXER |
| M2 | AMMONIUM CHLORIDE NUTRIENT MIXER |
| X1 | INCLINED PLATE SETTLER |
| X3 | SAND FILTER |
| X4 & X5 | LIQUID PHASE CARBON ADSORBERS |
| X6 | BAGS DEWATERING |
| X7 | AIR COMPRESSOR |
| X8 & X9 | BAG FILTERS |

## LEGEND

| | |
|---|---|
| | GATE VALVE |
| | BALL VALVE |
| | CHECK VALVE |
| | BUTTERFLY VALVE |
| | PLUG VALVE |
| | GLOBE VALVE |
| | CONTROL VALVE |
| | PRESSURE REGULATING VALVE |
| | PRESSURE SAFETY VALVE |
| | PRESSURE INDICATOR |
| | FILTER |
| | AIR LINE |

| # | Revision | Date | Initials |
|---|---|---|---|
| 0 | AS RECORDED | OCT. 1995 | GHK |

Approved

**SUMMIT NATIONAL SUPERFUND SITE**
**DEERFIELD, OHIO**

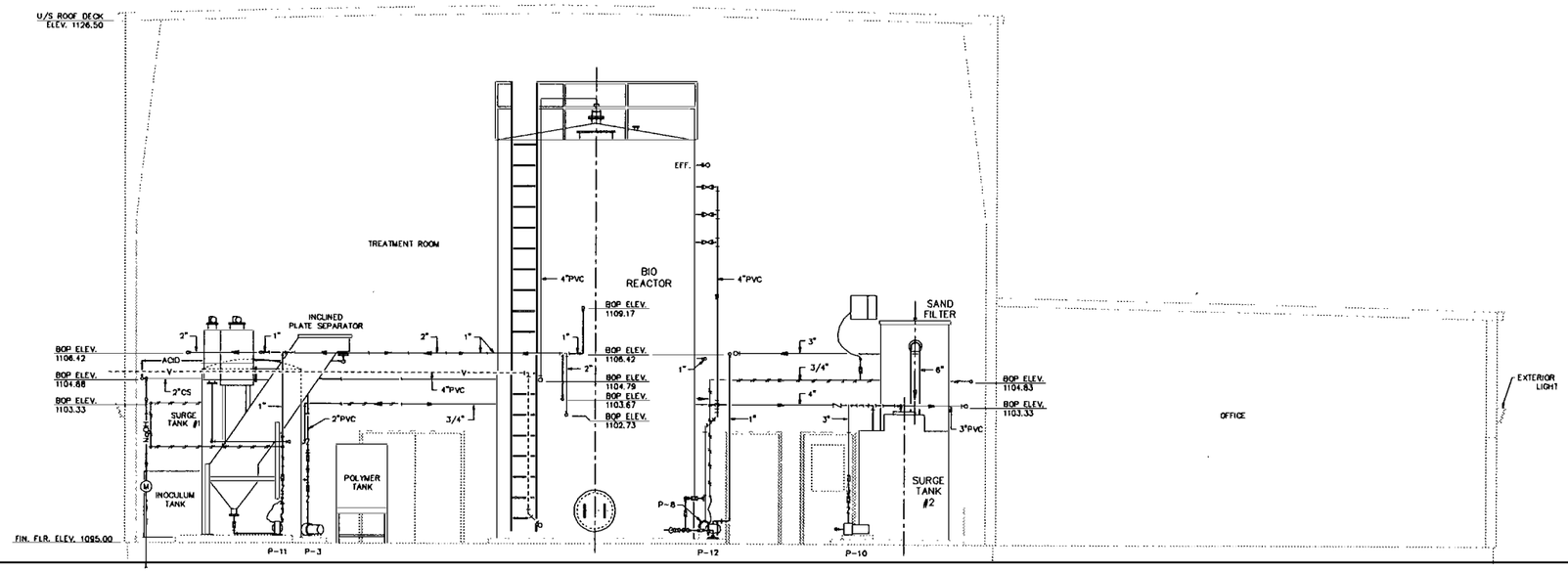
GROUNDWATER TREATMENT SYSTEM

**PROCESS EQUIPMENT LAYOUT**

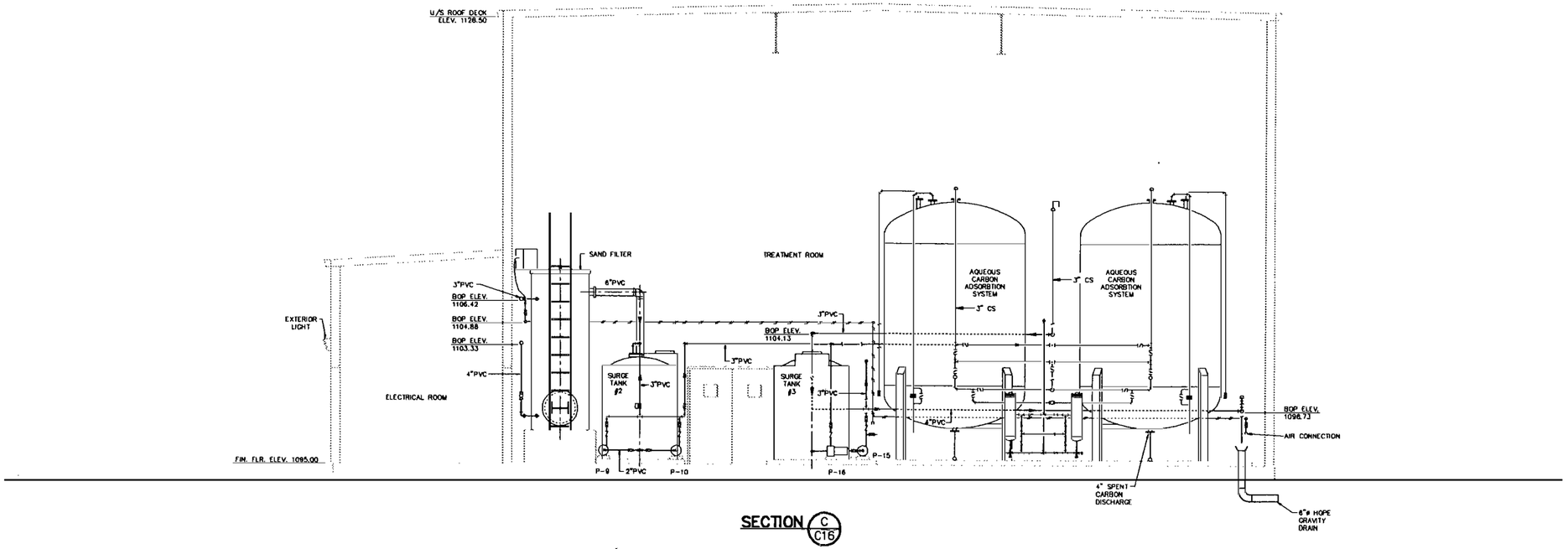
**CRA**
**CONESTOGA-ROVERS & ASSOCIATES**

| Drawn by: EHR | Scale: 1/4"=1'-0" | Date: OCTOBER 1995 | File №: P215 | Rev.№ 0 |
|---|---|---|---|---|
| Designed by: GHK | | | | |
| Checked by: GHK | Field book: | Project №: 2372 | Drawing №: C16 | |

NOV 01/95(W)




SECTION B / C16




SECTION C / C16

NOTE: ACCESS PLATFORMS NOT SHOWN FOR CLARITY

| № | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT. 1995 | GHK |

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SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

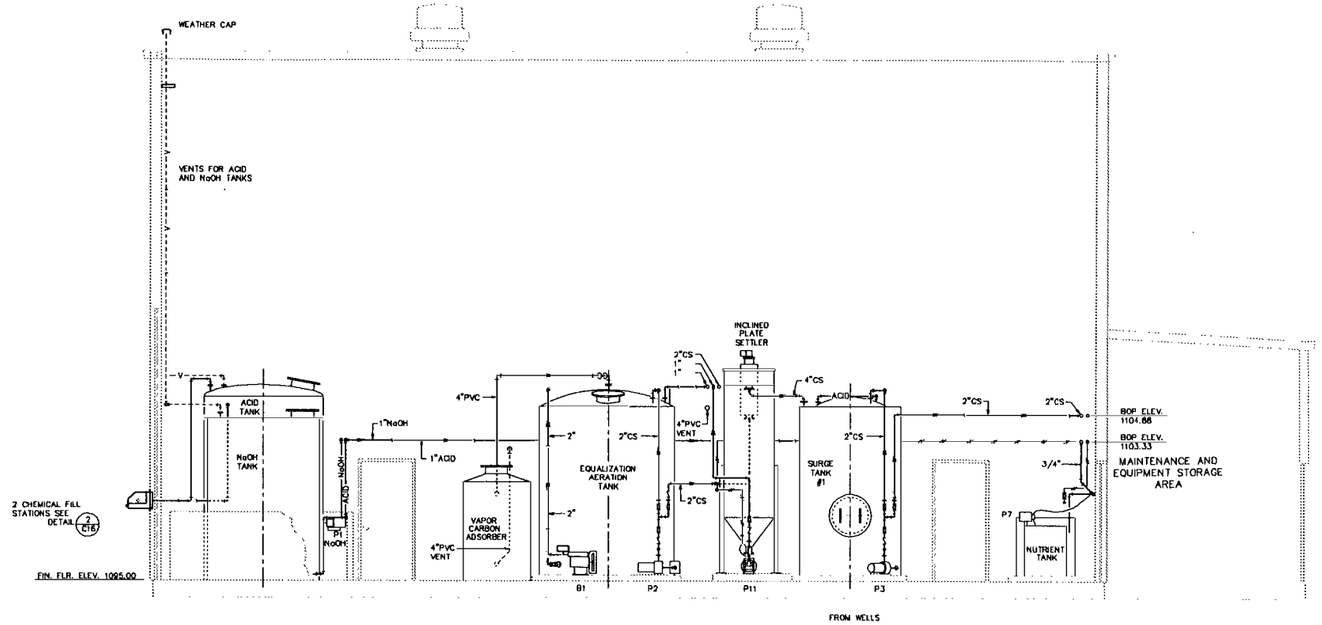
GROUNDWATER TREATMENT SYSTEM

MECHANICAL SECTIONS
SECTION 'B' AND 'C'

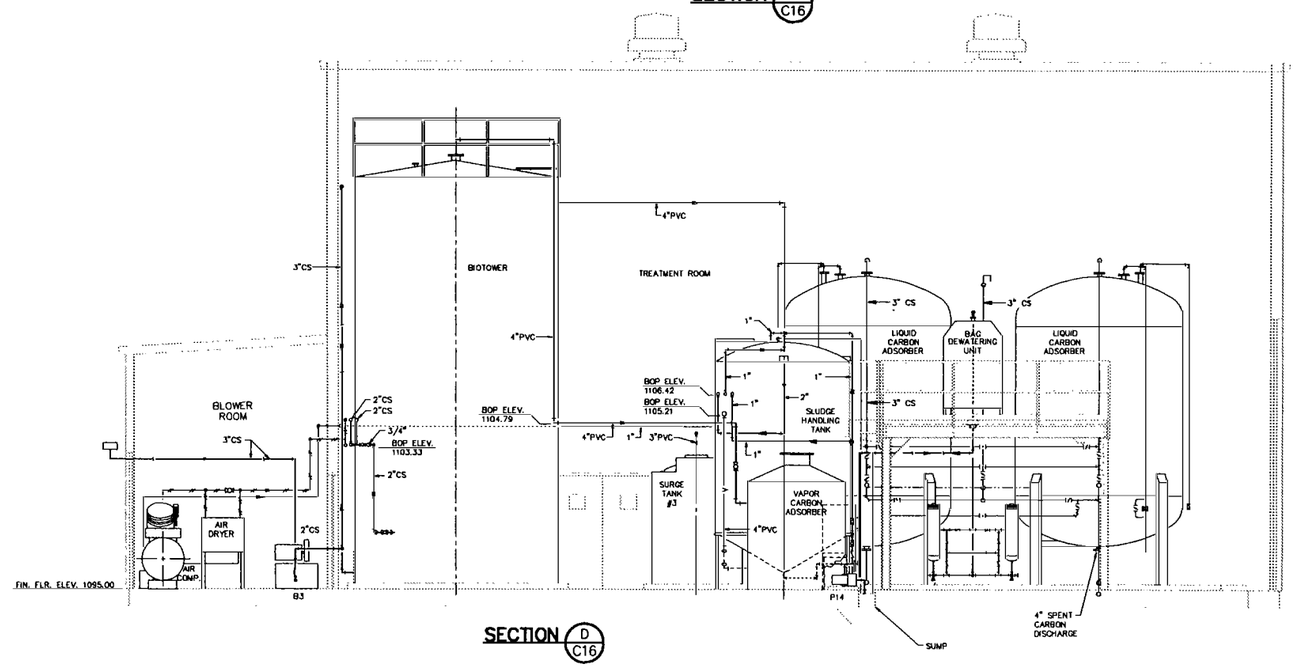
**CRA**
CONESTOGA-ROVERS & ASSOCIATES

| Drawn by: EHR | Scale: 1/4"=1'-0" | Date: OCTOBER 1995 | File №: P177 | Rev №: 0 |
|---|---|---|---|---|
| Designed by: GHK | Field book: | Project №: 2372 | Drawing №: C17 | |
| Checked by: GHK | | | | |

NOV 1/95(W)




SECTION A/C16




SECTION D/C16

NOTE: ACCESS PLATFORMS NOT SHOWN FOR CLARITY

| Nº | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT. 1995 | GHK |

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SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

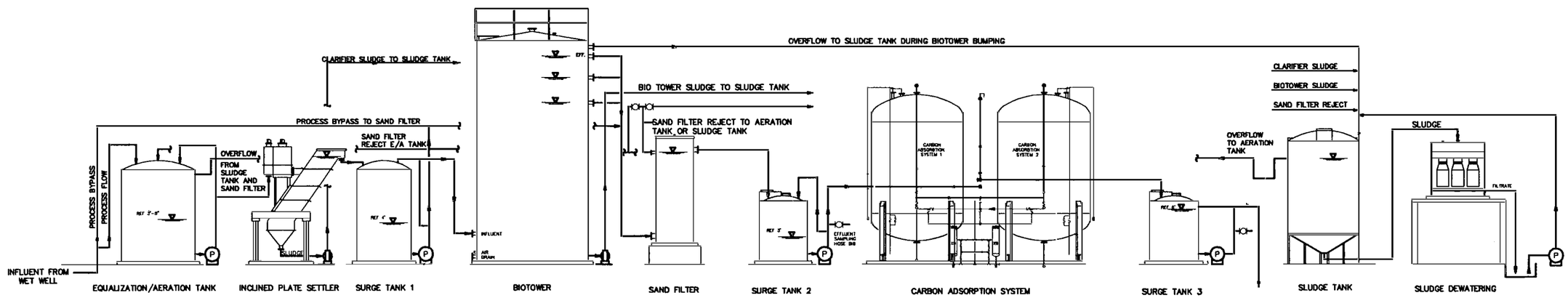
GROUNDWATER TREATMENT SYSTEM

MECHANICAL SECTIONS
SECTION 'A' AND 'D'

**CRA**
CONESTOGA-ROVERS & ASSOCIATES

| | | | | |
|---|---|---|---|---|
| Drawn by: EHR | Scale: 1/4"=1'-0" | Date: OCTOBER 1995 | File Nº: P178 | Rev.Nº: 0 |
| Designed by: GHK | Field book: | Project Nº: 2372 | Drawing Nº: C18 | |
| Checked by: GHK | | | | |

NOV 1/95(W)




| Nº | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT. 1995 | GHK |

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SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

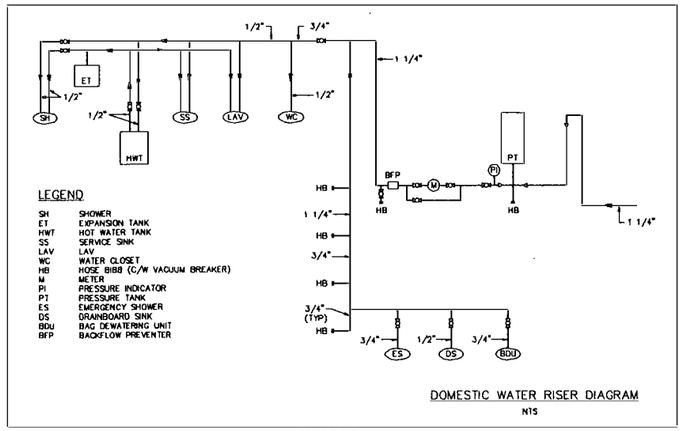
GROUNDWATER TREATMENT SYSTEM

HYDRAULIC GRADIENT

**CRA**
CONESTOGA-ROVERS & ASSOCIATES

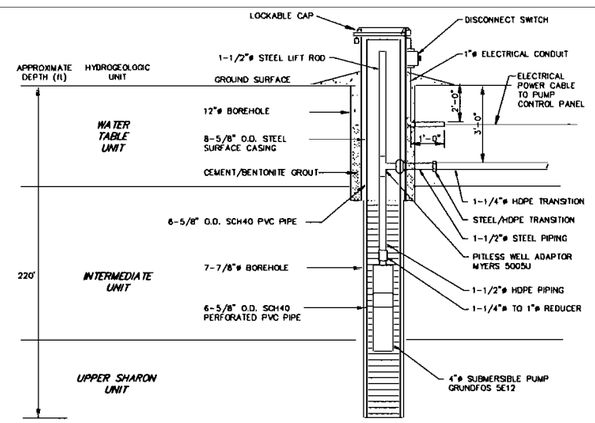
| | | | | |
|---|---|---|---|---|
| Drawn by: EHR | Scale: 3/16"=1'-0" | Date: OCTOBER 1995 | File Nº: D-53 | Rev.Nº: 0 |
| Designed by: GHK | | | | |
| Checked by: GHK | Field book: | Project Nº: 2372 | Drawing Nº: C19 | |

NOV 01/95(W)




DOMESTIC WATER RISER DIAGRAM

N.T.S.

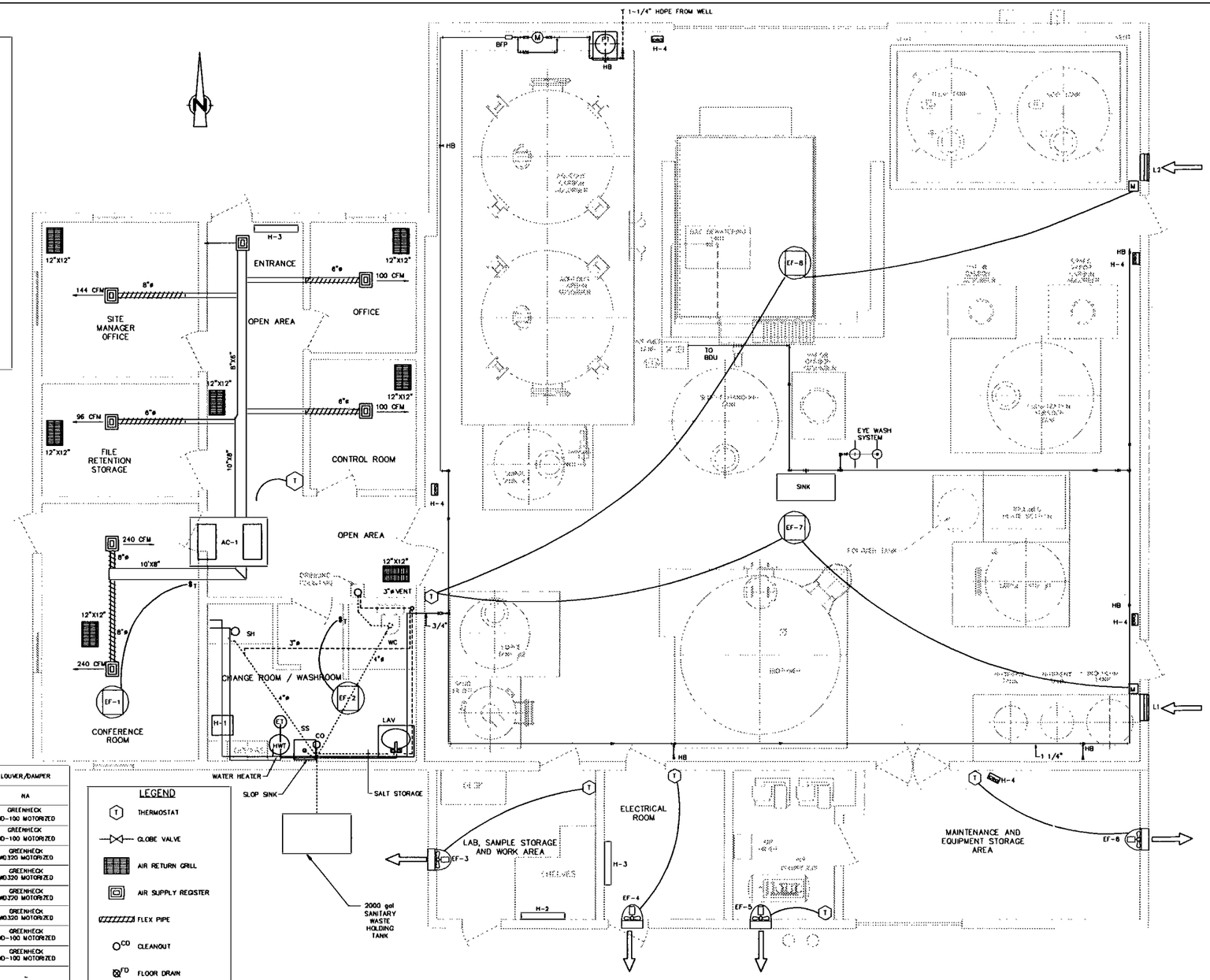



POTABLE WATER SUPPLY WELL

N.T.S.

FAN, HEATER AND LOUVER SCHEDULE

| MARK | SERVICE | TYPE | CFM | SP | RPM | ELECTRICAL H.P., VOLTAGE | CONTROL | MANUFACTURER MODEL # | LOUVER/DAMPER |
|---|---|---|---|---|---|---|---|---|---|
| AC-1 | OFFICE AIR CONDITIONING HEATING | ROOF MOUNTED | 700 | | | 480/3/60 | | CARRIER 50GJQ04-6 | NA |
| EF-1 | CONFERENCE ROOM EXHAUST | ROOF MOUNTED | 1170 | 0.125 | 1350 | 1/4 HP,115V/1/60 | TIMER | GREENHECK GB-70-4 | GREENHECK WD-100 MOTORIZED |
| EF-2 | WASHROOM EXHAUST | ROOF MOUNTED | 310 | 0.125 | 1530 | 1/4 HP,115V/1/60 | T-STAT | GREENHECK GB-70-4 | GREENHECK WD-100 MOTORIZED |
| EF-3 | LABORATORY EXHAUST | WALL MOUNTED | 338 | 0.250 | 1550/1050 | 1/25 HP,115V/1/60 | T-STAT | GREENHECK SDE-10-32-D | GREENHECK WD320 MOTORIZED |
| EF-4 | ELECTRICAL ROOM EXHAUST | WALL MOUNTED | 214 | 0.250 | 1550/1050 | 1/80 HP,115V/1/60 | T-STAT | GREENHECK SDE-10-32-D | GREENHECK WD320 MOTORIZED |
| EF-5 | BLOWER ROOM EXHAUST | WALL MOUNTED | 2700 | 0.250 | 1140 | 1/4 HP,115V/1/60 | T-STAT | GREENHECK SBE-20-24-B | GREENHECK WD320 MOTORIZED |
| EF-6 | MAINTENANCE ROOM EXHAUST | WALL MOUNTED | 840 | 0.250 | 1550/1060 | 1/4 HP, 115V/1/60 | T-STAT | GREENHECK SDE-12-24-A | GREENHECK WD320 MOTORIZED |
| EF-7 | PROCESS ROOM EXHAUST | ROOF MOUNTED | 4773 | 0.250 | 815 | 3/4HP, 480V/3/60 | T-STAT | GREENHECK GB-240-7 | GREENHECK WD-100 MOTORIZED |
| EF-8 | PROCESS ROOM EXHAUST | ROOF MOUNTED | 4773 | 0.250 | 815 | 3/4HP, 480V/3/60 | T-STAT | GREENHECK GB-240-7 | GREENHECK WD-100 MOTORIZED |
| L1 | INLET LOUVER/DAMPER | WALL MOUNTED | - | - | - | - | MOTORIZED | - | - |
| L2 | INLET LOUVER/DAMPER | WALL MOUNTED | - | - | - | - | MOTORIZED | - | - |
| H-1 | HEATER | WALL MOUNTED | - | - | - | 208/360 | INTERNAL CONTACTOR | CHROMALOX BUH-3 | - |
| H-2 | HEATER | WALL MOUNTED | - | - | - | - | INTERNAL CONTACTOR | CHROMALOX BL-6615 | - |
| H-3 | HEATER | WALL MOUNTED | - | - | - | - | INTERNAL CONTACTOR | CHROMALOX BL3907 | - |
| H-4 | HEATER | WALL MOUNTED | - | - | - | 480V/360 | INTERNAL CONTACTOR | CHROMALOX BUH-5 | - |




NOTE: ACCESS PLATFORMS AND PROCESS PIPING LEFT OFF FOR CLARITY

| Nº | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT. 1995 | GHK |

Approved

SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

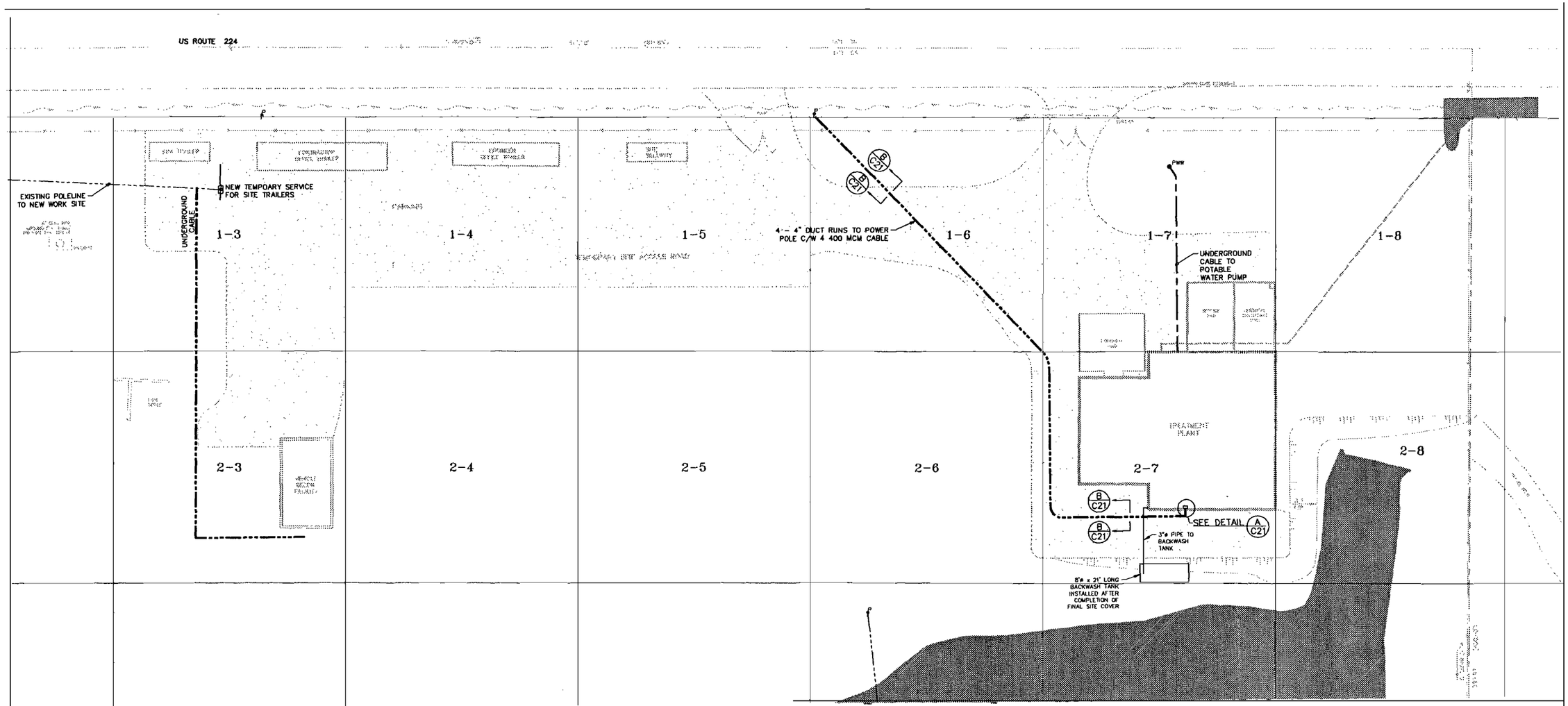
GROUNDWATER TREATMENT SYSTEM

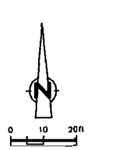
HVAC AND PLUMBING LAYOUT

CRA
CONESTOGA-ROVERS & ASSOCIATES

| Drawn by: EHR | Scale: 1/4"=1'-0" | Date: OCTOBER 1995 | File Nº: P179 | Rev Nº: 0 |
|---|---|---|---|---|
| Designed by: GHK | | | | |
| Checked by: GHK | Field book: | Project Nº: 2372 | Drawing Nº: C20 | |

NOV 07/95(W)

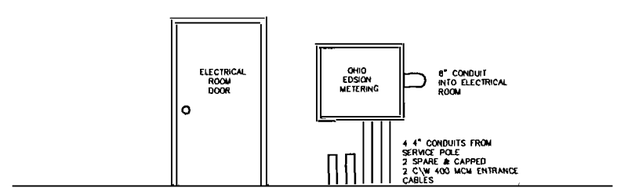


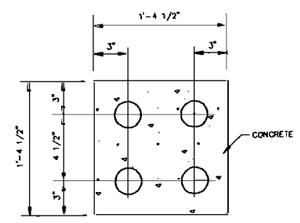

SOURCE
DEERFIELD TOWNSHIP, LOT 56
PORTAGE COUNTY, OHIO
SURVEYED BY:
WELLERT CORPORATION
1051 HIGH STREET, WADSWORTH, OHIO 44281
AUGUST 1995
BASIS OF BEARING NORTH LINE OF LOT56 (S 89°25'00"E) AS RECORDED IN DEED VOLUME 1658, PAGE 261 OF PORTAGE COUNTY RECORDS OF DEEDS.

**LEGEND**

- PROPERTY BOUNDARY
- CHAIN LINK FENCE
- TEMPORARY CHAIN LINK FENCE
- CULVERT
- ACCESS ROAD AND GRAVEL AREA
- RIP RAP LINED DITCH
- POND
- DRAINAGE PATH/DITCH/SWALE
- 6"ø HDPE GRAVITY DRAIN
- POWER POLE
- LIGHT POLE
- PWW POTABLE WATER WELL
- POWERLINE




DETAIL A C21




DETAIL B C21

| Nº | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT 1995 | GHK |

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SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

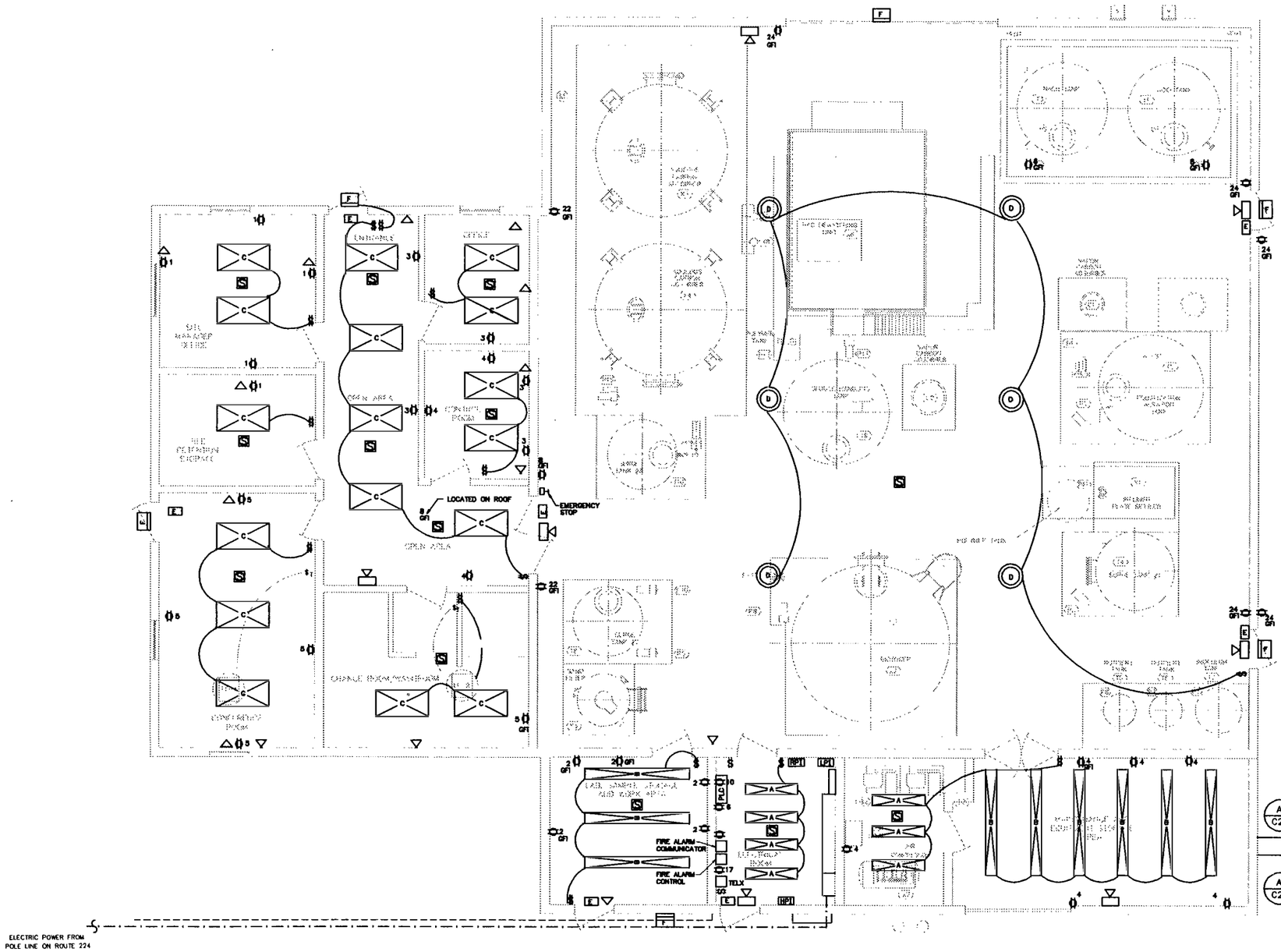
GROUNDWATER TREATMENT SYSTEM

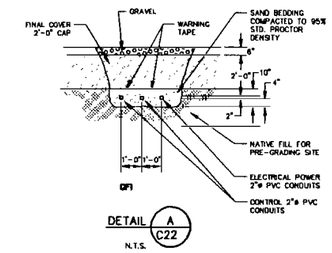
SITE ELECTRICAL SERVICES

**CRA**
**CONESTOGA-ROVERS & ASSOCIATES**

| | | | | | |
|---|---|---|---|---|---|
| Drawn by: JRV | Scale: 1"=20' | Date: OCTOBER 1995 | File Nº: P180 | Rev Nº: 0 | |
| Designed by: GHK | Field book: | Project Nº: 2372 | Drawing Nº: C21 | | |
| Checked by: GHK | | | | | |

NOV 02/95(W)




## LEGEND

- MAIN POWER SUPPLY CONDUIT
- TELEPHONE CONDUIT
- POWER CONDUITS
- CONTROL CONDUITS
- HUBBELL DMT SERIES EDL042H-SPDR-E1
- HUBBELL DMT SERIES EDL82H-TPDR-E1
- HUBBELL VERSALINE V RD40NA01-E1E
- HUBBELL SUPERWATT SWD400H 81ASP 400 WATT METAL HALIDE
- HUBBELL EXIT LIGHT LED 1EM RW LED C/W BATTERY
- HUBBELL PERIMALITER PVL-0100S-511 C/W PVL-PC1/PK PHOTOCELL
- DUAL-LITE 24PC11-700 EMERGENCY LIGHT
- DUAL-LITE MRH-1-24V REMOTE HEAD EMERGENCY
- LIGHT SWITCH
- THREE WAY LIGHT SWITCH
- DUPLEX RECEPTICAL, C/B8
- DUPLEX RECEPTICAL, C/W GFI, C/B24
- TELEPHONE/COMMUNICATION OUTLET C/W 1 RJ11 AND 1 RJ45
- EDWARDS 6604-C01 C/W AUTODIALER
- SMOKE AND HEAT DETECTOR EDWARDS 6269C-003
- TIMER SWITCH

| Nº | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT. 1995 | GHK |

Approved

**SUMMIT NATIONAL SUPERFUND SITE**
**DEERFIELD, OHIO**

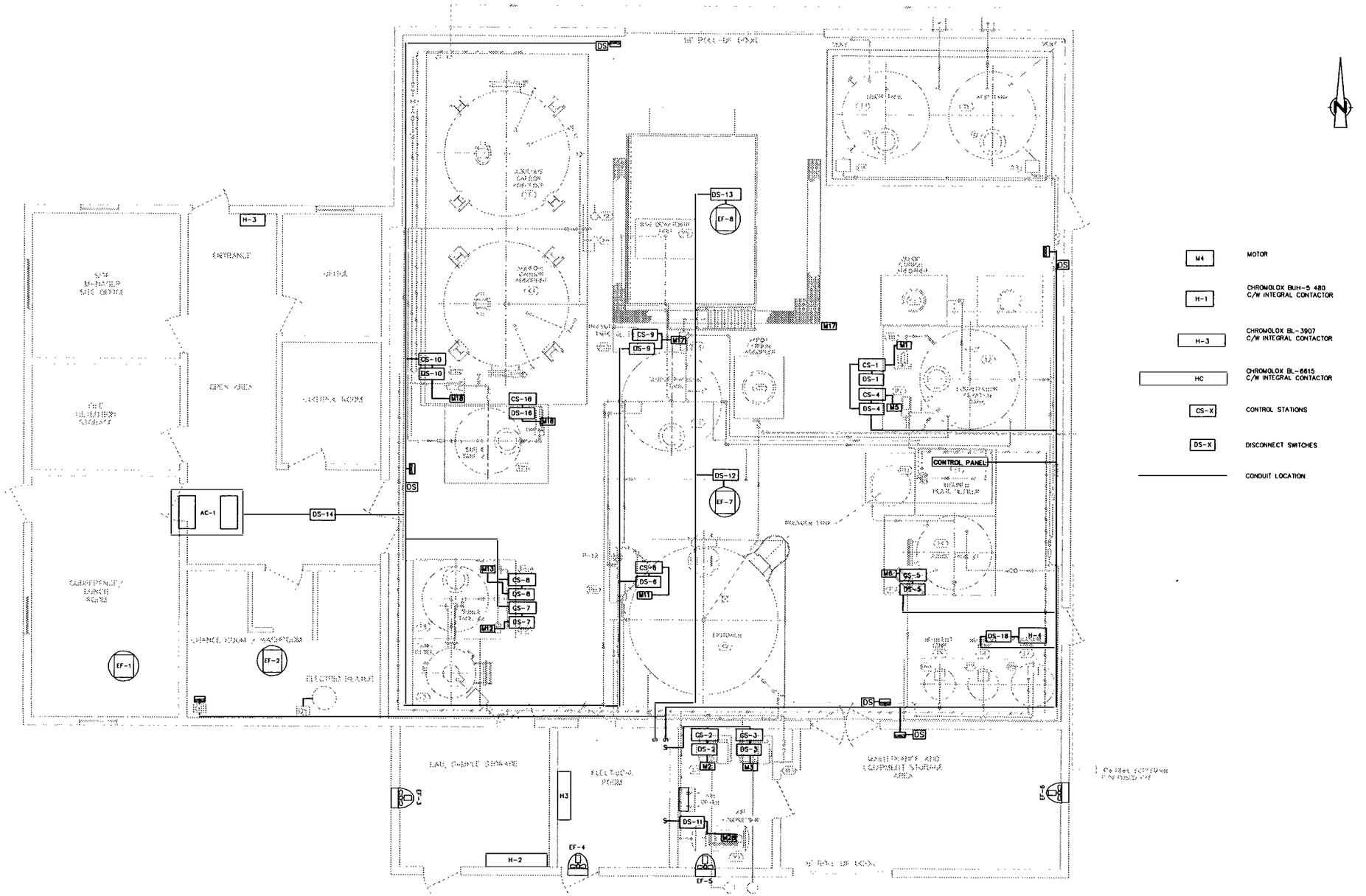
GROUNDWATER TREATMENT SYSTEM

**LIGHTING AND RECEPTACLES**

**CRA**
**CONESTOGA-ROVERS & ASSOCIATES**

| | | | | |
|---|---|---|---|---|
| Drawn by: E.F.P. | Scale: 1/4"=1'-0" | Date: OCTOBER 1995 | File Nº: P188 | Rev Nº: 0 |
| Designed by: G.H.K. | Field book: | Project Nº: 2372 | Drawing Nº: C22 | |
| Checked by: G.H.K. | | | | |

NOV 01/95(W)




NOTE: ACCESS PLATFORMS LEFT OFF FOR CLARITY.

| Nº | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT. 1995 | GHK |

Approved

**SUMMIT NATIONAL SUPERFUND SITE**
**DEERFIELD, OHIO**

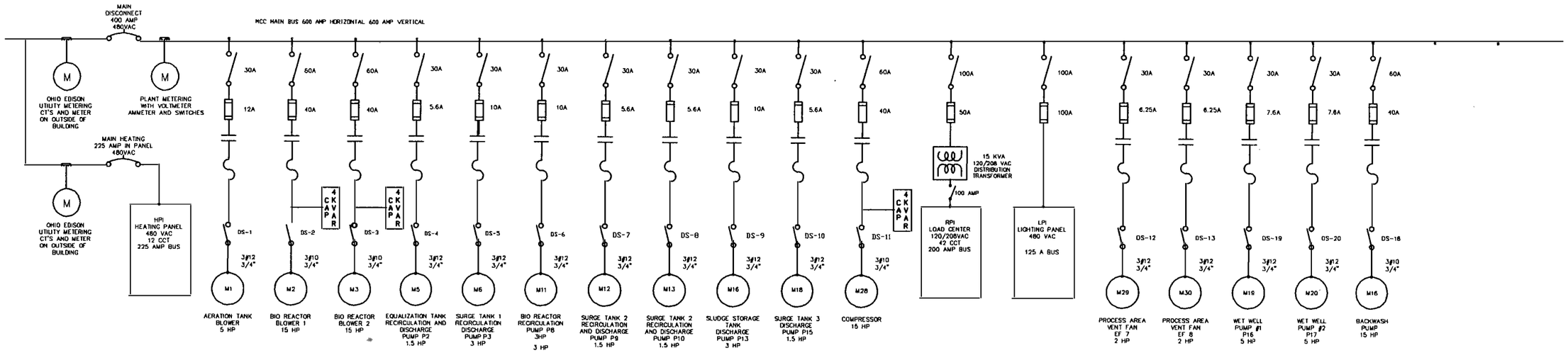
GROUNDWATER TREATMENT SYSTEM

**MOTOR AND DISCONNECT LOCATION**

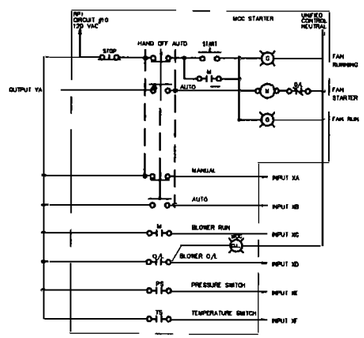
**CRA**
**CONESTOGA-ROVERS & ASSOCIATES**

| Drawn by: EFP | Scale: 1/4"=1'-0" | Date: OCTOBER 1995 | File Nº: P187 | Rev.Nº: 0 |
|---|---|---|---|---|
| Designed by: GHK | | | | |
| Checked by: GHK | Field book: | Project Nº: 2372 | Drawing Nº: C23 | |

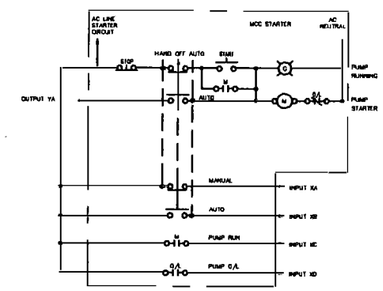
NOV. 01/95(W)



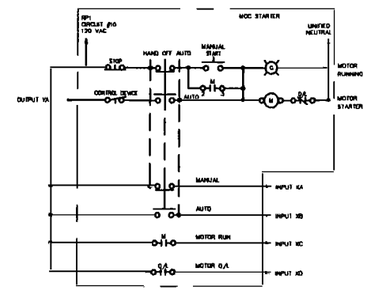

POWER AND MOTOR CONTROL SINGLE LINE DIAGRAM



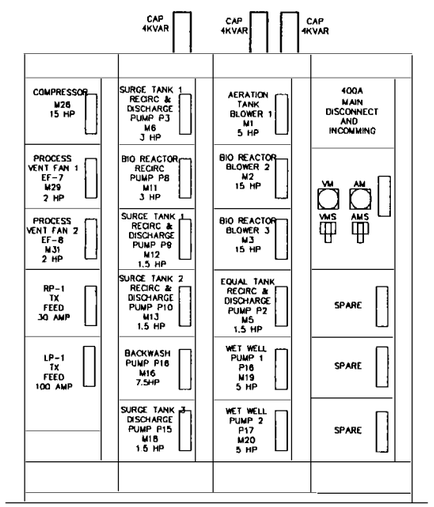

TYPICAL BLOWER CONTROL



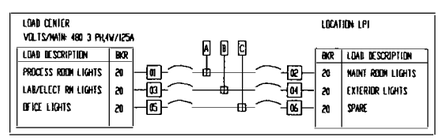

TYPICAL PUMP CONTROL

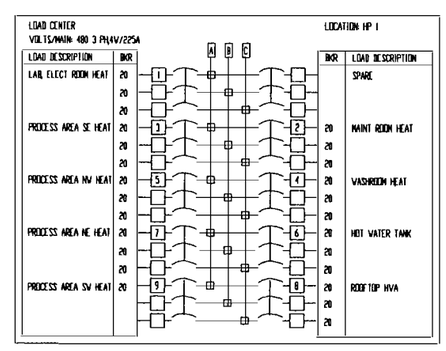


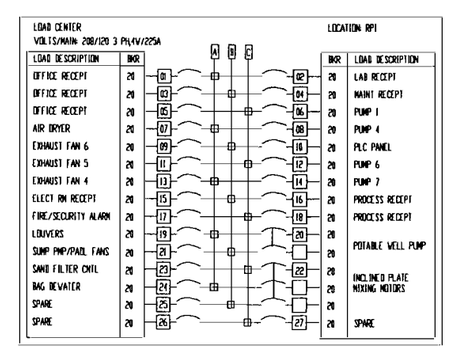

TYPICAL MOTOR CONTROL




MCC LAYOUT




| Nº | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT. 1995 | GHK |

Approved

**SUMMIT NATIONAL SUPERFUND SITE**
**DEERFIELD, OHIO**

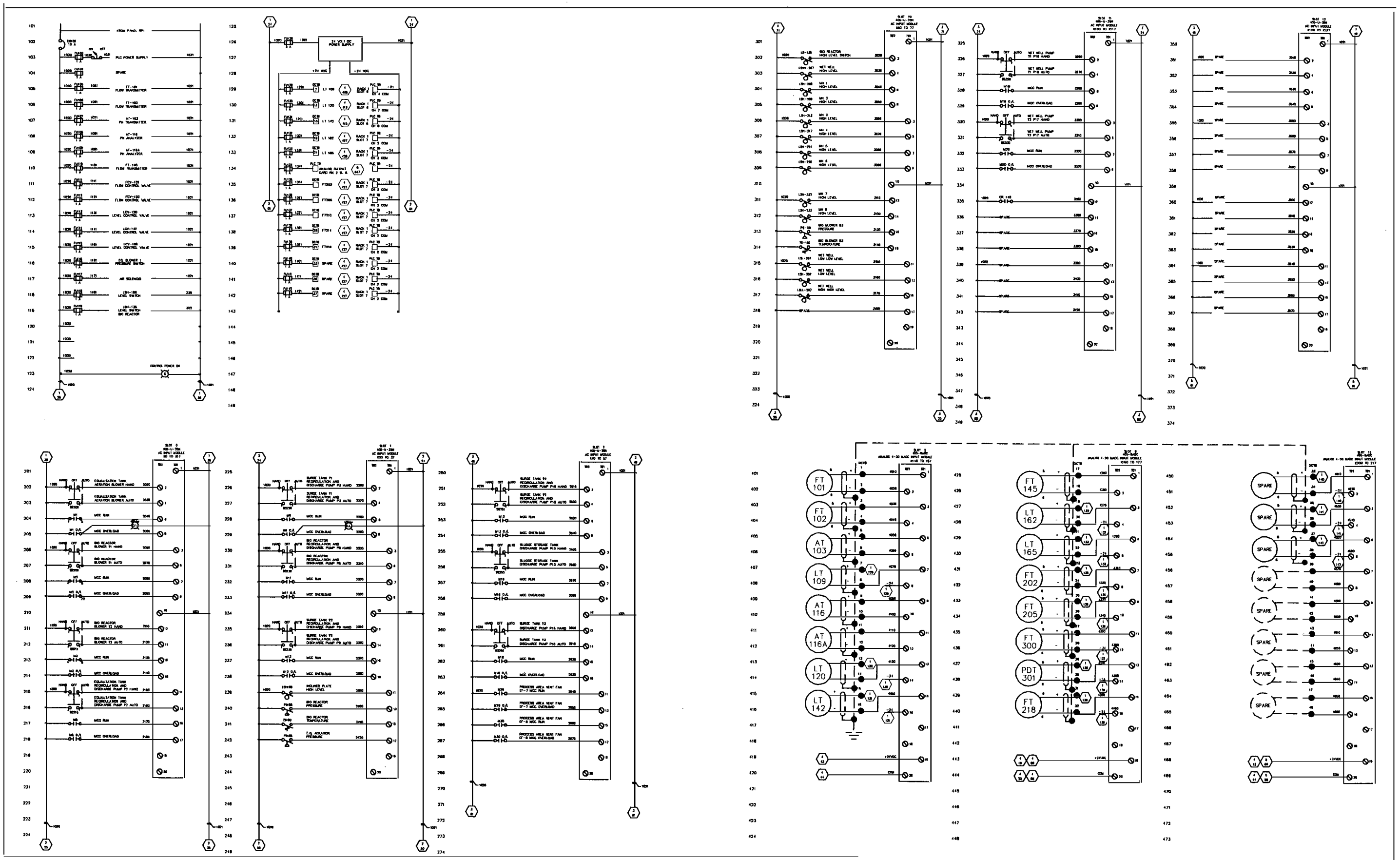
GROUNDWATER TREATMENT SYSTEM

**MCC LAYOUT AND SINGLE LINE DIAGRAM**

**CRA**
**CONESTOGA-ROVERS & ASSOCIATES**

| Drawn by: E.F.P. | Scale: N.T.S. | Date: OCTOBER 1995 | File Nº: P183 | Rev.Nº: 0 |
|---|---|---|---|---|
| Designed by: GHK | | | | |
| Checked by: GHK | Field book: | Project Nº: 2372 | Drawing Nº: C24 | |

NOV 02/95(W)




| | | | |
|---|---|---|---|
| 0 | AS RECORDED | OCT. 1995 | CHK |
| № | Revision | Date | Initial |

Approved

**SUMMIT NATIONAL SUPERFUND SITE**
**DEERFIELD, OHIO**

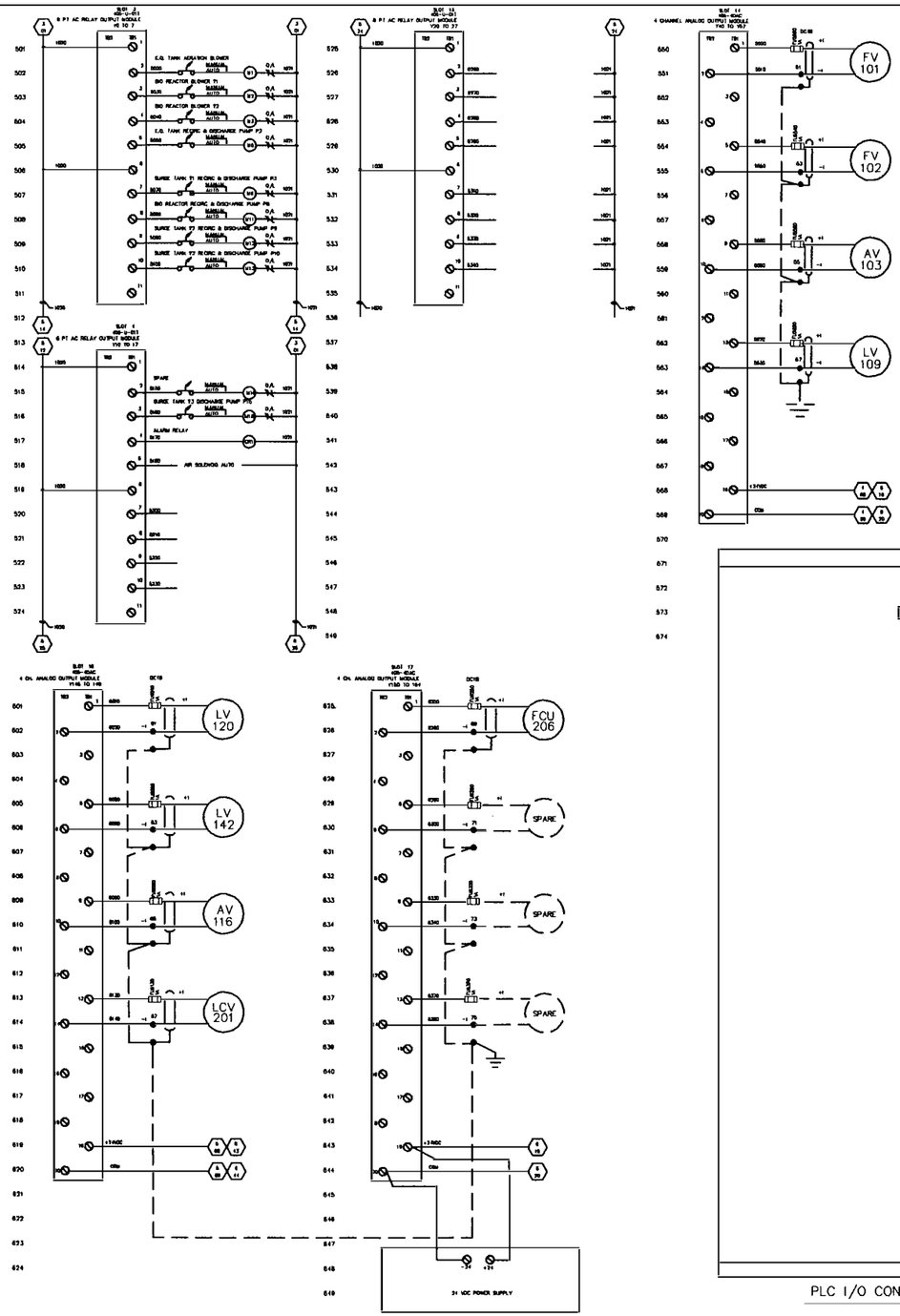
GROUNDWATER TREATMENT SYSTEM

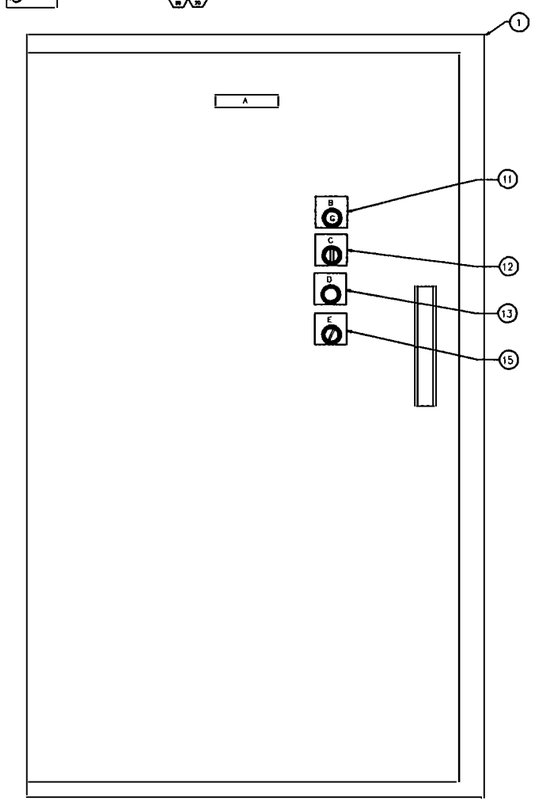
**PLC I/O LAYOUT**

**CRA**
**CONESTOGA-ROVERS & ASSOCIATES**

| | | | |
|---|---|---|---|
| Drawn by: E.F.P | Scale: N.T.S. | Date: OCTOBER 1995 | File №: P184 / Rev №: 0 |
| Designed by: G.H.K. | | | |
| Checked by: G.H.K. | Field book: | Project №: 2372 | Drawing №: C25 |

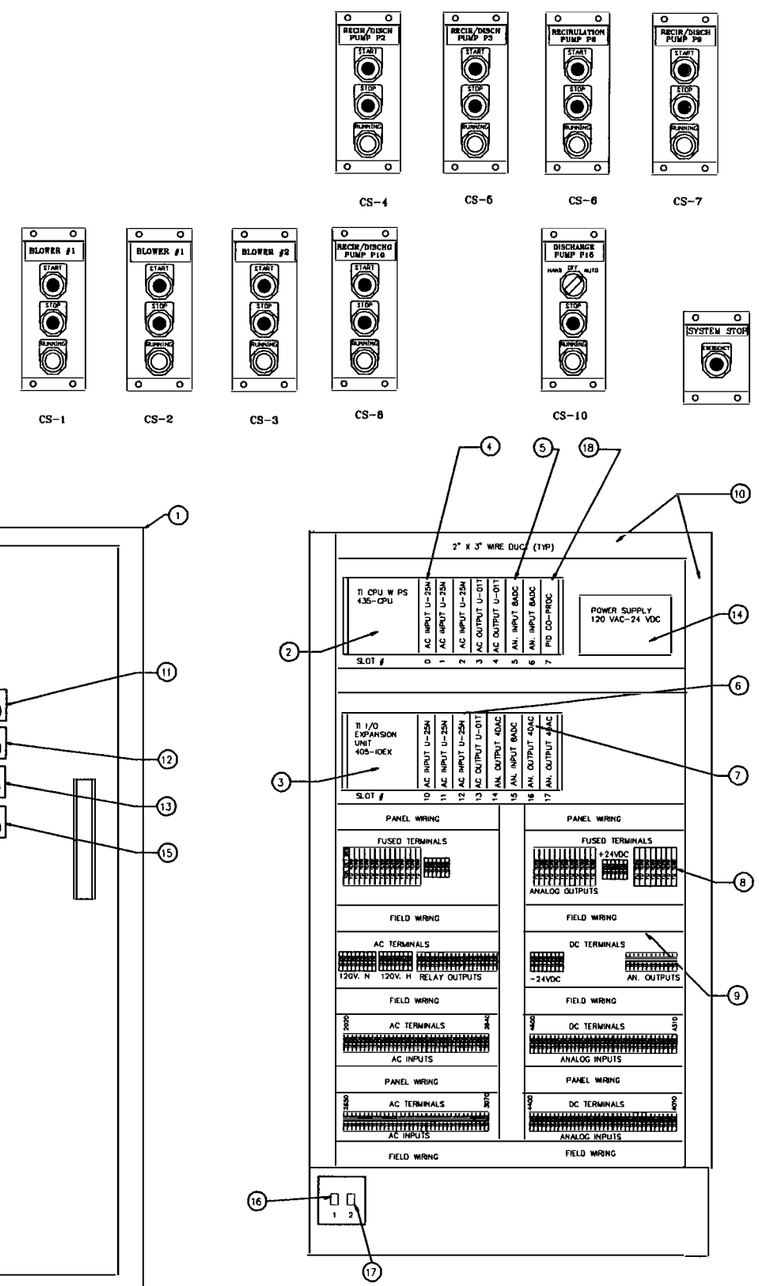
JULY 28/95(W)




PLC I/O CONTROL PANEL (FRONT)

N.T.S.




PLC I/O CONTROL PANEL (SUBPLATE)

N.T.S.

| ITEM | DESCRIPTION | TAG No. | MANUFACTURER | MODEL No. |
|---|---|---|---|---|
| CS-1 | CONTROL STATION 1 | HS 171 | ALLEN-BRADLEY | 800H 3H24 |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A1A |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A6A |
| | PILOT LIGHT - GREEN | | ALLEN-BRADLEY | 800T P16G |
| CS-2 | CONTROL STATION 2 | HS 129 | ALLEN-BRADLEY | 800H 3H24 |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A1A |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A6A |
| | PILOT LIGHT - GREEN | | ALLEN-BRADLEY | 800T P16G |
| CS-3 | CONTROL STATION 3 | HS 156 | ALLEN-BRADLEY | 800H 3H24 |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A1A |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A6A |
| | PILOT LIGHT - GREEN | | ALLEN-BRADLEY | 800T P16G |
| CS-4 | CONTROL STATION 4 | HS 109 | ALLEN-BRADLEY | 800H 3H24 |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A1A |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A6A |
| | PILOT LIGHT - GREEN | | ALLEN-BRADLEY | 800T P16G |
| CS-5 | CONTROL STATION 5 | HS 120 | ALLEN-BRADLEY | 800H 3H24 |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A1A |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A6A |
| | PILOT LIGHT - GREEN | | ALLEN-BRADLEY | 800T P16G |
| CS-6 | CONTROL STATION 6 | HS 133 | ALLEN-BRADLEY | 800H 3H24 |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A1A |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A6A |
| | PILOT LIGHT - GREEN | | ALLEN-BRADLEY | 800T P16G |
| CS-7 | CONTROL STATION 7 | HS 138 | ALLEN-BRADLEY | 800H 3H24 |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A1A |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A6A |
| | PILOT LIGHT - GREEN | | ALLEN-BRADLEY | 800T P16G |
| CS-8 | CONTROL STATION 8 | HS 139 | ALLEN-BRADLEY | 800H 3H24 |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A1A |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A6A |
| | PILOT LIGHT - GREEN | | ALLEN-BRADLEY | 800T P16G |
| CS-9 | CONTROL STATION 9 | HS 150 | ALLEN-BRADLEY | 800H 3H24 |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A1A |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A6A |
| | PILOT LIGHT - GREEN | | ALLEN-BRADLEY | 800T P16G |
| CS-10 | CONTROL STATION 10 | HS 144 | ALLEN-BRADLEY | 800H 3H24 |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A1A |
| | PUSHBUTTON | | ALLEN-BRADLEY | 800T A6A |
| | PILOT LIGHT - GREEN | | ALLEN-BRADLEY | 800T P16G |

| ITEM | QTY. | DESCRIPTION | PART NO. |
|---|---|---|---|
| 1 | 1 | 60 X 36 X 12 NEMA 12 | HOFFMAN |
| | | ENCLOSURE WITH SUBPLATE | A-60361ZLP |
| 2 | 1 | TEXAS INSTRUMENTS 435 CPU 10.5 K MEMORY | 435 CPU |
| 3 | 1 | TEXAS INSTRUMENTS SERIES 405 I/O EXPANSION UNIT | 405-IOEX |
| 4 | 8 | 16 POINT AC INPUT MODULE | 405-U-25N |
| 5 | 2 | 8 CHANNEL ANALOG INPUT MODULE 4-20 MADC | 405-8ADC |
| 6 | 3 | 16 POINT RELAY OUTPUT MODULE | 405-U-01 |
| 7 | 4 | 4 CHANNEL ANALOG OUTPUT MODULE 4-20 MADC | 405-4DAC |
| 8 | 50 | FUSED TERMINAL BLOCK ALLEN-BRADLEY | 1492-H6 |
| 9 | 200 | TERMINAL BLOCKS AC & DC ALLEN-BRADLEY | 1492-H1 |
| 10 | 1 LOT | 2" WIDE X 3" HIGH WIREDUCT (PLASTIC) | PANDUIT |
| 11 | 1 | GREEN PILOT LIGHT ALLEN-BRADLEY | 800T P16G |
| 12 | 1 | 2-POSITION SELECTOR SWITCH ALLEN-BRADLEY | 800T H7A |
| 13 | 1 | PUSHBUTTON ALLEN-BRADLEY | 800T A8A |
| 14 | 1 | DC POWER SUPPLY 120VAC/24VDC ACOPIAN | B24G350 |
| 15 | 1 | 3-POSITION SELECTOR SWITCH ALLEN-BRADLEY | 800T |
| 16 | 1 | NCC DISCONNECT SWITCH HUBBELL | 1221-1 |
| 17 | 1 | PLC DISCONNECT SWITCH HUBBELL | 1221-1 |
| 18 | 1 | PID CO-PROCESSOR ALLEN-BRADLEY | 405-16PID |

| PLC I/O CONTROL PANEL | | |
|---|---|---|
| MARK | DESCRIPTION | NAMEPLATE/LEGEND PLATE ENGRAVINGS |
| A | NAMEPLATE | PLC I/O CABINET |
| B | GREEN PILOT LIGHT | CONTROL - POWER ON |
| C | 2-POSITION SELECTOR SWITCH | CONTROL - ON OFF |
| D | PUSHBUTTON | SYSTEM - STOP |
| E | 3-POSITION SELECTOR SWITCH | WET WELL AIR TRANSFER PUMP |
| | | HAND - OFF - AUTO |

| NO. | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT. 1995 | GHK |

Approved

**SUMMIT NATIONAL SUPERFUND SITE**
**DEERFIELD, OHIO**

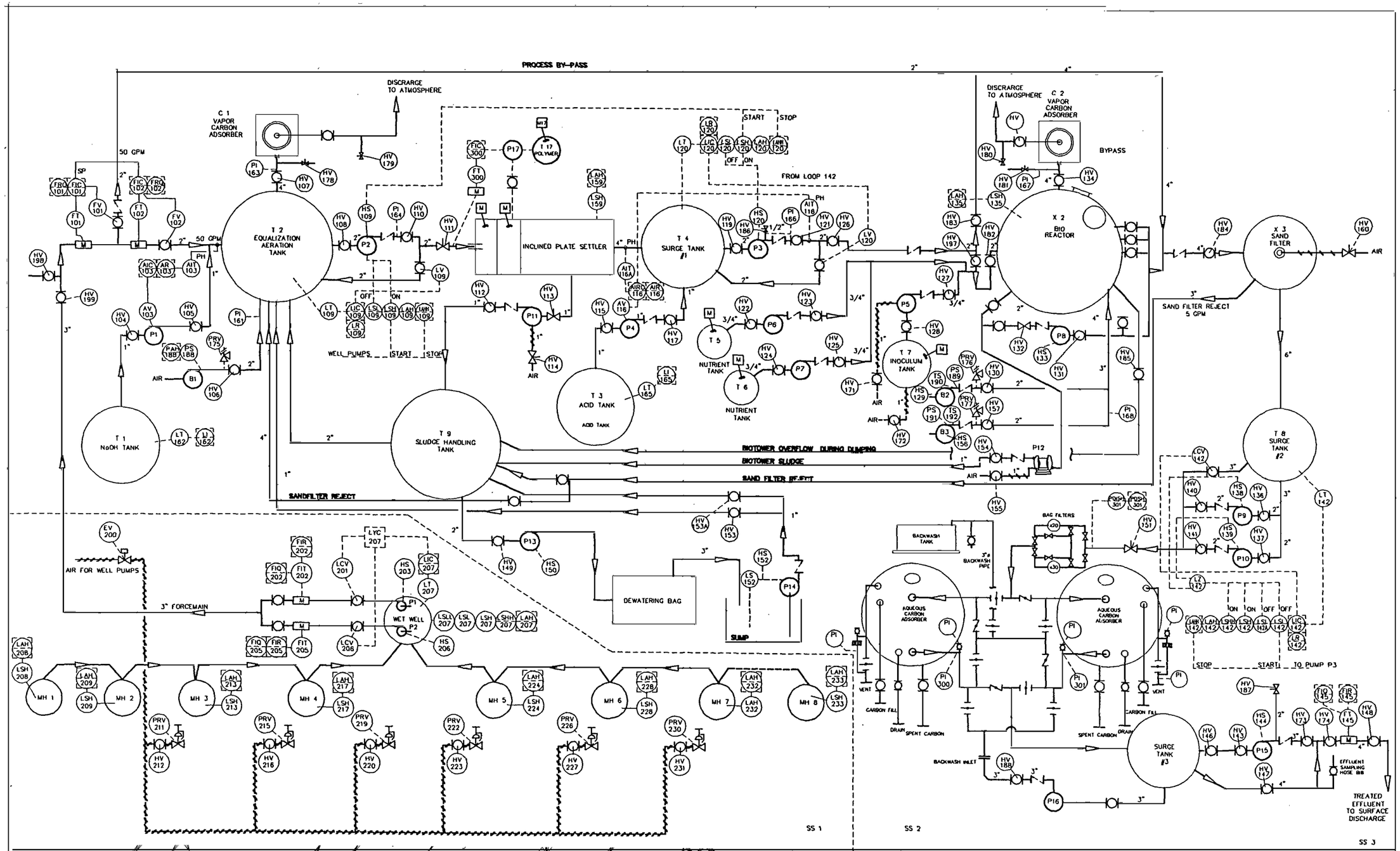
GROUNDWATER TREATMENT SYSTEM

**PLC I/O CABINET AND CONTROL STATIONS**

**CRA**
**CONESTOGA-ROVERS & ASSOCIATES**

| Drawn by: E.F.P. | Scale: 1/4" = 1'-0" | Date: OCTOBER 1995 | File No: P185 | Rev No: 0 |
|---|---|---|---|---|
| Designed by: GHK | | | | |
| Checked by: GHK | Field book: | Project No: 2372 | Drawing No: C26 | |

OCT 10/95(W)




| LEGEND | | | | | | | |
|---|---|---|---|---|---|---|---|
| AIC | ANALYSIS INDICATING CONTROLLER | FIT | FLOW INDICATING TRANSMITTER | LS | LEVEL SWITCH | TS | TEMPERATURE SWITCH |
| AIT | ANALYSIS INDICATING TRANSMITTER | FT | FLOW TRANSMITTER | LSH | LEVEL SWITCH HIGH | PS | PRESSURE SWITCH |
| AV | ANALYSIS CONTROL ELEMENT | FV | FLOW CONTROL VALVE (ELEMENT) | LSHH | LEVEL SWITCH HIGH HIGH | PCV | PRES CONTROL VALVE |
| FCV | SELF-ACTIVATING FLOW CONTROL VALVE | HS | HAND SWITCH (PLC I/O POINT) | LSL | LEVEL SWITCH LOW | | |
| FE | FLOW ELEMENT | HV | HAND VALVE | LT | LEVEL TRANSMITTER | | |
| FI | FLOW INDICATOR | LAH | LEVEL ALARM HIGH | LV | LEVEL CONTROL VALVE | | |
| FIC | FLOW INDICATING CONTROLLER | LAHH | LEVEL ALARM HIGH HIGH | LZ | LEVEL POSITIONER | | |
| FIQ | FLOW INDICATING TOTALIZER | LC | LEVEL CONTROLLER | M | FLOW METER | | |
| FIR | FLOW INDICATING RECORDER | LI | LEVEL INDICATOR | PI | PRESSURE INDICATOR | | |
| | | LIC | LEVEL INDICATING CONTROLLER | PRV | PRESSURE RELIEF VALVE | | |

| Nº | Revision | Date | Initial |
|---|---|---|---|
| 1 | SURGE TANK #2 EQUIPMENT DESIGNATION CORRECTED | MAR. 1996 | SAW |
| 0 | AS RECORDED | OCT. 1995 | GHK |

Approved

# SUMMIT NATIONAL SUPERFUND SITE
# DEERFIELD, OHIO

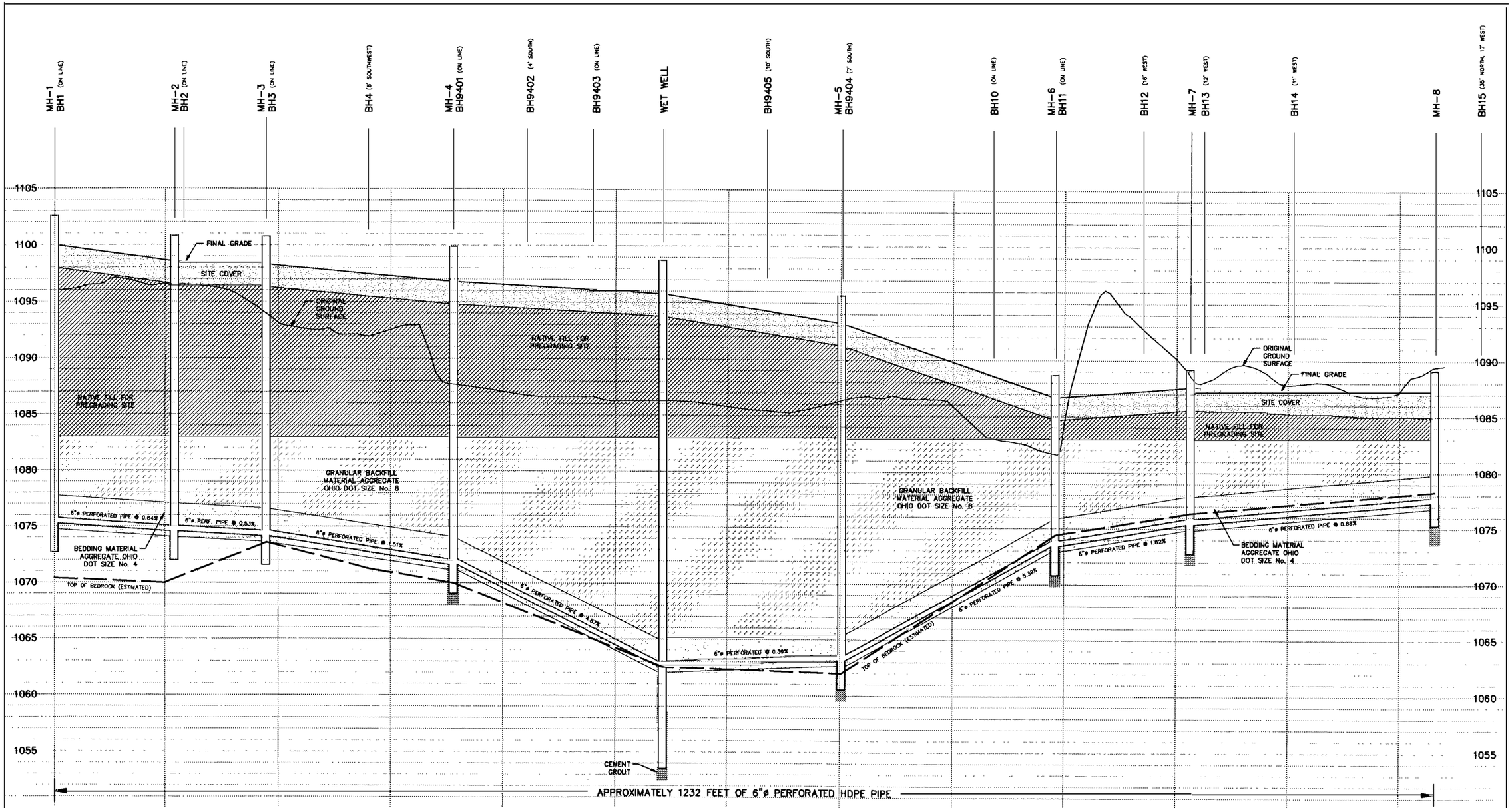
## GROUNDWATER TREATMENT SYSTEM

## PROCESS AND INSTRUMENTATION DIAGRAM

**CRA**
**CONESTOGA-ROVERS & ASSOCIATES**

| Drawn by: E.F.P. | Scale: N/S | Date: OCTOBER 1995 | File Nº: P186 | Rev.Nº: 1 |
|---|---|---|---|---|
| Designed by: G.H.K. | Field book: | Project Nº: 2372 | Drawing Nº: C27 | |
| Checked by: G.H.K. | | | | |

MAR. 11/96(R)




| CHAINAGE | ORIGINAL GROUND SURFACE ELEVATION | FINAL GRADE ELEVATION | DRAIN PIPE INVERT ELEVATION |
|---|---|---|---|
| 0+00 | 1098.0 | 1100.04 | 1075.27 |
| 1+00 | 1098.5 | 1098.56 | 1074.58 |
| 1+08.20 | | | 1074.38 |
| 1+89.25 | 1093.9 | 1098.34 | 1074.15 |
| 2+00 | | | 1074.15 |
| 3+00 | | | |
| 3+26.00 | 1092.9 | | |
| 3+55.64 | 1087.7 | 1096.80 | 1071.63 |
| 4+00 | | | 1071.63 |
| 4+21.50 | | | |
| 4+80.00 | | | |
| 5+00 | | | |
| 5+42.63 | 1088.3 | 1095.78 | 1062.52 |
| 6+00 | | | 1062.52 |
| 6+35.00 | | | |
| 7+00 | 1088.3 | 1093.23 | 1063.14 |
| 7+01.33 | | | 1063.14 |
| 8+00 | | | |
| 8+91.97 | 1081.7 | 1086.67 | 1073.41 |
| 9+00 | | | 1073.41 |
| 9+36.00 | 1086.2 | | |
| 10+00 | 1088.3 | 1087.60 | 1075.36 |
| 10+12.32 | | | 1075.36 |
| 11+00 | | | |
| 12+00 | | | |
| 2+31.68 | 1088.5 | 1088.87 | 1077.30 |
| CHAINAGE | ORIGINAL GROUND SURFACE ELEVATION | FINAL GRADE ELEVATION | DRAIN PIPE INVERT ELEVATION |

| № | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT 1995 | JAW |

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**SUMMIT NATIONAL SUPERFUND SITE**
**DEERFIELD, OHIO**

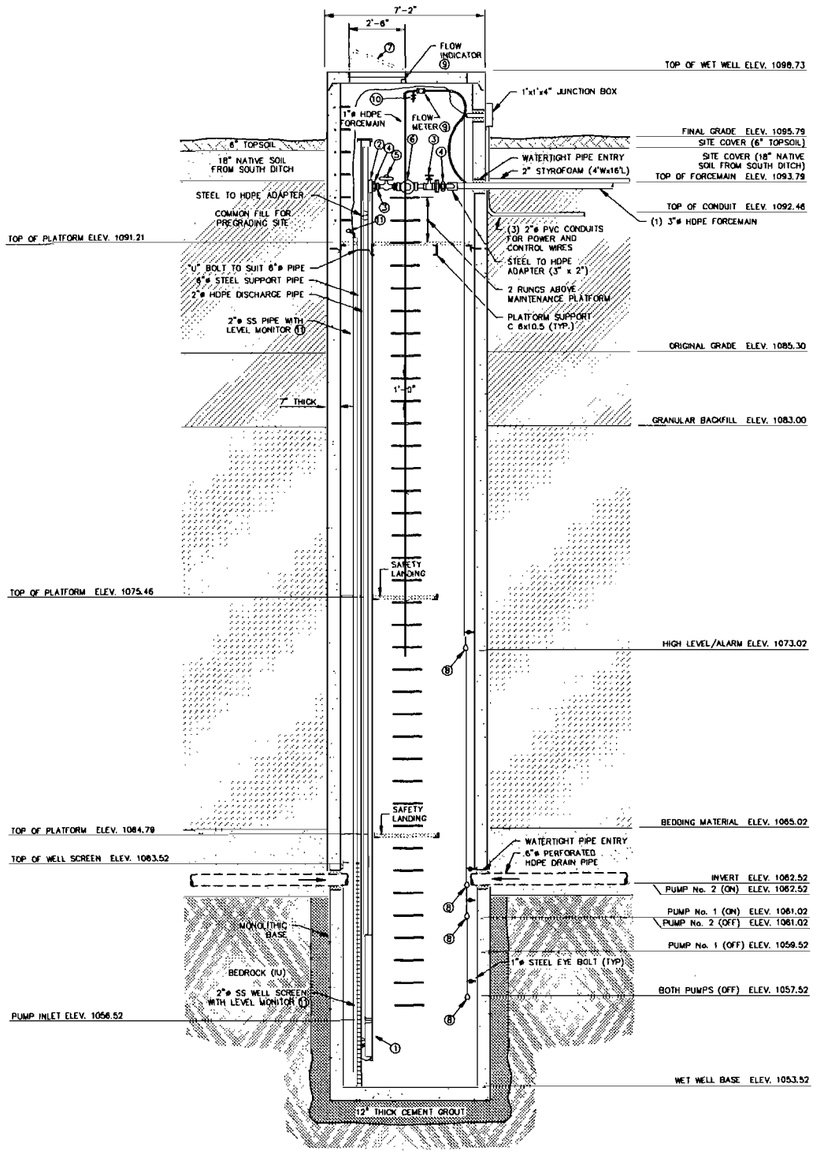
GROUNDWATER EXTRACTION SYSTEM

**PIPE & MEDIA DRAIN PROFILE**

**CRA**
**CONESTOGA-ROVERS & ASSOCIATES**

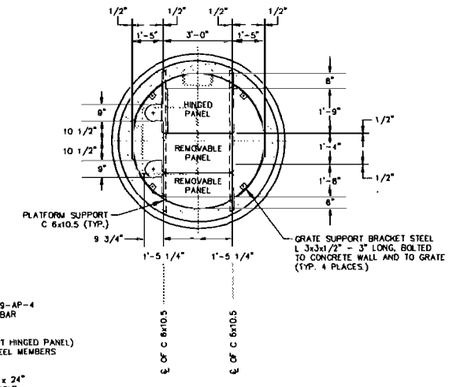
| Drawn by: JRV | Scale: (H) 1"=40' (V) 1"=4' | Date: OCTOBER 1995 | File №: PP06 | Rev №: 0 |
|---|---|---|---|---|
| Designed by: JAW | | | | |
| Checked by: JAW | Field book: | Project №: 2372 | Drawing №: D-5 | |

OCT 13/95(W)




## WET WELL DETAIL SIDE VIEW

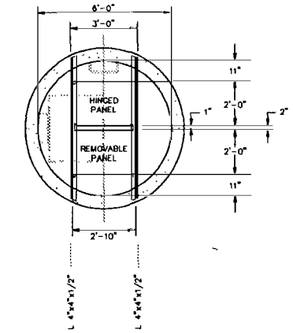
N.T.S.




NOTES:
1. ALL GRATING PANELS TYPE 19-AP-4 STANDARD MESH, BREAKING-BAR SIZE 1-1/4" x 3/16".
2. ALL GRATING PANELS (EXCEPT HINGED PANEL) SECURED TO SUPPORTING STEEL MEMBERS OR BRACKETS
3. HINGED GRATING WITH 1/2"ø x 24" CHAIN AND SNAP HOOK TO HOLD GRATE VERTICAL.

## WET WELL MAINTENANCE PLATFORM DETAIL

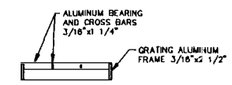
N.T.S.




NOTES:
1. ALL GRATING PANELS TYPE 19-AP-4 STANDARD MESH, BREAKING-BAR SIZE 1-1/4" x 3/16".
2. ALL GRATING PANELS (EXCEPT HINGED PANEL) SECURED TO SUPPORTING STEEL MEMBERS OR BRACKETS
3. HINGED GRATING WITH 1/2"ø x 18" CHAIN AND SNAP HOOK TO HOLD GRATE VERTICAL.

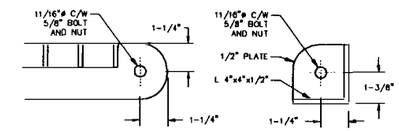
## WET WELL SAFETY LANDING DETAIL

N.T.S.



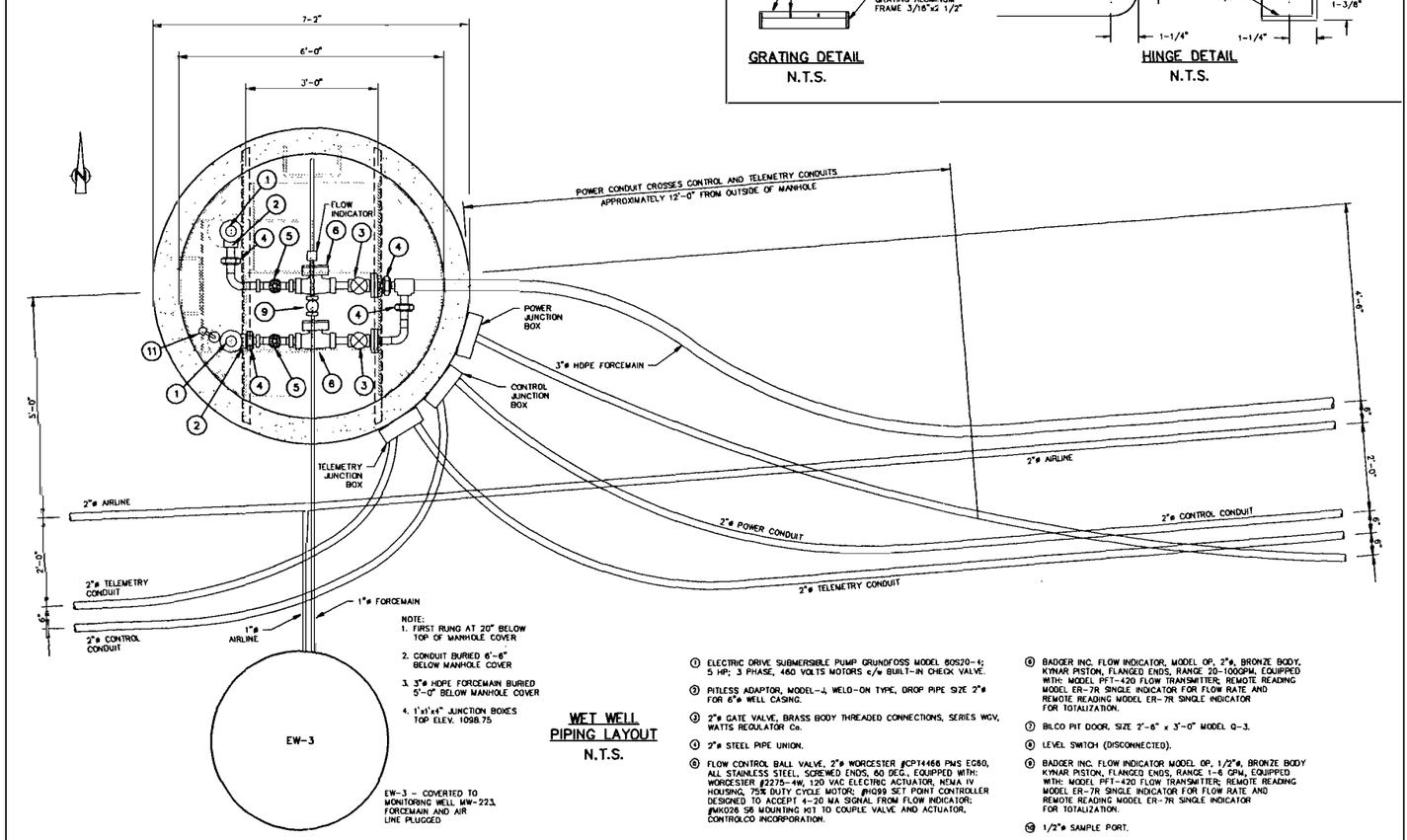

## GRATING DETAIL

N.T.S.




## HINGE DETAIL

N.T.S.




NOTE:
1. FIRST RUNG AT 20" BELOW TOP OF MANHOLE COVER
2. CONDUIT BURIED 6'-6" BELOW MANHOLE COVER
3. 3"ø HDPE FORCEMAIN BURIED 5'-0" BELOW MANHOLE COVER
4. 1'x1'x4" JUNCTION BOXES TOP ELEV. 1098.75

EW-3 - COVERTED TO MONITORING WELL MW-223. FORCEMAIN AND AIR LINE PLUGGED

## WET WELL PIPING LAYOUT

N.T.S.

1. ELECTRIC DRIVE SUBMERSIBLE PUMP GRUNDFOSS MODEL 60S20-4; 5 HP; 3 PHASE, 460 VOLTS MOTORS c/w BUILT-IN CHECK VALVE.
2. PITLESS ADAPTOR, MODEL-J, WELD-ON TYPE, DROP PIPE SIZE 2"ø FOR 6"ø WELL CASING.
3. 2"ø GATE VALVE, BRASS BODY THREADED CONNECTIONS, SERIES WGV, WATTS REGULATOR Co.
4. 2"ø STEEL PIPE UNION.
5. FLOW CONTROL BALL VALVE, 2"ø WORCESTER #CPT4466 PWS EG80, ALL STAINLESS STEEL, SCREWED ENDS, 60 DEG., EQUIPPED WITH: WORCESTER #2275-4W, 120 VAC ELECTRIC ACTUATOR, NEMA IV HOUSING, 75% DUTY CYCLE MOTOR; #HQ99 SET POINT CONTROLLER DESIGNED TO ACCEPT 4-20 MA SIGNAL FROM FLOW INDICATOR; #MK026 S6 MOUNTING KIT TO COUPLE VALVE AND ACTUATOR, CONTROLCO INCORPORATION.
6. BADGER INC. FLOW INDICATOR, MODEL OP, 2"ø, BRONZE BODY, KYNAR PISTON, FLANGED ENDS, RANGE 20-1000PM, EQUIPPED WITH: MODEL PFT-420 FLOW TRANSMITTER; REMOTE READING MODEL ER-7R SINGLE INDICATOR FOR FLOW RATE AND REMOTE READING MODEL ER-7R SINGLE INDICATOR FOR TOTALIZATION.
7. BILCO PIT DOOR, SIZE 2'-6" x 3'-0" MODEL Q-3.
8. LEVEL SWITCH (DISCONNECTED).
9. BADGER INC. FLOW INDICATOR MODEL OP, 1/2"ø, BRONZE BODY KYNAR PISTON, FLANGED ENDS, RANGE 1-6 GPM, EQUIPPED WITH: MODEL PFT-420 FLOW TRANSMITTER; REMOTE READING MODEL ER-7R SINGLE INDICATOR FOR FLOW RATE AND REMOTE READING MODEL ER-7R SINGLE INDICATOR FOR TOTALIZATION.
10. 1/2"ø SAMPLE PORT.
11. DREXELBROOK 508-11-34 LEVEL MONITOR.

GENERAL NOTES FOR PRECAST CONCRETE MANHOLE SECTIONS

1. REINFORCED STEEL CONFORMS TO LATEST A.S.T.M. A185 SPEC.
2. CONCRETE COMPRESSIVE STRENGTH -4000 PSI MINIMUM.
3. MANHOLE DESIGN SPECIFICATIONS CONFORM TO LATEST A.S.T.M. C478 SPEC. FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS.
4. SINGLE POUR MONOLITHIC BASE SECTION.

| Nº | Revision | Date | Initials |
|---|---|---|---|
| 0 | AS RECORDED | OCT 1995 | JAW |

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SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

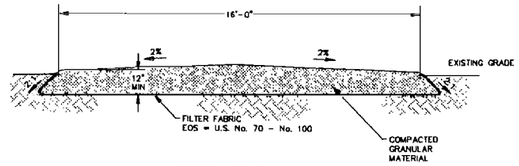
GROUNDWATER EXTRACTION SYSTEM

WET WELL DETAILS

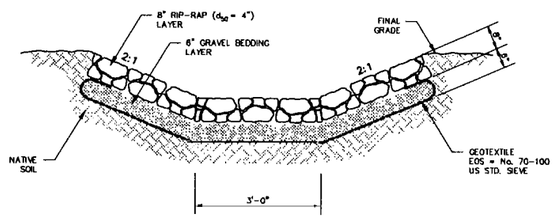
CRA
CONESTOGA-ROVERS & ASSOCIATES

| Drawn by: JRV | Scale: N.T.S. | Date: OCTOBER 1995 | File Nº: D-55 | Rev Nº: 0 |
|---|---|---|---|---|
| Designed by: JAW | | | | |
| Checked by: JAW | Field book: | Project Nº: 2372 | Drawing Nº: D-6 | |

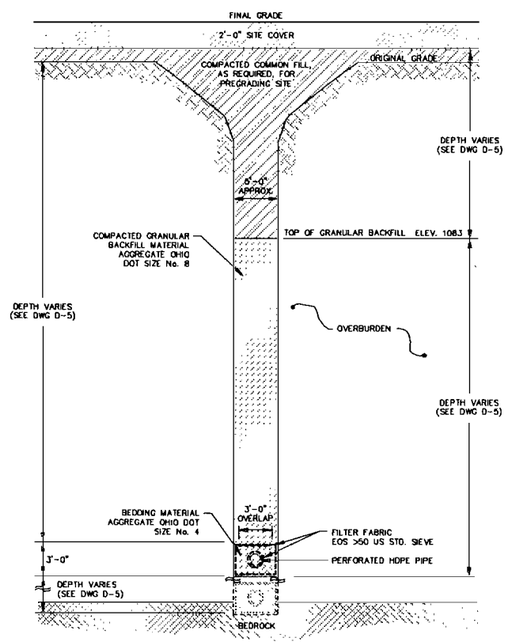
OCT 13/95(R)



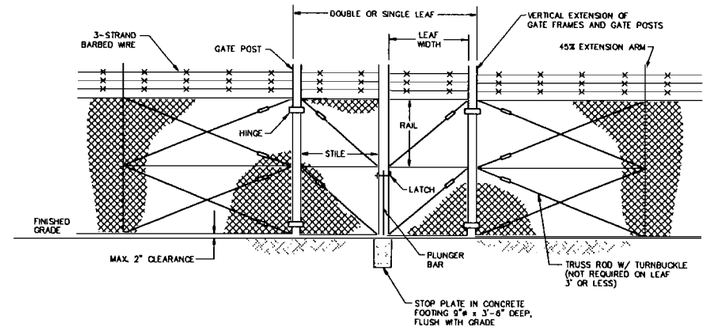

PERMANENT ACCESS ROAD DETAIL
N.T.S.




EAST DITCH - DETAIL
TYPICAL CROSS SECTION
N.T.S.

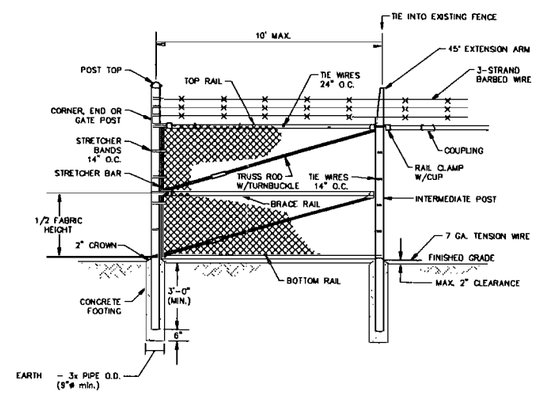



PIPE AND MEDIA DRAIN
TYPICAL CROSS-SECTION
N.T.S.



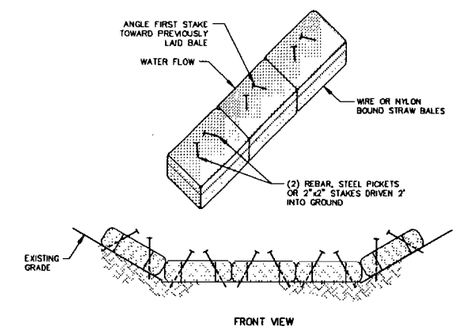

| POST AND RAIL SIZES - GATES | | | | |
|---|---|---|---|---|
| USE | LEAF WIDTH | FABRIC HGT. | O.D.* | LBS/FT |
| GATE FRAME: STILES AND RAILS | 8' | 6' | 1 5/8" | 2.27 |
| GATE POST: | 8' | 6' | 4" | 9.11 |
| * CARBON STEEL PIPE - ASTM 1-120, SCHED.40 | | | | |

CHAIN LINK FENCE HINGED GATE DETAIL
N.T.S.



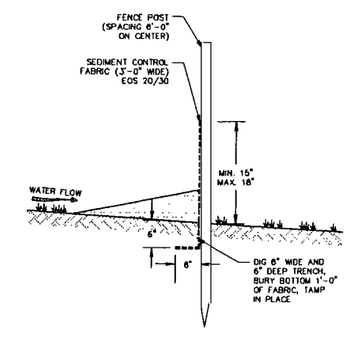

| POST AND RAIL SIZES - FENCE | | | |
|---|---|---|---|
| USE | FABRIC HGT. | O.D.* | LBS/FT |
| INTERMEDIATE POSTS | 6' | 2 1/2" | 3.65 |
| CORNER, END GATE AND BRACE POSTS | 6' | 3" | 5.79 |
| RAILS | | 1 5/8" | 2.27 |
| * CARBON STEEL PIPE - ASTM 1-120, SCHED.40 | | | |

CHAIN LINK FENCE DETAIL
N.T.S.




FRONT VIEW

STRAW BALE BARRIER DETAIL
N.T.S.




SILT FENCE SEDIMENT BARRIER
N.T.S.

| Nº | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT 1995 | JAW |

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SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

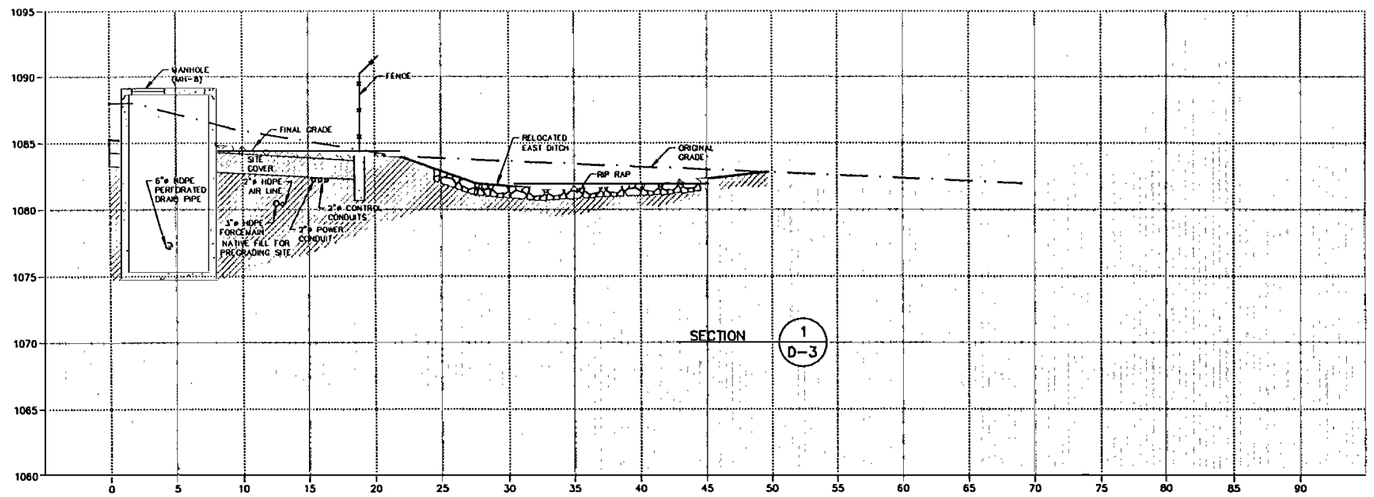
GROUNDWATER EXTRACTION SYSTEM

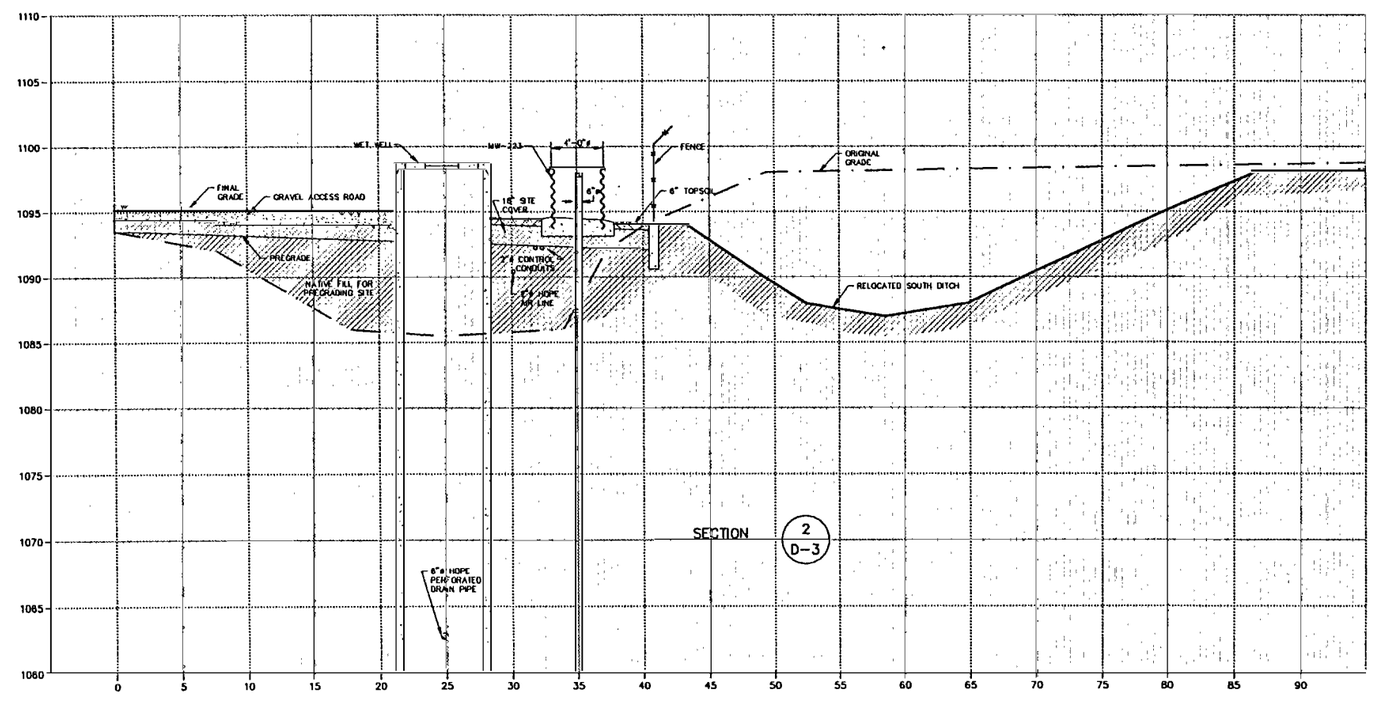
TYPICAL DETAILS

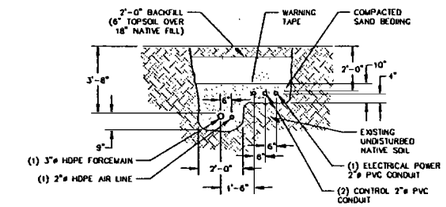
CRA
CONESTOGA-ROVERS & ASSOCIATES

| Drawn by: JRV | Scale: N.T.S. | Date: OCTOBER 1995 | File Nº: D-56 | Rev Nº: 0 |
|---|---|---|---|---|
| Designed by: JAW | Field book: | Project Nº: 2372 | Drawing Nº: D-7 | |
| Checked by: JAW | | | | |

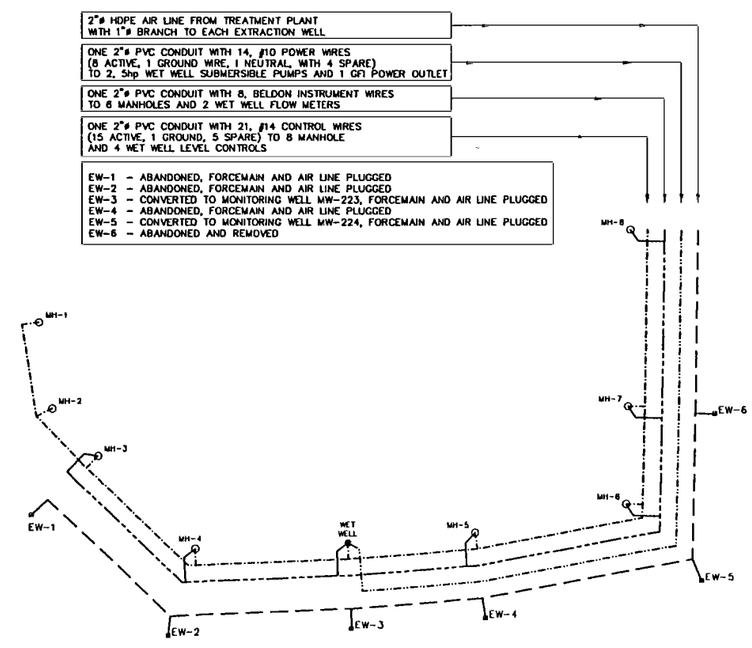
OCT 13/95(#)




FORCEMAIN AND PVC CONDUITS
BEDDING DETAIL
N.T.S.




ELECTRICAL POWER AND
CONTROL PVC CONDUITS
DIAGRAM DETAIL
N.T.S.

| № | Revision | Date | Initial |
|---|---|---|---|
| 1 | MW-223 LABEL ADDED | MAR 1998 | SAW |
| 0 | AS RECORDED | OCT 1995 | JAW |

Approved

SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

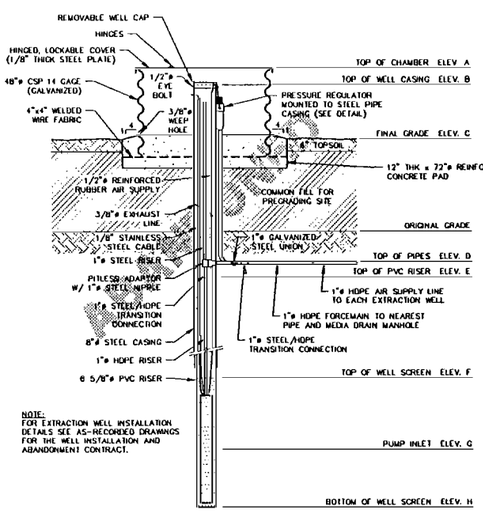
GROUNDWATER EXTRACTION SYSTEM

TYPICAL SECTIONS AND
ELECTRICAL CONDUIT DETAILS

**CRA**
CONESTOGA-ROVERS & ASSOCIATES

| Drawn by: JRV | Scale: AS SHOWN | Date: OCTOBER 1995 | File №: P200 | Rev.№: 1 |
|---|---|---|---|---|
| Designed by: JAW | | | | |
| Checked by: JAW | Field book: | Project №: 2372 | Drawing №: D-8 | |

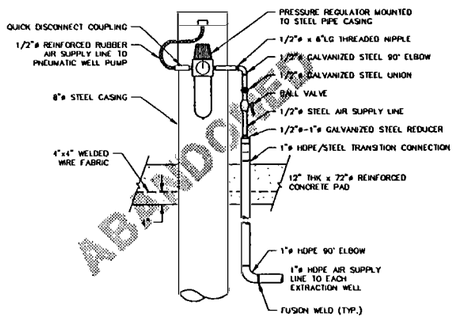
MAR 13/98(W)



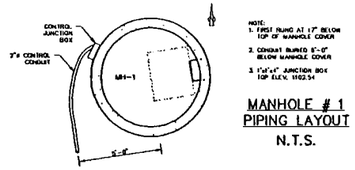

EXTRACTION WELL DETAIL
N.T.S.

| EXTRACTION WELL No. | EXTRACTION WELL ELEVATION SUMMARY | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H |
| EW-1 | 1100.23 | 1099.96 | 1097.54 | 1094.72 | 1089.26 | 1079.46 | 1034.35 | 1029.46 |
| EW-2 | 1098.40 | 1097.80 | 1095.41 | 1083.18 | 1089.94 | 1079.69 | 1037.21 | 1029.69 |
| EW-3 | 1098.37 | 1097.81 | 1095.48 | 1093.01 | 1081.47 | 1083.41 | 1015.10 | 1008.41 |
| EW-4 | 1096.25 | 1095.15 | 1093.17 | 1090.28 | 1086.47 | 1046.50 | 1016.01 | 1006.50 |
| EW-5 | 1089.41 | 1088.87 | 1088.15 | 1083.32 | 1082.69 | 1067.97 | 1023.49 | 1017.97 |
| EW-6 | 1089.54 | 1088.80 | 1086.33 | 1083.29 | 1077.73 | 1068.30 | 983.22 | 978.30 |

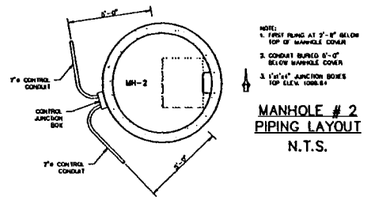
EW-1 - ABANDONED, FORCEMAIN AND AIR LINE PLUGGED
EW-2 - ABANDONED, FORCEMAIN AND AIR LINE PLUGGED
EW-3 - CONVERTED TO MONITORING WELL MW-223, FORCEMAIN AND AIR LINE PLUGGED
EW-4 - ABANDONED, FORCEMAIN AND AIR LINE PLUGGED
EW-5 - CONVERTED TO MONITORING WELL MW-224, FORCEMAIN AND AIR LINE PLUGGED
EW-6 - ABANDONED AND REMOVED




PRESSURE REGULATOR DETAIL
N.T.S.




MANHOLE # 1
PIPING LAYOUT
N.T.S.

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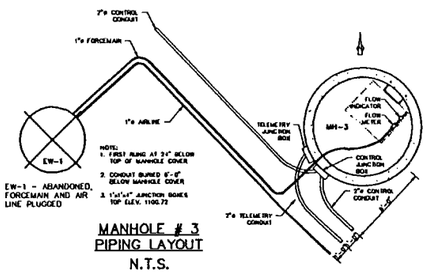
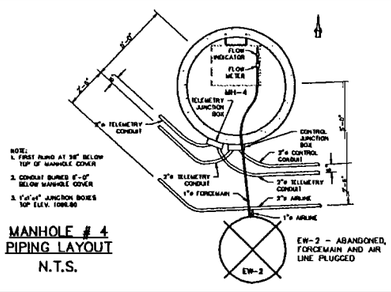
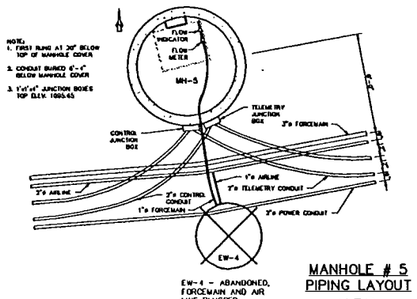
PIPING LAYOUT
N.T.S.



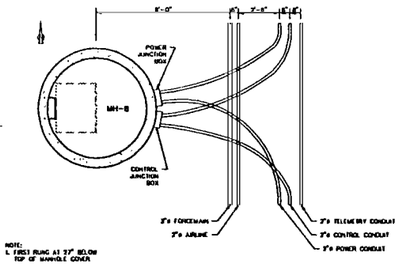

MANHOLE # 3
PIPING LAYOUT
N.T.S.



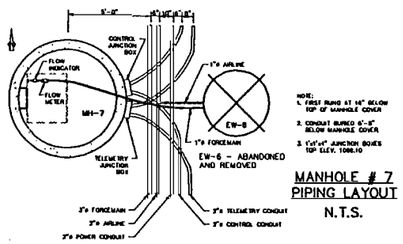

MANHOLE # 4
PIPING LAYOUT
N.T.S.



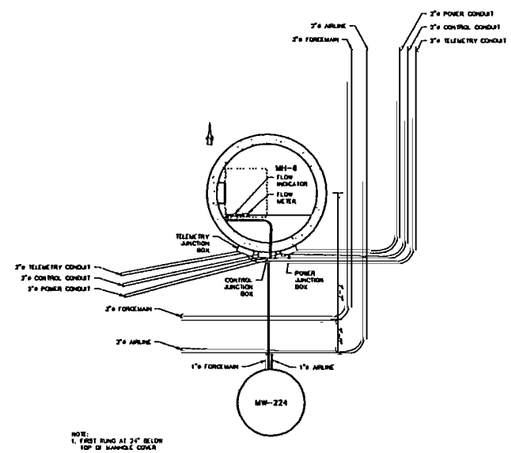

MANHOLE # 5
PIPING LAYOUT
N.T.S.



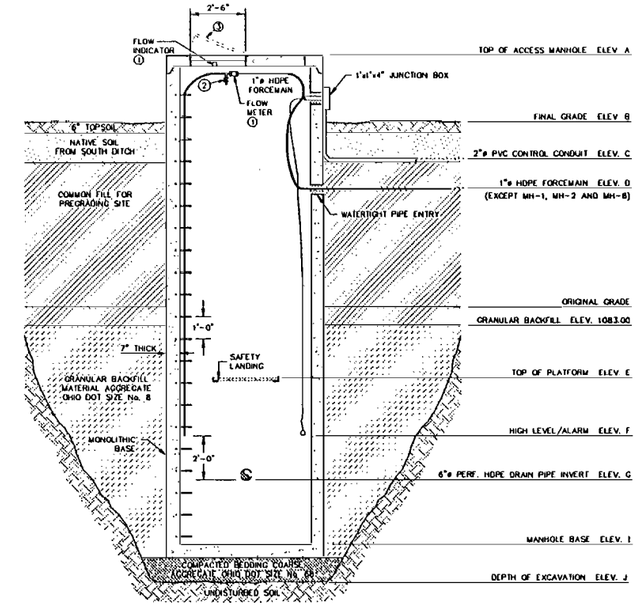

MANHOLE # 8
PIPING LAYOUT
N.T.S.



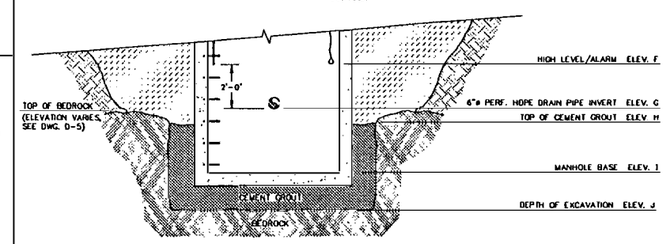

MANHOLE # 7
PIPING LAYOUT
N.T.S.




MANHOLE # 6
PIPING LAYOUT
N.T.S.




ACCESS MANHOLE DETAIL
MH-1, MH-2 & MH-3
N.T.S.




ACCESS MANHOLE DETAIL
MH-4 THRU MH-8
N.T.S.

① BADGER INC. FLOW INDICATOR MODEL DP, 1/2"ø, BRONZE BODY KYNAR PISTON, FLANGED ENDS, RANGE 1-6 GPM, EQUIPPED WITH: MODEL PFT-420 FLOW TRANSMITTER; REMOTE READING MODEL ER-7R SINGLE INDICATOR FOR FLOW RATE (READABLE FROM MANHOLE DOOR); REMOTE READING MODEL ER-7R SINGLE INDICATOR FOR TOTALIZATION (INSTALLED @ TREATMENT PLANT).

② 1/2"ø SAMPLE PORT ACCESSIBLE FROM MANHOLE DOOR.

③ BILCO PIT DOOR, SIZE 2'-6" x 3'-0" MODEL Q-3.

| ACCESS MANHOLE | MANHOLE ELEVATION SUMMARY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I | J |
| MH-1 | 1102.54 | 1100.04 | 1097.54 | - | 1085.78 | 1077.00 | 1075.27 | - | 1073.27 | 1072.19 |
| MH-2 | 1100.81 | 1098.58 | 1095.31 | - | 1088.23 | 1076.58 | 1074.58 | - | 1072.58 | 1071.41 |
| MH-3 | 1100.76 | 1098.34 | 1094.76 | 1095.51 | 1081.23 | 1076.05 | 1074.15 | - | 1072.15 | 1070.98 |
| MH-4 | 1099.88 | 1096.80 | 1093.88 | 1093.04 | 1084.71 | 1073.63 | 1071.63 | 1071.13 | 1069.63 | 1067.96 |
| MH-5 | 1095.65 | 1093.23 | 1089.32 | 1089.07 | 1085.32<br>1074.83 | 1065.25 | 1063.14 | 1062.50 | 1061.14 | 1059.47 |
| MH-6 | 1088.67 | 1086.67 | 1084.84 | 1083.38 | 1079.09 | 1075.41 | 1073.41 | 1072.41 | 1071.41 | 1069.74 |
| MH-7 | 1089.18 | 1087.60 | 1083.51 | 1082.93 | 1080.76 | 1077.36 | 1075.36 | 1074.36 | 1073.36 | 1071.69 |
| MH-8 | 1089.12 | 1088.87 | 1083.62 | - | 1082.12 | 1079.30 | 1077.30 | 1076.30 | 1075.30 | 1073.83 |

| Nº | Revision | Date | Initial |
|---|---|---|---|
| 1 | EXTRACTION WELL ABANONED NOTES | MAR 1996 | SAW |
| 0 | AS RECORDED | OCT 1995 | JAW |

Approved

SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

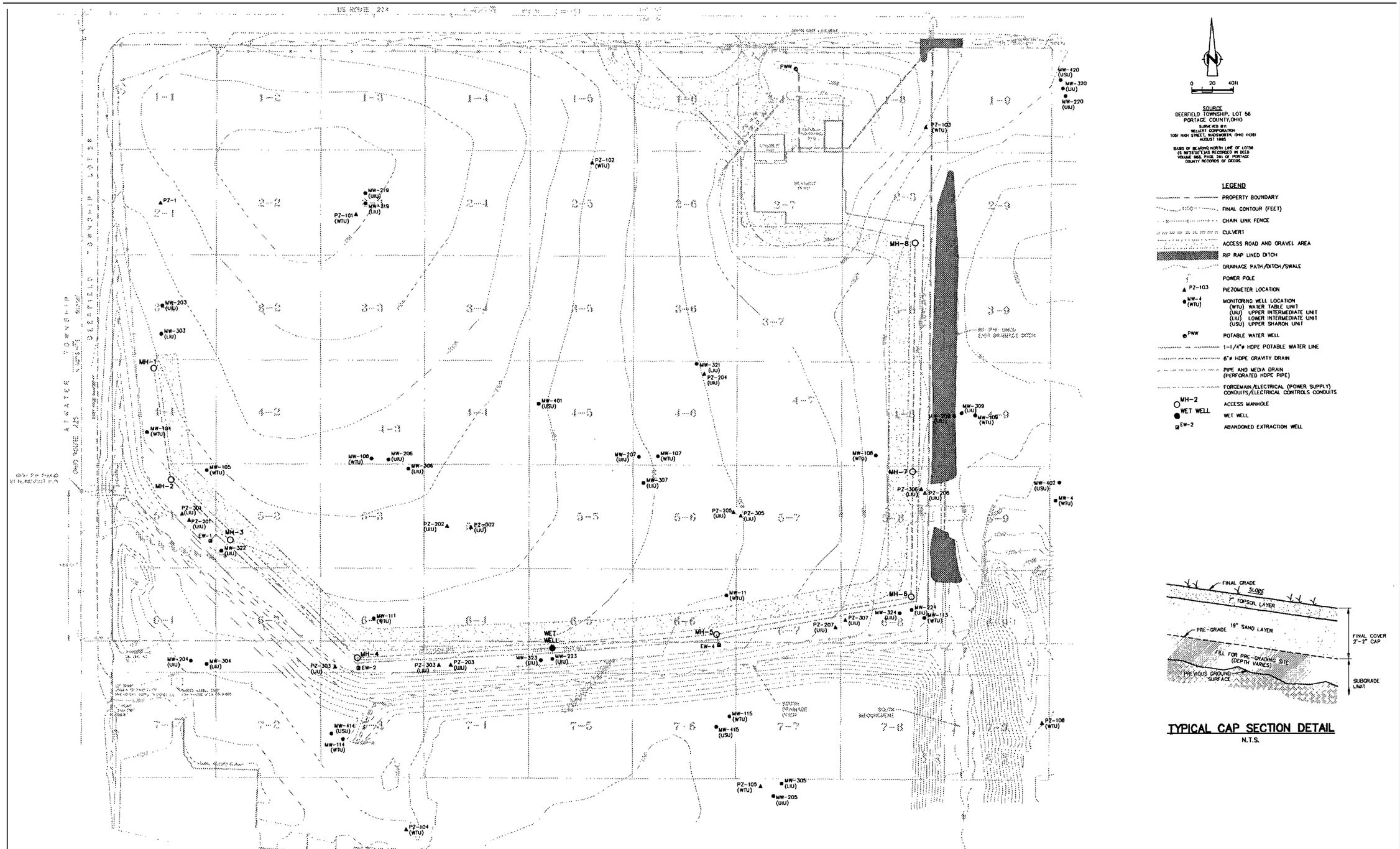
GROUNDWATER EXTRACTION SYSTEM

MANHOLE DETAILS

CRA
CONESTOGA-ROVERS & ASSOCIATES

| Drawn by: JRV | Scale: N.T.S. | Date: OCTOBER 1995 | File Nº: D-57 | Rev.Nº: 1 |
|---|---|---|---|---|
| Designed by: JAW | | | | |
| Checked by: JAW | Field book: | Project Nº: 2372 | Drawing Nº: D-9 | |

MAR 11/96(4)




0 20 40ft

SOURCE
DEERFIELD TOWNSHIP, LOT 56
PORTAGE COUNTY, OHIO
SURVEYED BY:
WELLERT CORPORATION
1051 HIGH STREET, WADSWORTH, OHIO 44281
AUGUST 1995

BASIS OF BEARING: NORTH LINE OF LOT56 (S 88°29'00"E) AS RECORDED IN DEED VOLUME 988, PAGE 261 OF PORTAGE COUNTY RECORDS OF DEEDS.

## LEGEND

- PROPERTY BOUNDARY
- FINAL CONTOUR (FEET)
- CHAIN LINK FENCE
- CULVERT
- ACCESS ROAD AND GRAVEL AREA
- RIP RAP LINED DITCH
- DRAINAGE PATH/DITCH/SWALE
- POWER POLE
- PZ-103 PIEZOMETER LOCATION
- MW-4 (WTU) MONITORING WELL LOCATION
  - (WTU) WATER TABLE UNIT
  - (UIU) UPPER INTERMEDIATE UNIT
  - (LIU) LOWER INTERMEDIATE UNIT
  - (USU) UPPER SHARON UNIT
- PWW POTABLE WATER WELL
- 1-1/4"ø HDPE POTABLE WATER LINE
- 6"ø HDPE GRAVITY DRAIN
- PIPE AND MEDIA DRAIN (PERFORATED HDPE PIPE)
- FORCEMAIN/ELECTRICAL (POWER SUPPLY) CONDUITS/ELECTRICAL CONTROLS CONDUITS
- MH-2 ACCESS MANHOLE
- WET WELL WET WELL
- EW-2 ABANDONED EXTRACTION WELL




## TYPICAL CAP SECTION DETAIL

N.T.S.

| Nº | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT 1995 | SAW |

Approved

# SUMMIT NATIONAL SUPERFUND SITE
# DEERFIELD, OHIO

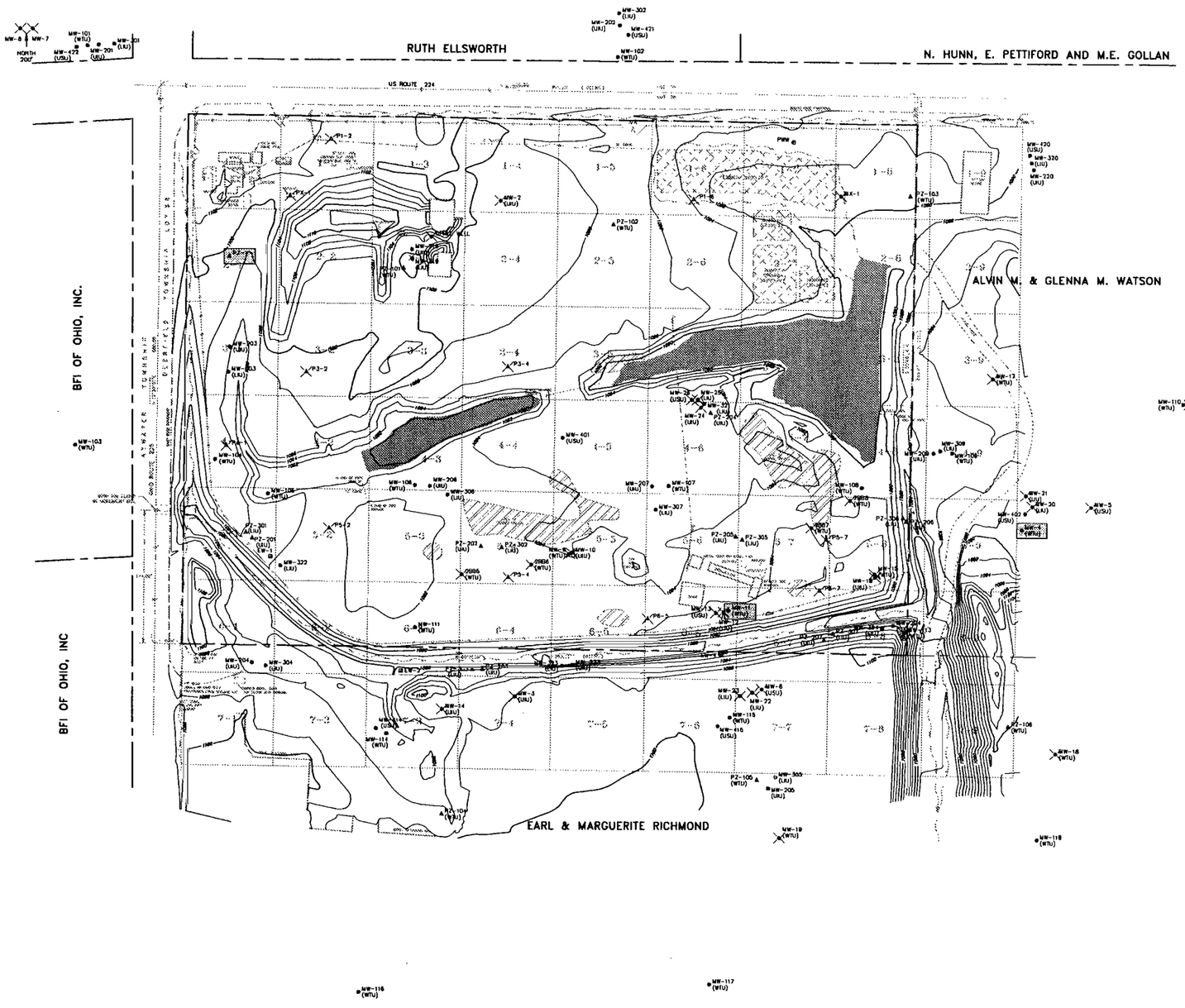
CONSTRUCTION OF SITE COVER

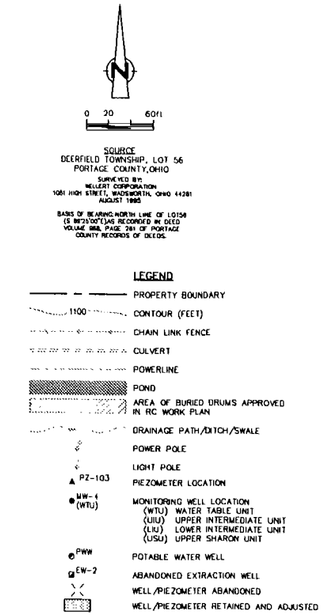
## FINAL GRADING PLAN

**CRA**
**CONESTOGA-ROVERS & ASSOCIATES**

| | | | | |
|---|---|---|---|---|
| Drawn by: JRV | Scale: 1"=40' | Date: OCTOBER 1995 | File Nº: P222 | Rev Nº: 0 |
| Designed by: SAW | Field book: | Project Nº: 2372 | Drawing Nº: F-2 | |
| Checked by: SAW | | | | |

OCT 13/95(W)




| WELL/PIEZOMETER ABANDONED | | WELL/PIEZOMETER INSTALLED | | | WELL/PIEZOMETER RETAINED AND ADJUSTED |
|---|---|---|---|---|---|
| MX-1 | P1-2 | MW-101 | MW-219 | PZ-101 | |
| MW-2 | P1-6 | MW-102 | MW-220 | PZ-102 | |
| MW-3 | P3-2 | MW-103 | MW-222 | PZ-103 | |
| MW-5 | P3-4 | MW-104 | MW-223 | PZ-104 | MW-4 |
| MW-6 | P4-1 | MW-105 | MW-224 | PZ-105 | MW-11 |
| MW-7 | P5-2 | MW-106 | MW-301 | PZ-106 | |
| MW-8 | P5-4 | MW-107 | MW-302 | PZ-201 | PZ-1 |
| MW-9 | P5-7 | MW-108 | MW-304 | PZ-202 | |
| MW-10 | P6-5 | MW-109 | MW-303 | PZ-203 | |
| MW-12 | P6-7 | MW-110 | MW-305 | PZ-204 | |
| MW-13 | PX-1 | MW-111 | MW-306 | PZ-205 | |
| MW-14 | | MW-113 | MW-307 | PZ-206 | |
| MW-15 | TIPPLE WELL | MW-114 | MW-309 | PZ-207 | |
| MW-16 | | MW-115 | MW-319 | PZ-301 | |
| MW-17 | 2BB5 | MW-116 | MW-320 | PZ-302 | |
| MW-18 | 2BB6 | MW-117 | MW-321 | PZ-303 | |
| MW-19 | 2BB7 | MW-118 | MW-322 | PZ-305 | |
| MW-20 | 2BB8 | MW-201 | MW-323 | PZ-306 | |
| MW-21 | | MW-202 | MW-324 | PZ-307 | |
| MW-22 | | MW-203 | MW-401 | | |
| MW-23 | | MW-204 | MW-402 | EW-1 | |
| MW-24 | | MW-205 | MW-414 | EW-2 | |
| MW-25 | | MW-206 | MW-415 | EW-3 | |
| MW-26 | | MW-207 | MW-420 | EW-4 | |
| | | MW-209 | MW-421 | EW-5 | |
| | | | MW-422 | EW-6 | |
| | | | | PWW | |

EW-1 - ABANDONED, FORCEMAIN AND AIR LINE PLUGGED
EW-2 - ABANDONED, FORCEMAIN AND AIR LINE PLUGGED
EW-3 - CONVERTED TO MONITORING WELL MW-223, FORCEMAIN AND AIR LINE PLUGGED
EW-4 - ABANDONED, FORCEMAIN AND AIR LINE PLUGGED
EW-5 - CONVERTED TO MONITORING WELL MW-224, FORCEMAIN AND AIR LINE PLUGGED
EW-6 - ABANDONED AND REMOVED

| Nº | Revision | Date | Initial |
|---|---|---|---|
| 1 | MW-110 ADDED, DUPLICATE PZ-303 REMOVED | MAY 1998 | SAW |
| 0 | AS RECORDED | OCT 1995 | GHK |

Approved

SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

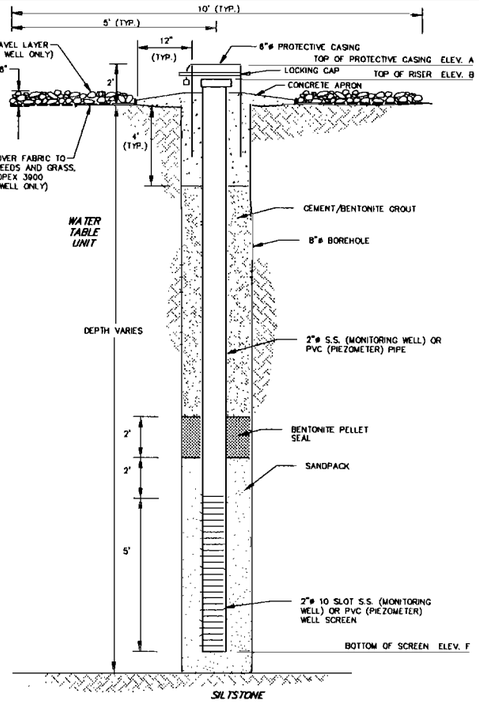
WELL INSTALLATION AND ABANDONMENT

SITE WORK

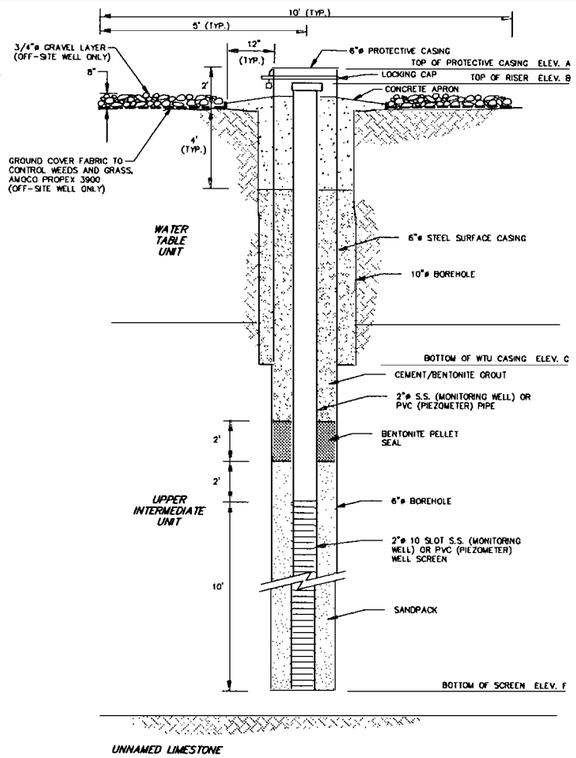
CRA
CONESTOGA-ROVERS & ASSOCIATES

| Drawn by: JRV | Scale: 1"=60' | Date: OCTOBER 1995 | File Nº: P224 | Rev Nº: 1 |
|---|---|---|---|---|
| Designed by: SAW | | | | |
| Checked by: SAW | Field book: | Project Nº: 2372 | Drawing Nº: G-2 | |

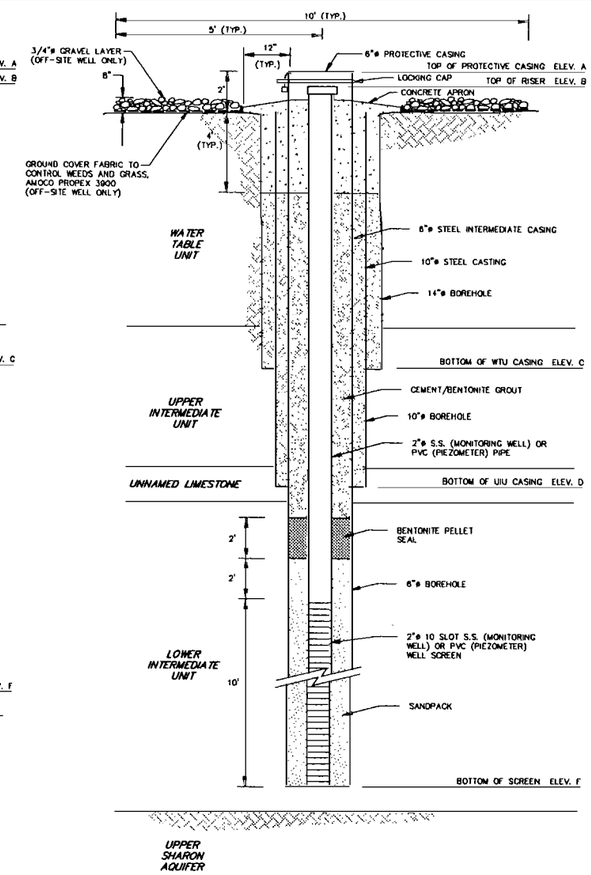
MAY 15/98(W)



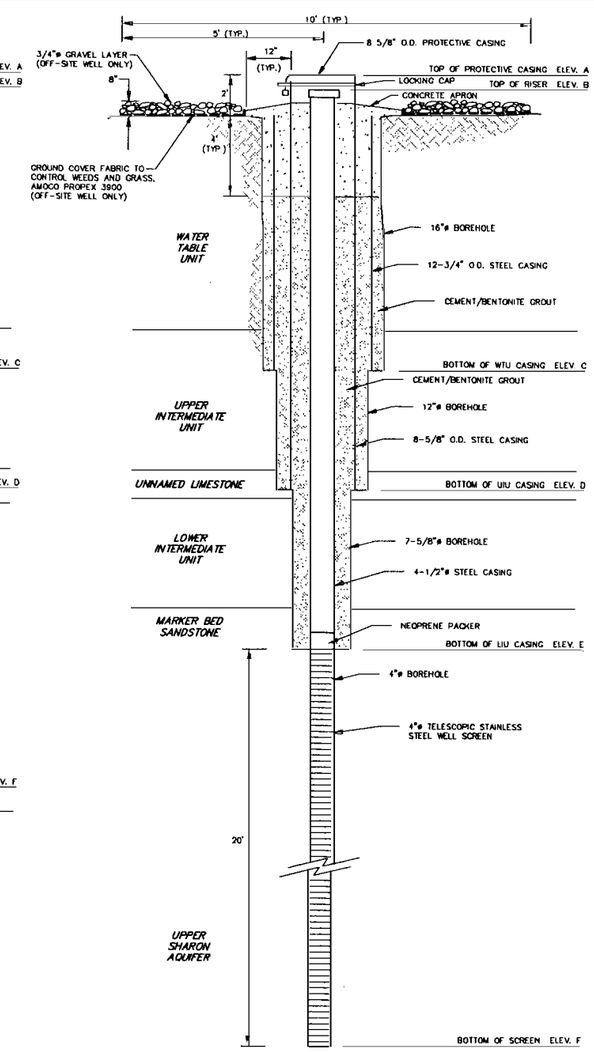

TYPICAL WATER TABLE UNIT
PIEZOMETER OR MONITORING WELL DETAIL
N.T.S.



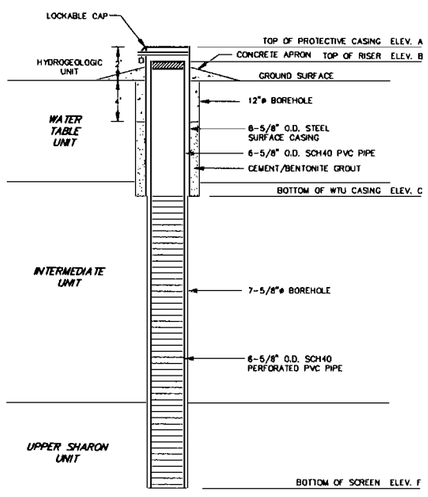

TYPICAL UPPER INTERMEDIATE UNIT
PIEZOMETER OR MONITORING WELL DETAIL
N.T.S.



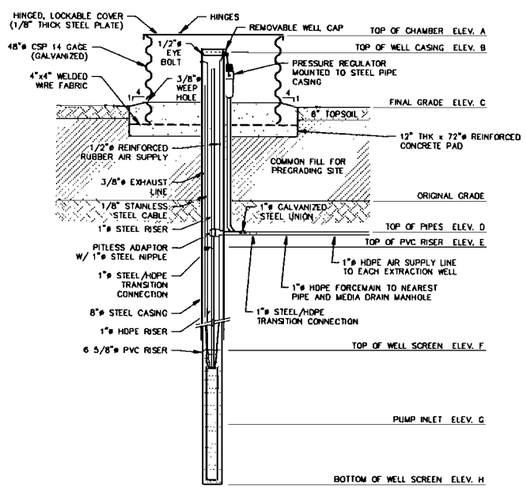

TYPICAL LOWER INTERMEDIATE UNIT
PIEZOMETER OR MONITORING WELL DETAIL
N.T.S.




TYPICAL UPPER SHARON UNIT
MONITORING WELL DETAIL
N.T.S.




TYPICAL UPPER SHARON UNIT
POTABLE WATER SUPPLY WELL
N.T.S.




EXTRACTION WELL DETAIL
N.T.S.

| EXTRACTION WELL No. | EXTRACTION WELL ELEVATION SUMMARY | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H |
| EW-1 | 1100.23 | 1099.96 | 1097.54 | 1094.72 | 1089.76 | 1079.46 | 1034.35 | 1029.46 |
| EW-2 | 1098.40 | 1097.80 | 1095.41 | 1093.19 | 1088.94 | 1078.69 | 1037.21 | 1029.69 |
| EW-3 | 1098.37 | 1097.81 | 1095.48 | 1093.01 | 1091.47 | 1083.41 | 1015.10 | 1008.41 |
| EW-4 | 1096.25 | 1095.15 | 1093.17 | 1090.28 | 1086.47 | 1046.50 | 1016.01 | 1006.50 |
| EW-5 | 1089.41 | 1088.87 | 1086.15 | 1083.32 | 1082.69 | 1067.97 | 1023.49 | 1017.97 |
| EW-6 | 1089.54 | 1088.80 | 1086.33 | 1083.29 | 1077.73 | 1088.30 | 983.22 | 978.30 |

EW-1 - ABANDONED, FORCEMAIN AND AIR LINE PLUGGED
EW-2 - ABANDONED, FORCEMAIN AND AIR LINE PLUGGED
EW-3 - CONVERTED TO MONITORING WELL MW-223, FORCEMAIN AND AIR LINE PLUGGED
EW-4 - ABANDONED, FORCEMAIN AND AIR LINE PLUGGED
EW-5 - CONVERTED TO MONITORING WELL MW-224, FORCEMAIN AND AIR LINE PLUGGED
EW-6 - ABANDONED AND REMOVED

NOTE:
FOR ELEVATIONS A TO F SEE FINAL CONSTRCTION REPORT

| Nº | Revision | Date | Initial |
|---|---|---|---|
| 0 | AS RECORDED | OCT 1995 | SAW |

Approved

SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

WELL INSTALLATION AND ABANDONMENT

WELL DETAILS

CRA
CONESTOGA-ROVERS & ASSOCIATES

| Drawn by: JRV | Scale: NTS | Date: OCTOBER 1995 | File Nº: D-58 | Rev Nº 0 |
|---|---|---|---|---|
| Designed by: SAW | | | | |
| Checked by: SAW | Field book: | Project Nº: 2372 | Drawing Nº: G-5 | |

OCT 13/95(W)

# 4.0 ORGANIZATION STRUCTURE

## TABLE OF CONTENTS

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4.1.1 Maintenance Contractor ..... 4-1
4.1.2 Site Operator ..... 4-2
4.1.3 Maintenance Subcontractors ..... 4-3

## LIST OF FIGURES

Following Page

FIGURE 4.1 ORGANIZATIONAL STRUCTURE 4-3

# 4.0 ORGANIZATIONAL STRUCTURE

The Summit National Facility Trust Fund (SNFT) was founded to implement the RA for the Site. Figure 4.1 presents the Site organizational structure, and identifies the various personnel, or firms, and their main responsibilities within the organization. Figure 4.1 may be revised during the operation, maintenance and monitoring period for the Site to reflect changes in the organizational structure.

As illustrated, the Trustees hold the management responsibility for the Site. The day-to-day operation of the Site is the primary responsibility of the Maintenance Contractor. The day-to-day operation, maintenance and monitoring will be performed by the Site Operator assisted by maintenance subcontractors as necessary. Descriptions for the positions are presented in the following sections.

## 4.1 SITE POSITIONS

### 4.1.1 Maintenance Contractor

The Maintenance Contractor reports to the Trustees of the SNFT, and is responsible for the day-to-day operation, maintenance and monitoring activities for the groundwater extraction and treatment system at the Site. The Maintenance Contractor has the overall responsibility to ensure that the Site operation, maintenance and monitoring requirements, as stipulated by the SNFT and the various operation and maintenance manuals prepared for the Site and the Consent Decree are fulfilled. The Maintenance Contractor is responsible for the maintenance of the Site data base of operation, maintenance and monitoring reports and for the timely preparation of the specified Site reports to the SNFT.

The Maintenance Contractor's duties include, but are not necessarily limited to, the following:

- the overall management of the day-to-day operation, maintenance and monitoring requirements;
- the preparation of the monthly treatment plant effluent report for OEPA, the annual evaluation report required by the Consent Decree and other reports as required by the SNFT and the USEPA and OEPA;
- financial accounting for supply and equipment purchases, payroll, and disbursements associated with the operation, maintenance and monitoring requirements of the Site;
- attendance at meetings regarding the Site operation, maintenance and monitoring activities;
- provide liaison at the Site with Site Operator and Site maintenance subcontractors, equipment suppliers, consulting engineers, USEPA and OEPA representatives, and contract services companies;
- inspection of the Site components including the Site cover, security fences, buildings and grounds to ensure that these components are maintained according to the requirements stipulated by the SNFT;
- management and maintenance of the Site data base and the daily, weekly, monthly, semi-annual, and annual recordkeeping logs;
- maintenance of a spare parts inventory for equipment, production supplies, and office supplies, and as such, is responsible for ordering of materials;
- arrange for delivery and pick up equipment and supplies; and
- arrange for off-Site disposal of office and treatment plant generated waste.

### 4.1.2 Site Operator

The Site Operator is primarily responsible for the day-to-day operation, maintenance and monitoring of the Site groundwater extraction/collection subsystem, the groundwater treatment subsystem, and the Site cover subsystem.

The Site Operator's duties include, but are not necessarily limited to, the following:

- operate and maintain all the Site equipment, including groundwater extraction/collection equipment and groundwater treatment equipment in an efficient manner and as may be determined by SNFT;
- perform the day-to-day inspections, monitoring, adjustments, and data compilation, all in accordance with the Site operation requirements;
- perform the day-to-day non-scheduled maintenance, scheduled maintenance, and equipment servicing;
- record daily treatment plant influent/effluent flow volume measurement readings, and complete all other daily, weekly, monthly and yearly operation logs for the Site;
- clean plant, locker room, office and conference rooms; and
- be available on a scheduled basis to report to the Site in order to respond to alarm conditions when the Site is unmanned (nights, holidays, weekends).

### 4.1.3 Maintenance Subcontractors

The Maintenance Contractor will retain the services of maintenance subcontractors to be available on a "call-in" basis to perform non-scheduled maintenance, scheduled maintenance and equipment servicing.

The security system for the treatment building is intended to detect unauthorized entry to the treatment building during unmanned lows. Upon such detection, a intruder alert message is relayed to an off-Site security firm which then informs the Site operator and/or notifies the Portage County sheriffs office of the security breach.

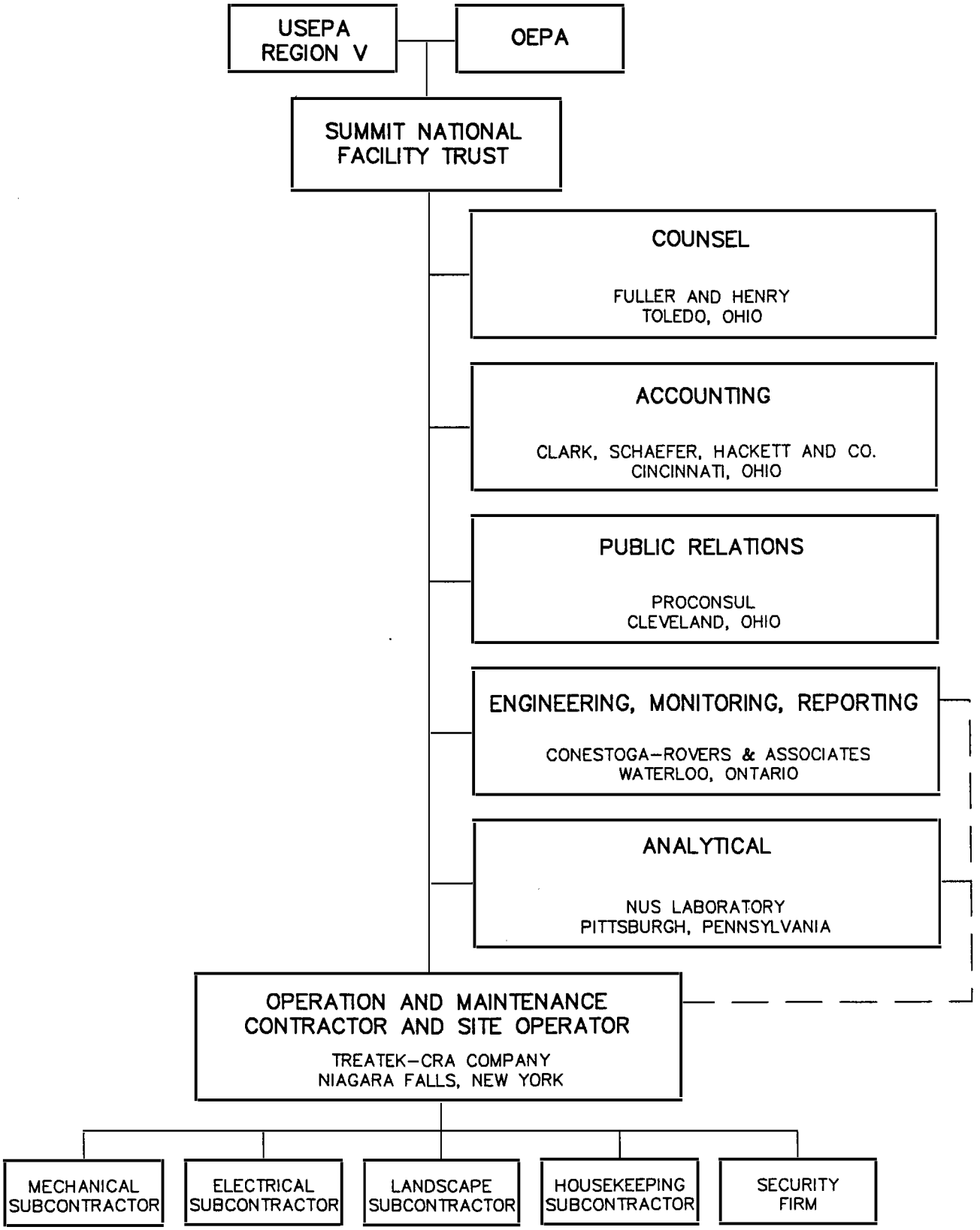


figure 4.1

ORGANIZATIONAL STRUCTURE
SUMMIT NATIONAL SUPERFUND SITE
*Deerfield Township of Portage County, Ohio*

**CRA**

2372 (35) MAR 11/96(W) REV.1 (C-28)

# 5.0 OPERATION

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# 5.0 OPERATION

The Site groundwater extraction and groundwater treatment subsystems are designed to operate continuously with minimal operator supervision. The duties of the operators are concerned mainly with scheduled and unscheduled maintenance, data collection, and trouble shooting of system malfunctions. This section provides an overview for system startup, continuous operation, data collection, and system shutdown.

## 5.1 SITE ENTRY AND EXIT

The perimeter Site security fence gates are normally locked during hours which the on-Site treatment building is unmanned and are normally closed during manned hours. The Site office and treatment building is further protected by a security system which automatically alerts an off-Site security firm should anyone enter the Site building and not properly disarm the security system. The procedure for disarming and arming the security system is presented in the following subsections.

### 5.1.1 Disarming Security System

When entering the treatment plant building after arming the security system, disarm the security system as follows:

i) unlock the main entrance door and proceed directly to the alarm panel;

ii) a beeping from the alarm panel serves to indicate the alarm system is activated. Immediately enter the designated code number sequence to disarm the alarm; and

iii) the beeping will cease and a light on the alarm panel will indicate "in". This indicates that the system has been properly disarmed.

### 5.1.2 Arming Security System

When leaving the treatment plant building and the Site for an extended period, arm the security system as follows:

i) securely close all outside doors and proceed to the alarm panel;

ii) the "in" light should be the only illuminated light on the alarm panel, but should the "alarm" light be on, recheck all doors to ensure they are securely closed as the security system cannot be armed if the "alarm" light is on;

iii) if the "alarm" light is still on after rechecking all doors, contact the security service to help diagnose the problem;

iv) with the "in" light illuminated and the "alarm" light off, enter the proper code number sequence to arm the security system;

v) the "wait" light will illuminate, indicating that the security system is running a check (wait at the alarm panel until this check is completed); and

vi) when the "out" light illuminates, the system check is completed and the alarm panel will start. Exit through the main entrance door, close the door, lock it, and check to ensure that the lock has engaged.

A delay of two minutes is allowed between arming the security system and opening, closing and locking the entrance door prior to the alarm being activated.

## 5.2 SYSTEM STARTUP

A system "startup" would be performed following a complete shutdown of the treatment system. As the groundwater treatment

system is controlled by sensors located throughout the system, certain sensors conditions must be satisfied before the plant can be fully started.

### 5.2.1 Pre-Start Instructions

#### 5.2.1.1 Prerequisites

The prerequisites to starting the system are:

- working knowledge of the OMMP;
- electrical distribution system in service;
- PLC and computer system in service;
- air compressor in service;
- polymer system for inclined settler filled and is on line;
- all equipment is in a safe condition to operate;
- all rotating equipment guards and safety devices are in place;
- emergency equipment is available and properly maintained and inspected; and
- all process equipment and piping is to be pre-filled with water prior to starting pumps to prevent damage.

### 5.2.2 Groundwater Extraction System Startup

The procedure for startup of the groundwater extraction system is as follows:

- the groundwater treatment system is set to treat the extracted groundwater;
- valving set for normal steady state flow; and
- turn on power to wet well pump(s), adjust valves to set flow.

### 5.2.3 Groundwater Treatment System Startup

The procedure for startup of the groundwater treatment system is as follows:

- valving set for normal steady state flow;
- pH adjustment system placed on automatic, pumps set at preset stroke/frequency rate;
- polymer addition system for inclined plate settler placed on automatic and pumps set at preselected stroke/frequency rate;
- if bio-tower required, by-pass biotower until bacteria acclimated to groundwater and ready for operation (approximately 4 days);
- if bio-tower not required, open by-pass to sand filter;
- sludge handling system in service; and
- valving for normal series operation through the bag filter to the activated carbon adsorber units.

### 5.2.4 Bio-tower Startup

The procedure for startup of the biotower (if required) is as follows:

- fill biotower with groundwater, overflow valve closed;
- turn on air blower and recycle pump;
- add four batches from inoculum tank;
- add nutrients;
- allow 4 days for acclimation;
- in approximately 10 gpm per day increments bring biotower on-line till at full flow rate;
- shut by-pass valves around biotower; and
- sample as necessary during acclimation.

## 5.3 NORMAL OPERATION

### 5.3.1 General

The groundwater extraction subsystem and groundwater treatment subsystem are designed to operate continually, through the action of liquid level sensors, automatic flow control valves and shut-off switches throughout the system. The system is equipped with both automatic and manual system overrides to shut down both systems. The automatic controls shut the system down to prevent damage to equipment or an overflow situation. The manual shutdown is to allow operators to perform maintenance and repairs.

The automatic controls in the treatment plant subsystem are based on liquid level sensors throughout the treatment system. High liquid levels in a tank shut off the influent pump to that tank to prevent overflow. Low levels shut off the discharge pump for the tank to prevent pump damage. The controls will allow the system to automatically restart once levels have reached a safe and proper level. All transfer pumps run continuously on recycle based on liquid level sensors, to minimize the wear on the pump due to continuous on/off operation.

### 5.3.2 Daily Recording

The normal operation of the Site will include the manual recording of process information. Daily process information will be logged on a Daily Process Log as shown in Table 5.1.

## 5.4 SYSTEM SHUTDOWN

Automatic system interrupts will occur if any of the following conditions exist:

- low water level in wet well will stop first wet well pump;
- high level in T2 shuts of wet well pumps;
- low level in T2 shuts off P2;
- high level in T4 shuts off P2 and both wet well pumps;
- low level in T4 shuts off P3;
- high level in T8 shuts off P3 and both wet well pumps;
- low level in T8 shuts off both P9 and P10; and
- high level in X2 shuts off P3.

The system allows for automatic restart following any of the above conditions, upon return to normal operating status.

Manual system interrupts must be initiated by the operator. The entire system can be manually shut down from the electrical room. Each piece of equipment can also be individually shut down from the electrical room or with a shutoff switch located near the equipment in the treatment area. This allows the system to be shut down with an emergency kill switch in case of an emergency, or for manual override of the automatic system for maintenance or operating purposes.

A power failure will shut down all systems. After a power failure, the system will return to its previous state. However, the biotower may have to be reacclimated if the shutdown occurred over a long period of time.

## 5.5 SLUDGE HANDLING

At least once per day, 7 days per week, sludge from the sludge tank (T9) will be pumped out. The sludge will be pumped into the sludge dewatering bag filter unit (X6) and the sludge will be allowed to dewater until the sludge bags can be removed and replaced with new sludge bags. A polymer electrolyte solution is added to the pumped sludge to aid in sludge formation. After the bags have been filled with sludge and have been dewatered, they will be placed on the drain pad adjacent to the bag filter (X6) and will be allowed to further dewater for a minimum time period of

24 hours. The dewatered bags will subsequently be placed in the roll-off box located beneath the bag dewatering system inside the treatment building prior to being disposed of off Site.

The dewatered sludge will be sampled on a regular basis to determine whether the dewatered sludge may be disposed of in a sanitary or secure landfill, as discussed in Section 8.2.

## 5.6 POTENTIAL OPERATING PROBLEMS

The potential operating problems which may be encountered with the extraction/collection subsystem and the groundwater treatment subsystem are summarized in Table 5.2. The potential sources and solutions to the operating problems are also summarized in Table 5.2.

## 5.7 ORDERING CHEMICALS

Water treatment chemicals stock including sodium hydroxide (NaOH), hydrochloric acid (HCL) and polyelectrolyte will be maintained and ordered as necessary.

The operating level in the storage tank must be verified by manually gauging the tanks when ordering the chemicals and immediately prior to adding chemicals to the tanks.

| DATE: | TIME: | INSPECTED BY: |
|---|---|---|

## TOTALIZED FLOW DATA

| INFLUENT: | TOTAL: | GALLONS | PROCESS: | TOTAL: | GALLONS | EFFLUENT: | TOTAL: | GALLONS |
|---|---|---|---|---|---|---|---|---|
| | 24hr. avg: | GALS/MIN | | 24hr. avg: | GALS/MIN | | 24hr. avg: | GALS/MIN |

| TANK LEVEL DATA | ACTUAL | AVERAGE | PRESSURE DATA | ACTUAL (psi) |
|---|---|---|---|---|
| ACID (T3) | | | AIR COMPRESSOR (X7) | |
| CAUSTIC (T1) | | | BIO-TOWER BLOWER (B2) | |
| AERATION (T2) | | | BIO-TOWER BLOWER (B3) | |
| SURGE No. 1 (4) | | | AERATION BLOWER (B1) | |
| INOCULUM (T7) | | | CARBON ADSORBERS (X4/X5) | |
| POLYMER FOR CLARIFIER (T6) | | | AERATION TANK PUMP (P2) | |
| AMMONIUM (T5) | | | BIO-TOWER FEED PUMP (P3) | |
| SURGE No. 2 (T8) | | | SURGE TANK No. 2 PUMPS (P9 & P10) | |
| SURGE No. 3 (T10) | | | MISC. | |
| SLUDGE (T9) | | | SAND FILTER $\Delta P$ (INCHES) | |
| SUMP (T11) | | | AIR COMPRESSOR OIL LEVEL (X7) | |

| TIME | COMMENTS | INIT. |
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Table 5.1

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM
SUMMIT NATIONAL SUPERFUND SITE
*Deerfield Township of Portage County, Ohio*

**CRA**

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TABLE 5.2

POTENTIAL OPERATING PROBLEMS
GROUNDWATER TREATMENT SYTEM
SUMMIT NATIONAL SITE

| *PROBLEM* | *POTENTIAL SOURCES OF PROBLEMS* | *SOLUTION* |
|---|---|---|
| **GROUNDWATER EXTRACTION** | | |
| 1. No water to treatment system | - power failure | - prepare system for startup |
| | - line leak | - find leak and repair |
| | - wet well dry | - verify system on recycle loops |
| | - line plugged | - find plug and clean |
| 2. Too much water to treatment system | - incorrect setting of valves at pumps | - reset valves to lower flow |
| | - heavy rain/flooding of Site | - slow down pumping |
| | | - operate primary treatment by-pass on approval from SNFT |
| **pH ADJUSTMENT - NaOH** | | |
| 1. No or reduced solids precipitation | - pH too low | - readjust pump setting |
| | - tank empty | - refill tank |
| | - NaOH pump rate too low | - readjusted/pump settling |
| | - NaOH strength too low | - verify aeration and tank recycle |
| | - poor mixing | - verify NaOH strength |
| | - meter malfunction | - repair/replace/clean meter |
| | - change in quality of influent | - sample influent and submit for analysis |
| 2. pH too low/high | - pump set too low/high | - readjust pump setting |
| | - pH meter malfunction | - pull meter and recalibrate, verify operation |
| | - influent flow not steady | - adjust flow control valves |
| **EOUALIZATION/AERATION** | | |
| 1. Level control problems | - PLC breakdown | - call for programming assistance |
| | - control valve on recycle | - verify valve operation, repair or replace if needed |
| | - pump problem | - repair or replace |
| | - valve setting on pump forward | - readjust valve |
| | - line plugged | - find plug and clean |
| | - line/tank leak | - repair leak |
| | - basket strainer clogged | - clean basket strainer |
| | - power to P2 malfunctions | - locate problem and rectify |
| 2. Blower problem | - pressure drop too high | - verify level and correct |
| | - T2 level too high | - verify level and correct |
| | - line plugged | - find plug and clean |
| | - vapour phase carbon plugged | - replace carbon |
| | - not running | - repair or replace |

**TABLE 5.2**

**POTENTIAL OPERATING PROBLEMS**
**GROUNDWATER TREATMENT SYTEM**
**SUMMIT NATIONAL SITE**

| *PROBLEM* | | *POTENTIAL SOURCES OF PROBLEMS* | *SOLUTION* |
|---|---|---|---|
| **POLYMER ADDITION** | | | |
| 1. | No solids coagulation | - polymer addition too low | - increase pumping rate |
| | | - polymer addition too high | - reduce pumping rate |
| | | - no polymer | - make up solution |
| | | - meter malfunction | - run pump in manual |
| | | - flow pace too low (high) | - change PLC program |
| **INCLINED PLATE SETTLER** | | | |
| 1. | Level problems | - leaking tank, line | - find leak and repair |
| | | - plugged line, plugged plates | - find plug and clean |
| | | - high level in mixing basin | - slow down feed from P2 |
| 2. | Sludge pump | - air to pump, compressor | - verify compressor operation, air line |
| | | - pump operation | - check air pressure, and internals, check oil level |
| | | - line leak, plug | - find leak or plug and repair |
| 3. | Cloudy overflow | - sludge pumps not pumping | - find problem and rectify |
| | | - influent flow not steady | - review control set points |
| | | - polymer addition | - change polymer addition |
| **pH READJUSTMENT OF SURGE TANK** | | | |
| 1. | Level | - leaking tank, line | - find leak and repair |
| | | - plugged line | - find plug and clean |
| | | - pump problem | - repair or replace |
| | | - instrument breakdown | - verify operation |
| | | - valving | - verify correct valve settings |
| 2. | pH too low | - pump setting too high | - slow down pumping rate |
| | | - pH meter malfunction | - pull meter and recalibrate, verify operation |
| | | - logic | - call for programming assistance |
| 3. | pH too high | - tank empty | - refill tank |
| | | - pump problem | - repair or replace |
| | | - pump setting too low | - readjust pump setting |
| | | - line leak, plug | - find leak or plug and repair |

**TABLE 5.2**

**POTENTIAL OPERATING PROBLEMS**
**GROUNDWATER TREATMENT SYTEM**
**SUMMIT NATIONAL SITE**

| *PROBLEM* | | *POTENTIAL SOURCES OF PROBLEMS* | *SOLUTION* |
|---|---|---|---|
| **BIO-TOWER** | | | |
| 1. | Level | - pluggage in discharge | - find plug and clean |
| | | - leak in tower | - repair leak |
| 2. | Operation/Activity | - microbial count or organic influent too low | - verify influent water quality |
| | | - nutrients level incorrect | - verify nutrient addition operation |
| | | - microbial count too low | - reinoculate |
| | | - pH, Dissolved Oxygen out of specification | - verify pH adjustment and blower operation |
| | | - iron level too high | - bump bio-tower |
| | | - effluent solids level high | - improper seeding |
| | | | - shut off influent and allow acclimation |
| | | | - influent limits beyond basis for design |
| | | - excessive foaming | - pH out of limits |
| | | | - check pH from sample |
| | | | - check/calibrate pH meters |
| | | | - inadequate BOD loading |
| | | | - ensure that bio-tower is receiving proper flow rate |
| | | | - excessive aeration |
| | | | - ensure that only one blower is aerating the bio-tower |
| | | - power malfunction | - locate and rectify |
| 3. | Sludge Pump | - no air to sludge pump | - verify compressor operation |
| | | - line leak, plug | - find leak or plug and repair |
| | | - valving | - verify correct valve settings |
| | | - recycle pump problem | - verify operation |
| 4. | Blower | - pressure drop high | - check for plug and clean |
| | | - blower plugged | - repair blower or replace |
| | | - valving | - verify correct valve settings |
| | | - vent plugged | - find plug and clean |
| | | - carbon plugged | - replace carbon |
| | | - power malfunction | - locate and rectify |

TABLE 5.2

POTENTIAL OPERATING PROBLEMS
GROUNDWATER TREATMENT SYTEM
SUMMIT NATIONAL SITE

| *PROBLEM* | *POTENTIAL SOURCES OF PROBLEMS* | *SOLUTION* |
|---|---|---|
| **SAND FILTER** | | |
| 1. Pressure drop | - line pluggage | - find plug and clean |
| | - backwash improper | - inspect internals, bump airlift |
| | - sand plugged up | - clean out sand |
| | - overflow from bypass blocked | - verify sludge handling operation, find plug and clean |
| | - sludge tank level too high | - check sludge dewatering |
| | - air malfunction | - verify compressor operation |
| 2. Operation | - sand not functioning | - replace sand |
| | - solids too high from bioreactor | - bump reactor |
| | - power malfunction | - locate and rectify |
| **SURGE TANKS** | | |
| 1. Level | - PLC breakdown | - call for programming assistance |
| | - control valve | - verify valve operation, repair or replace |
| | - pump problem | - repair or replace |
| | - valve settings | - verify correct valve settings |
| | - plugged line | - find plug and clean |
| | - leaking tank, line | - find leak and repair |
| | - bypass flow (2nd pump) | - verify both pumps operating, repair, replace |
| **BAG FILTERS** | | |
| | - frequent changes broken bags | - solids carry over from sand filter change bag filters |
| | - high pressure | - change bag filters |
| **CARBON ADSORBERS** | | |
| 1. Pressure drop | - carbon plugged | - replace carbon or backwash |
| | - line plug | - find plug and clean |
| | - internals plugged | - clean internals |
| 2. Breakthrough | - carbon spent | - replace carbon |
| | - channeling | - mix up carbon, redistribute |
| | - leak | - repair or replace |

TABLE 5.2

POTENTIAL OPERATING PROBLEMS
GROUNDWATER TREATMENT SYTEM
SUMMIT NATIONAL SITE

| *PROBLEM* | *POTENTIAL SOURCES OF PROBLEMS* | *SOLUTION* |
|---|---|---|
| **SLUDGE HANDLING** | | |
| 1. Level in tank | - overflow plugged | - find plug and clean |
| | - pluggage at tank bottom | - slurry up bottom and pump out |
| | - leak in line, tank | - find leak and repair |
| | - sludge level high | - operate sludge dewatering more frequently |
| 2. Bag dewatering malfunction | - pump | - repair or replace |
| | - instruments | - verify correct operation |
| | - leaks in bag | - replace bag |
| | - overhead leak | - find leak and repair |
| | - underdrain leak | - find leak and repair |
| | - breakthrough | - replace bag |
| | - line blocked | - locate and unblock |
| | - power malfunction | - locate and rectify |
| 3. Polymer addition | - polymer strength | - check solution |
| | - polymer flow | - check metering pump |
| | - sludge not flowing | - check polymer strength |
| **SUMP** | | |
| 1. Level too high | - pump operation | - repair or replace |
| | - line plugged | - find plug and clean |
| | - power malfunction | - locate and rectify |

# 6.0 EQUIPMENT

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6.2 SPARE PARTS INVENTORY ..... 6-1
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FIGURE 6.2 SPARE PARTS INVENTORY LOG 6-2

## 6.0 EQUIPMENT

The Site is composed of five subsystems as described in Section 2. These subsystems are:

- Groundwater Extraction Subsystem (SS1);
- Groundwater Treatment Subsystem (SS2);
- Treated Water Discharge Subsystem (SS3);
- Computer Subsystem (SS4);
- Building Subsystem (SS5); and
- Site Cover Subsystem (SS6).

### 6.1 EQUIPMENT SPECIFICATIONS FORM

The major equipment and component parts associated with each of the five Site subsystems are summarized under the tab inserts of this Section. The equipment specifications sheets presented are intended as a duplicate copy of the equipment specifications filed in the Site office. The information presented on these equipment specification forms is intended to supplement the equipment manufacturer's literature and specifications filed in the Site office and presented in the various manuals filed in the Site's reference library. For each equipment specification form contained herein, a corresponding separate file is maintained in the Site office. A typical Equipment Specification Form is presented as Figure 6.1.

### 6.2 SPARE PARTS INVENTORY

In order to maintain continuous operation of the Site subsystems and minimize equipment downtime, a spare parts inventory is required. The recommended spare parts to be maintained on Site for the various equipment items of each subsystem are identified on the equipment specification sheets discussed in Section 6.1 and are summarized in Table 6.1. The recommended spare parts inventory is monitored on the Spare Parts Inventory Log form, presented as Figure 6.2. The spare parts Inventory Log

Form is prepared for ease of reference, inventory check, and ordering, such that the Site will maintain on hand the recommended spare parts.

## 6.3 EQUIPMENT MAINTENANCE

In order to achieve long-term operation from the various equipment items of each subsystem of the Site, routine maintenance of such equipment is required. Routine maintenance required for each major equipment item is summarized on the equipment specification sheets discussed in Section 6.1, and is further discussed in greater detail in Section 7.0.

## EQUIPMENT SPECIFICATION FORM

EQUIPMENT NO. _____

NAME _____

LOCATION _____

MANUFACTURER _____

DISTRIBUTOR _____

DESCRIPTION _____

MAINTENANCE _____

COMPONENT PARTS _____

SPARE PARTS _____

figure 6.1

TYPICAL EQUIPMENT SPECIFICATION FORM
SUMMIT NATIONAL SUPERFUND SITE
*Deerfield Township of Portage County, Ohio*

CRA

2372(35)–OCT.29/92–REV.1

EQUIPMENT NO. _____ NAME _____

| PART DESCRIPTION | PART NO. | MATERIAL OF CONSTRUCTION | | NO. ON HAND | DATE AND NO. ORDERED | | |
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figure 6.2

SPARE PARTS INVENTORY LOG
SUMMIT NATIONAL SUPERFUND SITE
*Deerfield Township of Portage County, Ohio*

**CRA**

2372(35)–OCT.29/92–REV.1

**TABLE 6.1**

**SPARE PARTS LIST**
**GROUNDWATER TREATMENT SYSTEM**
**SUMMIT NATIONAL SITE**

| *Equipment* | *Description* | *Spare Parts* |
|---|---|---|
| **Groundwater Extraction Subsystem - SS1** | | No recommended spare parts |
| SS1-P2 | Wet Well Submersible Pumps | |
| SS1-X6 | Wet Well Pitless Adaptors | |
| SS1-X7 | Wet Well Unions | |
| SS1-V4 | Wet Well Flow Control Ball Valves | |
| SS1-X8 | Wet Well Flow Indicators | |
| SS1-V5 | Wet Well Gate Valves | |
| SS1-V6 | Wet Well Sampling Valves | |
| SS1-X9 | Wet Well Float Switches | |
| SS1-X10 | Wet Well Chamber Cover | |
| SS1-X11 | Access Manhole Float Switches | |
| SS1-X12 | Forcemain | |
| SS1-X13 | Wet Well Level Sensor | |
| **Groundwater Treatment Subsystem - SS2** | | |
| SS2-T1 | Caustic Storage Tank | |
| SS2-P1 | Caustic Storage Tank Metering Pump | spare parts kit No. SP-U2* |
| SS2-T2 | Equalization/Aeration Tank | |
| SS2-B1 | Equalization/Aeration Tank Blower | spare blower and motor |
| SS2-C1 | Equalization/Aeration Tank Carbon Adsrober | spare carbon adsorber vessel |
| SS2-P2 | Equalization/Aeration Tank Transfer Pump | spare parts kit |
| SS2-X1 | Inclined Plate Settler | flash mixer, flocculatrol drive, flocculatrol steady bushing |
| SS2-P11 | Inclined Plate Settler Sludge Pump | wet end, dry end repair kit |
| SS2-T3 | Acid Storage Tank | |
| SS2-P4 | Acid Metering Pump | spare parts kit No. SP-U2* |
| SS2-T4 | Surge Tank #1 | |
| SS2-X2 | Biotower | |
| SS2-P3 | Biotower Feed Pump | spare parts kit |
| SS2-T5 & T6 | Nutrient Tanks | |
| SS2-M1 & M2 | Nutrient Tank Mixers | 1/4 HP Motor Mark 1 (1)., Hex Head Cap Screw (4), Lockwasher (4), Housing (1), Allen Wrench (1), Coupling (1), Dovkry HRSF Dry Screw (4), Shaft 4/8" Diam x 36" Lg (1), 3.6 Dia Prop 316L (1), Square Head Set Screw (1), Clamp Assy (1), Cap Screw (1), Washer (2), Locknut (1) |
| SS2-P6 & P7 | Nutrient Addition Metering Pumps | spare parts kit No. SP-U2* |
| SS2-T7 | Inoculum Addition Tank | |
| SS2-P5 | Inoculum Addition Metering Pump | spare parts kit No. SP-U2* |
| SS2-B2 & B3 | Biotower Blowers | spare parts kit, Filter Element, Blower SS2-B4 provided as spare |

**TABLE 6.1**

**SPARE PARTS LIST**
**GROUNDWATER TREATMENT SYSTEM**
**SUMMIT NATIONAL SITE**

| *Equipment* | *Description* | *Spare Parts* |
|---|---|---|
| **Groundwater Treatment Subsystem - SS2 (cont'd)** | | |
| SS2-P12 | Biotower Sludge Pump | wet end repair kit, dry end repair kit |
| SS2-P8 | Biotower Recirculation Pump | Impeller 6 1/8" CD4M (1), Impeller Gasket TFR (1), Shaft ZH (1), Rear Cover Gasket TM (1), Inboard Oil Seal TSSR (1), Inboard Bearing SR (1), Outboard Bearing SR (1), Outboard Oil Seal TSSR (1), Outboard Oil Seal TSSR (1), Bearing Carrier O-Ring (1), Crane Type 1 Seal (1) |
| SS2-C2 | Biotower Carbon Adsorber | spare carbon adsorber vessel |
| SS2-X3 | Sand Filter | D0012YB IF-330-02, Item 5 O-Ring-Air Lift Pump Chamber (1), D0005YB 1F-278, Item 4 O-Ring-Air Lift Inlety Nut (1), DP100BM 1F-277, Item 1 Screen-Air Lift Pump (1), DZ011ZB 3F-3296, Item 3 Regulator-Instrument Air (1), DI408ZB 3F-3296, Item 5 Air Flow Indicator (1) |
| SS2-T8 | Surge Tank #2 | |
| SS2-P9 & P10 | Surge Tank #2 Transfer Pumps | spare parts kit |
| X4 & X5 | Liquid Phase Carbon Adsorbers | |
| SS2-T10 | Surge Tank #3 | |
| SS2-P15 | Surge Tank #3 Transfer Pump | spare parts kit |
| SS2-T9 | Sludge Handling Tank | |
| SS2-P13 | Sludge Dewatering Pump | spare parts kit |
| SS2-X6 | Dewatering Bag Filter | DRAIMAD dewatering bags, bag wire ties |
| SS2-T11 | Sump | |
| SS2-P14 | Sump Pump | spare parts kit |
| SS2-X7 | Air Compressor | 110377E100 Air filter element (1), 111146E100 Air filter element (1), 112085 Gasket set (1), 111226X2 Valve plate assembly, low pressure (1), 1112217X2 Valve plate assembly, high pressure (1) |
| **Groundwater Treatment Subsystem - SS2 (cont'd)** | | |
| SS2-X8 | Air Dryer | Compressor 115V, Fan Motor 115V, Fan Blade, 115V Relay, 115V Overload, Expansion Valve, Ref. Filter Dryer, Separator, Suction Gauge, Drain Valve 115V, Drain Isolation Valve, Y-Strainer, Drain Timer, High Temp. Light, Drain Manual Override Switch, Off/On<br><br>Switch, Heat Exchanger, Heat Exchanger, Internal Float Drain Assembly |
| SS2-G1 | Mangehelic Air Pressure Gauges | 2 spare gauges |
| SS2-G2 | Water Pressure Gauges | 2 spare gauges |

**TABLE 6.1**

**SPARE PARTS LIST**
**GROUNDWATER TREATMENT SYSTEM**
**SUMMIT NATIONAL SITE**

| *Equipment* | *Description* | *Spare Parts* |
|---|---|---|
| SS2-V1 | PVC Ball Valves | 2 each 3/4", 1", 2", 3" |
| SS2-V2 | Bronze Ball Valves | 2 each 1", 2", 3" |
| SS2-V3 | Stainless Steel Ball Valves | 2 each 2", 3" |
| SS2-V4 | Regulating Ball Valves | 1 each 2", 3" Integrated Circuit, L.E.D. Indicators, Opto. Couplers 120V/240V, Triacs 120V/240V, Motor Surge Res. 120V/240V, Power Trans., Filter Cap 120V/240V, DC Regulator, Rectifier Bridge, Zener Diodes 120V/240V, Range Control 120V/240V, Zero Control<br><br>120V/240V, AH Control 120V/240V, Signal Input Fuse (see Note 4) 120V/240V |
| SS2-V5 | Air Solenoid Pressure Relief Valves/Air Regulators | |
| SS2-S1 | Liquid Level Sensors and Transmitters | |
| SS2-S2 | Electrochemical Sensors and Transmitters | 670X4A1140 Program Jumpers (7 per package), 99X2T1016 Relay, 5A Contacts, 24 VDC Coil, 671M4G1001-102 Power-Supply Board Assembly (115V, 50/60 Hz - includes plug-in jumper board), 671M4G1001-202 Power-Supply Board Assembly (230V, 50/60 Hz - includes plug-in jumper board, 670A4D1004 Plug-In Jumper Board, 42B4A1001 Plug-In Isolator Board (optional), 43M4G1001 Plug-In Pulse Module (optional, specify maximum pulses/minute), 671M4G2001 Display Module Assembly (2 boards - includes analog meter, specify measuring scale), 99X1D1068 Analog Meter (3-1/2 inch, specify measuring scale), 1000A4A1077 Optional Vertical Pipe-Mount Kit, 1000M4G1107-102 Door Assembly<br>Sensor Accessories:<br>60A2F1278 Protector (for submersion applications), 60M2G9753-101 Union Adapter Assembly (includes two Viton O-rings and a retaining ring), 99X5H1233 Replacement Vitron O-rings (two, for union adapter assembly)<br><br>Standard Cell Supplies:<br>25M1A1001-115 Standard Cell Buffer (1 pint), 25M8A1002-101 Gel Powder (for gelling standard cell buffer, 2 grams), 60-9765-000** Salt Bridge (includes O-ring), 99X5H1261 Salt Bridge O-Ring |

**TABLE 6.1**

**SPARE PARTS LIST**
**GROUNDWATER TREATMENT SYSTEM**
**SUMMIT NATIONAL SITE**

| *Equipment* | *Description* | *Spare Parts* |
|---|---|---|
| **Groundwater Treatment Subsystem - SS2 (cont'd)** | | |
| SS2-S3 | Flow Transmitters | |
| SS2-T8 | Polymer tank | |
| SS2-M8 | Polymer mixer | |
| SS2-P17 | Polymer metering pump | spare parts kit no. SP-U2* |
| SS2-F1 & F2 | Bag filters | filter bags |
| SS2-S4 | Pressure differential transmitter | |
| SS2-P16 | Backwash Pump | spare parts kit |
| **Treated Water Discharge Subsystem - SS3** | | |
| SS3-X1 | Gravity Drain Pipe | |
| **Computer Subsystem - SS4** | | No recommended spare parts |
| **Building Subsystem - SS5** | | |
| SS5-X1 | Side Wall Exhaust Fan | |
| SS5-X2 | Rooftop Exhaust Fan | |
| SS5-X3 | Rooftop Heat Pump Units | |
| SS5-X4 | Fork Lift | |
| SS5-X5 | Security System | spare lock |
| **Site Cover Subsystem - SS6** | | |
| SS6-X1 | Security Fence | |

Notes:

* Spare Parts Kit No. SP-U2 includes:
spring #24339
spring #10339
ball, ceramic #10338
seal ring, teflon #10407
liquifram, 1.8 SI, teflon face #10305

** Some applications require a special salt bridge which is identified with a different dash number. When ordering a special salt bridge, specify complete number including the dash number.
pH Buffers For Calibration and Operation Checks:
99X3A0421 pH Buffer (1 pint), 99X3A0422 pH Buffer (1 pint), 99X3A0942 pH 10 Buffer (1 pint)

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

TABLE OF CONTENTS

GROUNDWATER EXTRACTION/COLLECTION SUBSYSTEM -SS1


| Equipment | Description |
|---|---|
| SS1-X1 | Extraction Well Pitless Adaptors (abandoned) |
| SS1-X2 | Extraction Well Unions (abandoned) |
| SS1-X4 | Extraction Well Flow Indicators (abandoned) |
| SS1-V3 | Extraction Well Sampling Valves (abandoned) |
| SS1-X5 | Extraction Well Chamber Covers |
| SS1-P2 | Wet Well Submersible Pumps |
| SS1-X6 | Wet Well Pitless Adaptors |
| SS1-X7 | Wet Well Unions |
| SS1-V4 | Wet Well Flow Control Ball Valves |
| SS1-X8 | Wet Well Flow Indicators |
| SS1-V5 | Wet Well Gate Valves |
| SS1-V6 | Wet Well Sampling Valves |
| SS1-X9 | Wet Well Float Switches |
| SS1-X10 | Wet Well Chamber Cover |
| SS1-X11 | Access Manhole Float Switches |
| SS1-X12 | Forcemain |
| SS1-L1 | Wet Well Level Sensor |

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-X1

**NAME** EXTRACTION WELL PITLESS ADAPTERS

**LOCATION** EXTRACTION WELLS (ABANDONED)

**MANUFACTURER** Maas - Division of Surinak
Engineering and Manufacturing, Inc.

**DISTRIBUTOR** Muskego Industrial Park
S82 W19246 Apollo Drive
Muskego, W1 53150
414-679-3922

**DESCRIPTION** Model-J Weld on Type, Drop Pipe Size 1 in. Dia.
for 8 in. well casing

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-X2

**NAME** EXTRACTION WELL UNIONS

**LOCATION** EXTRACTION WELLS (ABANDONED)

**MANUFACTURER**

**DISTRIBUTOR**

**DESCRIPTION** 1-inch diameter, steel

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-X4

**NAME** EXTRACTION WELL FLOW INDICATORS (ABANDONED)

**LOCATION** IN PIPE AND MEDIA DRAIN MANHOLES

**MANUFACTURER** Badger Meter Inc.
4546 W. Brown Deer Road
Milwawkee, WI P.O. Box 23099
(414) 355-0400

**DISTRIBUTOR**

**DESCRIPTION** Badger Inc. flow indicator, Model OP, 1/2" Ø, bronze body, Kynar piston, flanged ends, range 1-6 gpm, equipped with: Model PFT-420 flow transmitter; remote reading Model ER-7R single indicator for flow rate (installed at extraction well); remote reading model ER-7R single indicator for totalization (installed at extraction well)

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-V3

**NAME** EXTRACTION WELL SAMPLING VALVES (ABANDONED)

**LOCATION** IN PIPE AND MEDIA DRAIN MANHOLES

**MANUFACTURER**

**DISTRIBUTOR**

**DESCRIPTION** 1-inch/ 1/2-inch tee fitting with 1/2-inch sampling ball valve

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-X5

**NAME** EXTRACTION WELL CHAMBER COVERS

**LOCATION** EXTRACTION WELLS (ABANDONED)

**MANUFACTURER** Bilco

**DISTRIBUTOR**

**DESCRIPTION** Bilco Pit Door, Size 2'-6" x 3'-0", Model O-3, lockable

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-P2

**NAME** WET WELL SUBMERSIBLE PUMPS

**LOCATION** WET WELL

**MANUFACTURER** Grundfos Pump Corporation

**DISTRIBUTOR** Central Pump
Dayton, Ohio
513-890-1206

**DESCRIPTION** Model 60S50 - 9; 5 HP; 3 Phase;
230 volts; built-in check valve

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

## EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-X6

**NAME** WET WELL PITLESS ADAPTORS

**LOCATION** WET WELL

**MANUFACTURER** Maass - Division of Surinak
Engineering & Manufacturing Inc.

**DISTRIBUTOR** Muskego Industrial Park
S82 W19246 Appolo Drive
Muskego, WI 53150
414-679-3922

**DESCRIPTION** Model 7 Weld on Type, Drop Pipe Size 2 in.
dia. for 8 in. well casing

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-X7

**NAME** WET WELL UNIONS

**LOCATION** WET WELL

**MANUFACTURER**

**DISTRIBUTOR**

**DESCRIPTION** 2-inch, steel

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-V4

**NAME** WET WELL FLOW CONTROL BALL VALVES

**LOCATION** WET WELL

**MANUFACTURER** Worcester

**DISTRIBUTOR**

**DESCRIPTION** Flow control ball valve, 2" Worcester #CPT 4466PMS EG60, all stainless steel, screwed ends 60 Deg. equipped with: Worcester #2275-4W 120 VAC Electric Actuator, NEMA IV Housing, 75% Duty Cycle Motor; #HQ99 set point controller, accept 4-20MA signal from flow indicator; #MK026 S6 mounting kit to couple valve and actuator

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-X8

**NAME** WET WELL FLOW INDICATORS

**LOCATION** WET WELL

**MANUFACTURER** Badger Meter Inc.
4546 W. Brown Deer Road
Milwaukee, WI P.O. Box 23099
(414) 355-0400

**DISTRIBUTOR** W.R. Frew — Industrial Pump
Cincinnati, Ohio — Cleveland, Ohio
513-561-3669

**DESCRIPTION** Badger Inc. flow indicator, Model QP, 2" Ø, bronze body, Kynar piston, flanged ends, range 20-100 gpm, equiped with : Model PFT-420 flow transmitter; remote reading Model ER-7R single indicator for flow rate (to be installed @ wet well); remote reading Model ER-7R single indicator for totalization (to be installed @ treatment plant)

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-V5

**NAME** WET WELL GATE VALVES

**LOCATION** WET WELL

**MANUFACTURER** Watts Regulator Company

**DISTRIBUTOR** Disney-McLane Inc.
2704 Colerain Ave.
Cincinnati, Ohio
513-541-1682

**DESCRIPTION** Series WGV, brass body threaded connections;
2 in. dia.

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

**EQUIPMENT NO.** SS1-V6

**NAME** WET WELL SAMPLING VALVES

**LOCATION** WET WELL

**MANUFACTURER**

**DISTRIBUTOR**

**DESCRIPTION** 2-inch/1/2-inch steel tee fitting with 1/2-inch sampling ball valve

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-X9 **(abandoned)**

**NAME** WET WELL FLOAT SWITCHES

**LOCATION** WET WELL

**MANUFACTURER** Magnetek Controls, BW Controls

**DISTRIBUTOR** Nelcor Inc.
5169 Wooster Pike
Cincinnati, Ohio 45226
513-871-2816

**DESCRIPTION** Liquid Level Float Switch Model 7010
complete with cord grip, wall mounted
bracket and 1500 series induction relay

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-X10

**NAME** WET WELL CHAMBER COVER

**LOCATION**

**MANUFACTURER** Bilco

**DISTRIBUTOR**

**DESCRIPTION** Bilco pit door, size 2'-6" x 3'-0" Model O-3,lockable

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-X11

**NAME** ACCESS MANHOLE FLOAT SWITCHES

**LOCATION** PIPE AND MEDIA DRAIN ACCESS MANHOLES

**MANUFACTURER** Magnatek Controls, B/W Controls

**DISTRIBUTOR** Nelcor Inc.
5169 Wooster Pike
Cincinnati, Ohio 45226
513-871-2816

**DESCRIPTION** Liquid level float switch model 7010 complete with cord grip and wall mounted bracket

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

EQUIPMENT SPECIFICATION FORM

SUMMIT NATIONAL SITE

EQUIPMENT NO. SS1-X12 (abandoned)

NAME FORCEMAIN

LOCATION BETWEEN EXTRACTION WELL AND MANHOLES AND BETWEEN WET WELL AND TREATMENT BUILDING

MANUFACTURER

DISTRIBUTOR

DESCRIPTION

- 1-inch High density polyethylene (HDPE) between extraction wells and pipe and media drain manholes (rated at 160 psi)
- 2-inch HDPE between Wet Well and Treatment Building (rated at 160 psi)

MAINTENANCE

COMPONENT PARTS

SPARE PARTS

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS1-L1

**NAME** Wet Well Level Sensor

**LOCATION** Wet Well

**MANUFACTURER** Drexelbrook Engineering Company
205 Kieth Valley Road
Horsham, PA 19044
215-674-1234

**DISTRIBUTOR**

**DESCRIPTION** Level Monitoring System 508-11-34
- level sensor installed in wet well

**MAINTENANCE** Occasional inspection and cleaning

**COMPONENT PARTS**

**SPARE PARTS**

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

GROUNDWATER TREATMENT SUBSYSTEM - SS2

| Equipment | Description |
|---|---|
| SS2-T1 | Caustic Storage Tank |
| SS2-P1 | Caustic Storage Tank Metering Pump |
| SS2-T2 | Equalization/Aeration Tank |
| SS2-B1 | Equalization/Aeration Tank Blower |
| SS2-C1 | Equalization/Aeration Tank Carbon Adsorber |
| SS2-P2 | Equalization/Aeration Tank Transfer Pump |
| SS2-X1 | Inclined Plate Settler |
| SS2-P11 | Inclined Plate Settler Sludge Pump |
| SS2-T3 | Acid Storage Tank |
| SS2-P4 | Acid Metering Pump |
| SS2-T4 | Surge Tank #1 |
| SS2-X2 | Biotower |
| SS2-P3 | Biotower Feed Pump |
| SS2-T5, T6 | Nutrient Tanks |
| SS2-M1 & M2 | Nutrient Tank Mixers |
| SS2-P6 & P7 | Nutrient Metering Pumps |
| SS2-T7 | Inoculum Tank |
| SS2-P5 | Inoculum Metering Pump |
| SS2-B2 & B3 | Biotower Blowers |
| SS2-P12 | Biotower Sludge Pump |
| SS2-P8 | Biotower Recirculation Pump |
| SS2-C2 | Biotower Carbon Adsorber |
| SS2-X3 | Sand Filter |
| SS2-T8 | Surge Tank #2 |
| SS2-P9 & P10 | Surge Tank #2 Transfer Pumps |
| SS2-X4 & X5 | Liquid Phase Carbon Adsorbers |
| SS2-T10 | Surge Tank #3 |
| SS2-P15 | Surge Tank #3 Transfer Pump |
| SS2-T9 | Sludge Handling Tank |
| SS2-P13 | Sludge Dewatering Pump |
| SS2-X6 | Dewatering Bag Filter |
| SS2-T11 | Sump |
| SS2-P14 | Sump Pump |
| SS2-X7 | Air Compressor |
| SS2-X8 | Air Dryer |
| SS2-G1 | Magnehelic Air Pressure Gauges |
| SS2-G2 | Water Pressure Gauges |

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

GROUNDWATER TREATMENT SUBSYSTEM - SS2

| Equipment | Description |
|---|---|
| SS2-V1 | PVC Ball Valves |
| SS2-V2 | Bronze Ball Valves |
| SS2-V3 | Stainless Steel Ball Valves |
| SS2-V4 | Regulating Ball Valves |
| SS2-V5 | Air Solenoid Pressure Relief Valves/Air Regulators |
| SS2-S1 | Liquid Level Sensors and Transmitters |
| SS2-S2 | Electrochemical Sensors and Transmitters |
| SS2-S3 | Flow Transmitters |
| SS2-T17 | Polymer Tank |
| SS2-M17 | Polymer Mixer |
| SS2-F1 & F2 | Bag Filters |
| SS2-P17 | Polymer Metering Pump |
| SS2-S4 | Pressure Differential Transmitter |
| SS2-P16 | Backwash Pump |
| SS2-T20 | Backwash Tank |

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-T1

**NAME** CAUSTIC STORAGE TANK

**LOCATION** TREATMENT BUILDING

**MANUFACTURER** Adamson Co. Inc.
East Palestine, OH

**DISTRIBUTOR** Trombold Equip. Cleveland, OH

**DESCRIPTION** 3,000 gallon steel, flat bottom, dished top
7'6" OD, 10' SSH
Painted exterior, epoxy coated interior
1/4 inc. carbon steel SA-285 grade C minimum

**MAINTENANCE**
1) Inspect for leaks weekly.
2) Record tank level daily and add caustic when necessary.

**COMPONENT PARTS** SS2-P1 Metering Pump

**SPARE PARTS** None

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-P1

**NAME** CAUSTIC STORAGE TANK METERING PUMP

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Liquid Metronics Inc. (LMI)
19 Craig Road
Action, MA 01720-5495
508-263-9800

**DISTRIBUTOR**
Stranco
595 Industrial Drive
P.O. Box 389, Bradley, IL 60915-0389
815-932-8154

**DESCRIPTION**
Model D741 Drive
35P wet end
30691 Analog to Digital Converter
115 V

**MAINTENANCE**
1) Replace the liquifram, valve balls, seal rings and injector check valve spring at least once a year
2) Inspect for leaks weekly.

**COMPONENT PARTS**

**SPARE PARTS**
Spare Parts Kit No. SP-U2
Spring #29339*
Spring #10339*
Ball, Ceramic #10338*
Seal Ring, Teflon #10407*
Liquifram, 1.8 SI, Teflon Face #10305*

* Parts included in Spare Parts Kit No. SP-U2

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

| | |
|---|---|
| **EQUIPMENT NO.** | SS2-T2 |
| **NAME** | EQUALIZATION/AERATION TANK |
| **LOCATION** | TREATMENT BUILDING |
| **MANUFACTURER** | Edwards Fiberglass Inc.<br>P.O. Box 1252 Boonville & Hardings<br>Sedalia, Missouri 65302-1252<br>816-826-3915 |
| **DISTRIBUTOR** | Edwards Fiberglass Inc.<br>P.O. Box 1252 Boonville & Hardings<br>Sedalia, Missouri 65302-1252<br>816-826-3915 |
| **DESCRIPTION** | 3,800 gallon capacity, 3,000 gallon operating volume<br>FRP-vinyl ester resin<br>flat bottom, dished top<br>8' OD, 10' SSH |
| **MAINTENANCE** | 1) Inspect for leaks weekly.<br>2) Inspect for solids build up semi-annually and clean if necessary. |
| **COMPONENT PARTS** | SS2-P2 Transfer Pump<br>SS2-B1 Blower<br>SS2-C1 Carbon Adsorber<br>SS2-A1 Coarse Bubble Aerators |
| **SPARE PARTS** | None |

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

| | |
|---|---|
| **EQUIPMENT NO.** | SS2-B1 |
| **NAME** | EQUALIZATION/AERATION TANK BLOWER |
| **LOCATION** | TREATMENT BUILDING |
| **MANUFACTURER** | EG&G ROTRON<br>North Street<br>Saugerties, NY 12477<br>914-246-3401 |
| **DISTRIBUTOR** | EG&G ROTRON<br>North Street<br>Saugerties, NY 12477<br>914-246-3401 |
| **DESCRIPTION** | Regenerative Blower<br>100 cfm at 96" static H20 pressure<br>Model DR6D89<br>5HP, TEFC, 230/460V, 3Ø |
| **MAINTENANCE** | All DR models through the DR7 are equipped with sealed bearings and require no maintenance |
| **COMPONENT PARTS** | |
| **SPARE PARTS** | Spare Blower<br>Spare Motor |

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

**EQUIPMENT NO.** SS2-C1

**NAME** EQUALIZATION/AERATION TANK
VAPOR PHASE CARBON ADSORBER

**LOCATION** TREATMENT BUILDING

**MANUFACTURER** ENCOTECH, Inc.
P.O. Box 838
Donora, PA 15033
412-379-4555

**DISTRIBUTOR** ENCOTECH, Inc.
P.O. Box 838
Donora, PA 15033
412-379-4555

**DESCRIPTION** 2,000 lb. adsorber
100 cfm
4'OD, 7'OD
Carbon steel with epoxy interior coating and
epoxy exterior finish

**MAINTENANCE**
1) Replace carbon when spent.
2) Record pressure drop daily.

**COMPONENT PARTS**

**SPARE PARTS** Spare carbon adsorber vessel.

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-P2

**NAME** EQUALIZATION/AERATION TANK TRANSFER PUMP

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
G&L Goulds Pumps
P.O. Box 330
Seneca Falls, NY 13148
315-568-2811

**DISTRIBUTOR**
Pump & Compressor Equipment, Inc.
570 Elk Street
Buffalo, NY 14210
716-823-1504

**DESCRIPTION**
Close coupled centrifugal pump
Model 3642
50 gpm at 50' head
1 1/4 x 1 1/2-5, 3500 RPM, 1 1/2 HP, 230/460 V, 3 phase

**MAINTENANCE**
1) Inspect for leaks weekly.
2) Both pump and motor should not require lubrication.

**COMPONENT PARTS**

**SPARE PARTS** Spare Parts Kit

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE



**EQUIPMENT NO.** SS2-X1

**NAME** INCLINED PLATE SETTLER

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Parkson Corp.
2727 NW 62nd Street
Ft. Lauderdale, FL 33309
305-974-6610

**DISTRIBUTOR**
Siewert Equipment
175 Akron Street
Rochester, NY 14609
716-482-9640

**DESCRIPTION**
Lamella Gravity Plate Settler
Model 125/55
125 sq. ft area
FRP plates, steel housing
13' - 8"OAH, (10' x 4' floor space)

**MAINTENANCE**

FLASH MIXER DRIVE:

1) Windings should be dry and free of dust, grease, oil and dirt.
2) Terminal connection, assembly screws, bolts and nuts should be tight.
3) Insulation resistance of motors in service should be checked periodically at approximately the same temperature and humidity conditioins to determine possible deterioriation of the insulation
4) Ball bearings: The initial lubricant is supplemented by a supply packed into larger reservoirs in the end shield at time of assembly. No grease fittings are provided as the initial lubrication is adequate for up to 10 years of operation under normal conditions.
5) Sleeve bearings: The initial factory lubrication is normally adequate for approximately one year under normal operation. Thereafter, lubricate about every six (6) months. This

EQUIPMENT SPECIFICATION FORM

SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-X1 (Continued) 

**NAME** INCLINED PLATE SETTLER

**MAINTENANCE (cont)**

requires about 3 to 4 squirts from a 4 in. oil can. Use only LIGHT grade mineral oil (similar to SAE 10W) having viscosity of 210 sec. at 100°F.

6) If the motor has been subjected to storage prior to operation it is advisable to lubricate in accordance with the above before using motor.

SETTLER:

1) Check sludge level daily and pump out if necessary.
2) Check for leaks weekly.
3) Check solids build up in plates monthly and clean out if necessary.

**COMPONENT PARTS**

Flash mixer
SS2-P11 Sludge Pump

**SPARE PARTS**

Recommended Spare Parts:
Flash mixer.
Flocculatrol drive.
Flocculatrol steady bushing.

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-P11

**NAME** INCLINED PLATE SETTLER SLUDGE PUMP

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Wilden Pumps
22069 Van Buren, P.O. Box 845
Colton, CA 92324
714-422-1730

**DISTRIBUTOR**
Glauber Equipment Corp.
3940 Broadway
Buffalo, NY 14223
716-681-1234

**DESCRIPTION**
Model M-1 Air Operated Diaphram Pump
Polypropylene
Flow of 10 gpm at 50' head

**MAINTENANCE**
1) Pumps should use an air filter, regulator, and lubricator system, an oil with arctic characteristics (IS015-5WL) is suggested by Wilden; use the lowest setting on the lubricator and then increased as necessary.
2) Inspect for leaks weekly.

**COMPONENT PARTS**
Air pressure regenerator
Oil lubricator

**SPARE PARTS**
Wet end repair kit
Dry end repair kit

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-P4

**NAME** ACID METERING PUMP

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Liquid Metronics Inc. (LMI)
19 Craig Road
Action, MA 01720-5495
508-263-9800

**DISTRIBUTOR**
Stranco
595 Industrial Drive
P.O. Box 389, Bradley, IL 60915-0389
815-932-8154

**DESCRIPTION**
Model D741 (6-20 GPM)
36S Wet end (TFE)
30691 Analog to Digital Converter

**MAINTENANCE**
1) Replace the liquifram, seal rings, valve balls and injector check valve spring at least once a year.
2) Inspect for leaks weekly.

**COMPONENT PARTS**

**SPARE PARTS**
Spare Parts Kit No. SP-U2
Spring #29339*
Spring #10339*
Ball, Ceramic #10338*
Seal Ring, Teflon #10407*
Liquifram, 1.8 SI, Teflon Face #10305*

* Parts included in Spare Parts Kit No. SP-U2

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-T4

**NAME** SURGE TANK #1

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Edwards Fiberglass Inc.
P.O. Box 1252 Boonville & Hardings
Sedalia, Missouri 65302-1252
816-826-3915

**DISTRIBUTOR**
Edwards Fiberglass Inc.
P.O. Box 1252 Boonville & Hardings
Sedalia, Missouri 65302-1252
816-826-3915

**DESCRIPTION**
2,000 gallon capacity
FRP-vinyl ester with single nexus veil
Flat Bottom, Dished Top
6' OD, 10' SSH

**MAINTENANCE**
1) Inspect for leaks weekly.
2) Inspect for solids buildup semi-annually and clean if necessary.

**COMPONENT PARTS** SS2-P3 Biotower Feed Pump

**SPARE PARTS** None

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-X2

**NAME** BIO-TOWER

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
US Filter Corp
Lancy Environmental Systems, Inc.
181 Thorn Hill Road
Warrendale, PA 15086
412-772-0044

**DISTRIBUTOR**
US Filter Corp
Lancy Environmental Systems, Inc.
181 Thorn Hill Road
Warrendale, PA 15086
412-772-0044

**DESCRIPTION**
Upflow, fixed film, media filled
Epoxy coated steel
20,300 gallon capacity
12'ID, 24'H

**MAINTENANCE**
1) Inspect for leaks weekly.
2) Purge solids by air bumping monthly or when necessary (refer to biotower manual).

**COMPONENT PARTS**
SS2-P3 Bio-tower Feed Pump
SS2-B2 & B3 Blowers
SS2-P12 Sludge Pump
SS2-P8 Recirculation Pump
SS2-C2 Carbon Adsorber

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-P3

**NAME** BIOTOWER FEED PUMP

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
G&L Goulds Pumps
P.O. Box 330
Seneca Falls, NY 13148
315-568-2811

**DISTRIBUTOR**
Pump & Compressor Equipment, Inc.
570 Elk Street
Buffalo, NY 14210
716-823-1504

**DESCRIPTION**
Close coupled centrifugal pump
Model 3642
50 gpm at 50' head
1 1/4 x 1 1/2-5, 3500 RPM, 1 1/2 HP, 230/460 V,
3 phase

**MAINTENANCE**
1) Inspect for leaks.
2) Both pump and motor should not require lubrication.

**COMPONENT PARTS**

**SPARE PARTS**
Spare Parts Kit

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** **SS2-T5 and SS2-T6**

**NAME** NUTRIENT ADDITION TANKS

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
US Filter Corp.
Lancy Environmental
181 Thornhill Road
Warrendale, PA 15086
412-772-0044

**DISTRIBUTOR**
US Filter Corp.
Lancy Environmental
181 Thornhill Road
Warrendale, PA 15086
412-772-0044

**DESCRIPTION**
110 Gallon capacity, Open Top
FRP-2'-6"OD, 3'H - ATLAL 382 Resin

**MAINTENANCE**
1) Inspect for leaks weekly.

**COMPONENT PARTS**
Metering pumps P6 and P7
Mixers M1 and M2

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** **SS2-M1 and SS2-M2** 

**NAME** NUTRIENT ADDITION TANKS MIXERS

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Lightnin
221 Rochester Street
Avon, N.Y. 14414
716-226-6136

**DISTRIBUTOR**
US Filter Corp.
Lancy Environmental
181 Thornhill Road
Warrendale, PA 15086
412-772-0044

**DESCRIPTION**
Lightnin, Mark I Batch Mixer
1/4 HP, 115V, 1 Ø, 1725 RPM

**MAINTENANCE**

| | |
|---|---|
| 1) Gear Drive Oil Reservoir | Change every 2500 hours or 6 months |
| 2) Gear Drive Bearing | Grease every 2500 hours or 6 mths |
| 3) Impeller Shaft Bearing | Grease every 2500 hours or 6 months |
| 4) Flexible Couple | Add grease every 6 months |
| 5) Stuffing Box | Lubricate to suite service conditions |
| 6) Mechanical Seal | Flush every 5000 hours or 1 year |
| 7) Motor Lubrication | See motor nameplate |

EQUIPMENT SPECIFICATION FORM

SUMMIT NATIONAL SITE

**EQUIPMENT NO.** **SS2-M1 and SS2-M2** 

**COMPONENT PARTS**

**SPARE PARTS**

Recommended Mixer Spare Parts:

Qty: 1 1/4 HP Motor Mark 1
Qty: 4 Hex Head Cap Screw
Qty: 4 Lockwasher
Qty: 1 Housing
Qty: 1 Allen Wrench
Qty: 1 Coupling
Qty: 4 Dovkry HRSF Dry Screw
Qty: 1 Shaft 4/8" Dia x 36" Lg
Qty: 1 3.6 Dia Prop 316L
Qty: 1 Square Head Set Screw
Qty: 1 Clamp Assy
Qty: 1 Cap Screw
Qty: 2 Washer
Qty: 1 Locknut

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

| | |
|---|---|
| **EQUIPMENT NO.** | **SS2-P6 and SS2-P7** |
| **NAME** | PHOSPHORIC ACID SUPPLY PUMP (P6) AND NUTRIENT SUPPLY PUMP (P7) |
| **LOCATION** | TREATMENT BUILDING |
| **MANUFACTURER** | Liquid Metronics Inc. (LMI)<br>19 Craig Road<br>Action, MA 01720-5495<br>508-263-9800 |
| **DISTRIBUTOR** | Stranco<br>595 Industrial Drive<br>P.O. Box 389, Bradley, IL 60915-0389<br>815-932-8154 |
| **DESCRIPTION** | Model D741 Drive<br>36S Wet end<br>30691 Analog to Digital Converter<br>115 V |
| **MAINTENANCE** | 1) Replace the liquifram, the valve balls, seal ring and injector check valve spring at least once a year.<br>2) Inspect for leaks weekly. |
| **COMPONENT PARTS** | |
| **SPARE PARTS** | Spare Parts Kit No. SP-U2<br>Spring #29339*<br>Spring #10339*<br>Ball, Ceramic #10338*<br>Seal Ring, Teflon #10407*<br>Liquifram, 1.8 SI, Teflon Face #10305* |

* Parts included in Spare Parts Kit No. SP-U2

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-T7

**NAME** INOCULUM ADDITION TANK

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
US Filter
Lancy Environmental
181 Thronhill Road, Warrendale, PA 15086
412-772-0044

**DISTRIBUTOR**
US Filter
Lancy Environmental
181 Thronhill Road, Warrendale, PA 15086
412-772-0044

**DESCRIPTION**
FRP Tank 3'6" OD, 3'6" H
250 gallon capacity, open top
Atlac 382 resin

**MAINTENANCE**
1) Inspect for leaks weekly.

**COMPONENT PARTS**
PVC air sparger and metering pump P5.

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-P5

**NAME** INOCULUM ADDITION METERING PUMP

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Liquid Metronics Inc. (LMI)
19 Craig Road
Action, MA 01720-5495
508-263-9800

**DISTRIBUTOR**
Stranco
595 Industrial Drive
P.O. Box 389, Bradley, IL 60915-0389
815-932-8154

**DESCRIPTION**
Model D741 Drive
36S Wet end
30691 Analog to Digital Converter
115 V

**MAINTENANCE**
1) Replace the liquifram, seal rings, valve balls and injector check valve spring at least once a year.
2) Inspect for leaks weekly.

**COMPONENT PARTS**

**SPARE PARTS**
Spare Parts Kit No. SP-U2
Spring #29339*
Spring #10339*
Ball, Ceramic #10338*
Seal Ring, Teflon #10407*
Liquifram, 1.8 SI, Teflon Face #10305*

* Parts included in Spare Parts Kit No. SP-U2

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

| | |
|---|---|
| **EQUIPMENT NO.** | **SS2-B2 and SS2-B3** |
| **NAME** | BIO-TOWER BLOWERS |
| **LOCATION** | TREATMENT BUILDING |
| **MANUFACTURER** | Roots Dresser Industries Inc.<br>Connersville, IN 47331 |
| **DISTRIBUTOR** | US Filter<br>Lancy Environmental<br>181 Thronhill Road, Warrendale, PA 15086<br>412-772-0044 |
| **DESCRIPTION** | Universal Rotary Positive Blower<br>Model 53 RAI-U<br>170 SCFM<br>15HP, 460V, 3Ø TEFC |
| **MAINTENANCE** | 1) Check gearhouse oil level weekly and add oil if necessary.<br>2) Change oil after first 100 hours of operation and every 1000 hours thereafter.<br>3) Grease shaft bearings every week (See O&M in U.S. Filter, manual section 14, blower lubrication, operation, and maintenance sections pages 7 to 13). |
| **COMPONENT PARTS** | |
| **SPARE PARTS** | 1) Spare Parts Kit<br>2) Filter Element<br>3) Blower SS2-B4 provided as a spare |

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-P12

**NAME** BIO-TOWER SLUDGE PUMP

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Wilden Pumps
22069 Van Buren, P.O. Box 845
Colton, CA 92324
714-422-1730

**DISTRIBUTOR**
Glauber Equipment Corp.
3940 Broadway
Buffalo, NY 14223
716-681-1234

**DESCRIPTION**
Model M-2
Air Operated Diaphragm Pump
Aluminum
Flow 30 gpm at 50' head

**MAINTENANCE**
1) Pumps should use an air filter, regulator, and lubricator system. An oil with arctic characteristics (IS015-5WL) is suggested by Wilden (see Wildenmanual p.5). The lowest setting on the lubricator should be utilized and then increased as necessary.
2) Inspect for leaks weekly.

**COMPONENT PARTS**

**SPARE PARTS**
Wet end repair kit
Dry end repair kit

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE



**EQUIPMENT NO.** SS2-P8

**NAME** BIO-TOWER RECIRCULATION PUMP

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
The Duriron Company, Inc.
Pump Division
Dayton, OH 45401
513-226-4000

**DISTRIBUTOR**
US Filter Corp.
Lancy Environmental Systems
181 Thornhill Road
Warrendale, PA 15086
412-772-0044

**DESCRIPTION**
1K 3 x 2 - 62RV
2HP, 230/460V, 3Ø, 1800 RPM
50 GPM at 50' head

**MAINTENANCE**

1) Inspect for leaks weekly.
2) The standard pump bearings are designed for oil bath lubrication. You must fill the bearing housing to the proper level with the proper oil before starting the pump. The recommended oil should be a highly refined straight mineral product. Do not use detergent oils. Keep the Trico oiler bottle filled with the proper grade of oil. Push the bottle all the way down when reassembling. No other adjustment is necessary. The oiler will maintain a constant oil level in the bearing housing. Frequency of oil changes varies widely due to temperature, environment, intermittent or constant operation, etc.
3) When the grease lubrication option is specified, shielded bearings, grease fittings and vent pipe plugs are installed inboard and outboard.
4) The bearings are packed with Chevron SRI-#2 grease prior to assembly. For relubrication, a grease with the same type base (non-soap polyuride) and oil (mineral) should be used.

## EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-P8



**NAME** BIO-TOWER RECIRCULATION PUMP

**MAINTENANCE (cont)**

To regrease, remove the pipe plug from both the inboard and outboard bearing location. Apply grease through the fittings until it comes out of the vent holes, then reinstall the pipe plugs. Do not over grease. When grease lubricated sealed bearings are specified, relubrication is not required. Such bearings should be replaced on a regular maintenance schedule.

**COMPONENT PARTS**

**SPARE PARTS**

Recommended Spare Parts:

| | |
|---|---|
| Qty: 1 | Impeller 6 1/8" CD4M |
| Qty: 1 | Impeller Gasket TFR |
| Qty: 1 | Shaft ZH |
| Qty: 1 | Rear Cover Gasket TM |
| Qty: 1 | Inboard Oil Seal TSSR |
| Qty: 1 | Inboard Bearing SR |
| Qty: 1 | Outboard Bearing SR |
| Qty: 1 | Outboard Oil Seal TSSR |
| Qty: 1 | Outboard Oil Seal TSSR |
| Qty: 1 | Bearing Carrier O-Ring |
| Qty: 1 | Crane Type 1 Seal |

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-C2

**NAME** BIO-TOWER VAPOR PHASE CARBON ADSORBER

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
ENCOTECH, Inc.
P.O. Box 838
Donora, PA 15033
412-379-4555

**DISTRIBUTOR**
ENCOTECH, Inc.
P.O. Box 838
Donora, PA 15033
412-379-4555

**DESCRIPTION**
2,000 lb. adsorber
100 cfm
4'OD, 7'OD
Carbon steel with epoxy interior coating and epoxy exterior finish

**MAINTENANCE**
1) Replace carbon when spent.
2) Record pressure drop daily.

**COMPONENT PARTS**

**SPARE PARTS**
Spare carbon adsorber vessel.

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-X3

**NAME** SAND FILTER

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Parkson Corp.
2727 NW 62nd Street
Ft. Lauderdale, FL 33309
305-974-6610

**DISTRIBUTOR**
Siewert Equipment
175 Akron Street
Rochester, NY 14609
716-482-9640

**DESCRIPTION**
Dynasand Filter Model DSF-12
Continuous Backwash, Upflow
12 sq. ft. filtration area
4'ID, 12'H
Maximum head loss 30" water pressure

**MAINTENANCE**
1) Inspect for leaks weekly.
2) Remove air lift pump for inspeciton and cleaning annually.
3) Clean head loss measuring tube to remove algae as required.
4) Inspect lower plenum area of filter and hose out annually (see Parkinson manual Section 9 and Maintenance Section).

**COMPONENT PARTS**

**SPARE PARTS**

| | | | |
|---|---|---|---|
| D0012YB | IF-330-02, Item 5 | O-Ring - Air Lift Pump Chamber | Qty: 1 |
| D0005YB | 1F-278, Item 4 | O-Ring - Air Lift Inlety Nut | Qty: 1 |
| DP100BM | 1F-277, Item 1 | Screen - Air Lift Pump | Qty: 1 |
| DZ011ZB | 3F-3296, Item 3 | Regulator - Instrument Air | Qty: 1 |
| DI408ZB | 3F-3296, Item 5 | Air Flow Indicator | Qty: 1 |

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-T8

**NAME** SURGE TANK #2

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Nalgene Industrial Products Group
Nalge Company, P.O. Box 20365
Rochester, NY 14062
716-586-8800

**DISTRIBUTOR**
Korus Equipment Company
P.O. Box 631
Buffalo, NY 14226
716-839-1908

**DESCRIPTION**
1,100 gallon HDPE
Model 51109-1100
Flat Bottom, Dished Top
64" OD, 93" H

**MAINTENANCE**
1) Inspect for leaks weekly.
2) Inspect for solids build up semi-annualy and clean if necessary.

**COMPONENT PARTS** SS2-P9 and P10 Transfer Pumps

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** **SS2-P9 and SS2-P10**

**NAME** SURGE TANK #2 TRANSFER PUMPS

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
G&L Goulds Pumps
P.O. Box 330
Seneca Falls, NY 13148
315-568-2811

**DISTRIBUTOR**
Pump & Compressor Equipment, Inc.
570 Elk Street
Buffalo, NY 14210
716-823-1504

**DESCRIPTION**
Close coupled Centrifugal Pump
Model 3642
50 GPM at 50' head each
1 1/4 x 1 1/2-5, 3500 RPM, 1 1/2 HP, 230/460 V
3 phase

**MAINTENANCE**
1) Inspect for leaks weekly.
2) Both pumps and motors should not require lubrication.

**COMPONENT PARTS**

**SPARE PARTS**
Spare Parts Kit

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

| | |
|---|---|
| **EQUIPMENT NO.** | **SS2-X4 and SS2-X5** |
| **NAME** | LIQUID PHASE CARBON ADSORBERS |
| **LOCATION** | TREATMENT BUILDING |
| **MANUFACTURER** | Encotech Inc.<br>P.O. Box 838<br>Donora, PA 15033<br>412-379-4555 |
| **DISTRIBUTOR** | Encotech Inc.<br>P.O. Box 838<br>Donora, PA 15033<br>412-379-4555 |
| **DESCRIPTION** | 2-20,000 lb adsorbers for a 1 train x 2 stage system<br>10'OD, 10'H each vessel, ASME code, 75 PSIG design<br>28'L, 13'W, 21'H<br>Piping and valves |
| **MAINTENANCE** | 1) Replace carbon upon breakthrough.<br>2) Backwash carbon as required. Once the operating pressure reaches 40 psig (as indicated on the pressure gages), manual backwashing is recommended.<br>3) Once the treatment objective is exceeded or the organic wave fronts can no longer be maintained within predetermined operating parameters, the lead adsorber for series flow should be taken off-line, the spent carbon removed and the adsorber(s) refilled with reactivated carbon. |
| **COMPONENT PARTS** | |
| **SPARE PARTS** | |

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-T10

**NAME** SURGE TANK #3

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Nalgene Industrial Products Group
Nalge Company, P.O. Box 20365
Rochester, NY 14062
716-586-8800

**DISTRIBUTOR**
Korus Equipment Company
P.O. Box 631
Buffalo, NY 14226
716-839-1908

**DESCRIPTION**
Model 51109-1100
1,100 gallon HDPE
Flat Bottom, Dished Top
64" OD, 93" H

**MAINTENANCE**
1) Inspect for leaks weekly.
2) Inspect for solids build up semi-annually and clean if necessary.

**COMPONENT PARTS**
SS2-P15 Transfer Pump

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-P15

**NAME** SURGE TANK #3 TRANSFER PUMP

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
G&L Goulds Pumps
P.O. Box 330
Seneca Falls, NY 13148
315-568-2811

**DISTRIBUTOR**
Pump & Compressor Equipment, Inc.
570 Elk Street
Buffalo, NY 14210
716-823-1504

**DESCRIPTION**
Close Coupled Centrifugal Pump
Model 3642
50 GPM at 50' head each
1 1/4 x 1 1/2-5, 3500 RPM, 1 1/2 HP, 230/460 V
3 phase

**MAINTENANCE**
1) Inspect for leaks weekly.
2) Both pumps and motors should not require lubrication.

**COMPONENT PARTS**

**SPARE PARTS**
Spare Parts Kit

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-T9

**NAME** SLUDGE HANDLING TANK

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Nalgene Industrial Products Group
Nalge Company, P.O. Box 20365
Rochester, NY 14062
716-586-8800

**DISTRIBUTOR**
Korus Equipment Company
P.O. Box 631
Buffalo, NY 14226
716-839-1908

**DESCRIPTION**
4,200 gallon capacity
XLPE cone bottom, dished top
96" OD, 137" SSH, 177" OAH
Model 53309-4200 tank
53009-4200 stand

**MAINTENANCE**
1) Inspect for leaks weekly.
2) Inspect sludge level daily and dewater if necessary.

**COMPONENT PARTS** SS2-P13 Dewatering Pump

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-P13

**NAME** SLUDGE DEWATERING PUMP

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Moyno Industrial Products
Fluids Handling Group
Robbins & Myess, Inc.

**DISTRIBUTOR**
Resi-Tech Inc.
7927 US Highway 24
Manhattan, KS 66502
913-776-8383

**DESCRIPTION**
Moyno Progressive Cavity Pump
Model 367
Part of sludge dewatering system

**MAINTENANCE**
1) Inspect for leaks weekly.
2) Both pumps and motors should not require lubrication.

**COMPONENT PARTS**

**SPARE PARTS** Spare Parts Kit

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE



**EQUIPMENT NO.** SS2-X6

**NAME** DEWATERING BAG FILTER

**LOCATION** TREATMENT BUILDING

**DISTRIBUTOR**
Resi-Tech Inc.
7927 US Highway 24
Manhattan, KS 66502
913-776-8383

**DISTRIBUTOR**
J. Andrew Lange, Inc.
4455 Genesee Street
Syracuse, NY
716-839-2225

**DESCRIPTION**
DRAIMAD Model 6 BCA
6 bag dewatering system
9'W, 12'L, 6'H
includes pump (P13) and polymer addition system

**MAINTENANCE**

1) If the system is to be shut down for several days, flush out the sludge pump and flocculator system.
2) If the unit does not shut off on filling, or if the bags are only partially full the next day, the level sensor may need servicing. The PVC cap on top simply lifts off. Remove the two leads and unscrew the entire assembly. Lift out the assembly and clean off the electrodes. Replace in reverse order.
3) An access port (ball valve) has been provided at the end of the DRAIMAD hood. On a weekly basis, put a hose in the end and wash down the interior of the hood. To prevent splashing, it is best to do this with clean bags attached. This can be done before the start of a dewatering cycle.

EQUIPMENT SPECIFICATION FORM

SUMMIT NATIONAL SITE



**EQUIPMENT NO.** SS2-X6

**COMPONENT PARTS**
DRAIMAD dewatering bags
Bag wire ties and twister
Bag dolly.

**SPARE PARTS**
DRAIMAD dewatering bags.
Bag wire ties.

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-T11

**NAME** SUMP

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**

**DISTRIBUTOR**

**DESCRIPTION**

**MAINTENANCE**

1) Inspect level daily.
2) Inspect for solids build up semi-annually and clean out if necessary.

**COMPONENT PARTS** SS2-P14 Sump Pump

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

| | |
|---|---|
| **EQUIPMENT NO.** | SS2-P14 |
| **NAME** | SUMP PUMP |
| **LOCATION** | TREATMENT BUILDING |
| **MANUFACTURER** | G&L Goulds Pumps<br>P.O. Box 330<br>Seneca Falls, New York 13148<br>315-568-2811 |
| **DISTRIBUTOR** | Pump & Compressor Equipment Inc.<br>570 Elk St.<br>Buffalo, New York 14210<br>716-823-1504 |
| **DESCRIPTION** | Close Coupled Self Priming Pump<br>Model XSH07<br>Size 1 1/4 x 1 1/2<br>60 HZ, 3500 RPM, 115/230V, 3/4 HP<br>28 gpm at 20' suction head |
| **MAINTENANCE** | 1) Inspect for leaks weekly.<br>2) Both pumps and motors should not require lubrication. |
| **COMPONENT PARTS** | Float level control |
| **SPARE PARTS** | Spare Parts Kit |

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE



**EQUIPMENT NO.** SS2-X7

**NAME** AIR COMPRESSOR

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
(QUINCY) Diversified Air Systems, Inc.
4760 Van Epps Road
Cleveland, OH 44131
(216) 741-1700

**DISTRIBUTOR**
Scales Air Compressor
28 Parker Street
Wallingford, CT 06492
203-288-3181

**DESCRIPTION**
Model QEH-15, 2 Stage Air Compressor
60 CFM at 100 PSI
120 gallon tank
15 HP, 230V, 3Ø, TEFC
Automatic drain, pressure switch

**MAINTENANCE**

1) Check oil weekly
2) Change oil twice annually
3) Every 8 hours (or daily)
   - Maintain oil level between high and low level marks on bayonet gauge. (Discoloration or ahigher oil level reading may indicate the the presence of condensed liquids.) (Refer to manual section 6, troubleshooting).
   - Drain drop legs and traps in air distribution system.
   - Give compressor an overall visual inspection and be sure safety guards are in place.
   - Check for any unusual noise or vibration.
   - Check for oil leaks.
4) Every 40 hours (or weekly)
   - Manually operate the pressure relief valves to be certain they are working.
   - Clean the cooling surfaces of the intercooler and compressor.

EQUIPMENT SPECIFICATION FORM

SUMMIT NATIONAL SITE



**MAINTENANCE (CONT'D)**

- Check the compressor for air leaks.
- Check the compressed air distribution system for leaks.
- Check the air filter (more often under humid or dirty conditions).

5) Every 160 hours (or monthly)
   - Check belt tension.

6) Every 500 hours (or every 3 months)
   - Change oil (more frequently in harsher environments).
   - Torque compressor sheave fasteners per specifications.

7) Every 1,000 hours (or every 6 months)
   - When Quin-Cip oil is used, oil change intervals may be extended to every 1,000 hours or every 6 months, whichever occurs first (change more frequently in harsher conditions).
   - Inspect compressor valves for leakage and/or carbon build-up.

**COMPONENT PARTS**

Compressor Tank
SS2-C3 Air Dryers
Automatic Drain
Moisture Tanks

**SPARE PARTS**

Recommended Spare Parts:

| Qty. | Part No. | Description |
|---|---|---|
| 1 | 110377E100 | Air filter element |
| 1 | 111146E100 | Air filter element |
| 1 | 112085 | Gasket set |
| 1 | 111226X2 | Valve plate assembly low pressure |
| 1 | 1112217X2 | Valve plate assembly, high pressure |

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE



**EQUIPMENT NO.** SS2-X8

**NAME** AIR DRYER

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Pioneer Air Systems Inc.
Flatfork Road, P.O. Box 130
Wartburg, TN 37887-0130
Tel. 615-346-6693 Fax. 615-346-3865

**DISTRIBUTOR**
Pioneer Air Systems Inc.
Flatfork Road, P.O. Box 130
Wartburg, TN 37887-0130
Tel. 615-346-6693 Fax. 615-346-3865

**DESCRIPTION**

**MAINTENANCE**

1) Air and water cooled condensor must be inspected and cleaned periodically. Incoming rust/scale & dirt may plug automatic drain system.
2) Inspect and clean "Y" stainer on units where applicable.
3) Inspect and clean automatic drain solenoid and float drain periodically.
4) Inspect and replace prefilter and afterfilter elements periodically (recommended monthly).

**COMPONENT PARTS**

EQUIPMENT SPECIFICATION FORM

SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-X8



**NAME** AIR DRYER

**SPARE PARTS**

Recommended Spare Parts:
Compressor 115V
Fan Motor 115V
Fan Blade
115V Relay
115V Overload
Expansion Valve
Ref. Filter Dryer
Separator
Suction Gauge
Drain Valve 115V
Drain Isolation Valve
Y-Stainer
Drain Timer
High Temp. Light
Drain Manual Override Switch
Off/On Switch
Heat Exchanger
Heat Exchanger
Internal Float Drain Assy.

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-G1

**NAME** MAGNEHELIC AIR PRESSURE GAUGES

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Dwyer Instrument Inc.
Jct. IN212 & USR
P.O. Box 373
Michigan City, IN 46360
Tel. (219) 879-8000 Fax (219) 872-9057

**DISTRIBUTOR**
Dwyer Instrument Inc.
Jct. IN212 & USR
P.O. Box 373
Michigan City, IN 46360
Tel. (219) 879-8000 Fax (219) 872-9057

**DESCRIPTION**
Dwyer series 2000
Magnehelic Pressure Gauge

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-G2

**NAME** WATER PRESSURE GAUGES

**LOCATION** TREATMENT BUILDING

**MANUFACTURER** Trevice

**DISTRIBUTOR**

**DESCRIPTION** No. 600C serices, 4 1/2" pressure gauge 1279/1379

**MAINTENANCE**

**COMPONENT PARTS** Phosphor bronze bourdon tube
Brass socket

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-V1

**NAME** PVC BALL VALVES

**LOCATION** TREATMENT BUILDING

**MANUFACTURER** Chemtrol

**DISTRIBUTOR**

**DESCRIPTION** Hayward, 0.75-inch, 1-inch, 2-inch, and 3-inch

**MAINTENANCE** Inspect for leaks semi-annually.

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-V2

**NAME** BRONZE BALL VALVES

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Apollo Ball Valve Division
Conbaco Industries Inc.
P.O. Box 125
Pageland, SC 29728

**DISTRIBUTOR**
Apollo Ball Valve Division
Conbaco Industries Inc.
P.O. Box 125
Pageland, SC 29728

**DESCRIPTION**
Apollo, 1-inch (70-105), 2-inch (70-108),
3-inch (70-100)

**MAINTENANCE**
Inspect for leaks semi-annually.

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-V3

**NAME** STAINLESS STEEL BALL VALVES

**LOCATION** TREATMENT BUILDING

**MANUFACTURER** Chem-Flow

**DISTRIBUTOR**

**DESCRIPTION** Worcester, 2-inch and 3-inch.

**MAINTENANCE** Inspect for leaks semi-annually.

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE



**EQUIPMENT NO.** SS2-V4

**NAME** REGULATING BALL VALVES

**LOCATION** TREATMENT BUILDING

**MANUFACTURER** Worchester Controls Corp.
P.O. Box 538, 33 Locke Drive
Marlborough, MA 01752
Tel. 508-481-4800 Fax. 508-481-4454

**DISTRIBUTOR**

**DESCRIPTION** 2-inch and 3-inch.

**MAINTENANCE** Inspect for leaks semi-annually.

**COMPONENT PARTS** Series 75 electric valve acustors
AF-17 electronic positioner

EQUIPMENT SPECIFICATION FORM

SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-V4



**NAME** REGULATING BALL VALVES

**SPARE PARTS**

Suggested Spare Parts:
Integrated Circuit
L.E.D. Indicators
Opto. Couplers 120V/240 V
Triacs 120V/240 V
Motor Surge Res. 120V/240 V
Power Trans.
Filter Cap 120V/240 V
DC Regulator
Rectifier Bridge
Zener Diodes 120V/240 V
Range Control 120V/240 V
Zero Control 120V/240 V
AH Control 120V/240 V
Signal Input Fuse (see Note 4) 120V/240 V

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-V5

**NAME** AIR SOLENOID PRESSURE RELIEF VALVES / AIR REGULATIONS

**LOCATION** TREATMENT BUILDING

**MANUFACTURER** Automatic Switch Co.
50-60 Hanover Road
Florham Park, New Jersey 07932

**DISTRIBUTOR**

**DESCRIPTION** ASCO Solenoid Valves
ASCO 2-Way internal pilot operated solenoid valve
Fisher 289 series relief valves

**MAINTENANCE** 1) Clean periodically. Dirt build up can cause malfunctioning. Excessive noise or leakage indicates cleaning is required.

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-S1

**NAME** LIQUID LEVEL SENSORS AND TRANSMITTERS

**LOCATION** TREATMENT BUILDING

**MANUFACTURER** Drexelbrook Engineering Company
205 Keith Valley Rd.
Horsham, PA 19014
215-674-1234

**DISTRIBUTOR** Ritec Inc.
204 West Fall Road
Rochester, New York 14260
716-271-3170

**DESCRIPTION** Drexelbrook Level Transmitter C508-45-730
(Publications 408-8200-LM)

**MAINTENANCE**

**COMPONENT PARTS** Drexelbrook Level Switch 502-3000-902
(Publication 402-3000-LM)
408-8200 series two-wire
4-20 MA electronic unit
700 series sensing element (probe)

**SPARE PARTS**

EQUIPMENT SPECIFICATION FORM

SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-S2



**NAME** ELECTROCHEMICAL SENSORS AND TRANSMITTERS

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Great Lakes Instruments, Inc.
8855 North 55th Street
Milwaukee, Wisconsin 53223
Tel. 414-355-3601 Fax 414-355-8346

**DISTRIBUTOR**

**DESCRIPTION** Foxboro 871A series sensors and 870 series transmitters

**MAINTENANCE**

1) Inspect Sensor Cable: If the sensor-to-analyzer interconnect cable has not been put in conduit or other protective means, it should be inspected every few months for physical damage. At the same time, disconnect cable at the sensor and instrument, and check wires for internal shorts with an ohmmeter.
2) Checking System Periodically: Depending on the application, system calibration should be performed periodically to maintain measurement accuracy. Frequent checks are suggested until operating experience can determine the optimum time between checks that provides acceptable measurement results.
3) Sensor Cleaning: The sensor must be kept clean to maintain measurement accuracy. The time period between cleanings (days, weeks, etc.) is affected by the characteristics of the process solution and can only be determined by operating experience. For example, a sensor

EQUIPMENT SPECIFICATION FORM

SUMMIT NATIONAL SITE



NAME ELECTROCHEMICAL SENSORS AND TRANSMITTERS

MAINTENANCE (cont)

operating in waste water that contains oil and/or grease may require more frequent cleaning. Clean as follows:

1. Rinse the sensor with clean, warm water.
2. Prepare a mild soap solution. Use warm water and dishwashing detergent or other non-abrasive soaps that do not contain lanolin which will coat the glass process electrode.
3. Soak the sensor for 2 to 3 minutes in the soap solution.
4. Using a **soft** bristle brush, scrub the entire measuring end of the sensor (glass process electrode, salt bridge and ground electrode).
5. Before cleaning with acid, determine if any hazardous reaction products could form. For example, a sensor used in a cyanide bath should not be put directly into a strong acid for cleaning because poisonous cyanide gas could be produced. Acids are hazardous and appropriate eye protection and protective clothing should be worn in accordance with Material Safety Data Sheet recommendations. Muriatic or other **dilute** acids may be used to clean the sensor. The acid should be as dilute as possible, yet strong enough to clean. Experience will help determine which acid to use and how dilute it can be. Some stubborn coatings may require a different cleaning agent. Contact the manufacturer for assistance in these difficult cases. Soak the sensor in dilute acid for no more than 5 minutes. Rinse the sensor with clean, warm water and then place the sensor back into the soap solution for 2 to 3 minutes to neutralize the acid.
6. Rinse the sensor in clean, warm water.

EQUIPMENT SPECIFICATION FORM

SUMMIT NATIONAL SITE

EQUIPMENT NO. SS2-S2 (Continued) 

NAME ELECTROCHEMICAL SENSORS AND TRANSMITTERS

MAINTENANCE (cont)

7. Calibrate the sensor and instrument with pH buffers (refer to instrument instruction manual). If calibration cannot be accomplished, replace the sensor's standard cell buffer and salt bridge (Part Four, Section 2). If calibration is still not possible, troubleshoot the sensor in accordance with Part Four, Section 3.

COMPONENT PARTS

SPARE PARTS

Recommended Spare Parts:

| *Description* | *Part Number* |
|---|---|
| Program Jumpers (7 per package) | 670X4A1140 |
| Relay, 5A Contacts, 24 VDC Coil | 99X2T1016 |
| Power-Supply Board Assembly (115V, 50/60 Hz - includes plug-in jumper board) | 671M4G1001-102 |
| Power-Supply Board Assembly (230V, 50/60 Hz - includes plug-in jumper board | 671M4G1001-202 |
| Plug-In Jumper Board | 670A4D1004 |
| Plug-In Isolator Board (optional) | 42B4A1001 |
| Plug-In Pulse Module (optional, specify maximum pluses/minute) | 43M4G1001 |
| Display Module Assembly (2 boards - includes analog meter, specify measuring scale) | 671M4G2001 |
| Analog Meter (3-1/2 inch, specify measuring scale) | 99X1D1068 |
| Optional Vertical Pipe-mount Kit | 1000A4A1077 |
| Door Assembly | 1000M4G1107-102 |

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

**EQUIPMENT NO.** **SS2-S2 (Continued)** 

**NAME** ELECTROCHEMICAL SENSORS AND TRANSMITTERS

**SPARE PARTS (cont)**

| | |
|---|---|
| Sensor Accessories: | |
| Protector (for submersion applications) | 60A2F1278 |
| Union Adapter Assembly (includes two Viton O-rings and a retaining ring) | 60M2G9753-101 |
| Replacement Viton O-rings (two, for union adapter ass'y) | 99X5H1233 |
| Standard Cell Supplies: | |
| Standard Cell Buffer (1 pint) | 25M1A1001-115 |
| Gel Powder (for gelling standard cell buffer, 2 grams) | 25M8A1002-101 |
| Salt Bridge (includes O-ring) | 60-9765-000* |
| Salt Bridge O-Ring | 99X5H1261 |

* Some applications require a special salt bridge which is identified with a different dash number. When ordering a special salt bridge, specify complete number including the dash number.

| | |
|---|---|
| pH Buffers For Calibration and Operation Checks: | |
| pH 7 Buffer (1 pint) | 99X3A0421 |
| pH 4 Buffer (1 pint) | 99X3A0422 |
| pH 10 Buffer (1 pint) | 99X3A0942) |

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-S3

**NAME** FLOW TRANSMITTERS

**LOCATION** TREATMENT BUILDING

**MANUFACTURER** Krohne America Inc.
7 Dearborn Road
Peabody, MA 01960
Tel. 508-535-6060 Fax 508-535-1720

**DISTRIBUTOR**

**DESCRIPTION** Compact magentic inductive flowmeters
model 2" IFM 4080K
model 3" IFM 4080K
serial no. A93 8022
serial no. A93 7831

**MAINTENANCE** Instrument must be properly grounded to avoid personnel shock hazard - check grounding using ohmeter monthly

**COMPONENT PARTS** Primary head, mounted IFC 080K signal converter, signal cable

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-M8

**NAME** POLYMER MIXER

**LOCATION** TREATMENT BUILDING

**MANUFACTURER** Lightnin

**DISTRIBUTOR** Korus Equipment Company
P.O. Box 631
Buffalo, NY 14226
716-839-1908

**DESCRIPTION** Lightnin Size 62100
Code 0200

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-T17

**NAME** POLYMER TANK

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Nalgene Industrial Products Group
Nalge Company, P.O. Box 20365
Rochester, NY 14062
716-586-8800

**DISTRIBUTOR**
Korus Equipment Company
P.O. Box 631
Buffalo, NY 14226
716-839-1908

**DESCRIPTION**
250 gallon capacity
PP flat bottom tank
Model 11200 - 0275
19010-0275 stand

**MAINTENANCE**
1) Inspect for leaks weekly.
2) Inspect daily and mix if necessary.

**COMPONENT PARTS**
Mixer and Stand

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-F1&F2

**NAME** BAG FILTERS

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Filtration Systems
10304 NW 50th Street
Sunrise, Florida 33351
Tel: 305-572-2700 Fax: 305-572-3401

**DISTRIBUTOR**
V.C. Toner Company
P.O. Box 432
Twinsburg, Ohio 44087
Tel: 216-425-3855 Fax: 216-425-3859

**DESCRIPTION** Model N1122

**MAINTENANCE**

**COMPONENT PARTS** Filter bags

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-P17

**NAME** POLYMER METERING PUMP

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
Liquid Metronics Inc. (LMI)
19 Craig Road
Action, MA 01720-5495
508-263-9800

**DISTRIBUTOR**
Stranco
595 Industrial Drive
P.O. Box 389, Bradley, IL 60915-0389
815-932-8154

**DESCRIPTION**
Model B731 Drive
Analog to Digital Converter
115 V

**MAINTENANCE**
1) Replace the liquifram, valve balls, seal rings and injector check valve spring at least once a year
2) Inspect for leaks weekly.

**COMPONENT PARTS**
75 HB wet end

**SPARE PARTS**

* Parts included in Spare Parts Kit No. SP-U2

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-P16

**NAME** BACKWASH PUMP

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**
G&L Goulds Pumps
P.O. Box 330
Seneca Falls, NY 13148
315-568-2811

**DISTRIBUTOR**
Pump & Compressor Equipment, Inc.
570 Elk Street
Buffalo, NY 14210
716-823-1504

**DESCRIPTION**
Close coupled centrifugal pump
Model 31365
250 gpm at 50' head
2 x 2 1/2 x 6, 3500 RPM, 15 HP, 230/460 V,
3 phase

**MAINTENANCE**
1) Inspect for leaks.
2) Both pump and motor should not require lubrication.

**COMPONENT PARTS**

**SPARE PARTS**
Spare Parts Kit

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-S4

**NAME** PRESSURE DIFFERENTIAL TRANSMITTER

**LOCATION** TREATMENT BUILDING

**MANUFACTURER** Rosemount Inc.
P.O. Box 35129
Misseapolis, Minnesota 55435
Tel: 612-941-5560

**DISTRIBUTOR**

**DESCRIPTION** Model 1151 Pressure Transmitter
Series 1151 DP6E 12 B2

**MAINTENANCE** Yearly calibration

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

**EQUIPMENT NO.** SS2-T20

**NAME** BACKWASH TANK

**LOCATION** TREATMENT BUILDING

**MANUFACTURER**

**DISTRIBUTOR**

**DESCRIPTION** 8' ø x 21' long painted steel tank on wood planks

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

EQUIPMENT SPECIFICATION FORM

SUMMIT NATIONAL SITE

TABLE OF CONTENTS

TREATED WATER DISCHARGE SUBSYSTEM - SS3


| Equipment | Description |
|---|---|
| SS3-X1 | Gravity Drain Pipe |

EQUIPMENT SPECIFICATION FORM

SUMMIT NATIONAL SITE

| | |
|---|---|
| EQUIPMENT NO. | SS3-X1 |
| NAME | GRAVITY DRAIN PIPE |
| LOCATION | BELOW GROUND FROM TREATMENT BUILDING TO RIPRAP APRON AT NORTH-EAST CORNER OF SITE |
| MANUFACTURER | Advanced Drainage Systems, Inc.<br>Columbus, Ohio |
| DISTRIBUTOR | Advanced Drainage Systems, Inc.<br>Columbus, Ohio |
| DESCRIPTION | 6-inch diameter, HDPE |
| MAINTENANCE | Check discharge end weekly for blockage or evidence of entry by small animals |
| COMPONENT PARTS | |
| SPARE PARTS | |

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

TABLE OF CONTENTS

COMPUTER SUMP SYSTEM - SS4


| Equipment | Description |
|---|---|
| SS4-X1 | Program Controller |
| SS4-X2 | Computer |
| SS4-X3 | Printer |

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

**EQUIPMENT NO.** SS4-X1

**NAME** PROGRAM CONTROLLER

**LOCATION** ELECTRICAL ROOM

**MANUFACTURER** Texas Instruments

**DISTRIBUTOR**

**DESCRIPTION** Texas Instruments Series 405
Model 435

**PARTS**
435 CUP Processor - 435 CP4
8 meg memory Cartridge - G-14M
2-Base Units 8 slots - U-08B
6-16 point input AC - U-25N
4-8 point relay output - U-01T
4-8 channel analog input - 405-8ADC
3-4 channel analog output - 405-4DAC
1-PID module - 405-PID
1-Power Supply - 405-ID EX
1-TISFOFT Programming software

**SPARE PARTS**

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

**EQUIPMENT NO.** SS4-X2

**NAME** COMPUTER

**LOCATION** CONTROL ROOM

**MANUFACTURER**

**DISTRIBUTOR**

**DESCRIPTION** Process monitoring computer with processor, keyboard and screen

**COMPONENT PARTS**
386 DX-2S Processor
387 DX math co-processor
120 meg hard drive
main memory 8 meg
SVGA graphics with TRIDENT 8900 c/w 1 meg video memory
Enhanced keyboard
mouse and drives
parallel, 2 serial ports controller card
SVGA monitor flat screen 17 inch
3 1/2 inch floppy 1.44 meg
5 1/4 inch floppy 1.2 meg

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

EQUIPMENT NO. SS4-X3

NAME PRINTER

LOCATION

MANUFACTURER

DISTRIBUTOR

DESCRIPTION

MAINTENANCE

COMPONENT PARTS

SPARE PARTS

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

TABLE OF CONTENTS

BUILDING SUBSYSTEM - SS5


| Equipment | Description |
|---|---|
| SS5-X1 | Side Wall Exhaust Fan |
| SS5-X2 | Rooftop Exhaust Fan |
| SS5-X3 | Rooftop Heat Pump Units |
| SS5-X4 | Fork Lift Truck |
| SS5-X5 | Security System |

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

**EQUIPMENT NO.** SS5-X1

**NAME** SIDEWALL EXHAUST FANS

**LOCATION** TREATMENT BUILDING

**MANUFACTURER** Greenheck

**DISTRIBUTOR**

**DESCRIPTION** Greenheck sidewall exhaust fans,
model SDE-10-32-D, 1/25 hp;
model SDE-20-24-B, 1/4 hp; and
model SDE-12-24-A, 1/4 hp.

**MAINTENANCE** Check monthly for correct operation.

**COMPONENT PARTS**

**SPARE PARTS**

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

**EQUIPMENT NO.** SS5-X2

**NAME** ROOFTOP EXHAUST FANS

**LOCATION** TREATMENT BUILDING

**MANUFACTURER** Greenheck

**DISTRIBUTOR**

**DESCRIPTION** Greenheck rooftop exhaust fans,
model GB 70-4, R-4, 1/4 hp;
model GB 70-4, R-5, 1/4 hp; and
model GB 240-7, R-5, 3/4 hp.

**MAINTENANCE** Check monthly for correct operation.

**COMPONENT PARTS**

**SPARE PARTS**

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

**EQUIPMENT NO.** SS5-X3

**NAME** ROOF HEAT PUMP UNITS

**LOCATION** TREATMENT BUILDING

**MANUFACTURER** Carrier

**DISTRIBUTOR**

**DESCRIPTION** Carrier single-package rooftop heat pump units, model 50OJ004-6

**MAINTENANCE**

**COMPONENT PARTS**

**SPARE PARTS**

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

EQUIPMENT NO. SS5-X4

NAME FORK LIFT TRUCK

LOCATION

MANUFACTURER

DISTRIBUTOR

DESCRIPTION

MAINTENANCE

COMPONENT PARTS

SPARE PARTS

# EQUIPMENT SPECIFICATION FORM

## SUMMIT NATIONAL SITE

EQUIPMENT NO. SS5-X5

NAME SECURITY SYSTEM

LOCATION TREATMENT BUILDING

MANUFACTURER

DISTRIBUTOR

DESCRIPTION

MAINTENANCE

COMPONENT PARTS

SPARE PARTS

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

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SITE COVER SUBSYSTEM - SS6


| Equipment | Description |
|---|---|
| SS6-X1 | Security Fence |

**EQUIPMENT SPECIFICATION FORM**

**SUMMIT NATIONAL SITE**

**EQUIPMENT NO.** SS6-X1

**NAME** SECURITY FENCE AND GATES

**LOCATION** SITE PERIMETER

**MANUFACTURER** Master Halco
3232 Cleveland Avenue
Columbus, Ohio

**DISTRIBUTOR** Southway Fence Company
5156 Southway St. S.W.
Canton, OH P.O. 44706
(216) 477-5251

**DESCRIPTION** Chain-link, 6 feet high with 3 strands of barbed wire across the top

**MAINTENANCE**

1) Check daily for signs of intrusion and/or damage
2) Check monthly for signs of erosion under chain link fabric
3) Oil locks monthly and check operation

**COMPONENT PARTS**

**SPARE PARTS** 1 lock

# 7.0 MAINTENANCE

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# 7.0 MAINTENANCE

Maintenance requirements for the Site subsystems include routine inspection, scheduled maintenance, unscheduled maintenance, and record keeping of these activities. The scheduled daily, weekly, monthly, semi-annual and annual inspections are detailed in Section 7.1. It should be noted that additional maintenance details are provided in the equipment specification forms in Section 6.0 and the manufacturers' maintenance information as presented in the various manuals on file in the Site office. The procedures for implementing unscheduled maintenance are discussed in Section 7.2.

Maintenance activities which involve confined space entry must be conducted in accordance with the confined space entry procedures described in Section 10.16 of the Site Health and Safety Plan (Section 10.0).

## 7.1 ROUTINE INSPECTION AND MAINTENANCE

### 7.1.1 Scheduled Maintenance

Scheduled maintenance should be performed according to a predetermined schedule. A summary of the scheduled maintenance work which should be performed is summarized on Figure 7.1.

### 7.1.2 Daily Inspection and Maintenance

Daily inspection and maintenance of the treatment equipment shall be completed once a day. The daily inspection and maintenance activities shall include, but are not necessarily limited to, the following:

- review the scheduled maintenance work (see Figure 7.1);

- general visual inspection of the Site wet well and manhole locations;
- general visual inspection of the Site security fence, cover, perimeter drainage and treatment plant discharge location;
- general visual inspection of the Site treatment building and trailer unloading area;
- general visual inspection of the treatment plant equipment for leaks, overflows or malfunctions; and
- responding to alarms or malfunctioning equipment as necessary. Check affected system and make proper adjustments.

The daily inspection is required to ensure that the Site grounds and equipment are presentable and operational, and that no unusual conditions exist. The inspections performed should be recorded on the Daily Inspection Log as shown in Table 7.1. As necessary, unscheduled maintenance should be performed, or scheduled for completion as soon as possible.

Scheduled maintenance should be performed following completion of the daily inspection, according to the maintenance schedule outlined on Figure 7.1. The maintenance work performed should be recorded on an Equipment Maintenance Record Log form for the respective item upon which maintenance is performed. Separate Equipment Maintenance Record Log forms, as presented in Table 7.2, must be maintained for each equipment item identified in Section 6.0, and all must be filed with the respective equipment files in the Site office.

### 7.1.3 Weekly Inspection and Maintenance

Routine weekly inspection and maintenance should be performed as summarized on Figure 7.1 and will include a review of the weekly safety inspection list provided in Appendix 10.1 of the Site Health and Safety Plan (Section 10).

Weekly inspection and maintenance of the treatment system will include:

- checking nutrient supplies to anticipate need for new batch, or reorder;
- checking acid and caustic levels to anticipate reorder point;
- checking supply of dewatering bags to anticipate reorder point;
- scheduling pick up of full sludge bags, if required;
- verifying operation of motors on blowers, pumps and the compressor;
- checking supply of sampling and analysis equipment for lab;
- checking supply of safety equipment, and tools; and
- checking operation of biotower to verify need for pumping.

A Weekly Equipment Inspection Log is provided in Table 7.3.

The weekly inspection and maintenance of the pipe and media drain wet well and manholes should include, but not necessarily be limited to, the following:

- inspecting locks and covers for signs of forced entry;
- lubricating cover hinges;
- inspecting pump chambers for accumulated water. As necessary, pump out the water and record the volume. Water removed must be transferred to the E/A tank (T2) for treatment;
- checking and recording total VOC HNu meter reading within all pump chambers and manholes;
- completing the Manhole Entry Permit, (Section 10 - Site Health and Safety Plan), prior to entering any well chamber or manhole;
- checking for unusual knocks or vibrations from the pumps while in operation. The Grundfos stainless-steel pumps are essentially maintenance free;
- inspecting pipes and valves for signs of leakage. The control valves are essentially maintenance free; and
- checking the flow meter to ensure that it is working and record the instantaneous flow rate from the meter in the pump chamber.

The inspection work performed should be recorded on the Well Chamber and Manhole Inspection Log for each well chamber and manhole. Table 7.4 presents a Weekly Well Chamber and Manhole Inspection Log. Maintenance performed should be recorded on the Equipment Maintenance Record Log shown in Table 7.2. Completed logs must be filed on a weekly basis with the previous inspection records maintained at the Site.

### 7.1.4 Monthly Inspection and Maintenance

Routine monthly inspection and maintenance to be performed is summarized on Figure 7.1, and will include a review of the monthly safety inspection list provided in Appendix 10.1 of the Site Health and Safety Plan (Section 10), equipment maintenance and inspecting the Site cover. The routine monthly inspection and maintenance performed should be recorded on the Monthly Treatment Plant Inspection Log shown in Table 7.7.

Monthly inspection and maintenance of the monitoring well sites should include but not limited to:

- inspection of the locks;
- the well casing condition, and the protective bollard posts condition; and
- cutting the grass around the well Site.

### 7.1.5 Maintenance and Inspection of the Site Cover

The vegetative cover will be maintained at a nominal height of 4 to 8 inches, to promote active vegetative growth and minimize vegetative distress. Maintaining the vegetative cover at this height typically requires mowing three to four times per year, and fertilizing once or twice per year.

The Site cover will be visually inspected on a monthly basis by walking the entire Site to determine the presence of burrowing animals, deep rooted vegetation, vegetative distress, surface erosion, ponding of water, and subsidence or settlement. During the inspection, the perimeter security fence also will be inspected to determine structural damage or loss of integrity. All gates will be opened to ensure functionality and all locks will be oiled.

Significant problems identified by the periodic inspections will be rectified within 1 month of their observance, except for items where implementation of repairs are seasonally dependent. In such cases, problems will be substantially rectified by the next season when such repairs are typically performed. Deep rooted vegetation and vegetative distress shall be controlled by application of appropriate growth inhibitors, and reseeding and fertilizing, respectively. Areas where surface erosion, desiccating of water and subsidence or settlement have occurred shall be reworked, restored to adjacent levels and revegetated.

The monthly Site cover inspection should be recorded on the Monthly Site Cover Inspection Log presented in Table 7.5. Completed logs are filed at the Site. As necessary, unscheduled maintenance should be performed, or scheduled for completion as soon as possible.

### 7.1.6 Semi-Annual Inspection and Maintenance

Routine semi-annual inspection and maintenance includes a review of the semi-annual safety inspection list provided in Appendix 10.1 of the Site Health and Safety Plan (Section 10) and equipment maintenance including greasing motors and blower bearings, inspection of carbon beds, touching up tanks, and inspection of acid and caustic storage tanks, air lines, and control valves as summarized on Figure 7.1.

The equipment inspections and maintenance performed should be recorded on the Semi-Annual Inspection Log presented in Table 7.6. Completed logs are filed at the Site. As necessary, unscheduled maintenance should be performed, or scheduled for completion as soon as possible.

Semi-annual maintenance of the monitoring well sites should include but not limited to the following:

- oiling the lock and well cover hinge;
- removing weeds in stone surround and raking; and
- painting well casings and protective bollards if necessary.

### 7.1.7 Annual Inspection and Maintenance

Routine annual inspection and maintenance includes maintenance of metering pumps and the sand filter unit as summarized on Figure 7.1.

## 7.2 UNSCHEDULED MAINTENANCE

Unscheduled maintenance must be performed as required. Unscheduled maintenance items identified by the daily, weekly, monthly and semi-annual inspection activities may include the following:

- cutting and/or fertilizing of the Site grass;
- grading of the Site access roads;
- cleaning of the stormwater catchbasins, culverts, and/or sewer mains.
- repair surficial erosion and sloughing along the cap boundary slopes;
- repair damage caused by burrowing wildlife, the presence of deep-rooted weeds, or other foreign vegetation;
- rebuilding wet well;
- cleaning out the bio-tower;
- cleaning out the settler; and
- replacement of GAC units (C1 and C2).

| ACTIVITY / FREQUENCY | DAILY | WEEKLY | MONTHLY | SEMI-ANNUALLY | ANNUALLY | COMMENTS |
|---|---|---|---|---|---|---|
| INSPECT TREATMENT PLANT EQUIPMENT FOR LEAKS | * | | | | | |
| INSPECT SECURITY FENCES | * | | | | | |
| INSPECT SITE BUILDINGS, UNLOADING PADS | * | | | | | |
| INSPECT SITE PERIMETER DRAINAGE | * | | | | | |
| COMPLETE MAINTENANCE RECORDS | * | | | | | |
| CHECK BIO-TOWER BLOWERS OIL LEVEL | | * | | | | |
| CLEAN DEWATERING UNIT HOOD | | * | | | | |
| INSPECT PROCESS TANKS | | * | | | | |
| INSPECT PROCESS PUMPS | | * | | | | |
| INSPECT AIR COMPRESSOR | | * | | | | |
| INSPECT BLOWERS | | * | | | | |
| CHECK CHEMICAL TANK LEVELS | | * | | | | |
| CHECK OIL LEVELS IN OILERS | | * | | | | |
| INSPECT SAND FILTER | | * | | | | |
| INSPECT SLUDGE HANDLING EQUIPMENT | | * | | | | |
| INSPECT WELL CHAMBERS AND MANHOLES | | * | | | | |
| CHECK SUPPLIES AND SPARE PARTS | | * | | | | |
| INSPECT SITE SAFETY EQUIPMENT | | * | | | | |
| CHANGE BIO-TOWER BLOWERS OIL | | | * | | | |
| AIR DRYERS MAINTENANCE | | | * | | | |
| ELECTROCHEMICAL SENSORS MAINTENANCE | | | * | | | MAINTAIN GRASS HEIGHT BETWEEN 4"-8" |
| CHECK SOLIDS IN SETTLER PLATES | | | * | | | |
| PURGE BIO-TOWER BY AIR PUMPING | | | * | | | |
| LUBRICATE BIO-TOWER RECIRCULATION PUMP | | | * | | | |
| INSPECT COVER, AND DRAINAGE SYSTEMS | | | * | | | |
| FIRE EXTINGUISHERS | | | * | | | |
| EXHAUST FANS | | | * | | | |
| LADDERS | | | * | | | |
| LIGHTING | | | * | | | |
| OVERHEAD DOORS | | | * | | | |
| SMOKE ALARMS | | | * | | | |
| POWER CORDS | | | * | | | |
| SUMP PIT GRATING | | | * | | | |
| SANITARY HOLDING TANK | | | * | | | |
| INSPECT MONITORING WELL HARDWARE | | | * | | | |
| CUT GRASS ALONG FENCE LINES AND AT MONITORING WELL LOCATIONS | | | * | | | |
| GREASE BLOWER BEARINGS | | | | * | | |
| GREASE PUMP MOTORS | | | | * | | |
| WIRE BRUSH CORROSION ON TANKS AND TOUCH-UP PAINT | | | | * | | |
| LUBRICATE SETTLER SLEEVE BEARINGS (IF USED) | | | | * | | |
| INSPECT PROCESS TANKS FOR SOLIDS | | | | * | | |
| INSPECT SUMPS FOR SOLIDS | | | | * | | |
| CHANGE OIL IN NUTRIENT MIXERS | | | | * | | |
| CHANGE AIR COMPRESSOR OIL | | | | * | | |
| INSPECT CARBON BEDS | | | | * | | |
| INSPECT ACID TANK | | | | * | | |
| INSPECT ALL PIPES AND VALVES | | | | * | | |
| INSPECT CAUSTIC TANK | | | | * | | |
| INSPECT AIR LINES | | | | * | | |
| PERFORM MAINTENANCE AT MONITORING WELLS | | | | * | | |
| METERING PUMPS MAINTENANCE | | | | | * | |
| SAND FILTER AIR LIFT PUMP MAINTENANCE | | | | | * | |

figure 7.1
MAINTENANCE SCHEDULE
*Summit National Superfund Site*

**CRA**

2372 (35) NOV 02/95(W) REV.1 (S-21)

## TABLE 7.1

## DAILY INSPECTION LOG
## SUMMIT NATIONAL SUPERFUND SITE
## Deerfield Township of Portage County, Ohio

DATE: _____ INSPECTED BY: _____

| LOCATION | CHECKED | COMMENTS |
|---|---|---|
| WET WELL MANHOLE COVER | | |
| MANHOLES COVERS | | |
| SECURITY FENCE | | |
| PERIMETER DRAINAGE | | |
| TREATMENT BUILDING | | |
| TREATMENT EQUIPMENT | | |
| SITE COVER | | |

## TABLE 7.2

## MAINTENANCE RECORD LOG
## SUMMIT NATIONAL SUPERFUND SITE
### Deerfield Township of Portage County, Ohio

EQUIPMENT NO. _____ NAME: _____

| DATE OF REPAIR | SPARE PARTS USED | | DESCRIPTION OF REPAIR |
|---|---|---|---|
| | DESCRIPTION | PART NO. | |
| | | | |
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| | | | |

## TABLE 7.3

## WEEKLY EQUIPMENT INSPECTION LOG
## GROUNDWATER TREATMENT SYSTEM
## SUMMIT NATIONAL SUPERFUND SITE
**Deerfield Township of Portage County, Ohio**

DATE:_____ TIME: _____ INSPECTED BY:_____

| TANKS | OK | COMMENTS |
|---|---|---|
| T1 CAUSTIC STORAGE | | |
| T2 EQUALIZATION/ AERATION | | |
| T3 ACID STORAGE | | |
| T4 SURGE TANK No.1 | | |
| T5 NUTRIENT | | |
| T6 NUTRIENT | | |
| T7 INOCULUM | | |
| T8 SURGE TANK No.2 | | |
| T9 SLUDGE HANDLING | | |
| T10 SURGE TANK No.3 | | |
| T11 SUMP | | |

| UNITS | OK | COMMENTS |
|---|---|---|
| X1 SETTLER | | |
| X2 BIOTOWER | | |
| X3 SAND FILTER | | |
| X4 AERATION CARBON | | |
| X5 BIOTOWER CARBON | | |
| X6 SLUDGE DEWATERING | | (2) |
| X7 AIR COMPRESSOR | | (3) |
| CONTROL VALVES | | |
| FLOW METERS | | |
| C3 AIR DRYER | | (3) |

| PUMPS | OK | COMMENTS |
|---|---|---|
| P1 CAUSTIC METERING | | |
| P2 EQUAL/AERATION | | |
| P3 BIOTOWER FEED | | |
| P4 ACID METERING | | |
| P5 INOCULUM | | |
| P6 NUTRIENT | | |
| P7 NUTRIENT | | |
| P8 BIOTOWER RECIRC. | | |
| P9 SURGE TANK No.2 | | |
| P10 SURGE TANK No.2 | | |
| P11 SETTLER SLUDGE | | |
| P12 BIOTOWER SLUDGE | | |
| P13 SLUDGE DEWATER. | | |
| P14 SUMP PUMP | | |
| P15 SURGE TANK No.3 | | |

| BLOWERS | OK | COMMENTS |
|---|---|---|
| B1 AERATION BLOWER | | |
| B2 BIOTOWER BLOWER | | (1) |
| B3 BIOTOWER BLOWER | | (1) |

| VALVES | OK | COMMENTS |
|---|---|---|
| V1 PVC BALL VALVE | | |
| V2 BRONZE BALL VALVE | | |
| V3 S.S. BALL VALVE | | |
| V4 REGULATING VALVE | | |

.es: Inspect all equipment for leaks.
(1) Check gearhouse oil level weekly. Replace gearhouse oil after first 100 hours of operation and every1,000 hours thereafter.
(2) Wash the hood interior weekly. Flush out flocculator system if shut down.
(3) Conduct maintenance/inspection as noted in Equipment Specification Form.

## TABLE 7.4

## WEEKLY WELL CHAMBER AND MANHOLE INSPECTION LOG
## SUMMIT NATIONAL SUPERFUND SITE
## Deerfield Township of Portage County, Ohio

DATE: _____ INSPECTED BY: _____

| WELL | INSPECTED BY | LOCKS HINGES COVERS | CHAMBER WATER LEVEL | PUMP OPERATING | PIPES, VALVES | METER FLOW RATE | COMMENTS |
|---|---|---|---|---|---|---|---|
| WW | | | | | | | |
| MH-1 | | | | | | | |
| MH-2 | | | | | | | |
| MH-3 | | | | | | | |
| MH-4 | | | | | | | |
| MH-5 | | | | | | | |
| MH-6 | | | | | | | |
| MH-7 | | | | | | | |
| MH-8 | | | | | | | |

## TABLE 7.5

## MONTHLY SITE COVER INSPECTION LOG
## SUMMIT NATIONAL SUPERFUND SITE
## Deerfield Township of Portage County, Ohio

| ITEM | TYPES OF PROBLEMS | CHECKED | OBSERVATIONS | WORK ORDER NUMBER | DATE AND NATURE OF REPAIRS/ REMEDIAL ACTION |
|---|---|---|---|---|---|
| SECURITY | | | | | |
| Perimeter Fence | - Corrosion or strucutral damage to support posts and fence fabric | | | | |
| Gates and Lock | - Corrosion damage to gate hinges and fabric<br>- Locks sticking or corroding | | | | |
| Signs | - Corrosion, visibility, damage | | | | |
| SITE COVER | | | | | |
| Landscaped Area | - Vegetative cover<br>- Presence of deep rooted vegetation or burrowing mammals<br>- Erosion, cracking<br>- Subsidence (visual)<br>- Settlement<br>- Ponding of Water<br>- Slumping<br>- Seepage<br>- Mow grass<br>- Fertilize cover<br>- Sample topsoil | | | | |
| Drainage System | - Heaving, settlement, cracking or reinforced concrete channel<br>- Erosion, profile, vegetation of drainage channels<br>- Slumping of sides<br>- Vegetation control | | | | |

## TABLE 7.6

## SEMI-ANNUAL INSPECTION LOG
## SUMMIT NATIONAL SUPERFUND SITE
## Deerfield Township of Portage County, Ohio

DATE: _____ INSPECTED BY: _____

| | CHECKED | COMMENTS |
|---|---|---|
| SS2-X7<br>AIR COMPRESSOR | | (1) |
| SS2-C4<br>SOLENOID VALVES | | (2) |
| GREASE MOTORS | | |
| GREASE<br>BLOWER BEARINGS | | |
| INSPECT PIPING AND VALVES | | |
| TOUCH UP<br>TANKS AND PIPING | | |
| INSPECT AIR LINES | | |
| INSPECT ACID AND CAUSTIC TANK | | |
| T-2<br>EQUALIZATION/AERATION TANK | | (3) |
| SS2-M1 & M2<br>NUTRIENT ADDITION TANK MIXERS | | (3) |
| SS2-T4<br>SURGE TANK #1 | | (3) |
| SS2-T8<br>SURGE TANK #2 | | (3) |
| SS2-T10<br>SURGE TANK #3 | | (3) |
| SS2-T11<br>SUMP | | (3) |

Notes:

(1) Conduct maitenance as per Equipment Specifications Forms.
(2) Clean if noisy or sticking.
'3) Check solids build up and clean out if necessary.

## TABLE 7.7

## MONTHLY TREATMENT PLANT INSPECTION LOG
## SUMMIT NATIONAL SUPERFUND SITE
## Deerfield Township of Portage County, Ohio

DATE: _____ INSPECTED BY: _____

| ITEM | CHECKED | OBSERVATIONS | DATE AND NATURE OF REPAIRS/REMEDIAL ACTION |
|---|---|---|---|
| Change Biotower Blowers Oil | | | |
| Air Dryers Maintenance | | | |
| Electrochemical Sensors Maintenance | | | |
| Check Solids in Settler Plates | | | |
| Purge Biotower by Air Pumping | | | |
| Lubricate Biotower Recirculation Pump | | | |
| Fire Extinguishers | | | |
| Exhaust Fans | | | |
| Ladders | | | |
| Lighting | | | |
| Overhead Doors | | | |
| Smoke Alarms | | | |
| Power Cords | | | |
| Sump Pit Grating | | | |
| Sanitary Holding Tank | | | |
| Blowers | | | |

# 8.0 MONITORING

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# 8.0 MONITORING

Regular monitoring at the Site, including specific sample collection, sample analyses, and reporting tasks must be completed in order to meet the following monitoring requirements:

i) Site cover monitoring, groundwater monitoring and groundwater treatment system monitoring requirements as required by the Consent Decree;

ii) additional groundwater treatment system performance monitoring to evaluate the operation of specific groundwater treatment system unit operations; and

iii) on-Site potable water supply well monitoring to demonstrate that the potable water supply to the groundwater treatment building is not contaminated.

Figure 8.1 presents a summary of the various monitoring tasks and a master schedule for the timely performance of the tasks.

Consent Decree specified monitoring and analyses procedures are stipulated in the USEPA and OEPA approved Quality Assurance Project Plan detailed in Section 12, and are supplemented by the procedures and background information presented in the following sections.

## 8.1 CONSENT DECREE MONITORING REQUIREMENTS

### 8.1.1 Surface Water and Sediment Sampling

A surface water and sediment sample shall be collected annually at the southeast corner of the Site at the confluence of the south and east drainage ditches and analyzed for the TCL organic parameter list until

termination of groundwater extraction and treatment as detailed in Section 9.0.

### 8.1.2 Groundwater Monitoring Program

A groundwater monitoring program shall be established and maintained during the operation of and for 5 years after the termination of groundwater extraction and treatment for the Site. The objective of this monitoring program shall be to provide data for:

- the demonstration of hydraulic containment, collection and extraction of Site-related contaminated groundwater in the Water Table Unit (WTU);
- the demonstration of reduction of the concentrations of Site-related contaminants in groundwater within the WTU and the IU to concentrations specified by the cleanup standards;
- the hydraulic and water quality characteristics in groundwater within the Upper Sharon Unit to demonstrate that groundwater within the Upper Sharon Unit is not significantly impacted by the Site; and
- the demonstration that water quality characteristics in local residential wells are not impacted by the Site.

The groundwater monitoring program shall consist of hydraulic monitoring and groundwater quality monitoring in the WTU, IU, the Upper Sharon Unit and residential wells. The evaluation of the data collected will determine if the groundwater collection and extraction system is performing to its design criteria. The data shall be used to assess whether the contingency measures as outlined in Section 8.1.2.5 require implementation. The data also shall be used to determine at what point in time operation of the WTU extraction system may cease as discussed in Section 9.

8.1.2.1 Monitoring Well Network

Table 8.1 lists the Site monitoring wells and piezometers and provides a summary of the well construction details, coordinates, and elevations.

8.1.2.1.1 Water Table Unit (WTU)

Nineteen monitoring wells and seven piezometers have been installed in the WTU to, in part, monitor the performance of the pipe and media drain groundwater collection system. The WTU monitoring well and piezometer locations are shown on Figure 8.2. A schematic diagram of a typical WTU monitoring well is illustrated on Figure 8.3, and copies of the WTU well and piezometer installation logs are included in Appendix 8.1.

8.1.2.1.2 Intermediate Unit (IU)

Twelve nested monitoring wells, six nested piezometers, two monitoring wells and one piezometer are installed in the IU at the locations shown on Figure 8.2. At each monitoring well and piezometer location, one well/piezometer is completed in each of the upper intermediate unit (UIU) and lower intermediate unit (LIU). Typical IU monitoring wells and piezometers are shown on Figures 8.4 and 8.5. Well and piezometer installation logs are included in Appendix 8.1.

8.1.2.1.3 Upper Sharon Unit (USU)

Seven USU monitoring wells have been installed at the Site to form the Upper Sharon Unit groundwater monitoring network, as illustrated on Figure 8.2. In addition, the potable water supply well may be used to monitor the groundwater in the USU. A typical Upper Sharon monitoring well is illustrated on Figure 8.6. Monitoring of the Upper Sharon

Unit is needed to demonstrate that Site-related contaminated groundwater does not significantly impact the Upper Sharon Aquifer. Well installation logs are included in Appendix 8.1.

8.1.2.1.4 Residential Wells

USEPA and OEPA selected three residential wells to be included in the monitoring well network as required by the Consent Decree. The locations of the Agency selected residential wells are shown on Figure 8.7.

8.1.2.2 Hydraulic Monitoring

All monitoring wells and piezometers shown on Figures 8.2, 8.4 and 8.7 shall be utilized in the hydraulic monitoring program. Groundwater elevations shall be determined at the following frequency:

i) bi-weekly for 3 months after groundwater extraction system startup;
ii) monthly for the remainder of the first year of operation; and
iii) quarterly thereafter.

After any significant adjustments to the groundwater extraction system, the frequency of water level monitoring shall be increased to bi-weekly for 3 months.

8.1.2.3 Groundwater Quality Monitoring

All the Site monitoring wells listed in Table 8.1 (19 in the WTU, 26 in the IU, and 7 in the USU), as well as three Agency selected residential wells shall be utilized in the groundwater quality monitoring program. The initial round of groundwater samples from the WTU and IU monitoring wells shall be collected immediately after startup of the

groundwater extraction system, with a second and third round of samples collected 6 months after startup and 1 year after startup, respectively. The four wells completed in the Upper Sharon Unit and the three Agency selected residential wells shall be sampled at startup and at 1 year after startup.

All samples will be collected and analyzed as detailed in the Quality Assurance Project Plan in Section 12.0. The analyses for the first year sampling events will be evaluated and reviewed, and a Site-specific indicator parameter list will be developed by the SNFT. This list will be submitted to USEPA and OEPA for modification and/or approval.

Subsequent groundwater monitoring shall be conducted twice a year for the WTU and IU and each year for the Upper Sharon Unit for the second to fifth years following startup, with all collected samples analyzed for the approved Site-specific indicator parameter list. At the end of the fifth year, and every fifth year thereafter until termination of the Consent Decree, all monitoring wells shall be monitored for the full TCL parameter list. Based on a review of the analytical data obtained from analyses of these samples, the Site-specific indicator parameter list may be amended and submitted to USEPA and OEPA for modification and/or approval.

After the first 5 years following startup, groundwater monitoring shall be conducted bi-annually in the Upper Sharon Unit and once a year in the WTU and IU until termination of the Consent Decree.

The three residential wells shall be monitored again 2 years after startup and bi-annually thereafter, until 1 year after it is confirmed that there is no or insignificant potential for off-Site migration of contaminated groundwater in potentially impacted groundwater units as demonstrated by groundwater and hydraulic monitoring data.

If the hydraulic and groundwater monitoring data indicate that Site-related contamination is significantly impacting the groundwater units on and/or off the Site outside of the established monitoring system, then additional piezometers and groundwater

monitoring wells shall be installed to delineate the extent and degree of that Site-related contamination after the submittal of a sampling plan to USEPA and OEPA for modification and/or approval.

8.1.2.4 Data Evaluation and Reporting

The hydraulic data collected as part of the hydraulic monitoring program will be reduced to elevations and entered into a computer database. The water level data will be listed in tabular form for each round of data collected. Groundwater elevations will be contoured for the WTU and IU on Site plans, and the capture zones delineated. The data will be thoroughly evaluated to determine if the hydraulic gradients in the WTU are directed towards the pipe and media drain from all points affected by past Site operations. The IU data will be evaluated to assess the capture areas of the extraction wells. The capture zones will demonstrate if horizontal flow within that portion of the unit affected by past Site operations is contained and collected.

Upon receipt of analytical results, data validation will be undertaken to determine if the data are acceptable for use in the groundwater quality monitoring program. If the data are deemed to be acceptable, all data, including Quality Assurance/Quality Control (QA/QC) data, will be entered into a computer database. The raw data packages, as received from the project laboratory, will be sent to USEPA and OEPA upon request, within 30 days of receipt, for QA review by USEPA and OEPA. After review by USEPA and OEPA, the data will be designated as approved or not approved for evaluating the effectiveness of the extraction systems.

The computer database shall provide the required listing and summary tables of analyses, including a separate listing of QA/QC data. The simplified data shall be used to determine the distribution of groundwater contamination. In order to illustrate the analytical results, appropriate plan view maps of selected analytes shall be prepared. As additional data are generated, graphical presentations of concentrations

versus time also shall be prepared to demonstrate the temporal variations in contaminant concentrations.

The evaluation of the hydraulic and water quality data also shall be used to determine when the system operations can be terminated as described in Section 9.

An evaluation report on the effectiveness monitoring program shall be submitted on an annual basis to USEPA and OEPA. This evaluation report shall include:

- analytical results and appropriate QA/QC data;
- hydraulic monitoring data;
- a description of the Site system maintenance activities and any encountered problems that require corrective action;
- an evaluation of the effectiveness of the groundwater extraction system, including tables and figures generated; and
- recommendations for program revisions, if appropriate.

The USEPA and OEPA shall be notified in writing within 7 calendar days of any encountered problems that may require corrective action for the extraction or monitoring systems.

8.1.2.5 Groundwater Monitoring Contingency Plan

The groundwater monitoring program shall monitor the performance of the groundwater extraction system with respect to its design criteria and requirements. If the system is not performing as designed or required, considering the time required to substantially attain steady-state conditions, contingency actions shall be required. The criteria for implementation of contingency actions at the Site shall be as follows:

- if hydraulic containment, collection and extraction in the WTU is not achieved, beneath and off of the Site in the areas of Site-related groundwater contamination; and/or
- if Site-related contaminated groundwater is leaving the IU to the Upper Sharon Unit; and/or
- if Site-related groundwater contamination in the Upper Sharon Unit beneath and off of the Site exceeds cleanup standards.

The contingency actions that shall be undertaken if any or all of the above criteria are met shall include one or more of the following:

- the extension of the groundwater collection pipe and media drain in the WTU; and/or
- the installation of groundwater extraction wells in the WTU; and/or
- the installation of additional groundwater extraction wells in the IU; and/or
- the installation of groundwater extraction wells in the Upper Sharon Unit.

### 8.1.3 Groundwater Treatment System Monitoring

To ensure that the integrity of the environment is being maintained, and to assess the performance of the treatment facility, a monitoring schedule as discussed in the following sections shall be implemented.

#### 8.1.3.1 Flow Measurement

Flow measurements shall be recorded as follows:

i) continuous measurement of influent flow to the groundwater treatment system; and
ii) continuous measurement of treated effluent flow discharged to the surface water drainage system.

The above flow measurement requirements will be met by recording the totalized influent flow rate and the totalized effluent flow rate on the Daily Process Log as described in Section 5.3.1.

8.1.3.2 Treated Effluent Analyses

The frequencies and types of analyses for treatment plant effluent monitoring are in accordance with the OEPA Substantive Permit for the Site as summarized in the USEPA and OEPA approved Quality Assurance Project Plan included in Section 12.0. A copy of the OEPA Substantive Permit is included in Appendix 8.2.

8.1.3.3 Effluent Reporting

A monthly effluent report will be prepared and submitted to OEPA and USEPA by the 15th day of the month following the reporting period, as required by the OEPA Substantive Permit, included in Appendix 8.2.

8.1.3.2.1 Compliance

In the event that contaminant levels in the effluent from the groundwater treatment system exceed the final effluent requirements for any singular sampling event, the frequency of sampling and analyses of the effluent for that contaminant grouping shall be increased to weekly. If the contaminant levels in the effluent continue to exceed the final effluent requirements for two consecutive events, then the groundwater treatment system shall be deemed to be in noncompliance with the final effluent requirements.

In the event of noncompliance with the appropriate effluent standards, the following steps shall be taken:

i) written notices shall be provided to the Director of OEPA and the USEPA-RPM within 10 days following receipt of the analyses of the original exceedance and the two consecutive samples collected from the treatment plant effluent; and

ii) treatment operations shall be amended to bring the system into compliance within 2 months of written notification; if the final effluent is less than the acute water quality criteria. The treatment system may be brought into compliance by adjusting the treatment system and/or the introduction of interim treatment technology (i.e. additional activated carbon, ultraviolet/peroxide treatment or air stripping). The treatment operations shall be amended immediately to bring the system into compliance, if the final effluent is greater than the acute water quality criteria. The treatment system may be brought into compliance by passing the final effluent back through the system until the final effluent requirements are achieved; adjusting the treatment system; and/or the introduction of interim treatment technology.

The groundwater treatment system shall be deemed to have returned into compliance when three consecutive sampling events demonstrate conformance to the final effluent requirements. In this case, the frequency of sampling and analyses of the effluent shall return to the pre-noncompliance frequency mode.

In the event that a determination is made by any party that compliance can not be achieved without major revisions to the treatment system, that party shall provide written notice of such determination to the other parties. The SNFT shall develop and submit a plan for modifications, including a schedule for implementation, to the Agencies within 3 months of such determinations. Implementation of the proposed modifications will be completed in accordance with the schedule

approved by USEPA and OEPA. In this instance, the frequency of sampling and analyses at startup shall follow that as for a new installation, as shown in Table 12.1 of the Quality Assurance Project Plan included in Section 12.0.

#### 8.1.3.3 Air Emissions

Total priority pollutants in the air emissions from the E/A tank vapor phase carbon adsorber vent, and the biotower vapor phase carbon adsorber vent will be monitored annually. The method of analysis will be EPA Method 624.

## 8.2 GROUNDWATER TREATMENT SYSTEM UNIT PERFORMANCE EVALUATIONS

Regular sampling of specific groundwater treatment system units will be conducted to evaluate the following:

- metals and total suspended solids (TSS) removal efficiency of the inclined plate settler unit;
- biotower performance during normal operation;
- biotower startup performance; and
- dewatered sludge toxicity to determine appropriate landfill disposal.

In addition, the influent to the groundwater treatment system will be sampled periodically and analyzed in accordance with the effluent analytical protocols specified in the QAPP in Section 12.0.

The required analyses of the above treatment system unit operations are summarized in Table 8.2.

### 8.2.1 Reporting of Analyses

A monthly report summarizing the treatment unit sampling results will be prepared and submitted to the SNFT.

## 8.3 POTABLE WATER SUPPLY WELL

The on-Site potable water supply well, which supplies potable water for the groundwater treatment system building, will be sampled for the TCL parameter list immediately after installation, and on an annual basis thereafter.

It should be noted that the potable water supplied to the groundwater treatment building will only be used for cleaning and maintenance purposes and for the emergency shower. Drinking water will be provided by bottled water.

### 8.3.1 Reporting of Analyses

The results of the annual potable water supply well analyses will be summarized in a letter report which will be submitted to the SNFT.

TABLE 3.1
MONITORING WELL / PIEZOMETER LIST
SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

| Well ID | Location (1) Grid | Northing | Easting | Elevations (1) Top of Casing | Top of Riser | Ground | Diameter | Screen Material | Length of Screen (feet) | Hydrogeologic Unit | Date Completed | Total Depth (ft. BTOR) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WATER TABLE UNIT MONITORING WELLS** | | | | | | | | | | | | |
| MW-4 (2) | E of 5-9 | 9,504.40 | 5,951.81 | 1,091.09 | 1,089.37 | 1,088.08 | | PVC | 5 | WTU | Jul-80 | 26.5 |
| MW-11 (2) | 6-6 | 9,415.00 | 5,636.28 | 1,096.49 | 1,095.93 | 1,093.98 | | PVC | 5 | WTU | Nov-84 | 26.3 |
| MW-101 | NW of 1-1 | 10,021.30 | 4,969.30 | 1,107.70 | 1,107.57 | 1,105.57 | 2 | SS | 5 | WTU | Aug-93 | 24.2 |
| MW-102 | N of 1-5 | 10,010.12 | 5,512.54 | 1,100.42 | 1,100.17 | 1,097.91 | 2 | SS | 5 | WTU | Aug-93 | 21.4 |
| MW-103 | 1-8 | 9,591.39 | 4,927.97 | 1,096.59 | 1,096.22 | 1,093.96 | 2 | SS | 5 | WTU | Aug-93 | 20.0 |
| MW-104 | 4-1 | 9,576.51 | 5,079.94 | 1,100.73 | 1,099.81 | 1,098.50 | 2 | SS | 5 | WTU | Sep-93 | 29.8 |
| MW-105 | 5-1 | 9,539.58 | 5,136.64 | 1,101.64 | 1,101.32 | 1,099.55 | 2 | SS | 5 | WTU | Sep-94 | 28.8 |
| MW-106 | 4-3 | 9,549.29 | 5,296.02 | 1,103.58 | 1,102.88 | 1,101.00 | 2 | SS | 5 | WTU | Sep-93 | 35.0 |
| MW-107 | 4-6 | 9,550.10 | 5,570.26 | 1,098.65 | 1,098.27 | 1,096.02 | 2 | SS | 5 | WTU | Sep-93 | 30.8 |
| MW-108 | 4-8 | 9,549.95 | 5,779.50 | 1,092.70 | 1,091.96 | 1,090.14 | 2 | SS | 5 | WTU | Sep-94 | 18.2 |
| MW-109 | 4-9 | 9,586.47 | 5,874.83 | 1,087.77 | 1,087.42 | 1,085.32 | 2 | SS | 5 | WTU | Jul-94 | 10.6 |
| MW-110 | E of 3-9 | 9,641.97 | 6,124.53 | 1,087.21 | 1,086.87 | 1,084.49 | 2 | SS | 5 | WTU | Aug-93 | 15.1 |
| MW-111 | 6-3 | 9,395.45 | 5,296.51 | 1,099.97 | 1,099.67 | 1,097.55 | 2 | SS | 5 | WTU | Sep-94 | 29.1 |
| MW-113 | 6-8 | 9,392.18 | 5,825.52 | 1,088.64 | 1,088.46 | 1,085.41 | 2 | SS | 5 | WTU | Aug-94 | 16.4 |
| MW-114 | 7-3 | 9,280.30 | 5,265.10 | 1,097.63 | 1,097.27 | 1,095.12 | 2 | SS | 5 | WTU | Aug-93 | 21.5 |
| MW-115 | 7-6 | 9,299.48 | 5,637.84 | 1,102.41 | 1,101.83 | 1,100.38 | 2 | SS | 5 | WTU | Aug-93 | 40.8 |
| MW-116 | S of 7-3 | 9,004.70 | 5,236.40 | 1,106.07 | 1,105.54 | 1,103.19 | 2 | SS | 5 | WTU | Aug-93 | 26.4 |
| MW-117 | S of 7-6 | 9,014.47 | 5,616.11 | 1,124.19 | 1,123.97 | 1,121.35 | 2 | SS | 5 | WTU | Aug-93 | 60.7 |
| MW-118 | SE of 7-9 | 9,171.40 | 5,970.27 | 1,098.68 | 1,098.38 | 1,096.37 | 2 | SS | 5 | WTU | Aug-93 | 37.1 |
| **UPPER INTERMEDIATE UNIT MONITORING WELLS** | | | | | | | | | | | | |
| MW-201 | NW of 1-1 | 10,020.44 | 4,952.70 | 1,107.73 | 1,107.52 | 1,105.96 | 2 | SS | 10 | LIU | Sep-93 | 63.4 |
| MW-202 | N of 1-5 | 10,043.72 | 5,514.36 | 1,099.99 | 1,099.50 | 1,098.70 | 2 | SS | 10 | UIU | Oct-93 | 49.9 |
| MW-203 | 3-1 | 9,697.80 | 5,096.10 | 1,103.60 | 1,103.35 | 1,101.30 | 2 | SS | 10 | UIU | Dec-93 | 53.5 |
| MW-204 | 6-1 | 9,356.11 | 5,120.25 | 1,098.29 | 1,098.01 | 1,096.24 | 2 | SS | 10 | UIU | Sep-93 | 46.3 |
| MW-205 | S of 7-7 | 9,223.34 | 5,679.69 | 1,101.21 | 1,100.90 | 1,099.32 | 2 | SS | 10 | UIU | Sep-93 | 53.1 |
| MW-206 | 4-3 | 9,548.49 | 5,312.36 | 1,103.44 | 1,103.22 | 1,101.06 | 2 | SS | 10 | UIU | Dec-93 | 63.3 |
| MW-207 | 4-6 | 9,550.05 | 5,551.84 | 1,098.82 | 1,098.51 | 1,096.20 | 2 | SS | 10 | UIU | Dec-93 | 49.8 |
| MW-209 | 4-9 | 9,589.24 | 5,861.64 | 1,087.91 | 1,087.66 | 1,085.43 | 2 | SS | 10 | UIU | Jul-94 | 37.7 |
| MW-219 | 2-3 | 9,802.95 | 5,292.50 | 1,108.37 | 1,108.24 | 1,106.04 | 2 | SS | 10 | UIU | Dec-93 | 63.0 |
| MW-220 | E of 1-9 | 9,893.22 | 5,964.42 | 1,091.23 | 1,090.92 | 1,089.47 | 2 | SS | 10 | UIU | Jul-95 | 38.7 |
| MW-223 | 6-5 | 9,356.57 | 5,466.72 | 1,097.81 | 1,098.37 | 1,095.48 | 2 | SS | 10 | UIU | Jul-95 | 45.3 |
| MW-224 | 6-8 | 9,401.54 | 5,813.55 | 1,088.87 | 1,089.41 | 1,086.15 | 2 | SS | 10 | UIU | Jul-95 | 36.6 |

TABLE 8.1
MONITORING WELL / PIEZOMETER LIST
SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD, OHIO

| Well ID | Location (1) Grid | Northing | Easting | Elevations (1) Top of Casing | Top of Riser | Ground | Diameter | Screen Material | Length of Screen (feet) | Hydrogeologic Unit | Date Completed | Total Depth (ft. BTOR) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **UPPER INTERMEDIATE UNIT PIEZOMETERS** | | | | | | | | | | | | |
| PZ-201 | 5-1 | 9,491.38 | 5,119.35 | 1,100.06 | 1,099.74 | 1,097.58 | 2 | PVC | 10 | UIU | Oct-94 | 46.4 |
| PZ-202 | 5-4 | 9,483.49 | 5,367.58 | 1,101.91 | 1,101.56 | 1,099.10 | 2 | PVC | 10 | UIU | Dec-93 | 54.9 |
| PZ-203 | 6-4 | 9,350.00 | 5,369.76 | 1,098.41 | 1,098.31 | 1,095.73 | 2 | PVC | 10 | UIU | Oct-94 | 51.6 |
| PZ-204 | 4-6 | 9,628.38 | 5,616.09 | 1,096.16 | 1,095.41 | 1,093.73 | 2 | PVC | 10 | UIU | Dec-93 | 50.1 |
| PZ-205 | 5-6 | 9,494.93 | 5,643.20 | 1,096.82 | 1,096.63 | 1,094.34 | 2 | PVC | 10 | UIU | Dec-93 | 42.4 |
| PZ-206 | 5-8 | 9,511.98 | 5,826.33 | 1,088.30 | 1,088.05 | 1,085.62 | 2 | PVC | 10 | UIU | Aug-94 | 39.0 |
| PZ-207 | 6-7 | 9,383.66 | 5,740.10 | 1,091.84 | 1,091.36 | 1,089.53 | 2 | PVC | 10 | UIU | Aug-94 | 38.9 |
| **LOWER INTERMEDIATE UNIT PIEZOMETERS** | | | | | | | | | | | | |
| PZ-301 | 5-1 | 9,497.67 | 5,112.99 | 1,100.40 | 1,100.07 | 1,097.76 | 2 | PVC | 10 | LIU | Oct-94 | 68.3 |
| PZ-302 | 5-4 | 9,482.10 | 5,390.46 | 1,101.45 | 1,101.25 | 1,098.76 | 2 | PVC | 10 | LIU | Dec-93 | 72.4 |
| PZ-303 | 6-4 | 9,350.04 | 5,358.60 | 1,098.55 | 1,098.39 | 1,095.82 | 2 | PVC | 10 | LIU | Oct-94 | 80.8 |
| PZ-305 | 5-7 | 9,491.50 | 5,649.85 | 1,096.68 | 1,096.49 | 1,094.20 | 2 | PVC | 10 | LIU | Dec-93 | 59.6 |
| PZ-306 | 5-8 | 9,515.83 | 5,823.03 | 1,088.60 | 1,088.35 | 1,085.87 | 2 | PVC | 10 | LIU | Aug-94 | 99.6 |
| PZ-307 | 6-8 | 9,390.06 | 5,749.78 | 1,092.15 | 1,091.40 | 1,089.42 | 2 | PVC | 10 | LIU | Aug-94 | 70.7 |

Note: (1) As surveyed by Wellert Corporation of Wadsworth, Ohio in August 1995.
Vertical and horizontal tolerance is plus or minus 0.02 feet.
(2) Installed during Remedial Investigation.

**TABLE 8.2**

**ANALYSES OF TREATMENT SYSTEM UNIT OPERATIONS SUMMIT NATIONAL SITE DEERFIELD, OHIO**

| *Location of Sample* | *Frequency* | *Analysis* | *Laboratory Turnaround Time* |
|---|---|---|---|
| Metals and Solids Removal Evaluation | | | |
| After P11 and before acid addition | monthly | Fe, Ca, Mg (soluable)<br>TSS | 24 hours |
| Influent to T1 before caustic addition | monthly | Fe, Ca, Mg (soluable)<br>TSS | 24 hours |
| Bio-tower Normal Operation | | | |
| Bio-tower | weekly | microbial count | 24 hours |
| | | COD | 24 hours |
| | | pH | 24 hours |
| | | dissolved oxygen | 24 hours |
| | monthly | nitrogen | 24 hours |
| | | phosphorous | 24 hours |
| | quarterly | Fe (soluable) | 2 weeks |
| Bio-tower Start-up | | | |
| Inoculum tank | batch | microbial count | 24 hours |
| Bio-tower | weekly | microbial count | 24 hours |
| | | COD | 24 hours |
| | | pH | 24 hours |
| | | dissolved oxygen | 24 hours |
| | bi-weekly | nitrogen | 24 hours |
| | | phosphorous | 24 hours |
| Dewatered Sludge | | | |
| Start-up | weekly | TCLP (1) | 1 week |
| Normal operation | semi-annually | TCLP (1) | 1 week |

Note:

(1) TCLP - Toxic Contaminants Leachate Procedure

| ACTIVITIES | MONTHS (YEAR 1) | | | | | | | | | | | | MONTHS (QUARTERS – YEARS 2 TO 5) | | | | | | | | | | | | | | | | AFTER 5th YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | START UP | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 39 | 42 | 45 | 48 | 51 | 54 | 57 | 60 | |
| **CONSERT DECREE REQUIRMENTS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GROUNDWATER HYDRAULIC MONITORING (1) | | 2✱ | 2✱ | 2✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | QUARTERLY MONITORING |
| GROUNDWATER SAMPLING: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| – WTU AND IU MONITORING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| i) SSIRL PARAMETER LIST | | | | | | | | | | | | | | | ✱ | | ✱ | | ✱ | | ✱ | | ✱ | | ✱ | | ✱ | | | SSIRL ANNUALLY |
| ii) TCL PARAMETER LIST | S | | | | | | ✱ | | | | | | ✱ | | | | | | | | | | | | | | | | ✱ | TCL EVERY 5th YEAR |
| – UPPER SHARON MONITORING WELLS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| i) SSIRL PARAMETER LIST | | | | | | | | | | | | | | | | | ✱ | | | | ✱ | | | | ✱ | | | | ✱ | SSIRL BI–ANNUALLY |
| ii) TCL PARAMETER LIST | S | | | | | | | | | | | | ✱ | | | | | | | | | | | | | | | | ✱ | TCL EVERY 5th YEAR |
| – RESIDENTIAL WELLS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| i) SSIRL PARAMETER LIST | | | | | | | | | | | | | | | | | ✱ | | | | | | | | ✱ | | | | | BI–ANNUALLY |
| ii) TCL PARAMETER LIST | S | | | | | | | | | | | | ✱ | | | | | | | | | | | | | | | | | |
| GROUNDWATER MONITORING REPORT | | | | | | | | | | | | | ✱ | | | | ✱ | | | | ✱ | | | | ✱ | | | | ✱ | REPORT ANNUALLY |
| SURFACE WATER AND SEDIMENT SAMPLING (TCL ORGANIC PARAMETER LIST) | | | | | | | | | | | | | ✱ | | | | ✱ | | | | ✱ | | | | ✱ | | | | ✱ | ANNUALLY |
| TREATMENT SYSTEM EFFLUENT SAMPLING (2) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| – OEPA SUBSTANTIVE PERMIT (MAY 18, 1994) (OEPA VOC'S, BNA'S, METALS) | | ✱ | ✱ | ✱ | | | | | | | | | | | | | | | | | | MONTHLY SAMPLING | | | | | | | | MONTHLY |
| TREATMENT SYSTEM CARBON ADSORBTION AIR VENTS (EPA 624) | | | | | | | | | | | | | ✱ | | | | ✱ | | | | ✱ | | | | ✱ | | | | ✱ | ANNUALLY |
| TREATMENT SYSTEM EFFLEUNT REPORT | | | ✱ | ✱ | | | | | | | | | | | | | | | | | | | | | | | | | | MONTHLY BY 15TH OF FOLLOWING MONTH |
| **TREATMENT UNIT EVALUATIONS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TREATMENT SYSTEM INFLUENT (VOC's, BNA's, METALS) | | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | | | | | | | | MONTHLY SAMPLING | | | | | | | | MONTHLY |
| METALS AND SOLIDS REMOVAL EVALUATION: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| – INFLUENT TO T1 AND BEFORE CAUSTIC ADDITION (Fe, Ca, Mg, TSS) | | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | | | | | | | | MONTHLY SAMPLING | | | | | | | | MONTHLY |
| – EFFLUENT FROM P11 AND BEFORE ACID ADDITION (Fe, Ca, Mg, TSS) | | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | | | | | | | | MONTHLY SAMPLING | | | | | | | | MONTHLY |
| BIOTOWER EVALUATION: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| – BIOTOWER, NORMAL OPERATION AND START UP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| i) MICROBIAL COUNT, COD PH, DISSOLVED OXYGEN | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | | | | | | | WEEKLY SAMPLING | | | | | | | | WEEKLY |
| ii) NITROGEN PHOSPHOROUS | | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | | | | | | | | MONTHLY SAMPLING | | | | | | | | MONTHLY |
| iii) FE (SOLUABLE) | | ✱ | | | ✱ | | | ✱ | | | ✱ | | | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | ✱ | QUARTERLY |
| – INOCULUM TANK/BIOTOWER START UP ONLY (MICROBIAL COUNT) | BATCH SAMPLES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DEWATERED SLUDGE (TCLP) | | ▲ | ▲ | | | | ✱ | | | | | | ✱ | | ✱ | | ✱ | | ✱ | | ✱ | | ✱ | | ✱ | | ✱ | | ✱ | SEMI–ANNUALLY |
| **POTABLE WATER SUPPLY WELL** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| – TCL PARAMETER LIST | S | | | | | | | | | | | | ✱ | | | | ✱ | | | | ✱ | | | | ✱ | | | | ✱ | ANNUALLY |

**LEGEND**

| | | | |
|---|---|---|---|
| ▲ | ONCE PER WEEK | S | START UP |
| 2▲ | TWICE PER WEEK | TCL | TARGET COMPOUND PARAMETER LIST |
| ✱ | ONCE PER MONTH | SSIRL | SITE SPECIFIC INDICATOR PARAMETER LIST |
| 2✱ | TWICE PER MONTH | WTU | WATER TABLE UNIT |
| | | IU | INTERMEDIATE UNIT |

NOTES:

(1) AFTER ANY SIGNIFICANT ADJUSTMENT TO THE GROUNDWATER EXTRACTION SYSTEM, THE FREQUENCY OF HYDRAULIC MONITORING SHALL BE BI–WEEKLY FOR THREE MONTHS.

(2) IN THE EVENT THAT CONTAMINANT LEVEL IN THE EFFLUENT EXCEED THE FINAL EFFLUENT REQUIREMENT, REFER TO SECTION 8.1.3.2.1 OPERATION, MAINTENANCE AND MONITORING FOR MONITORING SCHEDULE REQUIREMENTS.

figure 8.1

MASTER MONITORING SCHEDULE
SUMMIT NATIONAL SUPERFUND SITE
*Deerfield Township of Portage County, Ohio*

**CRA**

2372 (35) NOV 02/95(W) REV.2 (S–14)

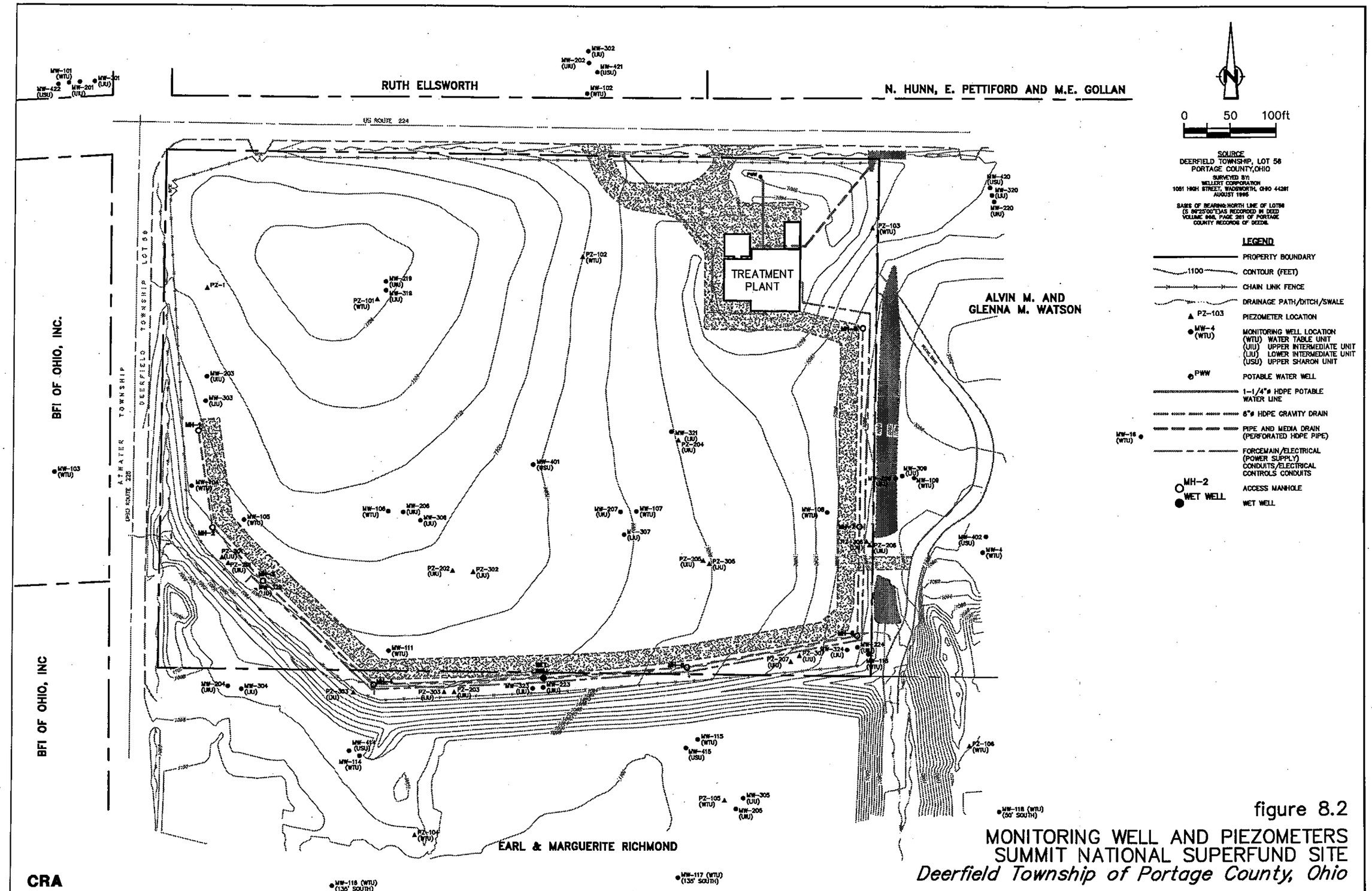



figure 8.2

MONITORING WELL AND PIEZOMETERS
SUMMIT NATIONAL SUPERFUND SITE
*Deerfield Township of Portage County, Ohio*

**CRA**

2372 (35) NOV 02/95(W) REV.0 (P226)

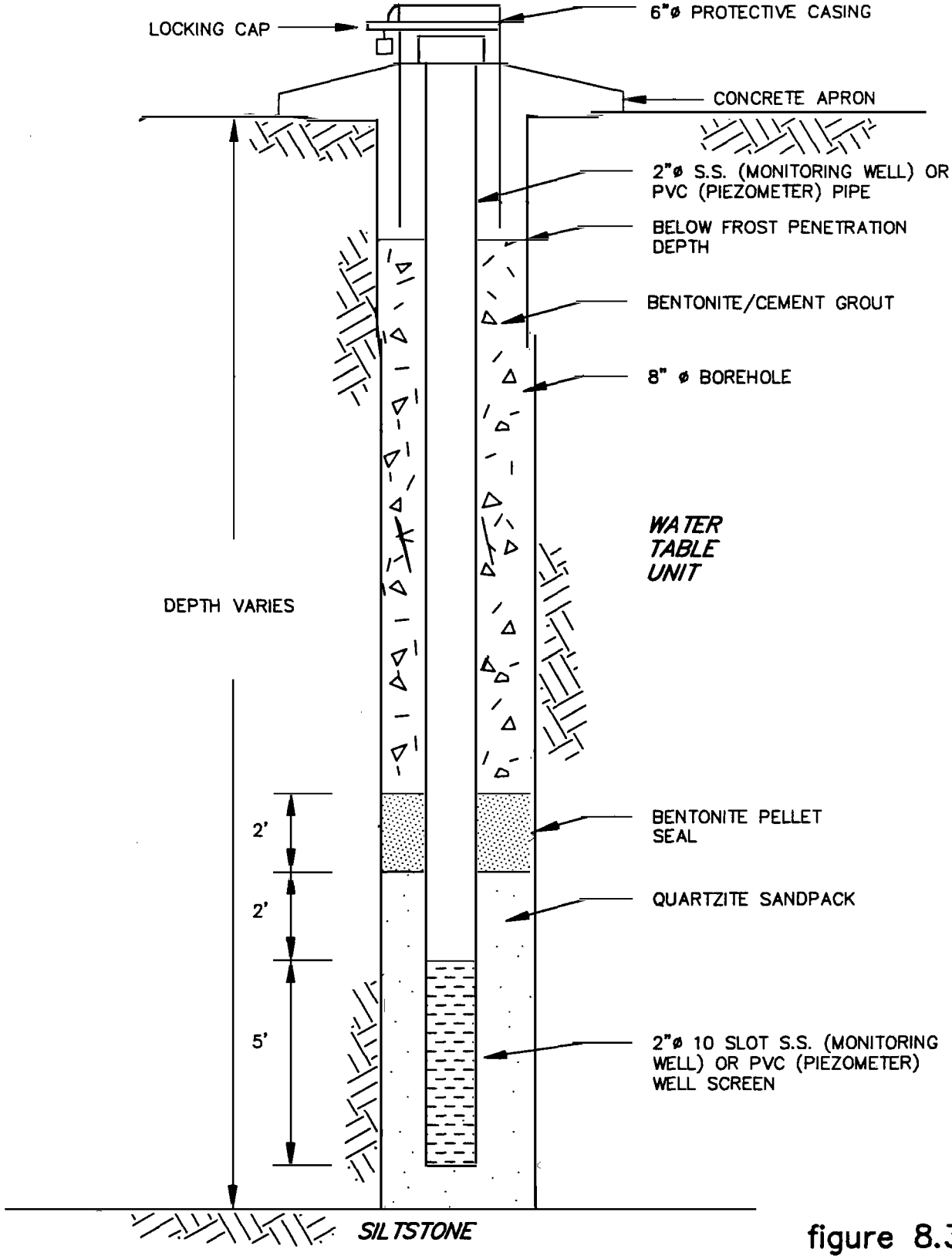



figure 8.3

TYPICAL WATER TABLE UNIT
PIEZOMETER OR MONITORING WELL
SUMMIT NATIONAL SUPERFUND SITE
*Deerfield Township of Portage County, Ohio*

**CRA**

2372 (35) OCT 29/92 REV.1 (D-26)

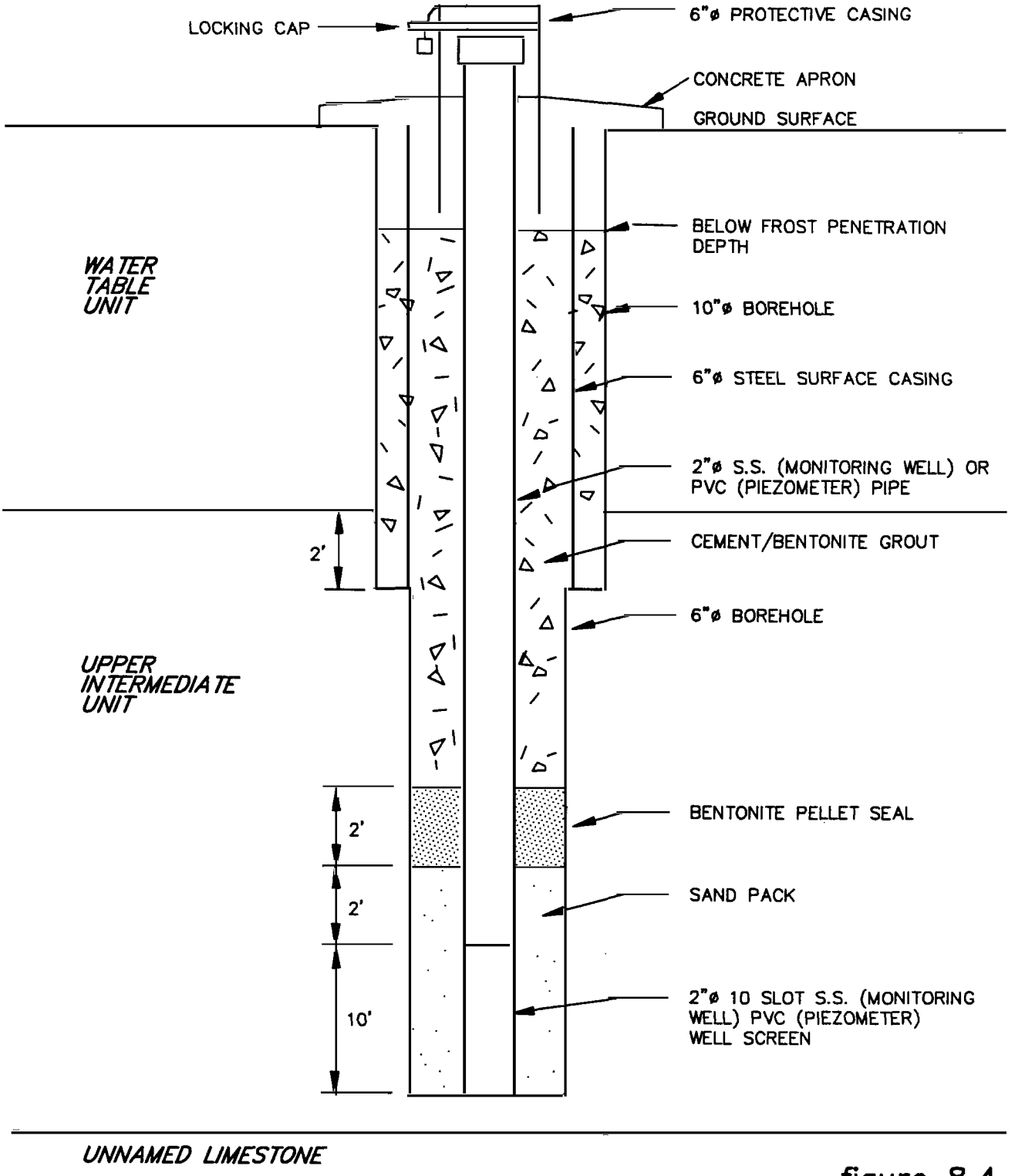



figure 8.4

TYPICAL UPPER INTERMEDIATE UNIT
PIEZOMETER OR MONITORING WELL
SUMMIT NATIONAL SUPERFUND SITE
*Deerfield Township of Portage County, Ohio*

**CRA**

2372 (35) OCT 29/92 REV.1 (D-27)

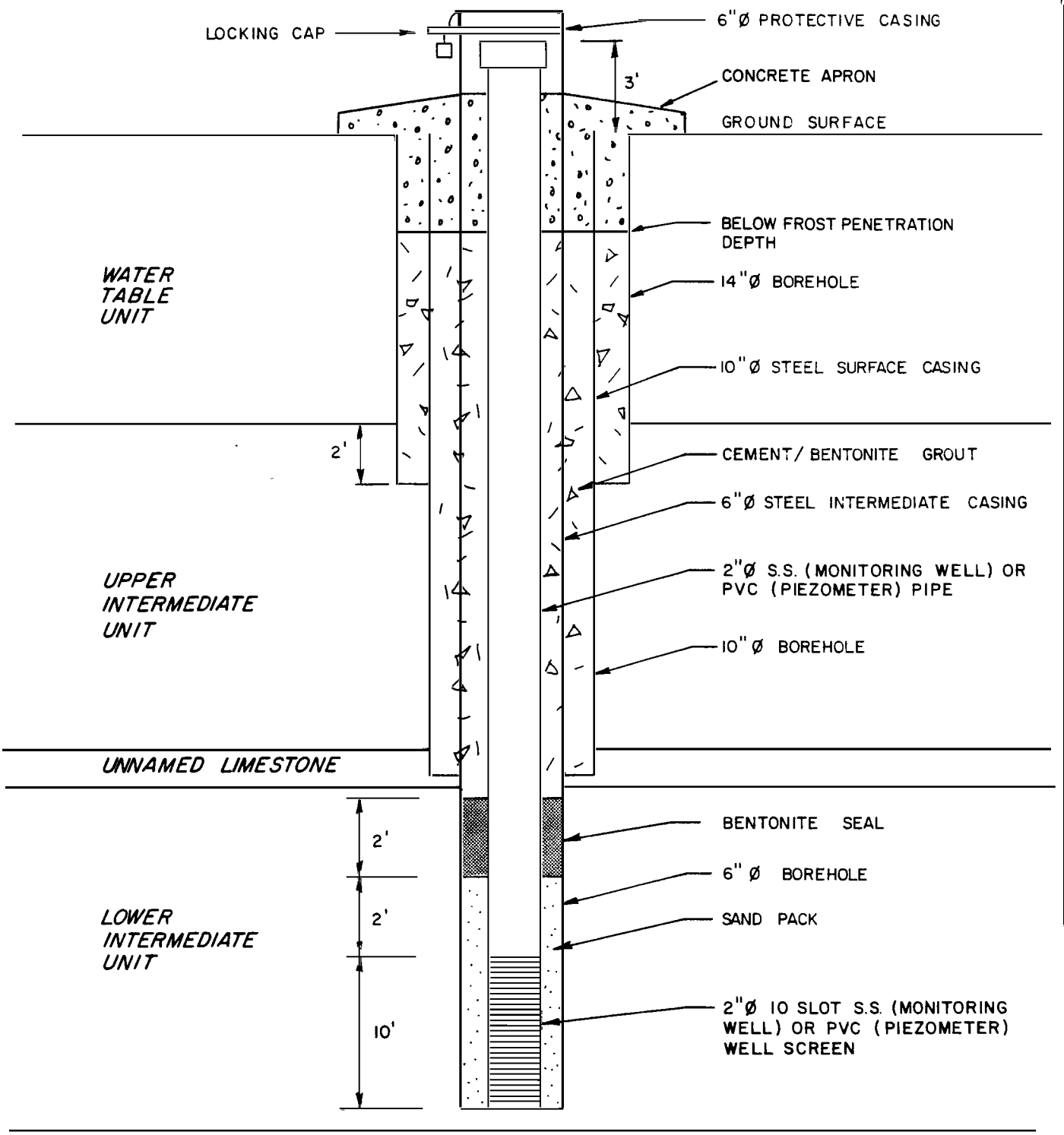



figure 8.5

TYPICAL LOWER INTERMEDIATE UNIT
PIEZOMETER OR MONITORING WELL
SUMMIT NATIONAL SUPERFUND SITE
*Deerfield Township of Portage County, Ohio*

**CRA**

2372(35)–OCT.29/92–REV.1

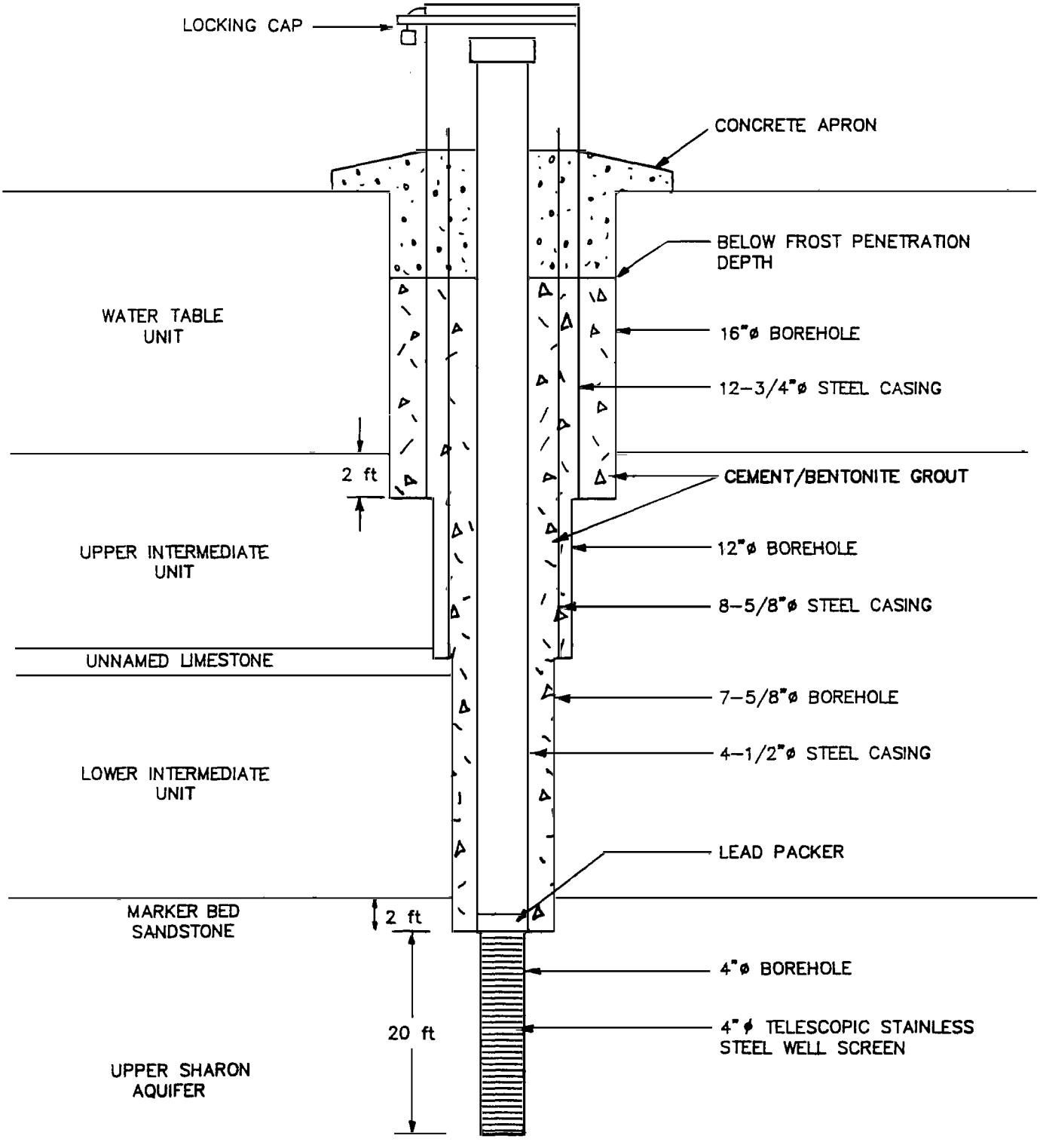



**figure 8.6**

TYPICAL UPPER SHARON UNIT
MONITORING WELL
SUMMIT NATIONAL SUPERFUND SITE
*Deerfield Township of Portage County, Ohio*

**CRA**

2372(35)-OCT.29/92-REV.1

| RESIDENT | LOCATION |
| --- | --- |
| MS. CATHY RIGGENS | • DIRECTLY EAST AND ADJACENT TO SITE |
| MR. AND MRS. DULEY | • DIRECTLY EAST AND ADJACENT TO CATHY RIGGENS PROPERTY |
| MR. AND MRS. CARVER | • FIRST PROPERTY ON THE NORTH SIDE OF ROUTE 224 APPROXIMATELY 1/2 MILE EAST OF THE SITE |

figure 8.7
RESIDENTIAL MONITORING WELL LOCATIONS
SUMMIT NATIONAL SUPERFUND SITE
*Deerfield Township of Portage County, Ohio*

**CRA**

2372 (35) JUNE 23/95(W) REV.2 (P-81)

**TABLE 8.1**

**ANALYSES OF TREATMENT SYSTEM UNIT OPERATIONS SUMMIT NATIONAL SITE DEERFIELD, OHIO**

| *Location of Sample* | *Frequency* | *Analysis* | *Laboratory Turnaround Time* |
|---|---|---|---|
| Metals and Solids Removal Evaluation | | | |
| After P11 and before acid addition | monthly | Fe, Ca, Mg (soluable)<br>TSS | 24 hours |
| Influent to T1 before caustic addition | monthly | Fe, Ca, Mg (soluable)<br>TSS | 24 hours |
| Bio-tower Normal Operation | | | |
| Bio-tower | weekly | microbial count | 24 hours |
| | | COD | 24 hours |
| | | pH | 24 hours |
| | | dissolved oxygen | 24 hours |
| | monthly | nitrogen | 24 hours |
| | | phosphorous | 24 hours |
| | quarterly | Fe (soluable) | 2 weeks |
| Bio-tower Start-up | | | |
| Inoculum tank | batch | microbial count | 24 hours |
| Bio-tower | weekly | microbial count | 24 hours |
| | | COD | 24 hours |
| | | pH | 24 hours |
| | | dissolved oxygen | 24 hours |
| | bi-weekly | nitrogen | 24 hours |
| | | phosphorous | 24 hours |
| Dewatered Sludge | | | |
| Start-up | weekly | TCLP (1) | 1 week |
| Normal operation | semi-annually | TCLP (1) | 1 week |

Note:

(1) TCLP - Toxic Contaminants Leachate Procedure

# APPENDIX 8.1

# WELL INSTALLATION LOGS

DNR 7802.93
TYPE OR USE PEN
SELF TRANSCRIBING
PRESS HARD

# WELL LOG AND DRILLING REPORT

Ohio Department of Natural Resources, Divison of Water
1939 Fountain Square Drive, Columbus, Ohio 43224 Phone (614) 265-6739

777441

Permit Number _____

COUNTY PORTAGE TOWNSHIP DEERFIELD SECTION/LOT No. 58 (CIRCLE ONE)

OWNER/BUILDER (CIRCLE ONE OR BOTH) SUMMIT NATIONAL TRUST PROPERTY ADDRESS 8186 SR 224, DEERFIELD (ADDRESS OF WELL LOCATION A)

LOCATION OF PROPERTY W. OF SR 225-ALLIANCE RD. ON SOUTH SIDE OF SR 224

## CONSTRUCTION DETAILS

**CASING** Borehole Diameter 6X9 in.

[1] Diameter 6 in. Length 80 ft. Wall Thickness SDR21 in.

[2] Diameter ____ in. Length ____ ft. Wall Thickness ____ in.

Type: [1] [2] Steel [1] [2] Galv. [1] [2] PVC [1] [2] Other ____

Joints: [1] [2] Threaded [1] [2] Welded [1] [2] Solvent [1] [2] Other ____

Liner: Length ____ Type ____ Wall Thickness ____ in.

**SCREEN**

Type (wire wrapped, louvered, etc.) ____ Material ____

Length ____ ft. Diameter ____ in.

Set between ____ ft. and ____ ft. Slot ____

**GROUT**

Material BENSEAL Volume used 200#

Method of installation PRESSURE W/TREMIE PIPE

Depth: placed from 78 ft. to SURFACE ft.

**GRAVEL PACK** (Filter Pack)

Material ____ Volume used ____

Method of installation ____

Depth: placed from ____ ft. to ____ ft.

**Pitless Device** ☐ Adapter ☐ Preassembled unit

**Use of Well** GROUNDWATER TREATMENT PLA

☒ Rotary ☐ Cable ☐ Augered ☐ Driven ☐ Dug ☐ Other ____

Date of Completion JULY 22, 1993

## WELL LOG*

INDICATE DEPTH(S) AT WHICH WATER IS ENCOUNTERED.

Show color, texture, hardness, and formation: sandstone, shale, limestone, gravel, clay, sand, etc.

| | From | To |
|---|---|---|
| FILL | 0 | 1 |
| BROWN CLAY & COAL | 1 | 18 |
| GRAY SANDY SHALE | 18 | 44 |
| LIMESTONE | 44 | 48 |
| GRAY SANDY SHALE | 48 | 61 |
| LIMESTONE | 61 | 62 |
| GRAY SANDY SHALE | 62 | 76 |
| GRAY SANDSTONE | 76 | 78 |
| GRAY SANDY SHALE | 78 | 200 |
| GRAY SANDY SHALE | 200 | 211 |
| WHITE SANDSTONE | 211 | 221 |
| GRAY SANDY SHALE | 221 | 230 |

## WELL TEST

☐ Bailing ☐ Pumping* ☒ Other AIR

Test rate 6 gpm Duration of test 1/2 hrs.

Drawdown ____ ft.

Measured from: ☐ top of casing ☒ ground level ☐ Other ____

Static Level (depth to water) 30 ft. Date: 7/22/93

Quality (clear, cloudy, taste, odor) CLEAR

*(Attach a copy of the pumping test record, per section 1521.05, ORC)

## PUMP

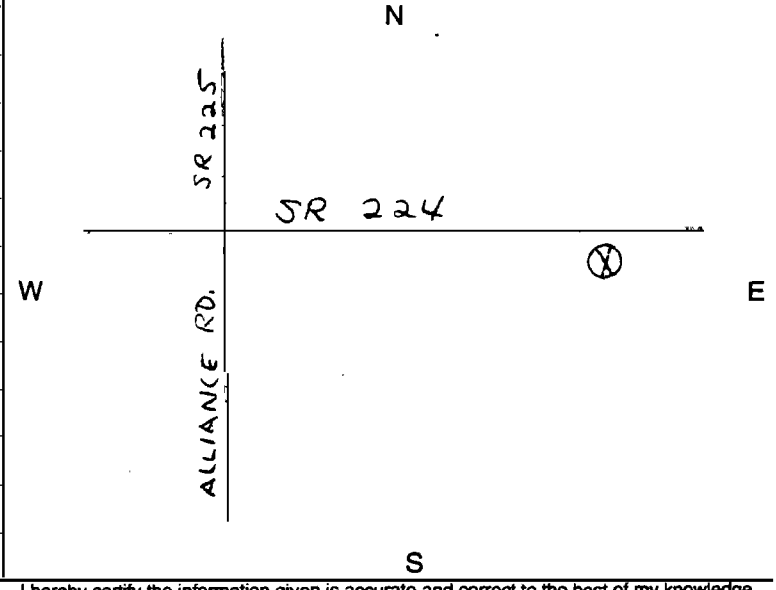
Type of pump GRISWOLD SALM-10 Capacity 8 gpm

Pump set at 222 ft.

Pump installed by ENVIRONMENTAL CONTRACTORS, INC.

## SKETCH SHOWING WELL LOCATION

Show distances well lies from numbered state highways, street intersections, county roads, etc.




*If additional space is needed to complete well log, use next consecutively numbered form.

I hereby certify the information given is accurate and correct to the best of my knowledge.

Driller FRONTZ DRILLING, INC.

Address 2031 MILLERSBURG ROAD

City, State, Zip WOOSTER, OHIO 44691

Signed [signature] Date OCTOBER 28, 1993

ODH Registration Number 120

Completion of this form is required by section 1521.05, Ohio Revised Code - file within 30 days after completion of drilling.

ORIGINAL COPY TO - ODNR, DIVISION OF WATER, 1939 FOUNTAIN SQ. DRIVE, COLS., OHIO 43224

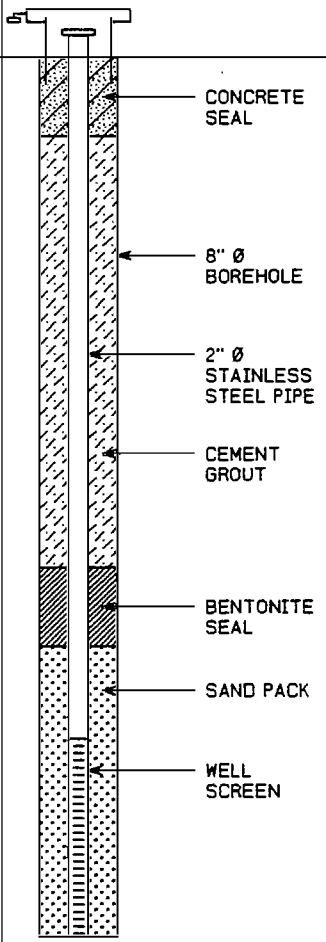
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-101
DATE COMPLETED: AUGUST 24, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1107.57*<br>*1105.57* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | TOP OF SAND PACK | *1090.70* | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | END OF HOLE | *1083.37* | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

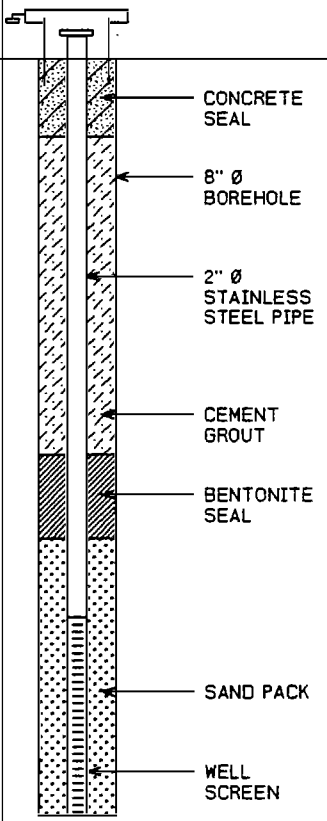
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-102
DATE COMPLETED: AUGUST 24, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1100.17*<br>*1097.91* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | TOP OF SAND PACK | *1085.81* | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | END OF HOLE | *1078.81* | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

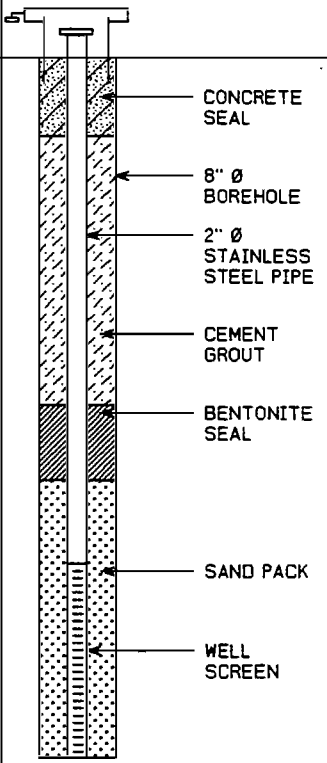
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-103
DATE COMPLETED: AUGUST 23, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1096.22*<br>*1093.96* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| | TOP OF SAND PACK | *1083.27* | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| | END OF HOLE | *1076.27* | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

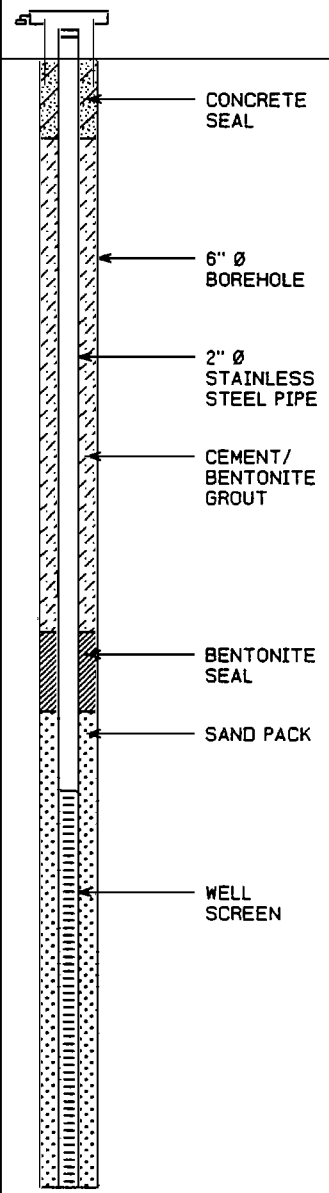
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-104
DATE COMPLETED: JULY 10, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1099.81*<br>*1098.50* | | | | | |
| | OVERBURDEN (FILL) | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | | | | | |
| | TOP OF SAND PACK | *1082.06* | | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | | | | | |
| 25.0 | | | | | | | |
| 27.5 | | | | | | | |
| | END OF HOLE | *1070.06* | | | | | |
| 30.0 | | | | | | | |
| 32.5 | | | | | | | |




SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

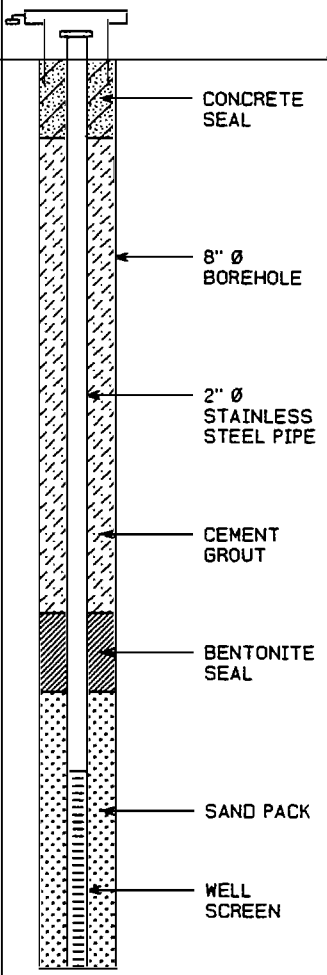
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-104 (ORIGINAL)
DATE COMPLETED: SEPTEMBER 7, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1094.34*<br>*1091.26* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| | TOP OF SAND PACK | *1075.26* | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | BEDROCK | *1069.26* | | | | | |
| | END OF HOLE | *1068.26* | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

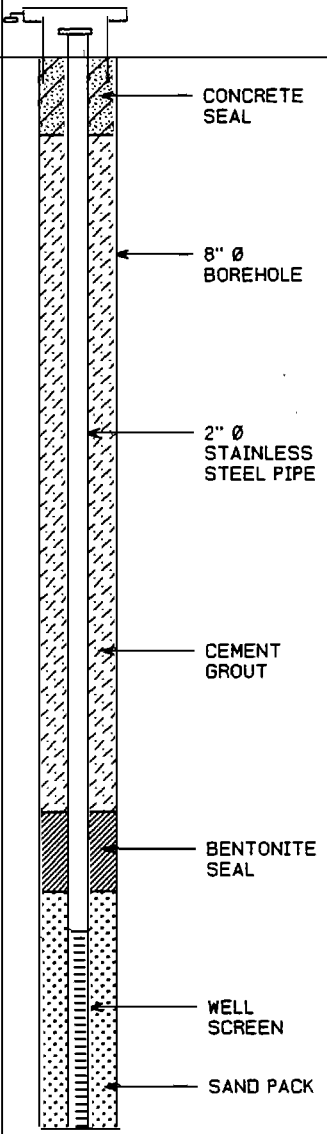
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-105
DATE COMPLETED: SEPTEMBER 29, 1994
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1101.32*<br>*1099.55* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| | TOP OF SAND PACK | *1078.49* | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | END OF HOLE | *1072.49* | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

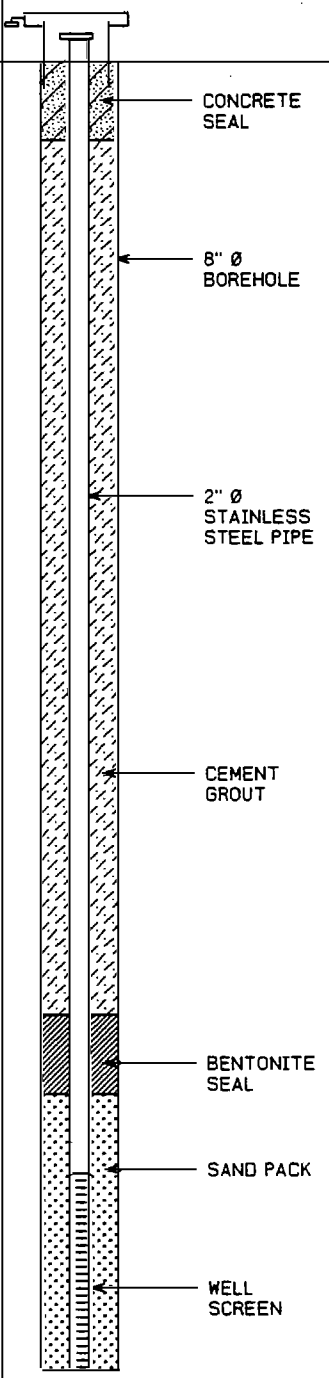
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-106
DATE COMPLETED: SEPTEMBER 16, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1102.88*<br>*1101.00* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| | TOP OF SAND PACK | *1074.91* | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |
| | END OF HOLE | *1067.91* | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-106
DATE COMPLETED: SEPTEMBER 16, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 37.5 | | | SCREEN DETAILS<br>Length: 5ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

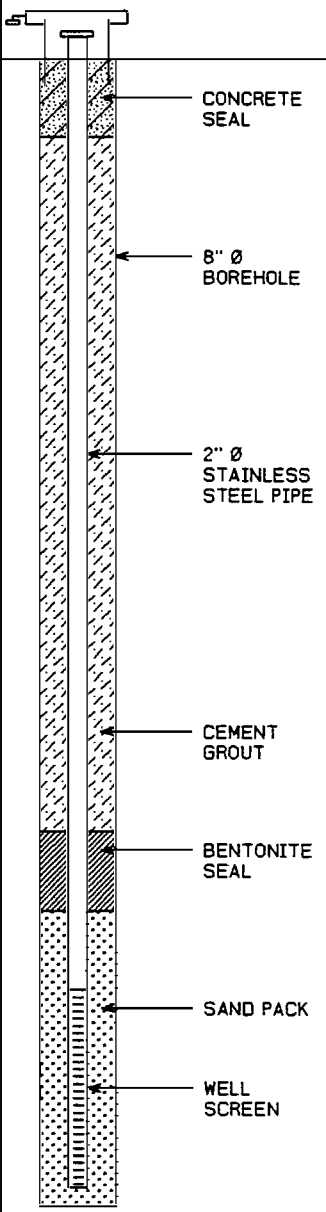
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-107
DATE COMPLETED: SEPTEMBER 16, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1098.27*<br>*1096.02* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| | TOP OF SAND PACK | *1074.49* | | | | | |
| 22.5 | | | | | | | |
| 25.0 | | | | | | | |
| 27.5 | | | | | | | |
| | END OF SCREEN | *1067.49*<br>*1067.02* | | | | | |
| 30.0 | END OF HOLE | | | | | | |
| 32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

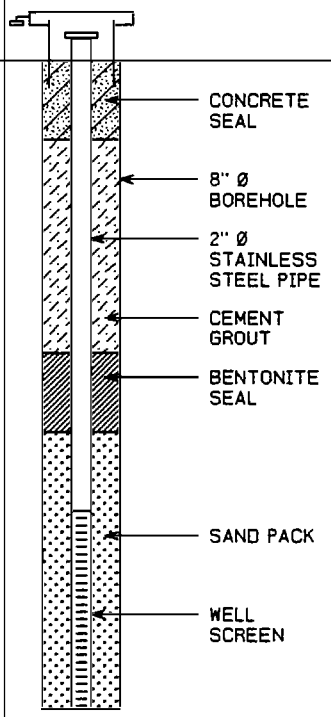
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-108
DATE COMPLETED: SEPTEMBER 28, 1994
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1091.96*<br>*1090.14* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | | | | | |
| 10.0 | TOP OF SAND PACK | *1080.76* | | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | | | | | |
| | END OF HOLE | *1073.76* | | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | | | | | |
| 25.0 | | | | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | | | | | |
| 32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

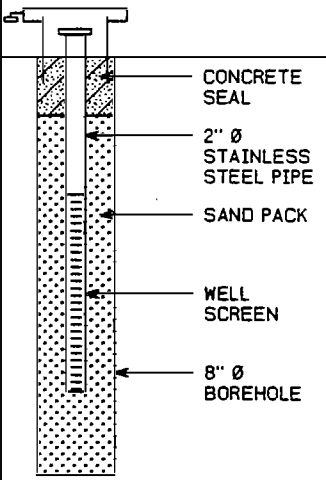
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-109
DATE COMPLETED: SEPTEMBER 27, 1994
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser) | 1087.42 | | | | | |
| | GROUND SURFACE | 1085.32 | | | | | |
| | OVERBURDEN | | | | | | |
| | TOP OF SAND PACK | 1083.84 | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| 7.5 | BEDROCK | 1077.88 | | | | | |
| | END OF SCREEN | 1076.84 | | | | | |
| 10.0 | END OF HOLE | 1074.74 | | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | | | | | |
| 25.0 | | | | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | | | | | |
| 32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

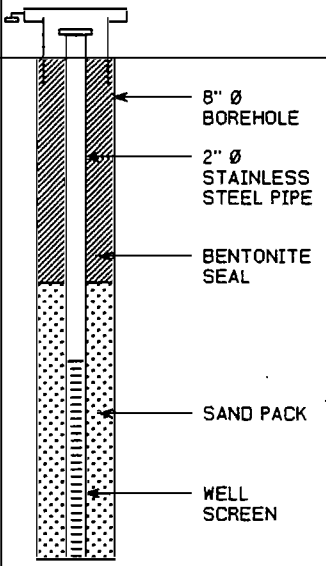
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-110
DATE COMPLETED: AUGUST 25, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1086.87*<br>*1084.49* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| | TOP OF SAND PACK | *1078.82* | | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | | | | | |
| 12.5 | END OF HOLE | *1071.82* | | | | | |
| 15.0 | | | | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | | | | | |
| 25.0 | | | | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | | | | | |
| 32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

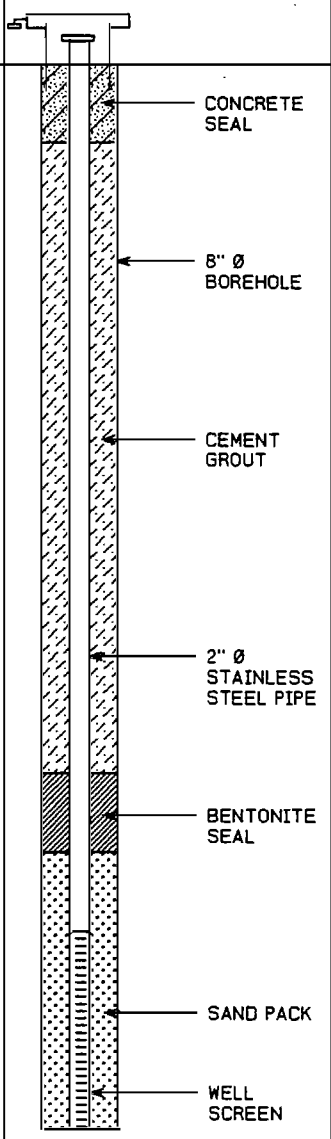
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-111
DATE COMPLETED: SEPTEMBER 30, 1994
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1099.67*<br>*1097.55* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | TOP OF SAND PACK | *1077.61* | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | END OF HOLE | *1070.51* | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

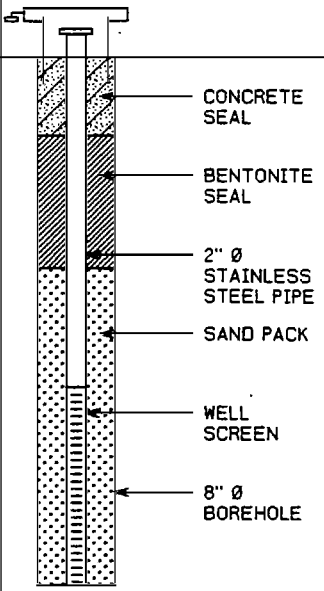
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-113
DATE COMPLETED: AUGUST 18, 1994
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1088.46*<br>*1085.41* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | TOP OF SAND PACK | *1080.06* | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | END OF HOLE | *1072.06* | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

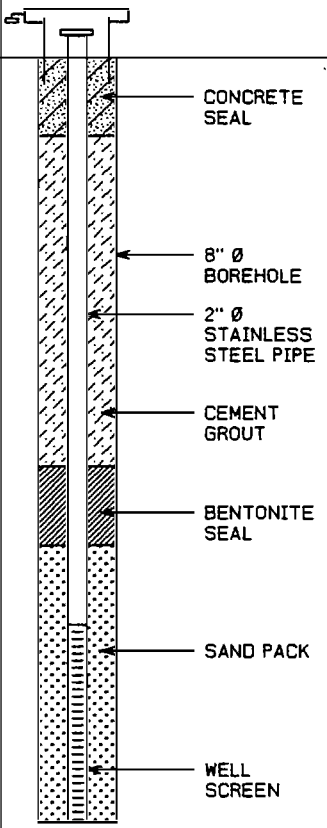
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-114
DATE COMPLETED: AUGUST 19, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1097.27*<br>*1095.12* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | TOP OF SAND PACK | *1082.79* | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | END OF HOLE | *1075.79* | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

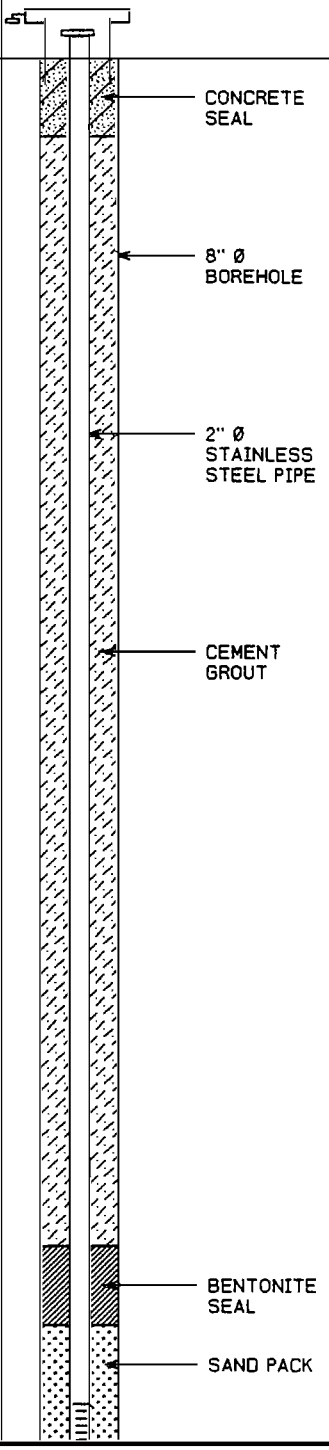
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-115
DATE COMPLETED: AUGUST 16, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1101.83*<br>*1100.38* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | TOP OF SAND PACK | *1068.38* | | | | | |



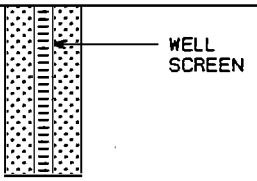

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-115
DATE COMPLETED: AUGUST 16, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -37.5 | | |   | | | | |
| -40.0 | END OF HOLE | *1061.05* | SCREEN DETAILS<br>Length: 5ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| -42.5 | | | | | | | |
| -45.0 | | | | | | | |
| -47.5 | | | | | | | |
| -50.0 | | | | | | | |
| -52.5 | | | | | | | |
| -55.0 | | | | | | | |
| -57.5 | | | | | | | |
| -60.0 | | | | | | | |
| -62.5 | | | | | | | |
| -65.0 | | | | | | | |
| -67.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

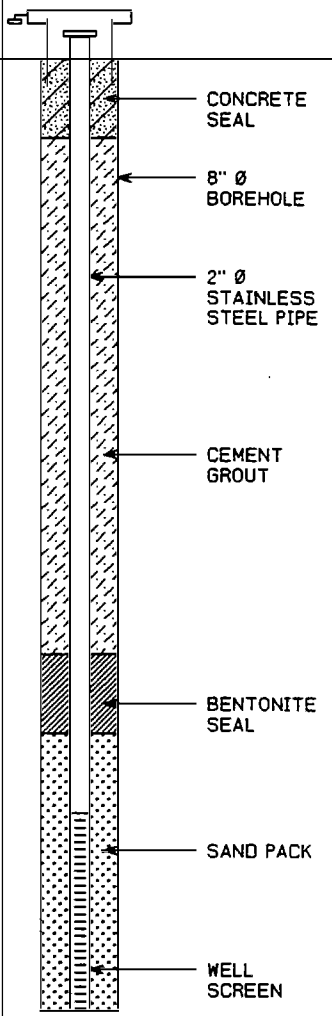
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-116
DATE COMPLETED: AUGUST 20, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1105.54*<br>*1103.19* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | | | | | |
| 17.5 | TOP OF SAND PACK | *1086.14* | | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | | | | | |
| 25.0 | END OF HOLE | *1079.14* | | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | | | | | |
| 32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

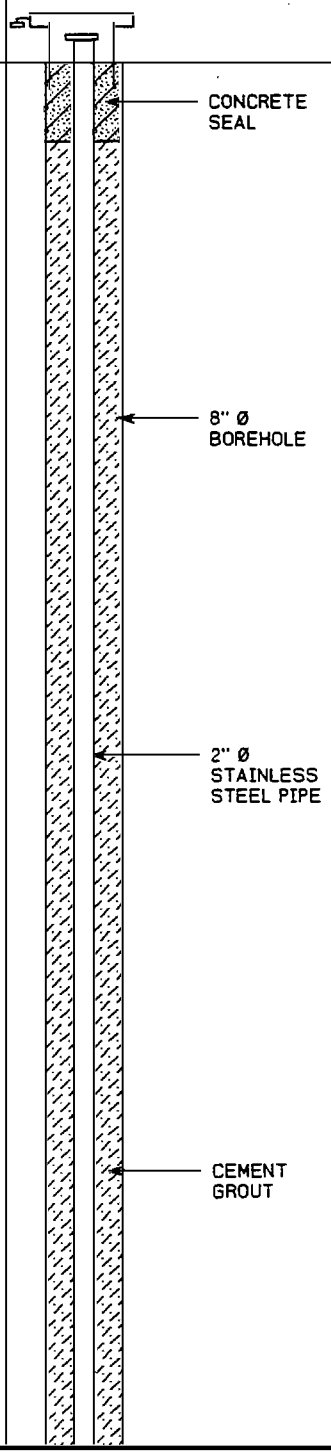
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-117
DATE COMPLETED: AUGUST 23, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1123.97*<br>*1121.35* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

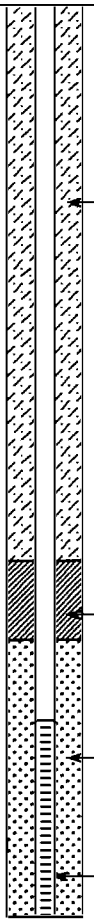
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-117
DATE COMPLETED: AUGUST 23, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | | | | | |
| 40.0 | | | CEMENT GROUT | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | BENTONITE SEAL | | | | |
| | TOP OF SAND PACK | 1070.32 | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | SAND PACK | | | | |
| 57.5 | | | WELL SCREEN | | | | |
| | END OF HOLE | 1063.32 | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |



SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

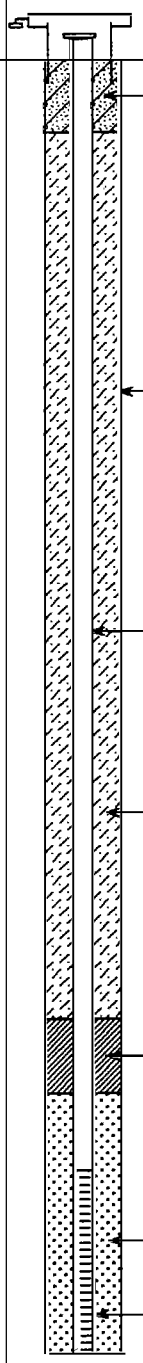
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-118
DATE COMPLETED: AUGUST 27, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1098.38*<br>*1096.37* | | | | | |
| | OVERBURDEN | | CONCRETE SEAL | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | 8" Ø BOREHOLE | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | CEMENT GROUT | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | TOP OF SAND PACK | *1068.37* | BENTONITE SEAL | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | SAND PACK | | | | |
| -35.0 | END OF HOLE | *1061.28* | WELL SCREEN | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-118
DATE COMPLETED: AUGUST 27, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE | | | |
|---|---|---|---|---|---|---|---|
| | | | | NUMBER | STATE | 'N' VALUE | PID (ppm) |
| | | | SCREEN DETAILS<br>Length: 5ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |
| 70.0 | | | | | | | |
| 72.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

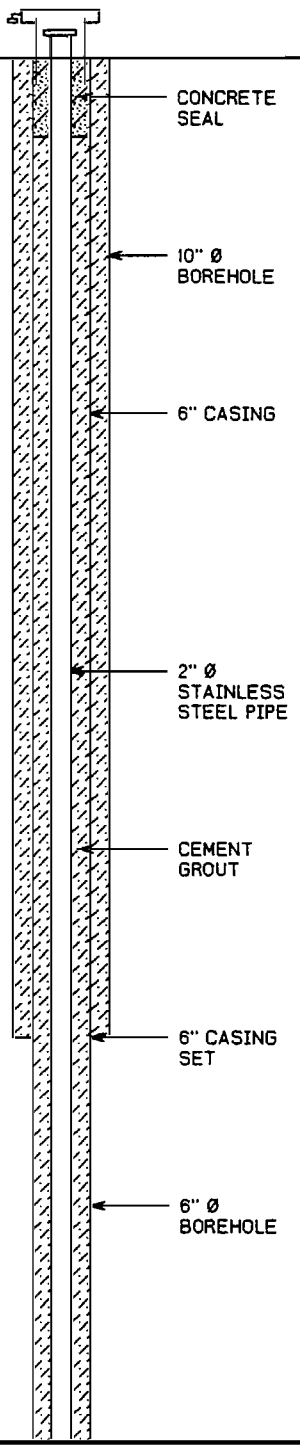
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-201
DATE COMPLETED: SEPTEMBER 30, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1107.52*<br>*1105.96* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| 22.5 | BEDROCK | *1083.20* | | | | | |
| 25.0 | END OF 6" Ø CASING | *1081.20* | | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | | | | | |
| 32.5 | | | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

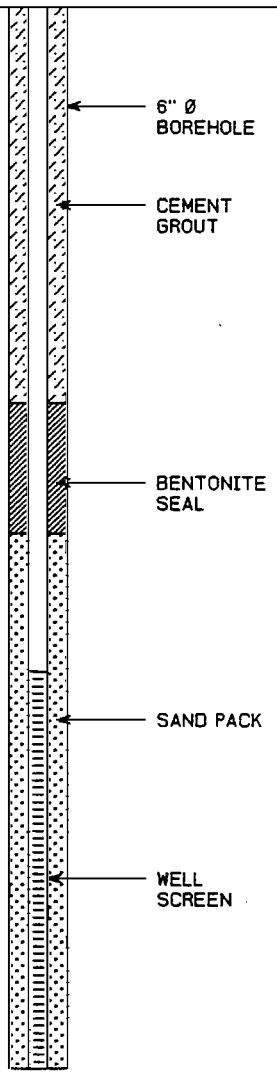
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-201
DATE COMPLETED: SEPTEMBER 30, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | TOP OF SAND PACK | 1057.67 | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | END OF HOLE | 1044.17 | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |




SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-202
DATE COMPLETED: OCTOBER 14, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1099.50*<br>*1098.70* | | | | | |
| | OVERBURDEN (TILL) | | CONCRETE SEAL | | | | |
| -2.5 | | | | | | | |
| | | | 10" Ø BOREHOLE | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| | | | 6" Ø BLACK STEEL PIPE | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| | | | CEMENT GROUT | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | *1078.53* | | | | | |
| | BEDROCK, shale, silty, laminated, highly fractured, gray | | | | | | |
| | END OF 6" Ø CASING | *1077.03* | 6" CASING SET | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| | | | 6" Ø BOREHOLE | | | | |
| -27.5 | - coal | | | | | | |
| | - clay stone, gray/black | | | | | | |
| -30.0 | - silt stone, light gray | | 2" Ø STAINLESS STEEL PIPE | | | | |
| -32.5 | | | | | | | |
| | - black shale | | BENTONITE SEAL | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

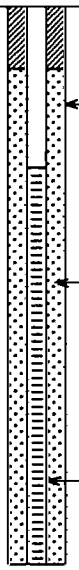
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-202
DATE COMPLETED: OCTOBER 14, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | TOP OF SAND PACK | 1062.10 | | | | | |
| 37.5 | | | 6" Ø BOREHOLE | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | SAND PACK | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | WELL SCREEN | | | | |
| | END OF HOLE | 1049.60 | | | | | |
| 50.0 | | | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

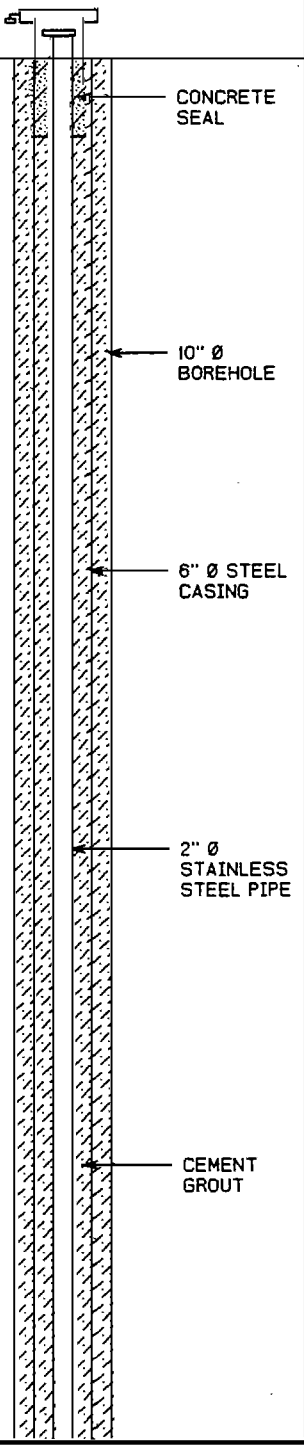
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-203
DATE COMPLETED: DECEMBER 13, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1103.35*<br>*1101.30* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

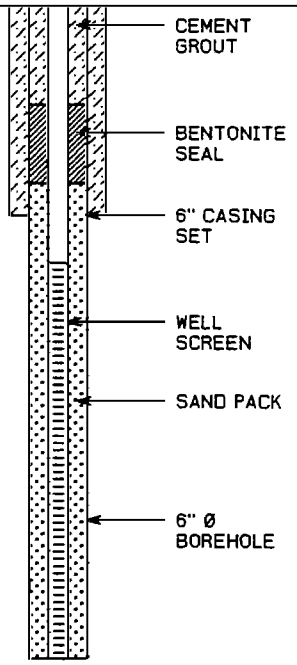
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-203
DATE COMPLETED: DECEMBER 13, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | | | | | |
| | BEDROCK | 1063.00 | | | | | |
| | TOP OF SAND PACK | 1061.81 | | | | | |
| 40.0 | END OF 6" Ø CASING | 1061.00 | | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| | END OF HOLE | 1049.81 | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |




SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

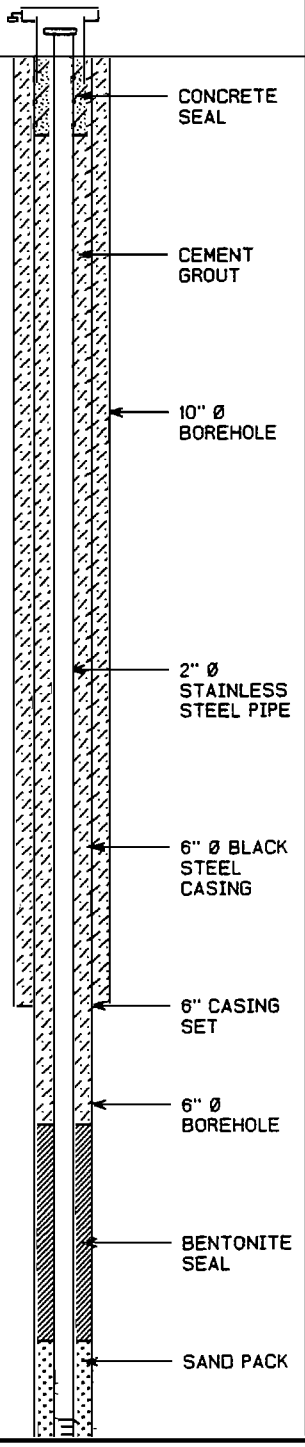
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-204
DATE COMPLETED: SEPTEMBER 30, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1098.01*<br>*1096.24* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | BEDROCK | *1073.74* | | | | | |
| | END OF 6" Ø CASING | *1072.24* | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | TOP OF SAND PACK | *1063.76* | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-204
DATE COMPLETED: SEPTEMBER 30, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | SAND PACK | | | | |
| 40.0 | | | 6" Ø BOREHOLE | | | | |
| 42.5 | | | WELL SCREEN | | | | |
| 45.0 | END OF HOLE | 1051.76 | | | | | |
| 47.5 | | | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

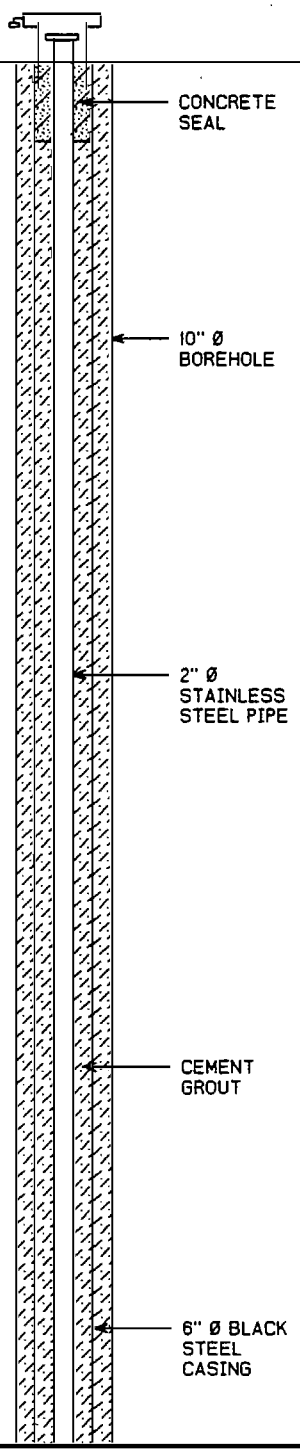
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-205
DATE COMPLETED: SEPTEMBER 28, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1100.90*<br>*1099.32* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | | | | | |
| 25.0 | | | | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | | | | | |
| 32.5 | | | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

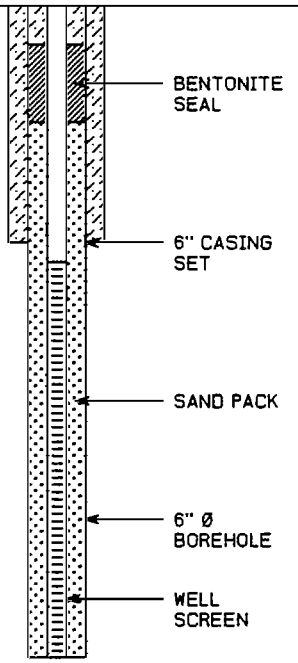
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-205
DATE COMPLETED: SEPTEMBER 28, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -37.5 | TOP OF SAND PACK | 1061.35 | | | | | |
| | BEDROCK | 1060.32 | | | | | |
| -40.0 | END OF 6" Ø CASING | 1058.32 | | | | | |
| -42.5 | | | | | | | |
| -45.0 | | | | | | | |
| -47.5 | | | | | | | |
| -50.0 | | | | | | | |
| | END OF HOLE | 1047.85 | | | | | |
| -52.5 | | | | | | | |
| -55.0 | | | | | | | |
| -57.5 | | | | | | | |
| -60.0 | | | | | | | |
| -62.5 | | | | | | | |
| -65.0 | | | | | | | |
| -67.5 | | | | | | | |




SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

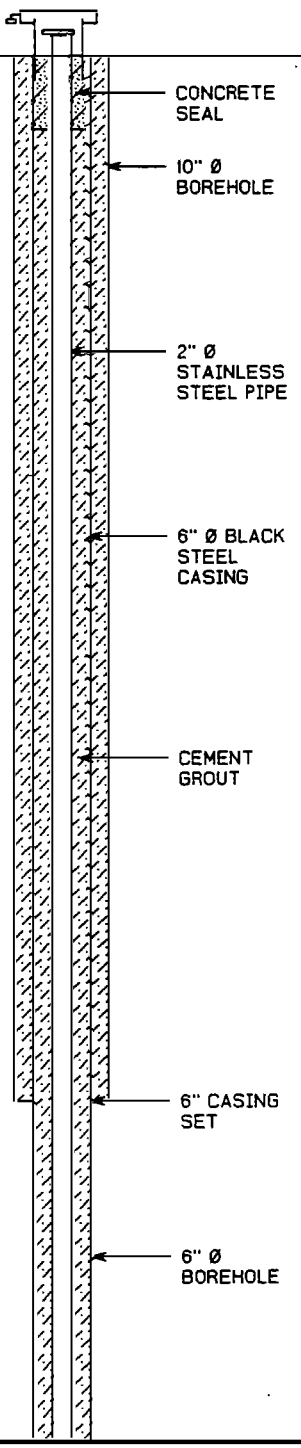
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-206
DATE COMPLETED: DECEMBER 11, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1103.22*<br>*1101.06* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| | BEDROCK | *1074.78* | | | | | |
| -27.5 | | | | | | | |
| | END OF 6" Ø CASING | *1072.78* | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |
| -35.0 | | | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

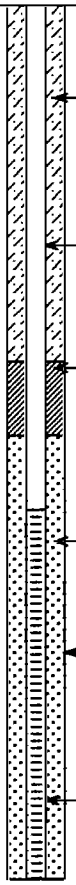
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-206
DATE COMPLETED: DECEMBER 11, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 40.0 | | | CEMENT GROUT | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| 47.5 | | | BENTONITE SEAL | | | | |
| 50.0 | TOP OF SAND PACK<br>- shale, black/gray<br>- limestone, black<br>- shale, black<br>- sandy shale (siltstone), gray | 1051.92 | SAND PACK | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | 6" Ø BOREHOLE | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | WELL SCREEN | | | | |
| 62.5 | END OF HOLE | 1039.92 | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |
| 70.0 | | | | | | | |
| 72.5 | | | | | | | |



SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

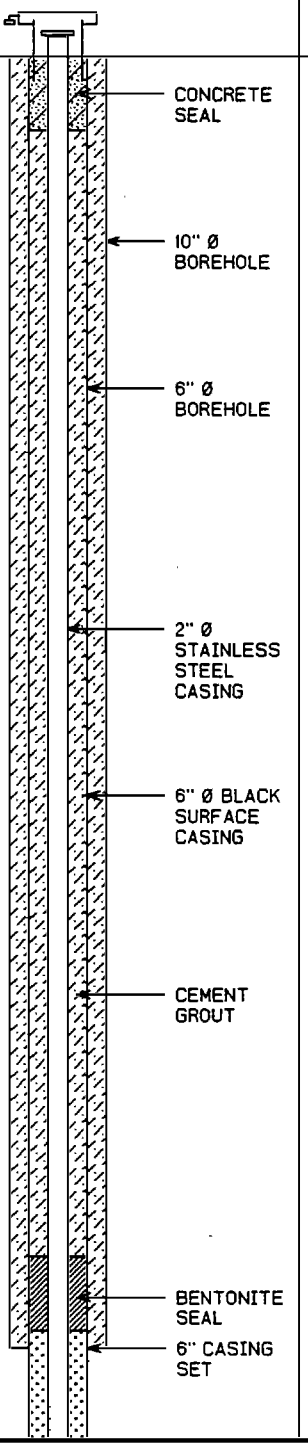
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-207
DATE COMPLETED: DECEMBER 15, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1098.51*<br>*1096.20* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | BEDROCK | *1063.70* | | | | | |
| -35.0 | TOP OF SAND PACK<br>END OF 6" Ø CASING | *1061.69*<br>*1061.20* | | | | | |



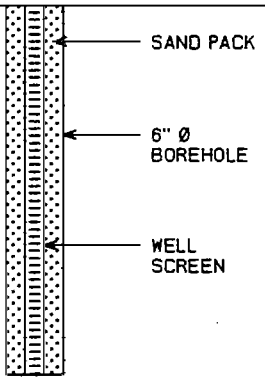

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-207
DATE COMPLETED: DECEMBER 15, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 40.0 | | |   | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | END OF HOLE | 1048.69 | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |
| 70.0 | | | | | | | |
| 72.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

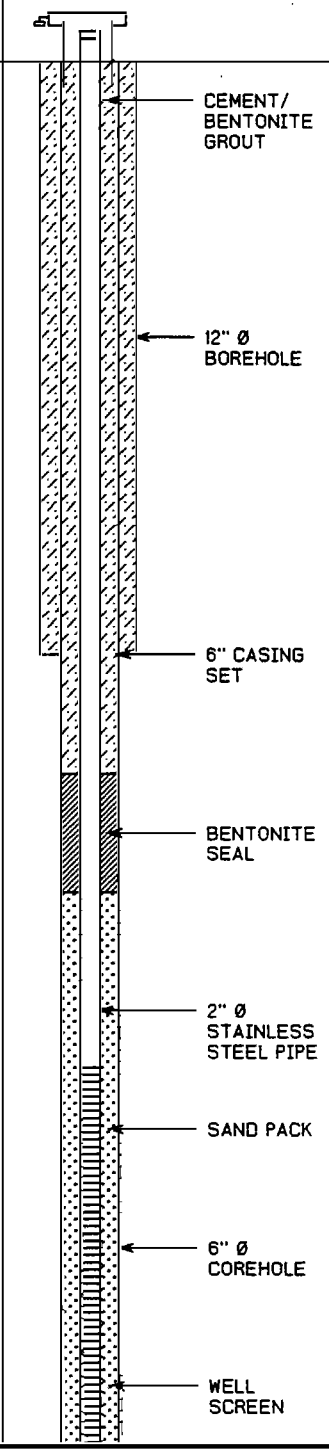
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-209
DATE COMPLETED: JULY 28, 1994
DRILLING METHOD: HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser) | *1087.66* | | | | | |
| | GROUND SURFACE | *1085.43* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | | | | | |
| | BEDROCK | *1074.43* | | | | | |
| 12.5 | | | | | | | |
| 15.0 | END OF 6" Ø CASING | *1070.43* | | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| | TOP OF SAND PACK | *1064.43* | | | | | |
| 22.5 | | | | | | | |
| 25.0 | | | | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | | | | | |
| 32.5 | | | | | | | |
| | | *1050.66* | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-209
DATE COMPLETED: JULY 28, 1994
DRILLING METHOD: HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | LIMESTONE | *1049.99* | | | | | |
| | END OF HOLE | | **SCREEN DETAILS**<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| 37.5 | | | | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

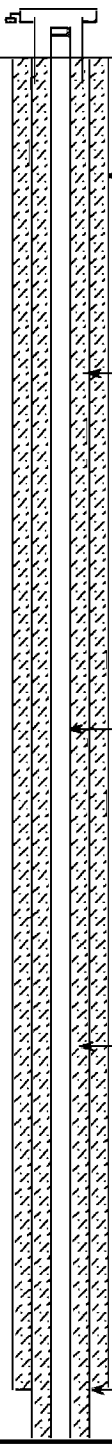
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-219
DATE COMPLETED: DECEMBER 6, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO/K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1108.24*<br>*1106.04* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | 10" Ø BOREHOLE | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | 6" Ø STEEL CASING | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | | | | | |
| 17.5 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | | | | | |
| 25.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| 27.5 | | *1077.65* | | | | | |
| | BEDROCK | | | | | | |
| 30.0 | | | | | | | |
| 32.5 | - shale, sandy, coal, gray | | | | | | |
| | END OF 6" Ø CASING | *1072.35* | 6" STEEL CASING SET | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

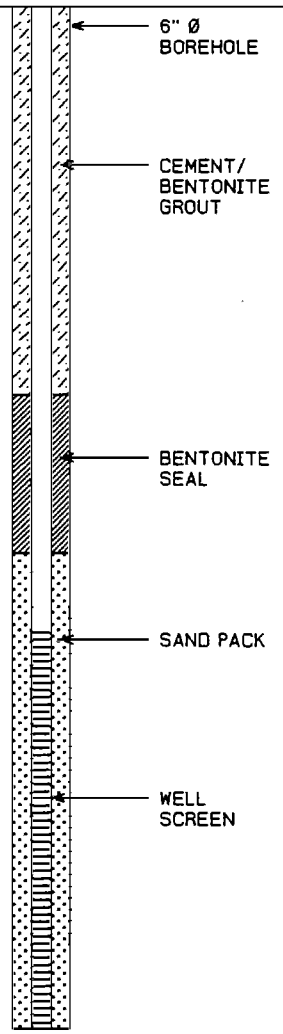
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-219
DATE COMPLETED: DECEMBER 6, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO/K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| | TOP OF SAND PACK | 1057.23 | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| | - limestone | | | | | | |
| 60.0 | | | | | | | |
| | END OF HOLE | 1045.23 | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |




SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-220
DATE COMPLETED: JULY 5, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1090.92*<br>*1089.47* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | 10" Ø BOREHOLE | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | 6" Ø STEEL CASING | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| 15.0 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| | BEDROCK | *1073.22* | | | | | |
| 17.5 | | | | | | | |
| | END OF 6" Ø CASING | *1071.22* | 6" STEEL CASING SET | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | 6" Ø BOREHOLE | | | | |
| 25.0 | TOP OF SAND PACK | *1064.22* | | | | | |
| 27.5 | | | SAND PACK | | | | |
| 30.0 | | | | | | | |
| 32.5 | | | WELL SCREEN | | | | |

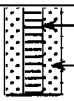
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-220
DATE COMPLETED: JULY 5, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | END OF HOLE | 1052.22 |  WELL SCREEN<br>SAND PACK<br>SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| 37.5 | | | | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

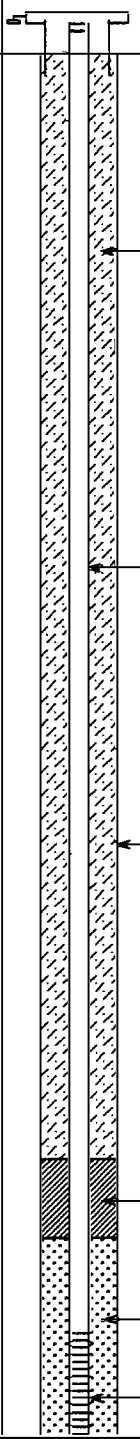
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-223 (EW-3)
DATE COMPLETED: JULY 15, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1098.37*<br>*1095.48* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | 8" Ø BOREHOLE | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | BENTONITE SEAL | | | | |
| -30.0 | TOP OF SAND PACK | *1065.55* | | | | | |
| -32.5 | | | SAND PACK<br>WELL SCREEN | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

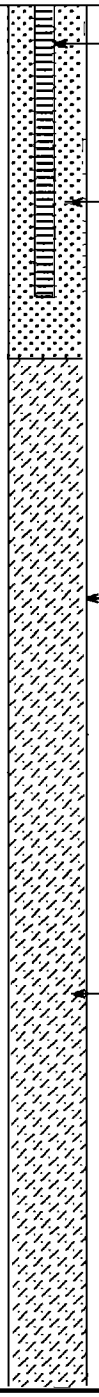
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-223 (EW-3)
DATE COMPLETED: JULY 15, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | WELL SCREEN | | | | |
| 40.0 | | | SAND PACK | | | | |
| 42.5 | END OF SCREEN | 1053.12 | | | | | |
| 45.0 | LIMESTONE | 1050.55 | | | | | |
| 47.5 | | 1048.55 | | | | | |
| 50.0 | | | 8" Ø BOREHOLE | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-223 (EW-3)
DATE COMPLETED: JULY 15, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 72.5 | | | 8" Ø BOREHOLE | | | | |
| 75.0 | | | | | | | |
| 77.5 | | | | | | | |
| 80.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| 82.5 | | | | | | | |
| 85.0 | | | | | | | |
| 87.5 | END OF HOLE | 1008.41 | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| 90.0 | | | | | | | |
| 92.5 | | | | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | | | | | |
| 100.0 | | | | | | | |
| 102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

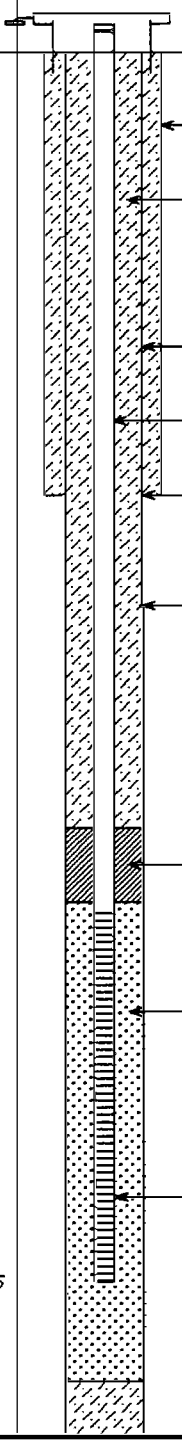
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-224 (EW-5)
DATE COMPLETED: JULY 13, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | 1089.41<br>1086.15 | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | 12" Ø BOREHOLE | | | | |
| 5.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| 7.5 | | | 8" Ø STEEL CASING | | | | |
| 10.0 | BEDROCK | 1076.15 | 2" Ø STAINLESS STEEL PIPE | | | | |
| 12.5 | END OF 8" Ø CASING | 1074.15 | 8" Ø CASING SET | | | | |
| 15.0 | | | 7 7/8" Ø BOREHOLE | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| 22.5 | TOP OF SAND PACK | 1063.15 | BENTONITE SEAL | | | | |
| 25.0 | | | SAND PACK | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | WELL SCREEN | | | | |
| 32.5 | END OF SCREEN | 1052.85 | | | | | |
| 35.0 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

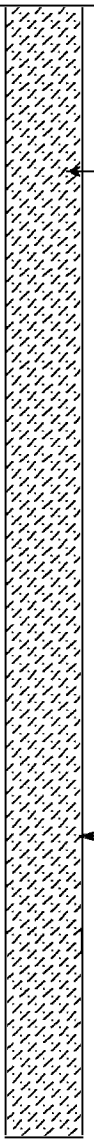
# STRATIGRAPHIC AND INSTRUMENTATION LOG
## (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-224 (EW-5)
DATE COMPLETED: JULY 13, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | LIMESTONE | 1048.15 | | | | | |
| 40.0 | | 1045.15 | | | | | |
| 42.5 | | | BENTONITE GROUT | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | 7 7/8" Ø BOREHOLE | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | END OF HOLE | 1017.97 | | | | | |
| 70.0 | | | | | | | |
| 72.5 | | | | | | | |



SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-301
DATE COMPLETED: OCTOBER 4, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | 1107.91<br>1106.09 | | | | | |
| | OVERBURDEN (TILL) | | | | | | |
| -2.5 | | | 14" Ø BOREHOLE | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | 10" Ø STEEL SURFACE CASING | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | CEMENT GROUT | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | BEDROCK | 1083.25 | | | | | |
| -25.0 | END OF 10" Ø CASING | 1080.95 | 10" CASING SET | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | 6" BLACK STEEL CASING | | | | |
| -32.5 | | | 10" Ø BOREHOLE | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

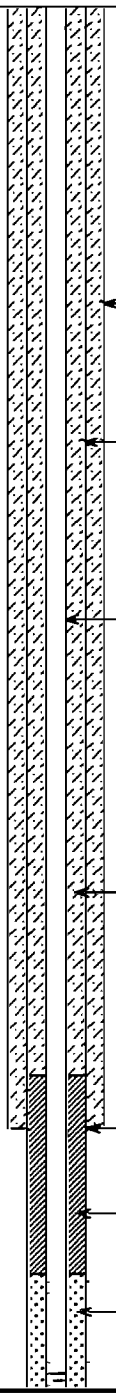
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-301
DATE COMPLETED: OCTOBER 4, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -37.5 | | | | | | | |
| -40.0 | | | | | | | |
| -42.5 | | | 10" Ø BOREHOLE | | | | |
| -45.0 | | | 6" BLACK STEEL CASING | | | | |
| -47.5 | | | | | | | |
| -50.0 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| -52.5 | | | | | | | |
| -55.0 | | | | | | | |
| -57.5 | | | CEMENT GROUT | | | | |
| -60.0 | | | | | | | |
| -62.5 | END OF 6" Ø CASING | *1042.75* | 6" CASING SET | | | | |
| -65.0 | | | BENTONITE SEAL | | | | |
| -67.5 | TOP OF SAND PACK | *1039.05* | SAND PACK | | | | |



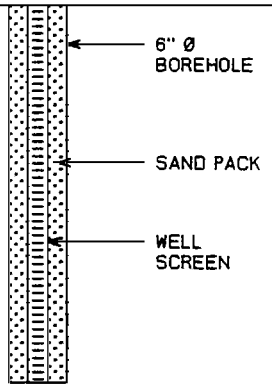
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-301
DATE COMPLETED: OCTOBER 4, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 72.5 | - silty shale mix, light gray | |   | | | | |
| 75.0 | | | | | | | |
| 77.5 | | | | | | | |
| | - coal | | | | | | |
| 80.0 | END OF HOLE | 1026.53 | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| 82.5 | | | | | | | |
| 85.0 | | | | | | | |
| 87.5 | | | | | | | |
| 90.0 | | | | | | | |
| 92.5 | | | | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | | | | | |
| 100.0 | | | | | | | |
| 102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

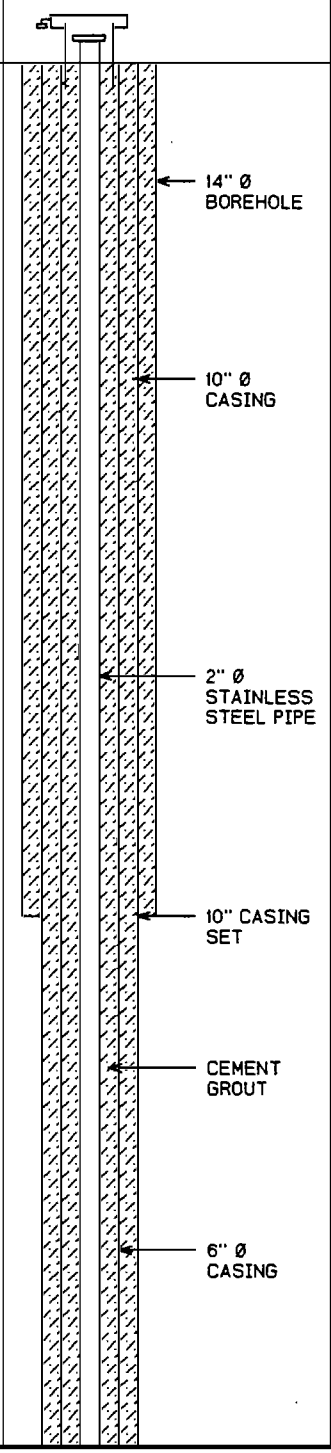
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-302
DATE COMPLETED: OCTOBER 14, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1100.39*<br>*1098.89* | | | | | |
| | OVERBURDEN (TILL), silt and fine to medium sand (ML,SW), some gravel, little clay (moist, brown), (Natural) | | | | | | |
| 2.5 | | | 14" Ø BOREHOLE | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | 10" Ø CASING | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| 17.5 | | | | | | | |
| 20.0 | BEDROCK | *1079.32* | | | | | |
| | END OF 10" Ø CASING | *1077.32* | 10" CASING SET | | | | |
| 22.5 | | | | | | | |
| 25.0 | | | CEMENT GROUT | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | 6" Ø CASING | | | | |
| 32.5 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

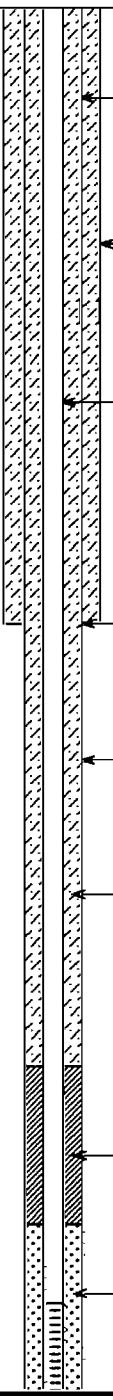
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-302
DATE COMPLETED: OCTOBER 14, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | 6" Ø CASING | | | | |
| 40.0 | | | 10" Ø BOREHOLE | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| 47.5 | | | | | | | |
| | - limestone | | | | | | |
| 50.0 | END OF 6" Ø CASING | 1048.32 | 6" CASING SET | | | | |
| 52.5 | | | | | | | |
| | | | 6" Ø BOREHOLE | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | CEMENT GROUT | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| | | | BENTONITE SEAL | | | | |
| 65.0 | TOP OF SAND PACK | 1033.14 | | | | | |
| | - coal | | | | | | |
| 67.5 | | | SAND PACK | | | | |



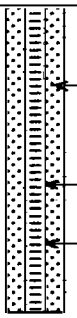
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-302
DATE COMPLETED: OCTOBER 14, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 72.5 | | |  SAND PACK | | | | |
| 75.0 | | | 6" Ø BOREHOLE | | | | |
| | | | WELL SCREEN | | | | |
| 77.5 | END OF HOLE | *1021.14* | | | | | |
| 80.0 | | | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| 82.5 | | | | | | | |
| 85.0 | | | | | | | |
| 87.5 | | | | | | | |
| 90.0 | | | | | | | |
| 92.5 | | | | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | | | | | |
| 100.0 | | | | | | | |
| 102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

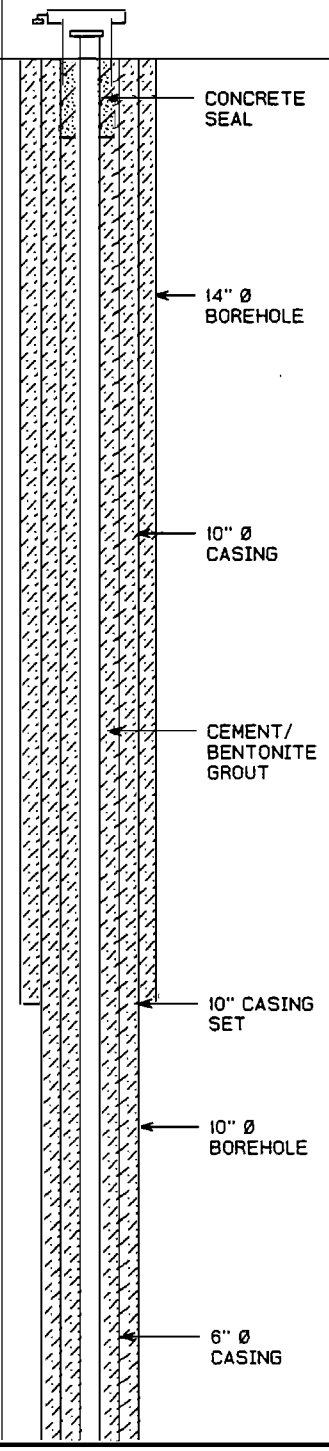
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-303
DATE COMPLETED: DECEMBER 21, 1994
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1103.15*<br>*1100.73* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| | BEDROCK | *1079.35* | | | | | |
| 22.5 | | | | | | | |
| | END OF 10" Ø CASING | *1076.85* | | | | | |
| 25.0 | | | | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | | | | | |
| 32.5 | | | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

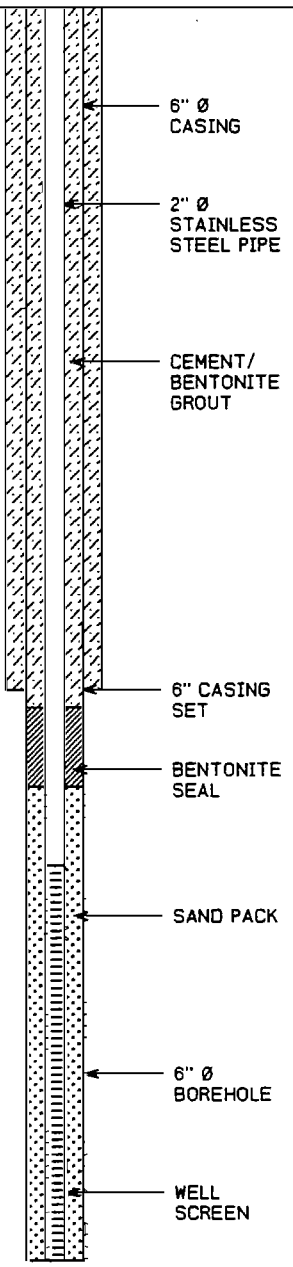
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-303
DATE COMPLETED: DECEMBER 21, 1994
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | END OF 6" Ø CASING | 1048.45 | | | | | |
| 55.0 | TOP OF SAND PACK | 1046.01 | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | END OF HOLE | 1034.01 | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-303
DATE COMPLETED: DECEMBER 21, 1994
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 72.5 | | | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| 75.0 | | | | | | | |
| 77.5 | | | | | | | |
| 80.0 | | | | | | | |
| 82.5 | | | | | | | |
| 85.0 | | | | | | | |
| 87.5 | | | | | | | |
| 90.0 | | | | | | | |
| 92.5 | | | | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | | | | | |
| 100.0 | | | | | | | |
| 102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-303
DATE COMPLETED: DECEMBER 21, 1994
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE | | | |
|---|---|---|---|---|---|---|---|
| | | | | NUMBER | STATE | 'N' VALUE | PID (ppm) |
| –72.5 | | | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| –75.0 | | | | | | | |
| –77.5 | | | | | | | |
| –80.0 | | | | | | | |
| –82.5 | | | | | | | |
| –85.0 | | | | | | | |
| –87.5 | | | | | | | |
| –90.0 | | | | | | | |
| –92.5 | | | | | | | |
| –95.0 | | | | | | | |
| –97.5 | | | | | | | |
| –100.0 | | | | | | | |
| –102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

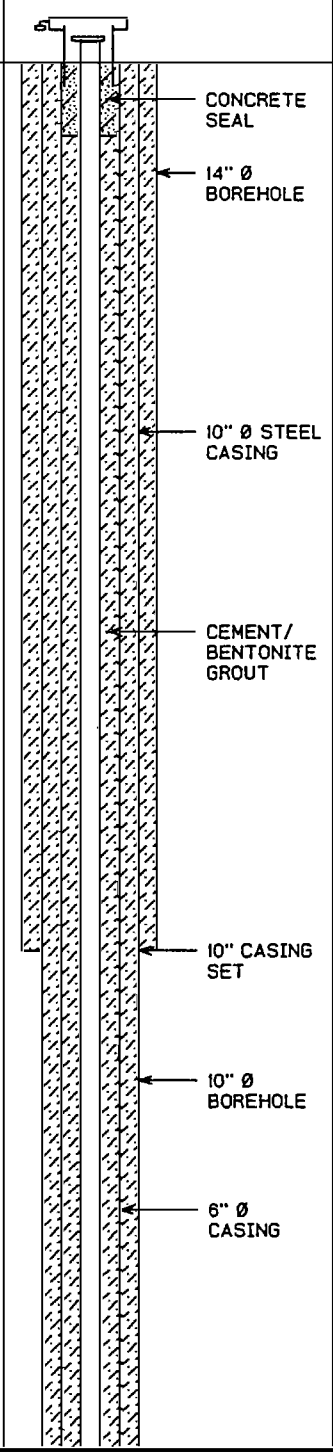
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-304
DATE COMPLETED: SEPTEMBER 30, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1097.73*<br>*1095.86* | | | | | |
| | OVERBURDEN | | CONCRETE SEAL | | | | |
| -2.5 | | | 14" Ø BOREHOLE | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | 10" Ø STEEL CASING | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | BEDROCK | *1073.36* | | | | | |
| | END OF 10" Ø CASING | *1071.86* | 10" CASING SET | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | 10" Ø BOREHOLE | | | | |
| -30.0 | | | | | | | |
| | | | 6" Ø CASING | | | | |
| -32.5 | | | | | | | |
| -35.0 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

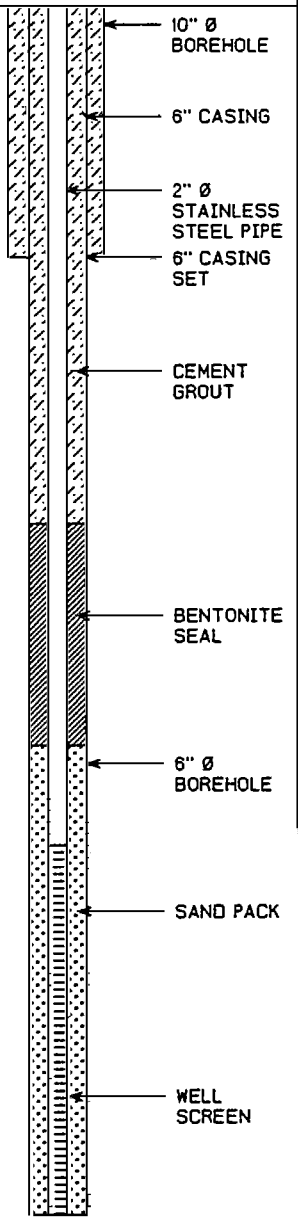
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-304
DATE COMPLETED: SEPTEMBER 30, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -40.0 | | | | | | | |
| -42.5 | | | | | | | |
| | END OF 6" Ø CASING<br>- limestone | 1051.56 | | | | | |
| -45.0 | | | | | | | |
| -47.5 | | | | | | | |
| -50.0 | | | | | | | |
| -52.5 | | | | | | | |
| -55.0 | | | | | | | |
| -57.5 | TOP OF SAND PACK | 1038.36 | | | | | |
| -60.0 | | | | | | | |
| -62.5 | | | | | | | |
| -65.0 | | | | | | | |
| -67.5 | | | | | | | |
| -70.0 | END OF HOLE | 1025.65 | | | | | |
| -72.5 | | | | | | | |




SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

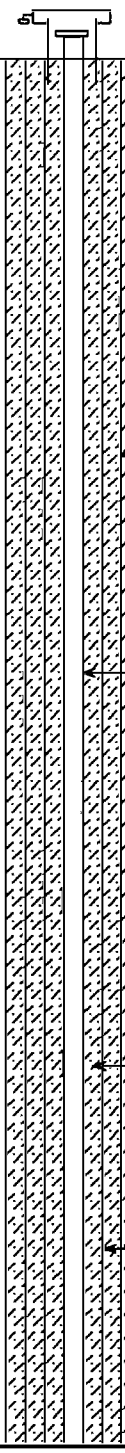
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-305
DATE COMPLETED: SEPTEMBER 28, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1101.22*<br>*1099.58* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | 14" Ø BOREHOLE | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | 10" Ø SURFACE CASING | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | | | | | |
| 25.0 | | | CEMENT GROUT | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | 6" Ø CASING | | | | |
| 32.5 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

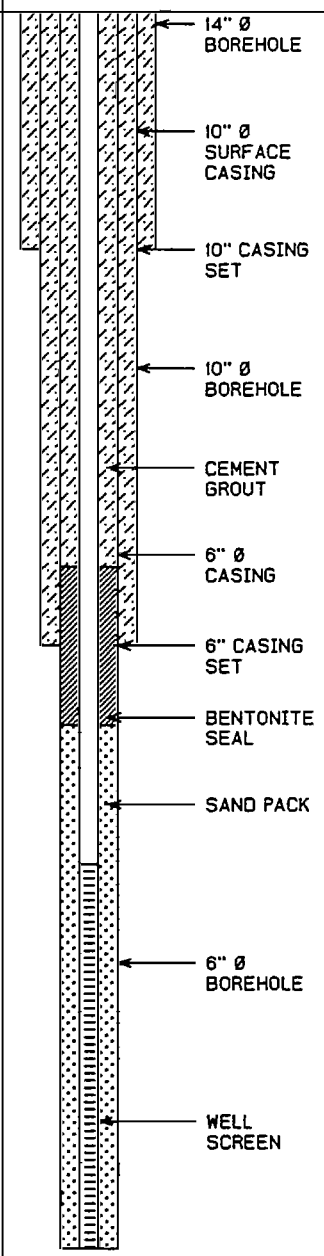
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-305
DATE COMPLETED: SEPTEMBER 28, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | | | | | |
| | BEDROCK | 1060.58 | | | | | |
| 40.0 | | | | | | | |
| | END OF 10" Ø CASING | 1058.58 | | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| | END OF 6" Ø CASING | 1048.58 | | | | | |
| 52.5 | | | | | | | |
| | TOP OF SAND PACK | 1046.58 | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| | END OF HOLE | 1033.37 | | | | | |
| 67.5 | | | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-305
DATE COMPLETED: SEPTEMBER 28, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 72.5 | | | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| 75.0 | | | | | | | |
| 77.5 | | | | | | | |
| 80.0 | | | | | | | |
| 82.5 | | | | | | | |
| 85.0 | | | | | | | |
| 87.5 | | | | | | | |
| 90.0 | | | | | | | |
| 92.5 | | | | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | | | | | |
| 100.0 | | | | | | | |
| 102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

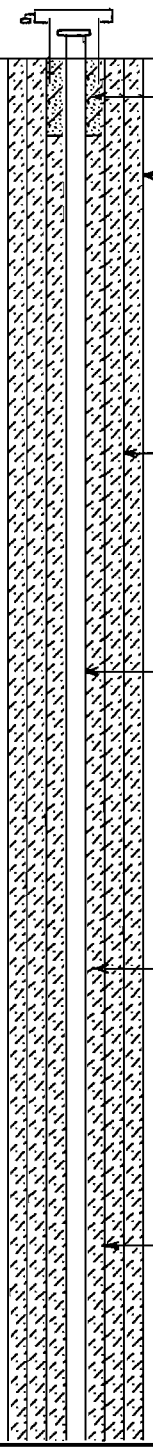
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-306
DATE COMPLETED: DECEMBER 16, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1103.14*<br>*1100.78* | | | | | |
| | OVERBURDEN | | CONCRETE SEAL | | | | |
| 2.5 | | | 14" Ø BOREHOLE | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | 10" Ø CASING | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | CEMENT GROUT | | | | |
| 25.0 | | | | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | 6" Ø CASING | | | | |
| 32.5 | | | | | | | |
| | BEDROCK | *1067.16* | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

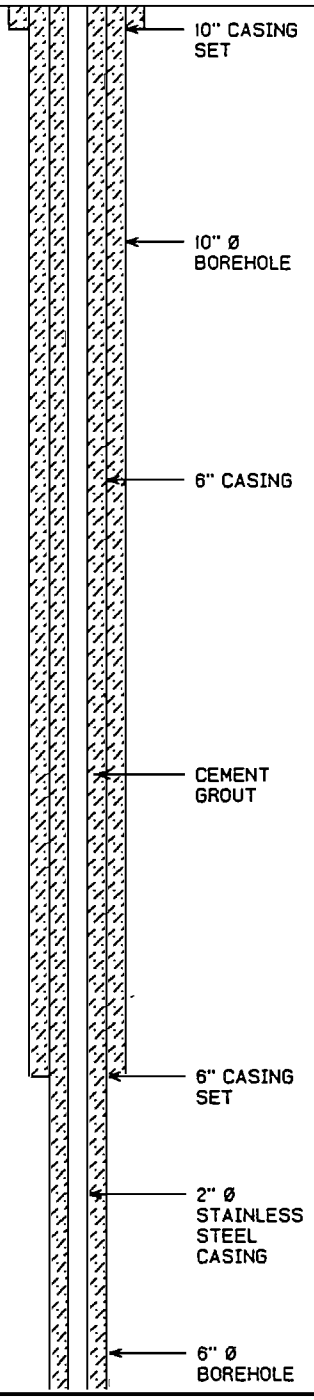
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-306
DATE COMPLETED: DECEMBER 16, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | END OF 10" Ø CASING | *1065.15* | 10" CASING SET | | | | |
| 37.5 | | | | | | | |
| 40.0 | | | 10" Ø BOREHOLE | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | 6" CASING | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | CEMENT GROUT | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | END OF 6" Ø CASING | *1038.76* | 6" CASING SET | | | | |
| 65.0 | | | 2" Ø STAINLESS STEEL CASING | | | | |
| 67.5 | | | 6" Ø BOREHOLE | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

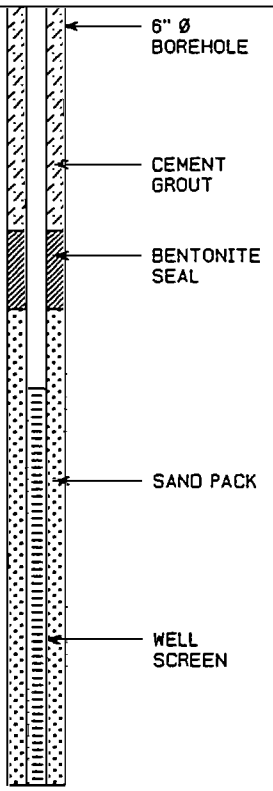
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-306
DATE COMPLETED: DECEMBER 16, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 72.5 | | | | | | | |
| 75.0 | | | | | | | |
| 77.5 | TOP OF SAND PACK | 1023.12 | | | | | |
| 80.0 | | | | | | | |
| 82.5 | | | | | | | |
| 85.0 | | | | | | | |
| 87.5 | | | | | | | |
| 90.0 | END OF HOLE | 1011.12 | | | | | |
| 92.5 | | | | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | | | | | |
| 100.0 | | | | | | | |
| 102.5 | | | | | | | |




SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

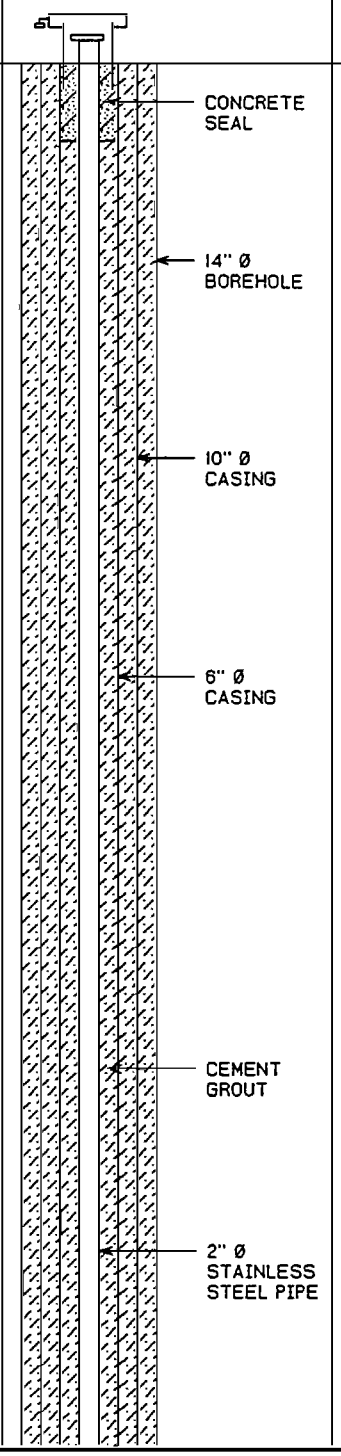
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-307
DATE COMPLETED: DECEMBER 22, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1098.83*<br>*1096.60* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | | | | | |
| 25.0 | | | | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | | | | | |
| 32.5 | | | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

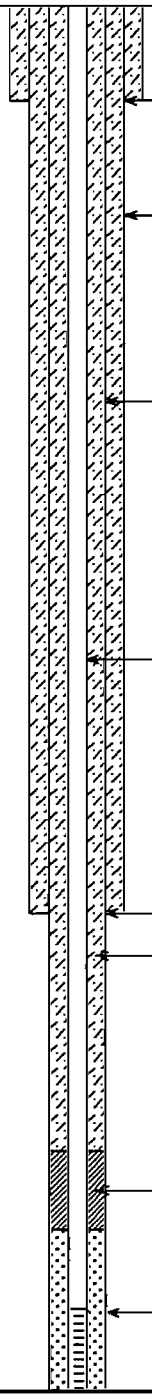
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-307
DATE COMPLETED: DECEMBER 22, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | BEDROCK | 1060.88 | | | | | |
| 37.5 | END OF 10" Ø CASING | 1059.20 | 10" CASING SET | | | | |
| 40.0 | | | 10" Ø BOREHOLE | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | 6" Ø CASING | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | 2" Ø STAINLESS STEEL CASING | | | | |
| 55.0 | | | | | | | |
| 57.5 | END OF 6" Ø CASING | 1038.40 | 6" CASING SET<br>CEMENT GROUT | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | BENTONITE SEAL | | | | |
| | TOP OF SAND PACK | 1030.69 | | | | | |
| 67.5 | | | 6" Ø BOREHOLE | | | | |



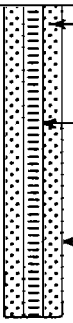
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-307
DATE COMPLETED: DECEMBER 22, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 72.5 | | |  SAND PACK | | | | |
| 75.0 | | | WELL SCREEN | | | | |
| 77.5 | END OF HOLE | 1018.69 | 6" Ø BOREHOLE | | | | |
| 80.0 | | | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| 82.5 | | | | | | | |
| 85.0 | | | | | | | |
| 87.5 | | | | | | | |
| 90.0 | | | | | | | |
| 92.5 | | | | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | | | | | |
| 100.0 | | | | | | | |
| 102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-309
DATE COMPLETED: JULY 27, 1994
DRILLING METHOD: 10 ¼ HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1087.81*<br>*1085.66* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | CONCRETE SEAL | | | | |
| -5.0 | | | 14" Ø BOREHOLE | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | 10" Ø STEEL CASING | | | | |
| | BEDROCK | *1074.16* | 6" Ø STEEL CASING | | | | |
| -12.5 | | | | | | | |
| | END OF 10" Ø CASING | *1071.66* | 10" CASING SET | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| -22.5 | | | 10" Ø BOREHOLE | | | | |
| -25.0 | | | 6" Ø CASING | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -32.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

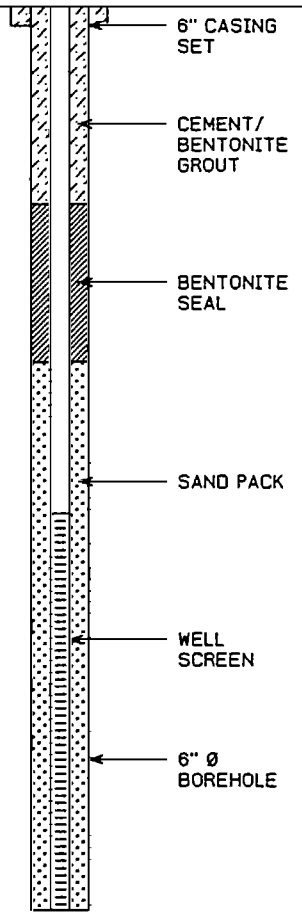
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-309
DATE COMPLETED: JULY 27, 1994
DRILLING METHOD: 10 ¼ HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | END OF 6" Ø CASING | 1050.16 | | | | | |
| 37.5 | | | | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | | | | | |
| | TOP OF SAND PACK | 1041.66 | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | END OF HOLE | 1027.86 | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |




SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

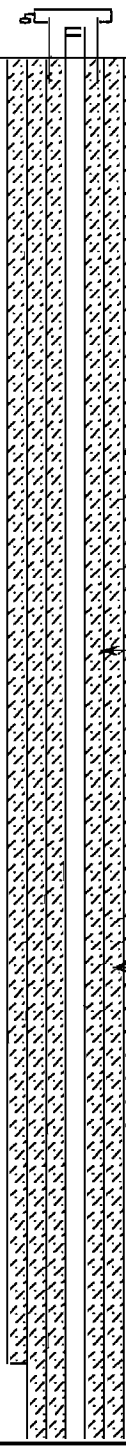
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-319
DATE COMPLETED: DECEMBER 23, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO/K.WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1108.07*<br>*1105.94* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | 14" Ø BOREHOLE | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | 10" Ø STEEL CASING | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | 6" Ø STEEL CASING | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | BEDROCK | *1075.96* | | | | | |
| -32.5 | END OF 10" Ø CASING<br>- shale, sandy, coal, gray | *1072.96* | 10" CASING SET | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

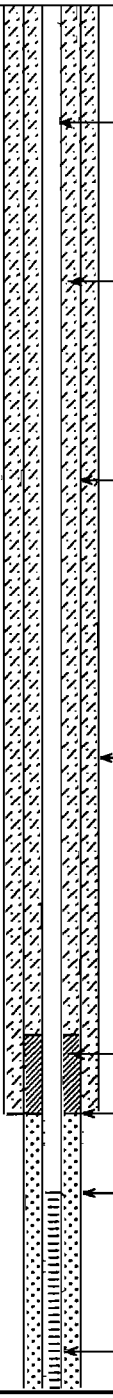
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-319
DATE COMPLETED: DECEMBER 23, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO/K.WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | 6" Ø CASING | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | 10" Ø BOREHOLE | | | | |
| 57.5 | | | | | | | |
| 60.0 | - limestone | | | | | | |
| 62.5 | END OF 6" CASING, TOP OF SAND PACK | 1042.96 | BENTONITE SEAL<br>6" CASING SET | | | | |
| 65.0 | - shale, sandy, silt-stone | | SAND PACK | | | | |
| 67.5 | | | WELL SCREEN | | | | |



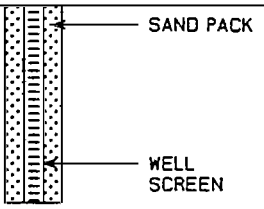
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-319
DATE COMPLETED: DECEMBER 23, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO/K.WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -72.5 | | |   | | | | |
| -75.0 | END OF HOLE | *1030.96* | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| -77.5 | | | | | | | |
| -80.0 | | | | | | | |
| -82.5 | | | | | | | |
| -85.0 | | | | | | | |
| -87.5 | | | | | | | |
| -90.0 | | | | | | | |
| -92.5 | | | | | | | |
| -95.0 | | | | | | | |
| -97.5 | | | | | | | |
| -100.0 | | | | | | | |
| -102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-320
DATE COMPLETED: JULY 12, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1091.14*<br>*1089.57* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | 14" Ø BOREHOLE | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | 10" Ø STEEL CASING | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| -15.0 | | | | | | | |
| | BEDROCK | *1073.16* | | | | | |
| -17.5 | | | | | | | |
| | END OF 10" Ø CASING | *1071.16* | 10" STEEL CASING SET | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | 6" Ø STEEL CASING | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | 10" Ø BOREHOLE | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | 2" Ø STAINLESS STEEL PIPE | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-320
DATE COMPLETED: JULY 12, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -37.5 | | | 10" Ø BOREHOLE | | | | |
| | LIMESTONE | *1051.16* | 6" STEEL CASING SET | | | | |
| | END OF 6" Ø CASING | *1051.16* | | | | | |
| -40.0 | | | | | | | |
| -42.5 | | | | | | | |
| -45.0 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| -47.5 | | | | | | | |
| -50.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -52.5 | | | | | | | |
| -55.0 | | | | | | | |
| -57.5 | | | | | | | |
| -60.0 | | | 6" Ø BOREHOLE | | | | |
| -62.5 | | | | | | | |
| -65.0 | | | | | | | |
| -67.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-320
DATE COMPLETED: JULY 12, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 72.5 | | | | | | | |
| 75.0 | | | | | | | |
| 77.5 | | | | | | | |
| 80.0 | | | | | | | |
| 82.5 | | | | | | | |
| 85.0 | | | | | | | |
| 87.5 | TOP OF SAND PACK | 1002.16 | | | | | |
| 90.0 | | | | | | | |
| 92.5 | | | | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | | | | | |
| 100.0 | END OF HOLE | 990.16 | | | | | |
| 102.5 | | | | | | | |

SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

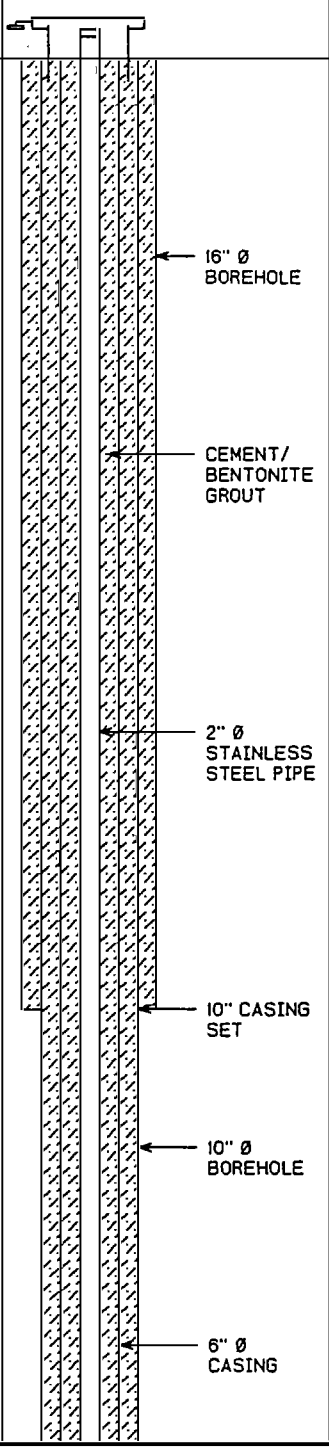
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-321
DATE COMPLETED: JULY 13, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1095.32*<br>*1093.81* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | 16" Ø BOREHOLE | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| -20.0 | | | | | | | |
| -22.5 | BEDROCK | *1071.81* | | | | | |
| | END OF 10" Ø CASING | *1069.81* | 10" CASING SET | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | 10" Ø BOREHOLE | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | 6" Ø CASING | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-321
DATE COMPLETED: JULY 13, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -37.5 | | | 10" Ø BOREHOLE | | | | |
| -40.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -42.5 | | | | | | | |
| | LIMESTONE | 1049.81 | | | | | |
| -45.0 | END OF 6" Ø CASING | 1048.56 | 6" CASING SET | | | | |
| -47.5 | | | | | | | |
| -50.0 | | | | | | | |
| -52.5 | | | BENTONITE SEAL | | | | |
| | TOP OF SAND PACK | 1039.81 | | | | | |
| -55.0 | | | | | | | |
| -57.5 | | | SAND PACK | | | | |
| -60.0 | | | | | | | |
| -62.5 | | | 6" Ø BOREHOLE | | | | |
| -65.0 | | | WELL SCREEN | | | | |
| -67.5 | | | | | | | |
| | END OF HOLE | 1025.97 | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-321
DATE COMPLETED: JULY 13, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| -72.5 | | | | | | | |
| -75.0 | | | | | | | |
| -77.5 | | | | | | | |
| -80.0 | | | | | | | |
| -82.5 | | | | | | | |
| -85.0 | | | | | | | |
| -87.5 | | | | | | | |
| -90.0 | | | | | | | |
| -92.5 | | | | | | | |
| -95.0 | | | | | | | |
| -97.5 | | | | | | | |
| -100.0 | | | | | | | |
| -102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

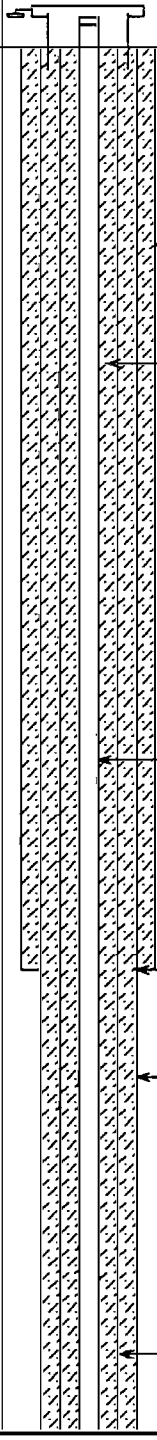
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-322
DATE COMPLETED: JULY 11, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1098.88*<br>*1097.13* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | 14" Ø BOREHOLE | | | | |
| 7.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | | | | | |
| 17.5 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| 20.0 | | | | | | | |
| 22.5 | BEDROCK | *1073.84* | 10" CASING SET | | | | |
| | END OF 10" Ø CASING | *1073.84* | | | | | |
| 25.0 | | | 10" Ø BOREHOLE | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | | | | | |
| 32.5 | | | 6" Ø CASING | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

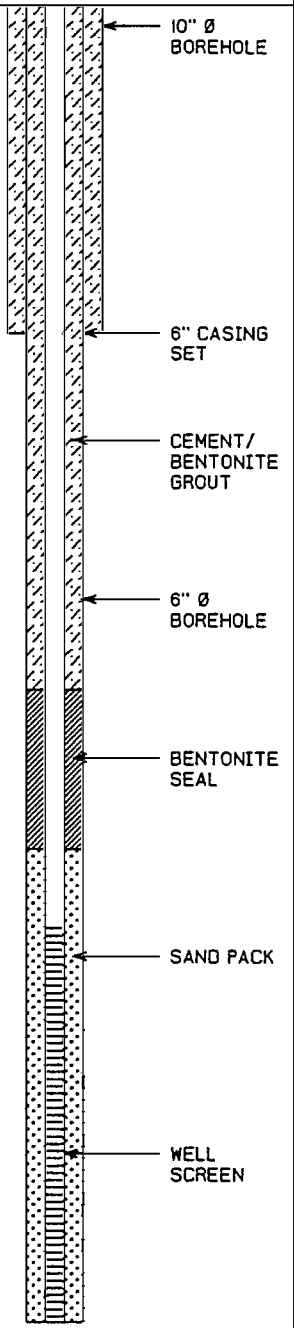
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-322
DATE COMPLETED: JULY 11, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | | | | | |
| | LIMESTONE | 1053.84 | | | | | |
| | END OF 6" Ø CASING | 1053.84 | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| | TOP OF SAND PACK | 1040.84 | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |
| | END OF HOLE | 1028.84 | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-322
DATE COMPLETED: JULY 11, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE | | | |
|---|---|---|---|---|---|---|---|
| | | | | NUMBER | STATE | 'N' VALUE | PID (ppm) |
| | | | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| -72.5 | | | | | | | |
| -75.0 | | | | | | | |
| -77.5 | | | | | | | |
| -80.0 | | | | | | | |
| -82.5 | | | | | | | |
| -85.0 | | | | | | | |
| -87.5 | | | | | | | |
| -90.0 | | | | | | | |
| -92.5 | | | | | | | |
| -95.0 | | | | | | | |
| -97.5 | | | | | | | |
| -100.0 | | | | | | | |
| -102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE: REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

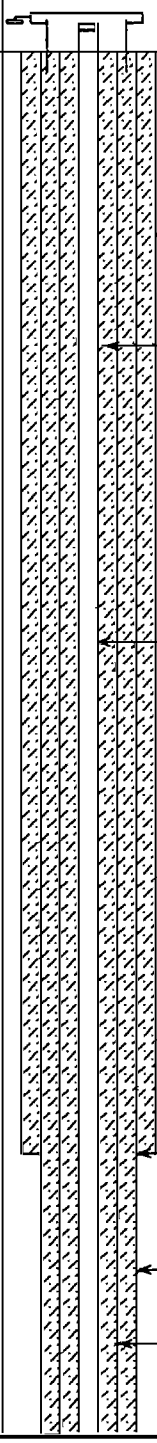
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-323
DATE COMPLETED: JULY 12, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1097.51*<br>*1095.55* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | 14" Ø BOREHOLE | | | | |
| -7.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | *1067.71* | | | | | |
| | BEDROCK | | | | | | |
| -30.0 | END OF 10" Ø CASING | *1065.71* | 10" CASING SET | | | | |
| -32.5 | | | 10" Ø BOREHOLE | | | | |
| -35.0 | | | 6" CASING | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

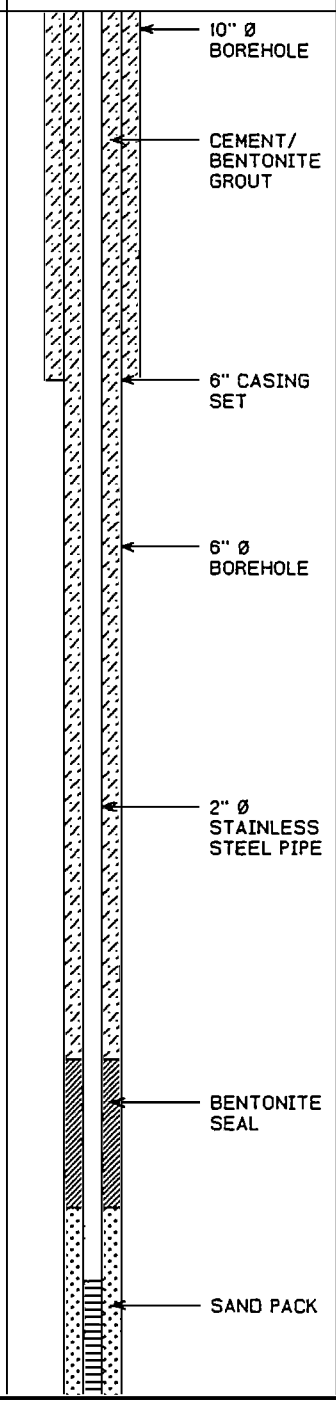
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-323
DATE COMPLETED: JULY 12, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -40.0 | | | 10" Ø BOREHOLE | | | | |
| -42.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| -45.0 | LIMESTONE | 1050.71 | | | | | |
| -47.5 | END OF 6" Ø CASING | 1047.95 | 6" CASING SET | | | | |
| -50.0 | | | | | | | |
| -52.5 | | | 6" Ø BOREHOLE | | | | |
| -55.0 | | | | | | | |
| -57.5 | | | | | | | |
| -60.0 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| -62.5 | | | | | | | |
| -65.0 | | | | | | | |
| -67.5 | | | BENTONITE SEAL | | | | |
| -70.0 | TOP OF SAND PACK | 1025.71 | | | | | |
| -72.5 | | | SAND PACK | | | | |



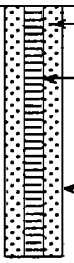
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-323
DATE COMPLETED: JULY 12, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -77.5 | | |  SAND PACK; WELL SCREEN | | | | |
| -80.0 | | | 6" Ø BOREHOLE | | | | |
| -82.5 | END OF HOLE | 1013.71 | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| -85.0 | | | | | | | |
| -87.5 | | | | | | | |
| -90.0 | | | | | | | |
| -92.5 | | | | | | | |
| -95.0 | | | | | | | |
| -97.5 | | | | | | | |
| -100.0 | | | | | | | |
| -102.5 | | | | | | | |
| -105.0 | | | | | | | |
| -107.5 | | | | | | | |
| -110.0 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

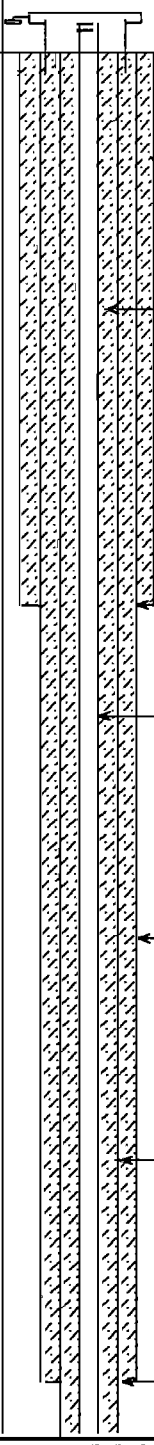
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-324
DATE COMPLETED: JULY 7, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser) | 1089.39 | | | | | |
| | GROUND SURFACE | 1086.88 | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | 14" Ø BOREHOLE | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| -10.0 | | | | | | | |
| -12.5 | | 1073.88 | | | | | |
| | BEDROCK | | | | | | |
| -15.0 | END OF 10" Ø CASING | 1071.88 | 10" CASING SET | | | | |
| -17.5 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | 10" Ø BOREHOLE | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | 6" CASING | | | | |
| -32.5 | | | | | | | |
| | | 1052.38 | | | | | |
| -35.0 | LIMESTONE | | | | | | |
| | END OF 6" Ø CASING | 1050.88 | 6" CASING SET | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

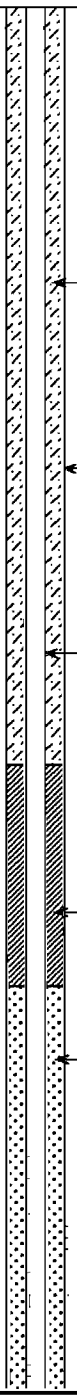
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-324
DATE COMPLETED: JULY 7, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -40.0 | | | | | | | |
| -42.5 | | | | | | | |
| -45.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -47.5 | | | | | | | |
| -50.0 | | | 6" Ø BOREHOLE | | | | |
| -52.5 | | | | | | | |
| -55.0 | | | 2" Ø STAINLESS STEEL PIPE | | | | |
| -57.5 | | | | | | | |
| -60.0 | | | | | | | |
| -62.5 | | | BENTONITE SEAL | | | | |
| | TOP OF SAND PACK | 1022.88 | | | | | |
| -65.0 | | | SAND PACK | | | | |
| -67.5 | | | | | | | |
| -70.0 | | | | | | | |
| -72.5 | | | | | | | |



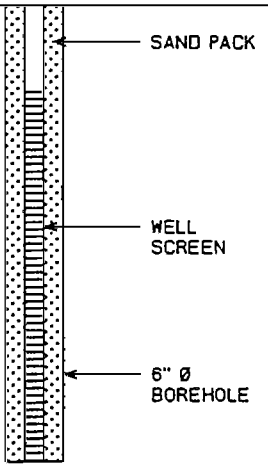
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-324
DATE COMPLETED: JULY 7, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -77.5 | | |   | | | | |
| -80.0 | | | | | | | |
| -82.5 | | | | | | | |
| -85.0 | | | | | | | |
| -87.5 | END OF HOLE | 999.53 | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: Stainless Steel<br>Sand Pack Material: Sand | | | | |
| -90.0 | | | | | | | |
| -92.5 | | | | | | | |
| -95.0 | | | | | | | |
| -97.5 | | | | | | | |
| -100.0 | | | | | | | |
| -102.5 | | | | | | | |
| -105.0 | | | | | | | |
| -107.5 | | | | | | | |
| -110.0 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

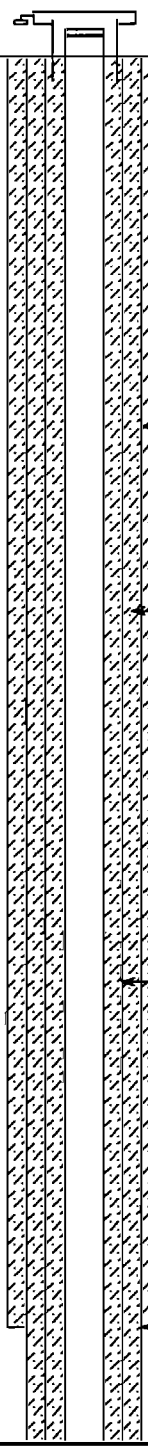
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-401
DATE COMPLETED: DECEMBER 20, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1099.75*<br>*1098.30* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | 16" Ø BOREHOLE | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | 12" Ø STEEL CASING | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | 8" Ø STEEL CASING | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |
| -35.0 | END OF 12" Ø CASING | *1063.96* | 12" Ø CASING SET | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-401
DATE COMPLETED: DECEMBER 20, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | 12" Ø BOREHOLE | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | 8" Ø STEEL CASING | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |
| 70.0 | | — | | | | | |
| 72.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-401
DATE COMPLETED: DECEMBER 20, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -77.5 | | | 12" Ø BOREHOLE | | | | |
| -80.0 | | | | | | | |
| -82.5 | | | | | | | |
| -85.0 | | | 8" Ø STEEL CASING | | | | |
| -87.5 | | | | | | | |
| -90.0 | | | | | | | |
| -92.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| -95.0 | | | | | | | |
| -97.5 | | | | | | | |
| -100.0 | END OF 8" Ø CASING | 998.00 | 8" CASING SET | | | | |
| -102.5 | | | | | | | |
| -105.0 | | | 8" Ø BOREHOLE | | | | |
| -107.5 | | | | | | | |
| -110.0 | | | 4" Ø STEEL CASING | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
## (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-401
DATE COMPLETED: DECEMBER 20, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 115.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| 117.5 | | | 4" Ø STEEL CASING | | | | |
| 120.0 | | | 8" Ø BOREHOLE | | | | |
| 122.5 | END OF 4" Ø CASING | 976.00 | 4" CASING SET | | | | |
| 125.0 | | | | | | | |
| 127.5 | | | 4" Ø COREHOLE | | | | |
| 130.0 | | | | | | | |
| 132.5 | | | WELL SCREEN | | | | |
| 135.0 | | | | | | | |
| 137.5 | | | | | | | |
| 140.0 | | | | | | | |
| | END OF HOLE | 957.00 | | | | | |
| 142.5 | | | SCREEN DETAILS<br>Length: 20ft<br>Diameter: 4"<br>Slot Size: #10<br>Material: Stainless Steel | | | | |
| 145.0 | | | | | | | |
| 147.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

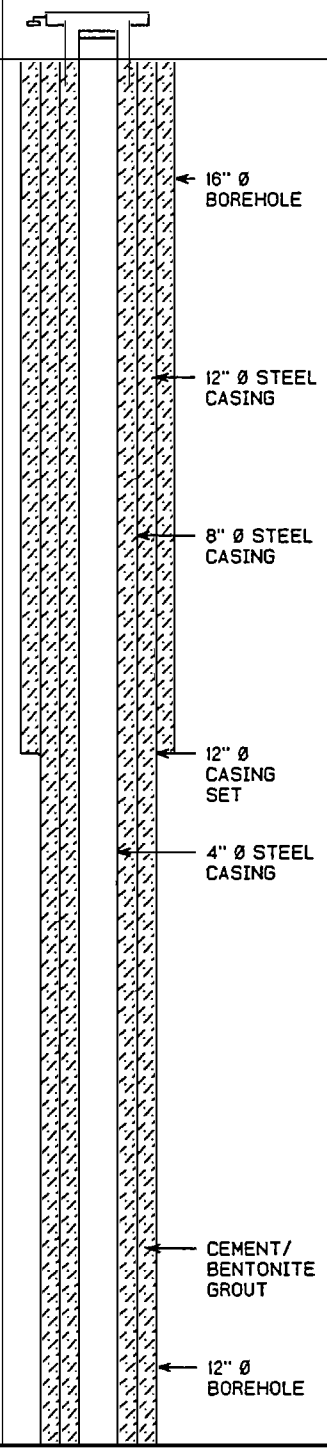
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-402
DATE COMPLETED: AUGUST 1, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K.WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1089.90*<br>*1087.83* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | 16" Ø BOREHOLE | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | 12" Ø STEEL CASING | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | 8" Ø STEEL CASING | | | | |
| 15.0 | | | | | | | |
| | BEDROCK | *1071.83* | | | | | |
| 17.5 | END OF 12" Ø CASING | *1070.33* | 12" Ø CASING SET | | | | |
| 20.0 | | | 4" Ø STEEL CASING | | | | |
| 22.5 | | | | | | | |
| 25.0 | | | | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| 32.5 | | | 12" Ø BOREHOLE | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

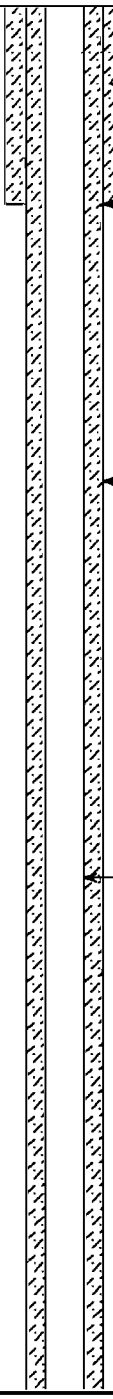
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-402
DATE COMPLETED: AUGUST 1, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K.WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| 40.0 | END OF 8" Ø CASING | 1047.83 | 8" Ø CASING SET | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | 8" Ø BOREHOLE | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | 4" Ø STEEL CASING | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-402
DATE COMPLETED: AUGUST 1, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K.WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 72.5 | | | | | | | |
| 75.0 | | | 8" Ø BOREHOLE | | | | |
| 77.5 | | | | | | | |
| 80.0 | | | | | | | |
| 82.5 | | | | | | | |
| 85.0 | | | | | | | |
| 87.5 | | | 4" Ø STEEL CASING | | | | |
| 90.0 | | | | | | | |
| 92.5 | | | | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| 100.0 | | | | | | | |
| 102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
## (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-402
DATE COMPLETED: AUGUST 1, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K.WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 107.5 | | | 8" Ø BOREHOLE | | | | |
| 110.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| | END OF 4" Ø CASING | 976.83 | 4" Ø CASING SET | | | | |
| 112.5 | | | | | | | |
| 115.0 | | | 4" Ø COREHOLE | | | | |
| 117.5 | | | | | | | |
| 120.0 | | | | | | | |
| 122.5 | | | WELL SCREEN | | | | |
| 125.0 | | | | | | | |
| 127.5 | | | | | | | |
| | END OF HOLE | 958.86 | | | | | |
| 130.0 | | | SCREEN DETAILS<br>Length: 20ft<br>Diameter: 4"<br>Slot Size: #10<br>Material: Stainless Steel | | | | |
| 132.5 | | | | | | | |
| 135.0 | | | | | | | |
| 137.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

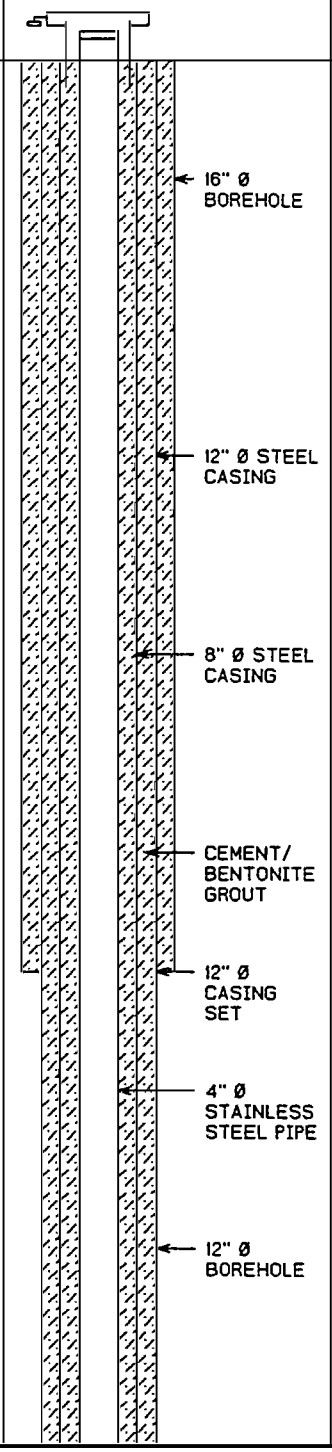
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-414
DATE COMPLETED: OCTOBER 25, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1096.99*<br>*1095.22* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | 16" Ø BOREHOLE | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | 12" Ø STEEL CASING | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | 8" Ø STEEL CASING | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -22.5 | END OF 12" Ø CASING | *1072.22* | 12" Ø CASING SET | | | | |
| -25.0 | | | 4" Ø STAINLESS STEEL PIPE | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | 12" Ø BOREHOLE | | | | |
| -32.5 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-414
DATE COMPLETED: OCTOBER 25, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | | | | | |
| 40.0 | | | 8" Ø STEEL CASING | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| | END OF 8" Ø CASING | 1049.22 | 8" Ø CASING SET | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | 4" Ø STAINLESS STEEL PIPE | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | 8" Ø BOREHOLE | | | | |
| 67.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-414
DATE COMPLETED: OCTOBER 25, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 72.5 | | | 8" Ø BOREHOLE | | | | |
| 75.0 | | | | | | | |
| 77.5 | | | 4" Ø STAINLESS STEEL PIPE | | | | |
| 80.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| 82.5 | END OF 4" Ø CASING | 1011.89 | 4" CASING SET | | | | |
| 85.0 | | | | | | | |
| 87.5 | | | | | | | |
| 90.0 | | | WELL SCREEN | | | | |
| 92.5 | | | | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | 4" Ø COREHOLE | | | | |
| 100.0 | END OF HOLE | 993.89 | | | | | |
| 102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-414
DATE COMPLETED: OCTOBER 25, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 107.5 | | | SCREEN DETAILS<br>Length: 20ft<br>Diameter: 4"<br>Slot Size: #10<br>Material: Stainless Steel | | | | |
| 110.0 | | | | | | | |
| 112.5 | | | | | | | |
| 115.0 | | | | | | | |
| 117.5 | | | | | | | |
| 120.0 | | | | | | | |
| 122.5 | | | | | | | |
| 125.0 | | | | | | | |
| 127.5 | | | | | | | |
| 130.0 | | | | | | | |
| 132.5 | | | | | | | |
| 135.0 | | | | | | | |
| 137.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

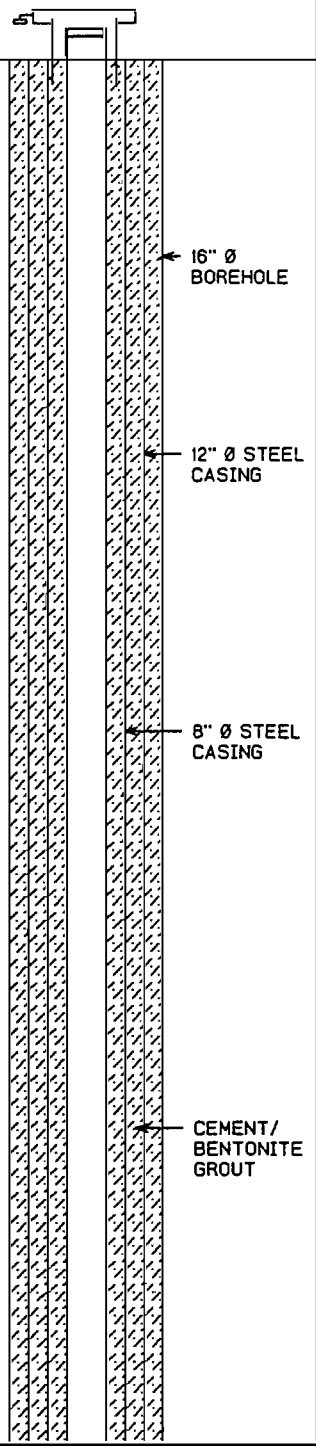
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-415
DATE COMPLETED: OCTOBER 23, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1102.25*<br>*1100.14* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | 16" Ø BOREHOLE | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | 12" Ø STEEL CASING | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | | | | | |
| 17.5 | | | 8" Ø STEEL CASING | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | | | | | |
| 25.0 | | | | | | | |
| 27.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| 30.0 | | | | | | | |
| 32.5 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-415
DATE COMPLETED: OCTOBER 23, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| 40.0 | | | | | | | |
| | END OF 12" Ø CASING | 1058.75 | 12" Ø CASING SET | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | 12" Ø BOREHOLE | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | 8" Ø STEEL CASING | | | | |
| 52.5 | END OF 8" Ø CASING | 1047.95 | 8" CASING SET | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | 8" Ø BOREHOLE | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | 4" Ø STEEL CASING | | | | |
| 67.5 | | | | | | | |
| | END OF 4" Ø CASING | 1031.75 | 4" CASING SET | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE: REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-415
DATE COMPLETED: OCTOBER 23, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -72.5 | | | | | | | |
| -75.0 | | | WELL SCREEN | | | | |
| -77.5 | | | 4" Ø COREHOLE | | | | |
| -80.0 | | | | | | | |
| -82.5 | | | | | | | |
| -85.0 | | | | | | | |
| -87.5 | END OF HOLE | 1012.75 | SCREEN DETAILS<br>Length: 20ft<br>Diameter: 4"<br>Slot Size: #10<br>Material: Stainless Steel | | | | |
| -90.0 | | | | | | | |
| -92.5 | | | | | | | |
| -95.0 | | | | | | | |
| -97.5 | | | | | | | |
| -100.0 | | | | | | | |
| -102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

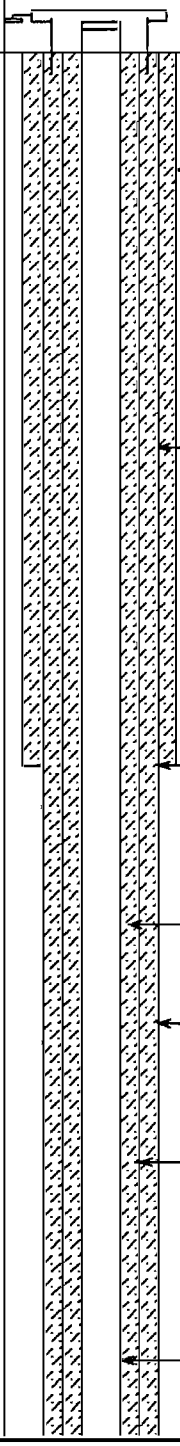
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-420
DATE COMPLETED: JULY 5, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1091.66*<br>*1089.80* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | 16" Ø BOREHOLE | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | 12" Ø STEEL CASING | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| | BEDROCK | *1073.80* | | | | | |
| -17.5 | END OF 12" Ø CASING | *1071.80* | 12" CASING SET | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| -25.0 | | | 12" Ø BOREHOLE | | | | |
| -27.5 | | | 8" Ø STEEL CASING | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | 4" Ø STEEL CASING | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

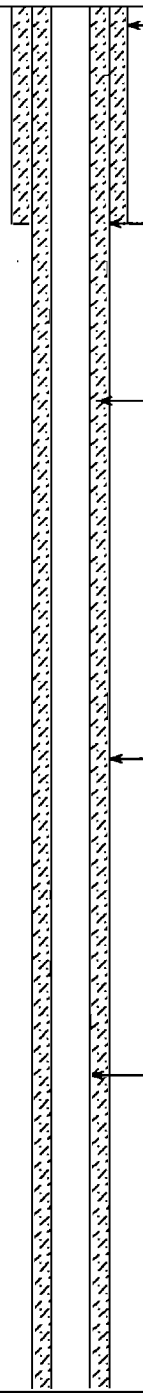
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-420
DATE COMPLETED: JULY 5, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | 12" Ø BOREHOLE | | | | |
| | LIMESTONE | 1051.40 | | | | | |
| 40.0 | END OF 8" Ø CASING | 1049.30 | 8" CASING SET | | | | |
| 42.5 | END OF LIMESTONE | 1047.30 | | | | | |
| 45.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| | | | 8" Ø BOREHOLE | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| | | | 4" Ø STEEL CASING | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

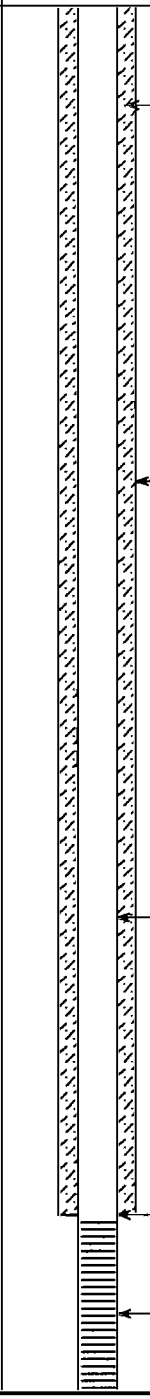
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-420
DATE COMPLETED: JULY 5, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 72.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| 75.0 | | | | | | | |
| 77.5 | | | | | | | |
| 80.0 | | | | | | | |
| 82.5 | | | 8" Ø BOREHOLE | | | | |
| 85.0 | | | | | | | |
| 87.5 | SHALE | 1001.80 | | | | | |
| 90.0 | | | | | | | |
| 92.5 | | | 4" Ø STEEL CASING | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | | | | | |
| | COAL | 991.12 | | | | | |
| | SANDSTONE | 990.62 | | | | | |
| 100.0 | END OF 4" Ø CASING | 989.30 | 4" CASING SET | | | | |
| 102.5 | | | WELL SCREEN | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-420
DATE COMPLETED: JULY 5, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 107.5 | | | | | | | |
| 110.0 | | | WELL SCREEN | | | | |
| 112.5 | | | | | | | |
| 115.0 | | | | | | | |
| 117.5 | | | | | | | |
| 120.0 | | | | | | | |
| | END OF HOLE | 969.12 | | | | | |
| 122.5 | | | SCREEN DETAILS<br>Length: 20ft<br>Diameter: 4"<br>Slot Size: #10<br>Material: Stainless Steel | | | | |
| 125.0 | | | | | | | |
| 127.5 | | | | | | | |
| 130.0 | | | | | | | |
| 132.5 | | | | | | | |
| 135.0 | | | | | | | |
| 137.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-421
DATE COMPLETED: JUNE 19, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1099.93*<br>*1098.69* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | 16" Ø BOREHOLE | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | 12" Ø STEEL CASING | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -17.5 | | | | | | | |
| | BEDROCK | *1079.69* | | | | | |
| -20.0 | | | | | | | |
| | END OF 12" Ø CASING | *1077.69* | 12" CASING SET | | | | |
| -22.5 | | | | | | | |
| | | | 12" Ø BOREHOLE | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | 8" Ø STEEL CASING | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | 4" Ø STEEL CASING | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

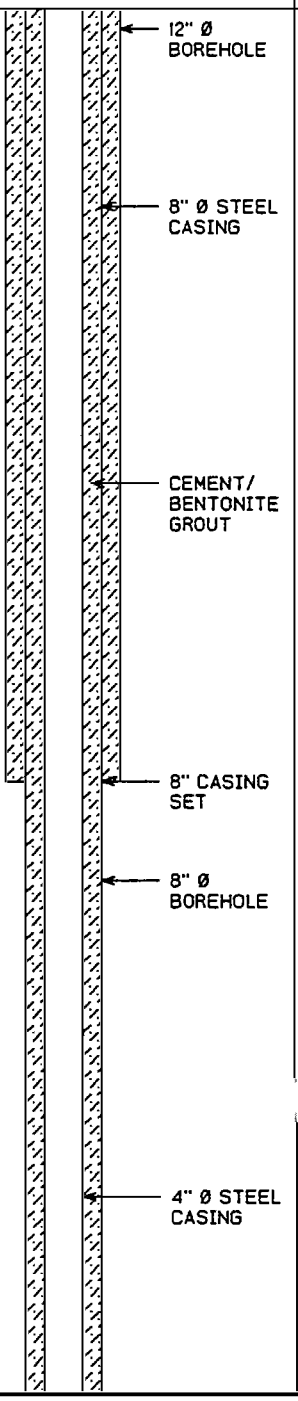
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-421
DATE COMPLETED: JUNE 19, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | LIMESTONE | 1051.69 | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | END OF 8" Ø CASING | 1044.19 | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

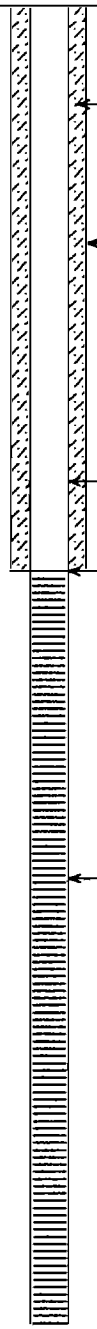
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-421
DATE COMPLETED: JUNE 19, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 72.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| 75.0 | | | 8" Ø BOREHOLE | | | | |
| 77.5 | | | | | | | |
| 80.0 | | | | | | | |
| 82.5 | | | 4" Ø STEEL CASING | | | | |
| 85.0 | END OF 4" Ø CASING | 1014.43 | 4" CASING SET | | | | |
| 87.5 | | | | | | | |
| 90.0 | | | | | | | |
| 92.5 | | | WELL SCREEN | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | | | | | |
| 100.0 | | | | | | | |
| 102.5 | END OF HOLE | 995.43 | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-421
DATE COMPLETED: JUNE 19, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | | | SCREEN DETAILS<br>Length: 19ft<br>Diameter: 4"<br>Slot Size: #10<br>Material: Stainless Steel | | | | |
| 107.5 | | | | | | | |
| 110.0 | | | | | | | |
| 112.5 | | | | | | | |
| 115.0 | | | | | | | |
| 117.5 | | | | | | | |
| 120.0 | | | | | | | |
| 122.5 | | | | | | | |
| 125.0 | | | | | | | |
| 127.5 | | | | | | | |
| 130.0 | | | | | | | |
| 132.5 | | | | | | | |
| 135.0 | | | | | | | |
| 137.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-422
DATE COMPLETED: JULY 3, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1107.38*<br>*1106.21* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | 16" Ø BOREHOLE | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | 12" Ø STEEL CASING | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | 4" Ø STEEL CASING | | | | |
| | BEDROCK | *1085.21* | | | | | |
| -22.5 | | | | | | | |
| | END OF 12" Ø CASING | *1082.21* | 12" CASING SET | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | 12" Ø BOREHOLE | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | 8" Ø STEEL CASING | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

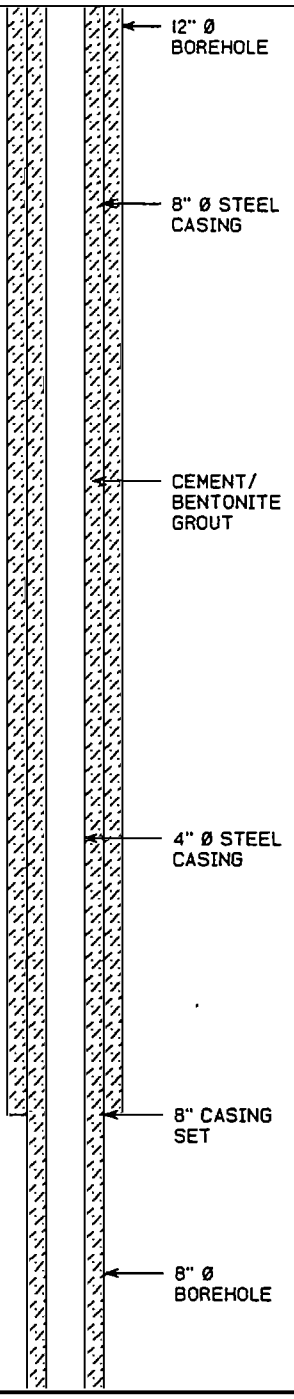
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-422
DATE COMPLETED: JULY 3, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| -37.5 | | | | | | | |
| -40.0 | | | | | | | |
| -42.5 | | | | | | | |
| -45.0 | | | | | | | |
| -47.5 | | | | | | | |
| -50.0 | | | | | | | |
| -52.5 | | | | | | | |
| -55.0 | | | | | | | |
| -57.5 | | | | | | | |
| -60.0 | | | | | | | |
| -62.5 | LIMESTONE | 1044.21 | | | | | |
| | END OF 8" Ø CASING | 1043.21 | | | | | |
| -65.0 | | | | | | | |
| -67.5 | | | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

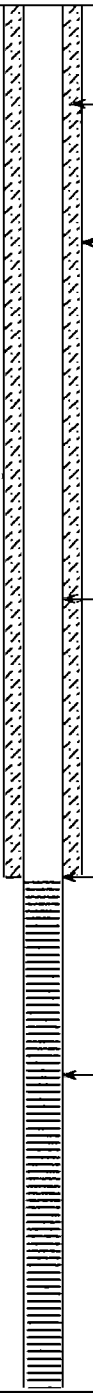
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-422
DATE COMPLETED: JULY 3, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 72.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| 75.0 | | | 8" Ø BOREHOLE | | | | |
| 77.5 | | | | | | | |
| 80.0 | | | | | | | |
| 82.5 | | | | | | | |
| 85.0 | | | 4" Ø STEEL CASING | | | | |
| 87.5 | | | | | | | |
| | COAL | 1017.61 | | | | | |
| 90.0 | | 1016.61 | | | | | |
| 92.5 | END OF 4" Ø CASING | 1014.21 | 4" CASING SET | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | WELL SCREEN | | | | |
| 100.0 | | | | | | | |
| 102.5 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER SHARON)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: MW-422
DATE COMPLETED: JULY 3, 1995
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 107.5 | | | WELL SCREEN | | | | |
| 110.0 | | | | | | | |
| | END OF HOLE | 995.08 | | | | | |
| 112.5 | | | SCREEN DETAILS<br>Length: 19ft<br>Diameter: 4"<br>Slot Size: #10<br>Material: Stainless Steel | | | | |
| 115.0 | | | | | | | |
| 117.5 | | | | | | | |
| 120.0 | | | | | | | |
| 122.5 | | | | | | | |
| 125.0 | | | | | | | |
| 127.5 | | | | | | | |
| 130.0 | | | | | | | |
| 132.5 | | | | | | | |
| 135.0 | | | | | | | |
| 137.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

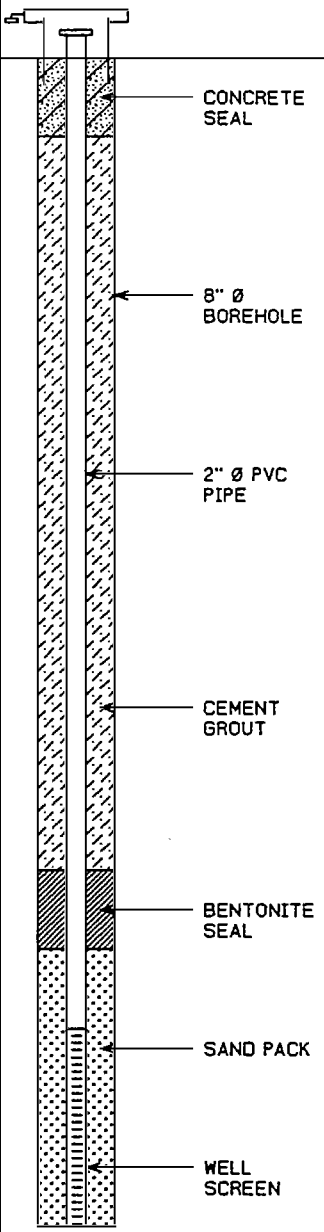
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-101
DATE COMPLETED: SEPTEMBER 16, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1108.53*<br>*1106.15* | | | | | |
| | OVERBURDEN (FILL) | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| 22.5 | TOP OF SAND PACK | *1083.69* | | | | | |
| 25.0 | | | | | | | |
| 27.5 | | | | | | | |
| 30.0 | END OF HOLE | *1076.69* | | | | | |
| 32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

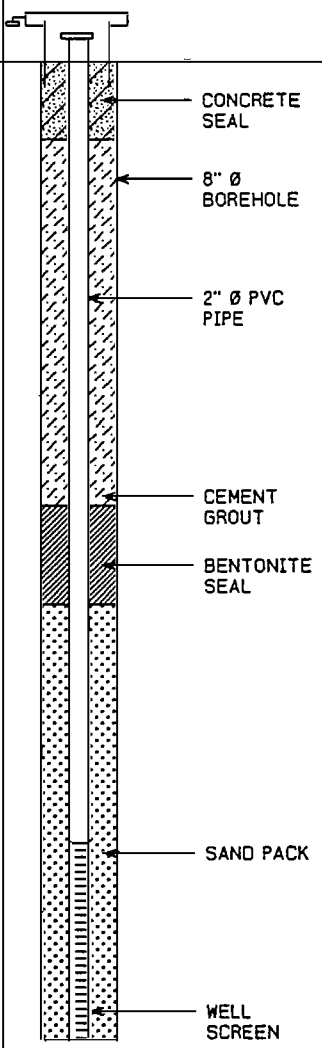
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-102 (R)
DATE COMPLETED: NOVEMBER 22, 1994
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: S. HAYLE

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1100.21*<br>*1097.89* | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | | | | | |
| | TOP OF SAND PACK | *1084.16* | | | | | |
| 15.0 | | | | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | | | | | |
| 25.0 | END OF HOLE | *1073.16* | | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | | | | | |
| 32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

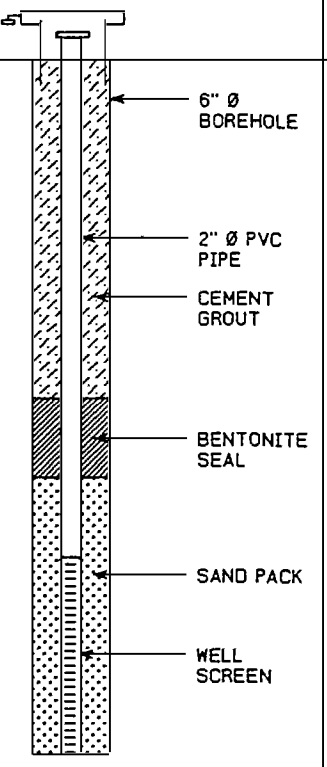
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-103
DATE COMPLETED: SEPTEMBER 17, 1993
DRILLING METHOD: 3 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1093.98*<br>*1091.68* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| | TOP OF SAND PACK | *1081.13* | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | *1074.13* | | | | | |
| | END OF HOLE | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

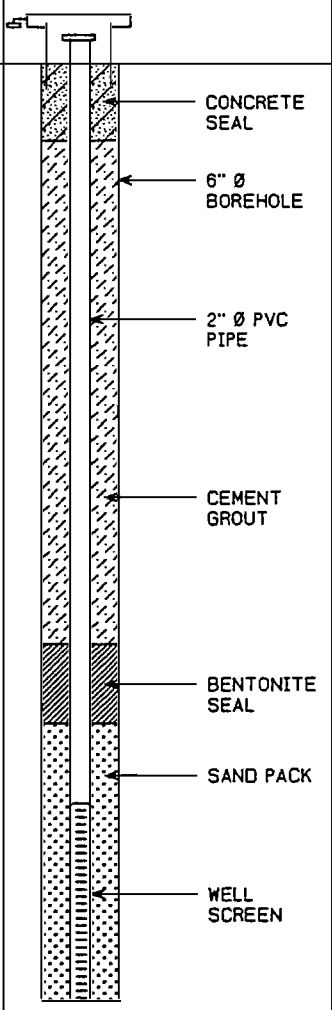
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-104
DATE COMPLETED: AUGUST 18, 1993
DRILLING METHOD: 3 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1097.54*<br>*1095.60* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| | TOP OF SAND PACK | *1078.91* | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| | END OF HOLE | *1071.91* | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |




SCREEN DETAILS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

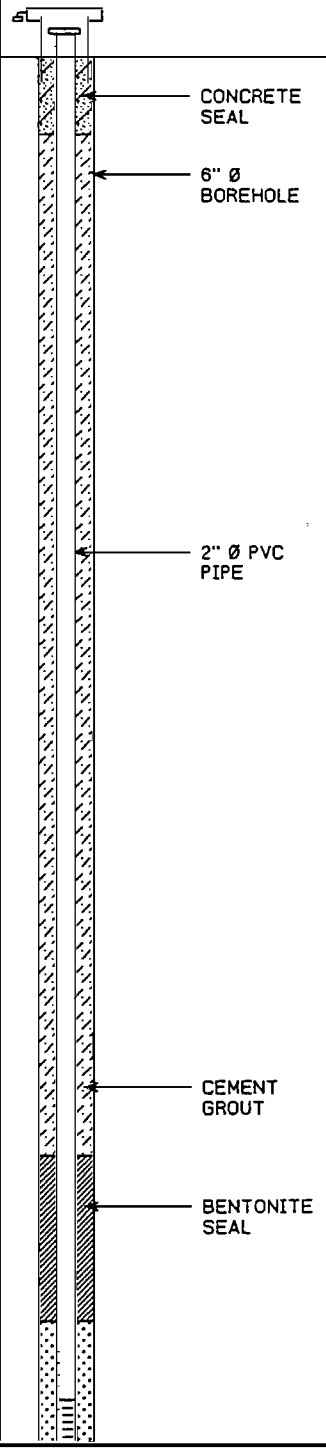
# STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-105
DATE COMPLETED: AUGUST 17, 1993
DRILLING METHOD: 3 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1101.60*<br>*1099.51* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | TOP OF SAND PACK | *1067.60* | | | | | |



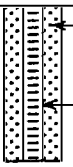

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-105
DATE COMPLETED: AUGUST 17, 1993
DRILLING METHOD: 3 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 37.5 | | |  SAND PACK<br>WELL SCREEN | | | | |
| | END OF HOLE | 1060.60 | | | | | |
| 40.0 | | | SCREEN DETAILS<br>Length: 5ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: PVC<br>Sand Pack Material: Sand | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

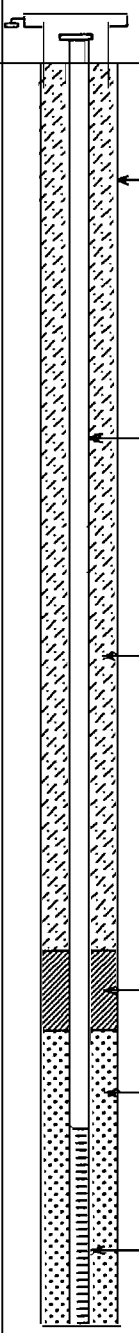
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-106
DATE COMPLETED: SEPTEMBER 8, 1993
DRILLING METHOD: 3 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1102.23*<br>*1100.04* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | 6" Ø BOREHOLE | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | 2" Ø PVC PIPE | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | CEMENT GROUT | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | BENTONITE SEAL | | | | |
| -25.0 | TOP OF SAND PACK | *1075.63* | SAND PACK | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | WELL SCREEN | | | | |
| -32.5 | END OF HOLE | *1068.13* | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (OVERBURDEN)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-106
DATE COMPLETED: SEPTEMBER 8, 1993
DRILLING METHOD: 3 ¼" ID HSA
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | SCREEN DETAILS<br>Length: 5ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: PVC<br>Sand Pack Material: Sand | | | | |
| 37.5 | | | | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

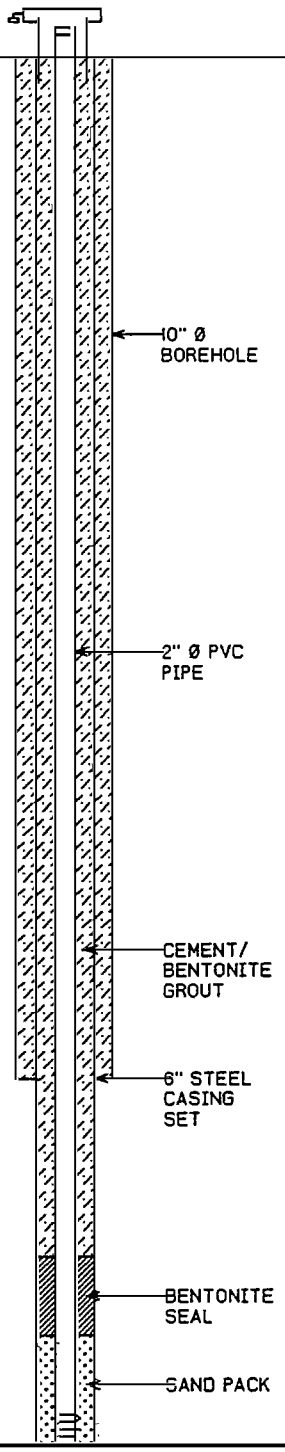
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-201
DATE COMPLETED: OCTOBER 4, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1099.74*<br>*1097.58* | | | | | |
| | OVERBURDEN (FILL) | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| 7.5 | | | 10" Ø BOREHOLE | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | | | | | |
| 15.0 | | | 2" Ø PVC PIPE | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| | BEDROCK: Shale | *1074.34* | | | | | |
| 25.0 | | | | | | | |
| | END OF 6" Ø CASING | *1071.84* | 6" STEEL CASING SET | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | | | | | |
| | | | BENTONITE SEAL | | | | |
| 32.5 | TOP OF SAND PACK | *1065.34* | SAND PACK | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
## (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-201
DATE COMPLETED: OCTOBER 4, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | SAND PACK | | | | |
| 40.0 | | | 6" Ø BOREHOLE | | | | |
| 42.5 | BEDROCK: Limestone | 1055.34 | WELL SCREEN | | | | |
| 45.0 | END OF HOLE | 1053.34 | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: PVC<br>Sand Pack Material: Sand | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

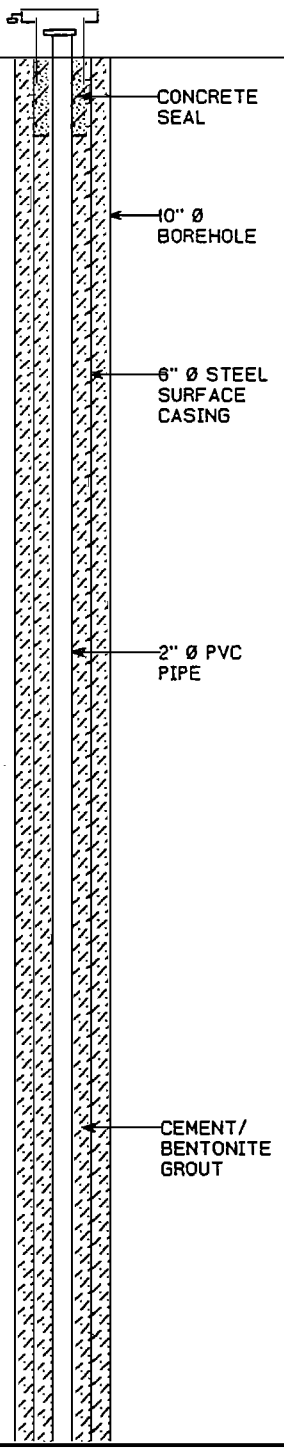
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-202
DATE COMPLETED: DECEMBER 13, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1101.56*<br>*1099.10* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

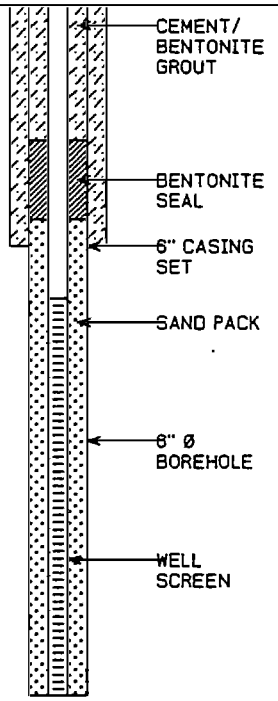
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-202
DATE COMPLETED: DECEMBER 13, 1993
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | BEDROCK | 1061.02 | | | | | |
| 40.0 | TOP OF SAND PACK | 1058.70 | | | | | |
| | END OF 6" Ø CASING | 1058.02 | | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | - limestone | | | | | | |
| 52.5 | END OF HOLE | 1046.70 | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |




SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

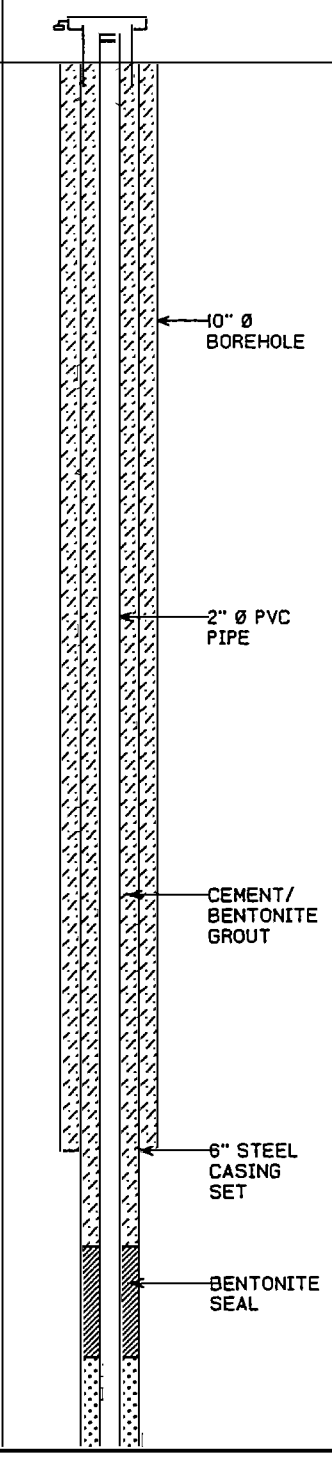
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-203
DATE COMPLETED: OCTOBER 3, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1098.31*<br>*1095.73* | | | | | |
| | OVERBURDEN (FILL) | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | 10" Ø BOREHOLE | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | 2" Ø PVC PIPE | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| -25.0 | | | | | | | |
| -27.5 | BEDROCK: Shale | *1068.73* | | | | | |
| -30.0 | END OF 6" Ø CASING | *1066.32* | 6" STEEL CASING SET | | | | |
| -32.5 | | | BENTONITE SEAL | | | | |
| -35.0 | TOP OF SAND PACK | *1060.73* | | | | | |



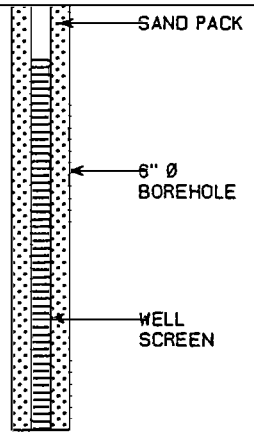
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-203
DATE COMPLETED: OCTOBER 3, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -40.0 | | |   | | | | |
| -42.5 | | | | | | | |
| -45.0 | | | | | | | |
| -47.5 | | | | | | | |
| | BEDROCK: Limestone | 1047.42 | | | | | |
| | END OF HOLE | 1046.72 | | | | | |
| -50.0 | | | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: PVC<br>Sand Pack Material: Sand | | | | |
| -52.5 | | | | | | | |
| -55.0 | | | | | | | |
| -57.5 | | | | | | | |
| -60.0 | | | | | | | |
| -62.5 | | | | | | | |
| -65.0 | | | | | | | |
| -67.5 | | | | | | | |
| -70.0 | | | | | | | |
| -72.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

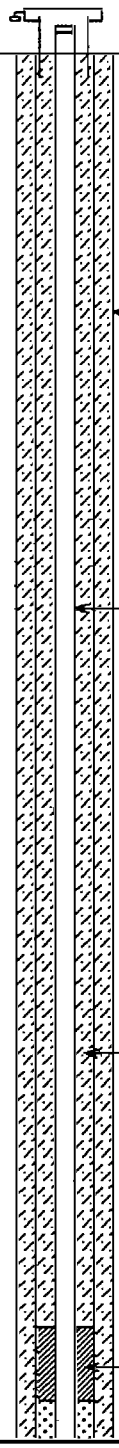
# STRATIGRAPHIC AND INSTRUMENTATION LOG
## (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-204
DATE COMPLETED: DECEMBER 15, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO/K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1095.41*<br>*1093.73* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | 10" Ø BOREHOLE | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | 2" Ø PVC PIPE | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |
| -35.0 | BEDROCK: Shale, sandy | *1058.35* | BENTONITE SEAL | | | | |
| | TOP OF SAND PACK | *1057.32* | | | | | |



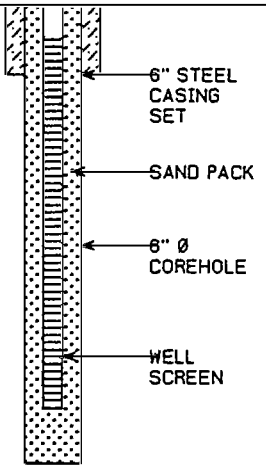
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-204
DATE COMPLETED: DECEMBER 15, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO/K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | END OF 6" Ø CASING | 1055.35 |  | | | | |
| -40.0 | | | | | | | |
| -42.5 | | | | | | | |
| -45.0 | | | | | | | |
| -47.5 | | | | | | | |
| | END OF SCREEN | 1045.32 | | | | | |
| | BEDROCK: Limestone | 1044.35 | | | | | |
| -50.0 | END OF HOLE | 1043.85 | | | | | |
| -52.5 | | | | | | | |
| -55.0 | | | | | | | |
| -57.5 | | | | | | | |
| -60.0 | | | | | | | |
| -62.5 | | | | | | | |
| -65.0 | | | | | | | |
| -67.5 | | | | | | | |
| -70.0 | | | | | | | |
| -72.5 | | | | | | | |



SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

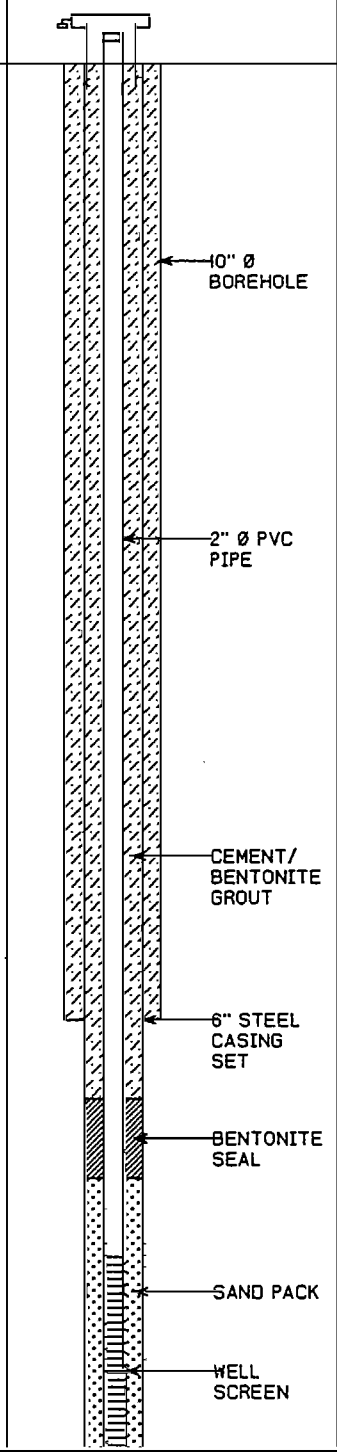
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-205
DATE COMPLETED: DECEMBER 7, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO/K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1096.63*<br>*1094.34* | | | | | |
| | OVERBURDEN (FILL) | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | 10" Ø BOREHOLE | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | 2" Ø PVC PIPE | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -22.5 | | | | | | | |
| -25.0 | END OF 6" Ø CASING | *1070.21* | 6" STEEL CASING SET | | | | |
| -27.5 | BEDROCK: Shale, sandy, gray, interbedded silt-stone | *1067.11* | BENTONITE SEAL | | | | |
| | TOP OF SAND PACK | *1066.21* | | | | | |
| -30.0 | | | SAND PACK | | | | |
| -32.5 | | | WELL SCREEN | | | | |



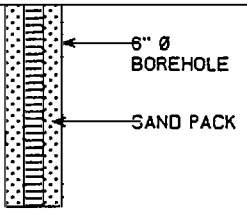
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-205
DATE COMPLETED: DECEMBER 7, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO/K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | |   | | | | |
| 40.0 | BEDROCK: Limestone<br>END OF HOLE | 1054.81<br>1054.21 | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: PVC<br>Sand Pack Material: Sand | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

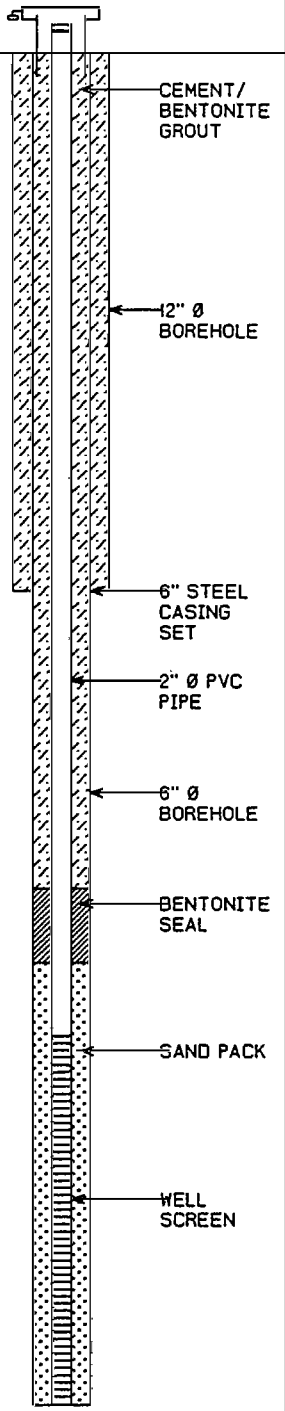
# STRATIGRAPHIC AND INSTRUMENTATION LOG
## (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-206
DATE COMPLETED: AUGUST 2, 1994
DRILLING METHOD: HSA, AIR ROTARY
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser) | 1088.05 | | | | | |
| | GROUND SURFACE | 1085.62 | | | | | |
| | OVERBURDEN | | | | | | |
| 2.5 | | | | | | | |
| 5.0 | | | | | | | |
| 7.5 | | 1077.62 | | | | | |
| | BEDROCK | | | | | | |
| 10.0 | | | | | | | |
| 12.5 | | | | | | | |
| 15.0 | END OF 6" Ø CASING | 1071.03 | | | | | |
| 17.5 | | | | | | | |
| 20.0 | | | | | | | |
| 22.5 | | | | | | | |
| 25.0 | TOP OF SAND PACK | 1061.03 | | | | | |
| 27.5 | | | | | | | |
| 30.0 | | | | | | | |
| 32.5 | | 1052.03 | | | | | |
| | LIMESTONE | | | | | | |
| 35.0 | | | | | | | |
| | END OF HOLE | 1049.03 | | | | | |




NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-206
DATE COMPLETED: AUGUST 2, 1994
DRILLING METHOD: HSA, AIR ROTARY
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 40.0 | | | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: PVC<br>Sand Pack Material: Sand | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | | | | | |
| 67.5 | | | | | | | |
| 70.0 | | | | | | | |
| 72.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

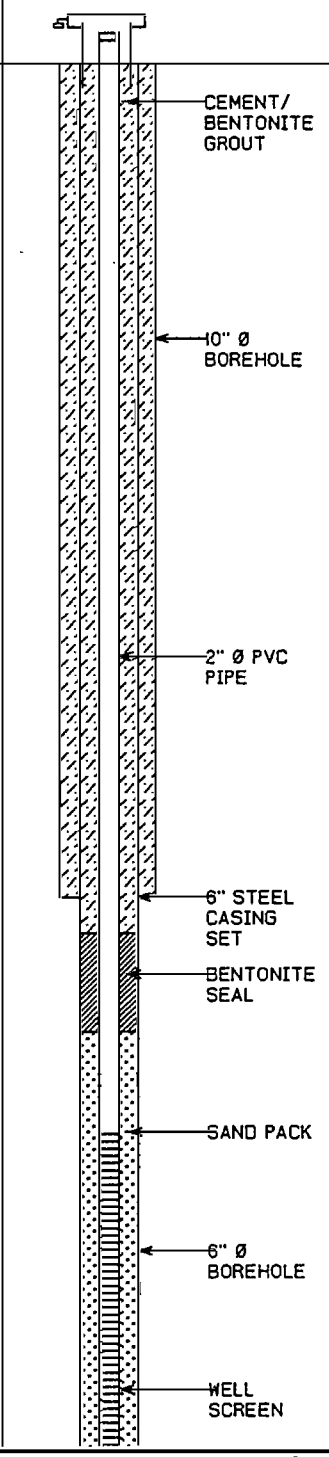
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-207
DATE COMPLETED: AUGUST 25, 1994
DRILLING METHOD: HSA, AIR ROTARY
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser) | *1091.36* | | | | | |
| | GROUND SURFACE | *1089.53* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | 10" Ø BOREHOLE | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | 2" Ø PVC PIPE | | | | |
| -17.5 | | *1071.67* | | | | | |
| | BEDROCK | | | | | | |
| -20.0 | | | | | | | |
| | END OF 6" Ø CASING | *1068.48* | 6" STEEL CASING SET | | | | |
| -22.5 | | | BENTONITE SEAL | | | | |
| | TOP OF SAND PACK | *1065.08* | | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | SAND PACK | | | | |
| -30.0 | | | 6" Ø BOREHOLE | | | | |
| -32.5 | | | WELL SCREEN | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (UPPER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-207
DATE COMPLETED: AUGUST 25, 1994
DRILLING METHOD: HSA, AIR ROTARY
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | LIMESTONE | *1053.67* | WELL SCREEN | | | | |
| -37.5 | END OF HOLE | *1052.48* | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: PVC<br>Sand Pack Material: Sand | | | | |
| -40.0 | | | | | | | |
| -42.5 | | | | | | | |
| -45.0 | | | | | | | |
| -47.5 | | | | | | | |
| -50.0 | | | | | | | |
| -52.5 | | | | | | | |
| -55.0 | | | | | | | |
| -57.5 | | | | | | | |
| -60.0 | | | | | | | |
| -62.5 | | | | | | | |
| -65.0 | | | | | | | |
| -67.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

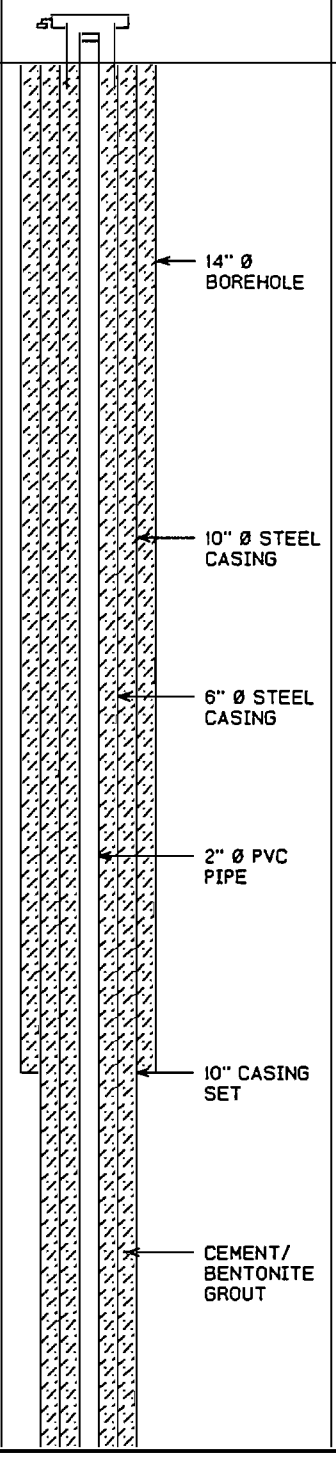
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-301
DATE COMPLETED: OCTOBER 4, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1100.07*<br>*1097.76* | | | | | |
| | OVERBURDEN (FILL) | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | 14" Ø BOREHOLE | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | 10" Ø STEEL CASING | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | 6" Ø STEEL CASING | | | | |
| -20.0 | | | 2" Ø PVC PIPE | | | | |
| -22.5 | | *1074.76* | | | | | |
| | BEDROCK | | | | | | |
| -25.0 | | *1072.30* | 10" CASING SET | | | | |
| | END OF 10" Ø CASING | | | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -32.5 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

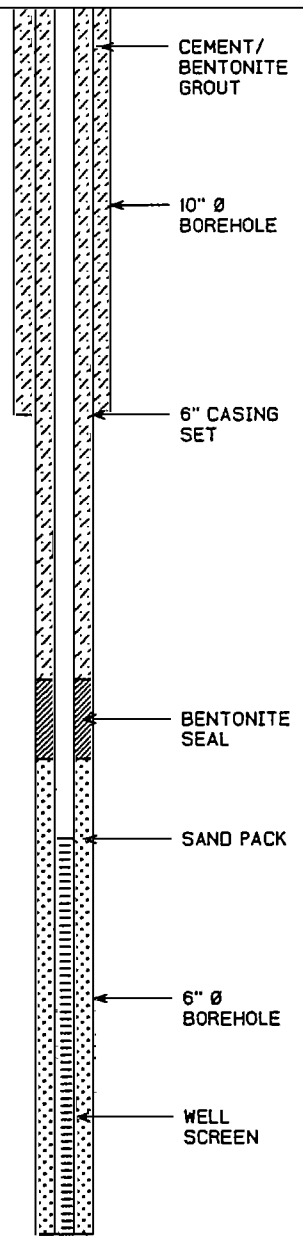
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-301
DATE COMPLETED: OCTOBER 4, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| 40.0 | | | 10" Ø BOREHOLE | | | | |
| 42.5 | LIMESTONE | 1054.80 | | | | | |
| 45.0 | END OF 6" Ø CASING | 1052.47 | 6" CASING SET | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | BENTONITE SEAL | | | | |
| | TOP OF SAND PACK | 1043.80 | | | | | |
| 55.0 | | | SAND PACK | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | 6" Ø BOREHOLE | | | | |
| 62.5 | | | WELL SCREEN | | | | |
| 65.0 | END OF HOLE | 1031.80 | | | | | |
| 67.5 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-301
DATE COMPLETED: OCTOBER 4, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: PVC<br>Sand Pack Material: Sand | | | | |
| 72.5 | | | | | | | |
| 75.0 | | | | | | | |
| 77.5 | | | | | | | |
| 80.0 | | | | | | | |
| 82.5 | | | | | | | |
| 85.0 | | | | | | | |
| 87.5 | | | | | | | |
| 90.0 | | | | | | | |
| 92.5 | | | | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | | | | | |
| 100.0 | | | | | | | |
| 102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

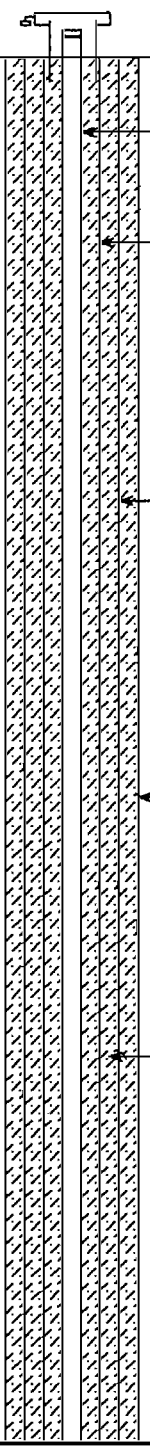
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-302
DATE COMPLETED: DECEMBER 16, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1101.25*<br>*1098.76* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | 2" Ø PVC PIPE | | | | |
| -5.0 | | | 6" STEEL CASING | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | 10" Ø STEEL SURFACE CASING | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | 14" Ø BOREHOLE | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | | | | | |
| -27.5 | BEDROCK | *1071.83* | CEMENT/ BENTONITE GROUT | | | | |
| -30.0 | | | | | | | |
| -32.5 | | | | | | | |
| -35.0 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

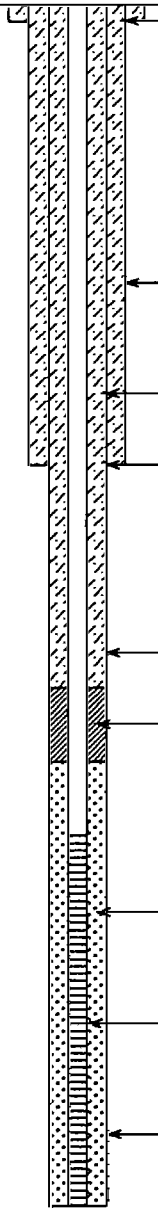
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-302
DATE COMPLETED: DECEMBER 16, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | END OF 10" Ø CASING | 1060.83 | 10" CASING SET | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | 10" Ø BOREHOLE | | | | |
| 47.5 | | | 6" Ø STEEL CASING | | | | |
| 50.0 | END OF 6" Ø CASING | 1048.83 | 6" CASING SET | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| 57.5 | TOP OF SAND PACK | 1040.83 | BENTONITE SEAL | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | SAND PACK | | | | |
| 65.0 | | | WELL SCREEN | | | | |
| 67.5 | | | 6" Ø BOREHOLE | | | | |
| 70.0 | END OF HOLE | 1028.83 | | | | | |
| 72.5 | | | | | | | |



SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

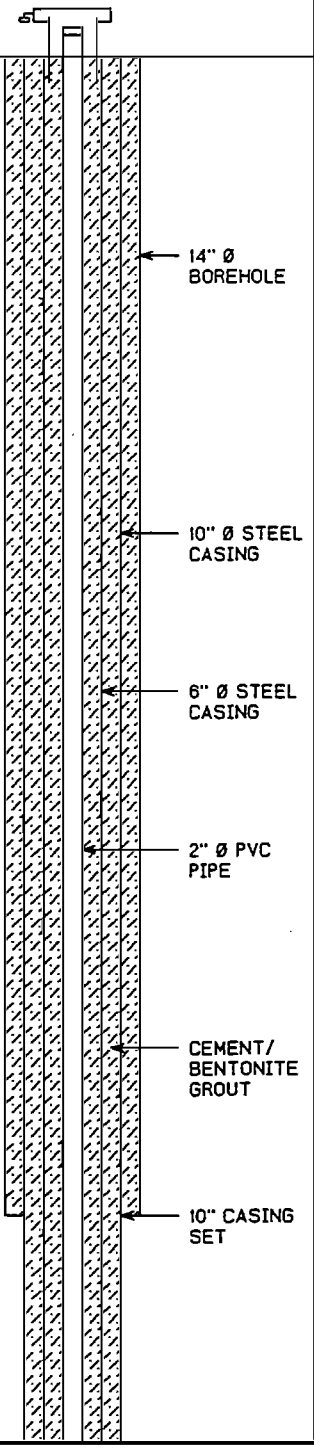
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-303
DATE COMPLETED: OCTOBER 3, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1098.39*<br>*1095.82* | | | | | |
| | OVERBURDEN (FILL) | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | 14" Ø BOREHOLE | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | 10" Ø STEEL CASING | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | 6" Ø STEEL CASING | | | | |
| -20.0 | | | 2" Ø PVC PIPE | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -27.5 | BEDROCK | *1068.59* | | | | | |
| -30.0 | END OF 10" Ø CASING | *1066.59* | 10" CASING SET | | | | |
| -32.5 | | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

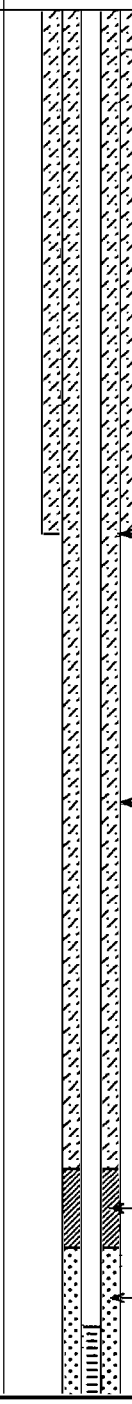
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-303
DATE COMPLETED: OCTOBER 3, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 37.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| 40.0 | | | | | | | |
| 42.5 | | | 10" Ø BOREHOLE | | | | |
| 45.0 | | | | | | | |
| 47.5 | LIMESTONE | 1047.92 | | | | | |
| | END OF 6" Ø CASING | 1047.59 | 6" CASING SET | | | | |
| 50.0 | | | | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | 6" Ø BOREHOLE | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | BENTONITE SEAL | | | | |
| | TOP OF SAND PACK | 1029.59 | | | | | |
| 67.5 | | | SAND PACK | | | | |



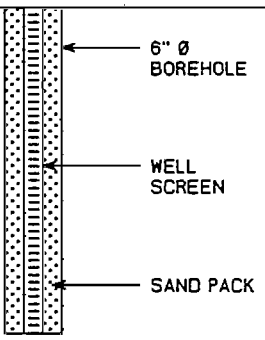
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-303
DATE COMPLETED: OCTOBER 3, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 72.5 | | |   | | | | |
| 75.0 | | | | | | | |
| 77.5 | END OF HOLE | 1017.59 | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: PVC<br>Sand Pack Material: Sand | | | | |
| 80.0 | | | | | | | |
| 82.5 | | | | | | | |
| 85.0 | | | | | | | |
| 87.5 | | | | | | | |
| 90.0 | | | | | | | |
| 92.5 | | | | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | | | | | |
| 100.0 | | | | | | | |
| 102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

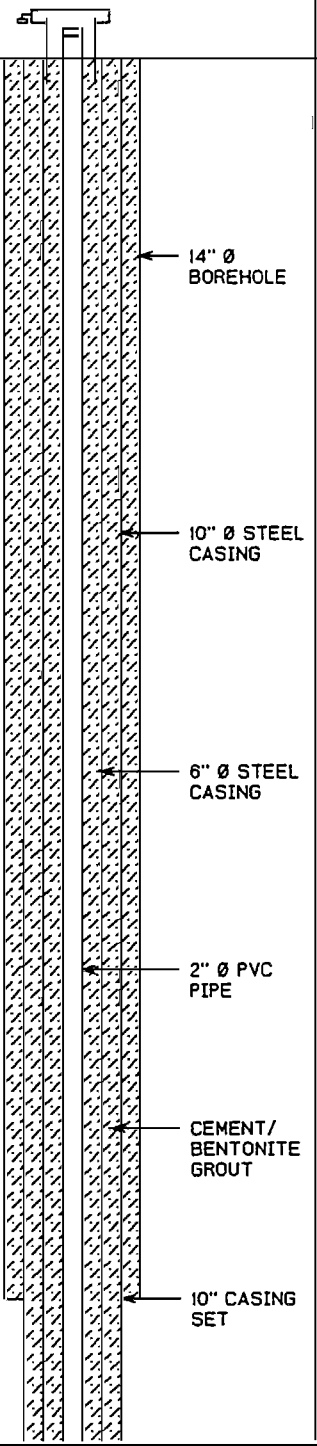
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-305
DATE COMPLETED: DECEMBER 9, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1096.49*<br>*1094.20* | | | | | |
| | OVERBURDEN (FILL) | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | 14" Ø BOREHOLE | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | | | | | |
| -12.5 | | | 10" Ø STEEL CASING | | | | |
| -15.0 | | | | | | | |
| -17.5 | | | 6" Ø STEEL CASING | | | | |
| -20.0 | | | | | | | |
| -22.5 | | | 2" Ø PVC PIPE | | | | |
| -25.0 | | | | | | | |
| -27.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| | BEDROCK | *1066.20* | | | | | |
| -30.0 | | | | | | | |
| | END OF 10" Ø CASING | *1062.90* | 10" CASING SET | | | | |
| -32.5 | | | | | | | |
| | - shale, sandy, gray, interbedded silt-stone | | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

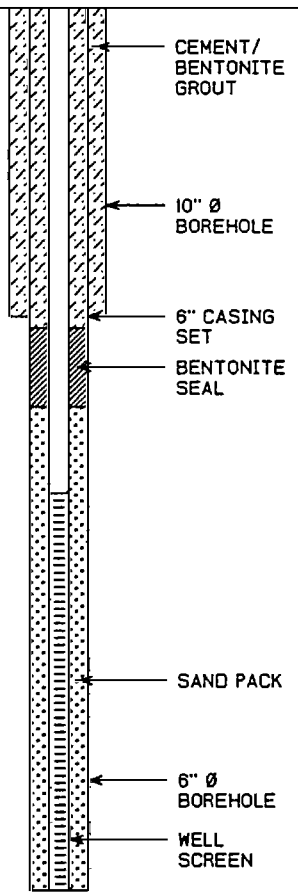
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-305
DATE COMPLETED: DECEMBER 9, 1993
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: T. BENKO

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -37.5 | | | | | | | |
| -40.0 | | | | | | | |
| -42.5 | END OF 6" Ø CASING<br>- limestone | 1051.40 | | | | | |
| -45.0 | TOP OF SAND PACK | 1049.11 | | | | | |
| -47.5 | | | | | | | |
| -50.0 | | | | | | | |
| -52.5 | | | | | | | |
| -55.0 | | | | | | | |
| -57.5 | END OF HOLE | 1036.92 | | | | | |
| -60.0 | | | | | | | |
| -62.5 | | | | | | | |
| -65.0 | | | | | | | |
| -67.5 | | | | | | | |




SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

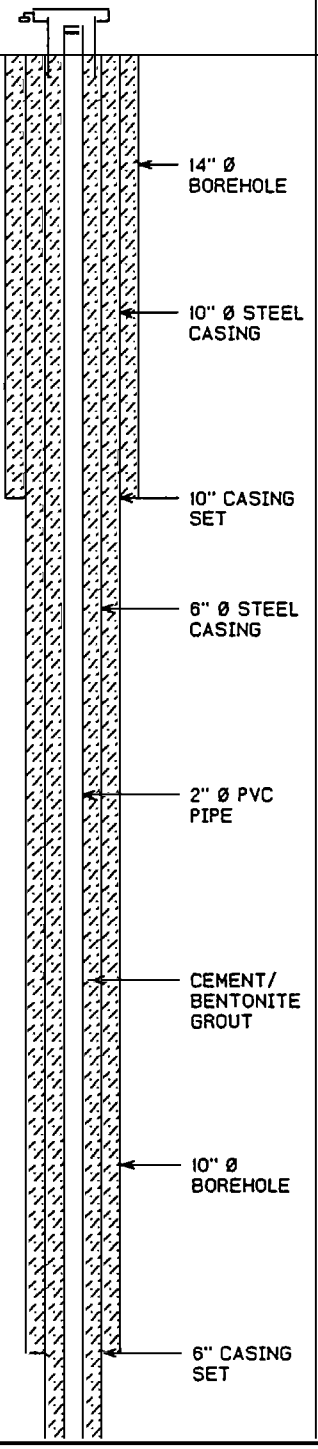
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-306
DATE COMPLETED: AUGUST 3, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1088.35*<br>*1085.87* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | 14" Ø BOREHOLE | | | | |
| -5.0 | | | | | | | |
| -7.5 | | | 10" Ø STEEL CASING | | | | |
| | BEDROCK | *1077.87* | | | | | |
| -10.0 | | | | | | | |
| -12.5 | END OF 10" Ø CASING | *1073.87* | 10" CASING SET | | | | |
| -15.0 | | | 6" Ø STEEL CASING | | | | |
| -17.5 | | | | | | | |
| -20.0 | | | 2" Ø PVC PIPE | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | 10" Ø BOREHOLE | | | | |
| | LIMESTONE | *1054.74* | | | | | |
| -32.5 | | | | | | | |
| -35.0 | END OF 6" Ø CASING | *1050.77* | 6" CASING SET | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-306
DATE COMPLETED: AUGUST 3, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| -40.0 | | | 6" Ø BOREHOLE | | | | |
| -42.5 | | | | | | | |
| -45.0 | | | | | | | |
| -47.5 | | | | | | | |
| -50.0 | | | | | | | |
| -52.5 | | | | | | | |
| -55.0 | | | 2" Ø PVC PIPE | | | | |
| -57.5 | | | | | | | |
| -60.0 | | | | | | | |
| -62.5 | | | CEMENT/ BENTONITE GROUT | | | | |
| -65.0 | | | | | | | |
| -67.5 | | | | | | | |
| -70.0 | | | | | | | |
| -72.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

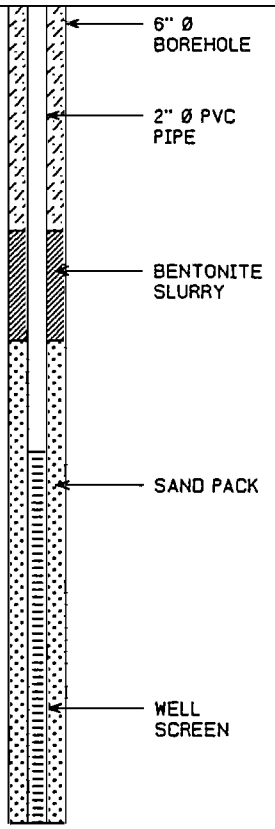
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-306
DATE COMPLETED: AUGUST 3, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| 77.5 | | | | | | | |
| 80.0 | | | | | | | |
| 82.5 | | | | | | | |
| | TOP OF SAND PACK | 1001.77 | | | | | |
| 85.0 | | | | | | | |
| 87.5 | | | | | | | |
| 90.0 | | | | | | | |
| 92.5 | | | | | | | |
| 95.0 | | | | | | | |
| 97.5 | END OF HOLE | 988.77 | | | | | |
| 100.0 | | | | | | | |
| 102.5 | | | | | | | |
| 105.0 | | | | | | | |
| 107.5 | | | | | | | |
| 110.0 | | | | | | | |




SCREEN DETAILS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-307
DATE COMPLETED: AUGUST 24, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | REFERENCE POINT (Top of Riser)<br>GROUND SURFACE | *1091.40*<br>*1089.42* | | | | | |
| | OVERBURDEN | | | | | | |
| -2.5 | | | | | | | |
| -5.0 | | | 14" Ø BOREHOLE | | | | |
| -7.5 | | | | | | | |
| -10.0 | | | 10" Ø STEEL CASING | | | | |
| -12.5 | | | | | | | |
| -15.0 | | | 6" Ø STEEL CASING | | | | |
| -17.5 | | | 2" Ø PVC PIPE | | | | |
| | BEDROCK | *1070.75* | | | | | |
| -20.0 | END OF 10" Ø CASING | *1069.75* | 10" CASING SET | | | | |
| -22.5 | | | | | | | |
| -25.0 | | | 10" Ø BOREHOLE | | | | |
| -27.5 | | | | | | | |
| -30.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| -32.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

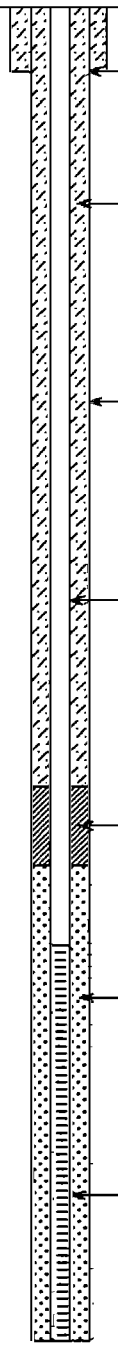
# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-307
DATE COMPLETED: AUGUST 24, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | END OF 6" Ø CASING | 1052.75 | 6" CASING SET | | | | |
| 37.5 | LIMESTONE | 1052.75 | | | | | |
| | END OF LIMESTONE | 1050.61 | | | | | |
| 40.0 | | | CEMENT/ BENTONITE GROUT | | | | |
| 42.5 | | | | | | | |
| 45.0 | | | 6" Ø BOREHOLE | | | | |
| 47.5 | | | | | | | |
| 50.0 | | | 2" Ø PVC PIPE | | | | |
| 52.5 | | | | | | | |
| 55.0 | | | BENTONITE SEAL | | | | |
| | TOP OF SAND PACK | 1032.75 | | | | | |
| 57.5 | | | | | | | |
| 60.0 | | | SAND PACK | | | | |
| 62.5 | | | | | | | |
| 65.0 | | | WELL SCREEN | | | | |
| 67.5 | | | | | | | |
| | END OF HOLE | 1020.75 | | | | | |



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# STRATIGRAPHIC AND INSTRUMENTATION LOG
# (LOWER INTERMEDIATE UNIT)



PROJECT NAME: SUMMIT NATIONAL SUPERFUND SITE
PROJECT NUMBER: 2372-50
CLIENT: PRP TECH COMMITTEE
LOCATION: DEERFIELD, OHIO

HOLE DESIGNATION: PZ-307
DATE COMPLETED: AUGUST 24, 1994
DRILLING METHOD: ROTARY RIG
CRA SUPERVISOR: K. WEHN

| DEPTH ft. BGS | STRATIGRAPHIC DESCRIPTION & REMARKS | ELEV. ft. AMSL | MONITOR INSTALLATION | SAMPLE NUMBER | SAMPLE STATE | SAMPLE 'N' VALUE | SAMPLE PID (ppm) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 72.5 | | | SCREEN DETAILS<br>Length: 10ft<br>Diameter: 2"<br>Slot Size: #10<br>Material: PVC<br>Sand Pack Material: Sand | | | | |
| 75.0 | | | | | | | |
| 77.5 | | | | | | | |
| 80.0 | | | | | | | |
| 82.5 | | | | | | | |
| 85.0 | | | | | | | |
| 87.5 | | | | | | | |
| 90.0 | | | | | | | |
| 92.5 | | | | | | | |
| 95.0 | | | | | | | |
| 97.5 | | | | | | | |
| 100.0 | | | | | | | |
| 102.5 | | | | | | | |

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

# APPENDIX 8.2

# OEPA SUBSTANTIVE PERMIT

**OhioEPA**
State of Ohio Environmental Protection Agency
**Northeast District Office**
) E. Aurora Road
ısburg, Ohio 44087-1969
(216) 425-9171
**FAX** (216) 487-0769

George V. Voinovich
**Governor**
Donald R. Schregardus
**Director**

May 18, 1994

RE: SUMMIT NATIONAL
PORTAGE COUNTY
OHIO ID #267-0779

Mr. Jack Michels, P.E.
Conestoga-Rovers & Associates, Ltd.
651 Colby Drive
Waterloo, Ontario
Canada N2V 1C2

Dear Mr. Michels:

Enclosed is the Substantive Permit for the Summit National ground water treatment plant.

Your acceptance of the conditions specified in this document will satisfy the remaining Ohio EPA concerns over the Quality Assurance Project Plan for the Operation, Maintenance and Monitoring Plan and will represent Ohio EPA approval of the O & M QAPP.

Please feel free to call Dennis Lee of the Division of Surface Water (DSW) at (216) 963-1133 should you have any questions about the requirements of the Substantive Permit.

Sincerely,

Regan S. Williams
Environmental Scientist
Division of Emergency and Remedial Response

enclosures

RSW.wk

cc: Steve Love, DERR, NEDO
Dennis Lee, DSW, NEDO
Anthony Rutter, USEPA, Region V

Printed on recycled paper

# Authorization to Discharge to Summit National

In compliance with the provisions of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et. seq.) and the Ohio Water Pollution Control Act (Ohio Revised Code Section 6111),

SUMMIT NATIONAL

is authorized by the Ohio Environmental Protection Agency, hereafter referred to as "Ohio EPA", to discharge from the treatment system located in Deerfield Township, Portage County, Ohio to an unnamed tributary to Berlin Reservoir via a roadside ditch in accordance with the conditions specified below.

## A.1. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FOR THE K.H. SUMMIT NATIONAL

Summit National (the entity) is authorized to discharge in accordance with the following limitations and monitoring requirements from the wastewater treatment works (outfall 001), beginning on the first day of authorized discharge and lasting until 60 months from the date of issuance. See paragraph C for a description of the required sampling station location.

| EFFLUENT CHARACTERISTIC | | | DISCHARGE LIMITATIONS | | | | MONITORING REQUIREMENTS | |
|---|---|---|---|---|---|---|---|---|
| | | | Concentration Specified Units | | Loading kg/day | | | |
| Reporting Code | Units | Parameter | 30 Day | Daily | 30 Day | Daily | Meas. Frequency | Sample Type |
| 81552 | µg/l | Acetone | 927 | 927 | - | - | 1/Month | Grab |
| 34030 | µg/l | Benzene | 7 | 7 | - | - | 1/Month | Grab |
| 34496 | µg/l | 1,1-Dichloroethane | 7 | 7 | - | - | 1/Month | Grab |
| 34531 | µg/l | 1,2-Dichloroethane | 21 | 21 | - | - | 1/Month | Grab |
| 34501 | µg/l | 1,1-Dichloroethylene | 5 | 5 | - | - | 1/Month | Grab |
| 38676 | µg/l | 1,2-Dichloroethylene | 26 | 26 | - | - | 1/Month | Grab |
| 34371 | µg/l | Ethylbenzene | 5 | 5 | - | - | 1/Month | Grab |
| 34423 | µg/l | Methylene Chloride | 5 | 5 | - | - | 1/Month | Grab |
| 81596 | µg/l | Methyl Isobutyl Ketone | 15 | 15 | - | - | 1/Month | Grab |
| 81595 | µg/l | Methyl Ethyl Ketone | 442 | 442 | - | - | 1/Month | Grab |
| 34010 | µg/l | Toluene | 5 | 5 | - | - | 1/Month | Grab |
| 34506 | µg/l | 1,1,1-Trichloroethane | 12 | 12 | - | - | 1/Month | Grab |
| 39180 | µg/l | Trichloroethylene | 5 | 5 | - | - | 1/Month | Grab |
| 81551 | µg/l | Xylene, Total | 6 | 6 | - | - | 1/Month | Grab |
| 77247 | µg/l | Benzoic Acid | 10 | 10 | - | - | 1/Month | Grab |
| 39100 | µg/l | Bis(2-ethylhexyl) Phthalate | 10 | 10 | - | - | 1/Month | Grab |
| 34408 | µg/l | Isophrone, Total | 10 | 10 | - | - | 1/Month | Grab |
| 77416 | µg/l | 2-Methylnaphthalene | 10 | 10 | - | - | 1/Month | Grab |
| 34696 | µg/l | Naphthalene | 10 | 10 | - | - | 1/Month | Grab |
| 34452 | µg/l | P-Chloro-M-Cresol | 10 | 10 | - | - | 1/Month | Grab |
| 34606 | µg/l | 2,4-Dimethylphenol | 10 | 10 | - | - | 1/Month | Grab |
| 78395 | µg/l | 2-Methylphenol | 10 | 10 | - | - | 1/Month | Grab |
| 78396 | µg/l | 4-Methylphenol | 10 | 10 | - | - | 1/Month | Grab |
| 34694 | µg/l | Phenol | 10 | 10 | - | - | 1/Month | Grab |
| 01097 | µg/l | Antimony, Total (Sb) | 5 | 5 | - | - | 1/Month | Grab |
| 01002 | µg/l | Arsenic, Total (As) | 7 | 7 | - | - | 1/Month | Grab |
| 01045 | µg/l | Iron, Total (Fe) | 300 | 300 | - | - | 1/Month | Grab |
| 01105 | µg/l | Aluminium, Total (Al) | 536 | 536 | - | - | 1/Month | Grab |
| 01007 | µg/l | Barium Total (Ba) | 219 | 219 | - | - | 1/Month | Grab |
| 00916 | mg/l | Calcium, Total (Ca) | 201785 | 201785 | - | - | 1/Month | Grab |
| 01032 | µg/l | Chromium, Hexavalent (Cr +6) | 5 | 5 | - | - | 1/Month | Grab |
| 01037 | µg/l | Cobalt, Total (Co) | 14 | 14 | - | - | 1/Month | Grab |
| 01042 | µg/l | Copper, Total (Cu) | 2 | 2 | - | - | 1/Month | Grab |
| 01051 | µg/l | Lead, Total (Pb) | 1 | 1 | - | - | 1/Month | Grab |
| 00927 | mg/l | Magnesium, Total (Mg) | 72151 | 72151 | - | - | 1/Month | Grab |
| 01056 | µg/l | Manganese, Dissolved (Mn) | 6818 | 6818 | - | - | 1/Month | Grab |
| 01065 | µg/l | Nickel, Dissolved (Ni) | 14 | 14 | - | - | 1/Month | Grab |
| 00937 | mg/l | Potassium, Total (K) | 6415 | 6415 | - | - | 1/Month | Grab |
| 01092 | µg/l | Zinc, Total (Zn) | 188 | 188 | - | - | 1/Month | Grab |
| 50050 | MGD | Flow Rate | - | - | - | - | Daily | Grab |

C. Samples (outfall 001) shall be taken from a 1" hose bib following surge tank #3, just upstream of the 6" HDPE gravity discharge pipe.

D. At least one month before authorized discharge begins, Summit National shall notify the Industrial Permits Section, Division of Surface Water, Ohio EPA Northeast District Office, of the starting date of discharge.

E. Effluent limitations may be revised in order to meet water quality standards after a stream use determination and wasteload allocation are completed and approved. These limitations and discharge requirements may be modified to comply with any applicable water quality effluent limitations.

F. Special Conditions:

1. The effluent shall, at all times, be free of substances:

A. In amounts that will settle to form putrescent, or otherwise objectionable, sludge deposits; or that will adversely affect aquatic life or water fowl;

B. Of an oily, greasy, or surface-active nature, and of other floating debris, in amounts that will form noticeable accumulations of scum, foam or sheen;

C. In amounts that will alter the natural color or odor of the receiving water to such degree as to create a nuisance;

D. In amounts that either singly or in combination with other substances are toxic to human, animal, or aquatic life;

E. In amounts that are conductive to the growth of aquatic weeds or algae to the extent that such growths become inimical to more desirable forms of aquatic life, or create conditions that are unsightly, or constitute a nuisance in any other fashion;

F. In amounts that will impair designated instream or downstream water uses.

2. Monitoring data required by this document shall be reported on a monthly basis to the Ohio EPA, Northeast District Office, Division of Surface Water. Individual reports for each month are to be received no late than the 15th of the next month.

3. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored flow. Test procedures for the analysis of pollutants shall conform to regulation 40 CFR 136, "Test Procedures For the Analysis of Pollutants" unless other test procedures have been specified in this permit. The entity shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals to insure accuracy of measurements.

4. Definitions:

A. The "daily load limitation" is the total discharge by weight during any calendar day. If only one sample is taken during a day, the weight of pollutant discharge calculated from it is the daily load.

B. The "daily concentration limitation" means the arithmetic average of all the determinations of concentration made during the day. If only one sample is taken during the day, its concentration is the daily concentration.

C. The "30-day load limitation" is the total discharge by weight during any 30-day period divided by the number of days in the 30-day period that the facility was in operation. If only one sample is taken in a 30-day period, the weight of pollutant sample is taken in a 30-day period, the weight of pollutant discharge calculated from it is the 30-day load. If more than one sample is taken during one 30-day period, the 30-day load is calculated by determining the daily load for each day sampled, totaling the daily loads for the 30-day period and dividing by the number of days sampled.

D. The "30-day concentration limitation" means the arithmetic average (weighted by flow) of all the determinations of daily concentration made during the 30-day period. If only one sample is taken during the 30-day period, its concentration is the 30-day concentration for that 30-day period.

E. Absolute limitations. compliance with limitations having descriptions of "shall not be less than, "nor greater than," "shall not exceed," "minimum," or "maximum" shall be determined from any single value for effluent samples and/or measurements collected.

F. 1. "MGD" means million gallons per day.

2. "mg/l" means milligrams per liter.

3. "ug/l" means micrograms per liter.

G. "Bypass" means the intentional diversion of waters from any portion of a treatment facility.

H. "Severe property damage" means substantial physical damage to property, damager to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe damage does not man economic loss caused by delays in production.

5. Facility Operation and Quality Control:

All wastewater treatment works shall be operated in a manner consistent with the following:

A. At all times, the entity shall maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the entity necessary to achieve compliance with these terms and conditions. The determination of what constitutes proper operation and maintenance will consider, but not be limited to, effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the discharge conditions.

B. The entity shall effectively monitor the operation and efficiency of treatment and control facilities and the quantity and quality of the treated discharge.

C. Maintenance of wastewater treatment works that results in degradation of effluent quality shall be scheduled during non-critical water quality periods and shall be carried out in a manner approved by the Ohio EPA as specified in Paragraph 8 entitled "UNAUTHORIZED DISCHARGES".

6. Recording of Results:

For each measurement of sample taken pursuant to the requirements contained herein, the entity shall record the following information:

A. The exact place, date, and time of sampling;

B. The person(s) who performed the sampling or measurements;

C. The date and time the analyses were performed on those samples;

D. The person(s) who performed the analyses;

E. The analytical techniques or methods used; and

F. The results of all analyses and measurements.

7. Right of entry:

The entity shall allow authorized representatives of the Ohio EPA and U.S. EPA upon the presentation of credentials:

A. To enter upon the entity's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions contained herein, and

B. At reasonable times to have access to and copy any records required to be kept under the terms and conditions contained herein; to inspect any monitoring equipment or monitoring method required herein; and to sample for any pollutants.

C. To enter upon the entity's premises to inspect at reasonable times any collection, treatment, pollution management, or discharge facilities required herein.

8. Unauthorized Discharges:

A. Unless specifically authorized, deliberate by-passing or diverting of wastewater from the treatment works is prohibited except when necessary:

1. To prevent loss of life, personal injury, or severe property damage;

2. To prevent damage to treatment works or processes; or

3. To allow essential maintenance to be performed according to a schedule approved in writing by the Ohio EPA district office.

B. While typical unauthorized discharges are those resulting from pipeline breaks, equipment malfunctions or failures, operator errors, accidents, process interruptions, or power failures, all unauthorized discharges shall be according to the following procedure:

1. Report within one hour of discovery to Ohio EPA by calling (toll free) 1-800-282-9378.

2. For these telephone reports, the following must be included:

a. the times at which the discharge occurred and was discovered;

b. the approximate amount and the characteristics of the discharge;

c. the stream(s) affected by the discharge;

d. the circumstances which created the discharge;

e. the names and telephone numbers of the persons who have knowledge of these circumstances;

f. what remedial steps are being taken; and

g. the names and telephone numbers of the persons responsible for such remedial steps.

3. These reports shall be confirmed in writing within one day of the discharge and submitted to the Ohio EPA Northeast District Office. This report should include the information required under "NONCOMPLIANCE NOTIFICATION".

9. Noncompliance Notification:

A. Effluent limitations:

If the entity is unable to meet any effluent limitations specified herein, the entity shall submit a written report to the Ohio EPA Southeast District Office within one day of becoming aware of the conditions. The report shall include the following:

1. The limitation(s) which has been violated;

2. The extent of the violation(s);

3. The cause of the violation(s);

4. The period of the violation(s) including exact dates and times;

5. If uncorrected, the anticipated time the violation(s) is expected to continue; and

6. Steps being taken to reduce, eliminate and/or prevent recurrence of the violation(s).

10. Adverse Impact:

In the event of either an unauthorized discharge or a violation of effluent limitations, the entity shall take all reasonable steps to minimize or correct any adverse impact on the environment. this may include accelerated or additional monitoring to determine the extent of the impact of unauthorized discharge or the violation of limitations. If such additional monitoring is performed, the data collected shall be included in a written report submitted to the Ohio EPA Northeast District Office.

11. Authorized Discharges:

All discharges authorized herein shall be consistent with the terms and conditions contained herein. The discharge of any pollutant more frequently than, or at a level in excess of, that authorized in Paragraphs A.1. through B.2., "Final Effluent Limitations and Monitoring Requirements for Summit National shall constitute a violation of the terms and conditions contained herein.

12. Discharge Changes:

The following changes must be reported to the Ohio EPA Northeast District Office as soon as practicable.

A. For all treatment works, any significant change in character of the discharge which the entity knows or has reason to believe has occurred or will occur. Notification of changes or anticipated noncompliance does not stay any permit condition.

B. For non-publicly owned treatment works, any proposed facility expansions, production increases, or process modifications, which will result in new, different, or increased discharges of pollutants.

13. Oil and Hazardous Liability:

Nothing in this section shall be construed to preclude the institution of any legal action or relive the entity from any responsibilities, liabilities, or penalties to which the entity is or may be subject under Section 311 of the Act.

14. State Laws and Regulations:

Nothing in this section shall be construed to preclude the institution of any legal action nor relieve the entity from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Act.

15. Records Retention:

The entity shall retain all of the following records for the wastewater treatment works for a minimum of three years, including:

A. All sampling and analytical records (including internal sampling data not reported);

B. All original recordings from any continuous monitoring instrumentation;

C. All instrumentation, calibration and maintenance records; and

D. All plant operation and maintenance records.

E. All reports required by these discharge specifications.

These periods will be extended during the course of any unresolved litigation, or when so requested by the Regional Administrator or the Ohio EPA. The three year period for retention of records shall start from the date of sample, measurement, report or application.

16. The parameters listed below have had effluent limitations established that are below the practical quantification level (PQL) of the 40 CFR 136 promulgated analytical procedures for those parameters. In accordance with ORC 6111.13, if a discharge limit is set below the PQL, any analytical result reported at or below the PQL shall be considered to be in compliance with that limit. All analytical results, even those below the PQL, shall be reported. Analytical results below the method detection limit shall be reported as below detection using reporting code "AA".

| Parameter | PQL |
|---|---|
| Copper, Total | 5.0 µg/l |
| Lead, Total | 5.0 µg/l |

# 9.0 TERMINATION OF GROUNDWATER EXTRACTION AND TREATMENT SYSTEMS

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## 9.0 TERMINATION OF GROUNDWATER EXTRACTIONAND TREATMENT SUBSYSTEMS

The groundwater extraction system shall be operated to reduce Site-related contaminant concentrations below the cleanup (performance) standards in the groundwater in the WTU on and off the Site. Cleanup standards for the Water Table Aquifer, Intermediate Aquifer and Upper Sharon Aquifer on Site and off Site shall be an individual $10^{-6}$ increased lifetime cancer risk for individual compounds and a cumulative noncarcinogenic Hazard Index (HI) less than 1 or background, whichever occurs first.

The cleanup standards shall be met unless the SNFT receive a waiver of such standards from the USEPA based on the demonstration that compliance with such standards is "technically impracticable from an engineering perspective". Waivers for technical impracticability shall be handled as set forth in the relevant provisions of the Consent Decree. SNFT may challenge USEPA's denial of the technical impracticability waiver under the relevant dispute resolution provisions of the Consent Decree.

For 1 year prior to the anticipated shutdown of the groundwater extraction system, the groundwater monitoring frequency shall be increased to quarterly. Once cleanup standards are initially attained, in any of the quarterly samples, three monthly sampling events shall be conducted. If cleanup standards are confirmed to have been attained in each of these monthly sampling events, operation of the groundwater extraction subsystem and the groundwater treatment subsystem shall be terminated, otherwise monitoring and operation of the extraction system will continue.

After termination of the extraction system, post-termination groundwater monitoring shall be conducted semi-annually for the first 2 years and annually for 3 years thereafter. If compliance with cleanup standards is confirmed through the 5-year post-termination groundwater monitoring, monitoring activities shall cease.

If at any point in the 5-year post-termination groundwater monitoring program data indicate noncompliance with cleanup standards, three consecutive monthly sampling events shall be conducted. If noncompliance is confirmed by any of the three sampling events, operation of the groundwater extraction and treatment subsystems will resume. The process and monitoring for subsequent termination of groundwater extraction after a resumption of operation shall be as set forth above for the initial termination of groundwater extraction.

## 9.1 PROJECT CLOSEOUT

Following the termination of the groundwater extraction and treatment subsystems, a Project Closeout Plan will be prepared and submitted to the USEPA. The Project Closeout Plan will address the following issues:

- future ownership of the Site;
- future land use of the Site;
- closeout of the groundwater extraction/collection subsystem;
- closeout of the groundwater treatment equipment; and
- closeout of the groundwater treatment building.

# 10.0 SITE HEALTH AND SAFETY PLAN

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## 10.0 ORGANIZATION AND BACKGROUND

The Site Health and Safety Plan (HSP) presented herein describes the health and safety procedures to be implemented during the long-term operation and maintenance at the Summit National Superfund Site (Site), Deerfield, Ohio.

The Site is manned for a minimum of 4 hours per day, Monday to Friday, and a minimum of 2 hours per day, Saturday and Sunday, by a plant operator. A second person must be present when performing operation, maintenance and monitoring activities which require two people (e.g., confined space entry). The Site is within 15 minutes of a fully staffed hospital emergency room. The Site covers approximately 11.22 acres and is rectangular in shape.

Presently, all surface contamination has been removed from the Site and a clean 2-foot vegetated soil cover has been installed over the Site. Table 10.1 has been provided to show all the chemicals which were identified during the Remedial Investigation on or in the vicinity of the Site. A groundwater extraction and treatment system has been constructed at the Site to remove contaminants from the groundwater. The primary contaminated materials or chemical products which personnel will be handling and may be exposed to include the groundwater being extracted and treated, spent activated carbon, waste residues from the processing tanks, dewatered sludge bags from the sludge dewatering system, and equipment, hydrochloric acid and caustic solution. The groundwater treatment system is completely enclosed and automated. Therefore, there is no routine handling of, or exposure to the contaminated groundwater by Site personnel. The most common hazards will be those associated with an industrial facility and the potential for confined space entry work. Site personnel will have to work around operating equipment including pumps, blowers, and electrical equipment.

## 10.1 OCCUPATIONAL SAFETY AND HEALTH POLICY

The goal of the SNFT is to assure, to the highest degree possible, a safe and healthy working environment in order to protect the health and well-being of all Site personnel. This is done through training and by continual review of all our procedures, processes, and products in order to minimize exposures to known and potential hazards, by periodic monitoring of work areas and personal monitoring of individuals, and by informing workers of the hazard of the chemicals with which they work. Where engineering controls are not effective, or feasible, the most effective personal protective equipment will be provided and required. It is SNFT's policy to meet or exceed the requirements of laws and regulations relating to health, safety, and the environment.

## 10.2 BASIS

This Site is essentially operated as an industrial operation in which groundwater is treated in an automated treatment system and then discharged to a surface drainage ditch.

The federal health and safety regulations with which this Site must comply are primarily OSHA regulations in 29 CFR 1910 and 1926 which are applicable to any operating workplace. The majority of requirements for the Site are found in the following specific regulations:

- 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response
- 29 CFR 1910.1200 Hazard Communication
- 29 CFR 1910.146 Permit-Required Confined Space Entry
- 29 CFR 1910.134 Respiratory Protection

A brief review of each standard and method of compliance follows.

### 10.2.1 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response

This Site falls most appropriately under the RCRA facility regulations found in 29 CFR 1910.120(o). These regulations require a written health and safety plan, a written hazard communication program, a medical surveillance program, 24 hours of initial safety training and 8 hours annual refresher training for the permanent on-Site operator(s).

### 10.2.2 29 CFR 1910.1200 Hazard Communication

The hazard communication program requires that personnel be familiarized with the hazards presented by chemicals used in the workplace, the methods needed to protect themselves from those hazards, and the spill response methods necessary if a spill occurs. This training is required for each individual upon his initial assignment to the job.

### 10.2.3 29 CFR 1910.146 Permit-Required Confined Space Entry

This requires that personnel required to enter confined spaces, such as the well chambers on Site, be trained with the understanding, knowledge and skills necessary for the safe performance of a permit-required confined space.

### 10.2.4 1910.134 Respiratory Protection

This requires a written respiratory protection program which includes respirator use and selection criteria, training in the use and limitations of respirators, respirator cleaning requirements, storage, maintenance, and appropriate workplace surveillance to determine adequacy of use, and medical surveillance.

In addition, this HSP has been developed to ensure the following:

i) that Site-personnel are not adversely exposed to the compounds of concern;
ii) that public welfare or the environment are not adversely impacted by off-Site migration of contaminated materials due to work activities at the Site;
iii) compliance with applicable governmental and non-governmental [American Conference of Governmental Industrial Hygienist (ACGIH)] regulations and guidelines.

All operation and maintenance activities at the Site will be conducted in accordance with the provisions of this Site-specific HSP. Cost and or scheduling considerations will not be considered as justification for modifying this plan. A copy of this HSP and applicable Material Safety Data Sheets (MSDS) will be maintained on Site.

## 10.3 RESPONSIBILITIES AND ADMINISTRATION

The Contractor's Site Operator will be appointed to serve as the Site Safety Officer (SSO). The SSO will ensure that all personnel who perform work at the Site are thoroughly trained in all Site procedures and be responsible for all decisions regarding work stoppages due to health and safety considerations. The SSO will report directly to and be under the direction of the Contractor's Health and Safety Officer (HSO).

The Contractor's HSO will:

i) be responsible for implementation of the HSP;
ii) conduct the initial briefing sessions for any new on-Site personnel with regard to the HSP and other safety requirements to be observed including;
    a) potential Site hazards, (i.e. confined space entries);

b) personal hygiene principles;
c) personal protective equipment;
d) respiratory protection equipment usage, and
e) emergency procedures dealing with fire and medical situations.

iii) review and modify the HSP as more information becomes available concerning Site respiratory hazards;
iv) supervise and enforce of safety equipment usage;
v) provide personnel training in safety equipment usage and emergency procedures;
vi) suspend operations if unsafe working conditions develop, including unsafe working conditions generated by adverse wind, rain and lightning;
vii) instruct and inform personnel of the Site Hazard Communication Program and the nature of chemical exposure risk as required by the "Right-to-Know" Law;
viii) recommend any additional medical examination;
ix) coordinate emergency procedures; and
x) complete the weekly, monthly and yearly safety inspections included as Appendix 10.1 and maintain all health and safety records.

The SSO will:

i) have a sound working knowledge of State and Federal occupational safety and health regulations;
ii) be responsible for daily enforcement and monitoring of the HSP;
iii) be responsible for assisting the Contractor's HSO in the training of all on-Site personnel;
iv) be responsible for maintenance of the emergency contingency plan;
v) be responsible for conducting Air Monitoring as defined in Section 10.10 of this HSP; and
vi) maintain a sign-in/sign-out log for personnel and visitors.

## 10.4 MEDICAL SURVEILLANCE

In accordance with requirements detailed in 29 CFR 1910.120 and 29 CFR 1910.134, all Site operation and maintenance personnel who will come in contact with potentially contaminated materials will have received, within 1 year prior to starting work at the Site, medical surveillance by a licensed physician or physician's group.

Medical records for all Site operation and maintenance personnel who will come in contact with potentially contaminated materials will be maintained by their respective employers. The medical records will detail the tests that were taken and will include a copy of the consulting physician's statement regarding the tests and the employee's suitability for work. These medical records must be available to the employee or his designated representative upon written request, as outlined in 29 CFR 1910.120, Section (f).

Each employer will ensure and certify to the HSO that its personnel involved in Site operations associated with potentially contaminated materials will have had all necessary medical examinations prior to commencing work within contaminated areas. Personnel not obtaining medical certification and who do not have their records up-to-date will not perform work within contaminated areas.

Interim medical surveillance will be completed if an individual exhibits poor health or high stress responses due to on-Site operations or when accidental exposure to elevated concentrations of contaminants occurs.

## 10.5 TRAINING

The HSO will require that all Site operation and maintenance personnel who will come in contact with potentially contaminated materials complete training sessions in accordance with 29 CFR

1910.120 AND 29 CFR 1910.146 prior to entering the Site. In accordance with 1910.120, training shall consist of a minimum of 24 hours of instruction off Site and 1 day of actual field experience under direct supervision. In accordance with 29 CFR 1910.146, the employer shall certify that each operator performing confined space entries has received the required training. Each employer will maintain documentation stating that its on-Site operation and maintenance personnel have complied with this regulation.

Prior to commencing any operations at the Site, all personnel will be required to attend Site-specific initiation sessions. These sessions, conducted by the HSO, will be used to instruct the Site personnel as to what the Site operations and potential Site hazards are, level of personal protective equipment required, Site-specific requirements, personnel and equipment decontamination procedures; emergency response plan and procedures, and the basis of the HSP. At this session it will be confirmed that all on-Site operation and maintenance personnel have the 24 hours of training required in accordance with 29 CFR 1910.120, and confined space entry training in accordance with 29 CFR 1910.146. All personnel who attend this session will sign a Training Acknowledgment Form, an example of which is presented as Appendix 10.2.

During the course of Site operations, additional safety meetings will be conducted with on-Site personnel to provide updates on Site conditions and health and safety concerns.

Visitors and maintenance personnel who will not come into contact with potentially contaminated material at the Site will be informed of the potential hazards at the Site prior to commencing work activities at the Site (and not require training in accordance with 20 CFR 1910).

## 10.6 SITE OPERATIONS AND WORK ACTIVITIES

The groundwater extraction and treatment system was designed and constructed for automatic operation, and represents a high level

of engineering control. Personnel are present to monitor and operate the system, with little necessity to contact the process water, except for routine maintenance of equipment, and periodic cleaning of certain units of the process system. The Site Operator monitor the process through electronic readouts and controls in a central control area separate from the process area. The Site Operator routinely enters the process area to perform the following tasks:

- perform unit process inspection water clarity;
- removal of sludge bags from the bag dewatering system;
- removal of bag filters from the bag filtration system;
- mix water treatment chemicals;
- perform equipment inspections; pump down various tanks;
- general housekeeping; and
- equipment maintenance.

Process water samples are analyzed on Site in a lab hood in the designated laboratory room. In addition, personnel must routinely perform the following tasks where a potential chemical exposure occurs:

- sampling activities; waste handling activities (i.e., sludge generated from the bag filter);
- decontamination activities for sampling equipment; confined space entries into the wet well;
- maintenance activities associated with the process equipment; and
- bulk acid, caustic and activated carbon transfers.

Table 10.2 provides a Hazard/Risk Analysis for Site Operations and Levels of Personal Protective Equipment (PPE) required for each operation.

Concentrated solution of caustic soda (50% NaOH) and hydrochloric acid (32% HCL) are stored on Site and are used in the process system. Extreme caution should be used whenever working on any subsystem that may involve these chemicals. Chemical addition pumps are

to be locked and tagged out whenever piping and chemical pumps are being inspected, serviced or cleaned. Pumps and lines are to be flushed prior to being opened for inspection and/or service.

## 10.7 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Site operations require that all personnel are equipped with PPE appropriate for the nature of work being completed. Most Site operations will be performed in the standard work clothing (long sleeve shirt and pants) accompanied by hard hats, safety glasses, work gloves and steel toed and shank work shoes. All safety equipment and protective clothing are to be kept clean, well maintained and in good condition.

Safety equipment and apparel as required for general work on Site will be Level D, modified Level C, Level C and/or Level B. The Level of personal protection required for each Site operational activity is presented in Table 10.2.

Level D PPE which will be used on Site consists of the following:

- standard work clothing (long sleeve shirt and pants or cotton overalls);
- steel toed and shank work boots;
- hard hat;
- safety glasses; and
- gloves as required.

Modified Level C PPE which will be used on Site consists of the standard Level D PPE plus:

- chemical resistant clothing (i.e., polycoated tyveks);
- inner disposable nitrile gloves; and
- outer nitrile gloves.

Level C PPE which will be used on Site consists of wearing all Level D and modified Level C PPE and the following additional equipment:

- air-purifying respirator, half-face or full-facepiece (MSHA/NIOSH approved), equipped with organic vapor/acid gas (OV/AG) cartridge with a high efficiency particulate air (HEPA) filter;
- chemical resistant clothing (i.e., polycoated tyveks or acid suit when working with acids or caustics)
- inner disposable nitrile gloves;
- outer nitrile gloves;
- outer boot (chemical resistant); and
- two-way radio communications.

Level B PPE which may be used on Site consists of wearing all Level C PPE and the following additional equipment:

- supplied-air respirator (MSHA/NIOSH approved) to replace the air-purifying respirator. Respirators may be positive pressure demand, self contained breathing apparatus (SCBA) or positive pressure-demand, airline respirator (with escape bottle for Immediate Danger to Life and Health (IDLH) or potential for IDLH atmosphere).

Additional protective equipment usage guidelines to be implemented include:

- prescription eyeglasses in use on the Site will be safety glasses;
- contact lenses will not be permitted;
- all disposable or reusable nitrile or cotton gloves worn on the Site will be changed, decontaminated or discarded at the end of each day;
- during periods of respirator usage, respirator cartridges and filters will be changed daily, or upon breakthrough, whichever occurs first;
- Site personnel who have not passed a respirator fit test will not be allowed to enter active areas. Personnel will not be permitted to have beards, or

long sideburns or mustaches as these interfere with a proper fit of the respirator;

- all PPE worn on Site will be decontaminated or discarded at the end of each work day; and
- duct tape will be used to ensure that disposable coveralls and gloves are tightly secured.

## 10.8 RESPIRATORY PROTECTION PROGRAM

Respirators will be worn on Site during various work activities. All Site operation and maintenance personnel will have to undergo training in the use of, and have been fit tested for, either a half- or full-facepiece respirator. Respirators are to be worn for all Site operations which require Level C or B protection. As more information becomes available after air monitoring results are reviewed, the respiratory protection levels for specific Site activities may be modified by the SSO.

A photoionization detector will be available on Site to monitor operations where organic vapors are present. The main purpose for conducting this routine monitoring is to document worker exposures and verify the adequacy of respiratory protection equipment. Background readings will be established prior to commencing operations which generate or may generate organic vapors.

Action levels to determine the level of respiratory protection necessary during certain Site operations are based on the concentration of unknown organic vapors measured within the breathing zone. The action levels and appropriate respiratory protection for these Site operations are as follows:

| *Sustained Organic Vapor Reading Above Background within Breathing Zone* | *Action Taken* |
|---|---|
| 0 - 1 ppm or background | half- or full-facepiece air purifying respirator available |
| 1-5 ppm | wear half- or full-face air purifying respirator |
| 5-50 ppm | wear supplied air respirator |
| >50 ppm | shut down activities, implement additional engineering controls |

However, if ambient concentrations of organic vapors are due to identifiable substances, the level of respiratory protection may be altered by the SSO.

Periodic air monitoring data may be obtained to correlate with total organic vapor readings from which the level of respiratory protection may be adjusted.

Respirators should be cleaned after each day's use and be stored in a manner to keep them clean. When storing respirators do not place other heavier items on top of them to avoid distorting the fit of the facial piece.

## 10.9 PERSONAL HYGIENE

The HSO will require that all personnel performing work on Site observe and adhere to the personal hygiene-related provisions of this section.

On-Site personnel found to be disregarding the personal hygiene-related provisions of this HSP will, at the discretion of the HSO, be barred from the Site.

The following equipment/facilities are available for the personal hygiene of Site personnel:

- disposable outerwear, gloves and respiratory protection equipment and supplies;
- disposal containers for used disposable PPE;
- emergency eye wash and shower facilities;
- potable water; and
- a suitable sanitation facility.

The SSO also will enforce the following regulations for on-Site personnel:

- personnel will wear appropriate PPE when required;
- used PPE will not be reused if deemed to be unsuitable to provide the necessary protection, and when removed, will be placed inside disposal containers provided for that purpose;
- smoking, eating and drinking will only be allowed in designated areas; and
- on-Site personnel will thoroughly cleanse their hands, face, neck area and other exposed areas before smoking, eating, drinking or using toilets and before leaving the Site.

## 10.10 AIR MONITORING

Due to the low hazard presented by routine operations of the closed system on Site, continuous air monitoring is not required for these operations. From time to time routine industrial hygiene air monitoring should be undertaken in the work area to monitor for levels of chemicals used in the workplace or to investigate any concerns expressed by personnel. Any monitoring results should be reported to personnel and permanently kept on file.

Periodic air monitoring measurements will be taken by the SSO during work activities which generate organic vapors. A photoionization detector will be kept on Site for this purpose. The photoionization detector will be calibrated prior to use in accordance with the manufacturers guidelines, and such calibration will be recorded in the Site daily log book along with any air monitoring measurements.

Measurements will be taken in the breathing zone of personnel in the active area as needed. Background measurements immediately upwind of the active area will be taken prior to measuring in the active area.

Respiratory protection levels for quantities of unknown organic vapors are discussed in Section 10.8. Respiratory protection levels for routine Site operations are presented in Table 10.2. As additional air monitoring and periodic industrial hygiene monitoring information becomes available and upon its review, the HSO may revise the respiratory protection levels required for Site operations.

Immediately upon identifying sustained elevated levels of organic vapors (greater than 5 parts per million), the HSO will be notified so that a determination can be made as to the upgrading of respiratory protection levels or if operations should be temporarily shut down.

## 10.11 COMMUNICATIONS

Emergency numbers including police, fire, ambulance, hospital and appropriate Regulatory Agencies are presented in Table 10.3 and will be prominently posted near the Site telephone(s).

A route map to the nearest emergency medical facility is presented on Figure 10.1 and will be posted near each Site telephone and in each operator vehicle. The name and address of the nearest emergency medical facility is as follows:

## 10.12 EMERGENCY AND FIRST AID EQUIPMENT

The following emergency and first aid equipment will be available for use on Site:

- permanent emergency eye wash and shower;
- two 20-pound ABC type dry chemical fire extinguishers;
- approved first-aid kit for a minimum of 10 personnel;
- fire blanket; and
- a portable air horn.

This equipment will be periodically inspected and maintained in a ready to use mode. All Site personnel will be trained in the use of this equipment.

## 10.13 EMERGENCY RESPONSE PLAN

This plan is intended to provide immediate response to a serious Site occurrence such as fire, medical, emergency or chemical spill. All Site personnel will be trained in these procedures upon arrival at the Site.

The following procedures are to be followed for specific Site emergencies:

- Fire Emergency
  In the unlikely event of a fire, the person discovering the fire shall do the following:
  - sound the alarm and ensure that all personnel are aware of the fire;

- immediately notify the fire department;
- if possible, extinguish the fire using portable fire extinguishers;
- if an electrical fire, electrically disconnect equipment; and
- upon arrival of the fire department, direct them to the fire and acquaint them with potential hazards at the Site.

- Medical Emergency

  The policy of the Site is that medical emergencies should be handled by local emergency medical technicians summoned to the Site and that the injured or distressed individual should be transported to the local hospital emergency room in an ambulance. Minor first aid cases not requiring professional medical attention can be handled on Site and it is desirable that all employees maintain a current Red Cross First Aid and CPR certification. In the event of a medical emergency, personnel shall do the following:

  - upon discovering an injured or distressed person, or witnessing an accident, call for immediate assistance and have someone call for outside help (rescue squad, ambulance);
  - the distressed or injured person should be removed from any life threatening condition, without needlessly endangering the rescuer;
  - the injured or distressed person should not be moved unless absolutely necessary and then by a trained individual; and
  - if treatment on Site is necessary to sustain life or minimize serious injury, personnel can undertake that action. For example, this might include CPR, curtailing serious bleeding, etc. Otherwise, do not move the injured or distressed person.

- Chemical Spill

  The policy of the Site is that personnel will not handle serious chemical spills at the Site. (Note that the likelihood of a serious spill is minimal). If a serious spill should occur, personnel shall evacuate the facility and call an emergency response spill contractor to handle the cleanup. However, employees are expected to respond to minor spills of chemicals used at the facility which they routinely handle. Specific protective clothing,

respiratory protection equipment, and cleanup procedures will be discussed.

A general spill response methodology follows:

- personnel discovering a chemical spill shall first ensure that all Site personnel are aware of the spill;
- the spill area and adjacent areas should be isolated from unprotected personnel by establishing spill boundaries. An emergency response contractor may be called if necessary;
- personnel who enter the spill area should don appropriate respiratory protection and protective clothing (see MSDS for the specific chemical for protective clothing requirements);
- personnel should undertake containment action to reduce spill migration. This action would include diking with sand or dirt, covering drains, collection of product in captive sumps, and sorbing on charcoal, sand or dirt;
- personnel should then clean up the area, depositing spilled material and sorbent in suitable containers. If quantities warrant, a spill contractor should be used to collect the spilled material;
- the area of the spill should then be decontaminated or neutralized to remove the spilled material completely; and
- personnel and equipment should then be decontaminated as necessary.

## 10.14 EQUIPMENT AND PERSONNEL DECONTAMINATION

During routine Site operations procedures will be implemented to reduce the amount of contact of both personnel and equipment with the waste constituents. These procedures include the following:

- proper work practices that would lead to minimal direct contact with potentially contaminated material (e.g., avoid contact in areas of obvious contamination, remote sampling and handling procedures, etc.);
- use of disposable equipment and clothing as much as practicable; and

- encase source of contaminants (e.g., with plastic sheeting).

Upon completion of all contaminated work activities, any equipment which came in contact with potentially contaminated material will be decontaminated in the designated decontamination area in the Treatment Building.

Personnel wearing protective clothing will remove it and dispose of it in a covered disposal container. They will then proceed to the wash area and wash their hands, face, neck and other exposed areas before entering the lunchroom or other clean areas on Site.

## 10.15 CONTAMINATION MIGRATION CONTROL

Decontamination, if required, will consist of the thorough cleaning, using a high pressure cleaner, of those parts of the equipment which came in contact with potentially contaminated material. The SSO will certify that each piece of equipment is clean or has been decontaminated prior to removal from Site.

All decontamination wash waters and decontamination solvents will be collected and treated in the on-Site groundwater treatment system.

## 10.16 CONFINED SPACE ENTRY PROCEDURE

A confined space provides the potential for unusually high concentrations of contaminants, explosive atmospheres, oxygen deficient atmospheres, limited visibility and restricted movement. This Section establishes requirements for safe entry into, continued work in, and safe exit from confined spaces. Additional information regarding confined space entry can be found in 29 CFR 1910 and NIOSH 80-106. At this Site, confined spaces are any tanks or vessels which need to be entered for cleaning

purposes and entry into the wet well chamber or any manhole which is part of the groundwater extraction system.

### 10.16.1 Definitions

Confined Space: A space or work area not designed or intended for normal human occupancy, has limited means for entry or exit (including buildings or rooms), and is large enough and so configured that an employee can bodily enter and perform assigned work.

Confined Space Entry Permit (CSEP): A document to be initiated by the supervisor of personnel who are to enter into or work in a confined space. The CSEP will be completed by the personnel involved in the entry and approved by the SSO before personnel will be permitted to enter the confined space. The CSEP shall be valid only for the performance of the work identified on the permit and for the location and time specified on the permit. The beginning of a new shift with change of personnel will require the issuance of a new CSEP. A copy of a CSEP is provided in Appendix 10.3.

Confined Space Observer: An individual assigned to monitor the activities of personnel working within a confined space. The confined space observer monitors and provides external assistance to those inside the confined space. The confined space observer summons rescue personnel in the event of emergency and assists the rescue team.

### 10.16.2 General Provisions

The following general provisions will apply to confined space entry:

- when possible, confined spaces should be identified with a posted sign which reads: Caution - Confined Space;

- only personnel trained and knowledgeable of the requirements of these confined space entry procedures will be authorized to enter a confined space or be a confined space observer;
- a CSEP must be issued prior to the performance of any work within a confined space. The CSEP will become a part of the permanent and official health and safety record for the response action at the Site;
- natural ventilation shall be provided for the confined space prior to initial entry and for the duration of the CSEP. Positive/forced mechanical ventilation may be required. However, care should be taken to not spread contamination outside of the enclosed area;
- if flammable liquids are anticipated to be within the confined space, explosion proof equipment will be used. All equipment shall be positively grounded;
- the contents of any confined space shall, where necessary and where possible, be removed prior to entry. All sources of ignition must be disconnected and/or removed prior to entry;
- hand tools used in confined spaces shall be in good repair, explosion proof and spark proof, and selected according to intended use. Where possible, pneumatic power tools are to be used;
- hand-held lights and other illumination utilized in confined spaces shall be equipped with guards to prevent contact with the bulb and must be explosion proof;
- compressed gas cylinders, except cylinders used for self-contained breathing apparatus, shall not be taken into confined spaces. Gas hoses shall be removed from the space and the supply turned off at the cylinder valve when personnel exit from the confined space;
- if a confined space requires respiratory equipment or where rescue may be difficult, safety belts, body harnesses, extraction equipment and lifelines will be used. The outside observer shall be provided with the same equipment as those working within the confined space;
- a ladder or extraction device is required in all confined spaces deeper than the employee's shoulders. The ladder shall be secured and not removed until all employees have exited the confined space;
- only SCBA or NIOSH approved airline respirators equipped with a 5-minute emergency air supply (egress bottle) shall be used in untested

confined spaces or in any confined space with conditions determined immediately dangerous to life and health;

- where air-moving equipment is used to provide ventilation, chemicals shall be removed from the vicinity to prevent their introduction into the confined space;
- vehicles shall not be left running near confined space work or near air-moving equipment being used for confined space ventilation;
- smoking in confined spaces will be prohibited at all times; and
- any deviation from these confined space entry procedures requires the prior permission of the SSO.

### 10.16.3 Procedures for Confined Space Entry

The SSO and confined space entry personnel shall adhere to the following confined space entry procedures:

- evaluate the job to be done and identify the potential hazards before a job in a confined space is scheduled;
- ensure that all process piping, mechanical and electrical equipment, etc., have been disconnected, purged, blanked-off or locked and tagged as necessary;
- if possible, ensure removal of any standing fluids that may produce toxic or air displacing gases, vapors or dust;
- initiate a CSEP in concurrence with the Site Supervisor;
- ensure that any hot work (welding, burning, open flames or spark producing operation) that is to be performed in the confined space has been approved by the Supervisor and is indicated on the CSEP;
- ensure that the confined space is ventilated before starting work in the confined space and for the duration of the time that the work is to be performed in the confined space;
- ensure that the personnel who enter the confined space and the confined space observer helper are familiar with the contents and requirements of this instruction and the CSEP;

- ensure remote atmospheric testing of the confined space prior to and during employee entry and before validation/revalidation of a CSEP to ensure the following requirements:
  - oxygen content between 19.5 percent - 23.0 percent,
  - no concentration of combustible gas in the space. Sampling will be done throughout the confined space and specifically at the lowest point in the space,
  - the absence of other atmospheric contaminants if the space has previously contained toxic, corrosive or irritant material, and
  - if remote testing is not possible, Level B PPE is required for confined space entry;
- designate whether hot or cold work will be allowed. If all tests are satisfactory, complete the CSEP listing any safety precautions, protective equipment or other requirements; and
- ensure that a copy of the CSEP is posted at the work Site and a copy is filed with the work supervisor.

The CSEP shall be considered void if work in the confined space does not start within 1 hour after the tests in Item viii) above are performed or if significant changes within the confined space atmosphere or job scope occurs.

The CSEP posted at the work Site shall be removed at the completion of the job or the end of the shift, whichever is first.

### 10.16.4 Confined Space Observer

The duties of the confined space observer are as follows:

- while personnel are inside the confined space, a confined space observer will monitor the activities and provide external assistance to those in the confined space. The observer will not have other duties which may take his attention away from the work or require him to leave the vicinity of the confined space at any time while personnel are in the confined space;

- the confined space observer shall maintain at least voice contact with all personnel in the confined space. Visual contact is preferred, if possible;
- the confined space observer shall be instructed by his supervisor or the SSO in the method for contacting rescue personnel in the event of an emergency;
- if irregularities within the confined space are detected by the observer, personnel within the confined space will be ordered to exit;
- in the event of an emergency, the confined space observer must not enter the confined space prior to contacting and receiving assistance from a helper. Prior to this time, he should attempt to remove personnel with the lifeline and to perform all other rescue functions from outside the space; and
- a helper shall be designated to provide assistance to the confined space observer in case the observer must enter the confined space to retrieve personnel.

## 10.17 HEAT STRESS

The combination of warm ambient temperature and protective clothing increases the potential for heat stress. In particular, heat stress can be evident as:

- heat rash;
- heat cramps;
- heat exhaustion; and/or
- heat stroke.

Although heat stress is not expected to pose a problem during routine Site operations, these hazards will be discussed during safety meetings and before commencement of work activities, when relevant. Personnel must increase consumption of water and electrolyte-containing beverages, such as Gatorade, during warm and hot weather conditions.

At a minimum, personnel will break approximately every two hours for 10- to 15-minute rest periods. In addition, they will be encouraged to take rests whenever they feel any adverse effects that may be heat related. The frequency of breaks may need to be increased upon worker recommendation to the SSO.

A work/rest schedule will be calculated based on heat stress monitoring results. Monitoring will consist of taking the radial pulse of a worker for 30 seconds immediately after exiting the work area. The frequency of monitoring the radial pulse will be as follows:

| *Ambient Temp.* | *Modified Level D PPE* | *Level C PPE/Level B* |
|---|---|---|
| 90°F or above | After 45 min. of work | After 15 min. of work |
| 87.5°F - 90°F | After 60 min. of work | After 30 min. of work |
| 82.5°F - 87.5°F | After 90 min. of work | After 60 min. of work |
| 77.5°F - 82.5°F | After 120 min. of work | After 90 min. of work |
| 72.5°F - 77.5°F | After 150 min. of work | After 120 min. of work |

If the heart rate exceeds 110 beats per minute at the beginning of the rest period, the next work cycle will be shortened by 1/2 and the rest period will be kept the same. If the heart rate still exceeds 110 beats per minute at the next rest period, the following rest period will be increased by 1/3. The initial rest period will be at least 5 minutes.

Monitoring for heat stress will begin when the ambient temperature reaches or exceeds 70°F when wearing Level C or Level B PPE, or 80°F when wearing Level D PPE and humidity levels are above 50 percent.

## 10.18 COLD STRESS

With outdoor work in the winter months, the potential exists for hypothermia and frostbite.

Protective clothing greatly reduces the possibility of hypothermia to personnel. However, personnel will be instructed to wear warm clothing and to stop work to obtain more clothing if they become too cold. Employees must also change into dry clothes if their clothing becomes wet from perspiration or from exposure to precipitation.

In cold weather, the potential for frostbite exists, especially in body extremities. Personnel must pay particular attention to hands, feet and any exposed skin when dressing. Personnel will be advised to obtain more clothing if they begin to experience loss of sensation due to cold exposure.

Site personnel will be encouraged to seek heated shelter at regular intervals, depending upon the severity of ambient temperatures. Symptoms of cold stress, including heavy shivering, excessive fatigue, drowsiness, irritability or euphoria will necessitate immediate return to the heated shelter.

## 10.19 THE CONTROL OF HAZARDOUS ENERGY LOCKOUT, TAGOUT

### 10.19.1 Introduction

This procedure shall be used by all personnel to ensure that equipment being worked on is isolated from all potential hazardous energy sources and locked out or tagged out before any individual performs any servicing or maintenance activity where unexpected energization, startup or release of energy could cause an injury. Energy sources can be electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy. This procedure establishes the minimum safety requirements to ensure the proper deactivation of moveable, electrically energized, pressurized equipment or systems prior to repairing, cleaning, adjusting or performing similar work activities. This procedure complies with the requirements in 29 CFR 1910.147.

TABLE 10.2

HAZARD/RISK ANALYSIS FOR SITE OPERATIONS
OPERATION, MAINTENANCE AND MONITORING
SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

| *Site Operations* | *Anticipated Hazard/Risks* | *Level of PPE Required* |
|---|---|---|
| Confined space entry into wet well or manholes | • slip/trip/fall hazards<br>• direct contact with contaminated groundwater<br>• potential personal injuries<br>• hazards associated with confined space entries (1)<br>• potential back injuries from moving specialized confined space entry equipment<br>• hazards presented by the use of specialized decontamination equipment (i.e. steam cleaning unit) | • Level C, or Level B if air monitoring results indicate the need |

Notes:

(1) Specific requirements for confined space entry are specified in Section 10.16.

10.19.2 Definitions

| | |
|---|---|
| Affected Employee: | An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed. |
| Authorized Employee: | A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section. |
| Capable of Being Locked Out: | An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability. |
| Energized: | Connected to an energy source or containing residual or stored energy. |
| Energy Isolating Device: | A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: a manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all underground supply conductors, and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate |

energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Hot Tap: A procedure used in the repair, maintenance and services activities which involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Lockout: The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout Device: A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in a safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

Normal Production Operations: The utilization of a machine or equipment to perform its intended production function.

Servicing and/or Maintenance: Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the

| | |
|---|---|
| | *unexpected* energization or startup of the equipment or release of hazardous energy. |
| Setting Up: | Any work performed to prepare a machine or equipment to perform its normal production operation. |
| Tagout: | The placement of a tagout device on an energy isolating device, in accordance with an established isolating device and the equipment being controlled may not be operated until the tagout device is removed. |
| Tagout Device: | A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed. |

10.19.3 Responsibilities

It is the responsibility of the SSO to implement the following lockout/tagout procedures:

- that a proper Lockout/Tagout system is utilized for maintenance activities;
- that full employee protection is achieved through the Lockout/Tagout system;
- that the proper energy control procedures are followed during maintenance activities;
- that the proper protective materials and hardware are available for maintenance activities (i.e., locks, tags, chains, etc.);
- provide for periodic inspection of energy control procedures.
- provide and/or ensure training so that the procedures of the ECP are understood and the knowledge and skills required for safe application,

usage, and removal of the energy controls are acquired by all appropriate maintenance and operation personnel;

- ensure that the energy isolation is performed by only authorized personnel; and
- Ensure that notification has been given to affected persons of the application and removal of Lockout/Tagout devices.

### 10.19.4 Sequence for Lockout/Tagout Procedure

1. The employee who is responsible for doing the work shall identify the work to be done.

2. Determine what energy sources and energy isolating devices are involved.

3. Obtain necessary locks, multiple lock adapters, tags, tools, and personal protective equipment.

4. Notify all affected individuals that a Lockout/Tagout is being implemented.

5. If the equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.).

6. Isolate each energy source (electrical, mechanical, air, hydraulic, etc.) from the equipment with the appropriate switch, valve, or other energy isolating device.

7. Lockout and tagout (subject to) the energy isolating devices - with one individually assigned lock per device for each individual who is to perform the work. The key must remain in the possession of the individual who applied the lock for as long as that individual is to be protected by that lock. Use tagout only where the equipment is not lockable.

8. Stored energy must be controlled (dissipated or restrained) by methods such as grounding, repositioning, blocking, bleeding down, etc.

9. Verify De-energization. After the equipment has been locked out and/or tagged out, and after ensuring that no personnel are exposed, the employee will take the following steps and any other necessary to verify de-energization and an effective Lockout/Tagout:

   i) Operate the push button or other normal operating controls to make certain the equipment will not operate. Caution: Return operating controls to neutral or "off" position after the test.

   ii) Before performing electrical work on a circuit, verify that the circuit is de-energized and all system components discharged by use of a voltage tester. First, verify voltage tester operation on a known source in accordance with the manufacturer's guidelines.

10. Restoring Equipment to Service - The Lockout/Tagout is to be removed by the individual who applied it unless it was transferred (to protect another individual) pursuant to established procedures. Before Lockout/Tagout devices are removed and energy is restored (either for testing or normal service):

    i) ensure that tools and other servicing materials are removed;
    ii) ensure that the equipment has been properly reassembled or otherwise returned to operational status; and
    iii) ensure that individuals who were working on the equipment are in a safe location outside the zone of operation.

    Notify all affected individuals that the equipment is being returned to service.

### 10.19.5 Rules for Using Lockout/Tagout Procedures

1. Double check Lockout/Tagout applications yourself.

2. Do not attempt to operate any switch, valve, or other energy isolating device bearing a Lockout/Tagout.

3. Immediately notify HSO of any problems or unusual situations that arise in performing energy control procedures.

4. Appropriate procedures must be followed to ensure the effectiveness of Lockout/Tagout protection during and following shift or personnel changes.

   In the event an individual leaves a job that is not complete and is relieved by another individual, the procedure is:

   i) The first individual is to remove his/her Lockout/Tagout.
   ii) The second individual is to install his/her Lockout/Tagout at the same time.

   Where this is not possible or practical:

   i) The first individual may transfer his/her key or assign (using an approved form completed and signed by the first individual) his/her Lockout/Tagout to the second individual.
   ii) The second individual will promptly update the Lockout/Tagout to identify himself/herself as the person responsible for the Lockout/Tagout.

5. In the event an individual fails to remove his Lockout/Tagout and cannot be located, and it is necessary to operate the equipment, the employee will be called at home to determine if it is safe to operate the equipment. In the event the employee cannot be located, the supervisor, accompanied by a second supervisor (if on Site), may

remove the Lockout/Tagout after having made a thorough physical check of the machinery in question and completing and signing the Lockout Removal Record.

### 10.19.5.1 Lockout/Tagout Procedures Involving More than One Person

General Rule

1. If more than one individual is required to Lockout/Tagout equipment, each shall place his or her own personal Lockout/Tagout on the energy isolating device(s).

Special Rule

1. If it is not possible or practical for every individual working on a job to place his/her Lockout/Tagout on every piece of equipment covered by Lockout/Tagout, one designated person of a work crew, or a supervisor with the knowledge of the crew, may Lockout/Tagout equipment for the whole crew. In those cases, if the device is lockable, the designated individual will place his/her key (or keys if multiple devices are involved) in a group lock box and members of the crew must attach their locks to the lock box. It is the responsibility of the designated individual to carry out all steps of the lockout procedure and inform the crew when it is safe to work on the equipment. Additionally, the designated person may not remove a crew Lockout/Tagout until it has been verified that all individuals are safely removed.

### 10.19.5.2 Use of Energy Isolating Devices

1. Any energy sources not controlled by at least two control circuit devices must be controlled by a manually operated energy isolation device (electrical disconnect, circuit breaker, line valve, block, etc.).

2. This device must be in line of sight and under the control of the individual performing the work; otherwise it must be locked or tagged.

10.19.5.3 Stored Energy

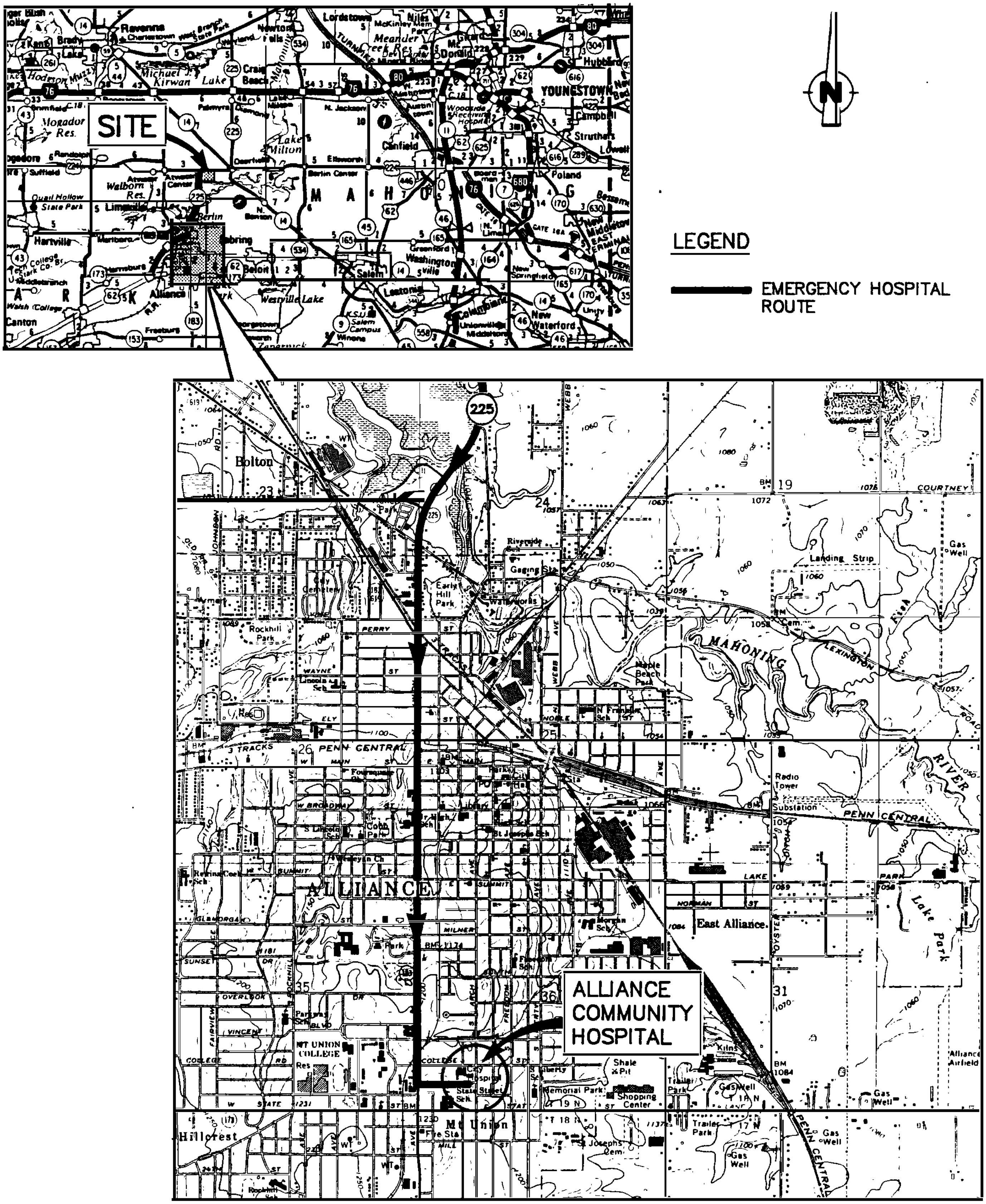
1. Any stored energy not controlled by at least two control circuit devices or an energy isolating device must be released.

10.19.5.4 Energy Control for Testing or Positioning Activities

In some situations, equipment must be energized to test or position the equipment or its components. In those situations, Lockout/Tagout devices may be temporarily removed, in accordance with standard Lockout/Tagout procedures provided the work is performed using alternative measures which provide effective protection and provided all unnecessary energy sources are locked out and tagged.

10.20 ALL-TERRAIN VEHICLE

The Site All-Terrain Vehicle must be operated by a trained and/or experienced operator. The operator must read and sign the ATV Safety alert form presented in Appendix 10.4.




SOURCES: OHIO OFFICIAL TRANSPORTATION MAP, 1987
AND USGS QUADRANGLE MAP; ALLIANCE, OHIO

figure 10.1

EMERGENCY HOSPITAL ROUTE
SUMMIT NATIONAL SUPERFUND SITE
*Deerfield Township of Portage County, Ohio*

CRA

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## TABLE 10.1

## CHEMICALS IDENTIFIED DURING THE REMEDIAL INVESTIGATION ON OR IN THE VICINITY OF THE SITE (1) SUMMIT NATIONAL SUPERFUND SITE DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

| *Volatile Organics* | *Base Neutral and Acids* | | *Pesticides and PCBs* | *Inorganics* |
|---|---|---|---|---|
| Vinyl Chloride | N-Nitrosodimethylamine | Diethylphthlate | Alpha-BHC | Aluminum |
| Methylene Chloride | Phenol | Fluorene* | Beta-BHC | Antimony |
| Acetone | Aniline | N-Nitrosodiphenylamine* | Delta-BHC | Arsenic |
| Carbondisulfide | 1,3-Dichlorobenzene | Hexachlorobenzene | Gamma-BHC | Barium |
| Benzene | 1,4-Dichlorobenzene | Pentachlorophenol | Heptachlor | Beryllium |
| 2-Hexanone* | Benzyl Alcohol | Phenanthrene* | Aldrin | Cadmium |
| 4-Methyl-2-Pentanone* | 1,2-Dichlorobenzene | Anthracene* | Heptachlor Epoxide | Calcium |
| Tetrachloroethene | 2-Methylphenol | Di-n-Butylphthlate | Endosulfan | Chromium |
| Toluene | 4-Methylphenol* | Fluoranthene** | Dieldrin | Cobalt |
| Chlorobenzene | Hexachloroethane | Pyrene* | Endrin | Copper |
| Ethylbenzene | Isophorone | Butylbenzylphthalate* | 4,4'-DDT | Iron |
| Styrene | 2-Nitrophenol | Benzo (a) Anthracene | Toxaphene | Lead |
| Total Xylenes | 2,4-Dimethylphenol* | Bis (2-ethylhexyl) Phthalate | Aroclor 1232*** | Cyanide |
| 1,1-Dichloroethene | Benzoic Acid | Chrysene | Aroclor 1242*** | Magnesium |
| 1,1-Dichloroethane | 1,2,4-Trichlorobenzene | Di-n-Octyl Phthalate* | Aroclor 1248*** | Manganese |
| 1,2-Dichloroethane | Naphthalene* | Benzo (b) Fluoranthene** | Aroclor 1254*** | Mercury |
| Trans-1,2-Dichloroethene | 4-Chloro-3-Methylphenol | Benzo (k) Fluoranthene** | Mirex | Nickel |
| Chloroform | Hexachlorocyclopentadiene | Benzo (a) Pyrene** | | Potassium |
| 2-Butanone* | Dimethylphthalate | Indeno (1,2,3-cd) Pyrene** | | Selenium |
| 1,1,1-Trichloroethane | Acenaphthylene | Dibenzo (a,h) Anthracene** | | Silver |
| 1,1,2,2-Trichloroethane | Acenaphthene | Benzo (g,h,i) Perylene* | | Sodium |
| Trichloroethene | 4-Nitrophenol | | | Thallium |
| 1,1,2-Trichloroethane | Dibenzofuran* | | | Tin |
| | | | | Vanadium |
| | | | | Zinc |

Notes:

(1) Reproduced from Table 6-2 of the "Final Remedial Investigation Report", Volume 1, Summit National Site, Deerfield, Ohio, dated February 10, 1988.
* Lacks chronic toxicity data (USEPA, 1986a).
** Carcinogenic polynuclear aromatic hydrocarbons (PAHs) for which the potency factor for Benzo (a) Pyrene applies.
*** Potency factor for polychlorinated biphenyls (PCBs) applies to sum of Aroclors.

TABLE 10.2

HAZARD/RISK ANALYSIS FOR SITE OPERATIONS
OPERATION, MAINTENANCE AND MONITORING
SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

| *Site Operations* | *Anticipated Hazard/Risks* | *Level of PPE Required* |
|---|---|---|
| Perform equipment and Site inspections, pump down various tanks, general housekeeping. Maintenance activities (without exposure to Site contaminants or raw chemical products). | • slip/trip/fall hazards<br>• potential personal injuries potential back injuries from moving and lifting equipment<br>• electrical hazards<br>• potential hand injuries while using tools during maintenance activities | • level D |
| Groundwater or Process Water Sampling Activities | • slip/trip/fall hazards<br>• potential personal injuries<br>• potential back injuries from lifting and moving specialized sampling equipment<br>• direct contact with contaminated groundwater | • modified level D, or level C if air monitoring results indicate the need |
| Decontamination activities (for sampling equipment and other machinery or equipment), waste handling activities and maintenance activities (with exposure to Site contaminants or transferring of raw chemical products) | • slip/trip/fall hazards<br>• potential personal injuries<br>• potential back injuries from lifting and moving equipment<br>• potential and direct contact with Site contaminants, wastes, spent activated carbon and chemicals being stored on-Site<br>• direct contact with decontamination solvents<br>• potential hand injuries while using hand tools<br>• hazards presented by the use of specialized decontamination equipment (i.e. steam cleaning unit) | • Level C, or level B if air monitoring results indicate the need |

## TABLE 10.3

## EMERGENCY TELEPHONE NUMBERS
## SUMMIT NATIONAL SUPERFUND SITE
## DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

| | |
|---|---|
| General Emergency (Portage County Sheriff's Dept.) | 911 or (216) 678-7012 |
| Ambulance | 911 or 584-2222 |
| Hospital (Alliance Community Hospital) | (216) 821-1000 |
| Ohio DOH (Akron) | (216) 379-1300 |
| Ohio EPA (District) | (216) 425-9171 |
| Ohio EPA Local Air Agency (Regional - Akron) | (216) 375-2480 |
| Poison Control Center | (800) 962-1253 |
| USEPA National Response Center | (800) 438-2427 |
| State Police | (216) 297-1441 |
| Portage County Health Department | (216) 296-9919 |
| Emergency Spill Contractor | to be supplied |

TABLE 10.2

HAZARD/RISK ANALYSIS FOR SITE OPERATIONS
OPERATION, MAINTENANCE AND MONITORING
SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

| *Site Operations* | *Anticipated Hazard/Risks* | *Level of PPE Required* |
|---|---|---|
| Confined space entry into wet well or manholes | • slip/trip/fall hazards<br>• direct contact with contaminated groundwater<br>• potential personal injuries<br>• hazards associated with confined space entries (1)<br>• potential back injuries from moving specialized confined space entry equipment<br>• hazards presented by the use of specialized decontamination equipment (i.e. steam cleaning unit) | • Level C, or Level B if air monitoring results indicate the need |

Notes:

(1) Specific requirements for confined space entry are specified in Section 10.16.

**WEEKLY SAFETY INSPECTION LIST**
**SUMMIT NATIONAL SUPERFUND SITE**
**DEERFIELD, OHIO**

This list should be reviewed each week (preferably the same day each week). Discrepancies should be corrected before the end of the day or arrangements made for timely correction.

***Date of Inspection:*** _____ ***Inspected By:*** _____

| | *Check if OK or Indicate Discrepancy* |
|---|---|
| 1. General Housekeeping | |
| Equipment returned to the proper location | ☐ |
| Aisles and walkways free from tripping hazards | ☐ |
| Floors swept | ☐ |
| Ladders and platforms proper | ☐ |
| Trash disposed of | ☐ |
| 2. Personal Protective Equipment | |
| Used as required | ☐ |
| Respirators | ☐ |
| Dust masks | ☐ |
| Tyvek coveralls | ☐ |
| Hard hats | ☐ |
| Safety shoes | ☐ |
| Safety glasses | ☐ |
| Chemical splash goggles | ☐ |
| Boots | ☐ |
| Gloves | ☐ |
| Cleaned and stored properly | ☐ |

3. Tools/equipment

- Damaged tools tagged/removed from service ☐
- Tools returned to proper storage ☐
- Tools used for proper tasks ☐
- Tools cleaned and maintained ☐

4. Electrical

- Faulty wiring corrected ☐
- Lighting replaced ☐
- Circuits locked out as necessary ☐
- Extension cords correct ☐

5. Chemicals

- Stored as required ☐
- Spills cleaned up ☐
- Proper dispensing ☐
- All containers labeled ☐
- MSDS book available ☐

6. Lab Hood

- Chemicals properly stored ☐
- Cleaned properly ☐
- Good housekeeping ☐
- Sash free ☐
- Proper lighting and ventilation ☐

7. Machinery

- Guards in place ☐
- Oil leakage cleaned up ☐
- Properly maintained ☐
- Belts and pulleys tight ☐
- Properly Operating ☐

8. Emergency equipment

- Fire extinguishers ☐
- Eye wash ☐
- Shower ☐
- Sink ☐
- Hand soap ☐
- Hand towels ☐
- Exit signs ☐
- First aid kit ☐
- Spill control equipment ☐
- Emergency lighting ☐

9. Work practices

- Trained operators ☐
- Proper lifting techniques ☐
- Proper use of tools ☐
- Proper use of protective equipment ☐
- Eating, drinking and smoking in approved areas only ☐

**MONTHLY SAFETY INSPECTION LIST**
**SUMMIT NATIONAL SUPERFUND SITE**
**DEERFIELD, OHIO**

This list should be reviewed once a month, preferably on the same day, for example, the last working day of each month. This list should be dated, signed, and filed as an indication that safety procedures are being observed. Where discrepancies exists, corrective action should be noted.

***Date of Inspection:*** _____ ***Inspected By:*** _____

| | *Check if OK or Indicate Discrepancy* |
|---|---|
| Employees | |
| • Hearing Protection | |
| Are they wearing hearing protectors where required? | ☐ |
| Are protectors clean? Are they careful not to roll | ☐ |
| with dirty (contaminated) hands? | ☐ |
| Properly inserted. | ☐ |
| Adequate for job. | ☐ |
| • Respirators | |
| Are employees trained? Approved by Medical | ☐ |
| Correct one for job. | ☐ |
| Wearing them properly. | ☐ |
| Proper storage (longer term and between jobs). | ☐ |
| Proper decontamination - job site and central. | ☐ |
| Proper inspection properties - job site - central. | ☐ |

- PPE (Personal Protective Equipment)

  Clean. ☐

  In good shape - no tears, holes, contaminants on skin side ☐

  Proper for job. ☐

- Are they working safely - proper positioning? ☐

- Talk to Them

  Do they know chemicals in their area? ☐

  Do they know hazards of chemicals they work with? ☐

  Do they remember anything we covered in the annual communications? ☐

  Do they know about MSDSs and where the book is kept? ☐

  Do they know about spill practices? ☐

- Listen to Them - Answer Questions Respond to Concerns
  Follow up on Any Leads or Questions Immediately

Work Area

- Noise

  Should noise be checked in this area? Is area properly marked? ☐

  Is there an annual noise survey? Is it in order? ☐

  Meter - is it working and checked annually? ☐

- Ventilation

  Does it exist? ☐

  Is it needed? ☐

  Is it adequate? ☐

  Is it inspected annually? ☐

  Are inspections indicated and posted as necessary? ☐

- Observe adequacy of labeling ☐
- Look for MSDS book - Is it up to date? Is it readily a accessible to all employees at any time? ☐
- Look for spills. ☐
- Look for chemicals on drums. ☐
- Look for dust that may be other than dirt. ☐
- Look for evidence of food, drink, and smoking in a unauthorized areas. ☐
- Chemical storage areas.
  - Clean. ☐
  - Proper separation of chemicals (acids/bases, flammables, oxidizers). ☐
  - Labeling. ☐
- Are there any odors or strange signs of smoke? ☐
- Any need to look further regarding heat stress? ☐
- Eye Wash Stations.
  - Clean. ☐
  - Inspected. ☐

- Eating Areas.

  Clean (and I mean clean). ☐

  Known responsibility for cleaning. ☐

  Known frequency for cleaning (daily or each shift, depending on use). ☐

  Audited. ☐

  Adequate garbage cans - clean. ☐

  Cabinets - clean - no food with cleaning supplies - no old food. ☐

  Adequate ventilation. ☐

  No smoking areas. ☐

  No hard hats, gloves, or other work-related items in eating areas. ☐

- Refrigerators

  Clean [responsibility established/frequency established (weekly)]. ☐

  Should empty each week. Date items that plan to stay longer. ☐

  Keep defrosted. ☐

  Food well covered. ☐

**ANNUAL SAFETY INSPECTION LIST**
**SUMMIT NATIONAL SUPERFUND SITE**
**DEERFIELD, OHIO**

***Date of Inspection:*** _____ ***Inspected By:*** _____

| | *Check if OK or Indicate Discrepancy* |
|---|---|
| Personnel Safety and Health | |
| • Proper insulation or guards for personnel protection against hot surfaces. | ☐ |
| • Personnel guards for moving parts. | ☐ |
| • Adequate drains and/or vents on lines for cleanup and maintenance work. | ☐ |
| • Freedom from bumping and tripping hazards. | ☐ |
| • Adequate personnel access passages. | ☐ |
| • Properly designed ladders and ladder gates. | ☐ |
| • Adequate grating and railings (including toe plates). | ☐ |
| • Adequate provision for eye baths, safety showers and fire extinguishers. | ☐ |
| • Freedom from excessive noise exposure. | ☐ |
| • Freedom from excessive heat exposure. | ☐ |
| • Proper electrical grounding. | ☐ |
| • Freedom from toxic chemical exposure. | ☐ |
| • Adequate strength for personnel walkways. | ☐ |
| • Freedom from vapor cloud exposure. | ☐ |
| • Adequate lighting and ventilation. | ☐ |

Process Safety

- Normal and emergency vents on tanks. ☐
- Relief for process vessels subject to high pump discharge pressure. ☐
- Adequate vacuum relief. ☐
- Adequate protection for:
  - Instrument air failure ☐
  - Electrical failure ☐
  - Cooling water failure ☐
  - Steam failure ☐
  - Pump failure ☐
  - Instrument failure ☐
  - Line or tube plugging ☐
- Foolproof separation of noncompatible reactive chemicals. Consider possible heat exchanger tube leaks ☐
- Adequate alarm systems. ☐
- Control valves fail safe properly. ☐
- Material of construction. ☐
- Emergency shutdown systems. ☐

Fire Safety

- Adequate fire extinguisher provision. ☐
- Fireproofed vessel legs. ☐
- Adequate emergency equipment access. ☐
- Static grounding. ☐
- Electrical classification. ☐
- Fire department number posted. ☐

Operability

- Reasonable piping layout. ☐
- Valves located for safe operation. ☐
- Adequate provision for proper disposal of pollutants. ☐
- Adequate freeze protection. ☐
- Adequate maintenance equipment access. ☐
- Adequate lighting. ☐
- Instruments and computer properly calibrated for a change of service. ☐
- Proper materials of construction. ☐
- Proper labeling, particularly hazardous chemical labeling. ☐

Procedures

- Operating manual updated. ☐
- Panel board cards updated. ☐
- Standard operating procedures updated. ☐
- Explanation for operation of safety equipment. ☐
- Tank calibration chart updated. Old copies destroyed. ☐
- Personnel and fire protection equipment check lists updated. Old copies destroyed. ☐
- Emergency procedures updated. ☐

# TRAINING ACKNOWLEDGEMENT FORM

**Please Print**

NAME: _____

ADDRESS: _____

SOCIAL SECURITY NUMBER: _____

EMPLOYER: _____

JOB SITE: SUMMIT NATIONAL SUPERFUND SITE, DEERFIELD, OHIO

I have attended and understood the mandatory Site specific initiation session for the above referenced job Site. This program referenced the following topics:

i) known potential hazards on Site;

ii) level of personal protection equipment required;

iii) emergency procedures for the Site; and

iv) the basics of the Site-specific Health and Safety Plan.

I further confirm that I have the required 40 hours of training to comply with 29 CFR 1910.120, have a respirator for which I have been fit tested and have been thoroughly trained on the standard operating procedures of equipment I will be operating or procedures (i.e., confined space) which I will be participating in.

_____ Date

_____ Signature

# CONFINED SPACE ENTRY PERMIT

SITE NAME/LOCATION/REF. NO.: Summit National Site
Deerfield Township of Portage County, Ohio

WORK ACTIVITY: _____

Duration:_____ Issue Date: _____ Time:_____ Filled Out by:_____

POTENTIAL HAZARDS:
(System Generated)

(Work Generated)

AIR MONITORING: PRE-ENTRY_____ PERIODIC_____ CONTINUOUS_____

# CONFINED SPACE ENTRY PERMIT

| *DATE/TIME* | *BY (INIT)* | *%$O_2$* | *ppm CO* | *% LEL* | *OTHER TEST TYPE* | *OTHER TEST RESULT* |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

ISOLATION:

Purging Required: YES NO PURGING CONFIRMED:

Safety Tags Required: YES NO

VENTILATION REQUIRED: YES NO

CONTINUOUS _____ OTHER _____

EMERGENCY RESCUE EQUIPMENT REQUIRED:

_____Communications Device
_____First Aid Kit
_____Stretcher/Backboard
_____Fire Extinguisher
_____SCBA
_____Other_____

_____Winch/Hoist
_____Harness with Lifeline (type)
_____PPE (type)
_____Lighting (type)

## CONFINED SPACE ENTRY PERMIT

PERSONAL PROTECTIVE EQUIPMENT REQUIRED:

_____Hardhat
_____Safety Glasses
_____Face Shield
_____Ear Plugs/Muff
_____Emergency Escape Pack
_____Lanyards
_____Gloves (type)_____
_____Harnesses (type)_____
_____Other_____

_____Respiratory Protection (type)
_____Coveralls
Chemical Suits
_____Rain Suits
_____Lifelines

ADDITIONAL WORK INSTRUCTIONS:

EMERGENCY CONTACT PHONE NO._____

PERSONS ENTERING CONFINED SPACE (PRINT NAME)

STANDBY PERSON REQUIRED: YES:_____NO:_____(PRINT NAMES)

## CONFINED SPACE ENTRY PERMIT

I have reviewed and met the requirements of this permit and expect that this work shall be done safely. Entrants have been instructed on the proper confined space entry procedures, requirements and conditions.

ENTRY AUTHORIZED BY:_____ DATE:_____

---

All work under this permit has been completed and all materials and entrants have been withdrawn from the confined space.

_____ _____

Attendant or Entrant Date

# LOCKOUT/TAGOUT REMOVAL AND TRANSFER RECORD

**SECTION I - REMOVAL**

Date: _____ Time: _____ Equipment: _____

Employee name on Lockout/Tagout to be removed: _____

Has the missing employee been located: _____ Transfer Only: _____

What were the results of your attempt to locate the missing employee: _____

_____

_____

Name of person(s) cutting or removing Lockout/Tagout: _____

We certify that process and personnel safety have been assured, and that the above Lockout/Tagout may be safely removed.

Two necessary signatures for removal of Lockout/Tagout: (presence of only one signature is representation that only one supervisor was on site).

| _____ | _____ | _____ |
|---|---|---|
| Project Coordinator | Maintenance Technician | Supervisor |

PROCEDURE:

1. Attempt to locate employee whose name appears on the tag.
2. Obtain blank Lockout/Tagout Removal Record (this form). Fill out form and get required signatures.
3. Check equipment to ensure it is clear of personnel and from all indications can be safely energized.
4. Energize equipment and ensure safe and proper operations.
5. Once a Lockout/Tagout Removal Form has been completed, it must be returned to the Project Coordinator for review and placement in project files.

**SECTION II - TRANSFER ONLY**

Employee Transferring Key: _____

Employee Receiving Key: _____

Each employee must sign form for transfer only.

# APPENDIX 10.4

# ATV SAFETY ALERT

# YAMAHA MOTOR CORPORATION, U.S.A.

6555 KATELLA AVENUE • CYPRESS, CALIFORNIA 90630

MAIL ADDRESS: P.O. BOX 6555, CYPRESS, CALIFORNIA 90630

PHONE: (714) 761-7300


ENVIRONMENTAL CONSTRUCTION, INC.

## ATV SAFETY ALERT

The Consumer Product Safety Commission has concluded that ALL-TERRAIN VEHICLES (ATVs) may present a risk of DEATH or SEVERE INJURY in certain circumstances. While accidents may occur for many reasons:

- Over 1,104 people, including many children, have died in accidents associated with ATVs since 1987.
- Many people have become severely paralyzed or suffered severe internal injuries as a result of accidents associated with ATVs.
- Every month thousands of people are treated in hospital emergency rooms for injuries received while riding an ATV.

You should be aware that AN ATV IS NOT A TOY AND CAN BE HAZARDOUS TO OPERATE. An ATV handles differently from other vehicles, including motorcycles and cars. A collision or rollover can occur quickly, even during routine maneuvers such as turning and driving on hills and over obstacles, if you fail to take proper precautions.

### TO AVOID DEATH OR SEVERE PERSONAL INJURY:

- ALWAYS READ THE OWNER'S MANUAL CAREFULLY AND FOLLOW THE OPERATING PROCEDURES DESCRIBED. PAY SPECIAL ATTENTION TO THE WARNINGS CONTAINED IN THE MANUAL AND ON ALL LABELS.
- NEVER OPERATE AN ATV WITHOUT PROPER INSTRUCTION. TAKE A TRAINING COURSE. BEGINNERS SHOULD COMPLETE THE TRAINING COURSE DESCRIBED BELOW.
- ALWAYS FOLLOW THESE AGE RECOMMENDATIONS:
  - A CHILD UNDER 12 YEARS OLD SHOULD NEVER OPERATE AN ATV WITH ENGINE SIZE 70CC OR GREATER.
  - A CHILD UNDER 16 YEARS OLD SHOULD NEVER OPERATE AN ATV WITH ENGINE SIZE GREATER THAN 90 CC.
- NEVER ALLOW A CHILD UNDER 16 YEARS OLD TO OPERATE AN ATV WITHOUT ADULT SUPERVISION. CHILDREN NEED TO BE OBSERVED CAREFULLY BECAUSE NOT ALL CHILDREN HAVE THE STRENGTH, SIZE, SKILLS OR JUDGEMENT NEEDED TO OPERATE AN ATV SAFELY.
- NEVER CARRY A PASSENGER ON AN ATV. CARRYING A PASSENGER MAY UPSET THE BALANCE OF THE ATV AND MAY CAUSE IT TO GO OUT OF CONTROL.
- NEVER OPERATE AN ATV ON PAVEMENT. THE VEHICLE IS NOT DESIGNED TO BE USED ON PAVED SURFACES AND MAY BE DIFFICULT TO CONTROL.
- NEVER OPERATE AN ATV ON A PUBLIC ROAD, EVEN A DIRT OR GRAVEL ONE, BECAUSE YOU MAY NOT BE ABLE TO AVOID COLLIDING WITH OTHER VEHICLES. ALSO, OPERATING AN ATV ON A PUBLIC ROAD MAY BE AGAINST THE LAW.
- NEVER OPERATE AN ATV WITHOUT AN APPROVED MOTORCYCLE HELMET, EYE PROTECTION, BOOTS, GLOVES, LONG PANTS AND A LONG-SLEEVED SHIRT OR JACKET.
- NEVER CONSUME ALCOHOL OR DRUGS BEFORE OR WHILE OPERATING AN ATV.
- NEVER OPERATE AN ATV AT EXCESSIVE SPEEDS. GO AT A SPEED WHICH IS PROPER FOR THE TERRAIN, VISIBILITY CONDITIONS, AND YOUR EXPERIENCE.
- NEVER ATTEMPT TO DO WHEELIES, JUMPS OR OTHER STUNTS.
- ALWAYS BE CAREFUL WHEN OPERATING AT ATV, ESPECIALLY WHEN APPROACHING HILLS, TURNS, AND OBSTACLES AND WHEN OPERATING ON UNFAMILIAR OR ROUGH TERRAIN.
- NEVER LEND YOUR ATV TO ANYONE WHO HAS NOT TAKEN A TRAINING COURSE OR HAS NOT BEEN DRIVING AN ATV FOR AT LEAST A YEAR.

### TRAINING COURSE

Anyone who purchased a new ATV after December 30, 1986, and everyone in the purchaser's immediate family who is within the recommended age group for the ATV purchased, is entitled to take a training course at no additional charge. Others can take the training course for a small fee. Individuals who purchased a new ATV after April 28, 1988, will be entitled to a $100 U.S. Savings Bond or $50 cash upon completing the course. Limit one rebate per ATV purchased. Ask an authorized dealer for details or call 1-800-852-5344 for training information.

**FOR MORE INFORMATION ABOUT ATV SAFETY, CALL THE CONSUMER PRODUCT SAFETY COMMISSION AT 1-800-638-2772, OR THE ATV DISTRIBUTOR'S SAFETY HOTLINE AT 1-800-852-5344.**

Acknowleded By: Conestoga-Rovers & Assoc.

Mark Michels

Authorized Signature

Acknowledged By: Summit National Facility Tr

Authorized Signature

# 11.0 REFERENCE REPORTS AND MANUALS

**TABLE 11.1**

**CHRONOLOGICAL LISTING OF PRE-CONSENT DECREE REPORTS SUMMIT NATIONAL SITE DEERFIELD, OHIO**

| *Title* | *Date* | *Prepared by* | *Available From* |
|---|---|---|---|
| Remedial Action Master Plan Summit | August 1983 | CH2M Hill | CRA-2372 |
| Final Work Plan | July 1984 | CH2M Hill | – |
| Final Phase II Site Investigation Work Plan | November 1985 | CH2M Hill | – |
| Emergency Action Plan | September 1986 | Horstman & Springer -Weston | – |
| Final Remedial Investigation Report Volume I and II, Summit National Site | 1987 | CH2M Hill | CRA-2372 |
| Public Comment Feasibility Study Report Summit National Site, Deerfield Ohio | February 1988 | CH2M Hill | CRA-2372 |
| Review Comments RI/FS Documents Summit National Superfund Site, Deerfield Township of Portage County, Ohio | March 1988 | CRA | CRA-2372 (2) |
| Consent Decree Statement of Work and Appendices to Statement of Work | June 1991 | | Site CRA-2372 (10) |

**TABLE 11.2**

**CHRONOLOGICAL LISTING OF**
**CONTRACT DOCUMENTS AND SPECIFICATIONS**
**SUMMIT NATIONAL SITE**
**DEERFIELD, OHIO**

| *Title* | *Date* | *Prepared by* | *Available From* |
|---|---|---|---|
| ***Pre-Design*** | | | |
| Contract Documents<br>Laboratory Services | September 1991 | CRA | CRA-2372 (18) |
| Contract Documents<br>Exploratory Trench Excavation and<br>Sediment Removal Interim Response Action | September 1991 | CRA | CRA-2372 (20) |
| Contract Documents<br>Drilling and Excavating Services | September 1991 | CRA | CRA-2372 (21) |
| ***Remedial Construction*** | | | |
| Contract Documents<br>Soil Removal and Treatment | November 1993 | CRA | CRA-2372 (32) |
| Contract Documents<br>Site Cover | May 1995 | CRA | CRA-2372 (47) |
| Contract Documents<br>Well Installation and Abandonment | June 1993 | CRA | CRA-2372 (50) |
| Contract Documents<br>Groundwater Extraction System | March 1994 | CRA | CRA-2372 (33) |
| Contract Documents<br>Groundwater Treatment System | July 1993 | CRA | CRA-2372 (39) |

TABLE 11.3

CHRONOLOGICAL LISTING OF
SAMPLING PROGRAMS AND DATA REPORTS
SUMMIT NATIONAL SITE
DEERFIELD, OHIO

| *Title* | *Date* | *Prepared by* | *Available From* |
|---|---|---|---|
| ***Pre-Consent Decree*** | | | |
| Quality Assurance Project Plan Phase II Site Investigation | October 1986 | CH2M Hill | – |
| ***Pre-Design*** | | | |
| Technical Memoranda | April 1992 | CRA | CRA-2372 |

**TABLE 11.4**

**CHRONOLOGICAL LISTING OF**
**CONSENT DECREE IMPLEMENTATION REPORTS**
**SUMMIT NATIONAL SITE**
**DEERFIELD, OHIO**

| *Title* | *Date* | *Prepared by* | *Available From* |
|---|---|---|---|
| Remedial Design Work Plan | October 1991 | CRA | CRA-2372 (13) |
| Design Criteria Document | May 1992 | CRA | CRA-2372 (15) |
| Construction Report<br>Sediment Removal<br>Interim Response Action | December 1991 | CRA | CRA-2372 (23) |
| Preliminary Design Report | October 1992 | CRA | CRA-2372 (25) |
| Pre-Final Design Report | November 1992 | CRA | CRA-2372 (38) |
| Remedial Construction Work Plan | May 1993 | CRA | CRA-2372 (52) |
| Final Design Report | May 1993 | CRA | CRA-2372 (51) |
| Remedial Action Report | October 1995 | CRA | CRA-2372 (65) |
| Operation, Maintenance and Monitoring Plan | October 1995 | CRA | CRA-2372 (35) |