Operations and Maintenance Manual

Ground Water Remediation System

Former Accurate Die Casting Site
Fayetteville, New York

Revised December 2000

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Emergency response

In the event of an emergency condition, shut-off power to the system by opening the main disconnect switch located in the incoming electric service panel located to the right after entering the personnel door of the water treatment building.

Emergency spill response.

In the event of an audible alarm or a potential or actual overflow/spill condition at the ground water treatment facility, the following procedures should be followed:

- Audible alarm: push "silence alarm" button located next to office inside main facility and assess situation/correct problem before depressing the reset button located on the control panel and restarting the system.
- Overflow/spill condition: Switch RW-1, RW-2, sump, and groundwater interceptor trench pumps to "off".

The person reporting the emergency should then immediately call the following emergency coordinators in the order shown until one is reached:

Name	Title	Work phone	Home phone
Jerry Born	Supervisor	637-0109	668-3942
Al Farrell	Project Engineer	437-6100	

The emergency coordinator shall obtain the following information from the person reporting the emergency.

- The exact location and nature of the emergency.
- The extent of the release, if any.
- The nature and extent of damage caused.
- Corrective actions taken.

- Persons and agencies contacted.

Once the emergency is discovered and reported to the emergency coordinator, the coordinator shall assess the urgency of the situation and determine if the system should be shut down and if the New York State Department of Environmental Conservation (NYSDEC) needs to be contacted.

Personal injury.

If a personal injury occurs, it should be reported to the emergency coordinator.

Toxic exposures.

If a toxic exposure occurs, it should be reported to the emergency coordinator as well as outside agencies which may include the fire department, hospital, or ambulance as necessary.

Public notification.

Public notifications will be provided by the appropriate agencies (e.g., NYSDEC, fire department, police department) when necessary to make the general public aware of conditions off Site.

1. Introduction

1.1. General

This manual has been prepared for the Operator as a means of providing guidelines, procedures, and objectives for operating and maintaining the Ground Water Recovery and Treatment System constructed at the former Accurate Die Casting Site in Fayetteville, New York (Figure 1). The Ground Water Recovery and Treatment System was constructed in 1995 and added to in 1999 by the inclusion of a ground water interceptor trench and pump for the purpose of remediating ground water on Site which was found during a Remedial Investigation (RI) to contain volatile organic compounds (VOCs) in excess of established New York State Department of Environmental Conservation (NYSDEC) ground water quality standards.

To obtain maximum benefit from the System, it must be operated as efficiently as possible to minimize operation and maintenance costs and down-time. This section of the manual presents information regarding why the System was constructed, and presents a description of how the System is intended to operate. Subsequent sections provide information regarding Operator responsibilities, System components, disposal of wastes, and emergency actions.

This document is intended to supplement information contained in the various manufacturer's operation and maintenance publications, shop drawings, and record drawings that have been provided. These publications are referred to in this manual and have been included as exhibits to this manual or separate documents. This manual, the record drawings, and the manufacturers' literature should be used together.

1.2. Background

Presented below is general background information regarding the history of the Site, the two ground water recovery wells constructed on Site, the ground water collection sump outside the northeast corner of the building, the ground water interceptor trench, and information regarding the ground water treatment system itself. For convenience, the topics are addressed separately.

Site history
During the RI and subsequent investigations, 24 ground water monitoring wells and 2 piezometers were constructed on Site in the locations shown on Figure 2. Ground water level measurements have been periodically taken using these monitoring wells and piezometers. Well construction details and the resulting ground water levels are summarized in Table 1. Periodically, water samples were also collected and analyzed for VOCs in order to evaluate ground water quality. Table 2 presents a summary of the resulting ground water quality data. This data is also presented in the New York State Department of Environmental Conservation (NYSDEC) approved Sampling and Analysis Plan dated March 1996 (O'Brien & Gere).

Based on the ground water quality results, it was concluded that ground water on Site had been impacted by the prior activities of the former owners and operators of the facility. This impact includes a plume of ground water exhibiting trichloroethylene (TCE) extending into the overburden aquifer from the Northeast of the facility north towards Bishop Brook. TCE was also detected, among other places, in the bedrock ground water on Site and in the unsaturated soils outside the Northeast corner of the facility.

Prior to initiating the RI, sludge from an abandoned TCE degreasing system was removed and the system was decontaminated. A TCE free product pool, which was discovered adjacent to and outside the Northeast corner of the facility, was also recovered to the extent practicable until no TCE free product was detected in water samples collected from that location.

Soils Remediation. The area outside the Northeast corner of the facility was also addressed as part of an Interim Remedial Measure (IRM) between May 24, 1994 and June 22, 1994. During that period, soils exhibiting TCE above the clean-up objective of 0.7 mg/kg were removed, to the extent practicable, and mechanically processed on site for subsequent use as backfill in the excavation once the clean-up objectives were achieved. A description of the soil remediation activities completed in this area is provided in the NYSDEC

approved Soil Remediation Activities Summary Report dated October 1994 (O'Brien & Gere).

In a separate area in the northwest portion of the site (Area "1"), unsaturated soils exhibiting concentrations of PAHs, PCBs and VOCs above remedial action objectives (RAOs) were excavated during September and October 1995. After excavating approximately 600 cy of soil, grab samples were collected from the excavations and analyzed for PAHs, VOCs and PCBs to evaluate if further action was required. Based on the results of the sampling and analyses, it is concluded that the unsaturated soils containing PAHs, PCBs and VOCs above the RAOs had been removed to the extend practicable.

In 1997, approximately 350 cy of the 600 cy of excavated soil was removed from the site and transported to the ESMI facility in Fort Edward, New York for low temperature thermal destruction and subsequent off-site disposal. The remaining 250 cy of soil was mechanically processed on-site to enhance volatilization of VOCs in accordance with the ROD amendment issued in October 1997.

In April 1998, following analyses that indicated that the RAOs had been achieved, the 250 cy of mechanically processed soils were spread on-site in the Corrective Action Management Unit (CAMU) identified in the ROD amendment. In accordance with the NYSDEC requirements, approximately 1 foot of general fill, topsoil, and grass seed was placed on top of the processed soils.

Ground water recovery points. In connection with the soil remediation activities conducted outside the Northeast corner of the facility as part of the IRM, a ground water collection sump was constructed on top of the clay layer at the base of the excavation prior to backfilling. This sump is being utilized as one of the ground water recovery points for the Ground Water Recovery and Treatment System constructed at the Site.

Also, an overburden recovery well designated as RW-1 (Figure 2) was constructed on site as part of the IRM. A 24-hour aquifer performance test was conducted using this recovery well on September 28 and 29, 1994 to evaluate the overburden aquifer characteristics and assess the influence of pumping on the overburden aquifer. The results of the performance test are provided in the NYSDEC approved Basis of Design Report for the Ground Water Recovery and Treatment System dated December 1994 (O'Brien & Gere). This recovery well is being utilized to provide capture of ground water containing TCE in the overburden aquifer.

A second ground water recovery well designated as RW-2 is being utilized on site to remediate the ground water from the bedrock fractures. This well was installed between September 5 and 18, 1995, in accordance with the NYSDEC approved Remedial Design/Remedial Action (RD/RA) Work Plan dated March 1996 (O'Brien & Gere) and the letter from O'Brien & Gere dated May 26, 1995, as amended on July 17, 1995. Its approximate location is shown on Figure 2. An aquifer performance test was conducted using this recovery well between November 7 and 13, 1995. The results of the performance test were provided to the NYSDEC in a letter report dated January 12, 1996.

Pursuant to an Explanation of Significant Differences (ESD) Notice dated October 1998, a ground water collection trench was also constructed to intercept ground water containing VOCs present in the sand lenses observed in Area 1. Construction plans for the installation of a ground water interceptor trench in Area 1 were submitted to the NYSDEC for review in August 1998. Construction of the trench was completed in July 1999 following the placement of approximately 300 cubic yards of soil, excavated during construction of the interceptor trench, into the CAMU as approved by the NYSDEC by the letter dated July 14, 1999. The location of the collection trench is shown on Figure 2. Collected ground water is treated by the existing on-site treatment system.

The construction details for each of these ground water recovery points are provided in subsequent sections of this manual. It is the intent that ground water be recovered from these points (sump, RW-1, RW-2, and the ground water interceptor trench) until the ground water on site exhibits VOC levels below NYSDEC ground water quality standards, or until such a time that asymptotic levels have been achieved and further remediation of the ground water is not practicable.

Ground water treatment system. The ground water recovered from the sump, interceptor trench, and the two recovery wells is being treated by passing the water through two 1,500 lb granular activated carbon (GAC) filters, connected in series, in accordance with the NYSDEC approved Basis of Design Report dated December 1994 (O'Brien & Gere). Prior to being pumped through the GAC filters, the ground water recovered from each of the individual recovery wells is combined in a 2,000 gallon flow stabilization tank and pumped through two bag filters connected in parallel.

A flow meter for each recovery well is provided on the influent header to the stabilization tank. The stabilization tank is also equipped with a header for the addition of one additional ground water recovery well, and is equipped

to be used as an aeration tank, if necessary, to pretreat the recovered ground water for VOCs prior to GAC filtration.

Following GAC filtration, the treated ground water is discharged to the bank of Bishop Brook, as shown on Figure 2, to promote aeration of the effluent. Discharge of treated ground water to Bishop Brook shall be in compliance with the conditions of the State Pollutant Discharge Elimination System (SPDES) Permit issued for operation of the System, as discussed in subsequent sections of this manual.

Figure 3 provides a process schematic of the ground water treatment system. Also provided in subsequent sections of this manual is a schematic of the control circuits and information about key system components.

1.3. Operation precautions

All components of the Ground Water Recovery and Treatment System must be installed, operated, and maintained in accordance with the manufacturers' guidelines. This document is not intended to be used instead of manufacturer literature, but rather as a supplement to it. Improper use of any component may result in injury to individuals or damage to the equipment. The operator should not work on any component or device that he/she is not technically qualified to work on, and until he/she has first referred to and is familiar with this manual and the manufacturers' instructions.

2. Operator responsibilities

2.1. General

The purpose of this section is to provide the operator a general description of operator responsibilities and duties.

The operator of the Ground Water Recovery and Treatment System is responsible for monitoring and keeping records of the System performance, for performing preventative maintenance and repair of equipment, for collecting performance monitoring samples, and for completing and submitting monthly State Pollutant Discharge Elimination System (SPDES) permit compliance monitoring reports to the NYSDEC. Each of these items are discussed herein. Also, a summary of the operator responsibilities and a description of where these responsibilities are discussed in this report is presented in Table 3.

2.2. Operator responsibilities

2.2.1. System performance monitoring and record keeping

It is the responsibility of the operator to monitor the operation of the Ground Water Recovery and Treatment System and to record data associated with the system performance on a daily basis (except Saturdays, Sundays and holidays). For convenience, an inspection/maintenance report form is provided in Appendix A. This form is to be filled out when maintenance is performed to establish a record of this activity. A Daily Operations Log Sheet is provided as Appendix B. Each day the operator will complete the Daily Operations Log Sheet. The operator is responsible for reviewing these records for any short or long term changes in the system performance (e.g., flow rate, volume treated or recovered, pressure gauge readings), since these

may be indicators of a need for repair or maintenance. To aid the operator in monitoring the system, system gauge readings at start-up are provided as Table 4. Variations from these gauge readings may be indicative of maintenance being required and should be investigated.

2.2.2. Preventative maintenance and repair

It is the responsibility of the operator to maintain equipment according to the schedule and requirements of the component manufacturer or more frequently when inspection indicates the need exists. The manufacturers' installation, operation, and maintenance manuals are provided as Exhibit A and the manufacturer's shop drawings are provided as Exhibit B.

2.2.3. Environmental monitoring sample collection

Several samples taps have been provided as part of the ground water remediation system. They are located after the bag filters, between the two GAC units, and before the discharge point from the treatment building to Bishop Brook.

Sampling of the ground water treatment system required by the NYSDEC shall be completed by the operator, following start-up, in accordance with Section 2.4 - Treatment System Performance Quality Monitoring of the NYSDEC approved Sampling and Analysis Plan dated March 1996 (O'Brien & Gere). To aid the operator in collecting samples for analysis at the proper intervals, as required by the NYSDEC, a Sampling and Analysis Checklist is provided as Appendix C. As the results of the analyses are received they should be recorded on the Sampling and Analysis Checklist for the day on which they were collected.

Flow and pH measurements required by the SPDES Permit, a copy of which is included as Appendix D, shall be recorded on the Daily Operations Log Sheet included as Appendix B.

2.2.4. SPDES Discharge monitoring reports

It is the responsibility of the operator to prepare and submit SPDES permit compliance reports for each month to the NYSDEC no later than the 28th day of the following month. The SPDES permit compliance report will include the results of discharge monitoring performed as required by the

SPDES permit (Appendix D) and describe actions taken to remedy non-compliances, if any.

3. Description and operation of system components

3.1. General

The overburden Ground Water Remediation System has the following major system components:

- Control panel
- Recovery wells (RW-1 and RW-2)
- Ground water collection sump (located outside northeast corner of main facility)
- Ground water interceptor trench (located in Area 1)
- Influent stabilization tank
- Bag filters
- Granular activated carbon (GAC) vessels
- Treated water discharge.

A table summarizing the basis of design of some of the major process components is included as Table 6.

A site plan has been included as Figure 2 which depicts the location of the recovery wells, the sump, the ground water interceptor trench, and the ground water remediation building. A process schematic showing the flow pattern and the major system components is included as Figure 3 and in the shop drawings in Exhibit B.

Appendix E is a list of the spare parts which are recommended to be kept on site.

3.2. System Controls

The ground water recovery and treatment system has been equipped with instruments and a Programmable Logic Controller (PLC) that allows it to operate continuously in an unattended mode with only occasional monitoring when the control switches are set in the "Auto" position. The PLC Ladder Logic diagram is included as Exhibit C.

The ground water recovery wells have been equipped with ground water level transducers connected to the pump controls and alarm. Two ground water elevation settings have been installed to provide the following described functions:

- Pump on setting; and
- Pump off setting.

The power circuits to the recovery well pumps have also been wired so that they are open whenever an alarm condition has been triggered. An alarm is triggered by the tank high level float switch installed inside the equalization tank and by the spill detection switch located in the building floor sump.

A flow meter with totalizer has been installed on each ground water recovery line upstream of the equalization tank. A flow meter connected to a flow circular chart recorder has also been installed between the second GAC unit and the treatment system discharge to monitor the quantity of ground water that has been recovered and treated.

A pressure sensor has been installed immediately upstream of the primary GAC vessel and has been set to trigger a high pressure alarm at a preset pressure condition of 12 psi. Such an alarm condition will disconnect power to the recovery well and equalization tank pumps.

The controls for the ground water recovery and treatment system are located inside a panel located to the left after entering the personnel door. As depicted in the following figure, the control panel is equipped with one HAND-OFF-AUTO switch for the treatment system transfer pump, and four separate OFF-ON switches for the sump pump, ground water interceptor trench pump, RW-1 and RW-2. The control panel also has blanks for two

additional wells and for the aeration tank blower if the equalization tank is converted to an aeration tank in the future.

> The system is designed to operate with the HAND-OFF-AUTO switch for the transfer pump set to the AUTO position. Operation of the system with the switch set to the HAND position will result in the bypass of control and alarm functions, and could cause damage to system components. The operator should only set the switch to the HAND position when necessary to test operation of the components. Also, setting of the recovery well, interceptor trench, or sump OFF-ON switches to ON when the HAND-OFF-AUTO switch for the transfer pump is set to OFF will result in an alarm condition and system shutdown due to a high water level in the equalization tank.

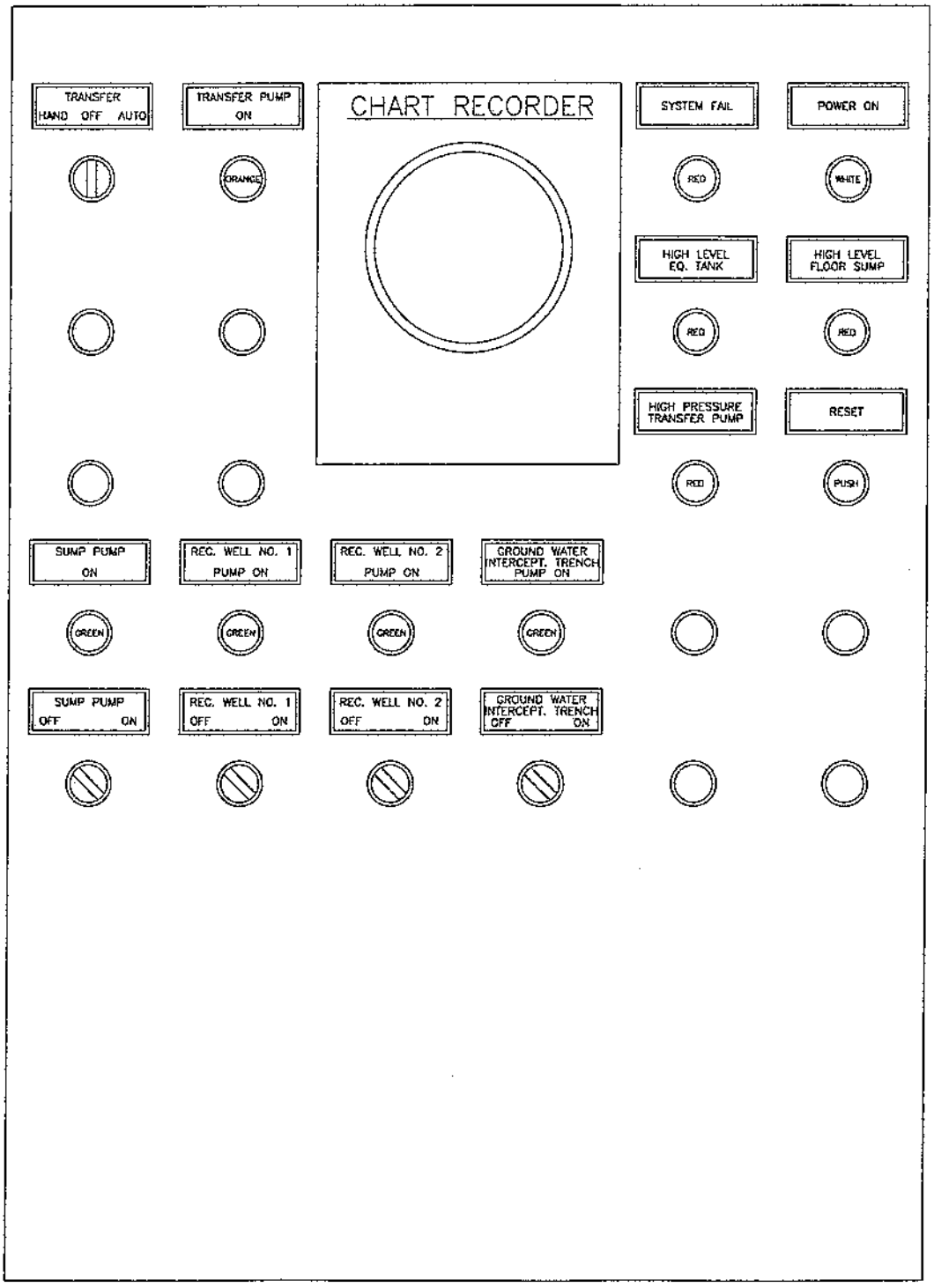
The control panel is also equipped with ten indicator lights, to apprise the operator about the ground water recovery and treatment system operation status, and a reset button, to cancel the alarm lights once the cause of the alarm has been addressed. Four of the lights indicate when the sump pump, interceptor trench pump, recovery well number one pump, and recovery well number two pump are operating. These indicator lights are green. An orange indicator light indicates when the transfer pump in operating and a white light indicates that the system power in on. The remaining four lights, which are red, identify various alarms that will cause the system to shut down (when the system is operated in the AUTO mode). When one of the red alarm indicator lights illuminates, an alarm horn will also be heard inside an occupied area of the main facility. The control panel is also equipped with five blank positions to accommodate additional controls.

Start-up of the system at the control panel, following set-up of the valves according to the valve schedule presented in Section 3.8.1, should be initiated by switching the transfer pump to AUTO and then by switching the sump pump, interceptor trench pump, and the recovery well pumps to ON.

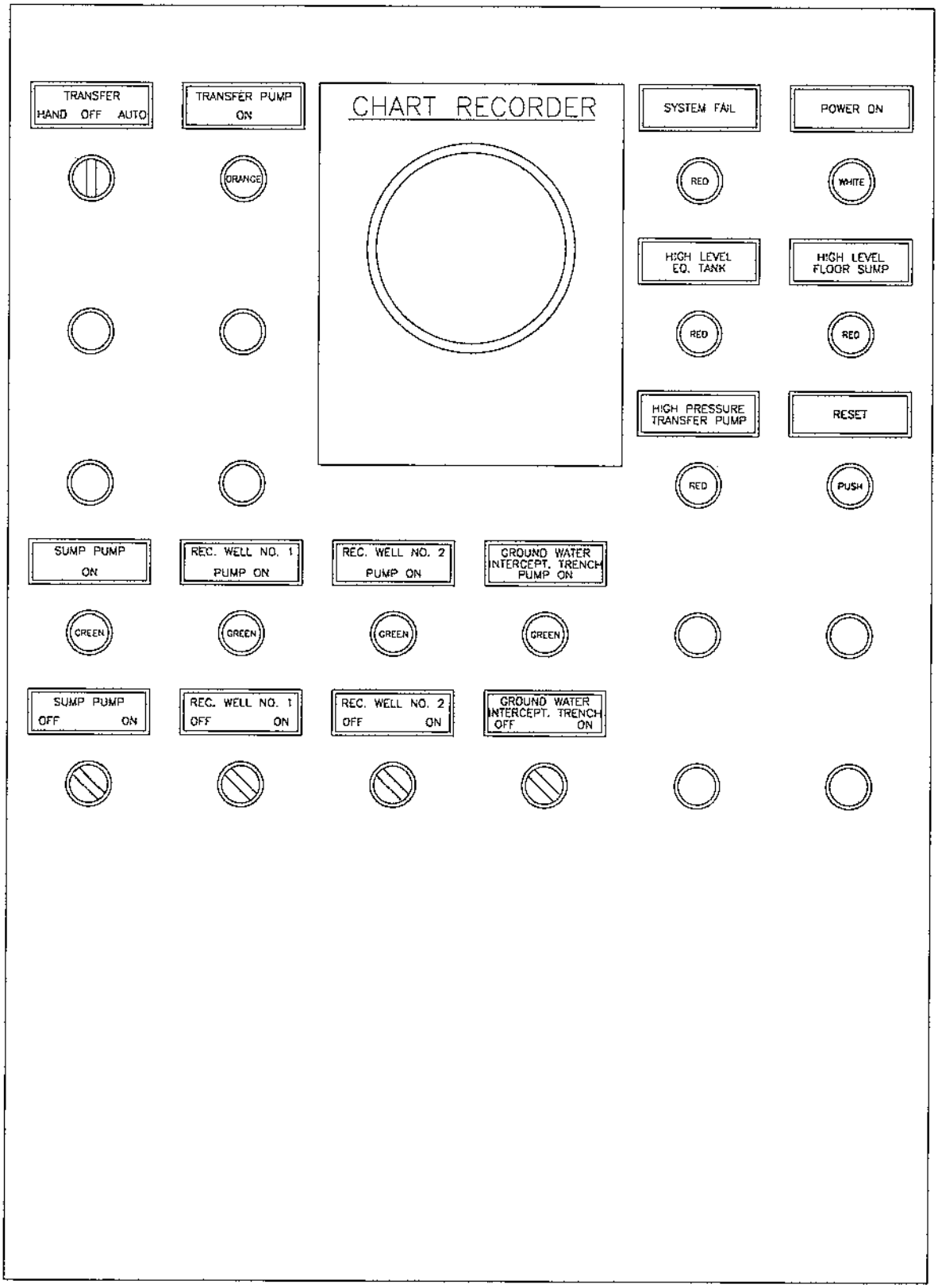
Shut-down of the system, during a non-alarm condition, should be initiated by switching the sump pump, interceptor trench pump, and the recovery well pumps to OFF and then by switching the transfer pump to OFF.

Any alarm condition encountered, once the alarm condition has been addressed, can be canceled by depressing the reset button.

Control Panel



MTW I:\2488\25463\71\60F.DWG SF:1 12/21/00



3.3. Recovery wells, trench, and sump

The ground water recovery wells (RW-1 and RW-2), interceptor trench, and sump were constructed at the locations shown on Figure 2. Details of construction are discussed in this section and summarized in the table below.

RW-1 was constructed of an eight-inch diameter carbon steel casing with an eight inch diameter 0.030 inch slotted stainless steel screen in two sections. The casing is set in various grout mixtures consisting of cement, bentonite and/or sand.

RW-2 consists of a 16 inch carbon steel casing which was advanced to a depth of 35 feet below land surface (bls), which corresponds to approximately five feet into competent bedrock. A 12 inch diameter casing was installed through and grouted within the 16 inch casing with a Portland cement/bentonite grout, which was allowed to cure for a minimum of 12 hours prior to advancing the borehole. The 12 inch diameter borehole was advanced to a final depth of 60 feet bls.

The sump was installed above the clay layer which made up the bottom of the excavation in the TCE soils excavation area. The sump was installed to collect ground water which accumulates on top of the clay layer. The sump was constructed of 24 inch HDPE slotted corrugated pipe to a depth of approximately 22 feet and is coupled with a 20 foot long horizontal 12 inch HDPE slotted corrugated pipe placed on top of three feet of clay placed in the bottom of the excavation.

The ground water interceptor trench was constructed to collect water which is present in sand lenses within and above the layer of till. The trench, having a length of approximately 250 ft, was constructed to the north of Area 1 where soils had been excavated for disposal and/or treatment in 1995. Figure 4 presents the plan and profile of the constructed trench.

	RW-1	RW-2	Sump	Interceptor Trench
Construction	- 8 inch diameter carbon steel casing. - 8 inch diameter 0.030 inch slotted stainless steel screen in two sections. - Grout mixtures consisting of cement, bentonite and/or sand.	- 16 inch diameter carbon steel casing. - 12 inch diameter casing installed through and grouted within the 16 inch casing. - Portland cement/ bentonite grout.	- 24 inch HDPE slotted corrugated pipe. - 20 foot long horizontal 12 inch HDPE slotted corrugated pipe	- 4" diameter perforated HDPE pipe located below a bed of gravel. Installed in two sections with a central water collection sump
Pump intake elevation	473 ft.	483 ft	526 ft	500 ft
Pump on elevation	475 ft.	485 ft	528 ft	502.5 ft
Pump off elevation	474 ft.	484 ft	527 ft	501.5 ft

3.4. Influent equalization tank

The influent equalization tank contains a weir approximately half as high as the height of the tank, located two thirds of the way along the length of the tank, and a 24 inch manway on top of the tank. The water from the sump, interceptor trench, and the recovery wells flows into and fills the first compartment before flowing over the weir to the second compartment. The second compartment contains three level control float switches. The two lowest float switches control operation of the transfer pump connected to the tank effluent line, and the third float switch functions as an overfilling alarm trigger. When an alarm is triggered, the circuits of the recovery well and sump pumps are opened, shutting the pumps off, and an alarm is sounded. Because of the placement of the weir, the capacity of the equalization tank is reduced from 2,000 gallons to an operating capacity of 1,000 gallons.

At some point in the future, if necessary, the stabilization tank may be converted to an aeration tank. If this happens, the spare outlet on top of the tank would be used to vent air either to the atmosphere or through vapor phase GAC units, as necessary. To enable the conversion of use, an aeration header has been installed in the bottom of the tank upstream of the weir.

3.5. Bag filters

Two ten-micron bag filters, connected in parallel, are located downstream of the equalization tank. The purpose of the bag filters is to remove suspended solids from the liquid stream prior to GAC filtration.

During normal operation, the valves on both the inlet and outlet of each bag filter will be open allowing flow through both bag filters. Flow will be directed through one bag filter when the other filter's filter bag requires changing. The procedures for directing flow through one bag filter and for changing filter bags are presented in Section 3.8.2.

3.6. Granular activated carbon (GAC) vessels

The final phase of the ground water treatment system consists of two 1,500 pound GAC vessels designed to remove VOCs from the ground water. Treatment is accomplished by adsorption of the VOCs to the carbon. Under normal operation, the ground water will run through both of the GAC units in series. The valves and piping outside the GAC units are configured so that flow can be routed through both units with either GAC unit number one or number two providing primary (lead) or backup (lag) treatment. A valve schedule for operating with either configuration is included on the flow diagram contained on the Water Treatment System Schematic in Exhibit B and on the table in Section 3.8.1. The valve schedule is also available in the treatment building.

Pressure gauges have been installed upstream of each of these GAC vessels. The operator will monitor the pressure gauge readings to determine when a filter may require servicing. The gauge readings at initial system start-up are presented on Table 4 for reference.

3.7. Treated water discharge

Following treatment by the GAC units, the ground water is discharged through a 4" PVC pipe to Bishop Creek. The treated water shall be sampled and monitored for compliance with the Effluent Limitations and Monitoring Requirements established by the NYSDEC, under the SPDES Permit Fact Sheet. A copy of the Fact Sheet is provided in Appendix D.

3.8. System start-up checklist

Presented in the following two sections are instructions for normal system operation start-up and for bag filter change-out operations.

3.8.1. Normal operation

During normal operation of the ground water collection and treatment system the numbered valves should be set up in accordance with the valve schedule below, depending on which GAC unit is selected as the lead unit. The valve numbers correspond to the numbers on the valves in the building and depicted on the process schematic. In addition to the particular valves referenced below, the valve prior to the transfer pump and the valves on either side of each bag filter must also be open during normal operation.

Valve schedule

Valve	No. 1 lead/No. 2 lag	No. 2 lead/No. 1 lag
V1	Open	Closed
V2	Open	Closed
V3	Closed	Open
V4	Closed	Open
V5	Closed	Open
V6	Open	Closed
V8	Open	Open
V9	Open	Open
V10	Open	Open

V11	Open	Open
V12	Closed	Closed
V13A	Open	Open
V13B	Open	Open
V14	Open	Open
V15	Closed	Closed
V16	Closed	Closed

Start-up and operation of the control panel should be performed according to the procedures presented in Section 3.2.

3.8.2. Bag filter change-out operation

To enable bag filter replacement, it is necessary that both the inlet and outlet valves for the bag filter being replaced be closed. The inlet valve for the filter being changed is to be closed first prior to closing the outlet valve, to avoid pressure buildup in the bag filter. Once both valves on the one bag filter are closed, the lid on the bag filter should slowly be loosened and opened, taking care to avoid being sprayed due to any pressure remaining in the bag filter. The filter bag can then be removed, allowing the water in the bag to drain. A new bag can then be installed and the lid tightened down. To put the bag filter back on line, the outlet valve should be opened first and then the inlet valve. Afterwards, check the bag filter for leaks and tighten the lid if necessary, and record the pressure gauge readings on the bag filters.

4. Disposal of spent materials

4.1. GAC

Maintenance of the GAC units will consist of periodic GAC replacement. The frequency of GAC replacement will be based on the results of VOC analyses conducted on influent and effluent samples collected at the frequency specified in Section 2.4. - Treatment System Performance Quality Monitoring of the NYSDEC approved Ground Water Monitoring Program Sampling and Analysis Plan dated March 1996 (O'Brien & Gere). Analytical results obtained from this sampling will be compared to the discharge limitations to evaluate if GAC replacement is required. The samples will be collected from the sample tap locations shown on the water treatment system schematic included in the attached shop drawings. Should water sample analysis reveal the presence of compounds above the SPDES effluent limitations, breakthrough within one or both of the GAC units is occurring and sampling to evaluate whether one or both GAC units require GAC replacement is to be performed.

The spent GAC shall be either disposed of at an off-site Treatment, Storage, and Disposal Facility (TSDF) or regenerated off site by a contracted carbon regeneration service. The spent carbon must be properly characterized for acceptance at a permitted TSDF. Proper characterization generally includes analysis for Toxicity Characteristic Leaching Procedure (TCLP) metals, TCLP VOCs, and ignitability, but individual TSDFs may have different specific requirements.

If regeneration of the carbon is selected, representatives of this service (Calgon Carbon Corporation: (800) 422-7266) should be contacted to arrange for characterization, transportation, and regeneration of spent GAC.

4.2. Bag filters

Accumulation of VOCs on the particulate matter trapped by the bag filters may occur as the collected ground water passes through the bag filter. Since the filter bags themselves are not hazardous, the filter bags should be disposed of depending on the material which is collected on the bag. A sample of the collected material from a spent filter bag should be analyzed for TCLP VOCs prior to disposal of any of the filter bags. The analytical results should be used to evaluate disposal options including disposal in a nonhazardous waste disposal facility, in a hazardous waste disposal facility, or through incineration. The disposal option selected, based on the analytical results, should be used for future disposal of filter bags from this treatment system.

5. Sampling, analysis, and reports

5.1. General

This section describes the program established to monitor and document the treatment of the collected ground water through the ground water system. The sampling procedures, location, and required analyses, as well as the reporting and record keeping requirements as described in this section.

5.2. Sampling procedures

Samples of the treated water discharge shall be collected according to the schedule and for the specific parameters listed by the SPDES Permit, presented as Appendix D.

5.3. Sampling locations and analysis

The ground water treatment system flow and pH shall be monitored on their respective meters. Other samples required by the SPDES Permit, included as Appendix D, shall be collected from the sample port on the discharge end of the system located upstream to the flow meter. Treatment system samples shall be analyzed in accordance with the SPDES Permit.

In accordance with Section 2.4. - Treatment System Performance Quality Monitoring of the NYSDEC approved Sampling and Analysis Plan dated March 1996 (O'Brien & Gere), a sample shall also be collected from between the lead and lag GAC vessels and analyzed for VOCs. These samples shall be analyzed for VOCs using EPA Method 8021. The sample collected from between the GAC vessels will be used to monitor for lead vessel VOC breakthrough.

5.4. Reporting and record keeping

The operator of the ground water recovery and treatment system shall provide to O'Brien & Gere Engineers, Inc. (O'Brien & Gere) the daily monitoring report forms, the maintenance and inspection checklists, and the sampling and analysis checklists at the completion of each month. O'Brien & Gere shall compile the daily monitoring report forms, as well as the influent - effluent analytical data, monthly for transmittal to the NYSDEC with a cover letter.

An annual report will also be prepared by O'Brien & Gere Engineers and submitted to the NYSDEC and New York State Department of Health each year. The annual report will include a summary of data and a discussion of trends observed. The annual report will include:

- Information regarding treatment system operation including the volume of water recovered, system operation up-time, summary of influent and effluent sampling and analyses, and discussion of maintenance activities performed.

- Recommendations for modification to the remedial system operation and ground water sampling frequency.

Former Accurate Die Casting Facility
Fayetteville, New York

Table 5. Project Contacts and Phone Numbers

Name	Title	Company	Work Phone	Home Phone
Jerry Born	Supervisor	O'Brien & Gere Technical Services, Inc.	637-0109	668-3942

I:\div71\projects\2488\25463\cont-pho.wpd