910 Mayer LLC

Soil Vapor Extraction System Operation, Maintenance, & Monitoring Manual

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17 November 2020

Soil Vapor Extraction System Operation, Maintenance, & Monitoring Manual

Madison, WI

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Acronyms and Abbreviations

Name	Description
bgs	Below ground surface
ERM	Environmental Resources Management
HMI	Human machine interface
hp	Horsepower
LOTO	Lock out/ tag out
MCP	Main control panel
OM&M	Operation, maintenance, and monitoring
P&ID	Process and instrumentation diagram
PLC	Programmable logic controller
PVC	Polyvinyl chloride
RR	Remediation & Redevelopment
SVE	Soil Vapor Extraction
TCE	Trichloroethane
VOCs	Volatile organic compounds
WAC	Wisconsin administrative code
WDNR	Wisconsin Department of Natural Resources

1. INTRODUCTION

Environmental Resources Management, Inc. (ERM) has prepared this Operation, Maintenance, and Monitoring (OM&M) Plan, on behalf of 910 Mayer LLC for the Soil Vapor Extraction (SVE) System installed at the 910 Mayer LLC property at 910 Oscar Avenue, Madison, Wisconsin ("Site" or "Facility"). This OM&M Plan provides a detailed description of the treatment system and its components. It also provides operational procedures for startup, continuous operation, scheduled and emergency shutdowns, and maintenance issues.

1.1 Site Information

1.1.1 Facility and Project Information

910 Mayer, LLC
910 Oscar Ave
Madison, WI
BRRTS No.: 02-13-580723

1.1.2 Responsible Party

Mr. Robert Hassler
910 Mayer LLC
15 Reservoir Road
White Plains, NY 10603
Phone: (914) 719-6076
Email: rhassler@reichbrothers.com

1.1.3 Consultant

Mr. David de Courcy-Bower
Environmental Resources Management, Inc.
700 West Virginia St., Suite 601
Milwaukee, WI 53204
Phone: (414) 977 4705
Email: david.decourcybower@erm.com

1.1.4 Site Location and Description

The Site is located at 910 Mayer Avenue in Madison, Wisconsin. The Site is located in the NE ¼ of the SW ¼ of Section 31, Township 08 North, Range 10 East in Dane County, Wisconsin. The location of the Site is shown on Figure 1, developed from the United States Geological Survey (USGS) 7.5-minute quadrangle for Madison East dated 1983.

1.2 Site Background

The Facility is a former food processing plant. The primary concern for the former Spice Room in Building 43 are concentrations of TCE in sub-slab samples that exceed WDNR sub-slab vapor criteria. Sub-slab sampling results are shown on Figure 2. Based on the investigations completed, the TCE appears to be present in shallow vadose zone fill materials that underlie the former Spice Room and Building 43. The extent of soil gas, soil, and groundwater impacts has been sufficiently defined. The results of the site investigation are summarized in the Site Investigation Data submitted to the WDNR on June 17, 2019, the Remediation Technology Screening submitted to the WDNR on December 9, 2019, and the Summary of Soil Vapor Extraction Pilot Test – Former Spice Room submitted on May 28, 2020. A Site Investigation Complete Determination – Former Spice Room letter was provided by the WDNR on April 27, 2020.

1.3 OM&M Cleanup Criteria, and Permitting

1.3.1 OM&M Performance Objectives

The following performance objectives will serve as a guideline for operation of SVE System on a day-to-day basis. OM&M personnel can help assure successful operation of the SVE System by keeping these objectives in mind:

- Maintain run time of greater than 90 percent;
- Reduce TCE concentrations in vadose zone soils; and
- Routinely optimize OM&M procedures to minimize operational costs.

1.3.2 Cleanup Criteria

Sub-slab soil vapor concentrations under Building 43 exceed the WDNR Vapor Risk Screening Levels (VRSLs) for large commercial/industrial uses. The goal of the SVE system is to achieve the WAC NR 726 site closure requirements to reduce vadose zone soil impacts such that the large commercial/industrial VRSL can be achieved and therefore mitigate the associated vapor intrusion risk. Once the vadose zone soil concentrations have reduced sufficiently, a request to either shut down the SVE system or transition to a sub-slab depressurization system will occur. A monitored natural attenuation evaluation will be completed to evaluate groundwater conditions relative to WAC NR 140 standards.

1.3.3 Permits

1.3.3.1 Air Permit

An air permit review was conducted to determine if the discharge from the SVE system is exempt from permitting. The total VOC emissions is estimated to be 0.33 lb/hr or 2,891 lb/yr based on 8,760 hours SVE operation per year. Based on this value it was determined that the discharge from the SVE system is exempt from a construction permit. 910 Mayer submitted a *Construction Permit Exemption Application* to the WDNR on June 30, 2020. Approval of the construction permit exemption was granted on August 11, 2020.

1.3.3.2 Other Permits

The subcontractor selected to complete the system installation will be responsible for obtaining all required construction permits from the City of Madison.

Excess soils generated will be appropriately disposed of under an approved waste disposal manifest.

Groundwater will be appropriately disposed of to the sanitary sewer under an approved groundwater disposal permit from the City of Madison/MMSD.

1.4 Project Organization and Roles and Responsibilities

Refer to Table 1 for project organization and key contacts.

Table 1: Project Organization and Roles and Responsibilities

Role	Person	Phone	
Owner Primary Contact	Josh Conners	+1 (608) 575-6531	josh.conners@rabin.com
Consultant (ERM)	David de Courcy-Bower	+1 (414) 977-4705	david.decourcybower@erm.com

1.5 OM&M Manual Organization

This OM&M Manual is intended to serve as a “road map” for quick reference to needed OM&M information. Manufacturers’ OM&M manuals and product information for individual SVE components are referenced and support the information presented in this manual. This manual is organized into the following sections:

1. **Introduction –** background information, cleanup criteria and performance objectives, permit requirements, project organization, and purpose and organization of the document.
2. **Process and System Description –** description of the processes and operations of the SVE System along with a description of the major instrumentation equipment components and the control system strategy.
3. **Operating Procedures, Inspection, and Maintenance –** startup, shutdown, and other routine inspection and maintenance activities.
4. **Monitoring, Data Management, and Reporting –** monitoring, data management, and reporting requirements for the SVE system.
5. **Waste Management –** descriptions of typical materials that require disposal and the procedures to be followed.
6. **Emergency Response –** notification procedures and the steps in case of an emergency.
7. **Operator Training –** a summary of the training requirements for onsite personnel.

2. PROCESS AND SYSTEM DESCRIPTION

2.1 Overview and SVE Equipment

This section includes a summary of equipment that was installed for the SVE System. Final construction documentation will be provided in a Construction Documentation Report to be provided separately. The information presented in this section is organized by process stream and in order of process flow. Photographs of the SVE system are provided as Appendix A. The primary SVE components include the following:

- Soil Vapor Extraction Wells and Conveyance Piping
- Knock-Out Tank
- Soil Vapor Extraction Blower
- Discharge Stack

2.2 Soil Vapor Extraction Wells and Piping

2.2.1 Soil Vapor Extraction Wells

A total of 20 SVE extraction wells were installed below the concrete slab in Building 43. All SVE wells consist of 4-inch schedule 80 polyvinyl chloride (PVC) with 2 to 3 foot long screen.

2.2.2 Conveyance Piping

The above-grade conveyance piping consists of three primary header pipes, one routed from the SVE system to the SVE wells located in the northern portion of Building 43, a second routed to the SVE wells located in the southwest of portion of Building 43 and a third routed to the SVE well located in the southeast portion of Building 43. Each header pipe is primarily constructed of Schedule 80 PVC, except the lower sections that will be constructed of carbon steel. The SVE wells are connected to the appropriate header pipe using 3 to 4-inch diameter Schedule 80 PVC or carbon steel piping.

2.2.3 Knock-out Tank

From the header pipes, the extracted vapors from each header pipe will be monitored with air flow meters and gauges prior to discharging into a 117-gallon moisture knock-out tank. The knock-out tank is designed to remove water from the SVE system air stream prior to entry into the SVE blower. The knock-out tank is connected to a 500-gallon poly storage tank used to store accumulated water, if needed. Accumulated water would be discharged to the sanitary sewer as approved for groundwater by MMSD and the City of Madison.

2.2.4 SVE Blower

The SVE blower is a 10 HP regenerative blower capable of delivering up to 300 SCFM of flow.

2.2.5 SVE Discharge

The SVE system discharge is via a schedule 80 PVC stack attached to and extend at least 5 feet above an adjacent building. The discharge is exempt from permitting as previously described in Section 2.4.1.

2.2.6 System Controls & Failsafes

The SVE system is equipped with a programmable logic controller (PLC) which is used to operate the system based on the inputs from the various instruments located in the SVE system building. The system is equipped with both digital/analog and mechanical failsafes that will shut down the system if it is operating outside of standard operating conditions. The system is equipped with an autodialer that will automatically contact the system operators if the system has shut down. The SVE system is also equipped with remote telemetry for routine system monitoring.

3. OPERATING PROCEDURES, INSPECTION AND MAINTENANCE

This section describes the routine inspection and maintenance requirements for the SVE System. Inspection and maintenance activities are performed to keep equipment operating efficiently, reduce unscheduled and non-routine downtime, extend equipment life, and promote a safe working environment.

3.1 SVE System Startup/Shutdown

3.1.1 Startup and Restart Procedure

The manual startup / restart procedure is used for starting up the SVE system after a normal shutdown, an emergency shutdown, and/or an automatic shutdown.

1. Confirm all valves on the main flow path are open.
2. On the human machine interface (HMI) screen, complete the following:
    a. Confirm all pumps and blowers are in the auto mode.
    b. Press the reset button to acknowledge and clear all alarms.
    c. Press the start button to start the system. The status light should turn green and indicate “On”, and the blower and pump symbols should turn green to indicate they are operating.
3. Once the SVE system has been started, make adjustments, as necessary, to the blower flow rates and individual SVE well flow rates using the throttling valves.
4. Conduct a visual inspection of the SVE System and gauges to confirm that system is operating properly and within normal operating ranges.

3.1.2 Manual Shutdown

A normal (manual) shutdown occurs when the SVE System needs to be turned off in a non-emergency situation. For example, a normal shutdown is performed during maintenance activities such as blower maintenance and electrical repairs. The shutdown process ensures the SVE System goes through a sequence of activities that are designed to prevent equipment damage. The following procedures should be followed for normal shutdown of the system:

1. On the HMI screen, press the red stop button. The stop button will shut down the blower and pumps. The status light should turn red and indicate “Off”.
2. If the system is to be shutdown for an extended period of time, proper Lock Out/Tag Out (LOTO) steps should be taken to ensure unauthorized startup does not occur. Additionally, the building heat should be kept on or the system building drained of all water to prevent freezing.

3.1.3 Automatic Shutdown

When operated in “Auto” mode, the SVE System PLC will trigger an automatic shutdown of the SVE System and display alarms on the PLCs based on pre-programmed conditions to protect equipment and safety.

Following an automatic shutdown, the SVE operator should:

- Acknowledge the shutdown and notify the Owner Contact (Table 1) of the cause of the shutdown.
- If the cause of the shutdown is completely understood no further investigation or repairs are required, and Site conditions are safe for continued SVE System operation:

- Reset the alarm fault on the HMI.
- Perform the SVE System restart procedure in Section 3.1.1.

- Otherwise, if further investigation and/or repairs are required:
  - Perform the manual shutdown in Section 3.1.2.
  - Perform proper LOTO procedures prior to completing maintenance or troubleshooting activities.
  - Troubleshoot and fix the problem. Refer to Section 3.5 for assistance.
  - Confirm that all faults are resolved on the HMI.
  - Perform the SVE System restart procedure in Section 3.1.1.

3.1.4 Emergency Shutdown

The SVE system is equipped with an emergency shutdown function. The function is controlled by the red emergency stop button located on the main control panel and near the system blower. Push in the emergency stop button to shutdown the system. The entire system will shut down when the emergency stop is engaged, including the blower and pumps, and cannot be restarted without the alarm being acknowledged and cleared by the operator.

After resolution of the conditions requiring the emergency stop, the system can be restarted by the following procedure:

1. Pull the red emergency stop button out so that it is no longer in the engaged position.
2. Push the green emergency stop reset on the control panel to acknowledge the alarm and clear the emergency stop condition.
3. Follow normal startup procedures to restart the system (Section 3.1.1).

3.2 Operation Monitoring

The SVE System is monitored by representatives listed in Table 1 to ensure reliability of the operations and to respond to alarm situations. The control system was designed to continuously operate in the absence of the operator, and to automate shutdown of components during alarm conditions. Minor SVE system failures will be included in semi-annual reporting to WDNR. Any significant releases to the environment would be reported in according with Wis. Admin §NR Chapter 706.05.

3.3 Inspection

Routine SVE inspection will be performed on a monthly basis. This monthly inspection includes tasks such as checking SVE components for leaks, reviewing SVE System set points, and obtaining process parameters, including flow rates and pressure measurements.

3.4 Routine Maintenance

Routine maintenance activities, such as replacing filters and blower maintenance, are performed as preventive measures to keep equipment operating properly and efficiently. The maintenance requirements for the SVE System are based on equipment manufacturers' recommendations. Routine maintenance activity schedule is summarized in

Table 2.

Table 2 : Routine Maintenance Schedule

Activity	Frequency	Description
General Operation Check	Weekly (First Month) Then Monthly	Ensure SVE blower is operating within target range for flow. Check knock-out tank and discharge stack drain for water accumulation. Schedule maintenance as necessary.
SVE Well Vaults	Quarterly	Check the condition of the vaults and flowrate within normal operation. Repair/replace components, as necessary.
System Blower	As Necessary	Cumulative Hour Meter on system will be checked quarterly, blower will be serviced per manufacturer's recommendation based on length of service.
Seasonal Operation	Semi-Annual (October and April)	Check the system for winter/spring operation. Check the status of heaters and fans for proper operation. Remove accumulated water that may freeze in the winter time. Review system condition including monitoring well vaults, and other equipment that may have been damaged by frost or snow plows over the winter.

3.5 Troubleshooting and Non-Routine Maintenance

Non-routine maintenance consists of activities that are not planned as part of the regular routine maintenance program. Examples of non-routine maintenance include responding to SVE System alarms and equipment repair after failure. The need to conduct these activities would typically result from the findings obtained during troubleshooting a SVE system failure or problem.

4. MONITORING, DATA MANAGEMENT, AND REPORTING

The purpose of this section is to summarize the monitoring, data management, and reporting requirements for the SVE System. Included in this section are the general monitoring requirements for operations. Also included are guidelines for data management and for regulatory and internal reporting.

4.1 Groundwater Monitoring

910 Mayer will conduct groundwater sampling on a quarterly basis for the four monitoring wells adjacent to Building 43 for a total of 2 to 3 years to establish groundwater conditions. Collected groundwater will be submitted to a certified laboratory for analysis of volatile organic compounds (CVOCs). Changes to the groundwater monitoring must be approved by the WDNR prior to implementation.

4.2 SVE Vapor Monitoring

910 Mayer will conduct SVE sampling and monitoring at the SVE discharge stack, at the SVE well locations, and at select sub-slab sample locations. There will be 3 phases of monitoring: 1) Initial Start-up Monitoring, 2) First Month Monitoring, 3) Routine Monitoring.

4.2.1 Initial Start-up Vapor Monitoring

During the initial system start-up vapor monitoring will be completed to establish concentration correlation between SVE extraction well analytical results and photo ionization detector (PID) screening results. Samples for laboratory analysis will also be collected from the SVE system discharge stack.

Table 3: Initial Start-up Vapor Monitoring Program

Location	Parameters	Frequency/Number	Comment
SVE Wells	Total VOCs (PID) VOCs (TO-15) Pressure	Beginning and end of Day 1, Once per Day for 3 days 6 samples representing range of PID readings collected end of Day 1 Hourly Day 1, Once per Day for 3 days	Day 1 is during start-up and SVE system balancing
SVE System Zone Intake	Total VOCs (PID) Flow Pressure	Hourly Day 1, Once per Day for 3 days Hourly Day 1, Once per Day for 3 days Hourly Day 1, Once per Day for 3 days	Day 1 is during start-up and SVE system balancing
SVE System Discharge Stack	Total VOCs (PID) VOCs (TO-15) Flow Pressure	Hourly Day 1, Once per Day for 3 days First Hour Day 1 then Once per Day for 3 days Hourly Day 1, Once per Day for 3 days Hourly Day 1, Once per Day for 3 days	Day 1 is during start-up and SVE system balancing
Sub-Slab Vapor Probes	Total VOCs (PID) Pressure	One Round per Day for 3 days One Round per Day for 3 days	Following start-up and SVE system balancing

4.2.2 First Month Vapor Monitoring

During the first month of SVE system operation vapor monitoring will be completed on a weekly basis. Samples for laboratory analysis will be collected from the SVE system discharge stack.

Table 4: Initial Start-up Vapor Monitoring Program

Location	Parameters	Frequency/Number	Comment
SVE Wells	Total VOCs (PID) Pressure	Once per Week Once per Week	
SVE System Zone Intake Line	Total VOCs (PID) Flow Pressure	Once per Week Manual reading once per Week Manual reading once per Week	
SVE System Discharge Stack	Total VOCs (PID) VOCs (TO-15) Flow Pressure	Once per Week Once per Week Manual reading once per Week Manual reading once per Week	
Sub-Slab Vapor Probes	Total VOCs (PID) Pressure	One round per Week One round per Week	

4.2.3 Routine Vapor Monitoring

Following the first month of SVE system operation vapor monitoring will be completed on a monthly basis. Samples for laboratory analysis will be collected from the SVE system discharge stack.

Table 5: Initial Start-up Vapor Monitoring Program

Location	Parameters	Frequency/Number	Comment
SVE Wells	Total VOCs (PID) Pressure	Once per Month Once per Month	
SVE System Zone Intake Line	Total VOCs (PID) Flow Pressure	Once per Month Manual reading once per Month Manual reading once per Month	
SVE System Discharge Stack	Total VOCs (PID) VOCs (TO-15) Flow Pressure	Once per Month Once per Month Manual reading once per Month Manual reading once per Month	
Sub-Slab Vapor Probes	Total VOCs (PID) Pressure VOCs (TO-15)	One round per Month One round per Month One round per Year	

Analytical samples will be submitted to a certified laboratory for analysis of VOCs.

4.3 Reporting and Data Management Requirements

Progress reports will be submitted to the WDNR on a semi-annual basis in accordance with section NR 700.11 of the Wisconsin Administrative Code (WAC). The reports will summarize the SVE operations during the reporting period, analytical data collected from the SVE System and groundwater wells to support system effectiveness, and planned OM&M activities. Analytical results will be provided in these reports and a variance from the 10 day submittal of analytical results as specified in NR 716.14 is requested.

4.3.1 Regulatory Required Reporting

Regulatory reporting requirements are all reports that are required by the WDNR. Table 6 lists all the reports, frequency of submission, and the responsible party.

Table 6: Regulatory Reporting Requirements

Report	Frequency	Submit To	Responsible Party
Semi-Annual Progress Report	Semi-Annual	WDNR	910 Mayer
Groundwater Monitoring Report	Annual	WDNR	910 Mayer

4.3.2 Routine Performance and Data Evaluation

Data collected during routine monitoring and sampling events will be evaluated quarterly. Evaluation will include SVE system effectiveness, recently conducted monitoring and sampling activities, maintenance activities, and potential SVE system improvements needed to better meet the established remediation and operational objectives. The SVE system will operate until asymptotic recovery of VOCs occurs, or until sub-slab sampling data and discharge monitoring data meets Industrial Vapor Risk Screening Levels (VRSLs). If asymptotic VOC recovery occurs before the Industrial VRSLs are met, the SVE system is expected to transition to a sub-slab depressurization system.

5. WASTE MANAGEMENT

This section describes the Site waste management practices.

5.1 Environmental Media/Waste Management

5.1.1 Media of Concern

Proper identification and characterization of waste encountered during remediation activities are essential to determine proper handling, storage, treatment, and disposal requirements. Per the requirements of 40 CFR 262.11, all waste generators must determine whether the waste generated at their Site is hazardous. All of the generated waste streams referred to in Table 77 are considered to be non-hazardous waste.

Table 7: Potential Waste Streams

Potential Waste Stream	Source
General Refuse	General Site activities
Intake Filters	Fouled air filters
Condensate Knock-out Tank Water	Condensate water collected from knock-out tank
Impacted Groundwater	Purge water collected during sampling events

5.1.2 Waste Transportation and Disposal

Non-hazardous waste shall be transported offsite to the approved non-hazardous waste disposal facility, under proper Bill of Lading or Non-hazardous Waste Manifest, utilizing a licensed transporter in the State of Wisconsin. Groundwater purge water and condensate knock-out tank water will be disposed of to the sanitary sewer with approved permits from the City of Madison and MMSD.

6. EMERGENCY RESPONSE

6.1 Emergency Shutdown Procedures

In the event of an emergency, operators should activate the emergency stop (e-stop) button which is located on the front of the control panel.

6.2 Emergency First Response

The first response in an emergency should be to contact agencies and individuals that may be of assistance or may be concerned. Whenever there is an imminent or actual emergency, Facility personnel must immediately notify the Owner Primary or Secondary Contact in Table 1 and coordinate with Facility personnel. If emergency intervention by outside agencies is required, the appropriate organizations (e.g., fire department, sewage department, hazardous materials teams) will be notified. Personnel onsite for operation and maintenance (OM&M) duties are not to notify external agencies without prior supervisory approval unless the situation is life threatening. All reasonable measures necessary should be taken to ensure that fires, explosions, and releases do not occur, recur, or spread to other areas of the Facility during an emergency.

6.3 Emergency Notification List

Table 88 contains emergency contacts. If an emergency occurs, contact the Primary or Secondary Owner Contact in Table 1 first. The Owner Contact will contact the relevant government agencies.

Table 8: Emergency Contact List

Agency	Role	Phone
WDNR	Emergency Spill Hotline	1-800-943-0003
WDNR	South Central Region Coordinator	(608) 275-3295
Fire Department	City of Madison Fire Department	911 (Emergency) (608) 266-4420 (Non-Emergency)
Police Department	City of Madison Police Department	911 (Emergency) (608) 255-2345 (Non-Emergency)
Hospital	UnityPoint Health - Meriter Hospita	911 (Emergency) (608) 417-6000 (Non-Emergency)
Josh Conners	Owner Primary Contact	+1 (608) 575-6531
David de Courcy-Bower	Consultant (ERM)	+1 (414) 977-4705

6.4 Response Equipment List and Location

Table 99 includes a list of emergency response equipment at the Site. This list must be kept up to date.

Table 9: Emergency Equipment List

Emergency Equipment and Supplies	Location	Inspection and Maintenance Requirements
5lb Fire Extinguisher (A/B/C Class)	SVE System Building to South of Building 43	Monthly inspection; if needed, it shall be replaced as soon as possible
First Aid Kit	SVE System Building to South of Building 43	Monthly inspection; if anything has been removed, it shall be replaced as soon as possible
Eye Wash	SVE System Building to South of Building 43	Monthly inspection; if needed, it shall be replaced as soon as possible

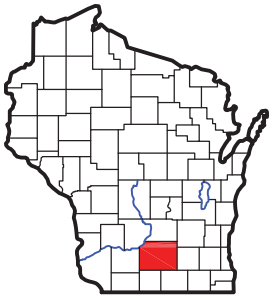
7. OPERATOR TRAINING

This section outlines the training protocols required for employees who work at the Site.

To comply with Occupational Safety and Health Administration (OSHA) training regulations set forth for hazardous materials operations by 29 CFR Part 1910, all onsite OM&M personnel must complete the following training requirements:

- OSHA 40-hr HAZWOPER General Site Worker Training
- Annual 8-hr HAZWOPER Refresher Training
- First Aid Training
- Lock Out Tag Out Training (As Applicable to Tasks with LOTO)
- Noise Training

Records of the training should be kept up to date and on file along with the HASP. Training records of former employees must be kept for at least 3 years from the date the employee last worked at the Facility. Records for current employees must be kept at the Facility until the Facility closes (40 CFR 265.16[e]).



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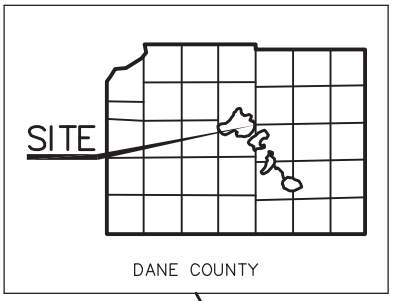

SECTION 31
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CITY OF MADISON
DANE COUNTY
WISCONSIN

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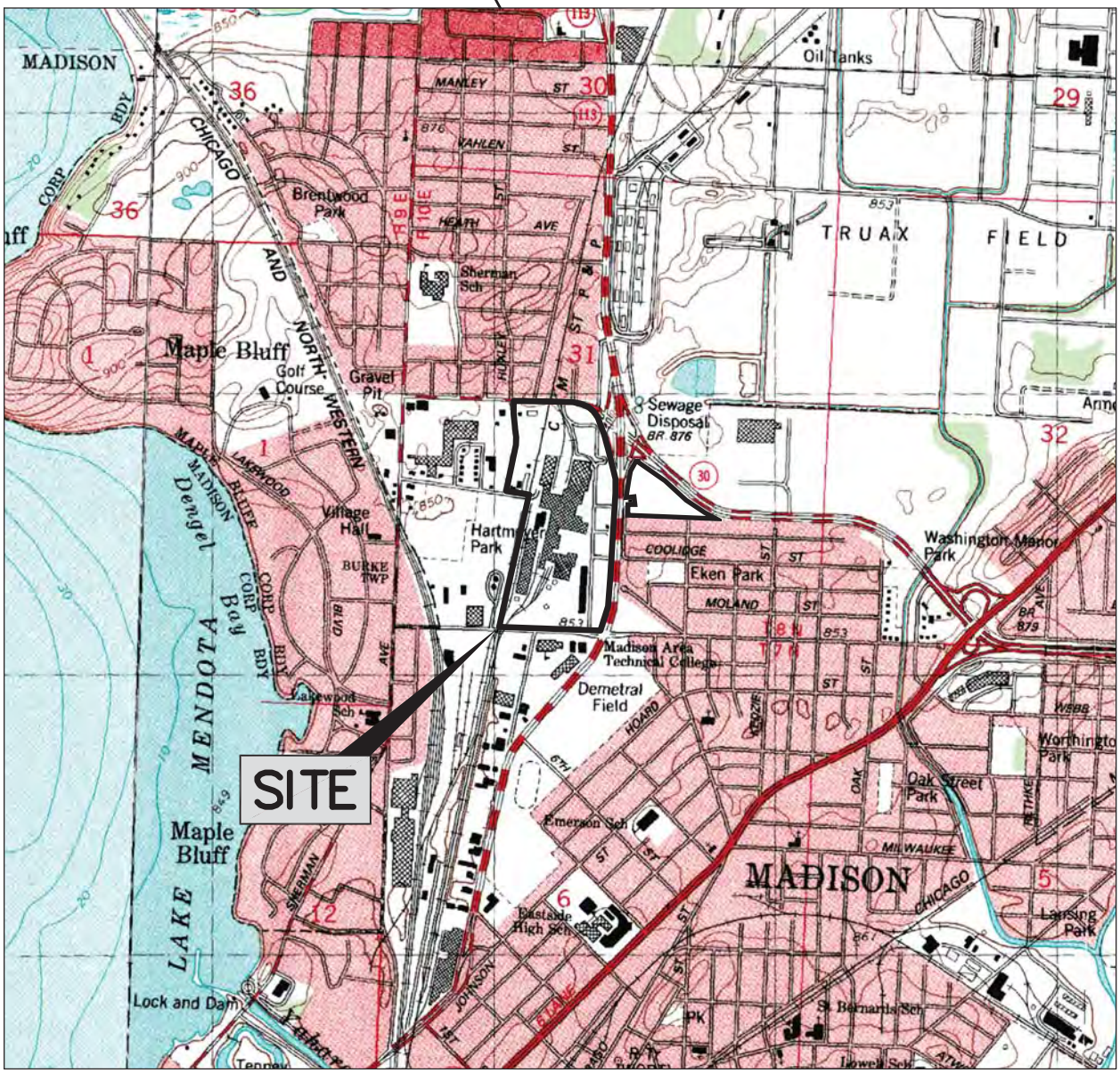
SCALE (IN FEET)



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REVISIONS ARE TO BE MADE ON THE CADD FILE ONLY

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SITE LOCATION MAP

910 OSCAR AVENUE
MADISON, WISCONSIN

CADD Review RMK
CHK'D CS
0441161

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GML 9/27/17

Environmental Resources Management

FIGURE 1

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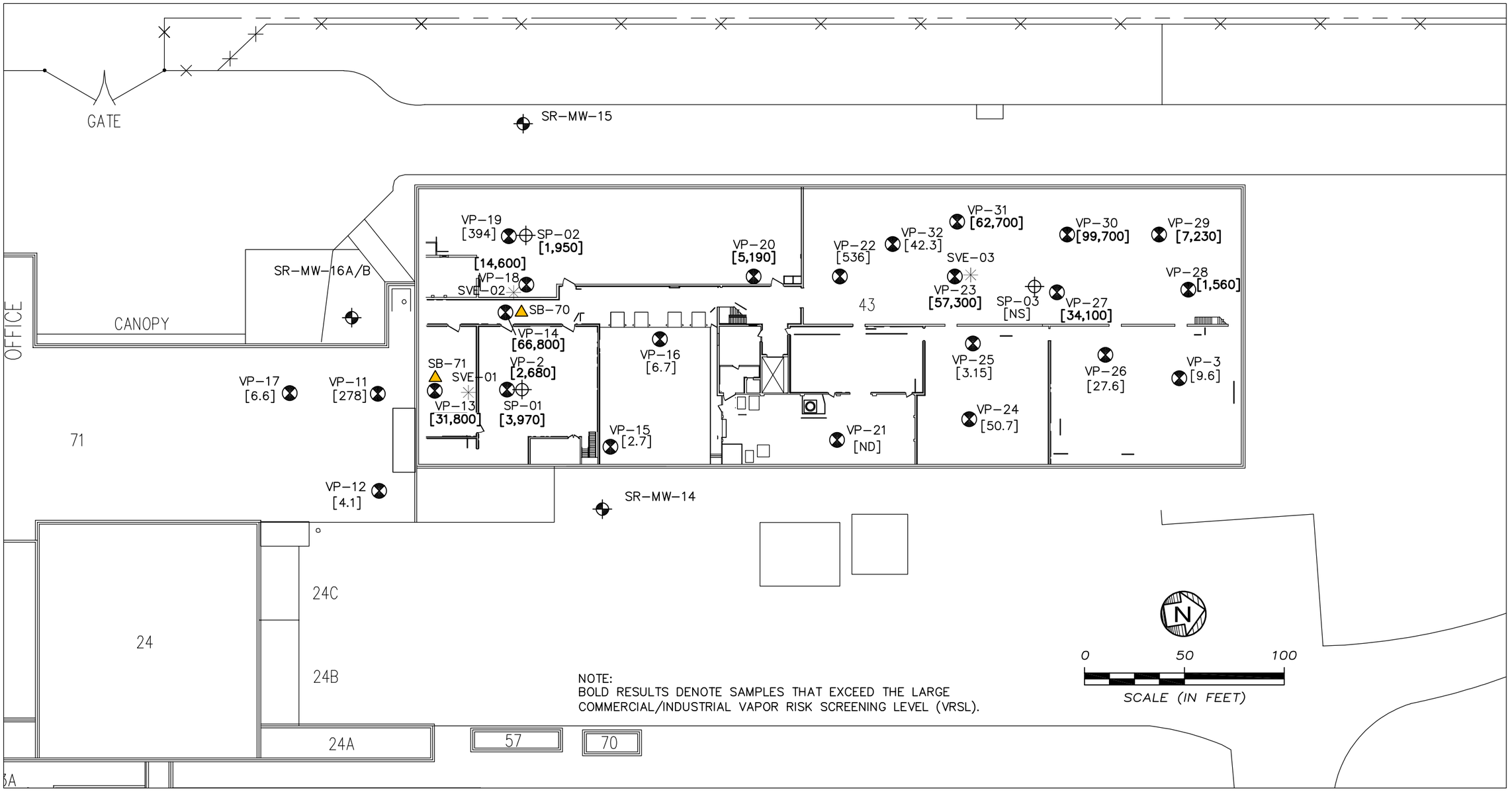
TCE SUB-SLAB SAMPLE RESULTS
BUILDING 43 AND 71



NOTE:
BOLD RESULTS DENOTE SAMPLES THAT EXCEED THE LARGE COMMERCIAL/INDUSTRIAL VAPOR RISK SCREENING LEVEL (VRSL).

LEGEND

- SUB-SLAB LOCATION
- [927] TCE SOIL GAS RESULTS (MICROGRAMS PER CUBIC METER – ug/m^3)
- SOIL VAPOR EXTRACTION WELL
- SOIL VAPOR PROBES
- STORM SEWER
- STORM MANHOLE
- RD ROOF DRAIN
- MONITORING WELL
- SOIL BORING

Drawn By GML	ERM®	**910 MAYER LLC** 910 OSCAR AVENUE MADISON, WISCONSIN	CHK'D RP
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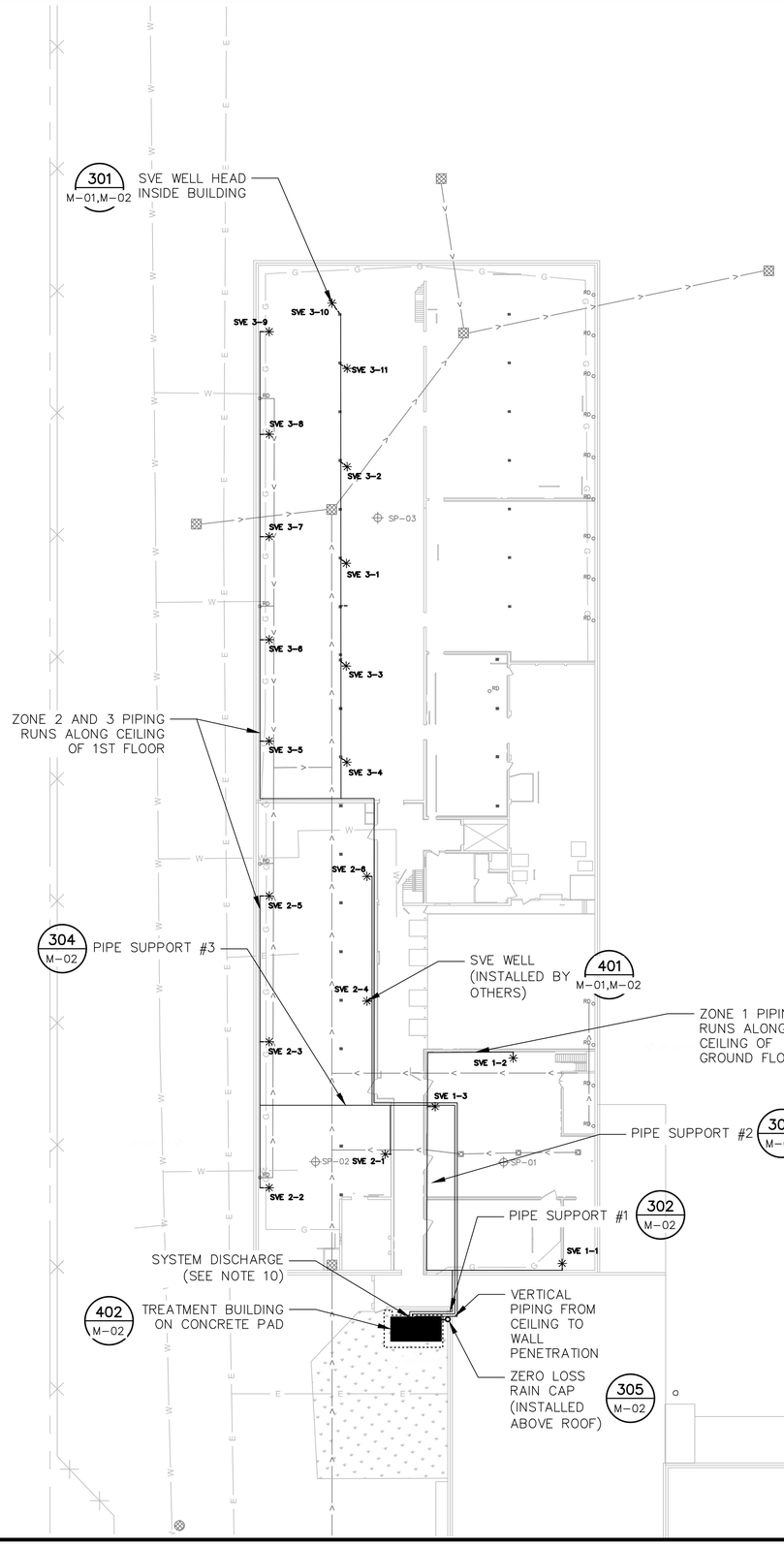

LEGEND

- EXISTING BUILDING/WALL
- EXISTING WATER LINE
- EXISTING STORM SEWER
- EXISTING ELECTRIC LINE
- EXISTING ELECTRIC GROUND LINE
- EXISTING GRASSY AREA
- SP-03 SOIL VAPOR PROBES
- EXISTING STORM INLET
- EXISTING FLOOR DRAIN
- EXISTING ROOF DRAIN
- EXISTING MONITORING WELL
- EXISTING BUILDING COLUMN
- SVE 3-9 SOIL VAPOR EXTRACTION WELL
- TREATMENT BUILDING
- OVERHEAD PIPING
- UNDERGROUND PIPING

SOIL VAPOR EXTRACTION (SVE) SYSTEM NOTES:

1. SVE WELLS TO BE INSTALLED BY OTHERS.
2. SVE WELLS WILL REQUIRE FITTINGS (e.g., TEE, WYE, ETC.) FOR CONNECTIONS.
3. SYSTEM TO INCLUDE FLOW MEASUREMENT AND SAMPLING PORTS.
4. SVE EQUIPMENT LOCATIONS ARE APPROXIMATE. FINAL LOCATION TO BE FIELD DETERMINED.
5. SYSTEM EFFLUENT TO BE EXHAUSTED ABOVE BUILDING ROOF AND AWAY FROM AIR HANDLING UNITS.

NOTES:

1. ALL WORK SHALL CONFORM TO THE BUILDING, FIRE, AND SAFETY CODES, THE ORDINANCES, AND THE RULES AND REGULATIONS OF ANY LEGAL BODY HAVING JURISDICTION. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED.
2. CONTRACTOR IS RESPONSIBLE FOR CONDUCTING CLEARANCE OF BOTH PUBLIC AND PRIVATE UTILITIES PRIOR TO INITIATING SUBSURFACE CONSTRUCTION ACTIVITIES, AND IS RESPONSIBLE FOR REPAIR OF ALL KNOWN UTILITIES DAMAGED DURING INSTALLATION.
3. SVE PIPING SHALL BE INSTALLED WITH A SLOPE OF 1/8" PER FOOT TOWARDS THE WELL POINT (ABOVE AND BELOW-GRADE).
4. EXISTING PIPE RACKS (IF PRESENT) SHALL BE USED TO ROUTE PIPING WHERE APPROPRIATE. FINAL ROUTING OF PIPING TO BE DETERMINED IN FIELD AND APPROVED BY OWNER AND ENGINEER.
5. THE DISCHARGE STACK PIPE SHALL TERMINATE A MINIMUM OF 5 FEET ABOVE THE ROOF OF THE MAIN BUILDING OR 12-INCHES ABOVE ANY PARAPET (WHICHEVER IS HIGHER), AND A MINIMUM OF 25 FEET AWAY FROM ANY WINDOW, DOOR, HVAC SYSTEM, OR OTHER OPENING INTO THE OCCUPIED SPACES OF THE BUILDING.
6. TREATMENT SYSTEM SHALL BE PLACED AS CLOSE AS POSSIBLE TO EXTERIOR WALL OF BUILDING. INTERIOR PIPING SHALL PASS THROUGH WALLS OF MAIN BUILDING AND TREATMENT BUILDING.
7. EXTERIOR PIPING SHALL BE INSULATED WITH NBR/PVC OR FIBERGLASS INSULATION TO PROTECT FROM FREEZING.
8. ROUTING OF PIPING AND PLACEMENT OF TREATMENT BUILDING SHALL ALLOW ACCESS TO OVERHEAD DOOR FOLLOWING INSTALLATION. ROUTING OF PIPING SHALL ALLOW ACCESS TO TREATMENT ROOM FOLLOWING INSTALLATION.
9. FOR CLARITY, THE PIPING ON THE DRAWING HAS BEEN PRESENTED AS A GENERAL SCHEMATIC AND IS NOT REPRESENTATIVE OF ACTUAL SPACING BETWEEN PIPING. CONTRACTOR SHALL INSTALL PIPING IN A MANNER THAT WILL LIMIT THE SPACE REQUIRED.
10. ROUTE SYSTEM DISCHARGE VERTICALLY TO ROOF AND AFFIX STACK TO ROOF.

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DESIGN SYSTEM LAYOUT - (NOT AS-BUILT)

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Former Spice Room Area
910 Mayer Avenue
Madison, WI

Figure 3

ENVIRONMENTAL RESOURCES MANAGEMENT

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APPENDIX A SVE SYSTEM PHOTOGRAPHS

Appendix C: SVE System Photographs

Figure 1: System Exterior

Figure 2: System Interior Layout

Appendix C: SVE System Photographs

Figure 3:System Blower and piping

Figure 4: System Control Enclosure

Appendix C: SVE System Photographs

Figure 5: Emergency Stop

Figure 6: Vapor Sample Point

Appendix C: SVE System Photographs

Figure 7: Transfer Pump and Knockout Water Sample Port

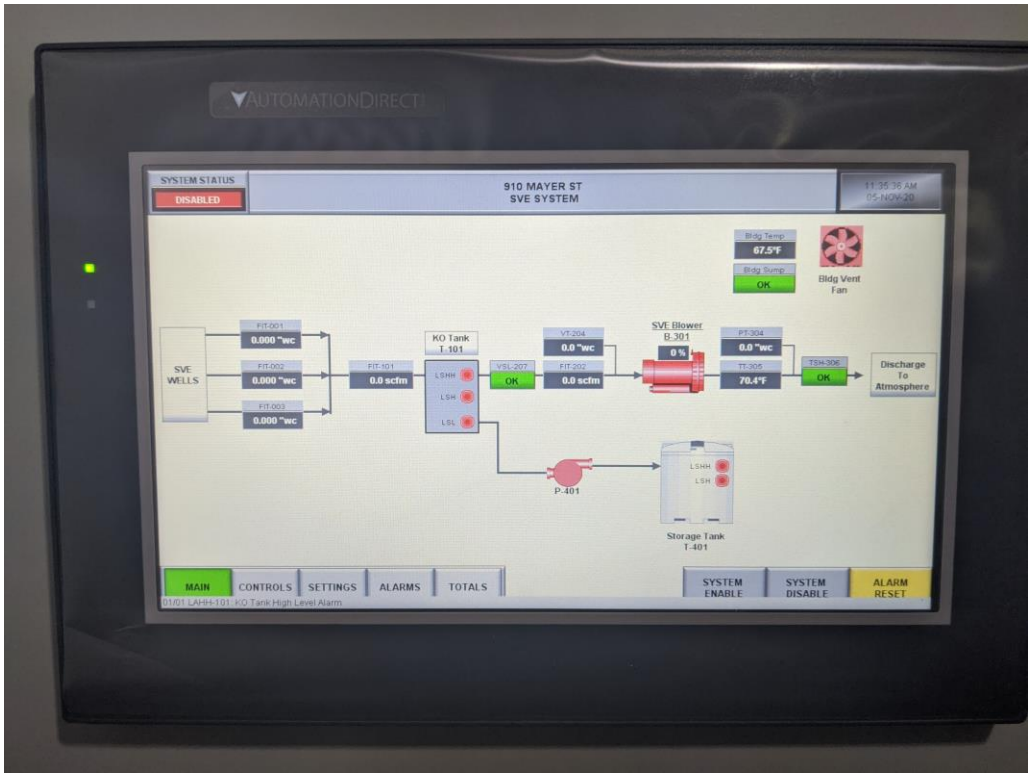

Figure 8: System Control Panel

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