

Notice: Use this form to request a **written response (on agency letterhead)** from the Department of Natural Resources (DNR) regarding technical assistance, a post-closure change to a site, a specialized agreement or liability clarification for Property with known or suspected environmental contamination. A fee will be required as is authorized by s. 292.55, Wis. Stats., and NR 749, Wis. Adm. Code., unless noted in the instructions below. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records law [ss. 19.31 - 19.39, Wis. Stats.].

Definitions

"Property" refers to the subject Property that is perceived to have been or has been impacted by the discharge of hazardous substances.

"Liability Clarification" refers to a written determination by the Department provided in response to a request made on this form. The response clarifies whether a person is or may become liable for the environmental contamination of a Property, as provided in s. 292.55, Wis. Stats.

"Technical Assistance" refers to the Department's assistance or comments on the planning and implementation of an environmental investigation or environmental cleanup on a Property in response to a request made on this form as provided in s. 292.55, Wis. Stats.

"Post-closure modification" refers to changes to Property boundaries and/or continuing obligations for Properties or sites that received closure letters for which continuing obligations have been applied or where contamination remains. Many, but not all, of these sites are included on the GIS Registry layer of RR Sites Map to provide public notice of residual contamination and continuing obligations.

Select the Correct Form

This form should be used to request the following from the DNR:

- Technical Assistance
- Liability Clarification
- Post-Closure Modifications
- Specialized Agreements (tax cancellation, negotiated agreements, etc.)

Do not use this form if one of the following applies:

- Request for an **off-site liability exemption or clarification** for Property that has been or is perceived to be contaminated by one or more hazardous substances that originated on another Property containing the source of the contamination. Use DNR's Off-Site Liability Exemption and Liability Clarification Application Form 4400-201.
- Submittal of an Environmental Assessment for the **Lender Liability Exemption**, s 292.21, Wis. Stats., **if no response or review by DNR is requested**. Use the Lender Liability Exemption Environmental Assessment Tracking Form 4400-196.
- Request for an **exemption to develop on a historic fill site** or licensed landfill. Use DNR's Form 4400-226 or 4400-226A.
- **Request for closure** for Property where the investigation and cleanup actions are completed. Use DNR's Case Closure - GIS Registry Form 4400-202.

All forms, publications and additional information are available on the internet at: dnr.wi.gov/topic/Brownfields/Pubs.html.

Instructions

1. Complete sections 1, 2, 6 and 7 for all requests. Be sure to provide adequate and complete information.
2. Select the type of assistance requested: Section 3 for technical assistance or post-closure modifications, Section 4 for a written determination or clarification of environmental liabilities; or Section 5 for a specialized agreement.
3. Include the fee payment that is listed in Section 3, 4, or 5, unless you are a "Voluntary Party" enrolled in the Voluntary Party Liability Exemption Program **and** the questions in Section 2 direct otherwise. Information on to whom and where to send the fee is found in Section 8 of this form.
4. Send the completed request, supporting materials and the fee to the appropriate DNR regional office where the Property is located. See the map on the last page of this form. A paper copy of the signed form and all reports and supporting materials shall be sent with an electronic copy of the form and supporting materials on a compact disk. For electronic document submittal requirements see: <http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf>

The time required for DNR's determination varies depending on the complexity of the site, and the clarity and completeness of the request and supporting documentation.

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 12/18)

Page 2 of 6

Section 1. Contact and Recipient Information

Requester Information

This is the person requesting technical assistance or a post-closure modification review, that his or her liability be clarified or a specialized agreement and is identified as the requester in Section 7. DNR will address its response letter to this person.

Last Name	First	MI	Organization/ Business Name
Beaster	Karl		Enbridge Energy, Limited Partnership (Responsible Party)
Mailing Address			City
11 East Superior Street - Suite 125			Duluth
			State
			MN
			ZIP Code
			55802
Phone # (include area code)	Fax # (include area code)	Email	
(715) 718-1040		karl.beaster@enbridge.com	

The requester listed above: (select all that apply)

- Is currently the owner
 Is considering selling the Property
 Is renting or leasing the Property
 Is considering acquiring the Property
 Is a lender with a mortgagee interest in the Property
 Other. Explain the status of the Property with respect to the applicant:

The property is owned by Tri-State Holdings LLC, an Enbridge affiliate

Contact Information (to be contacted with questions about this request)

Select if same as requester

Contact Last Name	First	MI	Organization/ Business Name
Beaster	Karl		Enbridge Energy, Limited Partnership (Responsible Party)
Mailing Address			City
11 East Superior Street - Suite 125			Duluth
			State
			MN
			ZIP Code
			55802
Phone # (include area code)	Fax # (include area code)	Email	
(715) 718-1040		karl.beaster@enbridge.com	

Environmental Consultant (if applicable)

Contact Last Name	First	MI	Organization/ Business Name
Huff	Tim		WSP USA Inc.
Mailing Address			City
5957 McKee Road, Suite 7			Madison
			State
			WI
			ZIP Code
			53719
Phone # (include area code)	Fax # (include area code)	Email	
(314) 206-4212		tim.huff@wsp.com	

Property Owner (if different from requester)

Contact Last Name	First	MI	Organization/ Business Name
			Tri-State Holdings LLC
Mailing Address			City
11 East Superior Street, Suite 125			Duluth
			State
			MN
			ZIP Code
			55802
Phone # (include area code)	Fax # (include area code)	Email	

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 12/18)

Page 3 of 6

Section 2. Property Information

Property Name Enbridge Line 13 Blackhawk Valve		FID No. (if known)	
BRRTS No. (if known) 02-28-586199	Parcel Identification Number 016-0514-0824-003		
Street Address Blackhawk Island Road	City Fort Atkinson	State WI	ZIP Code 53538
County Jefferson	Municipality where the Property is located <input checked="" type="radio"/> City <input type="radio"/> Town <input type="radio"/> Village of Fort Atkinson	Property is composed of: <input checked="" type="radio"/> Single tax parcel <input type="radio"/> Multiple tax parcels	Property Size Acres 68

1. Is a response needed by a specific date? (e.g., Property closing date) Note: Most requests are completed within 60 days. Please plan accordingly.

No Yes

Date requested by: 05/31/2023

Reason: Enbridge is planning to implement the remedial action described in the SVE Design Report in Q2/Q3 2023 and would like to incorporate WDNR comments into the planning for remedy implementation

2. Is the "Requester" enrolled as a Voluntary Party in the Voluntary Party Liability Exemption (VPLE) program?

No. **Include the fee that is required for your request in Section 3, 4 or 5.**

Yes. **Do not include a separate fee.** This request will be billed separately through the VPLE Program.

Fill out the information in Section 3, 4 or 5 which corresponds with the type of request:

Section 3. Technical Assistance or Post-Closure Modifications;

Section 4. Liability Clarification; or Section 5. Specialized Agreement.

Section 3. Request for Technical Assistance or Post-Closure Modification

Select the type of technical assistance requested: [Numbers in brackets are for WI DNR Use]

- No Further Action Letter (NFA) (Immediate Actions) - NR 708.09, [183] - **Include a fee of \$350.** Use for a written response to an immediate action after a discharge of a hazardous substance occurs. Generally, these are for a one-time spill event.
- Review of Site Investigation Work Plan - NR 716.09, [135] - **Include a fee of \$700.**
- Review of Site Investigation Report - NR 716.15, [137] - **Include a fee of \$1050.**
- Approval of a Site-Specific Soil Cleanup Standard - NR 720.10 or 12, [67] - **Include a fee of \$1050.**
- Review of a Remedial Action Options Report - NR 722.13, [143] - **Include a fee of \$1050.**
- Review of a Remedial Action Design Report - NR 724.09, [148] - **Include a fee of \$1050.**
- Review of a Remedial Action Documentation Report - NR 724.15, [152] - **Include a fee of \$350**
- Review of a Long-term Monitoring Plan - NR 724.17, [25] - **Include a fee of \$425.**
- Review of an Operation and Maintenance Plan - NR 724.13, [192] - **Include a fee of \$425.**

Other Technical Assistance - s. 292.55, Wis. Stats. [97] (For request to build on an abandoned landfill use Form 4400-226)

- Schedule a Technical Assistance Meeting - **Include a fee of \$700.**
- Hazardous Waste Determination - **Include a fee of \$700.**
- Other Technical Assistance - **Include a fee of \$700.** Explain your request in an attachment.

Post-Closure Modifications - NR 727, [181]

- Post-Closure Modifications: Modification to Property boundaries and/or continuing obligations of a closed site or Property; sites may be on the GIS Registry. This also includes removal of a site or Property from the GIS Registry. **Include a fee of \$1050, and:**
 - Include a fee of \$300 for sites with residual soil contamination; and
 - Include a fee of \$350 for sites with residual groundwater contamination, monitoring wells or for vapor intrusion continuing obligations.

Attach a description of the changes you are proposing, and documentation as to why the changes are needed (if the change to a Property, site or continuing obligation will result in revised maps, maintenance plans or photographs, those documents may be submitted later in the approval process, on a case-by-case basis).

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 12/18)

Page 4 of 6

Skip Sections 4 and 5 if the technical assistance you are requesting is listed above and complete Sections 6 and 7 of this form.

Section 5. Request for a Specialized Agreement

Select the type of agreement needed. Include the appropriate draft agreements and supporting materials. Complete Sections 6 and 7 of this form. More information and model draft agreements are available at: dnr.wi.gov/topic/Brownfields/Igu.html#tabx4.

- Tax cancellation agreement - s. 75.105(2)(d), Wis. Stats. [654]
❖ **Include a fee of \$700, and the information listed below:**
(1) Phase I and II Environmental Site Assessment Reports,
(2) a copy of the Property deed with the correct legal description.
- Agreement for assignment of tax foreclosure judgement - s.75.106, Wis. Stats. [666]
❖ **Include a fee of \$700, and the information listed below:**
(1) Phase I and II Environmental Site Assessment Reports,
(2) a copy of the Property deed with the correct legal description.
- Negotiated agreement - Enforceable contract for non-emergency remediation - s. 292.11(7)(d) and (e), Wis. Stats. [630]
❖ **Include a fee of \$1400, and the information listed below:**
(1) a draft schedule for remediation; and,
(2) the name, mailing address, phone and email for each party to the agreement.

Section 6. Other Information Submitted

Identify all materials that are included with this request.

Send both a paper copy of the signed form and all reports and supporting materials, and an electronic copy of the form and all reports, including Environmental Site Assessment Reports, and supporting materials on a compact disk.

Include one copy of any document from any state agency files that you want the Department to review as part of this request. The person submitting this request is responsible for contacting other state agencies to obtain appropriate reports or information.

- Phase I Environmental Site Assessment Report - Date: _____
- Phase II Environmental Site Assessment Report - Date: _____
- Legal Description of Property (required for all liability requests and specialized agreements)
- Map of the Property (required for all liability requests and specialized agreements)
- Analytical results of the following sampled media: Select all that apply and include date of collection.
- Groundwater Soil Sediment Other medium - Describe: _____
- Date of Collection: _____
- A copy of the closure letter and submittal materials
- Draft tax cancellation agreement
- Draft agreement for assignment of tax foreclosure judgment
- Other report(s) or information - Describe: SVE Design Report

For Property with newly identified discharges of hazardous substances only: Has a notification of a discharge of a hazardous substance been sent to the DNR as required by s. NR 706.05(1)(b), Wis. Adm. Code?

- Yes - Date (if known): _____
- No

Note: The Notification for Hazardous Substance Discharge (non-emergency) form is available at: dnr.wi.gov/files/PDF/forms/4400/4400-225.pdf.

Section 7. Certification by the Person who completed this form

- I am the person submitting this request (requester)
- I prepared this request for: _____
Requester Name

I certify that I am familiar with the information submitted on this request, and that the information on and included with this request is true, accurate and complete to the best of my knowledge. I also certify I have the legal authority and the applicant's permission to make this request.

**Technical Assistance, Environmental Liability
Clarification or Post-Closure Modification Request**

Form 4400-237 (R 12/18)

Page 5 of 6

Signature

Date Signed

Senior Environmental Advisor

(715) 718-1040

Title

Telephone Number (include area code)

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 12/18)

Page 6 of 6

Section 8. DNR Contacts and Addresses for Request Submittals

Send or deliver one paper copy and one electronic copy on a compact disk of the completed request, supporting materials, and fee to the region where the property is located to the address below. Contact a [DNR regional brownfields specialist](#) with any questions about this form or a specific situation involving a contaminated property. For electronic document submittal requirements see: <http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf>.

DNR NORTHERN REGION

Attn: RR Program Assistant
Department of Natural Resources
223 E Steinfest Rd Antigo, WI 54409

DNR NORTHEAST REGION

Attn: RR Program Assistant
Department of Natural Resources
2984 Shawano Avenue
Green Bay WI 54313

DNR SOUTH CENTRAL REGION

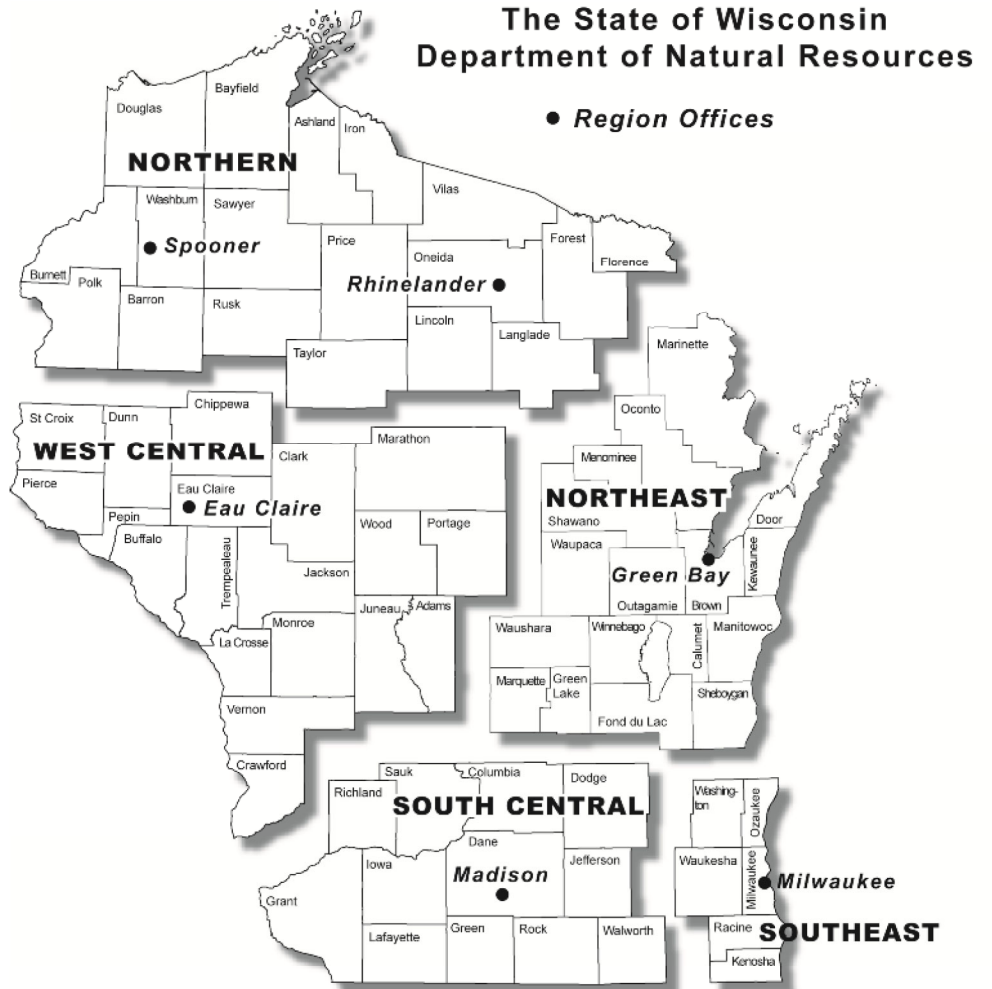
Attn: RR Program Assistant
Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg WI 53711

DNR SOUTHEAST REGION

Attn: RR Program Assistant
Department of Natural Resources
2300 North Martin Luther King Drive
Milwaukee WI 53212

DNR WEST CENTRAL REGION

Attn: RR Program Assistant
Department of Natural Resources
1300 Clairemont Ave.
Eau Claire WI 54702



Note: These are the Remediation and Redevelopment Program's designated regions. Other DNR program regional boundaries may be different.

DNR Use Only			
Date Received	Date Assigned	BRRTS Activity Code	BRRTS No. (if used)
DNR Reviewer		Comments	
Fee Enclosed? <input type="radio"/> Yes <input type="radio"/> No	Fee Amount \$	Date Additional Information Requested	Date Requested for DNR Response Letter
Date Approved	Final Determination		



ENBRIDGE LINE 13 MP 312 VALVE SITE SOIL VAPOR EXTRACTION DESIGN REPORT

ENBRIDGE ENERGY, LIMITED PARTNERSHIP

PROJECT NO.: 31406019.705C
DATE: MARCH 2023

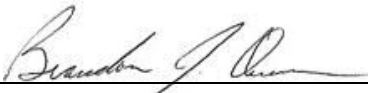
WSP USA, INC.
5957 MCKEE ROAD, SUITE 7
MADISON, WI 53719

WSP.COM

CERTIFICATION

Soil Vapor Extraction Design Report
Enbridge Line 13 MP 312 Valve Site
Blackhawk Island Road
Fort Atkinson, Wisconsin
BRRTS Number: 02-28-586199

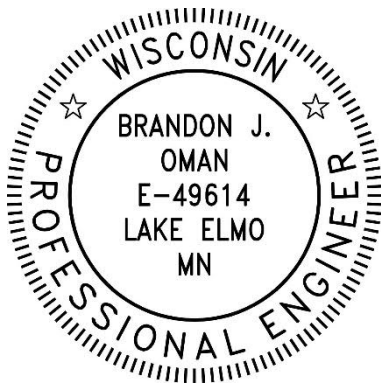
I, Brandon J. Oman, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.



Brandon J. Oman, PE
Assistant Vice President – Environmental Engineer
Wisconsin PE #49614-6

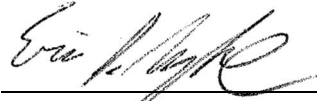
03/27/2023

Date



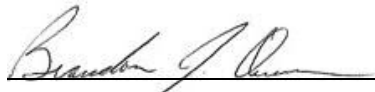
SIGNATURES

PREPARED BY



Eric Wesseldyke
Senior Consultant – Environmental Engineer

REVIEWED BY



Brandon Oman, PE
Assistant Vice President – Environmental Engineer



TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	SVE Design Rationale.....	1
2	SITE BACKGROUND	2
2.1	Site Information	2
3	SVE PILOT TEST RESULTS.....	4
3.1	Applied Vacuum – Flow Response	4
3.2	Radius of Influence.....	4
3.3	Estimated VOC Vapor Mass Removal Rates	4
3.4	Water Generation	4
3.5	Vapor Discharge Permitting	5
3.5.1	Permitting Requirements	5
3.5.2	Regulatory Requirements.....	5
4	SVE SYSTEM DESIGN.....	6
4.1	SVE Wells.....	6
4.2	SVE Piping Route/Calculations	6
4.3	Blower Specifications.....	6
4.4	Effluent treatment.....	6
5	SVE SYSTEM CONSTRUCTION	8
5.1	SVE Piping Installation	8
5.2	SVE System Enclosure.....	8
5.3	Hydro-Excavation Spoils Management.....	8
6	SVE SYSTEM START-UP	9
6.1	SVE Sampling	9
6.1.1	Air Permitting Sampling	9
6.1.2	Mass Removal Sampling.....	9



7	REFERENCES	10
8	ACRONYM LIST	11



TABLES

TABLE 2-1 - SITE INFORMATION.....	2
TABLE 1	SVE PIPING FRICTION LOSS CALCULATIONS
TABLE 2	VOC VAPOR MASS LOADING ESTIMATE

FIGURES

FIGURE 2-1	SITE LOCATION
------------	---------------

APPENDICES

APPENDIX A	SOIL VAPOR POTENTIAL TO EMIT CALCULATIONS
APPENDIX B	RESPONSE ACTION DESIGN PACKAGE SOIL VAPOR EXTRACTION SYSTEM
APPENDIX C	SOIL VAPOR EXTRACTION BLOWER DATA SHEET

1 INTRODUCTION

On behalf of Enbridge Energy, Limited Partnership (Enbridge), WSP USA, Inc. (WSP) has prepared this Soil Vapor Extraction (SVE) Design Report for the Enbridge Line 13, Mile Post (MP) 312 Valve Site near Fort Atkinson, Wisconsin (Site). Soil and groundwater assessment and remediation are being conducted at the Site under the oversight of the Wisconsin Department of Natural Resources (WDNR) Remediation and Redevelopment Program (Bureau for Remediation and Redevelopment Tracking System (BRRTS) Number: 02-28-586199).

1.1 SVE DESIGN RATIONALE

Enbridge submitted to the WDNR a Supplemental Site Investigation (SSI) Report on March 16, 2022, summarizing the results of the additional Site investigation and interim actions conducted in 2021 and January 2022. WSP then submitted a Remedial Action Options Report (RAOR) on May 19, 2022, in accordance with Wisconsin Administrative Code (WAC) Chapter NR 722 requirements, evaluating multiple remedial action options (RAOs) and selecting the RAO most appropriate for this Site. The RAOR identified SVE as the active RAO most appropriate for remediating residual light non-aqueous phase liquid (LNAPL) and soil impacts at the Site. WSP conducted an SVE Pilot Test in accordance with the SVE Pilot Test Work Plan (Work Plan) submitted to the WDNR on July 7, 2022, to collect site-specific data needed to design and implement a full-scale SVE system at the Site. The results of the SVE Pilot Test were summarized in the SVE Pilot Test Report submitted to the WDNR on October 12, 2022.

2 SITE BACKGROUND

2.1 SITE INFORMATION

The Site is located near the southeastern corner of Blackhawk Island Road and Westphal Lane, Jefferson, County, Wisconsin, and is situated approximately 1,000 feet east of Wisconsin State Highway 26 (Figure 2-1). According to the United States Geological Survey (USGS) Fort Atkinson Wisconsin 7.5-Minute Quadrangle map (USGS, 2018), the Site is located in NW ¼, SW ¼, Section 8, Township 5 North, Range 14 East. The Site lies in a portion of a parcel identified as Tax Parcel ID: 016-0514-0824-003.

Table 2-1 - Site Information

Facility:	Enbridge Line 13 MP 312 Valve Site Blackhawk Island Road Fort Atkinson, Wisconsin
Coordinates:	WTM91: 611849 meters, 271475 meters Latitude:42.9104°N Longitude:88.8747°W
BRRTS Number:	02-28-586199
Generator EPA ID:	WIR000177691
FID Number:	128136140
Generator Status:	Small Quantity Short Term Generator
Responsible Party:	Enbridge Energy, Limited Partnership 11 East Superior Street Suite 125 Duluth, MN 55802
Contact:	Mr. Karl F. Beaster, P.G.
Telephone:	(715) 718-1040
Email:	Karl.Beaster@enbridge.com
Consultant:	WSP USA, Inc. 5957 McKee Road, Suite 7 Madison, WI 53719

Laboratories:	<p>Pace Analytical Services, LLC 1241 Bellevue Street Green Bay, WI 54302 WDNR Certification #: 405132750</p> <p>ALS Environmental Laboratory 4388 Glendale-Milford Rd. Cincinnati, OH 45242</p>
---------------	--

3 SVE PILOT TEST RESULTS

From August 9 to August 11, 2022, WSP conducted an SVE Pilot Test to identify site-specific design parameters for the full-scale SVE system. The full results of the SVE Pilot Test are detailed in the SVE Pilot Test Report, dated October 12, 2022. A brief summary of the results is given below.

3.1 APPLIED VACUUM – FLOW RESPONSE

WSP conducted a stepped-rate test and a constant-rate test during the SVE Pilot Test to identify the flow response at multiple applied vacuum levels in the short term and over a longer, sustained time. The maximum vacuum achieved during the stepped-rate test was 62 inches of water column (WCI), which yielded a flow rate of 63 standard cubic feet per minute (scfm). During the constant-rate test, the flow and vacuum response stabilized after approximately 12 hours at a vacuum of 64 WCI with a flow rate at approximately 40 scfm. The details of the applied vacuum and flow response are described in the SVE Pilot Test Report.

3.2 RADIUS OF INFLUENCE

During the constant-rate test, the vacuum influence was measured at multiple monitoring points that were screened at the same depth as the extraction well (RW-7) to estimate the radius of influence (ROI). Assuming that effective ROI is defined as 1 percent of applied vacuum, the estimated effective ROI at an applied vacuum of 64 WCI at a depth of 25 feet below grade (ft bg) is approximately 53 feet. Vacuum influence can be achieved over the area of delineated soil impacts greater than 5.1 micrograms per kilogram ($\mu\text{g}/\text{kg}$) by five vapor extraction wells (3 existing wells and 2 newly installed SVE wells), with sufficient ROI overlap in the center of the treatment area to maximize mass recovery.

3.3 ESTIMATED VOC VAPOR MASS REMOVAL RATES

As summarized in the SVE Pilot Test Report, several volatile organic compounds (VOCs) were detected in the extracted vapor during the SVE pilot test. The VOCs were primarily benzene, toluene, ethylbenzene, m,p-xylene and o-xylene (BTEX), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 4-ethyltoluene, cumene, cyclohexane, heptane and hexane, with hexane detected at the highest concentration. The VOC mass removal rate during the pilot test ranged from approximately 21 pounds per hour (lbs/hour) during Step 3 of the stepped-rate test to approximately 9 lbs/hour at the end of the constant-rate test.

3.4 WATER GENERATION

Following the completion of the stepped-rate and constant-rate tests, approximately nine gallons of SVE condensate water was removed from the vapor-liquid separator (VLS). However, water was not observed in the sight-glass on the VLS or within the vapor transfer piping during the pilot test. Therefore, there is a possibility of water generation during full-scale SVE operation, but there is not likely to be large quantities of water generation.

3.5 VAPOR DISCHARGE PERMITTING

3.5.1 PERMITTING REQUIREMENTS

WI NR 406.04 (1)(m)(2) lists specific source categories exempt from construction permit requirements, as well as conditions that must be met in order to qualify as exempt. NR 407.03(1)(sm)(2) lists specific source categories exempt from operating permit requirements, as well as conditions that must be met in order to qualify as exempt. Negative pressure venting of contaminated soil is an exempt source category, provided the potential to emit (PTE) organic compounds (considering control devices) does not exceed 5.7 pounds per hour (lbs/hr). A catalytic oxidizer will be used to treat effluent from the blower before discharging to the atmosphere (see Section 4.4). Assuming a treatment efficiency of 99.5 percent at the highest VOC concentrations observed during the SVE Pilot Test, the site's estimated controlled PTE is 0.70 lb VOC/hr, which is well under the 5.7 lbs/hr limit. The PTE calculations are shown in Appendix A.

Additionally, exempt sources must not exceed the emission limits for hazardous air pollutants (HAPs) listed in Table A, Table B, and Table C of NR 445.07. The calculated controlled PTE of the HAPs listed in NR 445.07 does not exceed the hourly/yearly emission limits listed in NR445.07 (Appendix A).

The source must also not be subject to emission limitations or standards under section 111 or 112 of the Clean Air Act, nor subject to permitting requirements of 40 CFR 70. The Site is not considered a major source of HAPs. Therefore, Section 111 (New Source Performance Standards [NSPS]) and Section 112 (New Emissions Standards for Hazardous Air Pollutants [NESHAP]) do not apply. 40 CFR 70 is also not applicable because the site is not considered a major source.

The applicable conditions for exemption listed in NR 406.04 (1)(m)(2.) and NR 407.03(1)(sm)(3.) are met; therefore, the site is exempt from construction and operation air permitting requirements.

3.5.2 REGULATORY REQUIREMENTS

NR 419.07 (4)(b)(2) states that there is an emission limit of 216 lbs VOC/day that is applicable to soil remediation sites in Jefferson County. The calculated controlled PTE from the SVE system is 16.8 lbs VOC/day, which is well under the Jefferson County emission limit.

4 SVE SYSTEM DESIGN

4.1 SVE WELLS

The SVE pilot test results indicated that the ROI at 64 WCI applied vacuum was approximately 53 feet. Using this ROI, vacuum influence in the treatment area (the area of soil impacts above 5.1 µg/kg that were identified in the SSI Report) can be achieved with five SVE wells, including existing remediation wells RW-2, RW-8, and RW-10 and two new SVE wells SVE-1 and SVE-2 (Sheet 3 of Appendix B).

Groundwater has been observed at the site at approximately 25 ft bg in the area of the observed soil impacts. The two new SVE wells will be installed using 4-inch diameter schedule 40 polyvinyl chloride (PVC) riser with 0.01-inch slotted screen from 13 to 23 ft bg. Well installation details are included on Sheet 6 of Appendix B.

4.2 SVE PIPING ROUTE/CALCULATIONS

Sheet 4 of Appendix B shows the anticipated layout of the SVE enclosure, wells, and piping. Dedicated piping to be routed from the SVE enclosure to each wellhead will consist of 2-inch diameter schedule 40 PVC buried between approximately 1 and 3 ft bg, sloping downward toward the well for drainage of condensate. The SVE piping will be tied into the well casings at approximately 3 ft bg. The SVE wells will be completed at-grade within 12-inch diameter flush-mount well covers set within an approximate 2-foot by 2-foot concrete pad. Vacuum gauges will be installed in threaded caps within the well's outer casing to measure the applied vacuum at each wellhead. Construction details of the SVE piping and tie-in at each well are summarized on Sheet 6 of Appendix B.

To evaluate the required vacuum and flow rate capacity of the blower, WSP calculated the estimated pipe friction loss based on a design flow rate of 50 scfm. Table 1 contains the friction loss calculations, using estimated values for the friction loss through the SVE equipment. Based on the calculations in Table 1, approximately 34 WCI of vacuum loss is anticipated through longest piping run (to RW-2) and the SVE enclosure equipment.

4.3 BLOWER SPECIFICATIONS

Based on the estimated vacuum loss through the piping run from RW-2, the minimum required capacity for the blower is a flow rate of 250 scfm at an applied vacuum of 100 WCI. Therefore, the selected blower for the full-scale SVE system is an Airtech Vacuum 3BA1900 or equivalent, to be equipped with a 19.4-horsepower explosion-proof motor and capable of achieving up to 470 actual cubic feet per minute (355 SCFM) at 100 WCI. The blower performance curve is included in Appendix C.

4.4 EFFLUENT TREATMENT

Table 2 shows the estimated VOC mass removal rate for the full-scale system based on the middle (12 hour) sample collected during the SVE pilot test constant-rate test. Assuming five wells operating at 50 scfm, the mass removal rate would be approximately 1,286 lbs VOC/day. At this mass removal rate, granular activated carbon would be cost prohibitive for effluent treatment. Therefore, a catalytic oxidizer will be implemented to treat the effluent in accordance with permitting requirements.

A Falmouth Falco 300 or equivalent catalytic oxidizer will be used to treat the effluent from the blower and remove the VOCs prior to discharge into the atmosphere. The anticipated mass loading from all five wells is anticipated to be higher than the treatment capacity of the Falco 300. However, the VOC loading from the SVE wells is likely to decline as mass is removed from the soil and groundwater. At startup, the SVE system will extract air from a subset

of the wells along with dilution air to maintain a VOC loading within the capacity of the catalytic oxidizer. As the mass removal rate from each well declines, additional wells will be placed into operation until all five wells can operate simultaneously within the oxidizer's treatment capacity.

As VOC mass loading into the catalytic oxidizer decreases over time, the cost of operating the catalytic oxidizer will increase as additional electricity is required to maintain thermal efficiency, while the cost to treat the vapor using granular activated carbon will decrease as the VOC mass loading decreases. WSP anticipates that granular activated carbon will replace the catalytic oxidizer as the emissions control device in the future as VOC mass loading decreases.

5 SVE SYSTEM CONSTRUCTION

5.1 SVE PIPING INSTALLATION

The SVE piping will be installed along the routes as shown in Sheet 4 of Appendix B. Due to the number of buried utilities in the area, the trenches will be excavated using air knife, hydro-excavation, or another soft-dig technology. Common trenches will be utilized to the extent practical to minimize the number of trenches. The piping will be buried at a depth of 1 ft bg adjacent to the SVE system enclosure and will slope downward toward the well head locations. At each well, the SVE piping will tie into the well at 3 ft bg. Before backfilling, each pipe will be pneumatically pressure tested to ensure the absence of leaks. The trenches will be backfilled with unimpacted soils and/or imported clean sand placed in maximum 6-inch lifts and compacted using a vibratory plate compactor. SVE piping construction details are included on Sheet 6 of Appendix B.

5.2 SVE SYSTEM ENCLOSURE

The SVE system enclosure shall be fabricated off-Site and delivered to the Site ready for connection to electrical service and the SVE piping. The fabricated enclosure will contain the blower, VLS, piping manifold (inside the enclosure), dilution valve, and master control panel equipped with programmable logic control (PLC) that will automatically deactivate the SVE system in the event of an alarm condition, including a high liquid level in the VLS and a fault on the catalytic oxidizer. A process and instrumentation diagram for the SVE system equipment is included in Sheet 5 of Appendix B. A dedicated 3-phase, 480-volt power circuit will be installed from an existing onsite source to a master shutoff switch at the control panel (Sheet 4 of Appendix B). The SVE piping will be tied into the SVE system enclosure after it has been delivered to the Site (Sheet 6 of Appendix B).

5.3 HYDRO-EXCAVATION SPOILS MANAGEMENT

Impacted spoils from the excavation will be stockpiled onsite in a plastic-lined containment cell, characterized for off-Site disposal, solidified, and disposed of off Site in accordance with Enbridge hydro-excavation spoils management policy.

6 SVE SYSTEM START-UP

As described in Section 4.4, the initial mass loading of the full-scale SVE system is anticipated to be very high, and operation of all five SVE wells simultaneously during system start-up may exceed the capacity of the catalytic oxidizer. To maintain the treatment capacity of the catalytic oxidizer, WSP anticipates a phased SVE system start-up approach that will maximize mass recovery while maintaining treatment efficacy. During initial system start-up, operation will focus on remediation well RW-8, located nearest the release location and within the residual LNAPL plume. After VOC concentrations in RW-8 decrease, additional SVE wells will be placed into operation until all five SVE wells are operational. Throttling of air flow at the blower will be achieved via the dilution valve and balancing of air flow from each SVE well will be achieved using the butterfly valves on the SVE piping manifold.

VOC concentrations in the extracted vapor during start-up will be monitored real-time using a photoionization detector (PID). In conjunction with vapor samples to be collected for laboratory analysis, the PID readings will be used to evaluate VOC concentration trends and inform the introduction of additional SVE wells into operation.

6.1 SVE SAMPLING

6.1.1 AIR PERMITTING SAMPLING

The site will be required to complete the testing specified in NR 419.07 (6)(a)(1), Wis. Adm. Code, which includes testing total organic compound emissions once each day for the first 3 days of operation; weekly for the next 3 weeks; and monthly thereafter. Additionally, since the soil contains benzene, which is a listed substance Table A, B or C of NR 445.07, Wis. Adm. Code, that has a control requirement, testing for benzene is required once during the first 3 days of operation, once during the third week of operation, and once every 6 months thereafter. The samples will be collected from the catalytic oxidizer discharge in 1-liter Summa canisters and submitted for laboratory analysis of VOCs by EPA method TO-15.

Because operation of the SVE wells is anticipated to occur in phases, the emissions vapor sampling procedures described above will be performed after each additional SVE well is placed into operation.

The air flow rate at the discharge will be used with the results of the sampling to calculate the discharge of total VOCs and benzene to confirm that the site continues to meet the requirements for exemption under NR 406.04 (1)(m)(2.) and NR 407.03(1)(sm)(3.), Wis. Adm. Code.

6.1.2 MASS REMOVAL SAMPLING

To evaluate the VOC mass removal rate of the SVE system during operation, vapor samples will be collected at start-up and at least once per month during operation. The samples will be collected of the combined extracted vapor from a sample port located upstream of the dilution air in 1-liter Summa canisters and submitted for laboratory analysis of VOCs by EPA method TO-15. The air flow rate upstream of the dilution air will also be measured during site visits and used with the sample results to estimate the mass removal rate of the system.

7 REFERENCES

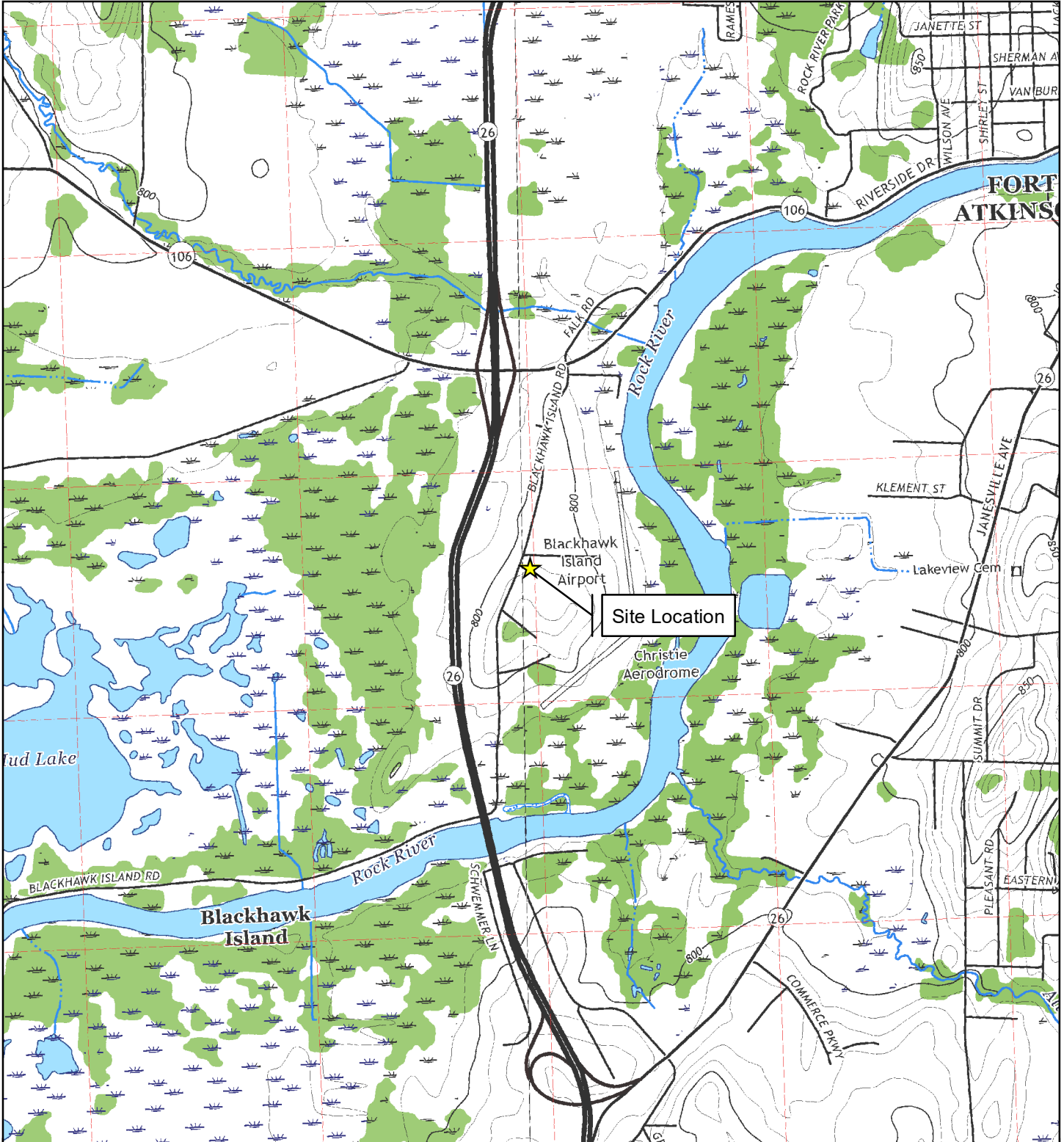
- WSP, 2022a. Supplemental Site Investigation Report. Enbridge Line 13 MP 312 Valve Site (BRRTS # 02-28-586199). March 16.
- WSP, 2022b. Remedial Action Options Report. Enbridge Line 13 MP 312 Valve Site (BRRTS # 02-28-586199). May 19.
- WSP, 2022c. Soil Vapor Extraction Pilot Test Report. Enbridge Line 13 MP312 Valve Site. October 12.

8 ACRONYM LIST

BRRTS	Bureau for Remediation and Redevelopment Tracking System
BTEX	benzene, toluene, ethylbenzene, and xylene
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
ft bg	feet below grade
HAP	Hazardous air pollutant
LNAPL	light non-aqueous phase liquid
MP	Milepost
PID	photoionization detector
PTE	Potential to emit
PVC	polyvinyl chloride
RAO	remedial action option
RAOR	Remedial Action Options Report
ROI	radius of influence
RW	remediation well
scf	standard cubic feet
scfm	standard cubic feet per minute
SSI	Supplemental Site Investigation
SVE	soil vapor extraction
USGS	United States Geological Survey
VLS	vapor-liquid separator
VOC	volatile organic compound
WCI	water column inches
WDNR	Wisconsin Department of Natural Resources

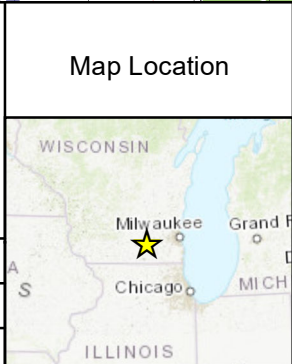
FIGURES





ENBRIDGE

Drawn: WSP 3/17/2023
 Approved: WSP 3/17/2023
 Project #: 31401967.705



N

0 2,000
Feet

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
 Source: USGS US Topo 7.5-minute maps for Busseyville and Fort Atkinson, WI 2018

FIGURE 2-1
 SITE LOCATION MAP

FORT ATKINSON VALVE STATION
 LINE 13 MP 312

ENBRIDGE ENERGY
 LIMITED PARTNERSHIP

TABLES

Table 1
SVE Piping Friction Loss Calculation
Line 13 MP312 SVE Valve Site
Enbridge Energy, Limited Partnership
Fort Atkinson, Wisconsin

Longest Pipe Run/Most Fittings

Longest Run (RW-2 to Blower)
 2-inch dedicated line with manifold

Well Flow Rate:
 50 scfm

Pipe Section	Number of SVE Wells	Diameter of Pipe (inches)	Length of Pipe (feet)	Total Flow Rate (scfm)	Total Velocity (sfpm)	Estimated Head Loss in Pipe (in. H2O/ft pipe)	Equivalent Length of Pipe															Total Equivalent Length of Pipe (feet)	Loss in Pipe (in. of H2O) (1)						
							Pipe Reducer			90 Deg. Elbow			45 Deg. Elbow			Butterfly Valve			Ball or Gate Valve					Flow Through Tee			Side Outlet Tee		
							No.	E.L.	Total E.L.	No.	E.L.	Total E.L.	No.	E.L.	Total E.L.	No.	E.L.	Total E.L.	No.	E.L.	Total E.L.			No.	E.L.	Total E.L.	No.	E.L.	Total E.L.
Water table to piping tie-in	1	2.0	22	50	2292	0.0470	0	0.0	0.0	0	4.8	0.0	0	2.6	0.0	0	7.2	0.0	0	1.3	0	0	3.2	0.0	1	9.6	9.6	32	1.48
RW-2 Tie-in to Manifold Header	1	2.0	144	50	2292	0.0470	1	5.0	5.0	5	4.8	23.9	0	2.6	0.0	1	7.2	7.2	1	1.3	1.3	0	3.2	0.0	0	9.6	0.0	181	8.52
Manifold Header to Vacuum Pump	5	4.0	20	250	2865	0.0378	0	0.0	0.0	6	9.5	56.8	0	5.0	0.0	0	14.2	0.0	0	2.5	0	4	6.3	25.2	0	18.9	0.0	102	3.86
Equipment Head Loss (in of H₂O):																20.0													
Pipe Head Loss (in of H₂O):																13.9													
Total Head Loss (in of H₂O):																33.9													
Required Applied Vacuum (in of H₂O):																64.0													
Total Minimum Pump Vacuum (in of H₂O):																97.9													

Notes:

1) The well flow rates and the required applied vacuum values for shallow and deep system have been estimated using the *Soil Vapor Extraction Pilot Test Report (WSP, October 2022)*

2) Equivalent length of pipe references:

[Estimated Head Loss in Pipe extrapolated from "Friction Loss per Foot Tubing" Nomograph, Section 1. Application Engineering Basics, A Complete Product Specification Guide, EG&G Rotron Industrial Division, pg I-8.](#)

["Friction Loss in Fittings" Table, Section 1. Application Engineering Basics, A Complete Product Specification Guide, EG&G Rotron Industrial Division, pg I-8.](#)

Estimated using "Appendix 17.D: Equivalent Length of Straight Pipe for Various Fittings", Environmental Engineering Reference Manual: Second Edition. Michael R. Lindeburg, P.E., steel pipe where available. Fitting equivalent lengths for an 8-inch pipe have been estimated using 2 x equivalent length (for 4-inch pipe).

Table 2
VOC Vapor Mass Loading Estimate
Line 13 MP312 Valve Site
Enbridge Energy, Limited Partnership
Fort Atkinson, Wisconsin

Constant-Rate Test - Middle Sample

Vapor Sample ID: SVE-2

Average Flow Rate: 250 scfm

Detected VOC	VOC Concentration in Vapor		VOC Loading Rate
	($\mu\text{g}/\text{m}^3$)	(lbs/scf)	(lbs/day)
1,2,4-Trimethylbenzene	27,700	1.73E-06	0.6
1,3,5-Trimethylbenzene	14,300	8.93E-07	0.3
4-Ethyltoluene	9,460	5.91E-07	0.2
Benzene	1,590,000	9.93E-05	35.7
Cumene	3,740	2.33E-07	0.1
Cyclohexane	7,470,000	4.66E-04	167.9
Ethylbenzene	39,500	2.47E-06	0.9
Heptane	4,710,000	2.94E-04	105.9
Hexane	42,500,000	2.65E-03	955.1
m,p-Xylene	116,000	7.24E-06	2.6
o-Xylene	39,900	2.49E-06	0.9
Toluene	693,000	4.33E-05	15.6
Totals:	57,213,600	3.57E-03	1285.8

a/ NOTE: VOC concentrations are assumed to be reported at standard temperature and pressure (STP)

m^3 = cubic meter.

scf = standard cubic foot at STP

scfm = standard cubic foot per minute at STP

μg = micrograms

lb = pound

m = minute

hr = hour

VOC = volatile organic compound.

A SOIL VAPOR POTENTIAL TO EMIT CALCULATIONS



Total VOC Emissions

Parameter	Value	Units	Source
Max C _g :	106,660,150	ug/m ³	SVE Pilot Test SVE-1 Stepped Rate Test
Maximum Input Loading:	350	scfm	Falmouth Falco 300 Manufacturer Specifications, maximum input loading
Q:	9.91	m ³ /min	Calculation
Uncontrolled Emission Rate:	17.62	g/sec	Calculation
Uncontrolled Emission Rate:	139.83	lbs/hr	Calculation
CatOx Control Efficiency:	99.50%	percent	Falmouth Falco 300 Manufacturer Specifications, catalyst destruction efficiency
Controlled Emission Rate:	0.70	lbs/hr	
	3.06	tpy	

Conversion Factors	
0.0167	min = 1 sec
0.000001	g = ug
35.3147	ft ³ = 1 m ³
3600	sec = 1 hr
453.5924	g = 1 lb

HAP Emissions

Detected VOC	Concentration (ug/m ³)	Uncontrolled Emission Rate (g/sec)	Uncontrolled Emission Rate (lb/hr)	Controlled Emission Rate	Units	NR 445.07 Emission Limit	Units	Control Requirement
1,2,4-Trimethylbenzene	13,100	0.00	0.02	8.59E-05	lbs/hr	6.60E+00	lbs/hr	N/A
1,3,5-Trimethylbenzene	8,110	0.00	0.01	5.32E-05	lbs/hr	6.60E+00	lbs/hr	N/A
4-Ethyltoluene	4,990	0.00	0.01	3.27E-05	lbs/hr	N/A	N/A	N/A
Benzene	1,910,000	0.32	2.50	1.10E+02	lbs/yr	2.28E+02	lbs/yr	LAER
Cumene	2,650	0.00	0.00	1.74E-05	lbs/hr	1.32E+01	lbs/hr	N/A
Cyclohexane	23,100,000	3.82	30.28	1.51E-01	lbs/hr	N/A	N/A	N/A
Ethylbenzene	43,200	0.01	0.06	2.83E-04	lbs/hr	2.33E+01	lbs/hr	N/A
				2.48E+00	lbs/yr	1.78E+05	lbs/yr	N/A
Heptane	7,760,000	1.28	10.17	5.09E-02	lbs/hr	N/A	N/A	N/A
Hexane	73,000,000	12.06	95.70	4.79E-01	lbs/hr	9.47E+00	lbs/hr	N/A
				4.19E+03	lbs/yr	3.55E+04	lbs/yr	N/A
m,p-Xylene	132,000	0.02	0.17	8.65E-04	lbs/hr	2.33E+01	lbs/hr	N/A
o-Xylene	35,100	0.01	0.05	2.30E-04	lbs/hr	2.33E+01	lbs/hr	N/A
Toluene	651,000	0.11	0.85	4.27E-03	lbs/hr	1.01E+01	lbs/hr	N/A
				3.74E+01	lbs/yr	7.11E+01	lbs/yr	N/A

Controlled Emissions (E_c)

$$E_c = C_g (1 - \text{Control Efficiency})$$

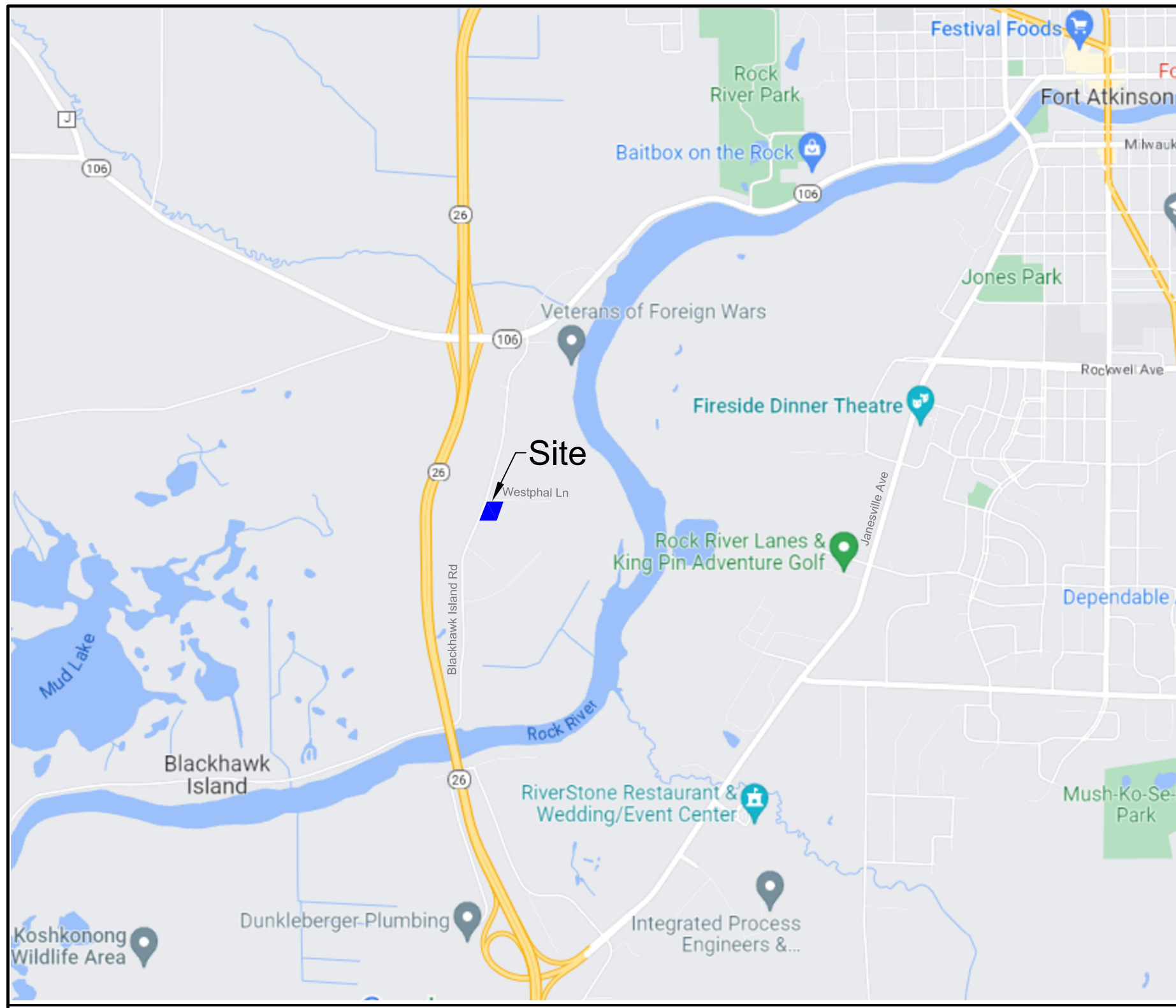
Emission Rate

$$ER = C_g (10^6) Q / 60 \quad (\text{Eq. 3-3})$$

where:

- ER = emission rate [g/sec];
- C_g = concentration of pollutant in extracted vapor [$\mu\text{g}/\text{m}^3$];
- Q = vapor extraction rate [m³/min];
- 10⁶ = conversion factor [g/ μg]; and
- 1/60 = conversion factor [min/sec].

B RESPONSE ACTION
DESIGN PACKAGE
SOIL VAPOR
EXTRACTION SYSTEM



SITE LOCATION
SCALE: 1"=2000'

INDEX OF DRAWINGS

DRAWING NUMBER	SHEET NUMBER	DESCRIPTION
314V6019.705C-002	1	TITLE SHEET
314V6019.705C-002	2	SITE LAYOUT
314V6019.705C-003	3	PROPOSED SVE WELL LOCATIONS
314V6019.705C-004	4	PROPOSED SVE SYSTEM LAYOUT
314V6019.705C-005	5	PROCESS AND INSTRUMENTATION DIAGRAM
314V6019.705C-005	6	WELLHEAD COMPLETION AND TYPICAL CONSTRUCTION DETAILS

RESPONSE ACTION DESIGN PACKAGE SOIL VAPOR EXTRACTION SYSTEM

LINE 13 MP 312 VALVE SITE FORT ATKINSON, WISCONSIN

PREPARED FOR
ENBRIDGE ENERGY LIMITED PARTNERSHIP

REV	REVISIONS	DESCRIPTION

SEAL

DATE

DRAWN BY EGC	CHECKED EWC	APPROVED EWC	DATE 2/15/2023
-----------------	----------------	-----------------	-------------------

PREPARING OF ANY DESIGN OR DRAWING FOR THE PURPOSES OF CONTRACTING IS SUBJECT TO THE MUTUAL AGREEMENT OF ALL PARTIES INVOLVED. THIS DRAWING IS THE PROPERTY OF WSP USA INC. AND IS NOT TO BE REPRODUCED, COPIED, DISCLOSED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF ANY OTHER PARTY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE REGULATION OF STATE LAW FOR ANY PERSONS, UNLESS ACTING AS AN ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY.

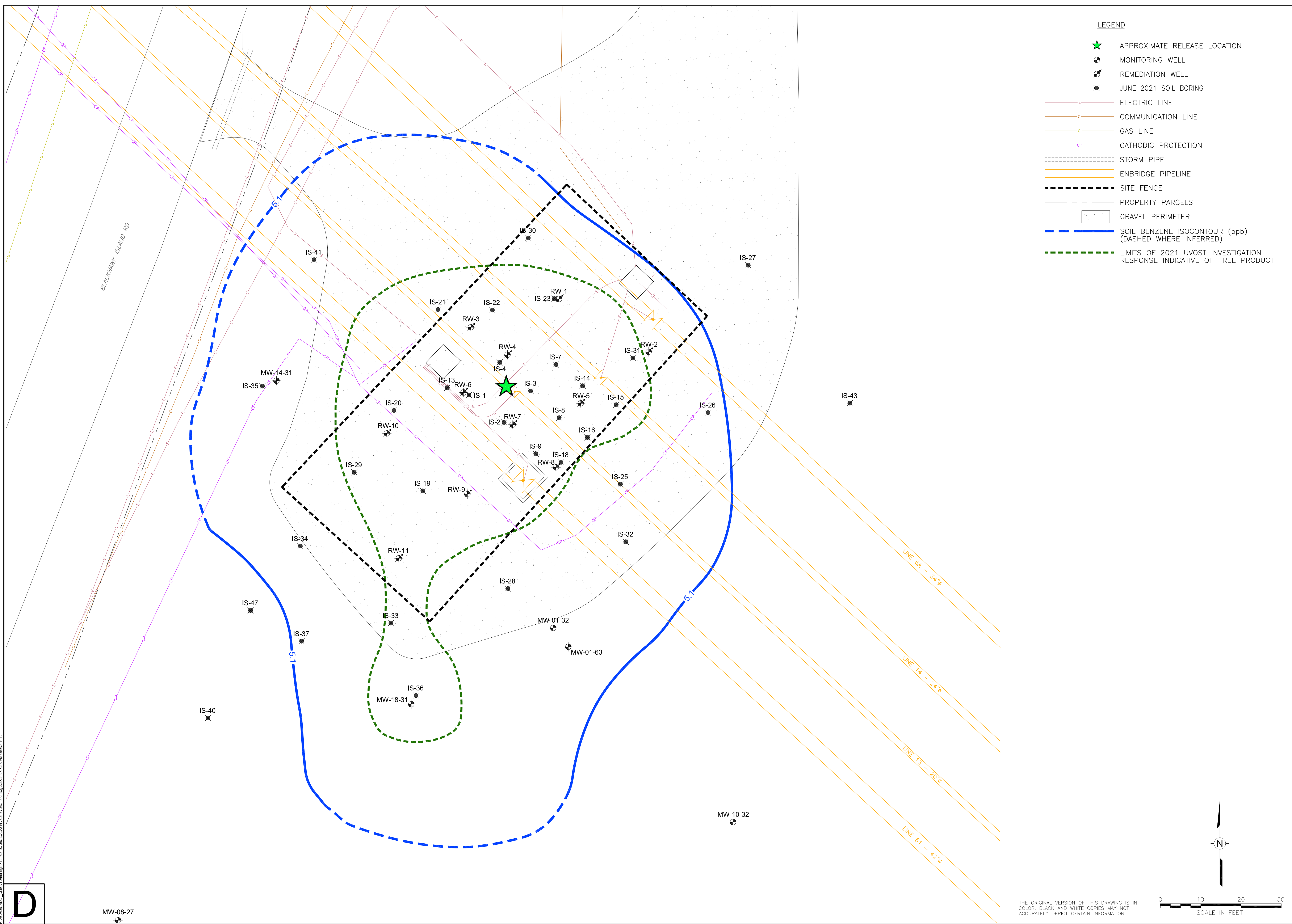
TITLE SHEET

LINE 13 MP 312 VALVE SITE
FORT ATKINSON, WISCONSIN
PREPARED FOR
ENBRIDGE ENERGY LIMITED PARTNERSHIP



R:\CAD\CADD_CLIENT\ENR\146019_705C\02.dwg 2/15/2023 11:17 AM USEC0102

D



LEGEND

- ★ APPROXIMATE RELEASE LOCATION
- ⊕ MONITORING WELL
- ⊕ REMEDIATION WELL
- ⊕ JUNE 2021 SOIL BORING
- ELECTRIC LINE
- COMMUNICATION LINE
- GAS LINE
- CATHODIC PROTECTION
- STORM PIPE
- ENBRIDGE PIPELINE
- - - SITE FENCE
- - - PROPERTY PARCELS
- ▭ GRAVEL PERIMETER
- SOIL BENZENE ISOCONTOUR (ppb)
(DASHED WHERE INFERRED)
- LIMITS OF 2021 UVOST INVESTIGATION
RESPONSE INDICATIVE OF FREE PRODUCT

REVISIONS	
REV	DESCRIPTION


DRAWN BY	EJC
CHECKED	EW FAD 2/15/2023
APPROVED	

SEAL

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE REGULATION OF STATE LAW FOR ANY PERSONS, UNLESS ACTING AS AN ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY.

SITE LAYOUT

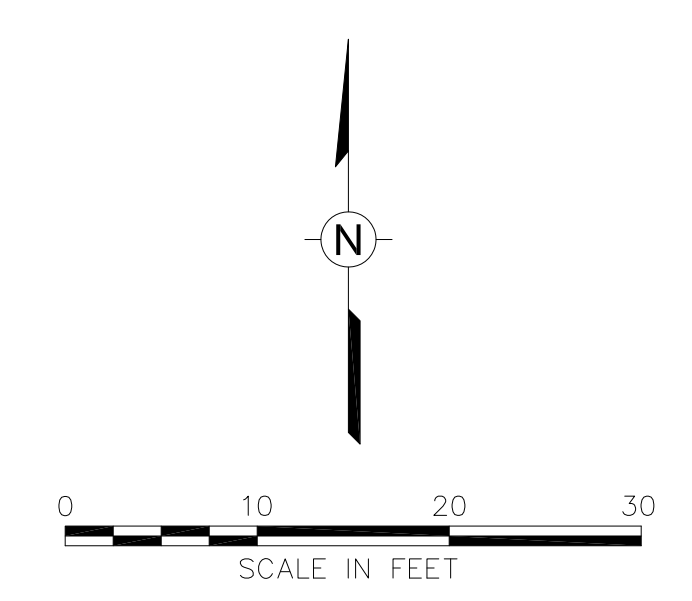
LINE 13 MP 312 VALVE SITE
FORT ATKINSON, WISCONSIN
 PREPARED FOR
ENBRIDGE ENERGY LIMITED PARTNERSHIP



WSP USA Inc.
 13530 DULLES TECHNOLOGY DR., SUITE 300
 HERRIDON, VA 201171
 TEL: +1 703.709.6500

SHEET 2

Drawing Number
314V6019.705C-002

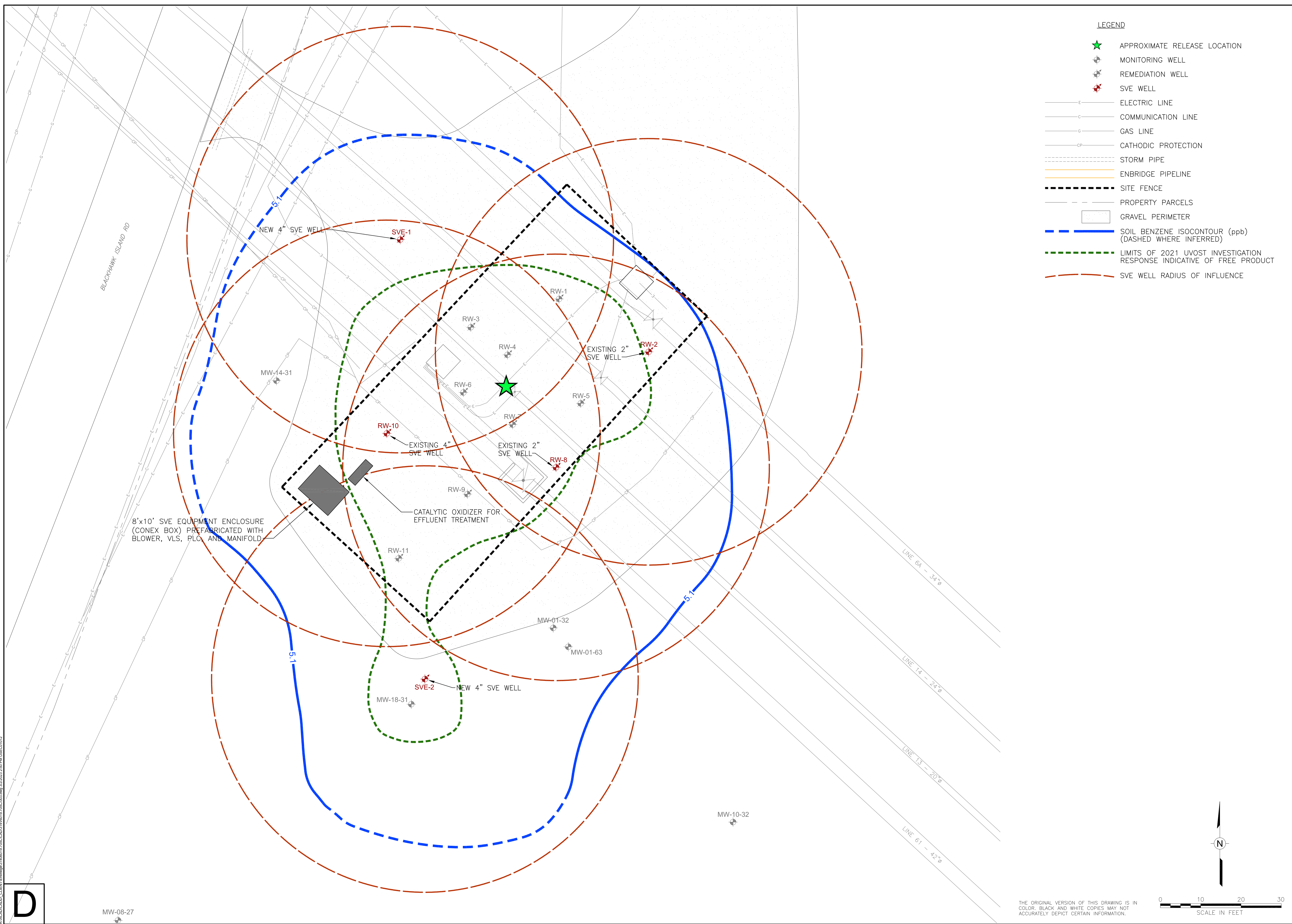


THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK AND WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

R:\CAD\CADD\CLIENTS\090114\0113_705C\02.dwg 2/15/2023 11:11 PM USEC0102

D

MW-08-27



- LEGEND**
- ★ APPROXIMATE RELEASE LOCATION
 - ⊕ MONITORING WELL
 - ⊕ REMEDIATION WELL
 - ⊕ SVE WELL
 - ELECTRIC LINE
 - COMMUNICATION LINE
 - GAS LINE
 - CATHODIC PROTECTION
 - - - STORM PIPE
 - ENBRIDGE PIPELINE
 - - - SITE FENCE
 - - - PROPERTY PARCELS
 - ▭ GRAVEL PERIMETER
 - SOIL BENZENE ISOCONTOUR (ppb) (DASHED WHERE INFERRED)
 - - - LIMITS OF 2021 UVOST INVESTIGATION RESPONSE INDICATIVE OF FREE PRODUCT
 - - - SVE WELL RADIUS OF INFLUENCE

REVISIONS	
REV	DESCRIPTION

SEAL

DRAWN BY: *ECC*

CHECKED: *EM FLD* 2/15/2023

APPROVED: _____


PREPARING OF THIS DRAWING IS AN IMPORTANT TASK AND SHOULD BE DONE WITH CARE AND ATTENTION. THE DRAWING IS THE PROPERTY OF WSP USA INC. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE PROFESSIONAL ENGINEERING ACT OF THE STATE OF WISCONSIN. THE ENGINEER'S SEAL AND SIGNATURE ARE REQUIRED FOR THIS DOCUMENT TO BE VALID UNDER THE PROFESSIONAL ENGINEERING ACT OF THE STATE OF WISCONSIN.

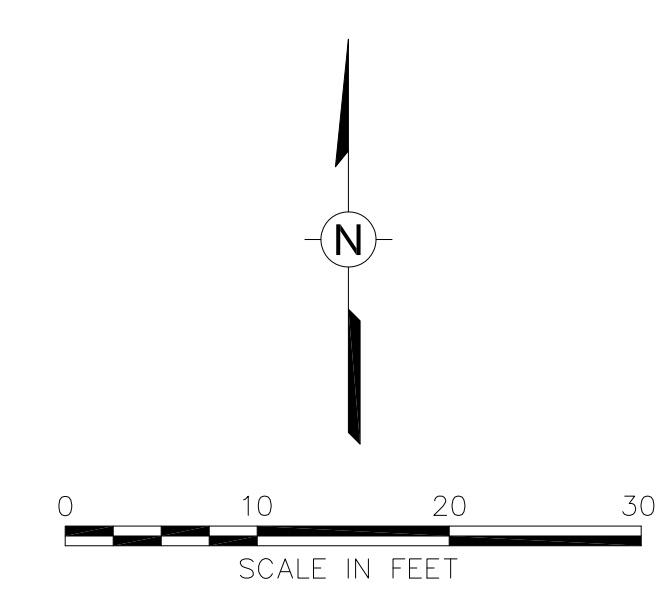
PROPOSED SVE WELL LOCATIONS

LINE 13 MP 312 VALVE SITE
FORT ATKINSON, WISCONSIN

PREPARED FOR
ENBRIDGE ENERGY LIMITED PARTNERSHIP



WSP USA Inc.
 13530 DULLES TECHNOLOGY DR., SUITE 300
 HERNDON, VA 20171
 TEL: +1 703.709.6500



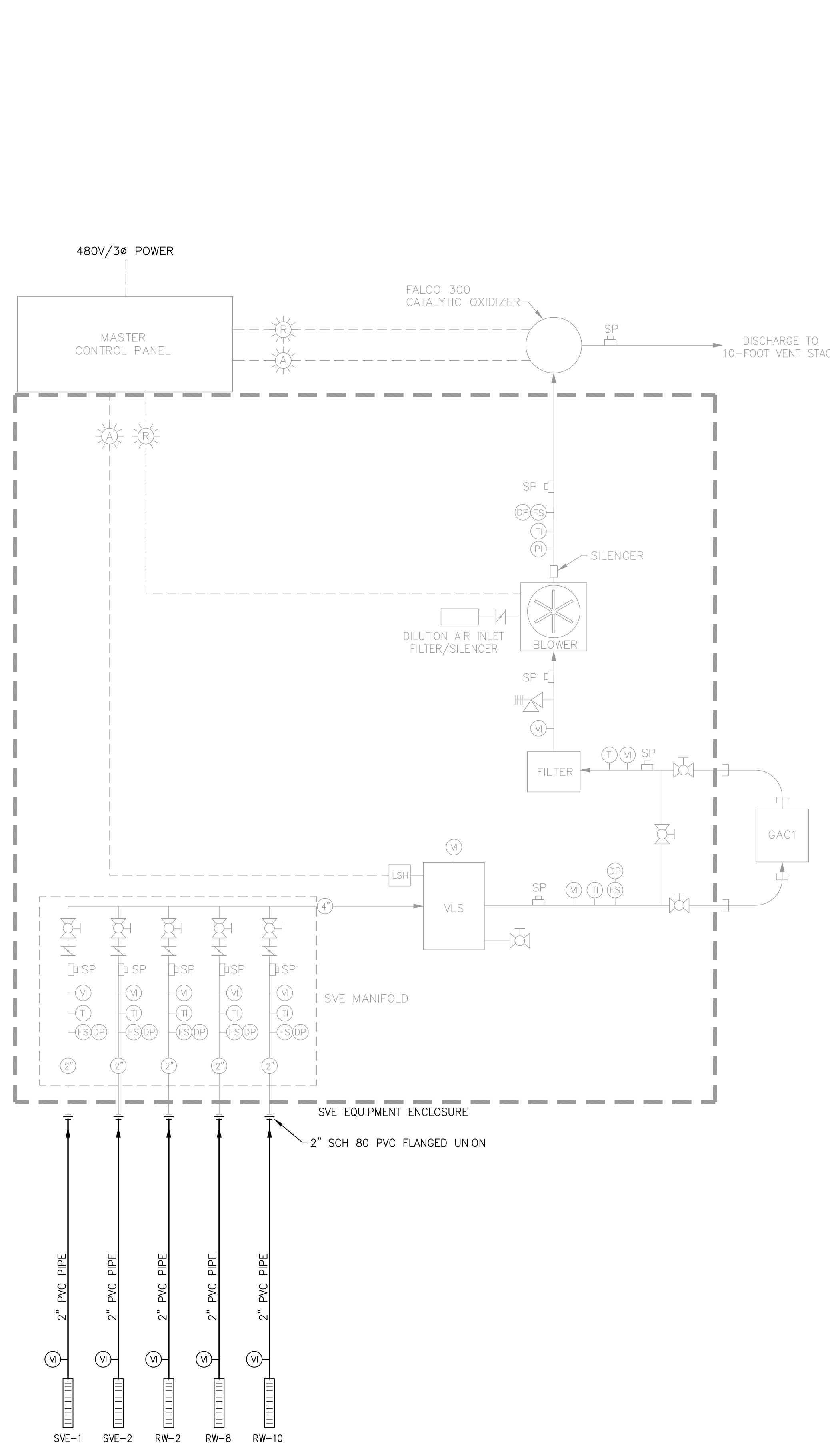
THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK AND WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

D

R:\CAD\CADD_CLIENT\enbridge\146019_705C\003.dwg 3/2/2023 2:59 PM USEC0102

P:\A\3146019_005\CADD\CLIENT\ENR\3146019_005\3146019_705C-005.dwg, 3/2/2023 2:49 PM, USEC0112

D



LEGEND

- CONVEYANCE PIPING AND DIRECTION OF FLOW
- - - CONTROL LINE
- DP/FS FLOW SENSOR WITH DIFFERENTIAL PRESSURE GAGE
- P PRESSURE/VACUUM INDICATOR
- TI TEMPERATURE INDICATOR
- V VACUUM INDICATOR
- LSH LIQUID SENSOR HIGH
- ◻ CAMLOCK FITTING
- SP SAMPLE PORT
- ∩ BUTTERFLY VALVE
- ⊘ BALL VALVE
- ⊘ GATE VALVE
- ⊘ VACUUM RELIEF VALVE
- VLS VAPOR LIQUID SEPARATOR
- GAC GRANULAR ACTIVATED CARBON
- R RUN INDICATOR
- A ALARM CONDITION INDICATOR

INSTALLATION CONTRACTOR

- CONTRACTOR SHALL INSTALL AND FURNISH COMPONENTS INDICATED IN BOLD.
- ORDER OF TRANSFER PIPES TO INDIVIDUAL WELLS IS SUBJECT TO CHANGE FROM THE ORDER SHOWN BASED ON FIELD CONDITIONS.
- SUBCONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING THE ELECTRICAL CONNECTION BETWEEN THE 480V, 3-PHASE POWER SUPPLY AND THE SVE EQUIPMENT ENCLOSURE (SEE SHEET 4).

EQUIPMENT VENDOR

- VENDOR SHALL INSTALL AND FURNISH ALL COMPONENTS SHOWN IN GRAYSCALE.
- VENDOR SHALL PRE-INSTALL ALL SYSTEM COMPONENTS WITHIN A WEATHER-TIGHT PORTABLE ENCLOSURE INSULATED FOR SOUND REDUCTION. ENCLOSURE MUST BE DESIGNED FOR TRANSPORT BY TRUCK AND FORKLIFT WITH MAXIMUM EXTERIOR DIMENSIONS OF 10-FEET BY 8-FEET. VENDOR SHALL DELIVER EQUIPMENT ENCLOSURE TO THE SITE WITH THE MASTER CONTROL PANEL MOUNTED SECURELY TO THE EXTERIOR AND READY FOR CONNECTION TO POWER SERVICE AND SVE WELL CONVEYANCE PIPING.
- THE GAC UNITS WILL BE DELIVERED SEPARATELY AT A LATER DATE AND WILL REPLACE THE CATALYTIC OXIDIZER FOR VAPOR TREATMENT. THE SVE EQUIPMENT ENCLOSURE WILL BE PLUMBED TO ALLOW BYPASS OF THE GAC UNIT CONNECTIONS DURING CATALYTIC OXIDIZER USE.

PROCESS AND INSTRUMENTATION DIAGRAM

LINE 13 MP 312 VALVE SITE
 FORT ATKINSON, WISCONSIN
 PREPARED FOR
 ENRGIDE ENERGY LIMITED PARTNERSHIP



REV	DESCRIPTION	DATE	APP'D

DRAWN BY	CHECKED	APPROVED	DATE
EGC	EW FLD		2/28/2023

SEAL

PREPARING OF THIS DRAWING IS THE PROPERTY OF WSP USA INC. IMPORTANT: THIS DRAWING IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE REGULATION OF STATE LAW FOR ANY PERSONS, UNLESS ACTING AS AN ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY.

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK AND WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

C SOIL VAPOR EXTRACTION BLOWER DATA SHEET

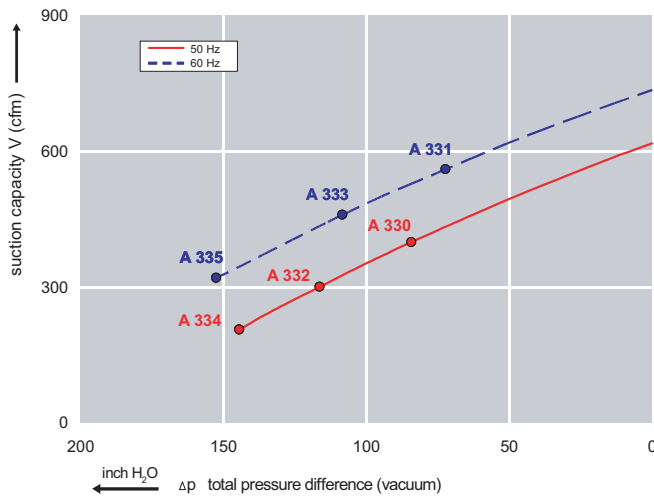


Features:

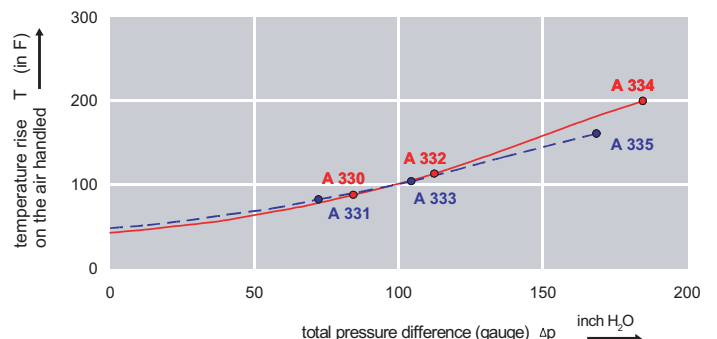
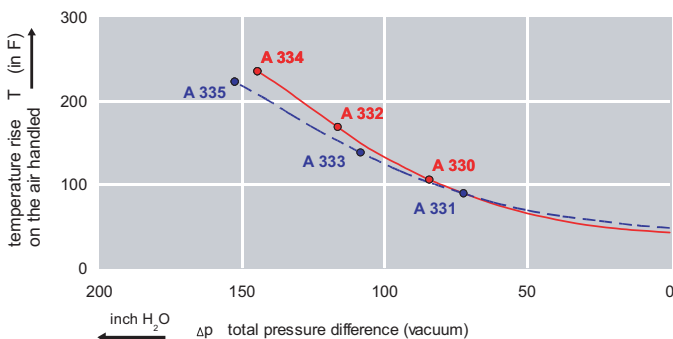
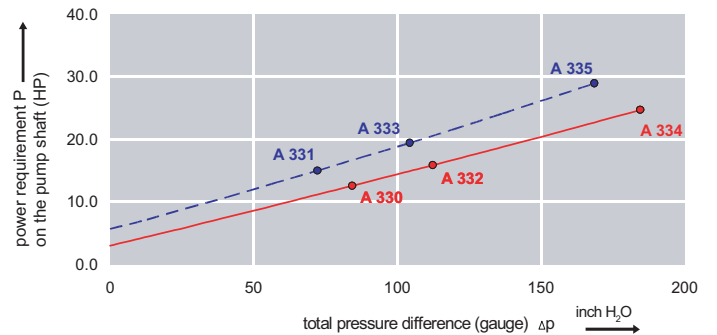
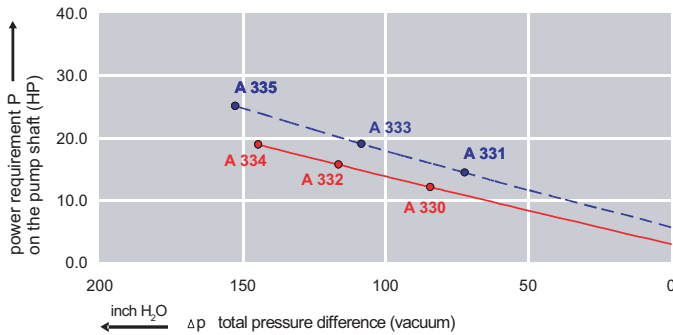
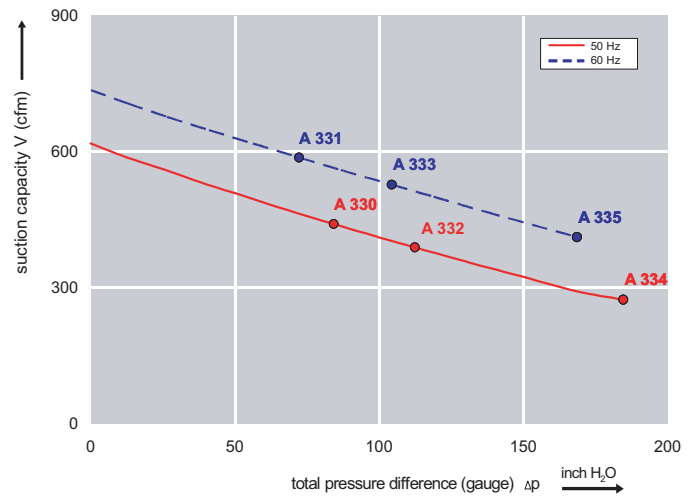


- Cooler running, outboard bearing provides maintenance-free operation
- Environmentally friendly oil-free technology
- Extremely quiet operation
- All motors are standard TEFC with Class F insulation, UL recognized, CE Compliant
Explosion-Proof motors available
- Custom construction blowers are available
- Rugged die cast aluminum construction

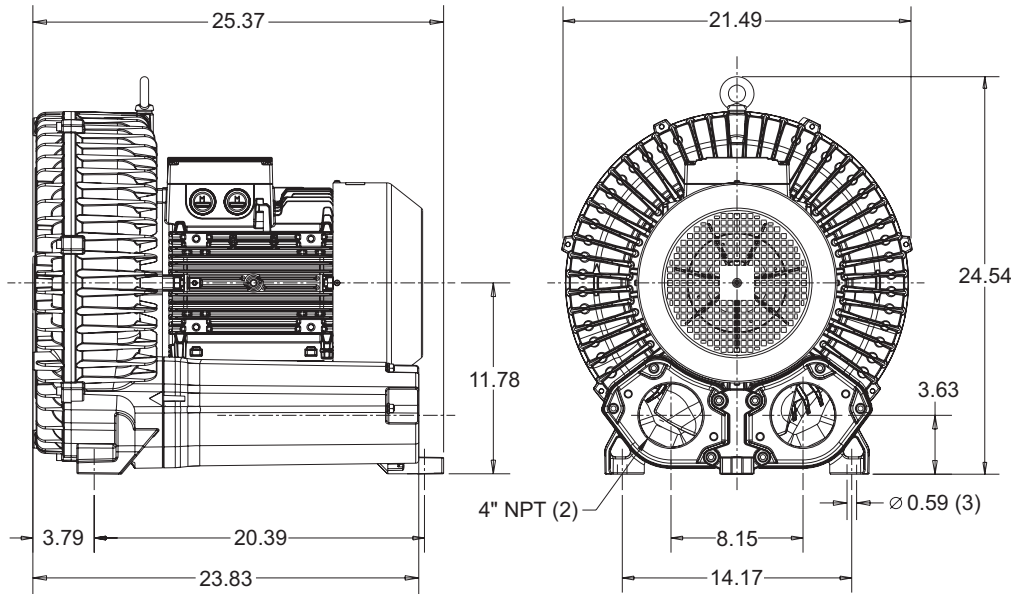
Performance curve for Vacuum pump



Performance curve for Compressor



Dimensions: (inches)



Recommended Accessories:

Relief valve:

VC100Z
(Vacuum)

PC100Z
(Pressure)

Filter:

ATF-400-21138
(Vacuum)

AFS-234-400-10
(Pressure)

Specifications subject to change without notice. Please contact factory for specification updates.

Selection & Ordering Data - Type 3BA1900

Curve No.	Order No.	Fre- quency Hz	Rated power HP	Input voltage		Input current		Permissible total differential pressure		Sound pressure level dB(A)	Weight lbs
				V		A		Vacuum inch H2O	Compressor inch H2O		
3~ 50/60 Hz IP55 insulation material class F											
A 330	3BA1900-7AT06	50	10.72	200D ... 240D	345Y ... 415Y	31.5D	18.2Y	-76	76	74	265
A 331	3BA1900-7AT06	60	12.06	220D ... 250D	415Y ... 460Y	31.5D	18.2Y	-60	56	79	265
A 332	3BA1900-7AT16	50	16.76	200D ... 240D	345Y ... 415Y	48.5D	28.0Y	-116	112	74	295
A 333	3BA1900-7AT16	60	19.44	220D ... 250D	415Y ... 460Y	50.0D	29.0Y	-108	104	79	295
A 334	3BA1900-7AT36	50	24.80	200D ... 240D	345Y ... 415Y	64.5D	37.0Y	-145	185	74	314
A 335	3BA1900-7AT36	60	28.55	220D ... 250D	415Y ... 460Y	68.0D	39.0Y	-153	169	79	314

Suitable for 208 Volt Operation

All curves are rated at 14.7 psia and 68° F ambient conditions and are reported in SCFM referenced to 68° F and 14.696 psia sea level conditions. Curve values are nominal, actual performance may vary by up to 10% of the values indicated. For inlet temperatures above approximately 80° F or for handling gases other than air, please contact your Airtech sales representative for assistance.