

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 Public 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 10/21)

Page 2 of 7

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 Miller	First Robert	MI	Organization/ Business Name Spic and Span
Mailing Address 108 West Miller Drive		City Mequon	State WI
		ZIP Code 53092	
Phone # (include area code) (414) 378-5522	Fax # (include area code)	Email rmiller@spicandspan.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:

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

Select if same as requester

Contact Last Name	First	MI	Organization/ Business Name
Mailing Address		City	State
		ZIP Code	
Phone # (include area code)	Fax # (include area code)	Email	

Environmental Consultant (if applicable)

Contact Last Name Schneider	First Brian	MI W	Organization/ Business Name Ramboll
Mailing Address 234 W. Florida St. Fifth Floor		City Milwaukee	State WI
		ZIP Code 53204	
Phone # (include area code) (262) 901-3507	Fax # (include area code)	Email bschneider@ramboll.com	

Section 2. Property Information

Property Name Spic and Span (FMR)		FID No. (if known) 241040690	
BRRTS No. (if known) 02-41-585636		Parcel Identification Number 2331180000 and 2420201000	
Street Address 4301 N Richards Street		City Milwaukee	State WI
		ZIP Code 53212	
County Milwaukee	Municipality where the Property is located <input checked="" type="radio"/> City <input type="radio"/> Town <input type="radio"/> Village of	Property is composed of: <input type="radio"/> Single tax parcel <input checked="" type="radio"/> Multiple tax parcels	Property Size Acres 4.5

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

Form 4400-237 (R 10/21)

Page 3 of 7

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: 08/11/2023

Reason: Pending offers on the property sale.

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).

Section 4. Request for Liability Clarification

Select the type of liability clarification requested. Use the available space given or attach information, explanations, or specific questions that you need answered in DNR's reply. Complete Sections 6 and 7 of this form. [Numbers in brackets are for DNR Use]

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

Form 4400-237 (R 10/21)

Page 4 of 7

"Lender" liability exemption clarification - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of \$700.**

Provide the following documentation:

- (1) ownership status of the real Property, and/or the personal Property and fixtures;
- (2) an environmental assessment, in accordance with s. 292.21, Wis. Stats.;
- (3) the date the environmental assessment was conducted by the lender;
- (4) the date of the Property acquisition; for foreclosure actions, include a copy of the signed and dated court order confirming the sheriff's sale.
- (5) documentation showing how the Property was acquired and the steps followed under the appropriate state statutes.
- (6) a copy of the Property deed with the correct legal description; and,
- (7) the Lender Liability Exemption Environmental Assessment Tracking Form (Form 4400-196).
- (8) If no sampling was done, please provide reasoning as to why it was **not** conducted. Include this either in the accompanying environmental assessment or as an attachment to this form, and cite language in s. 292. 21(1)(c)2.,h.-i., Wis. Stats.:
 - h. The collection and analysis of representative samples of soil or other materials in the ground that are suspected of being contaminated based on observations made during a visual inspection of the real Property or based on aerial photographs, or other information available to the lender, including stained or discolored soil or other materials in the ground and including soil or materials in the ground in areas with dead or distressed vegetation. The collection and analysis shall identify contaminants in the soil or other materials in the ground and shall quantify concentrations.
 - i. The collection and analysis of representative samples of unknown wastes or potentially hazardous substances found on the real Property and the determination of concentrations of hazardous waste and hazardous substances found in tanks, drums or other containers or in piles or lagoons on the real Property.

"Representative" liability exemption clarification (e.g. trustees, receivers, etc.) - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of \$700.**

Provide the following documentation:

- (1) ownership status of the Property;
- (2) the date of Property acquisition by the representative;
- (3) the means by which the Property was acquired;
- (4) documentation that the representative has no beneficial interest in any entity that owns, possesses, or controls the Property;
- (5) documentation that the representative has not caused any discharge of a hazardous substance on the Property; and
- (6) a copy of the Property deed with the correct legal description.

Clarification of local governmental unit (LGU) liability exemption at sites with: (select all that apply)

- hazardous substances spills - s. 292.11(9)(e), Wis. Stats. [649];
- Perceived environmental contamination - [649];
- hazardous waste - s. 292.24 (2), Wis. Stats. [649]; and/or
- solid waste - s. 292.23 (2), Wis. Stats. [649].

❖ **Include a fee of \$700, a summary of the environmental liability clarification being requested, and the following:**

- (1) clear supporting documentation showing the acquisition method used, and the steps followed under the appropriate state statute(s).
- (2) current and proposed ownership status of the Property;
- (3) date and means by which the Property was acquired by the LGU, where applicable;
- (4) a map and the ¼, ¼ section location of the Property;
- (5) summary of current uses of the Property;
- (6) intended or potential use(s) of the Property;
- (7) descriptions of other investigations that have taken place on the Property; and
- (8) (for solid waste clarifications) a summary of the license history of the facility.

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

Form 4400-237 (R 10/21)

Page 5 of 7

Section 4. Request for Liability Clarification (cont.)

- Lease liability clarification - s. 292.55, Wis. Stats. [646]
- ❖ **Include a fee of \$700 for a single Property, or \$1400 for multiple Properties and the information listed below:**
 - (1) a copy of the proposed lease;
 - (2) the name of the current owner of the Property and the person who will lease the Property;
 - (3) a description of the lease holder's association with any persons who have possession, control, or caused a discharge of a hazardous substance on the Property;
 - (4) map(s) showing the Property location and any suspected or known sources of contamination detected on the Property;
 - (5) a description of the intended use of the Property by the lease holder, with reference to the maps to indicate which areas will be used. Explain how the use will not interfere with any future investigation or cleanup at the Property; and
 - (6) all reports or investigations (e.g. Phase I and Phase II Environmental Assessments and/or Site Investigation Reports conducted under s. NR 716, Wis. Adm. Code) that identify areas of the Property where a discharge has occurred.

General or other environmental liability clarification - s. 292.55, Wis. Stats. [682] - Explain your request below.

- ❖ **Include a fee of \$700 and an adequate summary of relevant environmental work to date.**
- No Action Required (NAR) - NR 716.05, [682]
- ❖ **Include a fee of \$700.**
 - Use where an environmental discharge has or has not occurred, and applicant wants a DNR determination that no further assessment or clean-up work is required. Usually this is requested after a Phase I and Phase II environmental assessment has been conducted; the assessment reports should be submitted with this form. This is not a closure letter.
- Clarify the liability associated with a "closed" Property - s. 292.55, Wis. Stats. [682]
- ❖ **Include a fee of \$700.**
 - Include a copy of any closure documents if a state agency other than DNR approved the closure.

Use this space or attach additional sheets to provide necessary information, explanations or specific questions to be answered by the DNR.

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.

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

Form 4400-237 (R 10/21)

Page 6 of 7

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: Soil Vapor

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: Included in the Site Investigation and Remedial Action Options 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 Form - Non-Emergency Only (Form 4400-225) is accessible through the RR Program Submittal Portal application. Directions for using the form and the Submittal Portal application are available on the [Submittal Portal web page](#).

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.


Signature

July 19, 2023
Date Signed

Senior Managing Consultant
Title

(262) 901-3507
Telephone Number (include area code)

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

Form 4400-237 (R 10/21)

Page 7 of 7

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

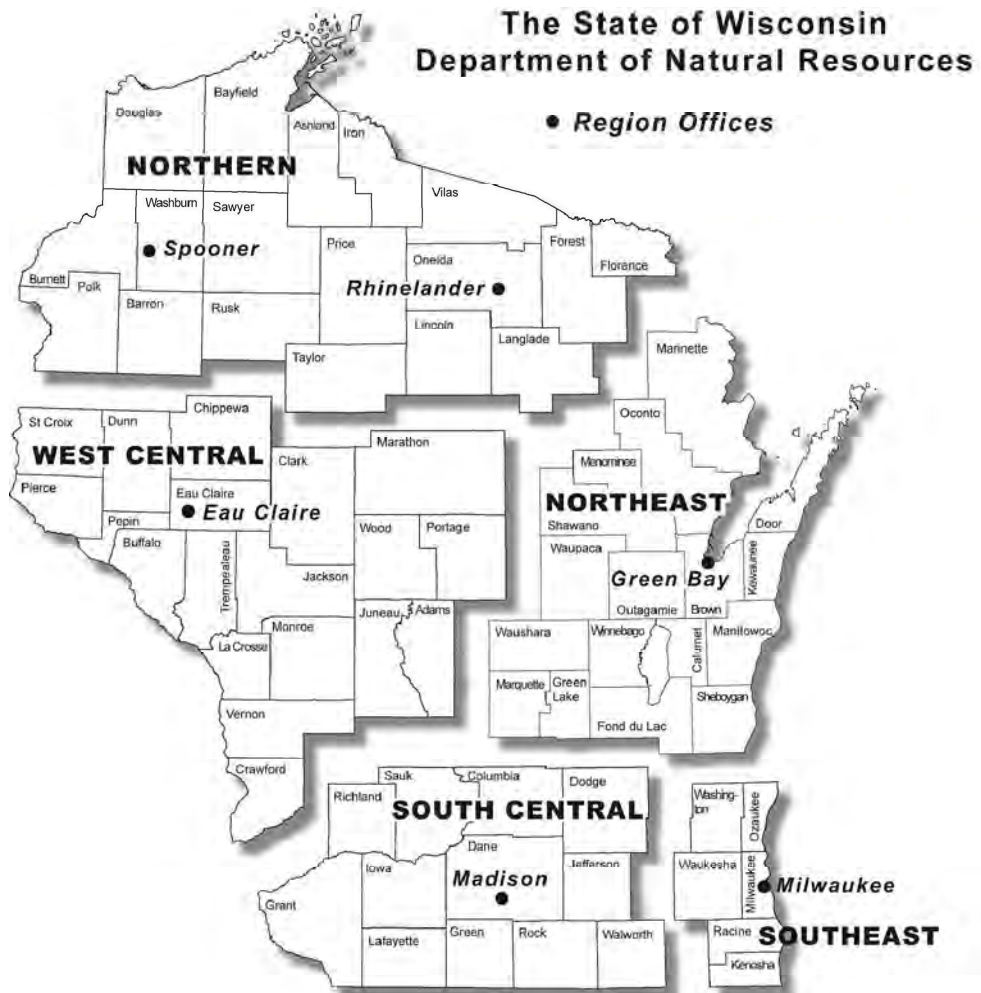
Attn: RR Program Assistant
Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg WI 53711

DNR SOUTHEAST REGION

Attn: RR Program Assistant
Milwaukee DNR Office
1027 West St. Paul Ave
Milwaukee WI 53233

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		

Linda Stanek
Southwest Region, Milwaukee Service Center
1027 West St. Paul Avenue
Milwaukee, WI 53233

REVISED COMBINED NR 716 SITE INVESTIGATION AND NR 722 REMEDIAL ACTION OPTIONS REPORT, SPIC AND SPAN, 4301 NORTH RICHARDS STREET, MILWAUKEE, WISCONSIN BRRTS # 02-41-585636

Dear Linda,

I am writing to request approval of the attached Revised Combined NR 716 Site Investigation and NR 722 Remedial Action Options Report for Spic and Span at 4301 North Richards Street, Milwaukee, Wisconsin. The comments from your July 12, 2023 E-Mail have been addressed in the document.

Please contact me at 414-837-3607 or at bschneider@ramboll.com if you have any questions.

Sincerely,

Ramboll US Consulting, Inc.



Brian Schneider, P.E. WI, MI, IL

Senior Managing Consultant
D +1 262 901 3507
M + 262 893 8617
bschneider@ramboll.com

July 19, 2023

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Ref: 1690027851

Prepared for:
Spic and Span, Inc.

Submitted to:
**Wisconsin Department of Natural Resources
Southeast Region Headquarters**

Date:
July 2023

Project Number:
1690027851

REVISED COMBINED NR 716 SITE INVESTIGATION AND NR 722 REMEDIAL ACTION OPTIONS REPORT

**4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN**

**BRRTS NO. 02-41-585636
FID NO. 241040690**



**ENVIRONMENT
& HEALTH**

CONTENTS

EXECUTIVE SUMMARY	1
1. INTRODUCTION AND BACKGROUND	2
1.1 Site Location	2
1.2 Involved Parties	3
1.3 Site Background	3
1.4 Purpose and Scope of Report	4
2. SITE INVESTIGATION METHODOLOGY	4
2.1 Soil Borings and Sampling	4
2.2 Groundwater Well Installation, Development and Sampling	5
2.3 Sub-Slab Vapor Pin Installation and Sampling	5
3. SITE INVESTIGATION RESULTS	6
3.1 Geological and Hydrogeological Conditions	6
3.2 Soil Results	7
3.3 Efforts Undertaken to Gain Access	9
3.4 Groundwater Results	9
3.5 Soil Vapor	11
3.6 Potential Migration Pathways and Receptors	11
3.7 Emerging Contaminants Evaluation	12
3.8 Conclusions and Recommendations	12
4. REMEDIAL ACTION OPTIONS EVALUATION	13
4.1 Remedial Objective	13
4.2 Identified Remedial Action Options	13
4.3 Recommended Remedial Option	18
4.4 Sustainability of Recommended Remedial Action Option	18
5. CONCLUSION AND RECOMMENDATIONS	19
6. REFERENCES	19

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TABLES

Table 1:	Soil Sample Analytical Results
Table 2:	Groundwater Sample Analytical Results
Table 3:	Groundwater Elevations
Table 4:	Soil Vapor Analytical Results
Table 5:	PCE and TCE Mass Calculations
Table 6:	Vapor Intrusion Risk Analysis Based on Mass Limitation

FIGURES

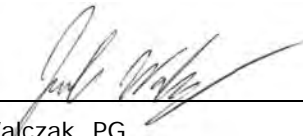
Figure 1:	Site Location Map
Figure 2:	Site Layout
Figure 3:	Soil Boring Locations and Sample Results
Figure 4:	Soil Iso-concentration Maps
Figure 5:	Soil Contaminant Estimated Areas and Volumes
Figure 6:	Groundwater Well Locations, Sample Results and Iso-concentration Map
Figure 7:	Groundwater Elevation Map
Figure 8:	Soil Vapor Sample Locations and Sample Results
Figure 9:	Soil Vapor Iso-concentration Maps (PCE and TCE)
Figure 10:	Option B: Proposed Excavation Areas
Figure 11:	Option C: Proposed Vapor Extraction Points
Figure 12:	Post-Excavation Sub-Slab Depressurization (as Needed)

APPENDICES

Appendix A:	Soil Boring Logs
Appendix B:	Monitoring Well Construction and Development Forms
Appendix C:	Geological Cross Sections
Appendix D:	Soil Sample Laboratory Analytical Reports
Appendix E:	Groundwater Sample Laboratory Analytical Reports
Appendix F:	Vapor Sample Laboratory Analytical Reports
Appendix G:	Off Site Access Request Letters
Appendix H:	Site Photos

CERTIFICATIONS

I, Jake Walczak, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all of the 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.

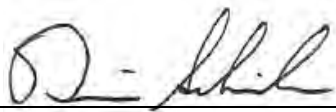


Jake Walczak, PG
License No. 1328

July 19, 2023


Date

I, Brian Schneider, 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.



Brian Schneider, PE
License No. 28922

Stamp



EXECUTIVE SUMMARY

This Combined Site Investigation and Remedial Action Options Report (RAOR) has been prepared in accordance with Chapter NR 716 and NR 722 of the Wisconsin Administrative Code (WAC) to document site investigation activities conducted at the approximately 4.5-acre parcel of property located at 4301 North Richards Street in Milwaukee, Milwaukee County, Wisconsin (the "Site"). The Site is listed on the Wisconsin Department of Natural Resources (WDNR) Bureau of Remediation and Redevelopment Tracking System (BRRTS) No. 02-41-585636.

Spic and Span, Inc. (Spic and Span) operated at the site from 1961 to 2017, primarily for cleaning industrial uniforms. Tetrachloroethylene (PCE) use began in 1985 and continued until 1999 at which time all of the dry cleaning equipment was removed except for one small machine that was used for occasional small jobs until 2017. The source area is confined to one area of the facility where drycleaning operations were previously located and PCE use has been documented.

Environmental investigation activities were initiated in late 2019 as part of a proposed property transaction. Based on the investigations conducted to date, the soil impacts are largely defined. PCE and its natural attenuation breakdown product Trichloroethylene (TCE) were not detected below a depth of 20 feet below ground surface (bgs) and the areal extent appears to be limited to the general area of the former drycleaning room with some migration primarily to the east along a sanitary sewer line. PCE and TCE were not detected in soil above Wisconsin Administrative Code (WAC) Chapter NR 720 Industrial Direct Contact Residual Contaminant Levels (RCLs). PCE was detected in soil boring SB#5 (6-8 feet bgs) at 46mg/kg and in soil boring SB#12 (12.5-15 feet bgs) at 71 mg/kg, exceeding Wis. Admin Code NR720 Non-Industrial Direct Contact RCLs of 33 mg/kg for PCE. Additionally, TCE was detected in soil boring SB#5 (6-8 feet bgs) at 2.9 mg/kg, exceeding Wis. Admin Code NR720 Non-Industrial Direct Contact RCLs of 1.3 mg/kg for TCE. However, PCE and TCE were detected at concentrations exceeding WAC Ch. NR 720 Groundwater protection RCLs but were limited to the area in and around the former dry cleaning room and a depth of roughly 18 feet bgs. PCE and TCE were also detected in samples collected on the northern edge of the investigation area indicating that these contaminants have migrated from the source area to the north; however, the concentrations are similar to the low-level detections found at approximately the same distance to the east and south from the source area indicating that the overall magnitude and extent of impacts to the north are reasonably understood. Further investigation to delineate the soil impacts to below RCLs beyond the current limits to the north is not recommended.

Groundwater impacts also appear to be limited with PCE detected in only one of the seven groundwater monitoring locations (six wells and one piezometer). TCE was not detected in any of the wells or piezometer. Based on these results, further investigation or remediation of contamination to groundwater protection RCLs is not recommended for the following reasons: 1) The PCE impacts are limited in magnitude and extent; 2) conditions observed in the area of investigation, as well as surrounding areas, are not conducive to migration of contaminants; 3) there are no receptors in the area; and 4) potable water in the area is obtained from Lake Michigan.

Sub-slab vapor impacts were observed above both the large commercial/industrial and small commercial sub-slab Vapor Risk Screening Levels (VRSLs) in the area of the drycleaning room and an area that extends along a sanitary sewer lateral from the source area to the east. Based on the magnitude and extent of soil contamination, it is believed that elevated concentrations of PCE and TCE in the soil are the cause of the sub-slab VRSL exceedances. Groundwater impacts are also present within the area of identified soil contamination; however, concentrations of PCE and vinyl chloride

above the Groundwater Enforcement Standard (ES) are limited to one monitoring well near the source area and PCE and TCE were not detected in the other five surrounding wells and deeper piezometer.

Ramboll evaluated four options to remediate the source of the sub-slab VRSL exceedances and obtain case closure under WAC NR 726. These options included engineering controls to mitigate the vapor intrusion pathway, focused excavation of sub-slab soils, vapor extraction and sub-slab depressurization, and chemical oxidation. Based on an evaluation of these options, Ramboll recommends focused excavation of sub-slab soils with engineering controls to mitigate the vapor intrusion pathway. This option effectively remediates much of the source of the sub-slab vapor and prepares the building for productive use in an expeditious manner without long-term monitoring requirements that could inhibit the property transfer. Prior to implementation of this option, a Remedial Action Plan will be submitted to the WDNR.

Based on the investigation results summarized in this combined Site Investigation and Remedial Action Options Report and analysis of appropriate remedial options, Ramboll requests approval of this combined Site Investigation and Remedial Action Options Report with the understanding that additional details describing the specific remedial action activities to be conducted at the Site will be provided in a Remedial Action Plan.

1. INTRODUCTION AND BACKGROUND

Ramboll US Consulting, Inc. (Ramboll), on behalf of Spic and Span, has prepared this Combined Site Investigation and Remedial Action Options Report for the property located at 4301 North Richards Street, Milwaukee County, Wisconsin (Figure 1). The Site is listed on WDNR BRRTS as an open case file, which has been assigned BRRTS No. 02-41-585636. This Combined Site Investigation and Remedial Action Options Report provides information required under WAC NR 716 and NR722. The objective of this Combined Site Investigation and Remedial Action Options Report is to present the investigation data collected to evaluate the magnitude and extent of soil impacts, along with an appropriate range of remedial options to address the identified soil and sub-slab vapor impacts at the Site. This report also presents the recommended remedial option for the site along with a sustainability assessment of the selected option as required by NR 722.

1.1 Site Location

The site is located on a 4.5-acre parcel of property with an approximately 52,000 square foot building. The site address is 4301 North Richards Street, Milwaukee, Wisconsin. The site location is shown on Figure 1. The eastern quarter of the building is located in the City of Milwaukee and the remaining part of the building and property is located in the City of Glendale. The site is bounded by an industrial/warehouse to the north, Richards Street and a warehouse to the east, industrial properties/facilities to the south, and N. Lydell Street and industrial properties to the west. The site layout is shown on Figure 2.

The Site is located in the northeast $\frac{1}{4}$ of the southeast $\frac{1}{4}$ of Section 5, Township 07N, Range 22E, Milwaukee County, Wisconsin at latitude 43.094856 and longitude -87.9082073. The parcel I.D. #s are Glendale: 2331180000 and Milwaukee: 2420201000 and the WTM coordinates are: X Coordinate (WTM91): 690,239.9 and Y Coordinate (WTM91): 293,441.2.

The Certified Survey Map, deed, and legal description are included in Appendix I of the Site Investigation Report by GRAEF dated June 22, 2022.

1.2 Involved Parties

The parties involved in this project are listed below:

Regulatory Agency:	Wisconsin Department of Natural Resources Milwaukee Service Center 1027 W. Saint Paul Avenue Milwaukee, WI 53233 Contact: Linda Stanek, (414) 316-0208
Property Owner:	Robert Miller 108 West Miller Drive Mequon, WI 53092 (414) 378-5522
Consultant:	Ramboll US Consulting, Inc. 234 W. Florida Street, Fifth Floor Milwaukee, WI 53204 Contact: Brian Schneider, P.E. (262)901-3507
Drilling Contractor:	GESTRA Engineering, Inc. 191 W. Edgerton Avenue Milwaukee, WI 53207 Contact: Timothy R. Winkler, (414) 933-7444 x27
Laboratory:	Pace Analytical Services, Inc. 1241 Bellevue Street, Suite 9 Green Bay, WI 54302 Contact: Steve Mleczek, (920) 321-9440

1.3 Site Background

The subject property is located at 4301 North Richards Street, Milwaukee, Wisconsin. The Subject Property contains a one-story vacant industrial building and is located in an industrial/warehouse district as shown in Figure 1. The site was undeveloped up to circa 1951 when the current building was constructed by Square D. From 1961 to 2017 the site was occupied by Spic and Span and operated as a drycleaning facility primarily for industrial uniforms. PCE use began in 1985 and continued until 1999 when all of the equipment was removed except for one small 35-pound machine that was used for occasional small jobs until 2018. PCE use was limited to one section of the building known as the Dry-Cleaning Room as shown in Figure 2. PCE was not used outside of this room. This room will be referred to as the source area throughout this report. Floor drains identified in the source area were plugged with concrete when the building was occupied by Spic and Span in 1961 and remain plugged today. Although there is no record of a PCE spill, it is assumed that small releases or deposition of PCE from ambient air in this area of the building occurred over time that have resulted in the contamination of subsurface soil beneath a wider area of the building interior. Photographs of the site interior are presented in Appendix H.

Previous environmental-related activities associated with historical operations at the facility have included the following:

- In December of 1987, a site assessment was performed for a 5,000-gallon waste solvent tank located on the west side of the building as shown on Figure 2. An investigation was conducted to evaluate potential soil and groundwater contamination associated with the waste solvent tank. Soil

borings were completed, and monitoring wells installed. The contaminants identified from the investigation included vinyl chloride which is a breakdown product of PCE that extended eastward under the building. Based on the results, the incident was closed in 2019 with an engineered cap over the former tank area and a notification of the potential for soil and groundwater impacts was provided to the property owner to the north (Closed Environmental Repair Program [ERP] Site BRRTS # 02-41-000033).

- In December of 2012, two underground storage tanks (one 8,000-gallon diesel oil underground storage tank [UST] and one 6,000-gallon fuel oil UST) were removed from the south side of the building. A site assessment was completed at the time of the UST removal. Petroleum contaminants were detected in laboratory results but were below regulatory standards. The incident was closed by the Department of Commerce with no further action required (Closed leaking underground storage tank [LUST] Site BRRTS # 03-41-559767).

The current investigations are associated with the former dry-cleaning operations. The media include soil, groundwater, and soil vapor. The investigations started with vapor sampling performed by GRAEF in October of 2019 and that work expanded to soil and groundwater investigations. Ramboll began work on the project in July of 2022. The results obtained from GRAEF and Ramboll are presented in this Combined Site Investigation and Remedial Action Options Report. The site investigation work completed by GRAEF is summarized in the Site Investigation Report dated June 22, 2022 and submitted to the WDNR on the same date. The information from this report is included by reference.

The most recent investigative activities completed on site included soil vapor and groundwater sampling.

1.4 Purpose and Scope of Report

The objective of this combined Site Investigation and Remedial Action Options Report is to present the magnitude and extent of chlorinated volatile organic compound (CVOC) impacts associated with historic drycleaning operations on site, evaluate remedial options to address the impacts, and select a remedial option that achieves the project remedial action objectives with the goal of obtaining conditional site closure under WAC Ch. NR 726.

2. SITE INVESTIGATION METHODOLOGY

The following subsections summarize the most recent site investigation activities that were performed by Ramboll at the site.

2.1 Soil Borings and Sampling

Soil borings were completed using a Geoprobe to advance a 2-inch diameter, 5-foot long drive rods to collect continuous soil samples, which were collected inside a plastic liner inserted into the end of the drive rod. A new liner was used for each sample interval. Soil samples were logged in the field in accordance with the Unified Soil Classification System. Soil characteristics (e.g., texture, color) along with visual and/or olfactory evidence of impacts were noted on soil boring logs. The samples were screened for volatile organic compounds (VOCs) using a photoionization detector (PID) with a 10.6 electron volt (eV) lamp. PID readings were recorded on the soil boring logs. The soil boring logs are included in Appendix A.

Soil samples were collected from the plastic liner, and placed in appropriately preserved, laboratory-supplied containers. The samples were labelled, sealed, and placed in an insulated cooler on ice

immediately after collection pending delivery under chain-of-custody procedures to the laboratory for analysis. The soil samples collected were analyzed for select VOCs (tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and vinyl chloride) by United States Environmental Protection Agency (USEPA) SW-846 Method 8260B.

2.2 Groundwater Well Installation, Development and Sampling

Upon completion of soil sampling, soil borings were over drilled utilizing 8.25-inch outer diameter hollow-stem augers and converted into groundwater monitoring wells. All monitoring wells were installed in accordance with WAC NR 141 and completed to depths ranging between approximately 25 and 33 feet bgs. All monitoring wells were constructed using 2-inch diameter, flush thread Schedule 40 polyvinyl chloride (PVC) riser pipe and 2-inch diameter PVC factory cut (0.010 inch) slotted well screen. Water table monitoring wells were installed to a depth of 25 feet bgs with a 10 foot long well screen, placed to intersect the water table. The piezometer well (PZ-1) was installed to a depth of 33 feet bgs with a 5 foot long well screen, placed below the water table. A medium-grained silica filter sand pack was placed from the bottom of the borehole to 2 feet above the top of each well screen. Following placement of the filter sand pack, 1 foot of fine sand pack was placed, followed by bentonite chips to ground surface. The monitoring wells were completed with locking steel protective casings. Monitoring well construction forms are presented in Appendix B.

On January 20, 2023 monitoring wells MW-5 through MW-7 and PZ-1 were developed in accordance with WAC NR 141 to remove residual materials remaining in the wells after installation and to re-establish the natural hydraulic flow conditions of the formations which may have been disturbed by the well construction. This was achieved by utilizing a positive displacement pump to slowly remove the sediment that accumulated at the bottom of the well after installation. Monitoring well development forms are presented in Appendix B.

Prior to the groundwater sampling activities, depth to groundwater measurements were documented at groundwater monitoring wells. Wells with expandable caps were opened and allowed to equilibrate with atmospheric pressure prior to taking measurements. Monitoring wells were sampled using low-flow groundwater sampling techniques utilizing a positive displacement pump and low density polyethylene tubing or bailers. Field measurements of water quality parameters, including temperature, dissolved oxygen (DO), pH, specific conductivity, oxidation-reduction potential (ORP), and turbidity were recorded, and the groundwater samples were collected upon stabilization of the groundwater quality parameters. A well was considered stabilized and ready to be sampled after the field measurements of water quality parameters stabilized or the well has been purged a minimum of three well volumes.

Groundwater samples were collected, labelled, sealed, and placed in appropriately preserved, laboratory-supplied containers. The samples were placed in an insulated cooler on ice immediately after collection pending delivery under chain-of-custody procedures to the laboratory for analysis. The Groundwater samples were submitted for laboratory analysis to Eurofins Test America, a Wisconsin-certified laboratory for analysis. The groundwater samples, including the duplicate sample, collected were analyzed for select VOCs (tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and vinyl chloride) by USEPA SW-846 Method 8260B.

2.3 Sub-Slab Vapor Pin Installation and Sampling

Sub-slab vapor sampling devices (Vapor Pins[®]) were installed in several areas of the on grade building floor slab. The Vapor Pins[®] are designed to facilitate the collection of sub-slab vapor samples from beneath the concrete floor. The Vapor Pins[®] are 3.25-inch-long barbed stainless steel pins with

silicone sleeves that function as a built-in seal. A flush mount installation of the Vapor Pins[®] was achieved by drilling a 1.5-inch diameter hole approximately 2 inches into the concrete slab, then drilling a 5/8-inch diameter hole through the slab and approximately 6 inches into the underlying soil. The Vapor Pin[®] assembly was completed by driving the vapor pin and silicone sleeve into the 5/8-inch diameter drilled hole. The finished vapor monitoring points completed protective covers flush with the floor slab. The sub-slab Vapor Pins[®] are installed as semi-permanent and were left in place.

Sub-slab vapor samples were collected using a 6-liter individually certified Summa canister fitted with a flow controller regulating the flow to approximately 100 to 200 mL/min. Prior to vapor sample collection, a shut-in test was conducted on the sample lines extending from the sub-slab Vapor Pin[™] to the Summa canister. A vacuum was applied to the sample train using a hand pump with a vacuum gauge. A vacuum was induced in the line of 50 to 100 inches of water, which remained steady for at least 1 minute. This signified no leaks were present in the sampling train. A water dam was constructed around the sub-slab probe by sealing (with plumbers' putty) a 2-inch PVC flange to the concrete floor surrounding the vapor probe and filling it with water. The water level in the dam remained constant indicating no leaks were present around the Vapor Pin[™]. The six sub-slab vapor samples were submitted to Eurofins Test America, a Wisconsin-certified laboratory for analysis of VOCs using USEPA Method TO-15 (gas chromatograph [GC]/mass spectrometer).

2.4 Investigative Waste

Soil from borings and well installation is contained on drums for disposal during remediation. Water from well development was discharged to the sanitary sewer with permission from MMSD.

3. SITE INVESTIGATION RESULTS

The magnitude and extent of the CVOC soil, groundwater, and soil vapor impacts at the Site have been defined and are described in the following sections.

3.1 Geological and Hydrogeological Conditions

Unconsolidated materials encountered during the site investigation include the following listed in descending order from ground surface; fill (clay or sand), sandy clay, clay (with gravel) till (refer to soil boring logs in Appendix A and cross-sections in Appendix C). Fill was generally encountered from ground surface to 21.5 feet bgs with fill thickness varying across the site. Fill materials were primarily coarse-grained materials (sand, gravel, asphalt, brick, concrete and possible foundry materials) overlying fine-grained materials (reworked clay).

A sandy clay unit immediately underlies the fill material to depths up to 23 feet bgs, which is underlain by clay till to depths greater than 26 feet bgs (Appendix A and C). Dolomite bedrock is estimated to be present 30 feet bgs (Case Closure – GIS Registry, 4301 North Richards Street, Milwaukee, Wisconsin, FID #241040690, BRRTS #02-41-000033 by GRAEF [dated November 7, 2016]), although bedrock was not encountered in the site investigation borings.

The wells were surveyed after installation to establish ground surface and top of casing (TOC) elevations to the nearest 0.01 foot. Static water levels were collected from the site wells during groundwater sampling events to determine groundwater depth and flow direction, where the most recent data available are presented as groundwater elevations in Figure 7. These groundwater elevations are highly variable, but consistently occur just above the top of the observed clay till (Appendix A and C) and within the overlying sandy clay, which may indicate perched groundwater

conditions above the less permeable clay till. All groundwater elevations presented on Figure 7 are significantly higher than the observed Milwaukee River stage elevation collected on the same date as recent site groundwater elevations (February 21, 2023), which would indicate regional flow is to the northeast toward the river if the groundwater was not subject to perched conditions. Based on research completed in the area near the site (Estabrook Park) groundwater within the unconsolidated sediments (sandy clay and clay till) in the vicinity of the site is expected to flow to the east towards the Milwaukee River and Lake Michigan (Cherkauer, D.S., 1996, Impact of Tunnel Dewatering on Surface Water Bodies in Milwaukee: Determination of Hydrogeological Controls and the Efficiency of Monitoring Arrays. Groundwater Research Report WRC GRR 96-03, University of Wisconsin System, Groundwater Research Program).

Site specific hydraulic conductivity data was obtained from the hydraulic conductivity analysis completed on a soil sample from a wet seam in boring MW #3. The test indicated a hydraulic conductivity of 2.7×10^{-8} centimeters per second (cm/s) (GRAEF, June 27, 2022, Site Investigation Report, Spic and Span, BRRTS # 02-41-585636) in the typical range for a low permeability glacial till. Based on data collected in the surrounding area near Estabrook Park (Cherkauer, D.S., 1996, Impact of Tunnel Dewatering on Surface Water Bodies in Milwaukee: Determination of Hydrogeological Controls and the Efficiency of Monitoring Arrays. Groundwater Research Report WRC GRR 96-03, University of Wisconsin System, Groundwater Research Program) hydraulic conductivities in the native soils near the site (unconsolidated sediments) decrease with depth, with the lower silt and clay hydraulic conductivities on the order of 10^{-6} cm/s, which is consistent with the observed depth of low permeability clay till on site. A groundwater model completed as part of the research was calibrated using low hydraulic conductivity values on the order of 10^{-5} and 10^{-7} cm/s for horizontal and vertical conductivity, respectively, to represent the glacial sediments in the area. The low conductivities of the glacial sediments on site and in the area are not expected to promote transport. Soil boring logs are presented in Appendix A and geological cross sections are presented in Appendix C.

3.2 Soil Results

A total of 41 soil samples were collected for VOC analysis from the Site since May of 2020 starting in the drycleaning source area described in Section 1.3 and expanding beyond the source area to other sections of the building interior. Soil analytical results were compared to NR 720 Industrial Direct Contact Soil RCLs listed on the WDNR's December 2018 Soil RCL Worksheet, the most recent available at this time. Compounds detected above the RCL standards are presented on Table 1 and Figure 3 and are discussed below. The laboratory analytical results for soil samples collected are presented in Appendix D.

The soil impacts, based on field observations and the laboratory analytical results, can generally be summarized as follows:

- 0 to 5 feet bgs: PCE concentrations have been detected at less than 0.4 milligrams per kilogram (mg/kg) and appear to be limited around the source area (SB #1 thru SB #6, SB #8 and HA-1) except for a soil sample collected from 4' to 6' bgs at SB #7. This sample had a PCE concentration of 19.4 mg/kg and a TCE concentration of 4.7 mg/kg. All of these concentrations are above the Groundwater Pathway RCL of 0.0045 mg/kg for PCE and 0.0036 mg/kg for TCE but below their respective Industrial Direct Contact RCL of 145 mg/kg (PCE) and 8.41 mg/kg (TCE). The TCE concentration of 4.7 mg/kg is above the Non-Industrial Direct Contact RCL of 1.3 mg/kg.
- 5 to 10 feet bgs: The highest PCE impacts for this depth interval have been detected at the location of the dry-cleaning room and extend eastward along the sanitary sewer lateral. The TCE impacts have a similar pattern but cover less of an area. The PCE concentrations in the samples from the 8-

to 10-foot bgs interval from SB#1 and SB#2, both located in the former dry-cleaning room, were 17.7 and 12.5 mg/kg, respectively. The sample from 6 to 8 feet bgs in SB #4 located just east of the dry-cleaning room was 16.1 mg/kg, and in SB #5 located along the sanitary sewer line just east of the dry-cleaning room was 46 mg/kg. Except for this sample, all PCE concentrations are below the Non-Industrial Direct Contact RCL of 33 mg/kg. The PCE concentration in samples in and around this sampling interval to the west are significantly lower (SB #8, SB #9 and SB #19). TCE was detected just above its Non-Industrial RCL of 1.3 mg/kg in SB #5. Most of the samples for PCE and TCE in this interval exceeded groundwater pathway RCLs.

Trimethylbenzene - 1,2,4 was detected at a concentration of 262 mg/kg, just above the Industrial and Non-Industrial RCL of 219 mg/kg. This is most likely attributable to petroleum solvent cleaning at the location of this boring.

- 10 to 15 feet bgs: At this interval the most significant PCE and TCE impacts follow the sanitary sewer line. Interpolating between SB #1, #2, #3 and #14, the PCE concentrations are estimated to decrease throughout this interval beneath the dry-cleaning room. Except for PCE detected at a concentration of 71 mg/kg in the sample from 12.5 to 15 feet bgs in SB#12, PCE and TCE were not detected above Non-Industrial or Industrial RCLs in samples from this interval and were only detected above the Groundwater RCL in this interval.
- 15 to 20 feet bgs: For this interval, PCE impacts are relatively low throughout the study area with the highest concentrations in the area of the dry-cleaning room based on the sample from the 17.5 to 20-foot interval from SB #14 that had a PCE concentration of 0.47 mg/kg. This concentration is below the Non-Industrial and Industrial Direct Contact RCLs of 33 mg/kg and 145 mg/kg but above the Groundwater Pathway RCL of 0.0045 mg/kg. TCE was not detected in this sample. PCE and TCE were not detected in the remaining seven samples from this depth interval. Relatively low concentrations of PCE and TCE are estimated to remain in this interval in a limited portion of the sanitary sewer line beneath an open area of the shop floor based on sample data from SB #12 and SB #17. Vinyl Chloride was detected at an estimated concentration (J-Flagged result) of 0.126 mg/kg in SB #19. It is estimated that this is a remnant from the vinyl chloride impacts that were associated with closed ERP site located at the west side of the building and previously discussed in Section 1.3.
- 20 to 25 feet bgs: Nine samples were collected below 20 feet bgs and PCE and TCE were not detected.

The extent of the soil impacts for each of the intervals discussed above are shown in Figures 4a through 4e.

Based on the investigative samples collected throughout a portion of the Spic and Span facility including open spaces and adjacent to utility lines, the limits of soil contamination have been delineated to the east, west, and south. There is also no indication of significant PCE and TCE contamination at depth, with only one sample above the Groundwater Pathway RCL in the interval from 15 to 20 feet bgs in SB #14 and no concentrations were above the Groundwater Pathway RCL in the nine samples collected below 20 feet bgs. Although there is the possibility a data gap to the north of the source area exists, the distribution of impacts seems to be well understood and it is our opinion that the same conditions limiting the depth and extent of impacts to east, west, and south - underlying clay soils and attenuation with distance from the source - will limit the magnitude and extent of impacts to the north. Therefore, it is our opinion that additional investigation to further define the extent of soil impacts to the north is not necessary.

Based on the investigation results, the total mass of PCE in the subsurface soils is estimated to be approximately 62 kilograms (kg) and the mass of TCE is estimated to be 3 kg. The calculations of the contaminant mass are provided in Table 5 and Figures 5a through 5e.

3.3 Efforts Undertaken to Gain Access

A letter requesting access to the adjacent property owner to the north was hand delivered on October 6, 2022 and again on December 20, 2022, and on each occasion a signed receipt was obtained, and follow-up was conducted by phone. The letters and receipts are included as Appendix G. As of the date of this document, a response has not been received. Previous attempts to contact the property owner are documented in reports by GRAEF.

3.4 Groundwater Results

At the request of the WDNR, a groundwater monitoring well, MW #1, was installed near the source area and sampled in September of 2021. During the first round of sampling, vinyl chloride was detected above its NR 140 ES at a concentration of 21.6 micrograms per liter ($\mu\text{g/L}$) that dropped to a range of 5 to 9 $\mu\text{g/L}$ in the subsequent four rounds of sampling. PCE concentrations have ranged from 3.2 to 11.6 $\mu\text{g/L}$ (just below to just above the Groundwater ES of 5 $\mu\text{g/L}$). No other compounds were detected above the Groundwater ES. Since the installation of MW #1, five additional wells (MW #2 thru MW #6) and one piezometer (PZ #1) were installed to delineate the vertical and horizontal extent of groundwater contamination. With the exception of cis-1,2-dichloroethylene detected in the first round in MW #3 at a concentration of 4.4 $\mu\text{g/L}$, well below its NR 140 Preventative Action Level (PAL) of 7 $\mu\text{g/L}$, CVOCs have not been detected in any of these wells. The locations of the groundwater monitoring wells are shown in Figure 6. The groundwater laboratory analytical results are presented in Table 2.

With the recent addition of two monitoring wells and a piezometer (MW #5, MW-#6, and PZ #1), the monitoring well network within the footprint of the existing Spic and Span building consists of seven sampling locations (MW #1, MW #2, MW #3, MW #4, MW #5, MW #6, and PZ-1 #1, see Figure 2). The six monitoring wells are screened across the following unlithified materials listed in descending order from ground surface: fill (clay and sand), sandy clay, clay till with gravel. The depth of the fill ranges from 0 to 19 feet bgs, the depth of the sandy clay ranged from 1 to 23 feet bgs, and the depth of the clay till ranged from 15 to 26 feet bgs. The piezometer, PZ #1, installed in the vicinity of MW #1 is screened within the clay till. The clay till at PZ #1 was observed at 23.8 feet bgs to the bottom of the boring at 34 feet bgs. Water levels measured at the six monitoring wells represent the first occurrence of groundwater from the ground surface and ranged from approximately 10 to 21 feet bgs as measured on February 21, 2023. The groundwater elevations are provided in Table 3. The well construction diagrams are included in Appendix B.

Observations regarding the characteristics of groundwater flow at the site include the following:

- Groundwater consistently occurs just above the top of the clay till and within the overlying sandy clay, which may indicate perched groundwater conditions. At monitoring wells MW #4 and MW #6, the top elevation of the clay till is observed to be at its highest point within the investigation area and coincides with locations with higher site water levels. Whereas monitoring wells MW #1 and MW #2 the top elevation of the clay till is at its lowest observed elevation, which coincides with locations having the lowest site water levels. This observed relationship between the elevation of the clay till surface and water level, along with the low hydraulic conductivity of the clay till, approximately 2.7×10^{-8} cm/s, supports the hypothesis that a perched groundwater condition

exists at the site. Cross-sections presented as part of historic investigation reports¹ at neighboring sites to the south and west of the existing Spic and Span building depict water levels just above the native soils, which may also indicate perched groundwater conditions.

- Based on groundwater elevation data presented in Figure 7 which includes data available from historic investigations at neighboring sites to the south and west of the existing Spic and Span building, the groundwater elevations are generally higher to the south and west of the site than the lowest groundwater elevations observed on site (MW #1 and MW #2). Groundwater elevations at site monitoring wells MW #3, MW #4, MW #5, and MW #6 were also observed to be higher than MW #1 and MW #2. The wide range of groundwater elevations observed in the area may further indicate perched groundwater conditions that follow the clay till surface.
- Water levels measured at the piezometer, PZ #1, represent the piezometric head elevation within the clay till beneath monitoring well MW #1. Water level within the clay till was approximately one foot lower on February 21, 2023 than the water level measured in MW #1 screened in the sandy clay above the clay till, indicating a downward vertical gradient exists on-site.
- All groundwater elevations presented on Figure 7 including measurements at PZ #1, are significantly higher than the observed Milwaukee River stage elevation collected on the same date (February 21, 2023). This observation indicates regional groundwater flow is likely to be northeast toward the river.

Site groundwater elevations presented in Figure 6 indicate localized groundwater flow converging near MW #2 at the southwest portion of the facility. Groundwater samples collected from MW #2 did not exceed WAC ch. NR 140 groundwater Enforcement Standards for CVOCs and indicate onsite impacts are defined downgradient and to the south of MW #1. Groundwater CVOC impacts observed at MW-1 are also defined to the east and west in the upgradient flow directions, where MW #3, MW #4, MW #5, and MW #6 did not exceed WAC ch. NR 140 groundwater Enforcement Standards. Impacts observed in monitoring well MW #1 are also defined vertically by piezometer PZ #1, which is screened from 28 to 33 feet bgs, and 5 feet below MW #1 in the low permeability clay till. CVOCs were not detected above laboratory method detection levels at PZ #1.

Conclusions from the groundwater investigation activities conducted at the Site are summarized below:

- Of the six monitoring wells and one piezometer installed within the building, only MW #1 has samples that exceed the WAC ch. NR 140 groundwater ES, and the concentrations have been stable;
- Water samples from monitoring wells MW#2, MW #3, MW #4, MW #5, and MW #6 that surround MW #1 did not exceed the WAC ch. NR 140 groundwater ES for CVOCs in the downgradient and upgradient flow directions from MW#1 and the aerial extent of the CVOC impacts on-site are defined;
- CVOCs were not detected at piezometer PZ #1 screened in the clay till beneath MW #1 and have been vertically defined on site; and
- Groundwater occurs just above the top of the clay till and within the overlying sandy clay, which indicate perched groundwater conditions may exist above the less permeable clay till; groundwater elevations locally follow the clay till surface.

¹ Site Investigation Report Addendum, 4213 North Richards Street, Glendale, Wisconsin, FID #241852160, BRRTS #02-41-579469 by Sigma [dated March 16, 2018]; and Case Closure – GIS Registry, 4301 North Richards Street, Milwaukee, Wisconsin, FID #241040690, BRRTS #02-41-000033 by GRAEF [dated November 7, 2016]

The data collected from the site investigation indicates that groundwater impacts have been investigated to the extent practicable and there is no indication that the residual groundwater contamination presents a significant threat to human health or the environment.

3.5 Soil Vapor

Between January 13, 2020 and April 20, 2023, thirty-one vapor samples were collected from sub-slab vapor points and select manholes on site. The sample locations and results are shown on Figure 7 and the sample results are also summarized in Table 4. Sub-slab PCE vapors were detected above the Large and Small Commercial Vapor Risk Screening Levels (VRSLs) of 18,000 $\mu\text{g}/\text{m}^3$ and 5,800 $\mu\text{g}/\text{m}^3$ respectively at concentrations as high as 81,000 and 86,000 $\mu\text{g}/\text{m}^3$ at SSV #1 and SSV #12, and TCE vapors were detected above the Large Commercial and Small Commercial VRSL of 880 $\mu\text{g}/\text{m}^3$ and 290 $\mu\text{g}/\text{m}^3$ respectively at concentrations of 1,400 and 2,700 $\mu\text{g}/\text{m}^3$ at SSV #1 and SSV #10. Overall, the area of PCE and TCE vapor that exceed the sub-slab VRSLs extends from just west of the drycleaning room to the far east side of the building with the vapors apparently following the fill surrounding the sanitary sewer. Significant concentrations of PCE and TCE vapor were not detected in the samples collected from the storm and sanitary manholes on-site. Figure 8a provides an isoconcentration map for PCE vapor and Figure 8b provides an isoconcentration map for TCE vapor showing the areas that exceed both the Large Commercial/Industrial VRSLs and the Small Commercial VRSLs.

The CVOC vapor impacts above the VRSLs were not observed beyond the lateral extent of soil impacts. The observed groundwater impacts were not significant enough to contribute to elevated vapor levels. Based on this, the observed soil contamination is the likely source of the elevated sub-slab vapor concentrations and generally coincides with the extent of the vapor impacts. This supports the conclusion that the limits and the source of the sub-slab vapor impacts are defined.

3.6 Potential Migration Pathways and Receptors

Ramboll evaluated the contaminant migration pathways, potential receptors, and human exposure routes of the identified CVOCs in the soil, groundwater and soil vapor at the Site.

Impacts to Public and Private Water Supplies/Wells – Based on a review of the WDNR Well Construction Reports, the closest well record is 0.26 miles (> 1,200 feet) to the southwest of the site. There are no well records downgradient of the site, between the site and the Milwaukee River. Water at the site and in the vicinity of the site is supplied by the City of Milwaukee and obtained from Lake Michigan.

A laboratory measured hydraulic conductivity of approximately 2.7×10^{-8} cm/s for the clay till along with the observation that groundwater recharge into the wells is extremely slow after purging/sampling, indicate that the potential for contaminant migration to the groundwater at the site is low. In addition, the entire area of observed impact is covered with a building which limits infiltration of surface water.

Impacts to Utility Corridor Receptors – Utility corridors can act as migration pathways. Buried storm and sanitary sewer lines were identified on plans and field verified. Vapor samples were collected for laboratory analyses from the nearest accessible manholes for each of these utilities and PCE and TCE were not detected above the Small Commercial Indoor Air VALs. PID readings were also collected on the ambient air in sanitary sewer cleanouts (SS #1 through SS #11) and VOCs were not detected.

Soil borings were also completed near the sanitary and storm sewer to evaluate potential migration along the utility trench. These included SB #12, #17, #19 and #22 along the sanitary sewer line and

SB #2, #10, #13, #15, and #16 along the storm sewer line. The results of these borings indicated that PCE and TCE migrated along the sanitary sewer line to the east of the source area but did not extend beyond the east side of the building. These data also show that the contaminants did not extend a significant distance to the west. Migration also appeared limited along the storm sewer based on a peak concentration at 10 feet bgs in SB #2 and in the source area that diminishes with distance (see Section 3.4). The area of elevated soil vapor results tended to confirm the soil boring results (see Section 3.5).

Natural Resources – Ramboll reviewed the WDNR surface Water Data Viewer for information on mapped natural resources. No wetlands or sensitive habitats were mapped in the area of the site. Additionally, the site is in an industrial park that no longer includes undeveloped natural areas.

Sites or Facilities of Historical or Archaeological Significance – The site is located in a developed urban area and significant archaeological sites would have been highly disturbed by construction in this area, including fill soils observed to depths of at least six to seven feet bgs across the site. The building itself is not an historic structure, and the building and site are surrounded by developed and paved areas.

3.7 Emerging Contaminants Evaluation

As requested by the WDNR, an evaluation for the potential of PFAS compounds to have been historically or currently produced, used, handled, or stored onsite was conducted. Manufacturing processes that are typically sources of PFAS include textiles, paper products, metal plating and etching, wire manufacturing, waterproof/non-stick coatings, and semi-conductors. There is no evidence that these industrial processes were conducted on site. Additionally, Spic and Span did not have any record of the use of PFAS. Safety Data Sheets (SDS) were reviewed and PFAS compounds were not listed. Based on this review, there is no indication of PFAS use on site.

3.8 Conclusions and Recommendations

Based on the investigations, the vertical and horizontal extent of soil impacts are defined. Soil concentrations do not exceed direct contact RCLs except for one location (B #6) where the Non-Industrial direct contact RCL was exceeded. Groundwater RCL exceedances are limited in depth and extent and PCE and TCE were not detected below a depth of 20 feet bgs. Therefore, further investigation is not recommended.

The groundwater impacts are also limited in magnitude, depth and extent, do not present a risk to drinking water or general groundwater quality, and are too low to significantly contribute to the elevated sub-slab vapor concentrations. Based on this, further investigation of groundwater is not recommended.

Vapor impacts presently exceed both the large and small commercial Sub-Slab Vapor VRSLs in a portion of the building shown in Figures 8a and 8b. The limits of the sub-slab vapor impacts have been defined and are generally coincident with the limits of the soil impacts. The building has not been occupied since 2019 and as such the building ventilation system has not been operating over the course of the investigation activities. This has created a condition of general equilibrium between the indoor air and the sub-slab vapor, with only limited losses of contaminant mass through gaps in the building envelope and the exterior ground surface on the north and east sides of the building. In the event that the building were to be occupied and the ventilation system operated again, the air movement may be sufficient to reduce and maintain the concentrations of PCE and TCE in the indoor air to levels below the Indoor Air Vapor Action Levels (VALs). Because PCE and TCE in the shallow soils

are the source of the elevated sub-slab vapor concentrations, remediation of these soils may be needed to address the vapor intrusion risk. Concentrations of PCE and TCE vapors in the sub-slab zone will decrease over time as the contaminant mass which is the source of the vapors is limited and the mass will decrease over time through ventilation and natural processes.

4. REMEDIAL ACTION OPTIONS EVALUATION

4.1 Remedial Objective

The remedial objective for the Site is to reduce the risk of exposure of PCE and TCE from sub-slab vapor intrusion to indoor air by reducing source area CVOC concentrations to levels that will not result in an indoor air Vapor Action Level (VAL) exceedance so case closure under WAC NR 726 can be attained. The indoor air VAL is 180 µg/m³ for PCE and 8.8 µg/m³ for TCE. It is anticipated that within the context of the revised RR-800 guidance this objective can be met by reducing the mass of PCE and TCE in the sub-slab soils and/or implementing measures aimed at reducing the risk that the sub-slab vapors would intrude into the occupied space through advection and diffusion. The anticipated use of the site is warehouse services.

4.2 Identified Remedial Action Options

The remedial actions identified for the Site include a wide range of potential actions. The option that applies engineering controls is included as a general response against which other actions can be evaluated. Given the environmental conditions of the site and the proposed use for warehouse space, the options that were considered for the Remedial Action Options Report (RAOR) are as follows:

Option A: Implement engineering controls to eliminate the vapor intrusion pathway and reduce advection and diffusion of sub-slab vapor.

Option B: Focused excavation of sub-slab soils where elevated PCE and TCE contaminant levels were observed in the soils and sub-slab vapor, and implementation of engineering controls to eliminate the vapor intrusion pathway and reduce advection and diffusion of vapor into the indoor air space. Institutional controls described in a continuing obligation/maintenance agreement included with the property transfer would also be established to maintain the integrity of the concrete floor slab.

Option C: Focused vapor extraction to remove PCE and TCE vapor from areas of elevated contaminant levels in the source area soil and vapor beneath the floor slab combined with sub slab depressurization to eliminate the vapor intrusion pathway. Institutional controls in the form of continuing obligations to maintain operation of the vapor extraction and sub-slab depressurization system will be required to obtain case closure under this option.

Option D: Vadose zone chemical oxidation via direct injection to reduce the mass of sub-surface PCE and TCE in the source area soil.

These options are discussed in further detail below.

4.2.1 Option A: Engineering Controls to Eliminate Vapor Intrusion Pathway

The option involves no treatment of contaminated soil at the site and serves as a baseline against which the other remedial options and technologies can be compared and calibrated. The rationale for this approach is based on the limited mass of the contaminants in the source area soil (see Table 6). Sealing off potential vapor migration pathways and circulating fresh air through the occupied spaces

through the normal operation of the HVAC system would serve to maintain levels of PCE and TCE in the indoor air below the indoor air VAL.

Long term implementation includes maintaining operation of the HVAC system and maintaining the floor which are both routine tasks for managing a building. A maintenance plan will be required for the inspection and maintenance of the concrete slab and floor penetrations.

In regard to technical feasibility, the tasks involved are routine and not technically difficult and the primary risk associated with this alternative is if it does not keep PCE and TCE vapors below the indoor air VAL, more comprehensive remedial actions such as excavation or vapor extraction would be necessary that could disrupt the building use. Local permitting would not be required.

In regard to economic feasibility, the cost can be supported by the future sale of the building and it is anticipated that this option would facilitate a timely sale and payment of the outstanding loans without lingering responsibilities on the part of the current owner. The estimated initial cost of this option is \$10,000 to \$12,000, including initial long term (7 day) passive sampling. The number and frequency of future passive sampling events and associated costs would depend on the results of the initial sampling event. For budgetary purposes, it is assumed that four additional passive sampling events would be completed at a cost of \$10,000 for a total cost of \$20,000 to \$22,000.

4.2.2 Option B: Focused Excavation of Sub-Slab Soils with Engineering Controls

Limited soil excavation and landfilling of the most highly contaminated shallow soils is an effective option to permanently remove the source of the sub-slab soil vapor especially considering that this source is limited in mass (see Section 3.2). After excavation, engineering controls will be implemented to reduce advection and diffusion into the indoor air space of the remaining PCE and TCE left in the sub-slab soils. The proposed areas of excavation are shown in Figures 10a through 10c. These excavation areas combined with engineering controls will effectively reduce the risk for vapor intrusion and potential for significant sub-slab vapor build-up.

The excavation areas will be reviewed by a structural engineer to ensure that the excavations will not jeopardize the structural elements of the building. The areas shown on Figures 10a through 10c include a five-foot setback from structural elements. The concrete would be cut in each of these areas and disposed at a construction and demolition landfill. Excavation would proceed to a practical limit of approximately 8.5 to 9 feet below the existing floor surface. The depth is limited due to equipment accessibility issues inside a building and setbacks required in some areas for bearing walls. During the excavation, ventilation of PCE/TCE vapor would be facilitated by placing blowers in and around the excavation area to remove any vapors from the excavation to the outside of the building. It is anticipated that this ventilation would also effectively remove PCE and TCE mass from the base and sidewalls of the completed excavations.

The volume of soil to be excavated is approximately 1,075 cubic yards or approximately 1,625 tons. The completed excavation would be lined with Drago Wrap[®] to effectively eliminate diffusion of contaminants below the bottom of the completed excavation. The Drago Wrap[®] would be sealed to the edge of the concrete floor slab, the excavation would be backfilled with clean fill and a new slab poured. The Drago Wrap[®] permeation coefficients are $7.7 \times 10^{-13} \text{ m}^2/\text{s}$ for PCE and $4.7 \times 10^{-13} \text{ m}^2/\text{s}$ for TCE. Drago Seal[®] and Drago Mastic[®] would then be used to seal floor penetrations outside the excavation area. Overall, this would effectively eliminate roughly 35% to 45% of the PCE and 45% to 55% of the TCE as a potential source of indoor air contamination, and excavation will remove the contaminants from the shallowest zones that present the greatest risk of vapor intrusion. It would also

effectively eliminate the vapor load to the smaller rooms to the west and east by removing adjacent sources of contamination and confine the bulk of the remaining contamination to beneath the open spaces of the building. The calculations are summarized in Table 5.

Although some PCE and TCE will be left in place, it is our opinion that this will not present a vapor risk for the following reasons:

- The bulk of the contamination near the sub-slab zone will be removed and remaining deeper contamination will be isolated with Drago Seal[®] and Drago Mastic[®]
- The contaminant source is mass limited (see Table 6) so that even before excavation there is insufficient mass to present a long-term vapor risk even under conditions of poor ventilation.

A maintenance plan will be developed for the inspection and maintenance of the concrete slab and floor penetrations and would be implemented as a continuing obligation to the current/future building owner.

In regard to technical feasibility, this option would effectively eliminate the risk of significant long-term indoor vapor exposure. The technical risks associated with this option are primarily associated with the excavation in proximity to the structural elements of the building, and potential worker exposure to equipment exhaust and soil vapors during implementation. The structural risks can be mitigated by implementation of excavation setbacks based on recommendations by a structural engineer. The vapor risks would be largely due to equipment exhaust (see Table 6 with OSHA TWAs for PCE and TCE) and would be mitigated by providing adequate ventilation during construction with indoor air monitoring. As noted, the venting during excavation would also serve to remediate the VOCs from the soils on the base and sidewalls of the excavation. The remaining technical elements of this option are relatively common construction tasks. A TCLP test for PCE was completed on samples collected adjacent to SB#7 and SB#12. PCE was not detected in the sample from SB#7. PCE was detected in the sample from SB#12 at concentration of 0.03 mg/L, well below the TCLP limit of 0.5 mg/L. Permitting may also be required from the City of Glendale but is not expected to be technically difficult.

In regard to economic feasibility, the cost can be supported by a loan based on the future sale of the building and it is anticipated that this option would facilitate a timely sale of the building and payment of the outstanding loans without lingering responsibilities on the part of the current owner. However, the overall costs associated with this alternative that include the economic cost as well as the environmental and health costs, only some of which are described above, would likely exceed the benefits. Passive sampling could be conducted prior to implementation of this option in order to potentially reduce the scope of the excavation and associated costs. The estimated cost of this option is \$190,000 to \$220,000 and is substantially greater than Option A. There is no long-term maintenance associated with this option.

4.2.3 Option C: Combined Vapor Extraction and Sub-Slab Depressurization

This option would remove the PCE and TCE through vapor extraction from shallow vertical wells. Ten vapor extraction wells would be proposed in the locations shown on Figure 11. A pilot test would be required in order to determine the number of wells and properly size the blower(s). The system would operate continuously until the discharge concentrations of PCE and TCE are less than a fraction of the Sub-Slab VRSL for small commercial buildings for at least two consecutive discharge sampling events. As with the other options, the areas for vapor extraction are selected to address the impacts to the most highly contaminated shallow soils and effectively eliminate the risk of significant vapor build-up

in the smaller commercial spaces. Operation of the vapor extraction system would also serve to generally depressurize large portions of the sub-slab volume.

Subject to the pilot test, the design would include ten vapor extraction wells screened from approximately 4' to 9' bgs in the locations shown on the attached figure. The radius of influence of the wells will vary based upon the soil types.

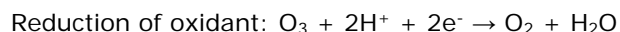
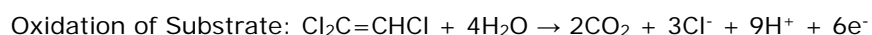
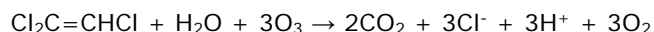
A maintenance agreement would be required as part of the sale of the building due to soil contamination remaining above commercial RCLs and the need to continue to operate the soil vapor extraction system.

In regard to technical feasibility, two significant issues are the variability of the underlying soils and the uncertainty regarding the end point for operation. The variability of the soils can be partly addressed through careful evaluation of the soil conditions and pilot testing that would require additional time and expense. The proposed end point of operation could be when the discharge concentrations of PCE and TCE are less than 1/10 of the Sub-Slab VRSL for small commercial buildings for at least two consecutive bi-annual discharge sampling events and/or 25% of the mass of PCE and TCE has been removed based on bi-annual sampling. However, there is considerable uncertainty involved with using bi-annual sampling as the basis for an endpoint. Two rounds of sub-slab vapor samples would then be collected within no less than three months apart to confirm the results, and if all of the rounds are below the Small Commercial VRSLs the system would be shut down.

In regard to economic feasibility, the cost can be supported by a loan on the future sale of the building. The initial cost to complete a pilot test and install a system is estimated to be \$110,000 to \$140,000. However, the ongoing O & M costs could complicate the sale especially considering the length of time and ultimate cost for operation is uncertain. Energy costs for continuously operating a blower of the size needed for a system like this are estimated to be over \$8,000 per year for ten years with attendant emissions. Sampling and maintenance would add to this cost making the estimated operation and maintenance costs approximately \$15,000 per year. The cost of this option is estimated at \$235,000 to \$265,000 and is equal to or greater than Option B and it is less likely to facilitate a rapid transfer of ownership. Additionally, the excavation under Option B would likely be more thorough because it would remove the PCE and TCE in the areas of application, whereas the coverage of the vapor extraction system may have uneven areas of influence and would be relatively difficult to assess and monitor.

4.2.4 Option D: In-Situ Chemical Oxidation

Remediation of soil impacted with PCE and TCE using in-situ chemical oxidation (ISCO) involves injecting or mixing oxidants and potentially co-amendments directly into the vadose zone soils. With chemical oxidation, the substrate loses electrons and is oxidized, while the oxidant gains electrons and is reduced producing innocuous substances such as carbon dioxide, water, and, in the case of chlorinated compounds such as PCE and TCE, inorganic chloride:



Four commonly used oxidants for soil and groundwater remediation are permanganate, persulfate, peroxide, and ozone. For treatment of contaminated soil, oxidants in concentrated solution can be

delivered using hydraulic injection of a liquid or slurry to saturate the vadose zone with a chemical oxidant in localized source areas.

The two most critical success factors in all ISCO projects are the effective distribution of the reagents in the treatment zone and the reactivity of a particular oxidant with the contamination present. Failure to account for subsurface heterogeneities or preferential flow paths can cause an uneven distribution of the oxidant, resulting in pockets of untreated contaminants. The applied reagents also consume natural organic matter in the soil, some of which has sorbed contamination. As the natural organic matter is consumed, the sorbed contamination could be released to underlying groundwater. An important advantage of ISCO is its relatively high rate of reaction. However, because of the reactivity of the oxidants, there is potential to cause a significant change in both the concentration and distribution of contamination, potentially resulting in large changes in a site's established equilibrium of contaminants between the vapor, liquid, and sorbed phases (Kluck and Achari, 2004).

Factors that affect the efficiency, implementability, and costs include injection spacing, hydraulic conductivity, and the ability to inject by direct-push rather than by conventional well drilling techniques. Advantages of using ISCO include in-situ treatment (i.e., no treatment equipment to operate and maintain), relatively fast treatment, and potential enhancements to the post-oxidation aerobic microbial environment. Some disadvantages of ISCO are that the natural oxidant demand may be high in some areas and multiple applications may be required. Proper design of a field-scale implementation of ISCO involves evaluation of contaminant concentrations as well as quantitative estimates of other oxidant sinks.

The ISCO remedial option would include injecting a dilute solution of potassium permanganate at shallow depths to treat unsaturated zone soils impacted by tetrachloroethene (PCE) and daughter products. Because the injection activities would be conducted indoors, potassium permanganate would likely be selected over activated hydrogen peroxide to avoid potential issues with off-gassing that would result from the reaction of hydrogen peroxide. Injection of the potassium permanganate solution would be performed using a Geoprobe® direct push drill rig. The injections would be conducted at points spaced approximately 10 feet apart and at 1 foot vertical increments in order to maximize both vertical and horizontal dispersion of the solution.

The major technical design parameters to implement ISCO within the treatment zone are preliminarily estimated as follows:

- Treatment area: 5,000 square ft to 10 feet below grade, and 3,000 square feet to 15 feet below grade
- Treatment volume: 2,400 cubic yards
- Approximate number of ISCO injection points: 64
- Approximate mass of oxidant: 2,400 pounds (initial injection event)
- Approximate volume of oxidant solution: 7,500 gallons (initial injection event)

Multiple oxidant injection events would likely be necessary, given the relatively short persistence of the oxidant in the subsurface. Based on an assumed four oxidant injection events and follow-up soil confirmation sampling and reporting, the estimated cost to implement the ISCO remedial alternative

for the soil treatment zone is approximately \$425,000 to \$475,000. After the sampling, it is assumed that there would be no more additional costs for O & M and monitoring.

As indicated above, chemical oxidation reactions occur in the aqueous phase, which substantially limits its effectiveness in the vadose zone due to rapid gravity drainage of injected solution. As discussed above, some of the oxidant may simply release PCE and TCE from the vadose zone and facilitate transport to the groundwater before it is oxidized to breakdown products. Moreover, the presence of surficial impacted soil would limit the effectiveness of injection approaches within the upper vadose zone due to potential amendment loss through the surface. Based on the foregoing and a cost that is estimated to be well over twice as much as the other options, the ISCO remedial option is not retained for further evaluation.

4.3 Recommended Remedial Option

Based on the options presented above, Ramboll recommends Option B: Focused Excavation of Sub-Slab Soils with Engineering Controls. Given the limited mass of PCE and TCE (see Section 3.2 and Table 6), this option effectively remediates much of the source of the sub-slab vapor which is primarily the shallow PCE and TCE contaminated soils and prepares the building for productive use in an expeditious manner without long-term monitoring requirements that could inhibit the property transfer. Two rounds of sub-slab vapor samples will be collected from at least four previously sampled sub-slab vapor monitoring points at three and six months after completion of the excavation to verify that sub-slab vapor concentrations in the remaining unexcavated areas are stable or decreasing. If necessary, a sub-slab depressurization system can be activated in the remaining unexcavated areas. A schematic of the sub-slab depressurization system is shown in Figure 12. Prior to implementation of this option, a Remedial Action Plan will be prepared and submitted to the WDNR.

In the event that a sub-slab depressurization system is activated, as-built construction documentation, results of commissioning activities, a maintenance plan, inspection log, and all other information required by Wis. Admin. Code § NR 724.15 will be submitted within 60 days after the completion of installation and commissioning activities.

4.4 Sustainability of Recommended Remedial Action Option

Ramboll has reviewed the recommended remedial option with regard to the proposed processes that are to be undertaken and their impact to the environment, in accordance with WAC NR 722.09(2m). The elements considered include energy use, potential air pollutant generation, water use, land use and soil disturbance, reducing wastes, and optimizing long-term resource stewardship.

The recommended remedial option will consume significant energy. The generation of air pollutants is based on indirect emissions resulting from the excavation and transportation of contaminated soils from the Site to the designated off-site landfill and from active venting of vapors during excavation as well as transportation and placement of clean fill material. Emissions can be reduced by encouraging the approved contractors to participate with the USEPA's Smart Way program to reduce emissions related to earth working equipment and transport vehicles. The best management practices for soil hauling activities include reducing transportation impacts by utilizing the closest disposal location to the Site.

5. CONCLUSION AND RECOMMENDATIONS

Based on the investigation results summarized in this combined Site Investigation and Remedial Action Options Report, the soil and groundwater impacts are defined and limited in magnitude and extent. However, elevated concentrations of PCE and TCE in the soil are causing exceedances of sub-slab Vapor Risk Screening Levels. Four remedial options were evaluated to address the risk to indoor air quality associated with the sub-slab vapor levels. These included engineering controls, focused excavation with engineering controls, vapor extraction with sub-slab depressurization, and in-situ chemical oxidation. Ramboll recommends Option B: Focused Excavation of Sub-Slab Soils with Engineering Controls. Given the limited mass of PCE and TCE, Ramboll recommends the focused excavation with engineering controls to remediate the source of the sub-slab vapor and prepare the building for productive use without long-term monitoring requirements that could inhibit the property transfer.

Ramboll requests approval of the investigation activities and the selected remedial option with the understanding that additional details will be submitted in a Remedial Action Plan to the WDNR for review.

6. REFERENCES

Site Investigation Report, Spic and Span, BRRTS # 02-41-585636 by GRAEF dated June 27, 2022

USGS Topographic Map (2016) Milwaukee, Wisconsin 7.5-Minute Series

Site Investigation Report Addendum, 4213 North Richards Street, Glendale, Wisconsin, FID #241852160, BRRTS #02-41-579469 by Sigma [dated March 16, 2018]; and Case Closure – GIS Registry, 4301 North Richards Street, Milwaukee, Wisconsin, FID #241040690, BRRTS #02-41-000033 by GRAEF [dated November 7, 2016]

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Fam, S. and D. Kidd, 2005, "Chemical Oxidation or Enhanced Anaerobic Dechlorination – A Science-Based Decision", Battelle Press.

Kluck, C. and G. Achari (2004). Chemical oxidation techniques for *in situ* remediation of hydrocarbon impacted soils. *Environmental Engineering Case study*.

TABLES

Table 1. Soil Boring Analytical Data-Compounds Exceeding RCLs

Combined NR 716 Site Investigation and NR 722 Remedial Action Options Report
 4301 North Richards Street
 Milwaukee, WI

Sample Location: Depth (feet BGS): Sample Date: Unsaturated / Saturated Zone:	Soil Non-Industrial Direct Contact RCLs	Soil Industrial Direct Contact RCLs	Soil-to-Groundwater Pathway RCL (DF 2)	Basis	MW-5	SB #1	SB #1	SB #2	SB #2	SB #3	SB #3	SB #4	SB #4	SB #5	SB #5	SB #6	SB #6	SB #7	SB #8	HA-1	SB #9	SB #9	SB #9	SB #10	SB #10	SB #11
23					2.0-4.0	8.0-10.0	0.0-2.0	8.0-10.0	0.0-2.0	8.0-10.0	0.0-2.0	6.0-8.0	2.0-4.0	6.0-8.0	2.0-4.0	8.0-10.0	4.0-6.0	4.0-6.0	4.0-4.5	7.5-10.0	15.0-17.5	22.5-25.0	10.0-12.5	22.5-25.0	15.0-17.5	
1/12/2023					5/26/2020	5/26/2020	5/26/2020	5/26/2020	5/26/2020	5/26/2020	5/26/2020	5/26/2020	5/26/2020	5/26/2020	5/26/2020	5/26/2020	5/26/2020	5/26/2020	7/28/2020	8/10/2020	8/10/2020	8/10/2020	8/10/2020	8/10/2020	8/10/2020	
					Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
VOC																										
cis-1,2-Dichloroethene	mg/kg	156.0	<u>2340</u>	<u>0.0412</u>																						
trans-1,2-Dichloroethene	mg/kg	1560	<u>1850</u>	<u>0.0626</u>																						
Tetrachloroethene (PCE)	mg/kg	33.0	<u>145</u>	<u>0.0045</u>																						
Trichloroethene (TCE)	mg/kg	1.3	<u>8.41</u>	<u>0.0036</u>																						
Trimethylbenzene, 1,2,4-	mg/kg	219.0	<u>219</u>	<u>1.3787</u>																						
Trimethylbenzene, 1,3,5-	mg/kg	182.0	<u>182</u>	<u>1.3787</u>	Csat																					
o-Xylene	mg/kg	260	<u>434</u>	<u>3.96</u>																						
tert-Butylbenzene	mg/kg	183	<u>183</u>	<u>NS</u>																						
sec-Butylbenzene	mg/kg	145	<u>145</u>	<u>NS</u>																						
n-Butylbenzene	mg/kg	108	<u>108</u>	<u>NS</u>																						
1,2-Dichlorobenzene	mg/kg	376	<u>376</u>	<u>1.168</u>																						
Isopropylbenzene	mg/kg	NS	<u>NS</u>	<u>NS</u>																						
n-Propylbenzene	mg/kg	NS	<u>NS</u>	<u>NS</u>																						
Vinyl Chloride	mg/kg	0.067	<u>2.08</u>	<u>0.0001</u>																						

Analyte concentration exceeds the standard for:

Bold	Soil Non-Industrial Direct Contact RCLs
<u>Underlined</u>	Soil Industrial Direct Contact RCLs
Blue Font	Soil-to-Groundwater Pathway RCL (DF 2)

Acronyms:

BGS = Below ground surface
 BRRTS = Bureau for Remediation and Redevelopment Tracking System
 CSat = soil saturation concentration
 DF 2 = Dilution Factor of 2
 FID = facility identification number
 GW = Groundwater
 nc = non-cancer
 NS = No Standard
 RCL = NR720 Soil Residual Contaminant Level (WDNR)
 WDNR = Wisconsin Department of Natural Resources
 WI = Wisconsin
 VOC = Volatile Organic Compound

Screening Levels:

Screening criteria are derived from the WDNR NR720 Soil RR (Remediation and Redevelopment Program) RCLs last updated December 2018
 Groundwater Pathway RCLs are based on a Dilution Factor of 2 (DF 2).
 Direct Contact screening levels were compared to samples less than 4 feet below ground surface (BGS), whereas Groundwater Pathways was compared to samples greater than 4 feet BGS.

Lab comments, additional data qualifiers and definitions can be found in associated laboratory reports.

Results & Flags:

-- = Analysis not performed
 < = Concentration is less than reported limit
 J = Estimated Concentration

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 Milwaukee, WI

Sample Location: Depth (feet BGS): Sample Date: Unsaturated / Saturated Zone:	Soil Non-Industrial Direct Contact RCLs	Soil Industrial Direct Contact RCLs	Soil-to-Groundwater Pathway RCL (DF 2)	Basis	SB #12	SB #12	SB #13	SB #13	SB #14	SB #14	SB #15	SB #15	SB #16	SB #16	SB #17	SB #17	SB #18	SB #18	SB #19	SB #19	SB #21	SB #21	SB #22	SB #22	
					12.5-15.0	22.5-25.0	10.0-12.5	17.5-20.0	17.5-20.0	22.5-25.0	7.5-10.0	22.5-25.0	15.0-17.5	20.0-22.5	10.0-12.5	17.5-20.0	5.0-7.5	17.5-20.0	10.0-12.5	18.0-20.0	7.5-10.0	20.0-22.5	12.5-15.0	20.0-22.5	
					8/10/2020	8/10/2020	8/10/2020	8/10/2020	8/10/2020	8/10/2020	8/10/2020	8/10/2020	3/9/2021	3/9/2021	3/9/2021	3/9/2021	3/9/2021	3/9/2021	3/9/2021	3/9/2021	3/9/2021	9/13/2021	9/13/2021	3/9/2021	9/13/2021
					Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	
VOC																									
cis-1,2-Dichloroethene	mg/kg	156.0	<u>2340</u>	<u>0.0412</u>																					
trans-1,2-Dichloroethene	mg/kg	1560	<u>1850</u>	<u>0.0626</u>																					
Tetrachloroethene (PCE)	mg/kg	33.0	<u>145</u>	<u>0.0045</u>																					
Trichloroethene (TCE)	mg/kg	1.3	<u>8.41</u>	<u>0.0036</u>																					
Trimethylbenzene, 1,2,4-	mg/kg	219.0	<u>219</u>	<u>1.3787</u>																				nc	
Trimethylbenzene, 1,3,5-	mg/kg	182.0	<u>182</u>	<u>1.3787</u>																				Csat	
o-Xylene	mg/kg	260	<u>434</u>	<u>3.96</u>																					
tert-Butylbenzene	mg/kg	183	<u>183</u>	<u>NS</u>																					
sec-Butylbenzene	mg/kg	145	<u>145</u>	<u>NS</u>																					
n-Butylbenzene	mg/kg	108	<u>108</u>	<u>NS</u>																					
1,2-Dichlorobenzene	mg/kg	376	<u>376</u>	<u>1.168</u>																					
Isopropylbenzene	mg/kg	NS	<u>NS</u>	<u>NS</u>																					
n-Propylbenzene	mg/kg	NS	<u>NS</u>	<u>NS</u>																					
Vinyl Chloride	mg/kg	0.067	<u>2.08</u>	<u>0.0001</u>																					

[U:MGP 2/2/23]

Analyte concentration exceeds the standard for:

Bold	Soil Non-Industrial Direct Contact RCLs
<u>Underlined</u>	Soil Industrial Direct Contact RCLs
Blue Font	Soil-to-Groundwater Pathway RCL (DF 2)

Acronyms:

BGS = Below ground surface
 BRRTS = Bureau for Remediation and Redevelopment Tracking System
 CSat = soil saturation concentration
 DF 2 = Dilution Factor of 2
 FID = facility identification number
 GW = Groundwater
 nc = non-cancer
 NS = No Standard
 RCL = NR720 Soil Residual Contaminant Level (WDNR)
 WDNR = Wisconsin Department of Natural Resources
 WI = Wisconsin
 VOC = Volatile Organic Compound

Screening Levels:

Screening criteria are derived from the WDNR NR720 Soil RR (Remediation and Redevelopment Program) RCLs last updated December 2018
 Groundwater Pathway RCLs are based on a Dilution Factor of 2 (DF 2).
 Direct Contact screening levels were compared to samples less than 4 feet below ground surface (BGS), whereas Groundwater Pathways was compared to samples greater than 4 feet BGS.

Lab comments, additional data qualifiers and definitions can be found in associated laboratory reports.

Results & Flags:

-- = Analysis not performed
 < = Concentration is less than reported limit
 J = Estimated Concentration

Table 2. Groundwater Analytical Data - Compounds Exceeding RCLs

Combined NR 716 Site Investigation and NR 722 Remedial Action Options Report
 Former Spic And Span
 4301 North Richards Street, Milwaukee, WI

Sample Location:		NR 140	NR 140	MW-1	MW-1	MW -1	MW-1	MW-1 DUP	PZ-1	MW-2	MW-2	MW-3	MW-3	MW-4	MW-4	MW-5	MW-6	TRIP BLANK
Sample Date (MM/DD/YY):		ES	PAL	09/24/21	03/07/22	05/10/22	01/31/23	01/31/23	01/31/23	03/07/22	05/10/22	03/07/22	05/10/22	03/07/22	05/10/22	01/31/23	01/31/23	01/31/23
VOC																		
cis-1,2-Dichloroethene	µg/L	70	<u>7</u>	<u>13.5</u>	4.2	3.13	5.3	4.9	<0.41	<0.32	<0.32	4.4	1.06 J	<0.32	<0.32	<0.41	<0.41	<0.41
trans-1,2-Dichloroethene	µg/L	100	<u>20</u>	1.23 J	<0.5	ND	<0.35	<0.35	<0.35	<0.5	ND	<0.5	ND	<0.5	ND	<0.35	<0.35	<0.35
Tetrachloroethene (PCE)	µg/L	5	<u>0.5</u>	<u>3.2</u>	<u>11.6</u>	<u>8.2</u>	<u>8.1</u>	<u>7.6</u>	<0.37	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.37	<0.37	<0.37
Trichloroethene (TCE)	µg/L	5	<u>0.5</u>	<0.47	<u>0.84 J</u>	ND	<u>1.6</u>	<u>1.3</u>	<0.16	<0.38	ND	<0.38	ND	<0.38	ND	<0.16	<0.16	<0.16
Vinyl Chloride	µg/L	0.2	<u>0.02</u>	<u>21.6</u>	<u>7.2</u>	<u>5.4</u>	<u>8.8</u>	<u>9.2</u>	<0.20	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.20	<0.20	<0.20

[O:CMD 2/7/23]

Bold	attains or exceeds the WI Groundwater ES
<u>Underlined</u>	attains or exceeds the WI Groundwater PAL

PAL and ES from WI Administrative Code NR 140 groundwater quality standard revised effective January 2020

Results & Flags:

< = Concentration is less than reported limit

J = Estimated Concentration

ND = Not Detected

Acronyms:

µg/L = micrograms per liter

BRRTS = Bureau for Remediation and Redevelopment Tracking System

DUP = Quality Control Field Duplicate Sample

ES = Enforcement Standard

PAL = Preventive Action Limit

VOC = Volatile Organic Compound

WDNR = Wisconsin Department of Natural Resources

WI = Wisconsin

Lab comments, additional data qualifiers and definitions can be found in associated laboratory reports.

Table 3. Soil Vapor Analytical Results - Compounds Exceeding VRSLs

Combined NR 716 Site Investigation and NR 722 Remedial Action Options Report
 Former Spic And Span
 4301 North Richards Street, Milwaukee, WI

Sample Location:		VRSL Large Commercial	VRSL Small Commercial	SSV #1	SSV #2	SSV #3	SSV #4	SSV #5	SSV #6	SSV #6	SSV #6	SSV #7	SSV #7	SSV #8	SSV #9	SSV #10	SSV# 11	SSV# 11	SSV #12
Sample Date (MM/DD/YY):				01/13/20	01/13/20	01/13/20	01/13/20	01/13/20	01/13/20	08/31/21	01/27/23	04/02/21	08/31/21	08/31/21	08/31/21	08/31/21	10/2021	01/27/23	10/2021
VOC																			
cis-1,2-Dichloroethene	µg/m ³	NS	NS	<59	<9.6	<18	14	50 J	91	17	66	ND	14 J	<1.0	<3.0	8.2 J	<2.1	<4.8	<26
Tetrachloroethene (PCE)	µg/m ³	18,000	<u>5,800</u>	81,000	18,000	34,000	<u>15,000</u>	<u>11,000</u>	<u>7,500</u>	2,300	<u>6,900</u>	<u>11,000</u>	21,000	3400	<u>11,000</u>	65,000	2,200	2700	86,000
trans-1,2-Dichloroethene	µg/m ³	18,000	<u>5,800</u>	<54	<1.7	<16	<8.3	<8.9	<3.7	1.5 J	<3.6	ND	<1.9	<0.64	<1.9	<3.4	<5.6	<6.4	<69
1,2-Dichloroethylene	µg/m ³	NS	NS	<54	<1.7	<16	<8.3	<8.9	<3.7	--	--	ND	--	--	--	--	--	--	--
Trichloroethene (TCE)	µg/m ³	880	<u>290</u>	1,400	<u>570</u>	1,100	<u>590</u>	1,100	<u>670</u>	94	<u>400</u>	270	<u>670</u>	<u>400</u>	<u>360</u>	2,700	<2.1	18 J	<u>870</u>
Vinyl Chloride	µg/m ³	2,800	<u>930</u>	<33	<1.1	<2.0	<1.1	<5.5	<0.47	<1.7	<4.6	ND	<5.2	<1.7	<5.1	<9.0	<1.2	<8.1	<14

Bold	exceeds the VRSL Large Commercial
<u>Underlined</u>	exceeds the VRSL Small Commercial

Results & Flags:

- = Analysis not performed
- < = Concentration is less than reported limit
- J = Analyte detected between LOD and LOQ
- ND = Not Detected

Acronyms:

- µg/m³ = micrograms per cubic meter
- VOC = Volatile Organic Compound
- VRSL = Vapor Risk Screening Level for subsurface samples
- WDNR = Wisconsin Department of Natural Resources
- WI = Wisconsin

Screening Levels:

VRSLs based on U.S.EPA Regional Screening Level Tables; see <http://dnr.wi.gov/topic/brownfields/vapor.html> for more details.

Lab comments, additional data qualifiers and definitions can be found in associated laboratory reports.

Table 3. Soil Vapor Analytical Results - Compounds Exceeding VRSLs

Combined NR 716 Site Investigation and NR 722 Remedial Action Options Report
 Former Spic And Span
 4301 North Richards Street, Milwaukee, WI

Sample Location:		VRSL Large Commercial	VRSL Small Commercial	SSV #14	SSV #14	SSV #15	SSV #16	SSV #16	SSV #17	SSV #17	SSV #18	SSV #18	SSV #19	SSV #19	SSV #20	SSV #21	East Sanitary Manhole Vapor Sample	South Storm Manhole Vapor Sample
Sample Date (MM/DD/YY):				10/2021	01/27/23	02/10/22	01/27/23	04/20/23	01/27/23	04/20/23	01/27/23	04/20/23	01/27/23	04/20/23	04/20/23	04/20/23		
VOC																		
cis-1,2-Dichloroethene	µg/m ³	NS	<u>NS</u>	<20	16 J	<8.8	<0.99	<0.52	<15	<13	<2.2	<5.3	3.8 J	2.5	<1.1	<0.54	11	0.87
Tetrachloroethene (PCE)	µg/m ³	18,000	<u>5,800</u>	96	3,600	<u>9,600</u>	160	180	<u>10,000</u>	<u>6100</u>	1,800	2900	340	420	550	14	12	ND
trans-1,2-Dichloroethene	µg/m ³	18,000	<u>5,800</u>	<0.53	<4.3	<12	<1.3	<0.52	<20	<13	<2.9	<5.3	3.6 J	2.4	<1.1	<0.54	ND	0.78
1,2-Dichloroethylene	µg/m ³	NS	<u>NS</u>	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND
Trichloroethene (TCE)	µg/m ³	880	<u>290</u>	12	<u>350</u>	<u>340</u>	<1.8	1.8	160 J	110	45	130	21	35	<1.4	<0.72	7.4	ND
Vinyl Chloride	µg/m ³	2,800	<u>930</u>	<0.17	12 J	<15	<1.7	<0.34	<25	<8.6	<3.7	<3.4	<1.7	<0.85	<0.69	<0.34	1.7	ND

[O:GKJ 2/16/23,U:MGP 2/16/23,U:MGP 5/10/23]

Bold	exceeds the VRSL Large Commercial
<u>Underlined</u>	exceeds the VRSL Small Commercial

Results & Flags:

- = Analysis not performed
- < = Concentration is less than reported limit
- J = Analyte detected between LOD and LOQ
- ND = Not Detected

Acronyms:

- µg/m³ = micrograms per cubic meter
- VOC = Volatile Organic Compound
- VRSL = Vapor Risk Screening Level for subsurface samples
- WDNR = Wisconsin Department of Natural Resources
- WI = Wisconsin

Screening Levels:

VRSLs based on U.S.EPA Regional Screening Level Tables; see <http://dnr.wi.gov/topic/brownfields/vapor.html> for more details.

Lab comments, additional data qualifiers and definitions can be found in associated laboratory reports.

Table 4
Groundwater Elevations
Combined NR 716 Site Investigation and Remedial Action Options Report
4301 North Richards Street, Milwaukee, WI

Monitoring Well/Piez.	Floor Surface Elevation	TOC Elevation	Groundwater Elevation (NAVD 88)							Depth 2/21/2023
			9/24/2021	2/17/2022	3/7/2022	5/10/2022	10/12/2022	1/31/2023	2/21/2023	
MW-1	646.77	646.21	626.53	627.33	627.33	627.13	626.99	626.68	626.88	19.89
MW-2	646.77	646.24	NA	625.87	625.87	625.88	625.91	Not Measured	625.79	20.98
MW-3	646.9	646.47	NA	632.37	633.22	632.49	632.25	Not Measured	633.05	13.85
MW-4	646.95	646.45	NA	Dry	635.67	636.12	634.52	Not Measured	636.08	10.87
MW-5	646.77	646.39	NA	NA	NA	NA	NA	630.89	631.32	15.45
MW-6	646.92	646.51	NA	NA	NA	NA	NA	635.74	636.53	10.39
Piezometer	646.77	646.29	NA	NA	NA	NA	NA	625.3	625.84	20.93

**Table 5
Contaminant Mass Calculations
Combined NR 716 Site Investigation and Remedial Action Options Report
4301 North Richards Street, Milwaukee, WI**

PCE and TCE Mass Calculation

Density of Soil 1,750 kg/m³

Depth Interval ft.	PCE				TCE				
	Area ft ²	Volume m ³	Ave. Conc. mg/kg	Mass ² mg	Area ft ²	Volume m ³	Ave. Conc. mg/kg	Mass ² mg	
0.5'-5' ¹	10,021	1,276	0.5	1,116,653	206	26	0.5	22,955	
0.5'-5' ¹	610	78	17.5	18,681,250	733	93	5.0	816,791	
Total				19,797,903				839,746	
5'-10'	6,453	913	0.5	798,962	3,293	466	0.5	407,715	
5'-10'	2,942	416	5.0	3,642,564	3,350	474	2.0	1,659,088	
5'-10'	3,997	566	20.0	19,795,143	N.A.	N.A.	N.A.	0	
Total				24,236,668				2,066,802	
10'-15'	10,625	1,503	0.5	1,315,508	2,005	284	0.5	248,244	
10'-15'	1,155	163	5.0	1,430,034	N.A.	N.A.	N.A.	0	
10'-15'	1,556	220	40.0	15,412,180	N.A.	N.A.	N.A.	0	
Total				18,157,722				248,244	
Total Mass PCE (mg)				62,192,293	Total Mass TCE (mg)				3,154,792

Depth Interval ft.	PCE				TCE			
	Area ft ²	Volume m ³	Ave. Conc. mg/kg	Mass ¹ mg	Area ft ²	Volume m ³	Ave. Conc. mg/kg	Mass ¹ mg
15'-20'	2,089	296	0.5	258,644	353	50	0.5	43,706
Total				258,644				43,706

Note: This volume is not considered in the analysis due to its depth and the mass is less than or equal to 1% of total.

Additional Calculations and Notes:

	Density lb/gal	Total Gallons
PCE	13.5	10.14
TCE	12.2	0.57

Notes:

- The thickness of the concrete is assumed to be 0.5 feet.
- The in-place unit weight of the soil is assumed to be 1,750 kg/m³ for a moist clay with gravel which is equivalent to approximately 110 lb/cf.

PCE Area	10	20	40	70	TCE Area	50	75	350	475
	14	190	400	604		140	75	1800	2015
	300	530	1610	2440		0	0	0	0
	324	740	2050			190	150	2150	

Soil Excavation Volumes and Estimated PCE and TCE Mass Removal

Excavation Areas	Depth Interval ft.	PCE				Excavation Area	TCE				
		Area ft ²	Volume m ³	Ave. Conc. mg/kg	Mass ² mg		Area ft ²	Volume m ³	Ave. Conc. mg/kg	Mass ² mg	
A, B, C	0.5'-5' ¹	2975	379	0.5	331,508	A	4	1	0.5	446	
A	0.5'-5' ¹	324	41	17.5	9,922,500	A	320	41	5.0	356,580	
	Total				10,254,008					357,026	
A, B, C, D	5'-9'	70	8	0.5	6,934	A, B, C, D	475	54	0.5	47,049	
A, B, C, D	5'-9'	604	68	2.0	239,305	A, B, C	2015	228	2.0	798,343	
A, B, C	5'-9'	2640	299	20.0	10,459,680		N.A.	N.A.	N.A.	0	
	Total				10,705,918					845,392	
	10'-15'	0.5	-	-	-		0.5	-	-	-	
	10'-15'	5	-	-	-		N.A.	N.A.	N.A.	0	
	10'-15'	40	-	-	-		N.A.	N.A.	N.A.	0	
	Total				-					-	
Total Mass PCE (mg)					20,959,926	Total Mass TCE (mg)					1,202,417
Mass Reduction PCE					34%	Mass Reduction TCE					38%

Combined with the intensive venting during excavation and the Drago Wrap lining of the completed excavations, it is estimated that 35% to 45% of the PCE and 45% to 55% of the TCE is eliminated as a source of potential indoor vapors. However, given that the excavated soils come from the shallow zones these soils are estimated to represent the bulk of the PCE and TCE mass that is contributing to the sub-slab vapor exceedances.

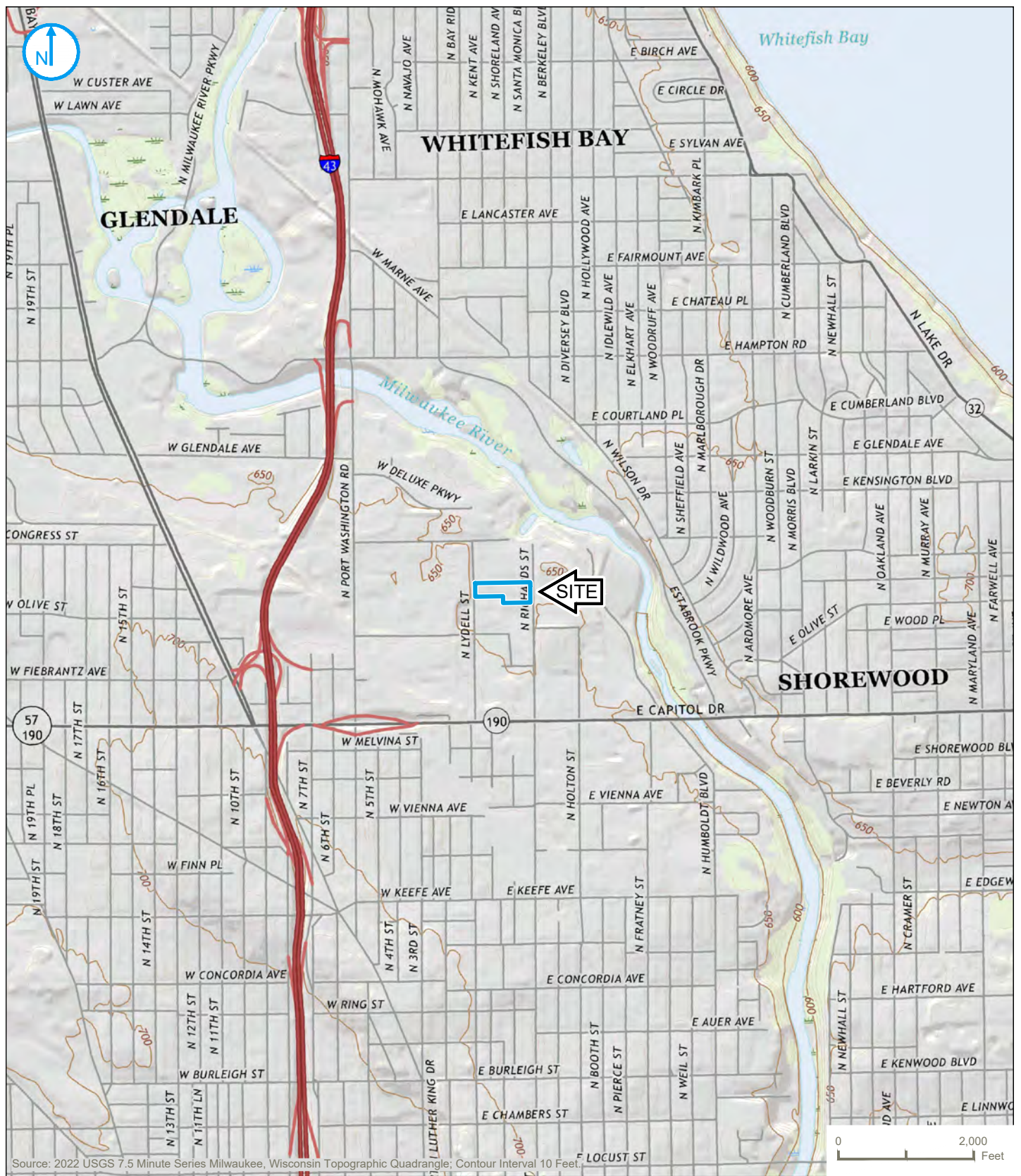
Table 6
Vapor Intrusion Risk Analysis
Combined NR 716 Site Investigation and Remedial Action Options Report
4301 North Richards Street, Milwaukee, WI

Contaminant Screening Levels										
Chemical	Indoor Air			Sub-Slab Vapor	Sub-Slab Vapor	OSHA 8-hr. TWA ^{4,5,6}	OSHA 8-hr. TWA ^{4,5,6}			
	VAL ²			VRSL ³ Industrial	VRSL ³ Small Commercial	ppm	μg/m ³			
	Length (ft)	Width (ft)	Height (ft)	μg/m ³	μg/m ³					
PCE	180	150	15	18,000	5,800	25	170,000			
TCE	180	150	15	880	290	25	135,000			
Estimated Total Mass of PCE and TCE (mg) from Table 5					PCE (mg)	TCE (mg)				
					62,100,000	3,100,000				
Risk Analysis										
Length (ft)	Control Volume		Interior Workspace Control Volume (m ³)	100% PCE Mass	100% TCE Mass	Air Exchanges/hr ⁸	Days to Complete	Estimated Exposure to	Days to Complete	Estimated Exposure to
	Width (ft)	Height (ft)		in Workspace ⁷	in Workspace ⁷		Removal of PCE ^{9,10}	PCE as Fraction of	Removal of TCE ^{9,10}	TCE as Fraction of
180	150	15	11461.5	5,418,139	270,471	1	1,254	14%	1,281	14%

Notes:

- 1 This risk analysis is based on the sampling data summarized in Table 5 to estimate the mass of PCE and TCE and a minimal volume of air movement and exchange.
- 2 Vapor Action Level.
- 3 Vapor Risk Screening Level.
- 4 CAL/OSHA 8-hr. (Time Weighted Average) TWA for for PCE is 25 ppm or 170 mg/m³ or 169.5 ug/L
- 5 CAL/OSHA 8-hr. (Time Weighted Average) TWA for for TCE is 25 ppm or 135 mg/m³ or 268.5 ug/L
- 6 TWA is the employee's average airborne exposure in any 8-hour work shift of a 40-hour work week which shall not be exceeded.
The 8-hour TWA PEL is the level of exposure established as the highest level of exposure an employee may be exposed to without incurring the risk of adverse health effects.
- 7 This represents the entire mass of PCE or TCE from below grade transferred into a portion of the workspace that is 180' x 150' x 15' (control volume) with no loss to the surrounding space.
- 8 Recommended Air Exchanges per Hour in warehouse or industrial facilities are 4 to 8. A value of 4 air exchanges per hour is generally conservative. One air exchange per hour will be assumed for this analysis.
- 9 The calculation is based on the assumption that PCE and TCE vapors move into the Interior Workspace by advection and diffusion through the floor slab, accumulate to the level of the Indoor VAL, and then the control volume of air removed and replaced with clean air. This takes place once per hour. Although the actual process would be continuous, this is a reasonable means of illustrating the significance of the contaminant mass limitation.
- 10 The model assumes that 100% of the PCE and TCE mass is lost through the vapor phase into the building and that none of the PCE and TCE is retained in the soil. This assumption would also include that there is no vapor migration below the surface and/or degraded by chemical or biological processes. These are highly conservative assumptions, making the modeled exposure highly conservative. Considering this, the safety factors relative to the Indoor Air VALs are estimated to be well over 10x.
- 11 The exposure period assumed in the model is 25 years.

FIGURES



Map Scale: 1:24,000 | Map Center: 43.0945, -87.9085

SITE LOCATION MAP

FIGURE 1

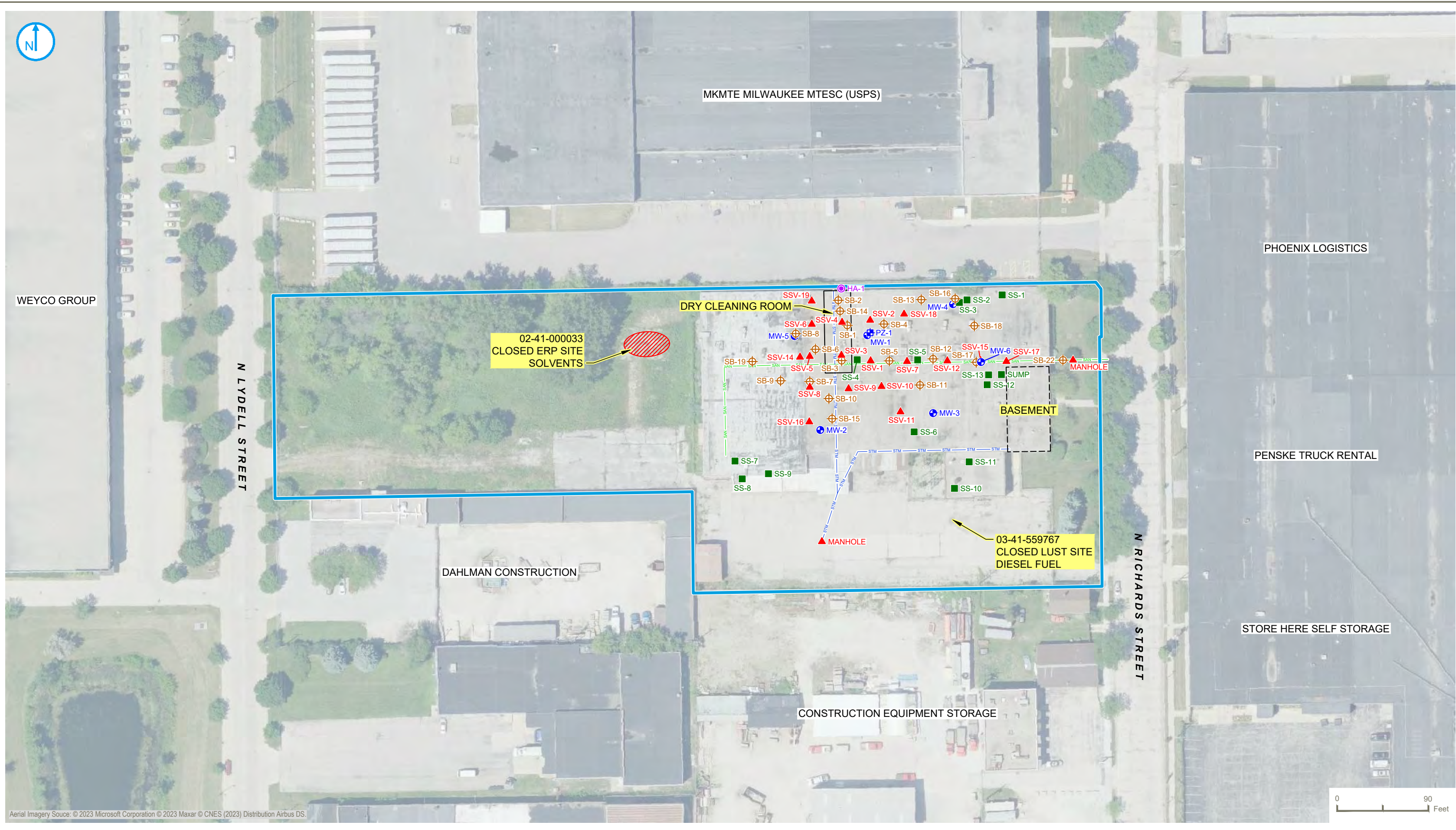


KEY MAP

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN





- PROPERTY BOUNDARY (APPROXIMATE)
- + MONITORING WELL
- SEWER SAMPLE
- + SOIL BORING
- ▲ SUB SLAB VAPOR POINT
- HAND AUGER BORING
- + PIEZOMETER
- SANITARY SEWER
- STORM SEWER

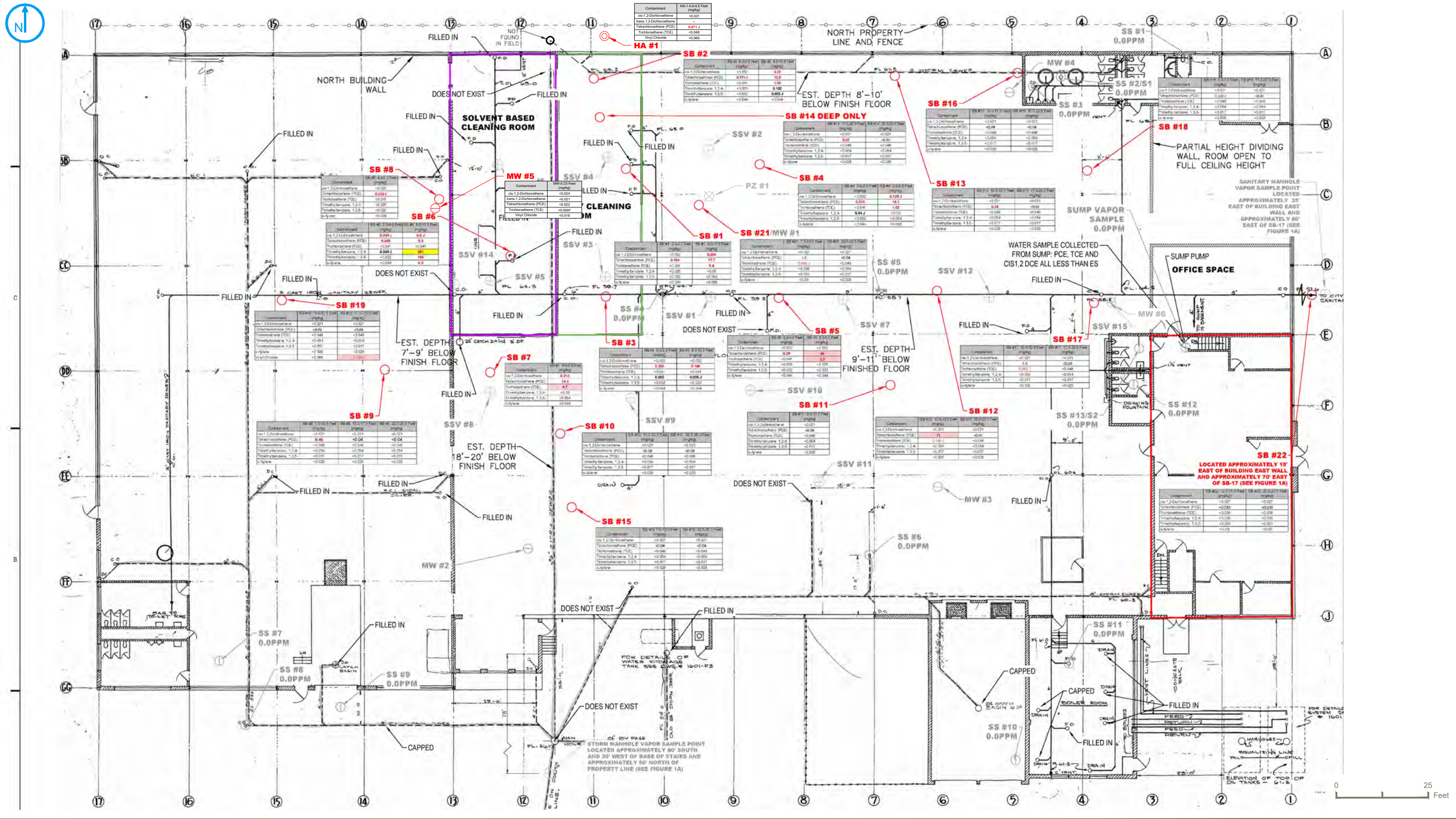
SITE LAYOUT

FIGURE 2

SPIC AND SPAN, INC.
 4301 NORTH RICHARDS STREET
 MILWAUKEE, WISCONSIN

RAMBOLL US CONSULTING, INC.
 A RAMBOLL COMPANY





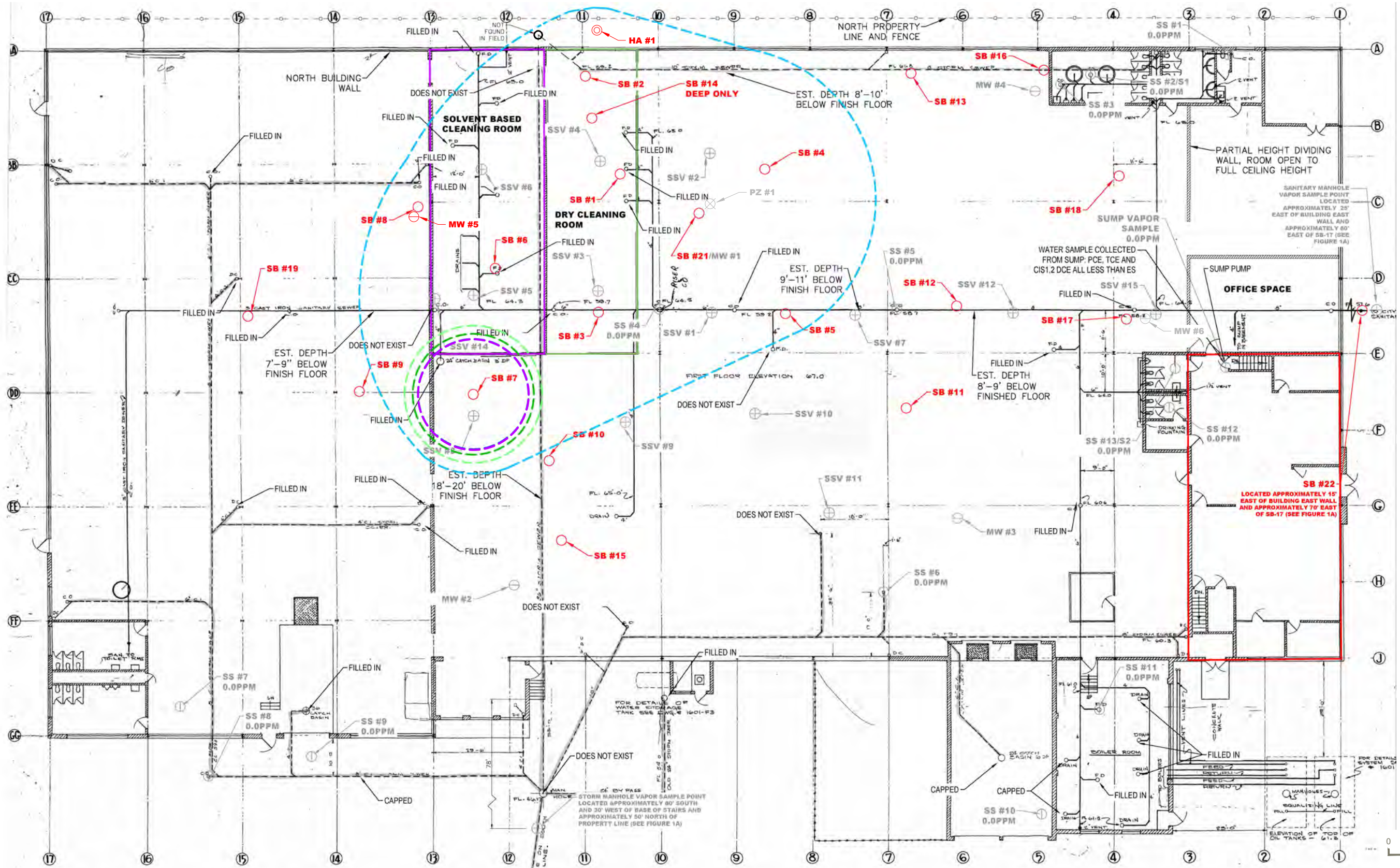
- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER

NOTES:
 ALL CONCENTRATIONS IN mg/kg.
 J = ESTIMATED CONCENTRATION.
HIGHLIGHT = CONCENTRATION EXCEEDS NR 720 INDUSTRIAL DIRECT CONTACT RCL.
HIGHLIGHT = CONCENTRATION EXCEEDS NR 720 NON-INDUSTRIAL DIRECT CONTACT RCL.
RED = CONCENTRATION EXCEEDS NR 720 GROUNDWATER PATHWAY RCL.
BOLD = DETECTED COMPOUND.

SOIL BORING LOCATIONS AND SAMPLE RESULTS

FIGURE 3





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER
- PCE > 10 mg/kg
- 1 mg/kg < PCE < 10 mg/kg
- ND < PCE < 1 mg/kg
- 1 mg/kg < TCE < 10 mg/kg
- ND < TCE < 1 mg/kg

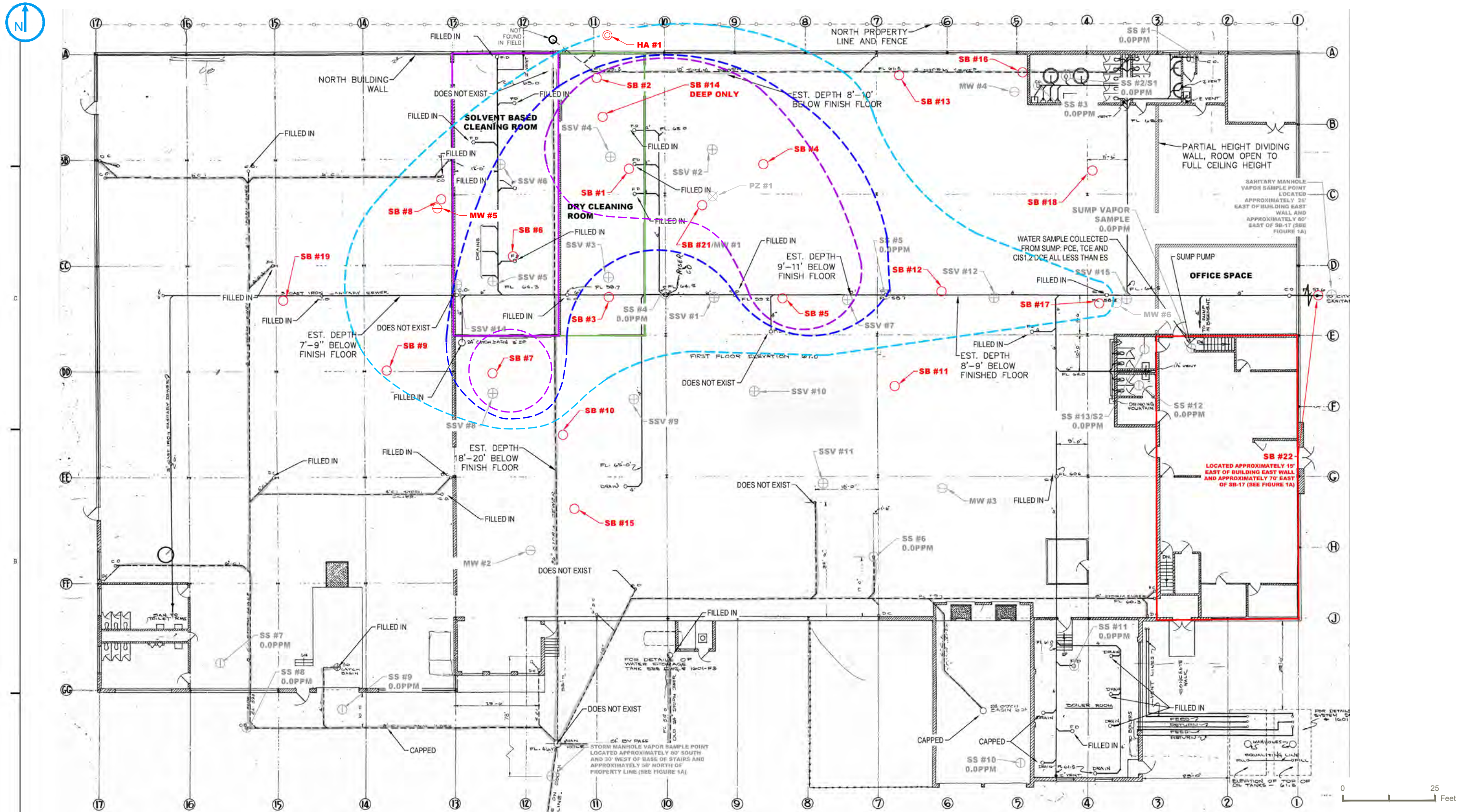
**SOIL ISOCONCENTRATION
MAP (0-5 FT BGS)**

FIGURE 4a

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER
- PCE > 10 mg/kg
- 1 mg/kg < PCE < 10 mg/kg
- ND < PCE < 1 mg/kg

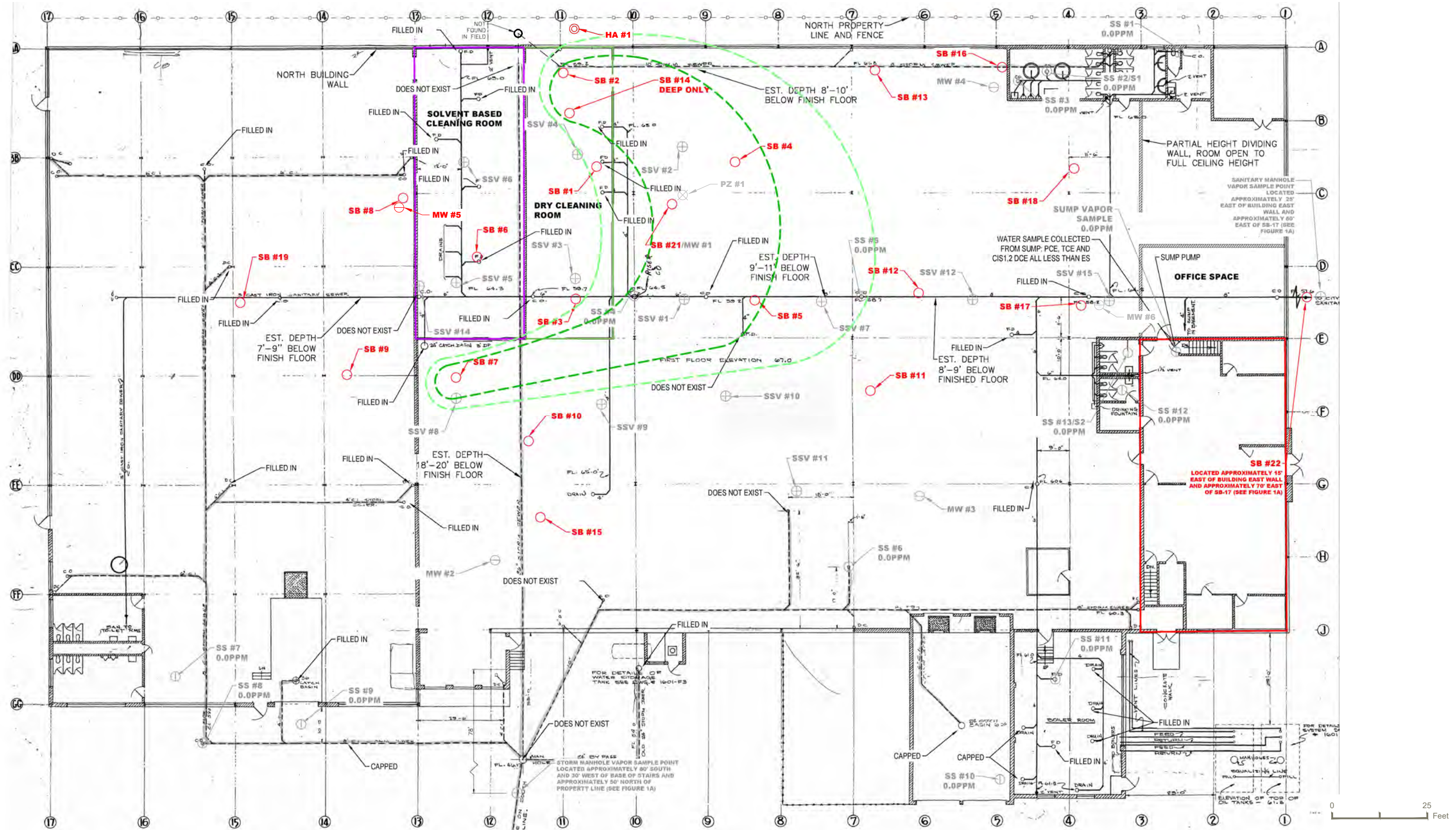
SOIL ISOCONCENTRATION MAP (5-10 FT BGS) - PCE

FIGURE 4b1

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER
- 1 mg/kg < TCE < 10 mg/kg
- ND < TCE < 1 mg/kg

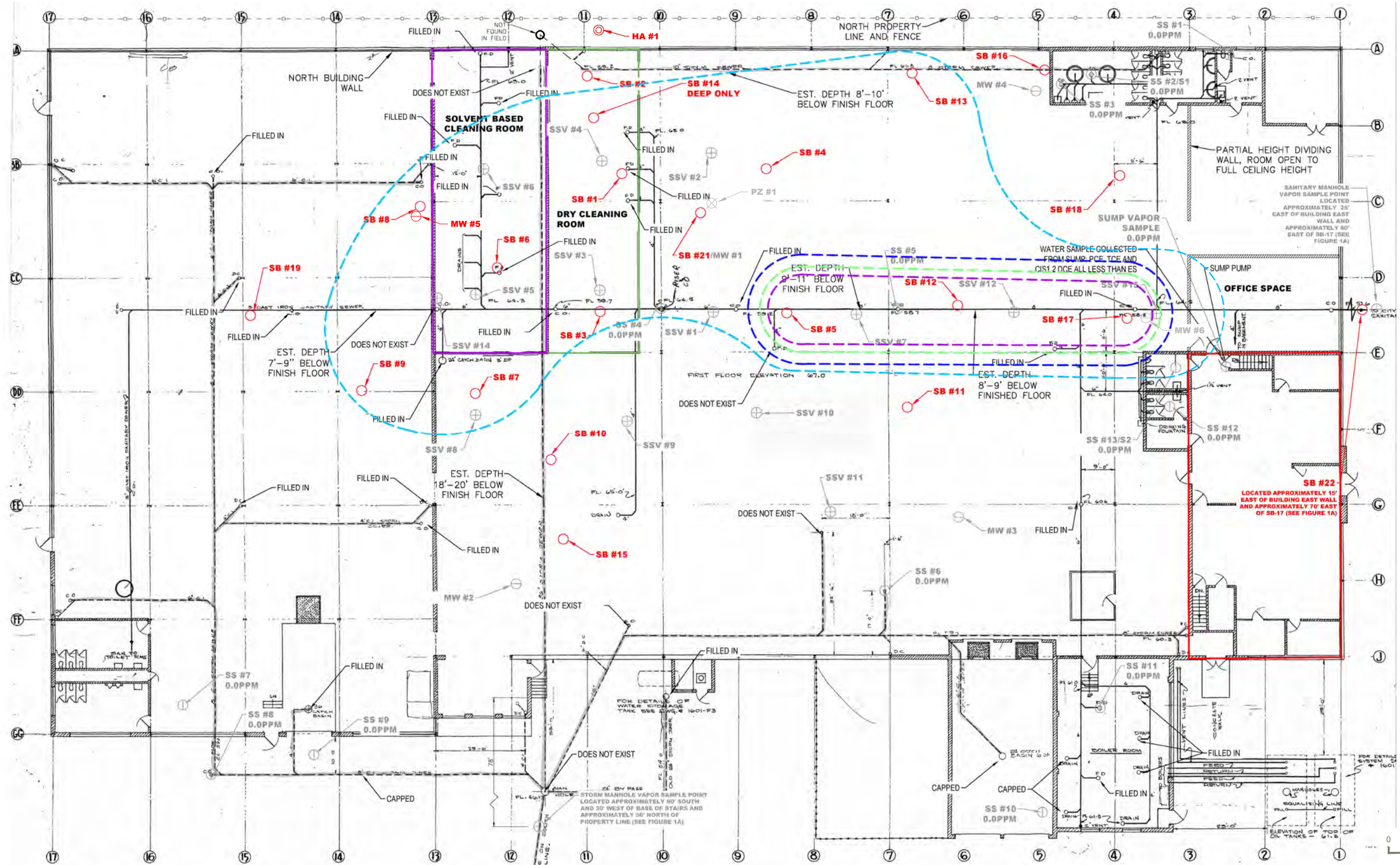
**SOIL ISOCONCENTRATION
MAP (5-10 FT BGS) - TCE**

FIGURE 4b2

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER
- PCE > 10 mg/kg
- 1 mg/kg < PCE < 10 mg/kg
- ND < PCE < 1 mg/kg
- 1 mg/kg < TCE < 10 mg/kg
- ND < TCE < 1 mg/kg

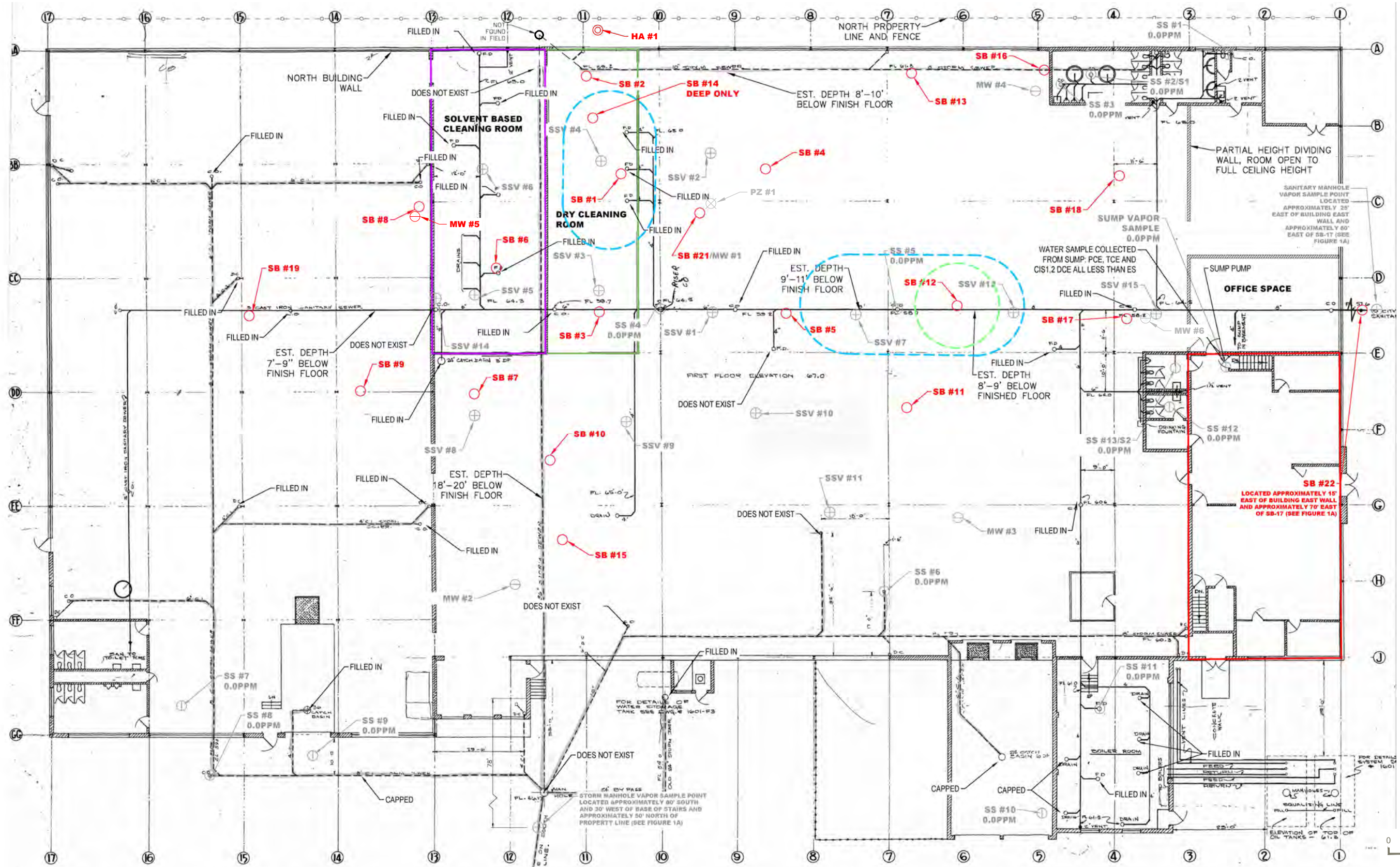
**SOIL ISOCONCENTRATION
MAP (10-15 FT BGS)**

FIGURE 4c

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER
- PCE > 10 mg/kg
- 1 mg/kg < PCE < 10 mg/kg
- ND < PCE < 1 mg/kg
- 1 mg/kg < TCE < 10 mg/kg
- ND < TCE < 1 mg/kg

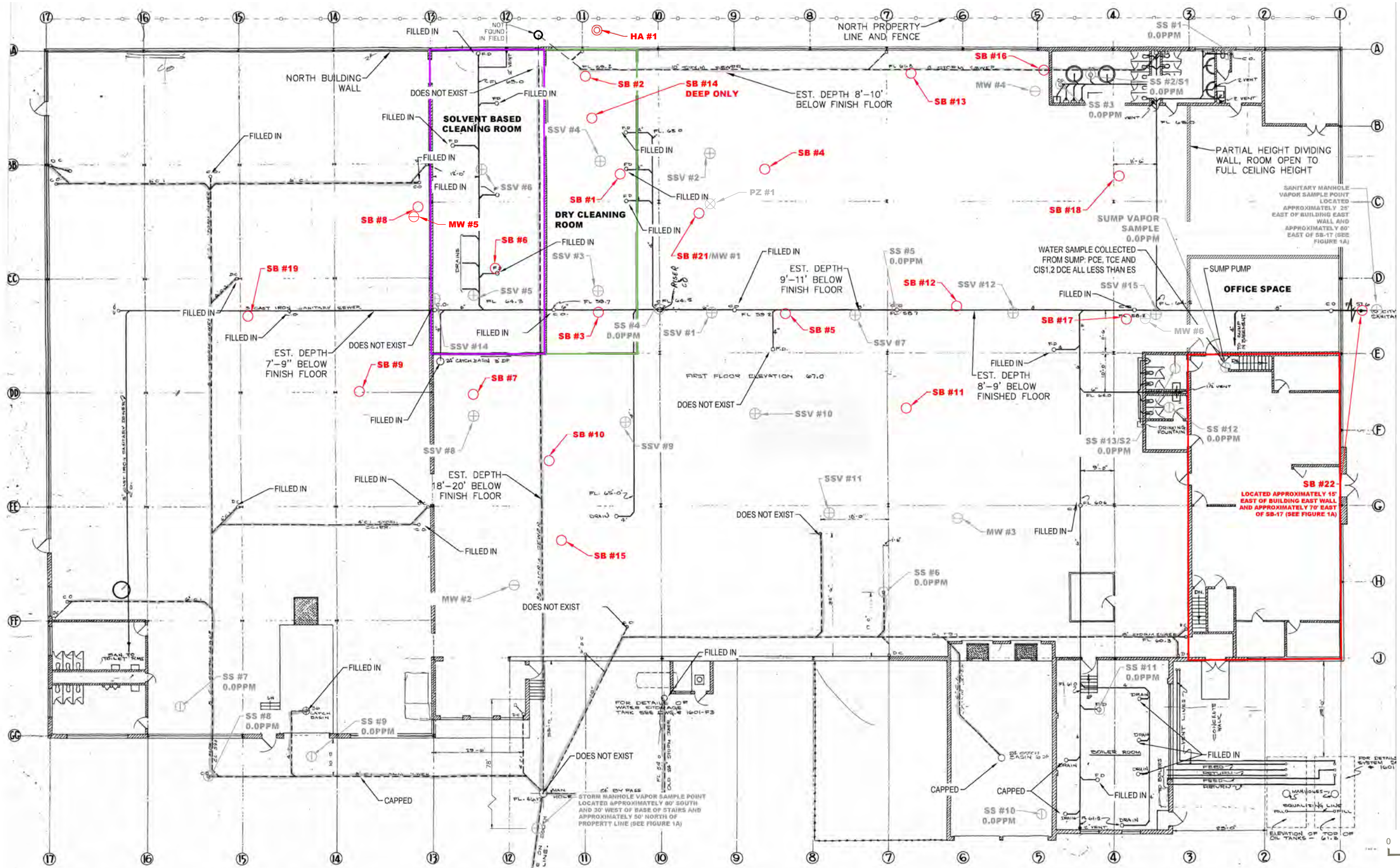
SOIL ISOCONCENTRATION MAP (15-20 FT BGS)

FIGURE 4d

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER

NOTE:
PCE and TCE were not detected in the nine samples collected from 20 feet or more below floor surface.

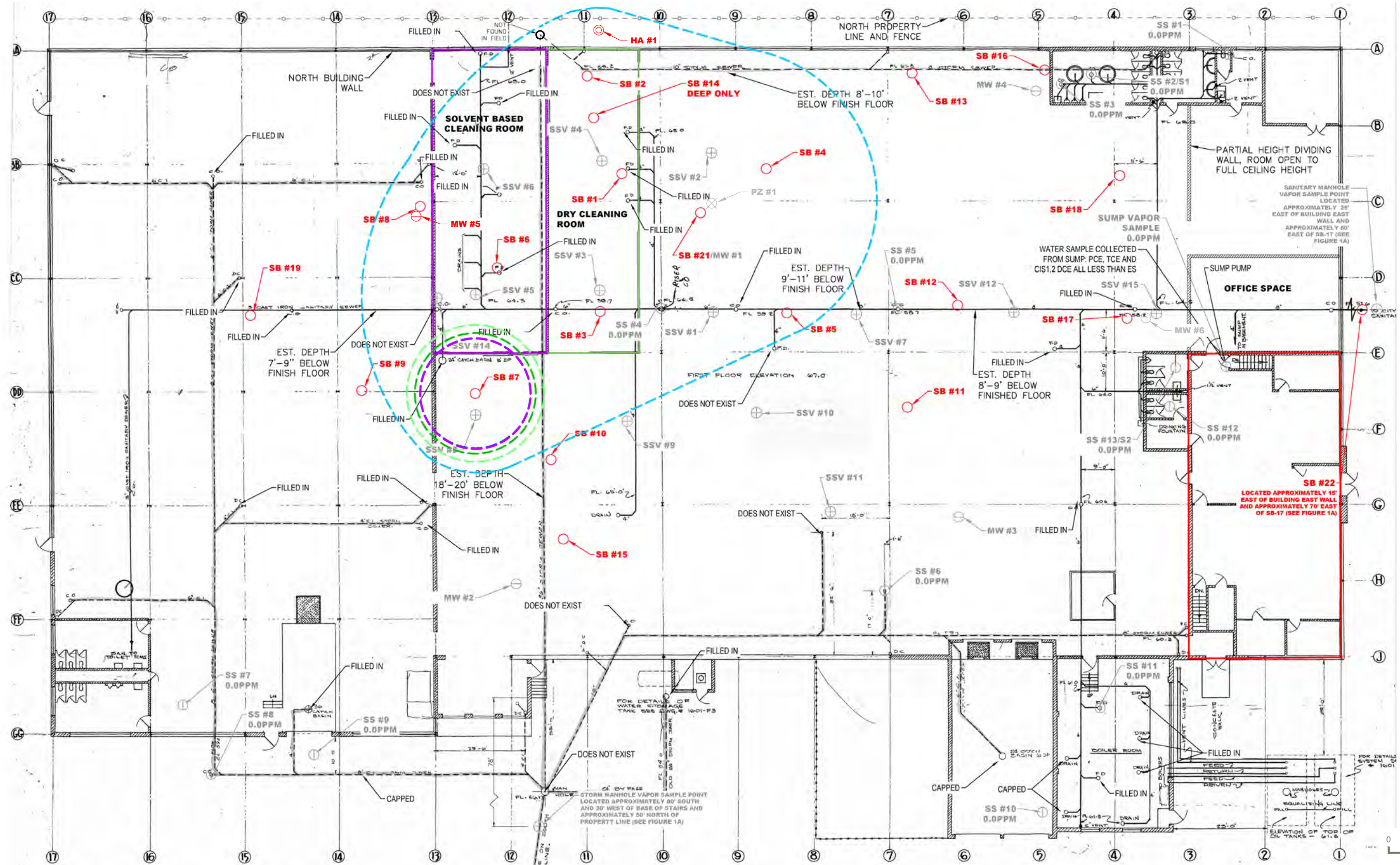
**SOIL ISOCONCENTRATION
MAP (20-25 FT BGS)**

FIGURE 4e

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER
- PCE > 10 mg/kg (0 ft²)
- 1 mg/kg < PCE < 10 mg/kg (610 ft²)
- ND < PCE < 1 mg/kg (10,631 ft²)
- 1 mg/kg < TCE < 10 mg/kg (733 ft²)
- ND < TCE < 1 mg/kg (939 ft²)

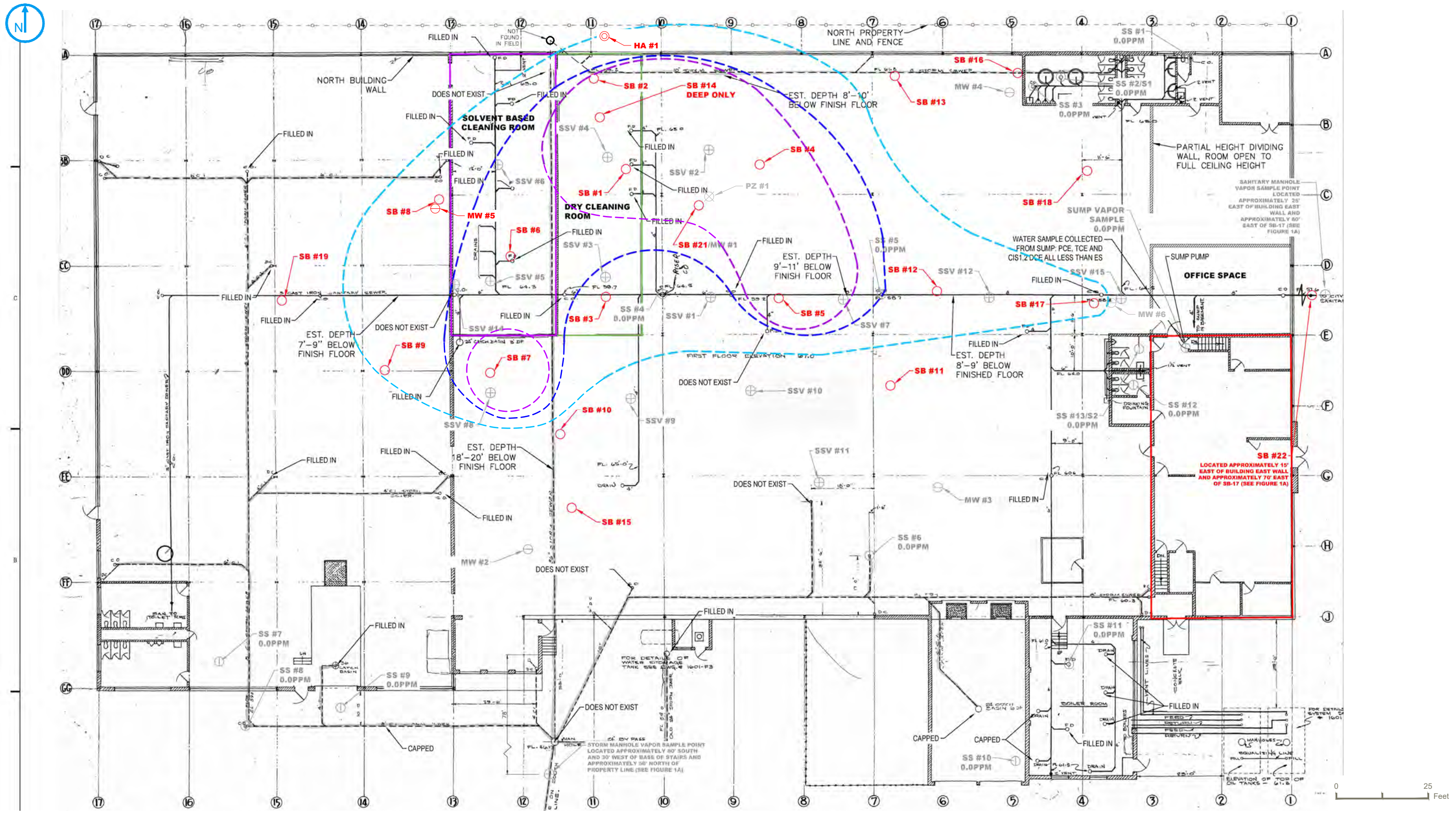
SOIL CONTAMINANT ESTIMATED AREAS AND VOLUMES (0-5 FT BGS)

FIGURE 5a

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER
- PCE > 10 mg/kg (402 + 3,595 = 3,997 ft²)
- 1 mg/kg < PCE < 10 mg/kg (6,939 ft²)
- ND < PCE < 1 mg/kg (13,392 ft²)

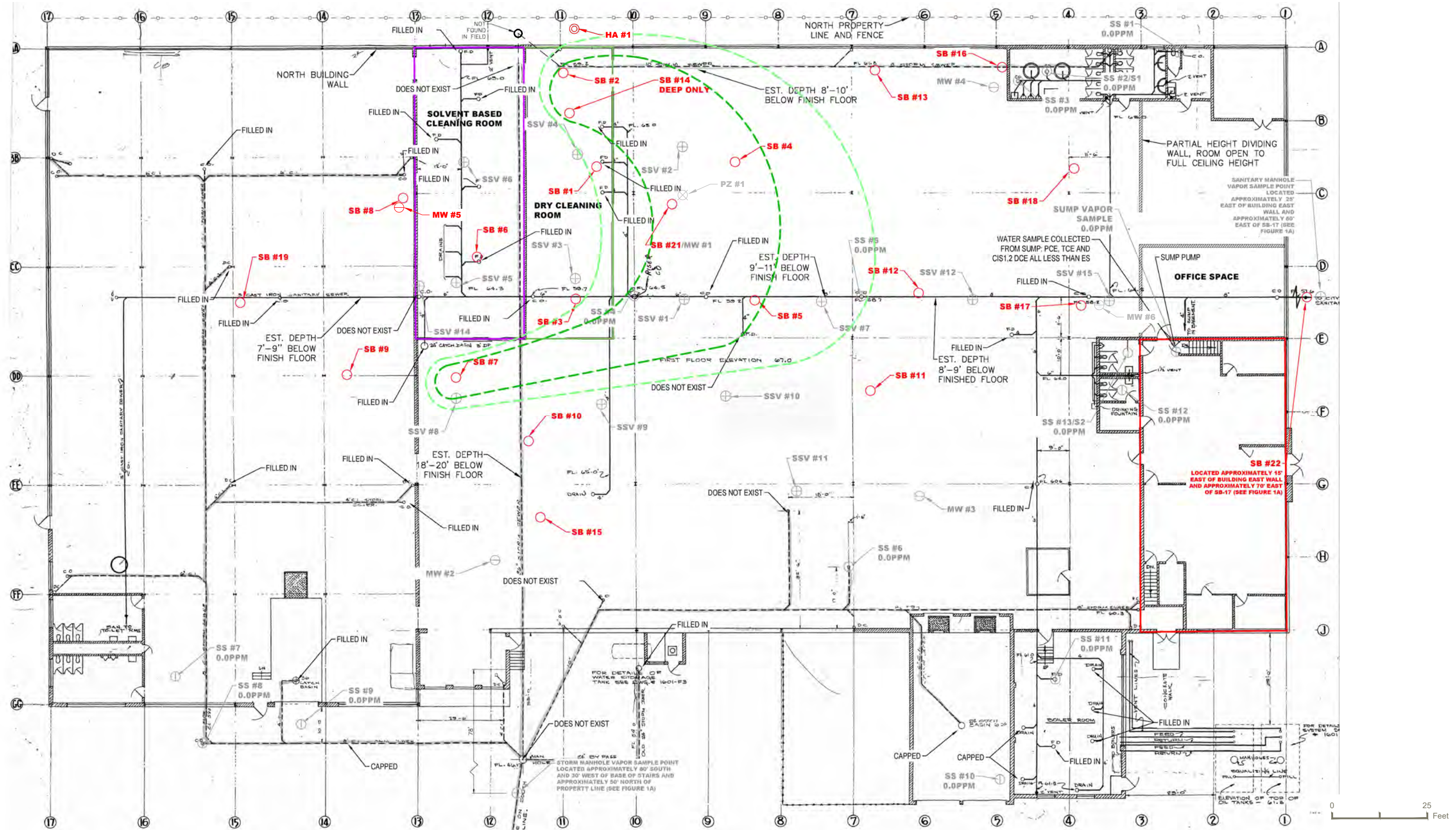
SOIL CONTAMINANT ESTIMATED AREAS AND VOLUMES (5-10 FT BGS) - PCE

FIGURE 5b1

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER
- 1 mg/kg < TCE < 10 mg/kg (3,350 ft³)
- ND < TCE < 1 mg/kg (6,643 ft³)

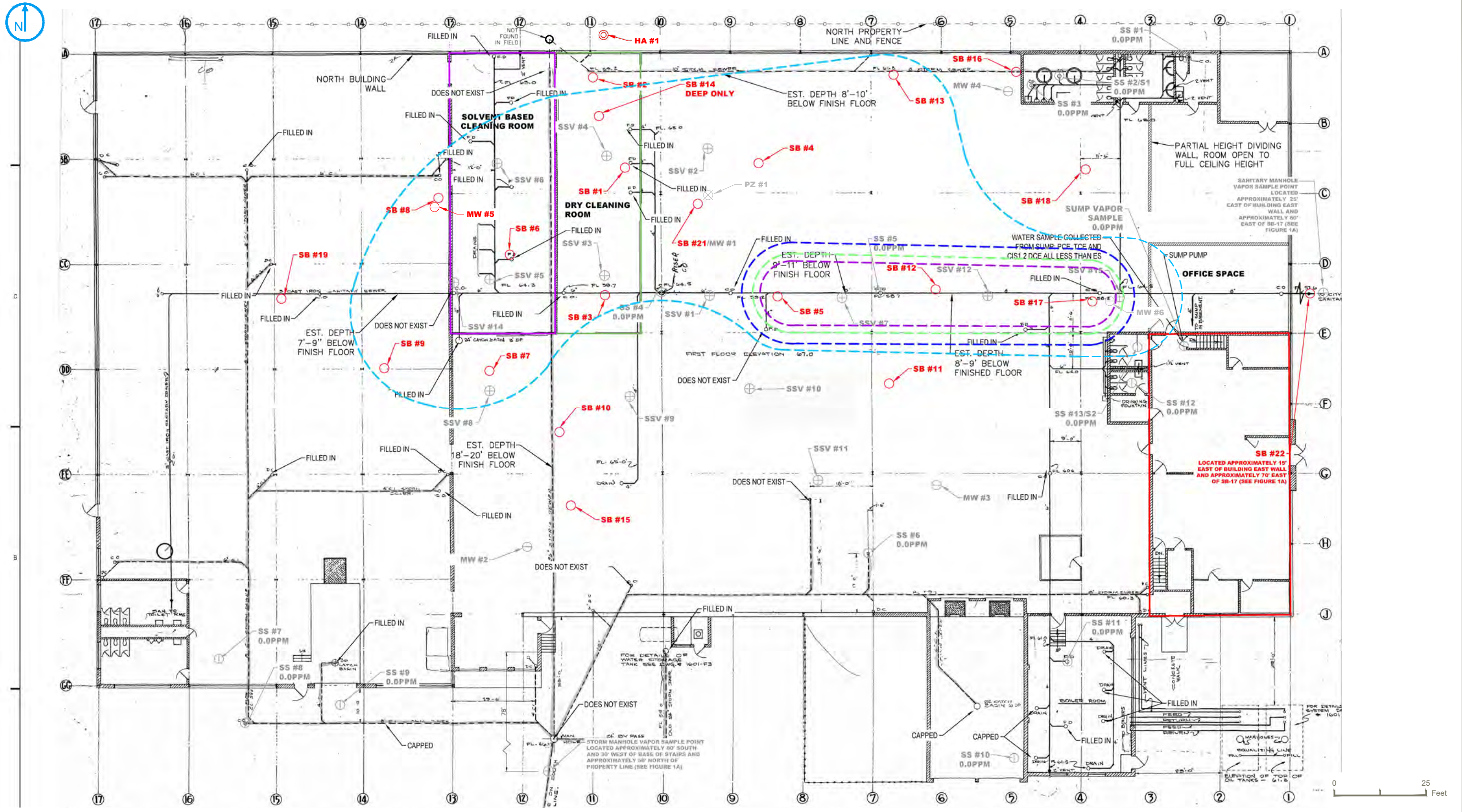
SOIL CONTAMINANT ESTIMATED AREAS AND VOLUMES (5-10 FT BGS) - TCE

FIGURE 5b2

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER
- PCE > 10 mg/kg (1,566 ft²)
- 1 mg/kg < PCE < 10 mg/kg (2,711 ft²)
- ND < PCE < 1 mg/kg (13,336 ft²)
- 1 mg/kg < TCE < 10 mg/kg (0 ft²)
- ND < TCE < 1 mg/kg (2,005 ft²)

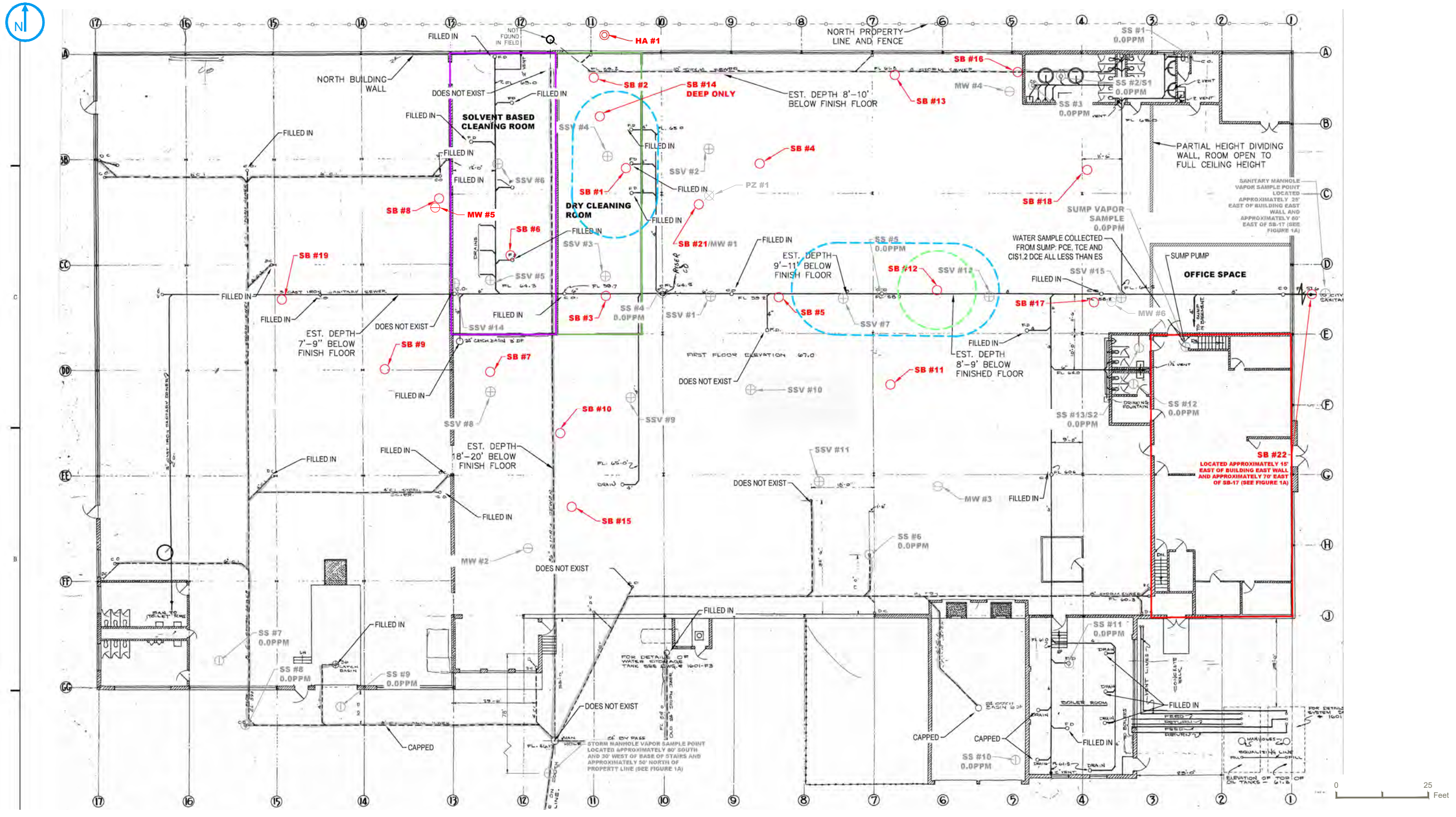
SOIL CONTAMINANT ESTIMATED AREAS AND VOLUMES (10-15 FT BGS)

FIGURE 5c

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER
- PCE > 10 mg/kg (0 ft²)
- 1 mg/kg < PCE < 10 mg/kg (0 ft²)
- ND < PCE < 1 mg/kg (806 + 1,283 = 2,089 ft²)
- 1 mg/kg < TCE < 10 mg/kg (0 ft²)
- ND < TCE < 1 mg/kg (353 ft²)

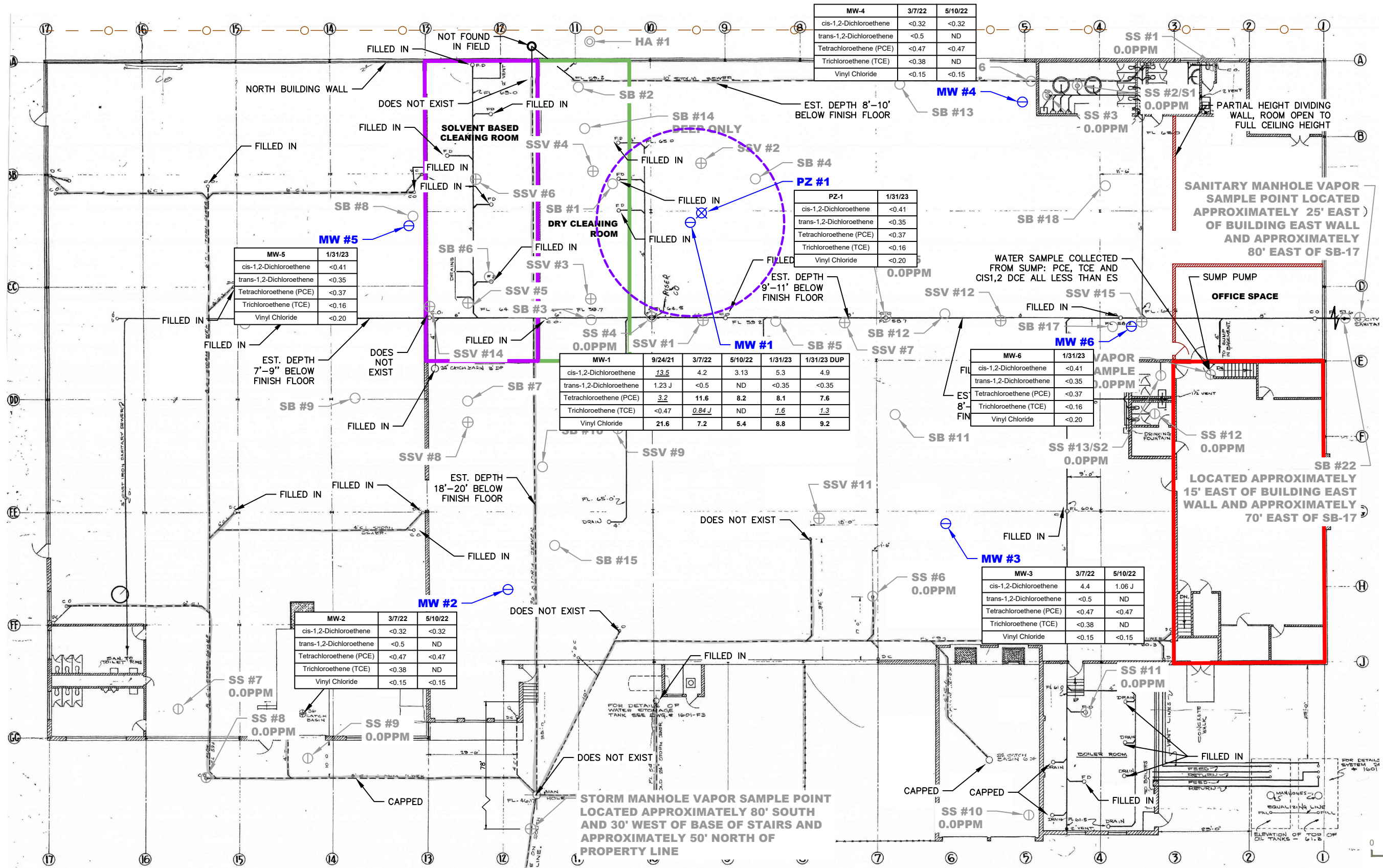
SOIL CONTAMINANT ESTIMATED AREAS AND VOLUMES (15-20 FT BGS)

FIGURE 5d

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN





- ⊕ MONITORING WELL
- ⊙ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER

--- EXCEEDS THE NR 140 ENFORCEMENT STANDARD (ES) AND THE PREVENTIVE ACTION LIMIT (PAL) FOR TETRACHLOROETHENE AND VINYL CHLORIDE

NOTES:
 ALL CONCENTRATIONS IN µg/L.
 ND = NOT DETECTED.
 J = ESTIMATED CONCENTRATION.
ITALIC = CONCENTRATION EXCEEDS NR 140 PREVENTIVE ACTION LIMIT.
BOLD = CONCENTRATION EXCEEDS NR 140 ENFORCEMENT STANDARD.

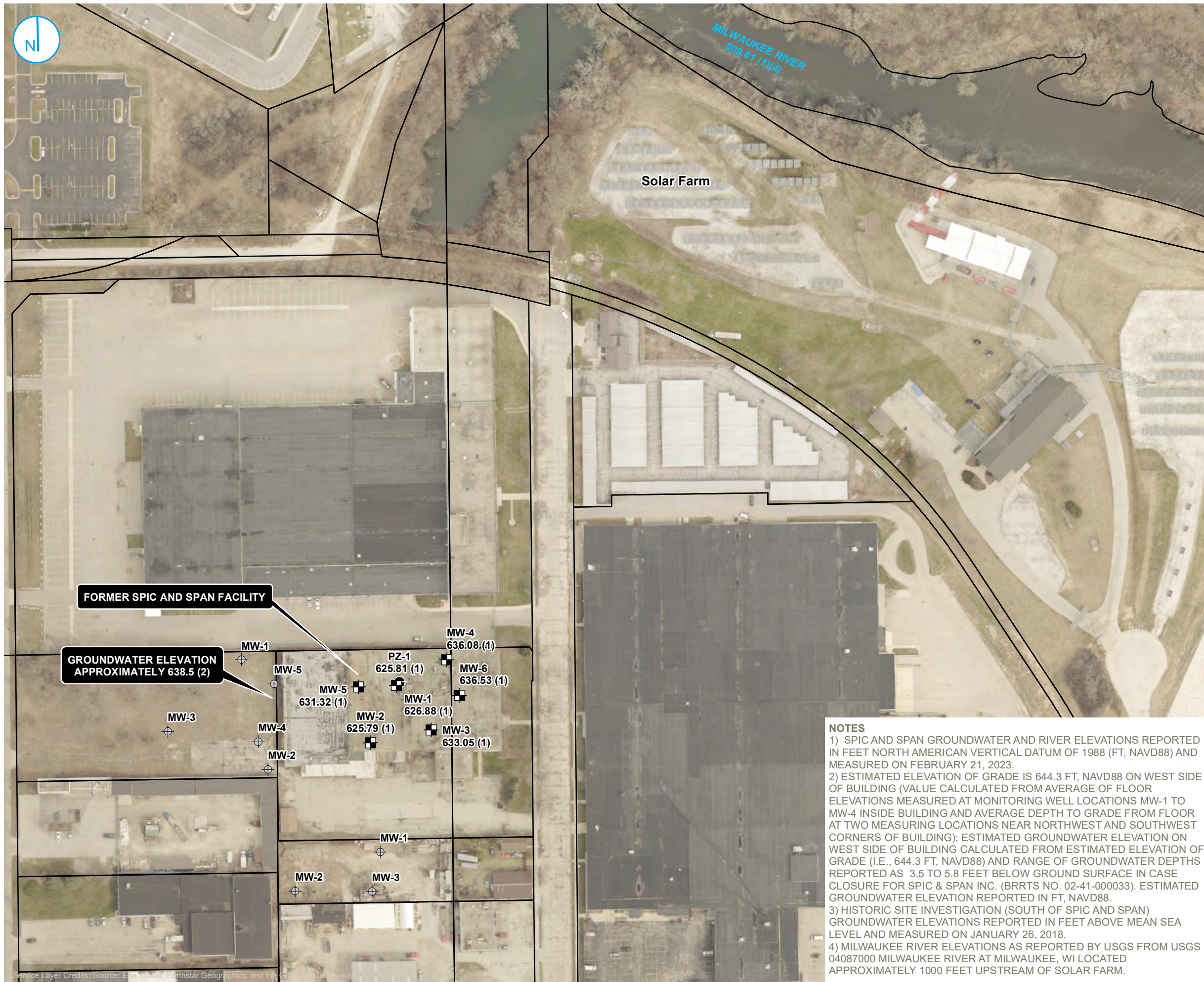
GW WELL LOCATIONS, SAMPLE RESULTS, AND ISOCONCENTRATION MAP

SPIC AND SPAN, INC.
 4301 NORTH RICHARDS STREET
 MILWAUKEE, WISCONSIN

FIGURE 6

RAMBOLL US CONSULTING, INC.
 A RAMBOLL COMPANY





- MONITORING WELL
- ⊕ ABANDONED MONITORING WELL
- PIEZOMETER
- ▭ PARCEL BOUNDARIES



GROUNDWATER ELEVATION MAP

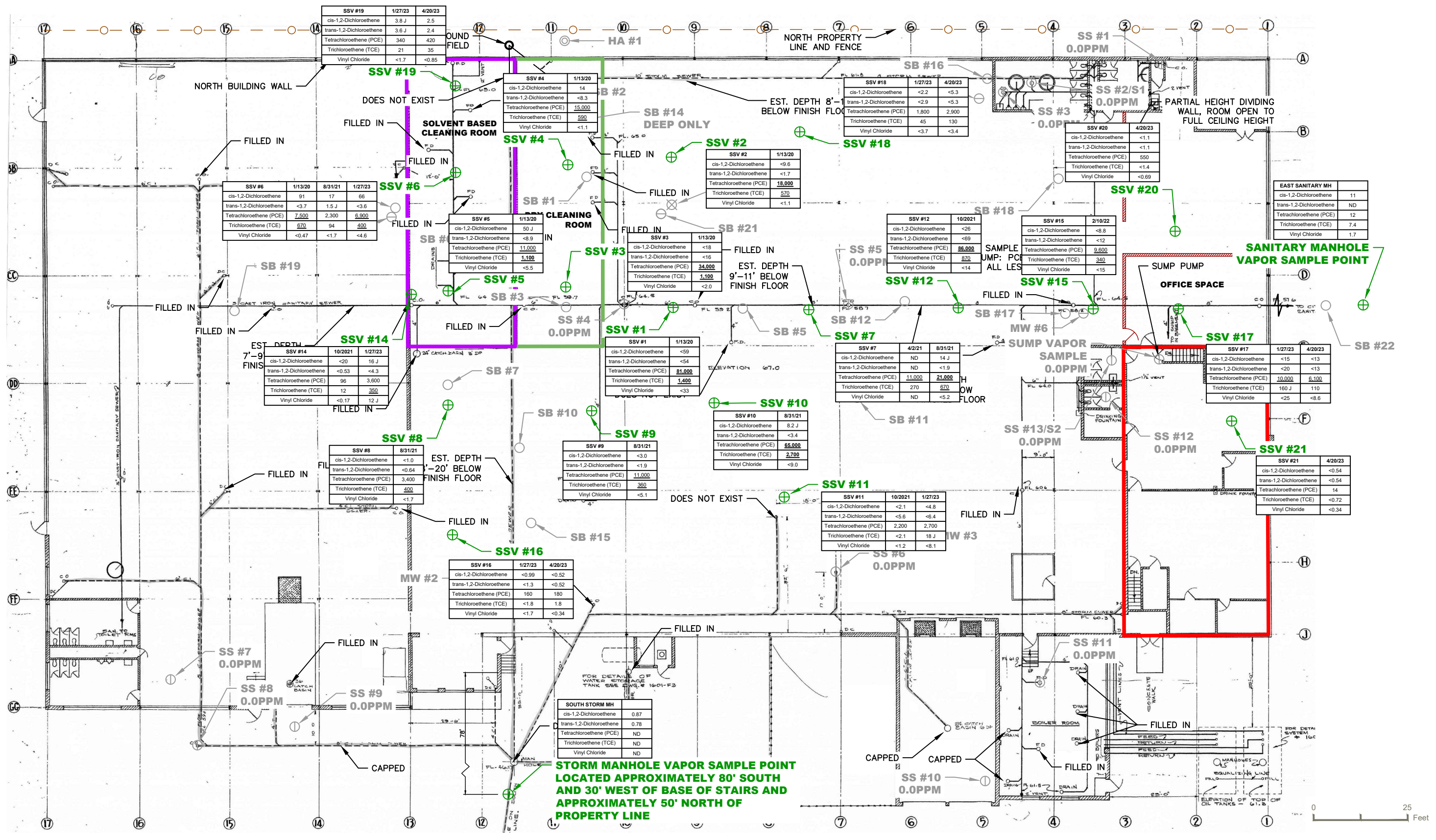
NOTES
 1) SPIC AND SPAN GROUNDWATER AND RIVER ELEVATIONS REPORTED IN FEET NORTH AMERICAN VERTICAL DATUM OF 1988 (FT, NAVD88) AND MEASURED ON FEBRUARY 21, 2023.
 2) ESTIMATED ELEVATION OF GRADE IS 644.3 FT, NAVD88 ON WEST SIDE OF BUILDING (VALUE CALCULATED FROM AVERAGE OF FLOOR ELEVATIONS MEASURED AT MONITORING WELL LOCATIONS MW-1 TO MW-4 INSIDE BUILDING AND AVERAGE DEPTH TO GRADE FROM FLOOR AT TWO MEASURING LOCATIONS NEAR NORTHWEST AND SOUTHWEST CORNERS OF BUILDING); ESTIMATED GROUNDWATER ELEVATION ON WEST SIDE OF BUILDING CALCULATED FROM ESTIMATED ELEVATION OF GRADE (I.E., 644.3 FT, NAVD88) AND RANGE OF GROUNDWATER DEPTHS REPORTED AS 3.5 TO 5.8 FEET BELOW GROUND SURFACE IN CASE CLOSURE FOR SPIC & SPAN INC. (BRRTS NO. 02-41-000033). ESTIMATED GROUNDWATER ELEVATION REPORTED IN FT, NAVD88.
 3) HISTORIC SITE INVESTIGATION (SOUTH OF SPIC AND SPAN) GROUNDWATER ELEVATIONS REPORTED IN FEET ABOVE MEAN SEA LEVEL AND MEASURED ON JANUARY 26, 2018.
 4) MILWAUKEE RIVER ELEVATIONS AS REPORTED BY USGS FROM USGS 04087000 MILWAUKEE RIVER AT MILWAUKEE, WI LOCATED APPROXIMATELY 1000 FEET UPSTREAM OF SOLAR FARM.

SPIC AND SPAN, INC.
 4301 NORTH RICHARDS STREET
 MILWAUKEE, WI

FIGURE 7

RAMBOLL AMERICAS
 ENGINEERING SOLUTIONS, INC.





STORM MANHOLE VAPOR SAMPLE POINT LOCATED APPROXIMATELY 80' SOUTH AND 30' WEST OF BASE OF STAIRS AND APPROXIMATELY 50' NORTH OF PROPERTY LINE

- ⊖ MONITORING WELL
- Ⓛ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING

NOTES:
 ALL CONCENTRATIONS IN $\mu\text{g}/\text{m}^3$.
 ND = NOT DETECTED.
 J = ESTIMATED CONCENTRATION.
UNDERLINED = CONCENTRATION EXCEEDS THE SMALL COMMERCIAL SUB-SLAB VAPOR VRSL (5,800 $\mu\text{g}/\text{m}^3$ PCE AND 180 $\mu\text{g}/\text{m}^3$ TCE)
BOLD = CONCENTRATION EXCEEDS THE LARGE COMMERCIAL SUB-SLAB VAPOR VRSL (18,000 $\mu\text{g}/\text{m}^3$ PCE AND 880 $\mu\text{g}/\text{m}^3$ TCE)

SOIL VAPOR SAMPLE LOCATIONS AND SAMPLE RESULTS

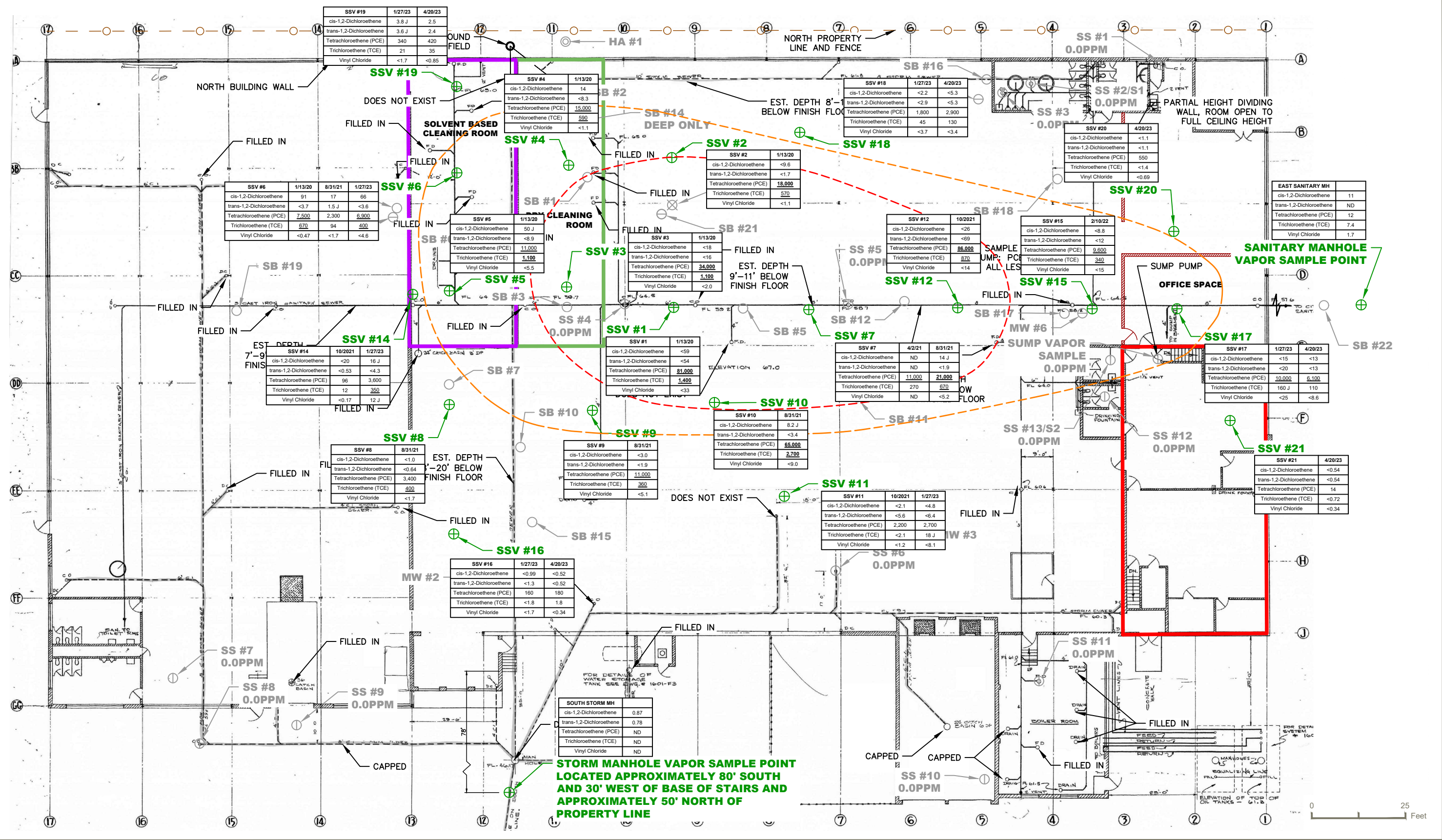
FIGURE 8

RAMBOLL US CONSULTING, INC.
 A RAMBOLL COMPANY

SPIC AND SPAN, INC.
 4301 NORTH RICHARDS STREET
 MILWAUKEE, WISCONSIN



PROJECT: 1690027851-003 DATED: 6/14/2023 DESIGNER: HJWARD



- ⊕ MONITORING WELL
- ⊙ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- - - EXCEEDS LARGE COMMERCIAL SUB-SLAB VRSL FOR PCE
- - - EXCEEDS SMALL COMMERCIAL SUB-SLAB VRSL FOR PCE

NOTES:
 ALL CONCENTRATIONS IN µg/m³.
 ND = NOT DETECTED.
 J = ESTIMATED CONCENTRATION.
UNDERLINED = CONCENTRATION EXCEEDS THE SMALL COMMERCIAL SUB-SLAB VAPOR VRSL (5,800 µg/m³ PCE AND 180 µg/m³ TCE)
BOLD = CONCENTRATION EXCEEDS THE LARGE COMMERCIAL SUB-SLAB VAPOR VRSL (18,000 µg/m³ PCE AND 880 µg/m³ TCE)

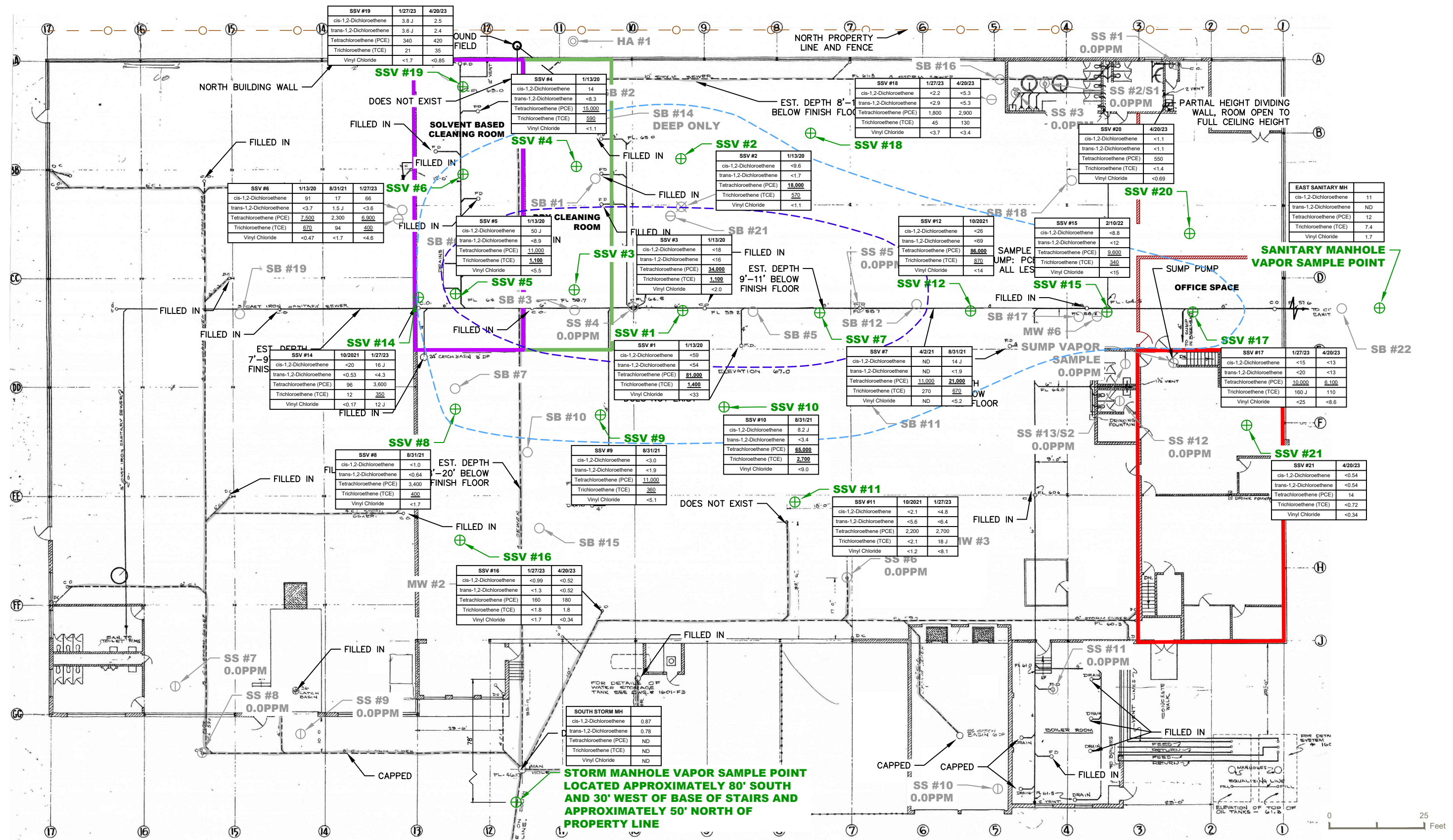
SOIL VAPOR ISOCONCENTRATION MAP - PCE

FIGURE 9a

RAMBOLL US CONSULTING, INC.
 A RAMBOLL COMPANY

SPIC AND SPAN, INC.
 4301 NORTH RICHARDS STREET
 MILWAUKEE, WISCONSIN





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING

- - - EXCEEDS LARGE COMMERCIAL SUB-SLAB VRSL FOR TCE
- - - EXCEEDS SMALL COMMERCIAL SUB-SLAB VRSL FOR TCE

NOTES:
ALL CONCENTRATIONS IN $\mu\text{g}/\text{m}^3$.
ND = NOT DETECTED.
J = ESTIMATED CONCENTRATION.
UNDERLINED = CONCENTRATION EXCEEDS THE SMALL COMMERCIAL SUB-SLAB VAPOR VRSL ($5,800 \mu\text{g}/\text{m}^3$ PCE AND $180 \mu\text{g}/\text{m}^3$ TCE)
BOLD = CONCENTRATION EXCEEDS THE LARGE COMMERCIAL SUB-SLAB VAPOR VRSL ($18,000 \mu\text{g}/\text{m}^3$ PCE AND $880 \mu\text{g}/\text{m}^3$ TCE)

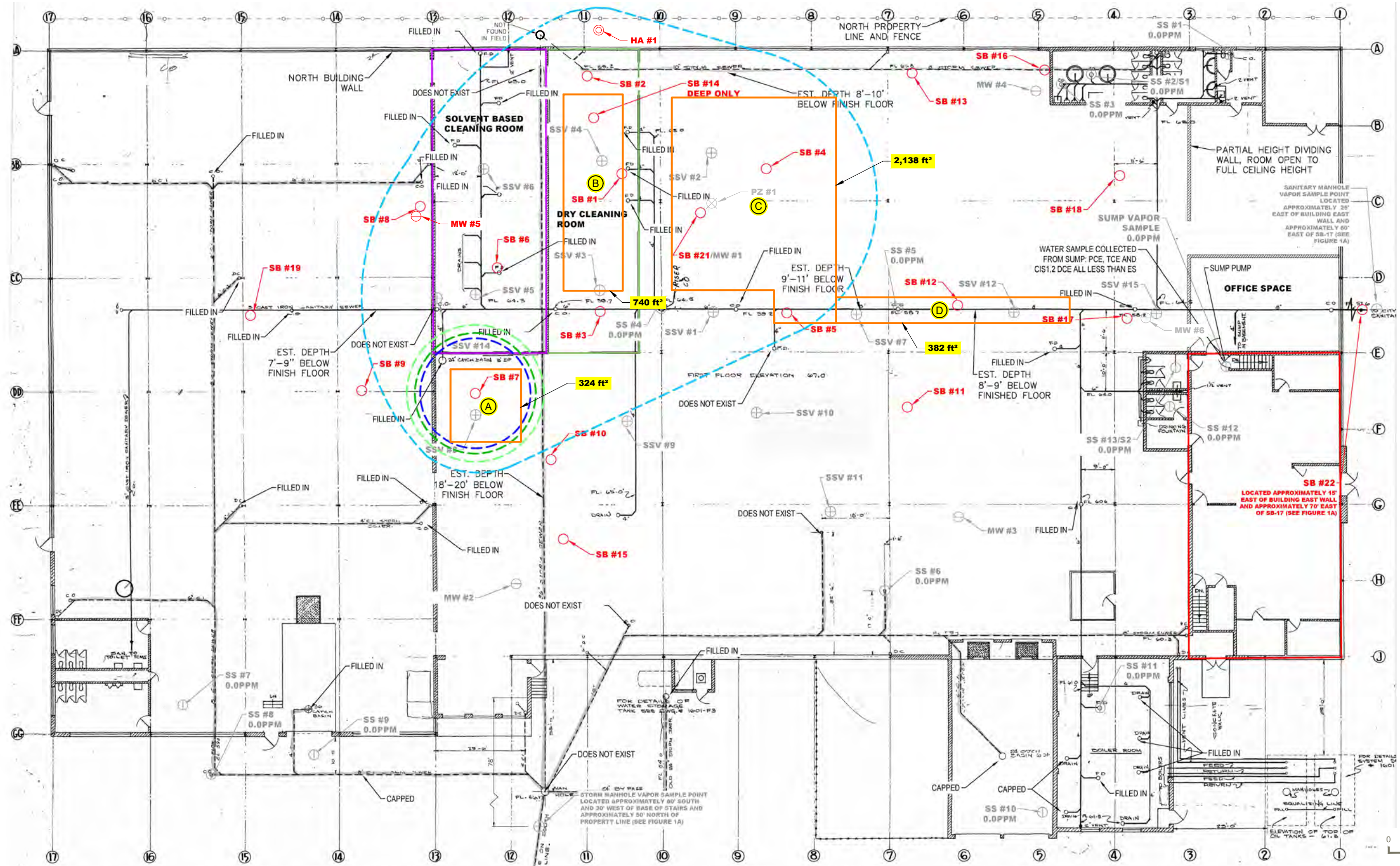
SOIL VAPOR ISOCONCENTRATION MAP - TCE

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

FIGURE 9b

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER
- PCE > 10 mg/kg (0 ft²)
- 1 mg/kg < PCE < 10 mg/kg (610 ft²)
- ND < PCE < 1 mg/kg (10,631 ft²)
- 1 mg/kg < TCE < 10 mg/kg (733 ft²)
- ND < TCE < 1 mg/kg (939 ft²)
- PROPOSED EXCAVATION AREA

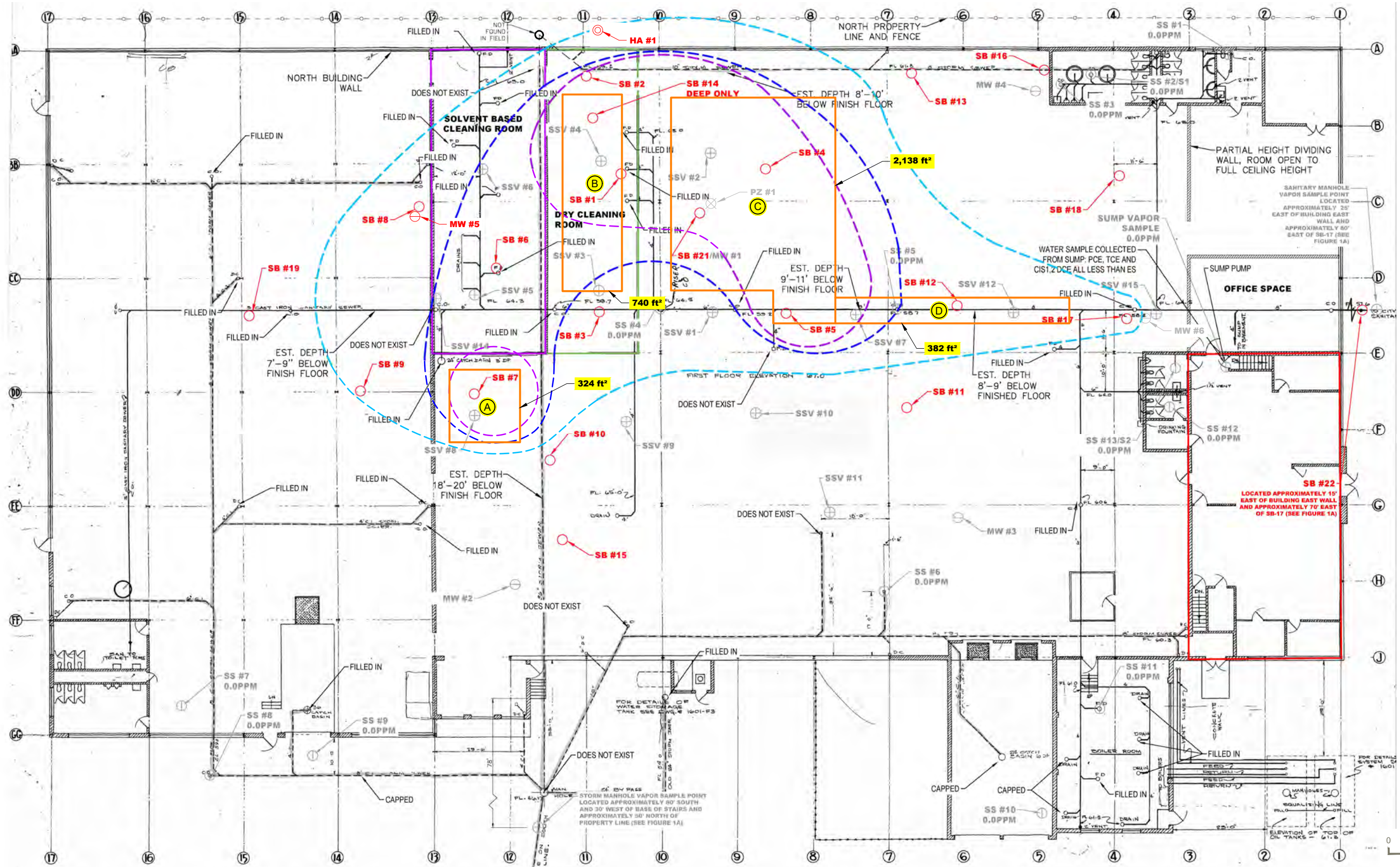
OPTION B: PROPOSED EXCAVATION AREAS (0-5 FT BGS)

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

FIGURE 10a

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER
- PCE > 10 mg/kg (402 + 3,595 = 3,997 ft²)
- 1 mg/kg < PCE < 10 mg/kg (6,939 ft²)
- ND < PCE < 1 mg/kg (13,392 ft²)
- PROPOSED EXCAVATION AREA

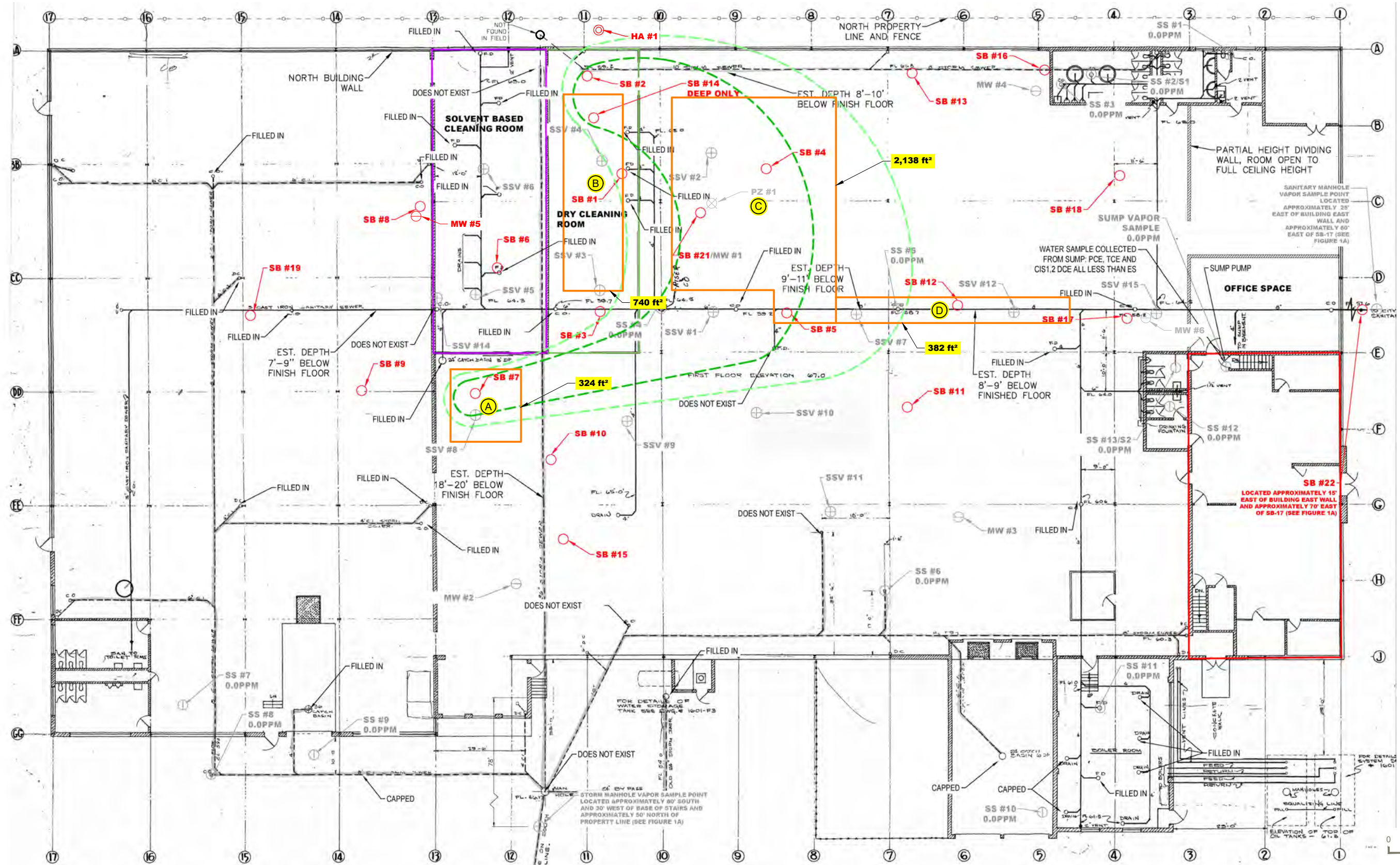
OPTION B: PROPOSED EXCAVATION AREAS (5-10 FT BGS) - PCE

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

FIGURE 10b

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊗ PIEZOMETER
- 1 mg/kg < TCE < 10 mg/kg (3,350 ft²)
- ND < TCE < 1 mg/kg (6,643 ft²)
- PROPOSED EXCAVATION AREA

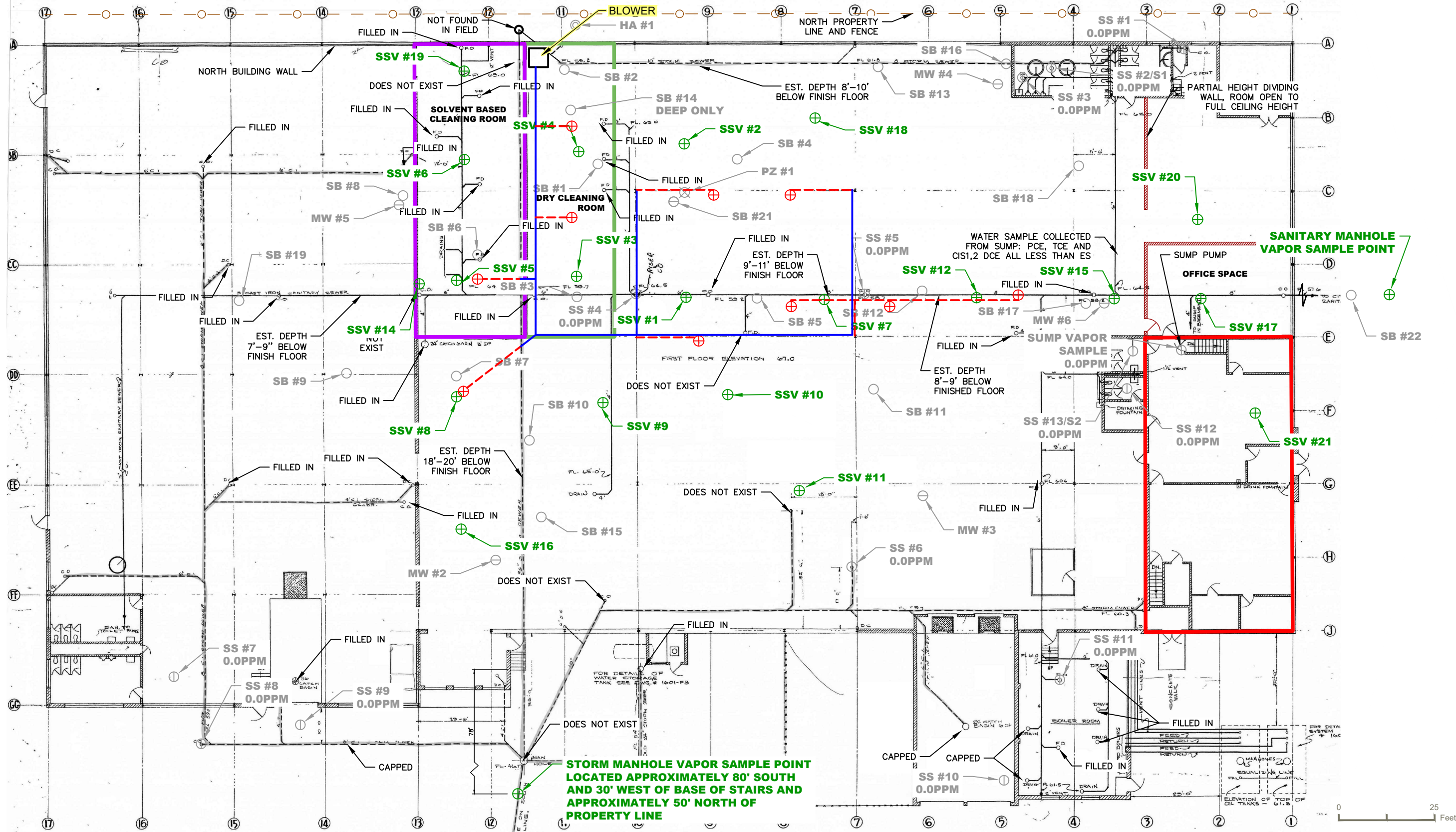
OPTION B: PROPOSED EXCAVATION AREAS (5-10 FT BGS) - TCE

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

FIGURE 10c

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY





- ⊖ MONITORING WELL
- ⊕ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- ⊕ PROPOSED VAPOR EXTRACTION POINT
- SUB-SLAB VAPOR EXTRACTION CONDUIT
- OVERHEAD VAPOR EXTRACTION CONDUIT

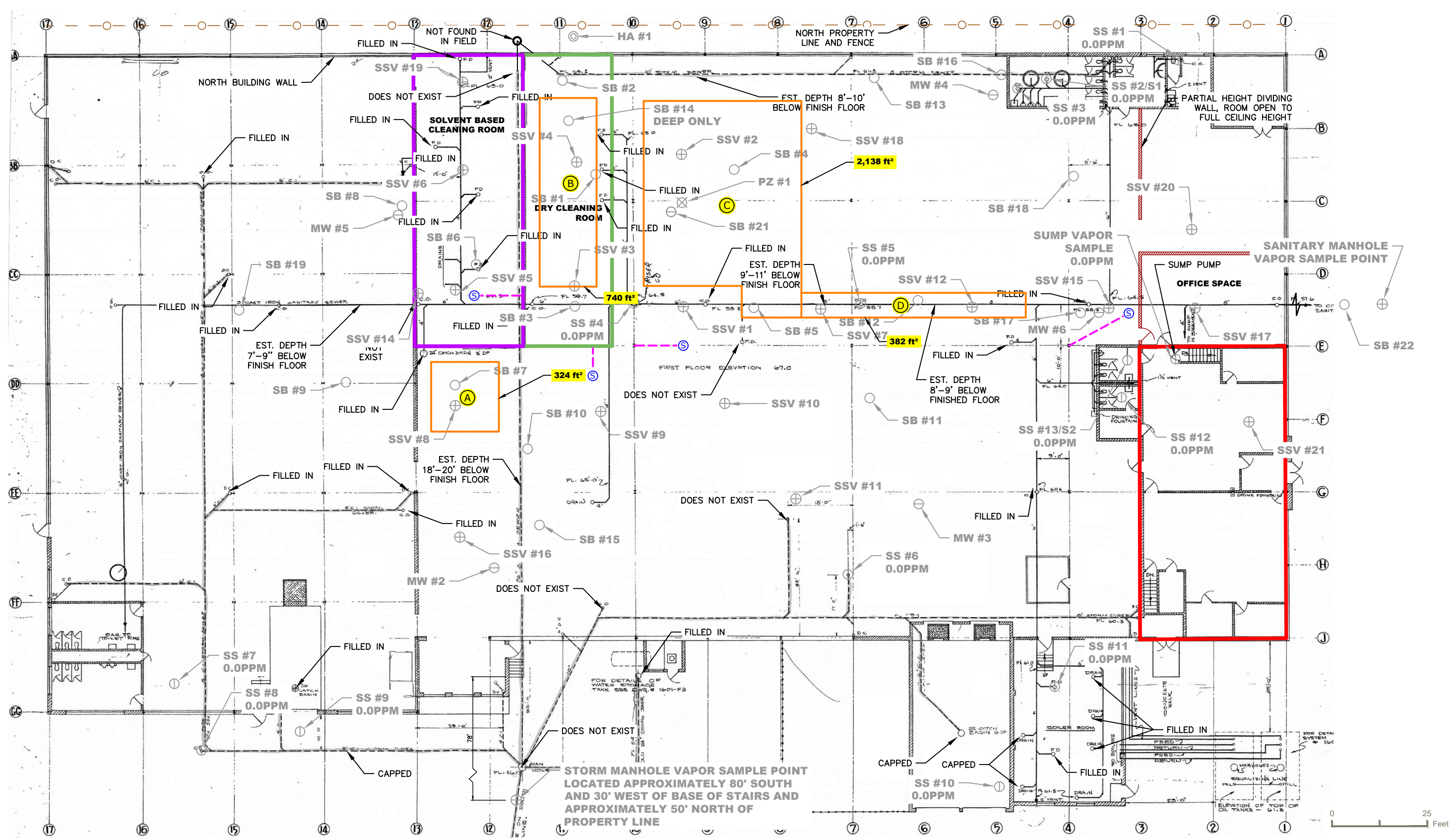
OPTION C: PROPOSED VAPOR EXTRACTION POINTS

FIGURE 11

SPIC AND SPAN, INC.
4301 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY





STORM MANHOLE VAPOR SAMPLE POINT
 LOCATED APPROXIMATELY 80' SOUTH
 AND 30' WEST OF BASE OF STAIRS AND
 APPROXIMATELY 50' NORTH OF
 PROPERTY LINE

0 25 Feet

- ⊖ MONITORING WELL
- Ⓢ SEWER SAMPLE
- SOIL BORING
- ⊕ SUB SLAB VAPOR POINT
- ⊙ HAND AUGER BORING
- Ⓢ PROPOSED SUB-SLAB DEPRESSURIZATION SUMP
- SUB-SLAB DEPRESSURIZATION PIPING

**POST-EXCAVATION SUB-SLAB
 DEPRESSURIZATION (AS-NEEDED)**

FIGURE 12

RAMBOLL US CONSULTING, INC.
 A RAMBOLL COMPANY

SPIC AND SPAN, INC.
 4301 NORTH RICHARDS STREET
 MILWAUKEE, WISCONSIN



APPENDIX A
SOIL BORING LOGS
(WDNR FORM 4400-122)

Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name Spic and Span - 1690027851		License/Permit/Monitoring Number		Boring Number <i>MW-5</i>	
Boring Drilled By: Name of crew chief (first, last) and Firm <i>DUSTIN HARVY GESTRA</i>		Date Drilling Started 1/12/2023		Date Drilling Completed 1/12/2023	
Drilling Method Direct Push		WI Unique Well No.		DNR Well ID No.	
Common Well Name		Final Static Water Level Feet MSL		Surface Elevation Feet MSL	
Borehole Diameter 2.3 inches		Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>		Local Grid Location	
State Plane N, E S/C/N		Lat _____ ° _____ '		<input type="checkbox"/> N <input type="checkbox"/> E	
1/4 of _____ 1/4 of Section T N, R		Long _____ ° _____ '		<input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County		County Code	
				Civil Town/City/ or Village	

Sample Number and Type	Length Att. & Recovered (in)	PID (ppm) 10.6 eV	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	Soil Properties						RQD/ Comments	
								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200			
		0.0	0-1	0-5" CONCRETE											
		0.0	1-2	5"-3' FILL (SP) F.M SAND TR- SP SAND, LOOSE MOIST											
		0.0	2-3	TR- SP SAND, YELL BROWN (LOW R 5/6) F-L GRAVEL											
		0.0	5-6	5-5.6' SAA LOW ROL, LARGE ROLK											
		0.0	10-13	10-13 SAA											

*1015
MW-5(10)*

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm Ramboll US Consulting, Inc. 234 W. Florida St., Fifth Floor Milwaukee, WI 53204	Tel: (262) 901-0094 Fax: (262) 901-0079
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This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name Spic and Span - 1690027851			License/Permit/Monitoring Number		Boring Number MW-6		
Boring Drilled By: Name of crew chief (first, last) and Firm DUSTIN HAEVY GESTRA			Date Drilling Started 1/12/2023		Date Drilling Completed 1/12/2023		
WI Unique Well No.		DNR Well ID No.	Common Well Name		Final Static Water Level Feet MSL		
					Surface Elevation Feet MSL		
					Borehole Diameter 2.3 inches		
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane N, E S/C/N			Lat _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E		
1/4 of 1/4 of Section T N, R			Long _____ ' _____ "		Feet <input type="checkbox"/> S <input type="checkbox"/> W		
Facility ID		County		County Code		Civil Town/City/ or Village	

Sample Number and Type	Length Att. & Recovered (in)	PID (ppm) 10.6 eV	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	Soil Properties						RQD/ Comments	
								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200			
	2.9		0-6"	CONCRETE											
	1.0		6"-2'	FILL (SP) F-M SAND, TR: C SAND TR F-C GRAVEL, LOOSE, MOIST, VELL BROWN (OVR 5/6)											
	6.6		2'-2.3'	FILL CLML TR F-C SAND + GRAVEL V. DRK BROWN (OVR 2/2) MOIST, SOFT, PLASTIC											
	29 60		5-6	SAN LT BROWN RED YEL (7.5YR 6/4)											
	41.9		6-7	SAN BROWN (7.5YR 5/3)											
	32 60		7-7.8	SAN BROWN (10YR 4/3)											
	48 60		10-14	SANDY CLML LITTLE - FEW F-C SAND, LOW PLASTIC MOIST, STIFF SOME BRN OXIDATION @ 11.2'											
	1.2														
	1.4														
	0.5														
	0.2														

1520 HOLD
MW-6 (7)
E-7

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm Ramboll US Consulting, Inc. 234 W. Florida St., Fifth Floor Milwaukee, WI 53204	Tel: (262) 901-0094 Fax: (262) 901-0079
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Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Spic and Span - 1690027851		License/Permit/Monitoring Number		Boring Number PZ-1	
Boring Drilled By: Name of crew chief (first, last) and Firm RUSTIN HARVY GESTRA		Date Drilling Started 1/12/2023		Date Drilling Completed 1/12/2023	
Drilling Method Direct Push		Drilling Method		Drilling Method	
WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter 2.3 inches
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane N, E S/C/N 1/4 of 1/4 of Section T N, R			Local Grid Location Lat _____ " _____ " Long _____ " _____ " Feet <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W		
Facility ID		County	County Code	Civil Town/City/ or Village	

Sample Number and Type	Length Att. & Recovered (in)	PID (ppm) 10.6 eV	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	Soil Properties						RQD/ Comments	
								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200			
			0.0	0-6" CONCRETE											
			0.0	6"-3											
	36 60		0.0	FILL (SP) F-M SAND TR L-SAND, TR F-L GRAVEL MOIST, LOOSE VELL BROWN (1042 5/6)											
			0.1	5-7 SAA POSS SILTY											
			0.7	7-8.8 SP (POSS FILL) F-M SAND FEW L-SAND, LOOSE MOIST BLK (1042 7/1) TO DEEP VELL BROWN (1042 4/1)											
	44 60		0.9												
			0.3	10-10.9 CL/ML BROWN (1042 5/3) MOIST, STIFF, PLASTIC TR F-L SAND											
			11												
			12												
			13												
			14												
			15												

NOTE: CARBLES PRESENT DURING AUGERING FOR WELL INST.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm Ramboll US Consulting, Inc. 234 W. Florida St., Fifth Floor Milwaukee, WI 53204	Tel: (262) 901-0094 Fax: (262) 901-0079
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SOIL BORING LOG INFORMATION

Boring Number **PZ-1**

Page 2 of 2

Number and Type	Length Att. & Recovered (in)	PID 10.6eV (ppm)	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/Comments				
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200					
		0.1	16	15-17.2 SPT														
		0.1	17															
		-	18															
	27/60	-	19															
		-	20	20-22 SPT														
		0.0	21	SPT														
		0.0	22															
	60/60	0.0	23	22-23.5 LL/ML BLK (10/2 2/1) MOIST, SOFT, PLASTIC NO ODOR														
		0.0	24															
		0.0	25	23.5-23.8 SANDY LL, V DRK GRAY (10/2 3/1) LITTLE TO SOME F.M SAND WET, LOW PLASTIC, SOFT														
		0.0	26															
		0.0	27	23.8-28.5 LL/ML TR-FINE F-C SANDS MOIST, V. STIFF, PLASTIC DRK GRAY (10/2 4/1)														
	32/60	0.0	28															
		-	29	LARGE ROCK @ ~28'														
		-	30															
		0.0	31	30-34 SPT														
		0.0	32															
		0.0	33															
	48/60	0.0	34															
		0.0	35	REFUSAL @ 34' BGS														
		-	36	END OF DRILLING 1/12/2023														
		-	37	1/13/2023 INSTALL PZ-1														
		-	38	1-25 BENT														
		-	39	25-26 SAND #15														
		-	40	26-33 SAND #40														
		-	40	28-33 SCREEN JOHNSON 0.010 SLOT 2" SCH 70														

NOTE: 1ST LOCATION HAD AUGER REFUSAL @ 29' STEP OF 2' NORTH, BLIND DRILLED

APPENDIX B

MONITORING WELL CONSTRUCTION AND DEVELOPMENT REPORTS

Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Spic and Span, Inc	County Name Milwaukee	Well Name mw-5	
Facility License, Permit or Monitoring Number 02-41-585636	County Code 4 1	Wis. Unique Well Number	DNR Well ID Number

1. Can this well be purged dry? Yes No
2. Well development method
- surged with bailer and bailed 4 1
 - surged with bailer and pumped 6 1
 - surged with block and bailed 4 2
 - surged with block and pumped 6 2
 - surged with block, bailed and pumped 7 0
 - compressed air 2 0
 - bailed only 1 0
 - pumped only 5 1
 - pumped slowly 5 0
 - Other
3. Time spent developing well 60 min.
4. Depth of well (from top of well casing) 23.7 ft.
5. Inside diameter of well 2.0 in.
6. Volume of water in filter pack and well casing 6.4 gal.
7. Volume of water removed from well 4.0 gal.
8. Volume of water added (if any) _____ gal.
9. Source of water added _____
10. Analysis performed on water added? Yes No
(If yes, attach results)

11. Depth to Water Before Development After Development
(from top of well casing) a. 15.75 ft. 18.54 ft.
- Date b. 01/20/2023 01/20/2023
m m d d y y y y m m d d y y y y
- Time c. 12:10 a.m. 13:10 p.m.
12. Sediment in well bottom 0.1 inches 0.0 inches
13. Water clarity Clear 10 Clear 20
Turbid 15 Turbid 25
(Describe) GREYISH BROWN (Describe)
SED
- Fill in if drilling fluids were used and well is at solid waste facility:
14. Total suspended solids _____ mg/l _____ mg/l
15. COD _____ mg/l _____ mg/l

16. Well developed by: Name (first, last) and Firm

First Name: Kyle Last Name: Heimstead

Firm: Ramboll US Consulting, Inc.

17. Additional comments on development:
Well purged at approximately 250 ml/min

Name and Address of Facility Contact /Owner/Responsible Party

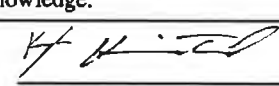
First Name: Robert Last Name: Miller

Facility/Firm: Spic and Span

Street: 4301 N. Richards St.

City/State/Zip: Milwaukee, WI 53212

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 

Print Name: Kyle Heimstead

Firm: Ramboll US Consulting, Inc.

Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Spic and Span, Inc	County Name Milwaukee	Well Name MWS-6	
Facility License, Permit or Monitoring Number 02-41-585636	County Code 4 1	Wis. Unique Well Number	DNR Well ID Number

1. Can this well be purged dry? Yes No

2. Well development method

surged with bailer and bailed	<input type="checkbox"/>	4 1
surged with bailer and pumped	<input type="checkbox"/>	6 1
surged with block and bailed	<input type="checkbox"/>	4 2
surged with block and pumped	<input type="checkbox"/>	6 2
surged with block, bailed and pumped	<input type="checkbox"/>	7 0
compressed air	<input type="checkbox"/>	2 0
bailed only	<input type="checkbox"/>	1 0
pumped only	<input type="checkbox"/>	5 1
pumped slowly	<input checked="" type="checkbox"/>	5 0
Other _____	<input type="checkbox"/>	

3. Time spent developing well 60 min.

4. Depth of well (from top of well casing) 23.8 ft.

5. Inside diameter of well 2.0 in.

6. Volume of water in filter pack and well casing 4.0 gal.

7. Volume of water removed from well 3.8 gal.

8. Volume of water added (if any) _____ gal.

9. Source of water added _____

10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. <u>19.00</u> ft.	<u>21.79</u> ft.
Date	b. <u>01/20/2023</u>	<u>01/20/2023</u>
Time	c. <u>9:20</u> <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.	<u>10:20</u> <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.
12. Sediment in well bottom	<u>0.0</u> inches	<u>0.0</u> inches
13. Water clarity	Clear <input checked="" type="checkbox"/> 10 Turbid <input type="checkbox"/> 15 (Describe) _____	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe) _____

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids _____ mg/l

15. COD _____ mg/l

16. Well developed by: Name (first, last) and Firm

First Name: Kyle Last Name: Heimstead

Firm: Ramboll US Consulting, Inc.

17. Additional comments on development:
Well purged at approximately 250 ml/min

Name and Address of Facility Contact/Owner/Responsible Party

First Name: Robert Last Name: Miller

Facility/Firm: Spic and Span

Street: 4301 N. Richards St.

City/State/Zip: Milwaukee, WI 53212

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Kyle Heimstead

Print Name: Kyle Heimstead

Firm: Ramboll US Consulting, Inc.

NOTE: See instructions for more information including a list of county codes and well type codes.

Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Spic and Span, Inc	County Name Milwaukee	Well Name MW-7	
Facility License, Permit or Monitoring Number 02-41-585636	County Code 41	Wis. Unique Well Number _____	DNR Well ID Number _____

1. Can this well be purged dry? Yes No

2. Well development method
- surged with bailer and bailed 41
 - surged with bailer and pumped 61
 - surged with block and bailed 42
 - surged with block and pumped 62
 - surged with block, bailed and pumped 70
 - compressed air 20
 - bailed only 10
 - pumped only 51
 - pumped slowly 50
 - Other _____

3. Time spent developing well _____ 60 min.

4. Depth of well (from top of well casing) _____ 25.2 ft.

5. Inside diameter of well _____ 2.0 in.

6. Volume of water in filter pack and well casing _____ 12.4 gal.

7. Volume of water removed from well _____ 4.0 gal.

8. Volume of water added (if any) _____ gal.

9. Source of water added _____

10. Analysis performed on water added? Yes No
(If yes, attach results)

17. Additional comments on development:

Well purged at approximately 250 ml/min.

11. Depth to Water (from top of well casing)

	Before Development	After Development
a.	7.67 ft.	16.12 ft.
Date	b. 01/20/2023	01/20/2023
Time	c. 1:20 p.m.	2:20 p.m.

12. Sediment in well bottom _____ inches

13. Water clarity

	Before Development	After Development
Clear	<input type="checkbox"/> 10	<input checked="" type="checkbox"/> 20
Turbid	<input checked="" type="checkbox"/> 15	<input type="checkbox"/> 25

(Describe) Brown silt

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids _____ mg/l

15. COD _____ mg/l

16. Well developed by: Name (first, last) and Firm

First Name: Kyle Last Name: Heimstead

Firm: Ramboll US Consulting, Inc.

Name and Address of Facility Contact/Owner/Responsible Party

First Name: Robert Last Name: Miller

Facility/Firm: Spic and Span

Street: 4301 N. Richards St.

City/State/Zip: Milwaukee, WI 53212

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 

Print Name: Kyle Heimstead

Firm: Ramboll US Consulting, Inc.

Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Spic and Span, Inc	County Name Milwaukee	Well Name PZ-1	
Facility License, Permit or Monitoring Number 02-41-585636	County Code 4 1	Wis. Unique Well Number	DNR Well ID Number

1. Can this well be purged dry? Yes No
2. Well development method
- surged with bailer and bailed 4 1
 - surged with bailer and pumped 6 1
 - surged with block and bailed 4 2
 - surged with block and pumped 6 2
 - surged with block, bailed and pumped 7 0
 - compressed air 2 0
 - bailed only 1 0
 - pumped only 5 1
 - pumped slowly 5 0
 - Other
3. Time spent developing well 90 min.
4. Depth of well (from top of well casing) 32.6 ft.
5. Inside diameter of well 2.0 in.
6. Volume of water in filter pack and well casing 5.1 gal.
7. Volume of water removed from well 6.0 gal.
8. Volume of water added (if any) _____ gal.
9. Source of water added _____
10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. <u>20.85</u> ft.	<u>29.53</u> ft.
Date	b. <u>01/20/2023</u>	<u>01/20/2023</u>
Time	c. <u>10:30</u> <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.	<u>12:00</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
12. Sediment in well bottom	<u>0.0</u> inches	<u>0.0</u> inches
13. Water clarity	Clear <input checked="" type="checkbox"/> 10 Turbid <input type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	_____ mg/l	_____ mg/l
15. COD	_____ mg/l	_____ mg/l
16. Well developed by: Name (first, last) and Firm		
First Name:	Kyle	Last Name: Heimstead
Firm:	Ramboll US Consulting, Inc.	

17. Additional comments on development:
Well purged at approximately 250 ml/min

Name and Address of Facility Contact /Owner/Responsible Party

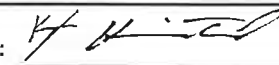
First Name: Robert Last Name: Miller

Facility/Firm: Spic and Span

Street: 4301 N. Richards St.

City/State/Zip: Milwaukee, WI 53212

I hereby certify that the above information is true and correct to the best of my knowledge.

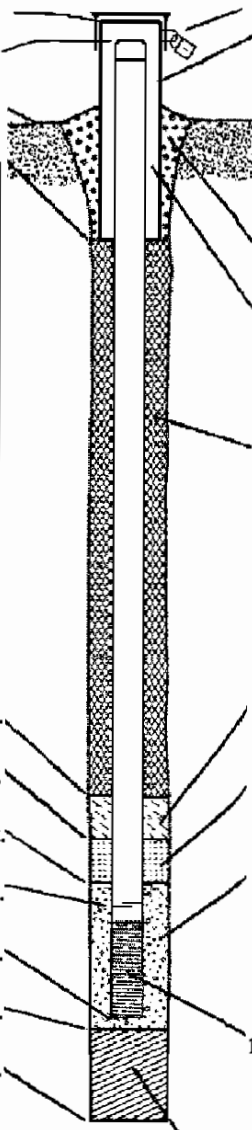
Signature: 

Print Name: Kyle Heimstead

Firm: Ramboll US Consulting, Inc.

Facility/Project Name Spic and Span, Inc		Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W.		Well Name MW-5	
Facility License, Permit or Monitoring No. 02-41-585636		Local Grid Origin <input checked="" type="checkbox"/> (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/>		Wis. Unique Well No. DNR Well ID No.	
Facility ID 241040690		St. Plane _____ ft. N. _____ ft. E. <input checked="" type="checkbox"/> C/N		Date Well Installed 0 1 / 1 2 / 2 0 2 3 m m d d y y v v	
Type of Well Well Code 11 / MW		Section Location of Waste/Source NE 1/4 of SE 1/4 of Sec. 05, T. 07 N, R. 22 <input checked="" type="checkbox"/> E <input type="checkbox"/> W		Well Installed By: Name (first, last) and Firm Dustin Harvey Gestra Engineering, Inc.	
Distance from Waste/Source _____ ft.		Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known		Gov. Lot Number	

A. Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation _____ ft. MSL	2. Protective cover pipe: a. Inside diameter: _____ in.
C. Land surface elevation _____ ft. MSL	b. Length: _____ ft.
D. Surface seal, bottom _____ ft. MSL or 1.00 ft.	c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/>
12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input checked="" type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/>	
13. Sieve analysis performed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
14. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input checked="" type="checkbox"/> 41 Other <input type="checkbox"/>	
15. Drilling fluid used: Water <input type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input checked="" type="checkbox"/> 99	
16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe NA	
17. Source of water (attach analysis, if required): NA	
E. Bentonite seal, top _____ ft. MSL or 1.00 ft.	3. Surface seal: Bentonite <input type="checkbox"/> 30 Concrete <input checked="" type="checkbox"/> 01 Other <input type="checkbox"/>
F. Fine sand, top _____ ft. MSL or 12.00 ft.	4. Material between well casing and protective pipe: Bentonite <input checked="" type="checkbox"/> 30 Other <input type="checkbox"/>
G. Filter pack, top _____ ft. MSL or 13.00 ft.	5. Annular space seal: a. Granular/Chipped Bentonite <input checked="" type="checkbox"/> 33 b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry <input type="checkbox"/> 35 c. _____ Lbs/gal mud weight . . . Bentonite slurry <input type="checkbox"/> 31 d. _____ % Bentonite Bentonite-cement grout <input type="checkbox"/> 50 e. ^{3.77} _____ Ft ³ volume added for any of the above
H. Screen joint, top _____ ft. MSL or 15.00 ft.	f. How installed: Tremie <input type="checkbox"/> 01 Tremie pumped <input type="checkbox"/> 02 Gravity <input checked="" type="checkbox"/> 08
I. Well bottom _____ ft. MSL or 25.00 ft.	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 33 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite chips <input checked="" type="checkbox"/> 32 c. _____ Other <input type="checkbox"/>
J. Filter pack, bottom _____ ft. MSL or 25.00 ft.	7. Fine sand material: Manufacturer, product name & mesh size a. Red Flint # 15 b. Volume added 0.34 _____ ft ³
K. Borehole, bottom _____ ft. MSL or 25.00 ft.	8. Filter pack material: Manufacturer, product name & mesh size a. Red Flint # 40 b. Volume added 4.11 _____ ft ³
L. Borehole, diameter 8.25 in.	9. Well casing: Flush threaded PVC schedule 40 <input checked="" type="checkbox"/> 23 Flush threaded PVC schedule 80 <input type="checkbox"/> 24 Other <input type="checkbox"/>
M. O.D. well casing 2.3 in.	10. Screen material: PVC a. Screen type: Factory cut <input checked="" type="checkbox"/> 11 Continuous slot <input type="checkbox"/> 01 Other <input type="checkbox"/>
N. I.D. well casing 2.0 in.	b. Manufacturer Johnson c. Slot size: 0.010 in. d. Slotted length: 1.0 ft.
	11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 14 Other <input type="checkbox"/>



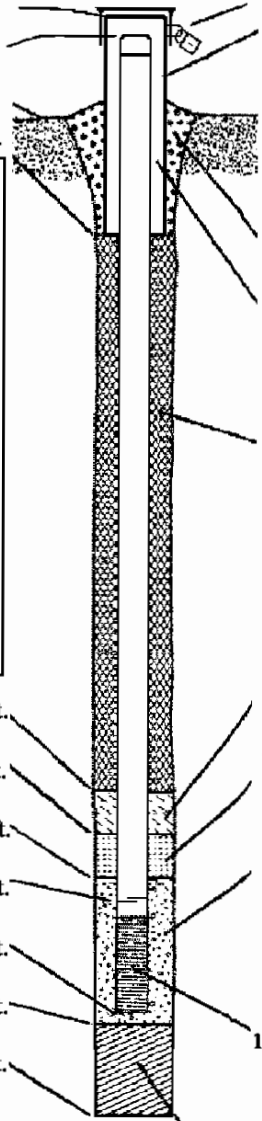
I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature [Handwritten Signature] Firm Ramboll US Consulting Inc.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Facility/Project Name Spic and Span, Inc		Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W.		Well Name MW-6	
Facility License, Permit or Monitoring No. 02-41-585636		Local Grid Origin <input checked="" type="checkbox"/> (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/>		Wis. Unique Well No. DNR Well ID No.	
Facility ID 241040690		St. Plane _____ ft. N. _____ ft. E. <input checked="" type="checkbox"/> C/N		Date Well Installed 0 1 / 1 2 / 2 0 2 3 m m d d y y v v	
Type of Well Well Code 11 / MW		Section Location of Waste/Source NE 1/4 of SE 1/4 of Sec. 05, T. 07, N. R. 22 <input checked="" type="checkbox"/> E <input type="checkbox"/> W		Well Installed By: Name (first, last) and Firm Dustin Harvey Gestra Engineering, Inc.	
Distance from Waste/Source _____ ft.		Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known		Gov. Lot Number _____	

A. Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation _____ ft. MSL	2. Protective cover pipe: a. Inside diameter: _____ in.
C. Land surface elevation _____ ft. MSL	b. Length: _____ ft.
D. Surface seal, bottom _____ ft. MSL or 1.00 ft.	c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/>
12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input checked="" type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/>	d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____
13. Sieve analysis performed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	3. Surface seal: Bentonite <input type="checkbox"/> 30 Concrete <input checked="" type="checkbox"/> 01 Other <input type="checkbox"/>
14. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input checked="" type="checkbox"/> 41 Other <input type="checkbox"/>	4. Material between well casing and protective pipe: Bentonite <input checked="" type="checkbox"/> 30 Other <input type="checkbox"/>
15. Drilling fluid used: Water <input type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input checked="" type="checkbox"/> 99	5. Annular space seal: a. Granular/Chipped Bentonite <input checked="" type="checkbox"/> 33 b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry <input type="checkbox"/> 35 c. _____ Lbs/gal mud weight . . . Bentonite slurry <input type="checkbox"/> 31 d. _____ % Bentonite Bentonite-cement grout <input type="checkbox"/> 50 e. ^{3.77} _____ Ft ³ volume added for any of the above
16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	f. How installed: Tremie <input type="checkbox"/> 01 Tremie pumped <input type="checkbox"/> 02 Gravity <input checked="" type="checkbox"/> 08
Describe NA	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 33 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite chips <input checked="" type="checkbox"/> 32 c. _____ Other <input type="checkbox"/>
17. Source of water (attach analysis, if required): NA	7. Fine sand material: Manufacturer, product name & mesh size a. Red Flint # 15 b. Volume added 0.34 _____ ft ³
E. Bentonite seal, top _____ ft. MSL or 1.00 ft.	8. Filter pack material: Manufacturer, product name & mesh size a. Red Flint # 40 b. Volume added 4.11 _____ ft ³
F. Fine sand, top _____ ft. MSL or 12.00 ft.	9. Well casing: Flush threaded PVC schedule 40 <input checked="" type="checkbox"/> 23 Flush threaded PVC schedule 80 <input type="checkbox"/> 24 Other <input type="checkbox"/>
G. Filter pack, top _____ ft. MSL or 13.00 ft.	10. Screen material: PVC a. Screen type: Factory cut <input checked="" type="checkbox"/> 11 Continuous slot <input type="checkbox"/> 01 Other <input type="checkbox"/>
H. Screen joint, top _____ ft. MSL or 15.00 ft.	b. Manufacturer Johnson c. Slot size: 0.010 in. d. Slotted length: 1.0 ft.
I. Well bottom _____ ft. MSL or 25.00 ft.	11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 14 Other <input type="checkbox"/>
J. Filter pack, bottom _____ ft. MSL or 25.00 ft.	
K. Borehole, bottom _____ ft. MSL or 25.00 ft.	
L. Borehole, diameter 8.25 in.	
M. O.D. well casing 2.3 in.	
N. I.D. well casing 2.0 in.	



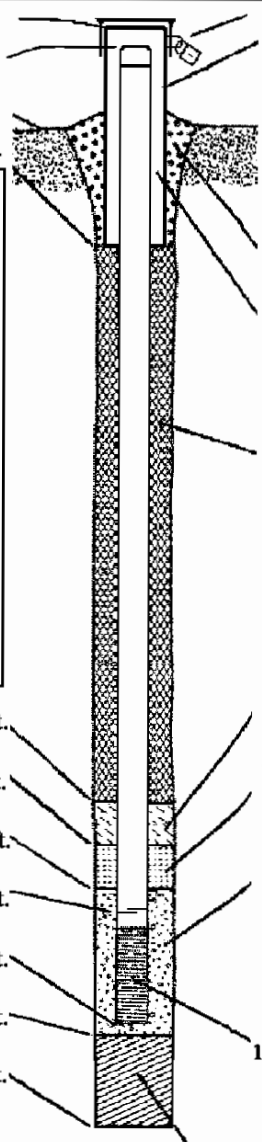
I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature [Handwritten Signature] Firm Ramboll US Consulting Inc.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Facility/Project Name Spic and Span, Inc		Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W.		Well Name PZ-1	
Facility License, Permit or Monitoring No. 02-41-585636		Local Grid Origin <input checked="" type="checkbox"/> (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/>		Wis. Unique Well No. _____ DNR Well ID No. _____	
Facility ID 241040690		St. Plane _____ ft. N. _____ ft. E. <input checked="" type="checkbox"/> C/N		Date Well Installed 0 1 / 1 3 / 2 0 2 3 m m d d y y v v	
Type of Well Well Code 12 / PZ		Section Location of Waste/Source NE 1/4 of SE 1/4 of Sec. 05, T. 07, N. R. 22 <input checked="" type="checkbox"/> E <input type="checkbox"/> W		Well Installed By: Name (first, last) and Firm Dustin Harvey Gestra Engineering, Inc.	
Distance from Waste/Source _____ ft.		Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known		Gov. Lot Number _____	

A. Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation _____ ft. MSL	2. Protective cover pipe: a. Inside diameter: _____ in.
C. Land surface elevation _____ ft. MSL	b. Length: _____ ft.
D. Surface seal, bottom _____ ft. MSL or _____ 1.00 ft.	c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/>
12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input checked="" type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/>	
13. Sieve analysis performed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
14. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input checked="" type="checkbox"/> 41 Other <input type="checkbox"/>	
15. Drilling fluid used: Water <input type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input checked="" type="checkbox"/> 99	
16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe NA	
17. Source of water (attach analysis, if required): NA	
E. Bentonite seal, top _____ ft. MSL or _____ 1.00 ft.	3. Surface seal: Bentonite <input type="checkbox"/> 30 Concrete <input checked="" type="checkbox"/> 01 Other <input type="checkbox"/>
F. Fine sand, top _____ ft. MSL or _____ 26.00 ft.	4. Material between well casing and protective pipe: Bentonite <input checked="" type="checkbox"/> 30 Other <input type="checkbox"/>
G. Filter pack, top _____ ft. MSL or _____ 27.00 ft.	5. Annular space seal: a. Granular/Chipped Bentonite <input checked="" type="checkbox"/> 33 b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry <input type="checkbox"/> 35 c. _____ Lbs/gal mud weight Bentonite slurry <input type="checkbox"/> 31 d. _____ % Bentonite Bentonite-cement grout <input type="checkbox"/> 50 e. 8.56 Ft ³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 01 Tremie pumped <input type="checkbox"/> 02 Gravity <input checked="" type="checkbox"/> 08
H. Screen joint, top _____ ft. MSL or _____ 28.00 ft.	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 33 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite chips <input checked="" type="checkbox"/> 32 c. _____ Other <input type="checkbox"/>
I. Well bottom _____ ft. MSL or _____ 33.00 ft.	7. Fine sand material: Manufacturer, product name & mesh size a. Red Flint # 15 b. Volume added 0.34 ft ³
J. Filter pack, bottom _____ ft. MSL or _____ 33.00 ft.	8. Filter pack material: Manufacturer, product name & mesh size a. Red Flint # 40 b. Volume added 2.05 ft ³
K. Borehole, bottom _____ ft. MSL or _____ 33.00 ft.	9. Well casing: Flush threaded PVC schedule 40 <input checked="" type="checkbox"/> 23 Flush threaded PVC schedule 80 <input type="checkbox"/> 24 Other <input type="checkbox"/>
L. Borehole, diameter _____ 8.25 in.	10. Screen material: PVC a. Screen type: Factory cut <input checked="" type="checkbox"/> 11 Continuous slot <input type="checkbox"/> 01 Other <input type="checkbox"/>
M. O.D. well casing _____ 2.3 in.	b. Manufacturer Johnson c. Slot size: 0.010 in. d. Slotted length: _____ 5 ft.
N. I.D. well casing _____ 2.0 in.	11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 14 Other <input type="checkbox"/>



I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature [Handwritten Signature] Firm Ramboll US Consulting Inc.

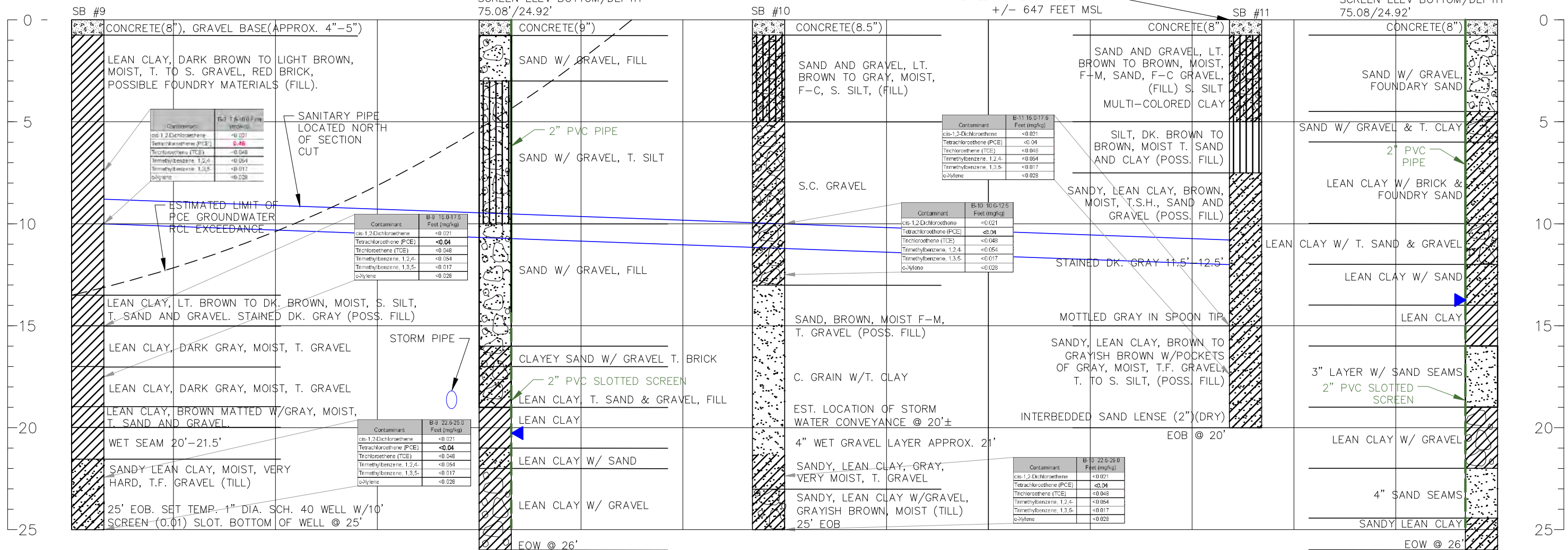
Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

APPENDIX C

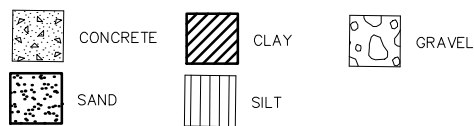
GEOLOGICAL CROSS SECTIONS

MW #2
 FLOOR ELEV/DEPTH 100'/0'
 AVERAGE GROUNDWATER ELEV/DEPTH 75.59'/20.41'
 SCREEN ELEV TOP/DEPTH 85.76'/14.24'
 SCREEN ELEV BOTTOM/DEPTH 75.08'/24.92'

MW #3
 FLOOR ELEV/DEPTH 100'/0'
 AVERAGE GROUNDWATER ELEV/DEPTH 86.22'/13.78'
 SCREEN ELEV TOP/DEPTH 85.08'/14.92'
 SCREEN ELEV BOTTOM/DEPTH 75.08'/24.92'

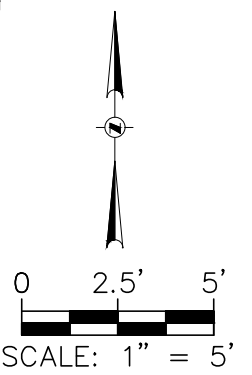
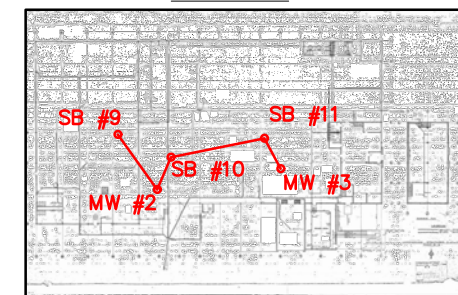


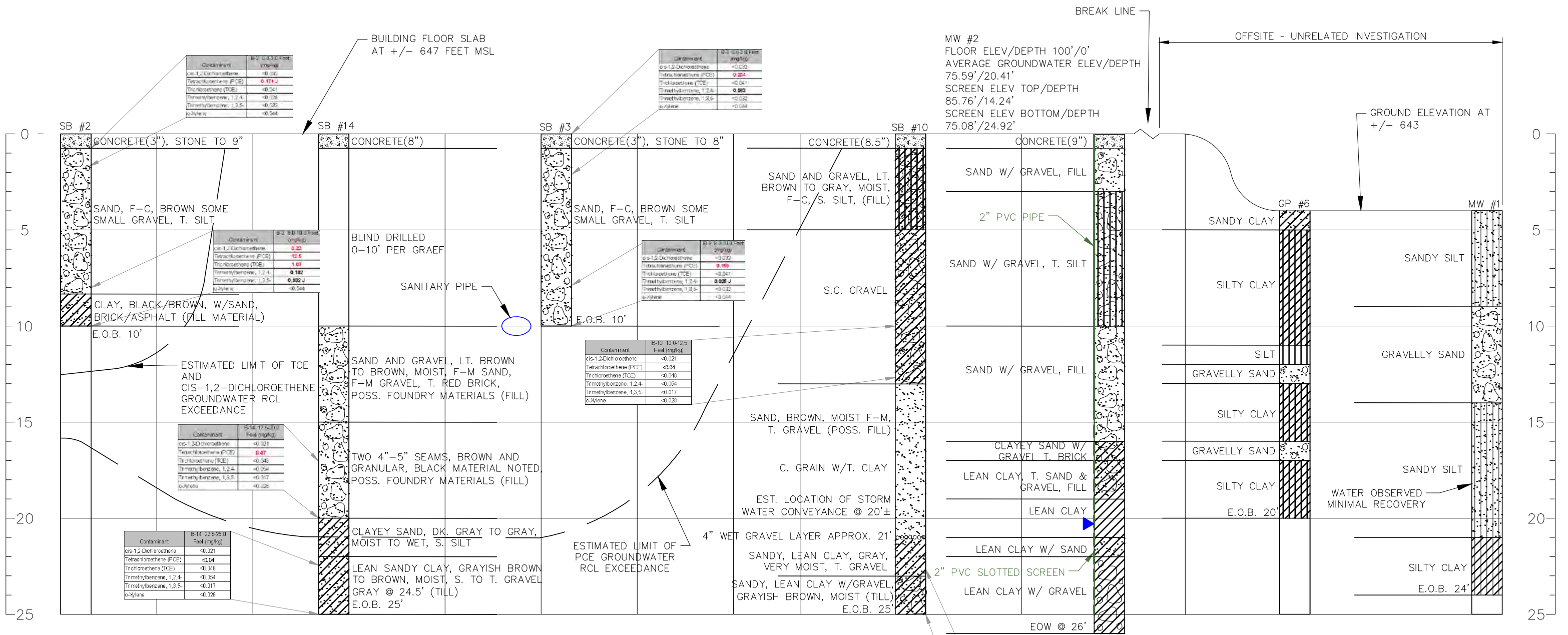
MATERIAL SYMBOLS



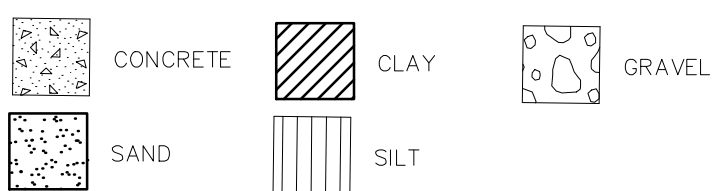
Legend	
J Flag	Analyte detected between LOD and LOQ
Highlight	Denotes That concentration is above the Industrial DC RCL
Highlight	Denotes that concentration is above the Non-Industrial DC RCL
Text	Denotes that concentrations is above the Groundwater RCLs
Bold	Detected Compound

KEY MAP

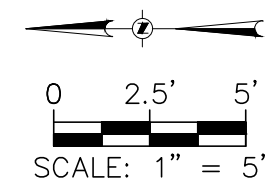
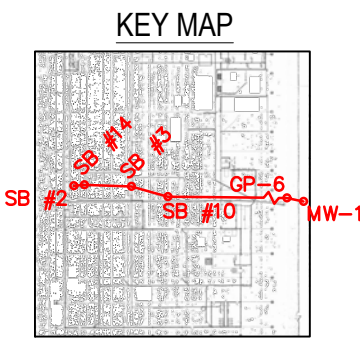




MATERIAL SYMBOLS

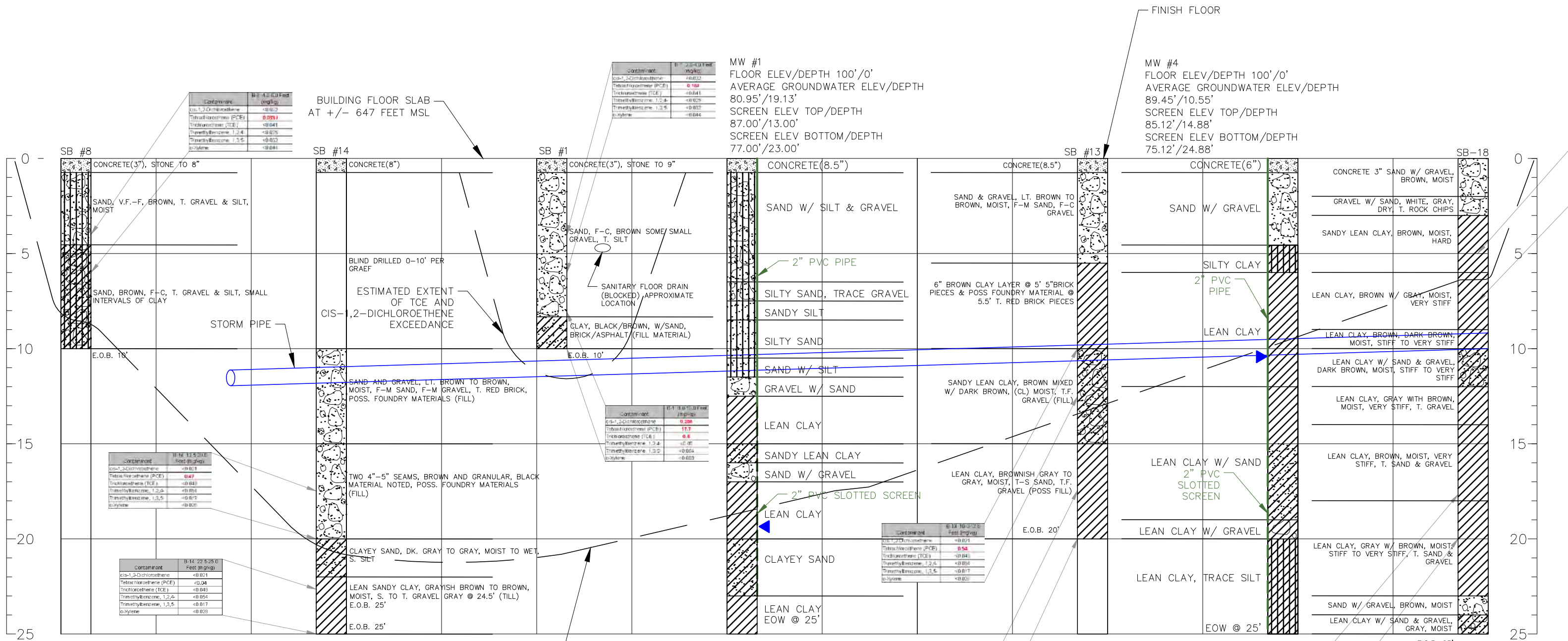


Legend	
J Flag	Analyte detected between LOD and LOQ
Highlight	Denotes That concentration is above the Industrial DC RCL
Highlight	Denotes that concentration is above the Non-Industrial DC RCL
Text	Denotes that concentrations is above the Groundwater RCLs
Bold	Detected Compound

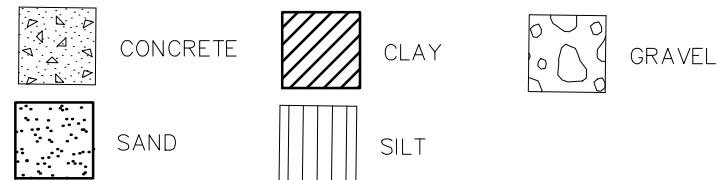


VERT. SCALE: 1" = 5'

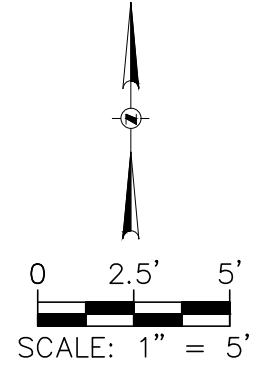
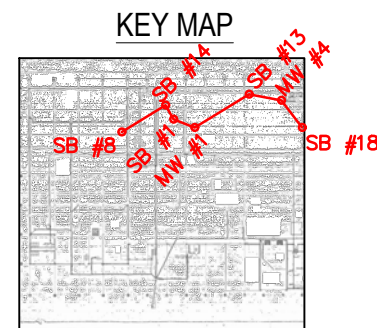
HORIZONTAL DIMENSIONS ARE NOT TO SCALE



MATERIAL SYMBOLS



Legend	
J Flag	Analyte detected between LOD and LOQ
Highlight	Denotes That concentration is above the Industrial DC RCL
Highlight	Denotes that concentration is above the Non-Industrial DC RCL
Text	Denotes that concentrations is above the Groundwater RCLs
Bold	Detected Compound



APPENDIX D
SOIL SAMPLE LABORATORY
ANALYTICAL REPORTS



ANALYTICAL REPORT

PREPARED FOR

Attn: Kyle Heimstead
Ramboll US Corporation
234 W. Florida Street
Fifth Floor
Milwaukee, Wisconsin 53204

Generated 2/6/2023 4:37:01 PM

JOB DESCRIPTION

Spic and Span 1690027851

JOB NUMBER

500-228104-1

Eurofins Chicago

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Chicago Project Manager.

Authorization



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Authorized for release by
Sandie Fredrick, Project Manager II
Sandra.Fredrick@et.eurofinsus.com
(920)261-1660



Table of Contents

Cover Page	1
Table of Contents	3
Case Narrative	4
Detection Summary	5
Method Summary	6
Sample Summary	7
Client Sample Results	8
Definitions	10
QC Association	11
Surrogate Summary	12
QC Sample Results	13
Chronicle	16
Certification Summary	17
Chain of Custody	18
Receipt Checklists	20

Case Narrative

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228104-1

Job ID: 500-228104-1

Laboratory: Eurofins Chicago

Narrative

**Job Narrative
500-228104-1**

Comments

No additional comments.

Receipt

The samples were received on 1/14/2023 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.2° C.

GC/MS VOA

Method 8260D: Reanalysis of the following sample(s) was performed outside of the analytical holding time. Sample was originally run overly diluted within hold time. Proper dilution was performed after hold time expired: MW-5 (23) (500-228104-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Detection Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228104-1

Client Sample ID: MW-5 (23)

Lab Sample ID: 500-228104-2

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 500-228104-6

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Chicago

Method Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228104-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CHI
Moisture	Percent Moisture	EPA	EET CHI
5035	Closed System Purge and Trap	SW846	EET CHI

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200



Sample Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228104-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-228104-2	MW-5 (23)	Solid	01/12/23 10:08	01/14/23 09:20
500-228104-6	TRIP BLANK	Solid	01/12/23 00:00	01/14/23 09:20

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Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228104-1

Client Sample ID: MW-5 (23)

Lab Sample ID: 500-228104-2

Date Collected: 01/12/23 10:08

Matrix: Solid

Date Received: 01/14/23 09:20

Percent Solids: 91.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<24	H	59	24	ug/Kg	☼	01/12/23 10:08	01/27/23 20:19	50
Tetrachloroethene	<22	H	59	22	ug/Kg	☼	01/12/23 10:08	01/27/23 20:19	50
trans-1,2-Dichloroethene	<21	H	59	21	ug/Kg	☼	01/12/23 10:08	01/27/23 20:19	50
Trichloroethene	<9.7	H	30	9.7	ug/Kg	☼	01/12/23 10:08	01/27/23 20:19	50
Vinyl chloride	<16	H	59	16	ug/Kg	☼	01/12/23 10:08	01/27/23 20:19	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		72 - 124	01/12/23 10:08	01/27/23 20:19	50
Dibromofluoromethane (Surr)	87		75 - 120	01/12/23 10:08	01/27/23 20:19	50
1,2-Dichloroethane-d4 (Surr)	97		75 - 126	01/12/23 10:08	01/27/23 20:19	50
Toluene-d8 (Surr)	94		75 - 120	01/12/23 10:08	01/27/23 20:19	50

Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228104-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 500-228104-6

Date Collected: 01/12/23 00:00

Matrix: Solid

Date Received: 01/14/23 09:20

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<20		50	20	ug/Kg		01/12/23 00:00	01/19/23 12:26	50
Tetrachloroethene	<19		50	19	ug/Kg		01/12/23 00:00	01/19/23 12:26	50
trans-1,2-Dichloroethene	<18		50	18	ug/Kg		01/12/23 00:00	01/19/23 12:26	50
Trichloroethene	<8.2		25	8.2	ug/Kg		01/12/23 00:00	01/19/23 12:26	50
Vinyl chloride	<13		50	13	ug/Kg		01/12/23 00:00	01/19/23 12:26	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		72 - 124	01/12/23 00:00	01/19/23 12:26	50
Dibromofluoromethane (Surr)	85		75 - 120	01/12/23 00:00	01/19/23 12:26	50
1,2-Dichloroethane-d4 (Surr)	99		75 - 126	01/12/23 00:00	01/19/23 12:26	50
Toluene-d8 (Surr)	100		75 - 120	01/12/23 00:00	01/19/23 12:26	50

Definitions/Glossary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228104-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228104-1

GC/MS VOA

Prep Batch: 694229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-228104-2	MW-5 (23)	Total/NA	Solid	5035	
500-228104-6	TRIP BLANK	Total/NA	Solid	5035	
LB3 500-694229/21-A	Method Blank	Total/NA	Solid	5035	
LCS 500-694229/22-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 694676

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-228104-6	TRIP BLANK	Total/NA	Solid	8260D	694229
MB 500-694676/7	Method Blank	Total/NA	Solid	8260D	
LCS 500-694676/5	Lab Control Sample	Total/NA	Solid	8260D	

Analysis Batch: 694711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB3 500-694229/21-A	Method Blank	Total/NA	Solid	8260D	694229
MB 500-694711/8	Method Blank	Total/NA	Solid	8260D	
LCS 500-694229/22-A	Lab Control Sample	Total/NA	Solid	8260D	694229
LCS 500-694711/5	Lab Control Sample	Total/NA	Solid	8260D	

Analysis Batch: 695980

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-228104-2	MW-5 (23)	Total/NA	Solid	8260D	694229
MB 500-695980/7	Method Blank	Total/NA	Solid	8260D	
LCS 500-695980/5	Lab Control Sample	Total/NA	Solid	8260D	

General Chemistry

Analysis Batch: 695622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-228104-2	MW-5 (23)	Total/NA	Solid	Moisture	

Surrogate Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228104-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	DCA	TOL
		(72-124)	(75-120)	(75-126)	(75-120)
500-228104-2	MW-5 (23)	109	87	97	94
500-228104-6	TRIP BLANK	111	85	99	100
LB3 500-694229/21-A	Method Blank	90	99	98	105
LCS 500-694229/22-A	Lab Control Sample	88	100	101	102
LCS 500-694676/5	Lab Control Sample	114	89	96	97
LCS 500-694711/5	Lab Control Sample	89	95	91	105
LCS 500-695980/5	Lab Control Sample	111	93	94	94
MB 500-694676/7	Method Blank	114	86	102	100
MB 500-694711/8	Method Blank	88	102	100	101
MB 500-695980/7	Method Blank	117	91	94	95

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228104-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: LB3 500-694229/21-A
Matrix: Solid
Analysis Batch: 694711

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 694229

Analyte	LB3	LB3	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	<20		50	20	ug/Kg		01/16/23 20:15	01/19/23 12:41	50
Tetrachloroethene	<19		50	19	ug/Kg		01/16/23 20:15	01/19/23 12:41	50
trans-1,2-Dichloroethene	<18		50	18	ug/Kg		01/16/23 20:15	01/19/23 12:41	50
Trichloroethene	<8.2		25	8.2	ug/Kg		01/16/23 20:15	01/19/23 12:41	50
Vinyl chloride	<13		50	13	ug/Kg		01/16/23 20:15	01/19/23 12:41	50

Surrogate	LB3	LB3	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	90		72 - 124	01/16/23 20:15	01/19/23 12:41	50
Dibromofluoromethane (Surr)	99		75 - 120	01/16/23 20:15	01/19/23 12:41	50
1,2-Dichloroethane-d4 (Surr)	98		75 - 126	01/16/23 20:15	01/19/23 12:41	50
Toluene-d8 (Surr)	105		75 - 120	01/16/23 20:15	01/19/23 12:41	50

Lab Sample ID: LCS 500-694229/22-A
Matrix: Solid
Analysis Batch: 694711

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 694229

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
cis-1,2-Dichloroethene	2500	2630		ug/Kg		105	70 - 125
Tetrachloroethene	2500	2640		ug/Kg		106	70 - 128
trans-1,2-Dichloroethene	2500	2620		ug/Kg		105	70 - 125
Trichloroethene	2500	2470		ug/Kg		99	70 - 125
Vinyl chloride	2500	1970		ug/Kg		79	64 - 126

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	88		72 - 124
Dibromofluoromethane (Surr)	100		75 - 120
1,2-Dichloroethane-d4 (Surr)	101		75 - 126
Toluene-d8 (Surr)	102		75 - 120

Lab Sample ID: MB 500-694676/7
Matrix: Solid
Analysis Batch: 694676

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/Kg			01/19/23 11:13	1
Tetrachloroethene	<0.37		1.0	0.37	ug/Kg			01/19/23 11:13	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/Kg			01/19/23 11:13	1
Trichloroethene	<0.16		0.50	0.16	ug/Kg			01/19/23 11:13	1
Vinyl chloride	<0.26		1.0	0.26	ug/Kg			01/19/23 11:13	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	114		72 - 124		01/19/23 11:13	1
Dibromofluoromethane (Surr)	86		75 - 120		01/19/23 11:13	1
1,2-Dichloroethane-d4 (Surr)	102		75 - 126		01/19/23 11:13	1
Toluene-d8 (Surr)	100		75 - 120		01/19/23 11:13	1

QC Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228104-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 500-694676/5
Matrix: Solid
Analysis Batch: 694676

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	50.0	39.5		ug/Kg		79	70 - 125
Tetrachloroethene	50.0	43.8		ug/Kg		88	70 - 128
trans-1,2-Dichloroethene	50.0	40.5		ug/Kg		81	70 - 125
Trichloroethene	50.0	39.9		ug/Kg		80	70 - 125
Vinyl chloride	50.0	46.7		ug/Kg		93	64 - 126

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	114		72 - 124
Dibromofluoromethane (Surr)	89		75 - 120
1,2-Dichloroethane-d4 (Surr)	96		75 - 126
Toluene-d8 (Surr)	97		75 - 120

Lab Sample ID: MB 500-694711/8
Matrix: Solid
Analysis Batch: 694711

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/Kg			01/19/23 13:04	1
Tetrachloroethene	<0.37		1.0	0.37	ug/Kg			01/19/23 13:04	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/Kg			01/19/23 13:04	1
Trichloroethene	<0.16		0.50	0.16	ug/Kg			01/19/23 13:04	1
Vinyl chloride	<0.26		1.0	0.26	ug/Kg			01/19/23 13:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		72 - 124		01/19/23 13:04	1
Dibromofluoromethane (Surr)	102		75 - 120		01/19/23 13:04	1
1,2-Dichloroethane-d4 (Surr)	100		75 - 126		01/19/23 13:04	1
Toluene-d8 (Surr)	101		75 - 120		01/19/23 13:04	1

Lab Sample ID: LCS 500-694711/5
Matrix: Solid
Analysis Batch: 694711

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	50.0	49.9		ug/Kg		100	70 - 125
Tetrachloroethene	50.0	57.2		ug/Kg		114	70 - 128
trans-1,2-Dichloroethene	50.0	54.2		ug/Kg		108	70 - 125
Trichloroethene	50.0	50.7		ug/Kg		101	70 - 125
Vinyl chloride	50.0	58.3		ug/Kg		117	64 - 126

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	89		72 - 124
Dibromofluoromethane (Surr)	95		75 - 120
1,2-Dichloroethane-d4 (Surr)	91		75 - 126
Toluene-d8 (Surr)	105		75 - 120

QC Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228104-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 500-695980/7
Matrix: Solid
Analysis Batch: 695980

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/Kg			01/27/23 11:39	1
Tetrachloroethene	<0.37		1.0	0.37	ug/Kg			01/27/23 11:39	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/Kg			01/27/23 11:39	1
Trichloroethene	<0.16		0.50	0.16	ug/Kg			01/27/23 11:39	1
Vinyl chloride	<0.26		1.0	0.26	ug/Kg			01/27/23 11:39	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	117		72 - 124		01/27/23 11:39	1
Dibromofluoromethane (Surr)	91		75 - 120		01/27/23 11:39	1
1,2-Dichloroethane-d4 (Surr)	94		75 - 126		01/27/23 11:39	1
Toluene-d8 (Surr)	95		75 - 120		01/27/23 11:39	1

Lab Sample ID: LCS 500-695980/5
Matrix: Solid
Analysis Batch: 695980

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	50.0	42.2		ug/Kg		84	70 - 125
Tetrachloroethene	50.0	43.8		ug/Kg		88	70 - 128
trans-1,2-Dichloroethene	50.0	41.2		ug/Kg		82	70 - 125
Trichloroethene	50.0	42.2		ug/Kg		84	70 - 125
Vinyl chloride	50.0	51.5		ug/Kg		103	64 - 126

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		72 - 124
Dibromofluoromethane (Surr)	93		75 - 120
1,2-Dichloroethane-d4 (Surr)	94		75 - 126
Toluene-d8 (Surr)	94		75 - 120

Lab Chronicle

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228104-1

Client Sample ID: MW-5 (23)

Date Collected: 01/12/23 10:08

Date Received: 01/14/23 09:20

Lab Sample ID: 500-228104-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	695622	LWN	EET CHI	01/25/23 10:28

Client Sample ID: MW-5 (23)

Date Collected: 01/12/23 10:08

Date Received: 01/14/23 09:20

Lab Sample ID: 500-228104-2

Matrix: Solid

Percent Solids: 91.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			694229	WRE	EET CHI	01/12/23 10:08
Total/NA	Analysis	8260D		50	695980	JDD	EET CHI	01/27/23 20:19

Client Sample ID: TRIP BLANK

Date Collected: 01/12/23 00:00

Date Received: 01/14/23 09:20

Lab Sample ID: 500-228104-6

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			694229	WRE	EET CHI	01/12/23 00:00
Total/NA	Analysis	8260D		50	694676	W1T	EET CHI	01/19/23 12:26

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228104-1

Laboratory: Eurofins Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-23

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469-434 INTW EXP 06/23



500-228104 Waybi

ORIGIN ID: NLA 2) 202-5955
IAN EVANS
EUROFINS TESTAMERICA
4125 N 124TH ST
SUITE F (REAR)
BROOKFIELD, WI 53005
UNITED STATES US

SHIP DATE: 13 JAN 23
ACTWT: 64.45 LB
CAD: 0269888/CAFE3616

BILL RECIPIENT

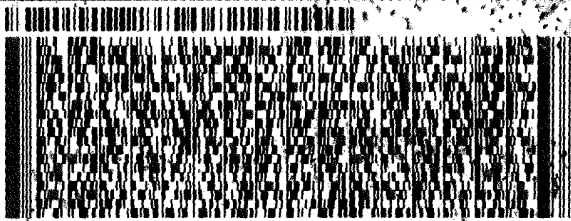
TO **SAMPLE RECEIPT**
EUROFINS
2417 BOND ST.

UNIVERSITY PARK IL 60484

(262) 202-5966
INV: PO:

REF:

DEPT:



FedEx
Express



TRK# 6283 9315 3549
0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO JOTA

60484
IL-US ORD

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Login Sample Receipt Checklist

Client: Ramboll US Corporation

Job Number: 500-228104-1

Login Number: 228104

List Number: 1

Creator: Hernandez, Stephanie

List Source: Eurofins Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX E

GROUNDWATER SAMPLE LABORATORY ANALYTICAL REPORTS



ANALYTICAL REPORT

PREPARED FOR

Attn: Kyle Heimstead
Ramboll US Corporation
234 W. Florida Street
Fifth Floor
Milwaukee, Wisconsin 53204

Generated 2/14/2023 11:23:49 AM

JOB DESCRIPTION

Spic and Span Water 1690027851

JOB NUMBER

500-228888-1

Eurofins Chicago

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

Results relate only to the items tested and the sample(s) as received by the laboratory. The results, detection limits (LOD) and Quantitation Limits (LOQ) have been adjusted for sample dilutions and/or solids content.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Chicago Project Manager.

Authorization



Generated
2/14/2023 11:23:49 AM

Authorized for release by
Sandie Fredrick, Project Manager II
Sandra.Fredrick@et.eurofinsus.com
(920)261-1660



Table of Contents

Cover Page	1
Table of Contents	3
Case Narrative	4
Detection Summary	5
Method Summary	6
Sample Summary	7
Client Sample Results	8
Definitions	14
QC Association	15
Surrogate Summary	16
QC Sample Results	17
Chronicle	18
Certification Summary	19
Chain of Custody	20
Receipt Checklists	21

Case Narrative

Client: Ramboll US Corporation
Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Job ID: 500-228888-1

Laboratory: Eurofins Chicago

Narrative

**Job Narrative
500-228888-1**

Comments

No additional comments.

Receipt

The samples were received on 2/2/2023 11:40 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.8° C.

GC/MS VOA

Method 8260D: Surrogate recovery for the following sample was outside the upper control limit: TRIP BLANK (500-228888-6). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Client Sample ID: MW-6

Lab Sample ID: 500-228888-1

No Detections.

Client Sample ID: PZ-1

Lab Sample ID: 500-228888-2

No Detections.

Client Sample ID: MW-1

Lab Sample ID: 500-228888-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	5.3		1.0	0.41	ug/L	1		8260D	Total/NA
Tetrachloroethene	8.1		1.0	0.37	ug/L	1		8260D	Total/NA
Trichloroethene	1.6		0.50	0.16	ug/L	1		8260D	Total/NA
Vinyl chloride	8.8		1.0	0.20	ug/L	1		8260D	Total/NA

Client Sample ID: MW-1 DUP

Lab Sample ID: 500-228888-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	4.9		1.0	0.41	ug/L	1		8260D	Total/NA
Tetrachloroethene	7.6		1.0	0.37	ug/L	1		8260D	Total/NA
Trichloroethene	1.3		0.50	0.16	ug/L	1		8260D	Total/NA
Vinyl chloride	9.2		1.0	0.20	ug/L	1		8260D	Total/NA

Client Sample ID: MW-5

Lab Sample ID: 500-228888-5

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 500-228888-6

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Chicago

Method Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CHI
5030B	Purge and Trap	SW846	EET CHI

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

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Sample Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-228888-1	MW-6	Water	01/31/23 08:20	02/02/23 11:40
500-228888-2	PZ-1	Water	01/31/23 08:50	02/02/23 11:40
500-228888-3	MW-1	Water	01/31/23 09:40	02/02/23 11:40
500-228888-4	MW-1 DUP	Water	01/31/23 09:40	02/02/23 11:40
500-228888-5	MW-5	Water	01/31/23 10:25	02/02/23 11:40
500-228888-6	TRIP BLANK	Water	01/31/23 00:00	02/02/23 11:40

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Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Client Sample ID: MW-6
Date Collected: 01/31/23 08:20
Date Received: 02/02/23 11:40

Lab Sample ID: 500-228888-1
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			02/03/23 13:57	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			02/03/23 13:57	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/L			02/03/23 13:57	1
Trichloroethene	<0.16		0.50	0.16	ug/L			02/03/23 13:57	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			02/03/23 13:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		72 - 124		02/03/23 13:57	1
Dibromofluoromethane (Surr)	104		75 - 120		02/03/23 13:57	1
1,2-Dichloroethane-d4 (Surr)	118		75 - 126		02/03/23 13:57	1
Toluene-d8 (Surr)	97		75 - 120		02/03/23 13:57	1

Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Client Sample ID: PZ-1

Lab Sample ID: 500-228888-2

Date Collected: 01/31/23 08:50

Matrix: Water

Date Received: 02/02/23 11:40

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			02/03/23 14:20	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			02/03/23 14:20	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/L			02/03/23 14:20	1
Trichloroethene	<0.16		0.50	0.16	ug/L			02/03/23 14:20	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			02/03/23 14:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		72 - 124		02/03/23 14:20	1
Dibromofluoromethane (Surr)	108		75 - 120		02/03/23 14:20	1
1,2-Dichloroethane-d4 (Surr)	122		75 - 126		02/03/23 14:20	1
Toluene-d8 (Surr)	99		75 - 120		02/03/23 14:20	1

Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Client Sample ID: MW-1

Lab Sample ID: 500-228888-3

Date Collected: 01/31/23 09:40

Matrix: Water

Date Received: 02/02/23 11:40

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	5.3		1.0	0.41	ug/L			02/03/23 14:43	1
Tetrachloroethene	8.1		1.0	0.37	ug/L			02/03/23 14:43	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/L			02/03/23 14:43	1
Trichloroethene	1.6		0.50	0.16	ug/L			02/03/23 14:43	1
Vinyl chloride	8.8		1.0	0.20	ug/L			02/03/23 14:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		72 - 124		02/03/23 14:43	1
Dibromofluoromethane (Surr)	106		75 - 120		02/03/23 14:43	1
1,2-Dichloroethane-d4 (Surr)	124		75 - 126		02/03/23 14:43	1
Toluene-d8 (Surr)	101		75 - 120		02/03/23 14:43	1

Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Client Sample ID: MW-1 DUP

Lab Sample ID: 500-228888-4

Date Collected: 01/31/23 09:40

Matrix: Water

Date Received: 02/02/23 11:40

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	4.9		1.0	0.41	ug/L			02/03/23 15:06	1
Tetrachloroethene	7.6		1.0	0.37	ug/L			02/03/23 15:06	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/L			02/03/23 15:06	1
Trichloroethene	1.3		0.50	0.16	ug/L			02/03/23 15:06	1
Vinyl chloride	9.2		1.0	0.20	ug/L			02/03/23 15:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	84		72 - 124		02/03/23 15:06	1
Dibromofluoromethane (Surr)	108		75 - 120		02/03/23 15:06	1
1,2-Dichloroethane-d4 (Surr)	126		75 - 126		02/03/23 15:06	1
Toluene-d8 (Surr)	98		75 - 120		02/03/23 15:06	1

Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Client Sample ID: MW-5
Date Collected: 01/31/23 10:25
Date Received: 02/02/23 11:40

Lab Sample ID: 500-228888-5
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			02/03/23 15:29	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			02/03/23 15:29	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/L			02/03/23 15:29	1
Trichloroethene	<0.16		0.50	0.16	ug/L			02/03/23 15:29	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			02/03/23 15:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		72 - 124		02/03/23 15:29	1
Dibromofluoromethane (Surr)	107		75 - 120		02/03/23 15:29	1
1,2-Dichloroethane-d4 (Surr)	123		75 - 126		02/03/23 15:29	1
Toluene-d8 (Surr)	101		75 - 120		02/03/23 15:29	1

Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 500-228888-6

Date Collected: 01/31/23 00:00

Matrix: Water

Date Received: 02/02/23 11:40

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			02/03/23 13:10	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			02/03/23 13:10	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/L			02/03/23 13:10	1
Trichloroethene	<0.16		0.50	0.16	ug/L			02/03/23 13:10	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			02/03/23 13:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		72 - 124		02/03/23 13:10	1
Dibromofluoromethane (Surr)	114		75 - 120		02/03/23 13:10	1
1,2-Dichloroethane-d4 (Surr)	138	S1+	75 - 126		02/03/23 13:10	1
Toluene-d8 (Surr)	100		75 - 120		02/03/23 13:10	1

Definitions/Glossary

Client: Ramboll US Corporation
Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

GC/MS VOA

Analysis Batch: 697030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-228888-1	MW-6	Total/NA	Water	8260D	
500-228888-2	PZ-1	Total/NA	Water	8260D	
500-228888-3	MW-1	Total/NA	Water	8260D	
500-228888-4	MW-1 DUP	Total/NA	Water	8260D	
500-228888-5	MW-5	Total/NA	Water	8260D	
500-228888-6	TRIP BLANK	Total/NA	Water	8260D	
MB 500-697030/8	Method Blank	Total/NA	Water	8260D	
LCS 500-697030/5	Lab Control Sample	Total/NA	Water	8260D	

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Surrogate Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	DCA	TOL
		(72-124)	(75-120)	(75-126)	(75-120)
500-228888-1	MW-6	86	104	118	97
500-228888-2	PZ-1	86	108	122	99
500-228888-3	MW-1	83	106	124	101
500-228888-4	MW-1 DUP	84	108	126	98
500-228888-5	MW-5	88	107	123	101
500-228888-6	TRIP BLANK	86	114	138 S1+	100
LCS 500-697030/5	Lab Control Sample	85	98	115	105
MB 500-697030/8	Method Blank	86	106	121	100

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 500-697030/8
Matrix: Water
Analysis Batch: 697030

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			02/03/23 11:38	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			02/03/23 11:38	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/L			02/03/23 11:38	1
Trichloroethene	<0.16		0.50	0.16	ug/L			02/03/23 11:38	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			02/03/23 11:38	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	86		72 - 124		02/03/23 11:38	1
Dibromofluoromethane (Surr)	106		75 - 120		02/03/23 11:38	1
1,2-Dichloroethane-d4 (Surr)	121		75 - 126		02/03/23 11:38	1
Toluene-d8 (Surr)	100		75 - 120		02/03/23 11:38	1

Lab Sample ID: LCS 500-697030/5
Matrix: Water
Analysis Batch: 697030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
cis-1,2-Dichloroethene	50.0	47.3		ug/L		95	70 - 125
Tetrachloroethene	50.0	51.2		ug/L		102	70 - 128
trans-1,2-Dichloroethene	50.0	50.5		ug/L		101	70 - 125
Trichloroethene	50.0	46.0		ug/L		92	70 - 125
Vinyl chloride	50.0	45.6		ug/L		91	64 - 126

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	85		72 - 124
Dibromofluoromethane (Surr)	98		75 - 120
1,2-Dichloroethane-d4 (Surr)	115		75 - 126
Toluene-d8 (Surr)	105		75 - 120

Lab Chronicle

Client: Ramboll US Corporation
Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Client Sample ID: MW-6
Date Collected: 01/31/23 08:20
Date Received: 02/02/23 11:40

Lab Sample ID: 500-228888-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	697030	W1T	EET CHI	02/03/23 13:57

Client Sample ID: PZ-1
Date Collected: 01/31/23 08:50
Date Received: 02/02/23 11:40

Lab Sample ID: 500-228888-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	697030	W1T	EET CHI	02/03/23 14:20

Client Sample ID: MW-1
Date Collected: 01/31/23 09:40
Date Received: 02/02/23 11:40

Lab Sample ID: 500-228888-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	697030	W1T	EET CHI	02/03/23 14:43

Client Sample ID: MW-1 DUP
Date Collected: 01/31/23 09:40
Date Received: 02/02/23 11:40

Lab Sample ID: 500-228888-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	697030	W1T	EET CHI	02/03/23 15:06

Client Sample ID: MW-5
Date Collected: 01/31/23 10:25
Date Received: 02/02/23 11:40

Lab Sample ID: 500-228888-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	697030	W1T	EET CHI	02/03/23 15:29

Client Sample ID: TRIP BLANK
Date Collected: 01/31/23 00:00
Date Received: 02/02/23 11:40

Lab Sample ID: 500-228888-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	697030	W1T	EET CHI	02/03/23 13:10

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span Water 1690027851

Job ID: 500-228888-1

Laboratory: Eurofins Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-23

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- 12
- 13
- 14
- 15

Login Sample Receipt Checklist

Client: Ramboll US Corporation

Job Number: 500-228888-1

Login Number: 228888

List Number: 1

Creator: Scott, Sherri L

List Source: Eurofins Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



APPENDIX F

VAPOR SAMPLE LABORATORY ANALYTICAL REPORTS

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16



ANALYTICAL REPORT

PREPARED FOR

Attn: Brian Schneider
Ramboll US Corporation
234 W. Florida Street
Fifth Floor
Milwaukee, Wisconsin 53204

Generated 2/15/2023 4:19:08 PM

JOB DESCRIPTION

Spic and Span 1690027851

JOB NUMBER

500-228902-1

Eurofins Chicago

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

Results relate only to the items tested and the sample(s) as received by the laboratory. The results, detection limits (LOD) and Quantitation Limits (LOQ) have been adjusted for sample dilutions and/or solids content.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Chicago Project Manager.

Authorization



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Authorized for release by
Sandie Fredrick, Project Manager II
Sandra.Fredrick@et.eurofinsus.com
(920)261-1660



Table of Contents

Cover Page	1
Table of Contents	3
Case Narrative	4
Detection Summary	5
Method Summary	7
Sample Summary	8
Client Sample Results	9
Definitions	16
QC Association	17
QC Sample Results	18
Chronicle	20
Certification Summary	21
Chain of Custody	22
Receipt Checklists	24
Clean Canister Certification	25
Clean Canister Data	25
Air Canister Dilution	188

Case Narrative

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Job ID: 500-228902-1

Laboratory: Eurofins Chicago

Narrative

**Job Narrative
500-228902-1**

Comments

No additional comments.

Receipt

The samples were received on 2/2/2023 11:10 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice.

Air - GC/MS VOA

Methods TO 15 LL, TO-14A, TO-15: EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by Eurofins TestAmerica Knoxville.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Client Sample ID: SSV-17

Lab Sample ID: 500-228902-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1500		30	4.4	ppb v/v	11.41		TO-15	Total/NA
Trichloroethene	29	J	30	5.0	ppb v/v	11.41		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	10000		210	30	ug/m3	11.41		TO-15	Total/NA
Trichloroethene	160	J	160	27	ug/m3	11.41		TO-15	Total/NA

Client Sample ID: SSV-11

Lab Sample ID: 500-228902-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	390		9.7	1.4	ppb v/v	3.65		TO-15	Total/NA
Trichloroethene	3.4	J	9.7	1.6	ppb v/v	3.65		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	2700		66	9.6	ug/m3	3.65		TO-15	Total/NA
Trichloroethene	18	J	52	8.6	ug/m3	3.65		TO-15	Total/NA

Client Sample ID: SSV-18

Lab Sample ID: 500-228902-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	260		4.5	0.65	ppb v/v	3.35		TO-15	Total/NA
Trichloroethene	8.4		4.5	0.74	ppb v/v	3.35		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1800		30	4.4	ug/m3	3.35		TO-15	Total/NA
Trichloroethene	45		24	4.0	ug/m3	3.35		TO-15	Total/NA

Client Sample ID: SSV-16

Lab Sample ID: 500-228902-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	24		2.0	0.29	ppb v/v	1		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	160		14	2.0	ug/m3	1		TO-15	Total/NA

Client Sample ID: SSV-14

Lab Sample ID: 500-228902-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	4.0	J	6.6	0.83	ppb v/v	3.31		TO-15	Total/NA
Tetrachloroethene	540		6.6	0.96	ppb v/v	3.31		TO-15	Total/NA
Trichloroethene	65		6.6	1.1	ppb v/v	3.31		TO-15	Total/NA
Vinyl chloride	4.7	J	13	2.2	ppb v/v	3.31		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	16	J	26	3.3	ug/m3	3.31		TO-15	Total/NA
Tetrachloroethene	3600		45	6.5	ug/m3	3.31		TO-15	Total/NA
Trichloroethene	350		36	5.9	ug/m3	3.31		TO-15	Total/NA
Vinyl chloride	12	J	34	5.5	ug/m3	3.31		TO-15	Total/NA

Client Sample ID: SSV-6

Lab Sample ID: 500-228902-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	17		5.5	0.69	ppb v/v	2.74		TO-15	Total/NA
Tetrachloroethene	1000		5.5	0.79	ppb v/v	2.74		TO-15	Total/NA
Trichloroethene	74		5.5	0.90	ppb v/v	2.74		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	66		22	2.7	ug/m3	2.74		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Chicago

Detection Summary

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Client Sample ID: SSV-6 (Continued)

Lab Sample ID: 500-228902-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	6900		37	5.4	ug/m3	2.74		TO-15	Total/NA
Trichloroethene	400		29	4.9	ug/m3	2.74		TO-15	Total/NA

Client Sample ID: SSV-19

Lab Sample ID: 500-228902-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.95	J	2.0	0.25	ppb v/v	1		TO-15	Total/NA
Tetrachloroethene	50		2.0	0.29	ppb v/v	1		TO-15	Total/NA
trans-1,2-Dichloroethene	0.90	J	2.0	0.33	ppb v/v	1		TO-15	Total/NA
Trichloroethene	3.9		2.0	0.33	ppb v/v	1		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	3.8	J	7.9	0.99	ug/m3	1		TO-15	Total/NA
Tetrachloroethene	340		14	2.0	ug/m3	1		TO-15	Total/NA
trans-1,2-Dichloroethene	3.6	J	7.9	1.3	ug/m3	1		TO-15	Total/NA
Trichloroethene	21		11	1.8	ug/m3	1		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Chicago

Method Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	EET KNX

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET KNX = Eurofins Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000



Sample Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-228902-1	SSV-17	Air	01/27/23 08:10	02/02/23 11:10	Air Canister (6-Liter) #12221
500-228902-2	SSV-11	Air	01/27/23 09:38	02/02/23 11:10	Air Canister (6-Liter) #34002008
500-228902-3	SSV-18	Air	01/27/23 10:12	02/02/23 11:10	Air Canister (6-Liter) #8130
500-228902-4	SSV-16	Air	01/27/23 11:28	02/02/23 11:10	Air Canister (6-Liter) #34001132
500-228902-5	SSV-14	Air	01/27/23 12:01	02/02/23 11:10	Air Canister (6-Liter) #34000402
500-228902-6	SSV-6	Air	01/27/23 12:35	02/02/23 11:10	Air Canister (6-Liter) #12109
500-228902-7	SSV-19	Air	01/27/23 13:10	02/02/23 11:10	Air Canister (6-Liter) #12219

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Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Client Sample ID: SSV-17
Date Collected: 01/27/23 08:10
Date Received: 02/02/23 11:10

Lab Sample ID: 500-228902-1
Matrix: Air

Method: EPA TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<3.8		30	3.8	ppb v/v			02/07/23 14:55	11.41
Tetrachloroethene	1500		30	4.4	ppb v/v			02/07/23 14:55	11.41
trans-1,2-Dichloroethene	<5.0		30	5.0	ppb v/v			02/07/23 14:55	11.41
Trichloroethene	29 J		30	5.0	ppb v/v			02/07/23 14:55	11.41
Vinyl chloride	<9.9		61	9.9	ppb v/v			02/07/23 14:55	11.41
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<15		120	15	ug/m3			02/07/23 14:55	11.41
Tetrachloroethene	10000		210	30	ug/m3			02/07/23 14:55	11.41
trans-1,2-Dichloroethene	<20		120	20	ug/m3			02/07/23 14:55	11.41
Trichloroethene	160 J		160	27	ug/m3			02/07/23 14:55	11.41
Vinyl chloride	<25		160	25	ug/m3			02/07/23 14:55	11.41

Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Client Sample ID: SSV-11
Date Collected: 01/27/23 09:38
Date Received: 02/02/23 11:10

Lab Sample ID: 500-228902-2
Matrix: Air

Method: EPA TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<1.2		9.7	1.2	ppb v/v			02/07/23 15:41	3.65
Tetrachloroethene	390		9.7	1.4	ppb v/v			02/07/23 15:41	3.65
trans-1,2-Dichloroethene	<1.6		9.7	1.6	ppb v/v			02/07/23 15:41	3.65
Trichloroethene	3.4 J		9.7	1.6	ppb v/v			02/07/23 15:41	3.65
Vinyl chloride	<3.2		19	3.2	ppb v/v			02/07/23 15:41	3.65
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<4.8		39	4.8	ug/m3			02/07/23 15:41	3.65
Tetrachloroethene	2700		66	9.6	ug/m3			02/07/23 15:41	3.65
trans-1,2-Dichloroethene	<6.4		39	6.4	ug/m3			02/07/23 15:41	3.65
Trichloroethene	18 J		52	8.6	ug/m3			02/07/23 15:41	3.65
Vinyl chloride	<8.1		50	8.1	ug/m3			02/07/23 15:41	3.65

Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Client Sample ID: SSV-18

Lab Sample ID: 500-228902-3

Date Collected: 01/27/23 10:12

Matrix: Air

Date Received: 02/02/23 11:10

Method: EPA TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.56		4.5	0.56	ppb v/v			02/08/23 08:31	3.35
Tetrachloroethene	260		4.5	0.65	ppb v/v			02/08/23 08:31	3.35
trans-1,2-Dichloroethene	<0.74		4.5	0.74	ppb v/v			02/08/23 08:31	3.35
Trichloroethene	8.4		4.5	0.74	ppb v/v			02/08/23 08:31	3.35
Vinyl chloride	<1.5		8.9	1.5	ppb v/v			02/08/23 08:31	3.35

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<2.2		18	2.2	ug/m3			02/08/23 08:31	3.35
Tetrachloroethene	1800		30	4.4	ug/m3			02/08/23 08:31	3.35
trans-1,2-Dichloroethene	<2.9		18	2.9	ug/m3			02/08/23 08:31	3.35
Trichloroethene	45		24	4.0	ug/m3			02/08/23 08:31	3.35
Vinyl chloride	<3.7		23	3.7	ug/m3			02/08/23 08:31	3.35

Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Client Sample ID: SSV-16

Lab Sample ID: 500-228902-4

Date Collected: 01/27/23 11:28

Matrix: Air

Date Received: 02/02/23 11:10

Method: EPA TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.25		2.0	0.25	ppb v/v			02/07/23 17:18	1
Tetrachloroethene	24		2.0	0.29	ppb v/v			02/07/23 17:18	1
trans-1,2-Dichloroethene	<0.33		2.0	0.33	ppb v/v			02/07/23 17:18	1
Trichloroethene	<0.33		2.0	0.33	ppb v/v			02/07/23 17:18	1
Vinyl chloride	<0.65		4.0	0.65	ppb v/v			02/07/23 17:18	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	<0.99		7.9	0.99	ug/m3			02/07/23 17:18	1
Tetrachloroethene	160		14	2.0	ug/m3			02/07/23 17:18	1
trans-1,2-Dichloroethene	<1.3		7.9	1.3	ug/m3			02/07/23 17:18	1
Trichloroethene	<1.8		11	1.8	ug/m3			02/07/23 17:18	1
Vinyl chloride	<1.7		10	1.7	ug/m3			02/07/23 17:18	1

Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Client Sample ID: SSV-14
Date Collected: 01/27/23 12:01
Date Received: 02/02/23 11:10

Lab Sample ID: 500-228902-5
Matrix: Air

Method: EPA TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	4.0	J	6.6	0.83	ppb v/v			02/07/23 18:06	3.31
Tetrachloroethene	540		6.6	0.96	ppb v/v			02/07/23 18:06	3.31
trans-1,2-Dichloroethene	<1.1		6.6	1.1	ppb v/v			02/07/23 18:06	3.31
Trichloroethene	65		6.6	1.1	ppb v/v			02/07/23 18:06	3.31
Vinyl chloride	4.7	J	13	2.2	ppb v/v			02/07/23 18:06	3.31
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	16	J	26	3.3	ug/m3			02/07/23 18:06	3.31
Tetrachloroethene	3600		45	6.5	ug/m3			02/07/23 18:06	3.31
trans-1,2-Dichloroethene	<4.3		26	4.3	ug/m3			02/07/23 18:06	3.31
Trichloroethene	350		36	5.9	ug/m3			02/07/23 18:06	3.31
Vinyl chloride	12	J	34	5.5	ug/m3			02/07/23 18:06	3.31

Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Client Sample ID: SSV-6

Lab Sample ID: 500-228902-6

Date Collected: 01/27/23 12:35

Matrix: Air

Date Received: 02/02/23 11:10

Method: EPA TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	17		5.5	0.69	ppb v/v			02/07/23 18:53	2.74
Tetrachloroethene	1000		5.5	0.79	ppb v/v			02/07/23 18:53	2.74
trans-1,2-Dichloroethene	<0.90		5.5	0.90	ppb v/v			02/07/23 18:53	2.74
Trichloroethene	74		5.5	0.90	ppb v/v			02/07/23 18:53	2.74
Vinyl chloride	<1.8		11	1.8	ppb v/v			02/07/23 18:53	2.74

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	66		22	2.7	ug/m3			02/07/23 18:53	2.74
Tetrachloroethene	6900		37	5.4	ug/m3			02/07/23 18:53	2.74
trans-1,2-Dichloroethene	<3.6		22	3.6	ug/m3			02/07/23 18:53	2.74
Trichloroethene	400		29	4.9	ug/m3			02/07/23 18:53	2.74
Vinyl chloride	<4.6		28	4.6	ug/m3			02/07/23 18:53	2.74

Client Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Client Sample ID: SSV-19

Lab Sample ID: 500-228902-7

Date Collected: 01/27/23 13:10

Matrix: Air

Date Received: 02/02/23 11:10

Method: EPA TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	0.95	J	2.0	0.25	ppb v/v			02/10/23 17:15	1
Tetrachloroethene	50		2.0	0.29	ppb v/v			02/10/23 17:15	1
trans-1,2-Dichloroethene	0.90	J	2.0	0.33	ppb v/v			02/10/23 17:15	1
Trichloroethene	3.9		2.0	0.33	ppb v/v			02/10/23 17:15	1
Vinyl chloride	<0.65		4.0	0.65	ppb v/v			02/10/23 17:15	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	3.8	J	7.9	0.99	ug/m3			02/10/23 17:15	1
Tetrachloroethene	340		14	2.0	ug/m3			02/10/23 17:15	1
trans-1,2-Dichloroethene	3.6	J	7.9	1.3	ug/m3			02/10/23 17:15	1
Trichloroethene	21		11	1.8	ug/m3			02/10/23 17:15	1
Vinyl chloride	<1.7		10	1.7	ug/m3			02/10/23 17:15	1

Definitions/Glossary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Qualifiers

Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Air - GC/MS VOA

Analysis Batch: 70041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-228902-1	SSV-17	Total/NA	Air	TO-15	
500-228902-2	SSV-11	Total/NA	Air	TO-15	
500-228902-3	SSV-18	Total/NA	Air	TO-15	
500-228902-4	SSV-16	Total/NA	Air	TO-15	
500-228902-5	SSV-14	Total/NA	Air	TO-15	
500-228902-6	SSV-6	Total/NA	Air	TO-15	
MB 140-70041/4	Method Blank	Total/NA	Air	TO-15	
LCS 140-70041/1002	Lab Control Sample	Total/NA	Air	TO-15	

Analysis Batch: 70179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-228902-7	SSV-19	Total/NA	Air	TO-15	
MB 140-70179/5	Method Blank	Total/NA	Air	TO-15	
LCS 140-70179/1002	Lab Control Sample	Total/NA	Air	TO-15	

QC Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 140-70041/4
Matrix: Air
Analysis Batch: 70041

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	<0.025		0.20	0.025	ppb v/v			02/07/23 12:37	1
Tetrachloroethene	<0.029		0.20	0.029	ppb v/v			02/07/23 12:37	1
trans-1,2-Dichloroethene	<0.033		0.20	0.033	ppb v/v			02/07/23 12:37	1
Trichloroethene	<0.033		0.20	0.033	ppb v/v			02/07/23 12:37	1
Vinyl chloride	<0.065		0.40	0.065	ppb v/v			02/07/23 12:37	1

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	<0.099		0.79	0.099	ug/m3			02/07/23 12:37	1
Tetrachloroethene	<0.20		1.4	0.20	ug/m3			02/07/23 12:37	1
trans-1,2-Dichloroethene	<0.13		0.79	0.13	ug/m3			02/07/23 12:37	1
Trichloroethene	<0.18		1.1	0.18	ug/m3			02/07/23 12:37	1
Vinyl chloride	<0.17		1.0	0.17	ug/m3			02/07/23 12:37	1

Lab Sample ID: LCS 140-70041/1002
Matrix: Air
Analysis Batch: 70041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	Limits
cis-1,2-Dichloroethene	3.00	2.44		ppb v/v		81	70 - 130	
Tetrachloroethene	3.00	3.19		ppb v/v		106	70 - 130	
trans-1,2-Dichloroethene	3.00	2.40		ppb v/v		80	70 - 130	
Trichloroethene	3.00	2.94		ppb v/v		98	70 - 130	
Vinyl chloride	3.00	3.22		ppb v/v		107	70 - 130	

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	Limits
cis-1,2-Dichloroethene	12	9.66		ug/m3		81	70 - 130	
Tetrachloroethene	20	21.6		ug/m3		106	70 - 130	
trans-1,2-Dichloroethene	12	9.53		ug/m3		80	70 - 130	
Trichloroethene	16	15.8		ug/m3		98	70 - 130	
Vinyl chloride	7.7	8.24		ug/m3		107	70 - 130	

Lab Sample ID: MB 140-70179/5
Matrix: Air
Analysis Batch: 70179

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	<0.025		0.20	0.025	ppb v/v			02/10/23 13:42	1
Tetrachloroethene	<0.029		0.20	0.029	ppb v/v			02/10/23 13:42	1
trans-1,2-Dichloroethene	<0.033		0.20	0.033	ppb v/v			02/10/23 13:42	1
Trichloroethene	<0.033		0.20	0.033	ppb v/v			02/10/23 13:42	1
Vinyl chloride	<0.065		0.40	0.065	ppb v/v			02/10/23 13:42	1

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	<0.099		0.79	0.099	ug/m3			02/10/23 13:42	1
Tetrachloroethene	<0.20		1.4	0.20	ug/m3			02/10/23 13:42	1
trans-1,2-Dichloroethene	<0.13		0.79	0.13	ug/m3			02/10/23 13:42	1
Trichloroethene	<0.18		1.1	0.18	ug/m3			02/10/23 13:42	1
Vinyl chloride	<0.17		1.0	0.17	ug/m3			02/10/23 13:42	1

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QC Sample Results

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 140-70179/1002
Matrix: Air
Analysis Batch: 70179

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	3.00	2.29		ppb v/v		76	70 - 130
Tetrachloroethene	3.00	3.04		ppb v/v		101	70 - 130
trans-1,2-Dichloroethene	3.00	2.37		ppb v/v		79	70 - 130
Trichloroethene	3.00	2.86		ppb v/v		95	70 - 130
Vinyl chloride	3.00	3.34		ppb v/v		111	70 - 130
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	12	9.09		ug/m3		76	70 - 130
Tetrachloroethene	20	20.6		ug/m3		101	70 - 130
trans-1,2-Dichloroethene	12	9.41		ug/m3		79	70 - 130
Trichloroethene	16	15.4		ug/m3		95	70 - 130
Vinyl chloride	7.7	8.54		ug/m3		111	70 - 130

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Lab Chronicle

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Client Sample ID: SSV-17

Date Collected: 01/27/23 08:10

Date Received: 02/02/23 11:10

Lab Sample ID: 500-228902-1

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	TO-15		11.41	70041	S1K	EET KNX	02/07/23 14:55

Client Sample ID: SSV-11

Date Collected: 01/27/23 09:38

Date Received: 02/02/23 11:10

Lab Sample ID: 500-228902-2

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	TO-15		3.65	70041	S1K	EET KNX	02/07/23 15:41

Client Sample ID: SSV-18

Date Collected: 01/27/23 10:12

Date Received: 02/02/23 11:10

Lab Sample ID: 500-228902-3

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	TO-15		3.35	70041	S1K	EET KNX	02/08/23 08:31

Client Sample ID: SSV-16

Date Collected: 01/27/23 11:28

Date Received: 02/02/23 11:10

Lab Sample ID: 500-228902-4

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	TO-15		1	70041	S1K	EET KNX	02/07/23 17:18

Client Sample ID: SSV-14

Date Collected: 01/27/23 12:01

Date Received: 02/02/23 11:10

Lab Sample ID: 500-228902-5

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	TO-15		3.31	70041	S1K	EET KNX	02/07/23 18:06

Client Sample ID: SSV-6

Date Collected: 01/27/23 12:35

Date Received: 02/02/23 11:10

Lab Sample ID: 500-228902-6

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	TO-15		2.74	70041	S1K	EET KNX	02/07/23 18:53

Client Sample ID: SSV-19

Date Collected: 01/27/23 13:10

Date Received: 02/02/23 11:10

Lab Sample ID: 500-228902-7

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	TO-15		1	70179	S1K	EET KNX	02/10/23 17:15

Laboratory References:

EET KNX = Eurofins Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Eurofins Chicago

Accreditation/Certification Summary

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-228902-1

Laboratory: Eurofins Knoxville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998044300	08-31-23

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Are the shipping containers intact?	✓			<input type="checkbox"/> Containers, Broken	
2. Were ambient air containers received intact?			✓	<input checked="" type="checkbox"/> Checked in lab	
3. The coolers/containers custody seal if present, is it intact?	✓			<input type="checkbox"/> Yes <input type="checkbox"/> NA	
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID : _____ Correction factor: _____			✓	<input type="checkbox"/> Cooler Out of Temp, Client Contacted, Proceed/Cancel <input type="checkbox"/> Cooler Out of Temp, Same Day Receipt	
5. Were all of the sample containers received intact?	✓			<input type="checkbox"/> Containers, Broken	
6. Were samples received in appropriate containers?	✓			<input type="checkbox"/> Containers, Improper; Client Contacted; Proceed/Cancel	
7. Do sample container labels match COC? (IDs, Dates, Times)	✓			<input type="checkbox"/> COC & Samples Do Not Match <input type="checkbox"/> COC Incorrect/Incomplete <input type="checkbox"/> COC Not Received	
8. Were all of the samples listed on the COC received?	✓			<input type="checkbox"/> Sample Received, Not on COC <input type="checkbox"/> Sample on COC, Not Received	
9. Is the date/time of sample collection noted?	✓			<input type="checkbox"/> COC; No Date/Time; Client Contacted	
10. Was the sampler identified on the COC?	✓			<input type="checkbox"/> Sampler Not Listed on COC	
11. Is the client and project name/# identified?	✓			<input type="checkbox"/> COC Incorrect/Incomplete	
12. Are tests/parameters listed for each sample?	✓			<input type="checkbox"/> COC No tests on COC	
13. Is the matrix of the samples noted?	✓			<input type="checkbox"/> COC Incorrect/Incomplete	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			<input type="checkbox"/> COC Incorrect/Incomplete	
15. Were samples received within holding time?	✓			<input type="checkbox"/> Holding Time - Receipt	
16. Were samples received with correct chemical preservative (excluding Encore)?			✓	<input type="checkbox"/> pH Adjusted, pH Included (See box 16A) <input type="checkbox"/> Incorrect Preservative	
17. Were VOA samples received without headspace?			✓	<input type="checkbox"/> Headspace (VOA only) <input type="checkbox"/> Residual Chlorine	
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number: _____			✓		
19. For 1613B water samples is pH<9?			✓	<input type="checkbox"/> If no, notify lab to adjust	
20. For rad samples was sample activity info. Provided?			✓	<input type="checkbox"/> Project missing info	
Project #: <u>50010686</u> PM Instructions: _____					
Sample Receiving Associate: <u><i>Dan Neal</i></u> Date: <u>2/2/23</u>					



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000402 Lab Sample ID: 140-30183-1
 Matrix: Air Lab File ID: 30183BK01.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 09:27
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
71-55-6	1,1,1-Trichloroethane	ND		0.080
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080
79-00-5	1,1,2-Trichloroethane	ND		0.080
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080
75-34-3	1,1-Dichloroethane	ND		0.080
75-35-4	1,1-Dichloroethene	ND		0.040
87-61-6	1,2,3-Trichlorobenzene	ND		0.40
96-18-4	1,2,3-Trichloropropane	ND		0.20
526-73-8	1,2,3-Trimethylbenzene	ND		0.080
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080
120-82-1	1,2,4-Trichlorobenzene	ND		0.080
95-63-6	1,2,4-Trimethylbenzene	ND		0.080
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16
106-93-4	1,2-Dibromoethane	ND		0.080
95-50-1	1,2-Dichlorobenzene	ND		0.080
107-06-2	1,2-Dichloroethane	ND		0.080
78-87-5	1,2-Dichloropropane	ND		0.080
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080
108-67-8	1,3,5-Trimethylbenzene	ND		0.16
106-99-0	1,3-Butadine	ND		0.16
541-73-1	1,3-Dichlorobenzene	ND		0.080
106-46-7	1,4-Dichlorobenzene	ND		0.080
123-91-1	1,4-Dioxane	ND		0.20
71-36-3	1-Butanol	ND		0.80
90-12-0	1-Methylnaphthalene	ND		1.0
540-84-1	2,2,4-Trimethylpentane	ND		0.20
565-59-3	2,3-Dimethylpentane	ND		0.080
78-93-3	2-Butanone	ND		0.32
95-49-8	2-Chlorotoluene	ND		0.16
591-78-6	2-Hexanone	ND		0.20
78-78-4	2-Methylbutane	ND		0.20
91-57-6	2-Methylnaphthalene	ND		1.0
107-83-5	2-Methylpentane	ND		0.080
107-05-1	3-Chloroprene	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000402 Lab Sample ID: 140-30183-1
 Matrix: Air Lab File ID: 30183BK01.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 09:27
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000402 Lab Sample ID: 140-30183-1
 Matrix: Air Lab File ID: 30183BK01.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 09:27
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000402 Lab Sample ID: 140-30183-1
 Matrix: Air Lab File ID: 30183BK01.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 09:27
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000402 Lab Sample ID: 140-30183-1
 Matrix: Air Lab File ID: 30183BK01.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 09:27
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK01.D
 Lims ID: 140-30183-A-1
 Client ID: 34000402
 Sample Type: Client
 Inject. Date: 11-Jan-2023 09:27:30 ALS Bottle#: 1 Worklist Smp#: 4
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-004
 Misc. Info.: 34000402
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 10:32:00 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits Date: 12-Jan-2023 10:32:00

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	81	222721	3.76	
* 2 1,4-Difluorobenzene	114	11.199	11.204	-0.005	96	1085998	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.906	15.906	0.000	90	847258	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.579	0.000	93	547692	3.57	
33 Carbon disulfide	76	6.577	6.577	0.000	98	8862	0.0395	
67 Toluene	91	13.958	13.947	0.011	88	11186	0.0411	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003 Amount Added: 40.00 Units: mL Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK01.D

Injection Date: 11-Jan-2023 09:27:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-1

Lab Sample ID: 140-30183-1

Worklist Smp#: 4

Client ID: 34000402

Purge Vol: 500.000 mL

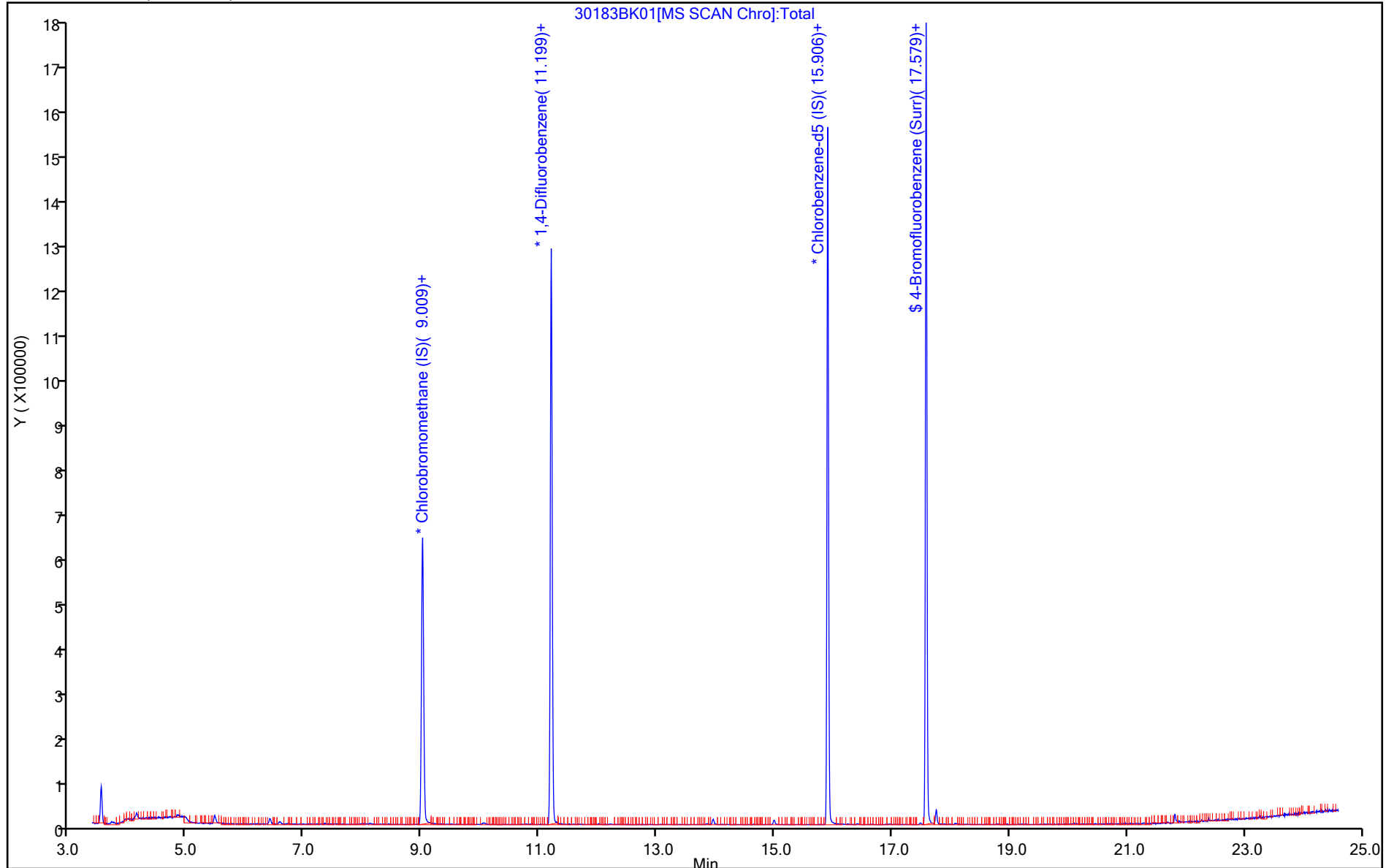
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

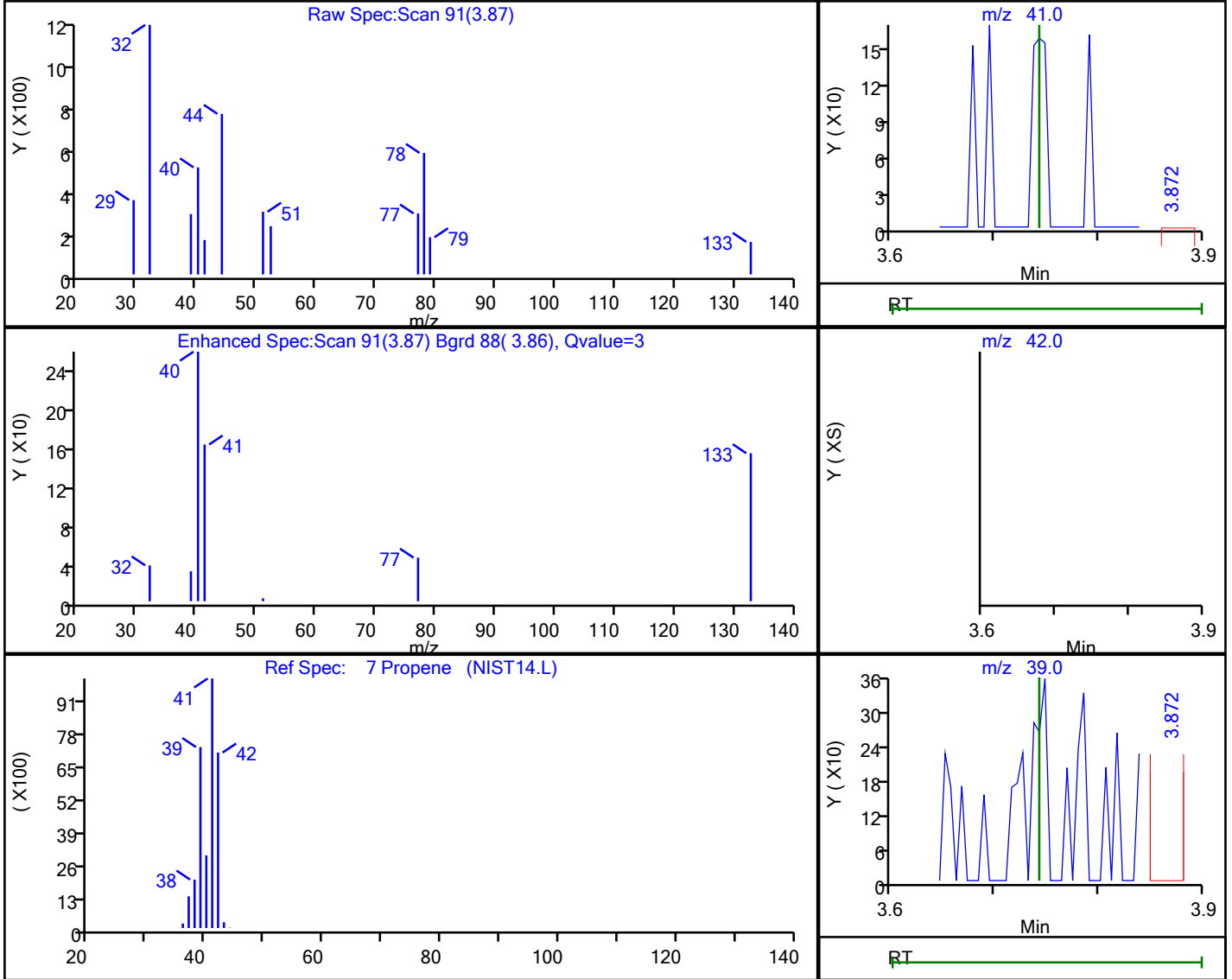


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK01.D
 Injection Date: 11-Jan-2023 09:27:30 Instrument ID: MS
 Lims ID: 140-30183-A-1 Lab Sample ID: 140-30183-1
 Client ID: 34000402
 Operator ID: ALS Bottle#: 1 Worklist Smp#: 4
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.87	41.00	163	0.002114
3.74	42.00	0	
3.87	39.00	412	

Reviewer: khachitpongpanits, 12-Jan-2023 10:31:51

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12219 Lab Sample ID: 140-30183-2
 Matrix: Air Lab File ID: 30183BK02.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 10:39
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.080	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080	
79-00-5	1,1,2-Trichloroethane	ND		0.080	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080	
75-34-3	1,1-Dichloroethane	ND		0.080	
75-35-4	1,1-Dichloroethene	ND		0.040	
87-61-6	1,2,3-Trichlorobenzene	ND		0.40	
96-18-4	1,2,3-Trichloropropane	ND		0.20	
526-73-8	1,2,3-Trimethylbenzene	ND		0.080	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080	
120-82-1	1,2,4-Trichlorobenzene	ND		0.080	
95-63-6	1,2,4-Trimethylbenzene	ND		0.080	
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16	
106-93-4	1,2-Dibromoethane	ND		0.080	
95-50-1	1,2-Dichlorobenzene	ND		0.080	
107-06-2	1,2-Dichloroethane	ND		0.080	
78-87-5	1,2-Dichloropropane	ND		0.080	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080	
108-67-8	1,3,5-Trimethylbenzene	ND		0.16	
106-99-0	1,3-Butadiene	ND		0.16	
541-73-1	1,3-Dichlorobenzene	ND		0.080	
106-46-7	1,4-Dichlorobenzene	ND		0.080	
123-91-1	1,4-Dioxane	ND		0.20	
71-36-3	1-Butanol	ND		0.80	
90-12-0	1-Methylnaphthalene	ND		1.0	
540-84-1	2,2,4-Trimethylpentane	ND		0.20	
565-59-3	2,3-Dimethylpentane	ND		0.080	
78-93-3	2-Butanone	ND		0.32	
95-49-8	2-Chlorotoluene	ND		0.16	
591-78-6	2-Hexanone	ND		0.20	
78-78-4	2-Methylbutane	ND		0.20	
91-57-6	2-Methylnaphthalene	ND		1.0	
107-83-5	2-Methylpentane	ND		0.080	
107-05-1	3-Chloroprene	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12219 Lab Sample ID: 140-30183-2
 Matrix: Air Lab File ID: 30183BK02.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 10:39
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
622-96-8	4-Ethyltoluene	ND		0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20
67-64-1	Acetone	ND		2.0
75-05-8	Acetonitrile	ND		0.40
107-02-8	Acrolein	ND		0.40
107-13-1	Acrylonitrile	ND		0.80
98-83-9	Alpha Methyl Styrene	ND		0.16
71-43-2	Benzene	ND		0.080
100-44-7	Benzyl chloride	ND		0.16
75-27-4	Bromodichloromethane	ND		0.080
75-25-2	Bromoform	ND		0.080
74-83-9	Bromomethane	ND		0.080
106-97-8	Butane	ND		0.16
75-15-0	Carbon disulfide	ND		0.20
56-23-5	Carbon tetrachloride	ND	*+	0.032
108-90-7	Chlorobenzene	ND		0.080
75-45-6	Chlorodifluoromethane	ND		0.080
75-00-3	Chloroethane	ND		0.080
67-66-3	Chloroform	ND		0.080
74-87-3	Chloromethane	ND		0.20
156-59-2	cis-1,2-Dichloroethene	ND		0.040
10061-01-5	cis-1,3-Dichloropropene	ND		0.080
98-82-8	Cumene	ND		0.16
110-82-7	Cyclohexane	ND		0.20
124-48-1	Dibromochloromethane	ND		0.080
74-95-3	Dibromomethane	ND		0.16
75-71-8	Dichlorodifluoromethane	ND		0.080
64-17-5	Ethanol	ND		2.0
141-78-6	Ethyl acetate	ND		0.80
60-29-7	Ethyl ether	ND		0.80
100-41-4	Ethylbenzene	ND		0.080
87-68-3	Hexachlorobutadiene	ND		0.080
110-54-3	Hexane	ND		0.20
496-11-7	Indane	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12219 Lab Sample ID: 140-30183-2
 Matrix: Air Lab File ID: 30183BK02.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 10:39
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12219 Lab Sample ID: 140-30183-2
 Matrix: Air Lab File ID: 30183BK02.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 10:39
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12219 Lab Sample ID: 140-30183-2
 Matrix: Air Lab File ID: 30183BK02.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 10:39
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK02.D
 Lims ID: 140-30183-A-2
 Client ID: 12219
 Sample Type: Client
 Inject. Date: 11-Jan-2023 10:39:30 ALS Bottle#: 2 Worklist Smp#: 5
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-005
 Misc. Info.: 12219
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 10:32:20 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits

Date: 12-Jan-2023 10:32:20

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	83	202460	3.76	
* 2 1,4-Difluorobenzene	114	11.198	11.204	-0.006	96	999980	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.905	15.906	-0.001	91	766042	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.579	-0.001	93	492737	3.55	
67 Toluene	91	13.953	13.947	0.006	87	9416	0.0383	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK02.D

Injection Date: 11-Jan-2023 10:39:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-2

Lab Sample ID: 140-30183-2

Worklist Smp#: 5

Client ID: 12219

Purge Vol: 500.000 mL

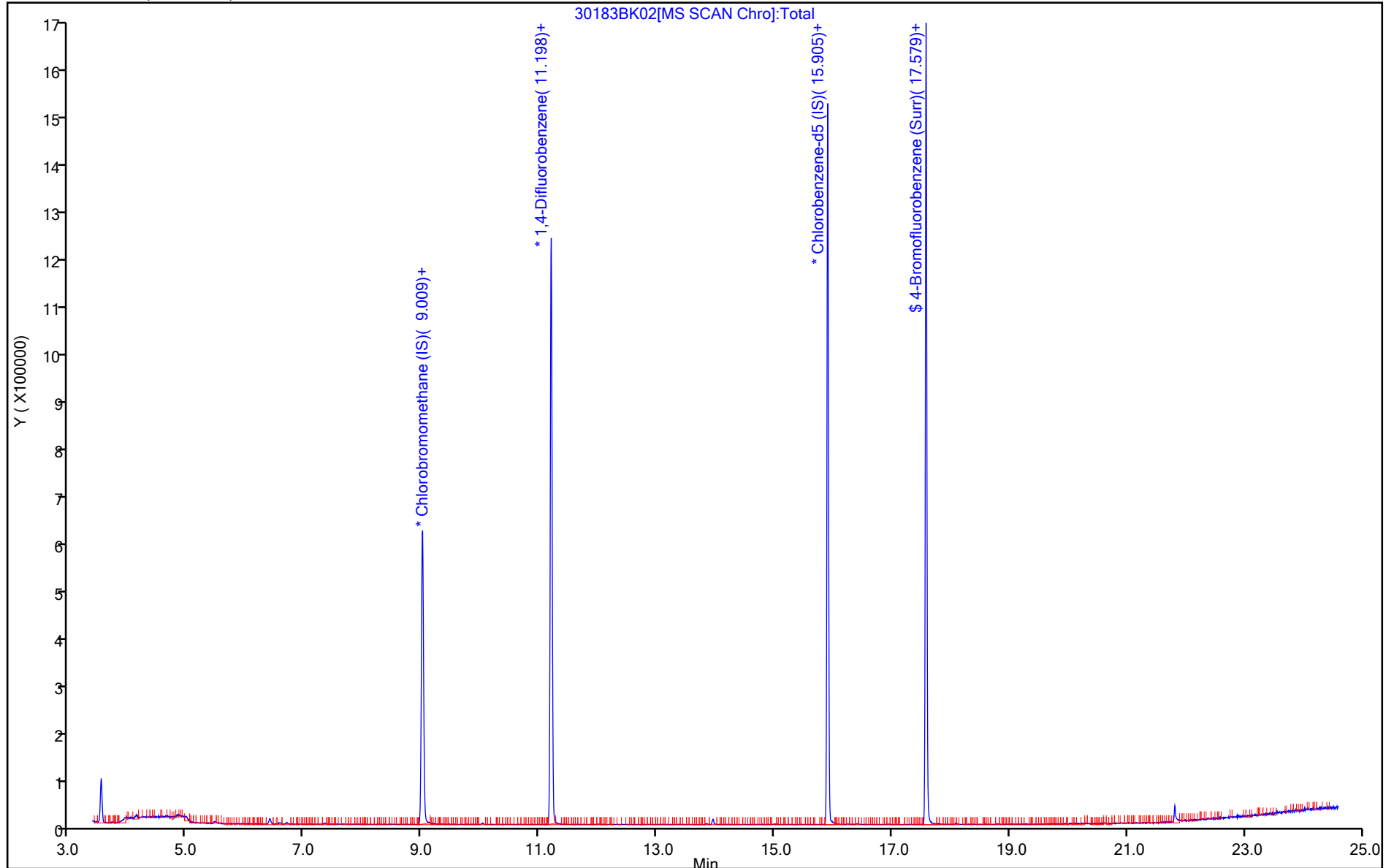
Dil. Factor: 1.0000

ALS Bottle#: 2

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

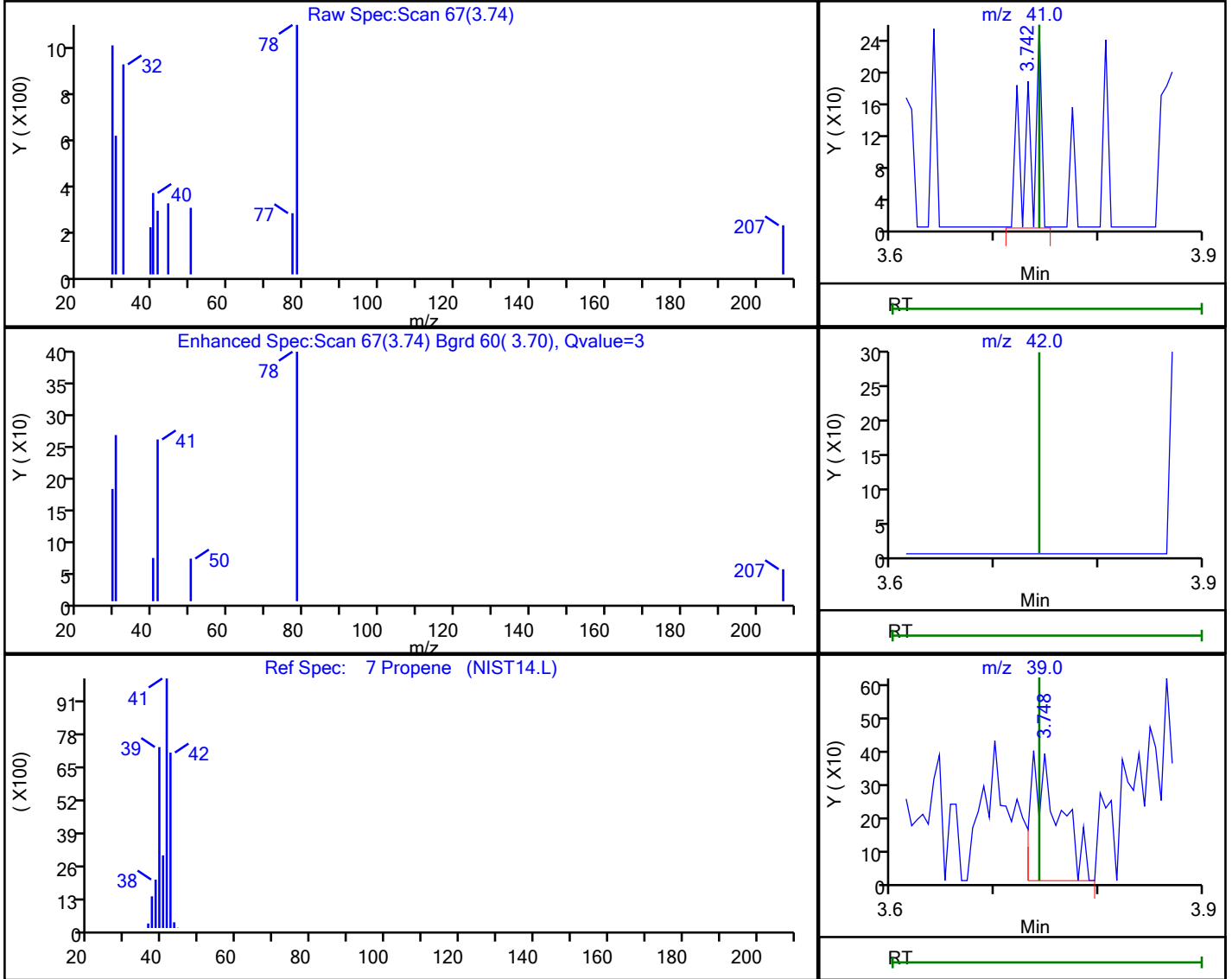


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK02.D
Injection Date: 11-Jan-2023 10:39:30 Instrument ID: MS
Lims ID: 140-30183-A-2 Lab Sample ID: 140-30183-2
Client ID: 12219
Operator ID: ALS Bottle#: 2 Worklist Smp#: 5
Purge Vol: 500.000 mL Dil. Factor: 1.0000
Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
Column: RTX-5 (0.32 mm) Detector MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.74	41.00	202	0.002883
3.74	42.00	0	
3.75	39.00	742	

Reviewer: khachitpongpanits, 12-Jan-2023 10:32:11

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 09921 Lab Sample ID: 140-30183-3
 Matrix: Air Lab File ID: 30183BK03.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 11:28
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.080	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080	
79-00-5	1,1,2-Trichloroethane	ND		0.080	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080	
75-34-3	1,1-Dichloroethane	ND		0.080	
75-35-4	1,1-Dichloroethene	ND		0.040	
87-61-6	1,2,3-Trichlorobenzene	ND		0.40	
96-18-4	1,2,3-Trichloropropane	ND		0.20	
526-73-8	1,2,3-Trimethylbenzene	ND		0.080	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080	
120-82-1	1,2,4-Trichlorobenzene	ND		0.080	
95-63-6	1,2,4-Trimethylbenzene	ND		0.080	
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16	
106-93-4	1,2-Dibromoethane	ND		0.080	
95-50-1	1,2-Dichlorobenzene	ND		0.080	
107-06-2	1,2-Dichloroethane	ND		0.080	
78-87-5	1,2-Dichloropropane	ND		0.080	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080	
108-67-8	1,3,5-Trimethylbenzene	ND		0.16	
106-99-0	1,3-Butadiene	ND		0.16	
541-73-1	1,3-Dichlorobenzene	ND		0.080	
106-46-7	1,4-Dichlorobenzene	ND		0.080	
123-91-1	1,4-Dioxane	ND		0.20	
71-36-3	1-Butanol	ND		0.80	
90-12-0	1-Methylnaphthalene	ND		1.0	
540-84-1	2,2,4-Trimethylpentane	ND		0.20	
565-59-3	2,3-Dimethylpentane	ND		0.080	
78-93-3	2-Butanone	ND		0.32	
95-49-8	2-Chlorotoluene	ND		0.16	
591-78-6	2-Hexanone	ND		0.20	
78-78-4	2-Methylbutane	ND		0.20	
91-57-6	2-Methylnaphthalene	ND		1.0	
107-83-5	2-Methylpentane	ND		0.080	
107-05-1	3-Chloroprene	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 09921 Lab Sample ID: 140-30183-3
 Matrix: Air Lab File ID: 30183BK03.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 11:28
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 09921 Lab Sample ID: 140-30183-3
 Matrix: Air Lab File ID: 30183BK03.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 11:28
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 09921 Lab Sample ID: 140-30183-3
 Matrix: Air Lab File ID: 30183BK03.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 11:28
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 09921 Lab Sample ID: 140-30183-3
 Matrix: Air Lab File ID: 30183BK03.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 11:28
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK03.D
 Lims ID: 140-30183-A-3
 Client ID: 09921
 Sample Type: Client
 Inject. Date: 11-Jan-2023 11:28:30 ALS Bottle#: 3 Worklist Smp#: 6
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-006
 Misc. Info.: 09921
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 10:32:46 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits

Date: 12-Jan-2023 10:32:46

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	82	201794	3.76	
* 2 1,4-Difluorobenzene	114	11.199	11.204	-0.005	96	1002785	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.906	15.906	0.000	91	774753	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.579	0.000	93	496368	3.54	
67 Toluene	91	13.948	13.947	0.001	92	8910	0.0358	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK03.D

Injection Date: 11-Jan-2023 11:28:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-3

Lab Sample ID: 140-30183-3

Worklist Smp#: 6

Client ID: 09921

Purge Vol: 500.000 mL

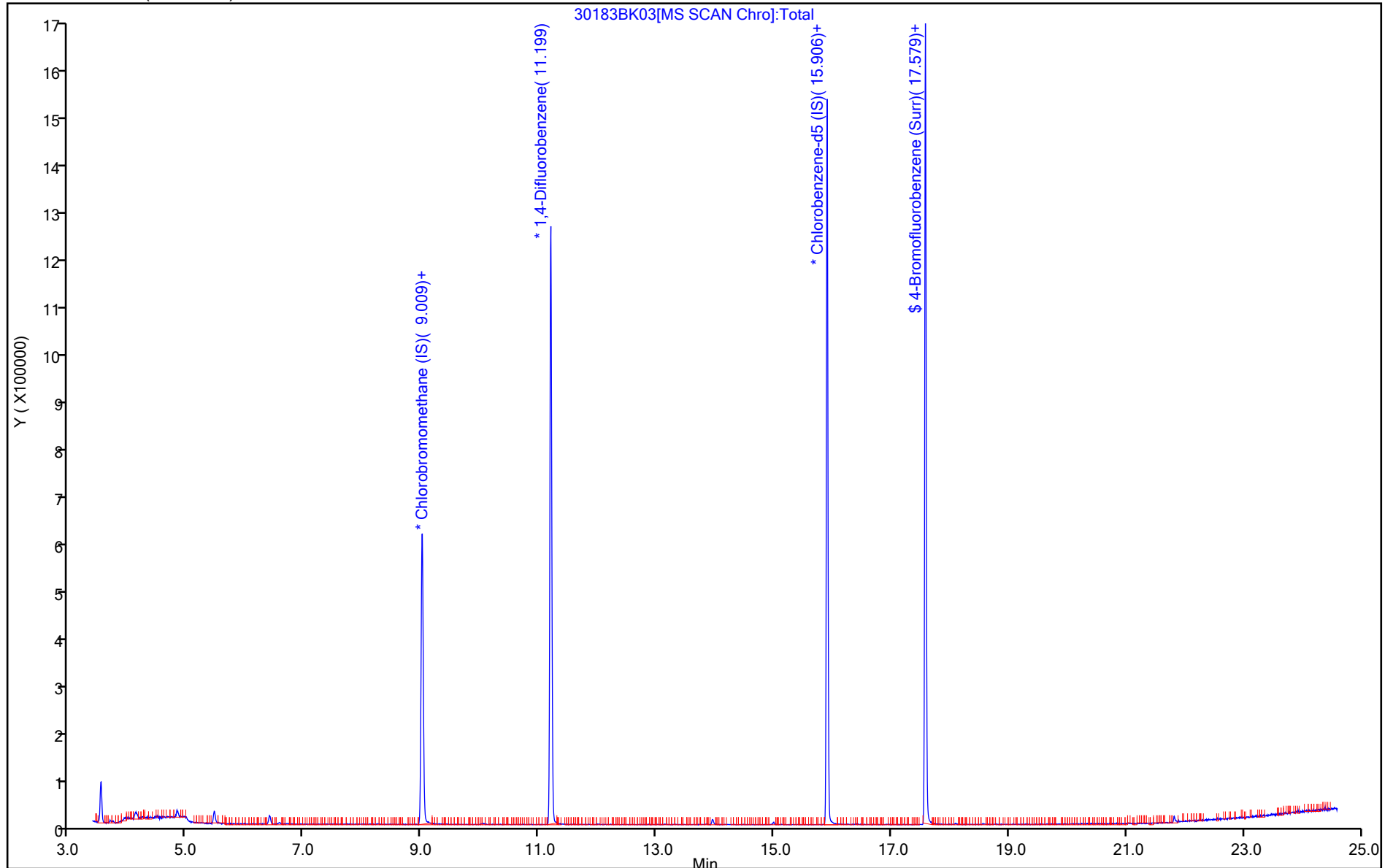
Dil. Factor: 1.0000

ALS Bottle#: 3

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

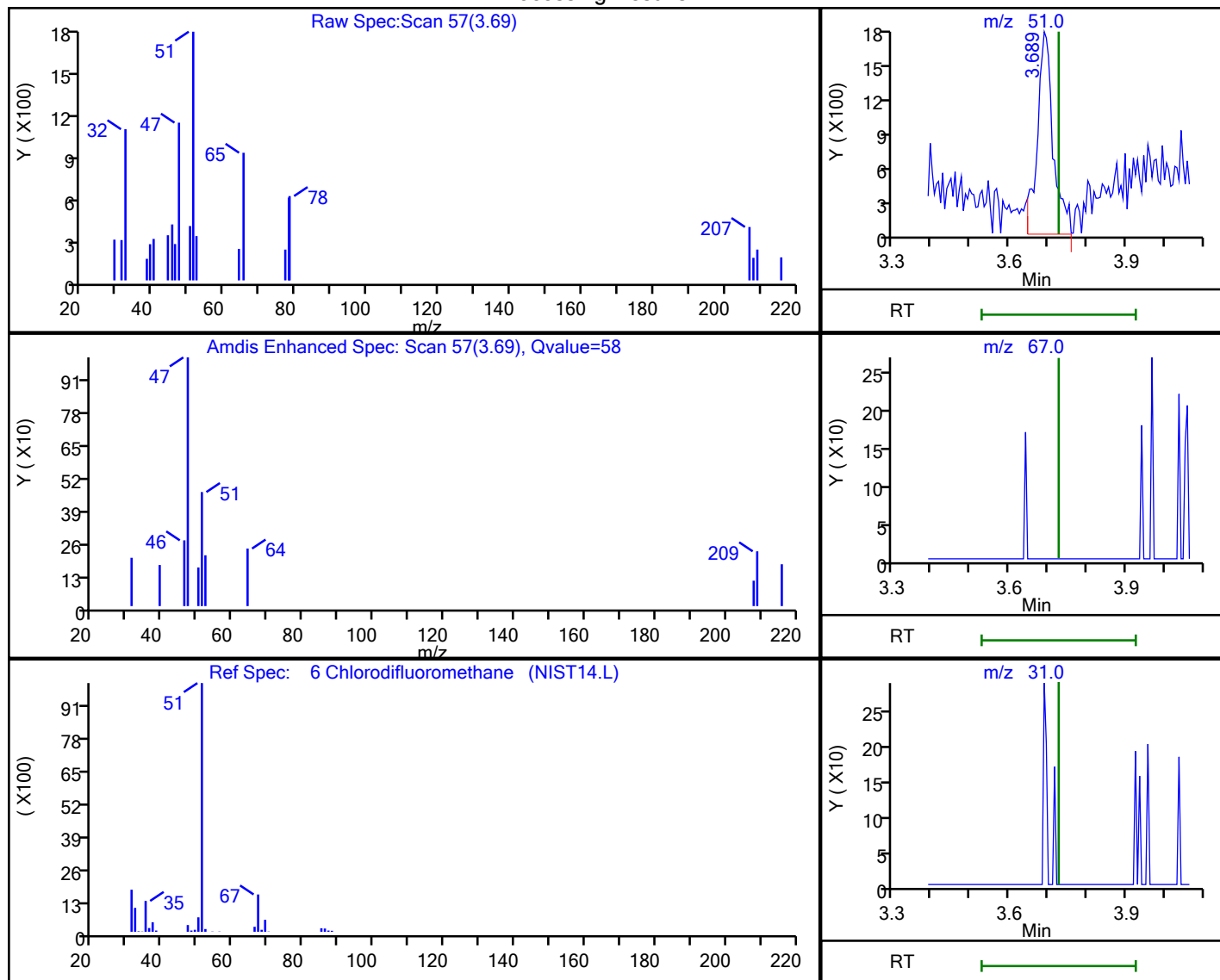


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK03.D
 Injection Date: 11-Jan-2023 11:28:30 Instrument ID: MS
 Lims ID: 140-30183-A-3 Lab Sample ID: 140-30183-3
 Client ID: 09921
 Operator ID: ALS Bottle#: 3 Worklist Smp#: 6
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

6 Chlorodifluoromethane, CAS: 75-45-6

Processing Results



RT	Mass	Response	Amount
3.69	51.00	4928	0.032794
3.73	67.00	0	
3.73	31.00	0	

Reviewer: khachitpongpanits, 12-Jan-2023 10:32:34

Audit Action: Marked Compound Undetected

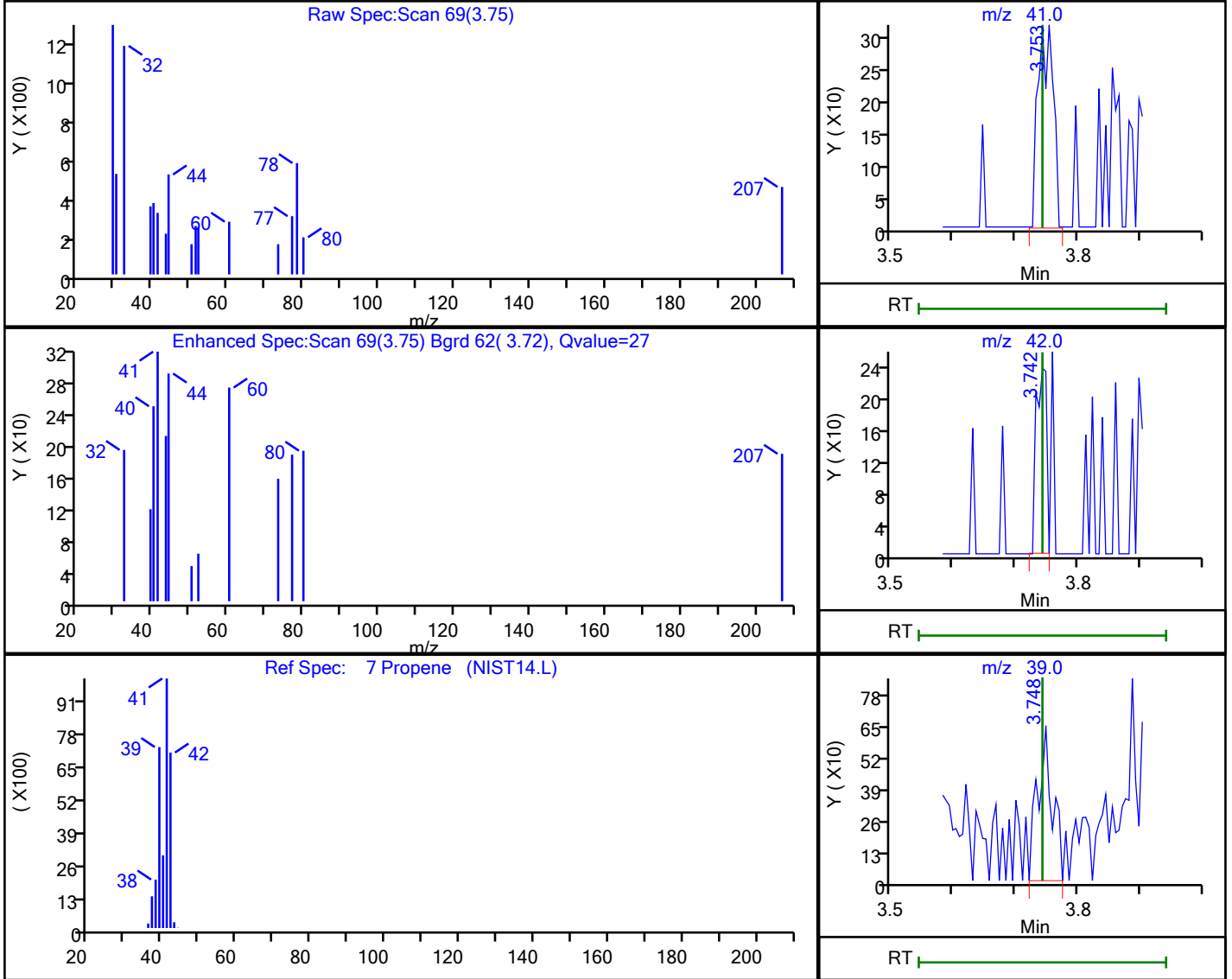
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK03.D
 Injection Date: 11-Jan-2023 11:28:30 Instrument ID: MS
 Lims ID: 140-30183-A-3 Lab Sample ID: 140-30183-3
 Client ID: 09921
 Operator ID: ALS Bottle#: 3 Worklist Smp#: 6
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.75	41.00	546	0.007817
3.74	42.00	276	
3.75	39.00	1068	

Reviewer: khachitpongpanits, 12-Jan-2023 10:32:36

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34002008 Lab Sample ID: 140-30183-4
 Matrix: Air Lab File ID: 30183BK04.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 12:16
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
71-55-6	1,1,1-Trichloroethane	ND		0.080
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080
79-00-5	1,1,2-Trichloroethane	ND		0.080
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080
75-34-3	1,1-Dichloroethane	ND		0.080
75-35-4	1,1-Dichloroethene	ND		0.040
87-61-6	1,2,3-Trichlorobenzene	ND		0.40
96-18-4	1,2,3-Trichloropropane	ND		0.20
526-73-8	1,2,3-Trimethylbenzene	ND		0.080
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080
120-82-1	1,2,4-Trichlorobenzene	ND		0.080
95-63-6	1,2,4-Trimethylbenzene	ND		0.080
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16
106-93-4	1,2-Dibromoethane	ND		0.080
95-50-1	1,2-Dichlorobenzene	ND		0.080
107-06-2	1,2-Dichloroethane	ND		0.080
78-87-5	1,2-Dichloropropane	ND		0.080
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080
108-67-8	1,3,5-Trimethylbenzene	ND		0.16
106-99-0	1,3-Butadiene	ND		0.16
541-73-1	1,3-Dichlorobenzene	ND		0.080
106-46-7	1,4-Dichlorobenzene	ND		0.080
123-91-1	1,4-Dioxane	ND		0.20
71-36-3	1-Butanol	ND		0.80
90-12-0	1-Methylnaphthalene	ND		1.0
540-84-1	2,2,4-Trimethylpentane	ND		0.20
565-59-3	2,3-Dimethylpentane	ND		0.080
78-93-3	2-Butanone	ND		0.32
95-49-8	2-Chlorotoluene	ND		0.16
591-78-6	2-Hexanone	ND		0.20
78-78-4	2-Methylbutane	ND		0.20
91-57-6	2-Methylnaphthalene	ND		1.0
107-83-5	2-Methylpentane	ND		0.080
107-05-1	3-Chloroprene	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34002008 Lab Sample ID: 140-30183-4
 Matrix: Air Lab File ID: 30183BK04.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 12:16
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34002008 Lab Sample ID: 140-30183-4
 Matrix: Air Lab File ID: 30183BK04.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 12:16
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34002008 Lab Sample ID: 140-30183-4
 Matrix: Air Lab File ID: 30183BK04.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 12:16
 Soil Aliquot Vol.: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34002008 Lab Sample ID: 140-30183-4
 Matrix: Air Lab File ID: 30183BK04.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 12:16
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK04.D
 Lims ID: 140-30183-A-4
 Client ID: 34002008
 Sample Type: Client
 Inject. Date: 11-Jan-2023 12:16:30 ALS Bottle#: 4 Worklist Smp#: 7
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-007
 Misc. Info.: 34002008
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 10:33:06 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits

Date: 12-Jan-2023 10:33:06

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	83	195064	3.76	
* 2 1,4-Difluorobenzene	114	11.198	11.204	-0.006	96	952137	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.905	15.906	-0.001	91	741331	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.578	17.579	-0.001	92	489211	3.65	
67 Toluene	91	13.958	13.947	0.011	89	6689	0.0281	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK04.D

Injection Date: 11-Jan-2023 12:16:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-4

Lab Sample ID: 140-30183-4

Worklist Smp#: 7

Client ID: 34002008

Purge Vol: 500.000 mL

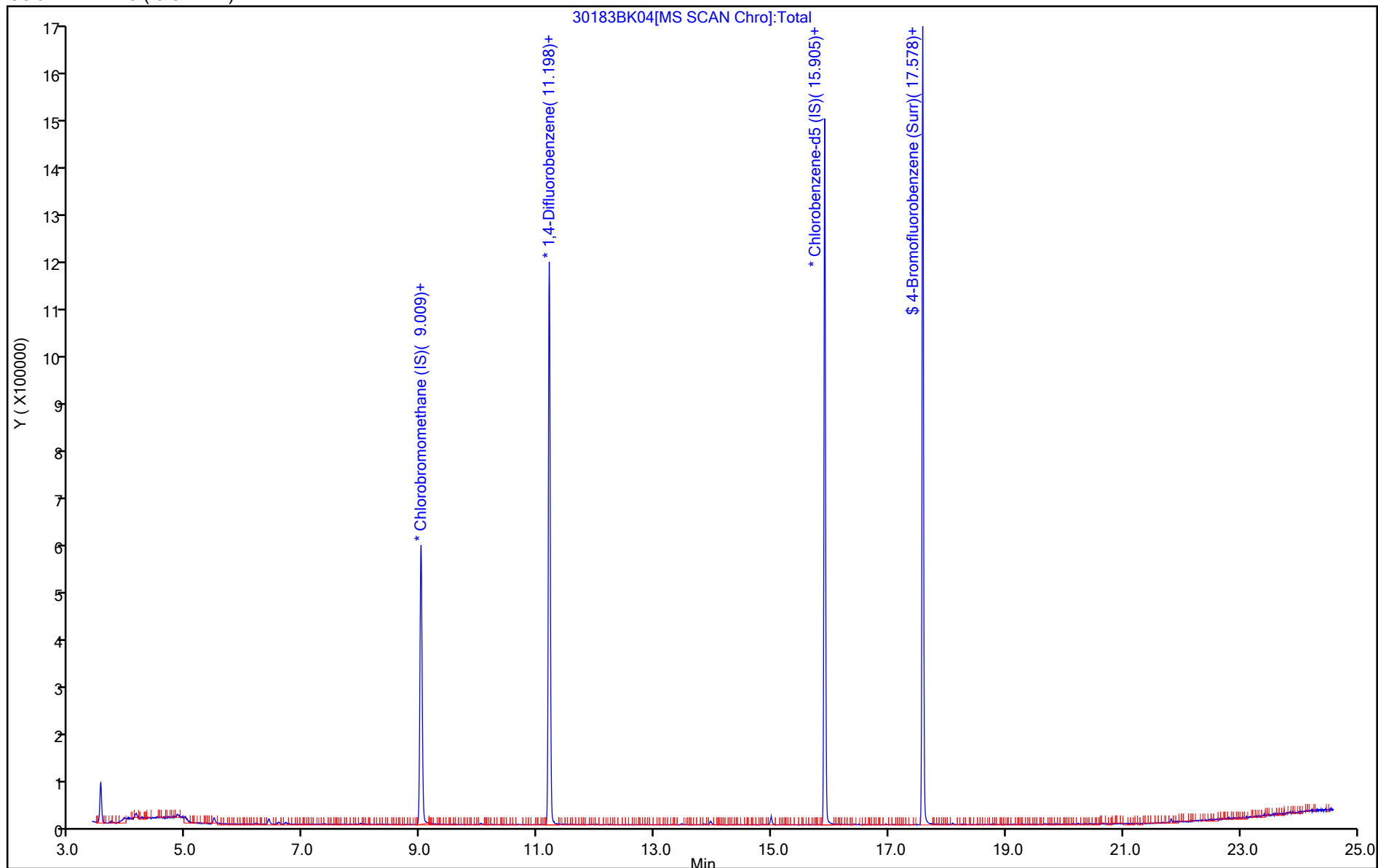
Dil. Factor: 1.0000

ALS Bottle#: 4

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

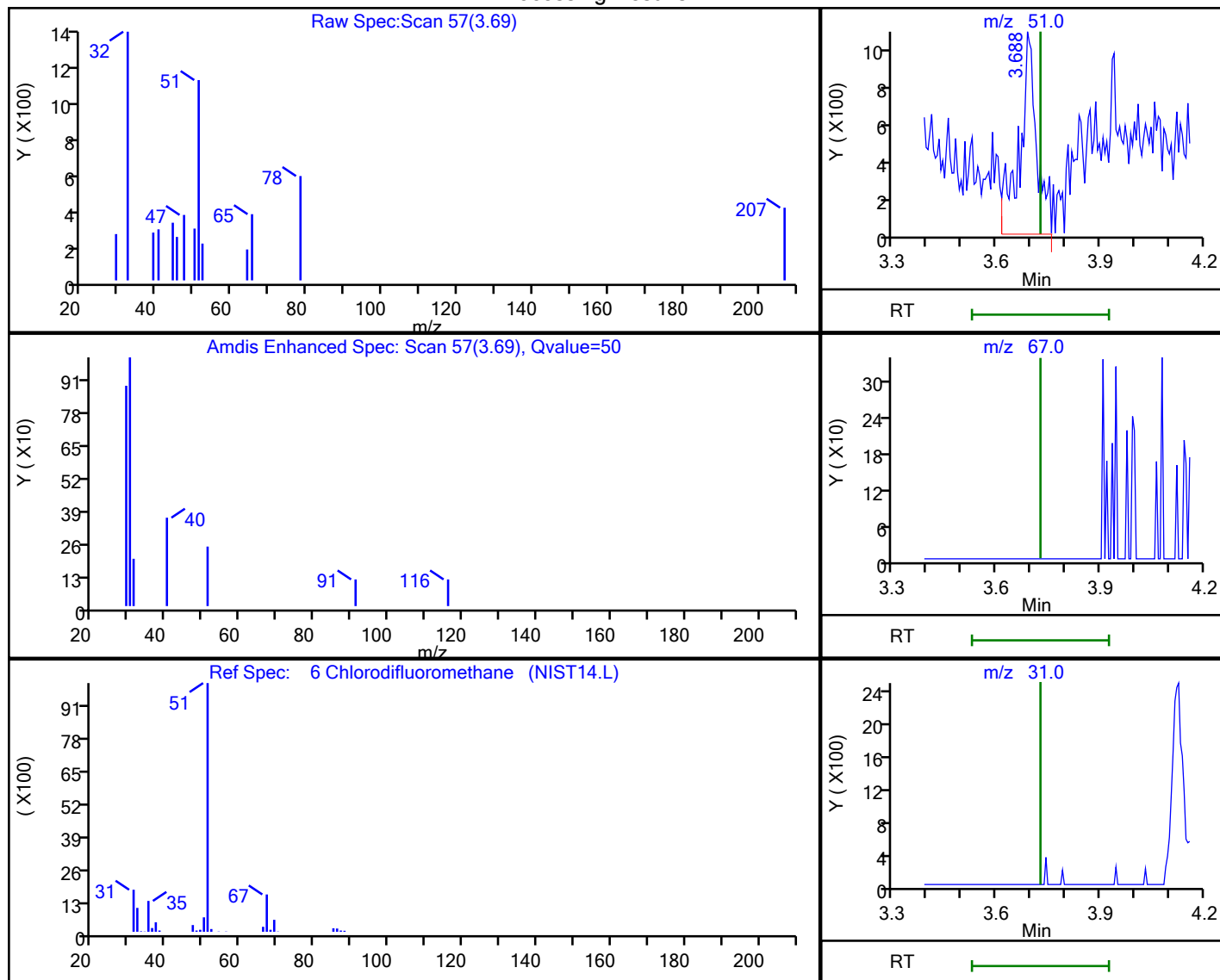


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK04.D
 Injection Date: 11-Jan-2023 12:16:30 Instrument ID: MS
 Lims ID: 140-30183-A-4 Lab Sample ID: 140-30183-4
 Client ID: 34002008
 Operator ID: ALS Bottle#: 4 Worklist Smp#: 7
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

6 Chlorodifluoromethane, CAS: 75-45-6

Processing Results



RT	Mass	Response	Amount
3.69	51.00	3611	0.024859
3.73	67.00	0	
3.73	31.00	0	

Reviewer: khachitpongpanits, 12-Jan-2023 10:32:55

Audit Action: Marked Compound Undetected

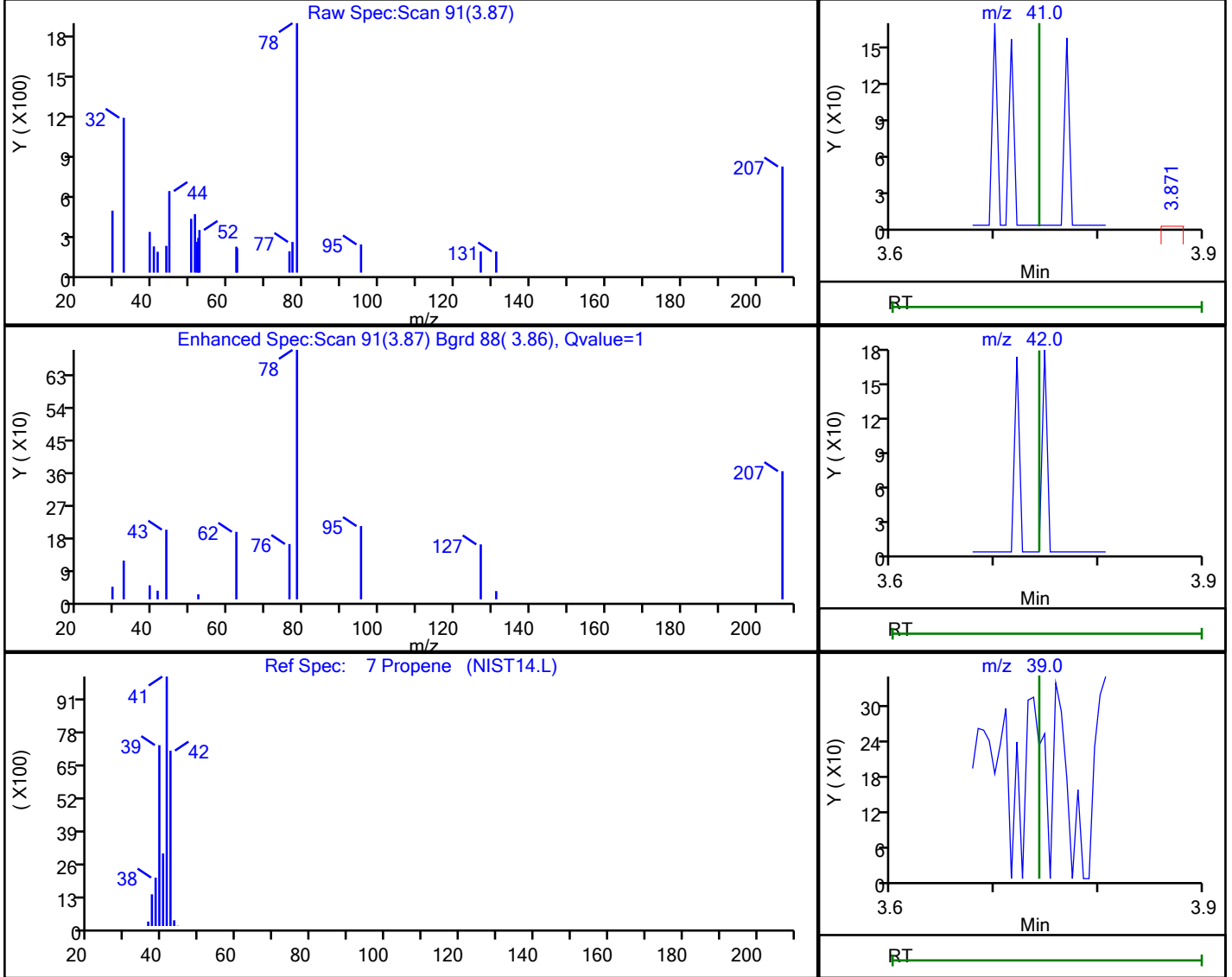
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK04.D
 Injection Date: 11-Jan-2023 12:16:30 Instrument ID: MS
 Lims ID: 140-30183-A-4 Lab Sample ID: 140-30183-4
 Client ID: 34002008
 Operator ID: ALS Bottle#: 4 Worklist Smp#: 7
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.87	41.00	101	0.001496
3.74	42.00	0	
3.74	39.00	0	

Reviewer: khachitpongpanits, 12-Jan-2023 10:32:57

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 10411 Lab Sample ID: 140-30183-5
 Matrix: Air Lab File ID: 30183BK05.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 13:06
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.080	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080	
79-00-5	1,1,2-Trichloroethane	ND		0.080	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080	
75-34-3	1,1-Dichloroethane	ND		0.080	
75-35-4	1,1-Dichloroethene	ND		0.040	
87-61-6	1,2,3-Trichlorobenzene	ND		0.40	
96-18-4	1,2,3-Trichloropropane	ND		0.20	
526-73-8	1,2,3-Trimethylbenzene	ND		0.080	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080	
120-82-1	1,2,4-Trichlorobenzene	ND		0.080	
95-63-6	1,2,4-Trimethylbenzene	ND		0.080	
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16	
106-93-4	1,2-Dibromoethane	ND		0.080	
95-50-1	1,2-Dichlorobenzene	ND		0.080	
107-06-2	1,2-Dichloroethane	ND		0.080	
78-87-5	1,2-Dichloropropane	ND		0.080	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080	
108-67-8	1,3,5-Trimethylbenzene	ND		0.16	
106-99-0	1,3-Butadiene	ND		0.16	
541-73-1	1,3-Dichlorobenzene	ND		0.080	
106-46-7	1,4-Dichlorobenzene	ND		0.080	
123-91-1	1,4-Dioxane	ND		0.20	
71-36-3	1-Butanol	ND		0.80	
90-12-0	1-Methylnaphthalene	ND		1.0	
540-84-1	2,2,4-Trimethylpentane	ND		0.20	
565-59-3	2,3-Dimethylpentane	ND		0.080	
78-93-3	2-Butanone	ND		0.32	
95-49-8	2-Chlorotoluene	ND		0.16	
591-78-6	2-Hexanone	ND		0.20	
78-78-4	2-Methylbutane	ND		0.20	
91-57-6	2-Methylnaphthalene	ND		1.0	
107-83-5	2-Methylpentane	ND		0.080	
107-05-1	3-Chloroprene	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 10411 Lab Sample ID: 140-30183-5
 Matrix: Air Lab File ID: 30183BK05.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 13:06
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 10411 Lab Sample ID: 140-30183-5
 Matrix: Air Lab File ID: 30183BK05.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 13:06
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 10411 Lab Sample ID: 140-30183-5
 Matrix: Air Lab File ID: 30183BK05.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 13:06
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 10411 Lab Sample ID: 140-30183-5
 Matrix: Air Lab File ID: 30183BK05.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 13:06
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK05.D
 Lims ID: 140-30183-A-5
 Client ID: 10411
 Sample Type: Client
 Inject. Date: 11-Jan-2023 13:06:30 ALS Bottle#: 5 Worklist Smp#: 8
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-008
 Misc. Info.: 10411
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 10:33:06 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits Date: 12-Jan-2023 12:12:42

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	83	190888	3.76	
* 2 1,4-Difluorobenzene	114	11.198	11.204	-0.006	96	948317	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.906	15.906	0.000	91	730987	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.579	0.000	92	481745	3.64	
67 Toluene	91	13.953	13.947	0.006	90	5851	0.0249	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003 Amount Added: 40.00 Units: mL Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK05.D

Injection Date: 11-Jan-2023 13:06:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-5

Lab Sample ID: 140-30183-5

Worklist Smp#: 8

Client ID: 10411

Purge Vol: 500.000 mL

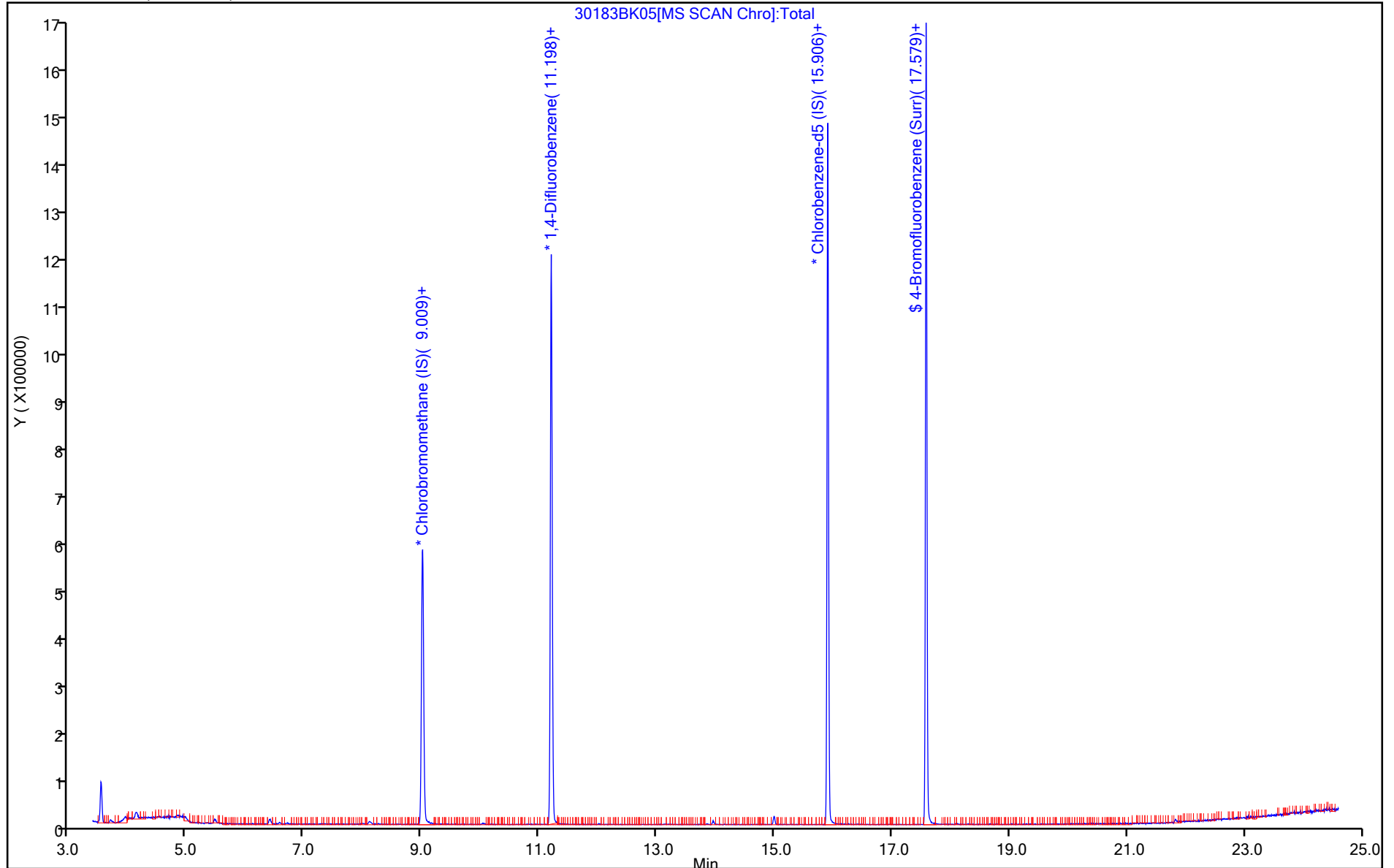
Dil. Factor: 1.0000

ALS Bottle#: 5

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

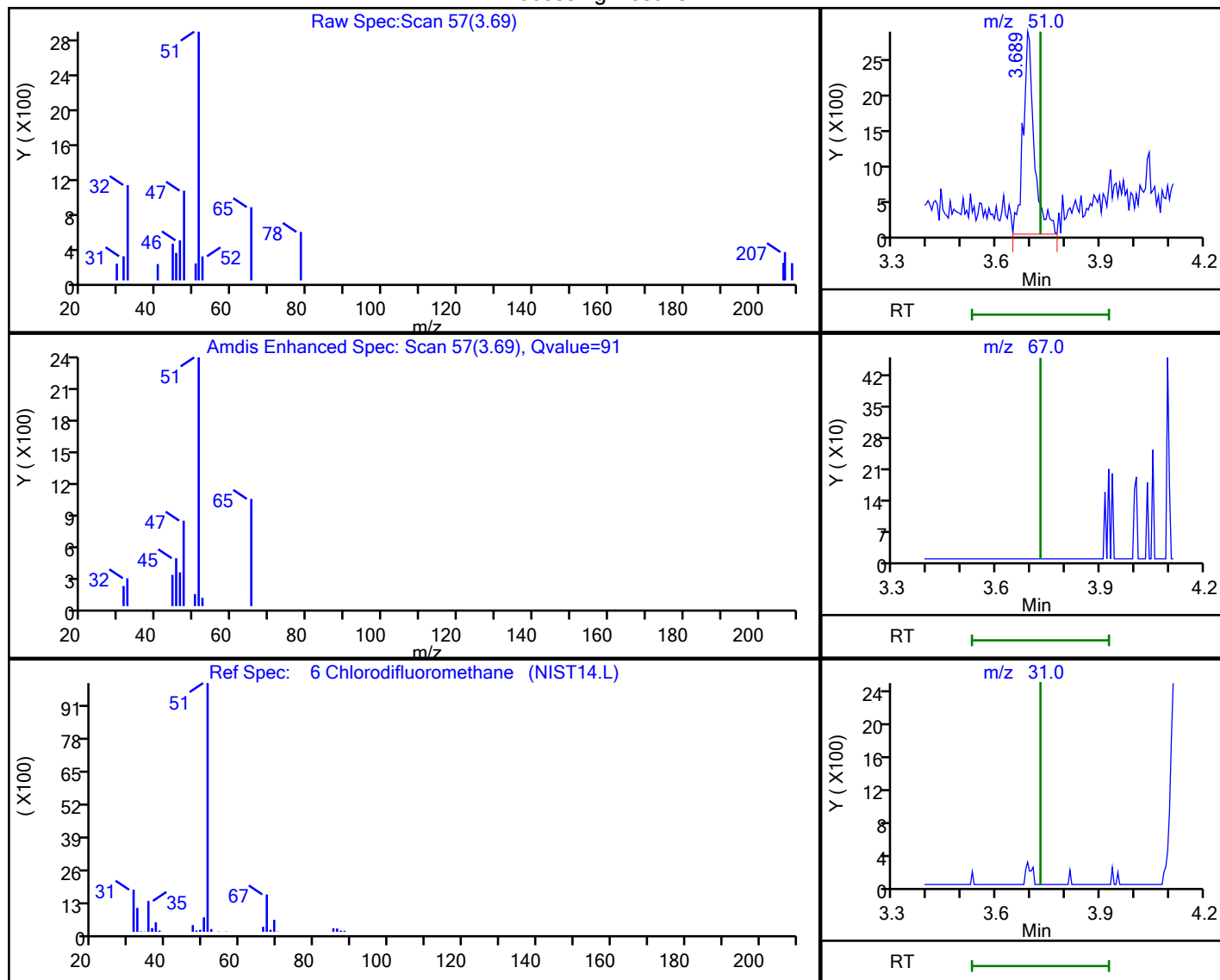


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK05.D
 Injection Date: 11-Jan-2023 13:06:30 Instrument ID: MS
 Lims ID: 140-30183-A-5 Lab Sample ID: 140-30183-5
 Client ID: 10411
 Operator ID: ALS Bottle#: 5 Worklist Smp#: 8
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

6 Chlorodifluoromethane, CAS: 75-45-6

Processing Results



RT	Mass	Response	Amount
3.69	51.00	6304	0.044347
3.73	67.00	0	
3.73	31.00	0	

Reviewer: khachitpongpanits, 12-Jan-2023 10:33:15

Audit Action: Marked Compound Undetected

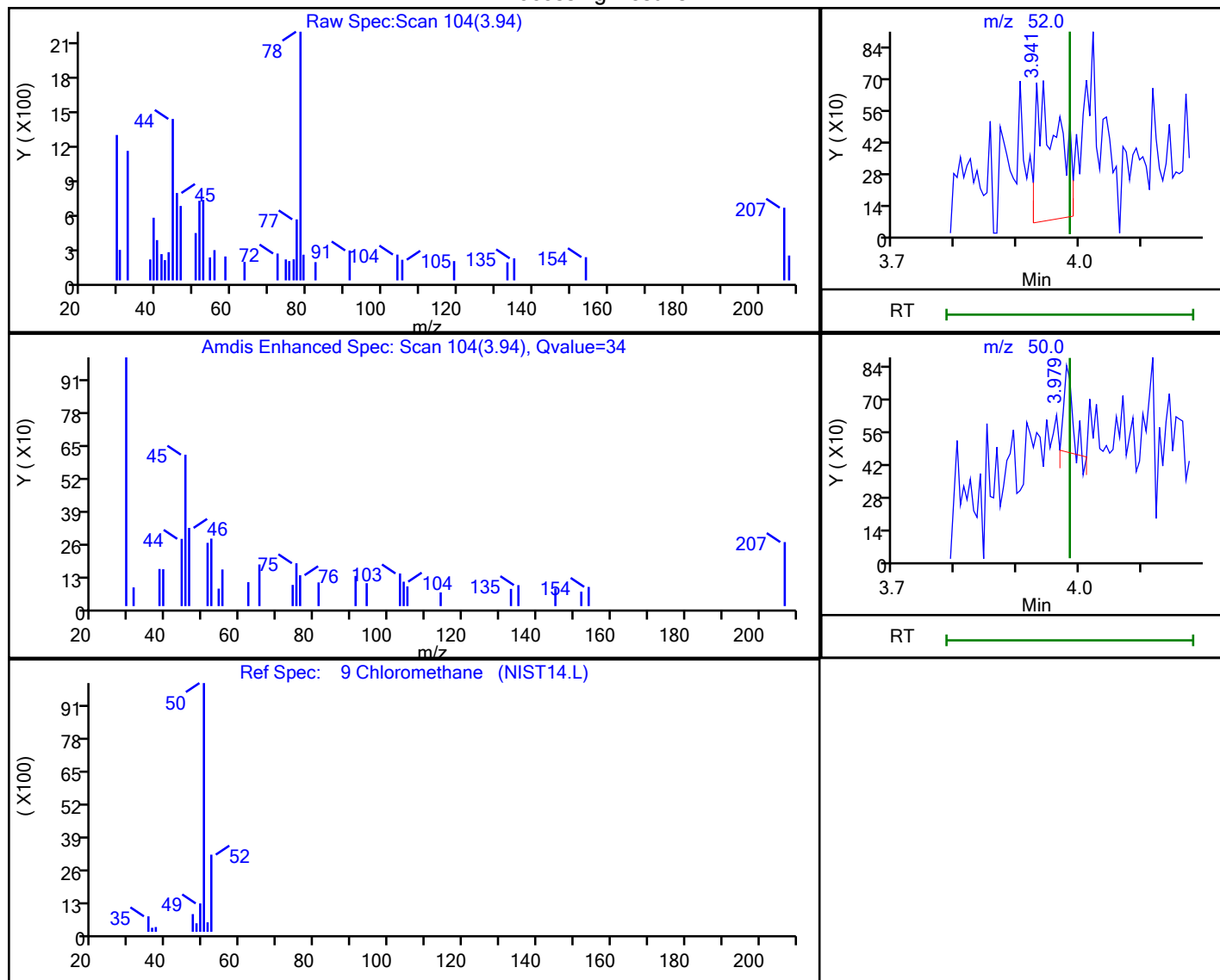
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK05.D
 Injection Date: 11-Jan-2023 13:06:30 Instrument ID: MS
 Lims ID: 140-30183-A-5 Lab Sample ID: 140-30183-5
 Client ID: 10411
 Operator ID: ALS Bottle#: 5 Worklist Smp#: 8
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

9 Chloromethane, CAS: 74-87-3

Processing Results



RT	Mass	Response	Amount
3.94	52.00	1544	0.093225
3.98	50.00	335	

Reviewer: khachitpongpanits, 12-Jan-2023 10:33:20

Audit Action: Marked Compound Undetected

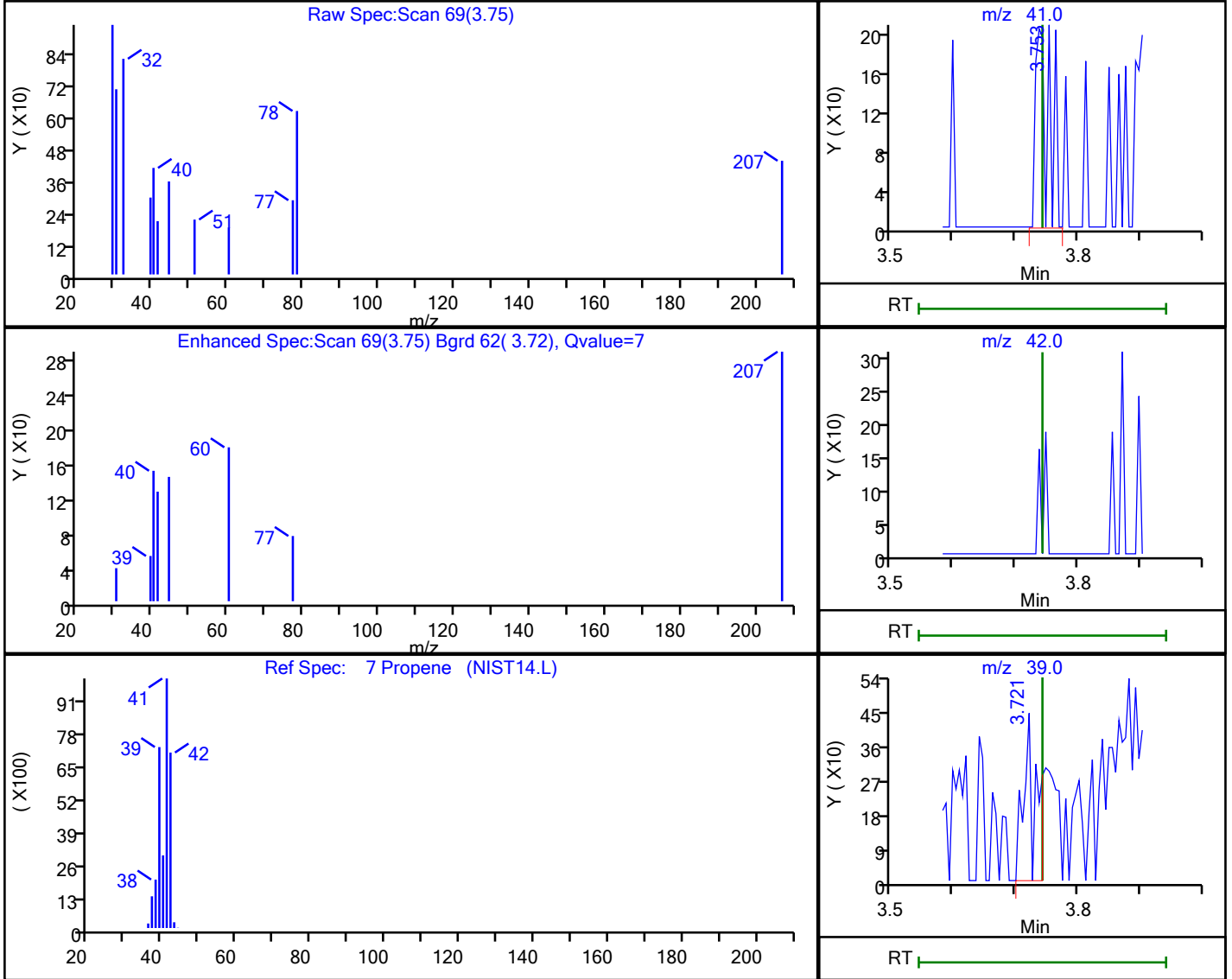
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK05.D
 Injection Date: 11-Jan-2023 13:06:30 Instrument ID: MS
 Lims ID: 140-30183-A-5 Lab Sample ID: 140-30183-5
 Client ID: 10411
 Operator ID: ALS Bottle#: 5 Worklist Smp#: 8
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.75	41.00	306	0.004631
3.74	42.00	0	
3.72	39.00	611	

Reviewer: khachitpongpanits, 12-Jan-2023 10:33:17

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000896 Lab Sample ID: 140-30183-6
 Matrix: Air Lab File ID: 30183BK06.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 13:55
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.080	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080	
79-00-5	1,1,2-Trichloroethane	ND		0.080	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080	
75-34-3	1,1-Dichloroethane	ND		0.080	
75-35-4	1,1-Dichloroethene	ND		0.040	
87-61-6	1,2,3-Trichlorobenzene	ND		0.40	
96-18-4	1,2,3-Trichloropropane	ND		0.20	
526-73-8	1,2,3-Trimethylbenzene	ND		0.080	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080	
120-82-1	1,2,4-Trichlorobenzene	ND		0.080	
95-63-6	1,2,4-Trimethylbenzene	ND		0.080	
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16	
106-93-4	1,2-Dibromoethane	ND		0.080	
95-50-1	1,2-Dichlorobenzene	ND		0.080	
107-06-2	1,2-Dichloroethane	ND		0.080	
78-87-5	1,2-Dichloropropane	ND		0.080	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080	
108-67-8	1,3,5-Trimethylbenzene	ND		0.16	
106-99-0	1,3-Butadiene	ND		0.16	
541-73-1	1,3-Dichlorobenzene	ND		0.080	
106-46-7	1,4-Dichlorobenzene	ND		0.080	
123-91-1	1,4-Dioxane	ND		0.20	
71-36-3	1-Butanol	ND		0.80	
90-12-0	1-Methylnaphthalene	ND		1.0	
540-84-1	2,2,4-Trimethylpentane	ND		0.20	
565-59-3	2,3-Dimethylpentane	ND		0.080	
78-93-3	2-Butanone	ND		0.32	
95-49-8	2-Chlorotoluene	ND		0.16	
591-78-6	2-Hexanone	ND		0.20	
78-78-4	2-Methylbutane	ND		0.20	
91-57-6	2-Methylnaphthalene	ND		1.0	
107-83-5	2-Methylpentane	ND		0.080	
107-05-1	3-Chloroprene	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000896 Lab Sample ID: 140-30183-6
 Matrix: Air Lab File ID: 30183BK06.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 13:55
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000896 Lab Sample ID: 140-30183-6
 Matrix: Air Lab File ID: 30183BK06.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 13:55
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000896 Lab Sample ID: 140-30183-6
 Matrix: Air Lab File ID: 30183BK06.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 13:55
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000896 Lab Sample ID: 140-30183-6
 Matrix: Air Lab File ID: 30183BK06.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 13:55
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK06.D
 Lims ID: 140-30183-A-6
 Client ID: 34000896
 Sample Type: Client
 Inject. Date: 11-Jan-2023 13:55:30 ALS Bottle#: 6 Worklist Smp#: 9
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-009
 Misc. Info.: 34000896
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 12:13:15 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits

Date: 12-Jan-2023 12:13:15

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	83	183638	3.76	
* 2 1,4-Difluorobenzene	114	11.199	11.204	-0.005	96	917870	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.906	15.906	0.000	92	710673	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.578	0.000	92	476391	3.70	
61 1,4-Dioxane	88	12.178	12.150	0.022	82	4323	0.1710	
67 Toluene	91	13.958	13.947	0.011	92	6724	0.0295	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK06.D

Injection Date: 11-Jan-2023 13:55:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-6

Lab Sample ID: 140-30183-6

Worklist Smp#: 9

Client ID: 34000896

Purge Vol: 500.000 mL

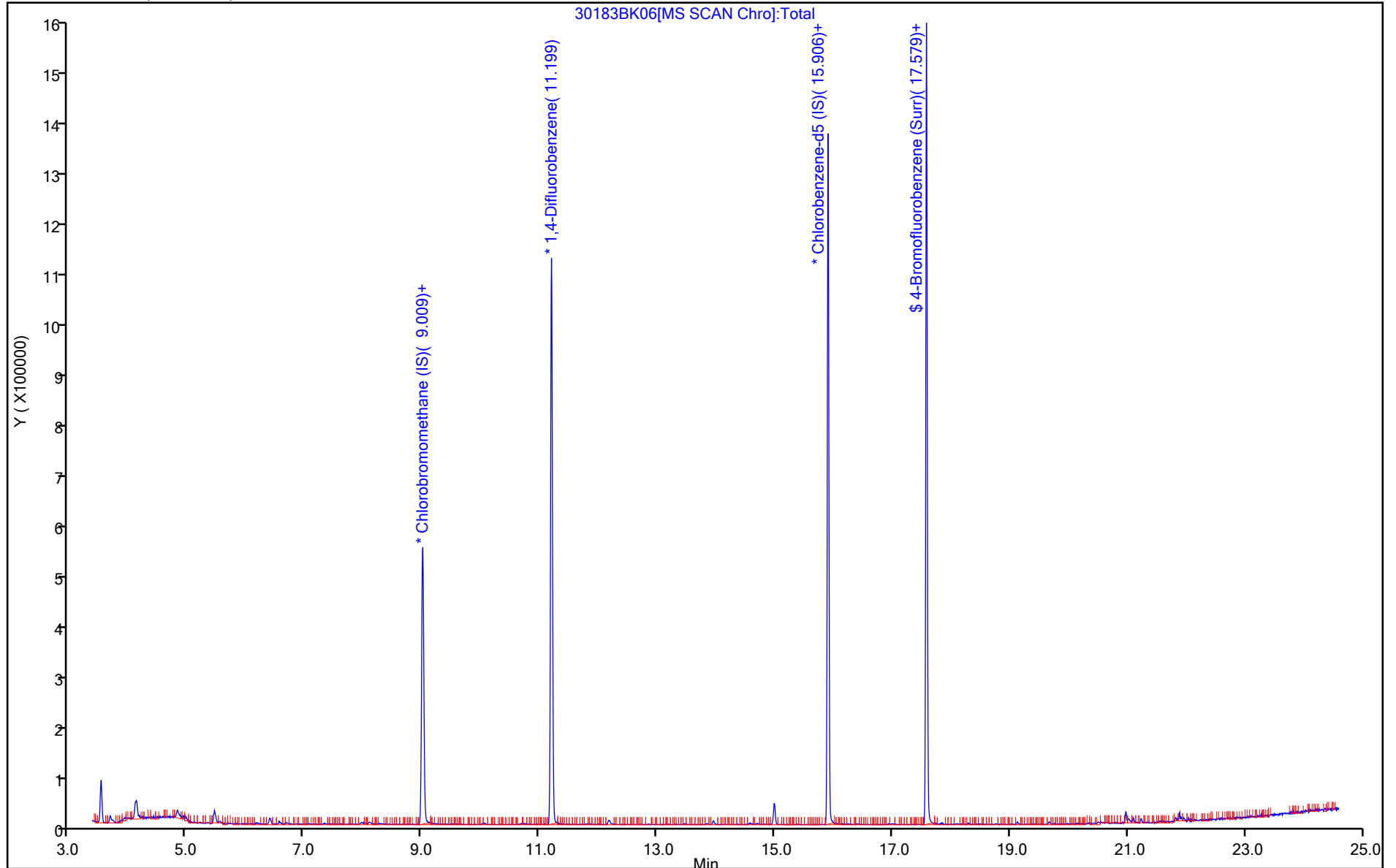
Dil. Factor: 1.0000

ALS Bottle#: 6

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

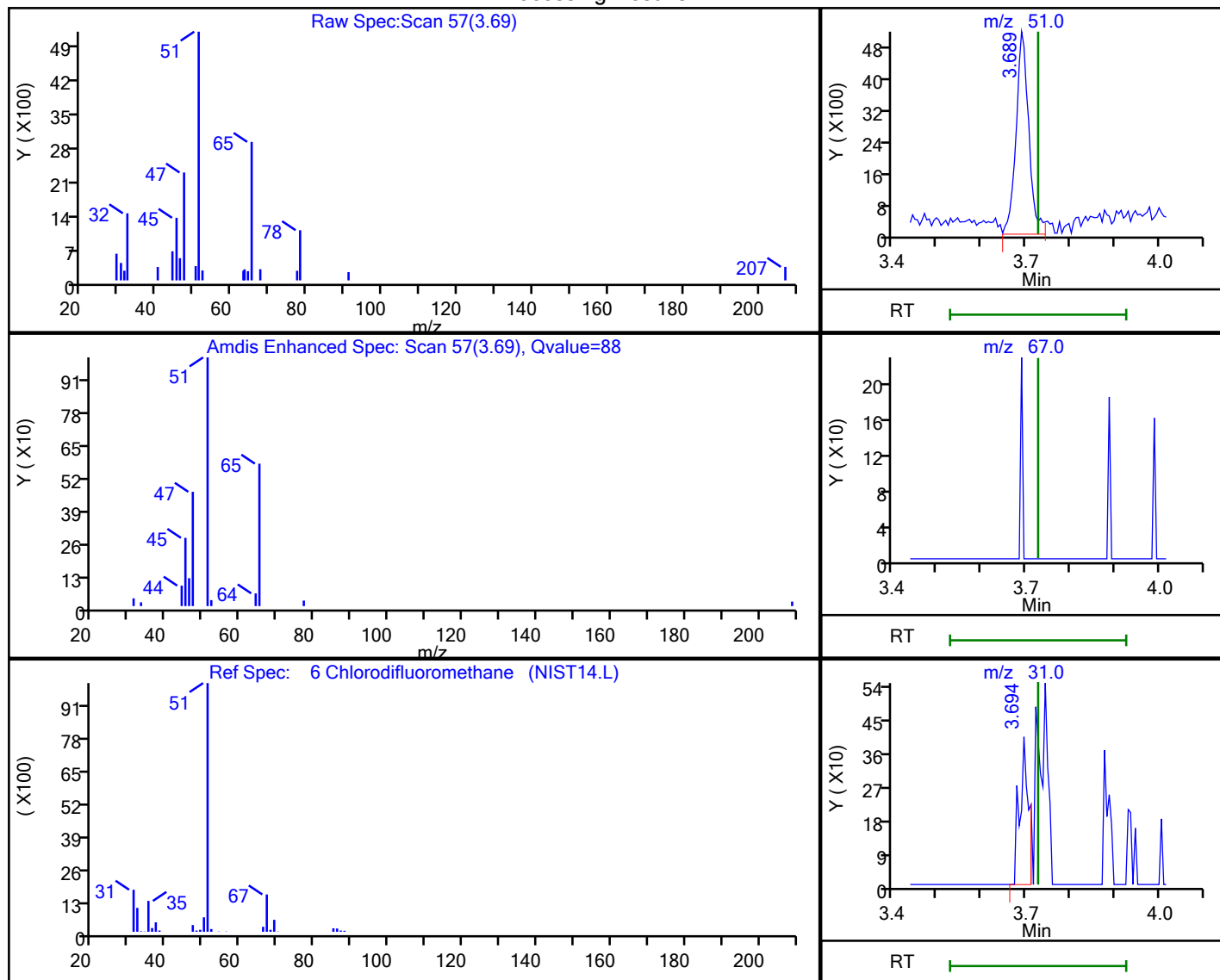


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK06.D
 Injection Date: 11-Jan-2023 13:55:30 Instrument ID: MS
 Lims ID: 140-30183-A-6 Lab Sample ID: 140-30183-6
 Client ID: 34000896
 Operator ID: ALS Bottle#: 6 Worklist Smp#: 9
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

6 Chlorodifluoromethane, CAS: 75-45-6

Processing Results



RT	Mass	Response	Amount
3.69	51.00	10164	0.074324
3.73	67.00	0	
3.69	31.00	550	

Reviewer: khachitpongpanits, 12-Jan-2023 12:12:50

Audit Action: Marked Compound Undetected

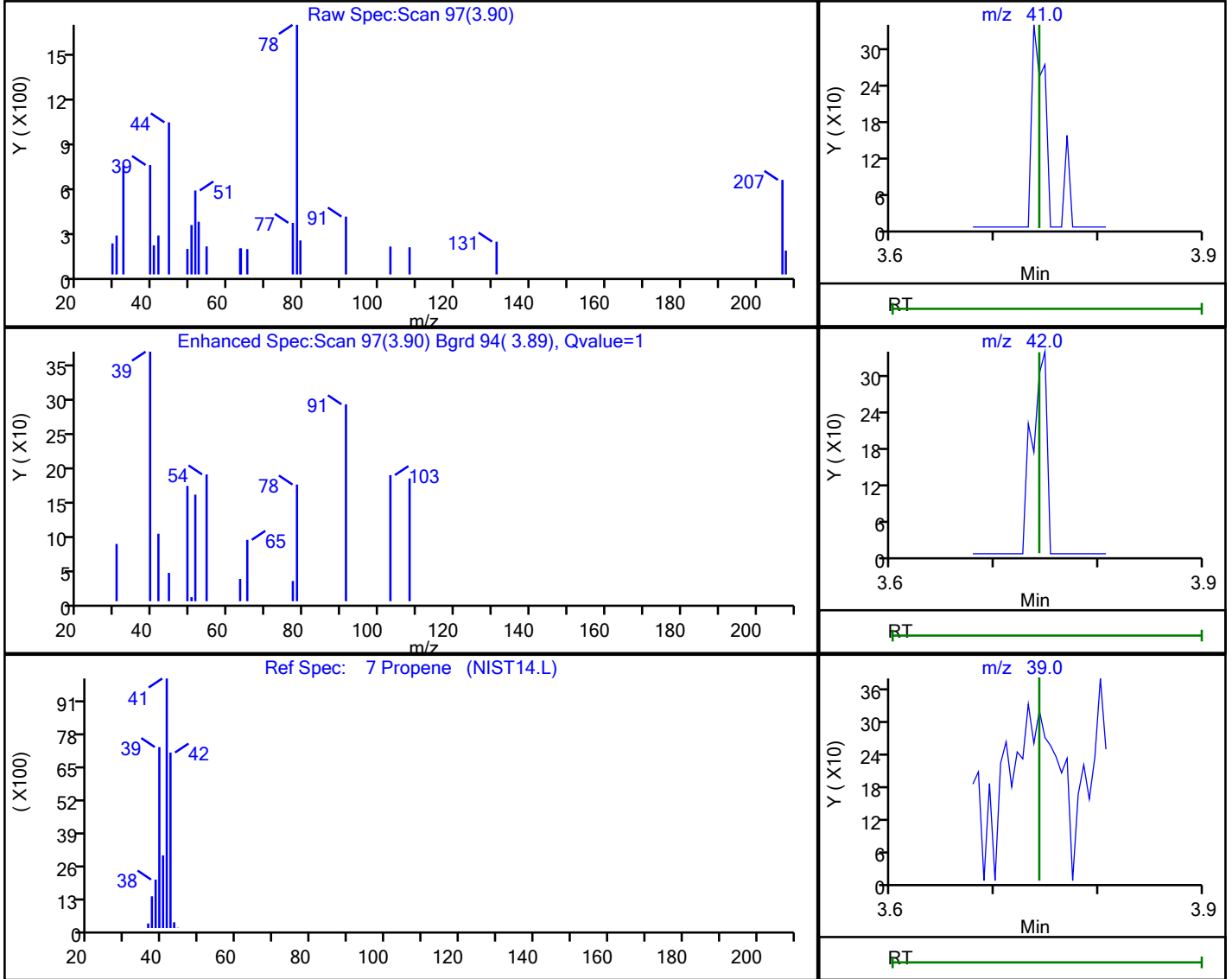
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK06.D
 Injection Date: 11-Jan-2023 13:55:30 Instrument ID: MS
 Lims ID: 140-30183-A-6 Lab Sample ID: 140-30183-6
 Client ID: 34000896
 Operator ID: ALS Bottle#: 6 Worklist Smp#: 9
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.90	41.00	295	0.004641
3.74	42.00	0	
3.90	39.00	690	

Reviewer: khachitpongpanits, 12-Jan-2023 12:12:56

Audit Action: Marked Compound Undetected

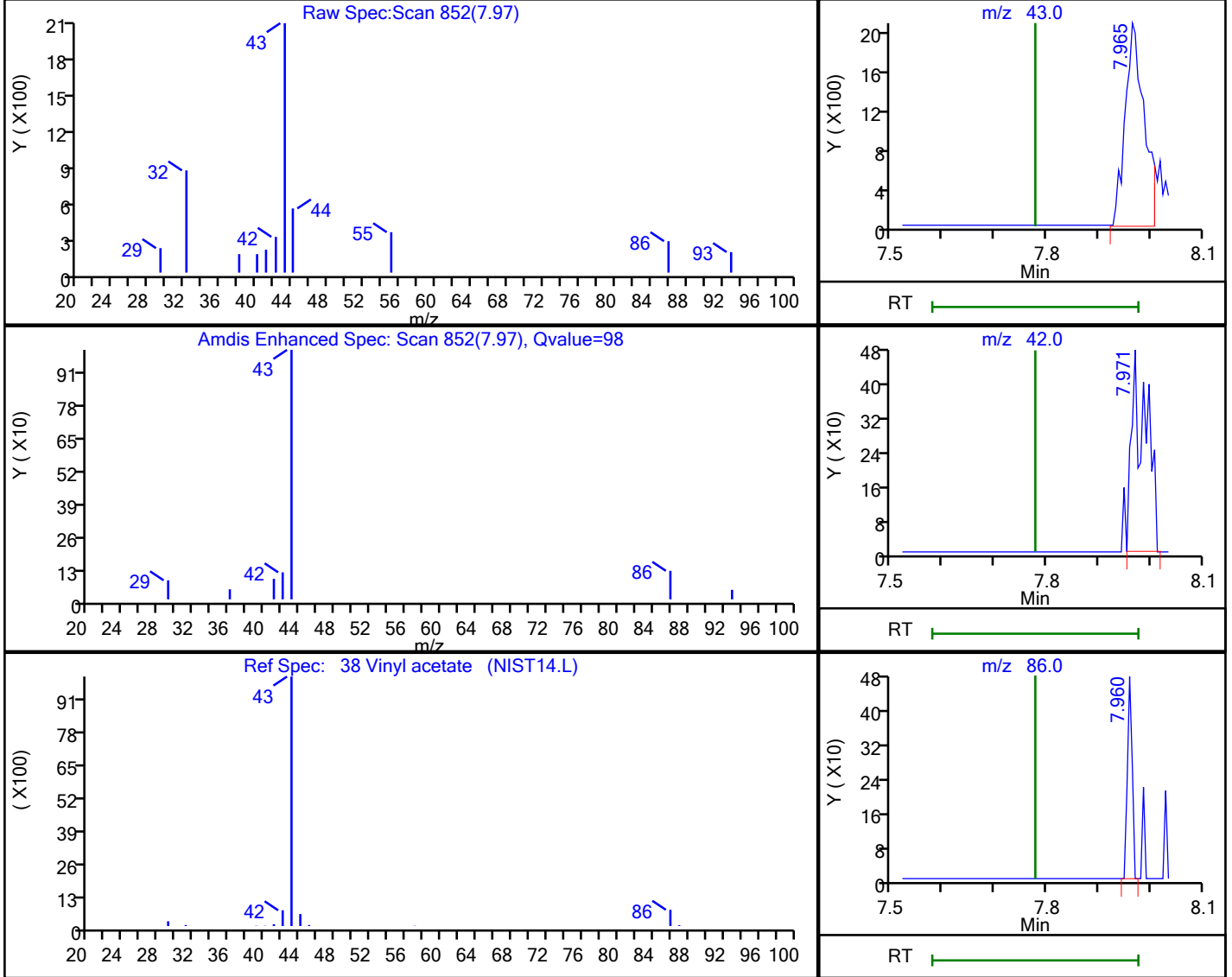
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK06.D
 Injection Date: 11-Jan-2023 13:55:30 Instrument ID: MS
 Lims ID: 140-30183-A-6 Lab Sample ID: 140-30183-6
 Client ID: 34000896
 Operator ID: ALS Bottle#: 6 Worklist Smp#: 9
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

38 Vinyl acetate, CAS: 108-05-4

Processing Results



RT	Mass	Response	Amount
7.97	43.00	5301	0.031877
7.97	42.00	941	
7.96	86.00	305	

Reviewer: khachitpongpanits, 12-Jan-2023 12:13:06

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12221 Lab Sample ID: 140-30183-7
 Matrix: Air Lab File ID: 30183BK07.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 14:45
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.080	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080	
79-00-5	1,1,2-Trichloroethane	ND		0.080	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080	
75-34-3	1,1-Dichloroethane	ND		0.080	
75-35-4	1,1-Dichloroethene	ND		0.040	
87-61-6	1,2,3-Trichlorobenzene	ND		0.40	
96-18-4	1,2,3-Trichloropropane	ND		0.20	
526-73-8	1,2,3-Trimethylbenzene	ND		0.080	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080	
120-82-1	1,2,4-Trichlorobenzene	ND		0.080	
95-63-6	1,2,4-Trimethylbenzene	ND		0.080	
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16	
106-93-4	1,2-Dibromoethane	ND		0.080	
95-50-1	1,2-Dichlorobenzene	ND		0.080	
107-06-2	1,2-Dichloroethane	ND		0.080	
78-87-5	1,2-Dichloropropane	ND		0.080	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080	
108-67-8	1,3,5-Trimethylbenzene	ND		0.16	
106-99-0	1,3-Butadiene	ND		0.16	
541-73-1	1,3-Dichlorobenzene	ND		0.080	
106-46-7	1,4-Dichlorobenzene	ND		0.080	
123-91-1	1,4-Dioxane	ND		0.20	
71-36-3	1-Butanol	ND		0.80	
90-12-0	1-Methylnaphthalene	ND		1.0	
540-84-1	2,2,4-Trimethylpentane	ND		0.20	
565-59-3	2,3-Dimethylpentane	ND		0.080	
78-93-3	2-Butanone	ND		0.32	
95-49-8	2-Chlorotoluene	ND		0.16	
591-78-6	2-Hexanone	ND		0.20	
78-78-4	2-Methylbutane	ND		0.20	
91-57-6	2-Methylnaphthalene	ND		1.0	
107-83-5	2-Methylpentane	ND		0.080	
107-05-1	3-Chloroprene	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12221 Lab Sample ID: 140-30183-7
 Matrix: Air Lab File ID: 30183BK07.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 14:45
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12221 Lab Sample ID: 140-30183-7
 Matrix: Air Lab File ID: 30183BK07.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 14:45
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12221 Lab Sample ID: 140-30183-7
 Matrix: Air Lab File ID: 30183BK07.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 14:45
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12221 Lab Sample ID: 140-30183-7
 Matrix: Air Lab File ID: 30183BK07.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 14:45
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK07.D
 Lims ID: 140-30183-A-7
 Client ID: 12221
 Sample Type: Client
 Inject. Date: 11-Jan-2023 14:45:30 ALS Bottle#: 7 Worklist Smp#: 10
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-010
 Misc. Info.: 12221
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 12:15:34 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits Date: 12-Jan-2023 12:15:34

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	83	186620	3.76	
* 2 1,4-Difluorobenzene	114	11.199	11.204	-0.005	96	925878	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.906	15.906	0.000	92	713980	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.578	0.000	91	469817	3.64	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK07.D

Injection Date: 11-Jan-2023 14:45:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-7

Lab Sample ID: 140-30183-7

Worklist Smp#: 10

Client ID: 12221

Purge Vol: 500.000 mL

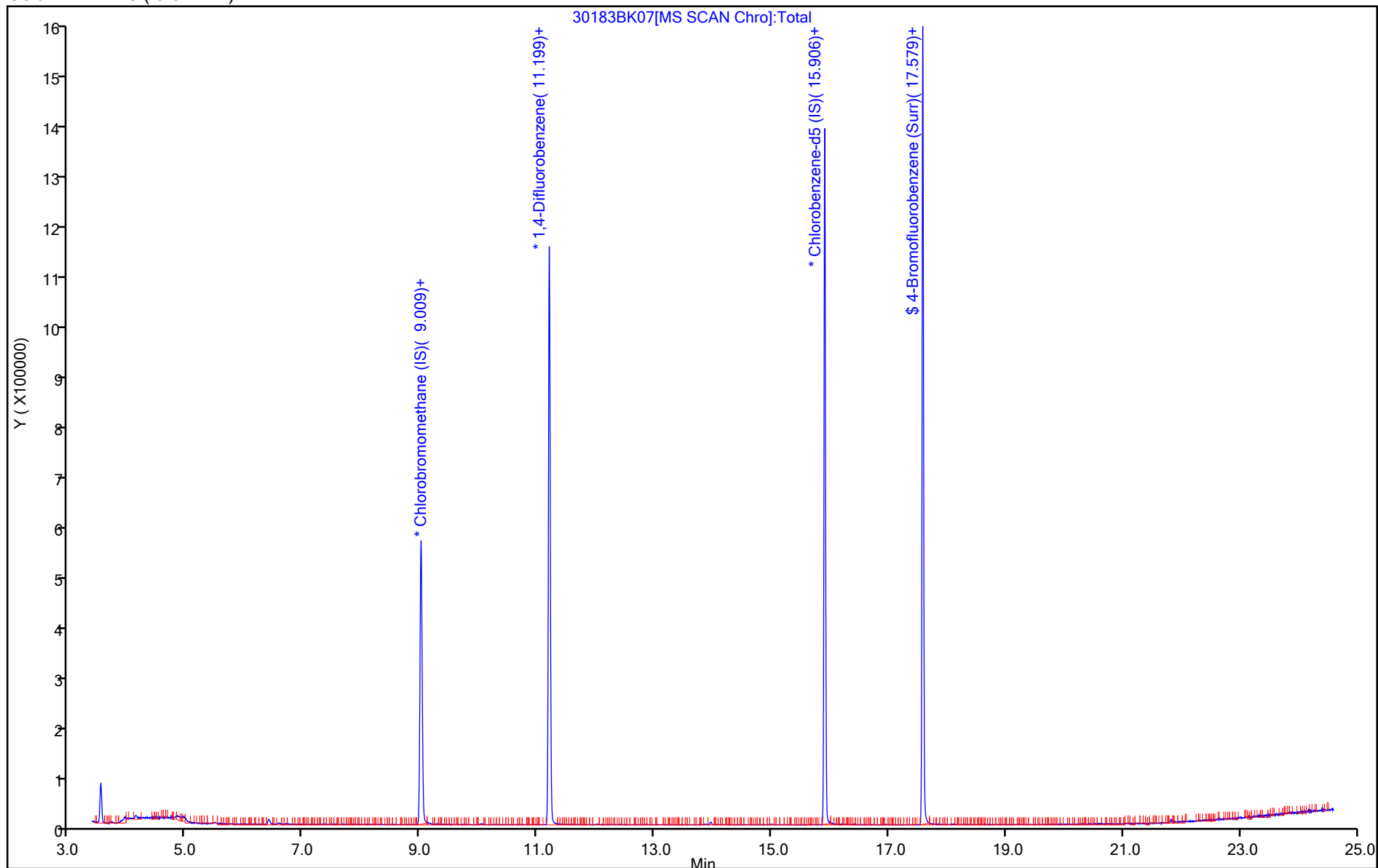
Dil. Factor: 1.0000

ALS Bottle#: 7

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

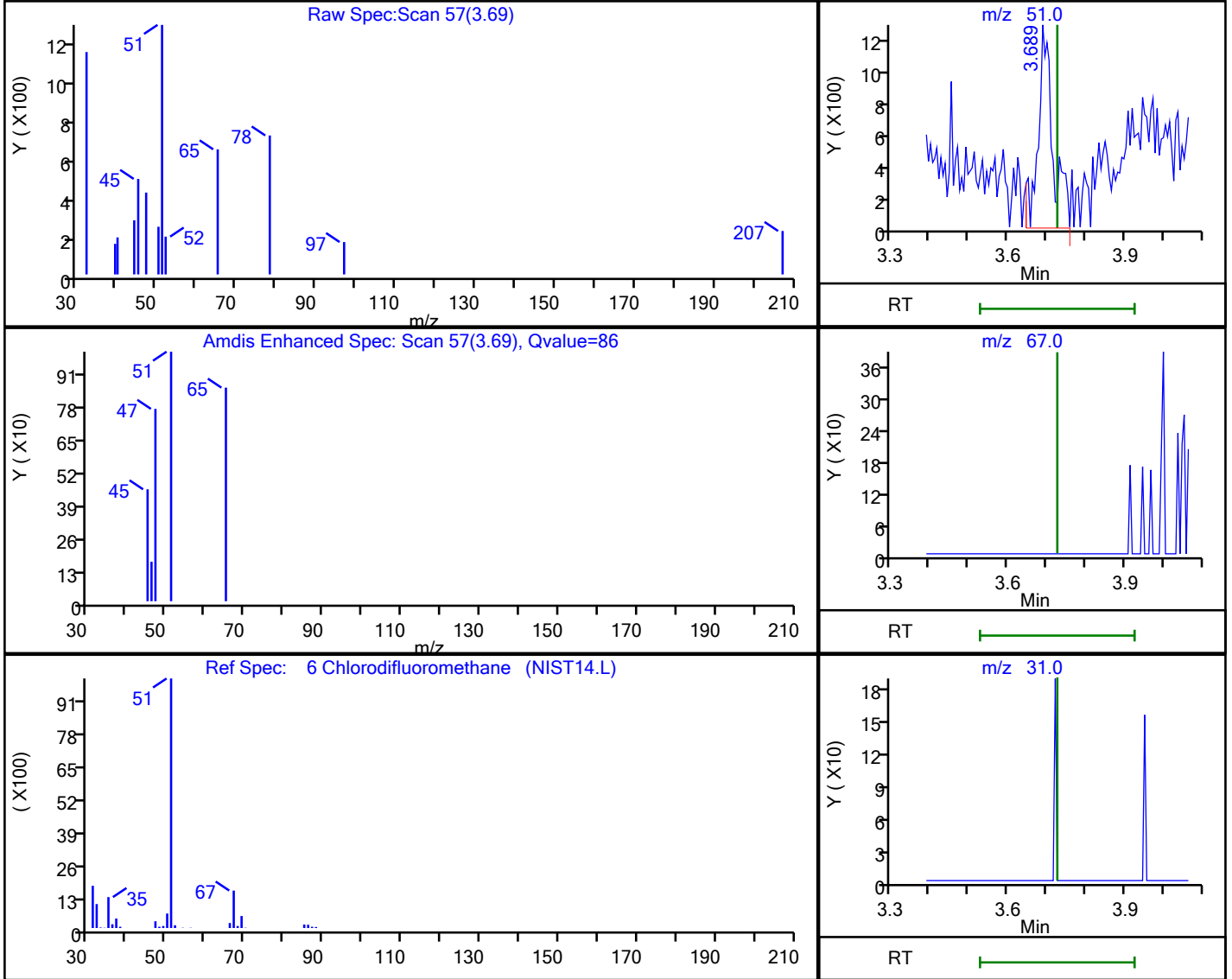


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK07.D
 Injection Date: 11-Jan-2023 14:45:30 Instrument ID: MS
 Lims ID: 140-30183-A-7 Lab Sample ID: 140-30183-7
 Client ID: 12221
 Operator ID: ALS Bottle#: 7 Worklist Smp#: 10
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

6 Chlorodifluoromethane, CAS: 75-45-6

Processing Results



RT	Mass	Response	Amount
3.69	51.00	3246	0.023357
3.73	67.00	0	
3.73	31.00	0	

Reviewer: khachitpongpanits, 12-Jan-2023 12:15:13

Audit Action: Marked Compound Undetected

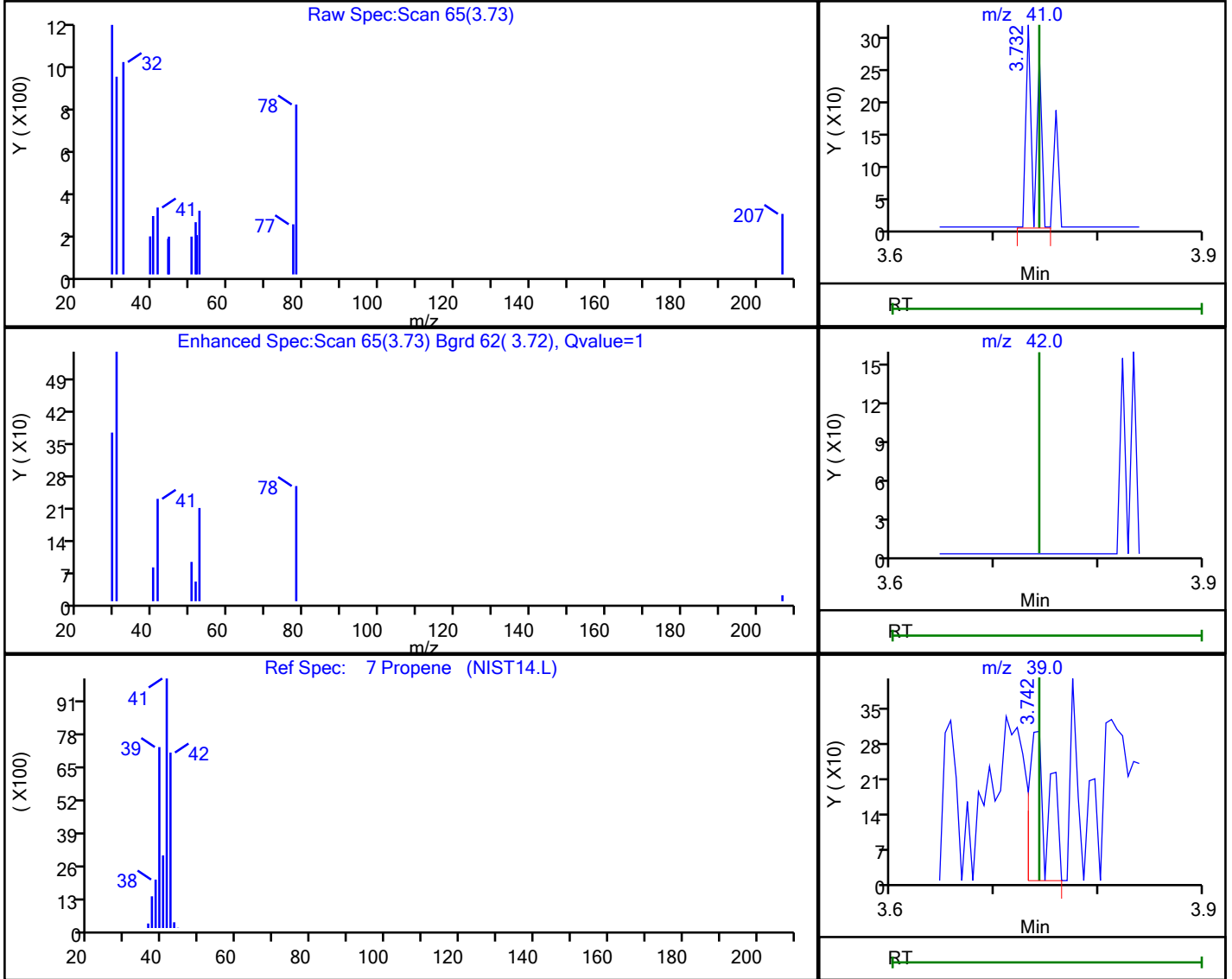
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK07.D
 Injection Date: 11-Jan-2023 14:45:30 Instrument ID: MS
 Lims ID: 140-30183-A-7 Lab Sample ID: 140-30183-7
 Client ID: 12221
 Operator ID: ALS Bottle#: 7 Worklist Smp#: 10
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.73	41.00	187	0.002895
3.74	42.00	0	
3.74	39.00	393	

Reviewer: khachitpongpanits, 12-Jan-2023 12:15:15

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11195 Lab Sample ID: 140-30183-8
 Matrix: Air Lab File ID: 30183BK08.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 15:34
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
71-55-6	1,1,1-Trichloroethane	ND		0.080
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080
79-00-5	1,1,2-Trichloroethane	ND		0.080
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080
75-34-3	1,1-Dichloroethane	ND		0.080
75-35-4	1,1-Dichloroethene	ND		0.040
87-61-6	1,2,3-Trichlorobenzene	ND		0.40
96-18-4	1,2,3-Trichloropropane	ND		0.20
526-73-8	1,2,3-Trimethylbenzene	ND		0.080
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080
120-82-1	1,2,4-Trichlorobenzene	ND		0.080
95-63-6	1,2,4-Trimethylbenzene	ND		0.080
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16
106-93-4	1,2-Dibromoethane	ND		0.080
95-50-1	1,2-Dichlorobenzene	ND		0.080
107-06-2	1,2-Dichloroethane	ND		0.080
78-87-5	1,2-Dichloropropane	ND		0.080
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080
108-67-8	1,3,5-Trimethylbenzene	ND		0.16
106-99-0	1,3-Butadiene	ND		0.16
541-73-1	1,3-Dichlorobenzene	ND		0.080
106-46-7	1,4-Dichlorobenzene	ND		0.080
123-91-1	1,4-Dioxane	ND		0.20
71-36-3	1-Butanol	ND		0.80
90-12-0	1-Methylnaphthalene	ND		1.0
540-84-1	2,2,4-Trimethylpentane	ND		0.20
565-59-3	2,3-Dimethylpentane	ND		0.080
78-93-3	2-Butanone	ND		0.32
95-49-8	2-Chlorotoluene	ND		0.16
591-78-6	2-Hexanone	ND		0.20
78-78-4	2-Methylbutane	ND		0.20
91-57-6	2-Methylnaphthalene	ND		1.0
107-83-5	2-Methylpentane	ND		0.080
107-05-1	3-Chloroprene	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11195 Lab Sample ID: 140-30183-8
 Matrix: Air Lab File ID: 30183BK08.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 15:34
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
622-96-8	4-Ethyltoluene	ND		0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20
67-64-1	Acetone	ND		2.0
75-05-8	Acetonitrile	ND		0.40
107-02-8	Acrolein	ND		0.40
107-13-1	Acrylonitrile	ND		0.80
98-83-9	Alpha Methyl Styrene	ND		0.16
71-43-2	Benzene	ND		0.080
100-44-7	Benzyl chloride	ND		0.16
75-27-4	Bromodichloromethane	ND		0.080
75-25-2	Bromoform	ND		0.080
74-83-9	Bromomethane	ND		0.080
106-97-8	Butane	ND		0.16
75-15-0	Carbon disulfide	ND		0.20
56-23-5	Carbon tetrachloride	ND	*+	0.032
108-90-7	Chlorobenzene	ND		0.080
75-45-6	Chlorodifluoromethane	ND		0.080
75-00-3	Chloroethane	ND		0.080
67-66-3	Chloroform	ND		0.080
74-87-3	Chloromethane	ND		0.20
156-59-2	cis-1,2-Dichloroethene	ND		0.040
10061-01-5	cis-1,3-Dichloropropene	ND		0.080
98-82-8	Cumene	ND		0.16
110-82-7	Cyclohexane	ND		0.20
124-48-1	Dibromochloromethane	ND		0.080
74-95-3	Dibromomethane	ND		0.16
75-71-8	Dichlorodifluoromethane	ND		0.080
64-17-5	Ethanol	ND		2.0
141-78-6	Ethyl acetate	ND		0.80
60-29-7	Ethyl ether	ND		0.80
100-41-4	Ethylbenzene	ND		0.080
87-68-3	Hexachlorobutadiene	ND		0.080
110-54-3	Hexane	ND		0.20
496-11-7	Indane	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11195 Lab Sample ID: 140-30183-8
 Matrix: Air Lab File ID: 30183BK08.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 15:34
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11195 Lab Sample ID: 140-30183-8
 Matrix: Air Lab File ID: 30183BK08.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 15:34
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11195 Lab Sample ID: 140-30183-8
 Matrix: Air Lab File ID: 30183BK08.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 15:34
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK08.D
 Lims ID: 140-30183-A-8
 Client ID: 11195
 Sample Type: Client
 Inject. Date: 11-Jan-2023 15:34:30 ALS Bottle#: 8 Worklist Smp#: 11
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-011
 Misc. Info.: 11195
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 12:19:56 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits Date: 12-Jan-2023 12:19:56

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.014	9.009	0.005	84	182385	3.76	
* 2 1,4-Difluorobenzene	114	11.198	11.204	-0.006	96	902133	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.905	15.906	-0.001	92	691557	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.578	-0.001	92	453852	3.63	
61 1,4-Dioxane	88	12.188	12.150	0.032	82	1091	0.0439	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK08.D

Injection Date: 11-Jan-2023 15:34:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-8

Lab Sample ID: 140-30183-8

Worklist Smp#: 11

Client ID: 11195

Purge Vol: 500.000 mL

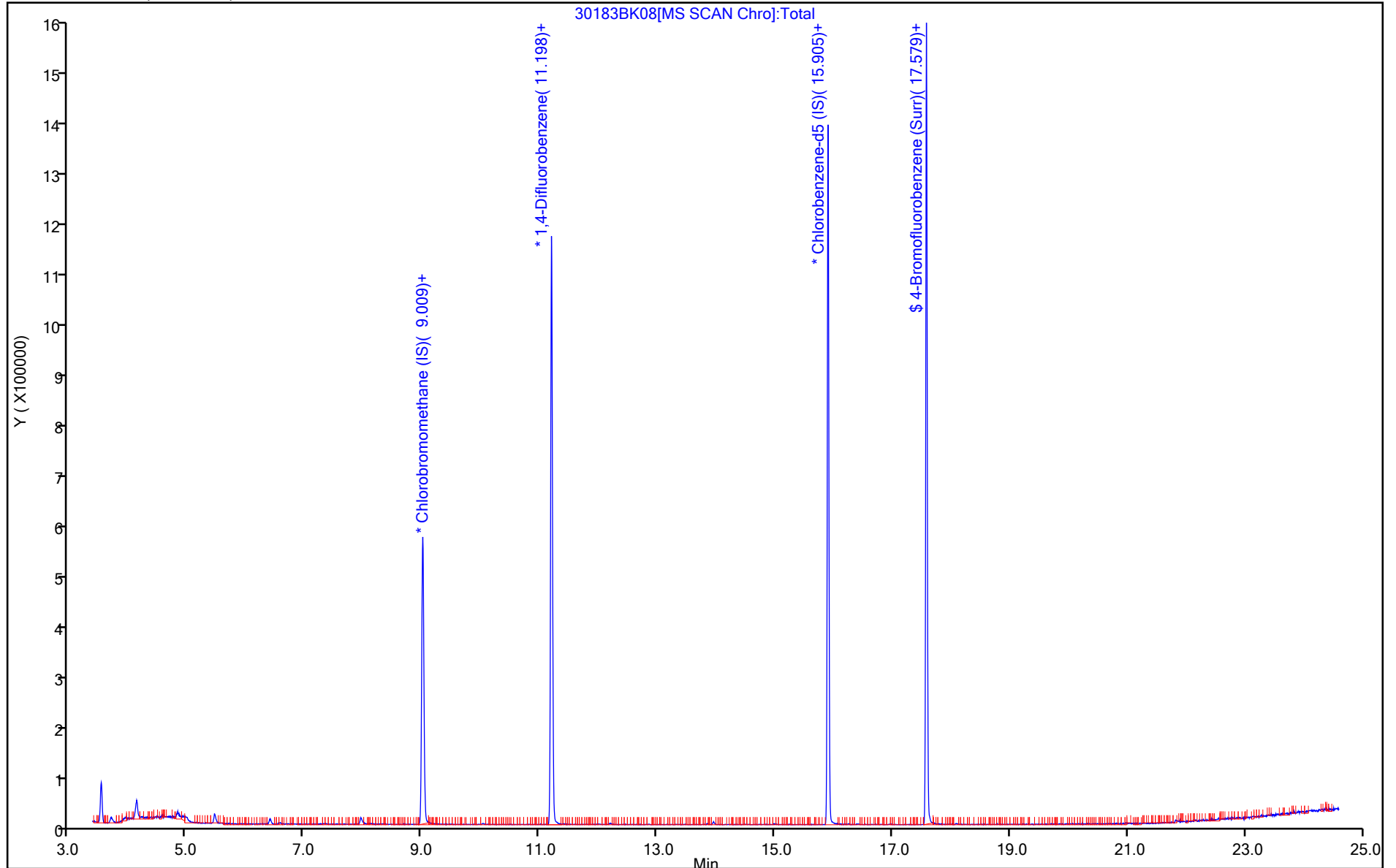
Dil. Factor: 1.0000

ALS Bottle#: 8

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

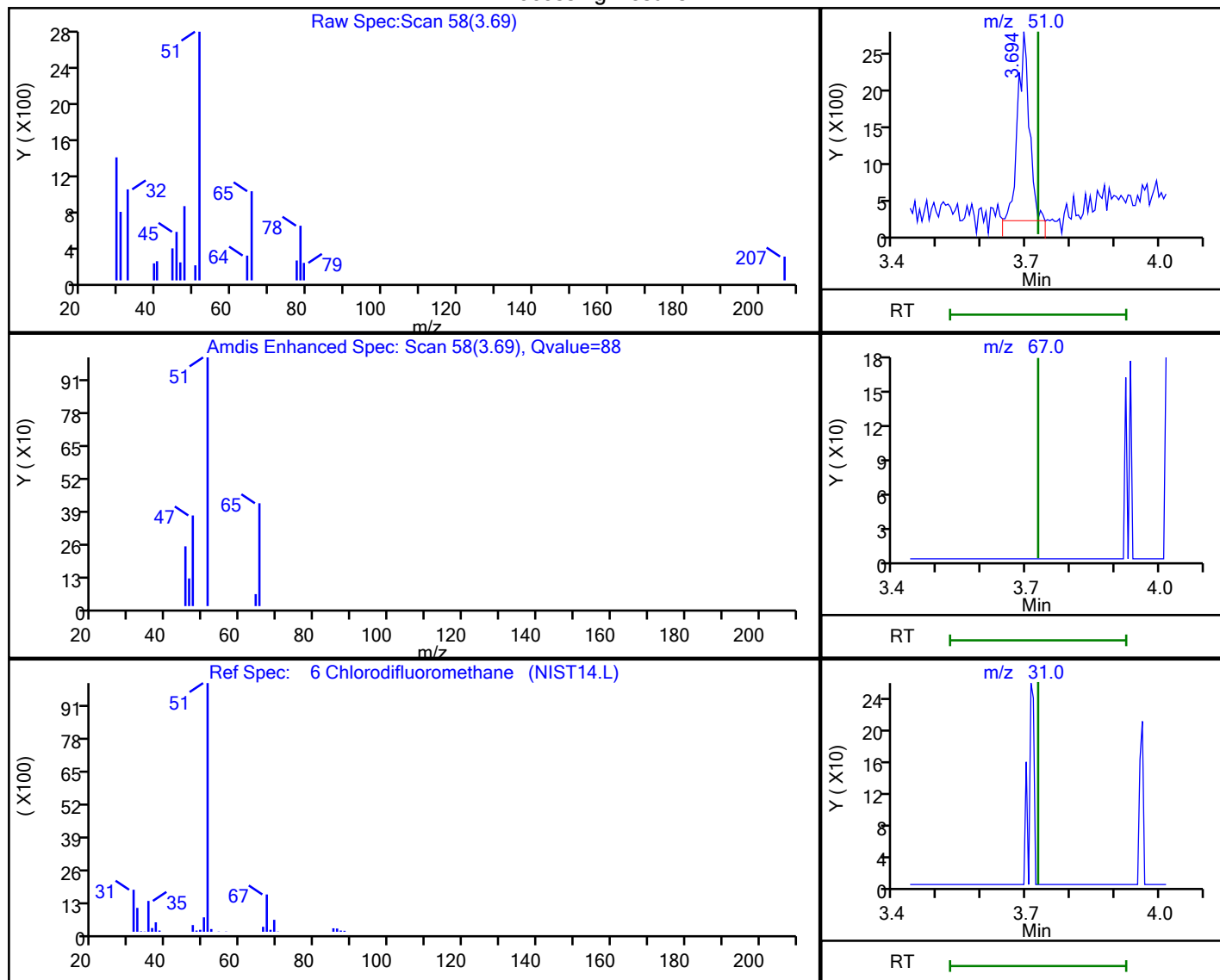


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK08.D
 Injection Date: 11-Jan-2023 15:34:30 Instrument ID: MS
 Lims ID: 140-30183-A-8 Lab Sample ID: 140-30183-8
 Client ID: 11195
 Operator ID: ALS Bottle#: 8 Worklist Smp#: 11
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

6 Chlorodifluoromethane, CAS: 75-45-6

Processing Results



RT	Mass	Response	Amount
3.69	51.00	4770	0.035120
3.73	67.00	0	
3.73	31.00	0	

Reviewer: khachitpongpanits, 12-Jan-2023 12:19:35

Audit Action: Marked Compound Undetected

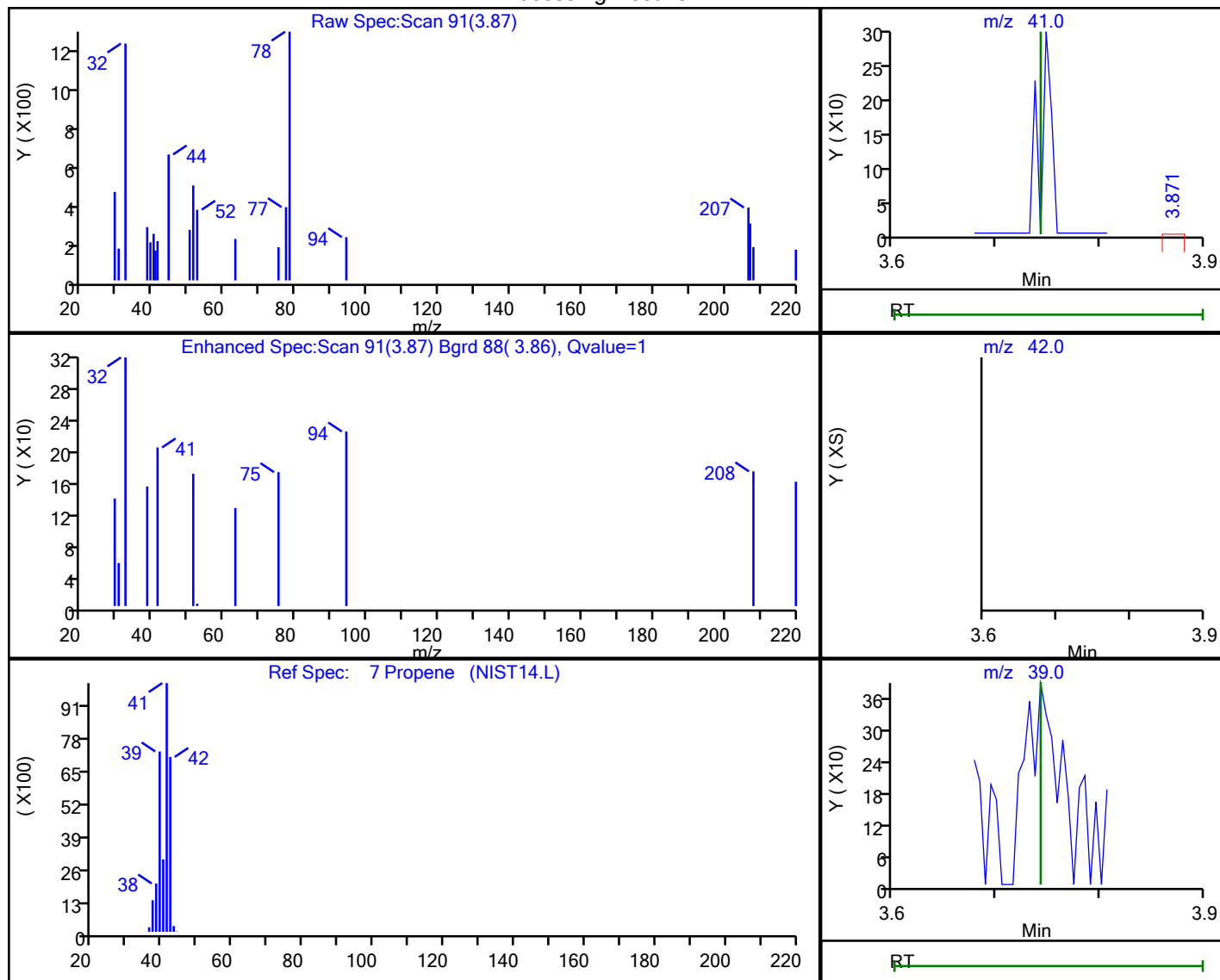
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK08.D
 Injection Date: 11-Jan-2023 15:34:30 Instrument ID: MS
 Lims ID: 140-30183-A-8 Lab Sample ID: 140-30183-8
 Client ID: 11195
 Operator ID: ALS Bottle#: 8 Worklist Smp#: 11
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.87	41.00	64	0.001014
3.74	42.00	0	
3.74	39.00	0	

Reviewer: khachitpongpanits, 12-Jan-2023 12:19:40

Audit Action: Marked Compound Undetected

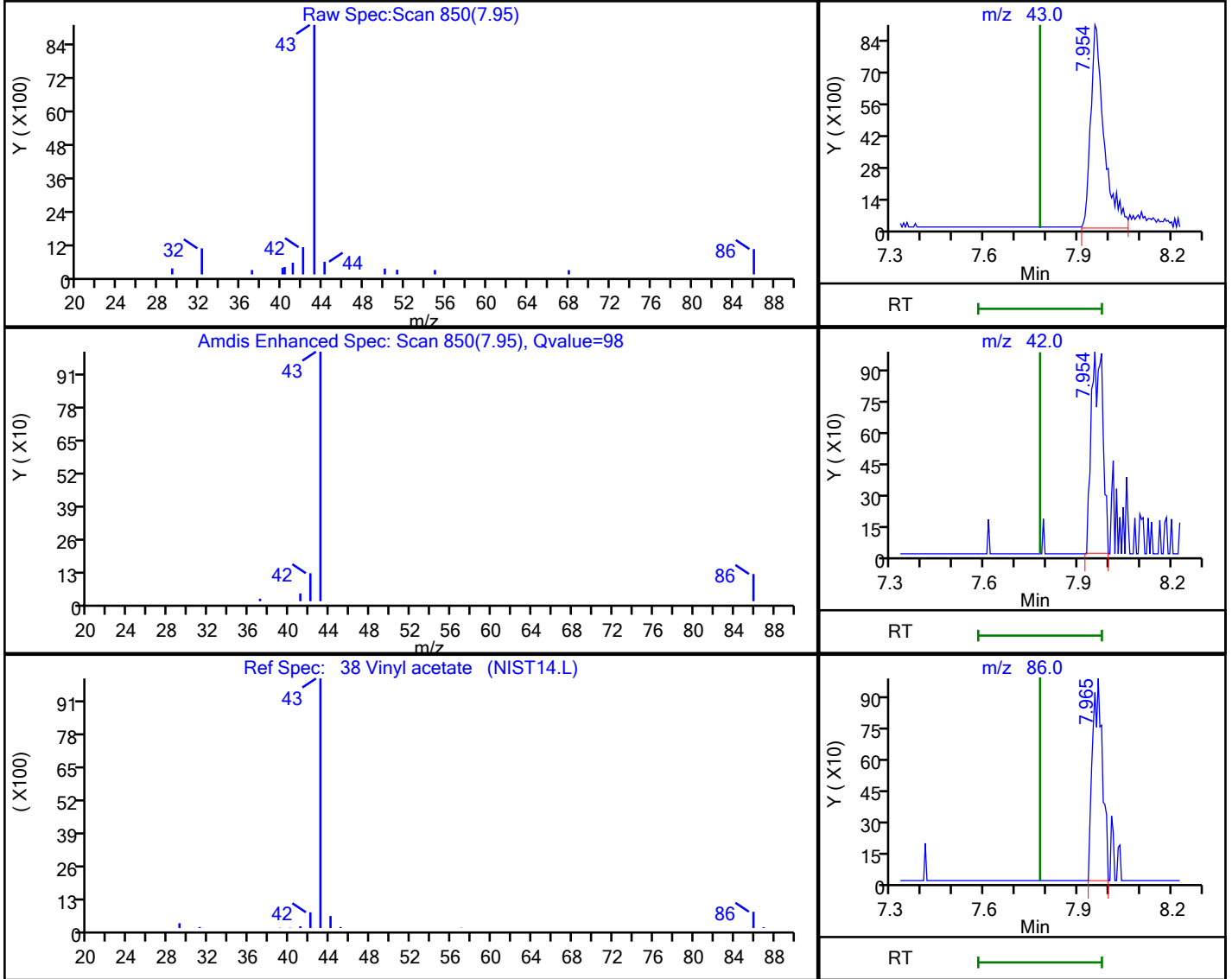
Audit Reason: Invalid Compound ID

Euofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK08.D
 Injection Date: 11-Jan-2023 15:34:30 Instrument ID: MS
 Lims ID: 140-30183-A-8 Lab Sample ID: 140-30183-8
 Client ID: 11195
 Operator ID: ALS Bottle#: 8 Worklist Smp#: 11
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

38 Vinyl acetate, CAS: 108-05-4

Processing Results



RT	Mass	Response	Amount
7.95	43.00	26908	0.162922
7.95	42.00	2567	
7.97	86.00	2200	

Reviewer: khachitpongpanits, 12-Jan-2023 12:19:48

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 10968 Lab Sample ID: 140-30183-9
 Matrix: Air Lab File ID: 30183BK09.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 16:23
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.080	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080	
79-00-5	1,1,2-Trichloroethane	ND		0.080	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080	
75-34-3	1,1-Dichloroethane	ND		0.080	
75-35-4	1,1-Dichloroethene	ND		0.040	
87-61-6	1,2,3-Trichlorobenzene	ND		0.40	
96-18-4	1,2,3-Trichloropropane	ND		0.20	
526-73-8	1,2,3-Trimethylbenzene	ND		0.080	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080	
120-82-1	1,2,4-Trichlorobenzene	ND		0.080	
95-63-6	1,2,4-Trimethylbenzene	ND		0.080	
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16	
106-93-4	1,2-Dibromoethane	ND		0.080	
95-50-1	1,2-Dichlorobenzene	ND		0.080	
107-06-2	1,2-Dichloroethane	ND		0.080	
78-87-5	1,2-Dichloropropane	ND		0.080	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080	
108-67-8	1,3,5-Trimethylbenzene	ND		0.16	
106-99-0	1,3-Butadiene	ND		0.16	
541-73-1	1,3-Dichlorobenzene	ND		0.080	
106-46-7	1,4-Dichlorobenzene	ND		0.080	
123-91-1	1,4-Dioxane	ND		0.20	
71-36-3	1-Butanol	ND		0.80	
90-12-0	1-Methylnaphthalene	ND		1.0	
540-84-1	2,2,4-Trimethylpentane	ND		0.20	
565-59-3	2,3-Dimethylpentane	ND		0.080	
78-93-3	2-Butanone	ND		0.32	
95-49-8	2-Chlorotoluene	ND		0.16	
591-78-6	2-Hexanone	ND		0.20	
78-78-4	2-Methylbutane	ND		0.20	
91-57-6	2-Methylnaphthalene	ND		1.0	
107-83-5	2-Methylpentane	ND		0.080	
107-05-1	3-Chloroprene	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 10968 Lab Sample ID: 140-30183-9
 Matrix: Air Lab File ID: 30183BK09.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 16:23
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 10968 Lab Sample ID: 140-30183-9
 Matrix: Air Lab File ID: 30183BK09.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 16:23
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 10968 Lab Sample ID: 140-30183-9
 Matrix: Air Lab File ID: 30183BK09.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 16:23
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 10968 Lab Sample ID: 140-30183-9
 Matrix: Air Lab File ID: 30183BK09.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 16:23
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK09.D
 Lims ID: 140-30183-A-9
 Client ID: 10968
 Sample Type: Client
 Inject. Date: 11-Jan-2023 16:23:30 ALS Bottle#: 9 Worklist Smp#: 12
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-012
 Misc. Info.: 10968
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 12:21:37 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits

Date: 12-Jan-2023 12:21:37

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	83	173307	3.76	
* 2 1,4-Difluorobenzene	114	11.199	11.204	-0.005	96	856449	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.906	15.906	0.000	95	669615	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.578	0.000	92	440439	3.63	
33 Carbon disulfide	76	6.572	6.577	-0.005	97	8922	0.0511	
61 1,4-Dioxane	88	12.188	12.150	0.032	79	1518	0.0644	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK09.D

Injection Date: 11-Jan-2023 16:23:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-9

Lab Sample ID: 140-30183-9

Worklist Smp#: 12

Client ID: 10968

Purge Vol: 500.000 mL

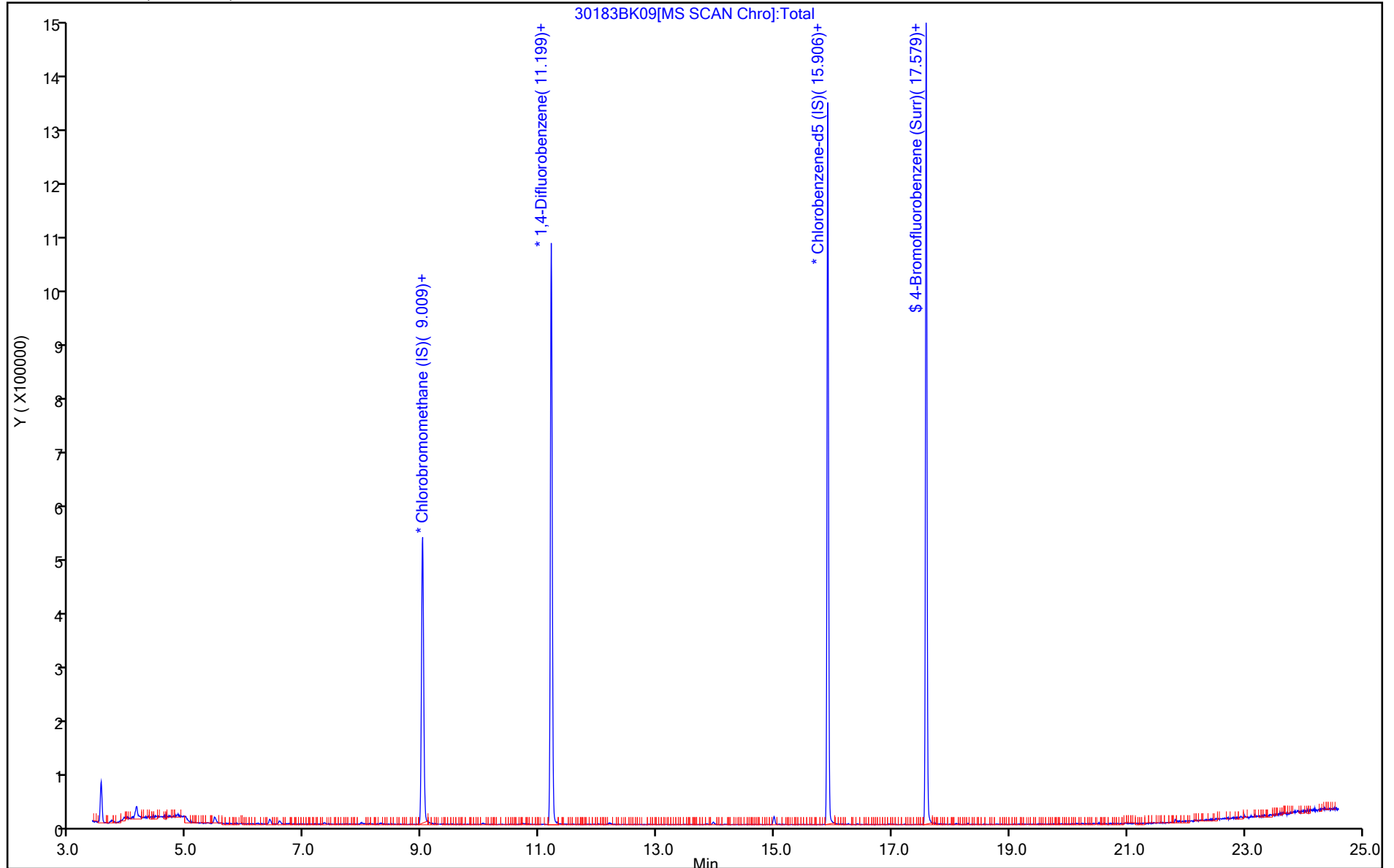
Dil. Factor: 1.0000

ALS Bottle#: 9

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

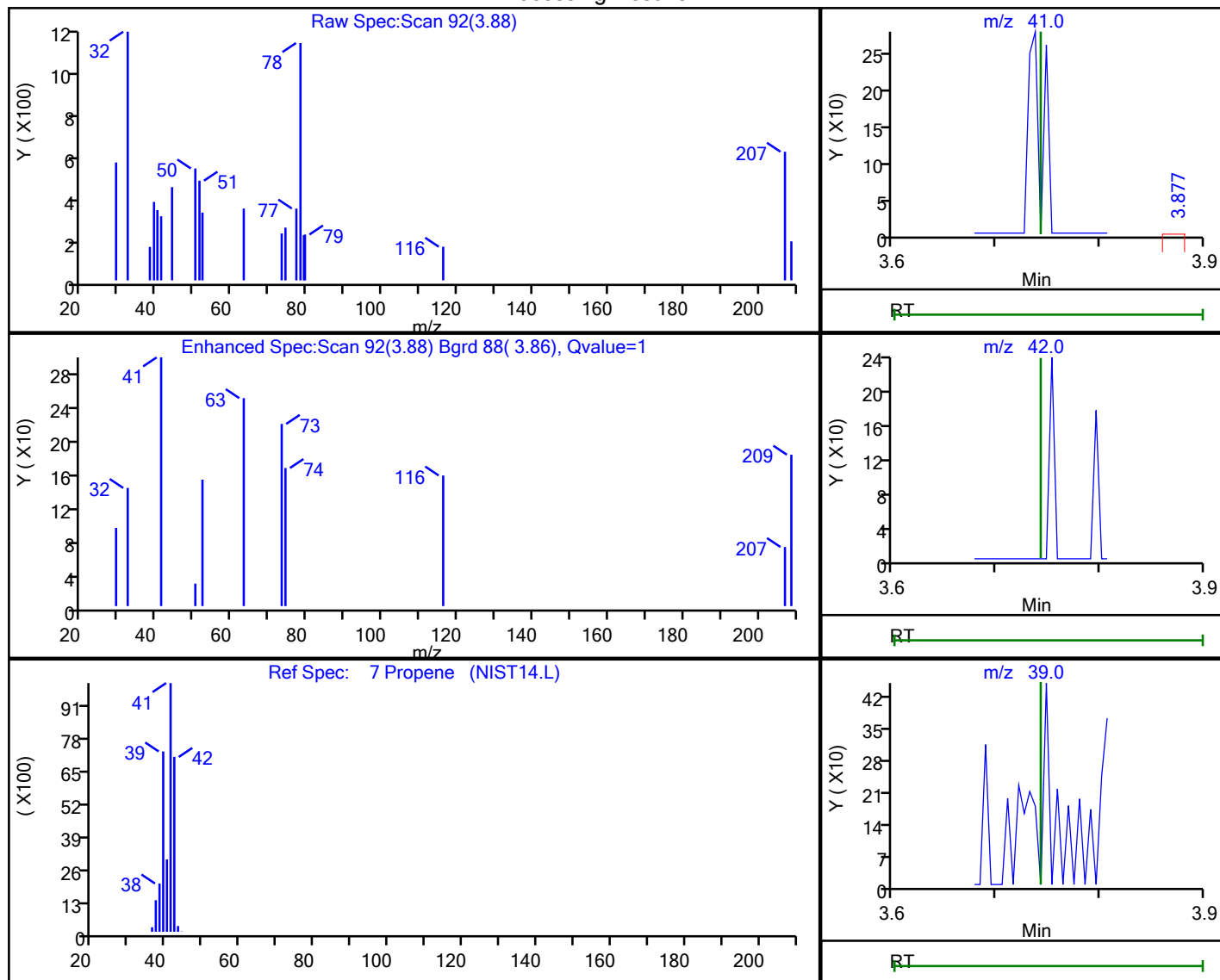


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK09.D
 Injection Date: 11-Jan-2023 16:23:30 Instrument ID: MS
 Lims ID: 140-30183-A-9 Lab Sample ID: 140-30183-9
 Client ID: 10968
 Operator ID: ALS Bottle#: 9 Worklist Smp#: 12
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.88	41.00	191	0.003184
3.74	42.00	0	
3.74	39.00	0	

Reviewer: khachitpongpanits, 12-Jan-2023 12:21:14

Audit Action: Marked Compound Undetected

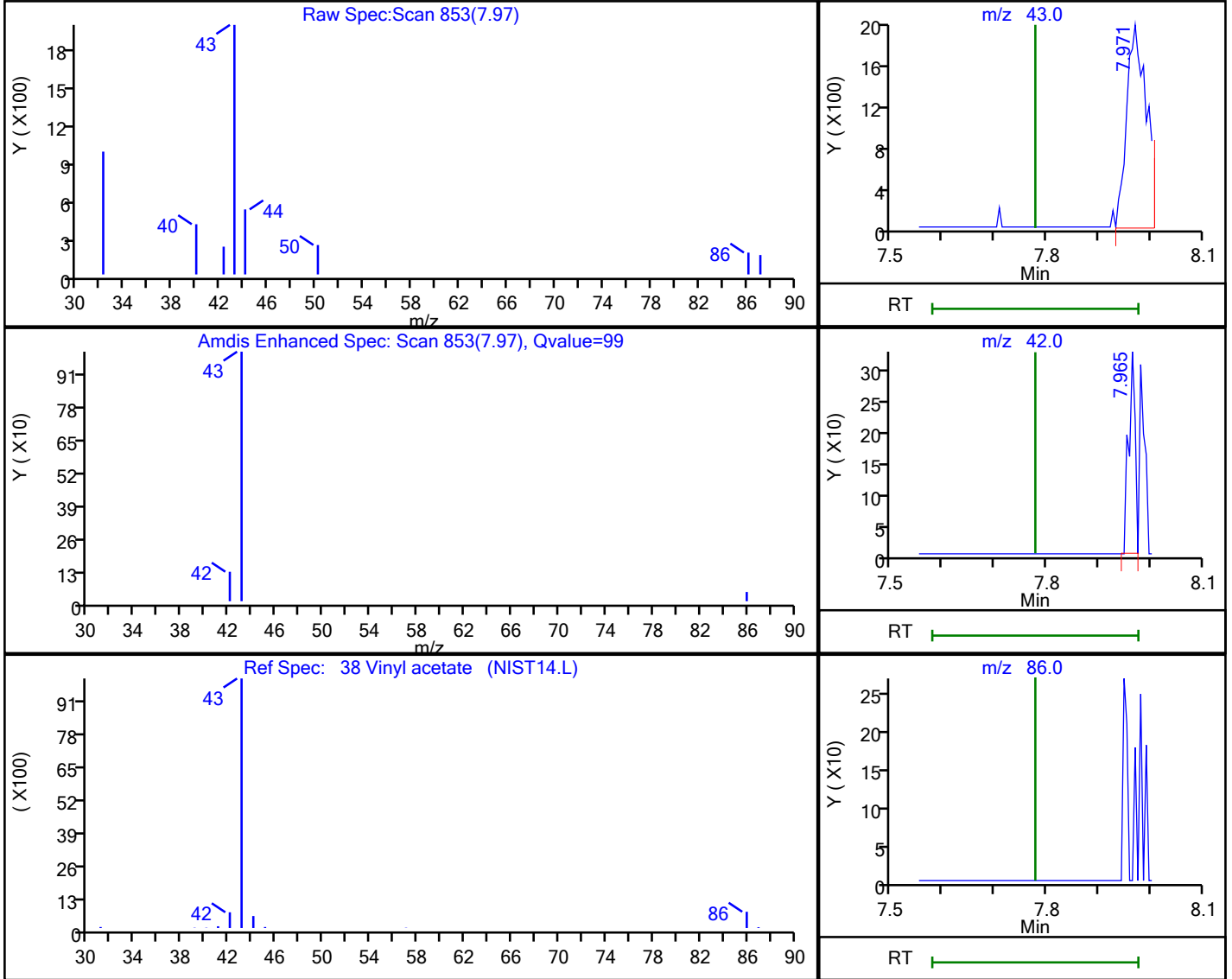
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK09.D
 Injection Date: 11-Jan-2023 16:23:30 Instrument ID: MS
 Lims ID: 140-30183-A-9 Lab Sample ID: 140-30183-9
 Client ID: 10968
 Operator ID: ALS Bottle#: 9 Worklist Smp#: 12
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

38 Vinyl acetate, CAS: 108-05-4

Processing Results



RT	Mass	Response	Amount
7.97	43.00	5189	0.033064
7.97	42.00	291	
7.78	86.00	0	

Reviewer: khachitpongpanits, 12-Jan-2023 12:21:29

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34001132 Lab Sample ID: 140-30183-10
 Matrix: Air Lab File ID: 30183BK10.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 17:12
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.080	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080	
79-00-5	1,1,2-Trichloroethane	ND		0.080	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080	
75-34-3	1,1-Dichloroethane	ND		0.080	
75-35-4	1,1-Dichloroethene	ND		0.040	
87-61-6	1,2,3-Trichlorobenzene	ND		0.40	
96-18-4	1,2,3-Trichloropropane	ND		0.20	
526-73-8	1,2,3-Trimethylbenzene	ND		0.080	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080	
120-82-1	1,2,4-Trichlorobenzene	ND		0.080	
95-63-6	1,2,4-Trimethylbenzene	ND		0.080	
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16	
106-93-4	1,2-Dibromoethane	ND		0.080	
95-50-1	1,2-Dichlorobenzene	ND		0.080	
107-06-2	1,2-Dichloroethane	ND		0.080	
78-87-5	1,2-Dichloropropane	ND		0.080	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080	
108-67-8	1,3,5-Trimethylbenzene	ND		0.16	
106-99-0	1,3-Butadine	ND		0.16	
541-73-1	1,3-Dichlorobenzene	ND		0.080	
106-46-7	1,4-Dichlorobenzene	ND		0.080	
123-91-1	1,4-Dioxane	ND		0.20	
71-36-3	1-Butanol	ND		0.80	
90-12-0	1-Methylnaphthalene	ND		1.0	
540-84-1	2,2,4-Trimethylpentane	ND		0.20	
565-59-3	2,3-Dimethylpentane	ND		0.080	
78-93-3	2-Butanone	ND		0.32	
95-49-8	2-Chlorotoluene	ND		0.16	
591-78-6	2-Hexanone	ND		0.20	
78-78-4	2-Methylbutane	ND		0.20	
91-57-6	2-Methylnaphthalene	ND		1.0	
107-83-5	2-Methylpentane	ND		0.080	
107-05-1	3-Chloroprene	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34001132 Lab Sample ID: 140-30183-10
 Matrix: Air Lab File ID: 30183BK10.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 17:12
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34001132 Lab Sample ID: 140-30183-10
 Matrix: Air Lab File ID: 30183BK10.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 17:12
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34001132 Lab Sample ID: 140-30183-10
 Matrix: Air Lab File ID: 30183BK10.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 17:12
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34001132 Lab Sample ID: 140-30183-10
 Matrix: Air Lab File ID: 30183BK10.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 17:12
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK10.D
 Lims ID: 140-30183-A-10
 Client ID: 34001132
 Sample Type: Client
 Inject. Date: 11-Jan-2023 17:12:30 ALS Bottle#: 10 Worklist Smp#: 13
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-013
 Misc. Info.: 34001132
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 12:22:22 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits

Date: 12-Jan-2023 12:22:22

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	83	177541	3.76	
* 2 1,4-Difluorobenzene	114	11.198	11.204	-0.006	96	874115	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.906	15.906	0.000	92	674662	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.578	0.000	92	446161	3.65	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK10.D

Injection Date: 11-Jan-2023 17:12:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-10

Lab Sample ID: 140-30183-10

Worklist Smp#: 13

Client ID: 34001132

Purge Vol: 500.000 mL

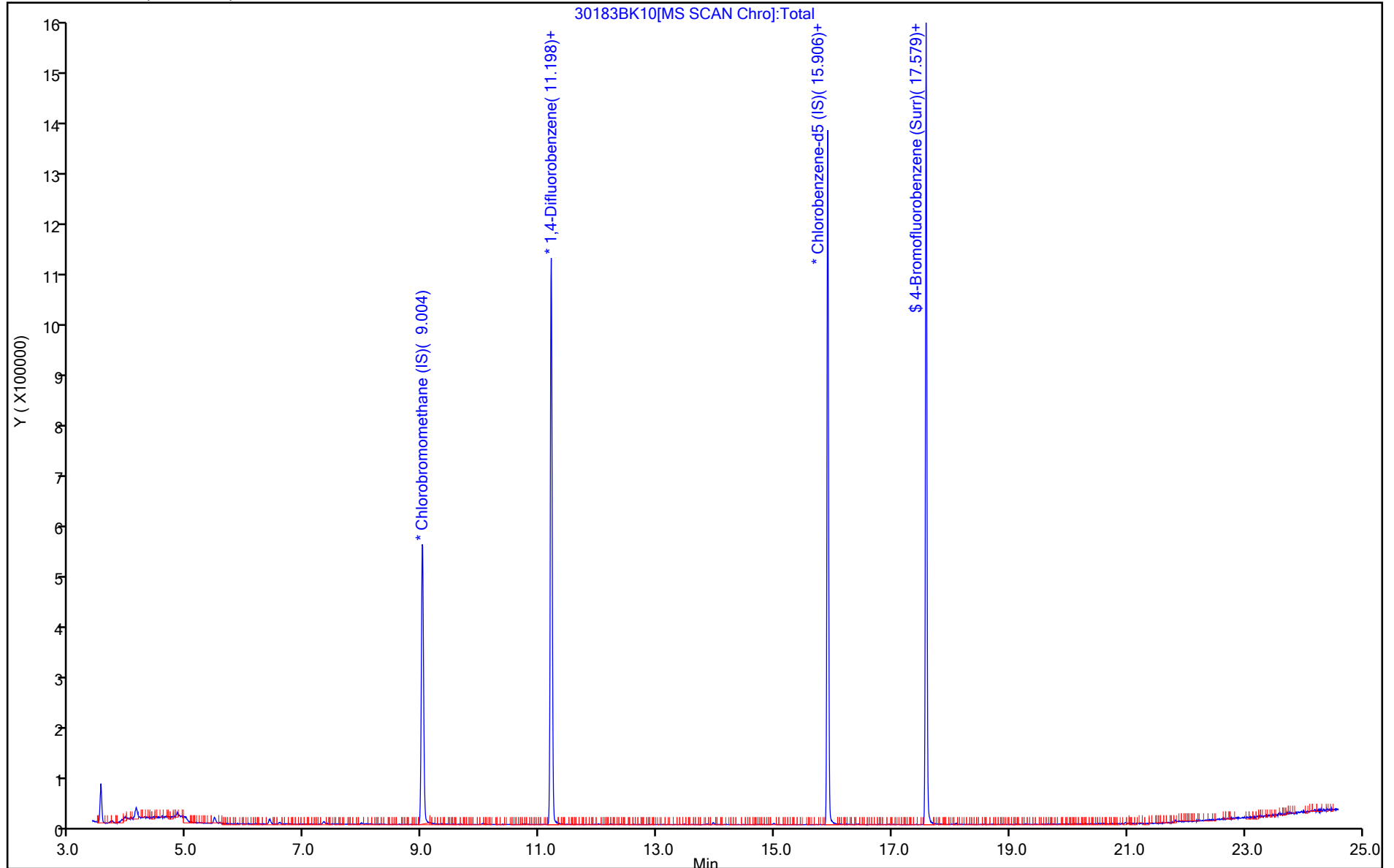
Dil. Factor: 1.0000

ALS Bottle#: 10

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

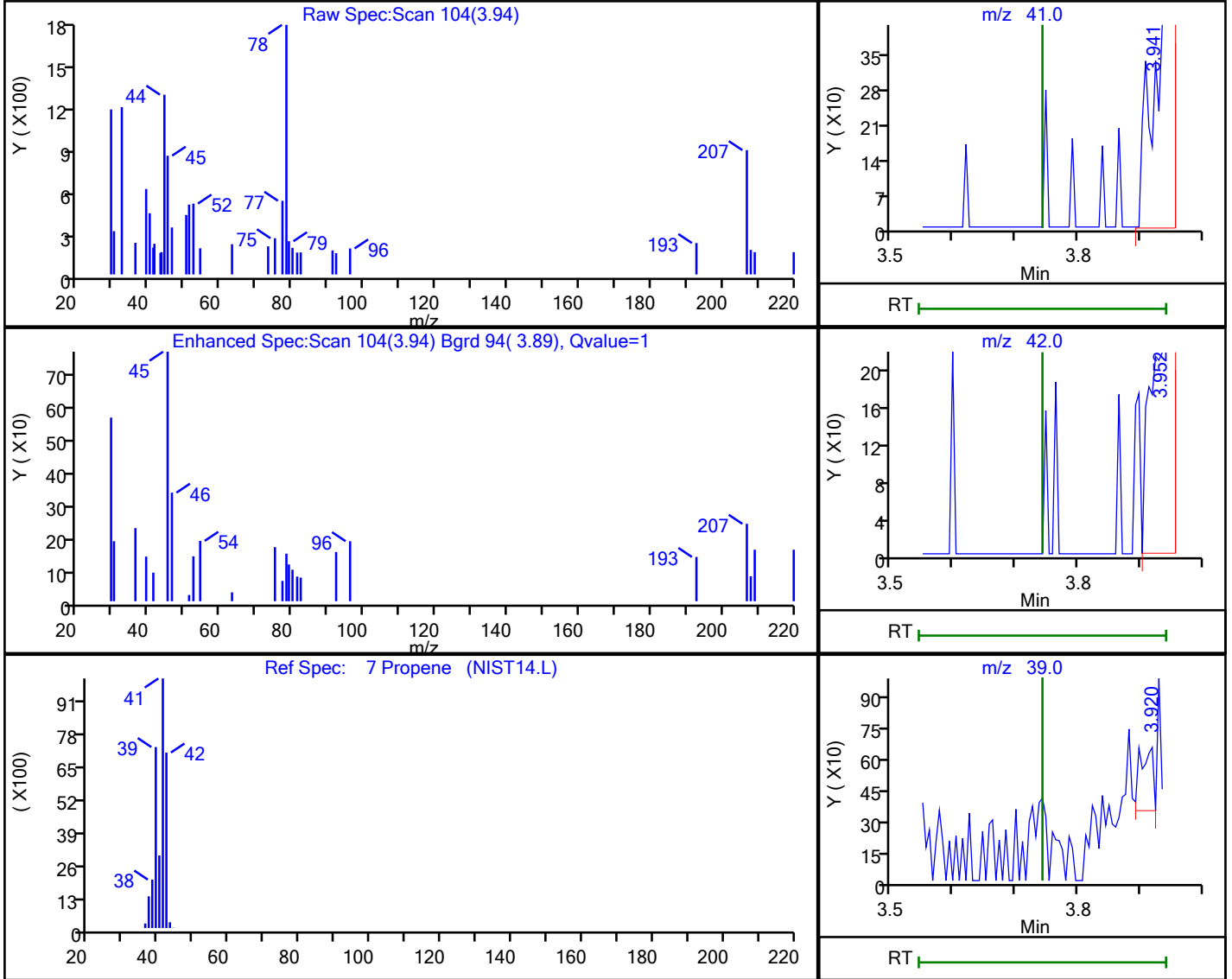


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK10.D
 Injection Date: 11-Jan-2023 17:12:30 Instrument ID: MS
 Lims ID: 140-30183-A-10 Lab Sample ID: 140-30183-10
 Client ID: 34001132
 Operator ID: ALS Bottle#: 10 Worklist Smp#: 13
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.94	41.00	1019	0.016582
3.95	42.00	509	
3.92	39.00	436	

Reviewer: khachitpongpanits, 12-Jan-2023 12:22:15

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000257 Lab Sample ID: 140-30183-11
 Matrix: Air Lab File ID: 30183BK11.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 18:01
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.080	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080	
79-00-5	1,1,2-Trichloroethane	ND		0.080	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080	
75-34-3	1,1-Dichloroethane	ND		0.080	
75-35-4	1,1-Dichloroethene	ND		0.040	
87-61-6	1,2,3-Trichlorobenzene	ND		0.40	
96-18-4	1,2,3-Trichloropropane	ND		0.20	
526-73-8	1,2,3-Trimethylbenzene	ND		0.080	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080	
120-82-1	1,2,4-Trichlorobenzene	ND		0.080	
95-63-6	1,2,4-Trimethylbenzene	ND		0.080	
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16	
106-93-4	1,2-Dibromoethane	ND		0.080	
95-50-1	1,2-Dichlorobenzene	ND		0.080	
107-06-2	1,2-Dichloroethane	ND		0.080	
78-87-5	1,2-Dichloropropane	ND		0.080	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080	
108-67-8	1,3,5-Trimethylbenzene	ND		0.16	
106-99-0	1,3-Butadiene	ND		0.16	
541-73-1	1,3-Dichlorobenzene	ND		0.080	
106-46-7	1,4-Dichlorobenzene	ND		0.080	
123-91-1	1,4-Dioxane	ND		0.20	
71-36-3	1-Butanol	ND		0.80	
90-12-0	1-Methylnaphthalene	ND		1.0	
540-84-1	2,2,4-Trimethylpentane	ND		0.20	
565-59-3	2,3-Dimethylpentane	ND		0.080	
78-93-3	2-Butanone	ND		0.32	
95-49-8	2-Chlorotoluene	ND		0.16	
591-78-6	2-Hexanone	ND		0.20	
78-78-4	2-Methylbutane	ND		0.20	
91-57-6	2-Methylnaphthalene	ND		1.0	
107-83-5	2-Methylpentane	ND		0.080	
107-05-1	3-Chloroprene	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000257 Lab Sample ID: 140-30183-11
 Matrix: Air Lab File ID: 30183BK11.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 18:01
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	0.090		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000257 Lab Sample ID: 140-30183-11
 Matrix: Air Lab File ID: 30183BK11.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 18:01
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000257 Lab Sample ID: 140-30183-11
 Matrix: Air Lab File ID: 30183BK11.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 18:01
 Soil Aliquot Vol.: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 34000257 Lab Sample ID: 140-30183-11
 Matrix: Air Lab File ID: 30183BK11.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 18:01
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK11.D
 Lims ID: 140-30183-A-11
 Client ID: 34000257
 Sample Type: Client
 Inject. Date: 11-Jan-2023 18:01:30 ALS Bottle#: 11 Worklist Smp#: 14
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-014
 Misc. Info.: 34000257
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 12:22:22 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits

Date: 12-Jan-2023 12:23:30

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	83	170363	3.76	
* 2 1,4-Difluorobenzene	114	11.198	11.204	-0.006	96	834025	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.905	15.906	-0.001	92	646424	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.578	17.578	-0.001	92	425392	3.64	
6 Chlorodifluoromethane	51	3.688	3.726	-0.038	90	11479	0.0905	
7 Propene	41	3.731	3.742	-0.011	31	853	0.0145	7
29 2-Methyl-2-propanol	59	6.174	6.147	0.027	96	9564	0.0856	
33 Carbon disulfide	76	6.583	6.577	0.006	95	14052	0.0819	
61 1,4-Dioxane	88	12.194	12.150	0.038	74	1584	0.0690	

QC Flag Legend

Processing Flags

7 - Failed Limit of Detection

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK11.D

Injection Date: 11-Jan-2023 18:01:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-11

Lab Sample ID: 140-30183-11

Worklist Smp#: 14

Client ID: 34000257

Purge Vol: 500.000 mL

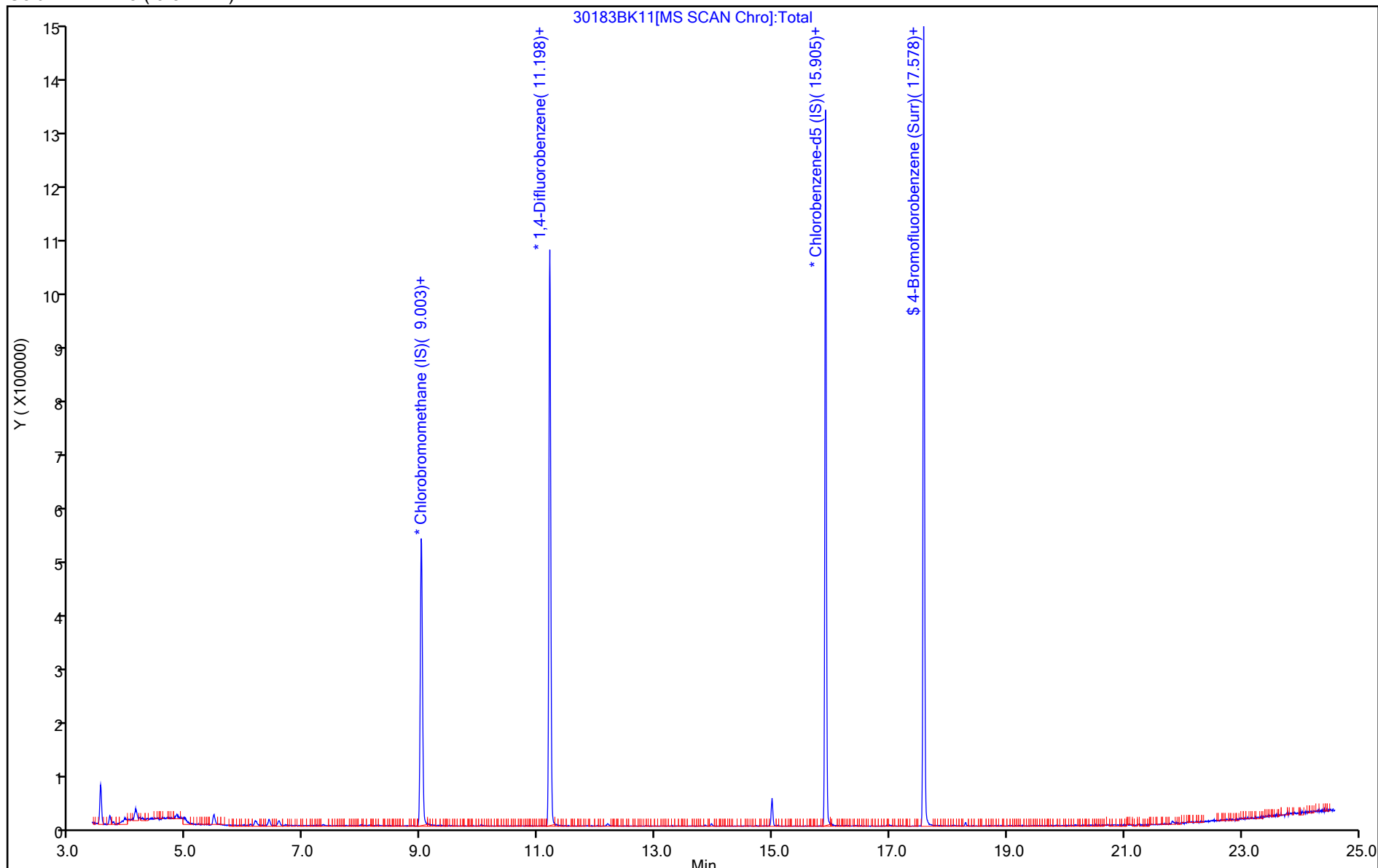
Dil. Factor: 1.0000

ALS Bottle#: 11

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

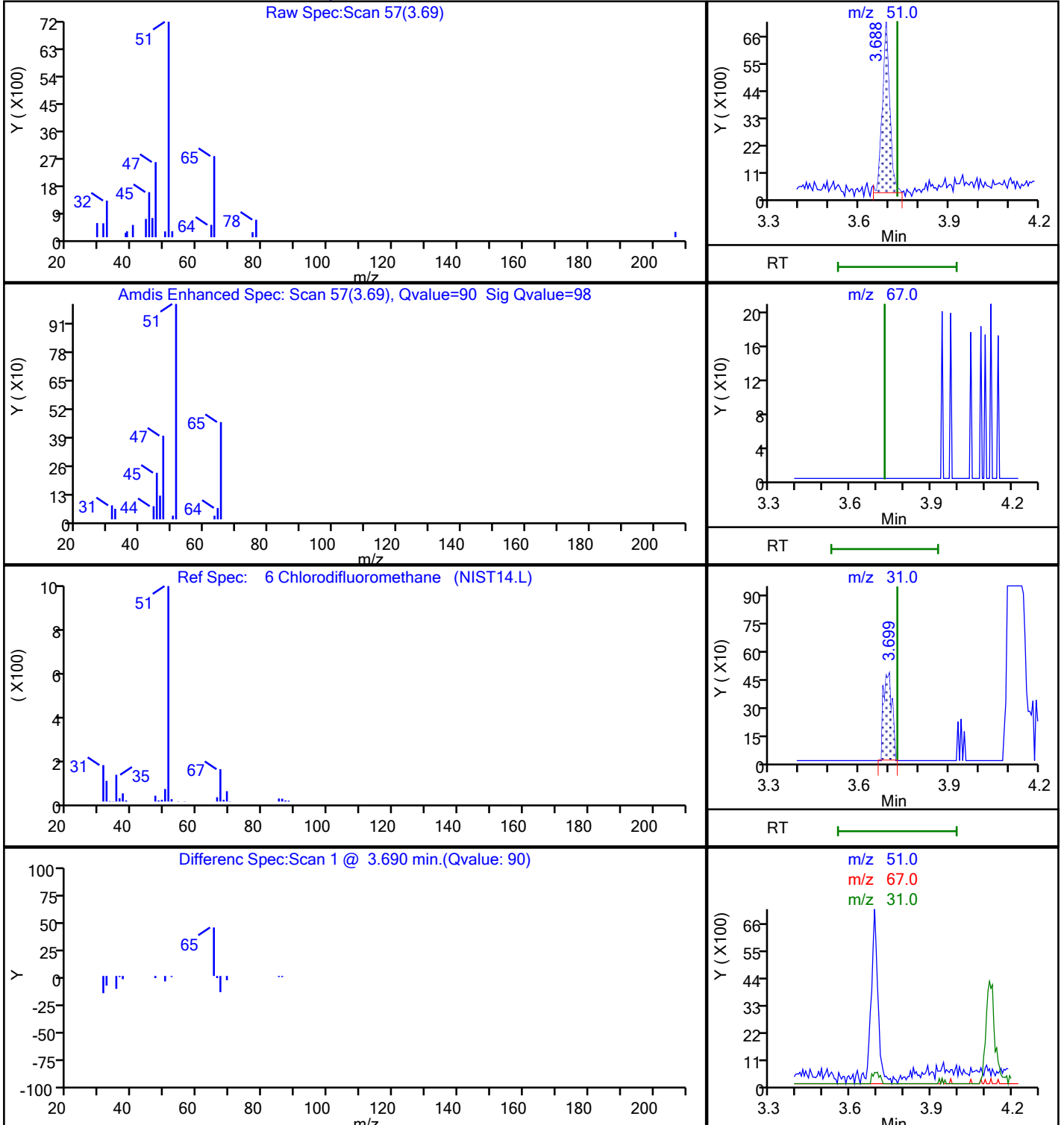
Column: RTX-5 (0.32 mm)



Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK11.D
 Injection Date: 11-Jan-2023 18:01:30 Instrument ID: MS
 Lims ID: 140-30183-A-11 Lab Sample ID: 140-30183-11
 Client ID: 34000257
 Operator ID: ALS Bottle#: 11 Worklist Smp#: 14
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

6 Chlorodifluoromethane, CAS: 75-45-6



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 8259 Lab Sample ID: 140-30183-12
 Matrix: Air Lab File ID: 30183BK12.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 18:50
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.080	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080	
79-00-5	1,1,2-Trichloroethane	ND		0.080	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080	
75-34-3	1,1-Dichloroethane	ND		0.080	
75-35-4	1,1-Dichloroethene	ND		0.040	
87-61-6	1,2,3-Trichlorobenzene	ND		0.40	
96-18-4	1,2,3-Trichloropropane	ND		0.20	
526-73-8	1,2,3-Trimethylbenzene	ND		0.080	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080	
120-82-1	1,2,4-Trichlorobenzene	ND		0.080	
95-63-6	1,2,4-Trimethylbenzene	ND		0.080	
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16	
106-93-4	1,2-Dibromoethane	ND		0.080	
95-50-1	1,2-Dichlorobenzene	ND		0.080	
107-06-2	1,2-Dichloroethane	ND		0.080	
78-87-5	1,2-Dichloropropane	ND		0.080	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080	
108-67-8	1,3,5-Trimethylbenzene	ND		0.16	
106-99-0	1,3-Butadiene	ND		0.16	
541-73-1	1,3-Dichlorobenzene	ND		0.080	
106-46-7	1,4-Dichlorobenzene	ND		0.080	
123-91-1	1,4-Dioxane	ND		0.20	
71-36-3	1-Butanol	ND		0.80	
90-12-0	1-Methylnaphthalene	ND		1.0	
540-84-1	2,2,4-Trimethylpentane	ND		0.20	
565-59-3	2,3-Dimethylpentane	ND		0.080	
78-93-3	2-Butanone	ND		0.32	
95-49-8	2-Chlorotoluene	ND		0.16	
591-78-6	2-Hexanone	ND		0.20	
78-78-4	2-Methylbutane	ND		0.20	
91-57-6	2-Methylnaphthalene	ND		1.0	
107-83-5	2-Methylpentane	ND		0.080	
107-05-1	3-Chloroprene	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 8259 Lab Sample ID: 140-30183-12
 Matrix: Air Lab File ID: 30183BK12.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 18:50
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 8259 Lab Sample ID: 140-30183-12
 Matrix: Air Lab File ID: 30183BK12.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 18:50
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 8259 Lab Sample ID: 140-30183-12
 Matrix: Air Lab File ID: 30183BK12.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 18:50
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 8259 Lab Sample ID: 140-30183-12
 Matrix: Air Lab File ID: 30183BK12.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 18:50
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK12.D
 Lims ID: 140-30183-A-12
 Client ID: 8259
 Sample Type: Client
 Inject. Date: 11-Jan-2023 18:50:30 ALS Bottle#: 12 Worklist Smp#: 15
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-015
 Misc. Info.: 8259
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 12:24:57 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits

Date: 12-Jan-2023 12:24:57

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	84	166026	3.76	
* 2 1,4-Difluorobenzene	114	11.198	11.204	-0.006	96	809801	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.906	15.906	0.000	92	632137	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.578	0.000	91	414688	3.62	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK12.D

Injection Date: 11-Jan-2023 18:50:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-12

Lab Sample ID: 140-30183-12

Worklist Smp#: 15

Client ID: 8259

Purge Vol: 500.000 mL

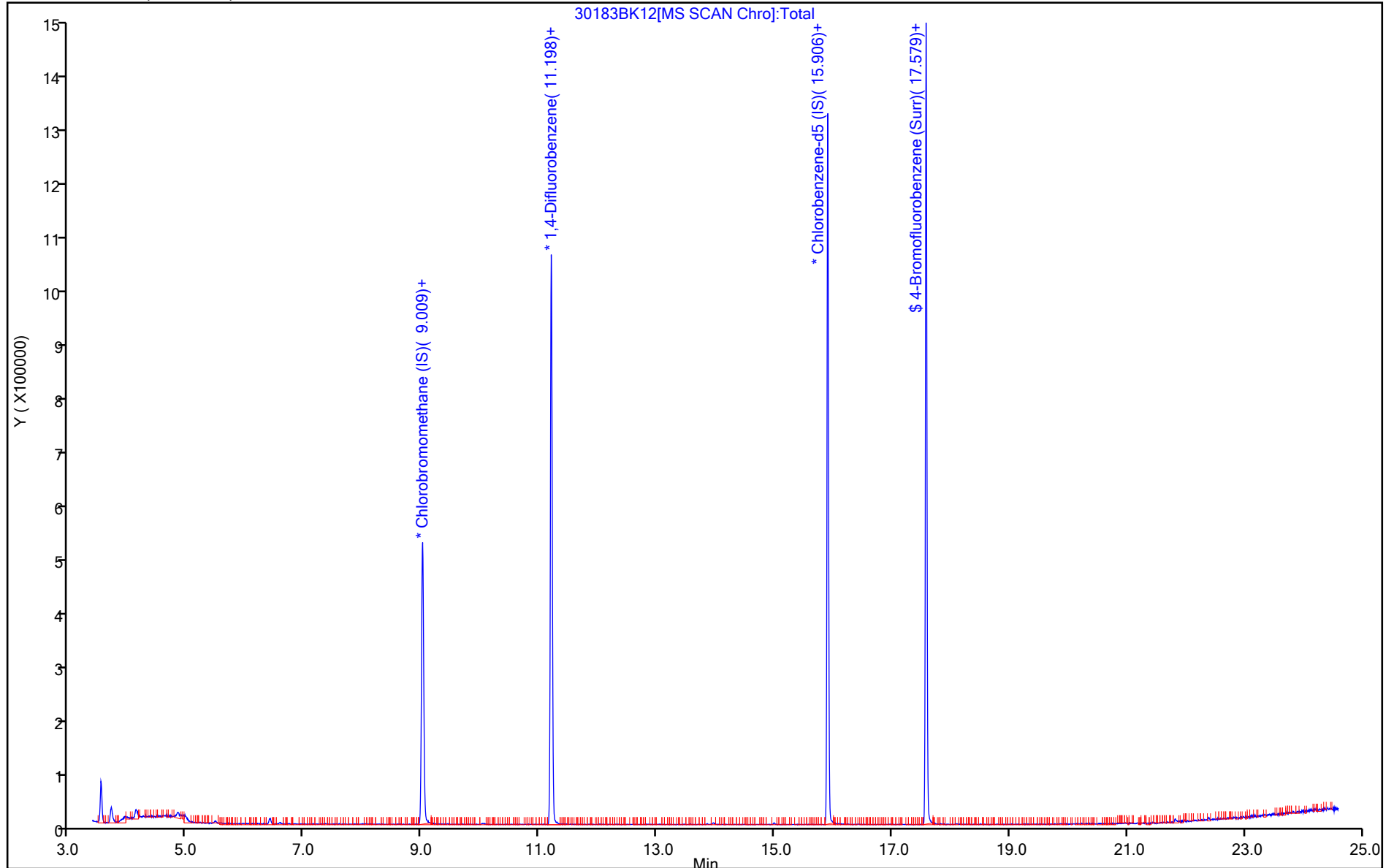
Dil. Factor: 1.0000

ALS Bottle#: 12

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

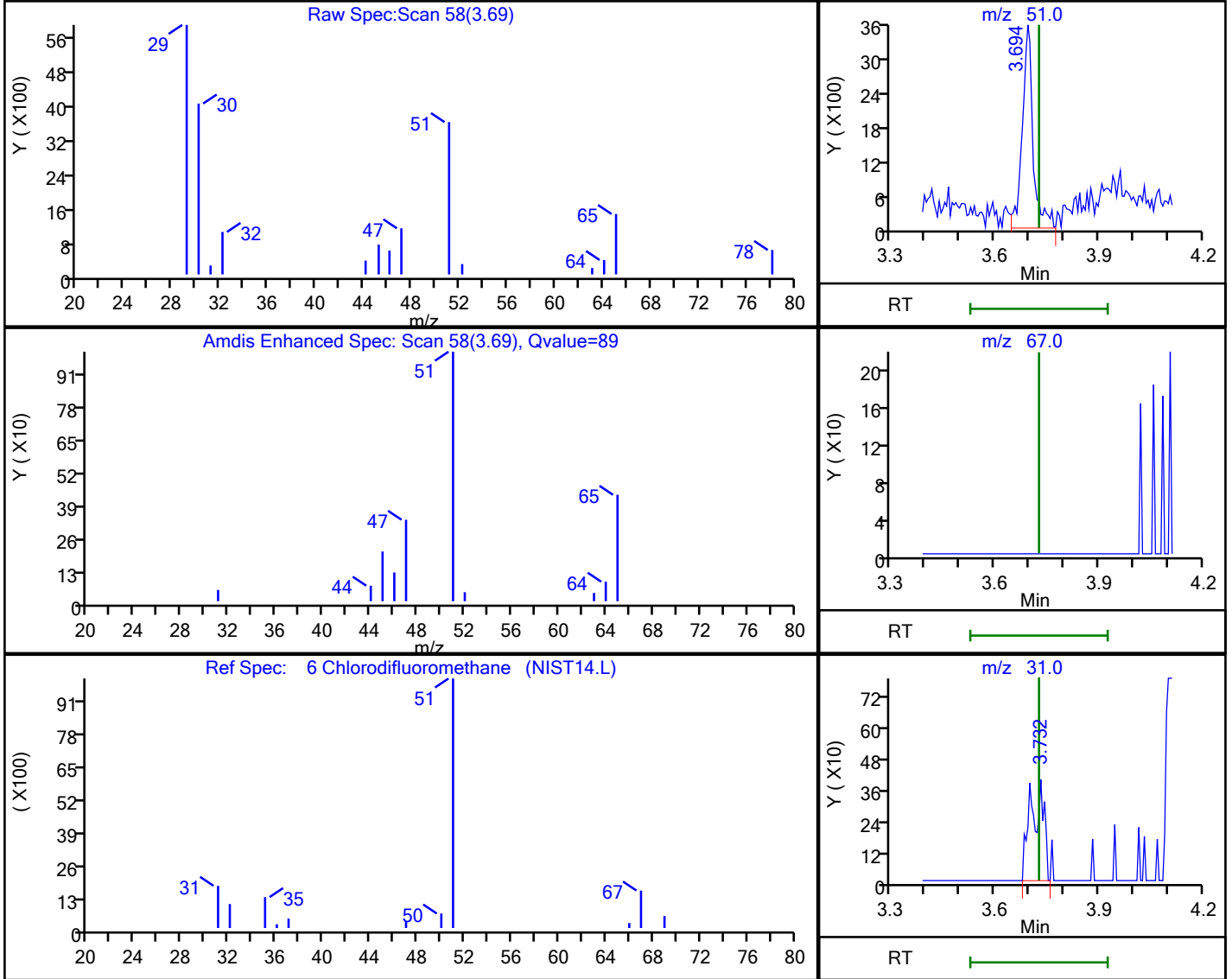


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK12.D
 Injection Date: 11-Jan-2023 18:50:30 Instrument ID: MS
 Lims ID: 140-30183-A-12 Lab Sample ID: 140-30183-12
 Client ID: 8259
 Operator ID: ALS Bottle#: 12 Worklist Smp#: 15
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

6 Chlorodifluoromethane, CAS: 75-45-6

Processing Results



RT	Mass	Response	Amount
3.69	51.00	7608	0.061535
3.73	67.00	0	
3.73	31.00	1036	

Reviewer: khachitpongpanits, 12-Jan-2023 12:23:46

Audit Action: Marked Compound Undetected

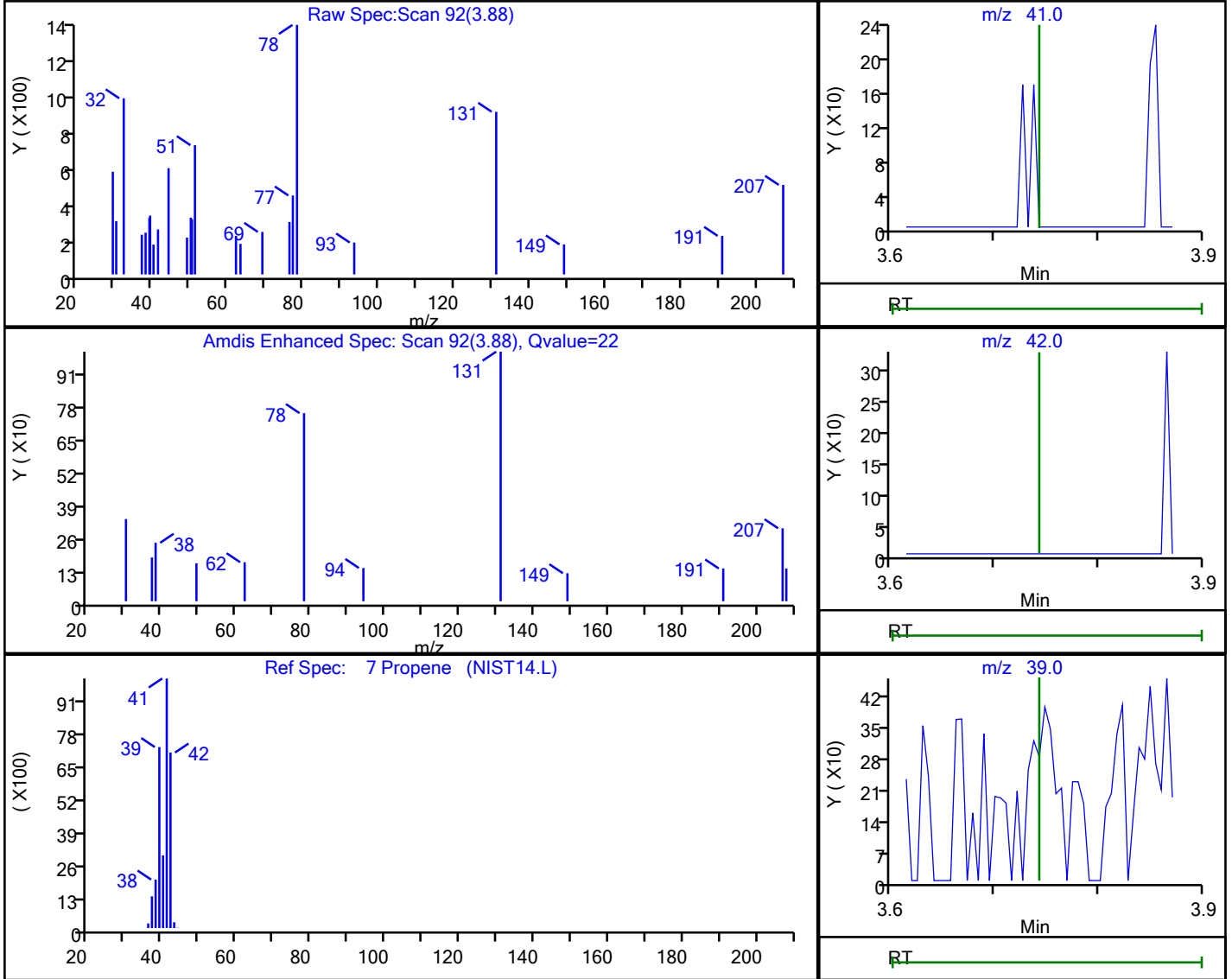
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK12.D
 Injection Date: 11-Jan-2023 18:50:30 Instrument ID: MS
 Lims ID: 140-30183-A-12 Lab Sample ID: 140-30183-12
 Client ID: 8259
 Operator ID: ALS Bottle#: 12 Worklist Smp#: 15
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.88	41.00	391	0.006804
3.74	42.00	0	
3.90	39.00	1139	

Reviewer: khachitpongpanits, 12-Jan-2023 12:23:44

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11973 Lab Sample ID: 140-30183-13
 Matrix: Air Lab File ID: 30183BK13.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 19:39
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.080	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080	
79-00-5	1,1,2-Trichloroethane	ND		0.080	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080	
75-34-3	1,1-Dichloroethane	ND		0.080	
75-35-4	1,1-Dichloroethene	ND		0.040	
87-61-6	1,2,3-Trichlorobenzene	ND		0.40	
96-18-4	1,2,3-Trichloropropane	ND		0.20	
526-73-8	1,2,3-Trimethylbenzene	ND		0.080	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080	
120-82-1	1,2,4-Trichlorobenzene	ND		0.080	
95-63-6	1,2,4-Trimethylbenzene	ND		0.080	
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16	
106-93-4	1,2-Dibromoethane	ND		0.080	
95-50-1	1,2-Dichlorobenzene	ND		0.080	
107-06-2	1,2-Dichloroethane	ND		0.080	
78-87-5	1,2-Dichloropropane	ND		0.080	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080	
108-67-8	1,3,5-Trimethylbenzene	ND		0.16	
106-99-0	1,3-Butadiene	ND		0.16	
541-73-1	1,3-Dichlorobenzene	ND		0.080	
106-46-7	1,4-Dichlorobenzene	ND		0.080	
123-91-1	1,4-Dioxane	ND		0.20	
71-36-3	1-Butanol	ND		0.80	
90-12-0	1-Methylnaphthalene	ND		1.0	
540-84-1	2,2,4-Trimethylpentane	ND		0.20	
565-59-3	2,3-Dimethylpentane	ND		0.080	
78-93-3	2-Butanone	ND		0.32	
95-49-8	2-Chlorotoluene	ND		0.16	
591-78-6	2-Hexanone	ND		0.20	
78-78-4	2-Methylbutane	ND		0.20	
91-57-6	2-Methylnaphthalene	ND		1.0	
107-83-5	2-Methylpentane	ND		0.080	
107-05-1	3-Chloroprene	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11973 Lab Sample ID: 140-30183-13
 Matrix: Air Lab File ID: 30183BK13.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 19:39
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11973 Lab Sample ID: 140-30183-13
 Matrix: Air Lab File ID: 30183BK13.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 19:39
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11973 Lab Sample ID: 140-30183-13
 Matrix: Air Lab File ID: 30183BK13.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 19:39
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11973 Lab Sample ID: 140-30183-13
 Matrix: Air Lab File ID: 30183BK13.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 19:39
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK13.D
 Lims ID: 140-30183-A-13
 Client ID: 11973
 Sample Type: Client
 Inject. Date: 11-Jan-2023 19:39:30 ALS Bottle#: 13 Worklist Smp#: 16
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-016
 Misc. Info.: 11973
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 12:26:00 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits

Date: 12-Jan-2023 12:26:00

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	83	169859	3.76	
* 2 1,4-Difluorobenzene	114	11.198	11.204	-0.006	96	836130	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.906	15.906	0.000	92	644767	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.578	0.000	92	429143	3.68	
29 2-Methyl-2-propanol	59	6.174	6.147	0.027	94	9588	0.0860	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK13.D

Injection Date: 11-Jan-2023 19:39:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-13

Lab Sample ID: 140-30183-13

Worklist Smp#: 16

Client ID: 11973

Purge Vol: 500.000 mL

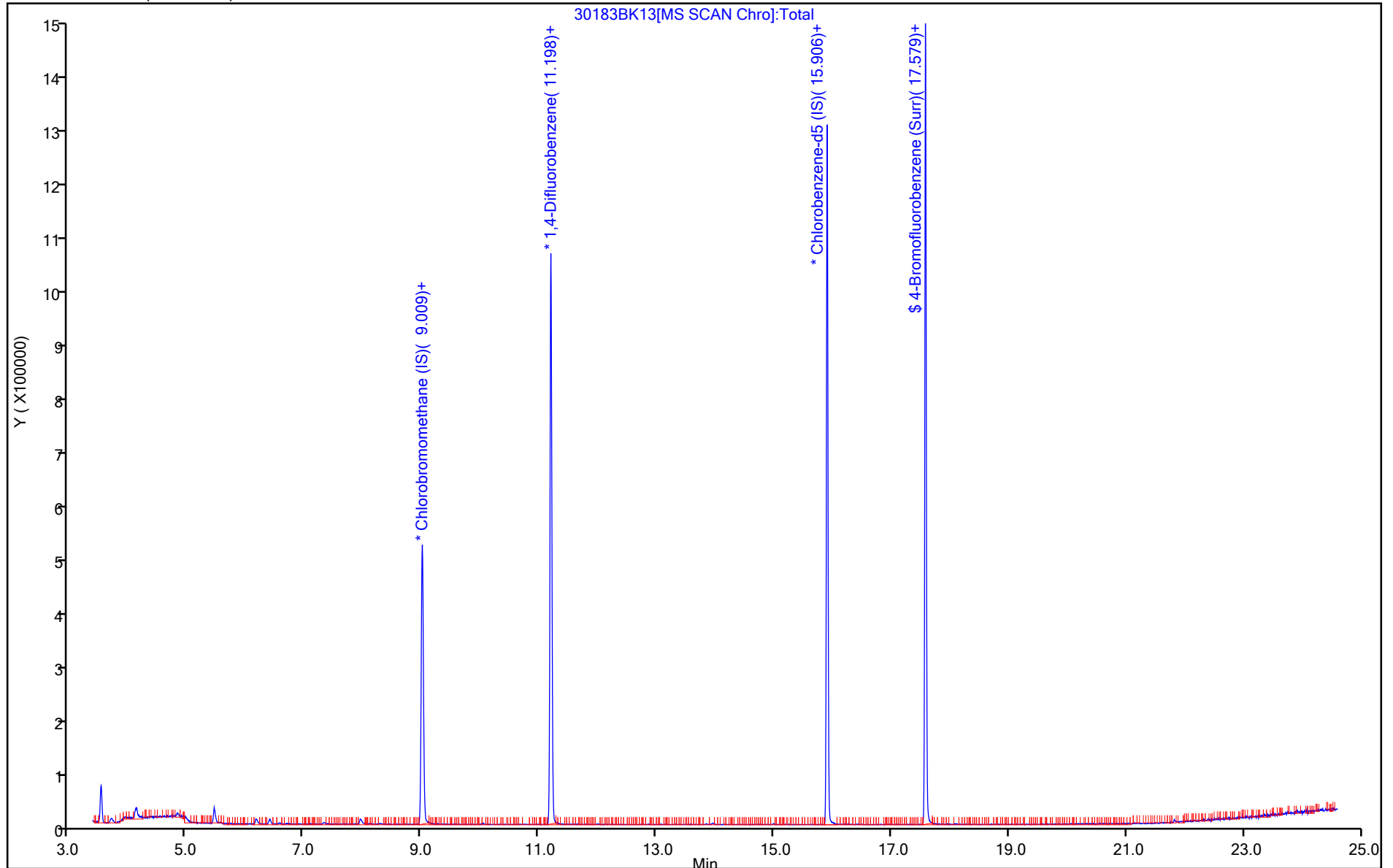
Dil. Factor: 1.0000

ALS Bottle#: 13

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

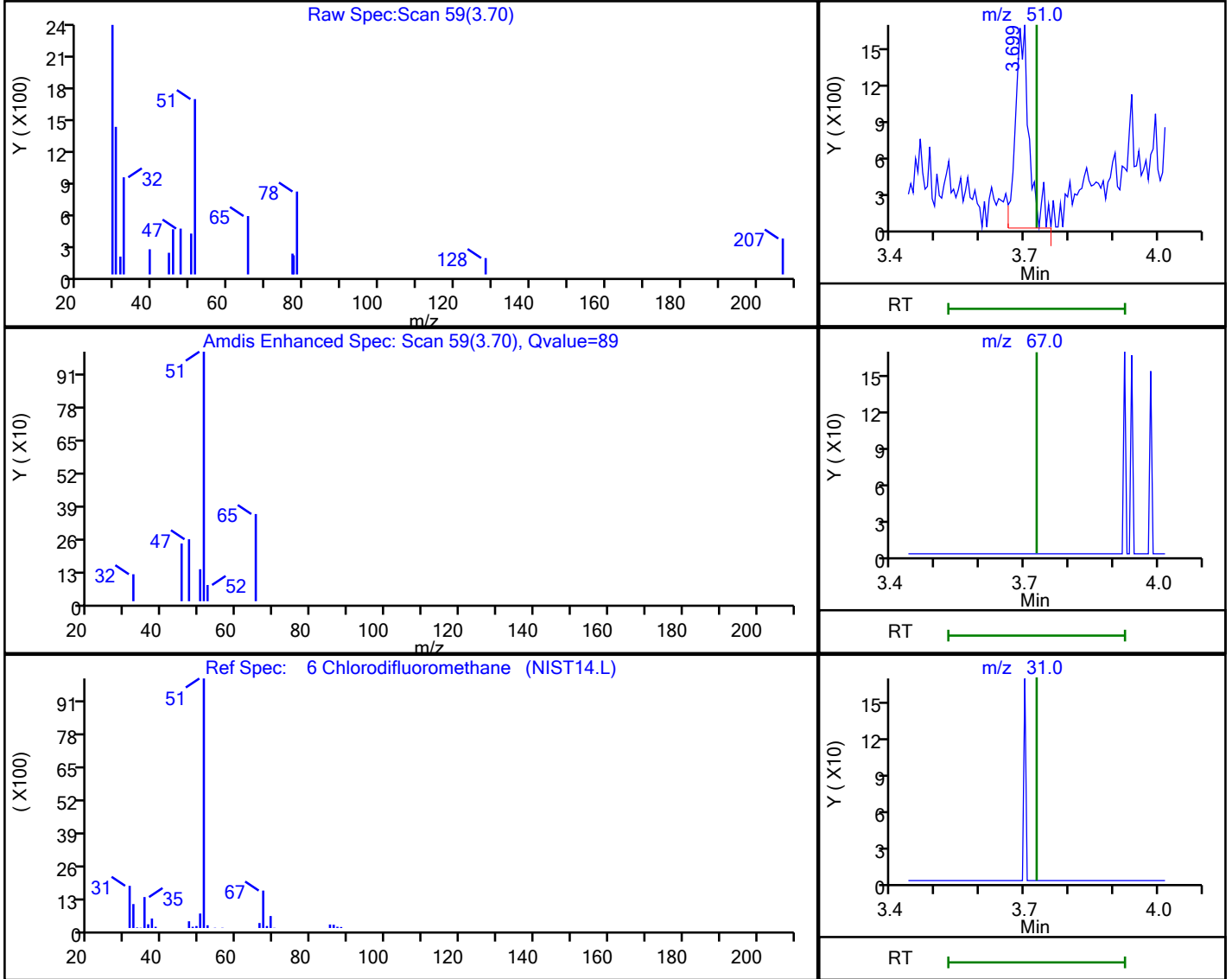


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK13.D
 Injection Date: 11-Jan-2023 19:39:30 Instrument ID: MS
 Lims ID: 140-30183-A-13 Lab Sample ID: 140-30183-13
 Client ID: 11973
 Operator ID: ALS Bottle#: 13 Worklist Smp#: 16
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

6 Chlorodifluoromethane, CAS: 75-45-6

Processing Results



RT	Mass	Response	Amount
3.70	51.00	3491	0.027599
3.73	67.00	0	
3.73	31.00	0	

Reviewer: khachitpongpanits, 12-Jan-2023 12:25:42

Audit Action: Marked Compound Undetected

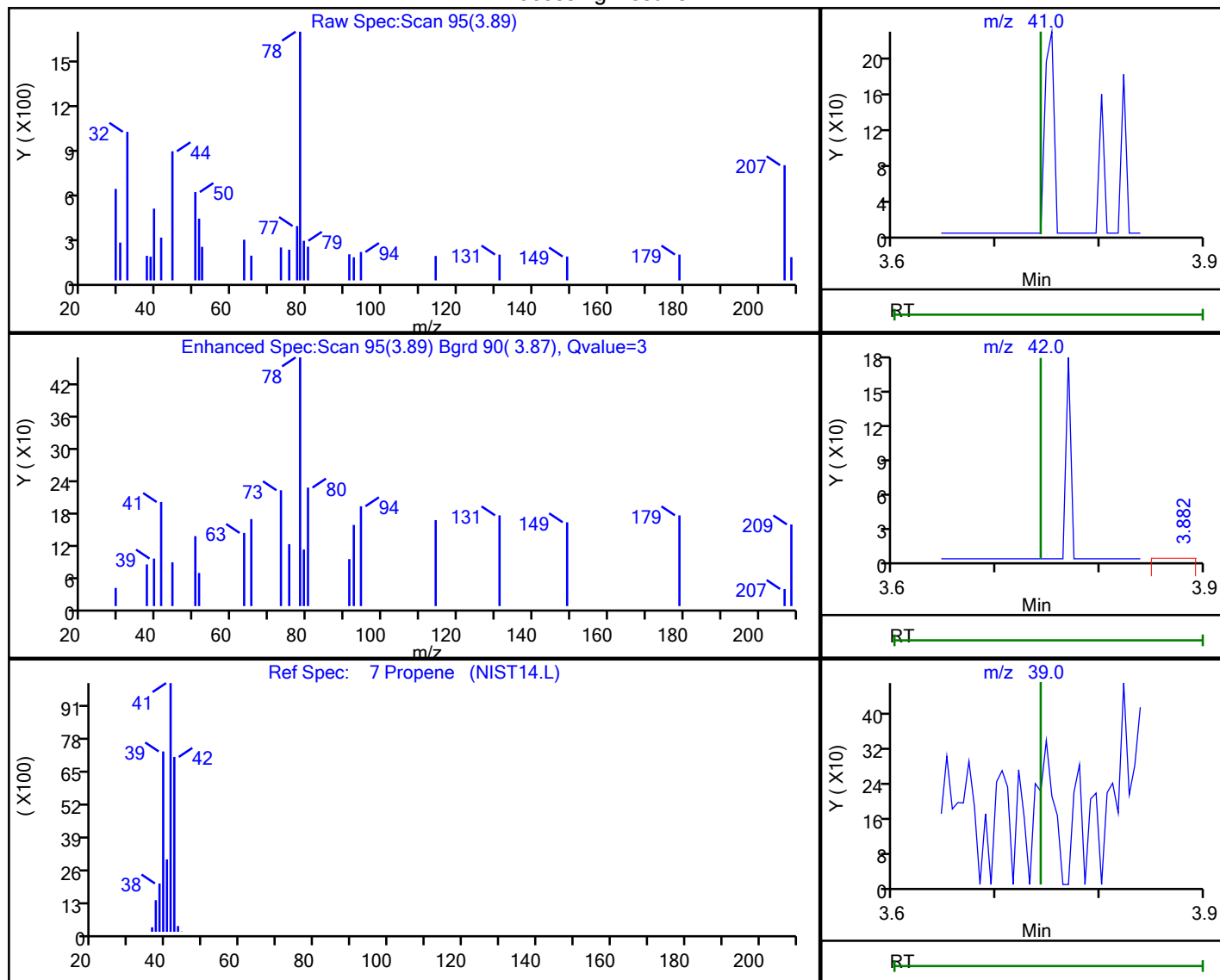
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK13.D
 Injection Date: 11-Jan-2023 19:39:30 Instrument ID: MS
 Lims ID: 140-30183-A-13 Lab Sample ID: 140-30183-13
 Client ID: 11973
 Operator ID: ALS Bottle#: 13 Worklist Smp#: 16
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.89	41.00	308	0.005239
3.88	42.00	200	
3.89	39.00	325	

Reviewer: khachitpongpanits, 12-Jan-2023 12:25:45

Audit Action: Marked Compound Undetected

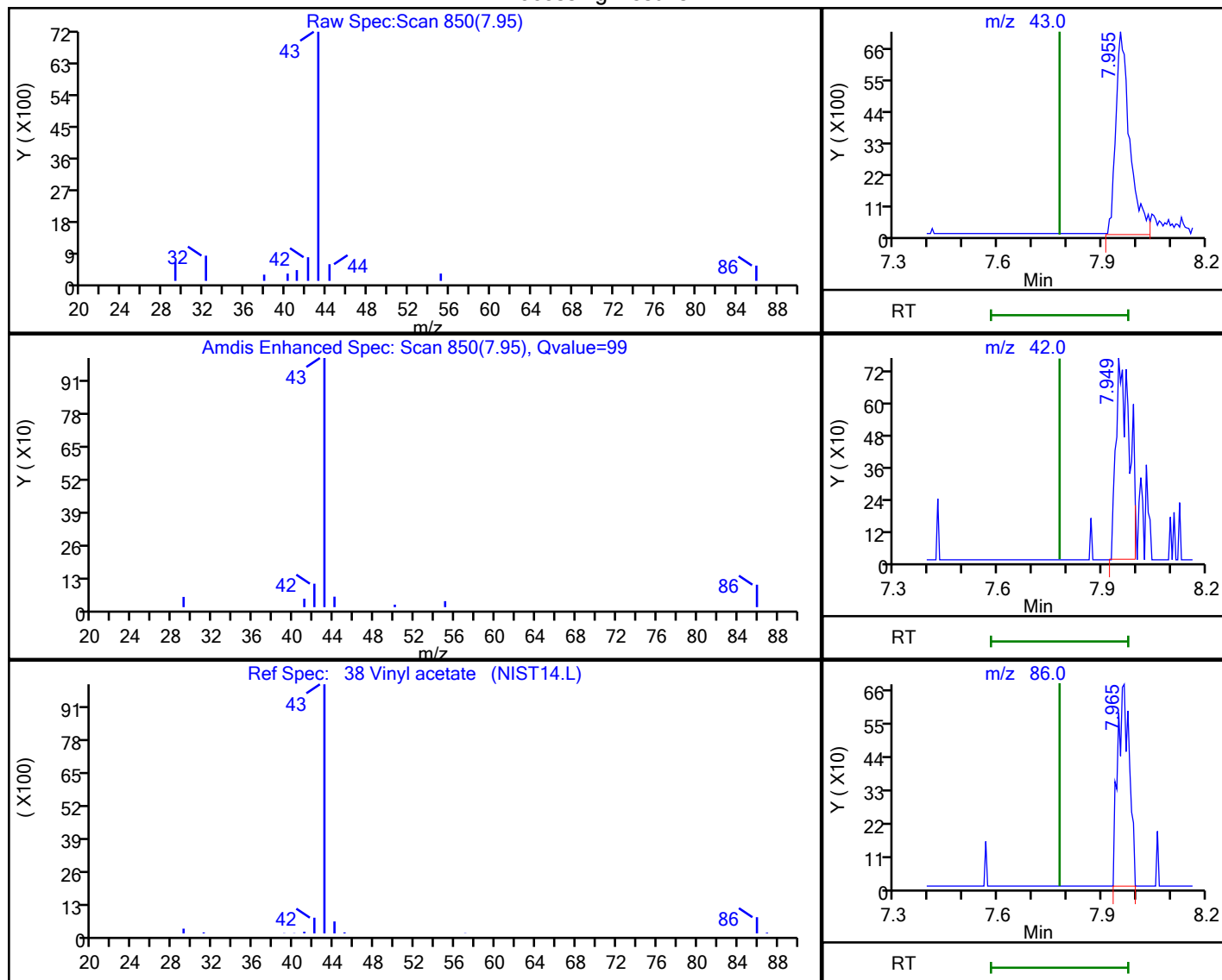
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK13.D
 Injection Date: 11-Jan-2023 19:39:30 Instrument ID: MS
 Lims ID: 140-30183-A-13 Lab Sample ID: 140-30183-13
 Client ID: 11973
 Operator ID: ALS Bottle#: 13 Worklist Smp#: 16
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

38 Vinyl acetate, CAS: 108-05-4

Processing Results



RT	Mass	Response	Amount
7.95	43.00	19966	0.129804
7.95	42.00	2122	
7.97	86.00	1593	

Reviewer: khachitpongpanits, 12-Jan-2023 12:25:51

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11221 Lab Sample ID: 140-30183-14
 Matrix: Air Lab File ID: 30183BK14.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 20:28
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
71-55-6	1,1,1-Trichloroethane	ND		0.080
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080
79-00-5	1,1,2-Trichloroethane	ND		0.080
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080
75-34-3	1,1-Dichloroethane	ND		0.080
75-35-4	1,1-Dichloroethene	ND		0.040
87-61-6	1,2,3-Trichlorobenzene	ND		0.40
96-18-4	1,2,3-Trichloropropane	ND		0.20
526-73-8	1,2,3-Trimethylbenzene	ND		0.080
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080
120-82-1	1,2,4-Trichlorobenzene	ND		0.080
95-63-6	1,2,4-Trimethylbenzene	ND		0.080
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16
106-93-4	1,2-Dibromoethane	ND		0.080
95-50-1	1,2-Dichlorobenzene	ND		0.080
107-06-2	1,2-Dichloroethane	ND		0.080
78-87-5	1,2-Dichloropropane	ND		0.080
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080
108-67-8	1,3,5-Trimethylbenzene	ND		0.16
106-99-0	1,3-Butadiene	ND		0.16
541-73-1	1,3-Dichlorobenzene	ND		0.080
106-46-7	1,4-Dichlorobenzene	ND		0.080
123-91-1	1,4-Dioxane	ND		0.20
71-36-3	1-Butanol	ND		0.80
90-12-0	1-Methylnaphthalene	ND		1.0
540-84-1	2,2,4-Trimethylpentane	ND		0.20
565-59-3	2,3-Dimethylpentane	ND		0.080
78-93-3	2-Butanone	ND		0.32
95-49-8	2-Chlorotoluene	ND		0.16
591-78-6	2-Hexanone	ND		0.20
78-78-4	2-Methylbutane	ND		0.20
91-57-6	2-Methylnaphthalene	ND		1.0
107-83-5	2-Methylpentane	ND		0.080
107-05-1	3-Chloroprene	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11221 Lab Sample ID: 140-30183-14
 Matrix: Air Lab File ID: 30183BK14.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 20:28
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11221 Lab Sample ID: 140-30183-14
 Matrix: Air Lab File ID: 30183BK14.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 20:28
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11221 Lab Sample ID: 140-30183-14
 Matrix: Air Lab File ID: 30183BK14.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 20:28
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 11221 Lab Sample ID: 140-30183-14
 Matrix: Air Lab File ID: 30183BK14.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 20:28
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK14.D
 Lims ID: 140-30183-A-14
 Client ID: 11221
 Sample Type: Client
 Inject. Date: 11-Jan-2023 20:28:30 ALS Bottle#: 14 Worklist Smp#: 17
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-017
 Misc. Info.: 11221
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 12:26:26 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits

Date: 12-Jan-2023 12:26:26

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.004	9.009	-0.005	86	169055	3.76	
* 2 1,4-Difluorobenzene	114	11.198	11.204	-0.006	96	835531	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.906	15.906	0.000	92	653196	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.578	0.000	91	437587	3.70	
31 Methylene Chloride	84	6.416	6.411	0.005	96	10157	0.1867	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK14.D

Injection Date: 11-Jan-2023 20:28:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-14

Lab Sample ID: 140-30183-14

Worklist Smp#: 17

Client ID: 11221

Purge Vol: 500.000 mL

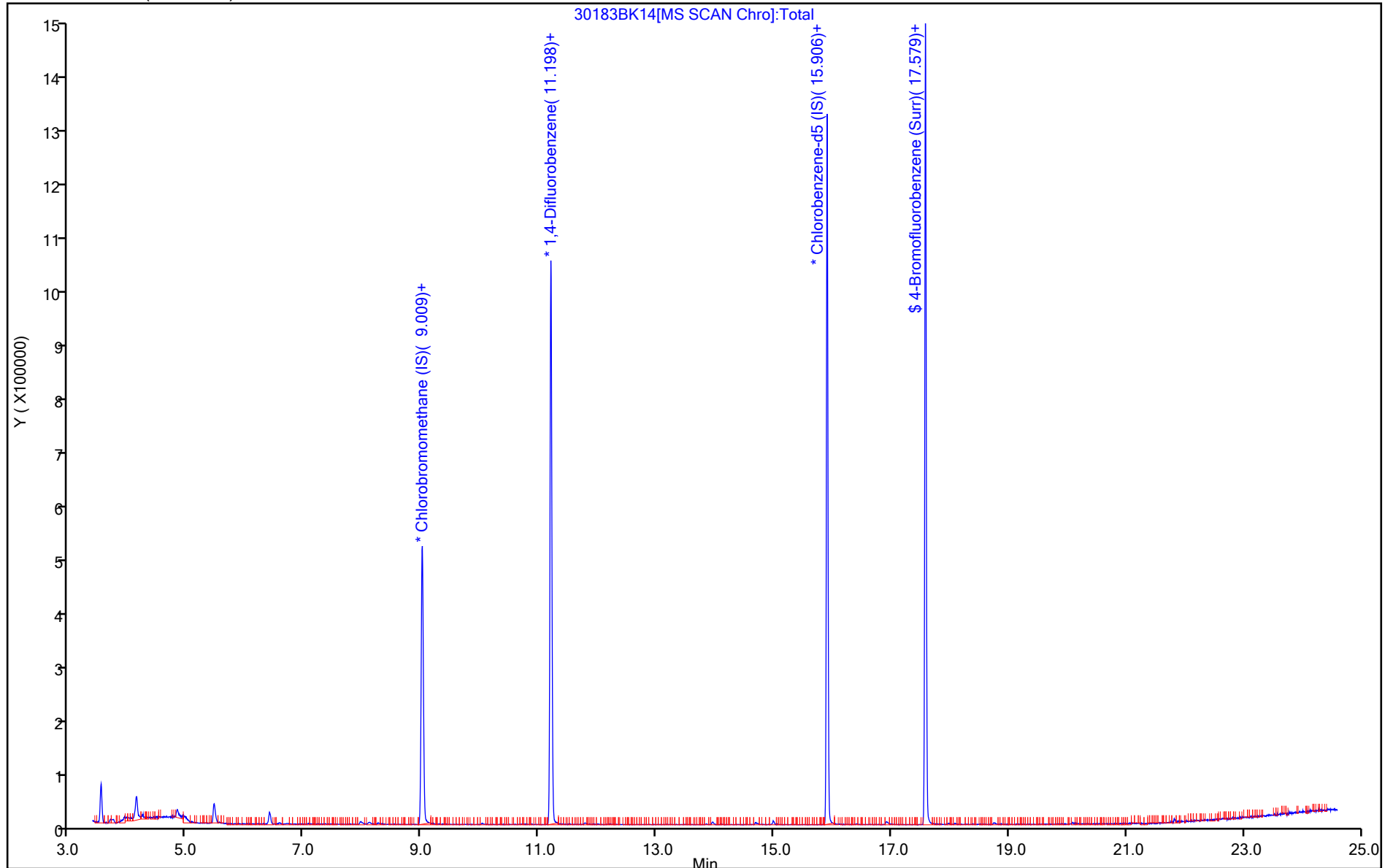
Dil. Factor: 1.0000

ALS Bottle#: 14

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

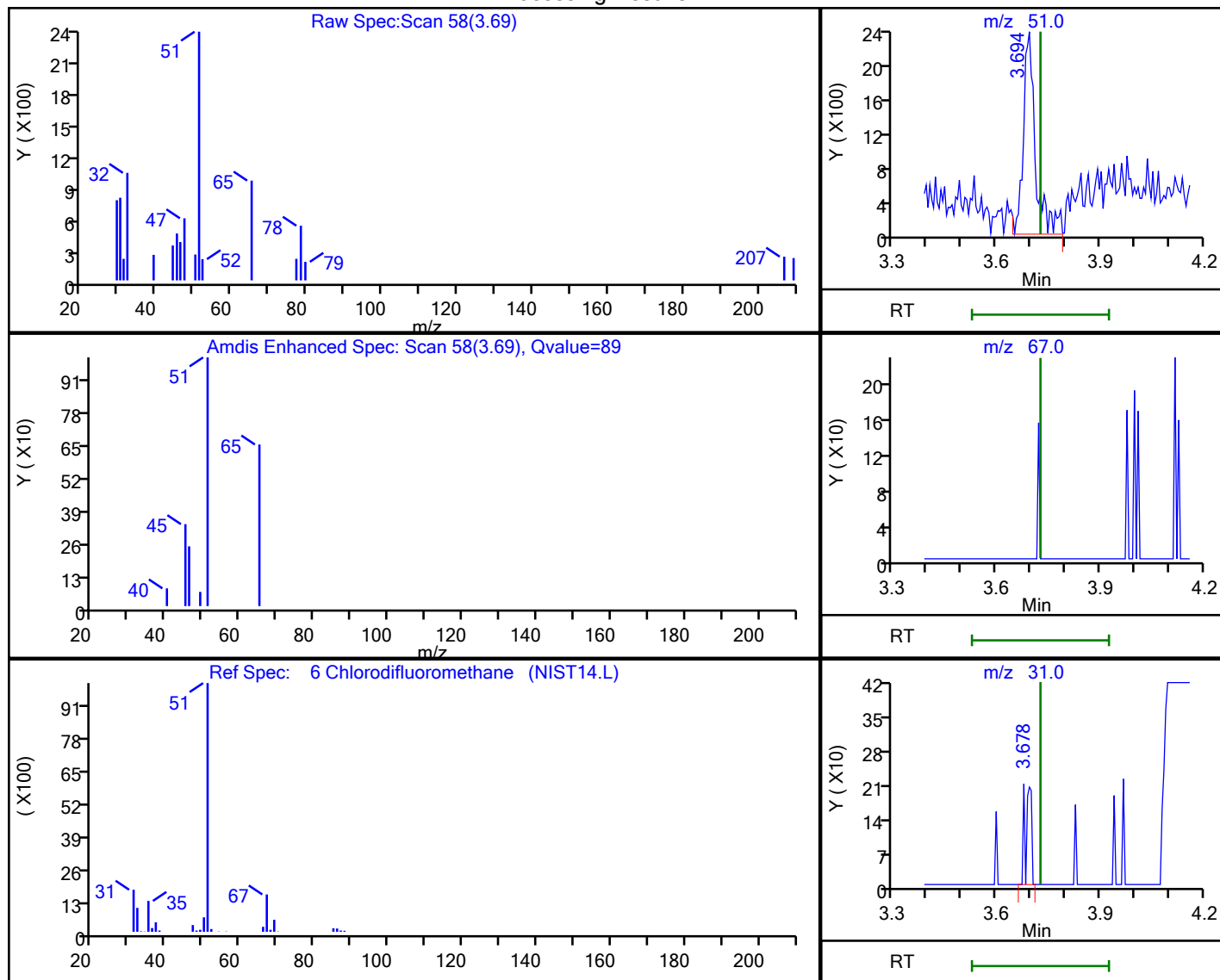


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK14.D
 Injection Date: 11-Jan-2023 20:28:30 Instrument ID: MS
 Lims ID: 140-30183-A-14 Lab Sample ID: 140-30183-14
 Client ID: 11221
 Operator ID: ALS Bottle#: 14 Worklist Smp#: 17
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

6 Chlorodifluoromethane, CAS: 75-45-6

Processing Results



RT	Mass	Response	Amount
3.69	51.00	5608	0.044546
3.73	67.00	0	
3.68	31.00	252	

Reviewer: khachitpongpanits, 12-Jan-2023 12:26:08

Audit Action: Marked Compound Undetected

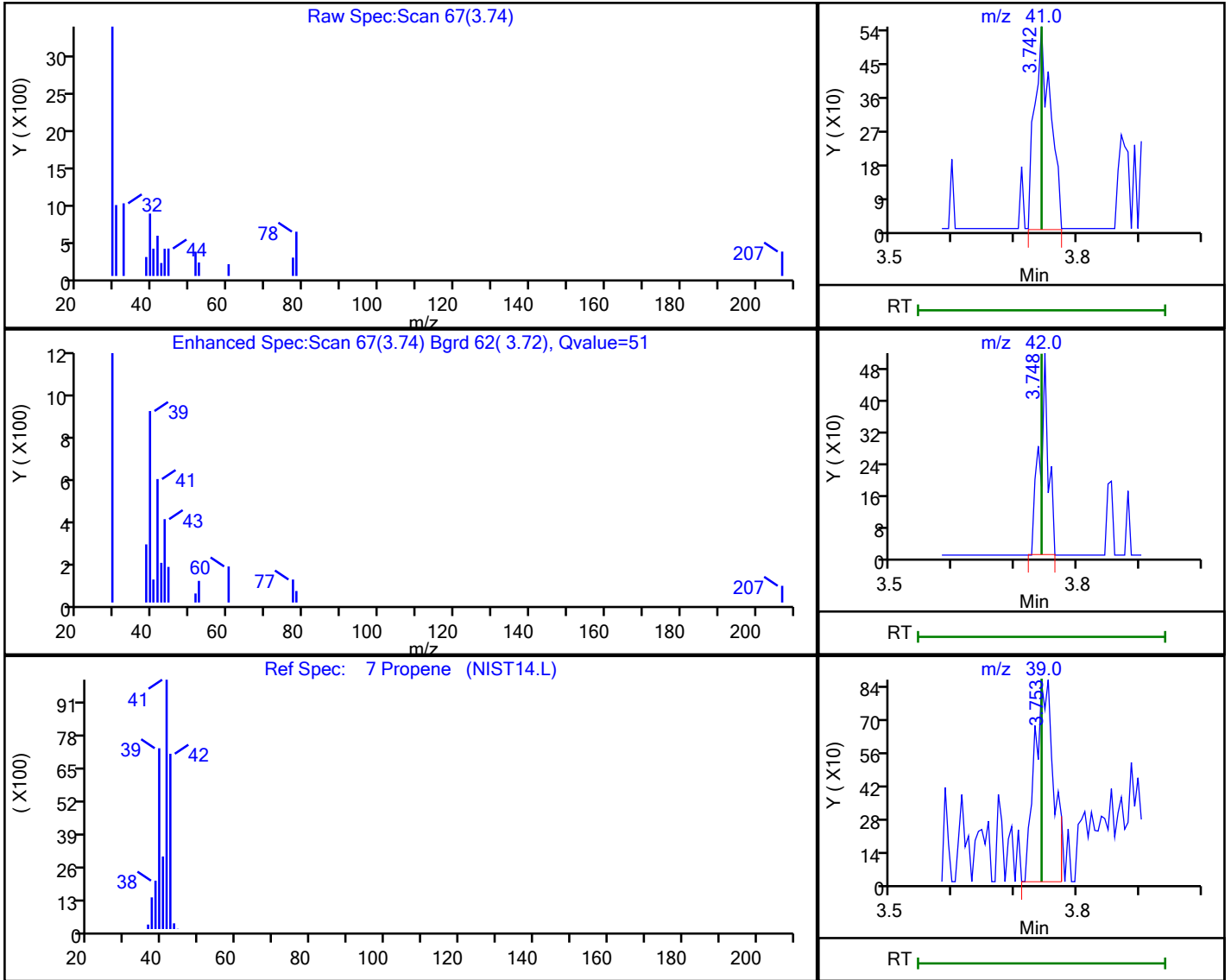
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK14.D
 Injection Date: 11-Jan-2023 20:28:30 Instrument ID: MS
 Lims ID: 140-30183-A-14 Lab Sample ID: 140-30183-14
 Client ID: 11221
 Operator ID: ALS Bottle#: 14 Worklist Smp#: 17
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.74	41.00	969	0.016560
3.75	42.00	503	
3.75	39.00	1841	

Reviewer: khachitpongpanits, 12-Jan-2023 12:26:10

Audit Action: Marked Compound Undetected

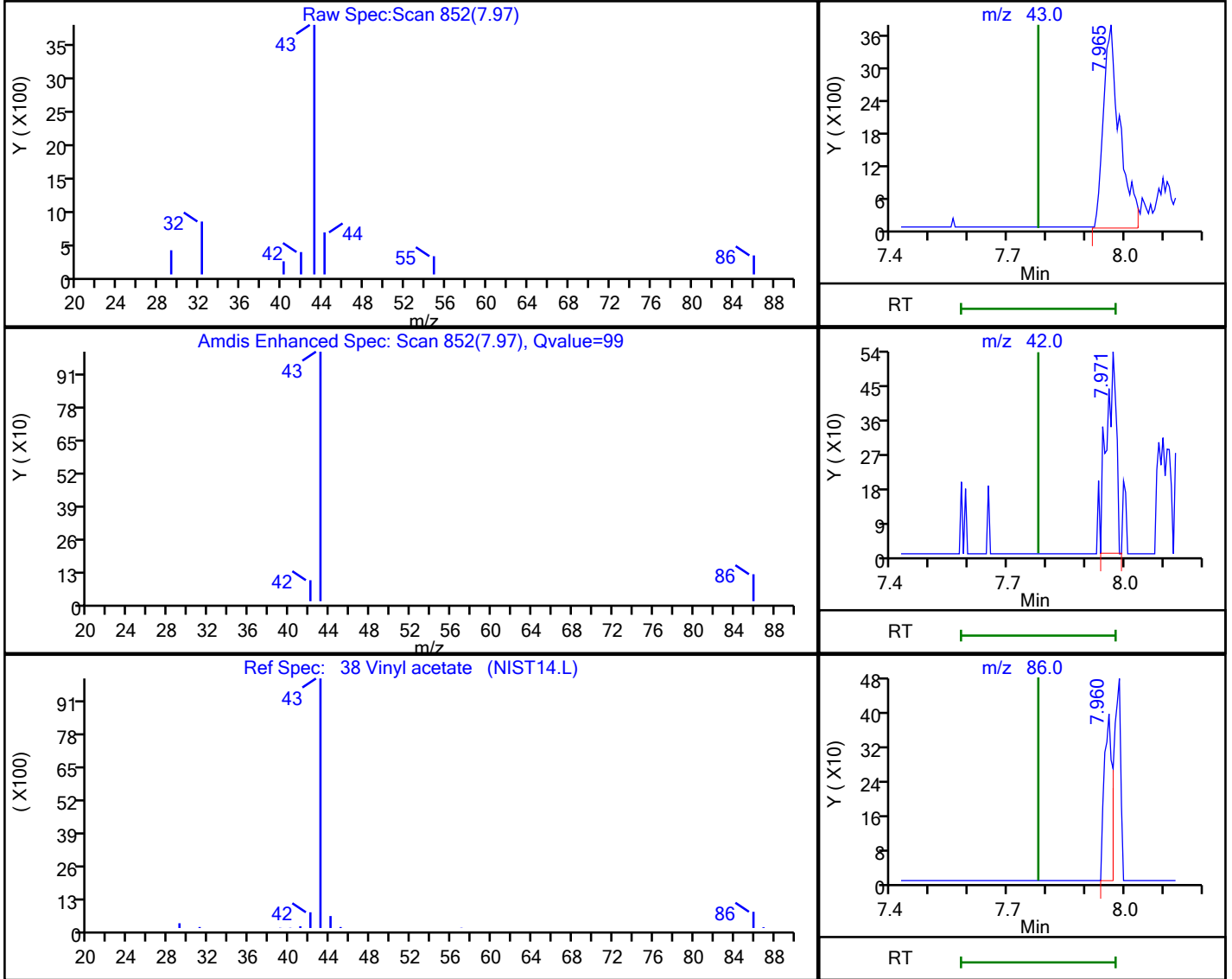
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK14.D
 Injection Date: 11-Jan-2023 20:28:30 Instrument ID: MS
 Lims ID: 140-30183-A-14 Lab Sample ID: 140-30183-14
 Client ID: 11221
 Operator ID: ALS Bottle#: 14 Worklist Smp#: 17
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

38 Vinyl acetate, CAS: 108-05-4

Processing Results



RT	Mass	Response	Amount
7.97	43.00	10854	0.070900
7.97	42.00	931	
7.96	86.00	560	

Reviewer: khachitpongpanits, 12-Jan-2023 12:26:20

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12109 Lab Sample ID: 140-30183-15
 Matrix: Air Lab File ID: 30183BK15.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 21:17
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.080	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080	
79-00-5	1,1,2-Trichloroethane	ND		0.080	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080	
75-34-3	1,1-Dichloroethane	ND		0.080	
75-35-4	1,1-Dichloroethene	ND		0.040	
87-61-6	1,2,3-Trichlorobenzene	ND		0.40	
96-18-4	1,2,3-Trichloropropane	ND		0.20	
526-73-8	1,2,3-Trimethylbenzene	ND		0.080	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080	
120-82-1	1,2,4-Trichlorobenzene	ND		0.080	
95-63-6	1,2,4-Trimethylbenzene	ND		0.080	
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16	
106-93-4	1,2-Dibromoethane	ND		0.080	
95-50-1	1,2-Dichlorobenzene	ND		0.080	
107-06-2	1,2-Dichloroethane	ND		0.080	
78-87-5	1,2-Dichloropropane	ND		0.080	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080	
108-67-8	1,3,5-Trimethylbenzene	ND		0.16	
106-99-0	1,3-Butadiene	ND		0.16	
541-73-1	1,3-Dichlorobenzene	ND		0.080	
106-46-7	1,4-Dichlorobenzene	ND		0.080	
123-91-1	1,4-Dioxane	ND		0.20	
71-36-3	1-Butanol	ND		0.80	
90-12-0	1-Methylnaphthalene	ND		1.0	
540-84-1	2,2,4-Trimethylpentane	ND		0.20	
565-59-3	2,3-Dimethylpentane	ND		0.080	
78-93-3	2-Butanone	ND		0.32	
95-49-8	2-Chlorotoluene	ND		0.16	
591-78-6	2-Hexanone	ND		0.20	
78-78-4	2-Methylbutane	ND		0.20	
91-57-6	2-Methylnaphthalene	ND		1.0	
107-83-5	2-Methylpentane	ND		0.080	
107-05-1	3-Chloroprene	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12109 Lab Sample ID: 140-30183-15
 Matrix: Air Lab File ID: 30183BK15.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 21:17
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12109 Lab Sample ID: 140-30183-15
 Matrix: Air Lab File ID: 30183BK15.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 21:17
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12109 Lab Sample ID: 140-30183-15
 Matrix: Air Lab File ID: 30183BK15.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 21:17
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 12109 Lab Sample ID: 140-30183-15
 Matrix: Air Lab File ID: 30183BK15.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 21:17
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK15.D
 Lims ID: 140-30183-A-15
 Client ID: 12109
 Sample Type: Client
 Inject. Date: 11-Jan-2023 21:17:30 ALS Bottle#: 15 Worklist Smp#: 18
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-018
 Misc. Info.: 12109
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 12:26:49 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits

Date: 12-Jan-2023 12:26:49

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	83	160267	3.76	
* 2 1,4-Difluorobenzene	114	11.199	11.204	-0.006	96	785303	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.906	15.906	0.000	92	615846	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.578	0.000	91	404535	3.63	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK15.D

Injection Date: 11-Jan-2023 21:17:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-15

Lab Sample ID: 140-30183-15

Worklist Smp#: 18

Client ID: 12109

Purge Vol: 500.000 mL

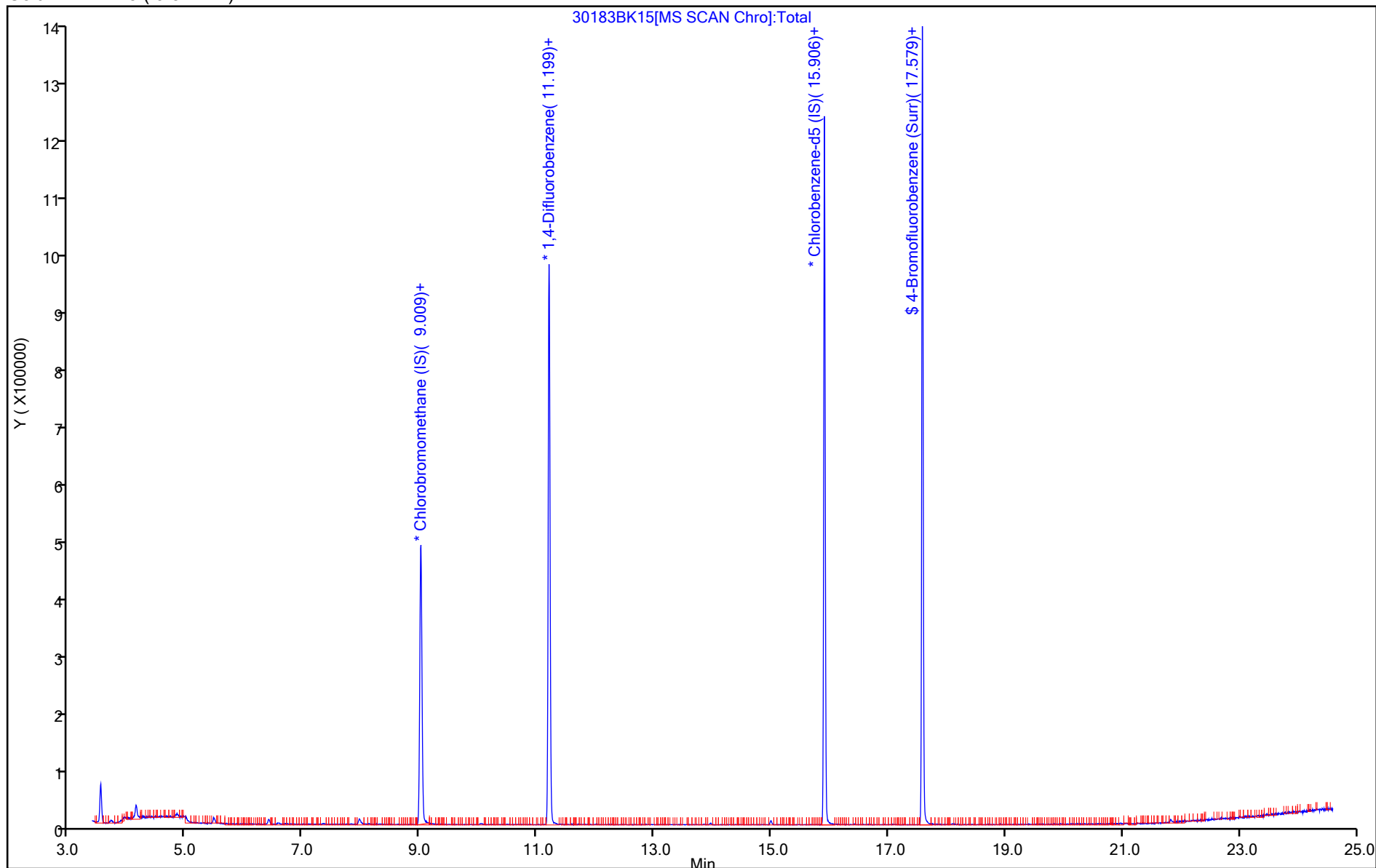
Dil. Factor: 1.0000

ALS Bottle#: 15

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

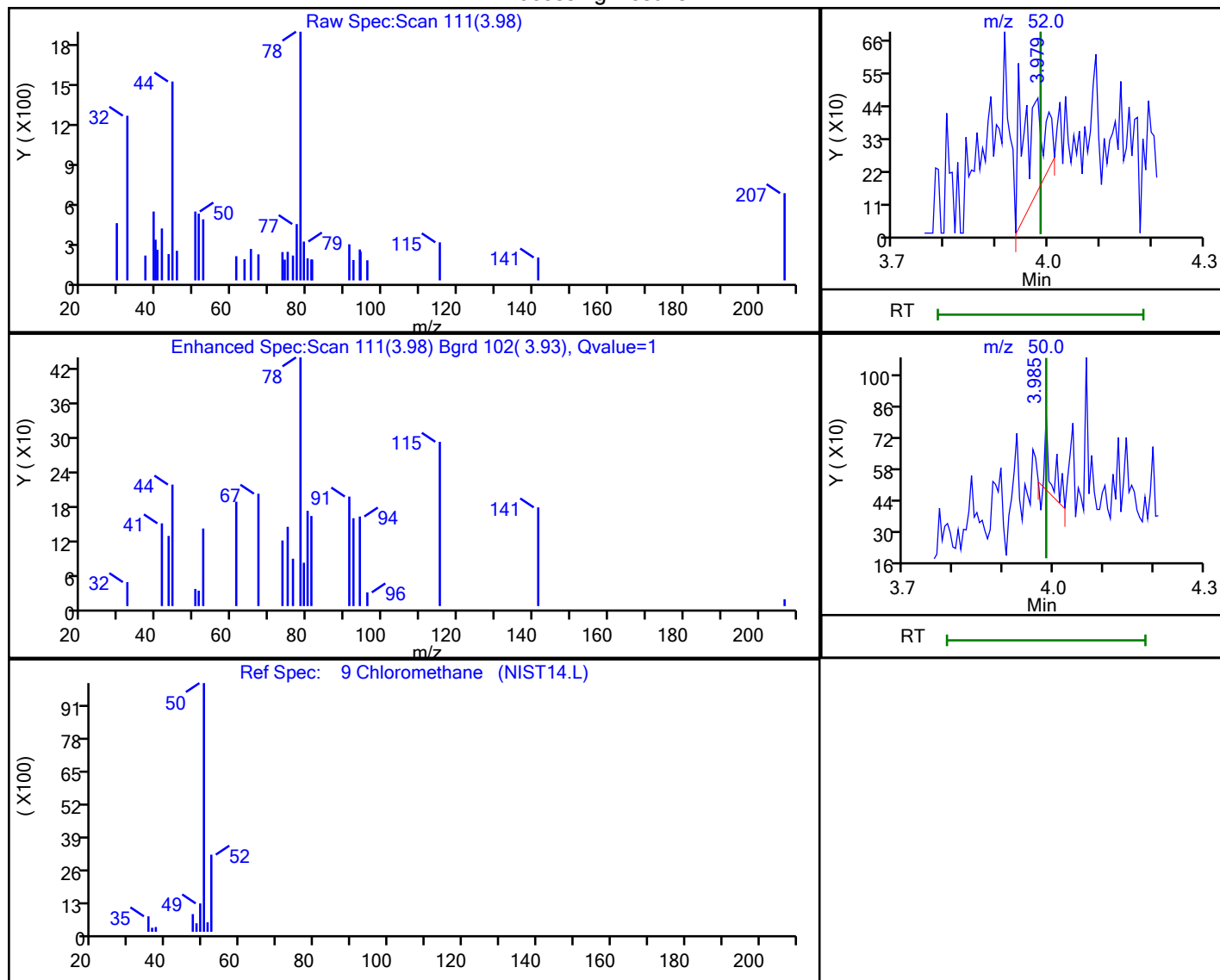


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK15.D
 Injection Date: 11-Jan-2023 21:17:30 Instrument ID: MS
 Lims ID: 140-30183-A-15 Lab Sample ID: 140-30183-15
 Client ID: 12109
 Operator ID: ALS Bottle#: 15 Worklist Smp#: 18
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

9 Chloromethane, CAS: 74-87-3

Processing Results



RT	Mass	Response	Amount
3.98	52.00	1045	0.075152
3.98	50.00	231	

Reviewer: khachitpongpanits, 12-Jan-2023 12:26:37

Audit Action: Marked Compound Undetected

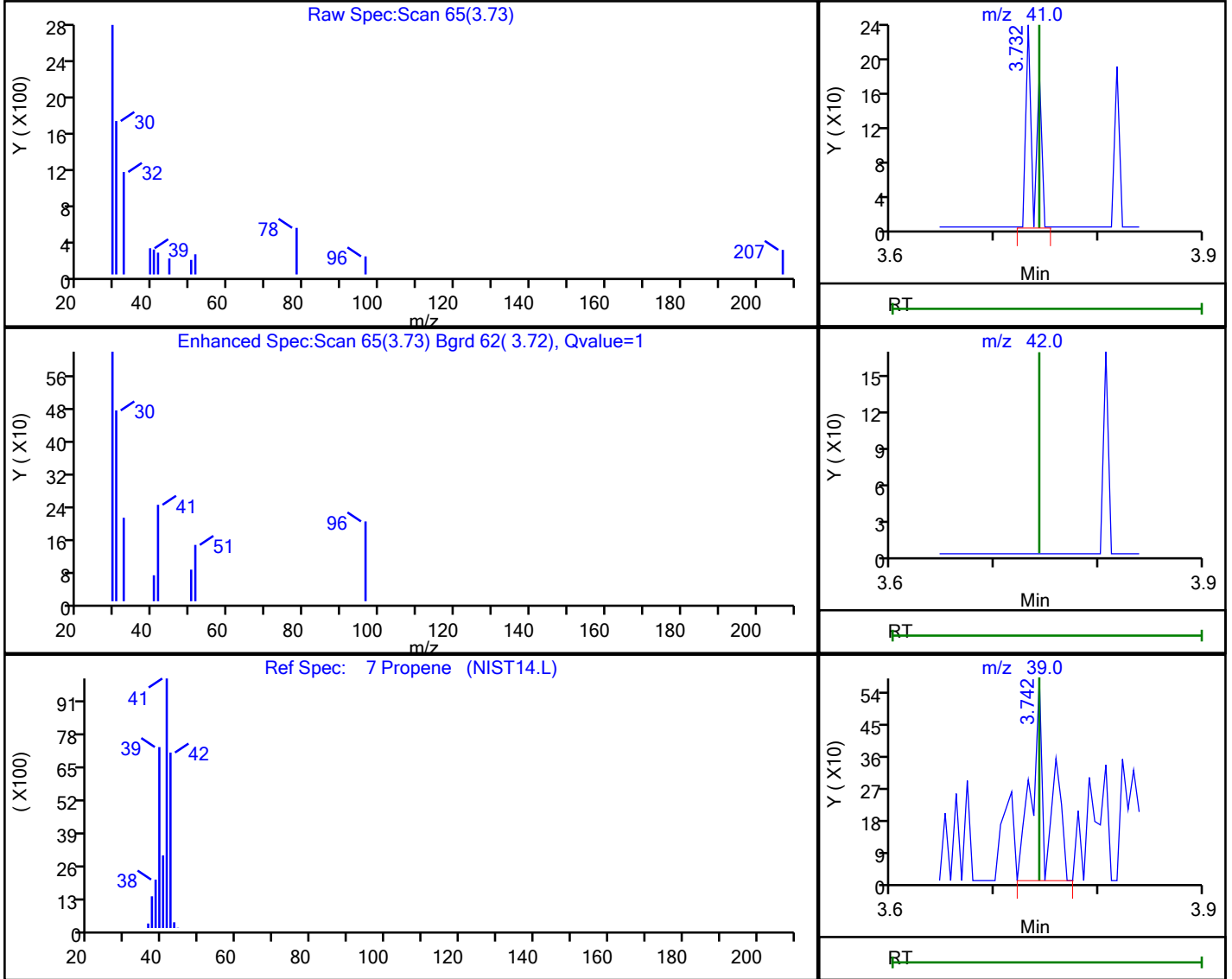
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK15.D
 Injection Date: 11-Jan-2023 21:17:30 Instrument ID: MS
 Lims ID: 140-30183-A-15 Lab Sample ID: 140-30183-15
 Client ID: 12109
 Operator ID: ALS Bottle#: 15 Worklist Smp#: 18
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.73	41.00	135	0.002434
3.74	42.00	0	
3.74	39.00	621	

Reviewer: khachitpongpanits, 12-Jan-2023 12:26:35

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

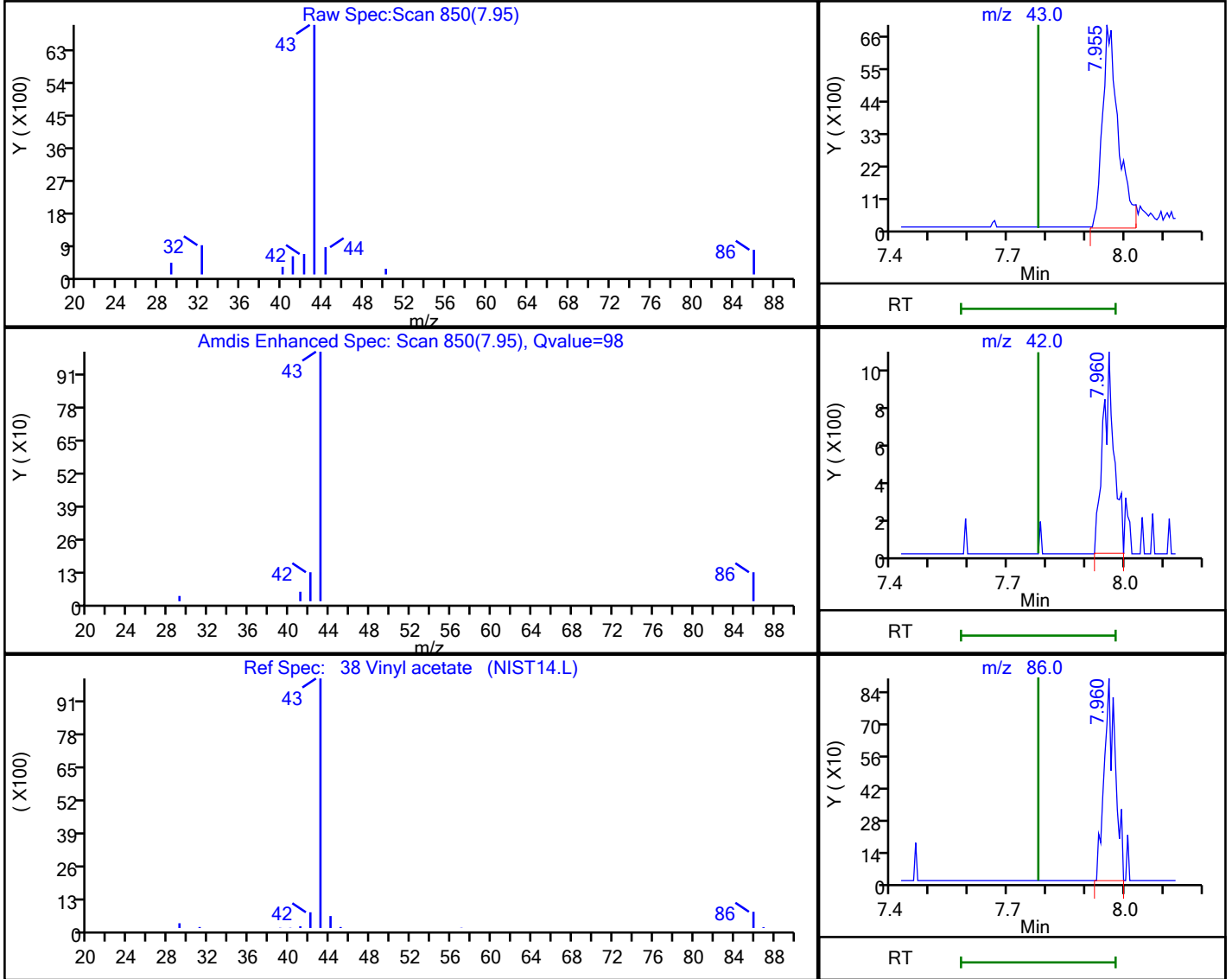


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK15.D
 Injection Date: 11-Jan-2023 21:17:30 Instrument ID: MS
 Lims ID: 140-30183-A-15 Lab Sample ID: 140-30183-15
 Client ID: 12109
 Operator ID: ALS Bottle#: 15 Worklist Smp#: 18
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

38 Vinyl acetate, CAS: 108-05-4

Processing Results



RT	Mass	Response	Amount
7.95	43.00	19758	0.136140
7.96	42.00	2137	
7.96	86.00	1785	

Reviewer: khachitpongpanits, 12-Jan-2023 12:26:42

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 7963 Lab Sample ID: 140-30183-16
 Matrix: Air Lab File ID: 30183BK16.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 22:06
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.080	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080	
79-00-5	1,1,2-Trichloroethane	ND		0.080	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080	
75-34-3	1,1-Dichloroethane	ND		0.080	
75-35-4	1,1-Dichloroethene	ND		0.040	
87-61-6	1,2,3-Trichlorobenzene	ND		0.40	
96-18-4	1,2,3-Trichloropropane	ND		0.20	
526-73-8	1,2,3-Trimethylbenzene	ND		0.080	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080	
120-82-1	1,2,4-Trichlorobenzene	ND		0.080	
95-63-6	1,2,4-Trimethylbenzene	ND		0.080	
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16	
106-93-4	1,2-Dibromoethane	ND		0.080	
95-50-1	1,2-Dichlorobenzene	ND		0.080	
107-06-2	1,2-Dichloroethane	ND		0.080	
78-87-5	1,2-Dichloropropane	ND		0.080	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080	
108-67-8	1,3,5-Trimethylbenzene	ND		0.16	
106-99-0	1,3-Butadiene	ND		0.16	
541-73-1	1,3-Dichlorobenzene	ND		0.080	
106-46-7	1,4-Dichlorobenzene	ND		0.080	
123-91-1	1,4-Dioxane	ND		0.20	
71-36-3	1-Butanol	ND		0.80	
90-12-0	1-Methylnaphthalene	ND		1.0	
540-84-1	2,2,4-Trimethylpentane	ND		0.20	
565-59-3	2,3-Dimethylpentane	ND		0.080	
78-93-3	2-Butanone	ND		0.32	
95-49-8	2-Chlorotoluene	ND		0.16	
591-78-6	2-Hexanone	ND		0.20	
78-78-4	2-Methylbutane	ND		0.20	
91-57-6	2-Methylnaphthalene	ND		1.0	
107-83-5	2-Methylpentane	ND		0.080	
107-05-1	3-Chloroprene	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 7963 Lab Sample ID: 140-30183-16
 Matrix: Air Lab File ID: 30183BK16.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 22:06
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 7963 Lab Sample ID: 140-30183-16
 Matrix: Air Lab File ID: 30183BK16.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 22:06
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 7963 Lab Sample ID: 140-30183-16
 Matrix: Air Lab File ID: 30183BK16.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 22:06
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 7963 Lab Sample ID: 140-30183-16
 Matrix: Air Lab File ID: 30183BK16.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 22:06
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK16.D
 Lims ID: 140-30183-A-16
 Client ID: 7963
 Sample Type: Client
 Inject. Date: 11-Jan-2023 22:06:30 ALS Bottle#: 16 Worklist Smp#: 19
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-019
 Misc. Info.: 7963
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 12:27:05 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits

Date: 12-Jan-2023 12:27:05

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	83	163503	3.76	
* 2 1,4-Difluorobenzene	114	11.204	11.204	0.000	96	800188	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.905	15.906	-0.001	92	619629	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.578	0.000	91	405006	3.61	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK16.D

Injection Date: 11-Jan-2023 22:06:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-16

Lab Sample ID: 140-30183-16

Worklist Smp#: 19

Client ID: 7963

Purge Vol: 500.000 mL

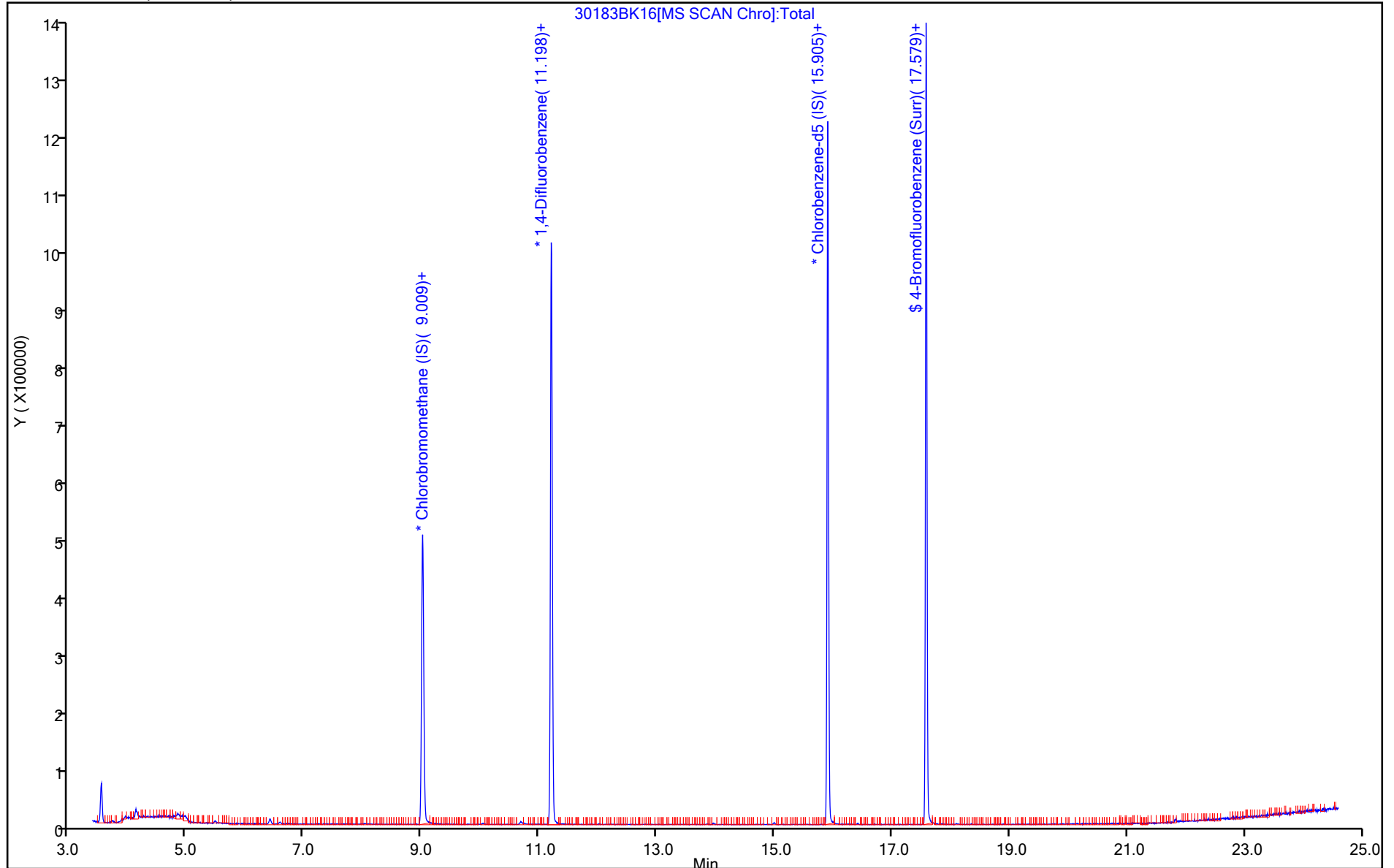
Dil. Factor: 1.0000

ALS Bottle#: 16

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

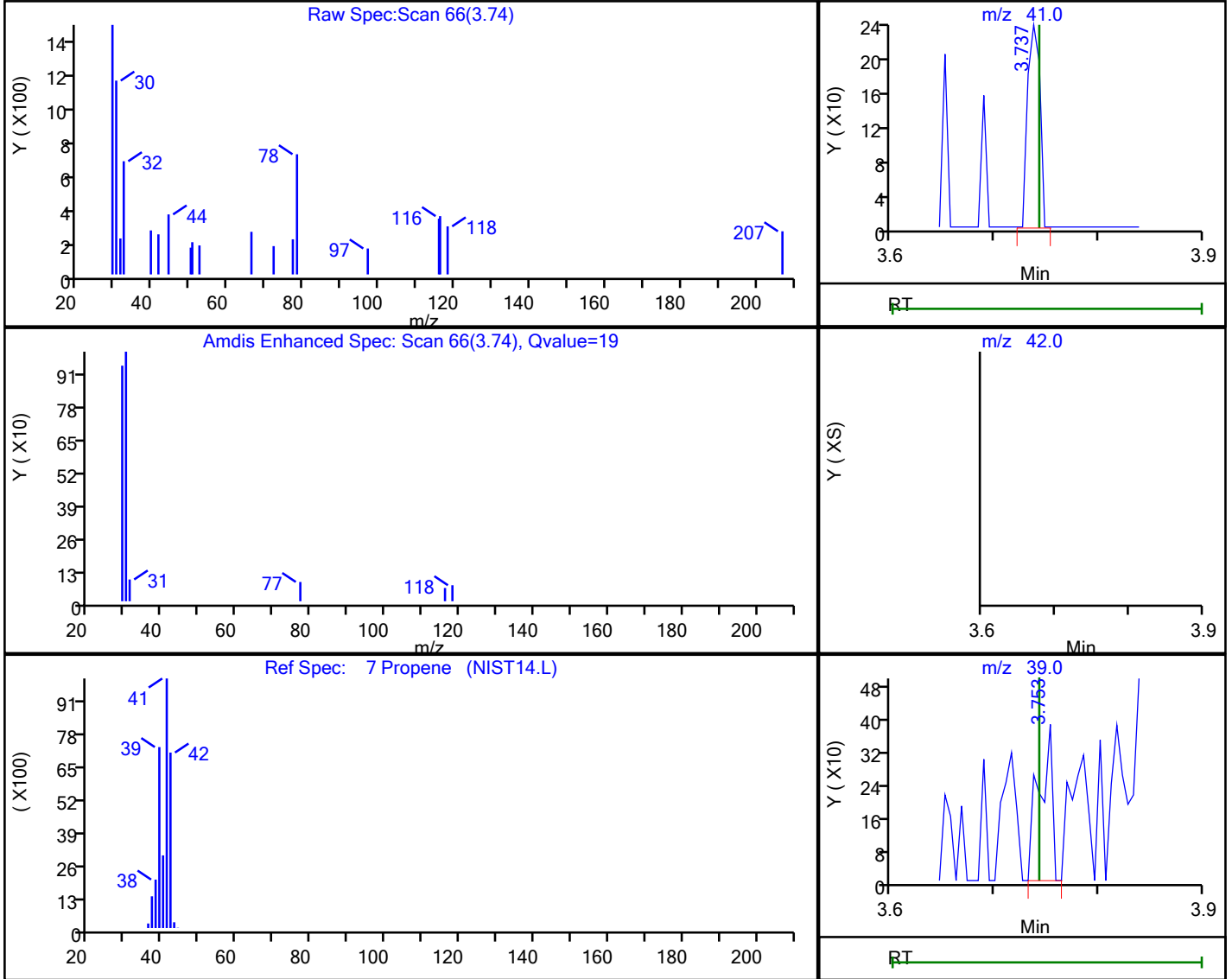


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK16.D
 Injection Date: 11-Jan-2023 22:06:30 Instrument ID: MS
 Lims ID: 140-30183-A-16 Lab Sample ID: 140-30183-16
 Client ID: 7963
 Operator ID: ALS Bottle#: 16 Worklist Smp#: 19
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.74	41.00	195	0.003446
3.74	42.00	0	
3.75	39.00	337	

Reviewer: khachitpongpanits, 12-Jan-2023 12:26:58

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 09976 Lab Sample ID: 140-30183-17
 Matrix: Air Lab File ID: 30183BK17.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 22:55
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.080	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080	
79-00-5	1,1,2-Trichloroethane	ND		0.080	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080	
75-34-3	1,1-Dichloroethane	ND		0.080	
75-35-4	1,1-Dichloroethene	ND		0.040	
87-61-6	1,2,3-Trichlorobenzene	ND		0.40	
96-18-4	1,2,3-Trichloropropane	ND		0.20	
526-73-8	1,2,3-Trimethylbenzene	ND		0.080	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080	
120-82-1	1,2,4-Trichlorobenzene	ND		0.080	
95-63-6	1,2,4-Trimethylbenzene	ND		0.080	
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16	
106-93-4	1,2-Dibromoethane	ND		0.080	
95-50-1	1,2-Dichlorobenzene	ND		0.080	
107-06-2	1,2-Dichloroethane	ND		0.080	
78-87-5	1,2-Dichloropropane	ND		0.080	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080	
108-67-8	1,3,5-Trimethylbenzene	ND		0.16	
106-99-0	1,3-Butadiene	ND		0.16	
541-73-1	1,3-Dichlorobenzene	ND		0.080	
106-46-7	1,4-Dichlorobenzene	ND		0.080	
123-91-1	1,4-Dioxane	ND		0.20	
71-36-3	1-Butanol	ND		0.80	
90-12-0	1-Methylnaphthalene	ND		1.0	
540-84-1	2,2,4-Trimethylpentane	ND		0.20	
565-59-3	2,3-Dimethylpentane	ND		0.080	
78-93-3	2-Butanone	ND		0.32	
95-49-8	2-Chlorotoluene	ND		0.16	
591-78-6	2-Hexanone	ND		0.20	
78-78-4	2-Methylbutane	ND		0.20	
91-57-6	2-Methylnaphthalene	ND		1.0	
107-83-5	2-Methylpentane	ND		0.080	
107-05-1	3-Chloroprene	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 09976 Lab Sample ID: 140-30183-17
 Matrix: Air Lab File ID: 30183BK17.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 22:55
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 09976 Lab Sample ID: 140-30183-17
 Matrix: Air Lab File ID: 30183BK17.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 22:55
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 09976 Lab Sample ID: 140-30183-17
 Matrix: Air Lab File ID: 30183BK17.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 22:55
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 09976 Lab Sample ID: 140-30183-17
 Matrix: Air Lab File ID: 30183BK17.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 22:55
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK17.D
 Lims ID: 140-30183-A-17
 Client ID: 09976
 Sample Type: Client
 Inject. Date: 11-Jan-2023 22:55:30 ALS Bottle#: 17 Worklist Smp#: 20
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-020
 Misc. Info.: 09976
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 12:27:35 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits

Date: 12-Jan-2023 12:27:35

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.009	9.009	0.000	83	162055	3.76	
* 2 1,4-Difluorobenzene	114	11.198	11.204	-0.006	96	805464	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.905	15.906	-0.001	92	622689	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.578	-0.001	91	409380	3.63	
61 1,4-Dioxane	88	12.194	12.150	0.038	84	1965	0.0886	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK17.D

Injection Date: 11-Jan-2023 22:55:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-17

Lab Sample ID: 140-30183-17

Worklist Smp#: 20

Client ID: 09976

Purge Vol: 500.000 mL

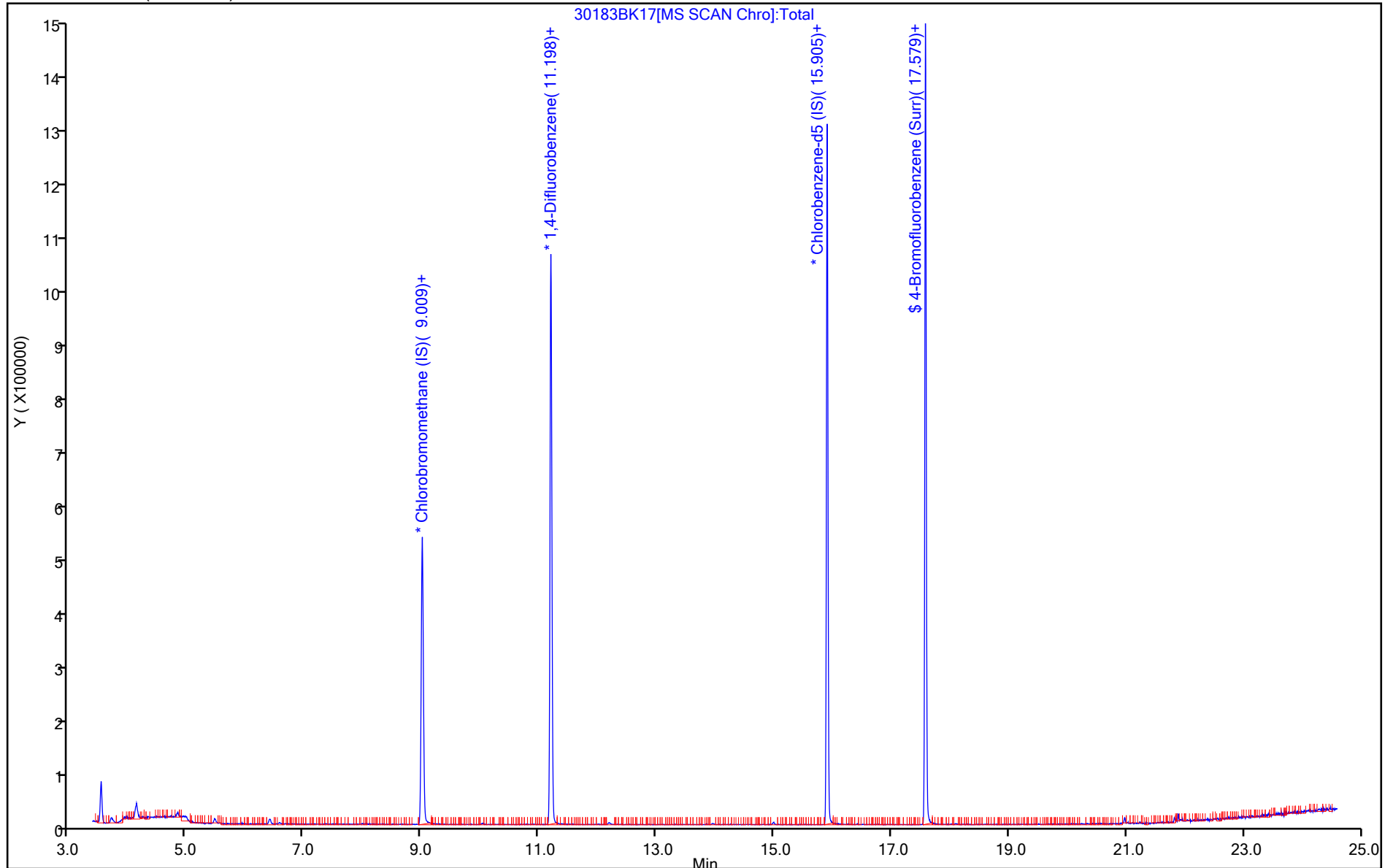
Dil. Factor: 1.0000

ALS Bottle#: 17

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

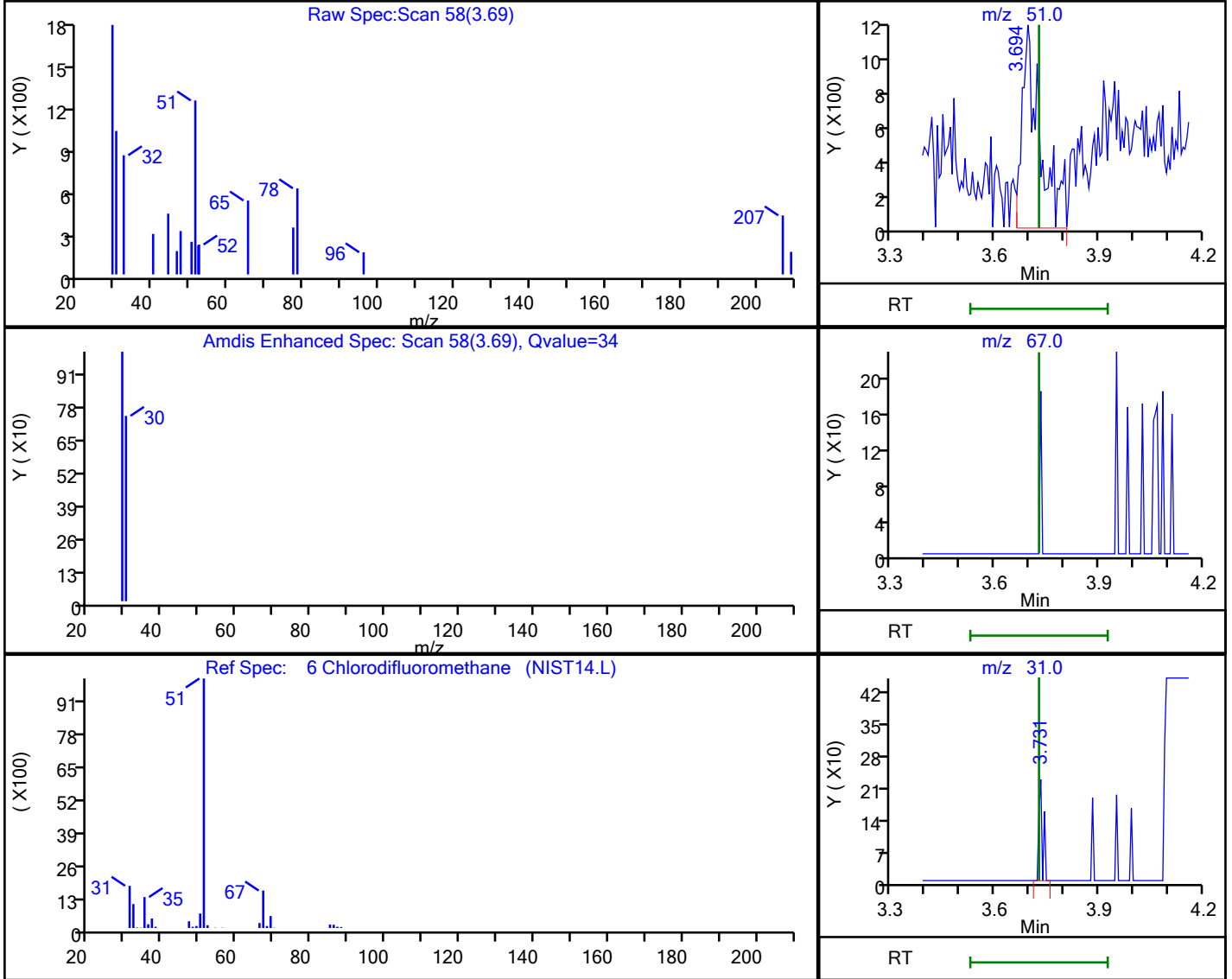


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK17.D
 Injection Date: 11-Jan-2023 22:55:30 Instrument ID: MS
 Lims ID: 140-30183-A-17 Lab Sample ID: 140-30183-17
 Client ID: 09976
 Operator ID: ALS Bottle#: 17 Worklist Smp#: 20
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector MS SCAN

6 Chlorodifluoromethane, CAS: 75-45-6

Processing Results



RT	Mass	Response	Amount
3.69	51.00	4250	0.035217
3.73	67.00	0	
3.73	31.00	172	

Reviewer: khachitpongpanits, 12-Jan-2023 12:27:18

Audit Action: Marked Compound Undetected

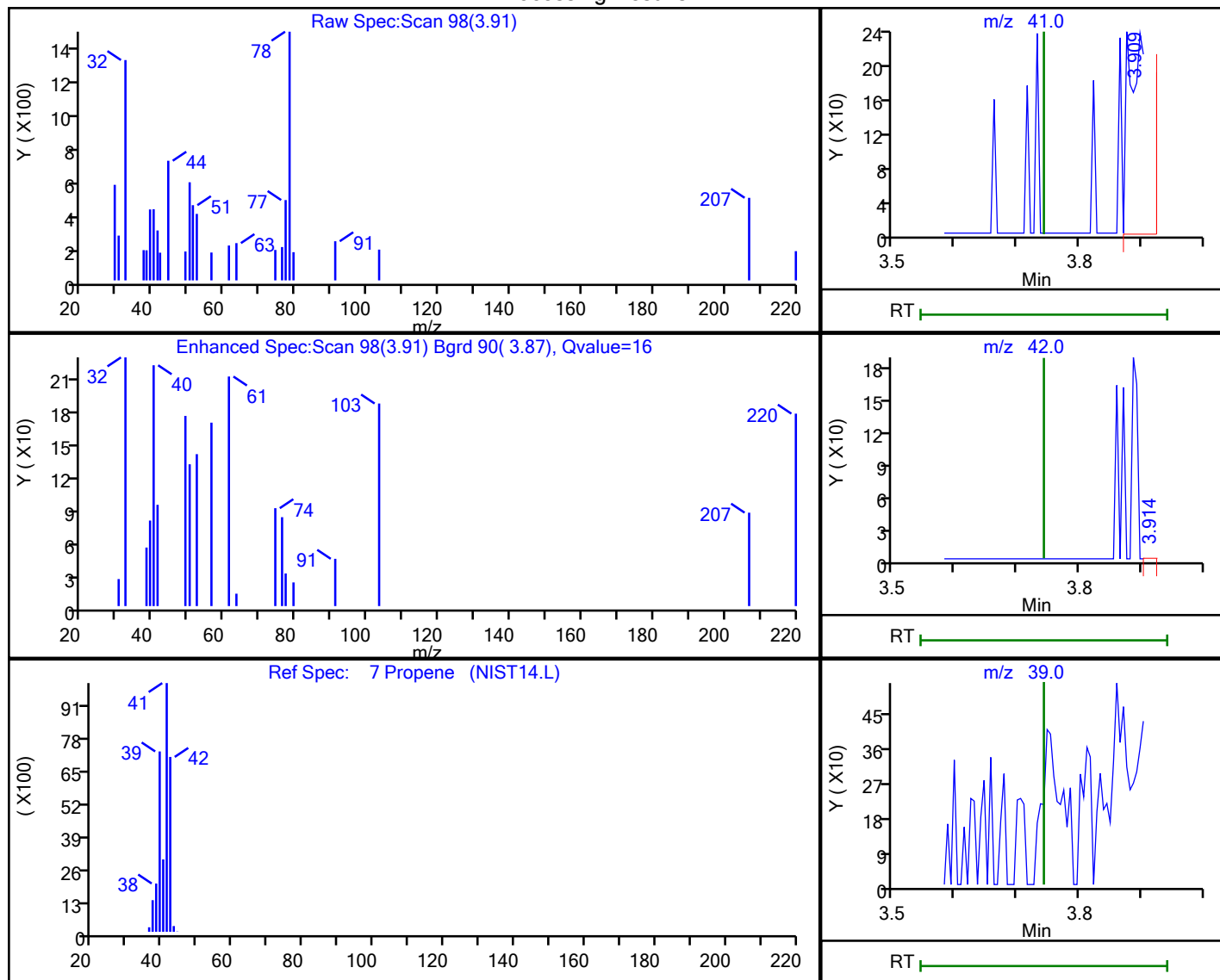
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK17.D
 Injection Date: 11-Jan-2023 22:55:30 Instrument ID: MS
 Lims ID: 140-30183-A-17 Lab Sample ID: 140-30183-17
 Client ID: 09976
 Operator ID: ALS Bottle#: 17 Worklist Smp#: 20
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.91	41.00	551	0.009823
3.91	42.00	222	
3.74	39.00	0	

Reviewer: khachitpongpanits, 12-Jan-2023 12:27:19

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 8130 Lab Sample ID: 140-30183-18
 Matrix: Air Lab File ID: 30183BK18.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 23:44
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
71-55-6	1,1,1-Trichloroethane	ND		0.080	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.080	
79-00-5	1,1,2-Trichloroethane	ND		0.080	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND		0.080	
75-34-3	1,1-Dichloroethane	ND		0.080	
75-35-4	1,1-Dichloroethene	ND		0.040	
87-61-6	1,2,3-Trichlorobenzene	ND		0.40	
96-18-4	1,2,3-Trichloropropane	ND		0.20	
526-73-8	1,2,3-Trimethylbenzene	ND		0.080	
95-93-2	1,2,4,5-Tetramethylbenzene	ND		0.080	
120-82-1	1,2,4-Trichlorobenzene	ND		0.080	
95-63-6	1,2,4-Trimethylbenzene	ND		0.080	
96-12-8	1,2-Dibromo-3-Chloropropane	ND		0.16	
106-93-4	1,2-Dibromoethane	ND		0.080	
95-50-1	1,2-Dichlorobenzene	ND		0.080	
107-06-2	1,2-Dichloroethane	ND		0.080	
78-87-5	1,2-Dichloropropane	ND		0.080	
76-14-2	1,2-Dichlorotetrafluoroethane	ND		0.080	
108-67-8	1,3,5-Trimethylbenzene	ND		0.16	
106-99-0	1,3-Butadiene	ND		0.16	
541-73-1	1,3-Dichlorobenzene	ND		0.080	
106-46-7	1,4-Dichlorobenzene	ND		0.080	
123-91-1	1,4-Dioxane	ND		0.20	
71-36-3	1-Butanol	ND		0.80	
90-12-0	1-Methylnaphthalene	ND		1.0	
540-84-1	2,2,4-Trimethylpentane	ND		0.20	
565-59-3	2,3-Dimethylpentane	ND		0.080	
78-93-3	2-Butanone	ND		0.32	
95-49-8	2-Chlorotoluene	ND		0.16	
591-78-6	2-Hexanone	ND		0.20	
78-78-4	2-Methylbutane	ND		0.20	
91-57-6	2-Methylnaphthalene	ND		1.0	
107-83-5	2-Methylpentane	ND		0.080	
107-05-1	3-Chloroprene	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 8130 Lab Sample ID: 140-30183-18
 Matrix: Air Lab File ID: 30183BK18.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 23:44
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
622-96-8	4-Ethyltoluene	ND		0.16	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.20	
67-64-1	Acetone	ND		2.0	
75-05-8	Acetonitrile	ND		0.40	
107-02-8	Acrolein	ND		0.40	
107-13-1	Acrylonitrile	ND		0.80	
98-83-9	Alpha Methyl Styrene	ND		0.16	
71-43-2	Benzene	ND		0.080	
100-44-7	Benzyl chloride	ND		0.16	
75-27-4	Bromodichloromethane	ND		0.080	
75-25-2	Bromoform	ND		0.080	
74-83-9	Bromomethane	ND		0.080	
106-97-8	Butane	ND		0.16	
75-15-0	Carbon disulfide	ND		0.20	
56-23-5	Carbon tetrachloride	ND	*+	0.032	
108-90-7	Chlorobenzene	ND		0.080	
75-45-6	Chlorodifluoromethane	ND		0.080	
75-00-3	Chloroethane	ND		0.080	
67-66-3	Chloroform	ND		0.080	
74-87-3	Chloromethane	ND		0.20	
156-59-2	cis-1,2-Dichloroethene	ND		0.040	
10061-01-5	cis-1,3-Dichloropropene	ND		0.080	
98-82-8	Cumene	ND		0.16	
110-82-7	Cyclohexane	ND		0.20	
124-48-1	Dibromochloromethane	ND		0.080	
74-95-3	Dibromomethane	ND		0.16	
75-71-8	Dichlorodifluoromethane	ND		0.080	
64-17-5	Ethanol	ND		2.0	
141-78-6	Ethyl acetate	ND		0.80	
60-29-7	Ethyl ether	ND		0.80	
100-41-4	Ethylbenzene	ND		0.080	
87-68-3	Hexachlorobutadiene	ND		0.080	
110-54-3	Hexane	ND		0.20	
496-11-7	Indane	ND		0.080	

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 8130 Lab Sample ID: 140-30183-18
 Matrix: Air Lab File ID: 30183BK18.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 23:44
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
95-13-6	Indene	ND		0.16
67-63-0	Isopropyl alcohol	ND		0.80
80-62-6	Methyl methacrylate	ND		0.20
1634-04-4	Methyl tert-butyl ether	ND		0.16
108-87-2	Methylcyclohexane	ND		0.080
75-09-2	Methylene Chloride	ND		0.40
179601-23-1	m-Xylene & p-Xylene	ND		0.080
91-20-3	Naphthalene	ND		0.20
104-51-8	n-Butylbenzene	ND		0.16
124-18-5	n-Decane	ND		0.40
112-40-3	n-Dodecane	ND		0.40
142-82-5	n-Heptane	ND		0.20
111-84-2	n-Nonane	ND		0.20
111-65-9	n-Octane	ND		0.16
103-65-1	N-Propylbenzene	ND		0.16
95-47-6	o-Xylene	ND		0.080
99-87-6	p-Cymene	ND		0.080
109-66-0	Pentane	ND		0.40
115-07-1	Propene	ND		1.0
135-98-8	sec-Butylbenzene	ND		0.16
100-42-5	Styrene	ND		0.080
75-65-0	tert-Butanol	ND		0.32
98-06-6	tert-Butylbenzene	ND		0.20
127-18-4	Tetrachloroethene	ND		0.040
109-99-9	Tetrahydrofuran	ND		0.40
110-02-1	Thiophene	ND		0.080
108-88-3	Toluene	ND		0.12
156-60-5	trans-1,2-Dichloroethene	ND		0.080
10061-02-6	trans-1,3-Dichloropropene	ND		0.080
79-01-6	Trichloroethene	ND		0.036
75-69-4	Trichlorofluoromethane	ND		0.080
1120-21-4	Undecane	ND		0.40
108-05-4	Vinyl acetate	ND		0.40
593-60-2	Vinyl bromide	ND		0.080

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 8130 Lab Sample ID: 140-30183-18
 Matrix: Air Lab File ID: 30183BK18.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 23:44
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
75-01-4	Vinyl chloride	ND		0.040	



FORM I
 AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET
 TARGETED TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins Knoxville Job No.: 140-30183-1
 SDG No.: _____
 Client Sample ID: 8130 Lab Sample ID: 140-30183-18
 Matrix: Air Lab File ID: 30183BK18.D
 Analysis Method: TO 15 LL Date Collected: 01/09/2023 09:50
 Sample wt/vol: 500 (mL) Date Analyzed: 01/11/2023 23:44
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-5 ID: 0.32 (mm)
 Purge Volume: _____ Heated Purge: (Y/N) _____ pH: _____
 % Moisture: _____ % Solids: _____ Level: (low/med) Low
 Analysis Batch No.: 69260 Units: ppb v/v

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
488-23-3	1,2,3,4-Tetramethylbenzene TIC		ND		
527-53-7	1,2,3,5-Tetramethylbenzene TIC		ND		
934-80-5	1,2-Dimethyl-4-Ethylbenzene TIC		ND		
872-55-9	2-Ethylthiophene TIC		ND		
554-14-3	2-Methylthiophene TIC		ND		
616-44-4	3-Methylthiophene TIC		ND		
95-15-8	Benzo(b)thiophene TIC		ND		

Eurofins Knoxville
Target Compound Quantitation Report

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK18.D
 Lims ID: 140-30183-A-18
 Client ID: 8130
 Sample Type: Client
 Inject. Date: 11-Jan-2023 23:44:30 ALS Bottle#: 1 Worklist Smp#: 21
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 140-0026601-021
 Misc. Info.: 8130
 Operator ID: Instrument ID: MS
 Method: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\MS_TO15A.m
 Limit Group: MSA TO14A_15 Routine ICAL
 Last Update: 12-Jan-2023 12:28:01 Calib Date: 04-Jan-2023 23:33:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Knoxville\ChromData\MS\20230104-26525.b\SA04IC07.D
 Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
 Process Host: CTX1685

First Level Reviewer: khachitpongpanits

Date: 12-Jan-2023 12:28:01

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.004	9.009	-0.005	84	156256	3.76	
* 2 1,4-Difluorobenzene	114	11.198	11.204	-0.006	96	765424	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.906	15.906	0.000	92	605486	3.92	
\$ 4 4-Bromofluorobenzene (Surr)	95	17.579	17.578	0.000	92	412748	3.77	
61 1,4-Dioxane	88	12.194	12.150	0.038	78	1090	0.0517	

QC Flag Legend

Processing Flags

Reagents:

40MXISSUR_00003

Amount Added: 40.00

Units: mL

Run Reagent

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK18.D

Injection Date: 11-Jan-2023 23:44:30

Instrument ID: MS

Operator ID:

Lims ID: 140-30183-A-18

Lab Sample ID: 140-30183-18

Worklist Smp#: 21

Client ID: 8130

Purge Vol: 500.000 mL

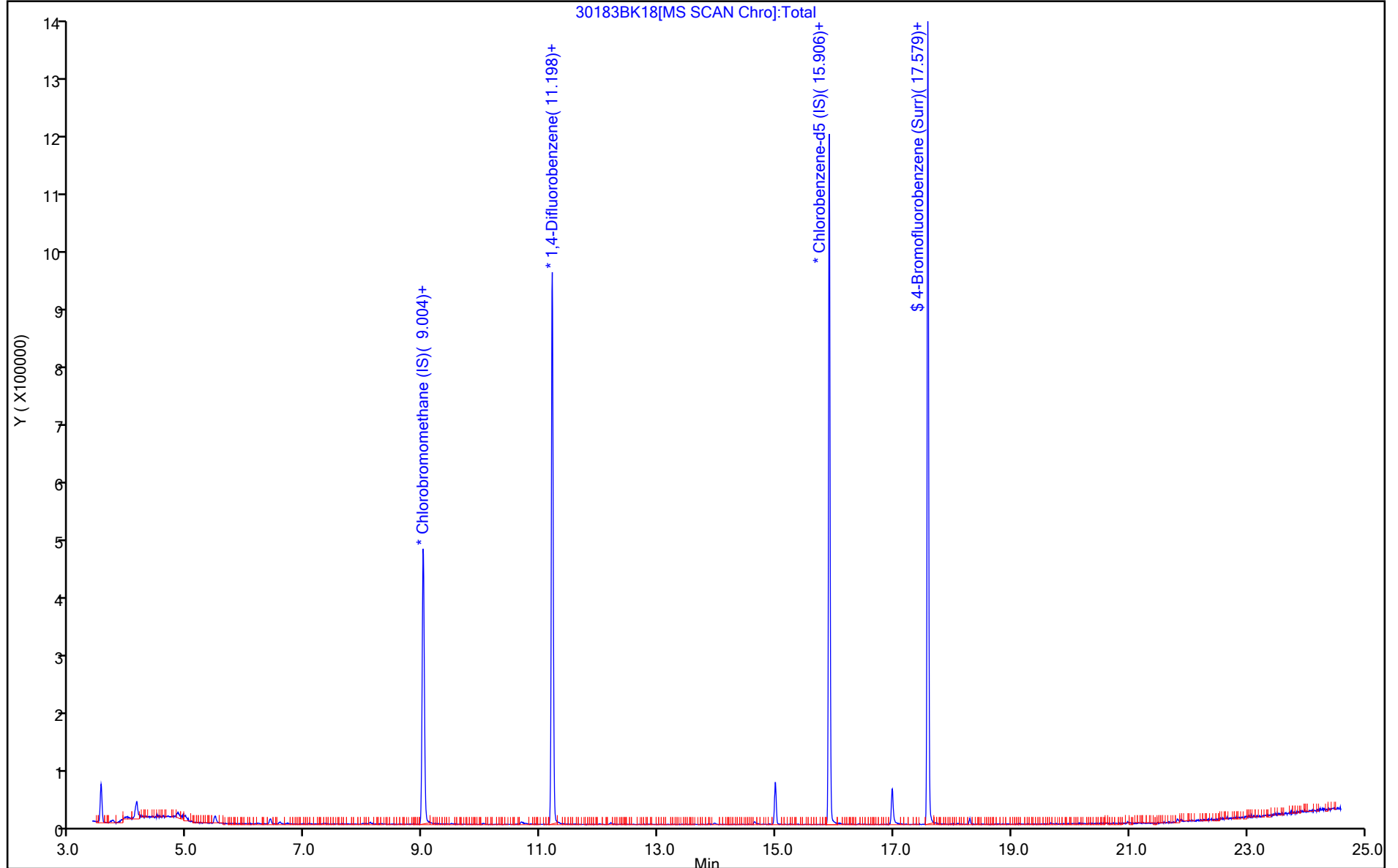
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: MS_TO15A

Limit Group: MSA TO14A_15 Routine ICAL

Column: RTX-5 (0.32 mm)

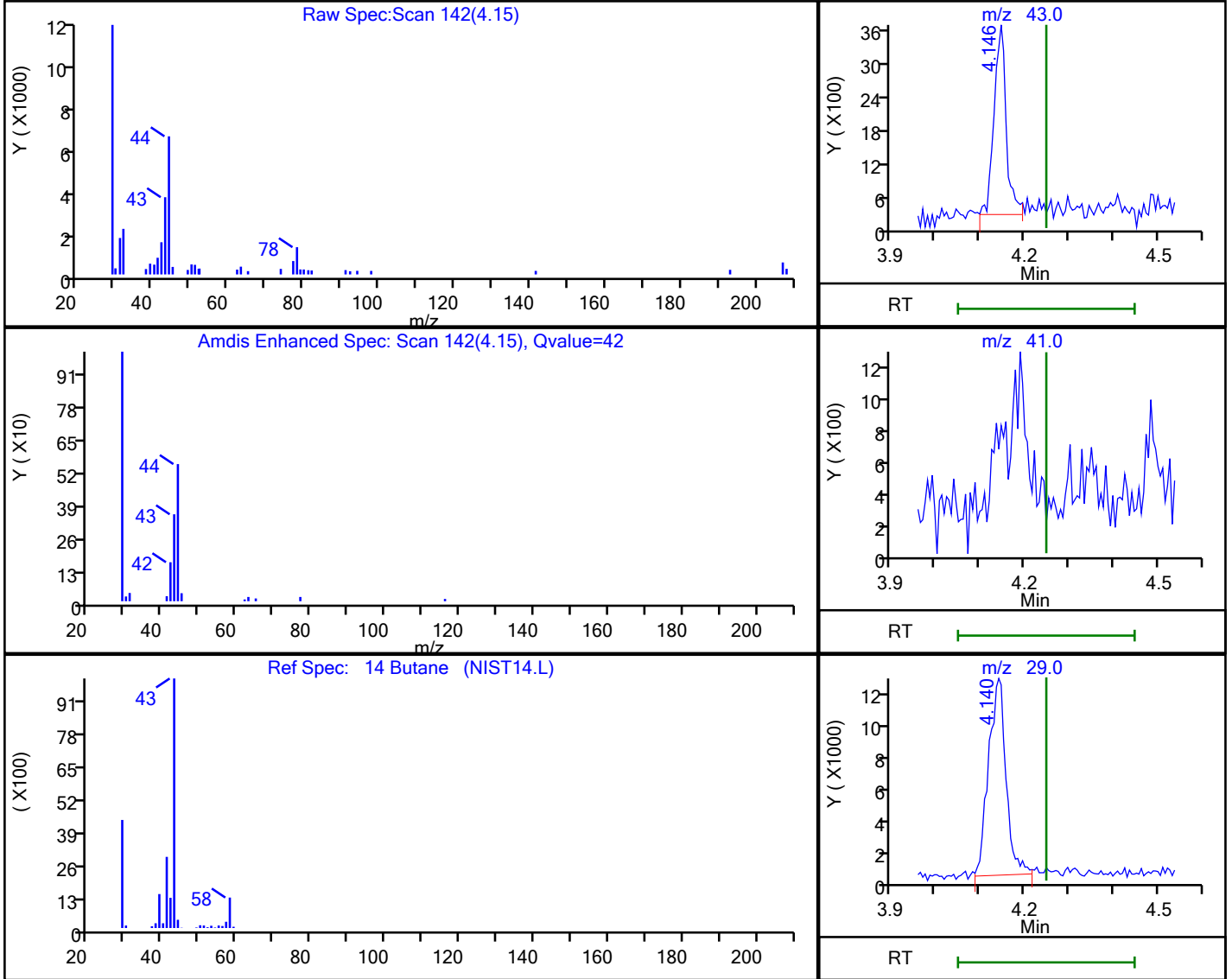


Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK18.D
 Injection Date: 11-Jan-2023 23:44:30 Instrument ID: MS
 Lims ID: 140-30183-A-18 Lab Sample ID: 140-30183-18
 Client ID: 8130
 Operator ID: ALS Bottle#: 1 Worklist Smp#: 21
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

14 Butane, CAS: 106-97-8

Processing Results



RT	Mass	Response	Amount
4.15	43.00	6561	0.088652
4.25	41.00	0	
4.14	29.00	32096	

Reviewer: khachitpongpanits, 12-Jan-2023 12:27:52

Audit Action: Marked Compound Undetected

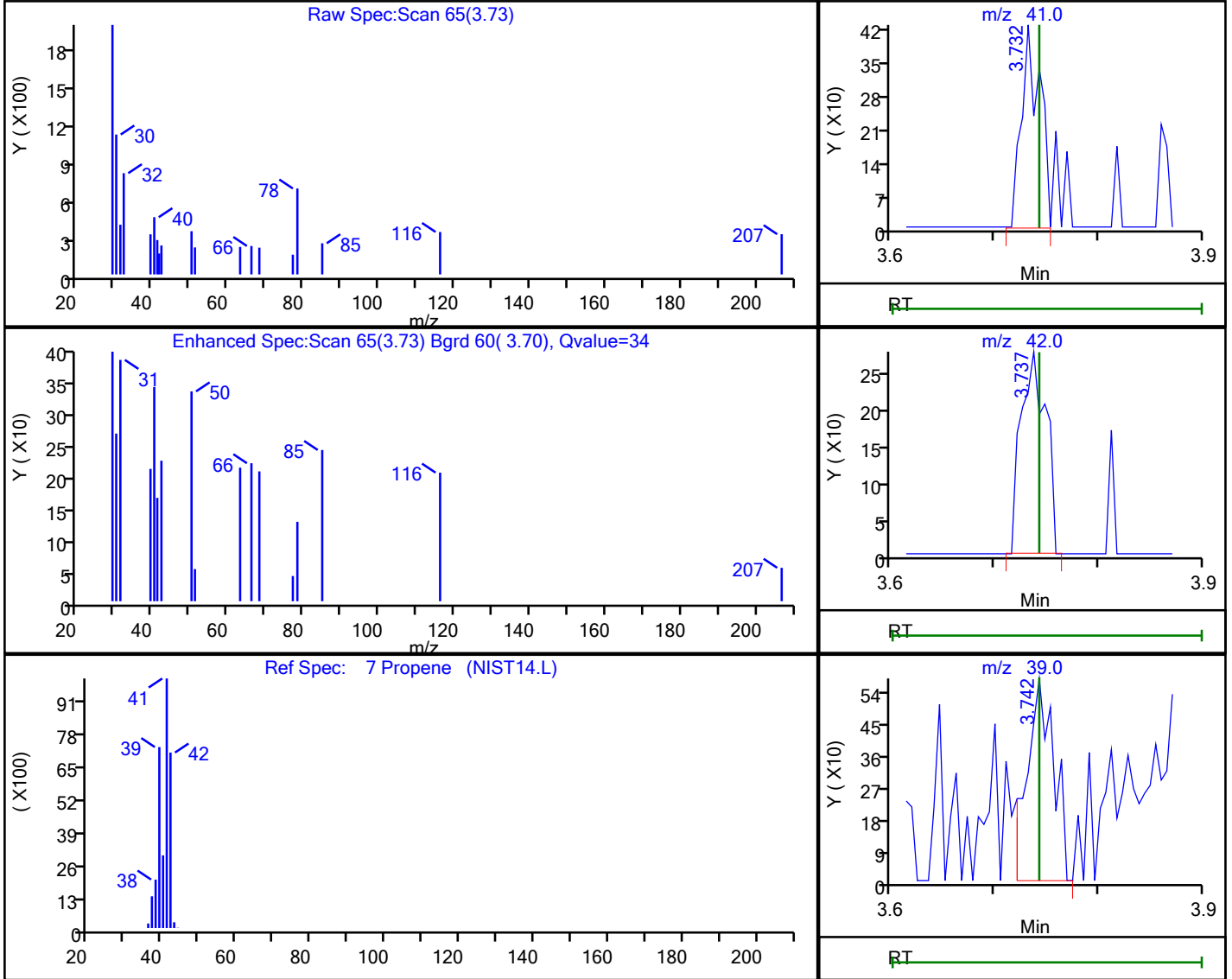
Audit Reason: Invalid Compound ID

Eurofins Knoxville

Data File: \\chromfs\Knoxville\ChromData\MS\20230110-26601.b\30183BK18.D
 Injection Date: 11-Jan-2023 23:44:30 Instrument ID: MS
 Lims ID: 140-30183-A-18 Lab Sample ID: 140-30183-18
 Client ID: 8130
 Operator ID: ALS Bottle#: 1 Worklist Smp#: 21
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Method: MS_TO15A Limit Group: MSA TO14A_15 Routine ICAL
 Column: RTX-5 (0.32 mm) Detector: MS SCAN

7 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
3.73	41.00	534	0.009873
3.74	42.00	468	
3.74	39.00	1052	

Reviewer: khachitpongpanits, 12-Jan-2023 12:27:50

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Summa Canister Dilution Worksheet

Client: Ramboll US Corporation
 Project/Site: Spic and Span 1690027851

Job No.: 500-228902-1

Lab Sample ID	Canister Volume (L)	Preadjusted Pressure ("Hg)	Preadjusted Pressure (atm)	Preadjusted Volume (L)	Adjusted Pressure (psig)	Adjusted Pressure (atm)	Adjusted Volume (L)	Initial Volume (mL)	Dilution Factor	Final Dilution Factor	Pressure Gauge ID	Date	Analyst Initials
500-228902-1	0	-5.8	0.81	0.00	28.5	2.94	0.00		3.65	3.65	G5	02/06/23 14:56	BRS
500-228902-1	0	0.0	1.00	0.00	31.3	3.13	0.00		3.13	11.41	G5	02/06/23 15:24	BRS
500-228902-2	0	-3.6	0.88	0.00	32.5	3.21	0.00		3.65	3.65	G5	02/06/23 14:58	BRS
500-228902-3	0	0.0	1.00	0.00	34.6	3.35	0.00		3.35	3.35	G5	02/06/23 14:59	BRS
500-228902-5	0	-2.8	0.91	0.00	29.4	3.00	0.00		3.31	3.31	G5	02/06/23 15:01	BRS
500-228902-6	0	-3.6	0.88	0.00	20.7	2.41	0.00		2.74	2.74	G5	02/06/23 15:02	BRS

Formulae:

- Preadjusted Volume (L) = ((Preadjusted Pressure ("Hg) + 29.92 "Hg) * Vol L) / 29.92 "Hg
- Adjusted Volume (L) = ((Adjusted Pressure (psig) + 14.7 psig) * Vol L) / 14.7 psig
- Dilution Factor = Adjusted Volume (L) / Preadjusted Volume (L)

Where:

- 29.92 "Hg = Standard atmospheric pressure in inches of Mercury ("Hg)
- 14.7 psig = Standard atmospheric pressure in pounds per square inch gauge (psig)





ANALYTICAL REPORT

PREPARED FOR

Attn: Brian Schneider
Ramboll US Corporation
234 W. Florida Street
Fifth Floor
Milwaukee, Wisconsin 53204

Generated 5/9/2023 3:13:38 PM

JOB DESCRIPTION

Spic and Span 1690027851

JOB NUMBER

500-233451-1

Eurofins Chicago

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Chicago Project Manager.

Authorization



Generated
5/9/2023 3:13:38 PM

Authorized for release by
Carlene McCutcheon, Senior Project Manager
Carlene.McCutcheon@et.eurofinsus.com
Designee for
Sandie Fredrick, Project Manager II
Sandra.Fredrick@et.eurofinsus.com
(920)261-1660

Case Narrative

Client: Ramboll US Corporation
Project/Site: Spic and Span 1690027851

Job ID: 500-233451-1



Job ID: 500-233451-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative
500-233451-1

Comments

No additional comments.

Receipt

The samples were received on 4/21/2023 9:58 AM. Unless otherwise noted below, the samples arrived in good condition.

Subcontract non-Sister

See attached subcontract report.

Subcontract Work

Method TO15-5 compounds: This method was subcontracted to Eurofins Air Toxics. The subcontract laboratory certification is different from that of the facility issuing the final report.

Analytical Report

5/9/2023

Ms. Carlene McCutcheon

Eurofins Test America

2417 Bond Street

University Park IL 60484

Project Name: Spic and Span

Project #: 500-233451

Workorder #: 2304683

Dear Ms. Carlene McCutcheon

The following report includes the data for the above referenced project for sample(s) received on 4/21/2023 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Nazanin Khorrami at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Nazanin Khorrami

Project Manager

WORK ORDER #: 2304683

Work Order Summary

CLIENT:	Ms. Carlene McCutcheon Eurofins Environment Testing 2417 Bond Street University Park, IL 60484	BILL TO:	Accounts Payable Eurofins Environment Testing 180 S Van Buren Ave. Barberton, OH 44203
PHONE:	602.437.3340	P.O. #	500-233451
FAX:		PROJECT #	500-233451 Spic and Span
DATE RECEIVED:	04/21/2023	CONTACT:	Nazanin Khorrami
DATE COMPLETED:	05/09/2023		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSV-19	Modified TO-15	4.5 "Hg	1.9 psi
02A	SSV-16	Modified TO-15	4.3 "Hg	1.9 psi
03A	SSV-18	Modified TO-15	4.7 "Hg	1.8 psi
04A	SSV-17	Modified TO-15	4.7 "Hg	1.9 psi
05A	SSV-20	Modified TO-15	4.9 "Hg	1.9 psi
06A	SSV-21	Modified TO-15	4.9 "Hg	1.9 psi
07A	Lab Blank	Modified TO-15	NA	NA
07B	Lab Blank	Modified TO-15	NA	NA
07C	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA
08B	CCV	Modified TO-15	NA	NA
08C	CCV	Modified TO-15	NA	NA
09A	LCS	Modified TO-15	NA	NA
09AA	LCSD	Modified TO-15	NA	NA
09B	LCS	Modified TO-15	NA	NA
09BB	LCSD	Modified TO-15	NA	NA
09C	LCS	Modified TO-15	NA	NA
09CC	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 
 Technical Director

DATE: 05/09/23

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA ELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) CA300005-017
 Eurofins Environment Testing Northern California, LLC certifies that the test results contained in this report meet all requirements of the 2016 TNI Standard.

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.
 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Eurofins Test America
Workorder# 2304683

Six 6 Liter Summa Canister (100% Certified) samples were received on April 21, 2023. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	$\leq 30\%$ RSD with 2 compounds allowed out to <math>< 40\%</math> RSD	$\leq 30\%$ RSD with 4 compounds allowed out to <math>< 40\%</math> RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on samples SSV-19, SSV-18, SSV-17 and SSV-20 due to the presence of high level target species.

Sample SSV-17 was transferred from Low Level analysis to full scan TO-15 due to high levels of target compounds.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SSV-19

Lab ID#: 2304683-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,2-Dichloroethene	0.33	0.61	1.3	2.4
cis-1,2-Dichloroethene	0.33	0.64	1.3	2.5
Trichloroethene	0.33	6.4	1.8	35
Tetrachloroethene	0.33	62	2.2	420

Client Sample ID: SSV-16

Lab ID#: 2304683-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	0.13	0.34	0.71	1.8
Tetrachloroethene	0.13	27	0.90	180

Client Sample ID: SSV-18

Lab ID#: 2304683-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	1.3	25	7.1	130
Tetrachloroethene	1.3	420	9.0	2900

Client Sample ID: SSV-17

Lab ID#: 2304683-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	3.4	21	18	110
Tetrachloroethene	3.4	910	23	6100

Client Sample ID: SSV-20

Lab ID#: 2304683-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.27	81	1.8	550

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SSV-21

Lab ID#: 2304683-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.14	2.1	0.92	14



Air Toxics

Client Sample ID: SSV-19

Lab ID#: 2304683-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050320	Date of Collection:	4/20/23 10:05:00 AM
Dil. Factor:	3.32	Date of Analysis:	5/4/23 10:19 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.33	Not Detected	0.85	Not Detected
trans-1,2-Dichloroethene	0.33	0.61	1.3	2.4
cis-1,2-Dichloroethene	0.33	0.64	1.3	2.5
Trichloroethene	0.33	6.4	1.8	35
Tetrachloroethene	0.33	62	2.2	420

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	115	70-130



Air Toxics

Client Sample ID: SSV-16

Lab ID#: 2304683-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21050510	Date of Collection:	4/20/23 10:32:00 AM
Dil. Factor:	1.32	Date of Analysis:	5/5/23 04:00 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.13	Not Detected	0.34	Not Detected
trans-1,2-Dichloroethene	0.13	Not Detected	0.52	Not Detected
cis-1,2-Dichloroethene	0.13	Not Detected	0.52	Not Detected
Trichloroethene	0.13	0.34	0.71	1.8
Tetrachloroethene	0.13	27	0.90	180

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	119	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	107	70-130



Air Toxics

Client Sample ID: SSV-18

Lab ID#: 2304683-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050331	Date of Collection:	4/20/23 10:55:00 AM
Dil. Factor:	13.3	Date of Analysis:	5/4/23 08:17 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.4	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.3	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.3	Not Detected
Trichloroethene	1.3	25	7.1	130
Tetrachloroethene	1.3	420	9.0	2900

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	111	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: SSV-17

Lab ID#: 2304683-04A

EPA METHOD TO-15 GC/MS

File Name:	91050817	Date of Collection:	4/20/23 11:26:00 AM
Dil. Factor:	6.70	Date of Analysis:	5/8/23 06:31 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	3.4	Not Detected	8.6	Not Detected
cis-1,2-Dichloroethene	3.4	Not Detected	13	Not Detected
Trichloroethene	3.4	21	18	110
Tetrachloroethene	3.4	910	23	6100
trans-1,2-Dichloroethene	3.4	Not Detected	13	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SSV-20

Lab ID#: 2304683-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21050511	Date of Collection:	4/20/23 12:14:00 PM
Dil. Factor:	2.70	Date of Analysis:	5/5/23 04:41 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.27	Not Detected	0.69	Not Detected
trans-1,2-Dichloroethene	0.27	Not Detected	1.1	Not Detected
cis-1,2-Dichloroethene	0.27	Not Detected	1.1	Not Detected
Trichloroethene	0.27	Not Detected	1.4	Not Detected
Tetrachloroethene	0.27	81	1.8	550

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: SSV-21

Lab ID#: 2304683-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21050512	Date of Collection:	4/20/23 1:11:00 PM
Dil. Factor:	1.35	Date of Analysis:	5/5/23 05:22 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.14	Not Detected	0.34	Not Detected
trans-1,2-Dichloroethene	0.14	Not Detected	0.54	Not Detected
cis-1,2-Dichloroethene	0.14	Not Detected	0.54	Not Detected
Trichloroethene	0.14	Not Detected	0.72	Not Detected
Tetrachloroethene	0.14	2.1	0.92	14

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	116	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2304683-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050319	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	5/4/23 08:29 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	87	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2304683-07B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21050506	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	5/5/23 11:25 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2304683-07C

EPA METHOD TO-15 GC/MS

File Name:	91050807	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	5/8/23 12:57 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 2304683-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050315	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/3/23 09:19 PM

Compound	%Recovery
Vinyl Chloride	95
trans-1,2-Dichloroethene	93
cis-1,2-Dichloroethene	91
Trichloroethene	101
Tetrachloroethene	102

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	120	70-130
4-Bromofluorobenzene	110	70-130





Air Toxics

Client Sample ID: CCV

Lab ID#: 2304683-08B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21050502	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/5/23 08:35 AM

Compound	%Recovery
Vinyl Chloride	96
trans-1,2-Dichloroethene	96
cis-1,2-Dichloroethene	90
Trichloroethene	106
Tetrachloroethene	94

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	110	70-130
4-Bromofluorobenzene	110	70-130





Air Toxics

Client Sample ID: CCV

Lab ID#: 2304683-08C

EPA METHOD TO-15 GC/MS

File Name:	91050806	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/8/23 11:50 AM

Compound	%Recovery
Vinyl Chloride	102
cis-1,2-Dichloroethene	104
Trichloroethene	94
Tetrachloroethene	99
trans-1,2-Dichloroethene	111

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	100	70-130





Air Toxics

Client Sample ID: LCS

Lab ID#: 2304683-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050316	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/3/23 09:59 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	94	70-130
trans-1,2-Dichloroethene	90	70-130
cis-1,2-Dichloroethene	89	70-130
Trichloroethene	100	70-130
Tetrachloroethene	101	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	88	70-130
Toluene-d8	114	70-130
4-Bromofluorobenzene	102	70-130





Air Toxics

Client Sample ID: LCSD

Lab ID#: 2304683-09AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050317	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/3/23 10:41 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	98	70-130
trans-1,2-Dichloroethene	92	70-130
cis-1,2-Dichloroethene	89	70-130
Trichloroethene	101	70-130
Tetrachloroethene	102	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	114	70-130
4-Bromofluorobenzene	105	70-130





Air Toxics

Client Sample ID: LCS

Lab ID#: 2304683-09B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21050503	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/5/23 09:13 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	106	70-130
trans-1,2-Dichloroethene	102	70-130
cis-1,2-Dichloroethene	97	70-130
Trichloroethene	110	70-130
Tetrachloroethene	98	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 2304683-09BB

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	21050504	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/5/23 09:51 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	104	70-130
trans-1,2-Dichloroethene	101	70-130
cis-1,2-Dichloroethene	95	70-130
Trichloroethene	108	70-130
Tetrachloroethene	98	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	106	70-130





Air Toxics

Client Sample ID: LCS

Lab ID#: 2304683-09C

EPA METHOD TO-15 GC/MS

File Name:	91050804	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/8/23 10:37 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	115	70-130
cis-1,2-Dichloroethene	101	70-130
Trichloroethene	92	70-130
Tetrachloroethene	100	70-130
trans-1,2-Dichloroethene	102	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	104	70-130





Air Toxics

Client Sample ID: LCSD

Lab ID#: 2304683-09CC

EPA METHOD TO-15 GC/MS

File Name:	91050805	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/8/23 11:04 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	114	70-130
cis-1,2-Dichloroethene	99	70-130
Trichloroethene	93	70-130
Tetrachloroethene	98	70-130
trans-1,2-Dichloroethene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	100	70-130

Analysis Request / Canister Chain of Custody

For Laboratory Use Only

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
 Phone (800) 985-5955; Fax (916) 351-8279

PID: _____
 Workorder #: 2304683

page for 4 COL # 100
 Samples dropped at TX Brackfield 5/9/2023

Client: Parkbell
 Project Name: Spic and Spin
 Project Manager: Brian Schneider
 Sampler: Kyle Schneider
 Site Name: _____

Special Instructions/Notes:
Report Only PCE, TCE, CFS-1,2-PCE, Trans-1,2-DCE, and Vinyl Chloride
Project# 262-893-847
B Schneider @ parkbell.com
Kyle Schneider @ parkbell.com

Lab ID	Field Sample Identification (Location)	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	Requested Analyses
				Date	Time	Date	Time					
<u>01A</u>	<u>SSV-19</u>	<u>6L2820</u>	<u>E0169</u>	<u>4-26-23</u>	<u>0929</u>	<u>4-26-23</u>	<u>1005</u>	<u>-28.5</u>	<u>-4.0</u>			<u>To-15</u>
<u>02A</u>	<u>SSV-16</u>	<u>6L3107</u>	<u>E0091</u>		<u>0953</u>		<u>1032</u>	<u>-28.5</u>	<u>-4.5</u>			<u>X</u>
<u>03A</u>	<u>SSV-18</u>	<u>6L1464</u>	<u>E0032</u>		<u>1018</u>		<u>1055</u>	<u>-28.0</u>	<u>-4.0</u>			<u>X</u>
<u>04A</u>	<u>SSV-17</u>	<u>6L0243</u>	<u>E0002</u>		<u>1048</u>		<u>1126</u>	<u>-29.0</u>	<u>-4.5</u>			<u>X</u>
<u>05A</u>	<u>SSV-20</u>	<u>6L0612</u>	<u>E0045</u>		<u>1136</u>		<u>1214</u>	<u>-28.0</u>	<u>-4.0</u>			<u>X</u>
<u>06A</u>	<u>SSV-21</u>	<u>6L1922</u>	<u>E0193</u>		<u>1234</u>		<u>1311</u>	<u>-28.5</u>	<u>-4.5</u>			<u>X</u>
	<u>4-26-23</u>											
	<u>KTS</u>											
Relinquished by: (Signature/Affiliation) _____ Date _____ Time _____												
Relinquished by: (Signature/Affiliation) <u>Kyle Schneider</u> <u>Parkbell</u> Date <u>4/20/23</u> Time <u>1415</u>												
Relinquished by: (Signature/Affiliation) _____ Date _____ Time _____												
Relinquished by: (Signature/Affiliation) <u>Kyle Schneider</u> Date <u>4-20-23</u> Time <u>1700</u>												
Relinquished by: (Signature/Affiliation) _____ Date _____ Time _____												
Relinquished by: (Signature/Affiliation) _____ Date _____ Time _____												

Shipper Name: DPF Custody Seals Intact? Yes No Lab Use Only Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T. Hotline (800) 467-4922

Login Sample Receipt Checklist

Client: Ramboll US Corporation

Job Number: 500-233451-1

Login Number: 233451

List Number: 1

Creator: McCutcheon, Carlene

List Source: Eurofins Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.		
The cooler's custody seal, if present, is intact.		
Sample custody seals, if present, are intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the containers received and the COC.		
Samples are received within Holding Time (excluding tests with immediate HTs)		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		

APPENDIX G
OFF SITE ACCESS
REQUEST LETTERS

Via Certified Mail

David Marks
Phoenix Investors
401 E. Kilbourn Ave. Suite 201
Milwaukee, WI 53202

**REQUEST FOR ACCESS PERMISSION TO COMPLETE A SOIL BORING
FOR ENVIRONMENTAL SAMPLING
4353 NORTH RICHARDS STREET, MILWAUKEE, WISCONSIN**

Dear David:

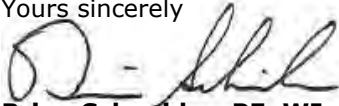
I am writing to request permission to access your facility at 4353 North Richards Street, Milwaukee, Wisconsin in order to complete a soil boring test to define the northern limit of potential perchloroethylene on the north side of the Spic and Span facility at 4301 North Richards Street. The proposed location of the soil test is shown in the attached figure.

The soil boring will be completed to a maximum depth of 18 feet below ground surface. The boring will be completed with a two-inch diameter Geoprobe®. One to two soil samples will be collected for laboratory analyses of only perchloroethylene and its breakdown products. The borehole will be filled with bentonite and patched with asphalt. It is estimated that the boring will take approximately 3 hours.

Please contact me if you have any questions.

Sincerely,

Yours sincerely



Brian Schneider, PE–WI, MI, IL

D 262-901-3507
M 262-893-8617
bschneider@ramboll.com

Attachment

Ramboll
234 W. Florida Street
Fifth Floor
Milwaukee, WI 53204
USA

T 414-837-3607
F 414-837-3608
<https://ramboll.com>

Ref: 1690027851

FIGURE



Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

● PROPOSED BORING LOCATION

PROPOSED BORING LOCATION
4353 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

FIGURE 1

SITE INVESTIGATION
FORMER SPIC AND SPAN FACILITY
 4301 NORTH RICHARDS STREET
 MILWAUKEE, WISCONSIN

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.



Via Certified Mail

David Marks
Phoenix Investors
401 E. Kilbourn Ave. Suite 201
Milwaukee, WI 53202

**REQUEST FOR ACCESS PERMISSION TO COMPLETE A SOIL BORING
FOR ENVIRONMENTAL SAMPLING
4353 NORTH RICHARDS STREET, MILWAUKEE, WISCONSIN**

Dear David:

I am writing once again to request permission to access your facility at 4353 North Richards Street, Milwaukee, Wisconsin in order to complete a soil boring test to define the northern limit of potential perchloroethylene on the north side of the Spic and Span facility at 4301 North Richards Street. The proposed location of the soil test is shown in the attached figure.

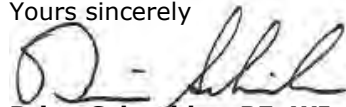
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Please review the attached Wisconsin Department of Natural Resources (WDNR) informational fact sheet included with this letter to better explain the WDNR's requirements.

Please contact me if you have any questions.

Sincerely,

Yours sincerely



Brian Schneider, PE—WI, MI, IL

D 262-901-3507
M 262-893-8617
bschneider@ramboll.com

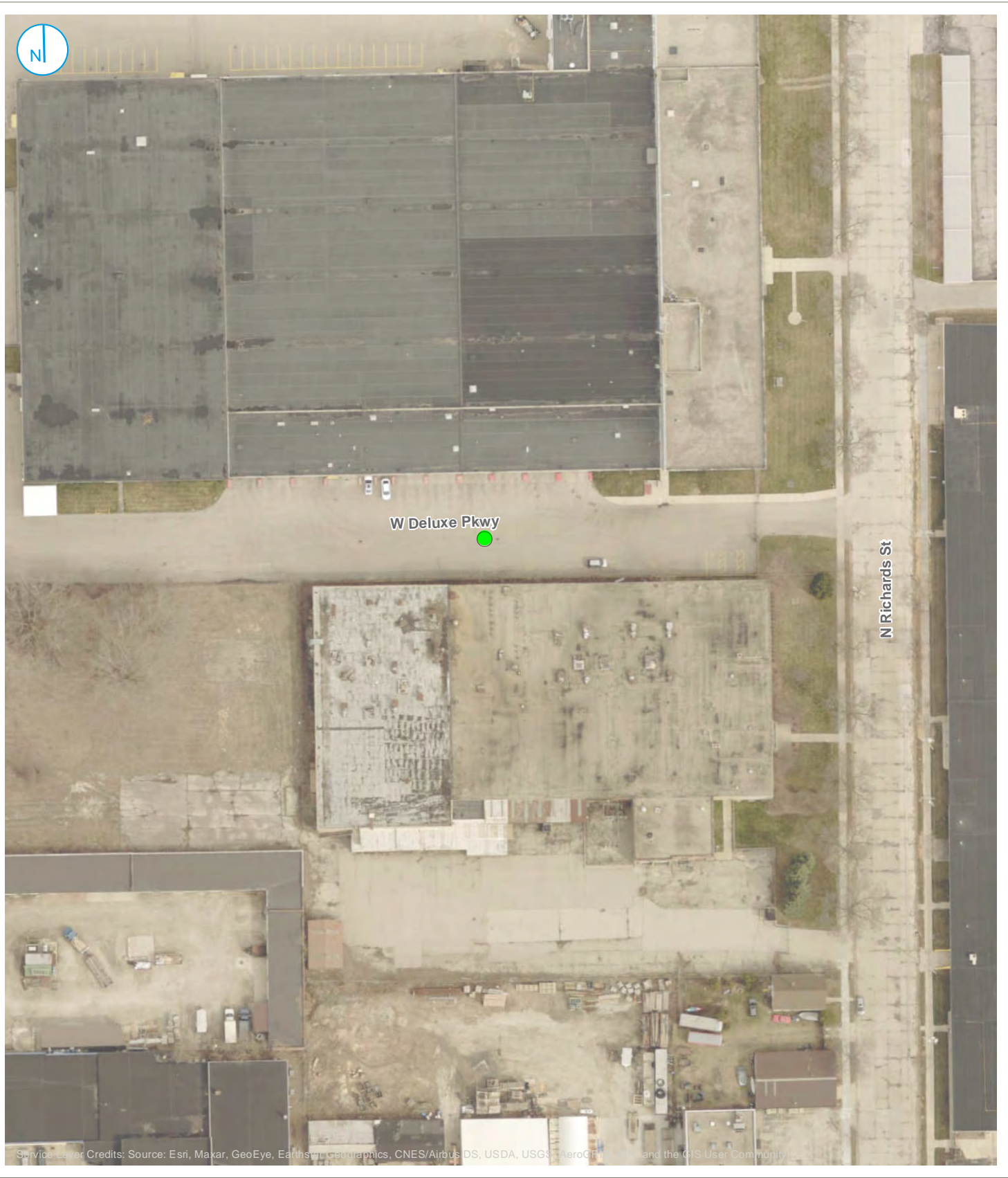
Attachments

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Ref: 1690027851

FIGURE



Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

● PROPOSED BORING LOCATION

PROPOSED BORING LOCATION
4353 NORTH RICHARDS STREET
MILWAUKEE, WISCONSIN

FIGURE 1

SITE INVESTIGATION
FORMER SPIC AND SPAN FACILITY
 4301 NORTH RICHARDS STREET
 MILWAUKEE, WISCONSIN

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.





WDNR FACT SHEET



When Contamination Crosses a Property Line

The Off-Site Environmental Liability Exemption - Wis. Stat. §§ 292.12 and 292.13 Rights and Responsibilities of Off-site, Affected Property Owners

Purpose

This fact sheet summarizes the state's statutory liability exemption for owners of real property affected by environmental contamination migrating from another property. It also explains how contamination from one property can impose health and safety obligations on other properties even when the liability exemption is in effect.

Background

It is relatively common to discover that substances used at an older commercial or industrial property have migrated into the soil, surface water and groundwater and have traveled onto a neighboring property. When this occurs, the party responsible for investigating and cleaning up the source of the contamination is required to take action to address health and safety concerns at both the source property and the off-site property.

When contamination from one property crosses a property boundary, Wisconsin law provides an environmental liability exemption to the affected property owner who meets the conditions in the law. The affected property owner is identified as the "off-site" owner in state law, because environmental contamination has moved beyond the source property's boundaries.

The Wisconsin Department of Natural Resources (DNR) will generally not ask off-site, exempt property owners to investigate or remediate contamination that did not originate on their property. A few exceptions to the exemption, related to imminent health and safety threats and long term obligations, are described in the next section.

The statutory off-site exemption is self-implementing and is effective as long as an eligible party meets all the statutory conditions. Property owners and others may request a written exemption determination letter from the DNR for a fee, but this letter is not required to have the exemption protections.

Summary of an off-site property owner's rights and responsibilities

Wisconsin law, Wis. Stat. § 292.11(3), requires anyone who causes, possesses or controls a hazardous substance discharge to the environment (i.e. land, air, water) to take action to restore the

environment to the extent practicable and minimize harmful effects. When contamination from one property migrates and affects another property, however, Wisconsin law provides an exemption for an owner (possessor) of the affected, neighboring property from the requirement to take response actions under Wis. Stat. §§ 292.11(3), (4) and (7)(b) and (c). This statutory provision is known as the "off-site liability exemption," and is authorized by Wis. Stat. § 292.13.

Related Guidance

- [Off-site Liability Exemption Application \(Form 4400-201\)](#)
- [General Liability Clarification Letters \(RR-619\)](#)
- [Continuing Obligations for Environmental Protection \(RR-819\)](#)
- [Environmental Contamination and Your Real Estate \(RR-973\)](#)

An off-site property owner is someone who owns property affected by soil, groundwater, sediment, soil gas (vapor) or other environmental contamination that originated on another property. The property where the contamination began is known as the source property. An affected off-site property owner is eligible for an off-site liability exemption if all of the following conditions in Wis. Stat. § 292.13 are satisfied, including, but not limited to:

- The off-site property owner did not cause the original discharge of the hazardous substance;
- The off-site property owner did not, and does not, possess or control the hazardous substance that was discharged on the source property;
- The property that contains the source of the migrating contamination is not owned or controlled by the same person or entity that owns the affected off-site property;
- The off-site property owner allows reasonable access to their property, so the DNR and its contractors, along with those responsible for the contamination, can take necessary response actions to protect public health;
- The off-site property owner does not interfere with the response actions of others and does not do anything to make the contamination situation worse;
- The off-site property owner agrees to other conditions that the DNR determines are reasonable and necessary to ensure that response actions are adequate; and
- For soil and sediment contamination, when the responsible party is not responding appropriately to the contamination, the off-site property owner agrees to take actions that the DNR determines are necessary to prevent an imminent threat to human health and safety. For example, taking action to limit public access to the property, installing containment barriers, and addressing fire, explosion and vapor hazards on the property.

No Exemption from Reporting Requirements

The off-site exemption does not exempt an affected property owner from Wis. Stat. § 292.11(2), which requires the immediate notification of identified contamination to the DNR.

Limitations of the Exemption

The off-site exemption is conditional, limited in scope and applies solely to legal responsibilities identified in Wis. Stat. §§ 292.11(3), (4) and (7)(b)(c). The off-site exemption does not exempt a property owner from:

- Wis. Stat. § 292.11(2), which requires the immediate notification of identified contamination to the DNR;
- Wis. Stat. § 292.12, which authorizes the DNR to require continuing public health protection obligations on any property affected by environmental contamination (see page 4 of this fact sheet); and
- Limited, immediate actions, as specified in Wis. Stat. § 292.13(1m)(e). For instance, off-site property owners may be required to address an imminent threat from fire, explosion or vapors if there is not a party responsible for the cleanup who can conduct the actions.

In addition, the off-site liability exemption is not automatically transferable, nor assignable, to future owners of the off-site property. However, it is likely that a new owner could be eligible for the exemption if they meet the conditions in Wis. Stat. § 292.13, including the ability to substantiate that they do not currently, or have ever, owned the source property and did not cause the discharge.

Overview of migrating contamination

Hazardous substances that are spilled or otherwise discharged to the environment can disperse and move around underground. These substances can spread out and migrate, or travel, through the soil into groundwater and nearby lakes and rivers. Gases (vapors) emanating from underground hazardous substances can also make their way upward into houses and other buildings.

When hazardous substances (contamination) move from their starting place (source) and affect the soil, sediment, groundwater or indoor air of an adjacent or nearby property, it is important to accurately determine who is legally responsible for investigating the nature and extent of the contamination, cleaning it up, and mitigating its harmful effects.

Discovering contamination from an off-site source

When a property owner discovers soil or groundwater contamination they believe came from another property, the owner must first notify the DNR of the contamination. The DNR will then work with the owner and potentially responsible parties to ensure appropriate actions are taken to investigate and clean up the contamination to protect health and safety.

Migrating contamination and access to property

Responsible parties are required by state law to investigate and remediate, to the extent practicable, all contamination that migrates within and beyond the boundaries of a source property. If the contamination crosses a property line, the responsible party must investigate where it goes and ask owners of affected, off-site properties for permission to access their properties. Property access is needed so the environmental investigation and cleanup or mitigation work can be completed.

An off-site property owner must allow access to their property to be eligible for the off-site liability exemption. When signing an access agreement, the off-site owners may wish to negotiate with the responsible party on issues such as the work schedule, the restoration of disturbed landscaping, etc.

If the owner of an affected off-site property does not allow the responsible party's environmental consultants or the DNR onto their property, the off-site owner will not qualify for the off-site exemption and the off-site owner may assume legal responsibility for the contamination on their property.

Obtaining an off-site liability determination letter from the DNR

Off-site property owners can request a liability determination letter from the DNR, for a fee, that documents the exemption in writing.

To obtain a letter, the off-site property owner must provide information to demonstrate that there are hazardous substances impacting their property from a source on another property and that all the other conditions for the exemption have been met. The off-site property owner can use the investigation data collected by the responsible party in response to the contamination or an owner of an off-site property may collect their own data to demonstrate the contamination is coming from somewhere else.

Requesting a Determination or Clarification Letter

To obtain an off-site liability determination letter or liability clarification letter, submit the DNR's [Off-site Liability Exemption application, Form 4400-201](#) and the applicable fee. This form includes instructions and describes the information needed by the DNR for a site-specific letter.

Obtaining a liability clarification letter from the DNR

If someone does not meet all the requirements for the exemption, (e.g. a prospective purchaser) and therefore doesn't qualify for an off-site liability determination letter, anyone with an interest in a property that is or may be affected by migrating contamination can still request that the DNR review the site-specific situation and provide a written liability clarification letter for a fee. Liability clarification letters may be helpful when evaluating the potential purchase of a property or when contamination is suspected to be impacting a property.

Continuing obligations for the protection of health and safety at off-site properties

When residual contamination extends across a property line, continuing obligations may also extend onto an affected, off-site property. In these situations, owners of off-site properties may not be legally responsible for responding to the contamination, but they are responsible for complying with the continuing obligations imposed on their property by the DNR or state law to protect health and safety.

Wisconsin, like most states, allows some residual contamination to remain after a cleanup of contaminated soil, vapors, sediment or groundwater has been approved by the state (see Wis. Stat. § 292.12). The removal of all contamination is generally not practicable, nor is it always necessary for the protection of public health and the environment.

When the DNR approves the completion of an interim action, or a remedial action, or issues a case closure letter at a site where residual contamination exists, the DNR may condition or qualify its case closure approval on compliance with continuing obligations at the source property and affected off-site properties to protect public health and the environment.

These continuing obligations are property-specific requirements and restrictions identified in the DNR approval or case closure letter. They are legal responsibilities associated with the source property, and apply to current and future owners of the property. If contamination has migrated off-site, there may be continuing obligations that also apply to off-site, affected properties.

Common Continuing Obligations for Source and Affected, Off-site Properties

One common continuing obligation, for the owners of the source property and affected, off-site properties, is the proper management and disposal of contaminated soil that is excavated. Other continuing obligations and requirements necessary to protect health and safety may include:

- Keeping clean soil and vegetation over contaminated soil;
- Maintaining a cover of pavement, soil, asphalt, etc. over contaminated soil or groundwater;
- Operating and maintaining a vapor mitigation system that is installed by the responsible party;
- Obtaining DNR approval prior to constructing or reconstructing a well at properties with groundwater contamination; and
- Maintaining industrial use for a property that was cleaned up to industrial standards.

Owners of off-site properties are responsible for complying with the continuing obligations imposed on their property by the DNR or state law to protect health and safety, except for those continuing obligations imposed for residual sediment contamination.

Notice to Affected Off-site Property Owners of Case Closure Request and Possible Continuing Obligations

The party responsible for cleaning up contamination must notify affected, off-site property owners of a proposed continuing obligation on their property before the DNR reviews a request for case closure. State law requires this, and it allows the off-site property owners some time to provide the DNR with any technical information that may be relevant to the cleanup approval.

An off-site property owner is, of course, free to discuss responsibility for the proposed off-site continuing obligations with the responsible party. If an off-site property owner enters into a legally enforceable agreement (i.e. a private contract) with the party responsible for the contamination, under which the responsible party assumes responsibility for maintaining a continuing obligation on the off-site owner's property, that agreement must be submitted to the DNR and recorded in the database per Wis. Stat. § 292.12(5)(c).

If the DNR approves a case closure request that includes continuing obligations at an off-site property, the DNR will notify off-site owners of the continuing obligation. A property owner may request modification of a continuing obligation in the future if environmental conditions change. For example, petroleum contamination degrades over time and laboratory test results of new soil, groundwater or vapor samples may support modifying or removing a continuing obligation.

Finding information about continuing obligations

Information about property-specific continuing obligations can be found (as applicable) in the DNR interim action approval letter, the case closure letter for the source property, and in the DNR documents giving notice to off-site property owners. These letters and related documents are available in the DNR database of property cleanup activities.

This database, called [BRRTS on the Web](#), is available at dnr.wi.gov (search "BRRTS"). The documents about affected, off-site properties that are associated with a specific source property can be found in BRRTS when you search the site number or address of the property that is the source of the contamination. Property owners, local government officials, building contractors, well drillers and others may review the database to find out if there are any land-use restrictions or continuing obligations associated with a specific property before beginning work there.

For more information

Questions about the off-site environmental liability exemption and continuing obligations can be directed to the brownfields specialist in your local DNR regional office. To find a specialist in your area, go to dnr.wi.gov and search "brownfields contacts."

For additional information about off-site contamination and liability clarification letters go to dnr.wi.gov and search for "off-site contamination." For additional information about residual contamination and continuing obligations go to dnr.wi.gov and search for "continuing obligations."

This document is intended solely as guidance and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Wisconsin or the Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.

The Wisconsin Department of Natural Resources provides equal opportunity in its employment, programs, services, and functions under an Affirmative Action Plan. If you have any questions, please write to Chief, Public Civil Rights, Office of Civil Rights, U.S. Department of the Interior, 1849 C. Street, NW, Washington, D.C. 20240. This publication is available in alternative format (large print, Braille, etc.) upon request. Please call for more information. Note: If you need technical assistance or more information, call the Accessibility Coordinator at 608-267-7490 / TTY Access via relay - 711



Phoenix Investors
401 E. Kilbourn Avenue, Suite 201
Milwaukee, WI 53202

**ACKNOWLEDGEMENT OF RECEIPT OF REQUEST FOR ACCESS PERMISSION TO
COMPLETE A SOIL BORING FOR ENVIRONMENTAL SAMPLING
4353 NORTH RICHARDS STREET, MILWAUKEE, WISCONSIN**

On behalf of Phoenix Investors, I the undersigned, acknowledge receipt of Ramboll US Consulting, Inc.'s Request for Access Permission to your facility at 4353 North Richards Street in Milwaukee, Wisconsin to complete a soil boring for environmental sampling.

October 6, 2022

Signature: Betsy Porter
Name: Bethany Porter
Title: Office Manager
Date: 10.06.22

Ramboll
234 W. Florida Street
Fifth Floor
Milwaukee, WI 53204
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www.ramboll.com

Ref. 1690027851

Phoenix Investors
401 E. Kilbourn Ave. Suite 201
Milwaukee, WI 53202

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Signature:

Name:

Title:

Date:

Maisha B. McNeil
Maisha B. McNeil
Director of Prop. Mgmt.
12/20/2022

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Milwaukee, WI 53204
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Ref: 1690027851

APPENDIX H

SITE PHOTOS



Photo 1: Dry-cleaning room looking north



Photo 2: Dry-cleaning room looking south



Photo 3: Solvent cleaning room looking south

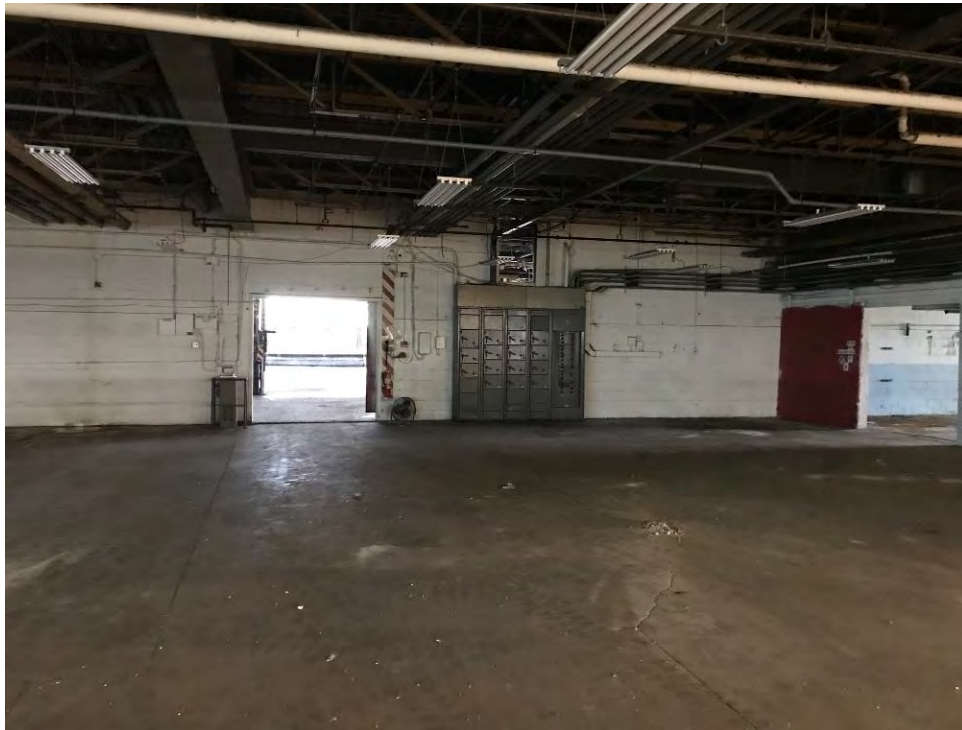


Photo 4: Looking west from the Area of SB #7 (solvent cleaning room on the right)



Photo 5: Looking south from southeast corner of dry-cleaning room



Photo 6: Looking northeast from Area of SB #7