

**MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY**

**INTEROFFICE COMMUNICATION**

TO: File

FROM: Amy Robinson

DATE: April 22, 2021

SUBJECT: Monthly Ethylene Oxide Sampling at Centurion Medical, Inc. for March 2021

**Overview**

The Centurion facility in Howell, Michigan was identified by EPA NATA analysis as having elevated ethylene oxide ambient air impacts. Subsequent modeling by AQD showed that the impacts were above the Initial Risk Screening Level (IRSL) (0.0002  $\mu\text{g}/\text{m}^3$ ) and Secondary Risk Screening Level (SRSL) (0.002  $\mu\text{g}/\text{m}^3$ ). To ascertain the accuracy of the modeling, AQD conducted a limited monitoring study for ethylene oxide in the vicinity of Centurion.

Monitoring for ethylene oxide was accomplished using the TO-15 SUMMA canister method. EPA's National Contract Laboratory, Eastern Research Group (ERG), performed the analysis. ERG's laboratory detection limit is 0.047  $\mu\text{g}/\text{m}^3$ . Since the SRSL is lower than the detection limit of the current method for ethylene oxide, the monitoring data will have to be carefully interpreted. For example, if a sample result is reported as non-detect, it is possible that the actual level could still be above the SRSL.

**Sampling Details**

Phase I sampling for ethylene oxide was conducted from March 29-30<sup>th</sup>. at Centurion Medical Products (Centurion). On March 29<sup>th</sup>, sampling sites were selected, and setup started around 10 AM at 301 Catrell Road, Howell. Canister sites 1-5 were located on Centurion's property. By noon, the canisters located onsite were fully opened and collecting samples. One of the technicians, then drove to site #6 to setup and started collecting the sample at 12:15. On March 30<sup>th</sup>, Site #6 was collected first. The technician then proceeded to Centurion. Once there, sites 1-5 were taken down.

**Site Locations:**

Site #1: This site is located in the southwest corner of the property. it is intended to determine the amount of EtO coming on the property from other sources.

Site #2: This site is located by the loading docks. it is intended to capture possible fugitive emissions escaping from the shipping area.

Site #3: This site is located at the back of the building behind Building #3. it is intended to capture possible fugitive emissions.

Site #4: This site is located on the fence around the Nitrogen tank at the back of Building #4. it is intended to capture possible fugitive emissions from the back of the building where the EtO sterilizers are located. This is a collocated site.

Site #5: This site is located behind Building #4. it is intended to capture possible fugitive emissions from Building #4.

Site #6: This site is located off-site, about 6 miles south of Centurion. It is intended to capture EtO in ambient air coming from downwind areas such as Jackson and Ann Arbor. This site was chosen because it is in a rural area with no major roads nearby.

Photos and maps associated with the sampling locations are available in Appendix A.

### Sampling Results

The results were received on April 21, 2021 and are summarized in the table below. The highest results were from sites #3 and #5, on the east side of Centurions property. All sites showed ethylene oxide values above the IRSL and SRSL. ERG used an EPA approved method and followed all quality assurance protocols.

Full sample results from the ERG lab are available in Appendix B.

Site ID	EtO (ppbv)	Rep analysis (ppbv)	EtO (ug/m3)	Rep analysis (ug/m3)
CENTURION #1 3/29/21	0.0723		0.13	
CENTURION #2 3/29/21	0.390		0.70	
CENTURION #3 3/29/21	1.69		3.05	
CENTURION #4A 3/29/21	0.173	0.174	0.31	0.31
CENTURION #4B 3/29/21	0.194	0.195	0.35	0.35
CENTURION #5 3/29/21	1.27		2.29	
BACKGROUND #6 3/29/21	0.0395		0.07	

## Appendix A: Photos and maps



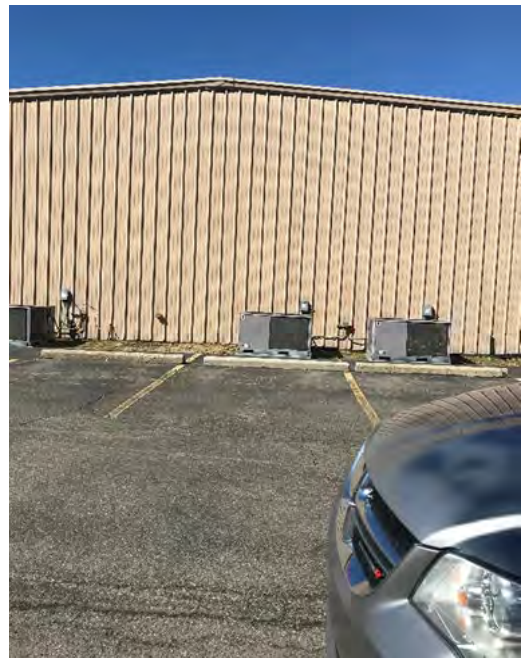
*Figure 1 Sampling location #1*



*Figure 2 Sampling location #2*



*Figure 3 Sampling location #3*



*Figure 4 Looking at Centurion from sampling location #3*



Figure 5 Sampling location #4, looking at the thermal oxidizer stack.



Figure 6 Sampling location #5



Figure 7 Sampling location #6



Figure 8 Centurion Medical Products Sampling Sites for Phase I

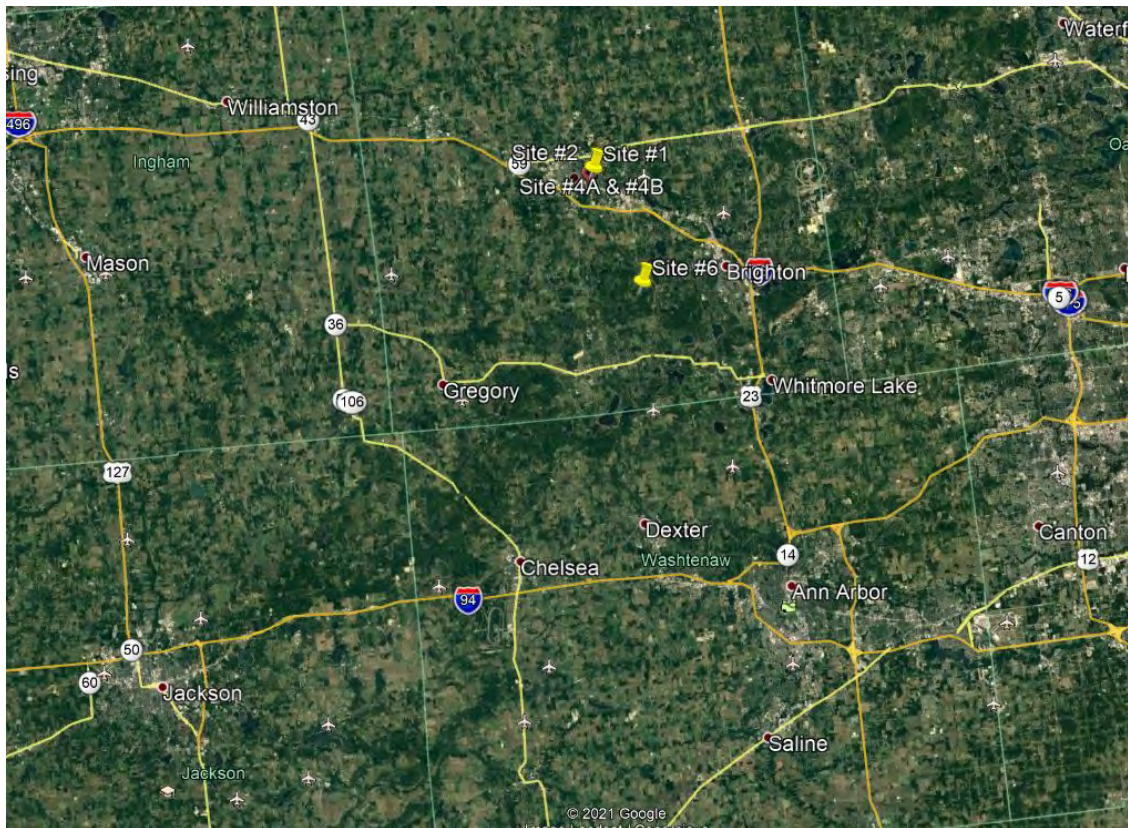


Figure 9 Background and Centurion Medical Products Sites for Phase I sampling.

## Appendix B: ERG Sampling Results Report



Eastern Research Group  
601 Keystone Park Drive  
Suite 700  
Morrisville, NC 27560

April 21, 2021

Ms. Amy Robinson  
Michigan Department of Environment,  
Great Lakes and Energy  
PO Box 30260  
Lansing, MI 48909  
Project Name: MI EtO

Dear Ms. Amy Robinson,

This report contains the analytical results for the sample(s) received under chain(s) of custody by Eastern Research Group on 04/06/21 13:49.

Values below the MDL for QC results in this report are recorded as ND, however the actual values are reported in the accompanying Excel report with a "U" flag (Under the detection limit). The actual values are reported in AQS.

This test is accredited under the 2016 TNI Standard for Environmental Laboratories (FL DOH Certification # E87673). All analyses were performed as described in the US EPA-approved QAPP, under the contract for UATMP, NATTS, CSATAM, PAMS and NMOC support (US EPA Contract No. EP-D-14-030). This cover page is an integral part of this report, and any exceptions or comments are noted on the last page.

Release of the data contained in this data package and in the data submitted in the electronic data deliverable, has been authorized by the Program Manager, or the Program Manager's designee as verified by the following signature.

The issuance of the final Certificate of Analysis takes precedence over any previous Report. If you have any questions, please contact me at 919-468-7924.

Sincerely,

Julie Swift  
Program Manager  
[julie.swift@erg.com](mailto:julie.swift@erg.com)

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# CERTIFICATE OF ANALYSIS

U.S. Environmental Protection Agency, Region 5

PO Box 30260

Lansing, MI 48909

ATTN: Ms. Amy Robinson

PHONE: (517) 241-2198 FAX: (312) 886-5824

FILE #: [none]

REPORTED: 04/21/21 13:11

SUBMITTED: 04/06/21

AQS SITE CODE:

SITE CODE: MI EtO

## ANALYTICAL REPORT FOR SAMPLES

<u>SampleName</u>	<u>LabNumber</u>	<u>Matrix</u>	<u>Sampled</u>	<u>Received</u>
#1 - Centurion	1040634-01	Air	03/29/21 23:01	04/06/21 13:49
#2 - Centurion	1040634-02	Air	03/29/21 23:08	04/06/21 13:49
#3 - Centurion	1040634-03	Air	03/29/21 23:12	04/06/21 13:49
#4A - Centurion	1040634-04	Air	03/29/21 23:15	04/06/21 13:49
#4B - Centurion	1040634-05	Air	03/29/21 23:15	04/06/21 13:49
#5 - Centurion	1040634-06	Air	03/29/21 23:14	04/06/21 13:49
#5 - Background	1040634-07	Air	03/29/21 22:22	04/06/21 13:49





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FILE #: [none]

REPORTED: 04/21/21 13:11

SUBMITTED: 04/06/21

AQS SITE CODE:

SITE CODE: MI EtO

Description: #1 - Centurion

Lab ID: 1040634-01

Sampled: 03/29/21 23:01

Pressure @ Receipt: 7.00" Hg

Canister #: 35112

Received: 04/06/21 13:49

Comments:

Analyzed: 04/12/21 16:28

## Air Toxics by EPA Compendium Method TO-15

<u>Analyte</u>	<u>Results</u>		<u>Flag</u>	<u>MDL</u>
	<u>ppbv</u>	<u>ug/m<sup>3</sup></u>		<u>ppbv</u>
Ethylene oxide	0.0723	0.13		0.0261



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FILE #: [none]

REPORTED: 04/21/21 13:11

SUBMITTED: 04/06/21

AQS SITE CODE:

SITE CODE: MI EtO

<b>Description:</b> #2 - Centurion	<b>Lab ID:</b> 1040634-02	<b>Sampled:</b> 03/29/21 23:08
<b>Pressure @ Receipt:</b> 6.00" Hg	<b>Canister #:</b> 35125	<b>Received:</b> 04/06/21 13:49
<b>Comments:</b>		<b>Analyzed:</b> 04/12/21 17:28

## Air Toxics by EPA Compendium Method TO-15

<u>Analyte</u>	<u>Results</u>		<u>Flag</u>	<u>MDL</u>
	<u>ppbv</u>	<u>ug/m<sup>3</sup></u>		<u>ppbv</u>
Ethylene oxide	0.390	0.70		0.0261



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FILE #: [none]

REPORTED: 04/21/21 13:11

SUBMITTED: 04/06/21

AQS SITE CODE:

SITE CODE: MI EtO

Description: #3 - Centurion

Lab ID: 1040634-03

Sampled: 03/29/21 23:12

Pressure @ Receipt: 6.50" Hg

Canister #: 35141

Received: 04/06/21 13:49

Comments:

Analyzed: 04/12/21 18:29

## Air Toxics by EPA Compendium Method TO-15

<u>Analyte</u>	<u>Results</u>		<u>Flag</u>	<u>MDL</u>
	<u>ppbv</u>	<u>ug/m<sup>3</sup></u>		<u>ppbv</u>
Ethylene oxide	1.69	3.05		0.0261



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FILE #: [none]  
 REPORTED: 04/21/21 13:11  
 SUBMITTED: 04/06/21  
 AQS SITE CODE:  
 SITE CODE: MI EtO

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<b>Description:</b> #4A - Centurion	<b>Lab ID:</b> 1040634-04	<b>Sampled:</b> 03/29/21 23:15
<b>Pressure @ Receipt:</b> 2.50" Hg	<b>Canister #:</b> 35139	<b>Received:</b> 04/06/21 13:49
<b>Comments:</b> Dup 1		<b>Analyzed:</b> 04/12/21 19:30

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### Air Toxics by EPA Compendium Method TO-15

<u>Analyte</u>	<u>Results</u>		<u>Flag</u>	<u>MDL</u>
	<u>ppbv</u>	<u>ug/m<sup>3</sup></u>		<u>ppbv</u>
Ethylene oxide	0.173	0.31		0.0261



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FILE #: [none]  
 REPORTED: 04/21/21 13:11  
 SUBMITTED: 04/06/21  
 AQS SITE CODE:  
 SITE CODE: MI EtO

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<b>Description:</b> #4B - Centurion	<b>Lab ID:</b> 1040634-05	<b>Sampled:</b> 03/29/21 23:15
<b>Pressure @ Receipt:</b> 6.50" Hg	<b>Canister #:</b> 35154	<b>Received:</b> 04/06/21 13:49
<b>Comments:</b> Dup 2		<b>Analyzed:</b> 04/12/21 21:32

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### Air Toxics by EPA Compendium Method TO-15

<u>Analyte</u>	<u>Results</u>		<u>Flag</u>	<u>MDL</u>
	<u>ppbv</u>	<u>ug/m<sup>3</sup></u>		<u>ppbv</u>
Ethylene oxide	0.194	0.35		0.0261



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FILE #: [none]

REPORTED: 04/21/21 13:11

SUBMITTED: 04/06/21

AQS SITE CODE:

SITE CODE: MI EtO

<b>Description:</b> #5 - Centurion	<b>Lab ID:</b> 1040634-06	<b>Sampled:</b> 03/29/21 23:14
<b>Pressure @ Receipt:</b> 5.50" Hg	<b>Canister #:</b> 35134	<b>Received:</b> 04/06/21 13:49
<b>Comments:</b>		<b>Analyzed:</b> 04/12/21 23:34

### Air Toxics by EPA Compendium Method TO-15

<u>Analyte</u>	<u>Results</u>		<u>Flag</u>	<u>MDL</u>
	<u>ppbv</u>	<u>ug/m<sup>3</sup></u>		<u>ppbv</u>
Ethylene oxide	1.27	2.29		0.0261



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FILE #: [none]

REPORTED: 04/21/21 13:11

SUBMITTED: 04/06/21

AQS SITE CODE:

SITE CODE: MI EtO

Description: #5 - Background

Lab ID: 1040634-07

Sampled: 03/29/21 22:22

Pressure @ Receipt: 7.50" Hg

Canister #: 35122

Received: 04/06/21 13:49

Comments:

Analyzed: 04/13/21 00:35

## Air Toxics by EPA Compendium Method TO-15

<u>Analyte</u>	<u>Results</u>		<u>Flag</u>	<u>MDL</u>
	<u>ppbv</u>	<u>ug/m<sup>3</sup></u>		<u>ppbv</u>
Ethylene oxide	0.0395	0.07		0.0261



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FILE #: [none]  
 REPORTED: 04/21/21 13:11  
 SUBMITTED: 04/06/21  
 AQS SITE CODE:  
 SITE CODE: MI EtO

Analyte	Result	Units	Source Result	RPD	RPD Limit	Notes
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## Air Toxics by EPA Compendium Method TO-15 - Quality Control

Batch B1D1205 - Summa Canister Prep

### Blank (B1D1205-BLK1)

Prepared & Analyzed: 04/12/21

Ethylene oxide	ND	ppbv				U
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### Duplicate (B1D1205-DUP1)

Source: 1040634-04

Prepared: 03/29/21 Analyzed: 04/12/21

Ethylene oxide	0.174	ppbv	0.17	0.404	25	
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### Duplicate (B1D1205-DUP2)

Source: 1040634-05

Prepared: 03/29/21 Analyzed: 04/12/21

Ethylene oxide	0.195	ppbv	0.19	0.308	25	
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**PHONE:** (517) 241-2198 **FAX:** (312) 886-5824

**FILE #:** [none]  
**REPORTED:** 04/21/21 13:11  
**SUBMITTED:** 04/06/21  
**AQS SITE CODE:**  
**SITE CODE:** MI EtO

Analyte	Result	Units	% Difference	Limit (%)	Notes
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## Air Toxics by EPA Compendium Method TO-15 - Quality Control

*Sequence 2104023*

### Calibration Check (2104023-CCV1)

Prepared & Analyzed: 04/12/21

Ethylene oxide	2.33	ppbv	-3.6	30.00	
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**FILE #:** [none]  
**REPORTED:** 04/21/21 13:11  
**SUBMITTED:** 04/06/21  
**AQS SITE CODE:**  
**SITE CODE:** MI EtO

## Notes and Definitions

U Under Detection Limit  
ND Analyte NOT DETECTED  
NR Not Reported  
MDL Method Detection Limit  
RPD Relative Percent Difference

Note: This test is accredited under the 2016 TNI Standard; however the following analytes are not accredited: acetylene, bromodichloroethane, dichlorotetrafluoromethane, ethyl tert butyl ether, n-octane, tert amyl methyl ether, trichlorofluoroethane, and bromochloromethane.