



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

December 20, 2019

Mr. Benjamin Chandler  
GHD Services Inc.  
11719 Hinson Road, Suite 100  
Little Rock, AR 72223  
Project Name: Village of Gurnee

Dear Mr. Benjamin Chandler,

This report contains the analytical results for the sample(s) received under chain(s) of custody by Eastern Research Group on 12/06/19 11:27 through 12/10/19 11:09.

The test results in this report are in compliance with NELAC accreditation requirements for the certified parameters. 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

GHD Services Inc.  
11719 Hinson Road, Suite 100  
Little Rock, AR 72223

ATTN: Mr. Benjamin Chandler

PHONE: (501) 224-1926 FAX:

FILE #: 4210.00

REPORTED: 12/20/19 15:52

SUBMITTED: 12/06/19 to 12/10/19

AQS SITE CODE:

SITE CODE: Village of Gurnee

## ANALYTICAL REPORT FOR SAMPLES

<u>SampleName</u>	<u>LabNumber</u>	<u>Matrix</u>	<u>Sampled</u>	<u>Received</u>
11197130-V1-14	9120609-01	Air	12/04/19 23:59	12/06/19 11:27
11197130-V2-14	9120609-02	Air	12/04/19 23:59	12/06/19 11:27
11197130-V3-14	9120609-03	Air	12/04/19 23:59	12/06/19 11:27
11197130-V4-14	9120609-04	Air	12/04/19 23:59	12/06/19 11:27
11197130-V5-14	9120609-05	Air	12/04/19 23:59	12/06/19 11:27
11197130-M1-14	9120609-06	Air	12/04/19 23:59	12/06/19 11:27
11197130-M2-14	9120609-07	Air	12/04/19 23:59	12/06/19 11:27
11197130-M3-14	9120609-08	Air	12/04/19 23:59	12/06/19 11:27
11197130-M4-14	9120609-09	Air	12/04/19 23:59	12/06/19 11:27
11197130-M5-14	9120609-10	Air	12/04/19 23:59	12/06/19 11:27
11197130-R1-14	9120609-11	Air	12/04/19 23:59	12/06/19 11:27
11197130-R2-14	9120609-12	Air	12/04/19 23:59	12/06/19 11:27
11197130-R1-15	9121016-01	Air	12/07/19 23:59	12/10/19 11:09
11197130-R2-15	9121016-02	Air	12/07/19 23:59	12/10/19 11:09
11197130-M1-15	9121016-03	Air	12/07/19 23:59	12/10/19 11:09
11197130-M2-15	9121016-04	Air	12/07/19 23:59	12/10/19 11:09
11197130-M3-15	9121016-05	Air	12/07/19 23:59	12/10/19 11:09
11197130-M4-15	9121016-06	Air	12/07/19 23:59	12/10/19 11:09
11197130-M5-15	9121016-07	Air	12/07/19 23:59	12/10/19 11:09
11197130-V1-15	9121016-08	Air	12/07/19 23:59	12/10/19 11:09
11197130-V2-15	9121016-09	Air	12/07/19 23:59	12/10/19 11:09
11197130-V3-15	9121016-10	Air	12/07/19 23:59	12/10/19 11:09
11197130-V4-15	9121016-11	Air	12/07/19 23:59	12/10/19 11:09



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**ATTN:** Mr. Benjamin Chandler

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11197130-V5-15

9121016-12

Air

**FILE #:** 4210.00

**REPORTED:** 12/20/19 15:52

**SUBMITTED:** 12/06/19 to 12/10/19

**AQS SITE CODE:**

**SITE CODE:** Village of Gurnee

12/07/19 23:59

12/10/19 11:09



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**Description:** 11197130-V1-14      **Lab ID:** 9120609-01      **Sampled:** 12/04/19 23:59  
**Pressure @ Receipt:** 4.50" Hg      **Canister #:** SAT072      **Received:** 12/06/19 11:27  
**Comments:**      **Analyzed:** 12/11/19 15:12

### 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	0.128	0.23	LK	0.0250



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**Description:** 11197130-V2-14      **Lab ID:** 9120609-02      **Sampled:** 12/04/19 23:59  
**Pressure @ Receipt:** 8.00" Hg      **Canister #:** SAT152      **Received:** 12/06/19 11:27  
**Comments:**      **Analyzed:** 12/11/19 17:21

### 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	0.464	0.84		0.0250



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 AQS SITE CODE:  
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**Description:** 11197130-V3-14      **Lab ID:** 9120609-03      **Sampled:** 12/04/19 23:59  
**Pressure @ Receipt:** 7.50" Hg      **Canister #:** 5102      **Received:** 12/06/19 11:27  
**Comments:**      **Analyzed:** 12/11/19 18:25

### 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	0.0975	0.18	LK	0.0250



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**Description:** 11197130-V4-14      **Lab ID:** 9120609-04      **Sampled:** 12/04/19 23:59  
**Pressure @ Receipt:** 7.50" Hg      **Canister #:** A21042      **Received:** 12/06/19 11:27  
**Comments:**      **Analyzed:** 12/11/19 19:29

### 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	0.0468	0.08	LK	0.0250



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 AQS SITE CODE:  
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**Description:** 11197130-V5-14      **Lab ID:** 9120609-05      **Sampled:** 12/04/19 23:59  
**Pressure @ Receipt:** 5.50" Hg      **Canister #:** SAT059      **Received:** 12/06/19 11:27  
**Comments:**      **Analyzed:** 12/11/19 20:34

### 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	0.0678	0.12	LK	0.0250



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 SUBMITTED: 12/06/19 to 12/10/19  
 AQS SITE CODE:  
 SITE CODE: Village of Gurnee

**Description:** 11197130-M1-14      **Lab ID:** 9120609-06      **Sampled:** 12/04/19 23:59  
**Pressure @ Receipt:** 5.00" Hg      **Canister #:** 5089      **Received:** 12/06/19 11:27  
**Comments:**      **Analyzed:** 12/11/19 21:38

### 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	0.569	1.03		0.0250



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 SUBMITTED: 12/06/19 to 12/10/19  
 AQS SITE CODE:  
 SITE CODE: Village of Gurnee

**Description:** 11197130-M2-14      **Lab ID:** 9120609-07      **Sampled:** 12/04/19 23:59  
**Pressure @ Receipt:** 5.00" Hg      **Canister #:** 18822      **Received:** 12/06/19 11:27  
**Comments:**      **Analyzed:** 12/11/19 22:42

### 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	0.117	0.21	LK	0.0250



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 SUBMITTED: 12/06/19 to 12/10/19  
 AQS SITE CODE:  
 SITE CODE: Village of Gurnee

**Description:** 11197130-M3-14      **Lab ID:** 9120609-08      **Sampled:** 12/04/19 23:59  
**Pressure @ Receipt:** 5.00" Hg      **Canister #:** SAT157      **Received:** 12/06/19 11:27  
**Comments:**      **Analyzed:** 12/11/19 23:47

### 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	0.0532	0.10	LK	0.0250



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FILE #: 4210.00  
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 AQS SITE CODE:  
 SITE CODE: Village of Gurnee

**Description:** 11197130-M4-14      **Lab ID:** 9120609-09      **Sampled:** 12/04/19 23:59  
**Pressure @ Receipt:** 5.50" Hg      **Canister #:** A21083      **Received:** 12/06/19 11:27  
**Comments:**      **Analyzed:** 12/12/19 00:51

### 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	0.289	0.52		0.0250



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 SUBMITTED: 12/06/19 to 12/10/19  
 AQS SITE CODE:  
 SITE CODE: Village of Gurnee

**Description:** 11197130-M5-14      **Lab ID:** 9120609-10      **Sampled:** 12/04/19 23:59  
**Pressure @ Receipt:** 6.50" Hg      **Canister #:** SAT184      **Received:** 12/06/19 11:27  
**Comments:**      **Analyzed:** 12/12/19 01:55

### 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	0.0782	0.14	LK	0.0250



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 SUBMITTED: 12/06/19 to 12/10/19  
 AQS SITE CODE:  
 SITE CODE: Village of Gurnee

**Description:** 11197130-R1-14      **Lab ID:** 9120609-11      **Sampled:** 12/04/19 23:59  
**Pressure @ Receipt:** 7.50" Hg      **Canister #:** SAT185      **Received:** 12/06/19 11:27  
**Comments:**      **Analyzed:** 12/12/19 03:00

### 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	0.115	0.21	LK	0.0250



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GHD Services Inc.  
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 AQS SITE CODE:  
 SITE CODE: Village of Gurnee

**Description:** 11197130-R2-14      **Lab ID:** 9120609-12      **Sampled:** 12/04/19 23:59  
**Pressure @ Receipt:** 7.00" Hg      **Canister #:** SAT034      **Received:** 12/06/19 11:27  
**Comments:**      **Analyzed:** 12/12/19 04:04

### 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	0.0357	0.06	LK	0.0250



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FILE #: 4210.00  
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 SUBMITTED: 12/06/19 to 12/10/19  
 AQS SITE CODE:  
 SITE CODE: Village of Gurnee

**Description:** 11197130-R1-15      **Lab ID:** 9121016-01      **Sampled:** 12/07/19 23:59  
**Pressure @ Receipt:** 7.00" Hg      **Canister #:** SAT170      **Received:** 12/10/19 11:09  
**Comments:**      **Analyzed:** 12/12/19 20:57

### 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	0.0706	0.13	LK	0.0250



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 AQS SITE CODE:  
 SITE CODE: Village of Gurnee

**Description:** 11197130-R2-15      **Lab ID:** 9121016-02      **Sampled:** 12/07/19 23:59  
**Pressure @ Receipt:** 6.50" Hg      **Canister #:** A21000      **Received:** 12/10/19 11:09  
**Comments:**      **Analyzed:** 12/12/19 22:01

### 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	0.0414	0.07	LK	0.0250



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 SITE CODE: Village of Gurnee

**Description:** 11197130-M1-15      **Lab ID:** 9121016-03      **Sampled:** 12/07/19 23:59  
**Pressure @ Receipt:** 4.00" Hg      **Canister #:** SAT046      **Received:** 12/10/19 11:09  
**Comments:**      **Analyzed:** 12/12/19 23:06

### 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	0.0689	0.12	LK	0.0250



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**Description:** 11197130-M2-15      **Lab ID:** 9121016-04      **Sampled:** 12/07/19 23:59  
**Pressure @ Receipt:** 5.00" Hg      **Canister #:** SAT051      **Received:** 12/10/19 11:09  
**Comments:**      **Analyzed:** 12/13/19 00:10

### 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	0.0757	0.14	LK	0.0250



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**Description:** 11197130-M3-15      **Lab ID:** 9121016-05      **Sampled:** 12/07/19 23:59  
**Pressure @ Receipt:** 4.50" Hg      **Canister #:** SAT025      **Received:** 12/10/19 11:09  
**Comments:**      **Analyzed:** 12/13/19 01:14

## 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	0.0503	0.09	LK	0.0250



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**Description:** 11197130-M4-15      **Lab ID:** 9121016-06      **Sampled:** 12/07/19 23:59  
**Pressure @ Receipt:** 4.50" Hg      **Canister #:** SAT020      **Received:** 12/10/19 11:09  
**Comments:**      **Analyzed:** 12/13/19 02:19

### 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	0.0424	0.08	LK	0.0250



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**Description:** 11197130-M5-15      **Lab ID:** 9121016-07      **Sampled:** 12/07/19 23:59  
**Pressure @ Receipt:** 5.50" Hg      **Canister #:** SAT076      **Received:** 12/10/19 11:09  
**Comments:**      **Analyzed:** 12/13/19 03:23

### 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	0.0810	0.15	LK	0.0250



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 AQS SITE CODE:  
 SITE CODE: Village of Gurnee

**Description:** 11197130-V1-15      **Lab ID:** 9121016-08      **Sampled:** 12/07/19 23:59  
**Pressure @ Receipt:** 5.00" Hg      **Canister #:** A21037      **Received:** 12/10/19 11:09  
**Comments:**      **Analyzed:** 12/13/19 04:27

### 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	0.0582	0.11	LK	0.0250



# CERTIFICATE OF ANALYSIS

GHD Services Inc.  
 11719 Hinson Road, Suite 100  
 Little Rock, AR 72223  
 ATTN: Mr. Benjamin Chandler  
 PHONE: (501) 224-1926 FAX:

FILE #: 4210.00  
 REPORTED: 12/20/19 15:52  
 SUBMITTED: 12/06/19 to 12/10/19  
 AQS SITE CODE:  
 SITE CODE: Village of Gurnee

**Description:** 11197130-V2-15      **Lab ID:** 9121016-09      **Sampled:** 12/07/19 23:59  
**Pressure @ Receipt:** 8.00" Hg      **Canister #:** 5066      **Received:** 12/10/19 11:09  
**Comments:**      **Analyzed:** 12/13/19 05:31

### 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	0.0898	0.16	LK	0.0250



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 REPORTED: 12/20/19 15:52  
 SUBMITTED: 12/06/19 to 12/10/19  
 AQS SITE CODE:  
 SITE CODE: Village of Gurnee

**Description:** 11197130-V3-15      **Lab ID:** 9121016-10      **Sampled:** 12/07/19 23:59  
**Pressure @ Receipt:** 6.50" Hg      **Canister #:** 5043      **Received:** 12/10/19 11:09  
**Comments:**      **Analyzed:** 12/13/19 17:27

### 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	0.0937	0.17	LK	0.0250



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 REPORTED: 12/20/19 15:52  
 SUBMITTED: 12/06/19 to 12/10/19  
 AQS SITE CODE:  
 SITE CODE: Village of Gurnee

**Description:** 11197130-V4-15      **Lab ID:** 9121016-11      **Sampled:** 12/07/19 23:59  
**Pressure @ Receipt:** 3.50" Hg      **Canister #:** SAT068      **Received:** 12/10/19 11:09  
**Comments:**      **Analyzed:** 12/13/19 18:31

### 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	0.0882	0.16	LK	0.0250



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 SUBMITTED: 12/06/19 to 12/10/19  
 AQS SITE CODE:  
 SITE CODE: Village of Gurnee

**Description:** 11197130-V5-15      **Lab ID:** 9121016-12      **Sampled:** 12/07/19 23:59  
**Pressure @ Receipt:** 4.50" Hg      **Canister #:** 18874      **Received:** 12/10/19 11:09  
**Comments:**      **Analyzed:** 12/13/19 19:35

### 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	0.0383	0.07	LK	0.0250



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**FILE #:** 4210.00  
**REPORTED:** 12/20/19 15:52  
**SUBMITTED:** 12/06/19 to 12/10/19  
**AQS SITE CODE:**  
**SITE CODE:** Village of Gurnee

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

### Batch B9L1105 - Summa Canister Prep

**Blank (B9L1105-BLK1)** Prepared & Analyzed: 12/11/19

Ethylene oxide	ND	ppbv				U
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**Duplicate (B9L1105-DUP1)** **Source: 9120609-01** Prepared: 12/04/19 Analyzed: 12/11/19

Ethylene oxide	0.117	ppbv	0.13	9.28	25	LK
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### Batch B9L1203 - Summa Canister Prep

**Blank (B9L1203-BLK1)** Prepared & Analyzed: 12/12/19

Ethylene oxide	ND	ppbv				U
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### Batch B9L1303 - Summa Canister Prep

**Blank (B9L1303-BLK1)** Prepared: 11/26/19 Analyzed: 12/13/19

Ethylene oxide	ND	ppbv				U
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**FILE #:** 4210.00  
**REPORTED:** 12/20/19 15:52  
**SUBMITTED:** 12/06/19 to 12/10/19  
**AQS SITE CODE:**  
**SITE CODE:** Village of Gurnee

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

### Sequence 1912025

**Calibration Check (1912025-CCV1)**

Prepared &amp; Analyzed: 12/11/19

Ethylene oxide	2.34	ppbv	-6.5	30.00
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### Sequence 1912028

**Calibration Check (1912028-CCV1)**

Prepared &amp; Analyzed: 12/12/19

Ethylene oxide	2.27	ppbv	-9.1	30.00
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### Sequence 1912031

**Calibration Check (1912031-CCV1)**

Prepared &amp; Analyzed: 12/13/19

Ethylene oxide	1.81	ppbv	-27.4	30.00
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**FILE #:** 4210.00

**REPORTED:** 12/20/19 15:52

**SUBMITTED:** 12/06/19 to 12/10/19

**AQS SITE CODE:**

**SITE CODE:** Village of Gurnee

## Notes and Definitions

U	Under Detection Limit
LK	Analyte identified; Reported value may be biased high.
ND	Analyte NOT DETECTED
NR	Not Reported
MDL	Method Detection Limit
RPD	Relative Percent Difference

Note: The test results meet all requirements of NELAC; however the following analytes are not accredited: 1,2,4-trimethylbenzene, 1,2-dibromoethane, 1,2-dichloropropane, 1,3,5-trimethylbenzene, 1,3-butadiene, acetylene, acrolein, bromochloromethane, bromodichloromethane, bromoform, carbon disulfide, dibromochloromethane, dichlorodifluoromethane, dichlorotetrafluoroethane, ethyl acrylate, ethyl tert butyl ether, ethylene oxide, hexachloro-1,3-butadiene, n-octane, propylene, tert amyl methyl ether, tetrachloroethylene, trans-1,2-dichloroethylene, trichlorofluoromethane, and trichlorotrifluoroethane.