

## ENVIRONMENTAL PROTECTION DIVISION

**Richard E. Dunn, Director** 

**EPD Director's Office** 2 Martin Luther King, Jr. Drive Suite 1456, East Tower Atlanta, Georgia 30334 404-656-4713

November 28, 2022

## **MEMORANDUM**

- To: Karen Hays, Air Branch Chief  $\cancel{K}$
- Through: James Boylan, Assistant Branch Chief

From: DeAnna Oser, Ambient Monitoring Program Manager

RE: South DeKalb 2019-2021 Region 4 EPA Sampling Results for Ethylene Oxide

Samples of Ethylene Oxide (EtO) were taken at our South DeKalb monitoring station 2019-2021 and analyzed by the Region 4 Environmental Protection Agency Laboratory Services & Applied Science Division (EPA LSASD Lab). Samples were collected on the passive sampling system as well as the pressurized (ATEC) sampling system for comparison purposes to the analyses by Eastern Research Group (ERG). This comparison is part of the Community Scales Air Toxics Monitoring Grant awarded to Georgia EPD by EPA for evaluating new technologies for ethylene oxide measurement for samples collected through October 31, 2021. The comparisons will be published in the final report for this grant. The Qualifier code of "2" was given to samples to indicate that the collection deviated from established procedures, but the integrity of the sample was not compromised. The Qualifier codes of "1" and "6" were added to data because the pressurized system samplers used for collection had not been verified against an ethylene oxide standard prior to sampling. The Qualifier code of "LK" was given by ERG to indicate that the sample may be biased high – these cans were reanalyzed by GA EPD Lab for comparison analysis on the same can. The Qualifier code of "J" indicates the analysis of the sample is acceptable and the reported value is an estimate. The Qualifier code of "QL" indicates the sample had a laboratory quality control analysis outside of limits. The Qualifier code of "Q-2" indicated that the analysis results are greater than the method detection limit but less than the method reporting limit. The Qualifier code of "U" indicates that the analyte was not detected at or above the reporting limit. The sample listed as AS indicates the sample had poor quality assurance. The samples listed as AF indicate that the sample was scheduled but not collected. The code SC indicates that the sample was invalidated due to sampler contamination.

Location	Date	Qualifier	EtO Concentration $(\mu g/m^3)$
South DeKalb ATEC	06/14/2019		AS
South DeKalb	11/20/2019	LK	1.18
South DeKalb	10/30/2020		AF
South DeKalb	11/11/2020	LK, J, QL	0.6

South DeKalb QA	01/04/2021		SC
South DeKalb	01/04/2021	J, Q-2	0.13
South DeKalb	02/09/2021	U	0.26
South DeKalb	02/15/2021		0.31
South DeKalb	02/15/2021	U	0.33
South DeKalb	02/21/2021	U	0.23
South DeKalb	02/21/2021	J, Q-2	0.28
South DeKalb ATEC	02/27/2021	1, 6, J, Q-2	0.11
South DeKalb	03/23/2021	U	0.29
South DeKalb QA	05/04/2021	J, Q-2	0.34
South DeKalb	05/04/2021	LK	1.00
South DeKalb ATEC-QA	05/10/2021	1, 6	0.30

If you have any questions, please let me know.

DGO/do



Region 4 Laboratory Services and Applied Science Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0372 Project: 19-0372, GA EPD Can Check - Reported by Jeffrey Hendel

August 12, 2019

#### MEMORANDUM

SUBJECT:	FINAL Analytical Report
	Project: 19-0372, GA EPD Can Check
FROM:	Jeffrey Hendel
	LSB Organic Chemistry Section Chief
THRU:	Sandra Aker, Chief
	Laboratory Services Branch
TO:	Stacie Masters

# This data report is being reissued. Some or all of these results were previously reported. Please substitute the corrected results for those results previously reported. Please refer to the Report Narrative for more details.

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
- Volatile Organics (VOA)		
Volatile organic compounds	EPA TO-15 (Air)	ISO



Region 4 Laboratory Services and Applied Science Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0372 Project: 19-0372, GA EPD Can Check - Reported by Jeffrey Hendel

#### Report Narrative for Work Order: E192601 Analysis: VOA

7/16/19 VOC SJH: This sample was analyzed against two curves made with standards from different sources. The ethylene oxide curve check standard failed high evaluated against the 6/25 curve and low against the 6/30 curve. We are officially reporting the higher sample value (6/25), but with J and QC-3 qualifiers because "analyte calibration criteria not met" was the situation on both days. (In case you are interested, the lower value (6/30) was 0.23 ug/m3.) All other QC samples easily passed on both days.

8/12/19 VOC JRH: This data is being re-reported due to a reporting error of significant figures with the original data. In accordance with LSB's Laboratory Operations and Quality Assurance Manual, it is the general practice of LSB to report results to 2 significant figures. Due to a settings error in the laboratory information management system the original data was reported to 3 significant figures. This report corrects for the significant figure error and based on the laboratory's rounding rules, the value of ethylene oxide was change from 0.309 ug/m3 to 0.31 ug/m3. This report replaces E192601 VOA FINAL 07 16 19 1850.

#### Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.



#### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY Region 4 Laboratory Services and Applied Science Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0372 Project: 19-0372, GA EPD Can Check - Reported by Jeffrey Hendel

### SAMPLES INCLUDED IN THIS REPORT

#### Project: 19-0372, GA EPD Can Check

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
Silonite 6 Liter Canister # 32492	E192601-01	Air	6/14/19 00:00	6/21/19 10:15



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY Region 4 Laboratory Services and Applied Science Division

980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0372 Project: 19-0372, GA EPD Can Check - Reported by Jeffrey Hendel

#### **DATA QUALIFIER DEFINITIONS**

- J The identification of the analyte is acceptable; the reported value is an estimate.
- QC-3 Analyte calibration criteria not met

#### ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

- MDL Method Detection Limit The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
- MRL Minimum Reporting Limit Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
- TIC Tentatively Identified Compound An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

#### ACCREDITATIONS:

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at: http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

NR The EPA Region 4 Laboratory has not requested accreditation for this test.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY Region 4 Laboratory Services and Applied Science Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0372 Project: 19-0372, GA EPD Can Check - Reported by Jeffrey Hendel

## **Volatile Organics**

### Project: 19-0372, GA EPD Can Check

Sample II Station II	): <u>Silonite 6 Liter Canister # 32492</u> ):	Lab ID: <u>E19260</u> Matrix: Air	<u>1-01</u>					
Date Col	lected: 6/14/19 0:00							
CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method	
75-21-8	Ethylene oxide	0.31 J, QC-3	ug/m3	0.039	6/14/19 0:00	6/26/19 6:57	EPA TO-15	



Region 4 Laboratory Services and Applied Science Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0372 Project: 19-0372, GA EPD Can Check - Reported by Jeffrey Hendel

## Volatile Organics (VOA) - Quality Control US-EPA, Region 4, LSASD

			-							
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 1906082 - V TO-15 Air Canister										
Blank (1906082-BLK1)				Prepared: (	06/13/19 A	nalyzed: 06	5/26/19			
EPA TO-15										
Ethylene oxide	U	0.039	ug/m3							QC-6, U
LCS (1906082-BS1)				Prepared: (	06/20/19 A	nalyzed: 06	5/26/19			
EPA TO-15										
Ethylene oxide	2.0919		ppbv	2.1560		97.0	70-130			QC-6
LCS Dup (1906082-BSD1)				Prepared: (	06/20/19 A	nalvzed: 06	5/26/19			
FPA TO-15				1		<u> </u>				
Ethylene oxide	2.0986		ppbv	2.1560		97.3	70-130	0.317	25	QC-6
Duplicate (1906082-DUP1)	Sou	ırce: E192601-	01	Prepared: (	06/14/19 A	nalyzed: 06	6/26/19			
EPA TO-15										
Ethylene oxide	0.30453	0.039	ug/m3		0.30857			1.32	25	J, QC-3
MRL Verification (1906082-PS1)				Prepared: (	06/20/19 A	nalvzed: 06	5/26/19			
EPA TO-15										
Ethylene oxide	0.030360		ppbv	0.021560		141	50-150			MRL-5, QC-6
Batch 1906095 - V TO-15 Air Canister										
Blank (1906095-BLK1)				Prepared: (	06/13/19 A	nalyzed: 07	//01/19			
EPA TO-15										
Ethylene oxide	U	0.039	ug/m3							QC-5, U
LCS (1906095-BS1)				Prepared: (	06/27/19 A	nalvzed: 06	5/30/19			
EPA TO-15				1						
Ethylene oxide	2.0402		ppbv	2.1640		94.3	70-130			QC-5
L (20 D (100/00/ DOD1)				D 1/	06/07/10	1 1.07	(20/10			
LCS Dup (1906095-BSD1)				Prepared: (	06/2//19 A	nalyzed: 06	/30/19			
EPA 10-15 Ethylene oxide	2.0332		ppbv	2.1640		94.0	70-130	0.344	25	QC-5
MRL Verification (1906095-PS1)				Prepared: (	06/27/19 A	nalyzed: 06	5/30/19			
EPA TO-15				-						
Ethylene oxide	0.028020		ppbv	0.021640		129	50-150			MRL-5, OC-5



Region 4 Laboratory Services and Applied Science Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0372 Project: 19-0372, GA EPD Can Check - Reported by Jeffrey Hendel

## Volatile Organics (VOA) - Quality Control US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1906095 - V TO-15 Air Canister										

MRL Verification (1906095-PS1)

Prepared: 06/27/19 Analyzed: 06/30/19



Region 4 Laboratory Services and Applied Science Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0372 Project: 19-0372, GA EPD Can Check - Reported by Jeffrey Hendel

#### Notes and Definitions for QC Samples

UThe analyte was not detected at or above the reporting limit.JThe identification of the analyte is acceptable; the reported value is an estimate.MRL-5MRL verification for Air matrixQC-3Analyte calibration criteria not metQC-5Calibration check standard less than method control limits.QC-6Calibration check standard greater than method control limits.



December 23, 2019

#### 4LSASD-LSB

#### **MEMORANDUM**

SUBJECT:	FINAL Analytical Report
	Project: 20-0100, LSB QC Ethylene Oxide Screen for GAEPD
FROM:	Kristin Trapp
	OCS Analyst
THRU:	Jeffrey Hendel, Chief
	LSB Organic Chemistry Section
TO:	Stacie Masters

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
- Volatile Organics (VOA)		
Volatile organic compounds	EPA TO-15 (Air)	ISO



#### **Report Narrative for Work Order: E195002**

12/17/19 KT: Sample was analyzed as received- no pressurization or dilution.

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## SAMPLES INCLUDED IN THIS REPORT

#### Project: 20-0100, LSB QC Ethylene Oxide Screen for GAEPD

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
South Dekalb	E195002-01	Air	11/20/19 23:59	12/9/19 10:45



#### **DATA QUALIFIER DEFINITIONS**

#### None

#### ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

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- TIC Tentatively Identified Compound An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

#### ACCREDITATIONS:

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at: http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

NR The EPA Region 4 Laboratory has not requested accreditation for this test.



## **Volatile Organics**

## Project: 20-0100, LSB QC Ethylene Oxide Screen for GAEPD

Sample ID Station ID	South Dekalb	Lab ID: Matrix	<u>E195002-01</u>					
Date Colle	ected: 11/20/19 23:59							
CAS Number	Analyte	Results Quali	fiers Units	MRL	Prepared	Analyzed	Method	
75-21-8	Ethylene oxide	0.65	ppbv	0.040	11/20/19 23:59	12/10/19 14:03	EPA TO-15	



## Volatile Organics (VOA) - Quality Control US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1912019 - V TO-15 Air Canister										
Blank (1912019-BLK1)				Prepared:	11/12/19 A	nalyzed: 12	2/10/19			
EPA TO-15										
Ethylene oxide	U	0.040	ppbv							U
LCS (1912019-BS1)				Prepared:	12/05/19 A	nalyzed: 12	2/10/19			
EPA TO-15										
Ethylene oxide	2.1867		ppbv	2.0240		108	70-130			
LCS Dup (1912019-BSD1)				Prepared:	12/05/19 A	nalyzed: 12	2/10/19			
EPA TO-15										
Ethylene oxide	2.1511		ppbv	2.0240		106	70-130	1.64	25	
Duplicate (1912019-DUP2)	Sou	rce: E195002-	01	Prepared:	11/20/19 A	nalyzed: 12	2/10/19			
FPA TO-15				1						
Ethylene oxide	0.76221	0.040	ppbv		0.65207			15.6	25	
MRI, Verification (1912019-PS2)				Prenared	12/05/19 A	nalvzed 13	2/10/19			
EDA TO-15				riepareu.	12,00,17 A	nuryzeu. 12				
Ethylene oxide	0.038760		ppbv	0.040480		95.8	50-150			MRL-5



Region 4 Laboratory Services and Applied Science Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 20-0100 Project: 20-0100, LSB QC Ethylene Oxide Screen for GAEPD - Reported by Kristin Trapp

#### Notes and Definitions for QC Samples

U The analyte was not detected at or above the reporting limit.

MRL-5 MRL verification for Air matrix



February 3, 2021

#### **MEMORANDUM**

SUBJECT:	FINAL Analytical Report
	Project: 21-0110, LSB QC Air Canister Comparison
FROM:	Stacie Masters
	LSB Organic Chemistry Section Chief
THRU:	Sandra Aker, Chief
	Laboratory Services Branch
TO:	Jeffrey Hendel

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Volatile Organics (VOA)		
Volatile organic compounds	EPA TO-15 (Air)	ISO



#### Sample Disposal Policy

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## SAMPLES INCLUDED IN THIS REPORT

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
1011328-03	E210501-01	Air	1/4/21 23:59	1/26/21 10:15
1011328-04	E210501-02	Air	1/4/21 23:59	1/26/21 10:15



### **DATA QUALIFIER DEFINITIONS**

- J The identification of the analyte is acceptable; the reported value is an estimate.
- Q-2 Result greater than MDL but less than MRL.

#### ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

- MDL Method Detection Limit The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
- MRL Minimum Reporting Limit Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
- TIC Tentatively Identified Compound An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

#### ACCREDITATIONS:

ISO Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Laboratories.

Refer to the certificate and scope of accreditation FT-0330 at: http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

- NR Not accredited for this test.
- DW Accredited for conformance with ISO/IEC 17025:2017 and testing elements in the Fifth Edition of the Manual for the Certification of Laboratories Analyzing Drinking Water, EPA 815-R-05-004, 2005.

Refer to the certificate and scope of accreditation AT-2628 at: http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

ISO/DW Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Labs, and conformance with ISO/IEC 17025:2017 and testing elements in the Manual for the Certification of Laboratories Analyzing Drinking Water.



## **Volatile Organics**

Sample II	D: <u>1011328-03</u>	Lab ID: <u>E21(</u>	<u>)501-01</u>					
Station II	D: <u>SDK</u>	Matrix: Air						
Date Col	llected: 1/4/21 23:59							
CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method	
75-21-8	Ethylene oxide	0.13 J, Q-2	ug/m3	0.23	1/26/21 13:28	1/27/21 15:40	EPA TO-15	



## **Volatile Organics**

Sample ID	: <u>1011328-04</u>	Lab ID:	<u>E210501-02</u>					
Station ID	: <u>SDK-QA</u>	Matrix	: Air					
Date Colle	ected: 1/4/21 23:59							
CAS Number	Analyte	Results Quali	fiers Units	MRL	Prepared	Analyzed	Method	
75-21-8	Ethylene oxide	1.2	ug/m3	0.23	1/26/21 13:31	1/27/21 17:13	EPA TO-15	



## Volatile Organics (VOA) - Quality Control US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2101033 - V TO-15 Air Canister										
Blank (2101033-BLK1)				Prepared: (	01/26/21 A	nalyzed: 01	/27/21			
EPA TO-15				*		•				
Ethylene oxide	U	0.14	ug/m3							U
LCS (2101033-BS1)				Prepared: (	01/05/21 A	nalyzed: 01	/27/21			
EPA TO-15										
Ethylene oxide	2.2022		ppbv	1.9960		110	70-130			
LCS Dup (2101033-BSD1)				Prepared: (	01/05/21 A	nalyzed: 01	/27/21			
EPA TO-15										
Ethylene oxide	2.1865		ppbv	1.9960		110	70-130	0.713	25	
Duplicate (2101033-DUP1)	Sou	rce: E210501-	-01	Prepared: (	01/26/21 A	nalyzed: 01	/27/21			
EPA TO-15										
Ethylene oxide	0.15409	0.23	ug/m3		0.13207			15.4	25	J, Q-2
MRL Verification (2101033-PS1)				Prepared: (	01/06/21 A	nalyzed: 01	/27/21			
EPA TO-15										
Ethylene oxide	0.087480		ppbv	0.079840		110	50-150			MRL-5
MRL Verification (2101033-PS2)				Prepared: (	01/06/21 A	nalyzed: 01	/27/21			
EPA TO-15										
Ethylene oxide	0.045800		ppbv	0.039920		115	50-150			



#### Notes and Definitions for QC Samples

- U The analyte was not detected at or above the reporting limit.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- MRL-5 MRL verification for Air matrix
- Q-2 Result greater than MDL but less than MRL.



March 3, 2021

#### **MEMORANDUM**

SUBJECT:	FINAL Analytical Report
	Project: 21-0154, LSB QC Air Canister Comparison
FROM:	Stacie Masters
	LSB Organic Chemistry Section Chief
THRU:	Sandra Aker, Chief
	Laboratory Services Branch
TO:	Jeffrey Hendel

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Volatile Organics (VOA)		
Volatile organic compounds	EPA TO-15 (Air)	ISO



#### Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.



## SAMPLES INCLUDED IN THIS REPORT

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
AK67642	E210902-01	Air	2/9/21 00:00	2/22/21 10:15
AK68474	E210907-01	Air	2/15/21 00:00	2/24/21 10:25



#### **DATA QUALIFIER DEFINITIONS**

#### U The analyte was not detected at or above the reporting limit.

#### ACRONYMS AND ABBREVIATIONS

#### CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

- MDL Method Detection Limit The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
- MRL Minimum Reporting Limit Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
- TIC Tentatively Identified Compound An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

#### ACCREDITATIONS:

ISO Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Laboratories. Refer to the certificate and scope of accreditation FT-0330 at:

http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

- NR Not accredited for this test.
- DW Accredited for conformance with ISO/IEC 17025:2017 and testing elements in the Fifth Edition of the Manual for the Certification of Laboratories Analyzing Drinking Water, EPA 815-R-05-004, 2005.

Refer to the certificate and scope of accreditation AT-2628 at: http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

ISO/DW Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Labs, and conformance with ISO/IEC 17025:2017 and testing elements in the Manual for the Certification of Laboratories Analyzing Drinking Water.



## **Volatile Organics**

Sample II	D: <u>AK67642</u>	Lab ID: <u>E210902-</u>	<u>01</u>					
Station II	D:	Matrix: Air						
Date Col	llected: 2/9/21 0:00							
CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method	
75-21-8	Ethylene oxide	0.26 U	ug/m3	0.26	2/23/21 7:35	2/25/21 14:44	EPA TO-15	



## **Volatile Organics**

Sample ID	): <u>AK68474</u>	Lab ID: <u>E210907-</u>	<u>01</u>					
Station ID	):	Matrix: Air						
Date Coll	lected: 2/15/21 0:00							
CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method	
75-21-8	Ethylene oxide	0.33 U	ug/m3	0.33	2/24/21 15:08	2/25/21 17:03	EPA TO-15	



## Volatile Organics (VOA) - Quality Control US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2102070 - V TO-15 Air Canister										
Datti 2102070 - V 10-15 Ali Calistei										
Blank (2102070-BLK1)				Prepared:	02/23/21 A	nalyzed: 02	2/25/21			
EPA TO-15										
Ethylene oxide	U	0.14	ug/m3							U
Blank (2102070-BLK2)				Prepared:	02/24/21 A	nalvzed: 02	2/25/21			
EPA TO-15				Tiepureur	02/2//21/11					
Ethylene oxide	U	0.14	ug/m3							U
LCS (2102070-BS1)				Prepared:	02/08/21 A	nalyzed: 02	2/25/21			
EPA TO-15										
Ethylene oxide	1.9863		ppbv	1.9960		99.5	70-130			
L CS Dup (2102070 BSD1)				Draparad	02/08/21 4	nalwzed: 00	1/25/21			
				riepaieu.	02/06/21 A	illalyzed. 02	./ 23/ 21			
EPA IO-15 Ethylene oxide	1.9306		ppbv	1.9960		96.7	70-130	2.84	25	
2										
Duplicate (2102070-DUP1)	Sourc	ce: E210902-	-01	Prepared:	02/23/21 A	nalyzed: 02	2/25/21			
EPA TO-15										
Ethylene oxide	U	0.26	ug/m3		U				25	U
Duplicate (2102070-DUP2)	Source	e: E210907-	-01	Prepared:	02/24/21 A	nalyzed: 02	2/25/21			
EPA TO-15										
Ethylene oxide	U	0.33	ug/m3		U				25	U
MRL Verification (2102070-PS1)				Prenared	02/10/21 Δ	nalvzed· 02	2/25/21			
FPΔ TO-15				ropurou.	52,10,21 /1					
Ethylene oxide	0.078810		ppbv	0.079840		98.7	50-150			MRL-5
,			LL-							



#### Notes and Definitions for QC Samples

U The analyte was not detected at or above the reporting limit.

MRL-5 MRL verification for Air matrix



March 19, 2021

#### MEMORANDUM

SUBJECT:	FINAL Analytical Report
	Project: 21-0175, LSB QC Air Canister Comparison
FROM:	Stacie Masters
	LSB Organic Chemistry Section Chief
THRU:	Sandra Aker, Chief
	Laboratory Services Branch
TO:	Jeffrey Hendel

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Volatile Organics (VOA)		
Volatile organic compounds	EPA TO-15 (Air)	ISO



#### Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.



## SAMPLES INCLUDED IN THIS REPORT

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
AK68475	E211005-01	Air	2/21/21 00:00	3/4/21 10:25



### **DATA QUALIFIER DEFINITIONS**

- J The identification of the analyte is acceptable; the reported value is an estimate.
- Q-2 Result greater than MDL but less than MRL.

#### ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

- MDL Method Detection Limit The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
- MRL Minimum Reporting Limit Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
- TIC Tentatively Identified Compound An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

#### ACCREDITATIONS:

ISO Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Laboratories.

Refer to the certificate and scope of accreditation FT-0330 at: http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

- NR Not accredited for this test.
- DW Accredited for conformance with ISO/IEC 17025:2017 and testing elements in the Fifth Edition of the Manual for the Certification of Laboratories Analyzing Drinking Water, EPA 815-R-05-004, 2005.

Refer to the certificate and scope of accreditation AT-2628 at: http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

ISO/DW Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Labs, and conformance with ISO/IEC 17025:2017 and testing elements in the Manual for the Certification of Laboratories Analyzing Drinking Water.



## **Volatile Organics**

Sample ID:	<u>AK68475</u>	Lab ID:	E211005-01					
Station ID:		Matrix	: Air					
Date Colle	ected: 2/21/21 0:00							
CAS Number	Analyte	Results Quali	fiers Units	MRL	Prepared	Analyzed	Method	
75-21-8	Ethylene oxide	0.28 J, Q-2	ug/m3	0.38	3/04/21 15:22	3/11/21 0:44	EPA TO-15	



## Volatile Organics (VOA) - Quality Control US-EPA, Region 4, LSASD

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 2103032 - V TO-15 Air Canister										
Blank (2103032-BLK1)				Prepared:	03/04/21 A	nalyzed: 03	3/10/21			
EPA TO-15										
Ethylene oxide	U	0.14	ug/m3							U
LCS (2103032-BS1)				Prepared:	03/08/21 A	nalyzed: 03	3/10/21			
EPA TO-15										
Ethylene oxide	1.9954		ppbv	1.9960		100	70-130			
LCS Dup (2103032-BSD1)				Prepared:	03/08/21 A	nalyzed: 03	3/10/21			
EPA TO-15										
Ethylene oxide	2.0574		ppbv	1.9960		103	70-130	3.06	25	
Duplicate (2103032-DUP1)	Sou	rce: E211005-	01	Prepared:	03/04/21 A	nalyzed: 03	3/11/21			
EPA TO-15				1						
Ethylene oxide	0.29788	0.38	ug/m3		0.28409			4.74	25	J, Q-2
MRL Verification (2103032-PS1)				Prepared	03/09/21 A	nalvzed: 03	3/10/21			
FPΔ TO-15				riepureu.	55, 59, <b>2</b> 1 71					
Ethylene oxide	0.077370		ppbv	0.079840		96.9	50-150			MRL-5



#### Notes and Definitions for QC Samples

- U The analyte was not detected at or above the reporting limit.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- MRL-5 MRL verification for Air matrix
- Q-2 Result greater than MDL but less than MRL.



March 19, 2021

#### **MEMORANDUM**

SUBJECT:	FINAL Analytical Report
	Project: 21-0184, LSB QC Air Canister Comparison
FROM:	Stacie Masters
	LSB Organic Chemistry Section Chief
THRU:	Sandra Aker, Chief
	Laboratory Services Branch
то:	Jeffrey Hendel

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
- Volatile Organics (VOA)		
Volatile organic compounds	EPA TO-15 (Air)	ISO



#### Sample Disposal Policy

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## SAMPLES INCLUDED IN THIS REPORT

#### Project: 21-0184, LSB QC Air Canister Comparison

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
1022212-01	E211105-01	Air	2/15/21 00:00	3/12/21 10:25
1030511-01	E211105-02	Air	2/21/21 00:00	3/12/21 10:25
1030511-03	E211105-03	Air	<del>-2/21/21</del> 00:00	3/12/21 10:25

2/27/21 was the correct date collected verified with ERG lab records and COC  $\mathcal{DGO}$  11/15/22



### **DATA QUALIFIER DEFINITIONS**

- U The analyte was not detected at or above the reporting limit.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- Q-2 Result greater than MDL but less than MRL.

#### ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

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- NR Not accredited for this test.
- DW Accredited for conformance with ISO/IEC 17025:2017 and testing elements in the Fifth Edition of the Manual for the Certification of Laboratories Analyzing Drinking Water, EPA 815-R-05-004, 2005.

Refer to the certificate and scope of accreditation AT-2628 at: http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

ISO/DW Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Labs, and conformance with ISO/IEC 17025:2017 and testing elements in the Manual for the Certification of Laboratories Analyzing Drinking Water.



## **Volatile Organics**

#### Project: 21-0184, LSB QC Air Canister Comparison

Sample ID: Station ID:	<u>1022212-01</u>	Lab ID: Matrix	<u>E211105-01</u> :: Air				
Date Colle	cted: 2/15/21 0:00						
CAS Number	Analyte	Results Qual	lifiers Units	MRL	Prepared	Analyzed	Method
75-21-8	Ethylene oxide	0.31	ug/m3	0.25	3/15/21 15:01	3/16/21 16:50	EPA TO-15

Type text here



## **Volatile Organics**

Sample ID	): <u>1030511-01</u>	Lab ID: <u>E211105</u> -	<u>·02</u>					
Station ID	):	Matrix: Air						
Date Coll	lected: 2/21/21 0:00							
CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method	
75-21-8	Ethylene oxide	0.23 U	ug/m3	0.23	3/15/21 15:03	3/16/21 18:22	EPA TO-15	



## **Volatile Organics**

Sample II	): <u>1030511-03</u>	Lab ID: <u>E211105</u>	<u>5-03</u>					
Station II	):	Matrix: Air						
Date Col	lected <del>. 2/21/21 0.00</del>	2/27/2021 verified from COC and ERG lab records for Sample ID 1	1030511-03 <i>DGC</i>	<sup>)</sup> 11/15/22				
CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method	
75-21-8	Ethylene oxide	0.11 J, Q-2	ug/m3	0.14	3/15/21 15:07	3/16/21 19:08	EPA TO-15	



## Volatile Organics (VOA) - Quality Control US-EPA, Region 4, LSASD

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 2103037 - V TO-15 Air Canister										
Blank (2103037-BLK1)				Prepared:	03/15/21 A	nalyzed: 03	3/16/21			
EPA TO-15										
Ethylene oxide	U	0.14	ug/m3							U
LCS (2103037-BS1)				Prepared:	03/08/21 A:	nalyzed: 03	3/16/21			
EPA TO-15				•						
Ethylene oxide	2.1578		ppbv	1.9960		108	70-130			
LCS Dup (2103037-BSD1)				Prepared:	03/08/21 A	nalyzed: 03	3/16/21			
EPA TO-15				1						
Ethylene oxide	2.1846		ppbv	1.9960		109	70-130	1.24	25	
Dunlicate (2103037-DUP1)	Sour	·ce: E211105-	01	Prepared:	03/15/21 A	nalvzed: 03	3/16/21			
EPA TO-15										
Ethylene oxide	0.33658	0.25	ug/m3		0.31304			7.25	25	
MDI M. 19 (1 (2102027 DC1)				D 1.	02/00/21	1 1.02	1.(2)			
MIKL verification (2103037-PS1)				Prepared:	03/09/21 A	nalyzed: 0.	5/16/21			
EPA TO-15 Ethylene oxide	0.083560		nnhv	0 079840		105	50-150			MRI-5
Emplete onde	0.005500		PPOV	0.079040		105	55 150			THICE-5



#### Notes and Definitions for QC Samples

U The analyte was not detected at or above the reporting limit.

MRL-5 MRL verification for Air matrix



April 5, 2021

#### **MEMORANDUM**

SUBJECT:	FINAL Analytical Report
	Project: 21-0208, LSB QC Air Canister Comparison
FROM:	Stacie Masters
	LSB Organic Chemistry Section Chief
THRU:	Sandra Aker, Chief
	Laboratory Services Branch
то:	Jeffrey Hendel

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
- Volatile Organics (VOA)		
Volatile organic compounds	EPA TO-15 (Air)	ISO



#### Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

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These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at <u>R4SampleCustody@epa.gov</u>.

cc: Nardina Turner



## SAMPLES INCLUDED IN THIS REPORT

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
GA EPD South Dekalb 032321	E211402-01	Air	3/29/21 00:00	3/30/21 13:28



### **DATA QUALIFIER DEFINITIONS**

#### U The analyte was not detected at or above the reporting limit.

#### ACRONYMS AND ABBREVIATIONS

#### CAS Chemical Abstracts Service

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- MRL Minimum Reporting Limit Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
- TIC Tentatively Identified Compound An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

#### ACCREDITATIONS:

ISO Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Laboratories. Refer to the certificate and scope of accreditation FT-0330 at:

http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

- NR Not accredited for this test.
- DW Accredited for conformance with ISO/IEC 17025:2017 and testing elements in the Fifth Edition of the Manual for the Certification of Laboratories Analyzing Drinking Water, EPA 815-R-05-004, 2005.

Refer to the certificate and scope of accreditation AT-2628 at: http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

ISO/DW Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Labs, and conformance with ISO/IEC 17025:2017 and testing elements in the Manual for the Certification of Laboratories Analyzing Drinking Water.



## **Volatile Organics**

Sample II	D: <u>GA EPD South</u>	Dekalb 032321	Lab ID: <u>E211402</u>	<u>2-01</u>					
Station II	D:		Matrix: Air						
Date Col	llected: 3/29/21	0:00 Can was sampled on 3/23	/2021 and sent to EPD for analysis; EPA rece	eived for second ana	alysis DGO	11/15/22			
CAS Number	Analyte		Results Qualifiers	Units	MRL	Prepared	Analyzed	Method	
75-21-8	Ethylene oxide		0.29 U	ug/m3	0.29	3/30/21 15:57	4/01/21 14:01	EPA TO-15	



## Volatile Organics (VOA) - Quality Control US-EPA, Region 4, LSASD

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 2103080 - V TO-15 Air Canister										
Blank (2103080-BLK1)				Prepared:	03/30/21 A	nalyzed: 04	4/01/21			
EPA TO-15										
Ethylene oxide	U	0.14	ug/m3							U
LCS (2103080-BS1)				Prepared:	03/08/21 A	nalyzed: 04	4/01/21			
EPA TO-15										
Ethylene oxide	2.0851		ppbv	1.9960		104	70-130			
LCS Dup (2103080-BSD1)				Prepared:	03/08/21 A	nalyzed: 04	4/01/21			
EPA TO-15										
Ethylene oxide	2.0926		ppbv	1.9960		105	70-130	0.358	25	
Duplicate (2103080-DUP1)	Sou	rce: E211402-	01	Prepared:	03/30/21 A	nalyzed: 04	4/01/21			
EPA TO-15				*						
Ethylene oxide	U	0.29	ug/m3		U				25	U
MRL Verification (2103080-PS1)				Prepared:	03/09/21 A	nalvzed: 04	4/01/21			
FPA TO-15				1		5				
Ethylene oxide	0.081840		ppbv	0.079840		103	50-150			MRL-5



#### Notes and Definitions for QC Samples

U The analyte was not detected at or above the reporting limit.

MRL-5 MRL verification for Air matrix



June 4, 2021

#### **MEMORANDUM**

SUBJECT:	FINAL Analytical Report
	Project: 21-0260, LSB QC Air Canister Comparison
FROM:	Stacie Masters
	LSB Organic Chemistry Section Chief
THRU:	John Deatrick, Chief
	Laboratory Services Branch
то:	Stacie Masters

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
- Volatile Organics (VOA)		
Volatile organic compounds	EPA TO-15 (Air)	ISO



#### Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.



## SAMPLES INCLUDED IN THIS REPORT

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
35465	E212103-01	Air	5/20/21 00:00	5/21/21 8:45
1051245-01	E212207-01	Air	5/4/21 00:00	5/28/21 10:40
1051245-02	E212207-02	Air	5/4/21 00:00	5/28/21 10:40
1051940-02	E212207-03	Air	5/10/21 00:00	5/28/21 10:40
AK74985	E212301-01	Air	5/25/21 00:00	6/1/21 10:30



### **DATA QUALIFIER DEFINITIONS**

- J The identification of the analyte is acceptable; the reported value is an estimate.
- Q-2 Result greater than MDL but less than MRL.

#### ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

- MDL Method Detection Limit The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
- MRL Minimum Reporting Limit Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
- TIC Tentatively Identified Compound An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

#### ACCREDITATIONS:

ISO Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Laboratories.

Refer to the certificate and scope of accreditation FT-0330 at: http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

- NR Not accredited for this test.
- DW Accredited for conformance with ISO/IEC 17025:2017 and testing elements in the Fifth Edition of the Manual for the Certification of Laboratories Analyzing Drinking Water, EPA 815-R-05-004, 2005.

Refer to the certificate and scope of accreditation AT-2628 at: http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

ISO/DW Accredited to ISO/IEC 17025:2017 and accreditation requirements for Forensic Science Testing Labs, and conformance with ISO/IEC 17025:2017 and testing elements in the Manual for the Certification of Laboratories Analyzing Drinking Water.



## **Volatile Organics**

#### Project: 21-0260, LSB QC Air Canister Comparison

Sample ID:	<u>35465</u>	Lab ID:	E212103-01				
Station ID:		Matrix:	Air				
Date Collec	eted: 5/20/21 0:00						
CAS Number	Analyte	Results Qualifie	rs Units	MRL	Prepared	Analyzed	Method
75-21-8	Ethylene oxide	0.85	ppbv	0.080	6/01/21 13:08	6/03/21 0:33	EPA TO-15

this was a 1 ppb standard sent to EPA from EPD lab

DGO 11/15/22



## **Volatile Organics**

Sample ID:	: <u>1051245-01</u>	Lab ID:	<u>E212207-01</u>					
Station ID:	: <u>SDK</u>	Matrix	: Air					
Date Colle	ected: 5/4/21 0:00							
CAS Number	Analyte	Results Quali	fiers Units	MRL	Prepared	Analyzed	Method	
75-21-8	Ethylene oxide	1.0	ug/m3	0.33	6/01/21 12:53	6/02/21 17:35	EPA TO-15	



## **Volatile Organics**

Sample ID Station ID	: <u>1051245-02</u> : <u>SDK-QA</u>	Lab ID: Matrix:	<u>E212207-02</u> Air					
Date Coll	ected: 5/4/21 0:00							
CAS Number	Analyte	Results Qualific	ers Units	MRL	Prepared	Analyzed	Method	
75-21-8	Ethylene oxide	0.34 J, Q-2	ug/m3	0.44	6/01/21 12:56	6/02/21 18:22	EPA TO-15	



## **Volatile Organics**

Sample ID: <u>1051940-02</u>		Lab ID:	Lab ID: <u>E212207-03</u>					
Station ID: <u>SDK-ATEC-QA</u>		Matrix	Matrix: Air					
Date Colle	cted: 5/10/21 0:00							
CAS Number	Analyte	Results Quali	fiers Units	MRL	Prepared	Analyzed	Method	
75-21-8	Ethylene oxide	0.30	ug/m3	0.14	6/01/21 13:00	6/02/21 19:08	EPA TO-15	



## **Volatile Organics**

Sample ID: Station ID:	<u>AK74985</u> <del>13-009-0002</del>	13-089-0002 <i>DGO</i> 11/15/2022	Lab ID Mat	): <u>E212301-01</u> rix: Air	<u>1</u>					
Date Collected: 5/25/21 0:00										
CAS Number	Analyte	Re	esults Qi	ualifiers	Units	MRL	Prepared	Analyzed	Method	
75-21-8	Ethylene oxide		0.13 J, (	Q-2	ug/m3	0.14	6/01/21 13:09	6/03/21 1:19	EPA TO-15	



## Volatile Organics (VOA) - Quality Control US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2106001 - V TO-15 Air Canister										
Blank (2106001-BLK1)	Prepared: 06/01/21 Analyzed: 06/02/21									
EPA TO-15										
Ethylene oxide	U	0.14	ug/m3							U
LCS (2106001-BS1)		Prepared: 05/27/21 Analyzed: 06/02/21								
EPA TO-15										
Ethylene oxide	1.9968		ppbv	1.9960		100	70-130			
LCS Dup (2106001-BSD1)	Prepared: 05/27/21 Analyzed: 06/02/21									
EPA TO-15										
Ethylene oxide	1.9763		ppbv	1.9960		99.0	70-130	1.03	25	
Duplicate (2106001-DUP1)	Source: E212207-03			Prepared: 06/01/21 Analyzed: 06/02/21						
EPA TO-15				*						
Ethylene oxide	0.27418	0.14	ug/m3		0.30385			10.3	25	
MRL Verification (2106001-PS2)				Prepared:	05/28/21 A	nalyzed: 06	5/02/21			
EPA TO-15										
Ethylene oxide	0.082110		ppbv	0.079840		103	50-150			MRL-5



#### Notes and Definitions for QC Samples

U The analyte was not detected at or above the reporting limit.

MRL-5 MRL verification for Air matrix