

8976 Wellington Road Manassas, VA 20109

April 27, 2016

Alex Czuhanich
Engineering Geologist
New York State Department of Environmental Conservation
Division of Environmental Remediation Bureau E
625 Broadway, 12<sup>th</sup> Floor
Albany, NY 12233-7017

Re: Transmittal of Semiannual Data Report – Soil Vapor Monitoring Through February 2016 Comprehensive Operations, Maintenance and Monitoring Program

Order on Consent Index # A7-0502-0104. Site # 704014

Dear Mr. Czuhanich:

Enclosed with this transmittal letter please find our Semiannual Soil Vapor Monitoring Data Report, that has been prepared in accordance with the requirements set forth in the referenced Order on Consent.

Should you have any questions concerning this submittal, please contact me at (703) 257-2587.

Sincerely,

M. E. Meyers

Mitchell E. Meyers Program Manager

cc: K. Lynch, NYSDEC Region 7

D. Tuohy, NYSDEC – Albany (transmittal only)

B. Boyd, NYSDOH – Troy

C. Edwards, Broome County Health Department

C. Pelto, Huron



# SEMIANNUAL DATA REPORT SOIL VAPOR MONITORING THROUGH FEBRUARY 2016 COMPREHENSIVE OPERATIONS, MAINTENANCE, AND MONITORING PROGRAM

Endicott, New York

Prepared for IBM Corporation File No. 2755.07 April 2016



Mr. Kevin Whalen IBM Corporate Environmental Affairs 8976 Wellington Road Manassas, VA 20109 April 27, 2016 File No. 2755.07

Re: Semiannual Data Report

Soil Vapor Monitoring Through February 2016

Comprehensive Operations, Maintenance, and Monitoring Program

Endicott, New York

Dear Mr. Whalen:

This letter is intended to transmit data recorded during completion of the routine soil vapor monitoring program through February 2015 under IBM's Comprehensive Operations, Maintenance, and Monitoring Plan (COM&M Plan). This report is intended to be a data transmittal/analytical summary report for the limited sampling conducted on an annual basis in February.

Sanborn Head & Associates, Inc. (Sanborn Head) prepared this letter for IBM's submittal to the New York Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH), collectively known as the "Agencies". Since the submittal of the last Report in November 2015, a limited sampling has been conducted in February 2015 in accordance with the monitoring program approved through a February 2012 letter from NYSDEC. The February sampling includes five locations<sup>2</sup> central to the largest ventilation area and proximate to injection points. Sampling was conducted by Groundwater Sciences Corporation (GSC) of Harrisburg, Pennsylvania.

A location plan and time series plots depicting the history of TCE in groundwater groundwater and soil vapor observations for the locations sampled in February are attached along with the analytical laboratory reports. The data indicate continued progress in reduction of TCE groundwater concentrations.

The next scheduled sampling event is to be conducted in August. The next reporting of this monitoring program will be submitted to the Agencies in November 2016.

-

Sanborn Head, November 13, 2015, <u>Annual Report - Soil Vapor Monitoring Through August 2015, Comprehensive Operations, Maintenance, and Monitoring Program, Endicott, New York.</u>

<sup>&</sup>lt;sup>2</sup> EN04-11, EN04-12, EN04-29, EN04-30, and EN04-32

Thank you for the opportunity to provide service to you on this project. Please contact us if you have questions.

Very truly yours,

SANBORN, HEAD & ASSOCIATES, INC.

Erica M. Bosse, P.G.

Project Manager

Daniel B. Carr, P.E., P.G.

Principal

EMB/DBC: emb

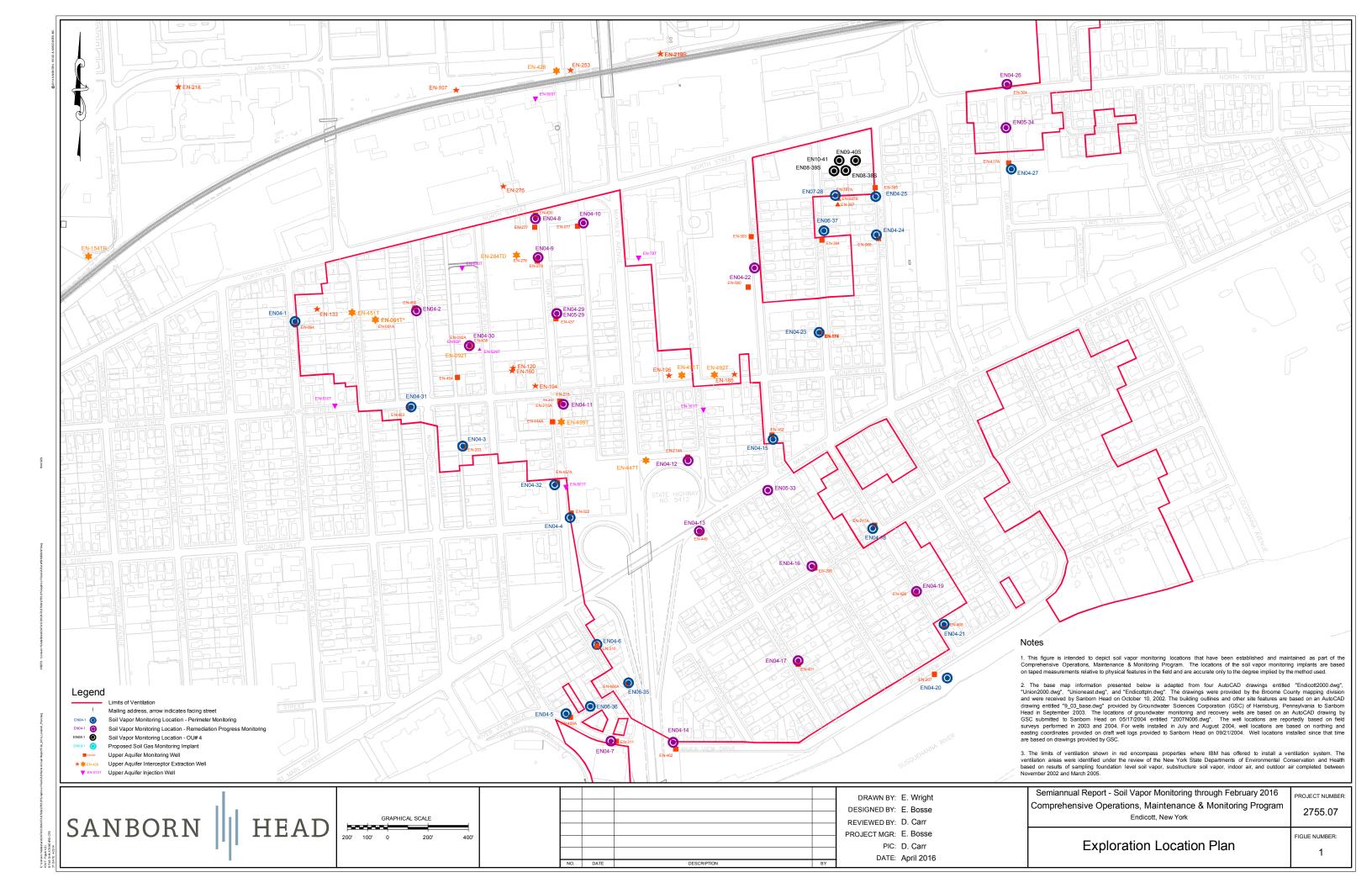
Encl. Attachment A – Exploration Location Plan

Attachment B - Time Series Plots

Attachment C - Analytical Laboratory Reports

\conserv1\DataShare\DATA\CONDATA\2700s\2755.07\Source Files\April 2016 Semi Rpt\20150427\_Semi Rpt Ltr.docx

## ATTACHMENT A EXPLORATION LOCATION PLAN



## ATTACHMENT B TIME SERIES PLOTS

Figure B.1 TCE in Soil Vapor and Groundwater

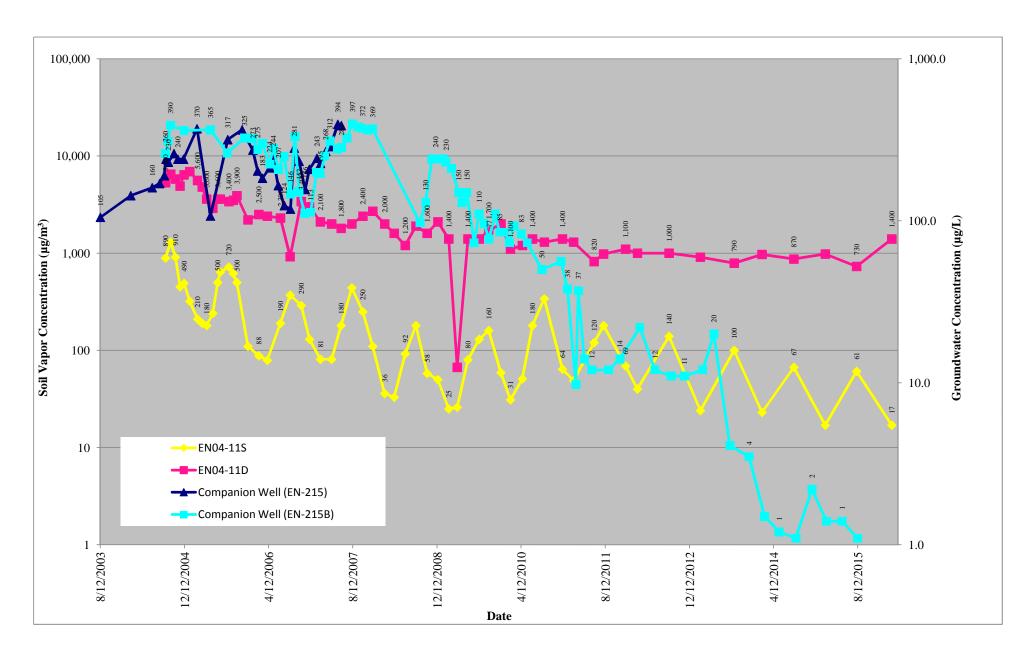


Figure B.2 TCE in Soil Vapor and Groundwater

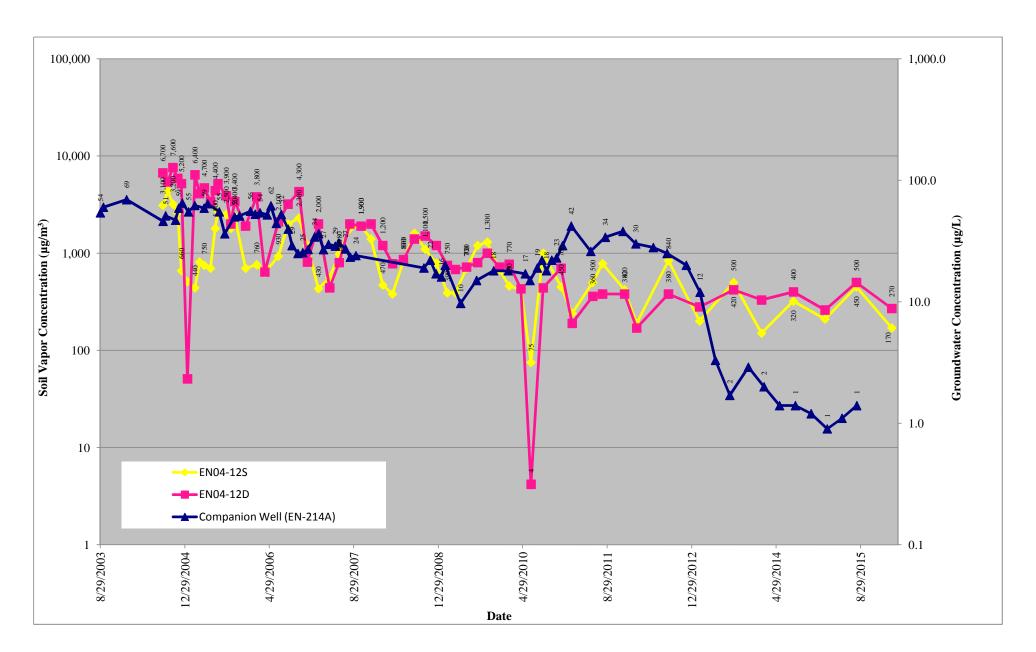


Figure B.3
TCE in Soil Vapor and Groundwater

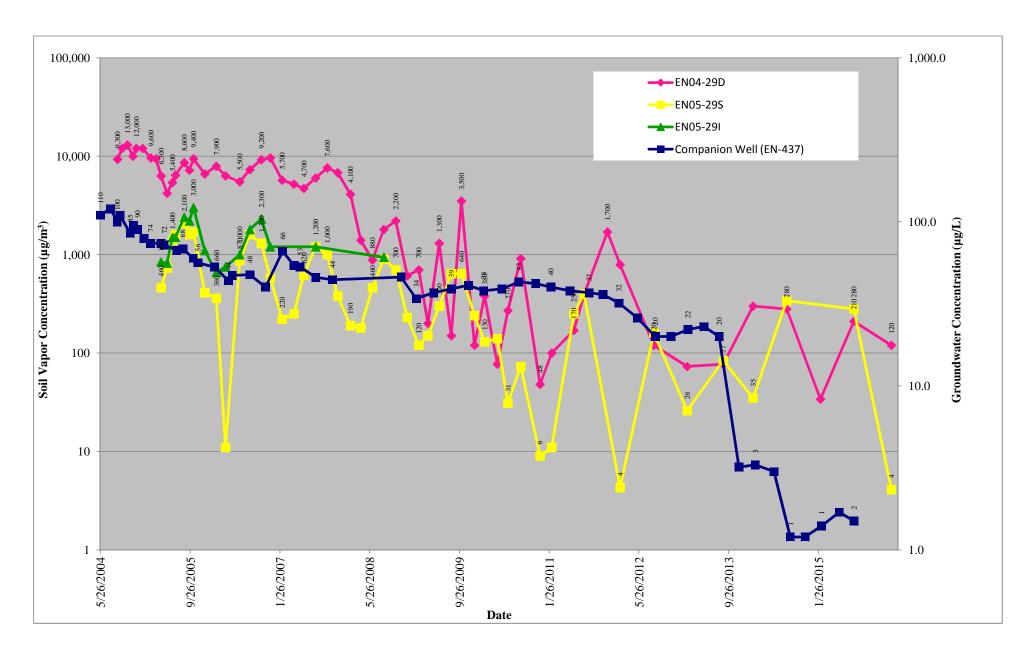


Figure B.4
TCE in Soil Vapor and Groundwater

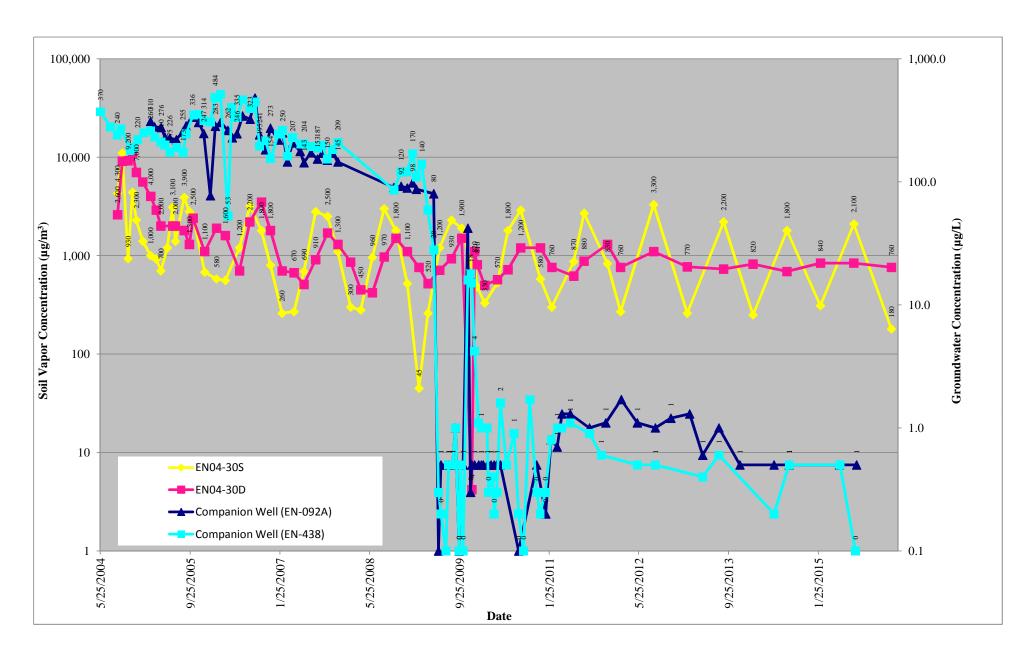
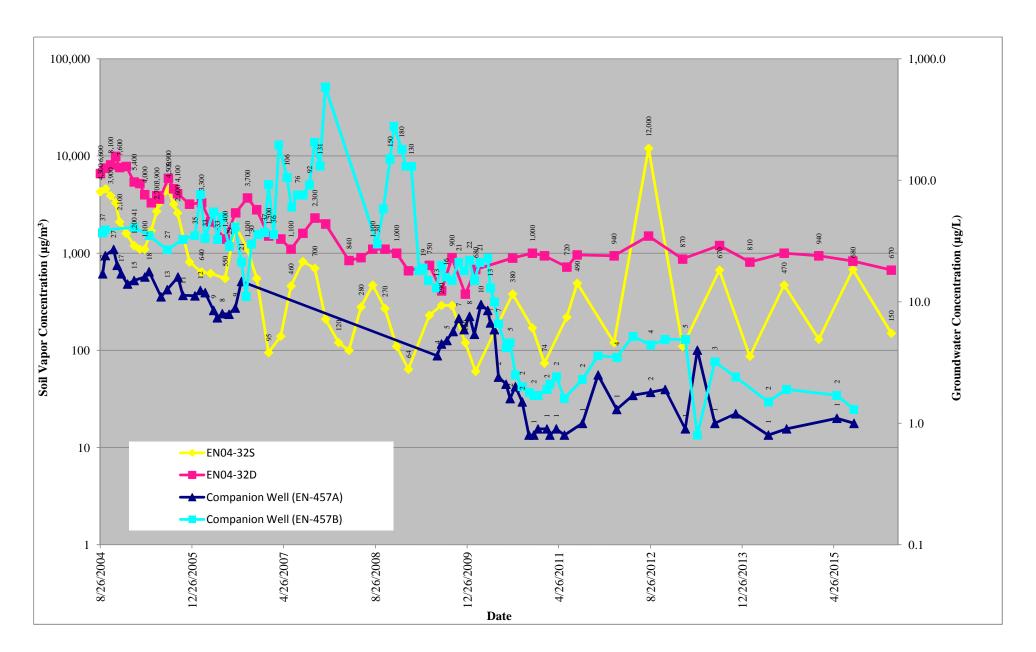


Figure B.5
TCE in Soil Vapor and Groundwater



## ATTACHMENT C ANALYTICAL LABORATORY REPORT

### Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

#### ANALYTICAL RESULTS

Prepared by: Prepared for:

Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601 IBM 8976 Wellington Road Manassas VA 20109

Report Date: April 14, 2016

**Project: IBM** 

Submittal Date: 02/29/2016 Group Number: 1636854 PO Number: 5004675182 Release Number: NON-ROUTINE State of Sample Origin: PA

Client Sample Description	Lancaster Labs (LL) #
EN0411D022516 Air	8268696
EN0529S022516 Air	8268697
EN0411S022516 Air	8268698
EN0429D022516 Air	8268699
EB1325022516 Air	8268700
EN0412D022516 Air	8268701
EN0412S022516 Air	8268702
EN0432D022516 Air	8268703
EN0430D022516 Air	8268704
EN0432S022516 Air	8268705
EN0430S022516 Air	8268706
DU1331022516 Air	8268707

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <a href="http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/">http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/</a>.

Electronic Copy To GSC Attn: Scott Morgan

## Analysis Report

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Respectfully Submitted,

Nicole L. Maljovec Manager

(717) 556-7259



## **Analysis Report**

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: EN0411D022516 Air

SummaCan# 924

IBM

LL Sample # AQ 8268696 LL Group # 1636854

Account # 12618

Project Name: IBM

Collected: 02/25/2016 11:36

through 02/25/2016 12:36 Submitted: 02/29/2016 13:39 IBM

8976 Wellington Road Manassas VA 20109

Reported: 04/14/2016 09:48

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volat	iles in Air EPA TO-15		ppb(v)	ppb(v)	ug/m3	ug/m3	
05298	Chloroethane	75-00-3	N.D.	0.20	N.D.	0.53	1
05298	1,1-Dichloroethane	75-34-3	0.28 J	0.20	1.1 J	0.81	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.20	N.D.	0.79	1
05298	cis-1,2-Dichloroethene	156-59-2	2.1	0.20	8.3	0.79	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.20	N.D.	0.79	1
05298	Freon 113	76-13-1	N.D.	0.50	N.D.	3.8	1
05298	Methylene Chloride	75-09-2	N.D.	0.20	N.D.	0.69	1
05298	Tetrachloroethene	127-18-4	6.3	0.20	42	1.4	1
05298	1,1,1-Trichloroethane	71-55-6	14	0.20	75	1.1	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	0.20	N.D.	1.1	1
05298	Trichloroethene	79-01-6	250	4.0	1,400	21	20
05298	Vinyl Chloride	75-01-4	N.D.	0.20	N.D.	0.51	1

MDL = Method Detection Limit

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	IBM Selected VOCs List-	EPA TO-15	1	E1606330AA	03/04/2016 05:	13 Jacob E Bailey	1
	PA						
05298	IBM Selected VOCs List-	EPA TO-15	1	E1606330AA	03/04/2016 10:	11 Jacob E Bailey	20
	PA						



## Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: EN0529S022516 Air

SummaCan# 925

IBM

LL Sample # AQ 8268697 LL Group # 1636854

Account # 12618

Project Name: IBM

Collected: 02/25/2016 10:02

through 02/25/2016 11:02 Submitted: 02/29/2016 13:39 IBM

8976 Wellington Road Manassas VA 20109

Reported: 04/14/2016 09:48

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volat	iles in Air EPA TO-15		ppb(v)	ppb(v)	ug/m3	ug/m3	
05298	Chloroethane	75-00-3	N.D.	0.20	N.D.	0.53	1
05298	1,1-Dichloroethane	75-34-3	N.D.	0.20	N.D.	0.81	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.20	N.D.	0.79	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.20	N.D.	0.79	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.20	N.D.	0.79	1
05298	Freon 113	76-13-1	N.D.	0.50	N.D.	3.8	1
05298	Methylene Chloride	75-09-2	0.29 J	0.20	1.0 J	0.69	1
05298	Tetrachloroethene	127-18-4	0.38 J	0.20	2.6 J	1.4	1
05298	1,1,1-Trichloroethane	71-55-6	0.28 J	0.20	1.5 J	1.1	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	0.20	N.D.	1.1	1
05298	Trichloroethene	79-01-6	0.76 J	0.20	4.1 J	1.1	1
05298	Vinyl Chloride	75-01-4	N.D.	0.20	N.D.	0.51	1

MDL = Method Detection Limit

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Tir	ne		Factor
05298	IBM Selected VOCs List- PA	EPA TO-15	1	E1606330AA	03/04/2016	09:46	Jacob E Bailey	1



## Analysis Report

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Sample Description: EN0411S022516 Air

SummaCan# 939

IBM

LL Sample # AQ 8268698

LL Group # 1636854 Account # 12618

Project Name: IBM

Collected: 02/25/2016 11:32

through 02/25/2016 12:32 Submitted: 02/29/2016 13:39 Reported: 04/14/2016 09:48 8976 Wellington Road

IBM

Manassas VA 20109

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volat	iles in Air EPA TO-15		ppb(v)	ppb(v)	ug/m3	ug/m3	
05298	Chloroethane	75-00-3	N.D.	0.20	N.D.	0.53	1
05298	1,1-Dichloroethane	75-34-3	N.D.	0.20	N.D.	0.81	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.20	N.D.	0.79	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.20	N.D.	0.79	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.20	N.D.	0.79	1
05298	Freon 113	76-13-1	N.D.	0.50	N.D.	3.8	1
05298	Methylene Chloride	75-09-2	N.D.	0.20	N.D.	0.69	1
05298	Tetrachloroethene	127-18-4	2.7	0.20	18	1.4	1
05298	1,1,1-Trichloroethane	71-55-6	0.30 J	0.20	1.6 J	1.1	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	0.20	N.D.	1.1	1
05298	Trichloroethene	79-01-6	3.1	0.20	17	1.1	1
05298	Vinyl Chloride	75-01-4	N.D.	0.20	N.D.	0.51	1

MDL = Method Detection Limit

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Ti	ne		Factor
05298	IBM Selected VOCs List- PA	EPA TO-15	1	E1606830AA	03/09/2016	00:04	Jacob E Bailey	1



## **Analysis Report**

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Sample Description: EN0429D022516 Air

SummaCan# 1009

IBM

LL Sample # AQ 8268699 LL Group # 1636854

Account # 12618

Project Name: IBM

Collected: 02/25/2016 10:12

through 02/25/2016 11:12 Submitted: 02/29/2016 13:39 Reported: 04/14/2016 09:48 IBM

8976 Wellington Road Manassas VA 20109

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volat	iles in Air EPA TO-15		ppb(v)	ppb(v)	ug/m3	ug/m3	
05298	Chloroethane	75-00-3	N.D.	0.20	N.D.	0.53	1
05298	1,1-Dichloroethane	75-34-3	N.D.	0.20	N.D.	0.81	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.20	N.D.	0.79	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.20	N.D.	0.79	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.20	N.D.	0.79	1
05298	Freon 113	76-13-1	N.D.	0.50	N.D.	3.8	1
05298	Methylene Chloride	75-09-2	N.D.	0.20	N.D.	0.69	1
05298	Tetrachloroethene	127-18-4	N.D.	0.20	N.D.	1.4	1
05298	1,1,1-Trichloroethane	71-55-6	2.5	0.20	14	1.1	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	0.20	N.D.	1.1	1
05298	Trichloroethene	79-01-6	22	0.20	120	1.1	1
05298	Vinyl Chloride	75-01-4	N.D.	0.20	N.D.	0.51	1

MDL = Method Detection Limit

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Tir	ne		Factor
05298	IBM Selected VOCs List-	EPA TO-15	1	E1606830AA	03/09/2016	00:36	Jacob E Bailey	1
	PA							



## **Analysis Report**

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: EB1325022516 Air

SummaCan# 1325

IBM

LL Sample # AQ 8268700 LL Group # 1636854

Account # 12618

Project Name: IBM

Collected: 02/25/2016 08:17

through 02/25/2016 09:17 Submitted: 02/29/2016 13:39 Reported: 04/14/2016 09:48 IBM 8976 Wellington Road

Manassas VA 20109

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volat	iles in Air EPA TO-15		ppb(v)	ppb(v)	ug/m3	ug/m3	
05298	Chloroethane	75-00-3	N.D.	0.20	N.D.	0.53	1
05298	1,1-Dichloroethane	75-34-3	N.D.	0.20	N.D.	0.81	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.20	N.D.	0.79	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.20	N.D.	0.79	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.20	N.D.	0.79	1
05298	Freon 113	76-13-1	N.D.	0.50	N.D.	3.8	1
05298	Methylene Chloride	75-09-2	N.D.	0.20	N.D.	0.69	1
05298	Tetrachloroethene	127-18-4	N.D.	0.20	N.D.	1.4	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.	0.20	N.D.	1.1	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	0.20	N.D.	1.1	1
05298	Trichloroethene	79-01-6	N.D.	0.20	N.D.	1.1	1
05298	Vinyl Chloride	75-01-4	N.D.	0.20	N.D.	0.51	1

MDL = Method Detection Limit

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	IBM Selected VOCs List- PA	EPA TO-15	1	E1606830AA	03/09/2016 01:1	1 Jacob E Bailey	1



## **Analysis Report**

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: EN0412D022516 Air

SummaCan# 1139

IBM

LL Sample # AQ 8268701 LL Group # 1636854

Account # 12618

Project Name: IBM

Collected: 02/25/2016 13:39

through 02/25/2016 14:39 Submitted: 02/29/2016 13:39

Reported: 04/14/2016 09:48

IBM

8976 Wellington Road Manassas VA 20109

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volat	iles in Air EPA TO-15		ppb(v)	ppb(v)	ug/m3	ug/m3	
05298	Chloroethane	75-00-3	N.D.	0.20	N.D.	0.53	1
05298	1,1-Dichloroethane	75-34-3	N.D.	0.20	N.D.	0.81	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.20	N.D.	0.79	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.20	N.D.	0.79	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.20	N.D.	0.79	1
05298	Freon 113	76-13-1	N.D.	0.50	N.D.	3.8	1
05298	Methylene Chloride	75-09-2	0.65 J	0.20	2.3 J	0.69	1
05298	Tetrachloroethene	127-18-4	N.D.	0.20	N.D.	1.4	1
05298	1,1,1-Trichloroethane	71-55-6	2.0	0.20	11	1.1	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	0.20	N.D.	1.1	1
05298	Trichloroethene	79-01-6	50	0.20	270	1.1	1
05298	Vinyl Chloride	75-01-4	N.D.	0.20	N.D.	0.51	1

MDL = Method Detection Limit

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Tir	me		Factor
05298	IBM Selected VOCs List- PA	EPA TO-15	1	E1606830AA	03/09/2016	01:43	Jacob E Bailey	1



## **Analysis Report**

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: EN0412S022516 Air

SummaCan# 1161

IBM

LL Sample # AQ 8268702 LL Group # 1636854

Account # 12618

Project Name: IBM

Collected: 02/25/2016 13:37

through 02/25/2016 14:37 Submitted: 02/29/2016 13:39 Reported: 04/14/2016 09:48 IBM 8976 Wellington Road

Manassas VA 20109

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volat	iles in Air EPA TO-15		ppb(v)	ppb(v)	ug/m3	ug/m3	
05298	Chloroethane	75-00-3	N.D.	0.20	N.D.	0.53	1
05298	1,1-Dichloroethane	75-34-3	N.D.	0.20	N.D.	0.81	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.20	N.D.	0.79	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.20	N.D.	0.79	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.20	N.D.	0.79	1
05298	Freon 113	76-13-1	N.D.	0.50	N.D.	3.8	1
05298	Methylene Chloride	75-09-2	N.D.	0.20	N.D.	0.69	1
05298	Tetrachloroethene	127-18-4	N.D.	0.20	N.D.	1.4	1
05298	1,1,1-Trichloroethane	71-55-6	1.4	0.20	7.7	1.1	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	0.20	N.D.	1.1	1
05298	Trichloroethene	79-01-6	32	0.20	170	1.1	1
05298	Vinyl Chloride	75-01-4	N.D.	0.20	N.D.	0.51	1

MDL = Method Detection Limit

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Ti	me		Factor
05298	IBM Selected VOCs List- PA	EPA TO-15	1	E1606830AA	03/09/2016	02:15	Jacob E Bailey	1



## Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: EN0432D022516 Air

SummaCan# 1211

IBM

LL Sample # AQ 8268703 LL Group # 1636854

Account # 12618

Project Name: IBM

Collected: 02/25/2016 11:59

through 02/25/2016 12:59 Submitted: 02/29/2016 13:39 Reported: 04/14/2016 09:48 IBM

8976 Wellington Road Manassas VA 20109

CAT No.	Analysis Name	CAS Number	Final Res	ult MDL	Final Result	MDL	DF
Volat	iles in Air EPA TO-15		ppb(v)	ppb(v)	ug/m3	ug/m3	
05298	Chloroethane	75-00-3	N.D.	0.20	N.D.	0.53	1
05298	1,1-Dichloroethane	75-34-3	0.79 J	0.20	3.2 J	0.81	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.20	N.D.	0.79	1
05298	cis-1,2-Dichloroethene	156-59-2	0.41 J	0.20	1.6 J	0.79	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.20	N.D.	0.79	1
05298	Freon 113	76-13-1	N.D.	0.50	N.D.	3.8	1
05298	Methylene Chloride	75-09-2	N.D.	0.20	N.D.	0.69	1
05298	Tetrachloroethene	127-18-4	0.37 J	0.20	2.5 J	1.4	1
05298	1,1,1-Trichloroethane	71-55-6	9.3	0.20	51	1.1	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	0.20	N.D.	1.1	1
05298	Trichloroethene	79-01-6	120	2.0	670	11	10
05298	Vinyl Chloride	75-01-4	N.D.	0.20	N.D.	0.51	1

MDL = Method Detection Limit

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tir	ne	Analyst	Dilution Factor
05298	IBM Selected VOCs List-	EPA TO-15	1	E1606930AA	03/09/2016	15:42	Jacob E Bailey	1
	PA							
05298	IBM Selected VOCs List-	EPA TO-15	1	E1606930BA	03/10/2016	04:40	Jacob E Bailey	10
	PA							



## **Analysis Report**

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: EN0430D022516 Air

SummaCan# 1319

IBM

LL Sample # AQ 8268704 LL Group # 1636854

Account # 12618

Project Name: IBM

Collected: 02/25/2016 07:47

through 02/25/2016 08:47 Submitted: 02/29/2016 13:39 IBM

8976 Wellington Road Manassas VA 20109

Reported: 04/14/2016 09:48

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volat	iles in Air EPA TO-15		ppb(v)	ppb(v)	ug/m3	ug/m3	
05298	Chloroethane	75-00-3	N.D.	0.20	N.D.	0.53	1
05298	1,1-Dichloroethane	75-34-3	4.4	0.20	18	0.81	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.20	N.D.	0.79	1
05298	cis-1,2-Dichloroethene	156-59-2	1.7	0.20	6.6	0.79	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.20	N.D.	0.79	1
05298	Freon 113	76-13-1	N.D.	0.50	N.D.	3.8	1
05298	Methylene Chloride	75-09-2	N.D.	0.20	N.D.	0.69	1
05298	Tetrachloroethene	127-18-4	4.1	0.20	28	1.4	1
05298	1,1,1-Trichloroethane	71-55-6	11	0.20	61	1.1	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	0.20	N.D.	1.1	1
05298	Trichloroethene	79-01-6	140	2.0	760	11	10
05298	Vinyl Chloride	75-01-4	N.D.	0.20	N.D.	0.51	1

MDL = Method Detection Limit

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	ıe	Analyst	Dilution Factor
05298	IBM Selected VOCs List-	EPA TO-15	1	E1606930AA	03/09/2016	16:14	Jacob E Bailey	1
	PA							
05298	IBM Selected VOCs List-	EPA TO-15	1	E1606930BA	03/10/2016	05:11	Jacob E Bailey	10
	PA							



## **Analysis Report**

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: EN0432S022516 Air

SummaCan# 1049

IBM

LL Sample # AQ 8268705 LL Group # 1636854

Account # 12618

Project Name: IBM

Collected: 02/25/2016 12:01

through 02/25/2016 13:01 Submitted: 02/29/2016 13:39 Reported: 04/14/2016 09:48 IBM

8976 Wellington Road Manassas VA 20109

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volat	iles in Air EPA TO-15		ppb(v)	ppb(v)	ug/m3	ug/m3	
05298	Chloroethane	75-00-3	N.D.	0.20	N.D.	0.53	1
05298	1,1-Dichloroethane	75-34-3	N.D.	0.20	N.D.	0.81	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.20	N.D.	0.79	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.20	N.D.	0.79	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.20	N.D.	0.79	1
05298	Freon 113	76-13-1	N.D.	0.50	N.D.	3.8	1
05298	Methylene Chloride	75-09-2	N.D.	0.20	N.D.	0.69	1
05298	Tetrachloroethene	127-18-4	N.D.	0.20	N.D.	1.4	1
05298	1,1,1-Trichloroethane	71-55-6	2.1	0.20	12	1.1	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	0.20	N.D.	1.1	1
05298	Trichloroethene	79-01-6	28	0.20	150	1.1	1
05298	Vinyl Chloride	75-01-4	N.D.	0.20	N.D.	0.51	1

MDL = Method Detection Limit

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	ne.	Analyst	Dilution Factor
	IBM Selected VOCs List-	EPA TO-15	1	E1606930AA			Jacob E Bailey	1
	D.7							



## Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: EN0430S022516 Air

SummaCan# 1005

IBM

LL Sample # AQ 8268706 LL Group # 1636854

Account # 12618

Project Name: IBM

Collected: 02/25/2016 07:29

through 02/25/2016 09:29 Submitted: 02/29/2016 13:39 IBM

8976 Wellington Road Manassas VA 20109

Reported: 04/14/2016 09:48

CAT No.	Analysis Name	CAS Number	Final Resu	ılt MDL	Final Re	esult	MDL	DF
Volat	iles in Air EPA TO-15		ppb(v)	ppb(v)	ug/m3		ug/m3	
05298	Chloroethane	75-00-3	N.D.	0.20	N.D.		0.53	1
05298	1,1-Dichloroethane	75-34-3	N.D.	0.20	N.D.		0.81	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.20	N.D.		0.79	1
05298	cis-1,2-Dichloroethene	156-59-2	0.28 J	0.20	1.1	J	0.79	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.20	N.D.		0.79	1
05298	Freon 113	76-13-1	N.D.	0.50	N.D.		3.8	1
05298	Methylene Chloride	75-09-2	0.32 J	0.20	1.1	J	0.69	1
05298	Tetrachloroethene	127-18-4	N.D.	0.20	N.D.		1.4	1
05298	1,1,1-Trichloroethane	71-55-6	0.68 J	0.20	3.7	J	1.1	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	0.20	N.D.		1.1	1
05298	Trichloroethene	79-01-6	34	0.20	180		1.1	1
05298	Vinyl Chloride	75-01-4	N.D.	0.20	N.D.		0.51	1

MDL = Method Detection Limit

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Tir	ne		Factor
05298	IBM Selected VOCs List- PA	EPA TO-15	1	E1606930AA	03/09/2016	17:17	Jacob E Bailey	1



## Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax; 717-656-2681 • www.LancasterLabs.com

Sample Description: DU1331022516 Air

SummaCan# 1337

IBM

LL Sample # AQ 8268707 LL Group # 1636854

Account # 12618

Project Name: IBM

Collected: 02/25/2016 07:29

through 02/25/2016 09:29 Submitted: 02/29/2016 13:39 IBM

8976 Wellington Road Manassas VA 20109

Reported: 04/14/2016 09:48

CAT No.	Analysis Name	CAS Number	Final R	esult	MDL	Final	Result	MDL	DF
Volat	iles in Air EPA TO-15		ppb(v)		ppb(v)	ug/m3		ug/m3	
05298	Chloroethane	75-00-3	N.D.		0.20	N.D.		0.53	1
05298	1,1-Dichloroethane	75-34-3	N.D.		0.20	N.D.		0.81	1
05298	1,1-Dichloroethene	75-35-4	N.D.		0.20	N.D.		0.79	1
05298	cis-1,2-Dichloroethene	156-59-2	0.28	J	0.20	1.1	J	0.79	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.20	N.D.		0.79	1
05298	Freon 113	76-13-1	N.D.		0.50	N.D.		3.8	1
05298	Methylene Chloride	75-09-2	N.D.		0.20	N.D.		0.69	1
05298	Tetrachloroethene	127-18-4	0.24	J	0.20	1.6	J	1.4	1
05298	1,1,1-Trichloroethane	71-55-6	0.76	J	0.20	4.1	J	1.1	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.		0.20	N.D.		1.1	1
05298	Trichloroethene	79-01-6	64		0.20	350		1.1	1
05298	Vinyl Chloride	75-01-4	N.D.		0.20	N.D.		0.51	1

MDL = Method Detection Limit

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Tir	ne		Factor
05298	IBM Selected VOCs List- PA	EPA TO-15	1	E1606930AA	03/09/2016	17:49	Jacob E Bailey	1



## Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

#### Quality Control Summary

Client Name: IBM Group Number: 1636854

Reported: 04/14/2016 09:48

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

#### Method Blank

Analysis Name	Result	MDL
	ppb(v)	ppb(v)
Batch number: E1606330AA Chloroethane 1,1-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene Freon 113 Methylene Chloride Tetrachloroethene 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl Chloride	Sample number(s): N.D. N.D. N.D. N.D. N.D. N.D. N.D. N.D	8268696-8268697 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.50 0.20 0.2
Batch number: E1606830AA Chloroethane 1,1-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene Freon 113 Methylene Chloride Tetrachloroethene 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl Chloride	Sample number(s): N.D. N.D. N.D. N.D. N.D. N.D. N.D. N.D	8268698-8268702 0.20 0.20 0.20 0.20 0.50 0.20 0.20 0.20 0.20 0.20 0.20 0.20
Batch number: E1606930AA Chloroethane 1,1-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene Freon 113 Methylene Chloride Tetrachloroethene 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl Chloride	Sample number(s): N.D. N.D. N.D. N.D. N.D. N.D. N.D. N.D	8268703-8268707 0.20 0.20 0.20 0.20 0.20 0.20 0.50 0.20 0.2
Batch number: E1606930BA Trichloroethene	<pre>Sample number(s): N.D.</pre>	8268703-8268704 0.20

<sup>\*-</sup> Outside of specification

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

<sup>(1)</sup> The result for one or both determinations was less than five times the LOQ.

<sup>(2)</sup> The unspiked result was more than four times the spike added.

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#### Quality Control Summary

Client Name: IBM Group Number: 1636854

Reported: 04/14/2016 09:48

#### LCS/LCSD

Analysis Name	LCS Spike Added ppb(v)	LCS Conc ppb (v)	LCSD Spike Added ppb(v)	LCSD Conc ppb (v)	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: E1606330AA	Sample numbe	er(s): 8268	696-8268697						
Chloroethane	9.70	10.25	9.70	10.53	106	109	63-119	3	25
1,1-Dichloroethane	10.1	10.68	10.1	10.91	106	108	67-124	2	25
1,1-Dichloroethene	10	10.4	10	10.54	104	105	61-128	1	25
cis-1,2-Dichloroethene	10.5	11.25	10.5	11.36	107	108	65-121	1	25
trans-1,2-Dichloroethene	10	10.73	10	10.73	107	107	66-121	0	25
Freon 113	9.70	9.55	9.70	9.50	98	98	63-114	0	25
Methylene Chloride	11	10.95	11	11.02	100	100	70-130	1	25
Tetrachloroethene	10.7	9.95	10.7	9.93	93	93	70-130	0	25
1,1,1-Trichloroethane	10.3	10.35	10.3	10.3	100	100	70-130	0	25
1,1,2-Trichloroethane	10.6	11.23	10.6	11.08	106	104	59-131	1	25
Trichloroethene	10.3	10.04	10.3	9.90	97	96	70-130	1	25
Vinyl Chloride	10.1	10.64	10.1	10.64	105	105	70-130	0	25
Batch number: E1606830AA	Sample numbe	er(s): 8268	698-8268702						
Chloroethane	9.70	10.59	9.70	10.62	109	109	63-119	0	25
1,1-Dichloroethane	10.1	11.37	10.1	11.44	113	113	67-124	1	25
1,1-Dichloroethene	10	11.53	10	11.56	115	116	61-128	0	25
cis-1,2-Dichloroethene	10.5	12.04	10.5	12.06	115	115	65-121	0	25
trans-1,2-Dichloroethene	10	11.47	10	11.58	115	116	66-121	1	25
Freon 113	9.70	9.67	9.70	9.79	100	101	63-114	1	25
Methylene Chloride	11	11.39	11	11.37	104	103	70-130	0	25
Tetrachloroethene	10.7	9.67	10.7	9.87	90	92	70-130	2	25
1,1,1-Trichloroethane	10.3	10.44	10.3	10.42	101	101	70-130	0	25
1,1,2-Trichloroethane	10.6	10.73	10.6	10.98	101	104	59-131	2	25
Trichloroethene	10.3	9.91	10.3	10.04	96	98	70-130	1	25
Vinyl Chloride	10.1	11.48	10.1	11.61	114	115	70-130	1	25
Batch number: E1606930AA	Sample numbe								
Chloroethane	9.70	11.15	9.70	11.37	115	117	63-119	2	25
1,1-Dichloroethane	10.1	11.69	10.1	11.89	116	118	67-124	2	25
1,1-Dichloroethene	10	12.01	10	12.12	120	121	61-128	1	25
cis-1,2-Dichloroethene	10.5	12.46	10.5	12.58	119	120	65-121	1	25
trans-1,2-Dichloroethene	10	11.95	10	12.05	119	120	66-121	1	25
Freon 113	9.70	9.94	9.70	10.03	102	103	63-114	1	25
Methylene Chloride	11	11.52	11	11.77	105	107	70-130	2	25
Tetrachloroethene	10.7	9.91	10.7	9.95	93	93	70-130	0	25
1,1,1-Trichloroethane	10.3	10.58	10.3	10.91	103	106	70-130	3	25
1,1,2-Trichloroethane	10.6	11.31	10.6	11.34	107	107	59-131	0	25
Trichloroethene	10.3	10.1	10.3	10.13	98	98	70-130	0	25
Vinyl Chloride	10.1	11.81	10.1	12.08	117	120	70-130	2	25
Batch number: E1606930BA	Sample numbe		703-8268704						
Trichloroethene	10.3	9.66	10.3	9.82	94	95	70-130	2	25

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

<sup>\*-</sup> Outside of specification

<sup>(1)</sup> The result for one or both determinations was less than five times the LOQ.

<sup>(2)</sup> The unspiked result was more than four times the spike added.



## **Analysis Report**

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

#### Quality Control Summary

Client Name: IBM Group Number: 1636854

Reported: 04/14/2016 09:48

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

<sup>\*-</sup> Outside of specification

<sup>(1)</sup> The result for one or both determinations was less than five times the LOQ.

<sup>(2)</sup> The unspiked result was more than four times the spike added.

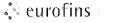
## Summa Canister Field Test Data/Chain of Custody

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	Start	Stop	Canister	Canister		interior				Can	Controller	<u> </u> 0 ∞	25 (	Helium as tracer 02/C02	Library Search
Sample Identification	Date/Time	Date/Time	Pressure in Field ("Hg)	Pressure in Field ("Hg)	1 1	Temp. (F)				Size	Flowrate	4 4	A2	Helium a 02/C02	rar
	(24-hour clock)	(24-hour clock)	(Start)	(Stop)	(Start)	(Stop)	Flow Re	g. ID	Can ID	(L)	(mL/min)	EPA EPA	EPA	ž  S	
ENØ411DØ22516	2/25 1136	3/25 1236	28.17	6.83	42	42	3443		924	1	14.6	X	Ш		
ENØ5295022516	2/25 1002	3/25 1102	28.25	5.32	40	40	3169	35	925	1	14.3	4			
ENØ4113022516	2/25 1132	3/25 1232	28.26	5.40	42	42	3392	91	939	1	14.5	۲			
ENØ429DØ22516	2/25 1012	2/25 1112	28.21	6.24	40	40	67500	4	1009	1	14.1	X			
EB1325 Ø225 16	3/25 0817	2/25 0917	28.20	11.39	43	43	6750		132.5	)	14.5	7			
ENØ412DØ22516	3/25 1339	3/25 1439	28.22	5.76	42	42	67500		1139	Ì	14.3	۲			
ENØ4 125Ø22516	3/25 1337	3/25 1437	28.23	5.66	42	42	4152	76	1161		14.4	4			
ENØ432DØ22516	3/25 1159	3/25 1259	28.26	5.29	42	42	6750	235	18.11	1	14.2	X			
EN0436DØ22516		2/25 0847		5.67		43	3034		1315	1	143	۴			
ENØ4325022516		2/25 1301		5.86	42	42.	7 106		1049	)	14.0	۲			
ENO 430 5022516		2/25 0929	28.20	6.14	43	43	3 0348	and the company of the company	1005	<u> </u>	7.3	1			
Instructions/QC Requirements							EPA 25	(check	one)		C1 - C4		C2	- C10	
Analytical List ( PCE, TCE,	1,1-tocE, cis ,	LDCE, TRANS	1,2-DCE ,1	1C,TCA,	1,1-DCA	)					C1 - C10		C4 ·	- C10 (	GRO)
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## Summa Canister Field Test Data/Chain of Custody

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PENNSYLVANIA					Minimu		0	42	25	.21	29.25	15		)   Şe	ğ	g
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Analytical LIST: PCE, TCE,	11-DCE, C			L. DCE, V	K, T	(A)		,	,		C1 - C10			C4 -	C10	(GRO)
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Client: Groundwater Services

## Sample Administration Receipt Documentation Log

Doc Log ID:

137780

Group Number(s):

1636854

Delivery and Receipt Information

Delivery Method:

**ELLE Courier** 

Arrival Timestamp:

02/29/2016 13:39

Number of Packages:

<u>3</u>

Number of Projects:

1

State/Province of Origin:

PA

**Arrival Condition Summary** 

Shipping Container Sealed:

No

Sample IDs on COC match Containers:

No

Custody Seal Present:

No

Sample Date/Times match COC:

Yes

Samples Chilled:

N/A

VOA Vial Headspace ≥ 6mm:

N/A

Paperwork Enclosed:

Yes

Total Trip Blank Qty:

0

Samples Intact:

Yes

Air Quality Samples Present:

Yes

Missing Samples:

No

Air Quality Flow Controllers Present:

Yes

Extra Samples:

No

Flow Controller Quantity:

12

Discrepancy in Container Qty on COC:

No

Air Quality Returns:

No

Unpacked by Katherine Metzger (2241) at 15:25 on 02/29/2016

#### Sample ID Discrepancy Details

Sample ID on COC

Sample ID on Label

EN0529S022516 EN0432D022516 EN0429S022516 EN0412S022516 Comments



### **Explanation of Symbols and Abbreviations**

The following defines common symbols and abbreviations used in reporting technical data:

RL N.D.	Reporting Limit none detected	BMQL MPN	Below Minimum Quantitation Level Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
С	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
μg	microgram(s)	mg	milligram(s)
mL	milliliter(s)	L	liter(s)
m3	cubic meter(s)	μL	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an

as-received basis.

#### Laboratory Data Qualifiers:

B - Analyte detected in the blank

C - Result confirmed by reanalysis

E - Concentration exceeds the calibration range

J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)

P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.

U - Analyte was not detected at the value indicated

V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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