



Fw: CCP: SUMA Canister data
Debbie Jourdan to: Ronald Saskowski

03/26/2012 10:08 AM

Scott Miller

----- Original Message -----

From: Scott Miller
Sent: 03/26/2012 09:28 AM EDT
To: Debbie Jourdan
Subject: Fw: CCP: SUMA Canister data

Debbie,
Please save this to SDMS for Capitol City Plume.

Thanks,
Scott Miller
Remedial Project Manager
Superfund Division
Superfund Remedial Branch
Section C
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303
Phone (404) 562-9120
Fax (404) 562-8896

----- Forwarded by Scott Miller/R4/USEPA/US on 03/26/2012 09:27 AM -----

From: Athena P Clark <athclark@usgs.gov>
To: Scott Miller/R4/USEPA/US@EPA
Cc: James E Landmeyer <jlandmey@usgs.gov>, Amy C Gill <acgill@usgs.gov>
Date: 03/20/2012 04:01 PM
Subject: CCP: SUMA Canister data

GORE data should be sent within a week.

Athena P. Clark, Director, PE
United States Geological Survey
Alabama Water Science Center
AUM TechnaCenter
75 TechnaCenter Drive
Montgomery, AL 36117
tele: (334) 395-4141
fax: (334) 395-4168
<http://al.water.usgs.gov/>

----- Forwarded by Athena P Clark/WRD/USGS/DOI on 03/20/2012 02:43 PM -----

From: "Howley, Marge" <MHowley@EMSL.com>
To: "'acgill@usgs.gov'" <acgill@usgs.gov>
Cc: "'athclark@usgs.gov'" <athclark@usgs.gov>, "'jlandmey@usgs.gov'" <jlandmey@usgs.gov>
Date: 03/19/2012 03:08 PM
Subject:

Marge Howley
TO-15 Laboratory Manager
200 Rte 130 North
Cinnaminson, NJ 08077
856-858-4800 x2807

This email may contain privileged and confidential information and is solely for the use of the sender's intended recipient(s). If you received this email in error, please notify the sender by replying to this email and delete all copies and attachments. Thank you.



491200221 Binder.pdf TO-15 FactsRev3 07082011.pdf TO15 FAQ R4-070811.pdf



USEPA TO-15 Data Report

Client

US Geological Survey
 75 TechnaCenter Drive
 Montgomery, AL 36117
 Attn: Amy Gill

Report Date

03/19/12

Project Receipt Date

03/01/12

Client Project ID

Capitol City Plume

EMSL Project ID

491200221

Sample Summary

EMSL Sample ID	Client Sample ID	Sample Collection Date
491200221-1	TAG Office	02/28/2012
491200221-2	Vapor-inside panel	02/28/2012
491200221-3	Vapor-w/Santa	02/28/2012
491200221-4	Rm 129-Book Room	02/28/2012
491200221-5	Rm 132-Mechanical	02/28/2012

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and electronic data has been authorized by the laboratory manager or his/her designee, as verified by the following signature.

3/19/2012

Marjorie Howley
TO-15 Laboratory Manager
EMSL Analytical, Inc

This report shall not be modified or reproduced, except in its entirety, without the written consent of EMSL Analytical, Inc.



Air Analysis Data Summary

EPA Compendium TO-15

Target Compound List

Client Project Name: Capitol City Plume

EMSL ID: 491200221-1

Client Sample ID: TAG Office

Canister ID: E0572

Primary Lab File ID: J2729.D

Dilution Lab File ID: NA

Analysis Date: 03/15/2012

Analysis Date: NA

Sample Vol(ml): 250

Sample Vol(ml): NA

Dilution Factor: 1

Dilution Factor: NA

Target Compounds	CAS#	MW	Result ppbv	RL ppbv	Q	Result ug/m3	RL ug/m3
Propylene	115-07-1	58.08	ND	1.0		ND	2.4
Freon 12(Dichlorodifluoromethane)	75-71-8	120.9	ND	0.50		ND	2.5
Freon 114(1,2-Dichlorotetrafluoroethan	76-14-2	170.9	ND	0.50		ND	3.5
Chloromethane	74-87-3	50.49	0.57	0.50		1.2	1.0
n-Butane	106-97-8	58.12	8.5	0.50		20	1.2
Vinyl chloride	75-01-4	62.50	ND	0.50		ND	1.3
1,3-Butadiene	106-99-0	54.09	ND	0.50		ND	1.1
Bromomethane	74-83-9	94.94	ND	0.50		ND	1.9
Chloroethane	75-00-3	64.52	ND	0.50		ND	1.3
Ethanol	64-17-5	46.07	460	0.50	E	870	0.94
Bromoethene(Vinyl bromide)	593-60-2	106.9	ND	0.50		ND	2.2
Freon 11(Trichlorofluoromethane)	75-69-4	137.4	ND	0.50		ND	2.8
Isopropyl alcohol(2-Propanol)	67-63-0	60.10	20	0.50		48	1.2
Freon 113(1,1,2-Trichlorotrifluoroethan	76-13-1	187.4	ND	0.50		ND	3.8
Acetone	67-64-1	58.08	8.8	0.50		21	1.2
1,1-Dichloroethene	75-35-4	96.94	ND	0.50		ND	2.0
Acetonitrile	75-05-8	41.00	ND	0.50		ND	0.84
Tertiary butyl alcohol(TBA)	75-65-0	74.12	ND	0.50		ND	1.5
Bromoethane(Ethyl bromide)	74-96-4	108.0	ND	0.50		ND	2.2
3-Chloropropene(Allyl chloride)	107-05-1	76.53	ND	0.50		ND	1.6
Carbon disulfide	75-15-0	76.14	ND	0.50		ND	1.6
Methylene chloride	75-09-2	84.94	ND	0.50		ND	1.7
Acrylonitrile	107-13-1	53.00	ND	0.50		ND	1.1
Methyl-tert-butyl ether(MTBE)	1634-04-4	88.15	ND	0.50		ND	1.8
trans-1,2-Dichloroethene	156-60-5	96.94	ND	0.50		ND	2.0
n-Hexane	110-54-3	86.17	ND	0.50		ND	1.8
1,1-Dichloroethane	75-34-3	98.96	ND	0.50		ND	2.0
Vinyl acetate	108-05-4	86.00	ND	0.50		ND	1.8
2-Butanone(MEK)	78-93-3	72.10	1.1	0.50		3.3	1.5
cis-1,2-Dichloroethene	156-59-2	96.94	ND	0.50		ND	2.0
Ethyl acetate	141-78-6	88.10	ND	0.50		ND	1.8
Chloroform	67-66-3	119.4	ND	0.50		ND	2.4
Tetrahydrofuran	109-99-9	72.11	ND	0.50		ND	1.5
1,1,1-Trichloroethane	71-55-6	133.4	ND	0.50		ND	2.7
Cyclohexane	110-82-7	84.16	ND	0.50		ND	1.7
2,2,4-Trimethylpentane(Isooctane)	540-84-1	114.2	ND	0.50		ND	2.3
Carbon tetrachloride	56-23-5	153.8	ND	0.50		ND	3.1
n-Heptane	142-82-5	100.2	ND	0.50		ND	2.0
1,2-Dichloroethane	107-06-2	98.96	ND	0.50		ND	2.0
Benzene	71-43-2	78.11	ND	0.50		ND	1.6



Air Analysis Data Summary

EPA Compendium TO-15

Target Compound List

Client Project Name: Capitol City Plume

EMSL ID: 491200221-1

Client Sample ID: TAG Office

Canister ID: E0572

Primary Lab File ID: J2729.D

Dilution Lab File ID: NA

Analysis Date: 03/15/2012

Analysis Date: NA

Sample Vol(ml): 250

Sample Vol(ml): NA

Dilution Factor: 1

Dilution Factor: NA

Target Compounds	CAS#	MW	Result ppbv	RL ppbv	Q	Result ug/m3	RL ug/m3
Trichloroethene	79-01-6	131.4	ND	0.50		ND	2.7
1,2-Dichloropropane	78-87-5	113.0	ND	0.50		ND	2.3
Methyl Methacrylate	80-62-6	100.12	ND	0.50		ND	2.0
Bromodichloromethane	75-27-4	163.8	ND	0.50		ND	3.3
1,4-Dioxane	123-91-1	88.12	ND	0.50		ND	1.8
4-Methyl-2-pentanone(MIBK)	108-10-1	100.2	3.0	0.50		12	2.0
cis-1,3-Dichloropropene	10061-01-5	111.0	ND	0.50		ND	2.3
Toluene	108-88-3	92.14	4.3	0.50		16	1.9
trans-1,3-Dichloropropene	10061-02-6	111.0	ND	0.50		ND	2.3
1,1,2-Trichloroethane	79-00-5	133.4	ND	0.50		ND	2.7
2-Hexanone(MBK)	591-78-6	100.1	ND	0.50		ND	2.0
Tetrachloroethene	127-18-4	165.8	ND	0.50		ND	3.4
Dibromochloromethane	124-48-1	208.3	ND	0.50		ND	4.3
1,2-Dibromoethane	106-93-4	187.8	ND	0.50		ND	3.8
Chlorobenzene	108-90-7	112.6	ND	0.50		ND	2.3
Ethylbenzene	100-41-4	106.2	ND	0.50		ND	2.2
Xylene (p,m)	1330-20-7	106.2	1.1	1.0		4.8	4.3
Xylene (Ortho)	95-47-6	106.2	0.55	0.50		2.4	2.2
Styrene	100-42-5	104.1	ND	0.50		ND	2.1
Isopropylbenzene (cumene)	98-82-8	120.19	ND	0.50		ND	2.5
Bromoform	75-25-2	252.8	ND	0.50		ND	5.2
1,1,2,2-Tetrachloroethane	79-34-5	167.9	ND	0.50		ND	3.4
4-Ethyltoluene	622-96-8	120.2	ND	0.50		ND	2.5
1,3,5-Trimethylbenzene	108-67-8	120.2	ND	0.50		ND	2.5
2-Chlorotoluene	95-49-8	126.6	ND	0.50		ND	2.6
1,2,4-Trimethylbenzene	95-63-6	120.2	ND	0.50		ND	2.5
1,3-Dichlorobenzene	541-73-1	147.0	ND	0.50		ND	3.0
1,4-Dichlorobenzene	106-46-7	147.0	ND	0.50		ND	3.0
Benzyl chloride	100-44-7	126.0	ND	0.50		ND	2.6
1,2-Dichlorobenzene	95-50-1	147.0	ND	0.50		ND	3.0
1,2,4-Trichlorobenzene	120-82-1	181.5	ND	0.50		ND	3.7
Hexachloro-1,3-butadiene	87-68-3	260.8	ND	0.50		ND	5.3
Naphthalene	91-20-3	128.17	ND	0.50		ND	2.6

Surrogate

4-Bromofluorobenzene

Result

10.1

Spike

10

Recovery

101%

Qualifier Definitions

B = Compound also found in method blank.

E = Estimated concentration exceeding upper calibration range.

D = Result reported from diluted analysis.

ND= Non Detect



Air Analysis Data Summary

EPA Compendium TO-15

Tentatively Identified Compounds

Client Project Name: Capitol City Plume	EMSL ID: 491200221-1TIC
Client Sample ID: TAG Office	Canister ID: E0572
Primary Lab File ID: J2729.D	Dilution Lab File ID: NA
Analysis Date: 03/15/2012	Analysis Date: NA
Sample Vol(ml): 250	Sample Vol(ml): NA
Dilution Factor: 1	Dilution Factor: NA

Tentatively Identified Compounds	CAS#	MW(1)	Result ppbv	Q	Result ug/m3	Retention Time
Ethane, 1,1-difluoro-	000075-37-6	66	26	JN	71	5.47
Ethane, 1-chloro-1,1-difluoro-	000075-68-3	100	13	JN	55	5.99
Butane, 2-methyl-	000078-78-4	72	1.8	JN	5.3	7.94
Unknown			2.2	J	8.2	16.20

Qualifier Definitions

- B = Compound also found in method blank.
- J= Estimated value based on a 1:1 response to internal standard.
- N= Presumptive evidence of compound based on library match.

(1) = If unknown, MW is assigned as equivalent Toluene (92) for ug/m3 conversion purposes.



Air Analysis Data Summary

EPA Compendium TO-15

Target Compound List

Client Project Name: Capitol City Plume

EMSL ID: 491200221-2

Client Sample ID: Vapor-Inside Panel

Canister ID: E0333

Primary Lab File ID: J2730.D

Dilution Lab File ID: NA

Analysis Date: 03/15/2012

Analysis Date: NA

Sample Vol(ml): 250

Sample Vol(ml): NA

Dilution Factor: 1

Dilution Factor: NA

Target Compounds	CAS#	MW	Result ppbv	RL ppbv	Q	Result ug/m3	RL ug/m3
Propylene	115-07-1	58.08	ND	1.0		ND	2.4
Freon 12(Dichlorodifluoromethane)	75-71-8	120.9	ND	0.50		ND	2.5
Freon 114(1,2-Dichlorotetrafluoroethan	76-14-2	170.9	ND	0.50		ND	3.5
Chloromethane	74-87-3	50.49	0.59	0.50		1.2	1.0
n-Butane	106-97-8	58.12	13	0.50		31	1.2
Vinyl chloride	75-01-4	62.50	ND	0.50		ND	1.3
1,3-Butadiene	106-99-0	54.09	ND	0.50		ND	1.1
Bromomethane	74-83-9	94.94	ND	0.50		ND	1.9
Chloroethane	75-00-3	64.52	ND	0.50		ND	1.3
Ethanol	64-17-5	46.07	120	0.50	E	230	0.94
Bromoethene(Vinyl bromide)	593-60-2	106.9	ND	0.50		ND	2.2
Freon 11(Trichlorofluoromethane)	75-69-4	137.4	ND	0.50		ND	2.8
Isopropyl alcohol(2-Propanol)	67-63-0	60.10	7.9	0.50		19	1.2
Freon 113(1,1,2-Trichlorotrifluoroethan	76-13-1	187.4	ND	0.50		ND	3.8
Acetone	67-64-1	58.08	9.3	0.50		22	1.2
1,1-Dichloroethene	75-35-4	96.94	ND	0.50		ND	2.0
Acetonitrile	75-05-8	41.00	ND	0.50		ND	0.84
Tertiary butyl alcohol(TBA)	75-65-0	74.12	ND	0.50		ND	1.5
Bromoethane(Ethyl bromide)	74-96-4	108.0	ND	0.50		ND	2.2
3-Chloropropene(Allyl chloride)	107-05-1	76.53	ND	0.50		ND	1.6
Carbon disulfide	75-15-0	76.14	ND	0.50		ND	1.6
Methylene chloride	75-09-2	84.94	ND	0.50		ND	1.7
Acrylonitrile	107-13-1	53.00	ND	0.50		ND	1.1
Methyl-tert-butyl ether(MTBE)	1634-04-4	88.15	ND	0.50		ND	1.8
trans-1,2-Dichloroethene	156-60-5	96.94	ND	0.50		ND	2.0
n-Hexane	110-54-3	86.17	ND	0.50		ND	1.8
1,1-Dichloroethane	75-34-3	98.96	ND	0.50		ND	2.0
Vinyl acetate	108-05-4	86.00	ND	0.50		ND	1.8
2-Butanone(MEK)	78-93-3	72.10	0.56	0.50		1.7	1.5
cis-1,2-Dichloroethene	156-59-2	96.94	ND	0.50		ND	2.0
Ethyl acetate	141-78-6	88.10	ND	0.50		ND	1.8
Chloroform	67-66-3	119.4	ND	0.50		ND	2.4
Tetrahydrofuran	109-99-9	72.11	ND	0.50		ND	1.5
1,1,1-Trichloroethane	71-55-6	133.4	ND	0.50		ND	2.7
Cyclohexane	110-82-7	84.16	ND	0.50		ND	1.7
2,2,4-Trimethylpentane(Isooctane)	540-84-1	114.2	ND	0.50		ND	2.3
Carbon tetrachloride	56-23-5	153.8	ND	0.50		ND	3.1
n-Heptane	142-82-5	100.2	ND	0.50		ND	2.0
1,2-Dichloroethane	107-06-2	98.96	ND	0.50		ND	2.0
Benzene	71-43-2	78.11	ND	0.50		ND	1.6



Air Analysis Data Summary

EPA Compendium TO-15

Target Compound List

Client Project Name: Capitol City Plume

EMSL ID: 491200221-2

Client Sample ID: Vapor-Inside Panel

Canister ID: E0333

Primary Lab File ID: J2730.D

Dilution Lab File ID: NA

Analysis Date: 03/15/2012

Analysis Date: NA

Sample Vol(ml): 250

Sample Vol(ml): NA

Dilution Factor: 1

Dilution Factor: NA

Target Compounds	CAS#	MW	Result ppbv	RL ppbv	Q	Result ug/m3	RL ug/m3
Trichloroethene	79-01-6	131.4	ND	0.50		ND	2.7
1,2-Dichloropropane	78-87-5	113.0	ND	0.50		ND	2.3
Methyl Methacrylate	80-62-6	100.12	ND	0.50		ND	2.0
Bromodichloromethane	75-27-4	163.8	ND	0.50		ND	3.3
1,4-Dioxane	123-91-1	88.12	ND	0.50		ND	1.8
4-Methyl-2-pentanone(MIBK)	108-10-1	100.2	ND	0.50		ND	2.0
cis-1,3-Dichloropropene	10061-01-5	111.0	ND	0.50		ND	2.3
Toluene	108-88-3	92.14	1.3	0.50		4.8	1.9
trans-1,3-Dichloropropene	10061-02-6	111.0	ND	0.50		ND	2.3
1,1,2-Trichloroethane	79-00-5	133.4	ND	0.50		ND	2.7
2-Hexanone(MBK)	591-78-6	100.1	ND	0.50		ND	2.0
Tetrachloroethene	127-18-4	165.8	1.3	0.50		8.8	3.4
Dibromochloromethane	124-48-1	208.3	ND	0.50		ND	4.3
1,2-Dibromoethane	106-93-4	187.8	ND	0.50		ND	3.8
Chlorobenzene	108-90-7	112.6	ND	0.50		ND	2.3
Ethylbenzene	100-41-4	106.2	ND	0.50		ND	2.2
Xylene (p,m)	1330-20-7	106.2	1.9	1.0		8.2	4.3
Xylene (Ortho)	95-47-6	106.2	0.69	0.50		3.0	2.2
Styrene	100-42-5	104.1	ND	0.50		ND	2.1
Isopropylbenzene (cumene)	98-82-8	120.19	ND	0.50		ND	2.5
Bromoform	75-25-2	252.8	ND	0.50		ND	5.2
1,1,2,2-Tetrachloroethane	79-34-5	167.9	ND	0.50		ND	3.4
4-Ethyltoluene	622-96-8	120.2	ND	0.50		ND	2.5
1,3,5-Trimethylbenzene	108-67-8	120.2	ND	0.50		ND	2.5
2-Chlorotoluene	95-49-8	126.6	ND	0.50		ND	2.6
1,2,4-Trimethylbenzene	95-63-6	120.2	ND	0.50		ND	2.5
1,3-Dichlorobenzene	541-73-1	147.0	ND	0.50		ND	3.0
1,4-Dichlorobenzene	106-46-7	147.0	ND	0.50		ND	3.0
Benzyl chloride	100-44-7	126.0	ND	0.50		ND	2.6
1,2-Dichlorobenzene	95-50-1	147.0	ND	0.50		ND	3.0
1,2,4-Trichlorobenzene	120-82-1	181.5	ND	0.50		ND	3.7
Hexachloro-1,3-butadiene	87-68-3	260.8	ND	0.50		ND	5.3
Naphthalene	91-20-3	128.17	ND	0.50		ND	2.6

Surrogate

4-Bromofluorobenzene

Result

10.4

Spike

10

Recovery

104%

Qualifier Definitions

B = Compound also found in method blank.

E = Estimated concentration exceeding upper calibration range.

D = Result reported from diluted analysis.

ND= Non Detect



Air Analysis Data Summary
EPA Compendium TO-15
Tentatively Identified Compounds

Client Project Name: Capitol City Plume EMSL ID: 491200221-2TIC
Client Sample ID: Vapor-Inside Panel Canister ID: E0333
Primary Lab File ID: J2730.D Dilution Lab File ID: NA
Analysis Date: 03/15/2012 Analysis Date: NA
Sample Vol(ml): 250 Sample Vol(ml): NA
Dilution Factor: 1 Dilution Factor: NA

Table with 7 columns: Tentatively Identified Compounds, CAS#, MW(1), Result ppbv, Q, Result ug/m3, Retention Time. Rows include Difluorochloromethane, Ethane, 1-chloro-1,1-difluoro-, Unknown, Unknown hydrocarbon, and Undecane.

Qualifier Definitions

- B = Compound also found in method blank.
J= Estimated value based on a 1:1 response to internal standard.
N= Presumptive evidence of compound based on library match.

(1) = If unknown, MW is assigned as equivalent Toluene (92) for ug/m3 conversion purposes.



Air Analysis Data Summary

EPA Compendium TO-15

Target Compound List

Client Project Name: Capitol City Plume

Client Sample ID: Vapor-w/Santa

EMSL ID: 491200221-3

Canister ID: E0600

Primary Lab File ID: J2731.D

Analysis Date: 03/15/2012

Sample Vol(ml): 250

Dilution Factor: 1

Dilution Lab File ID: NA

Analysis Date: NA

Sample Vol(ml): NA

Dilution Factor: NA

Target Compounds	CAS#	MW	Result ppbv	RL ppbv	Q	Result ug/m3	RL ug/m3
Propylene	115-07-1	58.08	ND	1.0		ND	2.4
Freon 12(Dichlorodifluoromethane)	75-71-8	120.9	0.53	0.50		2.6	2.5
Freon 114(1,2-Dichlorotetrafluoroethan	76-14-2	170.9	ND	0.50		ND	3.5
Chloromethane	74-87-3	50.49	0.62	0.50		1.3	1.0
n-Butane	106-97-8	58.12	9.3	0.50		22	1.2
Vinyl chloride	75-01-4	62.50	ND	0.50		ND	1.3
1,3-Butadiene	106-99-0	54.09	ND	0.50		ND	1.1
Bromomethane	74-83-9	94.94	ND	0.50		ND	1.9
Chloroethane	75-00-3	64.52	ND	0.50		ND	1.3
Ethanol	64-17-5	46.07	98	0.50	E	180	0.94
Bromoethene(Vinyl bromide)	593-60-2	106.9	ND	0.50		ND	2.2
Freon 11(Trichlorofluoromethane)	75-69-4	137.4	ND	0.50		ND	2.8
Isopropyl alcohol(2-Propanol)	67-63-0	60.10	9.7	0.50		24	1.2
Freon 113(1,1,2-Trichlorotrifluoroethan	76-13-1	187.4	ND	0.50		ND	3.8
Acetone	67-64-1	58.08	12	0.50		28	1.2
1,1-Dichloroethene	75-35-4	96.94	ND	0.50		ND	2.0
Acetonitrile	75-05-8	41.00	ND	0.50		ND	0.84
Tertiary butyl alcohol(TBA)	75-65-0	74.12	ND	0.50		ND	1.5
Bromoethane(Ethyl bromide)	74-96-4	108.0	ND	0.50		ND	2.2
3-Chloropropene(Allyl chloride)	107-05-1	76.53	ND	0.50		ND	1.6
Carbon disulfide	75-15-0	76.14	ND	0.50		ND	1.6
Methylene chloride	75-09-2	84.94	ND	0.50		ND	1.7
Acrylonitrile	107-13-1	53.00	ND	0.50		ND	1.1
Methyl-tert-butyl ether(MTBE)	1634-04-4	88.15	ND	0.50		ND	1.8
trans-1,2-Dichloroethene	156-60-5	96.94	ND	0.50		ND	2.0
n-Hexane	110-54-3	86.17	ND	0.50		ND	1.8
1,1-Dichloroethane	75-34-3	98.96	ND	0.50		ND	2.0
Vinyl acetate	108-05-4	86.00	ND	0.50		ND	1.8
2-Butanone(MEK)	78-93-3	72.10	0.77	0.50		2.3	1.5
cis-1,2-Dichloroethene	156-59-2	96.94	ND	0.50		ND	2.0
Ethyl acetate	141-78-6	88.10	ND	0.50		ND	1.8
Chloroform	67-66-3	119.4	ND	0.50		ND	2.4
Tetrahydrofuran	109-99-9	72.11	ND	0.50		ND	1.5
1,1,1-Trichloroethane	71-55-6	133.4	ND	0.50		ND	2.7
Cyclohexane	110-82-7	84.16	ND	0.50		ND	1.7
2,2,4-Trimethylpentane(Isooctane)	540-84-1	114.2	ND	0.50		ND	2.3
Carbon tetrachloride	56-23-5	153.8	ND	0.50		ND	3.1
n-Heptane	142-82-5	100.2	ND	0.50		ND	2.0
1,2-Dichloroethane	107-06-2	98.96	ND	0.50		ND	2.0
Benzene	71-43-2	78.11	ND	0.50		ND	1.6



Air Analysis Data Summary

EPA Compendium TO-15

Target Compound List

Client Project Name: Capitol City Plume

EMSL ID: 491200221-3

Client Sample ID: Vapor-w/Santa

Canister ID: E0600

Primary Lab File ID: J2731.D

Dilution Lab File ID: NA

Analysis Date: 03/15/2012

Analysis Date: NA

Sample Vol(ml): 250

Sample Vol(ml): NA

Dilution Factor: 1

Dilution Factor: NA

Target Compounds	CAS#	MW	Result ppbv	RL ppbv	Q	Result ug/m3	RL ug/m3
Trichloroethene	79-01-6	131.4	ND	0.50		ND	2.7
1,2-Dichloropropane	78-87-5	113.0	ND	0.50		ND	2.3
Methyl Methacrylate	80-62-6	100.12	ND	0.50		ND	2.0
Bromodichloromethane	75-27-4	163.8	ND	0.50		ND	3.3
1,4-Dioxane	123-91-1	88.12	ND	0.50		ND	1.8
4-Methyl-2-pentanone(MIBK)	108-10-1	100.2	ND	0.50		ND	2.0
cis-1,3-Dichloropropene	10061-01-5	111.0	ND	0.50		ND	2.3
Toluene	108-88-3	92.14	2.3	0.50		8.5	1.9
trans-1,3-Dichloropropene	10061-02-6	111.0	ND	0.50		ND	2.3
1,1,2-Trichloroethane	79-00-5	133.4	ND	0.50		ND	2.7
2-Hexanone(MBK)	591-78-6	100.1	ND	0.50		ND	2.0
Tetrachloroethene	127-18-4	165.8	2.1	0.50		14	3.4
Dibromochloromethane	124-48-1	208.3	ND	0.50		ND	4.3
1,2-Dibromoethane	106-93-4	187.8	ND	0.50		ND	3.8
Chlorobenzene	108-90-7	112.6	ND	0.50		ND	2.3
Ethylbenzene	100-41-4	106.2	0.64	0.50		2.8	2.2
Xylene (p,m)	1330-20-7	106.2	3.2	1.0		14	4.3
Xylene (Ortho)	95-47-6	106.2	1.2	0.50		5.3	2.2
Styrene	100-42-5	104.1	ND	0.50		ND	2.1
Isopropylbenzene (cumene)	98-82-8	120.19	ND	0.50		ND	2.5
Bromoform	75-25-2	252.8	ND	0.50		ND	5.2
1,1,2,2-Tetrachloroethane	79-34-5	167.9	ND	0.50		ND	3.4
4-Ethyltoluene	622-96-8	120.2	ND	0.50		ND	2.5
1,3,5-Trimethylbenzene	108-67-8	120.2	ND	0.50		ND	2.5
2-Chlorotoluene	95-49-8	126.6	ND	0.50		ND	2.6
1,2,4-Trimethylbenzene	95-63-6	120.2	ND	0.50		ND	2.5
1,3-Dichlorobenzene	541-73-1	147.0	ND	0.50		ND	3.0
1,4-Dichlorobenzene	106-46-7	147.0	ND	0.50		ND	3.0
Benzyl chloride	100-44-7	126.0	ND	0.50		ND	2.6
1,2-Dichlorobenzene	95-50-1	147.0	ND	0.50		ND	3.0
1,2,4-Trichlorobenzene	120-82-1	181.5	ND	0.50		ND	3.7
Hexachloro-1,3-butadiene	87-68-3	260.8	ND	0.50		ND	5.3
Naphthalene	91-20-3	128.17	ND	0.50		ND	2.6

Surrogate

4-Bromofluorobenzene

Result

10.1

Spike

10

Recovery

101%

Qualifier Definitions

B = Compound also found in method blank.

E = Estimated concentration exceeding upper calibration range.

D = Result reported from diluted analysis.

ND= Non Detect



Air Analysis Data Summary

EPA Compendium TO-15

Tentatively Identified Compounds

Client Project Name: Capitol City Plume	EMSL ID: 491200221-3TIC
Client Sample ID: Vapor-w/Santa	Canister ID: E0600
Primary Lab File ID: J2731.D	Dilution Lab File ID: NA
Analysis Date: 03/15/2012	Analysis Date: NA
Sample Vol(ml): 250	Sample Vol(ml): NA
Dilution Factor: 1	Dilution Factor: NA

Tentatively Identified Compounds	CAS#	MW(1)	Result ppbv	Q	Result ug/m3	Retention Time
Difluorochloromethane	000075-45-6	86	16	JN	56	5.54
Ethane, 1-chloro-1,1-difluoro-	000075-68-3	100	59	JN	240	6.06
Unknown			1.2	J	4.4	16.26

Qualifier Definitions

- B = Compound also found in method blank.
- J= Estimated value based on a 1:1 response to internal standard.
- N= Presumptive evidence of compound based on library match.

(1) = If unknown, MW is assigned as equivalent Toluene (92) for ug/m3 conversion purposes.



Air Analysis Data Summary

EPA Compendium TO-15

Target Compound List

Client Project Name: Capitol City Plume
Client Sample ID: Rm 129-Book Room

EMSL ID: 491200221-4
Canister ID: E0311

Primary Lab File ID: J2732.D
Analysis Date: 03/15/2012
Sample Vol(ml): 250
Dilution Factor: 1

Dilution Lab File ID: NA
Analysis Date: NA
Sample Vol(ml): NA
Dilution Factor: NA

Target Compounds	CAS#	MW	Result ppbv	RL ppbv	Q	Result ug/m3	RL ug/m3
Propylene	115-07-1	58.08	ND	1.0		ND	2.4
Freon 12(Dichlorodifluoromethane)	75-71-8	120.9	1.9	0.50		9.5	2.5
Freon 114(1,2-Dichlorotetrafluoroethan	76-14-2	170.9	ND	0.50		ND	3.5
Chloromethane	74-87-3	50.49	0.71	0.50		1.5	1.0
n-Butane	106-97-8	58.12	11	0.50		26	1.2
Vinyl chloride	75-01-4	62.50	ND	0.50		ND	1.3
1,3-Butadiene	106-99-0	54.09	ND	0.50		ND	1.1
Bromomethane	74-83-9	94.94	ND	0.50		ND	1.9
Chloroethane	75-00-3	64.52	ND	0.50		ND	1.3
Ethanol	64-17-5	46.07	86	0.50	E	160	0.94
Bromoethene(Vinyl bromide)	593-60-2	106.9	ND	0.50		ND	2.2
Freon 11(Trichlorofluoromethane)	75-69-4	137.4	ND	0.50		ND	2.8
Isopropyl alcohol(2-Propanol)	67-63-0	60.10	9.9	0.50		24	1.2
Freon 113(1,1,2-Trichlorotrifluoroethan	76-13-1	187.4	ND	0.50		ND	3.8
Acetone	67-64-1	58.08	16	0.50		39	1.2
1,1-Dichloroethene	75-35-4	96.94	ND	0.50		ND	2.0
Acetonitrile	75-05-8	41.00	ND	0.50		ND	0.84
Tertiary butyl alcohol(TBA)	75-65-0	74.12	ND	0.50		ND	1.5
Bromoethane(Ethyl bromide)	74-96-4	108.0	ND	0.50		ND	2.2
3-Chloropropene(Allyl chloride)	107-05-1	76.53	ND	0.50		ND	1.6
Carbon disulfide	75-15-0	76.14	ND	0.50		ND	1.6
Methylene chloride	75-09-2	84.94	ND	0.50		ND	1.7
Acrylonitrile	107-13-1	53.00	ND	0.50		ND	1.1
Methyl-tert-butyl ether(MTBE)	1634-04-4	88.15	ND	0.50		ND	1.8
trans-1,2-Dichloroethene	156-60-5	96.94	ND	0.50		ND	2.0
n-Hexane	110-54-3	86.17	ND	0.50		ND	1.8
1,1-Dichloroethane	75-34-3	98.96	ND	0.50		ND	2.0
Vinyl acetate	108-05-4	86.00	ND	0.50		ND	1.8
2-Butanone(MEK)	78-93-3	72.10	0.78	0.50		2.3	1.5
cis-1,2-Dichloroethene	156-59-2	96.94	ND	0.50		ND	2.0
Ethyl acetate	141-78-6	88.10	ND	0.50		ND	1.8
Chloroform	67-66-3	119.4	ND	0.50		ND	2.4
Tetrahydrofuran	109-99-9	72.11	ND	0.50		ND	1.5
1,1,1-Trichloroethane	71-55-6	133.4	ND	0.50		ND	2.7
Cyclohexane	110-82-7	84.16	ND	0.50		ND	1.7
2,2,4-Trimethylpentane(Isooctane)	540-84-1	114.2	ND	0.50		ND	2.3
Carbon tetrachloride	56-23-5	153.8	ND	0.50		ND	3.1
n-Heptane	142-82-5	100.2	ND	0.50		ND	2.0
1,2-Dichloroethane	107-06-2	98.96	ND	0.50		ND	2.0
Benzene	71-43-2	78.11	ND	0.50		ND	1.6



Air Analysis Data Summary

EPA Compendium TO-15

Target Compound List

Client Project Name: Capitol City Plume
Client Sample ID: Rm 129-Book Room

EMSL ID: 491200221-4
Canister ID: E0311

Primary Lab File ID: J2732.D
Analysis Date: 03/15/2012
Sample Vol(ml): 250
Dilution Factor: 1

Dilution Lab File ID: NA
Analysis Date: NA
Sample Vol(ml): NA
Dilution Factor: NA

Target Compounds	CAS#	MW	Result ppbv	RL ppbv	Q	Result ug/m3	RL ug/m3
Trichloroethene	79-01-6	131.4	ND	0.50		ND	2.7
1,2-Dichloropropane	78-87-5	113.0	ND	0.50		ND	2.3
Methyl Methacrylate	80-62-6	100.12	ND	0.50		ND	2.0
Bromodichloromethane	75-27-4	163.8	ND	0.50		ND	3.3
1,4-Dioxane	123-91-1	88.12	ND	0.50		ND	1.8
4-Methyl-2-pentanone(MIBK)	108-10-1	100.2	ND	0.50		ND	2.0
cis-1,3-Dichloropropene	10061-01-5	111.0	ND	0.50		ND	2.3
Toluene	108-88-3	92.14	1.3	0.50		5.1	1.9
trans-1,3-Dichloropropene	10061-02-6	111.0	ND	0.50		ND	2.3
1,1,2-Trichloroethane	79-00-5	133.4	ND	0.50		ND	2.7
2-Hexanone(MBK)	591-78-6	100.1	ND	0.50		ND	2.0
Tetrachloroethene	127-18-4	165.8	2.5	0.50		17	3.4
Dibromochloromethane	124-48-1	208.3	ND	0.50		ND	4.3
1,2-Dibromoethane	106-93-4	187.8	ND	0.50		ND	3.8
Chlorobenzene	108-90-7	112.6	ND	0.50		ND	2.3
Ethylbenzene	100-41-4	106.2	0.75	0.50		3.2	2.2
Xylene (p,m)	1330-20-7	106.2	3.3	1.0		14	4.3
Xylene (Ortho)	95-47-6	106.2	1.2	0.50		5.1	2.2
Styrene	100-42-5	104.1	ND	0.50		ND	2.1
Isopropylbenzene (cumene)	98-82-8	120.19	ND	0.50		ND	2.5
Bromoform	75-25-2	252.8	ND	0.50		ND	5.2
1,1,2,2-Tetrachloroethane	79-34-5	167.9	ND	0.50		ND	3.4
4-Ethyltoluene	622-96-8	120.2	ND	0.50		ND	2.5
1,3,5-Trimethylbenzene	108-67-8	120.2	ND	0.50		ND	2.5
2-Chlorotoluene	95-49-8	126.6	ND	0.50		ND	2.6
1,2,4-Trimethylbenzene	95-63-6	120.2	ND	0.50		ND	2.5
1,3-Dichlorobenzene	541-73-1	147.0	ND	0.50		ND	3.0
1,4-Dichlorobenzene	106-46-7	147.0	ND	0.50		ND	3.0
Benzyl chloride	100-44-7	126.0	ND	0.50		ND	2.6
1,2-Dichlorobenzene	95-50-1	147.0	ND	0.50		ND	3.0
1,2,4-Trichlorobenzene	120-82-1	181.5	ND	0.50		ND	3.7
Hexachloro-1,3-butadiene	87-68-3	260.8	ND	0.50		ND	5.3
Naphthalene	91-20-3	128.17	ND	0.50		ND	2.6

Surrogate

4-Bromofluorobenzene

Result

10.2

Spike

10

Recovery

102%

Qualifier Definitions

B = Compound also found in method blank.

E = Estimated concentration exceeding upper calibration range.

D = Result reported from diluted analysis.

ND = Non Detect



Air Analysis Data Summary

EPA Compendium TO-15

Tentatively Identified Compounds

Client Project Name: Capitol City Plume	EMSL ID: 491200221-4TIC
Client Sample ID: Rm 129-Book Room	Canister ID: E0311
Primary Lab File ID: J2732.D	Dilution Lab File ID: NA
Analysis Date: 03/15/2012	Analysis Date: NA
Sample Vol(ml): 250	Sample Vol(ml): NA
Dilution Factor: 1	Dilution Factor: NA

Tentatively Identified Compounds	CAS#	MW(1)	Result ppbv	Q	Result ug/m3	Retention Time
Ethane, 1-chloro-1,1-difluoro-	000075-68-3	100	300	JN	1200	6.18

Qualifier Definitions

- B = Compound also found in method blank.
- J = Estimated value based on a 1:1 response to internal standard.
- N = Presumptive evidence of compound based on library match.

(1) = If unknown, MW is assigned as equivalent Toluene (92) for ug/m3 conversion purposes.



Air Analysis Data Summary

EPA Compendium TO-15

Target Compound List

Client Project Name: Capitol City Plume
Client Sample ID: Rm 132-Mechanical

EMSL ID: 491200221-5
Canister ID: E0330

Primary Lab File ID: J2734.D
Analysis Date: 03/15/2012
Sample Vol(ml): 250
Dilution Factor: 1

Dilution Lab File ID: NA
Analysis Date: NA
Sample Vol(ml): NA
Dilution Factor: NA

Target Compounds	CAS#	MW	Result ppbv	RL ppbv	Q	Result ug/m3	RL ug/m3
Propylene	115-07-1	58.08	ND	1.0		ND	2.4
Freon 12(Dichlorodifluoromethane)	75-71-8	120.9	20	0.50		100	2.5
Freon 114(1,2-Dichlorotetrafluoroethan	76-14-2	170.9	ND	0.50		ND	3.5
Chloromethane	74-87-3	50.49	0.90	0.50		1.9	1.0
n-Butane	106-97-8	58.12	21	0.50		49	1.2
Vinyl chloride	75-01-4	62.50	ND	0.50		ND	1.3
1,3-Butadiene	106-99-0	54.09	ND	0.50		ND	1.1
Bromomethane	74-83-9	94.94	ND	0.50		ND	1.9
Chloroethane	75-00-3	64.52	ND	0.50		ND	1.3
Ethanol	64-17-5	46.07	250	0.50	E	470	0.94
Bromoethene(Vinyl bromide)	593-60-2	106.9	ND	0.50		ND	2.2
Freon 11(Trichlorofluoromethane)	75-69-4	137.4	ND	0.50		ND	2.8
Isopropyl alcohol(2-Propanol)	67-63-0	60.10	19	0.50		46	1.2
Freon 113(1,1,2-Trichlorotrifluoroethan	76-13-1	187.4	ND	0.50		ND	3.8
Acetone	67-64-1	58.08	16	0.50		38	1.2
1,1-Dichloroethene	75-35-4	96.94	ND	0.50		ND	2.0
Acetonitrile	75-05-8	41.00	ND	0.50		ND	0.84
Tertiary butyl alcohol(TBA)	75-65-0	74.12	ND	0.50		ND	1.5
Bromoethane(Ethyl bromide)	74-96-4	108.0	ND	0.50		ND	2.2
3-Chloropropene(Allyl chloride)	107-05-1	76.53	ND	0.50		ND	1.6
Carbon disulfide	75-15-0	76.14	ND	0.50		ND	1.6
Methylene chloride	75-09-2	84.94	ND	0.50		ND	1.7
Acrylonitrile	107-13-1	53.00	ND	0.50		ND	1.1
Methyl-tert-butyl ether(MTBE)	1634-04-4	88.15	ND	0.50		ND	1.8
trans-1,2-Dichloroethene	156-60-5	96.94	ND	0.50		ND	2.0
n-Hexane	110-54-3	86.17	ND	0.50		ND	1.8
1,1-Dichloroethane	75-34-3	98.96	ND	0.50		ND	2.0
Vinyl acetate	108-05-4	86.00	ND	0.50		ND	1.8
2-Butanone(MEK)	78-93-3	72.10	0.86	0.50		2.6	1.5
cis-1,2-Dichloroethene	156-59-2	96.94	ND	0.50		ND	2.0
Ethyl acetate	141-78-6	88.10	ND	0.50		ND	1.8
Chloroform	67-66-3	119.4	ND	0.50		ND	2.4
Tetrahydrofuran	109-99-9	72.11	ND	0.50		ND	1.5
1,1,1-Trichloroethane	71-55-6	133.4	ND	0.50		ND	2.7
Cyclohexane	110-82-7	84.16	ND	0.50		ND	1.7
2,2,4-Trimethylpentane(Isooctane)	540-84-1	114.2	ND	0.50		ND	2.3
Carbon tetrachloride	56-23-5	153.8	ND	0.50		ND	3.1
n-Heptane	142-82-5	100.2	ND	0.50		ND	2.0
1,2-Dichloroethane	107-06-2	98.96	ND	0.50		ND	2.0
Benzene	71-43-2	78.11	ND	0.50		ND	1.6



Air Analysis Data Summary

EPA Compendium TO-15

Target Compound List

Client Project Name: Capitol City Plume
Client Sample ID: Rm 132-Mechanical

EMSL ID: 491200221-5
Canister ID: E0330

Primary Lab File ID: J2734.D
Analysis Date: 03/15/2012
Sample Vol(ml): 250
Dilution Factor: 1

Dilution Lab File ID: NA
Analysis Date: NA
Sample Vol(ml): NA
Dilution Factor: NA

Target Compounds	CAS#	MW	Result ppbv	RL ppbv	Q	Result ug/m3	RL ug/m3
Trichloroethene	79-01-6	131.4	ND	0.50		ND	2.7
1,2-Dichloropropane	78-87-5	113.0	ND	0.50		ND	2.3
Methyl Methacrylate	80-62-6	100.12	ND	0.50		ND	2.0
Bromodichloromethane	75-27-4	163.8	ND	0.50		ND	3.3
1,4-Dioxane	123-91-1	88.12	ND	0.50		ND	1.8
4-Methyl-2-pentanone(MIBK)	108-10-1	100.2	ND	0.50		ND	2.0
cis-1,3-Dichloropropene	10061-01-5	111.0	ND	0.50		ND	2.3
Toluene	108-88-3	92.14	2.3	0.50		8.7	1.9
trans-1,3-Dichloropropene	10061-02-6	111.0	ND	0.50		ND	2.3
1,1,2-Trichloroethane	79-00-5	133.4	ND	0.50		ND	2.7
2-Hexanone(MBK)	591-78-6	100.1	ND	0.50		ND	2.0
Tetrachloroethene	127-18-4	165.8	1.2	0.50		8.0	3.4
Dibromochloromethane	124-48-1	208.3	ND	0.50		ND	4.3
1,2-Dibromoethane	106-93-4	187.8	ND	0.50		ND	3.8
Chlorobenzene	108-90-7	112.6	ND	0.50		ND	2.3
Ethylbenzene	100-41-4	106.2	ND	0.50		ND	2.2
Xylene (p,m)	1330-20-7	106.2	1.5	1.0		6.4	4.3
Xylene (Ortho)	95-47-6	106.2	0.57	0.50		2.5	2.2
Styrene	100-42-5	104.1	ND	0.50		ND	2.1
Isopropylbenzene (cumene)	98-82-8	120.19	ND	0.50		ND	2.5
Bromoform	75-25-2	252.8	ND	0.50		ND	5.2
1,1,2,2-Tetrachloroethane	79-34-5	167.9	ND	0.50		ND	3.4
4-Ethyltoluene	622-96-8	120.2	ND	0.50		ND	2.5
1,3,5-Trimethylbenzene	108-67-8	120.2	ND	0.50		ND	2.5
2-Chlorotoluene	95-49-8	126.6	ND	0.50		ND	2.6
1,2,4-Trimethylbenzene	95-63-6	120.2	ND	0.50		ND	2.5
1,3-Dichlorobenzene	541-73-1	147.0	ND	0.50		ND	3.0
1,4-Dichlorobenzene	106-46-7	147.0	ND	0.50		ND	3.0
Benzyl chloride	100-44-7	126.0	ND	0.50		ND	2.6
1,2-Dichlorobenzene	95-50-1	147.0	ND	0.50		ND	3.0
1,2,4-Trichlorobenzene	120-82-1	181.5	ND	0.50		ND	3.7
Hexachloro-1,3-butadiene	87-68-3	260.8	ND	0.50		ND	5.3
Naphthalene	91-20-3	128.17	ND	0.50		ND	2.6

Surrogate

4-Bromofluorobenzene

Result

10.1

Spike

10

Recovery

101%

Qualifier Definitions

B = Compound also found in method blank.

E= Estimated concentration exceeding upper calibration range.

D= Result reported from diluted analysis.

ND= Non Detect



Air Analysis Data Summary

EPA Compendium TO-15

Tentatively Identified Compounds

Client Project Name: Capitol City Plume	EMSL ID: 491200221-5TIC
Client Sample ID: Rm 132-Mechanical	Canister ID: E0330
Primary Lab File ID: J2734.D	Dilution Lab File ID: NA
Analysis Date: 03/15/2012	Analysis Date: NA
Sample Vol(ml): 250	Sample Vol(ml): NA
Dilution Factor: 1	Dilution Factor: NA

Tentatively Identified Compounds	CAS#	MW(1)	Result ppbv	Q	Result ug/m3	Retention Time
Ethane, 1-chloro-1,1-difluoro-	000075-68-3	100	80	JN	330	6.22

Qualifier Definitions

- B = Compound also found in method blank.
- J = Estimated value based on a 1:1 response to internal standard.
- N = Presumptive evidence of compound based on library match.

(1) = If unknown, MW is assigned as equivalent Toluene (92) for ug/m3 conversion purposes.



USEPA TO-15

EMSL Analytical, Inc.
 200 Route 130 North
 Cinnaminson, NJ 08077
 Ph. (800) 220-3675
 Fax (856) 786-0327

External Chain of Custody/ Field Test Data Sheet

EMSL ANALYTICAL, INC.
 LABORATORY PRODUCTS TRAINING

EMSL Order Number (Lab Use Only):

491200221

Report To Contact Name: <u>Amy Gill</u>	Bill To Company: <u>U.S. Geological Survey</u>	Sampled By (Sign): <u>Amy C. Gill</u>
Company Name: <u>US Geological Survey</u>	Attention To: <u>Amy Gill</u>	Sampled By (Name): <u>Amy C. Gill</u>
Address 1: <u>75 TechnaCenter Drive</u>	Address 1: <u>75 TechnaCenter Drive</u>	Total # of Samples: <u>5</u>
Address 2: <u>Montgomery, AL 36117</u>	Address 2: <u>Montgomery, AL 36117</u>	Date Shipped: <u>02/29/2012</u>
Phone No.: <u>334-395-4120</u> Fax: <u>334-395-4168</u>	Phone No.: <u>334-395-4120</u> Fax: <u>334-395-4168</u>	Sample Collection Zip Code: <u>36106</u>
Email Results To: <u>acgill@usgs.gov</u>	Project Name: <u>Capitol City Plume</u>	Purchase Order: <u>Mastercard</u>

Turnaround Time (in Business Days): <input checked="" type="checkbox"/> 10 Day Standard	Reporting Format: <input checked="" type="checkbox"/> Results Only (Standard Lab Report)	Analysis	Matrix
<input type="checkbox"/> 5 Day <input type="checkbox"/> 4 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 1 Day <input type="checkbox"/> Other	<input type="checkbox"/> Full Deliverables (Surcharge may apply) <input type="checkbox"/> Other		

EMSL Sample Identifier

Client Field Sample Identification	Field Use - All Information Required!								Lab Use Only								USEPA TO-15	NJDEP LLTO-15	LIBRARY SEARCH	Other (Specify)	Indoor/ Ambient Air	Soil Gas	Landfill/ Vent
	Sampling Start Information				Sampling Stop Information				Canister Information				Flow Controller										
	Start Date	Time (24 hr clock)	Canister Pressure ("Hg)	Interior Temp. (F)	Stop Date	Time (24 hr clock)	Canister Pressure ("Hg)	Interior Temp. (F)	Canister ID	Size (L)	Can Cert Batch ID	Outgoing Pressure ("Hg)	Incoming Pressure ("Hg)	Reg. ID	Cal Flow (ml/min)								
TAG Office	2/28/12	1008	-29.0	~75	2/29/12	10:07	0	26°C	E0572	6	62500	-29.0	-0.2	3507	3.5	✓				✓			
Vapor - inside panel w/ Scienta	2/28/12	1041	-28.0	76.3	2/29/12	10:43	3.2	22.5°C	E0333				-2.4	3539	3.6	✓				✓			
Rm 129 - Book Room	2/28/12	1058	-29.4	77.4	2/29/12	10:58	4.8	24°C	E0600				-4.5	3708	3.5	✓				✓			
Rm 132 - mech	2/28/12	1123	-30	76.1	2/29/12	11:23	5.0	23.5°C	E0311				-4.7	3574	3.6	✓				✓			
	2/28/12	1128	-28.7	76.4	2/29/12	11:28	5.9	23.5°C	E0330				-5.2	3682	3.6	✓				✓			

Comments: Regulators for E0572 and E0600 were switched. Interior Temps for collection are in Celsius degrees.

Lab Canister Certification

Analyst Signature (TO-15): _____

Relinquished by:	Date/ Time	Received by:	Date/ Time	Affixed Seal #	Reason for Exchange (circle appropriate)
<u>Pate</u>	2/23/12 1450	<u>Amy C. Gill</u>	2/29/2012 0930	1192-1193	<u>Shipping</u> Courier Receiving Sampling Other:
<u>Amy C. Gill</u>	2/29/12 1600	<u>V. Williams</u>	3-1-12 930		Shipping Courier <u>Receiving</u> Sampling Other:
<u>V. Williams</u>	3-1-12 938	<u>Er. M. Cost</u>	3/1/12 16:20		Shipping Courier Receiving Sampling <u>Other</u> AN
					Shipping Courier Receiving Sampling Other:
					Shipping Courier Receiving Sampling Other:

491200221

TO-15 Sample Information

Please fill out this worksheet in addition to the Chain of Custody form. This information helps us to best analyze your samples.

Company:

U.S. Geological Survey

Contact Person:

Name: Amy C. Gill

E-mail: acgill@usgs.gov

Additional E-mail: athclark@usgs.gov; jhandmey@usgs.gov

Telephone #: 334-395-4128 Fax: 334-395-4168

Do you want your results emailed? YES NO

Library Search requested: YES NO

A library search will identify up to 20 of the largest, non-target peaks that are not part of the standard TO-15 list of 70 compounds. If you are performing an Indoor Air Quality or odor investigation the library search is recommended. If you will need help interpreting your report the library search is REQUIRED. Requesting a library search after sample results are reported will be invoiced at an additional \$75/sample.

Sample Type:

Indoor Air Quality (Home/Office) Vent Gas Soil Gas
 IAQ (Industrial) Other: _____

Description of sample (Important for the lab to achieve your requested turnaround time):

Are there any special detection limits, specific set of compounds, or any other specifics you need in your report?

YES (Please list or attach separate sheet) NO

TCE & PCE to lowest possible reporting level.

Do you need any additional analysis on the canister sample? (circle below)

CO Methane CO2 SO2 EtO Nox O2 Other _____

Sample Retention Policy: All canisters are guaranteed to be retained for one day after results are reported. Please review your results promptly to ensure that your project scope is fully addressed. Cans may be retained for a longer period of time but arrangements to hold your cans must be made through your customer account representative quickly. Thank you.



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-0380

TO-15: - How To Read and Interpret Your Report

When scanning your results, the rows which are highlighted in yellow indicate that compound was found in the sample. Results are reported in both parts per billion volume (ppbv), and is also expressed in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) which is the concentration in weight of the substance per volume of air.

Common Indoor Contaminants;

Chemical	Common Indoor Uses	Typical Concentrations	OSHA PELs
Ethanol	beverages, cleaners, disinfectants, perfumes, paints, and lacquers	25 to 400 ppb	1,000,000 ppb
Isopropanol	cleaners, disinfectants, quick drying inks, alcohol swabs, and perfumes	50 - 200 ppb	400,000 ppb
Acetone	cleaners, inks, nail polish remover	2 to 20 ppb	1,000,000 ppb
2-Butanone (MEK)	cleaners, disinfectants	2 to 20 ppb	200,000 ppb
Ethyl Acetate	cleaners, disinfectants	2 to 20 ppb	400,000 ppb
Freons, various	Refrigerants, propellants, foam blowing agents	1 to 10 ppb	1,000,000 ppb
Toluene	Paints, inks, solvents, gasoline	2 to 10 ppb	200,000 ppb
Xylenes	Paints, inks, solvents, gasoline	2 to 10 ppb	100,000 ppb

Freons are common refrigerants and often seen in air samples. Elevated levels of freons can indicate leaks from refrigerators and air conditioners. Aerosol sprays and foam products also contribute freons and / or propanes and butanes to indoor air.



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-0380

Benzene, toluene, ethylbenzene, and xylenes are components of gasoline.
Toluene and xylenes can be found in solvent based products such as oil based paints.

If a Library search is indicated, normal and substituted hydrocarbons in the octane to dodecane (C8 to C12) range can indicate the presence of diesel oil, fuel oil, or mineral spirits. Unknown hydrocarbons often indicate weathered petroleum compounds from old spills. Aldehydes, many of which have objectionable odors at low levels, can be a result of incomplete natural gas or LP gas combustion, used in building and furnishing materials, or the presence of decaying organic matter. Limonene and Pinene are found in citrus and pine-based cleaners.

If you wish to compare your data with NIOSH or OSHA exposure limits, please consult the following links and search for the individual compound of interest;

<http://www.cdc.gov/niosh/npg/>

http://www.osha.gov/dts/chemicalsampling/toc/toc_chemsamp.html

In addition, you can contact the TO-15 Laboratory for other available reporting formats.

If you have additional questions about your report, please do not hesitate to contact Marge Howley, TO-15 Laboratory Manager at (800) 220-3675 ext. 2807 or Vince Daliessio CIH, Industrial Hygiene Project Manager at (800) 220-3675 ext. 2559.

Warranty: EMSL warrants to its clients that all services provided hereunder shall be performed in accordance with established and recognized analytical testing procedures and with reasonable care in accordance with applicable federal, state and local laws. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied. EMSL disclaims any other warranties, express or implied, including a warranty of fitness for particular purpose and warranty of merchantability.

Limits of Liability: In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. EMSL will not be held responsible for the improper selection of sampling devices even if we supply the device to the user. The user of the sampling device has the sole responsibility to select the proper sampler and sampling conditions to insure that a valid sample is taken for analysis. Any resampling performed will be at the sole discretion of EMSL, the cost of which shall be limited to the reasonable value of the original sample delivery group (SDG) samples. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder.

Indemnification: Client shall indemnify EMSL and its officers, directors and employees and hold each of them harmless for any liability, expense or cost, including reasonable attorney's fees, incurred by reason of any third party claim in connection with EMSL's services, the test result data or its use by client.



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-0380

TO-15 Results – Frequently Asked Questions (FAQ):

Q:What does an “ND” in the result column next to a compound mean?

A: A “ND” (not detected) means we did not detect that compound in the sample.

Q:What does an “E” in the “Q” (qualifier) column next to a compound mean?

A: An “E” (estimated) qualifier means that the concentration reported was higher than the calibration curve. “E” is commonly reported for only for ethanol and isopropanol which are not required to be diluted per TO-15 method. There are some instances where the lab will report an “E” for other compounds such as a sample that has a short turn around time and no time to make dilutions.

Q:Why are there values listed in the “Results ppbv” and “Results ug/m3” columns for that compound if it was not detected?

A:When a compound is not detected, the value for ppbv and ug/m3 is the Reporting Limit (RL) for that compound, that is, it *could* be present at less than the values stated, but those values are as low as we are able to report under normal circumstances.

Q:Why do the listed ppbv and ug/m3 values differ for undetected compounds?

A: Different compounds can have different detection limits. Most compound RLs are reported at 0.5 ppbv, however some very common compounds are reported slightly higher. This is often a function of what other similar compounds are present, or how much of a particular compound is present. The ug/m3 RLs vary due to the different molecular weights of each compound.

Q:Why are there different numbers in the “Results ppbv” and “Results ug/m3” columns?

A: They are two different ways of expressing an air concentration, ppbv is a volume / volume concentration, while ug/m3 is a weight / volume concentration. If you know the concentration in one unit, and the molecular weight of the compound, you can easily convert it to the other, e.g.;

$$X \text{ ppbv} = (Y \text{ ug/m}^3) \times (24.45) / (\text{molecular weight})$$

$$Y \text{ ug/m}^3 = (X \text{ ppbv}) \times (\text{molecular weight}) / 24.45$$

(24.45 is the gas molar value, a constant)



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-0380

Q:What is meant by the “Method Detection Limit”?

A: The Method Detection Limit (MDL) refers to the non-zero amount of the compound in question that we can identify in a scientifically-sound manner. Essentially we have to be able to see a peak on the chromatogram that is higher than three times the standard deviation of the same peak in the blank. If it does not meet this minimum, we cannot say we detected it. The values found on your Form 1s are “Reporting Limits” (RLs) which are higher than MDLs.

Q:Where can I find (gasoline, diesel, fuel oil, natural gas, propane, LPG) in my sample?

A: These materials are mixtures of several different compounds. Because the analysis identifies molecules, these mixtures are elucidated indirectly. Additionally, each of these mixtures contain one or more compounds that are characteristic of other mixtures, for example, gasoline contains n-hexane, n-heptane, benzene, toluene, ethylbenzene, and xylenes, as does diesel fuel, though diesel fuel also contains other, heavier hydrocarbon molecules.

Similarly, LPG, also known as liquefied petroleum gas (often referred to interchangeably as “propane”) may contain propane, but also many other light hydrocarbon molecules, including some found in gasoline too. Identifying which mixture goes with which compounds is a bit of an art, and requires some background information to do accurately.

Q:What does “RT” mean on my Library Search results?

A: RT stands for Retention Time, referring to the length of time from the injection of the sample into the GC column to when a particular molecule exits the column and passes into the Mass Spectroscopy detector.

Retention time is a function of molecule size and mass, the functional groups attached, and the polarity of the molecule relative to the column packing, and is characteristic, meaning every organic molecule has an associated retention time that assists in identification. In general, smaller, lighter, less polar molecules elute first, and larger, heavier, more polar ones elute later.

Q:What is an “unknown” in the Library Search?

A: This means a compound eluted from the GC column and was detected, but that its ion fragmentation pattern was not close enough to any peak in the library to identify it.

Q:Why are all of my Library Search compounds qualified as “Estimated”?

A: Because the instrument is not calibrated for these compounds, we can only estimate and tentatively identify them. However, this is usually fine for indoor air quality testing.