



**Fw: Transmittal of data for soil -gas and indoor air sampling , 2/28-29/12.
Montgomery, AL,**

Scott Miller to: Debbie Jourdan

04/24/2012 08:16 AM

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 04/24/2012 08:14 AM -----

From: James E Landmeyer <jlandmey@usgs.gov>
To: Scott Miller/R4/USEPA/US@EPA
Cc: Athena P Clark <athclark@usgs.gov>, Amy C Gill <acgill@usgs.gov>
Date: 04/16/2012 12:11 PM
Subject: Transmittal of data for soil-gas and indoor air sampling, 2/28-29/12. Montgomery, AL,

Hi Scott,

Please find attached the subject data from the most recent sampling event conducted 2/28-29/2012.

(1) Data: Indoor air-quality sampling results for Annex III, (a) Gore sorbers and (b) Summa cannisters
(Note: the VIMS vapor results are included but will be discussed in a separate transmittal email);

- (a) *Gore sorbers:*
- (b) *Summa cannisters:*

(2) Preliminary evaluation of side-by-side comparison for PCE and toluene indoor-air concentrations using the Gore and Summa methods (Note: this supersedes the previous draft presentation sent).

Jim

James E. Landmeyer, Ph.D.
U.S. Geological Survey



<https://profile.usgs.gov/jlandmey>GORE Surveys Final Laboratory Report 21531389-3.pdf 491200221 Binder.pdf



Comparison of Gore vs Summa at Annex III 2 28 2012.pptx



GORE® Surveys

FOR ENVIRONMENTAL

Laboratory Report

Site: Alabama Site - Air Sampling
Montgomery, AL

Prepared for:

US GEOLOGICAL SURVEY-MONTGOMERY AL
75 TECHNACENTER DRIVE
MONTGOMERY, AL
UNITED STATES

Prepared on:
March 22, 2012



Project Summary and Objective

W. L. Gore & Associates, Inc. (Gore) provided the GORE® Survey (Survey) used at:

Alabama Site - Air Sampling

Montgomery, AL

The service provided by Gore included delivery of the required quantity of GORE® Modules, analysis by the method described below for the requested organic compounds, reporting of the data, and contour mapping (as needed).

This report includes results for only the samples noted under the Laboratory Sample Report section. If contour maps are part of the project deliverable, the maps will be prepared and issued under a separate report cover, upon receipt of a usable sitemap (electronic) and compound choices for contouring.

Written/submitted by:

Jim E Whetzel

Project Manager

Reviewed/approved by:

Dayna M Cobb

Project Manager

Analytical data approved by:

Ian McMullen

Chemist



GORE® Survey - Laboratory Report

Quality Assurance Statement

The Survey Products Group laboratory, at W. L. Gore & Associates' facility in Elkton, MD USA, operates under the guidelines of its ISO Standard 17025 DoD ELAP accreditation, and its Quality Assurance Manual, Operating Procedures, and Methods (SPG-SOP-0462).

For this project, the analytical method, results, and observations reported do [] do not [✓] fall within the scope of W. L. Gore's ISO 17025 accreditation.

Screening/Concentration Method

The GORE® Modules are analyzed at Gore's fixed laboratory using thermal desorption-gas chromatography/mass spectrometry (TD-GC/MS) instrumentation following U.S. EPA Method 8260 (SPG-WI-0292) which includes the following:

- **BFB Tuning Frequency:** A BFB tune is analyzed at the start of each analytical run and after every 30 samples.
- **Initial Calibration:** A minimum of a five point calibration curve is analyzed prior to the analysis of samples.
- **Linearity of Target Compounds:** If the RSD of any target analyte is less than or equal to 25% then average response factor can be used for quantitation. If the RSD exceeds 25% for a target compound a regression equation can be used for quantitation.
- **Continuing Calibration Verification:** After every 10 samples, and at the end of each analytical batch, and a second-source Reference Standard is analyzed near the mid point of the calibration curve. The acceptance criteria for all target analytes in the reference standards are +/- 50% of the true value.
- **Method Blank:** Analyzed prior to the analysis of field samples and every 30 samples.

Note: Analyte levels reported for the field-deployed GORE® Modules that exceed trip and method blank levels, and/or method detection limit, are more likely to have originated from on-site sources.

Media Sampled:	AIR
Chemist - sample analysis:	Fatima Popal
Chemist - data processor:	Fatima Popal
Chemist - data review:	Ian McMullen

Method deviations: None.

Please note that data file names ending with R are rerun samples using the second pair of sorbers, in which the original results were not reported. Data file names ending in D are duplicate analysis results for the second set of sorbers from the same module, and are reported.

Additional Report Information

- Comments
- Laboratory Sample Report
- Chain of Custody
- Installation and Retrieval Log
- Data Table(s)
- Concentration Calculation Method Summary (as applicable)
- Total Ion Chromatograms

Project Specific Comments

Quantitation of octane was complicated by the co-elution of a non-target compound.

Survey period ¹ February 28, 2012 to February 29, 2012; 1 day.

Tamper seal intact: Yes

Date received: 3/7/2012 8:00 AM By: Darlene Yellowdy

COC returned: Yes

Comments:

Chain of custody and installation/ retrieval log includes modules from this survey as well as additional modules.

1 - Installation start to end of retrieval, as reported. See installation and retrieval log for individual deployment and retrieval dates and times (i.e., sampler exposure time).

General Comments

Analytical QA/QC

Laboratory instrumentation consists of gas chromatographs equipped with mass selective detectors, coupled with automated thermal desorption units. Sample preparation involves cutting the tip off the bottom of the GORE® Module, and transferring one or more "sorbents" to a thermal desorption tube for analysis. The insertion/retrieval cord prevents soil, water and other interferences from coming in contact with the adsorbent. No further sample preparation is required. Any replicate sorbents not consumed in the initial analysis will be discarded fifteen (15) days from the date of the laboratory report.

Data are archived and stored in a secure manner as per Gore's Quality Assurance program (SPG-SOP-0462).

Total petroleum hydrocarbons (TPH), gasoline-range petroleum hydrocarbons (GRPH), and/or diesel range petroleum hydrocarbons (DRPH), when reported, are calculated using the area under the peaks observed in m/z 55 and 57 selected ion chromatograms. Quantitation of the mass values was performed using the response factor for a specific alkane (present in the calibration standards). TPH values include the entire chromatogram and provide estimates for aliphatic hydrocarbon ranges of C4 to C20. GRPH and DRPH include only the relevant regions of the chromatograms and provide estimates for C4 to C10 and C10 to C20 aliphatic hydrocarbons, respectively.

Trip blanks were provided to document potential exposures that were not part of the signal of interest (e.g., impact during sampler shipment, installation and/or retrieval, and storage). The trip blanks are identically manufactured and packaged GORE® Modules to those modules deployed in the field. The trip blanks remain unopened during all phases of the project. Levels reported on the trip blanks may indicate potential impact to the modules other than the contaminant source of interest.

Unresolved peak envelopes (UPEs) are represented as a series of compound peaks clustered together around a central gas chromatograph elution time in the total ion chromatogram. UPEs may be indicative of complex fluid mixtures. UPEs observed early in the chromatograms are considered to indicate presence of more volatile fluids, while UPEs observed later in the chromatogram may indicate the presence of less volatile fluids. Multiple UPEs may indicate the presence of multiple complex fluids.

Total ion chromatograms (TICs) are included in the Attachments. The eight-digit serial number of each module is incorporated in the TIC identification (e.g., 12345678.D represents GORE® Module 12345678).

General Comments

Soil Gas Sampling

For soil gas sampling, the GORE® Survey reports mass levels migrating through the open pore spaces of the soil and diffusing through the sampler membrane for sorption by the engineered, hydrophobic adsorbents, housed within the membrane tube. During the migration of the soil gas away from the source to the GORE® Module, the vapors are subject to a variety of attenuation factors. The soil gas masses reported on the modules compare favorably with the concentrations reported in the soil or groundwater (e.g., where soil gas levels are reported at greater levels to other sampled locations on the site, the matrix data should reveal the same pattern, and vice versa). However, due to a variety of factors, a perfect comparison between matrix data and soil gas levels can rarely be achieved.

Soil gas concentrations ($\mu\text{g}/\text{m}^3$) are calculated following the method described in the Additional Report Information section.

Soil gas signals reported by this method cannot be correlated specifically to soil adsorbed, groundwater, and/or free-phase contamination. The soil gas signal reported from each GORE® Module can evolve from all of these sources. Differentiation between soil and groundwater contamination can only be achieved with prior knowledge of the site history (i.e., the site is known to have groundwater contamination only).

Air Sampling

For indoor, outdoor, and crawlspace air sampling, the GORE® Survey reports mass levels present in the air and diffusing through the sampler membrane for sorption by the engineered adsorbents housed within the membrane tube.

Air concentrations ($\mu\text{g}/\text{m}^3$) are calculated following the method described in the Additional Report Information section.

Groundwater and Sediment Porewater Sampling

For groundwater and sediment porewater sampling, the GORE® Survey reports the mass levels of compounds present in the water which, when coming in contact with the sampler membrane, partitions out of solution, and diffuses through the sampler membrane for sorption by the engineered adsorbents.

Water concentrations ($\mu\text{g}/\text{L}$) are calculated using the quantified mass, exposure period and the compound specific uptake rate. The rates were measured under controlled experimental conditions. The uptake rates are corrected for water pressure (depth of the GORE® Module below the water table), water temperature and the aquifer flow rate.



GORE® Survey - Laboratory Report

LABORATORY SAMPLE REPORT

Project: ENV 21531389-3

Site Name: Alabama Site - Air Sampling

Module Type: SPG0008

Module ID	Sample Type	Field ID
00684975	FIELD_SAMPLE	1-Annex-02282012
00684976	FIELD_SAMPLE	2-Annex-02282012
00684977	FIELD_SAMPLE	3-Annex-02282012
00684978	FIELD_SAMPLE	4-Annex-02282012
00684979	FIELD_SAMPLE	5-Annex-02282012
00684980	FIELD_SAMPLE	6-Annex-02282012
00684981	FIELD_SAMPLE	7-Annex-02282012
00684982	FIELD_SAMPLE	8-Annex-02282012
00684983	FIELD_SAMPLE	9-Annex-02282012
00684984	FIELD_SAMPLE	10-Annex-02282012
00684991	FIELD_SAMPLE	11-Annex-02282012
00684992	FIELD_SAMPLE	12-Annex-02282012
00684993	FIELD_SAMPLE	13-Annex-02282012
00684994	FIELD_SAMPLE	14-Annex-02282012
00684995	FIELD_SAMPLE	15-Annex-02282012
00684996	FIELD_SAMPLE	16-VIMS10
00684997	FIELD_SAMPLE	17-VIMS20
00684998	FIELD_SAMPLE	18-VIMS30
00684999	FIELD_SAMPLE	19-VIMS40
00685000	FIELD_SAMPLE	20-VIMS50
00685009	FIELD_SAMPLE	29-VIMS10
00685010	FIELD_SAMPLE	30-VIMS20
00685011	FIELD_SAMPLE	31-VIMS30
00685012	FIELD_SAMPLE	32-VIMS40
00685013	FIELD_SAMPLE	33-VIMS50
00685027	TRIP_BLANK	34-Trip Blank 1

Total # "FIELD SAMPLES"	Total # "TRIP BLANKS"	Total # "UNUSED"	Total # "LOST"
25	1	0	0

Duplicate samples: 0



GORE SURVEY PRODUCTS GROUP
 100 CHESAPEAKE BOULEVARD ELKTON MARYLAND USA
 +1 410 392 7600 ENVIRONMENTAL@WLGORE.COM

GORE[®] Survey Chain of Custody
Soil gas and/or Air Sampling

Production Order #: **21531389**

Customer Name: US GEOLOGICAL SURVEY-
 MONTGOMERY AL
 Address: 75 TECHNACENTER DRIVE
 MONTGOMERY, AL 36117
 USA

Site Name: Alabama Site
 Site Address: ,AL


Project Manager: Amy C. Gill 334-395-4128


Serial # of GORE Modules Shipped	# of Modules for Installation	47.00	# of Trip Blanks	4
00684975 - 00684984	Total Modules Shipped	51.00	Pieces	
00684991 - 00685031	Total Modules Received	<u>51</u>	Pieces	
	Total Modules Installed	<u>33</u>	Pieces	

Serial # of Trip Blanks (Client Decides)

00685027		
00685028		

Prepared By: <u>Darlene Yellowdy</u>	Installation Method: (Circle those that apply) <input type="checkbox"/> Slide Hammer <input type="checkbox"/> Hammer Drill <input type="checkbox"/> Auger <input type="checkbox"/> Other _____
Verified By: <u>Maryland Menghe</u>	
Installation Performed By: Name: <u>Amy C. Gill</u> Company: <u>U.S. Geological Survey</u>	Retrieval Performed By: Name: <u>Amy C. Gill</u> Company: <u>U.S. Geological Survey</u>
Installation Start Date / Time: <u>02/28/2012</u>	Retrieval Start Date / Time: <u>02/29/2012</u>
Installation Complete Date / Time: <u>02/29/2012</u>	Retrieval Complete Date / Time: <u>03/02/2012</u>
Total Modules Retrieved: _____	<u>33</u>
Total Modules Lost In Field: _____	<u>0</u>
Total Unused Modules Returned: _____	<u>0</u> (2 for trip blanks)
Relinquished By <u>Darlene Yellowdy</u> Date/Time <u>2-21-12</u>	Received By: <u>Amy C. Gill</u> Date/Time <u>2/28/2012</u>
Company: <u>W.H. Bore</u> 7:00 AM	Company: <u>US Geological Survey 1090</u>
Relinquished By <u>Amy C. Gill</u> Date/Time <u>3/5/2012</u>	Received By: _____ Date/Time _____
Company: <u>U.S. Geological Survey</u> 16:30	Company: _____
Relinquished By _____ Date/Time _____	Received By: <u>Darlene Yellowdy</u> Date/Time <u>3-7-12</u>
Company: _____	Company: <u>W.H. Bore</u> 8:00 AM

		W. L. Gore & Associates, Inc. 100 Chesapeake Boulevard Elkton, MD USA 21921 ph: 410-392-7600		GORE Project No: ENV 21531389	Alabama Site Phase 3				
GORE[®] Surveys Installation & Retrieval Log				Company Name: US GEOLOGICAL SURVEY-MONTGOMERY AL					
* Optional or as needed				Location: 75 TechnCenter Drive, Montgomery, AL 36117					
				Samples collected by: Amy C. Gill, Phone 334-395-4128					
MODULE SERIAL NO.	FIELD ID* (e.g., arbitrary, US EPA)	SAMPLE TYPE (Field Sample, Trip Blank, Field Blank, etc.)	INSTALLATION DATE & TIME MM/DD/YYYY HH:MM (24 Hour) ex. 12/27/2000 13:00	RETRIEVAL DATE & TIME MM/DD/YYYY HH:MM (24 Hour) ex. 12/30/2000 13:00	OBSERVATIONS/COMMENTS* (e.g., sample depth, location description, missing, pulled from hole, etc. - as needed)	SAMPLE ENVIRONMENT* (e.g., grass, bare soil, through slab)	YES / NO		
							EVIDENCE OF LIQUID PETROCARBONS ?	ODOR ?	WATER IN INSTALLATION HOLE?
00684975	1-Annex-02282012	FIELD_SAMPLE	2/28/12 10:04	2/29/12 10:05	2nd Floor Tag Office Plant	matrix = air	no	no	no
00684976	2-Annex-02282012	FIELD_SAMPLE	2/28/12 10:12	2/29/12 10:12	2nd Floor Tag Storage Room	matrix = air	no	no	no
00684977	3-Annex-02282012	FIELD_SAMPLE	2/28/12 10:31	2/29/12 10:33	Mezzanine Behind White Panel	matrix = air	no	no	no
00684978	4-Annex-02282012	FIELD_SAMPLE	2/28/12 10:46	2/29/12 10:46	Mezzanine Light Fixture, White Panel Room	matrix = air	no	no	no
00684979	5-Annex-02282012	FIELD_SAMPLE	2/28/12 10:48	2/29/12 10:48	Mezzanine Pat's Office	matrix = air	no	no	no
00684980	6-Annex-02282012	FIELD_SAMPLE	2/28/12 10:51	2/29/12 10:51	Mezzanine Left Cube	matrix = air	no	no	no
00684981	7-Annex-02282012	FIELD_SAMPLE	2/28/12 10:53	2/29/12 10:53	Mezzanine Right Cube	matrix = air	no	no	no
00684982	8-Annex-02282012	FIELD_SAMPLE	2/28/12 10:56	2/29/12 10:56	Mezzanine Santa Claus Closet	matrix = air	no	no	no
00684983	9-Annex-02282012	FIELD_SAMPLE	2/28/12 11:06	2/29/12 11:06	Basement - Room 115	matrix = air	no	no	no
00684984	10-Annex-02282012	FIELD_SAMPLE	2/28/12 11:11	2/29/12 11:09	Basement - Room 121 (Archives)	matrix = air	no	no	no
00684991	11-Annex-02282012	FIELD_SAMPLE	2/28/12 11:15	2/29/12 11:15	Basement - Room 109 (Electrical Room) Drain Pipe	matrix = air	no	no	no
00684992	12-Annex-02282012	FIELD_SAMPLE	2/28/12 11:20	2/29/12 11:20	Basement - Room 129 (Book Storage Room)	matrix = air	no	no	no
00684993	13-Annex-02282012	FIELD_SAMPLE	2/28/12 11:26	2/29/12 11:26	Basement - Room 132 (HVAC Control Room)	matrix = air	no	no	no
00684994	14-Annex-02282012	FIELD_SAMPLE	2/28/12 11:44	2/29/12 11:44	Roof-Air Intake over old Press Area	matrix = air	no	no	no
00684995	15-Annex-02282012	FIELD_SAMPLE	2/28/12 11:53	2/29/12 11:53	Roof-Air Intake NE corner @ Washington Ave.	matrix = air	no	no	no
00684996	16-VIMS10	FIELD_SAMPLE	2/28/12 13:35	2/29/12 13:37	VIMS10	matrix = air	no	no	no
00684997	17-VIMS20	FIELD_SAMPLE	2/28/12 13:46	2/29/12 13:46	VIMS20	matrix = air	no	no	no
00684998	18-VIMS30	FIELD_SAMPLE	2/28/12 13:59	2/29/12 13:59	VIMS30	matrix = air	no	no	no
00684999	19-VIMS40	FIELD_SAMPLE	2/28/12 14:08	2/29/12 14:08	VIMS40	matrix = air	no	no	no
00685000	20-VIMS50	FIELD_SAMPLE	2/28/12 14:16	2/29/12 14:17	VIMS50	matrix = air	no	no	no
00685001	21-AG-02282012	FIELD_SAMPLE	2/28/12 14:54	3/2/12 13:56	NW corner of AG Building Decatur/Dexter ROW	matrix = soil ; covered by grass	no	no	no
00685002	22-ED#1-02282012	FIELD_SAMPLE	2/28/12 15:24	3/2/12 14:03	ED #1 - Decatur ROW near air intake	matrix = soil ; covered by grass	no	no	no
00685003	23-ED#2-02282012	FIELD_SAMPLE	2/28/12 15:32	3/2/12 14:07	ED #2 - Decatur ROW between trees	matrix = soil ; covered by grass	no	no	no
00685004	24-ED#3-02282012	FIELD_SAMPLE	2/28/12 15:47	3/2/12 14:12	ED #3 - NW corner of Monroe/Decatur ROW @ Guardian CU	matrix = soil ; covered by grass	no	no	no
00685005	25-Folsom#1-02282012	FIELD_SAMPLE	2/28/12 16:02	3/2/12 14:19	Folsom#1 - @ Monroe ROW (North side of building near entrance)	matrix = soil ; covered by grass	no	no	no
00685006	26-Folsom#2-02282012	FIELD_SAMPLE	2/28/12 16:09	3/2/12 14:21	Folsom#2 - @ Union ROW (West side of building near entrance)	matrix = soil ; covered by grass	no	no	no
00685007	27-Folsom#3-02282012	FIELD_SAMPLE	2/28/12 16:21	3/2/12 14:28	Folsom#3 - @ Union/King ROW (SW of building)	matrix = soil ; covered by grass	no	no	no
00685008	28-Folsom#4-02282012	FIELD_SAMPLE	2/28/12 16:27	3/2/12 14:33	Folsom#4 - @ Ripley/King ROW (SE of building); dropped vial lid on ground during retrieval	matrix = soil ; covered by grass	no	no	no
00685009	29-VIMS10	FIELD_SAMPLE	2/29/12 13:39	3/2/12 14:46	VIMS10	matrix = air	no	no	no
00685010	30-VIMS20	FIELD_SAMPLE	2/29/12 13:48	3/2/12 14:47	VIMS20	matrix = air	no	no	no
00685011	31-VIMS30	FIELD_SAMPLE	2/29/12 14:03	3/2/12 14:49	VIMS30	matrix = air	no	no	no
00685012	32-VIMS40	FIELD_SAMPLE	2/29/12 14:10	3/2/12 14:50	VIMS40	matrix = air	no	no	no
00685013	33-VIMS50	FIELD_SAMPLE	2/29/12 14:18	3/2/12 14:52	VIMS50	matrix = air	no	no	no
00685014	Not yet used	FIELD_SAMPLE							
00685015	Not yet used	FIELD_SAMPLE							
00685016	Not yet used	FIELD_SAMPLE							
00685017	Not yet used	FIELD_SAMPLE							
00685018	Not yet used	FIELD_SAMPLE							
00685019	Not yet used	FIELD_SAMPLE							
00685020	Not yet used	FIELD_SAMPLE							
00685021	Not yet used	FIELD_SAMPLE							
00685022	Not yet used	FIELD_SAMPLE							
00685023	Not yet used	FIELD_SAMPLE							
00685024	Not yet used	FIELD_SAMPLE							
00685025	Not yet used	FIELD_SAMPLE							

		W. L. Gore & Associates, Inc.		GORE Project No: ENV 21531389					
		100 Chesapeake Boulevard		Site Name: Alabama Site		Phase 3			
		Elkton, MD USA 21921		Site Location: Montgomery, AL					
		ph: 410-392-7600							
GORE[®] Surveys				Company Name: US GEOLOGICAL SURVEY-MONTGOMERY AL					
Installation & Retrieval Log				Location: 75 TechnaCenter Drive, Montgomery, AL 36117					
* Optional or as needed				Samples collected by: Amy C. Gill, Phone 334-395-4128					
MODULE SERIAL NO.	FIELD ID* (e.g., arbitrary, US EPA)	SAMPLE TYPE (Field Sample, Trip Blank, Field Blank, etc.)	INSTALLATION DATE & TIME MM/DD/YYYY HH:MM (24 Hour) ex. 12/27/2000 13:00	RETRIEVAL DATE & TIME MM/DD/YYYY HH:MM (24 Hour) ex. 12/30/2000 13:00	OBSERVATIONS/COMMENTS* (e.g., sample depth, location description, missing, pulled from hole, etc. - as needed)	SAMPLE ENVIRONMENT* (e.g., grass, bare soil, through slab)	YES / NO		
							EVIDENCE OF LIQUID PETROLEUM HYDROCARBONS ?	ODOR ?	WATER IN INSTALLATION HOLE?
00685026	Not yet used	FIELD_SAMPLE							
00685027	34-Trip Blank 1	TRIP_BLANK							
00685028	35-Trip Blank 2	TRIP_BLANK							
00685029	Not yet used	FIELD_SAMPLE							
00685030	Not yet used	FIELD_SAMPLE							
00685031	Not yet used	FIELD_SAMPLE							



GORE[®] Surveys
Installation & Retrieval Log

* Optional or as needed

AT MINIMUM PROVIDE SOIL TYPE									
MODULE SERIAL NO.	SOIL TYPE AT MODULE DEPTH (clay, loamy sand etc.)	TOTAL SOIL POROSITY AT MODULE DEPTH* (total volume of pores/total volume)	WATER FILLED SOIL POROSITY AT MODULE DEPTH* (volume of water/volume of pores)	LONGITUDE (easting) or X	LONGITUDE (easting) or X	LATITUDE (northing) or Y	LATITUDE (northing) or Y	COORDINATE SYSTEM* (e.g., UTM Zone, Stateplane, etc.)	COORDINATE DATUM* (e.g., WGS 84)
00684975	N/A	N/A	N/A						
00684976	N/A	N/A	N/A						
00684977	N/A	N/A	N/A						
00684978	N/A	N/A	N/A						
00684979	N/A	N/A	N/A						
00684980	N/A	N/A	N/A						
00684981	N/A	N/A	N/A						
00684982	N/A	N/A	N/A						
00684983	N/A	N/A	N/A						
00684984	N/A	N/A	N/A						
00684991	N/A	N/A	N/A						
00684992	N/A	N/A	N/A						
00684993	N/A	N/A	N/A						
00684994	N/A	N/A	N/A						
00684995	N/A	N/A	N/A						
00684996	N/A	N/A	N/A						
00684997	N/A	N/A	N/A						
00684998	N/A	N/A	N/A						
00684999	N/A	N/A	N/A						
00685000	N/A	N/A	N/A						
00685001	loamy	unknown	no water	86°18.145°	-86.30241667	32°22.645°	32.37741667	geographic	WGS84
00685002	clay	unknown	no water	86°18.166°	-86.30276667	32°22.694°	32.37823333	geographic	WGS84
00685003	clay	unknown	no water	86°18.167°	-86.30278333	32°22.709°	32.36784833	geographic	WGS84
00685004	clay	unknown	no water	86°18.180°	-86.303	32°22.733°	32.37888333	geographic	WGS84
00685005	loamy sand	unknown	no water	86°17.968°	-86.29946667	32°22.753°	32.37921667	geographic	WGS84
00685006	loamy sand	unknown	no water	86°17.979°	-86.29965	32°22.711°	32.37851667	geographic	WGS84
00685007	loamy sand	unknown	no water	86°17.975°	-86.29958333	32°22.693°	32.37821667	geographic	WGS84
00685008	loamy sand	unknown	no water	86°17.896°	-86.29826667	32°22.697°	32.37828333	geographic	WGS84
00685009	N/A	N/A	N/A						
00685010	N/A	N/A	N/A						
00685011	N/A	N/A	N/A						
00685012	N/A	N/A	N/A						
00685013	N/A	N/A	N/A						
00685014									
00685015									
00685016									
00685017									
00685018									
00685019									
00685020									
00685021									
00685022									
00685023									
00685024									
00685025									



GORE[®] Surveys
Installation & Retrieval Log

* Optional or as needed

AT MINIMUM PROVIDE SOIL TYPE									
MODULE SERIAL NO.	SOIL TYPE AT MODULE DEPTH (clay, loamy sand etc.)	TOTAL SOIL POROSITY AT MODULE DEPTH* (total volume of pores/total volume)	WATER FILLED SOIL POROSITY AT MODULE DEPTH* (volume of water/volume of pores)	LONGITUDE (easting) or X	LONGITUDE (easting) or X	LATITUDE (northing) or Y	LATITUDE (northing) or Y	COORDINATE SYSTEM* (e.g., UTM Zone, Stateplane, etc.)	COORDINATE DATUM* (e.g., WGS 84)
00685026									
00685027									
00685028									
00685029									
00685030									
00685031									

GORE(TM) SURVEYS ANALYTICAL RESULTS
 US GEOLOGICAL SURVEY, MONTGOMERY, AL
 GORE STANDARD TARGET VOCs/SVOCs
 AIR SAMPLING
 ALABAMA SITE, AL
 PRODUCTION ORDER # 21531389

DATE ANALYZED	FIELD ID	SAMPLE NAME	TPH, ug	BTEX, ug	BENZ, ug	TOL, ug	ETBENZ, ug	mpXYL, ug	oXYL, ug	C11, C13, &C15, ug	UNDEC, ug	TRIDEC, ug
		RL=	0.50		0.02	0.02	0.02	0.02	0.02		0.05	0.05
3/14/12	1-Annex-02282012	684975	10.01	1.01	nd	0.40	0.09	0.34	0.17	0.41	0.13	0.09
3/14/12	2-Annex-02282012	684976	7.74	1.31	nd	0.60	0.09	0.39	0.22	0.31	0.11	0.08
3/14/12	3-Annex-02282012	684977	11.80	1.22	nd	0.17	0.14	0.66	0.25	0.58	0.25	0.13
3/14/12	4-Annex-02282012	684978	14.51	1.34	nd	0.16	0.16	0.74	0.29	0.72	0.24	0.13
3/14/12	5-Annex-02282012	684979	11.80	1.29	nd	0.16	0.15	0.71	0.27	0.58	0.19	0.12
3/14/12	6-Annex-02282012	684980	10.77	1.12	nd	0.14	0.13	0.61	0.24	0.51	0.20	0.09
3/14/12	7-Annex-02282012	684981	12.01	1.16	nd	0.15	0.14	0.64	0.24	0.58	0.20	0.12
3/14/12	8-Annex-02282012	684982	13.82	1.97	nd	0.14	0.24	1.15	0.45	0.70	0.20	0.14
3/14/12	9-Annex-02282012	684983	32.93	1.63	nd	0.27	0.19	0.85	0.33	2.76	0.45	0.88
3/14/12	10-Annex-02282012	684984	26.09	1.90	nd	0.27	0.22	1.01	0.40	1.81	0.38	0.53
3/14/12	11-Annex-02282012	684991	18.22	0.85	nd	0.19	0.10	0.41	0.16	1.32	0.27	0.48
3/14/12	12-Annex-02282012	684992	27.52	2.46	nd	0.20	0.31	1.41	0.54	1.60	0.28	0.34
3/14/12	13-Annex-02282012	684993	27.05	1.42	0.03	0.35	0.15	0.65	0.24	2.08	0.45	0.64
3/14/12	14-Annex-02282012	684994	3.75	0.35	nd	0.10	0.04	0.15	0.06	0.16	0.08	bdl
3/14/12	15-Annex-02282012	684995	1.10	0.16	nd	0.05	0.02	0.07	0.03	bdl	bdl	bdl
3/14/12	16-VIMS10	684996	38.63	nd	nd	nd	nd	nd	nd	0.74	0.65	0.09
3/14/12	17-VIMS20	684997	42.09	nd	nd	nd	nd	nd	nd	0.96	0.81	0.10
3/14/12	18-VIMS30	684998	54.25	nd	nd	nd	nd	nd	nd	0.95	0.87	0.07
3/13/12	19-VIMS40	684999	45.91	nd	nd	nd	nd	nd	nd	0.84	0.84	bdl
3/14/12	20-VIMS50	685000	61.67	nd	nd	nd	nd	nd	nd	1.18	1.10	0.08
3/14/12	29-VIMS10	685009	41.48	nd	nd	nd	nd	nd	nd	0.90	0.71	0.10
3/14/12	30-VIMS20	685010	40.32	nd	nd	nd	nd	nd	nd	1.05	0.80	0.16
3/14/12	31-VIMS30	685011	64.80	nd	nd	nd	nd	nd	nd	1.34	1.16	0.11
3/14/12	32-VIMS40	685012	73.10	nd	nd	nd	nd	nd	nd	1.53	1.41	0.05
3/14/12	33-VIMS50	685013	83.29	nd	nd	nd	nd	nd	nd	1.72	1.53	0.11
3/14/12	TRIP BLANK	685027	bdl	nd	nd	nd	nd	nd	nd	nd	nd	nd
3/13/12	TRIP BLANK	685028	bdl	nd	nd	nd	nd	nd	nd	nd	nd	nd
3/13/12		method blank	bdl	nd	nd	nd	nd	nd	nd	nd	nd	nd
3/14/12		method blank	bdl	nd	nd	nd	nd	nd	nd	nd	nd	nd

No RL(Reporting Limit) is available for summed analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE(TM) SURVEYS ANALYTICAL RESULTS
 US GEOLOGICAL SURVEY, MONTGOMERY, AL
 GORE STANDARD TARGET VOCs/SVOCs
 AIR SAMPLING
 ALABAMA SITE, AL
 PRODUCTION ORDER # 21531389

FIELD ID	SAMPLE NAME	PENTADEC, ug	TMBs, ug	124TMB, ug	135TMB, ug	ct12DCE, ug	t12DCE, ug	c12DCE, ug	NAPH&2-MN, ug	NAPH, ug	2MeNAPH, ug	MTBE, ug
	RL=	0.05		0.02	0.02		0.02	0.02		0.05	0.05	0.02
1-Annex-02282012	684975	0.19	0.15	0.12	0.03	nd	nd	nd	bdl	bdl	bdl	nd
2-Annex-02282012	684976	0.12	0.12	0.10	0.02	nd	nd	nd	bdl	bdl	bdl	nd
3-Annex-02282012	684977	0.20	0.12	0.09	0.03	nd	nd	nd	bdl	bdl	bdl	nd
4-Annex-02282012	684978	0.35	0.12	0.10	0.02	nd	nd	nd	0.06	0.06	bdl	nd
5-Annex-02282012	684979	0.26	0.10	0.08	0.02	nd	nd	nd	0.05	0.05	bdl	nd
6-Annex-02282012	684980	0.22	0.10	0.08	0.02	nd	nd	nd	bdl	bdl	bdl	nd
7-Annex-02282012	684981	0.26	0.08	0.08	bdl	nd	nd	nd	bdl	bdl	bdl	nd
8-Annex-02282012	684982	0.37	0.12	0.09	0.03	nd	nd	nd	0.08	0.08	bdl	nd
9-Annex-02282012	684983	1.43	0.43	0.33	0.10	nd	nd	nd	0.15	0.15	bdl	nd
10-Annex-02282012	684984	0.90	0.36	0.27	0.09	nd	nd	nd	0.08	0.08	bdl	nd
11-Annex-02282012	684991	0.57	0.34	0.25	0.09	nd	nd	nd	0.08	0.08	bdl	nd
12-Annex-02282012	684992	0.98	0.20	0.16	0.04	nd	nd	nd	0.07	0.07	bdl	nd
13-Annex-02282012	684993	0.99	0.44	0.33	0.11	nd	nd	nd	0.10	0.10	bdl	nd
14-Annex-02282012	684994	0.08	0.10	0.08	0.02	nd	nd	nd	bdl	bdl	bdl	nd
15-Annex-02282012	684995	bdl	0.04	0.04	bdl	nd	nd	nd	nd	nd	nd	nd
16-VIMS10	684996	bdl	nd	nd	nd	0.04	nd	0.04	nd	nd	nd	nd
17-VIMS20	684997	0.06	nd	nd	nd	3.67	0.02	3.65	bdl	nd	bdl	nd
18-VIMS30	684998	bdl	nd	nd	nd	3.46	0.02	3.44	nd	nd	nd	nd
19-VIMS40	684999	bdl	bdl	bdl	bdl	1.57	bdl	1.57	nd	nd	nd	nd
20-VIMS50	685000	bdl	nd	nd	nd	0.71	nd	0.71	nd	nd	nd	nd
29-VIMS10	685009	0.08	nd	nd	nd	0.04	nd	0.04	nd	nd	nd	nd
30-VIMS20	685010	0.10	nd	nd	nd	1.65	nd	1.65	bdl	nd	bdl	nd
31-VIMS30	685011	0.07	nd	nd	nd	3.05	bdl	3.05	nd	nd	nd	nd
32-VIMS40	685012	0.07	nd	nd	nd	1.36	bdl	1.36	nd	nd	nd	nd
33-VIMS50	685013	0.08	nd	nd	nd	0.61	nd	0.61	nd	nd	nd	nd
TRIP BLANK	685027	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK	685028	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	method blank	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	method blank	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

GORE(TM) SURVEYS ANALYTICAL RESULTS
 US GEOLOGICAL SURVEY, MONTGOMERY, AL
 GORE STANDARD TARGET VOCs/SVOCs
 AIR SAMPLING
 ALABAMA SITE, AL
 PRODUCTION ORDER # 21531389

FIELD ID	SAMPLE NAME	11DCA, ug	CHCl3, ug	111TCA, ug	12DCA, ug	TCE, ug	OCT, ug	PCE, ug	14DCB, ug	Acenaphthene, ug	Acenaphthylene, ug	Fluorene, ug
	RL=	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.05	0.05	0.05
1-Annex-02282012	684975	nd	nd	nd	nd	nd	0.05	nd	bdl	bdl	nd	bdl
2-Annex-02282012	684976	nd	nd	nd	nd	nd	0.05	nd	bdl	bdl	nd	bdl
3-Annex-02282012	684977	nd	nd	nd	nd	nd	0.07	0.29	bdl	bdl	nd	bdl
4-Annex-02282012	684978	nd	nd	nd	nd	nd	0.07	0.26	bdl	bdl	nd	bdl
5-Annex-02282012	684979	nd	nd	nd	nd	nd	0.06	0.28	bdl	bdl	nd	bdl
6-Annex-02282012	684980	nd	nd	nd	nd	nd	0.06	0.24	bdl	bdl	nd	bdl
7-Annex-02282012	684981	nd	nd	nd	nd	bdl	0.06	0.23	bdl	bdl	nd	bdl
8-Annex-02282012	684982	nd	nd	nd	nd	nd	0.06	0.56	bdl	bdl	nd	bdl
9-Annex-02282012	684983	nd	nd	nd	nd	bdl	0.12	0.39	0.02	bdl	bdl	nd
10-Annex-02282012	684984	nd	nd	nd	nd	nd	0.14	0.41	bdl	bdl	nd	bdl
11-Annex-02282012	684991	nd	nd	nd	nd	nd	0.07	0.14	bdl	bdl	nd	bdl
12-Annex-02282012	684992	nd	nd	nd	nd	nd	0.18	0.76	0.03	bdl	nd	bdl
13-Annex-02282012	684993	nd	nd	nd	nd	nd	0.06	0.27	0.02	bdl	nd	bdl
14-Annex-02282012	684994	nd	nd	nd	nd	nd	0.04	bdl	bdl	bdl	nd	bdl
15-Annex-02282012	684995	nd	nd	nd	nd	nd	0.03	nd	nd	bdl	nd	nd
16-VIMS10	684996	nd	nd	nd	nd	11.32	0.10	0.04	nd	nd	nd	nd
17-VIMS20	684997	nd	0.22	nd	nd	143.74	bdl	0.33	nd	nd	nd	bdl
18-VIMS30	684998	nd	0.24	nd	nd	121.46	nd	0.24	nd	nd	nd	bdl
19-VIMS40	684999	nd	0.29	nd	nd	175.81	nd	1.16	nd	nd	nd	nd
20-VIMS50	685000	nd	0.24	nd	nd	178.82	nd	1.70	nd	nd	nd	bdl
29-VIMS10	685009	nd	nd	nd	nd	11.46	0.06	0.04	nd	nd	nd	bdl
30-VIMS20	685010	nd	0.12	nd	nd	92.74	nd	0.32	nd	bdl	nd	bdl
31-VIMS30	685011	nd	0.22	nd	nd	140.41	nd	0.32	nd	bdl	nd	bdl
32-VIMS40	685012	nd	0.27	nd	nd	181.94	nd	3.14	nd	bdl	nd	bdl
33-VIMS50	685013	nd	0.25	nd	nd	172.96	nd	3.15	nd	nd	nd	bdl
TRIP BLANK	685027	nd	nd	nd	nd	bdl	nd	nd	nd	nd	nd	nd
TRIP BLANK	685028	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	method blank	nd	nd	nd	nd	nd	nd	nd	nd	bdl	nd	bdl
	method blank	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

GORE(TM) SURVEYS ANALYTICAL RESULTS
 US GEOLOGICAL SURVEY, MONTGOMERY, AL
 GORE STANDARD TARGET VOCs/SVOCs
 AIR SAMPLING
 ALABAMA SITE, AL
 PRODUCTION ORDER # 21531389

FIELD ID	SAMPLE NAME	CCI4, ug	112TCA, ug	CIBENZ, ug	1112TetCA, ug	1122TetCA, ug	13DCB, ug	12DCB, ug
	RL=	0.02	0.02	0.02	0.02	0.02	0.02	0.02
1-Annex-02282012	684975	nd	nd	nd	nd	nd	nd	nd
2-Annex-02282012	684976	nd	nd	nd	nd	nd	nd	nd
3-Annex-02282012	684977	nd	nd	nd	nd	nd	nd	nd
4-Annex-02282012	684978	nd	nd	nd	nd	nd	nd	nd
5-Annex-02282012	684979	nd	nd	nd	nd	nd	nd	nd
6-Annex-02282012	684980	nd	nd	nd	nd	nd	nd	nd
7-Annex-02282012	684981	nd	nd	nd	nd	nd	nd	nd
8-Annex-02282012	684982	nd	nd	nd	nd	nd	nd	nd
9-Annex-02282012	684983	nd	nd	nd	nd	nd	nd	nd
10-Annex-02282012	684984	nd	nd	nd	nd	nd	nd	nd
11-Annex-02282012	684991	nd	nd	nd	nd	nd	nd	nd
12-Annex-02282012	684992	nd	nd	nd	nd	nd	nd	nd
13-Annex-02282012	684993	nd	nd	nd	nd	nd	nd	nd
14-Annex-02282012	684994	nd	nd	nd	nd	nd	nd	nd
15-Annex-02282012	684995	nd	nd	nd	nd	nd	nd	nd
16-VIMS10	684996	nd	nd	nd	nd	nd	nd	nd
17-VIMS20	684997	nd	nd	nd	nd	nd	nd	nd
18-VIMS30	684998	nd	nd	nd	nd	nd	nd	nd
19-VIMS40	684999	nd	nd	nd	nd	nd	nd	nd
20-VIMS50	685000	nd	0.07	nd	nd	nd	nd	nd
29-VIMS10	685009	nd	nd	nd	nd	nd	nd	nd
30-VIMS20	685010	nd	nd	nd	nd	nd	nd	nd
31-VIMS30	685011	nd	nd	nd	nd	nd	nd	nd
32-VIMS40	685012	nd	0.10	nd	nd	nd	nd	nd
33-VIMS50	685013	nd	0.09	nd	nd	nd	nd	nd
TRIP BLANK	685027	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK	685028	nd	nd	nd	nd	nd	nd	nd
	method blank	nd	nd	nd	nd	nd	nd	nd
	method blank	nd	nd	nd	nd	nd	nd	nd

No RL(Reporting Limit) is available for summed analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE(TM) SURVEYS ANALYTICAL RESULTS
 US GEOLOGICAL SURVEY, MONTGOMERY, AL
 GORE STANDARD TARGET VOCs/SVOCs
 ESTIMATED AIR CONCENTRATION
 ALABAMA SITE, AL
 PRODUCTION ORDER # 21531389

DATE ANALYZED	FIELD ID	SAMPLE NAME	TPH, ug/m ³	BTEX, ug/m ³	BENZ, ug/m ³	TOL, ug/m ³	ETBENZ, ug/m ³	mpXYL, ug/m ³	oXYL, ug/m ³
		RL=	6.16		0.46	0.28	0.25	0.25	0.26
3/14/12	1-Annex-02282012	684975	148.83	16.08	nd	6.91	1.35	5.12	2.71
3/14/12	2-Annex-02282012	684976	115.20	21.04	nd	10.31	1.33	5.86	3.54
3/14/12	3-Annex-02282012	684977	175.31	18.70	nd	2.86	2.13	9.78	3.94
3/14/12	4-Annex-02282012	684978	215.90	20.51	nd	2.66	2.34	11.00	4.51
3/14/12	5-Annex-02282012	684979	175.59	19.85	nd	2.74	2.28	10.55	4.28
3/14/12	6-Annex-02282012	684980	160.29	17.26	nd	2.43	1.98	9.14	3.71
3/14/12	7-Annex-02282012	684981	178.73	17.85	nd	2.49	2.04	9.48	3.85
3/14/12	8-Annex-02282012	684982	205.58	30.04	nd	2.37	3.57	17.08	7.02
3/14/12	9-Annex-02282012	684983	490.00	25.10	nd	4.54	2.83	12.57	5.15
3/14/12	10-Annex-02282012	684984	388.76	29.30	nd	4.70	3.29	14.99	6.32
3/14/12	11-Annex-02282012	684991	271.17	13.19	nd	3.17	1.42	6.04	2.56
3/14/12	12-Annex-02282012	684992	409.50	37.52	nd	3.46	4.59	21.03	8.44
3/14/12	13-Annex-02282012	684993	402.55	22.53	0.86	5.97	2.26	9.63	3.82
3/14/12	14-Annex-02282012	684994	55.85	5.55	nd	1.66	0.60	2.29	0.99
3/14/12	15-Annex-02282012	684995	16.41	2.43	nd	0.77	0.30	0.97	0.39
3/14/12	16-VIMS10	684996	574.04	nd	nd	nd	nd	nd	nd
3/14/12	17-VIMS20	684997	626.32	nd	nd	nd	nd	nd	nd
3/14/12	18-VIMS30	684998	>807.34	nd	nd	nd	nd	nd	nd
3/13/12	19-VIMS40	684999	683.18	nd	nd	nd	nd	nd	nd
3/14/12	20-VIMS50	685000	>917.10	nd	nd	nd	nd	nd	nd
3/14/12	29-VIMS10	685009	301.62	nd	nd	nd	nd	nd	nd
3/14/12	30-VIMS20	685010	293.94	nd	nd	nd	nd	nd	nd
3/14/12	31-VIMS30	685011	>474.53	nd	nd	nd	nd	nd	nd
3/14/12	32-VIMS40	685012	>536.47	nd	nd	nd	nd	nd	nd
3/14/12	33-VIMS50	685013	>612.51	nd	nd	nd	nd	nd	nd
3/14/12	TRIP BLANK	685027	bdl	nd	nd	nd	nd	nd	nd
3/13/12	TRIP BLANK	685028	bdl	nd	nd	nd	nd	nd	nd
3/13/12		method blank	bdl	nd	nd	nd	nd	nd	nd
3/14/12		method blank	bdl	nd	nd	nd	nd	nd	nd

No RL(Reporting Limit) is available for summed analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE(TM) SURVEYS ANALYTICAL RESULTS
 US GEOLOGICAL SURVEY, MONTGOMERY, AL
 GORE STANDARD TARGET VOCs/SVOCs
 ESTIMATED AIR CONCENTRATION
 ALABAMA SITE, AL
 PRODUCTION ORDER # 21531389

FIELD ID	SAMPLE NAME	C11, C13, &C15, ug/m ³	UNDEC, ug/m ³	TRIDEC, ug/m ³	PENTADEC, ug/m ³	TMBs, ug/m ³	124TMB, ug/m ³
	RL=		0.62	0.62	0.62		0.25
1-Annex-02282012	684975	6.07	1.93	1.38	2.75	2.26	1.78
2-Annex-02282012	684976	4.58	1.70	1.13	1.76	1.82	1.44
3-Annex-02282012	684977	8.65	3.74	1.92	2.99	1.82	1.40
4-Annex-02282012	684978	10.77	3.62	1.93	5.22	1.85	1.46
5-Annex-02282012	684979	8.59	2.89	1.82	3.88	1.54	1.19
6-Annex-02282012	684980	7.53	2.93	1.32	3.27	1.52	1.15
7-Annex-02282012	684981	8.69	3.02	1.80	3.87	1.53	1.22
8-Annex-02282012	684982	10.46	2.95	2.05	5.46	1.83	1.40
9-Annex-02282012	684983	41.10	6.76	13.13	21.22	6.55	4.84
10-Annex-02282012	684984	27.02	5.69	7.91	13.41	5.54	3.99
11-Annex-02282012	684991	19.61	3.99	7.16	8.47	5.17	3.75
12-Annex-02282012	684992	23.81	4.18	5.06	14.57	3.00	2.32
13-Annex-02282012	684993	30.97	6.74	9.48	14.75	6.70	4.93
14-Annex-02282012	684994	2.41	1.21	bdl	1.21	1.49	1.16
15-Annex-02282012	684995	bdl	bdl	bdl	bdl	0.65	0.65
16-VIMS10	684996	11.67	9.69	1.28	0.70	nd	nd
17-VIMS20	684997	14.24	11.99	1.41	0.83	nd	nd
18-VIMS30	684998	14.06	13.01	1.06	bdl	nd	nd
19-VIMS40	684999	12.46	12.46	bdl	bdl	0.00	bdl
20-VIMS50	685000	18.29	16.39	1.20	0.70	nd	nd
29-VIMS10	685009	5.92	5.19	0.73	bdl	nd	nd
30-VIMS20	685010	7.68	5.80	1.16	0.72	nd	nd
31-VIMS30	685011	9.25	8.48	0.77	bdl	nd	nd
32-VIMS40	685012	10.36	10.36	bdl	bdl	nd	nd
33-VIMS50	685013	12.00	11.21	0.79	bdl	nd	nd
TRIP BLANK	685027	nd	nd	nd	nd	nd	nd
TRIP BLANK	685028	nd	nd	nd	nd	nd	nd
	method blank	nd	nd	nd	nd	nd	nd
	method blank	nd	nd	nd	nd	nd	nd

No RL(Reporting Limit) is available for summed analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE(TM) SURVEYS ANALYTICAL RESULTS
 US GEOLOGICAL SURVEY, MONTGOMERY, AL
 GORE STANDARD TARGET VOCs/SVOCs
 ESTIMATED AIR CONCENTRATION
 ALABAMA SITE, AL
 PRODUCTION ORDER # 21531389

FIELD ID	SAMPLE NAME	135TMB, ug/m ³	ct12DCE, ug/m ³	t12DCE, ug/m ³	c12DCE, ug/m ³	NAPH&2-MN, ug/m ³	NAPH, ug/m ³
	RL=	0.27		1.94	0.92		0.62
1-Annex-02282012	684975	0.48	nd	nd	nd	bdl	bdl
2-Annex-02282012	684976	0.38	nd	nd	nd	bdl	bdl
3-Annex-02282012	684977	0.43	nd	nd	nd	0.62	0.62
4-Annex-02282012	684978	0.40	nd	nd	nd	0.86	0.86
5-Annex-02282012	684979	0.35	nd	nd	nd	0.79	0.79
6-Annex-02282012	684980	0.38	nd	nd	nd	0.64	0.64
7-Annex-02282012	684981	0.31	nd	nd	nd	0.68	0.68
8-Annex-02282012	684982	0.43	nd	nd	nd	1.15	1.15
9-Annex-02282012	684983	1.71	nd	nd	nd	2.89	2.19
10-Annex-02282012	684984	1.55	nd	nd	nd	1.21	1.21
11-Annex-02282012	684991	1.42	nd	nd	nd	1.25	1.25
12-Annex-02282012	684992	0.68	nd	nd	nd	1.03	1.03
13-Annex-02282012	684993	1.78	nd	nd	nd	1.44	1.44
14-Annex-02282012	684994	0.33	nd	nd	nd	bdl	bdl
15-Annex-02282012	684995	bdl	nd	nd	nd	nd	nd
16-VIMS10	684996	nd	2.45	nd	2.45	nd	nd
17-VIMS20	684997	nd	205.73	2.34	203.40	bdl	nd
18-VIMS30	684998	nd	194.59	2.57	192.02	nd	nd
19-VIMS40	684999	bdl	87.53	bdl	87.53	nd	nd
20-VIMS50	685000	nd	39.41	nd	39.41	nd	nd
29-VIMS10	685009	nd	1.06	nd	1.06	nd	nd
30-VIMS20	685010	nd	45.15	nd	45.15	bdl	nd
31-VIMS30	685011	nd	83.71	bdl	83.71	nd	nd
32-VIMS40	685012	nd	37.28	bdl	37.28	nd	nd
33-VIMS50	685013	nd	16.93	nd	16.93	nd	nd
TRIP BLANK	685027	nd	nd	nd	nd	nd	nd
TRIP BLANK	685028	nd	nd	nd	nd	nd	nd
	method blank	nd	nd	nd	nd	nd	nd
	method blank	nd	nd	nd	nd	nd	nd

No RL(Reporting Limit) is available for summed analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE(TM) SURVEYS ANALYTICAL RESULTS
 US GEOLOGICAL SURVEY, MONTGOMERY, AL
 GORE STANDARD TARGET VOCs/SVOCs
 ESTIMATED AIR CONCENTRATION
 ALABAMA SITE, AL
 PRODUCTION ORDER # 21531389

FIELD ID	SAMPLE NAME	2MeNAPH, ug/m ³	MTBE, ug/m ³	11DCA, ug/m ³	CHCl3, ug/m ³	111TCA, ug/m ³	12DCA, ug/m ³	TCE, ug/m ³
	RL=	0.62	1.68	1.30	0.87	1.05	0.52	0.43
1-Annex-02282012	684975	bdl	nd	nd	nd	nd	nd	nd
2-Annex-02282012	684976	bdl	nd	nd	nd	nd	nd	nd
3-Annex-02282012	684977	bdl	nd	nd	nd	nd	nd	nd
4-Annex-02282012	684978	bdl	nd	nd	nd	nd	nd	nd
5-Annex-02282012	684979	bdl	nd	nd	nd	nd	nd	nd
6-Annex-02282012	684980	bdl	nd	nd	nd	nd	nd	nd
7-Annex-02282012	684981	bdl	nd	nd	nd	nd	nd	bdl
8-Annex-02282012	684982	bdl	nd	nd	nd	nd	nd	nd
9-Annex-02282012	684983	0.70	nd	nd	nd	nd	nd	bdl
10-Annex-02282012	684984	bdl	nd	nd	nd	nd	nd	nd
11-Annex-02282012	684991	bdl	nd	nd	nd	nd	nd	nd
12-Annex-02282012	684992	bdl	nd	nd	nd	nd	nd	nd
13-Annex-02282012	684993	bdl	nd	nd	nd	nd	nd	nd
14-Annex-02282012	684994	bdl	nd	nd	nd	nd	nd	nd
15-Annex-02282012	684995	nd	nd	nd	nd	nd	nd	nd
16-VIMS10	684996	nd	nd	nd	nd	nd	nd	290.85
17-VIMS20	684997	bdl	nd	nd	11.71	nd	nd	>3697.09
18-VIMS30	684998	nd	nd	nd	12.82	nd	nd	>3124.05
19-VIMS40	684999	nd	nd	nd	15.45	nd	nd	>4521.86
20-VIMS50	685000	nd	nd	nd	12.44	nd	nd	>4596.01
29-VIMS10	685009	nd	nd	nd	nd	nd	nd	143.98
30-VIMS20	685010	bdl	nd	nd	3.15	nd	nd	>1168.74
31-VIMS30	685011	nd	nd	nd	5.76	nd	nd	>1777.25
32-VIMS40	685012	nd	nd	nd	7.07	nd	nd	>2307.67
33-VIMS50	685013	nd	nd	nd	6.54	nd	nd	>2198.33
TRIP BLANK	685027	nd	nd	nd	nd	nd	nd	bdl
TRIP BLANK	685028	nd	nd	nd	nd	nd	nd	nd
	method blank	nd	nd	nd	nd	nd	nd	nd
	method blank	nd	nd	nd	nd	nd	nd	nd

No RL(Reporting Limit) is available for summed analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE(TM) SURVEYS ANALYTICAL RESULTS
 US GEOLOGICAL SURVEY, MONTGOMERY, AL
 GORE STANDARD TARGET VOCs/SVOCs
 ESTIMATED AIR CONCENTRATION
 ALABAMA SITE, AL
 PRODUCTION ORDER # 21531389

FIELD ID	SAMPLE NAME	OCT, ug/m ³	PCE, ug/m ³	14DCB, ug/m ³	Acenaphthene, ug/m ³	Acenaphthylene, ug/m ³	Fluorene, ug/m ³	CCl4, ug/m ³
	RL=	0.29	0.29	0.21	0.62	0.62	0.62	1.00
1-Annex-02282012	684975	0.90	nd	bdl	bdl	nd	bdl	nd
2-Annex-02282012	684976	0.85	nd	bdl	bdl	nd	bdl	nd
3-Annex-02282012	684977	1.23	5.15	bdl	bdl	nd	bdl	nd
4-Annex-02282012	684978	1.12	4.65	bdl	bdl	nd	bdl	nd
5-Annex-02282012	684979	1.09	4.95	bdl	bdl	nd	bdl	nd
6-Annex-02282012	684980	0.99	4.18	bdl	bdl	nd	bdl	nd
7-Annex-02282012	684981	0.95	4.08	bdl	bdl	nd	bdl	nd
8-Annex-02282012	684982	0.97	9.96	bdl	bdl	nd	bdl	nd
9-Annex-02282012	684983	2.11	6.83	0.26	bdl	bdl	nd	nd
10-Annex-02282012	684984	2.34	7.30	0.24	bdl	nd	bdl	nd
11-Annex-02282012	684991	1.26	2.41	0.21	bdl	nd	bdl	nd
12-Annex-02282012	684992	3.13	13.44	0.34	bdl	nd	bdl	nd
13-Annex-02282012	684993	1.04	4.82	0.26	bdl	nd	bdl	nd
14-Annex-02282012	684994	0.62	bdl	bdl	bdl	nd	bdl	nd
15-Annex-02282012	684995	0.47	nd	nd	bdl	nd	nd	nd
16-VIMS10	684996	1.78	0.64	nd	nd	nd	nd	nd
17-VIMS20	684997	bdl	5.83	nd	nd	nd	bdl	nd
18-VIMS30	684998	nd	4.18	nd	nd	nd	bdl	nd
19-VIMS40	684999	nd	20.55	nd	nd	nd	nd	nd
20-VIMS50	685000	nd	30.03	nd	nd	nd	bdl	nd
29-VIMS10	685009	0.47	0.33	nd	nd	nd	bdl	nd
30-VIMS20	685010	nd	2.75	nd	bdl	nd	bdl	nd
31-VIMS30	685011	nd	2.79	nd	bdl	nd	bdl	nd
32-VIMS40	685012	nd	27.41	nd	bdl	nd	bdl	nd
33-VIMS50	685013	nd	27.58	nd	nd	nd	bdl	nd
TRIP BLANK	685027	nd	nd	nd	nd	nd	nd	nd
TRIP BLANK	685028	nd	nd	nd	nd	nd	nd	nd
	method blank	nd	nd	nd	bdl	nd	bdl	nd
	method blank	nd	nd	nd	nd	nd	nd	nd

No RL(Reporting Limit) is available for summed analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

GORE® Surveys

KEY TO DATA TABLE

UNITS

µg	micrograms, relative mass value
µg/ m ³	micrograms per cubic meter; estimated concentration
RL	reporting limit
RL-DL	reporting limit for sample dilutions
bdl	below detection limit; compound was observed at level below the MDL
nd	non-detect, compound was not detected at any level
>	greater than; value considered estimated due to high mass levels
-DL (suffix)	indicates sample was diluted

ANALYTES

TPH	total petroleum hydrocarbons
BTEX	combined masses of benzene, toluene, ethylbenzene and total xylenes (Gasoline Range Aromatics)
BENZ	benzene
TOL	toluene
EBENZ	ethylbenzene
mpXYL	m-, p-xylene
oXYL	o-xylene
C11,C13&C15	combined masses of undecane, tridecane, and pentadecane (C11+C13+C15) (Diesel Range Alkanes)
UNDEC	undecane
TRIDEC	tridecane
PENTADEC	pentadecane
TMBs	combined masses of 1,3,5-trimethylbenzene and 1,2,4-trimethylbenzene
135TMB	1,3,5-trimethylbenzene
124TMB	1,2,4-trimethylbenzene
MTBE	methyl t-butyl ether
NAPH	naphthalene
2MeNAPH	2-methyl naphthalene
MTBE	methyl t-butyl ether
OCT	octane
c12DCE	cis- & trans-1,2-dichloroethene
t12DCE	trans-1,2-dichloroethene
c12DCE	cis-1,2-dichloroethene
11DCA	1,1-dichloroethane
CHC13	chloroform
111TCA	1,1,1-trichloroethane
12DCA	1,2-dichloroethane
CC14	carbon tetrachloride
TCE	trichloroethene
PCE	tetrachloroethene
CBENZ	chlorobenzene
14DCB	1,4-dichlorobenzene
112TCA	1,1,2-trichloroethane
1112TetCA	1,1,1,2-tetrachloroethane
1122TetCA	1,1,2,2-tetrachloroethane
13DCB	1,3-dichlorobenzene
12DCB	1,2-dichlorobenzene

BLANKS

method blank	QA/QC module, documents analytical conditions during analysis
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GORE® Surveys

FOR ENVIRONMENTAL

Concentration Method Calculation Summary for GORE® Module

In environmental analysis obtaining a contaminate concentration value allows for quantifiable risk assessment. The following procedure outlines the method used to determine accurate concentration values from the GORE® Module in soil gas and air sampling:

DERIVATION OF CONCENTRATION EQUATION

When a fresh module (which, by definition and verification, has a contaminate concentration of zero) is inserted into a locally homogenous contaminated media (with a non-zero contaminant concentration), a concentration gradient is created between the module and the media. Due to the concentration gradient, contaminant will diffuse from the media across the permeable membrane to the enclosed adsorbents as described by Fick's first law of diffusion¹, often expressed in differential form as:

$$F = -D \left(\frac{dC}{dx} \right) \text{ or in the integral form as: } \frac{dm}{dt} = -D \left(\frac{A}{L} \right) (C_x - C_0) \quad (1)$$

where m = mass, t = time, D = diffusion coefficient, (A/L) = geometric parameter describing shape of sampler, C_x = concentration of analyte in the module at time, $t = x$, C_0 = concentration at time, $t = 0$.

As we ultimately want to measure the concentration of the analyte, we rearrange equation (1) to solve for C_x :

$$C_x = - \left[\left(\frac{1}{D} \right) \left(\frac{L}{A} \right) \left(\frac{dm}{dt} \right) \right] + C_0 \quad (2)$$

By using a fresh module, the initial concentration (C_0) in the module is zero. We combine the quantity $D \frac{A}{L}$, which is referred to as the sampling rate²(S) of the module, measured in units of vol²/time for the analyte of interest. This yields:

$$C_x = - \left[\left(\frac{1}{S} \right) \left(\frac{dm}{dt} \right) \right] \quad (3)$$

Thus, concentration (C_x) can be calculated by using the mass (m) of the analyte adsorbed to the module after a given exposure time (t) and the sampling rate (S) for the analyte of interest. Two of these values are straightforward – the mass is measured using our standard thermal desorption GC/MS procedure, the time is documented by the field installation team. The third, sampling rate (S), is measured through a series of controlled chamber experiments for each analyte. Using these three values, an accurate contaminate concentration value can be calculated using the GORE® Module. The process for determining S for the GORE® Module is described briefly in the next section.

DETERMINING the S PARAMETER – GORE® Module Sampling Rate

To determine S for the GORE® Module we have exposed modules for different times (t) at various concentrations (C). We then plot mass (m) vs. time (t) and divide the slope by concentration to gain a value for S for that compound as shown in equation (4) which is rearranged from equation (3).

$$S = - \left[\left(\frac{1}{C} \right) \left(\frac{dm}{dt} \right) \right] \quad (4)$$

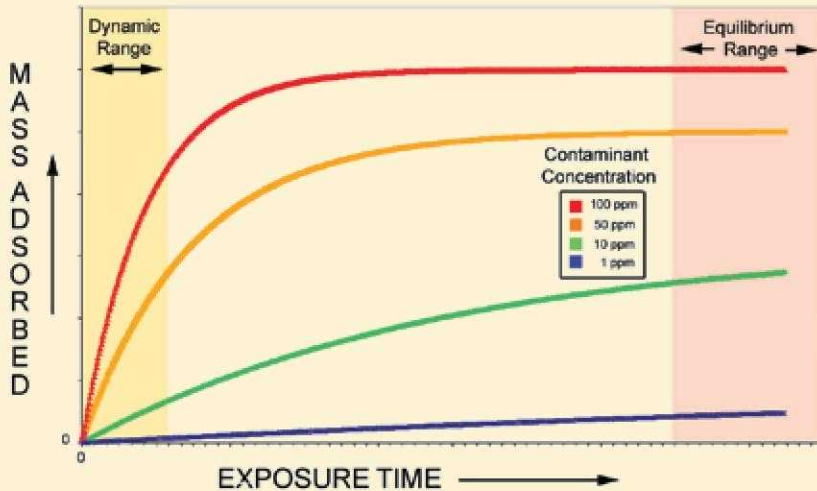


Figure 1 shows typical adsorption curves for a GORE® Module exposed to a compound at various concentration levels. Notice that in the dynamic range that slopes vary in proportion to concentration.

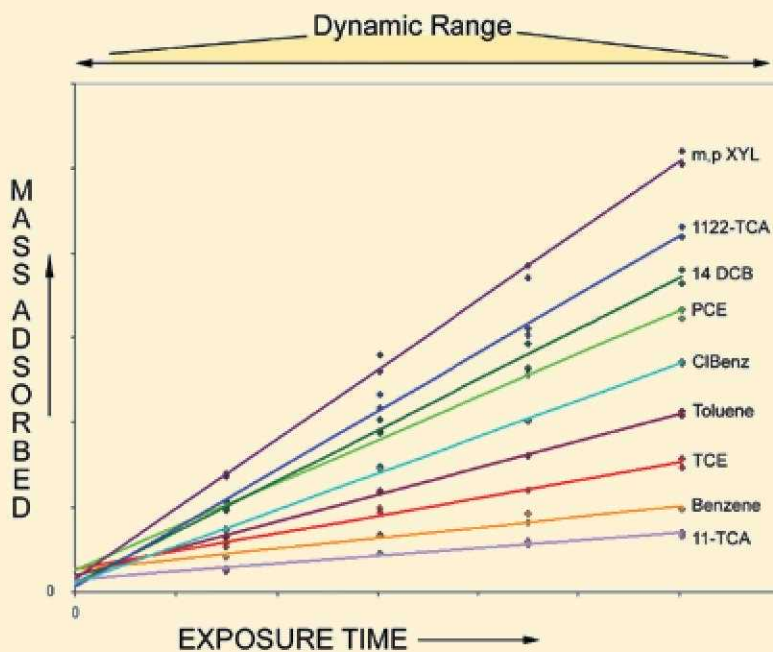


Figure 2 shows the uptake rate for various compounds typical of environmental investigations in the linear dynamic range.

When measuring S , we tested each compound at varying temperature (10 to 40°C), relative humidity (0 to 80%), flow rate (0.5 to 15 cm/s) and vapor concentrations (0.1 ppb to 100 ppm).

Under typical sampling conditions, none of these variables were found to significantly impact the sampling rate.

ADJUSTMENTS FOR DIFFUSION RESISTANCE IN SOIL

When measuring gas concentration values in soils we must adjust the sampling rate (S_{air}) values to account for the increased tortuosity due to the presence of soil and moisture.

We previously defined the sampling rate of the module for the analyte of interest as:

$$S_{air} = D_{air} (A/L) \quad (5)$$

In soil, the effective diffusion coefficient (D_{soil}) is reduced due to the increased tortuosity, and can be described as:

$$D_{soil} = E(D_{air}) \quad (6)$$

resulting in (when combined with (5))

$$S_{soil} = E(S_{air}) \quad (7)$$

where E is the “Soil Effectiveness Factor.”

As Millington & Quirk³ showed, E is governed by the total soil porosity (θ , total volume of pores/total volume) and volumetric air content (Φ , volume of air/total volume) of the media and relates as:

$$E = \frac{(\Phi)^{10/3}}{(\theta)^2} \quad (8)$$

Expressing E as a function of total soil porosity (θ) and water filled porosity (ϵ , volume of water/volume of pores), this relation can be rearranged as:

$$E = \theta^{(4/3)} (1 - \epsilon)^{(10/3)}; \text{ as } \Phi, \theta \text{ and } \epsilon \text{ have the following relationship:} \quad (9)$$
$$\Phi = \theta (1 - \epsilon)$$

Once we’ve solved for E , we can solve for D_{soil} using equation (5) and S_{soil} using equation (7).

Thus, with measurements for two of these three site-specific soil parameters (θ , ϵ or Φ), soil gas concentration values can be calculated for modules installed in soil.

REFERENCES

¹ Cussler, E. L., 1997, *Diffusion, Mass Transfer in Fluid Systems*, 2nd ed., Cambridge Univ., Press, 570p.

² James D. Mulik and Robert G. Lewis *Advances in Air Sampling*, AICHG (1990), ISN 0-87371-115-7, Chapter 9, “Recent Developments in Passive Sampling Devices.”

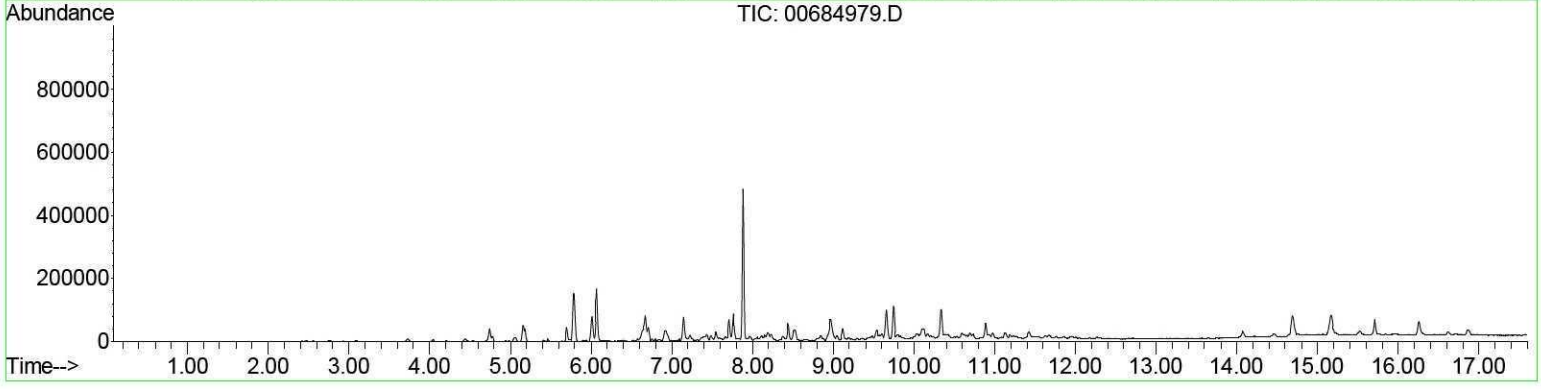
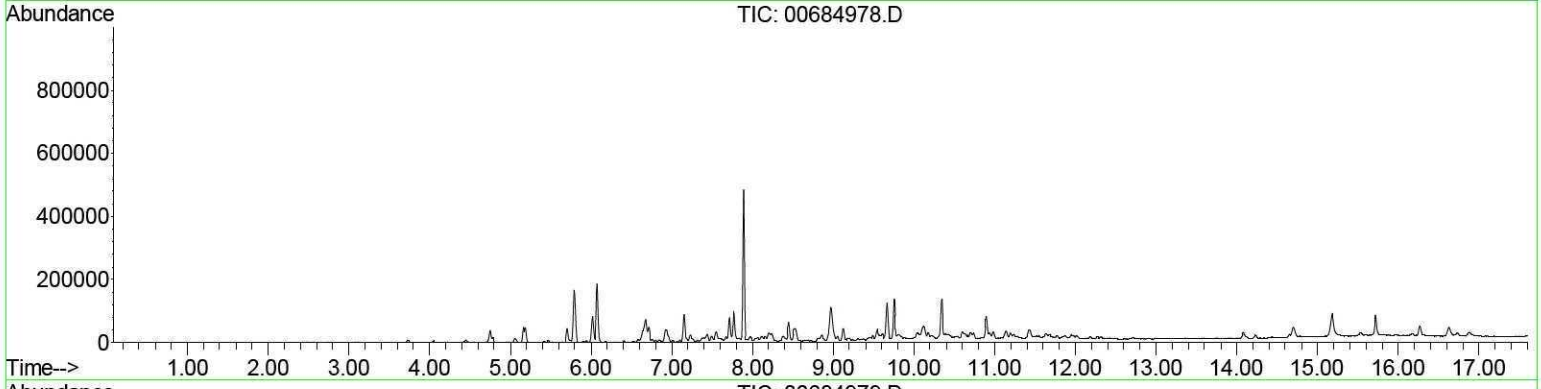
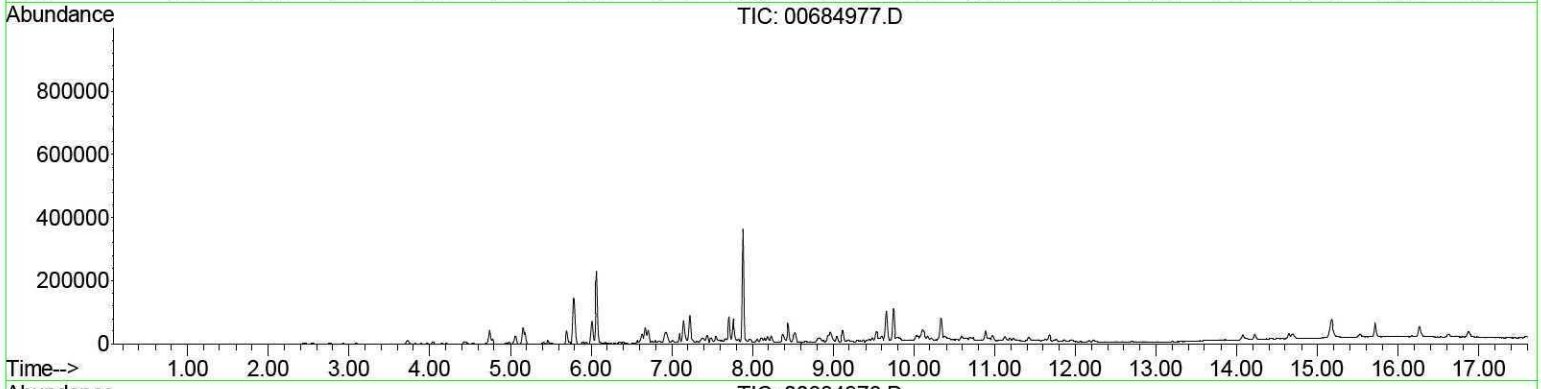
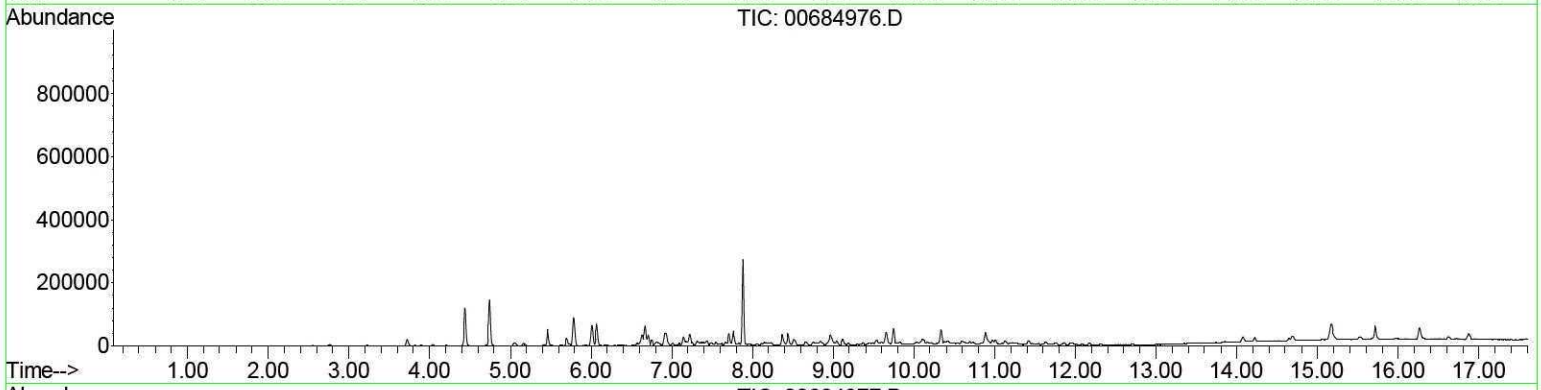
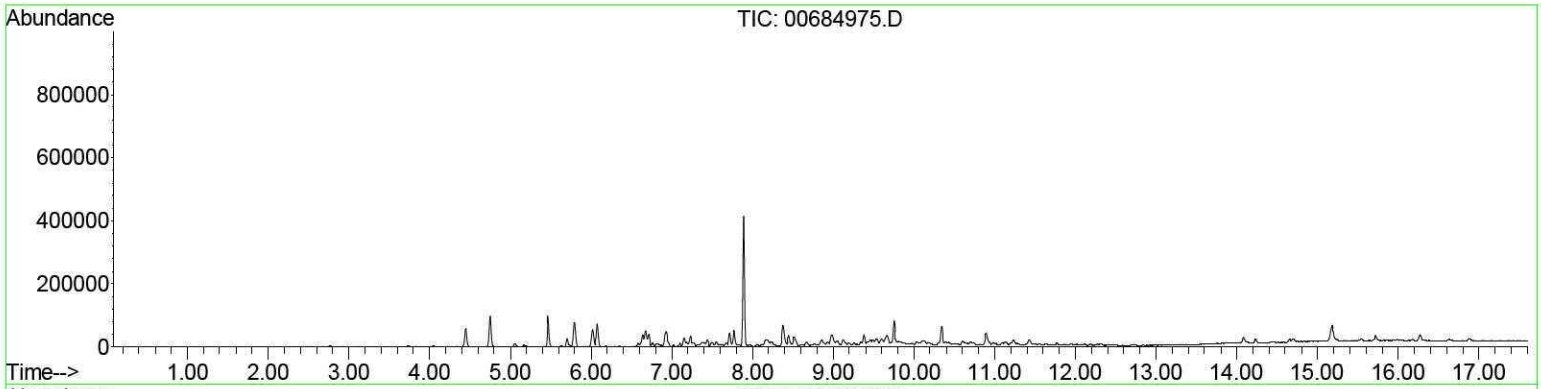
³ Millington, R.J., and J. M. Quirk, “Permeability of Porous Solids”, *Trans. Faraday Soc.*, 57, (1961), 1200-1207.

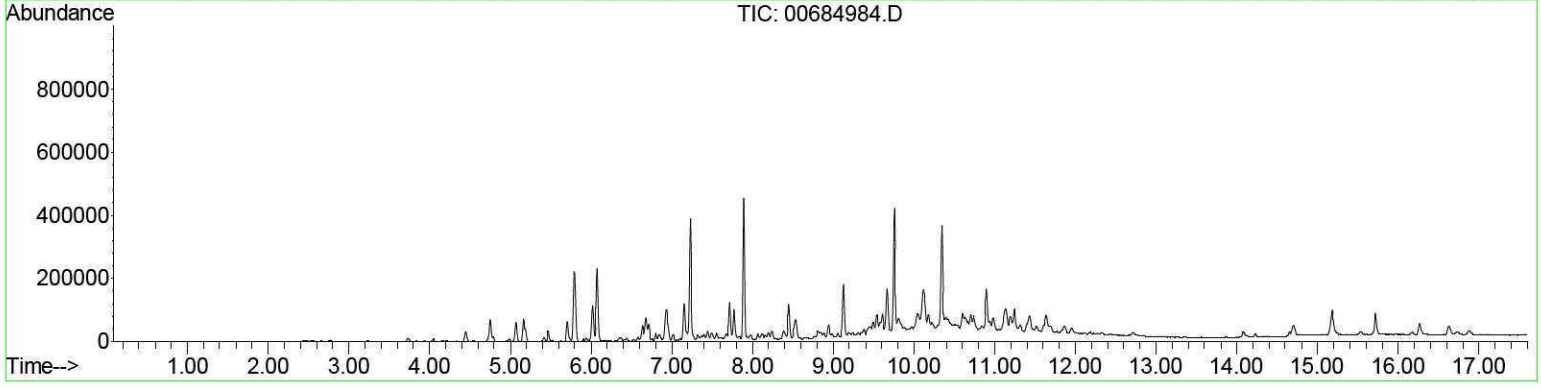
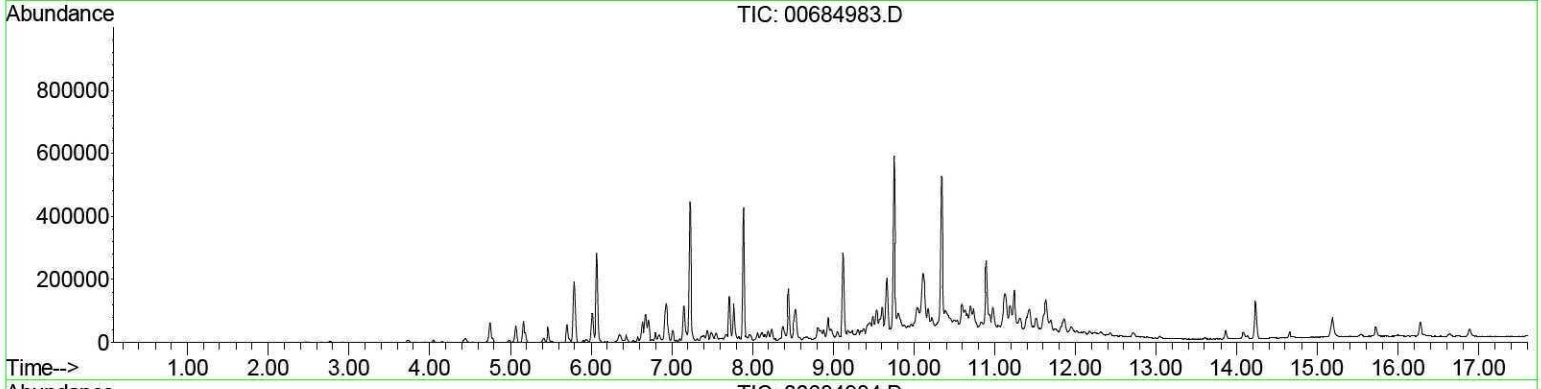
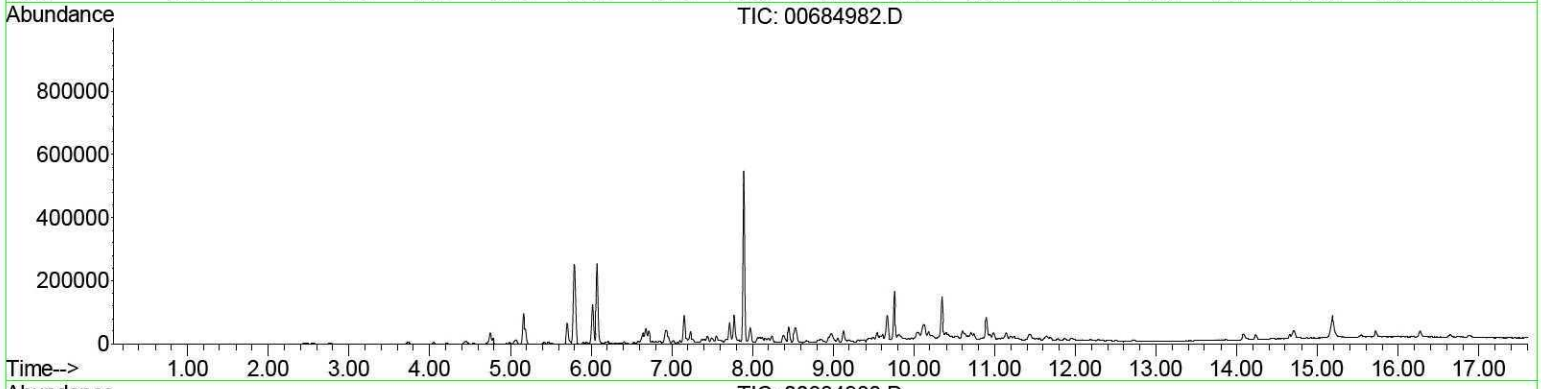
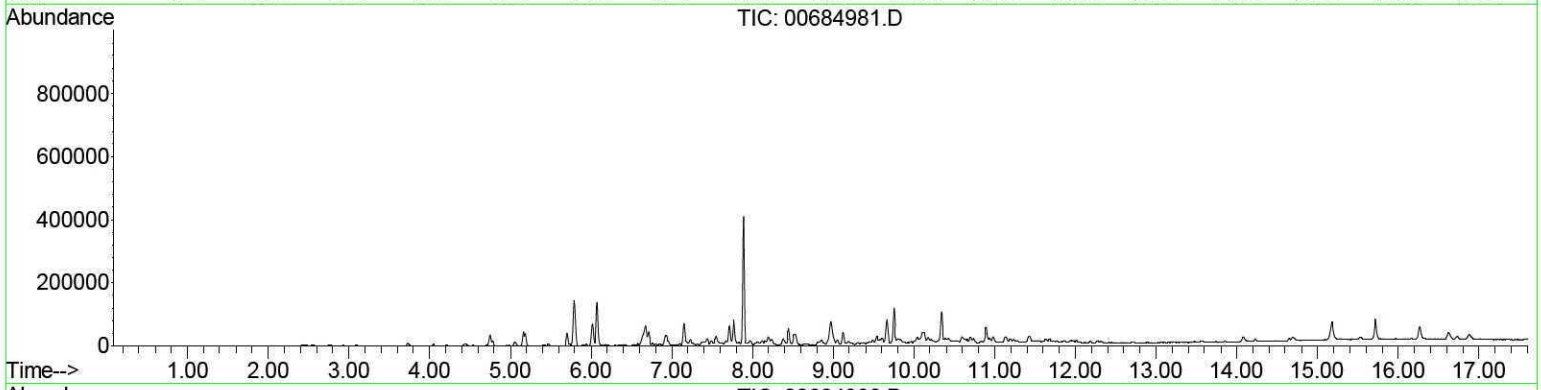
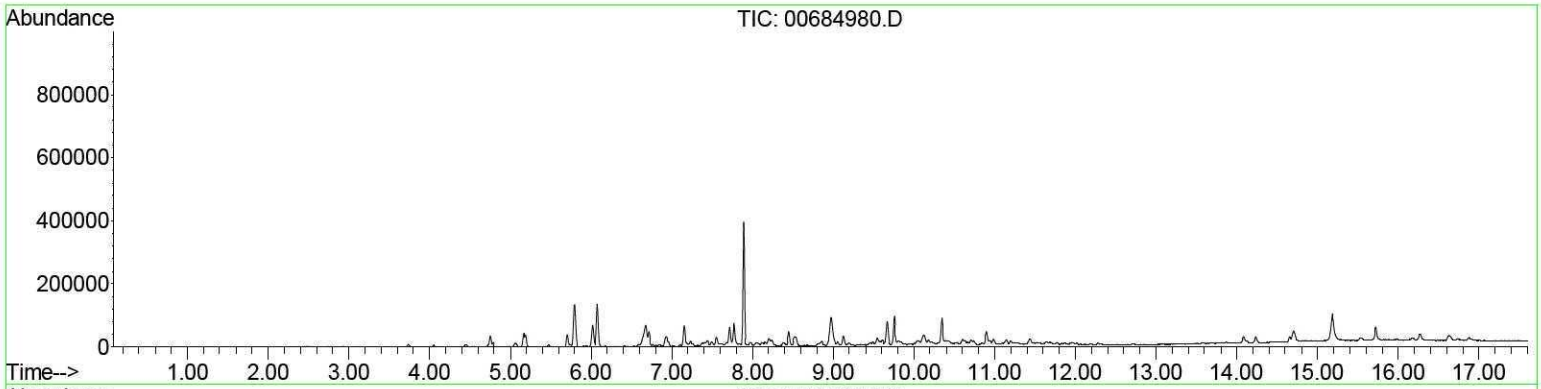
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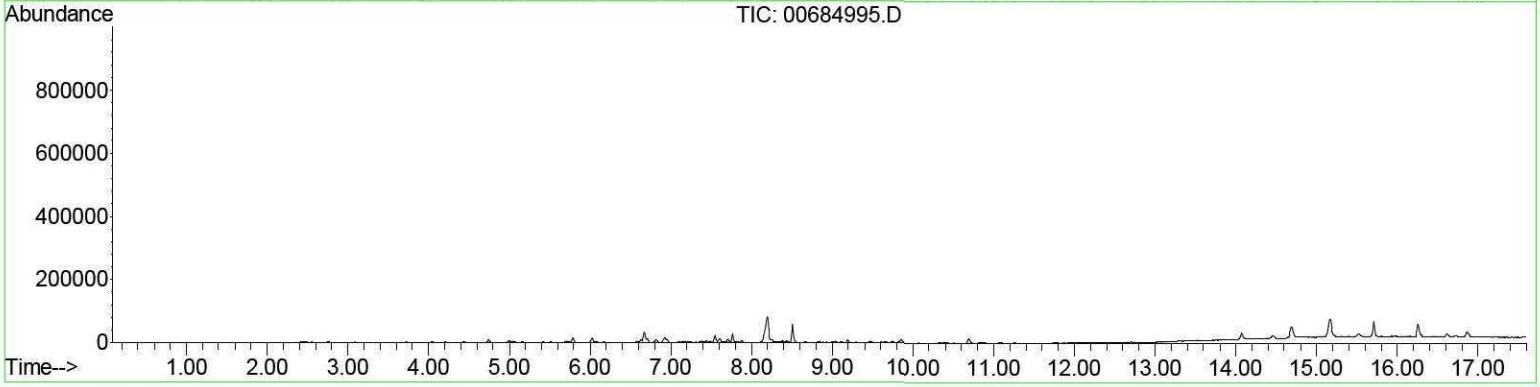
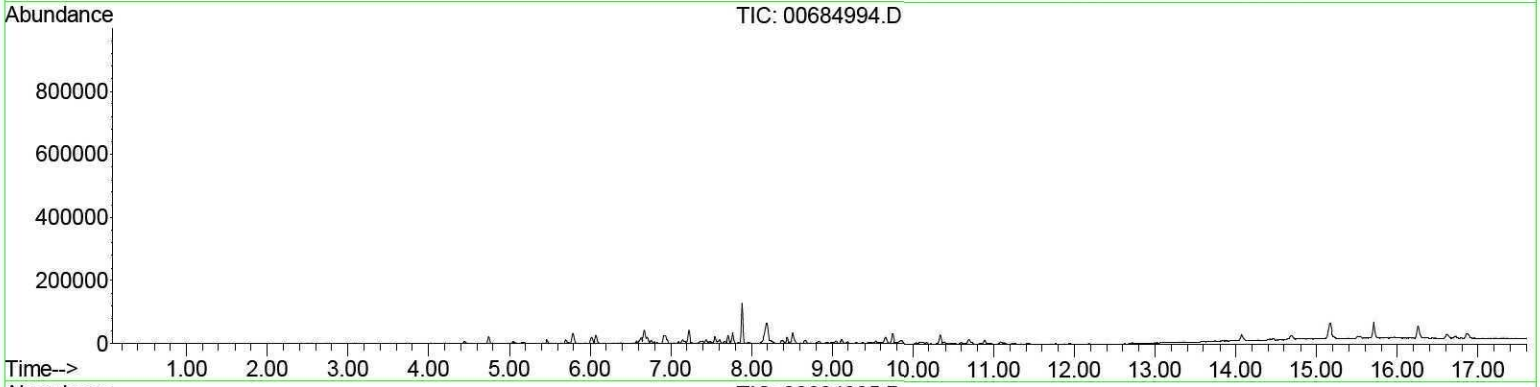
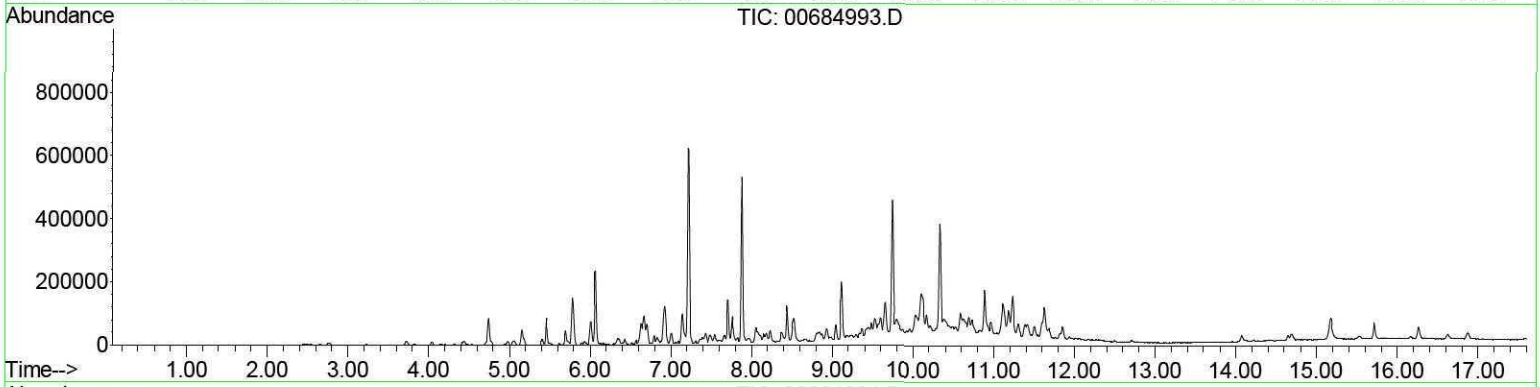
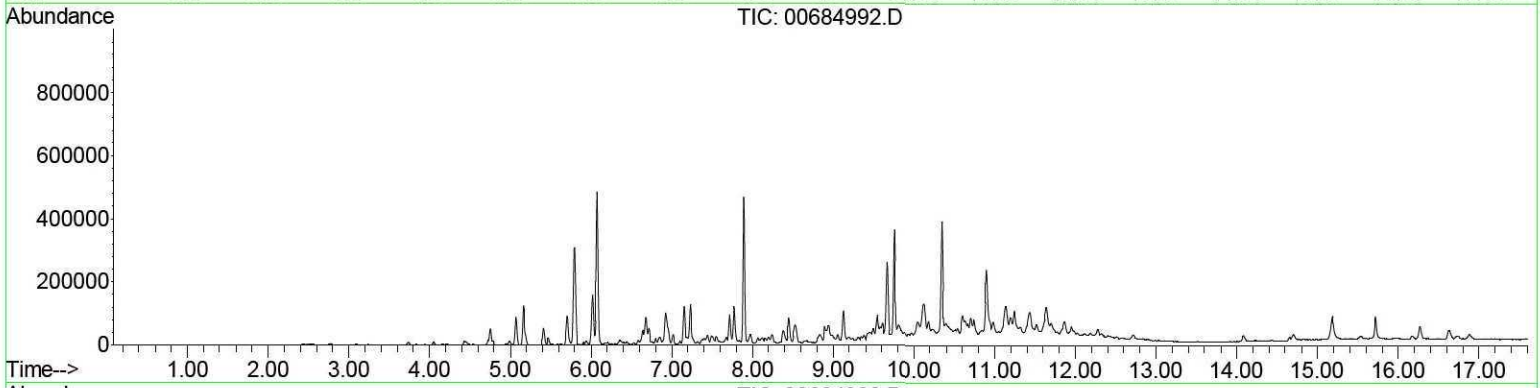
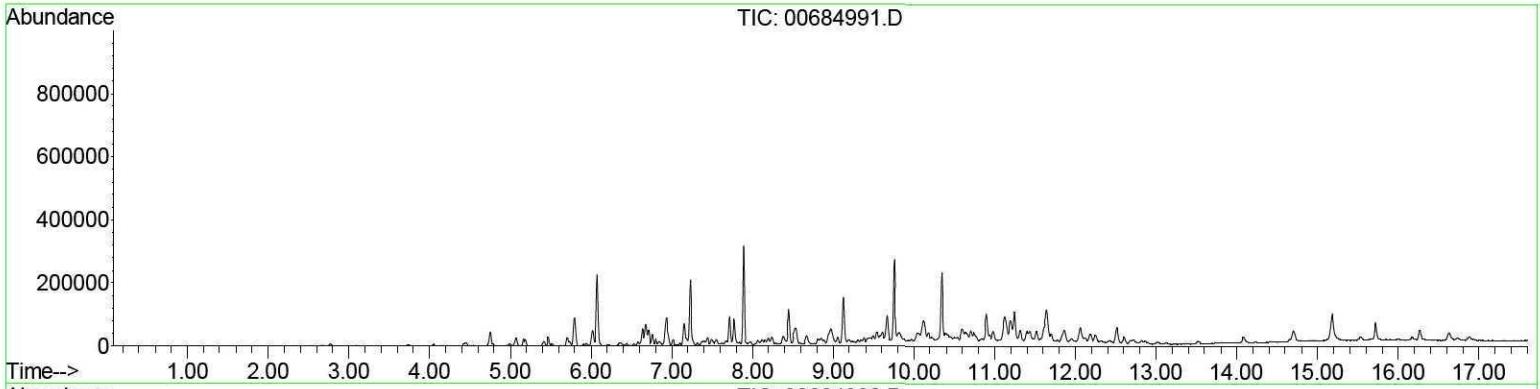
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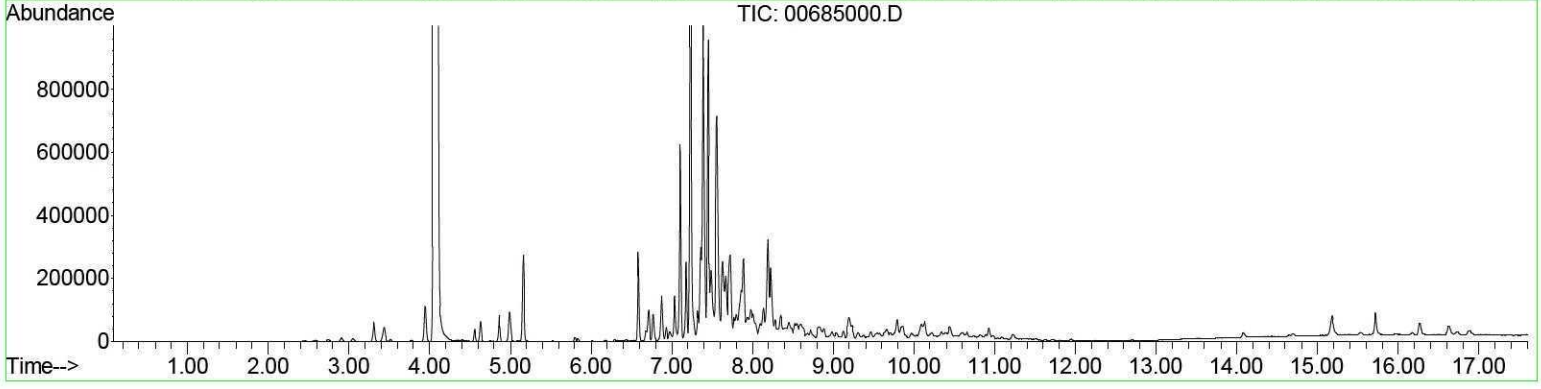
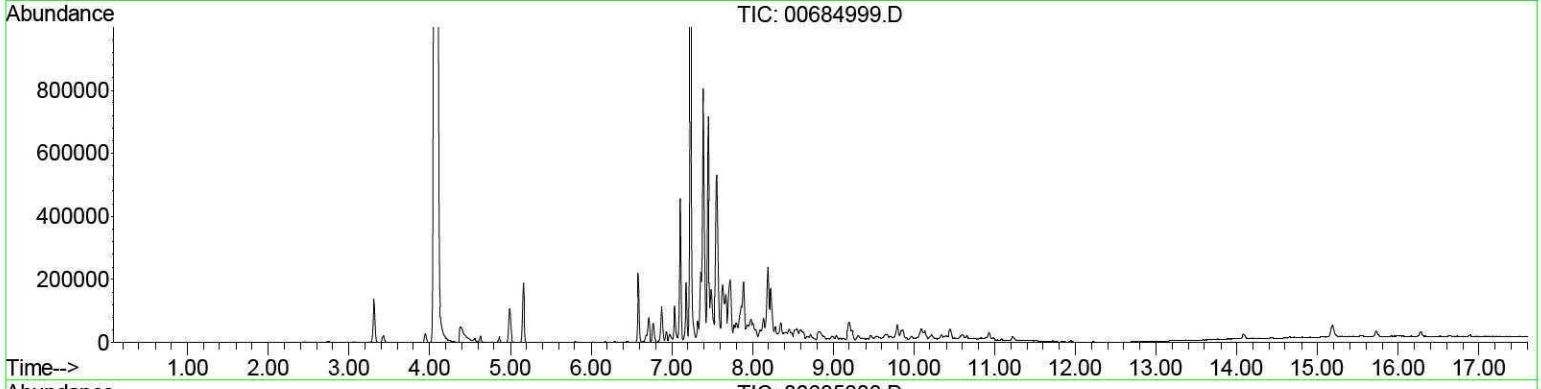
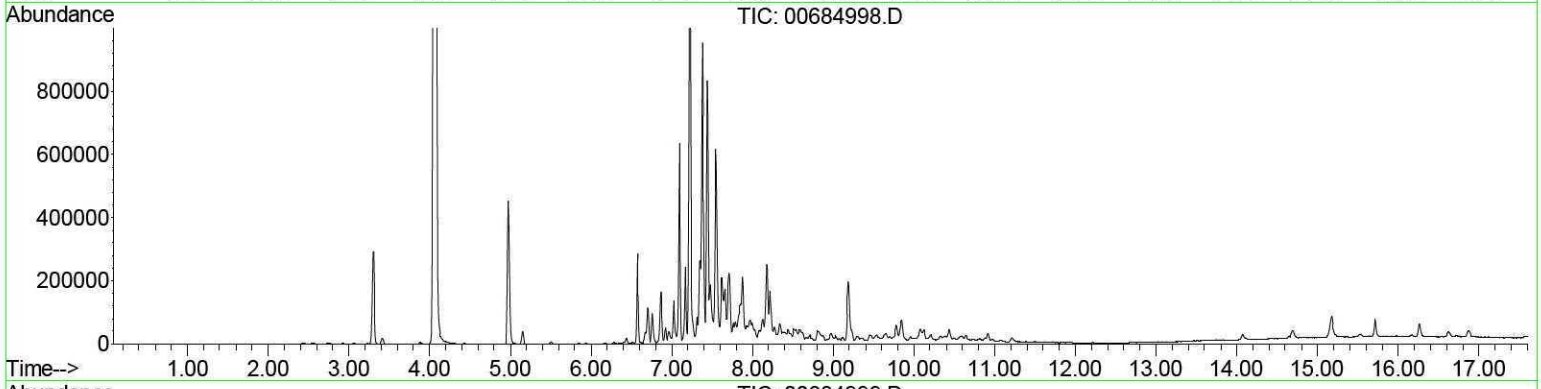
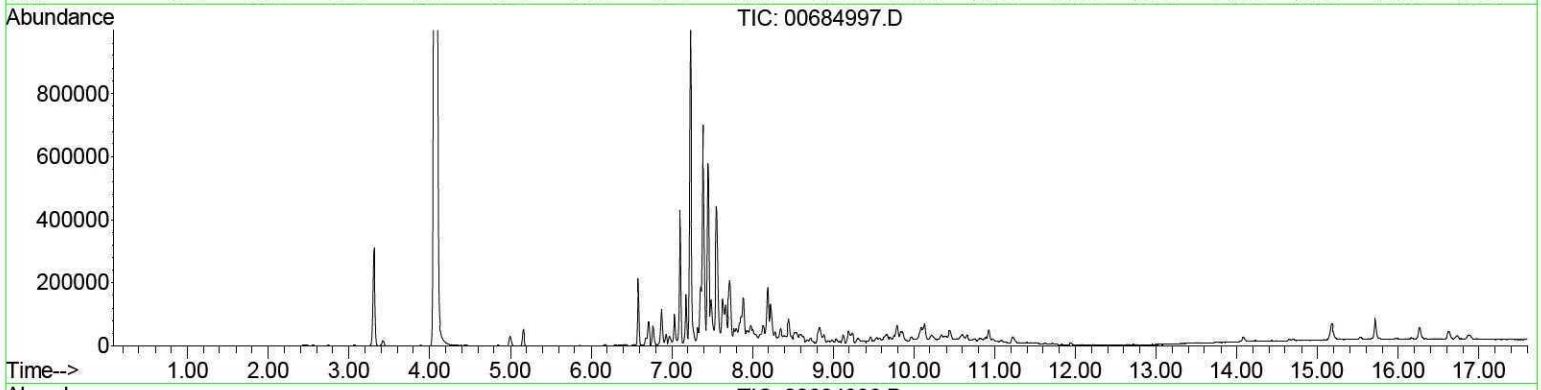
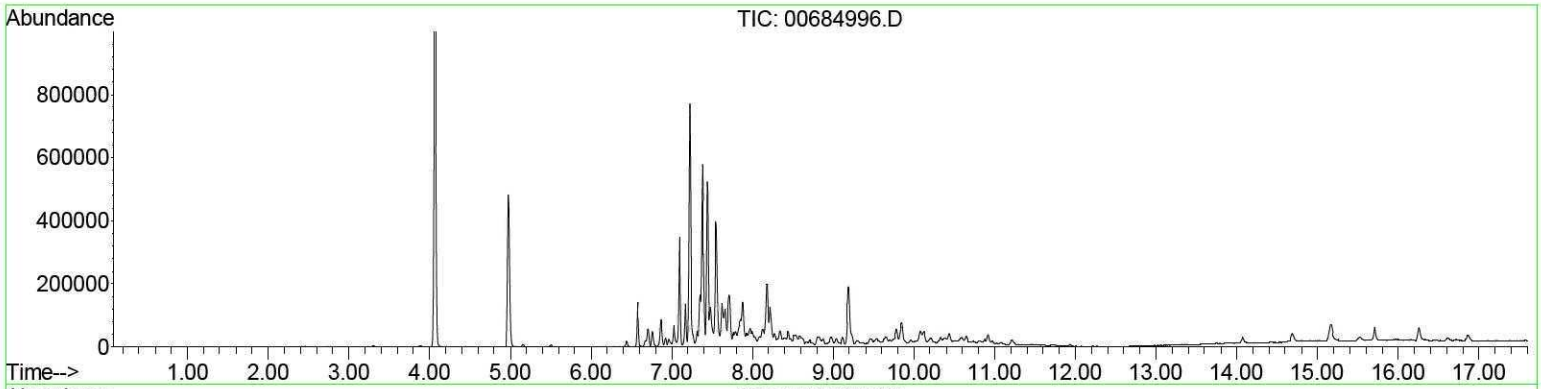
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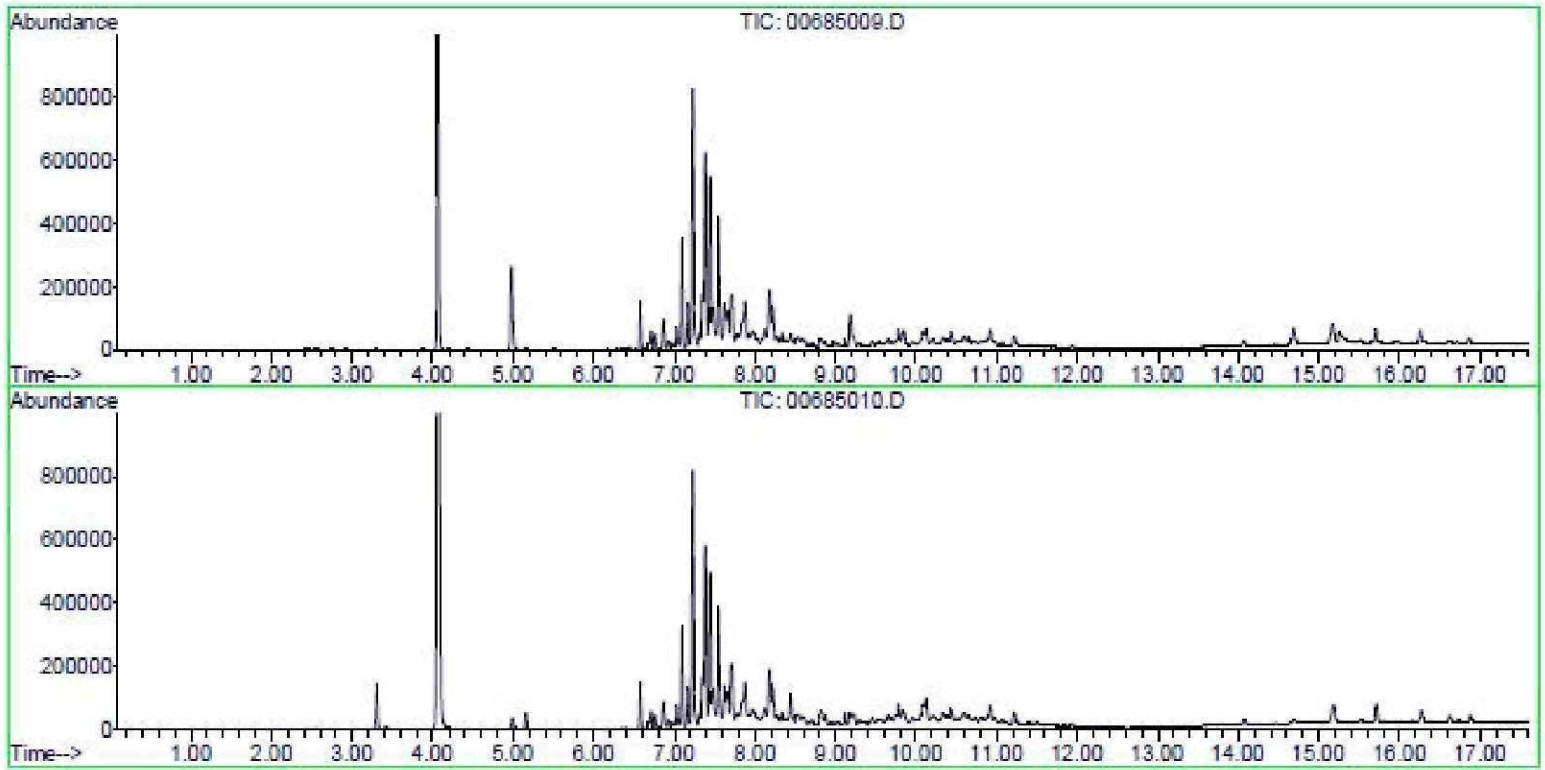


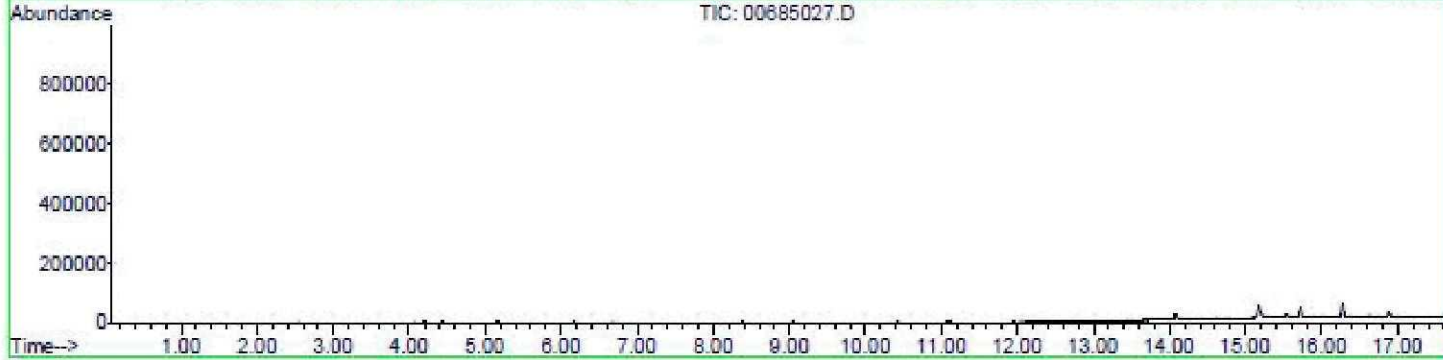
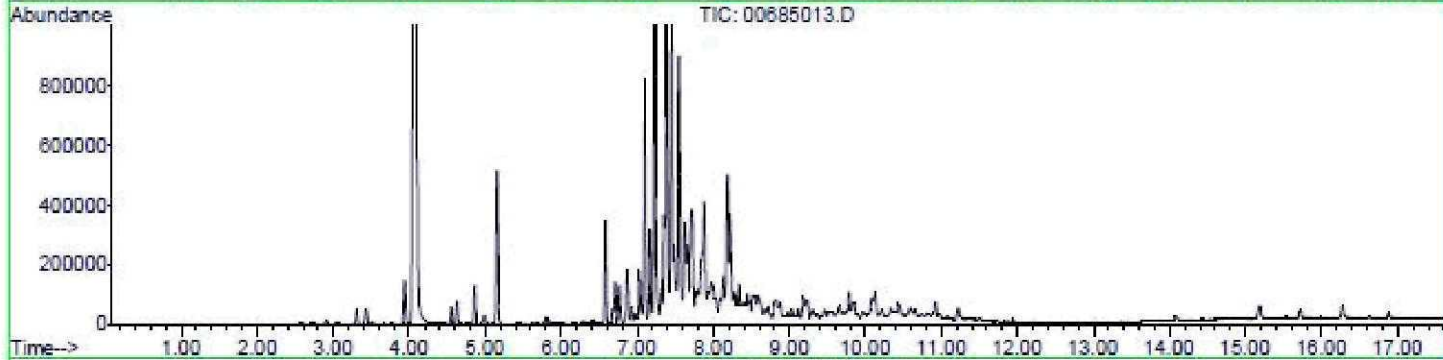
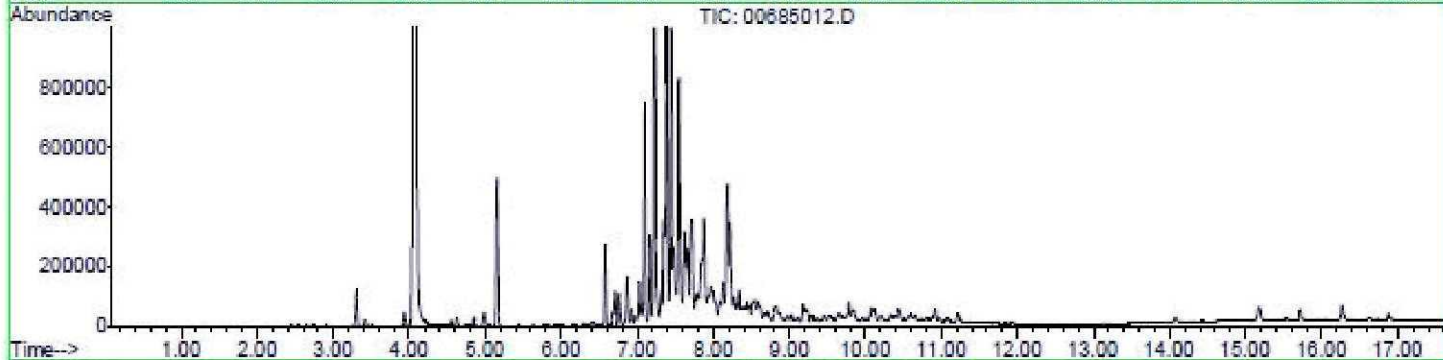
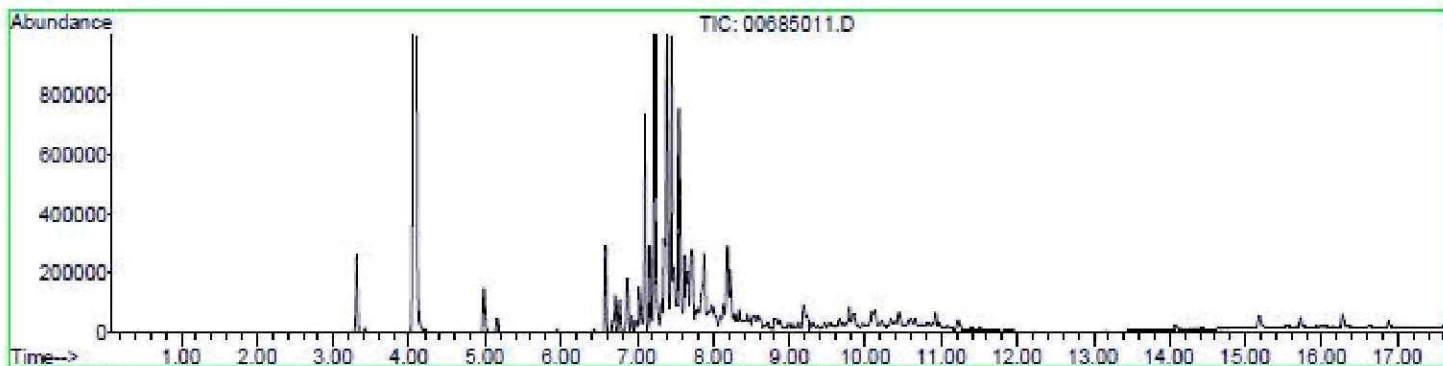












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LIT 139.0 08/14/07



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

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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	
Analysis Date: 03/15/2012	Dilution Lab File ID: NA
Sample Vol(ml): 250	Analysis Date: NA
Dilution Factor: 1	Sample Vol(ml): NA
	Dilution Factor: NA

Tentatively Identified Compounds	CAS#	MW(1)	Result ppbv	Q	Result ug/m3	Retention Time
Difluorochloromethane	000075-45-6	86	29	JN	100	5.61
Ethane, 1-chloro-1,1-difluoro-	000075-68-3	100	30	JN	120	6.11
Unknown			1.5	J	5.5	16.24
Unknown hydrocarbon			1.4	J	5.1	25.66
Undecane	001120-21-4	156	1.8	JN	11	27.60

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 Client Sample ID: Vapor-w/Santa	EMSL ID: 491200221-3TIC 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

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.



EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

USEPA TO-15

External Chain of Custody/ Field Test Data Sheet

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

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>agill@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																	
	Barometric Pres. ("Hg):		Barometric Pres. ("Hg):		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	-2.7	3507	3.5	✓				✓										
Vapor inside panel w/ Santa	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>Pat</u>	2/23/12 1450	<u>Amy C. Gill</u>	2/29/2012 0930	1192-1193	Shipping Courier Receiving Sampling Other:
<u>Amy C. Gill</u>	2/29/12 1600	<u>J. Williams</u>	3-1-12 930		Shipping Courier Receiving Sampling Other:
<u>J. Williams</u>	3-1-12 930	<u>Er. M. Cost</u>	3/1/12 16:20		Shipping Courier Receiving Sampling Other: <u>AN</u>
					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 _____

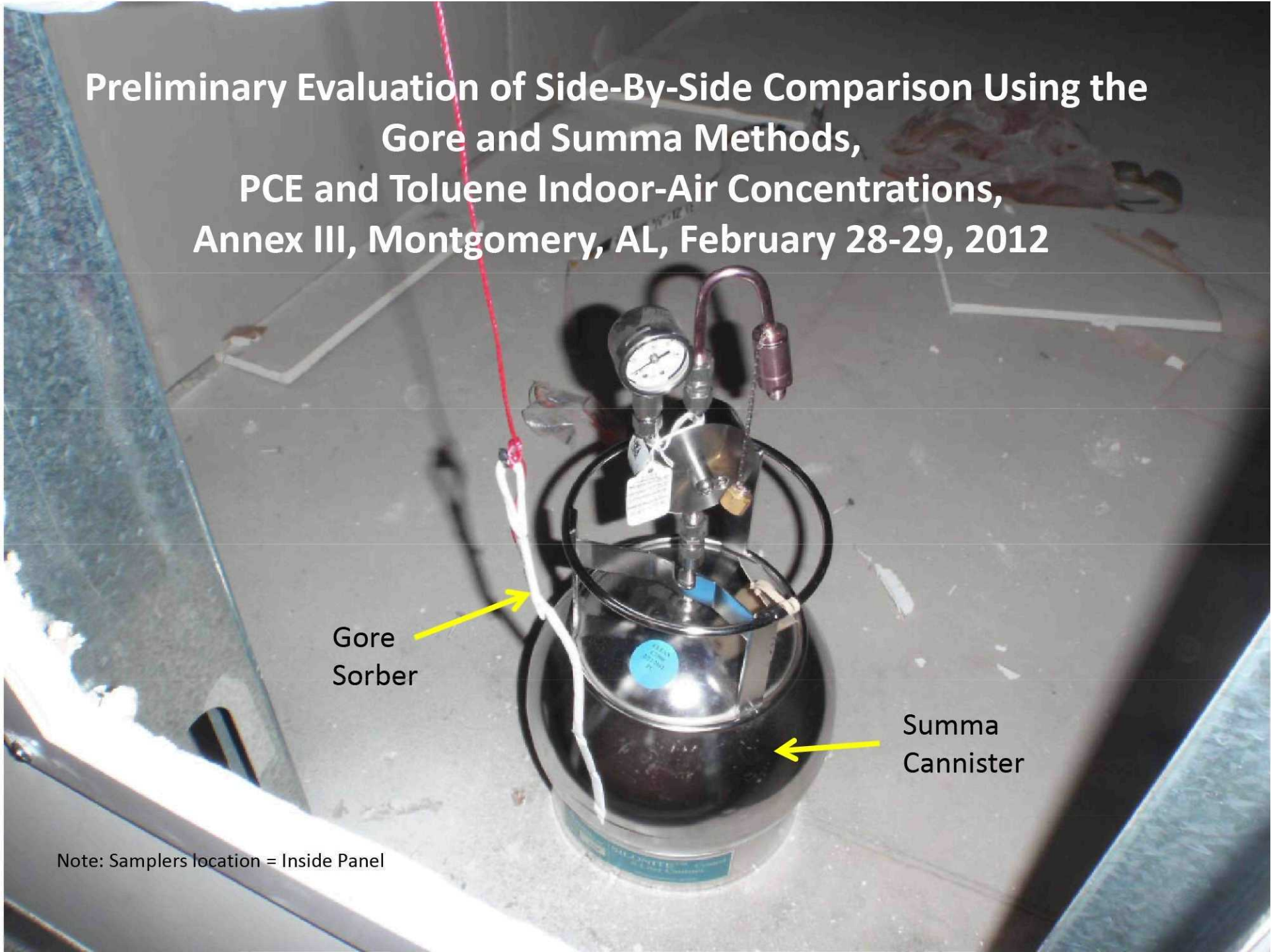
Sample Retention Policy: All canisters are guaranteed to be retained for one day after results are reported. Please review your results promptly to ensure that your project scope is fully addressed. Cans may be retained for a longer period of time but arrangements to hold your cans must be made through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

**Preliminary Evaluation of Side-By-Side Comparison Using the
Gore and Summa Methods,
PCE and Toluene Indoor-Air Concentrations,
Annex III, Montgomery, AL, February 28-29, 2012**

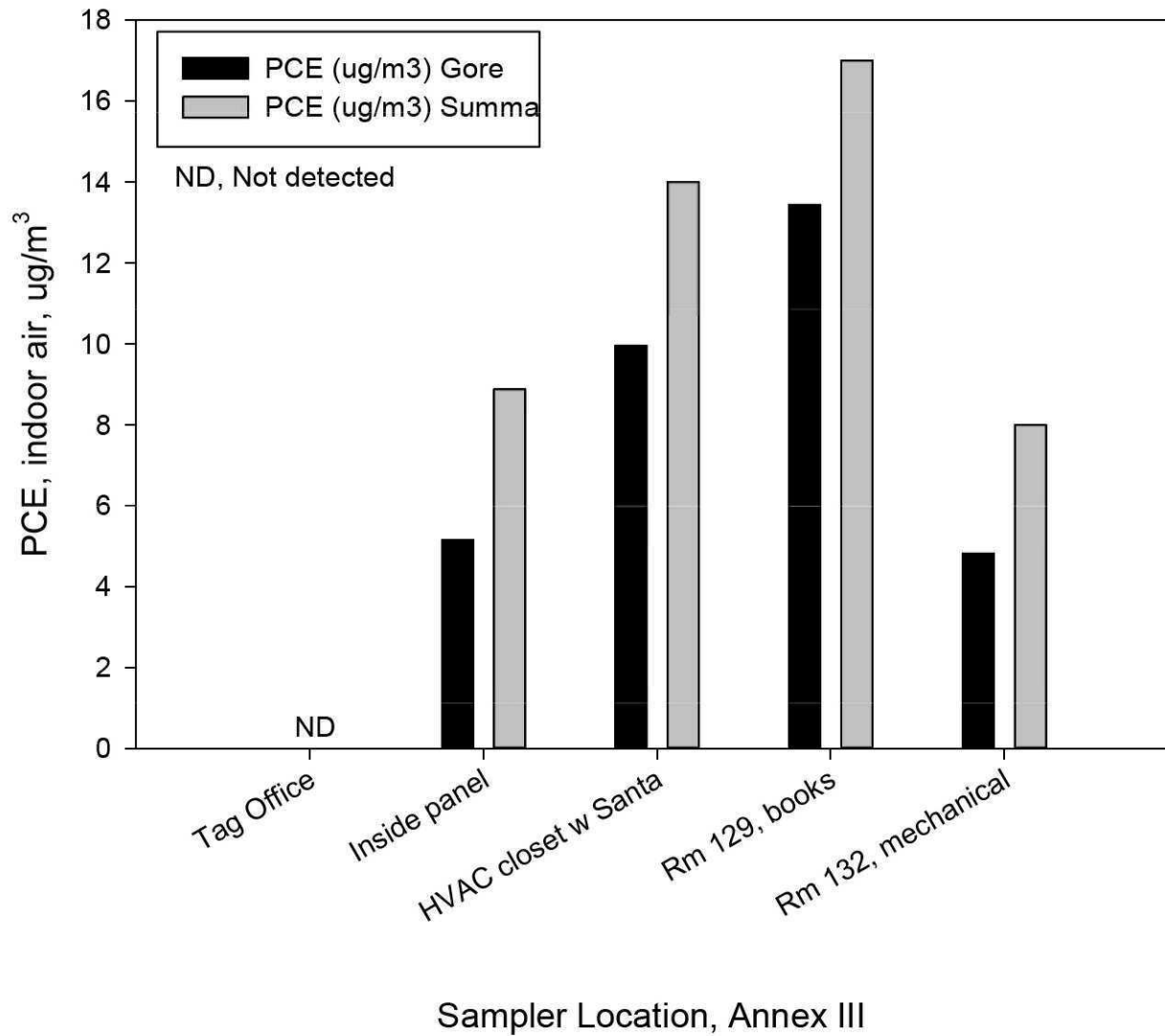
Gore
Sorber

Summa
Cannister

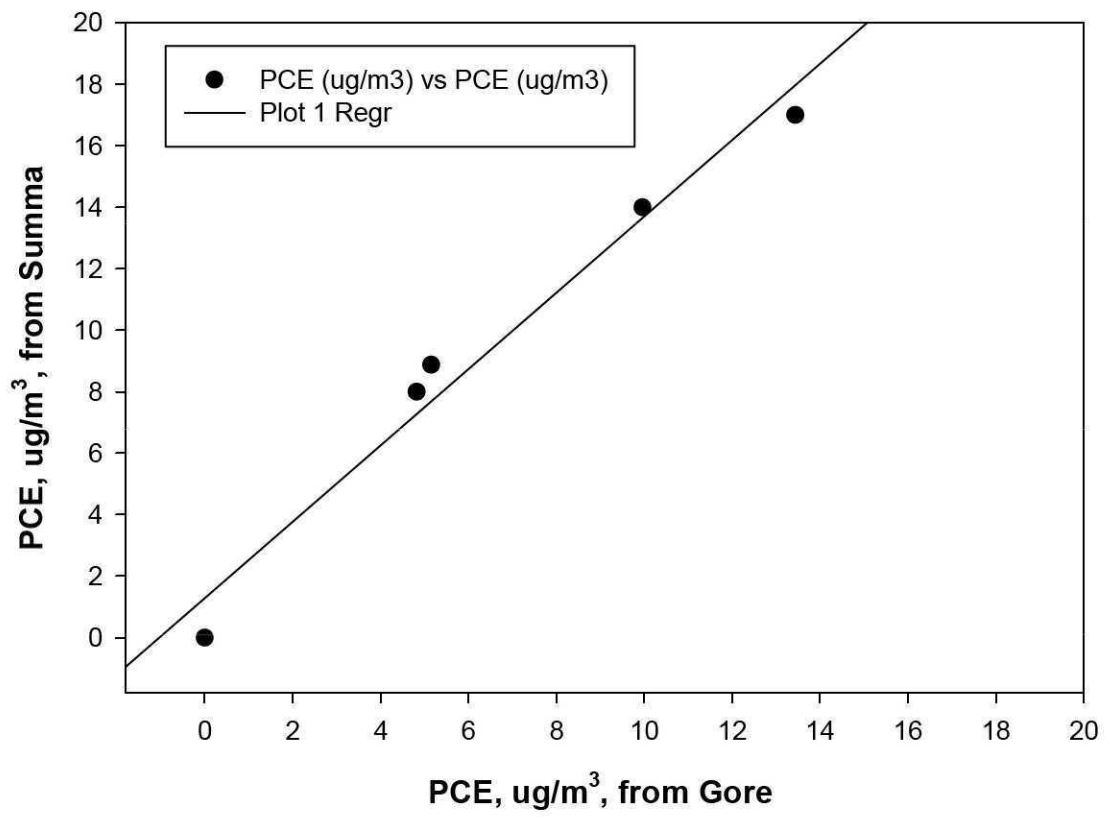
Note: Samplers location = Inside Panel



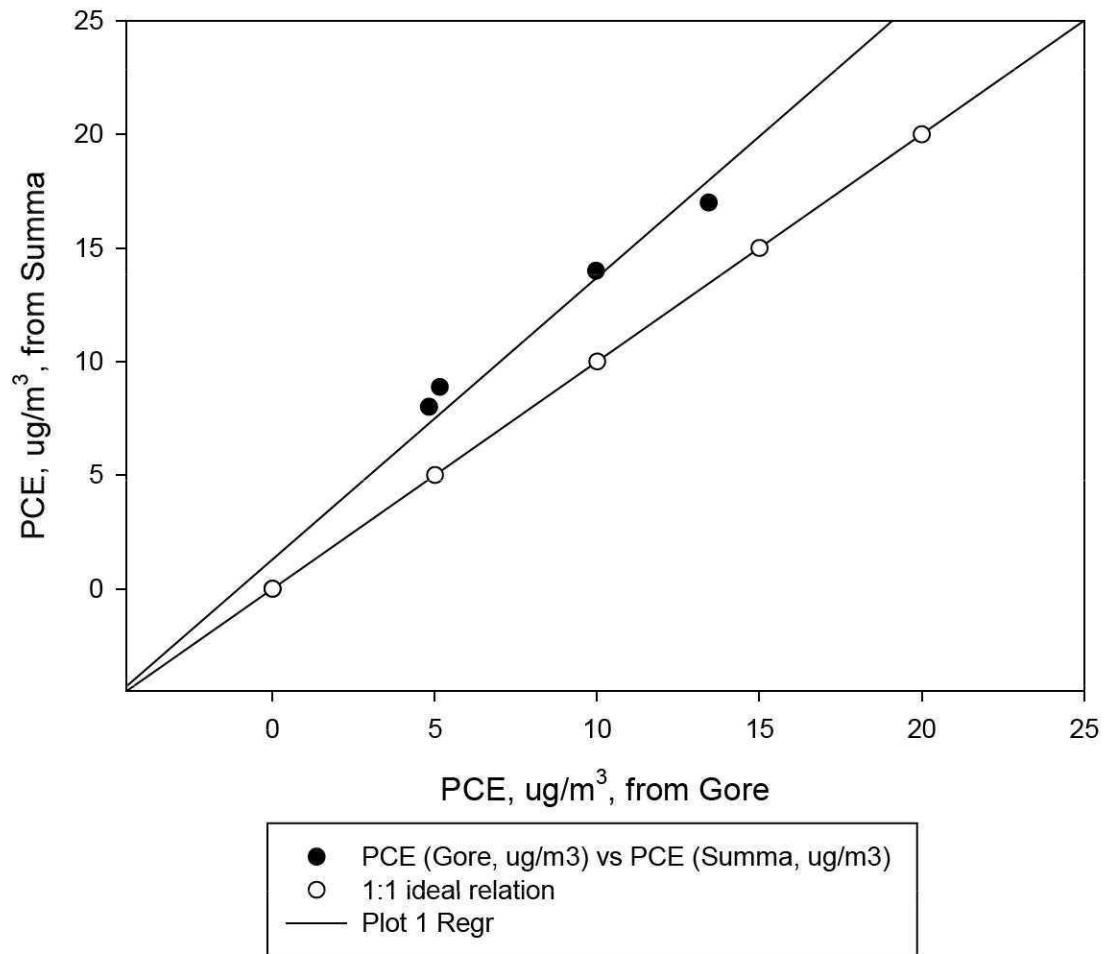
Comparison of PCE in Indoor Air, $\mu\text{g}/\text{m}^3$,
Gore and Summa Methods,
Annex III, February 28-29, 2012



**Comparison of Gore and Summa cannisters,
PCE in air, Annex III, February 28, 2012**



**Comparison of Gore and Summa,
PCE in air, Annex III, February 28, 2012
Ideal vs real**



**Toluene, Indoor Air, in $\mu\text{g}/\text{m}^3$
Gore and Summa Methods, Annex III
February 28-29, 2012**

