UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Hunters Point Shipyard
Parcel E-2 Landfill Gas Split Sampling Event Report, Hunters Point Naval Shipyards, San Francisco, California
January 2013

Submitted to:

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Table of Contents

1.0 Introduction 1

2.0 Scope of Work 1

3.0 Methodology 2
- 3.1 Soil Gas Sampling Procedures 2
- 3.2 Quality Control/Quality Assurance Samples 3
- 3.3 Ambient Sample 3

4.0 Deviations 4

5.0 Quality Assurance/Quality Control 4

6.0 Analytical Results 4

7.0 Data Quality Objectives 6

8.0 Observations and Recommendations 7

9.0 References 8

Tables

Table 1 Landfill Gas Sampling Results for Gases, Hunters Point Shipyard Parcel E-2 Landfill Gas Sampling Event Report, Hunters Point Naval Shipyard, San Francisco, California, September 2012

Table 2 Landfill Gas Sampling Results for Volatile Organic Compounds and Tentatively Identified Compounds, Hunters Point Shipyard Parcel E-2 Landfill Gas Sampling Event Report, Hunters Point Naval Shipyard, San Francisco, California, September 2012

Table 3 Navy NMOC Concentrations from the Landfill Gas Monitoring Report for July-September 2012, Post Removal Action, Hunters Point Shipyard Parcel E-2 Landfill Gas Sampling Event Report, Hunters Point Naval Shipyard, San Francisco, California, September 2012

Figure

Figure 1 Site Map and Split Sampling Locations, Hunters Point Shipyard Parcel E-2 Landfill Gas Sampling Event Report, Hunters Point Naval Shipyards, San Francisco, California, September 2012

Appendices

Appendix A Landfill Gas Split Sampling Laboratory Data Tables

Appendix B Landfill Gas Split Sampling Data Verification Report

Appendix C Landfill Gas Split Sampling Photo Log

Hunters Point Shipyard Parcel E-2 Landfill Gas Split Sampling Event Report, Hunters Point Naval Shipyards, San Francisco, California, January 2013

1.0 Introduction

This report summarizes the United States Environmental Protection Agency's (EPA's) Hunters Point Parcel E-2 Landfill Gas Split Sampling Event, Hunters Point Shipyard (HPS) in San Francisco, California (the Report). The landfill gas samples were collected on September 18, 2012 and the Report presents the analytical data results. The U.S. EPA tasked TechLaw, Inc. (TechLaw) to collect and analyze samples from nine locations for landfill gas (volatile organic compounds [VOCs] and fixed atmospheric gases, nitrogen, oxygen, carbon dioxide, and methane, with four of the nine locations also sampled using Tedlar bags for hydrogen sulfide [H_2S]). During the TechLaw/EPA sampling collection activities, TechLaw worked cooperatively with CKY, Inc, a Navy subcontractor for Parcel E-2 that was conducting quarterly landfill gas sampling.

This report summarizes the TechLaw/EPA scope of work, the sampling procedures, and the analytical results from the landfill gas sampling event.

2.0 Scope of Work

This sampling event consisted of the collection and analysis of split samples of landfill gas during the Navy's quarterly Parcel E-2 landfill gas monitoring program, as outlined in TechLaw's Quality Assurance Project Plan (the QAPP; TechLaw, 2012). The objectives of this sampling event were to:

- provide data to independently evaluate the composition of the landfill gas at the Parcel E-2 Landfill, identifying specific chemical contaminants,
- evaluate whether contaminants were migrating offsite to the north and northwest of the Parcel E-2 Landfill,
- provide data to compare with data being generated under the Navy's *Final Interim Landfill Gas Monitoring and Control Plan* (MCP; Tetra Tech, 2004).

In coordination with TechLaw, sample locations were selected by the U.S. EPA Remedial Project Manager (RPM) Mr. Craig Cooper from a list of locations in the Navy's current Landfill Gas Monitoring Program.

The Split Sampling Event included nine (9) locations selected from the Navy's Monitoring Network (Gas Monitoring Probes [GMPs] and Passive Vents [PVs]) installed to monitor landfill gas at the Parcel E-2 Landfill. Five (5) samples were collected locations within the extent of solid waste at the Parcel E-2 Landfill (GMP08A-0918, GMP10-0918, GMP42-0918, PV02-0912, PV03-0912) and two (2) locations were on the University of California San Francisco (UCSF) Property (GMP24-0918 and GMP23-0918; see Figure 1). One (1) location (AMB01-0918) was selected outside the interim landfill cover to evaluate the discharge of landfill gas into ambient air through the soil cover that is present in the area and one (1) location was on Crisp Road (GMP-34).

Samples were analyzed for VOCs, including tentatively identified compounds (TICs) using EPA Method TO-15, non-methane organic compounds (NMOCs[1]), total petroleum hydrocarbons (TPH), atmospheric and organic gases, and H_2S. Oxygen, nitrogen, methane, ethane, ethane, carbon monoxide, carbon dioxide, hydrogen, and NMOCs were analyzed using Modified ASTM Method D-1946. Sulfur compounds were analyzed using ASTM Method D-5504.

A summary of the samples collected and analyses performed is provided in Table 1, Landfill Gas Sampling Results for Gases, and Table 2, Landfill Gas Sampling Results for Volatile Organic Compounds and Tentatively Identified Compounds. Laboratory analyses of EPA's landfill gas samples were performed by Air Toxics Limited, an analytical laboratory located in Folsom, California. Air Toxics Limited was under subcontract to TechLaw for this sampling event. The Air Toxics Limited laboratory was solely used by EPA/TechLaw during this sampling event as CKY did not collect samples for laboratory analysis. Laboratory data reports can be found in Appendix A.

3.0 Methodology

This section describes the field procedures used to collect samples and the quality assurance/quality control samples. TechLaw was represented by Mark Pantoja, with oversight by U.S. EPA RPM Craig Cooper. During field sample collection activities Mr. Pantoja was assisted by Larry Pennock and Howard Wittenberg, employees of CKY, Inc., a subcontractor to the Navy. Additionally, Mr. Cooper, invited community monitors (Martha Walters, ArcEcology and Marie Harrison and Rose Chan of Green Action for Health and Environmental Justice) to observe sample collection activities. Photographs of this event can be found in Appendix C.

3.1 Landfill Gas Sampling Procedures

CKY personnel conducted the landfill gas sample collection protocols under TechLaw and EPA supervision. TechLaw provided SUMMA™ canisters to CKY personnel to collect each split sample. Upon collection of the sample, TechLaw immediately took possession of the sample canister, logged the sample, and prepared it for transportation to the Air Toxics Limited laboratory in Folsom, CA.

The TechLaw/EPA gas samples were collected using evacuated SUMMA™ canisters or Tedlar bags (for hydrogen sulfide), Teflon tubing, a "Y" fitting, a "T" fitting, and the sampling train in accordance with the approved procedures used in the previous site monitoring events (TetraTech 2004) and described below.

SUMMA™ canisters are evacuated "self-filling" vacuum samplers that draw in a gas sample (flow rate between 150 and 200 milliliters [mL] per minute) when they are opened; no sampling pumps were required to fill the canisters. Before sampling, pumps were used to evacuate the

[1] Air Toxics Laboratory uses the NMOC acronym for petroleum compounds, while the Navy and CKY use the same acronym to represent total VOCs

Teflon tubing and fittings so that samples were not diluted by atmospheric air. Y-shaped tubing with a central valve was used to allow the purge pump and the SUMMA™ canister to be connected at the same time without the need to disconnect and reconnect them after purging.

For each probe, the well head and entire sampling train (valves, tubing, fittings, laboratory-provided landfill vapor manifold, gauges and SUMMA™ canister) were leak tested in accordance with the California Environmental Protection Agency (CalEPA) Advisory – Active Soil Gas Investigations (CalEPA 2012), by saturating a cloth with 2-propanol (isopropyl alcohol) and placing this cloth on the ground near the SUMMA™ Canister during sampling.

TechLaw personnel recorded the pre- and post-sampling pressure reading on the canister pressure valve.

The Tedlar bag samples were collected by inflating each bag inside a negative pressure vacuum chamber. The assembly and purging of the vacuum chamber was performed by TechLaw personnel.

3.2 Quality Control/Quality Assurance Sample

To assess data quality for the split sampling events, a co-located field duplicate landfill gas sample (GMP42-0918) was collected from location GMP08A (See Figure 1). This sample was collected at the same time as the primary sample using the “T” fitting (see Appendix B for the Landfill Gas Data Verification Report).

As discussed in Section 3.1, all SUMMA™ canister samples were collected using CalEPA leak test protocols by placing a cloth saturated with 2-propanol on the ground near the SUMMA™ canister. The analytical results (Table 2) indicate that the two samples collected on UCSF property had detections of 2-propanol in landfill gas: GMP23-0918 at 3 J micrograms per cubic meter (ug/m^3) and GMP24-0918 at 32 J ug/m^3. The presence of 2-propanol may indicate a leak in the sampling train and that atmospheric gases may have positively biased the fixed gas sample results at those two locations. The elevated levels of oxygen (12 J %; Table 1) for sample GMP24-0918 compared to the CKY results (Table 3) may indicate that atmospheric gases entered the sampling train. However, the UCSF property is used for animal research and the use and potential presence of 2-propanol at the UCSF facility cannot be ruled out. However, based on the other lines of evidence (the trace amount detected and the proximity of the location to an animal research facility and the elevated oxygen levels compared to the CKY results) further sampling would be necessary to confirm the presence of 2-propanol in landfill gases.

3.3 Ambient Sample

One ambient "open air" sample (AMB01-0918; see Figure 1) was taken just beyond the interim landfill cover and within the Parcel E-2 Landfill in order assess what, if any, landfill gases are being released into the atmosphere. The results from the ambient sample are typical of common atmospheric gases. None of the chemicals detected in the ambient sample, including chlorinated

VOCs, exceeded the EPA Region 9 Regional Screening Levels (RSLs) for residential air (EPA, November 2012).

4.0 Deviations

Two deviations from the QAPP occurred during this event:

- The QAPP for the Landfill Gas Sampling Event stated that location GMP10 would be sampled for H_2S via Tedlar bag; however, during the Landfill Gas Split Sampling Event location GMP20 was selected for H_2S sampling via Tedlar bag. GMP20 was considered as an alternate sampling location during the design of the QAPP, and as such the sampling of this location is not considered to have an impact on the Landfill Gas Sampling Event.

- After the receipt of the samples at the lab, Air Toxics Limited, erroneously flushed SUMMA™ canister number 34654 and therefore destroyed the EPA sample PV01-0918. This was due to Air Toxics staff misreading the Chain of Custody form. Air Toxics has implemented a corrective action and in the future will follow up, in writing, with the client before flushing any samples they believe to be unused. Due to destruction of the sample, a 100% sampling completeness for the Landfill Gas Split Sampling Event could not be achieved.

5.0 Quality Control/Quality Assurance

The results of the data quality evaluation can be found in Appendix B. The relative percent difference (RPD) for non-methane organic compounds (NMOC; RPD 77.4%) likely was related to the low concentrations of NMOCs in the original and duplicate samples. When concentrations are low, relatively small changes have a large impact on the RPD. Please see Appendix B for the Precision, Accuracy, Representativeness, Completeness, Comparability and Sensitivity (PARCCS) report and Data Verification Report.

6.0 Landfill Gas Analyses

This section discusses the results from the Landfill Gas Split Sampling Event at Parcel E-2 that are summarized on Tables 1 and 2.

Fixed Atmospheric Gases

Atmospheric air at sea level contains roughly (by volume) 78% nitrogen, 20.9% oxygen, 0.039% carbon dioxide, small amounts of other gases, and a variable amount of water vapor, on average around 1%. As Table 1 shows, there appear to be elevated levels of nitrogen compared to the atmospheric concentrations of nitrogen at two sample locations, GMP34 (90%), the Crisp Road "off-site" location, and GMP08A (90%; Table 1), which may be due to bacterial denitrification of nitrates and production of nitrogen gas in groundwater or landfill refuse. Slightly elevated nitrogen (compared to atmospheric nitrogen) was also detected in the sample from GMP23 (83 J %), but this may be due to analytical variability or may also represent denitrification of nitrates.

It should also be recognized that the July-September fixed gas results reported by the Navy (lower set of data in Table 1) can be interpreted to conclude that nitrogen gas concentrations are likely high because the other major fixed gases were found at similar concentrations to the TechLaw/EPA samples at the same locations; typically four fixed gases (including methane) should add up to 100%.

Chlorinated VOCs.

Relatively low concentrations of trichloroethene (TCE; maximum concentration 7.2 micrograms per cubic meter [ug/m^3]) and tetrachloroethene (PCE; maximum concentration 14 ug/m^3) were detected in landfill gas (Table 2), and their presence is likely related to cleaning solvents that were disposed in the Parcel E-2 Landfill. Chlorinated VOCs such as TCE and PCE are common constituents of landfill gas.

Hydrocarbons

Additionally, a number of hydrocarbons such as benzene (maximum concentration 48 ug/m^3), hexane (maximum concentration 150 ug/m^3), heptane (maximum concentration 230 ug/m^3), toluene (maximum concentration 24 ug/m^3), and cyclohexane (maximum concentration 160 ug/m^3) as summarized in Table 2, which are likely related to historically disposed petroleum products, were detected in landfill gas. Hydrocarbon data in Table 2 also includes Non-Methane Organic Compounds (maximum concentration 45,000 ug/m^3) and as Total Petroleum Hydrocarbons as gasoline (maximum concentration 57,000 ug/m^3). At the request of TechLaw/EPA, other analytes that appeared in the gas chromatogram were identified (Tentatively Identified Compounds, TICs), and these results further documented the constituents present, particularly at locations GMP23 and PV02. The explanation for the distribution of these compounds is not known, but they are likely related to different types of hydrocarbon mixtures that have been weathered over time.

The landfill gas data collected by the Navy were measured using a field photoionization detector (PID) which gives a total detector response that is not chemical specific (see Table 3), and the data cannot be directly compared to analyte-specific concentrations measured by TechLaw/EPA. However, if the total landfill gas concentrations (Total TICs + VOCs, Table 2) are converted to part per million by volume units (ppmv) with an assumed molecular weight of 100 milligrams per millimole, it appears that the TO-15 data resulted in higher concentrations than detected by the CKY, Inc. photo-ionization detector (PID) when high concentrations of hydrocarbons are present. For example, for PV-02, with a total concentration of 113,008 ug/m^3, the estimated equivalent concentration is 27.63 ppmv. This is approximately a two order of magnitude difference compared to the CKY result of 0.4 ppmv. This is not totally unexpected given the nature of a PID since it is less sensitive to saturated hydrocarbons (e.g., heptane, cyclohexane) relative to unsaturated hydrocarbon chemicals such as benzene and TCE. As a result, it is recommended that the Navy consider using a monitoring instrument that is more sensitive to hydrocarbons, such as a flame ionization detector, in addition to the PID.

Hydrogen Sulfide

Hydrogen sulfide was detected only in sample PV-02, at 230 parts per billion per volume (ppbv). It should also recognized that vinyl chloride was detected at 27 ug/m3 at the same location, and the presence of biodegrading hydrocarbons has likely generated anaerobic conditions in the general vicinity that are suitable for production of hydrogen sulfide and vinyl chloride.

7.0 Data Quality Objectives

The following table discusses the original Data Quality Objectives (DQOs) outlined in the original QAPP and how they were addressed during the Landfill Gas Split Sampling Event.

Data Quality Objectives from the QAPP	**DQOs Addressed by the Landfill Gas Split Sampling Event**
1. On a percentage by volume basis, what does Parcel E-2 landfill gas contain (e.g., VOCs including TICs, NMOC, TPH, atmospheric and organic gases, hydrogen sulfide)?	See Table 1. Parcel E-2 landfill gas generally consists of atmospheric gases (nitrogen, oxygen, and carbon dioxide) with occasional methane. The percent contribution of nitrogen ranged from 72 % to 90%. Methane ranged from non-detect to 5.2% by volume and was less than 1% in 5 of 7 samples where it was detected). The contribution of chlorinated VOCs by volume was negligible.
2. What chemical contaminants are present in the Parcel E-2 landfill gas?	See Table 2. Several chlorinated VOCs and hydrogen sulfide were detected at low concentrations in Parcel E-2 landfill gas. Methane and a range of petroleum hydrocarbons constitute the dominant landfill gas contaminants.
3. Do any of the Parcel E-2 landfill gas constituents exceed regulatory standards? Do concentrations of methane gas exceed 5 percent by volume in air at the facility boundary?	The applicable regulatory standard for landfill gas is 5% methane by volume in air at the facility boundary. With the exception of location PV-02 all concentration of methane were less than 5% by volume during the Landfill Gas Split Sampling Event. Methane at sample location PV-02, located at the landfill gas collection trench near the UCSF facility boundary, was detected at 5.2% by volume in air by EPA/TechLaw and at 6.3% by the Navy. Passive landfill gas extraction and treatment occurs continuously at PV-02.

4. Does the landfill gas present an immediate or long-term threat to human health and the environment?	No. The primary contaminants, methane and petroleum hydrocarbons, can be easily contained and treated using typical landfill gas collection and treatment technologies. The Navy is currently collecting and treating landfill gas along the northern side of the landfill and will address all landfill gases as part of the final remedy. The types and concentrations of landfill gases detected are common for landfills with municipal and industrial wastes.
5. Is Parcel E-2 landfill gas migrating off-site and likely coming in contact with the local community?	Landfill gases are not migrating off-site and coming in contact with the local community at concentrations of concern. Based on the results of this testing event, subsurface landfill gases appear to be contained in or near the landfill. The results from the ambient sample are typical of common atmospheric gases with negligible concentrations of chlorinated VOCs. None of the chemicals detected in the ambient sample exceeded the EPA Region 9 Regional Screening Levels (RSLs) for residential air (EPA, November 2012).

8.0 Observations and Recommendations

The following observations and recommendations are made as a result of the Landfill Gas Split Sampling Event:

- All methane and VOC data were below project action levels established by the Navy.

- As part of the remedial design for the selected Parcel E-2 remedy, the Navy should conduct a comprehensive Parcel E-2 landfill gas study to test for and evaluate a broad range of likely landfill gas constituents using SUMMA™ canisters and Tedlar bags as appropriate, in addition to measurements using field screening instruments. EPA understands that the Navy does plan to conduct such a study in Spring 2013. Prior to finalization of the Parcel E-2 remedial design, the results of the Navy's 2013 landfill gas study should be compared with the results of this EPA study and integrated into the landfill gas collection and treatment system design.

- This split sampling event was conducted at a time selected three months or more in advance and did not necessarily correspond to conditions when the maximum amount of landfill gas would be generated (e.g., low atmospheric pressure and low wind conditions). It is recommended that the Navy study be conducted under conditions when the maximum amount of landfill gas would be generated.

- As discussed in Section 4, the Navy's field sampling procedure uses a PID to measure landfill gases during quarterly monitoring and appears to under-estimate petroleum hydrocarbon concentrations. It is recommended that the Navy consider using a monitoring instrument that is more sensitive to hydrocarbons in addition to the PID. Further, it is recommended that since the PID is not sensitive to petroleum-related compounds, the Navy should collect samples in SUMMA™ Canisters at a reasonable frequency developed in coordination with the Regulatory Agencies, in additional to using field screening instruments so that a comparison between field instrument readings and laboratory data can be made. Samples should also be collected from the granular activated carbon (GAC) canister effluent ports of the passive and portable extraction systems and any future effluent stream from a landfill gas treatment system.

- It is recommended that the Navy use helium as a leak detection compound at locations GMP-23 and GMP24 so that the potential for 2-propanol in ambient air at the UCSF property can be evaluated.

9.0 References

CalEPA, 2012. Advisory – Active Soil Gas Investigations. April 2012.

CKY, Inc, 2012. Landfill Gas Monitoring Report July-September 2012, Post-Removal Action, Parcel E-2, Industrial Landfill, Hunters Point Naval Shipyard, San Francisco, CA.

EPA, November 2012. EPA Region 9 Regional Screening Levels (RSLs) for Residential Air Table. http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/pdf/resair_sl_table_run_NOV2012.pdf

TechLaw, Inc, 2012. Final Quality Assurance Project Plan for Split Sampling and Analysis of Landfill Gas at Hunters Point Shipyard, San Francisco, California. August 30.

Tetra Tech, 2004. Final Interim Landfill Gas Monitoring and Control Plan, Parcel E, Industrial Landfill, Hunters Point Shipyard, San Francisco, California. August 13.

TABLES

Table 1. Landfill Gas Sampling Results for Gases, Hunters Point Shipyard Parcel E-2 Landfill Gas Sampling Event Report, Hunters Point Naval Shipyard, San Francisco, California, September, 2012

				Landfil Gas Sampling Results for Gases						
					Sample IDs					
	AMB01-0918	GMP08A-0918	GMP10-0918	GMP20-0918	GMP23-0918	GMP24-0918	GMP34-0912	GMP42-0918	PV02-0912	PV03-0912
Analyte					Result by Percentage (%)					
Oxygen	22	3.3	20	19	2.2 J	12 J	6.5	3.2	19	20
Nitrogen	78	90	78	78	83 J	77 J	90	60	72	79
Methane	ND	1.0025	ND	0.0005	0.093 J	0.0064 J	ND	0.0024	5.2	0.00055
Carbon Dioxide	0.045	6.7	1.8	2.9	15 J	11 J	3.7	6.5	3.4	0.56
				Navy Gas Results from the July-September Landfill Gas Monitoring Report						
					Locations					
	AMB01	GMP08A	GMP10	GMP20	GMP23	GMP24	GMP34	GMP42(1)	PV02	PV03
Analyte					Result by Percentage (%)					
Oxygen	NA	2	20.9	18.6	4.2	0.2	4.9	2	17.6	19.8
Nitrogen	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Methane	NA	ND	ND	ND	ND	ND	ND	ND	6.3	ND
Carbon Dioxide	NA	6.7	1.6	2.8	13.4	16.1	4	6.7	3.9	0.6

Notes:

1- GMP42 is the Field Duplication Location for GMP08A

NA - Not Applicable. AMB01 is an ambient "open-air" location selected by TechLaw, Inc

NS - Not sampled

ND - Non-detect

J - Estimated Value

Table 2. EPA/TechLaw Landfill Gas Sampling Results for Volatile Organic Compounds and Tentatively Identified Compounds, Hunters Point Shipyard Parcel E-2 Landfill Gas Sampling Event Report, Hunters Point Naval Shipyard, San Francisco, California, September, 2012.

		Landfil Gas Sampling Results for Volatile Organic Compounds								
				Sample IDs						
	AMB01-0918	GMP08A-0918	GMP10-0918	GMP20-0918	GMP23-0918	GMP24-0918	GMP34-0912	GMP42-0918	PV02-0912	PV03-0912
Analyte					Results in µg/mE3					
1,1,1-Trichloroethane	ND	7.6	ND	2.5	ND	ND	ND	7.8	ND	ND
1,1-Dichloroethane	ND	4	ND	ND	ND	2.4 J	ND	3.9	ND	ND
1,2,4-Trimethylbenzene	ND	ND	ND	ND	32 J	1.2 J	ND	ND	290	ND
1,3,5-Trimethylbenzene	ND	ND	ND	ND	56 J	ND	ND	ND	83	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	2.9 J	2.9 J	ND	ND	52	ND
2,2,4-Trimethylpentane	ND	ND	ND	ND	ND	ND	ND	ND	93	ND
2-Butanone (Methyl Ethyl Ketone)	ND	3.6	ND	3.9	ND	ND	ND	ND	ND	ND
2-Propanol	ND	ND	ND	ND	3.0 J	32 J	ND	ND	ND	ND
4-Ethyltoluene	ND	ND	ND	ND	20 J	ND	ND	ND	120	ND
4-Methyl-2-pentanone	ND	1.2	ND	ND	ND	ND	ND	ND	ND	490
Acetone	20	19	18	23	11 J	8.8 J	11	33	30	85
Benzene	ND	ND	6.5	ND	3.1 J	ND	ND	ND	48	6.3
Bromomethane	ND	ND	ND	ND	0.93 J	5.0 J	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	120
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	120	4.9
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	28	ND
Chloroform	ND	66	4	1.3	ND	ND	ND	67	14	12
Chloromethane	1.4	ND	1.1	ND	0.56 J	ND	0.77	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	12	ND
Cumene	ND	ND	ND	ND	19 J	ND	ND	ND	71	ND
Cyclohexane	ND	ND	ND	ND	2.4 J	ND	ND	ND	160	ND
Ethanol	5.5	ND	ND	2.8	ND	ND	ND	ND	ND	ND
Ethyl Benzene	ND	ND	ND	ND	ND	1.0 J	ND	ND	83	ND
Freon 11	ND	ND	16	13	ND	8.8 J	49	ND	ND	ND
Freon 113	ND	ND	ND	ND	ND	ND	4.3	ND	ND	ND
Freon 114	ND	ND	ND	ND	ND	ND	ND	ND	23	ND
Freon 12	2.8	2.8	3	3.3	3.2 J	4.1 J	5.8	2.8	40	25
Heptane	ND	ND	ND	ND	11 J	1.1 J	ND	ND	230	4.7
Hexane	ND	ND	ND	ND	6.6	2.2 J	ND	ND	150	5.8
m,p-Xylene	ND	ND	ND	ND	30	1.5 J	ND	ND	170	ND
Methylene Chloride	1.9	ND	ND	ND	ND	3.2 J	ND	ND	ND	ND
NMOC ref. to Heptane (MW=100)	ND	120	250	53	29000 J	ND	70	53	45000	2000
o-Xylene	ND	ND	ND	ND	31 J	ND	ND	ND	63	ND
Propylbenzene	ND	ND	ND	ND	19 J	ND	ND	ND	110	ND
Styrene	ND	ND	ND	ND	1.4 J	ND	ND	ND	ND	ND
Tetrachloroethene	ND	1.7	610	2.6	8.6 J	9.9 J	14	1.8	ND	ND
Tetrahydrofuran	1	ND	ND	ND	ND	ND	ND	ND	ND	630
Toluene	ND	ND	1.8	ND	5.3 J	ND	ND	ND	24	ND
TPH ref. to Gasoline (MW=100)	ND	110	ND	ND	37000 J	7000 J	ND	ND	57000	2600
Trichloroethene	ND	ND	12	6.4	ND	ND	ND	ND	7.2	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	27	ND
Sample Totals	**32.6**	**335.9**	**922.4**	**111.8**	**66266.99**	**7084.1**	**154.87**	**169.3**	**104048.2**	**5983.7**
Tentatively Identified Compounds (TICs)	**AMB01-0918**	**GMP08A-0918**	**GMP10-0918**	**GMP20-0918**	**GMP23-0918**	**GMP24-0918**	**GMP34-0912**	**GMP42-0918**	**PV02-0912**	**PV03-0912**
Analyte					Results in µg/mE3					
Bicyclo[2.2.1]heptane, 2-methyl-	ND	ND	ND	ND	ND	ND	ND	ND	ND	16 NJ
Bicyclo[3.3.1]non-2-en-9-one	ND	ND	ND	ND	ND	70 NJ	ND	ND	ND	ND
3,7-Decadiene, 2,9-dimethyl-	ND	ND	ND	ND	ND	ND	ND	ND	1100 NJ	ND
3-Heptanone	ND	ND	ND	ND	ND	ND	2.0 NJ	ND	ND	ND
2-Nonene, 3-methyl-, (E)-	ND	ND	ND	ND	ND	ND	ND	ND	ND	33 NJ
1-Heptene, 6-methyl-	1.2 NJ	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-Pentene, 2,4,4-trimethyl-	ND	ND	ND	1.4 NJ	ND	ND	ND	ND	ND	ND
2-Nonen-1-ol, (Z)-	ND	ND	ND	ND	810 NJ	ND	ND	ND	ND	ND
Cyclohexane, 1,1,2,3-tetramethyl-	ND	ND	ND	ND	630 NJ	ND	ND	ND	870 NJ	ND
Cyclohexane, 1,1,3-trimethyl-	ND	ND	ND	ND	790 NJ	ND	ND	ND	1800 NJ	ND
Cyclohexane, 1,1-dimethyl-2-propyl-	ND	ND	ND	ND	ND	59 NJ	ND	ND	ND	ND
Cyclohexane, 1,2-diethyl-3-methyl-	ND	ND	ND	ND	470 NJ	79 NJ	ND	ND	ND	ND
Cyclohexane, 1,3-dimethyl-, cis-	ND	ND	ND	ND	ND	ND	ND	ND	940 NJ	ND
Cyclohexane, 1,4-dimethyl-, cis-	ND	ND	ND	ND	ND	ND	ND	ND	670 NJ	ND
Cyclohexane, 1-ethyl-2-methyl-, cis-	ND	ND	ND	ND	460 NJ	ND	ND	ND	ND	ND
Cyclohexane, 1-ethyl-4-methyl-, cis-	ND	ND	ND	ND	ND	ND	ND	ND	900 NJ	ND
Cyclohexane, 1-methyl-2-propyl-	ND	ND	ND	ND	460 NJ	ND	ND	ND	ND	ND
Cyclohexane, 1-methyl-3-propyl-	ND	ND	ND	ND	ND	ND	ND	ND	2000 NJ	ND
Cyclohexane, 1-methyl-4-(1-methylethy	ND	ND	ND	ND	ND	67 NJ	ND	ND	ND	ND
Cyclohexane, propyl-	ND	ND	ND	ND	ND	ND	ND	ND	ND	25 NJ
Cyclopentane, (2-methylbutylidene)-	ND	ND	ND	ND	ND	59 NJ	ND	ND	ND	ND
Cyclopropane, 1,2-dimethyl-1-pentyl-	ND	ND	ND	ND	ND	70 NJ	ND	ND	ND	ND
Decane, 4-methyl-	ND	ND	ND	ND	ND	ND	ND	ND	680 NJ	ND
Methane, chlorodifluoro-	ND	ND	ND	ND	ND	ND	ND	ND	ND	110 NJ
Methane, nitro-	ND	5.4 NJ	ND	ND	ND	ND	2.0 NJ	ND	ND	ND
Methyl 2-hydroxydodecanoate	ND	ND	ND	ND	ND	59 NJ	ND	ND	ND	ND
Spiro[4.5]decane	ND	ND	ND	ND	560 NJ	86 NJ	ND	ND	ND	ND
Tridecane, 7-methylene-	ND	ND	ND	ND	940 NJ	ND	ND	ND	ND	ND
1-Propene, 2-methyl-	ND	ND	ND	ND	ND	ND	ND	ND	ND	76 NJ
2,3-Butanedione	ND	3.4 NJ	ND	ND	ND	ND	ND	ND	ND	ND
4-Decyne	ND	ND	ND	ND	ND	97 NJ	ND	ND	ND	ND
Sample Totals	**1.2 NJ**	**8.8 NJ**	**--**	**1.4 NJ**	**5120 NJ**	**646 NJ**	**4 NJ**	**--**	**8960 NJ**	**260 NJ**
Total TICs + VOCs	**33.8**	**344.7**	**922.4**	**113.2**	**71386.99**	**7730.1**	**158.87**	**169.3**	**113008.2**	**6243.7**

Notes:
N - This identification is based on presumptive evidence
J - Estimated Value
ND - Non-detect

Table 3. Navy NMOC Concentrations from the Landfill Gas Monitoring Report for July-September 2012, Post Removal Action, Hunters Point Shipyard Parcel E-2 Landfill Gas Sampling Event Report, Hunters Point Naval Shipyard, San Francisco, California, September, 2012

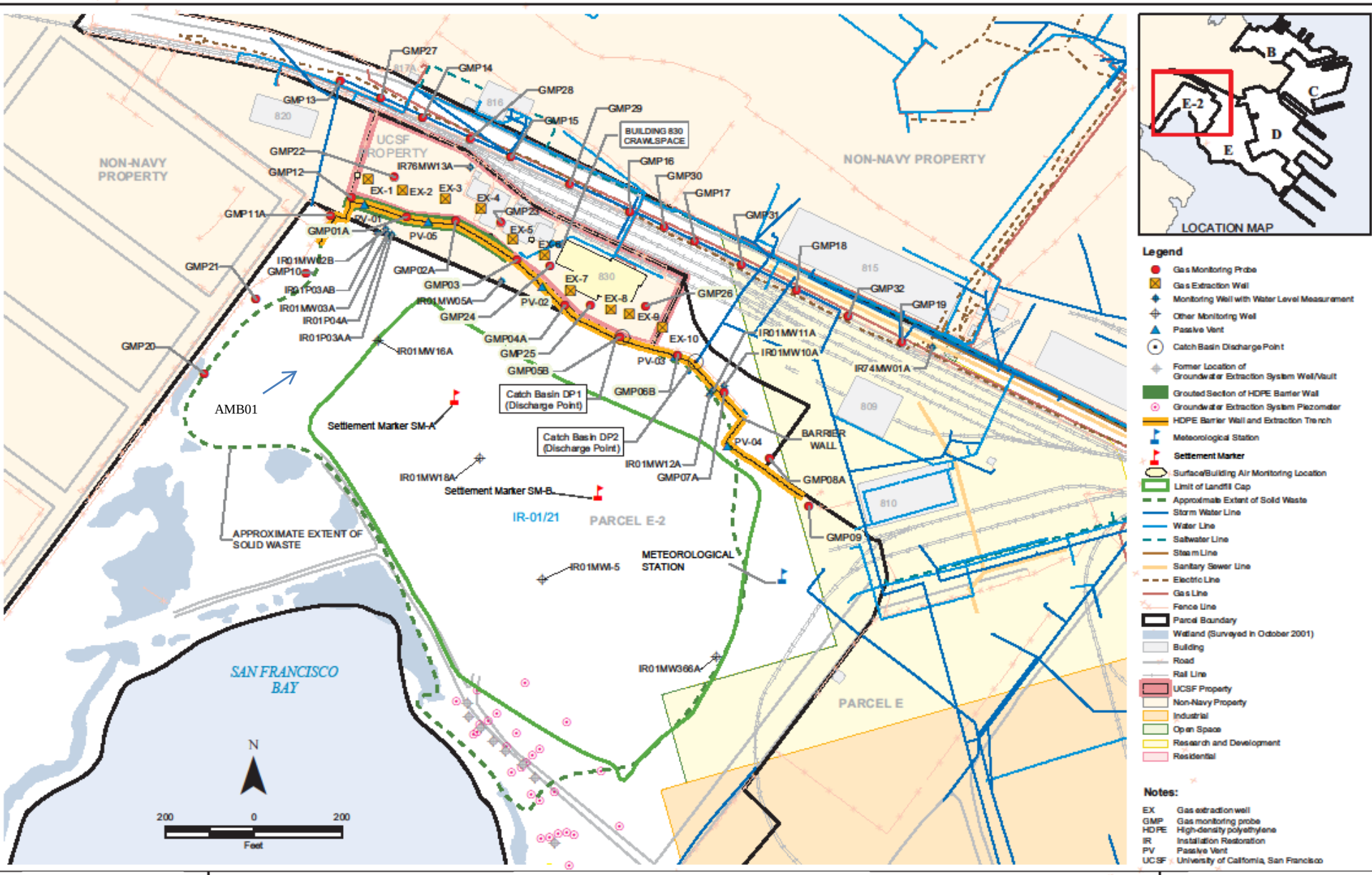
Navy NMOC Concentrations from the Landfill Gas Monitoring Report for July-September 2012, Post Removal Action

Location ID	NMOC Concentrations (parts per million by volume)
GMP08A	ND
GMP10	ND
GMP20	ND
GMP23	ND
GMP24	2.2
GMP34	0.2
PV-02	0.4
PV-03	0.5

Notes:

NMOC - Non-methane organic compound

ND - Non-detect



Landfill Gas Split Sampling Event Report
Hunters Point Naval Shipyard
San Francisco, California

Figure 1
Site Map and Split Landfill Gas Monitoring Locations

APPENDICES

Appendix A

Landfill Gas Split Sampling Laboratory Data Tables

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10/5/2012
Ms. Amy Dahl
TechLaw, Inc.
101 Yesler Way
Suite 600
Seattle WA 98104

Project Name: HPLF01
Project #: HPLF01
Workorder #: 1209361A

Dear Ms. Amy Dahl

The following report includes the data for the above referenced project for sample(s) received on 9/19/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15/TICs are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1209361A

Work Order Summary

CLIENT:	Ms. Amy Dahl TechLaw, Inc. 101 Yesler Way Suite 600 Seattle, WA 98104	**BILL TO:**	A/P Controller TechLaw, Inc. 14500 Avion Parkway Suite 300 Chantilly, VA 20151-1101
PHONE:	206-577-3050	**P.O. #**	55 Line4
FAX:		**PROJECT #**	HPLF01 HPLF01
DATE RECEIVED:	09/19/2012	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	10/05/2012		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	GMP24-0918	Modified TO-15/TICs	1.0 "Hg	15 psi
02A	GMP34-0912	Modified TO-15/TICs	3.0 "Hg	15 psi
03A	PV02-0912	Modified TO-15/TICs	6.0 "Hg	15 psi
04A	PV03-0912	Modified TO-15/TICs	5.5 "Hg	15 psi
05A	GMP10-0918	Modified TO-15/TICs	3.5 "Hg	15 psi
06A	AMB01-0918	Modified TO-15/TICs	4.5 "Hg	15 psi
07A	GMP20-0918	Modified TO-15/TICs	5.0 "Hg	15 psi
08A	GMP08A-0918	Modified TO-15/TICs	5.0 "Hg	15 psi
09A	GMP42-0918	Modified TO-15/TICs	5.5 "Hg	15 psi
10A	GMP23-0918	Modified TO-15/TICs	3.5 "Hg	15 psi
11A	Lab Blank	Modified TO-15/TICs	NA	NA
11B	Lab Blank	Modified TO-15/TICs	NA	NA
12A	CCV	Modified TO-15/TICs	NA	NA
12B	CCV	Modified TO-15/TICs	NA	NA
13A	LCS	Modified TO-15/TICs	NA	NA
13AA	LCSD	Modified TO-15/TICs	NA	NA
13B	LCS	Modified TO-15/TICs	NA	NA
13BB	LCSD	Modified TO-15/TICs	NA	NA

CERTIFIED BY: Heidi Hayes

Technical Director

DATE: 10/05/12

Certfication numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NY NELAP - 11291,
TX NELAP - T104704434-12-5, UT NELAP CA009332012-3, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2011, Expiration date: 10/17/2012.
Eurofins Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
TechLaw, Inc.
Workorder# 1209361A

Ten 1 Liter Summa Canister (100% Certified) samples were received on September 19, 2012. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
ICAL %RSD acceptance criteria	+- 30% RSD with 2 compounds allowed out to < 40% RSD	30% RSD with 4 compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	</= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request

Receiving Notes

The Chain of Custody (COC) information for samples GMP24-0918, PV03-0912, AMB01-0918 and GMP42-0918 did not match the entries on the sample tags with regard to sample identification. Therefore the information on the COC was used to process and report the samples.

Analytical Notes

A single point calibration for TPH referenced to Gasoline and NMOC referenced to Heptane was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page.

The Relative Percent Difference (RPD) of the LCS/LCSD exceeded acceptance limits for Bromomethane on September 27, 2012.

Dilution was performed on samples PV03-0912 and GMP10-0918 due to the presence of high level target species.

Dilution was performed on sample PV02-0912 due to the presence of high level non-target species.

Due to matrix interference in the Total Ion Chromatogram internal standard Bromochloromethane was not used to calculate concentration of TICs in sample PV03-0912 .

Due to matrix interference in the Total Ion Chromatogram internal standard Chlorobenzene-d5 was not used to calculate concentration of TICs in samples PV02-0912 and GMP23-0918 .

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: GMP24-0918

Lab ID#: 1209361A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.21	0.83	1.0	4.1
Bromomethane	0.21	1.3	0.81	5.0
Freon 11	0.21	1.6	1.2	8.8
Acetone	1.0	3.7	2.5	8.8
2-Propanol	1.0	13	2.6	32
Methylene Chloride	0.42	0.93	1.4	3.2
Hexane	0.21	0.63	0.74	2.2
1,1-Dichloroethane	0.21	0.58	0.85	2.4
Heptane	0.21	0.27	0.86	1.1
Tetrachloroethene	0.21	1.4	1.4	9.9
Ethyl Benzene	0.21	0.24	0.91	1.0
m,p-Xylene	0.21	0.34	0.91	1.5
o-Xylene	0.21	0.35	0.91	1.5
1,2,4-Trimethylbenzene	0.21	0.25	1.0	1.2
1,4-Dichlorobenzene	0.21	0.48 J	1.2	2.9 J
TPH ref. to Gasoline (MW=100)	21	1700	85	7000
NMOC ref. to Heptane (MW=100)	4.2	1400	17	5700

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount (ppbv)
Cyclopropane, 1,2-dimethyl-1-pentyl-	62238-04-4	70%	70 NJ
Unknown	NA	NA	66 J
Cyclopentane, (2-methylbutylidene)-	53366-54-4	52%	59 NJ
4-Decyne	2384-86-3	53%	97 NJ
Cyclohexane, 1,1-dimethyl-2-propyl-	81983-71-3	95%	59 NJ
Methyl 2-hydroxydodecanoate	51067-85-7	50%	59 NJ
Spiro[4.5]decane	176-63-6	53%	86 NJ
Cyclohexane, 1,2-diethyl-3-methyl-	61141-80-8	64%	79 NJ
Cyclohexane, 1-methyl-4-(1-methylethylid	1124-27-2	55%	67 NJ
Bicyclo[3.3.1]non-2-en-9-one	4844-11-5	59%	70 NJ

Client Sample ID: GMP34-0912

Lab ID#: 1209361A-02A

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: GMP34-0912

Lab ID#: 1209361A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.22	1.2	1.1	5.8
Chloromethane	0.22	0.37	0.46	0.77
Freon 11	0.22	8.7	1.2	49
Freon 113	0.22	0.56	1.7	4.3
Acetone	1.1	4.8	2.7	11
Tetrachloroethene	0.22	2.1	1.5	14
NMOC ref. to Heptane (MW=100)	4.5	17	18	70

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount (ppbv)
Methane, nitro-	75-52-5	59%	2.0 NJ
3-Heptanone	106-35-4	80%	2.0 NJ

Client Sample ID: PV02-0912

Lab ID#: 1209361A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.0	8.1	5.0	40
Freon 114	1.0	3.3	7.1	23
Vinyl Chloride	1.0	10	2.6	27
Chloroethane	5.0	10	13	28
Acetone	5.0	13	12	30
Hexane	1.0	44	3.6	150
cis-1,2-Dichloroethene	1.0	3.1	4.0	12
Chloroform	1.0	3.0	4.9	14
Cyclohexane	1.0	45	3.5	160
2,2,4-Trimethylpentane	5.0	20	24	93
Benzene	1.0	15	3.2	48
Heptane	1.0	57	4.1	230
Trichloroethene	1.0	1.3	5.4	7.2
Toluene	1.0	6.3	3.8	24
Chlorobenzene	1.0	26	4.6	120
Ethyl Benzene	1.0	19	4.4	83

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: PV02-0912

Lab ID#: 1209361A-03A

m,p-Xylene	1.0	38	4.4	170
o-Xylene	1.0	14	4.4	63
Cumene	1.0	14	5.0	71
Propylbenzene	1.0	22	5.0	110
4-Ethyltoluene	1.0	26	5.0	120
1,3,5-Trimethylbenzene	1.0	17	5.0	83
1,2,4-Trimethylbenzene	1.0	59	5.0	290
1,4-Dichlorobenzene	1.0	8.6	6.1	52
TPH ref. to Gasoline (MW=100)	100	14000	410	57000
NMOC ref. to Heptane (MW=100)	20	11000	83	45000

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount (ppbv)
Cyclohexane, 1,4-dimethyl-, cis-	624-29-3	91%	670 NJ
Cyclohexane, 1,1,3-trimethyl-	3073-66-3	90%	1800 NJ
Cyclohexane, 1-ethyl-4-methyl-, cis-	4926-78-7	64%	900 NJ
Cyclohexane, 1,3-dimethyl-, cis-	638-04-0	74%	940 NJ
Unknown	NA	NA	1900 J
Unknown	NA	NA	880 J
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	53%	870 NJ
Cyclohexane, 1-methyl-3-propyl-	4291-80-9	49%	2000 NJ
Decane, 4-methyl-	2847-72-5	86%	680 NJ
3,7-Decadiene, 2,9-dimethyl-	74630-13-0	64%	1100 NJ

Client Sample ID: PV03-0912

Lab ID#: 1209361A-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.99	5.1	4.9	25
Acetone	4.9	36	12	85
Carbon Disulfide	4.9	38	15	120
Hexane	0.99	1.6	3.5	5.8
Tetrahydrofuran	4.9	210	14	630
Chloroform	0.99	2.4	4.8	12
Benzene	0.99	2.0	3.2	6.3

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: PV03-0912

Lab ID#: 1209361A-04A

Heptane	0.99	1.2	4.0	4.7
4-Methyl-2-pentanone	0.99	120	4.0	490
Chlorobenzene	0.99	1.1	4.5	4.9
TPH ref. to Gasoline (MW=100)	99	630	400	2600
NMOC ref. to Heptane (MW=100)	20	490	81	2000

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount (ppbv)
Unknown	NA	NA	150 J
Methane, chlorodifluoro-	75-45-6	91%	110 NJ
1-Propene, 2-methyl-	115-11-7	80%	76 NJ
Cyclohexane, propyl-	1678-92-8	64%	25 NJ
2-Nonene, 3-methyl-, (E)-	17003-99-5	83%	33 NJ
Unknown	NA	NA	35 J
Unknown	NA	NA	13 J
Unknown	NA	NA	18 J
Unknown	NA	NA	13 J
Bicyclo[2.2.1]heptane, 2-methyl-	15185-11-2	70%	16 NJ

Client Sample ID: GMP10-0918

Lab ID#: 1209361A-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.46	0.60	2.3	3.0
Chloromethane	0.46	0.55	0.94	1.1
Freon 11	0.46	2.8	2.6	16
Acetone	2.3	7.5	5.4	18
Chloroform	0.46	0.81	2.2	4.0
Benzene	0.46	2.0	1.5	6.5
Trichloroethene	0.46	2.2	2.5	12
Toluene	0.46	0.48	1.7	1.8
Tetrachloroethene	0.46	91	3.1	610
NMOC ref. to Heptane (MW=100)	9.2	61	37	250

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: GMP10-0918

Lab ID#: 1209361A-05A

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount (ppbv)
Unknown	NA	NA	2.3 J

Client Sample ID: AMB01-0918

Lab ID#: 1209361A-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.24	0.57	1.2	2.8
Chloromethane	0.24	0.68	0.49	1.4
Ethanol	1.2	2.9	2.2	5.5
Acetone	1.2	8.4	2.8	20
Methylene Chloride	0.48	0.55	1.6	1.9
Toluene	0.24	0.27	0.90	1.0

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount (ppbv)
Unknown	NA	NA	2.4 J
1-Heptene, 6-methyl-	5026-76-6	53%	1.2 NJ

Client Sample ID: GMP20-0918

Lab ID#: 1209361A-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.24	0.67	1.2	3.3
Freon 11	0.24	2.4	1.4	13
Ethanol	1.2	1.5	2.3	2.8
Acetone	1.2	9.6	2.9	23
2-Butanone (Methyl Ethyl Ketone)	1.2	1.3	3.6	3.9
Chloroform	0.24	0.27	1.2	1.3
1,1,1-Trichloroethane	0.24	0.46	1.3	2.5
Trichloroethene	0.24	1.2	1.3	6.4
Tetrachloroethene	0.24	0.38	1.6	2.6
NMOC ref. to Heptane (MW=100)	4.8	13	20	53

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: GMP20-0918

Lab ID#: 1209361A-07A

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount (ppbv)
1-Pentene, 2,4,4-trimethyl-	107-39-1	64%	1.4 NJ

Client Sample ID: GMP08A-0918

Lab ID#: 1209361A-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.24	0.56	1.2	2.8
Acetone	1.2	7.9	2.9	19
1,1-Dichloroethane	0.24	0.98	0.98	4.0
2-Butanone (Methyl Ethyl Ketone)	1.2	1.2	3.6	3.6
Chloroform	0.24	14	1.2	66
1,1,1-Trichloroethane	0.24	1.4	1.3	7.6
4-Methyl-2-pentanone	0.24	0.29	0.99	1.2
Tetrachloroethene	0.24	0.25	1.6	1.7
TPH ref. to Gasoline (MW=100)	24	27	99	110
NMOC ref. to Heptane (MW=100)	4.8	30	20	120

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount (ppbv)
Unknown	NA	NA	7.7 J
Unknown	NA	NA	2.0 J
Unknown	NA	NA	6.1 J
2,3-Butanedione	431-03-8	50%	3.4 NJ
Methane, nitro-	75-52-5	78%	5.4 NJ

Client Sample ID: GMP42-0918

Lab ID#: 1209361A-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.25	0.56	1.2	2.8
Acetone	1.2	14	2.9	33
1,1-Dichloroethane	0.25	0.97	1.0	3.9

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: GMP42-0918

Lab ID#: 1209361A-09A

Chloroform	0.25	14	1.2	67
1,1,1-Trichloroethane	0.25	1.4	1.3	7.8
Tetrachloroethene	0.25	0.27	1.7	1.8
NMOC ref. to Heptane (MW=100)	4.9	13	20	53

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount (ppbv)
Unknown	NA	NA	8.2 J
Unknown	NA	NA	1.3 J

Client Sample ID: GMP23-0918

Lab ID#: 1209361A-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.23	0.64	1.1	3.2
Chloromethane	0.23	0.27	0.47	0.56
Bromomethane	0.23	0.24	0.89	0.93
Acetone	1.1	4.5	2.7	11
2-Propanol	1.1	1.2	2.8	3.0
Hexane	0.23	1.9	0.81	6.6
Cyclohexane	0.23	0.69	0.79	2.4
Benzene	0.23	0.98	0.73	3.1
Heptane	0.23	2.6	0.94	11
Toluene	0.23	1.4	0.86	5.3
Tetrachloroethene	0.23	1.3	1.6	8.6
Ethyl Benzene	0.23	0.94	0.99	4.1
m,p-Xylene	0.23	6.9	0.99	30
o-Xylene	0.23	7.2	0.99	31
Styrene	0.23	0.34	0.98	1.4
Cumene	0.23	4.0	1.1	19
Propylbenzene	0.23	3.8	1.1	19
4-Ethyltoluene	0.23	4.0	1.1	20
1,3,5-Trimethylbenzene	0.23	11	1.1	56
1,2,4-Trimethylbenzene	0.23	6.5	1.1	32
1,4-Dichlorobenzene	0.23	0.49	1.4	2.9

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: GMP23-0918

Lab ID#: 1209361A-10A

TPH ref. to Gasoline (MW=100)	23	9000	94	37000
NMOC ref. to Heptane (MW=100)	4.6	7000	19	29000

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount (ppbv)
Cyclohexane, 1,1,3-trimethyl-	3073-66-3	90%	790 NJ
Cyclohexane, 1-ethyl-2-methyl-, cis-	4923-77-7	64%	460 NJ
2-Nonen-1-ol, (Z)-	41453-56-9	64%	810 NJ
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	78%	630 NJ
Cyclohexane, 1-methyl-2-propyl-	4291-79-6	47%	460 NJ
Tridecane, 7-methylene-	19780-80-4	59%	940 NJ
Unknown	NA	NA	500 J
Unknown	NA	NA	990 J
Spiro[4.5]decane	176-63-6	86%	560 NJ
Cyclohexane, 1,2-diethyl-3-methyl-	61141-80-8	64%	470 NJ

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Client Sample ID: GMP24-0918

Lab ID#: 1209361A-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092509**	**Date of Collection:**	**9/18/12 9:10:00 AM**
Dil. Factor:	**2.09**	**Date of Analysis:**	**9/25/12 02:10 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.21	0.83	1.0	4.1
Freon 114	0.21	Not Detected	1.5	Not Detected
Chloromethane	0.21	Not Detected	0.43	Not Detected
Vinyl Chloride	0.21	Not Detected	0.53	Not Detected
1,3-Butadiene	0.21	Not Detected	0.46	Not Detected
Bromomethane	0.21	1.3	0.81	5.0
Chloroethane	1.0	Not Detected	2.8	Not Detected
Freon 11	0.21	1.6	1.2	8.8
Ethanol	1.0	Not Detected	2.0	Not Detected
Freon 113	0.21	Not Detected	1.6	Not Detected
1,1-Dichloroethene	0.21	Not Detected	0.83	Not Detected
Acetone	1.0	3.7	2.5	8.8
2-Propanol	1.0	13	2.6	32
Carbon Disulfide	1.0	Not Detected	3.2	Not Detected
3-Chloropropene	1.0	Not Detected	3.3	Not Detected
Methylene Chloride	0.42	0.93	1.4	3.2
Methyl tert-butyl ether	0.21	Not Detected	0.75	Not Detected
trans-1,2-Dichloroethene	0.21	Not Detected	0.83	Not Detected
Hexane	0.21	0.63	0.74	2.2
1,1-Dichloroethane	0.21	0.58	0.85	2.4
2-Butanone (Methyl Ethyl Ketone)	1.0	Not Detected	3.1	Not Detected
cis-1,2-Dichloroethene	0.21	Not Detected	0.83	Not Detected
Tetrahydrofuran	1.0	Not Detected	3.1	Not Detected
Chloroform	0.21	Not Detected	1.0	Not Detected
1,1,1-Trichloroethane	0.21	Not Detected	1.1	Not Detected
Cyclohexane	0.21	Not Detected	0.72	Not Detected
Carbon Tetrachloride	0.21	Not Detected	1.3	Not Detected
2,2,4-Trimethylpentane	1.0	Not Detected	4.9	Not Detected
Benzene	0.21	Not Detected	0.67	Not Detected
1,2-Dichloroethane	0.21	Not Detected	0.84	Not Detected
Heptane	0.21	0.27	0.86	1.1
Trichloroethene	0.21	Not Detected	1.1	Not Detected
1,2-Dichloropropane	0.21	Not Detected	0.96	Not Detected
1,4-Dioxane	0.21	Not Detected	0.75	Not Detected
Bromodichloromethane	0.21	Not Detected	1.4	Not Detected
cis-1,3-Dichloropropene	0.21	Not Detected	0.95	Not Detected
4-Methyl-2-pentanone	0.21	Not Detected	0.86	Not Detected
Toluene	0.21	Not Detected	0.79	Not Detected
trans-1,3-Dichloropropene	0.21	Not Detected	0.95	Not Detected
1,1,2-Trichloroethane	0.21	Not Detected	1.1	Not Detected
Tetrachloroethene	0.21	1.4	1.4	9.9
2-Hexanone	1.0	Not Detected	4.3	Not Detected

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Client Sample ID: GMP24-0918

Lab ID#: 1209361A-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092509**	**Date of Collection:**	**9/18/12 9:10:00 AM**
Dil. Factor:	**2.09**	**Date of Analysis:**	**9/25/12 02:10 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.21	Not Detected	1.8	Not Detected
1,2-Dibromoethane (EDB)	0.21	Not Detected	1.6	Not Detected
Chlorobenzene	0.21	Not Detected	0.96	Not Detected
Ethyl Benzene	0.21	0.24	0.91	1.0
m,p-Xylene	0.21	0.34	0.91	1.5
o-Xylene	0.21	0.35	0.91	1.5
Styrene	0.21	Not Detected	0.89	Not Detected
Bromoform	0.21	Not Detected	2.2	Not Detected
Cumene	0.21	Not Detected	1.0	Not Detected
1,1,2,2-Tetrachloroethane	0.21	Not Detected	1.4	Not Detected
Propylbenzene	0.21	Not Detected	1.0	Not Detected
4-Ethyltoluene	0.21	Not Detected	1.0	Not Detected
1,3,5-Trimethylbenzene	0.21	Not Detected	1.0	Not Detected
1,2,4-Trimethylbenzene	0.21	0.25	1.0	1.2
1,3-Dichlorobenzene	0.21	Not Detected	1.2	Not Detected
1,4-Dichlorobenzene	0.21	0.48 J	1.2	2.9 J
alpha-Chlorotoluene	0.21	Not Detected	1.1	Not Detected
1,2-Dichlorobenzene	0.21	Not Detected	1.2	Not Detected
1,2,4-Trichlorobenzene	1.0	Not Detected	7.8	Not Detected
Hexachlorobutadiene	1.0	Not Detected	11	Not Detected
Naphthalene	1.0	Not Detected	5.5	Not Detected
TPH ref. to Gasoline (MW=100)	21	1700	85	7000
NMOC ref. to Heptane (MW=100)	4.2	1400	17	5700
Vinyl Acetate	1.0	Not Detected	3.7	Not Detected

J = Estimated value due to bias in the CCV.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Cyclopropane, 1,2-dimethyl-1-pentyl-	62238-04-4	70%	70 NJ
Unknown	NA	NA	66 J
Cyclopentane, (2-methylbutylidene)-	53366-54-4	52%	59 NJ
4-Decyne	2384-86-3	53%	97 NJ
Cyclohexane, 1,1-dimethyl-2-propyl-	81983-71-3	95%	59 NJ
Methyl 2-hydroxydodecanoate	51067-85-7	50%	59 NJ
Spiro[4.5]decane	176-63-6	53%	86 NJ
Cyclohexane, 1,2-diethyl-3-methyl-	61141-80-8	64%	79 NJ
Cyclohexane, 1-methyl-4-(1-methylethylid	1124-27-2	55%	67 NJ

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Client Sample ID: GMP24-0918

Lab ID#: 1209361A-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092509**	**Date of Collection:**	**9/18/12 9:10:00 AM**
Dil. Factor:	**2.09**	**Date of Analysis:**	**9/25/12 02:10 PM**

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Bicyclo[3.3.1]non-2-en-9-one	4844-11-5	59%	70 NJ

NJ =The identification is based on presumptive evidence; estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	93	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	93	70-130

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Client Sample ID: GMP34-0912

Lab ID#: 1209361A-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092514**	**Date of Collection:**	**9/18/12 11:28:00 AM**
Dil. Factor:	**2.24**	**Date of Analysis:**	**9/25/12 06:31 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.22	1.2	1.1	5.8
Freon 114	0.22	Not Detected	1.6	Not Detected
Chloromethane	0.22	0.37	0.46	0.77
Vinyl Chloride	0.22	Not Detected	0.57	Not Detected
1,3-Butadiene	0.22	Not Detected	0.50	Not Detected
Bromomethane	0.22	Not Detected	0.87	Not Detected
Chloroethane	1.1	Not Detected	3.0	Not Detected
Freon 11	0.22	8.7	1.2	49
Ethanol	1.1	Not Detected	2.1	Not Detected
Freon 113	0.22	0.56	1.7	4.3
1,1-Dichloroethene	0.22	Not Detected	0.89	Not Detected
Acetone	1.1	4.8	2.7	11
2-Propanol	1.1	Not Detected	2.8	Not Detected
Carbon Disulfide	1.1	Not Detected	3.5	Not Detected
3-Chloropropene	1.1	Not Detected	3.5	Not Detected
Methylene Chloride	0.45	Not Detected	1.6	Not Detected
Methyl tert-butyl ether	0.22	Not Detected	0.81	Not Detected
trans-1,2-Dichloroethene	0.22	Not Detected	0.89	Not Detected
Hexane	0.22	Not Detected	0.79	Not Detected
1,1-Dichloroethane	0.22	Not Detected	0.91	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.1	Not Detected	3.3	Not Detected
cis-1,2-Dichloroethene	0.22	Not Detected	0.89	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.3	Not Detected
Chloroform	0.22	Not Detected	1.1	Not Detected
1,1,1-Trichloroethane	0.22	Not Detected	1.2	Not Detected
Cyclohexane	0.22	Not Detected	0.77	Not Detected
Carbon Tetrachloride	0.22	Not Detected	1.4	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.2	Not Detected
Benzene	0.22	Not Detected	0.72	Not Detected
1,2-Dichloroethane	0.22	Not Detected	0.91	Not Detected
Heptane	0.22	Not Detected	0.92	Not Detected
Trichloroethene	0.22	Not Detected	1.2	Not Detected
1,2-Dichloropropane	0.22	Not Detected	1.0	Not Detected
1,4-Dioxane	0.22	Not Detected	0.81	Not Detected
Bromodichloromethane	0.22	Not Detected	1.5	Not Detected
cis-1,3-Dichloropropene	0.22	Not Detected	1.0	Not Detected
4-Methyl-2-pentanone	0.22	Not Detected	0.92	Not Detected
Toluene	0.22	Not Detected	0.84	Not Detected
trans-1,3-Dichloropropene	0.22	Not Detected	1.0	Not Detected
1,1,2-Trichloroethane	0.22	Not Detected	1.2	Not Detected
Tetrachloroethene	0.22	2.1	1.5	14
2-Hexanone	1.1	Not Detected	4.6	Not Detected

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Client Sample ID: GMP34-0912

Lab ID#: 1209361A-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092514**	**Date of Collection:**	**9/18/12 11:28:00 AM**
Dil. Factor:	**2.24**	**Date of Analysis:**	**9/25/12 06:31 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.22	Not Detected	1.9	Not Detected
1,2-Dibromoethane (EDB)	0.22	Not Detected	1.7	Not Detected
Chlorobenzene	0.22	Not Detected	1.0	Not Detected
Ethyl Benzene	0.22	Not Detected	0.97	Not Detected
m,p-Xylene	0.22	Not Detected	0.97	Not Detected
o-Xylene	0.22	Not Detected	0.97	Not Detected
Styrene	0.22	Not Detected	0.95	Not Detected
Bromoform	0.22	Not Detected	2.3	Not Detected
Cumene	0.22	Not Detected	1.1	Not Detected
1,1,2,2-Tetrachloroethane	0.22	Not Detected	1.5	Not Detected
Propylbenzene	0.22	Not Detected	1.1	Not Detected
4-Ethyltoluene	0.22	Not Detected	1.1	Not Detected
1,3,5-Trimethylbenzene	0.22	Not Detected	1.1	Not Detected
1,2,4-Trimethylbenzene	0.22	Not Detected	1.1	Not Detected
1,3-Dichlorobenzene	0.22	Not Detected	1.3	Not Detected
1,4-Dichlorobenzene	0.22	Not Detected UJ	1.3	Not Detected UJ
alpha-Chlorotoluene	0.22	Not Detected	1.2	Not Detected
1,2-Dichlorobenzene	0.22	Not Detected	1.3	Not Detected
1,2,4-Trichlorobenzene	1.1	Not Detected	8.3	Not Detected
Hexachlorobutadiene	1.1	Not Detected	12	Not Detected
Naphthalene	1.1	Not Detected	5.9	Not Detected
TPH ref. to Gasoline (MW=100)	22	Not Detected	92	Not Detected
NMOC ref. to Heptane (MW=100)	4.5	17	18	70
Vinyl Acetate	1.1	Not Detected	3.9	Not Detected

UJ = Non-detected compound associated with low bias in the CCV and/or LCS.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Methane, nitro-	75-52-5	59%	2.0 NJ
3-Heptanone	106-35-4	80%	2.0 NJ

NJ =The identification is based on presumptive evidence; estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: PV02-0912

Lab ID#: 1209361A-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092712**	**Date of Collection:**	**9/18/12 12:11:00 PM**
Dil. Factor:	**10.1**	**Date of Analysis:**	**9/27/12 05:59 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.0	8.1	5.0	40
Freon 114	1.0	3.3	7.1	23
Chloromethane	1.0	Not Detected	2.1	Not Detected
Vinyl Chloride	1.0	10	2.6	27
1,3-Butadiene	1.0	Not Detected	2.2	Not Detected
Bromomethane	1.0	Not Detected	3.9	Not Detected
Chloroethane	5.0	10	13	28
Freon 11	1.0	Not Detected	5.7	Not Detected
Ethanol	5.0	Not Detected	9.5	Not Detected
Freon 113	1.0	Not Detected	7.7	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Acetone	5.0	13	12	30
2-Propanol	5.0	Not Detected	12	Not Detected
Carbon Disulfide	5.0	Not Detected	16	Not Detected
3-Chloropropene	5.0	Not Detected	16	Not Detected
Methylene Chloride	2.0	Not Detected	7.0	Not Detected
Methyl tert-butyl ether	1.0	Not Detected	3.6	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Hexane	1.0	44	3.6	150
1,1-Dichloroethane	1.0	Not Detected	4.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.0	Not Detected	15	Not Detected
cis-1,2-Dichloroethene	1.0	3.1	4.0	12
Tetrahydrofuran	5.0	Not Detected	15	Not Detected
Chloroform	1.0	3.0	4.9	14
1,1,1-Trichloroethane	1.0	Not Detected	5.5	Not Detected
Cyclohexane	1.0	45	3.5	160
Carbon Tetrachloride	1.0	Not Detected	6.4	Not Detected
2,2,4-Trimethylpentane	5.0	20	24	93
Benzene	1.0	15	3.2	48
1,2-Dichloroethane	1.0	Not Detected	4.1	Not Detected
Heptane	1.0	57	4.1	230
Trichloroethene	1.0	1.3	5.4	7.2
1,2-Dichloropropane	1.0	Not Detected	4.7	Not Detected
1,4-Dioxane	1.0	Not Detected	3.6	Not Detected
Bromodichloromethane	1.0	Not Detected	6.8	Not Detected
cis-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
4-Methyl-2-pentanone	1.0	Not Detected	4.1	Not Detected
Toluene	1.0	6.3	3.8	24
trans-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
1,1,2-Trichloroethane	1.0	Not Detected	5.5	Not Detected
Tetrachloroethene	1.0	Not Detected	6.8	Not Detected
2-Hexanone	5.0	Not Detected	21	Not Detected

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Client Sample ID: PV02-0912

Lab ID#: 1209361A-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092712**	**Date of Collection:**	**9/18/12 12:11:00 PM**
Dil. Factor:	**10.1**	**Date of Analysis:**	**9/27/12 05:59 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.0	Not Detected	8.6	Not Detected
1,2-Dibromoethane (EDB)	1.0	Not Detected	7.8	Not Detected
Chlorobenzene	1.0	26	4.6	120
Ethyl Benzene	1.0	19	4.4	83
m,p-Xylene	1.0	38	4.4	170
o-Xylene	1.0	14	4.4	63
Styrene	1.0	Not Detected	4.3	Not Detected
Bromoform	1.0	Not Detected	10	Not Detected
Cumene	1.0	14	5.0	71
1,1,2,2-Tetrachloroethane	1.0	Not Detected	6.9	Not Detected
Propylbenzene	1.0	22	5.0	110
4-Ethyltoluene	1.0	26	5.0	120
1,3,5-Trimethylbenzene	1.0	17	5.0	83
1,2,4-Trimethylbenzene	1.0	59	5.0	290
1,3-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
1,4-Dichlorobenzene	1.0	8.6	6.1	52
alpha-Chlorotoluene	1.0	Not Detected	5.2	Not Detected
1,2-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
1,2,4-Trichlorobenzene	5.0	Not Detected	37	Not Detected
Hexachlorobutadiene	5.0	Not Detected UJ	54	Not Detected UJ
Naphthalene	5.0	Not Detected	26	Not Detected
TPH ref. to Gasoline (MW=100)	100	14000	410	57000
NMOC ref. to Heptane (MW=100)	20	11000	83	45000
Vinyl Acetate	5.0	Not Detected	18	Not Detected

UJ = Non-detected compound associated with low bias in the CCV and/or LCS.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Cyclohexane, 1,4-dimethyl-, cis-	624-29-3	91%	670 NJ
Cyclohexane, 1,1,3-trimethyl-	3073-66-3	90%	1800 NJ
Cyclohexane, 1-ethyl-4-methyl-, cis-	4926-78-7	64%	900 NJ
Cyclohexane, 1,3-dimethyl-, cis-	638-04-0	74%	940 NJ
Unknown	NA	NA	1900 J
Unknown	NA	NA	880 J
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	53%	870 NJ
Cyclohexane, 1-methyl-3-propyl-	4291-80-9	49%	2000 NJ
Decane, 4-methyl-	2847-72-5	86%	680 NJ
3,7-Decadiene, 2,9-dimethyl-	74630-13-0	64%	1100 NJ

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Client Sample ID: PV02-0912

Lab ID#: 1209361A-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092712**	**Date of Collection: 9/18/12 12:11:00 PM**
Dil. Factor:	**10.1**	**Date of Analysis: 9/27/12 05:59 PM**

NJ =The identification is based on presumptive evidence; estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: PV03-0912

Lab ID#: 1209361A-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092713**	**Date of Collection:**	**9/18/12 12:52:00 PM**
Dil. Factor:	**9.88**	**Date of Analysis:**	**9/27/12 06:53 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.99	5.1	4.9	25
Freon 114	0.99	Not Detected	6.9	Not Detected
Chloromethane	0.99	Not Detected	2.0	Not Detected
Vinyl Chloride	0.99	Not Detected	2.5	Not Detected
1,3-Butadiene	0.99	Not Detected	2.2	Not Detected
Bromomethane	0.99	Not Detected	3.8	Not Detected
Chloroethane	4.9	Not Detected	13	Not Detected
Freon 11	0.99	Not Detected	5.6	Not Detected
Ethanol	4.9	Not Detected	9.3	Not Detected
Freon 113	0.99	Not Detected	7.6	Not Detected
1,1-Dichloroethene	0.99	Not Detected	3.9	Not Detected
Acetone	4.9	36	12	85
2-Propanol	4.9	Not Detected	12	Not Detected
Carbon Disulfide	4.9	38	15	120
3-Chloropropene	4.9	Not Detected	15	Not Detected
Methylene Chloride	2.0	Not Detected	6.9	Not Detected
Methyl tert-butyl ether	0.99	Not Detected	3.6	Not Detected
trans-1,2-Dichloroethene	0.99	Not Detected	3.9	Not Detected
Hexane	0.99	1.6	3.5	5.8
1,1-Dichloroethane	0.99	Not Detected	4.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.9	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	0.99	Not Detected	3.9	Not Detected
Tetrahydrofuran	4.9	210	14	630
Chloroform	0.99	2.4	4.8	12
1,1,1-Trichloroethane	0.99	Not Detected	5.4	Not Detected
Cyclohexane	0.99	Not Detected	3.4	Not Detected
Carbon Tetrachloride	0.99	Not Detected	6.2	Not Detected
2,2,4-Trimethylpentane	4.9	Not Detected	23	Not Detected
Benzene	0.99	2.0	3.2	6.3
1,2-Dichloroethane	0.99	Not Detected	4.0	Not Detected
Heptane	0.99	1.2	4.0	4.7
Trichloroethene	0.99	Not Detected	5.3	Not Detected
1,2-Dichloropropane	0.99	Not Detected	4.6	Not Detected
1,4-Dioxane	0.99	Not Detected	3.6	Not Detected
Bromodichloromethane	0.99	Not Detected	6.6	Not Detected
cis-1,3-Dichloropropene	0.99	Not Detected	4.5	Not Detected
4-Methyl-2-pentanone	0.99	120	4.0	490
Toluene	0.99	Not Detected	3.7	Not Detected
trans-1,3-Dichloropropene	0.99	Not Detected	4.5	Not Detected
1,1,2-Trichloroethane	0.99	Not Detected	5.4	Not Detected
Tetrachloroethene	0.99	Not Detected	6.7	Not Detected
2-Hexanone	4.9	Not Detected	20	Not Detected

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Client Sample ID: PV03-0912

Lab ID#: 1209361A-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092713**	**Date of Collection:**	**9/18/12 12:52:00 PM**
Dil. Factor:	**9.88**	**Date of Analysis:**	**9/27/12 06:53 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.99	Not Detected	8.4	Not Detected
1,2-Dibromoethane (EDB)	0.99	Not Detected	7.6	Not Detected
Chlorobenzene	0.99	1.1	4.5	4.9
Ethyl Benzene	0.99	Not Detected	4.3	Not Detected
m,p-Xylene	0.99	Not Detected	4.3	Not Detected
o-Xylene	0.99	Not Detected	4.3	Not Detected
Styrene	0.99	Not Detected	4.2	Not Detected
Bromoform	0.99	Not Detected	10	Not Detected
Cumene	0.99	Not Detected	4.8	Not Detected
1,1,2,2-Tetrachloroethane	0.99	Not Detected	6.8	Not Detected
Propylbenzene	0.99	Not Detected	4.8	Not Detected
4-Ethyltoluene	0.99	Not Detected	4.8	Not Detected
1,3,5-Trimethylbenzene	0.99	Not Detected	4.8	Not Detected
1,2,4-Trimethylbenzene	0.99	Not Detected	4.8	Not Detected
1,3-Dichlorobenzene	0.99	Not Detected	5.9	Not Detected
1,4-Dichlorobenzene	0.99	Not Detected	5.9	Not Detected
alpha-Chlorotoluene	0.99	Not Detected	5.1	Not Detected
1,2-Dichlorobenzene	0.99	Not Detected	5.9	Not Detected
1,2,4-Trichlorobenzene	4.9	Not Detected	37	Not Detected
Hexachlorobutadiene	4.9	Not Detected UJ	53	Not Detected UJ
Naphthalene	4.9	Not Detected	26	Not Detected
TPH ref. to Gasoline (MW=100)	99	630	400	2600
NMOC ref. to Heptane (MW=100)	20	490	81	2000
Vinyl Acetate	4.9	Not Detected	17	Not Detected

UJ = Non-detected compound associated with low bias in the CCV and/or LCS.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Unknown	NA	NA	150 J
Methane, chlorodifluoro-	75-45-6	91%	110 NJ
1-Propene, 2-methyl-	115-11-7	80%	76 NJ
Cyclohexane, propyl-	1678-92-8	64%	25 NJ
2-Nonene, 3-methyl-, (E)-	17003-99-5	83%	33 NJ
Unknown	NA	NA	35 J
Unknown	NA	NA	13 J
Unknown	NA	NA	18 J
Unknown	NA	NA	13 J
Bicyclo[2.2.1]heptane, 2-methyl-	15185-11-2	70%	16 NJ

NJ =The identification is based on presumptive evidence; estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: PV03-0912

Lab ID#: 1209361A-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092713**	**Date of Collection:**	**9/18/12 12:52:00 PM**
Dil. Factor:	**9.88**	**Date of Analysis:**	**9/27/12 06:53 PM**

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	92	70-130

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Client Sample ID: GMP10-0918

Lab ID#: 1209361A-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092715**	**Date of Collection:**	**9/18/12 1:34:00 PM**
Dil. Factor:	**4.58**	**Date of Analysis:**	**9/27/12 09:05 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.46	0.60	2.3	3.0
Freon 114	0.46	Not Detected	3.2	Not Detected
Chloromethane	0.46	0.55	0.94	1.1
Vinyl Chloride	0.46	Not Detected	1.2	Not Detected
1,3-Butadiene	0.46	Not Detected	1.0	Not Detected
Bromomethane	0.46	Not Detected	1.8	Not Detected
Chloroethane	2.3	Not Detected	6.0	Not Detected
Freon 11	0.46	2.8	2.6	16
Ethanol	2.3	Not Detected	4.3	Not Detected
Freon 113	0.46	Not Detected	3.5	Not Detected
1,1-Dichloroethene	0.46	Not Detected	1.8	Not Detected
Acetone	2.3	7.5	5.4	18
2-Propanol	2.3	Not Detected	5.6	Not Detected
Carbon Disulfide	2.3	Not Detected	7.1	Not Detected
3-Chloropropene	2.3	Not Detected	7.2	Not Detected
Methylene Chloride	0.92	Not Detected	3.2	Not Detected
Methyl tert-butyl ether	0.46	Not Detected	1.6	Not Detected
trans-1,2-Dichloroethene	0.46	Not Detected	1.8	Not Detected
Hexane	0.46	Not Detected	1.6	Not Detected
1,1-Dichloroethane	0.46	Not Detected	1.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.3	Not Detected	6.8	Not Detected
cis-1,2-Dichloroethene	0.46	Not Detected	1.8	Not Detected
Tetrahydrofuran	2.3	Not Detected	6.8	Not Detected
Chloroform	0.46	0.81	2.2	4.0
1,1,1-Trichloroethane	0.46	Not Detected	2.5	Not Detected
Cyclohexane	0.46	Not Detected	1.6	Not Detected
Carbon Tetrachloride	0.46	Not Detected	2.9	Not Detected
2,2,4-Trimethylpentane	2.3	Not Detected	11	Not Detected
Benzene	0.46	2.0	1.5	6.5
1,2-Dichloroethane	0.46	Not Detected	1.8	Not Detected
Heptane	0.46	Not Detected	1.9	Not Detected
Trichloroethene	0.46	2.2	2.5	12
1,2-Dichloropropane	0.46	Not Detected	2.1	Not Detected
1,4-Dioxane	0.46	Not Detected	1.6	Not Detected
Bromodichloromethane	0.46	Not Detected	3.1	Not Detected
cis-1,3-Dichloropropene	0.46	Not Detected	2.1	Not Detected
4-Methyl-2-pentanone	0.46	Not Detected	1.9	Not Detected
Toluene	0.46	0.48	1.7	1.8
trans-1,3-Dichloropropene	0.46	Not Detected	2.1	Not Detected
1,1,2-Trichloroethane	0.46	Not Detected	2.5	Not Detected
Tetrachloroethene	0.46	91	3.1	610
2-Hexanone	2.3	Not Detected	9.4	Not Detected

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Client Sample ID: GMP10-0918

Lab ID#: 1209361A-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092715**	**Date of Collection:**	**9/18/12 1:34:00 PM**
Dil. Factor:	**4.58**	**Date of Analysis:**	**9/27/12 09:05 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.46	Not Detected	3.9	Not Detected
1,2-Dibromoethane (EDB)	0.46	Not Detected	3.5	Not Detected
Chlorobenzene	0.46	Not Detected	2.1	Not Detected
Ethyl Benzene	0.46	Not Detected	2.0	Not Detected
m,p-Xylene	0.46	Not Detected	2.0	Not Detected
o-Xylene	0.46	Not Detected	2.0	Not Detected
Styrene	0.46	Not Detected	2.0	Not Detected
Bromoform	0.46	Not Detected	4.7	Not Detected
Cumene	0.46	Not Detected	2.2	Not Detected
1,1,2,2-Tetrachloroethane	0.46	Not Detected	3.1	Not Detected
Propylbenzene	0.46	Not Detected	2.2	Not Detected
4-Ethyltoluene	0.46	Not Detected	2.2	Not Detected
1,3,5-Trimethylbenzene	0.46	Not Detected	2.2	Not Detected
1,2,4-Trimethylbenzene	0.46	Not Detected	2.2	Not Detected
1,3-Dichlorobenzene	0.46	Not Detected	2.8	Not Detected
1,4-Dichlorobenzene	0.46	Not Detected	2.8	Not Detected
alpha-Chlorotoluene	0.46	Not Detected	2.4	Not Detected
1,2-Dichlorobenzene	0.46	Not Detected	2.8	Not Detected
1,2,4-Trichlorobenzene	2.3	Not Detected	17	Not Detected
Hexachlorobutadiene	2.3	Not Detected UJ	24	Not Detected UJ
Naphthalene	2.3	Not Detected	12	Not Detected
TPH ref. to Gasoline (MW=100)	46	Not Detected	190	Not Detected
NMOC ref. to Heptane (MW=100)	9.2	61	37	250
Vinyl Acetate	2.3	Not Detected	8.1	Not Detected

UJ = Non-detected compound associated with low bias in the CCV and/or LCS.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Unknown	NA	NA	2.3 J

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	90	70-130

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Client Sample ID: AMB01-0918

Lab ID#: 1209361A-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092716**	**Date of Collection:**	**9/18/12 1:44:00 PM**
Dil. Factor:	**2.38**	**Date of Analysis:**	**9/27/12 10:03 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.24	0.57	1.2	2.8
Freon 114	0.24	Not Detected	1.7	Not Detected
Chloromethane	0.24	0.68	0.49	1.4
Vinyl Chloride	0.24	Not Detected	0.61	Not Detected
1,3-Butadiene	0.24	Not Detected	0.53	Not Detected
Bromomethane	0.24	Not Detected	0.92	Not Detected
Chloroethane	1.2	Not Detected	3.1	Not Detected
Freon 11	0.24	Not Detected	1.3	Not Detected
Ethanol	1.2	2.9	2.2	5.5
Freon 113	0.24	Not Detected	1.8	Not Detected
1,1-Dichloroethene	0.24	Not Detected	0.94	Not Detected
Acetone	1.2	8.4	2.8	20
2-Propanol	1.2	Not Detected	2.9	Not Detected
Carbon Disulfide	1.2	Not Detected	3.7	Not Detected
3-Chloropropene	1.2	Not Detected	3.7	Not Detected
Methylene Chloride	0.48	0.55	1.6	1.9
Methyl tert-butyl ether	0.24	Not Detected	0.86	Not Detected
trans-1,2-Dichloroethene	0.24	Not Detected	0.94	Not Detected
Hexane	0.24	Not Detected	0.84	Not Detected
1,1-Dichloroethane	0.24	Not Detected	0.96	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.2	Not Detected	3.5	Not Detected
cis-1,2-Dichloroethene	0.24	Not Detected	0.94	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.5	Not Detected
Chloroform	0.24	Not Detected	1.2	Not Detected
1,1,1-Trichloroethane	0.24	Not Detected	1.3	Not Detected
Cyclohexane	0.24	Not Detected	0.82	Not Detected
Carbon Tetrachloride	0.24	Not Detected	1.5	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.6	Not Detected
Benzene	0.24	Not Detected	0.76	Not Detected
1,2-Dichloroethane	0.24	Not Detected	0.96	Not Detected
Heptane	0.24	Not Detected	0.98	Not Detected
Trichloroethene	0.24	Not Detected	1.3	Not Detected
1,2-Dichloropropane	0.24	Not Detected	1.1	Not Detected
1,4-Dioxane	0.24	Not Detected	0.86	Not Detected
Bromodichloromethane	0.24	Not Detected	1.6	Not Detected
cis-1,3-Dichloropropene	0.24	Not Detected	1.1	Not Detected
4-Methyl-2-pentanone	0.24	Not Detected	0.97	Not Detected
Toluene	0.24	0.27	0.90	1.0
trans-1,3-Dichloropropene	0.24	Not Detected	1.1	Not Detected
1,1,2-Trichloroethane	0.24	Not Detected	1.3	Not Detected
Tetrachloroethene	0.24	Not Detected	1.6	Not Detected
2-Hexanone	1.2	Not Detected	4.9	Not Detected

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Client Sample ID: AMB01-0918

Lab ID#: 1209361A-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092716**	**Date of Collection:**	**9/18/12 1:44:00 PM**
Dil. Factor:	**2.38**	**Date of Analysis:**	**9/27/12 10:03 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.24	Not Detected	2.0	Not Detected
1,2-Dibromoethane (EDB)	0.24	Not Detected	1.8	Not Detected
Chlorobenzene	0.24	Not Detected	1.1	Not Detected
Ethyl Benzene	0.24	Not Detected	1.0	Not Detected
m,p-Xylene	0.24	Not Detected	1.0	Not Detected
o-Xylene	0.24	Not Detected	1.0	Not Detected
Styrene	0.24	Not Detected	1.0	Not Detected
Bromoform	0.24	Not Detected	2.5	Not Detected
Cumene	0.24	Not Detected	1.2	Not Detected
1,1,2,2-Tetrachloroethane	0.24	Not Detected	1.6	Not Detected
Propylbenzene	0.24	Not Detected	1.2	Not Detected
4-Ethyltoluene	0.24	Not Detected	1.2	Not Detected
1,3,5-Trimethylbenzene	0.24	Not Detected	1.2	Not Detected
1,2,4-Trimethylbenzene	0.24	Not Detected	1.2	Not Detected
1,3-Dichlorobenzene	0.24	Not Detected	1.4	Not Detected
1,4-Dichlorobenzene	0.24	Not Detected	1.4	Not Detected
alpha-Chlorotoluene	0.24	Not Detected	1.2	Not Detected
1,2-Dichlorobenzene	0.24	Not Detected	1.4	Not Detected
1,2,4-Trichlorobenzene	1.2	Not Detected	8.8	Not Detected
Hexachlorobutadiene	1.2	Not Detected UJ	13	Not Detected UJ
Naphthalene	1.2	Not Detected	6.2	Not Detected
TPH ref. to Gasoline (MW=100)	24	Not Detected	97	Not Detected
NMOC ref. to Heptane (MW=100)	4.8	Not Detected	19	Not Detected
Vinyl Acetate	1.2	Not Detected	4.2	Not Detected

UJ = Non-detected compound associated with low bias in the CCV and/or LCS.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Unknown	NA	NA	2.4 J
1-Heptene, 6-methyl-	5026-76-6	53%	1.2 NJ

NJ =The identification is based on presumptive evidence; estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	92	70-130

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Client Sample ID: GMP20-0918

Lab ID#: 1209361A-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092717**	**Date of Collection:**	**9/18/12 2:07:00 PM**
Dil. Factor:	**2.42**	**Date of Analysis:**	**9/27/12 10:40 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.24	0.67	1.2	3.3
Freon 114	0.24	Not Detected	1.7	Not Detected
Chloromethane	0.24	Not Detected	0.50	Not Detected
Vinyl Chloride	0.24	Not Detected	0.62	Not Detected
1,3-Butadiene	0.24	Not Detected	0.54	Not Detected
Bromomethane	0.24	Not Detected	0.94	Not Detected
Chloroethane	1.2	Not Detected	3.2	Not Detected
Freon 11	0.24	2.4	1.4	13
Ethanol	1.2	1.5	2.3	2.8
Freon 113	0.24	Not Detected	1.8	Not Detected
1,1-Dichloroethene	0.24	Not Detected	0.96	Not Detected
Acetone	1.2	9.6	2.9	23
2-Propanol	1.2	Not Detected	3.0	Not Detected
Carbon Disulfide	1.2	Not Detected	3.8	Not Detected
3-Chloropropene	1.2	Not Detected	3.8	Not Detected
Methylene Chloride	0.48	Not Detected	1.7	Not Detected
Methyl tert-butyl ether	0.24	Not Detected	0.87	Not Detected
trans-1,2-Dichloroethene	0.24	Not Detected	0.96	Not Detected
Hexane	0.24	Not Detected	0.85	Not Detected
1,1-Dichloroethane	0.24	Not Detected	0.98	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.2	1.3	3.6	3.9
cis-1,2-Dichloroethene	0.24	Not Detected	0.96	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	0.24	0.27	1.2	1.3
1,1,1-Trichloroethane	0.24	0.46	1.3	2.5
Cyclohexane	0.24	Not Detected	0.83	Not Detected
Carbon Tetrachloride	0.24	Not Detected	1.5	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.6	Not Detected
Benzene	0.24	Not Detected	0.77	Not Detected
1,2-Dichloroethane	0.24	Not Detected	0.98	Not Detected
Heptane	0.24	Not Detected	0.99	Not Detected
Trichloroethene	0.24	1.2	1.3	6.4
1,2-Dichloropropane	0.24	Not Detected	1.1	Not Detected
1,4-Dioxane	0.24	Not Detected	0.87	Not Detected
Bromodichloromethane	0.24	Not Detected	1.6	Not Detected
cis-1,3-Dichloropropene	0.24	Not Detected	1.1	Not Detected
4-Methyl-2-pentanone	0.24	Not Detected	0.99	Not Detected
Toluene	0.24	Not Detected	0.91	Not Detected
trans-1,3-Dichloropropene	0.24	Not Detected	1.1	Not Detected
1,1,2-Trichloroethane	0.24	Not Detected	1.3	Not Detected
Tetrachloroethene	0.24	0.38	1.6	2.6
2-Hexanone	1.2	Not Detected	5.0	Not Detected

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Client Sample ID: GMP20-0918

Lab ID#: 1209361A-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092717**	**Date of Collection:**	**9/18/12 2:07:00 PM**
Dil. Factor:	**2.42**	**Date of Analysis:**	**9/27/12 10:40 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.24	Not Detected	2.1	Not Detected
1,2-Dibromoethane (EDB)	0.24	Not Detected	1.8	Not Detected
Chlorobenzene	0.24	Not Detected	1.1	Not Detected
Ethyl Benzene	0.24	Not Detected	1.0	Not Detected
m,p-Xylene	0.24	Not Detected	1.0	Not Detected
o-Xylene	0.24	Not Detected	1.0	Not Detected
Styrene	0.24	Not Detected	1.0	Not Detected
Bromoform	0.24	Not Detected	2.5	Not Detected
Cumene	0.24	Not Detected	1.2	Not Detected
1,1,2,2-Tetrachloroethane	0.24	Not Detected	1.7	Not Detected
Propylbenzene	0.24	Not Detected	1.2	Not Detected
4-Ethyltoluene	0.24	Not Detected	1.2	Not Detected
1,3,5-Trimethylbenzene	0.24	Not Detected	1.2	Not Detected
1,2,4-Trimethylbenzene	0.24	Not Detected	1.2	Not Detected
1,3-Dichlorobenzene	0.24	Not Detected	1.4	Not Detected
1,4-Dichlorobenzene	0.24	Not Detected	1.4	Not Detected
alpha-Chlorotoluene	0.24	Not Detected	1.2	Not Detected
1,2-Dichlorobenzene	0.24	Not Detected	1.4	Not Detected
1,2,4-Trichlorobenzene	1.2	Not Detected	9.0	Not Detected
Hexachlorobutadiene	1.2	Not Detected UJ	13	Not Detected UJ
Naphthalene	1.2	Not Detected	6.3	Not Detected
TPH ref. to Gasoline (MW=100)	24	Not Detected	99	Not Detected
NMOC ref. to Heptane (MW=100)	4.8	13	20	53
Vinyl Acetate	1.2	Not Detected	4.3	Not Detected

UJ = Non-detected compound associated with low bias in the CCV and/or LCS.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
1-Pentene, 2,4,4-trimethyl-	107-39-1	64%	1.4 NJ

NJ =The identification is based on presumptive evidence; estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	92	70-130

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Client Sample ID: GMP08A-0918

Lab ID#: 1209361A-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092719**	**Date of Collection:**	**9/18/12 2:58:00 PM**
Dil. Factor:	**2.42**	**Date of Analysis:**	**9/27/12 11:23 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.24	0.56	1.2	2.8
Freon 114	0.24	Not Detected	1.7	Not Detected
Chloromethane	0.24	Not Detected	0.50	Not Detected
Vinyl Chloride	0.24	Not Detected	0.62	Not Detected
1,3-Butadiene	0.24	Not Detected	0.54	Not Detected
Bromomethane	0.24	Not Detected	0.94	Not Detected
Chloroethane	1.2	Not Detected	3.2	Not Detected
Freon 11	0.24	Not Detected	1.4	Not Detected
Ethanol	1.2	Not Detected	2.3	Not Detected
Freon 113	0.24	Not Detected	1.8	Not Detected
1,1-Dichloroethene	0.24	Not Detected	0.96	Not Detected
Acetone	1.2	7.9	2.9	19
2-Propanol	1.2	Not Detected	3.0	Not Detected
Carbon Disulfide	1.2	Not Detected	3.8	Not Detected
3-Chloropropene	1.2	Not Detected	3.8	Not Detected
Methylene Chloride	0.48	Not Detected	1.7	Not Detected
Methyl tert-butyl ether	0.24	Not Detected	0.87	Not Detected
trans-1,2-Dichloroethene	0.24	Not Detected	0.96	Not Detected
Hexane	0.24	Not Detected	0.85	Not Detected
1,1-Dichloroethane	0.24	0.98	0.98	4.0
2-Butanone (Methyl Ethyl Ketone)	1.2	1.2	3.6	3.6
cis-1,2-Dichloroethene	0.24	Not Detected	0.96	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	0.24	14	1.2	66
1,1,1-Trichloroethane	0.24	1.4	1.3	7.6
Cyclohexane	0.24	Not Detected	0.83	Not Detected
Carbon Tetrachloride	0.24	Not Detected	1.5	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.6	Not Detected
Benzene	0.24	Not Detected	0.77	Not Detected
1,2-Dichloroethane	0.24	Not Detected	0.98	Not Detected
Heptane	0.24	Not Detected	0.99	Not Detected
Trichloroethene	0.24	Not Detected	1.3	Not Detected
1,2-Dichloropropane	0.24	Not Detected	1.1	Not Detected
1,4-Dioxane	0.24	Not Detected	0.87	Not Detected
Bromodichloromethane	0.24	Not Detected	1.6	Not Detected
cis-1,3-Dichloropropene	0.24	Not Detected	1.1	Not Detected
4-Methyl-2-pentanone	0.24	0.29	0.99	1.2
Toluene	0.24	Not Detected	0.91	Not Detected
trans-1,3-Dichloropropene	0.24	Not Detected	1.1	Not Detected
1,1,2-Trichloroethane	0.24	Not Detected	1.3	Not Detected
Tetrachloroethene	0.24	0.25	1.6	1.7
2-Hexanone	1.2	Not Detected	5.0	Not Detected

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Client Sample ID: GMP08A-0918

Lab ID#: 1209361A-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092719**	**Date of Collection:**	**9/18/12 2:58:00 PM**
Dil. Factor:	**2.42**	**Date of Analysis:**	**9/27/12 11:23 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.24	Not Detected	2.1	Not Detected
1,2-Dibromoethane (EDB)	0.24	Not Detected	1.8	Not Detected
Chlorobenzene	0.24	Not Detected	1.1	Not Detected
Ethyl Benzene	0.24	Not Detected	1.0	Not Detected
m,p-Xylene	0.24	Not Detected	1.0	Not Detected
o-Xylene	0.24	Not Detected	1.0	Not Detected
Styrene	0.24	Not Detected	1.0	Not Detected
Bromoform	0.24	Not Detected	2.5	Not Detected
Cumene	0.24	Not Detected	1.2	Not Detected
1,1,2,2-Tetrachloroethane	0.24	Not Detected	1.7	Not Detected
Propylbenzene	0.24	Not Detected	1.2	Not Detected
4-Ethyltoluene	0.24	Not Detected	1.2	Not Detected
1,3,5-Trimethylbenzene	0.24	Not Detected	1.2	Not Detected
1,2,4-Trimethylbenzene	0.24	Not Detected	1.2	Not Detected
1,3-Dichlorobenzene	0.24	Not Detected	1.4	Not Detected
1,4-Dichlorobenzene	0.24	Not Detected	1.4	Not Detected
alpha-Chlorotoluene	0.24	Not Detected	1.2	Not Detected
1,2-Dichlorobenzene	0.24	Not Detected	1.4	Not Detected
1,2,4-Trichlorobenzene	1.2	Not Detected	9.0	Not Detected
Hexachlorobutadiene	1.2	Not Detected UJ	13	Not Detected UJ
Naphthalene	1.2	Not Detected	6.3	Not Detected
TPH ref. to Gasoline (MW=100)	24	27	99	110
NMOC ref. to Heptane (MW=100)	4.8	30	20	120
Vinyl Acetate	1.2	Not Detected	4.3	Not Detected

UJ = Non-detected compound associated with low bias in the CCV and/or LCS.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Unknown	NA	NA	7.7 J
Unknown	NA	NA	2.0 J
Unknown	NA	NA	6.1 J
2,3-Butanedione	431-03-8	50%	3.4 NJ
Methane, nitro-	75-52-5	78%	5.4 NJ

NJ =The identification is based on presumptive evidence; estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	97	70-130

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Client Sample ID: GMP08A-0918

Lab ID#: 1209361A-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092719**	**Date of Collection:**	**9/18/12 2:58:00 PM**
Dil. Factor:	**2.42**	**Date of Analysis:**	**9/27/12 11:23 PM**

Surrogates	**%Recovery**	**Method Limits**
4-Bromofluorobenzene	91	70-130

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Client Sample ID: GMP42-0918

Lab ID#: 1209361A-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092720**	**Date of Collection:**	**9/18/12 3:08:00 PM**
Dil. Factor:	**2.47**	**Date of Analysis:**	**9/28/12 12:05 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.25	0.56	1.2	2.8
Freon 114	0.25	Not Detected	1.7	Not Detected
Chloromethane	0.25	Not Detected	0.51	Not Detected
Vinyl Chloride	0.25	Not Detected	0.63	Not Detected
1,3-Butadiene	0.25	Not Detected	0.55	Not Detected
Bromomethane	0.25	Not Detected	0.96	Not Detected
Chloroethane	1.2	Not Detected	3.2	Not Detected
Freon 11	0.25	Not Detected	1.4	Not Detected
Ethanol	1.2	Not Detected	2.3	Not Detected
Freon 113	0.25	Not Detected	1.9	Not Detected
1,1-Dichloroethene	0.25	Not Detected	0.98	Not Detected
Acetone	1.2	14	2.9	33
2-Propanol	1.2	Not Detected	3.0	Not Detected
Carbon Disulfide	1.2	Not Detected	3.8	Not Detected
3-Chloropropene	1.2	Not Detected	3.9	Not Detected
Methylene Chloride	0.49	Not Detected	1.7	Not Detected
Methyl tert-butyl ether	0.25	Not Detected	0.89	Not Detected
trans-1,2-Dichloroethene	0.25	Not Detected	0.98	Not Detected
Hexane	0.25	Not Detected	0.87	Not Detected
1,1-Dichloroethane	0.25	0.97	1.0	3.9
2-Butanone (Methyl Ethyl Ketone)	1.2	Not Detected	3.6	Not Detected
cis-1,2-Dichloroethene	0.25	Not Detected	0.98	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	0.25	14	1.2	67
1,1,1-Trichloroethane	0.25	1.4	1.3	7.8
Cyclohexane	0.25	Not Detected	0.85	Not Detected
Carbon Tetrachloride	0.25	Not Detected	1.6	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.8	Not Detected
Benzene	0.25	Not Detected	0.79	Not Detected
1,2-Dichloroethane	0.25	Not Detected	1.0	Not Detected
Heptane	0.25	Not Detected	1.0	Not Detected
Trichloroethene	0.25	Not Detected	1.3	Not Detected
1,2-Dichloropropane	0.25	Not Detected	1.1	Not Detected
1,4-Dioxane	0.25	Not Detected	0.89	Not Detected
Bromodichloromethane	0.25	Not Detected	1.6	Not Detected
cis-1,3-Dichloropropene	0.25	Not Detected	1.1	Not Detected
4-Methyl-2-pentanone	0.25	Not Detected	1.0	Not Detected
Toluene	0.25	Not Detected	0.93	Not Detected
trans-1,3-Dichloropropene	0.25	Not Detected	1.1	Not Detected
1,1,2-Trichloroethane	0.25	Not Detected	1.3	Not Detected
Tetrachloroethene	0.25	0.27	1.7	1.8
2-Hexanone	1.2	Not Detected	5.0	Not Detected

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Client Sample ID: GMP42-0918

Lab ID#: 1209361A-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092720**	**Date of Collection:**	**9/18/12 3:08:00 PM**
Dil. Factor:	**2.47**	**Date of Analysis:**	**9/28/12 12:05 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.25	Not Detected	2.1	Not Detected
1,2-Dibromoethane (EDB)	0.25	Not Detected	1.9	Not Detected
Chlorobenzene	0.25	Not Detected	1.1	Not Detected
Ethyl Benzene	0.25	Not Detected	1.1	Not Detected
m,p-Xylene	0.25	Not Detected	1.1	Not Detected
o-Xylene	0.25	Not Detected	1.1	Not Detected
Styrene	0.25	Not Detected	1.0	Not Detected
Bromoform	0.25	Not Detected	2.6	Not Detected
Cumene	0.25	Not Detected	1.2	Not Detected
1,1,2,2-Tetrachloroethane	0.25	Not Detected	1.7	Not Detected
Propylbenzene	0.25	Not Detected	1.2	Not Detected
4-Ethyltoluene	0.25	Not Detected	1.2	Not Detected
1,3,5-Trimethylbenzene	0.25	Not Detected	1.2	Not Detected
1,2,4-Trimethylbenzene	0.25	Not Detected	1.2	Not Detected
1,3-Dichlorobenzene	0.25	Not Detected	1.5	Not Detected
1,4-Dichlorobenzene	0.25	Not Detected	1.5	Not Detected
alpha-Chlorotoluene	0.25	Not Detected	1.3	Not Detected
1,2-Dichlorobenzene	0.25	Not Detected	1.5	Not Detected
1,2,4-Trichlorobenzene	1.2	Not Detected	9.2	Not Detected
Hexachlorobutadiene	1.2	Not Detected UJ	13	Not Detected UJ
Naphthalene	1.2	Not Detected	6.5	Not Detected
TPH ref. to Gasoline (MW=100)	25	Not Detected	100	Not Detected
NMOC ref. to Heptane (MW=100)	4.9	13	20	53
Vinyl Acetate	1.2	Not Detected	4.3	Not Detected

UJ = Non-detected compound associated with low bias in the CCV and/or LCS.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Unknown	NA	NA	8.2 J
Unknown	NA	NA	1.3 J

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	93	70-130

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Client Sample ID: GMP23-0918

Lab ID#: 1209361A-10A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092721**	**Date of Collection:**	**9/18/12 3:44:00 PM**
Dil. Factor:	**2.29**	**Date of Analysis:**	**9/28/12 07:36 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.23	0.64	1.1	3.2
Freon 114	0.23	Not Detected	1.6	Not Detected
Chloromethane	0.23	0.27	0.47	0.56
Vinyl Chloride	0.23	Not Detected	0.58	Not Detected
1,3-Butadiene	0.23	Not Detected	0.51	Not Detected
Bromomethane	0.23	0.24	0.89	0.93
Chloroethane	1.1	Not Detected	3.0	Not Detected
Freon 11	0.23	Not Detected	1.3	Not Detected
Ethanol	1.1	Not Detected	2.2	Not Detected
Freon 113	0.23	Not Detected	1.8	Not Detected
1,1-Dichloroethene	0.23	Not Detected	0.91	Not Detected
Acetone	1.1	4.5	2.7	11
2-Propanol	1.1	1.2	2.8	3.0
Carbon Disulfide	1.1	Not Detected	3.6	Not Detected
3-Chloropropene	1.1	Not Detected	3.6	Not Detected
Methylene Chloride	0.46	Not Detected	1.6	Not Detected
Methyl tert-butyl ether	0.23	Not Detected	0.82	Not Detected
trans-1,2-Dichloroethene	0.23	Not Detected	0.91	Not Detected
Hexane	0.23	1.9	0.81	6.6
1,1-Dichloroethane	0.23	Not Detected	0.93	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.1	Not Detected	3.4	Not Detected
cis-1,2-Dichloroethene	0.23	Not Detected	0.91	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.4	Not Detected
Chloroform	0.23	Not Detected	1.1	Not Detected
1,1,1-Trichloroethane	0.23	Not Detected	1.2	Not Detected
Cyclohexane	0.23	0.69	0.79	2.4
Carbon Tetrachloride	0.23	Not Detected	1.4	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.3	Not Detected
Benzene	0.23	0.98	0.73	3.1
1,2-Dichloroethane	0.23	Not Detected	0.93	Not Detected
Heptane	0.23	2.6	0.94	11
Trichloroethene	0.23	Not Detected	1.2	Not Detected
1,2-Dichloropropane	0.23	Not Detected	1.0	Not Detected
1,4-Dioxane	0.23	Not Detected	0.82	Not Detected
Bromodichloromethane	0.23	Not Detected	1.5	Not Detected
cis-1,3-Dichloropropene	0.23	Not Detected	1.0	Not Detected
4-Methyl-2-pentanone	0.23	Not Detected	0.94	Not Detected
Toluene	0.23	1.4	0.86	5.3
trans-1,3-Dichloropropene	0.23	Not Detected	1.0	Not Detected
1,1,2-Trichloroethane	0.23	Not Detected	1.2	Not Detected
Tetrachloroethene	0.23	1.3	1.6	8.6
2-Hexanone	1.1	Not Detected	4.7	Not Detected

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Client Sample ID: GMP23-0918

Lab ID#: 1209361A-10A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092721**	**Date of Collection:**	**9/18/12 3:44:00 PM**
Dil. Factor:	**2.29**	**Date of Analysis:**	**9/28/12 07:36 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.23	Not Detected	2.0	Not Detected
1,2-Dibromoethane (EDB)	0.23	Not Detected	1.8	Not Detected
Chlorobenzene	0.23	Not Detected	1.0	Not Detected
Ethyl Benzene	0.23	0.94	0.99	4.1
m,p-Xylene	0.23	6.9	0.99	30
o-Xylene	0.23	7.2	0.99	31
Styrene	0.23	0.34	0.98	1.4
Bromoform	0.23	Not Detected	2.4	Not Detected
Cumene	0.23	4.0	1.1	19
1,1,2,2-Tetrachloroethane	0.23	Not Detected	1.6	Not Detected
Propylbenzene	0.23	3.8	1.1	19
4-Ethyltoluene	0.23	4.0	1.1	20
1,3,5-Trimethylbenzene	0.23	11	1.1	56
1,2,4-Trimethylbenzene	0.23	6.5	1.1	32
1,3-Dichlorobenzene	0.23	Not Detected	1.4	Not Detected
1,4-Dichlorobenzene	0.23	0.49	1.4	2.9
alpha-Chlorotoluene	0.23	Not Detected	1.2	Not Detected
1,2-Dichlorobenzene	0.23	Not Detected	1.4	Not Detected
1,2,4-Trichlorobenzene	1.1	Not Detected	8.5	Not Detected
Hexachlorobutadiene	1.1	Not Detected UJ	12	Not Detected UJ
Naphthalene	1.1	Not Detected	6.0	Not Detected
TPH ref. to Gasoline (MW=100)	23	9000	94	37000
NMOC ref. to Heptane (MW=100)	4.6	7000	19	29000
Vinyl Acetate	1.1	Not Detected	4.0	Not Detected

UJ = Non-detected compound associated with low bias in the CCV and/or LCS.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Cyclohexane, 1,1,3-trimethyl-	3073-66-3	90%	790 NJ
Cyclohexane, 1-ethyl-2-methyl-, cis-	4923-77-7	64%	460 NJ
2-Nonen-1-ol, (Z)-	41453-56-9	64%	810 NJ
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	78%	630 NJ
Cyclohexane, 1-methyl-2-propyl-	4291-79-6	47%	460 NJ
Tridecane, 7-methylene-	19780-80-4	59%	940 NJ
Unknown	NA	NA	500 J
Unknown	NA	NA	990 J
Spiro[4.5]decane	176-63-6	86%	560 NJ
Cyclohexane, 1,2-diethyl-3-methyl-	61141-80-8	64%	470 NJ

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Client Sample ID: GMP23-0918

Lab ID#: 1209361A-10A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092721**	**Date of Collection: 9/18/12 3:44:00 PM**
Dil. Factor:	**2.29**	**Date of Analysis: 9/28/12 07:36 AM**

NJ =The identification is based on presumptive evidence; estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1209361A-11A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092506**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/25/12 11:37 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.10	Not Detected	0.49	Not Detected
Freon 114	0.10	Not Detected	0.70	Not Detected
Chloromethane	0.10	Not Detected	0.21	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,3-Butadiene	0.10	Not Detected	0.22	Not Detected
Bromomethane	0.10	Not Detected	0.39	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.10	Not Detected	0.56	Not Detected
Ethanol	0.50	Not Detected	0.94	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Acetone	0.50	Not Detected	1.2	Not Detected
2-Propanol	0.50	Not Detected	1.2	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	0.50	Not Detected	1.6	Not Detected
Methylene Chloride	0.20	Not Detected	0.69	Not Detected
Methyl tert-butyl ether	0.10	Not Detected	0.36	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Hexane	0.10	Not Detected	0.35	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.10	Not Detected	0.49	Not Detected
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Cyclohexane	0.10	Not Detected	0.34	Not Detected
Carbon Tetrachloride	0.10	Not Detected	0.63	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.10	Not Detected	0.32	Not Detected
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected
Heptane	0.10	Not Detected	0.41	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
1,2-Dichloropropane	0.10	Not Detected	0.46	Not Detected
1,4-Dioxane	0.10	Not Detected	0.36	Not Detected
Bromodichloromethane	0.10	Not Detected	0.67	Not Detected
cis-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
4-Methyl-2-pentanone	0.10	Not Detected	0.41	Not Detected
Toluene	0.10	Not Detected	0.38	Not Detected
trans-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
1,1,2-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected
2-Hexanone	0.50	Not Detected	2.0	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1209361A-11A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092506**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/25/12 11:37 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.10	Not Detected	0.85	Not Detected
1,2-Dibromoethane (EDB)	0.10	Not Detected	0.77	Not Detected
Chlorobenzene	0.10	Not Detected	0.46	Not Detected
Ethyl Benzene	0.10	Not Detected	0.43	Not Detected
m,p-Xylene	0.10	Not Detected	0.43	Not Detected
o-Xylene	0.10	Not Detected	0.43	Not Detected
Styrene	0.10	Not Detected	0.42	Not Detected
Bromoform	0.10	Not Detected	1.0	Not Detected
Cumene	0.10	Not Detected	0.49	Not Detected
1,1,2,2-Tetrachloroethane	0.10	Not Detected	0.69	Not Detected
Propylbenzene	0.10	Not Detected	0.49	Not Detected
4-Ethyltoluene	0.10	Not Detected	0.49	Not Detected
1,3,5-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,2,4-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,3-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,4-Dichlorobenzene	0.10	Not Detected UJ	0.60	Not Detected UJ
alpha-Chlorotoluene	0.10	Not Detected	0.52	Not Detected
1,2-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,2,4-Trichlorobenzene	0.50	Not Detected	3.7	Not Detected
Hexachlorobutadiene	0.50	Not Detected	5.3	Not Detected
Naphthalene	0.50	Not Detected	2.6	Not Detected
TPH ref. to Gasoline (MW=100)	10	Not Detected	41	Not Detected
NMOC ref. to Heptane (MW=100)	2.0	Not Detected	8.2	Not Detected
Vinyl Acetate	0.50	Not Detected	1.8	Not Detected

UJ = Non-detected compound associated with low bias in the CCV and/or LCS.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
None Identified			

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	84	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1209361A-11B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092708**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/27/12 02:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.10	Not Detected	0.49	Not Detected
Freon 114	0.10	Not Detected	0.70	Not Detected
Chloromethane	0.10	Not Detected	0.21	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,3-Butadiene	0.10	Not Detected	0.22	Not Detected
Bromomethane	0.10	Not Detected	0.39	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.10	Not Detected	0.56	Not Detected
Ethanol	0.50	Not Detected	0.94	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Acetone	0.50	Not Detected	1.2	Not Detected
2-Propanol	0.50	Not Detected	1.2	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	0.50	Not Detected	1.6	Not Detected
Methylene Chloride	0.20	Not Detected	0.69	Not Detected
Methyl tert-butyl ether	0.10	Not Detected	0.36	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Hexane	0.10	Not Detected	0.35	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.10	Not Detected	0.49	Not Detected
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Cyclohexane	0.10	Not Detected	0.34	Not Detected
Carbon Tetrachloride	0.10	Not Detected	0.63	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.10	Not Detected	0.32	Not Detected
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected
Heptane	0.10	Not Detected	0.41	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
1,2-Dichloropropane	0.10	Not Detected	0.46	Not Detected
1,4-Dioxane	0.10	Not Detected	0.36	Not Detected
Bromodichloromethane	0.10	Not Detected	0.67	Not Detected
cis-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
4-Methyl-2-pentanone	0.10	Not Detected	0.41	Not Detected
Toluene	0.10	Not Detected	0.38	Not Detected
trans-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
1,1,2-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected
2-Hexanone	0.50	Not Detected	2.0	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1209361A-11B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092708**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/27/12 02:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.10	Not Detected	0.85	Not Detected
1,2-Dibromoethane (EDB)	0.10	Not Detected	0.77	Not Detected
Chlorobenzene	0.10	Not Detected	0.46	Not Detected
Ethyl Benzene	0.10	Not Detected	0.43	Not Detected
m,p-Xylene	0.10	Not Detected	0.43	Not Detected
o-Xylene	0.10	Not Detected	0.43	Not Detected
Styrene	0.10	Not Detected	0.42	Not Detected
Bromoform	0.10	Not Detected	1.0	Not Detected
Cumene	0.10	Not Detected	0.49	Not Detected
1,1,2,2-Tetrachloroethane	0.10	Not Detected	0.69	Not Detected
Propylbenzene	0.10	Not Detected	0.49	Not Detected
4-Ethyltoluene	0.10	Not Detected	0.49	Not Detected
1,3,5-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,2,4-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,3-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,4-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
alpha-Chlorotoluene	0.10	Not Detected	0.52	Not Detected
1,2-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,2,4-Trichlorobenzene	0.50	Not Detected	3.7	Not Detected
Hexachlorobutadiene	0.50	Not Detected UJ	5.3	Not Detected UJ
Naphthalene	0.50	Not Detected	2.6	Not Detected
TPH ref. to Gasoline (MW=100)	10	Not Detected	41	Not Detected
NMOC ref. to Heptane (MW=100)	2.0	Not Detected	8.2	Not Detected
Vinyl Acetate	0.50	Not Detected	1.8	Not Detected

UJ = Non-detected compound associated with low bias in the CCV and/or LCS.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
None Identified			

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	90	70-130

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Client Sample ID: CCV

Lab ID#: 1209361A-12A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092502**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/25/12 08:31 AM**	

Compound	%Recovery
Freon 12	92
Freon 114	87
Chloromethane	85
Vinyl Chloride	89
1,3-Butadiene	87
Bromomethane	86
Chloroethane	90
Freon 11	86
Ethanol	93
Freon 113	82
1,1-Dichloroethene	80
Acetone	82
2-Propanol	86
Carbon Disulfide	86
3-Chloropropene	92
Methylene Chloride	85
Methyl tert-butyl ether	82
trans-1,2-Dichloroethene	84
Hexane	75
1,1-Dichloroethane	87
2-Butanone (Methyl Ethyl Ketone)	78
cis-1,2-Dichloroethene	81
Tetrahydrofuran	90
Chloroform	84
1,1,1-Trichloroethane	80
Cyclohexane	83
Carbon Tetrachloride	83
2,2,4-Trimethylpentane	78
Benzene	91
1,2-Dichloroethane	95
Heptane	85
Trichloroethene	88
1,2-Dichloropropane	92
1,4-Dioxane	85
Bromodichloromethane	95
cis-1,3-Dichloropropene	90
4-Methyl-2-pentanone	97
Toluene	83
trans-1,3-Dichloropropene	97
1,1,2-Trichloroethane	93
Tetrachloroethene	87
2-Hexanone	90

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Client Sample ID: CCV

Lab ID#: 1209361A-12A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092502**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/25/12 08:31 AM**	

Compound	**%Recovery**
Dibromochloromethane	102
1,2-Dibromoethane (EDB)	98
Chlorobenzene	81
Ethyl Benzene	80
m,p-Xylene	77
o-Xylene	78
Styrene	80
Bromoform	98
Cumene	75
1,1,2,2-Tetrachloroethane	84
Propylbenzene	78
4-Ethyltoluene	76
1,3,5-Trimethylbenzene	85
1,2,4-Trimethylbenzene	79
1,3-Dichlorobenzene	71
1,4-Dichlorobenzene	66 Q
alpha-Chlorotoluene	71
1,2-Dichlorobenzene	70
1,2,4-Trichlorobenzene	82
Hexachlorobutadiene	73
Naphthalene	76
TPH ref. to Gasoline (MW=100)	100
NMOC ref. to Heptane (MW=100)	100
Vinyl Acetate	83

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	91	70-130

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Client Sample ID: CCV

Lab ID#: 1209361A-12B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/27/12 08:35 AM**	

Compound	%Recovery
Freon 12	96
Freon 114	88
Chloromethane	92
Vinyl Chloride	98
1,3-Butadiene	98
Bromomethane	96
Chloroethane	99
Freon 11	90
Ethanol	109
Freon 113	88
1,1-Dichloroethene	89
Acetone	92
2-Propanol	104
Carbon Disulfide	92
3-Chloropropene	100
Methylene Chloride	92
Methyl tert-butyl ether	93
trans-1,2-Dichloroethene	90
Hexane	84
1,1-Dichloroethane	94
2-Butanone (Methyl Ethyl Ketone)	108
cis-1,2-Dichloroethene	90
Tetrahydrofuran	102
Chloroform	90
1,1,1-Trichloroethane	88
Cyclohexane	91
Carbon Tetrachloride	90
2,2,4-Trimethylpentane	86
Benzene	92
1,2-Dichloroethane	96
Heptane	85
Trichloroethene	89
1,2-Dichloropropane	95
1,4-Dioxane	92
Bromodichloromethane	96
cis-1,3-Dichloropropene	96
4-Methyl-2-pentanone	96
Toluene	80
trans-1,3-Dichloropropene	108
1,1,2-Trichloroethane	103
Tetrachloroethene	92
2-Hexanone	96

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Client Sample ID: CCV

Lab ID#: 1209361A-12B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/27/12 08:35 AM**	

Compound	**%Recovery**
Dibromochloromethane	110
1,2-Dibromoethane (EDB)	105
Chlorobenzene	84
Ethyl Benzene	84
m,p-Xylene	85
o-Xylene	87
Styrene	83
Bromoform	99
Cumene	90
1,1,2,2-Tetrachloroethane	86
Propylbenzene	87
4-Ethyltoluene	86
1,3,5-Trimethylbenzene	92
1,2,4-Trimethylbenzene	87
1,3-Dichlorobenzene	77
1,4-Dichlorobenzene	71
alpha-Chlorotoluene	76
1,2-Dichlorobenzene	74
1,2,4-Trichlorobenzene	74
Hexachlorobutadiene	68 Q
Naphthalene	74
TPH ref. to Gasoline (MW=100)	100
NMOC ref. to Heptane (MW=100)	100
Vinyl Acetate	94

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	92	70-130

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Client Sample ID: LCS

Lab ID#: 1209361A-13A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092503**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/25/12 09:16 AM**	

Compound	%Recovery
Freon 12	92
Freon 114	83
Chloromethane	87
Vinyl Chloride	91
1,3-Butadiene	89
Bromomethane	82
Chloroethane	91
Freon 11	86
Ethanol	89
Freon 113	85
1,1-Dichloroethene	87
Acetone	82
2-Propanol	92
Carbon Disulfide	105
3-Chloropropene	104
Methylene Chloride	83
Methyl tert-butyl ether	84
trans-1,2-Dichloroethene	93
Hexane	76
1,1-Dichloroethane	86
2-Butanone (Methyl Ethyl Ketone)	100
cis-1,2-Dichloroethene	83
Tetrahydrofuran	89
Chloroform	86
1,1,1-Trichloroethane	82
Cyclohexane	84
Carbon Tetrachloride	76
2,2,4-Trimethylpentane	73
Benzene	88
1,2-Dichloroethane	94
Heptane	80
Trichloroethene	86
1,2-Dichloropropane	91
1,4-Dioxane	88
Bromodichloromethane	92
cis-1,3-Dichloropropene	88
4-Methyl-2-pentanone	96
Toluene	79
trans-1,3-Dichloropropene	92
1,1,2-Trichloroethane	91
Tetrachloroethene	82
2-Hexanone	98

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Client Sample ID: LCS

Lab ID#: 1209361A-13A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092503**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/25/12 09:16 AM**	

Compound	**%Recovery**
Dibromochloromethane	96
1,2-Dibromoethane (EDB)	96
Chlorobenzene	78
Ethyl Benzene	74
m,p-Xylene	75
o-Xylene	74
Styrene	76
Bromoform	92
Cumene	78
1,1,2,2-Tetrachloroethane	83
Propylbenzene	76
4-Ethyltoluene	70
1,3,5-Trimethylbenzene	81
1,2,4-Trimethylbenzene	76
1,3-Dichlorobenzene	70
1,4-Dichlorobenzene	65 Q
alpha-Chlorotoluene	67 Q
1,2-Dichlorobenzene	70
1,2,4-Trichlorobenzene	89
Hexachlorobutadiene	69 Q
Naphthalene	90
TPH ref. to Gasoline (MW=100)	Not Spiked
NMOC ref. to Heptane (MW=100)	Not Spiked
Vinyl Acetate	83

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	89	70-130

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Client Sample ID: LCSD

Lab ID#: 1209361A-13AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092504**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/25/12 10:00 AM**	

Compound	%Recovery
Freon 12	82
Freon 114	79
Chloromethane	85
Vinyl Chloride	82
1,3-Butadiene	80
Bromomethane	76
Chloroethane	82
Freon 11	76
Ethanol	83
Freon 113	75
1,1-Dichloroethene	80
Acetone	73
2-Propanol	84
Carbon Disulfide	95
3-Chloropropene	98
Methylene Chloride	76
Methyl tert-butyl ether	76
trans-1,2-Dichloroethene	85
Hexane	69
1,1-Dichloroethane	78
2-Butanone (Methyl Ethyl Ketone)	91
cis-1,2-Dichloroethene	75
Tetrahydrofuran	81
Chloroform	76
1,1,1-Trichloroethane	75
Cyclohexane	76
Carbon Tetrachloride	69 Q
2,2,4-Trimethylpentane	66
Benzene	79
1,2-Dichloroethane	82
Heptane	72
Trichloroethene	77
1,2-Dichloropropane	80
1,4-Dioxane	79
Bromodichloromethane	82
cis-1,3-Dichloropropene	80
4-Methyl-2-pentanone	85
Toluene	70
trans-1,3-Dichloropropene	88
1,1,2-Trichloroethane	84
Tetrachloroethene	76
2-Hexanone	91

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Client Sample ID: LCSD

Lab ID#: 1209361A-13AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092504**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/25/12 10:00 AM**	

Compound	**%Recovery**
Dibromochloromethane	92
1,2-Dibromoethane (EDB)	89
Chlorobenzene	73
Ethyl Benzene	67 Q
m,p-Xylene	67 Q
o-Xylene	68 Q
Styrene	68 Q
Bromoform	86
Cumene	64
1,1,2,2-Tetrachloroethane	78
Propylbenzene	70
4-Ethyltoluene	69
1,3,5-Trimethylbenzene	79
1,2,4-Trimethylbenzene	75
1,3-Dichlorobenzene	64 Q
1,4-Dichlorobenzene	59 Q
alpha-Chlorotoluene	60 Q
1,2-Dichlorobenzene	64 Q
1,2,4-Trichlorobenzene	82
Hexachlorobutadiene	67 Q
Naphthalene	86
TPH ref. to Gasoline (MW=100)	Not Spiked
NMOC ref. to Heptane (MW=100)	Not Spiked
Vinyl Acetate	74

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	87	70-130

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Client Sample ID: LCS

Lab ID#: 1209361A-13B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092704**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/27/12 11:00 AM**	

Compound	%Recovery
Freon 12	97
Freon 114	91
Chloromethane	92
Vinyl Chloride	97
1,3-Butadiene	97
Bromomethane	41 Q
Chloroethane	97
Freon 11	90
Ethanol	102
Freon 113	89
1,1-Dichloroethene	95
Acetone	87
2-Propanol	104
Carbon Disulfide	112
3-Chloropropene	118
Methylene Chloride	90
Methyl tert-butyl ether	93
trans-1,2-Dichloroethene	99
Hexane	81
1,1-Dichloroethane	92
2-Butanone (Methyl Ethyl Ketone)	107
cis-1,2-Dichloroethene	89
Tetrahydrofuran	99
Chloroform	92
1,1,1-Trichloroethane	89
Cyclohexane	92
Carbon Tetrachloride	95
2,2,4-Trimethylpentane	79
Benzene	92
1,2-Dichloroethane	96
Heptane	81
Trichloroethene	89
1,2-Dichloropropane	95
1,4-Dioxane	90
Bromodichloromethane	96
cis-1,3-Dichloropropene	96
4-Methyl-2-pentanone	95
Toluene	79
trans-1,3-Dichloropropene	104
1,1,2-Trichloroethane	100
Tetrachloroethene	87
2-Hexanone	89

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Client Sample ID: LCS

Lab ID#: 1209361A-13B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092704**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/27/12 11:00 AM**	

Compound	**%Recovery**
Dibromochloromethane	105
1,2-Dibromoethane (EDB)	105
Chlorobenzene	82
Ethyl Benzene	80
m,p-Xylene	82
o-Xylene	84
Styrene	80
Bromoform	97
Cumene	79
1,1,2,2-Tetrachloroethane	85
Propylbenzene	86
4-Ethyltoluene	84
1,3,5-Trimethylbenzene	94
1,2,4-Trimethylbenzene	90
1,3-Dichlorobenzene	76
1,4-Dichlorobenzene	72
alpha-Chlorotoluene	73
1,2-Dichlorobenzene	76
1,2,4-Trichlorobenzene	92
Hexachlorobutadiene	80
Naphthalene	93
TPH ref. to Gasoline (MW=100)	Not Spiked
NMOC ref. to Heptane (MW=100)	Not Spiked
Vinyl Acetate	92

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	91	70-130

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Client Sample ID: LCSD

Lab ID#: 1209361A-13BB

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092705**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/27/12 11:41 AM**	

Compound	%Recovery
Freon 12	86
Freon 114	78
Chloromethane	90
Vinyl Chloride	87
1,3-Butadiene	87
Bromomethane	71
Chloroethane	87
Freon 11	81
Ethanol	91
Freon 113	80
1,1-Dichloroethene	84
Acetone	80
2-Propanol	94
Carbon Disulfide	101
3-Chloropropene	109
Methylene Chloride	81
Methyl tert-butyl ether	85
trans-1,2-Dichloroethene	90
Hexane	74
1,1-Dichloroethane	85
2-Butanone (Methyl Ethyl Ketone)	100
cis-1,2-Dichloroethene	81
Tetrahydrofuran	90
Chloroform	83
1,1,1-Trichloroethane	81
Cyclohexane	84
Carbon Tetrachloride	85
2,2,4-Trimethylpentane	72
Benzene	86
1,2-Dichloroethane	90
Heptane	77
Trichloroethene	82
1,2-Dichloropropane	88
1,4-Dioxane	83
Bromodichloromethane	89
cis-1,3-Dichloropropene	89
4-Methyl-2-pentanone	88
Toluene	74
trans-1,3-Dichloropropene	99
1,1,2-Trichloroethane	93
Tetrachloroethene	84
2-Hexanone	87

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Client Sample ID: LCSD

Lab ID#: 1209361A-13BB

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v092705**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/27/12 11:41 AM**	

Compound	**%Recovery**
Dibromochloromethane	100
1,2-Dibromoethane (EDB)	98
Chlorobenzene	77
Ethyl Benzene	76
m,p-Xylene	81
o-Xylene	80
Styrene	77
Bromoform	91
Cumene	78
1,1,2,2-Tetrachloroethane	80
Propylbenzene	82
4-Ethyltoluene	79
1,3,5-Trimethylbenzene	88
1,2,4-Trimethylbenzene	82
1,3-Dichlorobenzene	74
1,4-Dichlorobenzene	70
alpha-Chlorotoluene	71
1,2-Dichlorobenzene	73
1,2,4-Trichlorobenzene	87
Hexachlorobutadiene	73
Naphthalene	93
TPH ref. to Gasoline (MW=100)	Not Spiked
NMOC ref. to Heptane (MW=100)	Not Spiked
Vinyl Acetate	81

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	90	70-130

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10/2/2012
Ms. Amy Dahl
TechLaw, Inc.
101 Yesler Way
Suite 600
Seattle WA 98104

Project Name: HPLF01
Project #: HPLF01
Workorder #: 1209361B

Dear Ms. Amy Dahl

The following report includes the data for the above referenced project for sample(s) received on 9/19/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1209361B

Work Order Summary

CLIENT:	Ms. Amy Dahl TechLaw, Inc. 101 Yesler Way Suite 600 Seattle, WA 98104	**BILL TO:**	A/P Controller TechLaw, Inc. 14500 Avion Parkway Suite 300 Chantilly, VA 20151-1101
PHONE:	206-577-3050	**P.O. #**	55 Line4
FAX:		**PROJECT #**	HPLF01 HPLF01
DATE RECEIVED:	09/19/2012	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	10/02/2012		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	GMP24-0918	Modified ASTM D-1946	1.0 "Hg	15 psi
02A	GMP34-0912	Modified ASTM D-1946	3.0 "Hg	15 psi
03A	PV02-0912	Modified ASTM D-1946	6.0 "Hg	15 psi
04A	PV03-0912	Modified ASTM D-1946	5.5 "Hg	15 psi
05A	GMP10-0918	Modified ASTM D-1946	3.5 "Hg	15 psi
06A	AMB01-0918	Modified ASTM D-1946	4.5 "Hg	15 psi
07A	GMP20-0918	Modified ASTM D-1946	5.0 "Hg	15 psi
08A	GMP08A-0918	Modified ASTM D-1946	5.0 "Hg	15 psi
09A	GMP42-0918	Modified ASTM D-1946	5.5 "Hg	15 psi
10A	GMP23-0918	Modified ASTM D-1946	3.5 "Hg	15 psi
11A	Lab Blank	Modified ASTM D-1946	NA	NA
12A	LCS	Modified ASTM D-1946	NA	NA
12AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Heidi Hayes

Technical Director

DATE: 10/02/12

Certfication numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NY NELAP - 11291,
TX NELAP - T104704434-12-5, UT NELAP CA009332012-3, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2011, Expiration date: 10/17/2012.
Eurofins Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1946
TechLaw, Inc.
Workorder# 1209361B

Ten 1 Liter Summa Canister (100% Certified) samples were received on September 19, 2012. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Since Nitrogen is used to pressurize samples, the reported Nitrogen values are calculated by adding all the sample components and subtracting from 100%.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

The Chain of Custody (COC) information for samples GMP24-0918, PV03-0912, AMB01-0918 and GMP42-0918 did not match the entries on the sample tags with regard to sample identification. Therefore the information on the COC was used to process and report the samples.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: GMP24-0918

Lab ID#: 1209361B-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.42	12
Nitrogen	0.42	77
Methane	0.00042	0.0064
Carbon Dioxide	0.042	11

Client Sample ID: GMP34-0912

Lab ID#: 1209361B-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	6.5
Nitrogen	0.22	90
Carbon Dioxide	0.022	3.7

Client Sample ID: PV02-0912

Lab ID#: 1209361B-03A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.25	19
Nitrogen	0.25	72
Methane	0.00025	5.2
Carbon Dioxide	0.025	3.4

Client Sample ID: PV03-0912

Lab ID#: 1209361B-04A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.49	20
Nitrogen	0.49	79
Methane	0.00049	0.00055
Carbon Dioxide	0.049	0.56

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: GMP10-0918

Lab ID#: 1209361B-05A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	20
Nitrogen	0.23	78
Carbon Dioxide	0.023	1.8

Client Sample ID: AMB01-0918

Lab ID#: 1209361B-06A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	22
Nitrogen	0.24	78
Carbon Dioxide	0.024	0.046

Client Sample ID: GMP20-0918

Lab ID#: 1209361B-07A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	19
Nitrogen	0.24	78
Methane	0.00024	0.00050
Carbon Dioxide	0.024	2.9

Client Sample ID: GMP08A-0918

Lab ID#: 1209361B-08A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	3.3
Nitrogen	0.24	90
Methane	0.00024	0.0025
Carbon Dioxide	0.024	6.7

Client Sample ID: GMP42-0918

Lab ID#: 1209361B-09A

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: GMP42-0918

Lab ID#: 1209361B-09A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.25	3.2
Nitrogen	0.25	90
Methane	0.00025	0.0024
Carbon Dioxide	0.025	6.5

Client Sample ID: GMP23-0918

Lab ID#: 1209361B-10A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	2.2
Nitrogen	0.23	83
Methane	0.00023	0.093
Carbon Dioxide	0.023	15

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Client Sample ID: GMP24-0918

Lab ID#: 1209361B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092911**	**Date of Collection:**	**9/18/12 9:10:00 AM**
Dil. Factor:	**4.22**	**Date of Analysis:**	**9/29/12 12:12 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.42	12
Nitrogen	0.42	77
Carbon Monoxide	0.042	Not Detected
Methane	0.00042	0.0064
Carbon Dioxide	0.042	11
Ethane	0.0042	Not Detected
Ethene	0.0042	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: GMP34-0912

Lab ID#: 1209361B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092910**	**Date of Collection:**	**9/18/12 11:28:00 AM**
Dil. Factor:	**2.24**	**Date of Analysis:**	**9/29/12 11:49 AM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.22	6.5
Nitrogen	0.22	90
Carbon Monoxide	0.022	Not Detected
Methane	0.00022	Not Detected
Carbon Dioxide	0.022	3.7
Ethane	0.0022	Not Detected
Ethene	0.0022	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: PV02-0912

Lab ID#: 1209361B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092912**	**Date of Collection:**	**9/18/12 12:11:00 PM**
Dil. Factor:	**2.52**	**Date of Analysis:**	**9/29/12 12:35 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.25	19
Nitrogen	0.25	72
Carbon Monoxide	0.025	Not Detected
Methane	0.00025	5.2
Carbon Dioxide	0.025	3.4
Ethane	0.0025	Not Detected
Ethene	0.0025	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: PV03-0912

Lab ID#: 1209361B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092913**	**Date of Collection:**	**9/18/12 12:52:00 PM**
Dil. Factor:	**4.92**	**Date of Analysis:**	**9/29/12 12:57 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.49	20
Nitrogen	0.49	79
Carbon Monoxide	0.049	Not Detected
Methane	0.00049	0.00055
Carbon Dioxide	0.049	0.56
Ethane	0.0049	Not Detected
Ethene	0.0049	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: GMP10-0918

Lab ID#: 1209361B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092914**	**Date of Collection:**	**9/18/12 1:34:00 PM**
Dil. Factor:	**2.29**	**Date of Analysis:**	**9/29/12 01:19 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.23	20
Nitrogen	0.23	78
Carbon Monoxide	0.023	Not Detected
Methane	0.00023	Not Detected
Carbon Dioxide	0.023	1.8
Ethane	0.0023	Not Detected
Ethene	0.0023	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: AMB01-0918

Lab ID#: 1209361B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092915**	**Date of Collection:**	**9/18/12 1:44:00 PM**
Dil. Factor:	**2.38**	**Date of Analysis:**	**9/29/12 01:43 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.24	22
Nitrogen	0.24	78
Carbon Monoxide	0.024	Not Detected
Methane	0.00024	Not Detected
Carbon Dioxide	0.024	0.046
Ethane	0.0024	Not Detected
Ethene	0.0024	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: GMP20-0918

Lab ID#: 1209361B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092917**	**Date of Collection:**	**9/18/12 2:07:00 PM**
Dil. Factor:	**2.42**	**Date of Analysis:**	**9/29/12 02:27 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.24	19
Nitrogen	0.24	78
Carbon Monoxide	0.024	Not Detected
Methane	0.00024	0.00050
Carbon Dioxide	0.024	2.9
Ethane	0.0024	Not Detected
Ethene	0.0024	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: GMP08A-0918

Lab ID#: 1209361B-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092918**	**Date of Collection:**	**9/18/12 2:58:00 PM**
Dil. Factor:	**2.42**	**Date of Analysis:**	**9/29/12 02:49 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.24	3.3
Nitrogen	0.24	90
Carbon Monoxide	0.024	Not Detected
Methane	0.00024	0.0025
Carbon Dioxide	0.024	6.7
Ethane	0.0024	Not Detected
Ethene	0.0024	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: GMP42-0918

Lab ID#: 1209361B-09A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092919**	**Date of Collection:**	**9/18/12 3:08:00 PM**
Dil. Factor:	**2.47**	**Date of Analysis:**	**9/29/12 03:11 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.25	3.2
Nitrogen	0.25	90
Carbon Monoxide	0.025	Not Detected
Methane	0.00025	0.0024
Carbon Dioxide	0.025	6.5
Ethane	0.0025	Not Detected
Ethene	0.0025	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: GMP23-0918

Lab ID#: 1209361B-10A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092920**	**Date of Collection:**	**9/18/12 3:44:00 PM**
Dil. Factor:	**2.29**	**Date of Analysis:**	**9/29/12 03:35 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.23	2.2
Nitrogen	0.23	83
Carbon Monoxide	0.023	Not Detected
Methane	0.00023	0.093
Carbon Dioxide	0.023	15
Ethane	0.0023	Not Detected
Ethene	0.0023	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: Lab Blank

Lab ID#: 1209361B-11A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092903**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/29/12 09:07 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected
Ethane	0.0010	Not Detected
Ethene	0.0010	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1209361B-12A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092902**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/29/12 08:38 AM**	

Compound	**%Recovery**
Oxygen	100
Nitrogen	100
Carbon Monoxide	98
Methane	96
Carbon Dioxide	101
Ethane	98
Ethene	95

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 1209361B-12AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092925**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/29/12 05:27 PM**	

Compound	**%Recovery**
Oxygen	99
Nitrogen	100
Carbon Monoxide	96
Methane	96
Carbon Dioxide	100
Ethane	97
Ethene	94

Container Type: NA - Not Applicable

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9/21/2012
Ms. Amy Dahl
TechLaw, Inc.
101 Yesler Way
Suite 600
Seattle WA 98104

Project Name: HPLF01
Project #: HPLF01
Workorder #: 1209334

Dear Ms. Amy Dahl

The following report includes the data for the above referenced project for sample(s) received on 9/19/2012 at Air Toxics Ltd.

The data and associated QC analyzed by ASTM D-5504 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

eurofins | Air Toxics

WORK ORDER #: 1209334

Work Order Summary

CLIENT:	Ms. Amy Dahl TechLaw, Inc. 101 Yesler Way Suite 600 Seattle, WA 98104	**BILL TO:**	A/P Controller TechLaw, Inc. 14500 Avion Parkway Suite 300 Chantilly, VA 20151-1101
PHONE:	206-577-3050	**P.O. #**	55 Line 4
FAX:		**PROJECT #**	HPLF01 HPLF01
DATE RECEIVED:	09/19/2012	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	09/21/2012		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	PV02-0912	ASTM D-5504	Tedlar Bag	Tedlar Bag
02A	PV03-0918	ASTM D-5504	Tedlar Bag	Tedlar Bag
03A	GMP20-0918	ASTM D-5504	Tedlar Bag	Tedlar Bag
04A	GMP23-0918	ASTM D-5504	Tedlar Bag	Tedlar Bag
05A	Lab Blank	ASTM D-5504	NA	NA
06A	LCS	ASTM D-5504	NA	NA
06AA	LCSD	ASTM D-5504	NA	NA

CERTIFIED BY: Heidi Mayo

Technical Director

DATE: 09/20/12

Certfication numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NY NELAP - 11291,
TX NELAP - T104704434-12-5, UT NELAP CA009332012-3, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2011, Expiration date: 10/17/2012.
Eurofins Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

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LABORATORY NARRATIVE
ASTM D-5504
TechLaw, Inc.
Workorder# 1209334

Four 1 Liter Tedlar Bag samples were received on September 19, 2012. The laboratory performed the analysis of sulfur compounds via ASTM D-5504 using GC/SCD. The method involves direct injection of the air sample into the GC via a fixed 2.0 mL sampling loop. See the data sheets for the reporting limits for each compound.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Summary of Detected Compounds
SULFUR GASES BY ASTM D-5504 GC/SCD

Client Sample ID: PV02-0912

Lab ID#: 1209334-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	230

Client Sample ID: PV03-0918

Lab ID#: 1209334-02A

No Detections Were Found.

Client Sample ID: GMP20-0918

Lab ID#: 1209334-03A

No Detections Were Found.

Client Sample ID: GMP23-0918

Lab ID#: 1209334-04A

No Detections Were Found.

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Client Sample ID: PV02-0912

Lab ID#: 1209334-01A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**k091908**	**Date of Collection:**	**9/18/12 12:23:00 PM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**9/19/12 09:07 AM**

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**
Hydrogen Sulfide	4.0	230

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: PV03-0918

Lab ID#: 1209334-02A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**k091909**	**Date of Collection:**	**9/18/12 12:59:00 PM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**9/19/12 09:29 AM**

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**
Hydrogen Sulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: GMP20-0918

Lab ID#: 1209334-03A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**k091910**	**Date of Collection:**	**9/18/12 2:17:00 PM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**9/19/12 09:52 AM**

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**
Hydrogen Sulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: GMP23-0918

Lab ID#: 1209334-04A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**k091911**	**Date of Collection:**	**9/18/12 3:54:00 PM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**9/19/12 10:15 AM**

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**
Hydrogen Sulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: Lab Blank

Lab ID#: 1209334-05A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**k091905**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/18/12 10:28 PM**	

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**
Hydrogen Sulfide	4.0	Not Detected

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 1209334-06A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**k091902**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 9/18/12 09:04 PM**

Compound	**%Recovery**
Hydrogen Sulfide	94

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 1209334-06AA

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**k091903**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 9/18/12 09:29 PM**

Compound	**%Recovery**
Hydrogen Sulfide	103

Container Type: NA - Not Applicable

Appendix B

Landfill Gas Split Sampling Data Verification Report

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APPENDIX B

DATA VERIFICATION AND COMPLETENESS REVIEW

This report presents the data verification and completeness review of laboratory data generated for ten landfill gas samples collected September 18, 2012 and analyzed by AirToxics, LTD., of Folsom, California for volatile organic compounds (VOCs)/tentatively identified compounds (TICs), gases, and hydrogen sulfide by Modified EPA Method TO-15, Modified ASTM Method D-1946, and ASTM D-5504, respectively.

Preservation and Holding Times

Sample PV-01 was not analyzed for VOCs/TICs and gases as identified in the QAPP due to laboratory error. All other samples were analyzed within their respective holding times (30 days for VOCs and gases; 24 hours for hydrogen sulfide).

GC/MS Instrument Performance Check

The bromofluorobenzene (BFB) tuning solution was analyzed prior to each VOC analytical run to check the instrument performance. GC/MS tuning complied with the mass list and ion abundance acceptance criteria. All samples were analyzed within the 24-hour period between instrument performance checks.

Calibration

The percent relative standard deviations (%RSDs) for the relative response factors or calibration factors for the target analytes in the initial calibrations were within the method quality control (QC) limits for VOCs (30 %RSD) and laboratory QC limits for gases (15 %RSD) and hydrogen sulfide (30% average %RSD).

The percent difference (%D) for the target analytes in the continuing calibration verifications (CCVs) were within the method QC limits with the following exceptions:

VOCs:

- hexachlorobutadiene (31.6%) exceeded method limit of 30% in CCV analyzed September 27, 2012.

Gases: all within laboratory QC limits (<15%)
Hydrogen Sulfide: all within laboratory QC limits (<30%)

Recoveries of the Initial calibration verifications (ICVs) and CCVs were within the laboratory QC limits with the following exceptions:

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VOCs:

- Recoveries from the CCV 1209361-12A were less than the QC limits (70-130%) for 1,4 - dichlorobenzene (66%).
- Recoveries from the CCV 1209361-12B were less than the QC limits (70-130%) for hexachlorobutadiene (68%).

Gases: all within laboratory QC limits (85-115%)
Hydrogen Sulfide: all within laboratory QC limits (70-130%)

The samples, QC samples, and calibration checks were analyzed within 24 hours for each method in accordance with the methods and laboratory SOPs.

Blanks

There were no detections in the laboratory blanks for VOCs, Gases, and Hydrogen Sulfide.

Surrogate Recoveries

Surrogate compound recoveries for 1,2-dichloroethane-d4, toluene-d8, and 4-bromofluorobenzene were provided for VOC results and all surrogates were within the 70-130% laboratory QC limits.

Blank Spikes - Laboratory Control Samples (LCS)

LCS and LCSD percent recoveries were evaluated. The following analytes exceeded the laboratory QC limits:

VOCs:

- The recoveries in LCS 1209361-13A were within the QC limits (70-130%) except for the following:
  - 1,4-dichlorobenzene (65%)
  - alpha-chlorotoluene (67%)
  - hexachlorobutadiene (69%)
- The recoveries in LCSD 1209361-13AA were within the QC limits (70-130%) except for the following:
  - carbon tetrachloride (69%)
  - ethylbenzene (67%)
  - m,p-xylene (67%)
  - o-xylene (68%)
  - styrene (68%)
  - 1,3-dichlorobenzene (64%)
  - 1,4-dichlorobenzene (59%)
  - alpha-chlorotoluene (60%)

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  - 1,2-dichlorobenzene (64%)
  - hexachlorobutadiene (67%)
- The relative percent differences (RPDs) between this LCS and LCSD were within QC limits (<25%).

- The recoveries in LCS 1209361A-13B were within %R QC limits (70-130%) except for bromomethane (41%).

- The RPDs between this LCS and LCSD were within QC limits (<25%) except for bromomethane (54%).

Gases: none
Hydrogen Sulfide: none

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

No MS/MSDs were collected for these methods.

Internal Standards

Internal Standards chlorobenzene-d5, 1,4-difluorobenzene, and bromochloromethane were analyzed in each sample and QC sample for VOCs analysis. All were within laboratory acceptance limits.

Field Duplicates

The following samples were identified as field duplicates:
- Parent sample GMP08A-0918
- Duplicate sample GMP42-0918

For analytes detected in both samples, the RPDs were either (1) all less than a QC limit of 30%; or (2), the absolute differences were less than the reporting limit if either sample was <5x the reporting limit, except for the following:

VOCs:
- acetone (RPD: 53.8%)
- Non-methane organic compounds (NMOC) (RPD: 77.4%)

Gases: all within 30% RPD or not detected
Hydrogen Sulfide: all within 30% RPD or not detected

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Additional Notes

Sample PV-01 was not analyzed for VOCs/TICs and gases as identified in the QAPP due to laboratory error.

The QC samples required in the QAPP, including one field duplicate and one ambient sample, were collected and analyzed.

All analytes in QAPP Worksheet #15 were analyzed.

Qualifications to the Data

In accordance with the QAPP, a verification and completeness review of the laboratory data was conducted. The sample that was not analyzed will affect the overall project completeness. No other significant quality control issues were identified.

With the exception of the leak testing outliers discussed below, qualifiers included in the electronic data deliverable were applied by the laboratory. Sample results were not qualified based upon the QC exceedances identified in this verification, as this was not included in the assigned project activities or the approved QAPP. The outliers noted in this verification do not appear to affect the usability of the data, and if validation was performed, would only result in the associated results being qualified as estimated.

Leak Testing

Isopropyl alcohol (2-propanol) was detected in two samples (GMP23-0918 and GMP24-0918). In accordance with the QAPP, all results for these two samples were qualified as estimated (J) or non-detect at an estimated reporting limit (UJ).

Tentatively Identified Compounds (TICs)

All results for TICs were qualified by the laboratory as estimated based on presumptive evidence (NJ).

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QUALITY ASSURANCE/QUALITY CONTROL

TechLaw performed a data verification and completeness review of the analytical results for ten landfill gas samples analyzed for volatile organic compounds (VOCs)/tentatively identified compounds (TICs), gases, and hydrogen sulfide by Modified EPA Method TO-15, Modified ASTM Method D-1946, and ASTM D-5504, respectively. This included a review of the quality control (QC) summary forms to determine if QC sample results were within laboratory limits. This section evaluates the data in relation to the precision, accuracy, completeness, representativeness, comparability, and sensitivity goals defined in the Final Quality Assurance Project Plan Split Sampling and Analysis of Landfill Gas at Hunters Point Shipyard, dated August 29, 2012 (the QAPP).

Quality Assurance/Quality Control Samples

Samples were collected and processed in the field to assist in assessing the effectiveness of quality assurance (QA)/QC protocols. One field duplicate was collected for nine air samples in accordance with the frequency in the QAPP. The field duplicate was analyzed for VOCs and gases.

Laboratory data were reviewed for preservation and holding time violation; instrument performance checks; initial and continuing calibration performance; contamination in any laboratory blank samples; surrogate recoveries; laboratory control sample (LCS) recoveries; LCS duplicate (LCSD) precision; and internal standards recoveries. Please refer to the Data Verification Report for the details of this review. There were no significant issues identified with the laboratory and field QC parameters and no data were rejected based on the QC results.

Project-Specific Data Quality Indicators

The following describes the overall success of the field team and the laboratories at meeting data quality objectives (DQOs) based on the Data Quality Indicators (DQIs) of precision, accuracy, and completeness, and the overall success of the field team and the laboratories at meeting project DQIs for representativeness and comparability. The laboratories and field team were able to meet the project DQOs for all samples except as noted below.

Precision

The precision of the data set is evaluated by the reproducibility of the sampling protocols and analytical methodology. Laboratory and field precision is expressed in terms of the relative percent difference (RPD) between duplicate sample analyses. The field and laboratory duplicate samples are used to assess the precision of the analytical method; in addition, field duplicates also assess reproducibility for sample collection.

Samples GMP-8A and GMP-42 were identified as field duplicates. The RPDs for gases and hydrogen sulfide results were either all less than the QC limit of 30% or the absolute differences were less than the reporting limit if either sample was less than five times the reporting limit.

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For VOCs, the RPDs for acetone (53.8%) and non-methane organic compounds (NMOC; 77.4%) were above the 30% acceptance limits. The data are considered usable. However, the precision issues for NMOC will need to be considered when comparing NMOC results to the Navy's field screening data.

Laboratory precision was assessed through the analysis of LCSs/LCSDs and continuing calibration verification (CCV) percent differences (%Ds). LCS RPDs were within the control limit of 25% except for bromomethane (54% RPD) in one of two LCS pairs. CCV %Ds were within the control limit of 30% except for hexachlorobutadiene (31.6%) in one of two CCVs.

Accuracy

Accuracy assesses how near a result is to the true (or accepted) value. Field accuracy was evaluated through leak testing using isopropyl alcohol (2-propanol). Isopropyl alcohol was detected in two samples; GMP23-0918 at 3.0 micrograms/cubic meter (ug/m^3) and GMP24-0918 at 32 ug/m^3. All results for these two samples were qualified as estimated (J) or non-detect at an estimated reporting limit (UJ) in accordance with the QAPP. These two samples were possibly diluted by atmospheric air, indicating a potential low bias for VOCs and hydrogen sulfide results in these samples. Isopropyl alcohol may also be present in or near the landfill, which could have caused the elevated results. Therefore, it is not possible to determine if the gas results are biased high or low or to quantify the magnitude of bias.

Laboratory accuracy is assessed using the method blanks, surrogate spike and internal standard percent recovery (%R) for VOCs, CCV %R, and LCS %R. No analytes were detected in the method blanks, and surrogate and internal standard %R values were within QC limits. Fourteen VOC recoveries in LCSs and LCSDs were less than their acceptance limits of 70-130%. Additionally, one CCV %R was below acceptance limits. The recoveries ranged from 59 to 69%, except for bromomethane, which recovered at 41% in one LCSD. The data are considered usable and there does not appear to be a consistent trend or bias in the data.

Completeness

Completeness is defined as the percentage of usable data for both the field and laboratory portions of the sampling. Field completeness was calculated using the total amount of samples collected divided by the number of samples planned for collection. Since all eleven planned samples were collected, field completeness is 100%, which meets the field completeness goal of 90%.

Laboratory completeness was calculated using the total number of valid analyses divided by the total number of requested analyses. No data were rejected based on QC exceedances; however, one sample (PV-01) was not analyzed by the laboratory because it was thought to be an unused canister and was cleaned before the error was communicated. EPA was notified on September 24, 2012 and resampling was not conducted. A Corrective Action Notice was issued by the laboratory on October 17, 2012. Laboratory completeness was calculated as 734 valid analyses out of 807 requested analyses (91%), which does not meet the laboratory completeness goal of

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95%. Considering the reason that the laboratory completeness goal was not met, the data that were obtained are not adversely affected and are usable for their intended purpose.

Representativeness

Data representativeness is a qualitative parameter that expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or environmental conditions. All samples were collected in accordance with the QAPP, which defined the procedures to be followed and sampling design to meet project goals for obtaining representative samples.

Comparability

Comparability is also a qualitative parameter that indicates the confidence with which one data set can be compared to another. Data presented in this report were produced following applicable field sampling techniques and specific analytical methodology. While some variability in results would be expected (i.e., due to sample and inter-laboratory variability), data produced using the sample sampling and analytical procedures should be considered comparable.

Sensitivity

Sensitivity is the ability of the method to detect the target analytes at concentrations below the PALs. No blank contamination was detected in laboratory and method blanks.

Data Usability Conclusion

No significant data quality issues were identified, and no data were rejected based on QC exceedances. Sampling and analytical procedures were performed in accordance with the QAPP. No significant bias or trends to the data were identified, but a potential bias was noted based on the leak testing results for two sampling locations, GMP23 and GMP24. These samples were qualified as estimated.

Hunters Point Data Verification

QUALITY ASSURANCE/QUALITY CONTROL

TechLaw performed a data verification and completeness review of the analytical results for ten landfill gas samples analyzed for volatile organic compounds (VOCs)/tentatively identified compounds (TICs), gases, and hydrogen sulfide by Modified EPA Method TO-15, Modified ASTM Method D-1946, and ASTM D-5504, respectively. This included a review of the quality control (QC) summary forms to determine if QC sample results were within laboratory limits. This section evaluates the data in relation to the precision, accuracy, completeness, representativeness, comparability, and sensitivity goals defined in the Final Quality Assurance Project Plan Split Sampling and Analysis of Landfill Gas at Hunters Point Shipyard, dated August 29, 2012 (the QAPP).

Quality Assurance/Quality Control Samples

Samples were collected and processed in the field to assist in assessing the effectiveness of quality assurance (QA)/QC protocols. One field duplicate was collected for nine air samples in accordance with the frequency in the QAPP. The field duplicate was analyzed for VOC and gases analyses.

Laboratory data were reviewed for preservation and holding time violation; instrument performance checks; initial and continuing calibration performance; contamination in any laboratory blank samples; surrogate recoveries; laboratory control sample (LCS) recoveries; LCS duplicate (LCSD) precision; and internal standards recoveries. Please refer to the Data Verification Report for the details of this review. There were no significant issues identified with the laboratory and field QA/QC parameters and no data were rejected.

Project-Specific Data Quality Indicators

The following describes the overall success of the field team and the laboratories at meeting data quality objectives (DQOs) based on the Data Quality Indicators (DQIs) of precision, accuracy, and completeness, and the overall success of the field team and the laboratories at meeting project DQIs for representativeness and comparability. The laboratories and field team were able to meet the project DQOs for all samples except as noted below.

Precision

The precision of the data set is evaluated by the reproducibility of the sampling protocols and analytical methodology. Laboratory and field precision is expressed in terms of the relative percent difference (RPD) between duplicate sample analyses. The field and laboratory duplicate samples are used to assess the precision of the analytical method; in addition, field duplicates also assess reproducibility for sample collection.

Samples GMP-8A and GMP-42 were identified as field duplicates. The RPDs for gases and hydrogen sulfide results were either all less than the QC limit of 30% or the absolute differences were less than the reporting limit if either sample was less than five times the reporting limit. For VOCs, the RPDs for acetone (53.8%) and non-methane organic compounds (NMOC; 77.4%) were above the 30% acceptance limits. The data are considered usable. However, the precision

issues for NMOC will need to be considered when comparing NMOC results to the Navy's field screening data.

Laboratory precision was assessed through the analysis of LCSs/LCSDs and continuing calibration verification (CCV) percent differences (%Ds). LCS RPDs were within the control limit of 30% except for bromomethane (54% RPD) in one of two LCS pairs. CCV %Ds were within the control limit of 30% except for hexachlorobutadiene (31.6%) in one of two CCVs.

Accuracy

Accuracy assesses how near a result is to the true (or accepted) value. Field accuracy was evaluated through leak testing using isopropyl alcohol (2-propanol). Isopropyl alcohol was detected in two samples; GMP23-0918 at 3.0 micrograms/cubic meter ($\mu g/m^3$) and GMP24-0918 at 32 $\mu g/m^3$. All results for these two samples were qualified as estimated (J) or non-detect at an estimated reporting limit (UJ) in accordance with the QAPP. These two samples were possibly diluted by atmospheric air, indicating a potential low bias for VOCs and hydrogen sulfide results in these samples. The gas results may be biased high or low, depending on the relative concentration of each gas to atmospheric concentrations. However, the magnitude of bias cannot be quantified. Because VOC and hydrogen sulfide results are biased low, a potential data gap exists for these two wells and will be considered when making project decisions.

Laboratory accuracy is assessed using the method blanks, surrogate spike and internal standard percent recovery (%R) for VOCs, CCV %R, and LCS %R. No analytes were detected in the method blanks, and surrogate and internal standard %R values were within QC limits. However, the recoveries for eight VOCs in LCSs and LCSDs were less than their acceptance limits of 70-130%. Additionally, one CCV %R was below acceptance limits. The recoveries ranged from 59 to 69%, except for bromomethane, which recovered at 41% in one LCSD. The data are considered usable and there does not appear to be a consistent trend or bias in the data.

Completeness

Completeness is defined as the percentage of usable data for both the field and laboratory portions of the sampling. Field completeness was calculated using the total amount of samples collected divided by the number of samples planned for collection. Since all eleven planned samples were collected, field completeness is 100%, which meets the field completeness goal of 90%.

Laboratory completeness was calculated using the total number of valid analyses divided by the total number of requested analyses. No data were rejected; however, one sample (PV-01) was not analyzed by the laboratory because it was thought to be an unused canister and was cleaned before the error was communicated. EPA was notified on September 24, 2012. Resampling was not conducted. A Corrective Action Notice was issued by the laboratory on October 17, 2012. Laboratory completeness was calculated as 734 valid analyses out of 807 requested analyses (91%), which does not meet the laboratory completeness goal of 95%.

Representativeness

Data representativeness is a qualitative parameter that expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a

sampling point, or environmental conditions. All samples were collected in accordance with the QAPP, which defined the procedures to be followed and sampling design to meet project goals for obtaining representative samples.

Comparability

Comparability is also a qualitative parameter that indicates the confidence with which one data set can be compared to another. Data presented in this report were produced following applicable field sampling techniques and specific analytical methodology.

Sensitivity

Sensitivity is the ability of the method to detect the target analytes at concentrations below the PALs. No blank contamination was detected in laboratory and method blanks.

Data Usability Conclusion

No significant data quality issues were identified, no data were rejected, and all data are usable. Sampling and analytical procedures were performed in accordance with the QAPP. Data usability issues were limited to laboratory completeness, field precision, and leak testing results for two samples. No significant bias or trends to the data were identified, but a potential bias and data gap were indicated by leak testing for two samples. Field imprecision and leak detection issues will be considered when making project decisions.

Incident

Print Change Options Close Window

Dates and times are displayed in the (GMT-08:00) Pacific Time (US & Canada) time zone.

Customer Details

Name:	Kelly Buettner	Customer ID:	
Location:		Department:	
Company:	Air Toxics	Phone:	1025
Email:	kbuettner@airtoxics.com		

Details

Number:	CA2D254676	Categorization:	CAR
Status:	Closed		

Assignee: Bahar Amiri
Effective SLA: CAR

Opened: 10/2/2012 12:14:35 PM by Kelly Buettner via Direct Entry
Closed: 10/17/2012 2:19:14 PM by Bahar Amiri

Description

Headline the CAR: Possible Sample Received as Unused Media

Full Description: 1209361A - Client indicates that an 11th sample was collected and noted on page 2 of the COC. There is no 2nd page of the COC scanned to the workorder or physically present in the folder. Client indicates canister 34654 was the 11th sample, this canister was received in the workorder as unused. Receiving analyst indicated the "non-sample" canisters were unmarked by the client and no additional COC pages were received to indicate that these would be samples. The receiving analyst notified PM (KCB) and a verbal confirmation was given to mark the cans as unused. The analyst also placed a note in the WO on 9/20/12 the day after the samples were received that 3 1L cans were received unused and that the PM was notified.

Root Cause: Samples were received 09/19/12. Based on the internal investigation and the documentation at the time of sample receipt, a second page of COC was not included in the packet and the canisters were unmarked. Canisters were released based on a verbal confirmation between the Receiving Analyst and the Project Manager based on the internal notes provided in the Workorder on 09/20/12. Sample Receipt login fax was sent to the client on 09/20/12 at 03:45pm. Client emailed inquiring about the additional samples on 9/20/12 after 5pm. Project Manager followed up with Receiving on 09/21/12 AM, at which point the samples had been discarded already. A written verification from the PM was not obtained prior to this event. SOP #50, revision #13, Section 7.4.3 was not followed to record the stated verbal confirmation as a written documentation.

Resolution

Corrective Action Taken
Short-term (immediate fix): None taken
Long-term: The receiving analyst will make sure to get a written confirmation from the PM and the PM will verify all the "unmarked" canisters with the client to ensure they were unused prior to disposal.

Preventive Action Taken: SOP 50 revision 13 will be placed open for revision in the next 30 days to clarify any unclear sections if needed.
Client Notified: Amy Dahl
Client Notified By: KCB
Client Notified Date: 9/24/12
Client Instructions: Client would like to see the corrective action report. See email string attached.

Corrective Action/Preventive Action Approved? Y
Comments: Spot Audit on SOP 50 will take place by the QA department upon revision and finalization of revision 14
QA Initials: BA
Verification of Implementation and Effectiveness Date:
Comments:
QA Initials:

Appendix C

Landfill Gas Split Sampling Photo Log

Parcel E-2 Landfill Gas Sampling Event Photo Log

Number	Description	Time	Date
1	GMP24 Facing Wes	0837	9/18/12
2	GMP34 Facing Northeast	1115	9/18/12
3	PV02 Facing South	1208	9/18/12
4	PV03 Facing North	1249	9/18/12
5	GMP10 Facing East	1335	9/18/12
6	AMB01 Facing West	1345	9/18/12
7	GMP20 Facing North	1406	9/18/12
8	GMP08A Facing West	1458	9/18/12
9	GMP23 Facing East	1554	9/18/12
10 (1)	PV01 Facing East	1612	9/18/12

Notes:

1 - Sample PV01-0918 from locaiton PV01 was not evaluted in the report due to destruction of the sample by lab Air Toxics. See Setion 3.1 for further discussion.

1 – GMP24

2 –GMP34

3 – PV02

4 – PV03

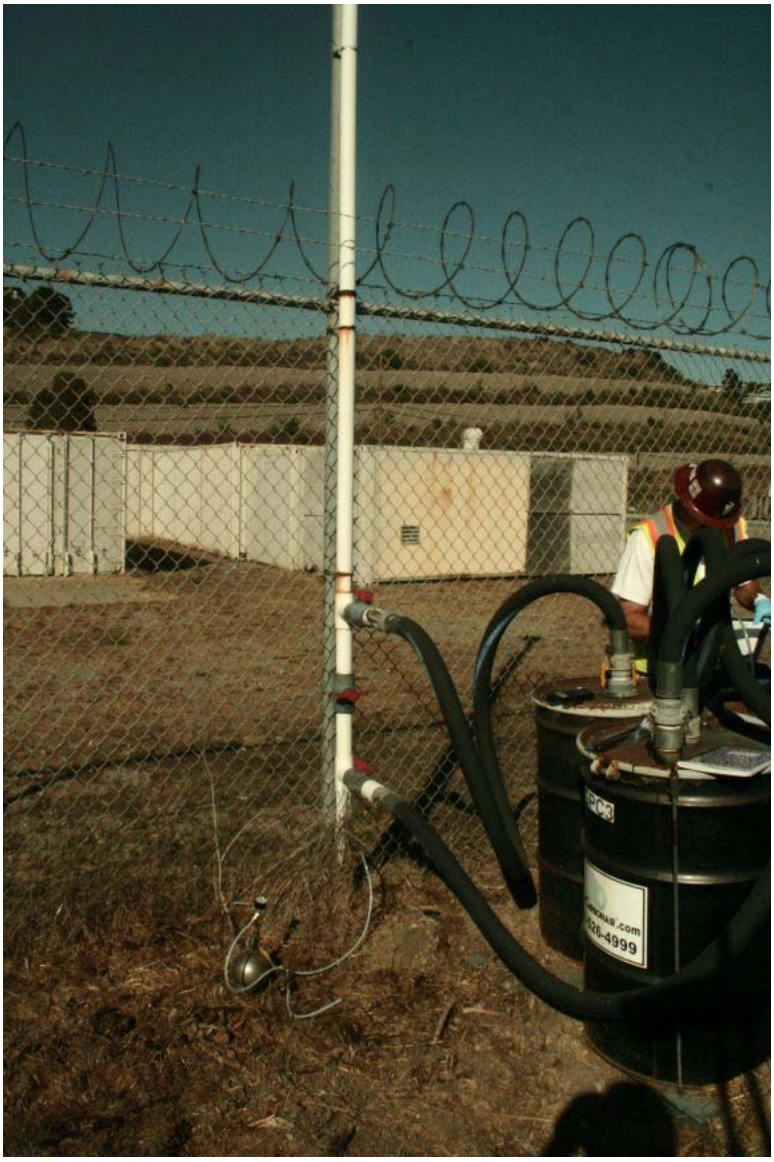
5 – GMP10

6 – AMB01

7 – GMP20

8 – GMP08A/42

9 – GMP23



10 – PV01