

RECEIVED

JUL 12 2012

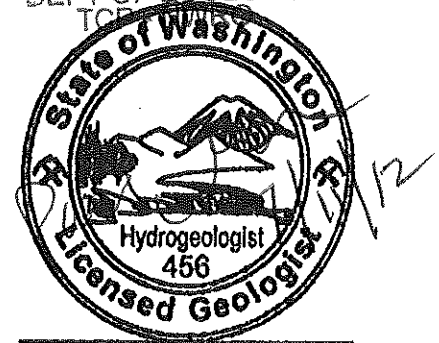
DEPT OF ECOLOGY
TOP

FARALLON CONSULTING, L.L.C.

1201 Cornwall Avenue, Suite 105
Bellingham, Washington 98225

Phone
(360) 527-0241

Fax
(360) 527-0243



Paul C. Grabau

T E C H N I C A L M E M O R A N D U M

TO: Dr. Jerome Cruz – Washington State Department of Ecology

cc: Jerry Eide – CHS Inc.
William Joyce – Joyce Ziker Parkinson, LLC
Theresa Gamble – Washington State Independent Auto Dealers Association

FROM: Paul C. Grabau, Principal Hydrogeologist

DATE: July 11, 2012

RE: **SUB-SLAB SOIL GAS SAMPLING RESULTS – WASHINGTON STATE
INDEPENDENT AUTO DEALERS ASSOCIATION BUILDING
CHS AUBURN SITE
AUBURN, WASHINGTON
FARALLON PN: 301-004**

Farallon Consulting, L.L.C. (Farallon) has prepared this Technical Memorandum on behalf of CHS Inc. (CHS) to present the results of sub-slab soil gas sampling that was performed as part of an assessment of the potential vapor intrusion exposure pathway at the Washington State Independent Auto Dealers Association (WSIADA) building at 707 Auburn Way South within the CHS Auburn Site in Auburn, Washington (Figure 1). The vapor intrusion assessment was conducted as part of the Remedial Investigation and Feasibility Study for the CHS Auburn Site that is being conducted under Agreed Order No. 4033 entered into by CHS and the Washington State Department of Ecology (Ecology) effective June 12, 2007. Background information regarding the need for the vapor intrusion assessment for the WSIADA building was provided in the Technical Memorandum Regarding Proposed Vapor Intrusion Assessment, CHS Auburn Site (Farallon 2011b).

The sub-slab soil gas sampling activities were conducted in accordance with the Technical Memorandum Regarding Soil Gas Sampling Plan (Farallon 2011c) and the subsequent Technical

Memorandum Regarding Response to Comments - Soil Gas Sampling Plan (Farallon 2012) that was prepared to address Ecology comments on the proposed scope of work (Ecology 2011). Ecology verbally approved the sampling procedures prior to collection of the sub-slab soil gas sample.

The purpose of the vapor intrusion assessment was to characterize the concentrations of benzene, toluene, ethylbenzene, and xylenes (BTEX) in soil gas beneath the building slab at the WSIADA building to determine whether the BTEX concentrations in soil gas could potentially pose a health risk to workers in the building via the vapor intrusion pathway. The constituents of concern identified for the Site in the *Remedial Investigation Report, CHS Auburn Site, Auburn Washington* (Farallon 2011a) are BTEX and total petroleum hydrocarbons as diesel-range organics, as gasoline-range organics, and as oil-range organics.

BACKGROUND

Groundwater monitoring well CMW-27 was installed in 2008 as part of the Remedial Investigation activities at the CHS Auburn Site and is located approximately 40 feet down-gradient of the WSIADA building within the City of Auburn right-of-way for Auburn Way South (Figure 1). Volatile organic compounds, including benzene and total petroleum hydrocarbons as gasoline-range organics, have been detected in groundwater samples collected from monitoring well CMW-27 at concentrations exceeding Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A cleanup levels during monitoring events conducted since the monitoring well was installed in 2008. Groundwater samples collected from monitoring well CMW-27 during the previous several years of monitoring at the CHS Auburn Site have contained the highest concentrations of benzene, ethylbenzene, xylenes, and total petroleum hydrocarbons as gasoline-range organics. Although benzene was not detected in the groundwater samples collected from monitoring well CMW-27 during the January and April 2011 monitoring events, the concentration of benzene detected in July 2011 rebounded to 37 micrograms per liter ($\mu\text{g/l}$), which exceeds the Ecology draft screening level of 2.4 $\mu\text{g/l}$ for benzene in groundwater for protection of the vapor intrusion exposure pathway (Ecology 2009).

As described in the draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action* (Ecology 2009), Ecology recommends that a vapor intrusion assessment be conducted for buildings within 100 feet of locations with volatile organic compounds in groundwater at concentrations that exceed laboratory practical quantitation limits. Monitoring well CMW-27 is approximately 40 feet down-gradient from the WSIADA building near the intersection of 7th Street Southeast and Auburn Way South (Figure 1). Therefore, Farallon conducted a screening level assessment of potential vapor intrusion for benzene using the U.S. Environmental Protection Agency (EPA) Screening Level Johnson and Ettinger Vapor Intrusion Model (Screening-Level Model) with site-specific inputs for soil type, groundwater temperature, and depth to groundwater. The benzene concentration of 37 $\mu\text{g/l}$ detected in the groundwater sample collected from monitoring well CMW-27 in July 2011 exceeded the "best estimate" target groundwater concentration of 3.6 $\mu\text{g/l}$ derived using the Screening-Level Model for protection of the vapor intrusion pathway. The average concentration of benzene detected in

groundwater samples collected from monitoring well CMW-27 since the well was installed in 2008 is 32 µg/l.

Cleanup activities conducted beginning in 1994 in the area up-gradient of the WSIADA property have included air sparging and soil vapor extraction. The soil vapor extraction component of the soil and groundwater treatment system in this area was shut down with Ecology approval in late 1999 due to the low concentrations of petroleum hydrocarbon vapors present in the system effluent. The area of the CHS Auburn Site where benzene concentrations in groundwater exceed the Ecology draft screening level for benzene in groundwater for protection of the vapor intrusion exposure pathway does not extend to south of the WSIADA building. Monitoring well CMW-2 is on the adjacent Thai Restaurant property, approximately 20 feet up-gradient and slightly cross-gradient of the WSIADA building (Figure 1). BTEX constituents have not been detected in groundwater samples collected from monitoring well CMW-2 since June 2004 at concentrations exceeding the Ecology draft screening levels for groundwater for protection of the vapor intrusion pathway.

Because of the historical detection of benzene in groundwater samples collected from monitoring well CMW-27 and the proximity of the monitoring well to the WSIADA building, Farallon proposed to collect a sub-slab soil gas sample from the WSIADA building to evaluate potential migration of BTEX constituents from groundwater via the vapor intrusion exposure pathway (Farallon 2011b). Collection of a sub-slab soil gas sample was recommended over deep soil gas sampling because the gravelly soil conditions at the Site precluded collection of deep soil gas samples with a direct-push drill rig.

SAMPLING PROCEDURES

The sub-slab soil gas sample was collected from a Farallon VOC Monitoring System™ monitoring probe installed through the WSIADA building slab in the northernmost restroom in the eastern portion of the building. The east side of the building was selected for the sampling location because it is closest to monitoring well CMW-27. Details of the soil gas sampling procedure follow.

The sub-slab soil gas monitoring probe was installed on March 14, 2012 by advancing a 1.25-inch-diameter boring through the concrete building slab in the northernmost restroom floor. Figure 1 shows the sampling location and the groundwater analytical results for benzene for October 2011, the most recent monitoring event prior to the soil gas sampling. The concrete floor slab at the sampling location was approximately 3 inches thick. Approximately 3 inches of soil was removed from directly beneath the core hole to facilitate proper installation of the probe, which extends below the slab. The probe assembly was sealed in the core hole using volatile organic compound-free acrylic latex caulk. The sealant was allowed to set for 24 hours before sampling. Farallon did not observe unsealed utilities penetrating the floor slab of the WSIADA building that may cause a preferential pathway for migration of vapors from below the building slab.

The weather forecast was monitored for barometric pressure prior to and during the sub-slab soil gas sampling. The sampling was initiated following a period of falling barometric pressure, considered optimal for assessment of vapor intrusion conditions. Barometric pressure at 6:13 p.m. on March 14, 2012 was 1004.6 millibars and continuously decreased prior to the sampling period to approximately 993.9 millibars at 8:16 a.m. on May 15, 2012 when Farallon mobilized for the sampling. The barometric pressure rose slightly to 997.2 millibars between mobilization and the actual time of sample collection at 12:07 p.m. Plots of the barometric pressure measured at Sea-Tac International Airport and the University of Washington in Seattle from 12:00 a.m. on March 14, 2012 to 12:00 p.m. on March 15, 2012 are shown on Figure 2.

The sampling procedure was conducted using a custom-made acrylic shroud (with 0.25-inch diameter access ports) to allow performance of leak testing for quality assurance purposes. The shroud enclosed the 1-liter Summa canister and valve train over a foam mat floor seal to provide an air-tight enclosure. The foam mat is perforated over the sub-slab soil gas sampling probe to allow sample collection. Fittings that penetrate the shroud are sealed to prevent incursion of ambient air into the sampling apparatus. New dedicated Teflon tubing was used throughout the sampling apparatus. The sampling procedure used both real-time leak detection methods and laboratory analyses of tracer gas to assess for possible leaks in the monitoring probe seal or sampling train. Introduction of ambient indoor air into the sub-slab soil gas sample represents potential dilution of the sample if indoor air does not contain the target hazardous substances being evaluated, or may bias the sampling results high if indoor ambient air contains concentrations of the target hazardous substances.

Real-time leak testing performed during sub-slab soil gas sampling included introduction of pure analytical-grade helium into the sampling enclosure, and collection of an air sample from the sampling train into a Tedlar bag. The purpose of the real-time leak detection was to ensure that possible ambient air incursion into the sample canister was detected and mitigated prior to sample collection and subsequent laboratory analysis. The concentration of helium in the Tedlar bag sample was measured in the field with a helium detector. The concentration of helium introduced into the sampling enclosure was maintained at a level between 15.0 and 21.8 percent during the leak testing and sampling procedures. A concentration of helium of 10 percent or less of the total helium concentration in the sampling enclosure is considered an acceptable level of leakage that will not bias sample results and trigger a need for resampling. Farallon also had the sub-slab soil gas sample analyzed for helium at the laboratory to confirm the real-time leak testing performed prior to collecting the sample.

Helium was not detected in the Tedlar bag sample collected during the real-time leak testing, indicating no appreciable leaks in the sampling manifold system or the slab/probe interface prior to sampling. Table 1 presents a summary of sampling parameters, including leak-detection results, initial and final Summa canister pressures, and sampling durations.

Following completion of the real-time leak testing, a sub-slab soil gas sample was collected using an evacuated 1-liter Summa canister that was certified clean by the analytical laboratory. The initial Summa canister vacuum was measured at 29.5 inches of mercury. Manifold components and tubing were purged of several volumes of air before sampling was initiated to

ensure that the sample collected was representative of soil gas from beneath the building slab. Sampling was discontinued after 2 hours when the Summa canister vacuum reached 8.5 inches of mercury. The final vacuum was in accordance with the recommendation by the analytical laboratory, Air Toxics Ltd. of Folsom, California, that final canister vacuums should not measure less than 5.0 inches of mercury.

Upon completion of collection of the sub-slab soil gas sample, the Summa canister was labeled, sealed, packed into the original shipping container, and returned to the Air Toxics Ltd. laboratory for analysis for BTEX using U.S. Environmental Protection Agency Method TO-15 and for helium using Modified ASTM Method 1946-D. The chain of custody form is included with the laboratory analytical reports provided in Appendix A.

RESULTS

The analytical results are summarized on Table 2. Copies of the laboratory analytical reports are provided in Attachment A. Toluene and m,p-xylene were the only constituents detected in the sub-slab soil gas sample. The concentration of toluene detected was 24 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), which is well below the MTCA Method B screening level of 24,000 $\mu\text{g}/\text{m}^3$ for shallow soil gas samples. The detected concentration of m,p-xylene of 4.8 $\mu\text{g}/\text{m}^3$ was also well below the MTCA Method B screening level of 460 $\mu\text{g}/\text{m}^3$ for m-xylene for shallow soil gas samples.

Helium was detected at a concentration of 0.86 percent in the sub-slab soil gas sample, indicating that leakage of ambient air occurred during sampling after the real-time leak testing was conducted. The concentration of helium in the sampling shroud was maintained at approximately 20 percent during the sample collection; therefore, the concentration of 0.86 percent detected in the sample was approximately 4 percent of the helium concentration in the shroud. The leakage indicated by the helium analysis is below the recommended leak rate threshold of 10 percent, and indicates that the sample results are within an acceptable range of tolerance for data quality.

CONCLUSIONS

BTEX constituents were not detected at concentrations exceeding MTCA Method B screening levels in the sub-slab soil gas sample collected at the WSIADA building on March 15, 2012. MTCA Method B indoor air cleanup levels from which MTCA Method B soil gas screening levels in Table B-1 of the Ecology vapor intrusion guidance (Ecology 2009) are derived are conservatively based on residential rather than commercial exposure scenarios. Although a commercial exposure scenario is appropriate for the WSIADA building because the building is zoned and used for commercial purposes, Farallon did not derive Modified MTCA Method B sub-slab soil gas screening levels for a commercial exposure scenario for the WSIADA building for this sampling event because the only two constituents in the soil gas sample, toluene and m,p-xylene, were detected at concentrations well below the more conservative residential MTCA Method B screening levels for shallow soil gas.

The results of the sub-slab soil gas sampling conducted at the WSIADA building indicate that the concentrations of BTEX constituents in soil gas beneath the building do not pose an unacceptable risk for human health via the vapor intrusion pathway. Therefore, no further assessment of vapor intrusion is necessary for the WSIADA building at this time. A draft Feasibility Study is currently in preparation for the CHS Auburn Site and will consider the potential effects of the cleanup alternatives on the vapor intrusion pathway, where applicable.

REFERENCES

- Farallon Consulting, L.L.C. (Farallon). 2011a. *Remedial Investigation Report, CHS Auburn Site, Auburn Washington*. Prepared for CHS Inc. July 29.
- . 2011b. Technical Memorandum Regarding Proposed Vapor Intrusion Assessment, CHS Auburn Site. From Paul C. Grabau. To Dr. Jerome Cruz, Washington State Department of Ecology. October 17.
- . 2011c. Technical Memorandum Regarding Soil Gas Sampling Plan. From Paul C. Grabau. To Dr. Jerome Cruz, Washington State Department of Ecology. December 22.
- . 2012. Technical Memorandum Regarding Response to Comments - Soil Gas Sampling Plan. From Paul C. Grabau. To Dr. Jerome Cruz, Washington State Department of Ecology. January 27.
- Washington State Department of Ecology (Ecology). 2009. *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, Review DRAFT. Publication No. 09-09-047. October
- . 2011. E-mail Message Regarding WSIADA Soil Gas Sampling Plan CHS Auburn Site. From Dr. Jerome Cruz. To Paul Grabau, Farallon Consulting, L.L.C. December 27.

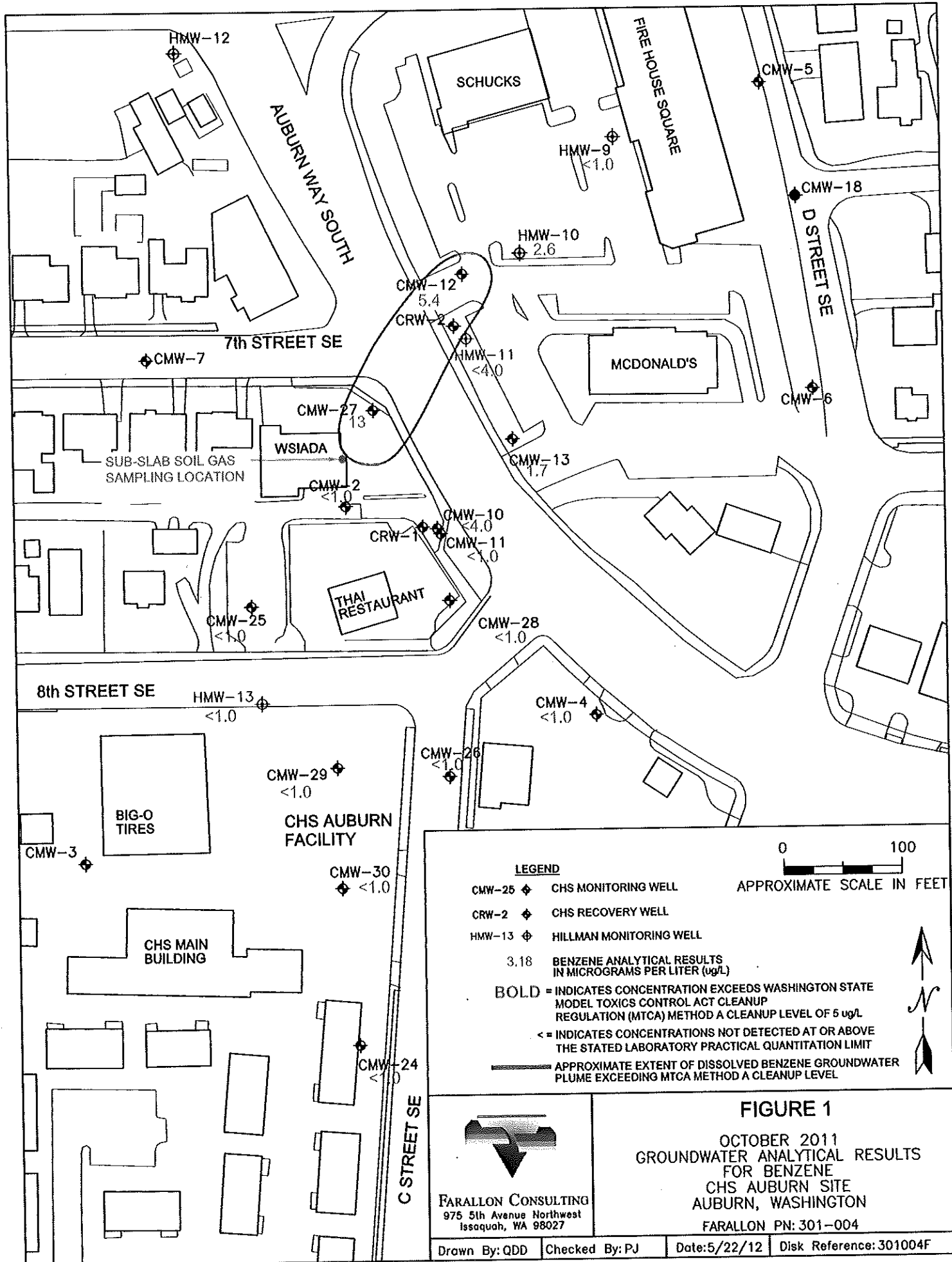
Attachments: Figure 1, *October 2011 Groundwater Analytical Results for Benzene*
Figure 2, *Plots of Barometric Pressure - March 14 and 15, 2012*
Table 1, *Summary of Sub-Slab soil Gas Sampling Parameters*
Table 2, *Summary of Analytical Results for BTEX in Sub-Slab Soil Gas*
Attachment A, *Laboratory Analytical Reports*

PG:bw

FIGURES

SUB-SLAB SOIL GAS SAMPLING RESULTS – WASHINGTON STATE INDEPENDENT
AUTO DEALERS ASSOCIATION BUILDING
CHS Auburn Site
Auburn, Washington

Farallon PN: 301-004



HMW-12

AUBURN WAY SOUTH

SCHUCKS

FIREHOUSE SQUARE

CMW-5

CMW-18

HMW-9 <1.0

HMW-10 2.6

CMW-12 5.4

CRW-2

HMW-11 <4.0

MCDONALD'S

CMW-6

CMW-7

7th STREET SE

CMW-27 13

SUB-SLAB SOIL GAS SAMPLING LOCATION

WSIADA

CMW-2 <1.0

CMW-13 1.7

CMW-10 <4.0

CRW-1

CMW-11 <1.0

THAI RESTAURANT

CMW-25 <1.0

CMW-28 <1.0

8th STREET SE

HMW-13 <1.0

CMW-4 <1.0

BIG-O TIRES

CMW-29 <1.0

CHS AUBURN FACILITY

CMW-26 <1.0

CMW-3

CMW-30 <1.0

CHS MAIN BUILDING

CMW-24 <1.0

C STREET SE

0 100

APPROXIMATE SCALE IN FEET



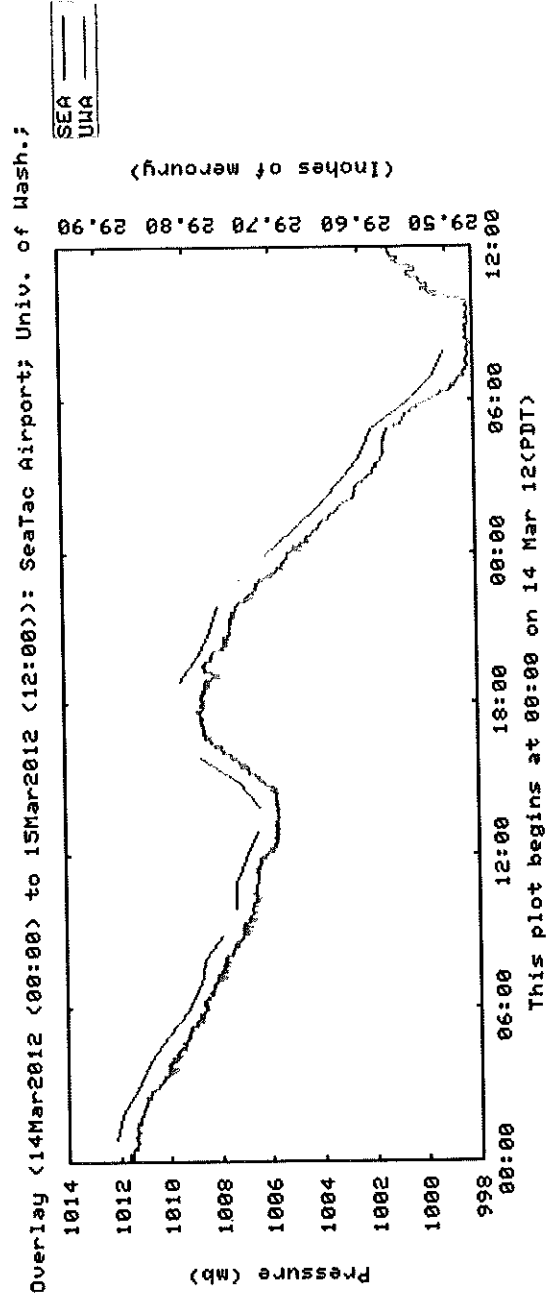
FARALLON CONSULTING
 975 5th Avenue Northwest
 Issaquah, WA 98027

FIGURE 1
 OCTOBER 2011
 GROUNDWATER ANALYTICAL RESULTS
 FOR BENZENE
 CHS AUBURN SITE
 AUBURN, WASHINGTON
 FARALLON PN: 301-004

Drawn By: QDD | Checked By: PJ | Date: 5/22/12 | Disk Reference: 301004F

Figure 2

Plots of Barometric Pressure – March 14 and 15, 2012



Source:
http://www.k12.atmos.washington.edu/k12/grayskies/plot_nw_wx.cgi?Measurement=Pressure&station=SEA&station=UWA&interval=0&timezone=7&righttab=y&connect=lines&groupby=overlay&begmonth=3&begday=14&begyear=2012&beghour=0&endmonth=3&endday=15&endyear=2012&endhour=12

TABLES

**SUB-SLAB SOIL GAS SAMPLING RESULTS – WASHINGTON STATE INDEPENDENT
AUTO DEALERS ASSOCIATION BUILDING
CHS Auburn Site
Auburn, Washington**

Farallon PN: 301-004

Table 1
Summary of Sub-Slab Soil Gas Sampling Parameters
WSIADA Building
CHS Auburn Site
Farallon PN: 457-004

Sample Type	Sample Identification	Sample Date	Sample Start Time	Sample End Time	Sample Duration	Initial Pressure (inches of mercury)	Final Pressure (inches of mercury)	Sampling Shroud Helium Concentration (percent)	Leak Test Helium Concentration (percent)
Sub-Slab	FAR-34607-031512	03/15/12	12:07	14:07	2:00	-29.5	-8.5	19.6	0.0

NOTE:
 WSIADA = Washington State Independent Auto Dealers Association

Table 2
Summary of Analytical Results for BTEX in Sub-Slab Soil Gas
WSIADA Building
CHS Auburn Site
Farallon PN: 301-004

Sample Identification	Sample Date	Analytical Results (micrograms per cubic meter) ¹			
		Benzene	Toluene	Ethylbenzene	m,p-Xylene
FAR-34607-031512	03/15/12	<3.0	24	<4.0	4.8
MTCA Method B Soil Gas Screening Level²		3.2	22,000	4,600	460³
					o-Xylene <4.1
					460

NOTES:
 Results in bold denote concentrations above applicable cleanup levels.
 < denotes analyte not detected at or above the laboratory reporting limit listed.
¹ Analyzed by U.S. Environmental Protection Agency Method TO-15.
² Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method B Screening Level for Shallow Soil Gas, Table B-1 of Appendix B of the Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, October 2009.
³ m,p-Xylene screening level based on m-xylene screening level.

BTEX = benzene, toluene, ethylbenzene, and xylenes
 WSIADA = Washington State Independent Auto Dealers Association

**ATTACHMENT A
ANALYTICAL REPORTS**

**SUB-SLAB SOIL GAS SAMPLING RESULTS – WASHINGTON STATE INDEPENDENT
AUTO DEALERS ASSOCIATION BUILDING
CHS Auburn Site
Auburn, Washington**

Farallon PN: 301-004



Air Toxics

3/30/2012

Mr. Paul Grabau
Farallon Consulting, LLC
1201 Cornwall Avenue
Suite 105
Bellingham WA 98225

Project Name: CHS AUBURN
Project #: 301-004
Workorder #: 1203398A

Dear Mr. Paul Grabau

The following report includes the data for the above referenced project for sample(s) received on 3/19/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 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,

A handwritten signature in black ink that reads "Kelly Buettner". The signature is fluid and cursive, with a long horizontal stroke at the end.

Kelly Buettner
Project Manager

A Eurofins Lancaster Laboratories Company

Eurofins Air Toxics, Inc.

180 Blue Ravine Road, Suite B
Folsom, CA 95630

T | 916-985-1000
F | 916-985-1020
www.airtoxics.com



Air Toxics

WORK ORDER #: 1203398A

Work Order Summary

CLIENT:	Mr. Paul Grabau Farallon Consulting, LLC 1201 Cornwall Avenue Suite 105 Bellingham, WA 98225	BILL TO:	Accounts Payable Farallon Consulting, LLC 975 Fifth Avenue NW Issaquah, WA 98027-3333
PHONE:	360.527.0241	P.O. #	
FAX:	360.527.0243	PROJECT #	301-004 CHS AUBURN
DATE RECEIVED:	03/19/2012	CONTACT:	Kelly Buettner
DATE COMPLETED:	03/30/2012		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	FAR-34607-031512	Modified TO-15	8.5 "Hg	5 psi
02A	Lab Blank	Modified TO-15	NA	NA
03A	CCV	Modified TO-15	NA	NA
04A	LCS	Modified TO-15	NA	NA
04AA	LCS	Modified TO-15	NA	NA

CERTIFIED BY: *Sandra S. Freeman*
 Laboratory Director

DATE: 03/30/12

Certification numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
 NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
 Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
 Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.
 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 - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE
EPA Method TO-15
Farallon Consulting, LLC
Workorder# 1203398A**

One 1 Liter Summa Canister (100% Certified) sample was received on March 19, 2012. The laboratory performed analysis via 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.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

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



Air Toxics

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

Client Sample ID: FAR-34607-031512

Lab ID#: 1203398A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	0.94	6.5	3.5	24
m,p-Xylene	0.94	1.1	4.1	4.8



Air Toxics

Client Sample ID: FAR-34607-031512

Lab ID#: 1203398A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j032017	Date of Collection:	3/15/12 2:07:00 PM
Dil. Factor:	1.87	Date of Analysis:	3/20/12 08:04 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.94	Not Detected	3.0	Not Detected
Ethyl Benzene	0.94	Not Detected	4.0	Not Detected
Toluene	0.94	6.5	3.5	24
m,p-Xylene	0.94	1.1	4.1	4.8
o-Xylene	0.94	Not Detected	4.1	Not Detected

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	113	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1203398A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	J032006	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	3/20/12 11:54 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.50	Not Detected	1.6	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	89	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1203398A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	J032002	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/20/12 09:11 AM

Compound	%Recovery
Benzene	101
Ethyl Benzene	101
Toluene	97
m,p-Xylene	100
o-Xylene	98

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1203398A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	J032003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/20/12 10:00 AM

Compound	%Recovery
Benzene	99
Ethyl Benzene	96
Toluene	93
m,p-Xylene	98
o-Xylene	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	93	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1203398A-04AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j032004	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/20/12 10:34 AM

Compound	%Recovery
Benzene	105
Ethyl Benzene	103
Toluene	100
m,p-Xylene	105
o-Xylene	103

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	96	70-130



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Page 1 of 1

Project Manager PAUL GRABAU

Collected by: (Print and Sign) REN SEETH, Ken Seeth

Company FARALLON Email RenSeeth@farallon.com

Address 925 5th AVE NW City ISSAQUAH State WA ZIP 98027

Phone 425-295-0800 Fax 425-295-0850

Project Info:

P.O. # _____

Project # 301-004

Project Name CHS AUBURN

Turn Around Time: Normal Rush

Lab Use Only: Pressurized by: _____

Date: _____

Pressurization Gas: _____

Canister Pressure/Vacuum

Initial Final Receipt Final (ps)

Lab ID	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Initial	Final	Receipt	Final (ps)
01A	EAR-34607-031512	34607	3/15/12	1407	TO-15 (BTX)	-29.5	-8.5		
<p>Notes: <u>REN BTX only</u></p>									
Relinquished by: (signature) <u>Ken Seeth</u>		Date/Time <u>3/15/12 @ 1630</u>		Received by: (signature) <u>R. D. Stettin</u>		Date/Time <u>3/19/12 0845</u>			
Relinquished by: (signature) _____		Date/Time _____		Received by: (signature) _____		Date/Time _____			
Relinquished by: (signature) _____		Date/Time _____		Received by: (signature) _____		Date/Time _____			
Shipper Name <u>FedEx</u>		Air Bill # <u>834197362586</u>		Temp (°C) <u>W/A</u>		Condition <u>Good</u>		Custody Seals Intact? <u>Yes</u> <input checked="" type="checkbox"/> <u>None</u> <input type="checkbox"/>	
Lab Use Only		Work Order # <u>1203393</u>							



eurofins

Air Toxics

4/4/2012

Mr. Paul Grabau
Farallon Consulting, LLC
1201 Cornwall Avenue
Suite 105
Bellingham WA 98225

Project Name: CHS AUBURN
Project #: 301-004
Workorder #: 1203398BR1

Dear Mr. Paul Grabau

The following report includes the data for the above referenced project for sample(s) received on 3/19/2012 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



Air Toxics

WORK ORDER #: 1203398BR1

Work Order Summary

CLIENT: Mr. Paul Grabau
Farallon Consulting, LLC
1201 Cornwall Avenue
Suite 105
Bellingham, WA 98225

BILL TO: Accounts Payable
Farallon Consulting, LLC
975 Fifth Avenue NW
Issaquah, WA 98027-3333

PHONE: 360.527.0241
FAX: 360.527.0243
DATE RECEIVED: 03/19/2012
DATE COMPLETED: 03/30/2012
DATE REISSUED: 04/04/2012

P.O. #
PROJECT # 301-004 CHS AUBURN
CONTACT: Kelly Buettner

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	FAR-34607-031512	Modified ASTM D-1946	8.5 "Hg	5 psi
02A	Lab Blank	Modified ASTM D-1946	NA	NA
02B	Lab Blank	Modified ASTM D-1946	NA	NA
03A	LCS	Modified ASTM D-1946	NA	NA
03AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: *Sandra A. Freeman*
Laboratory Director

DATE: 04/04/12

Certification numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.
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 - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1946
Farallon Consulting, LLC
Workorder# 1203398BR1

One 1 Liter Summa Canister (100% Certified) sample was received on March 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.

<i>Requirement</i>	<i>ASTM D-1946</i>	<i>ATL Modifications</i>
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 $\geq 95\%$ 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

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

THE WORKORDER WAS REISSUED ON 4/4/12 TO REPORT ADDITIONAL COMPOUND FOR FAR-34607-031512 PER CLIENT REQUEST.

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



Air Toxics

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

Client Sample ID: FAR-34607-031512

Lab ID#: 1203398BR1-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.25	22
Nitrogen	0.25	77
Carbon Dioxide	0.025	0.38
Helium	0.12	0.86



Air Toxics

Client Sample ID: FAR-34607-031512

Lab ID#: 1203398BR1-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9032924	Date of Collection:	3/15/12 2:07:00 PM
Dil. Factor:	2.50	Date of Analysis:	3/29/12 07:12 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.25	22
Nitrogen	0.25	77
Carbon Monoxide	0.025	Not Detected
Methane	0.00025	Not Detected
Carbon Dioxide	0.025	0.38
Ethane	0.0025	Not Detected
Ethene	0.0025	Not Detected
Helium	0.12	0.86

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



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1203398BR1-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9032905	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	3/29/12 08:14 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



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1203398BR1-02B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9032904b	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	3/29/12 07:52 AM

Compound	Rpt. Limit (%)	Amount (%)
Helium	0.050	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCS

Lab ID#: 1203398BR1-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9032902	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/28/12 11:36 PM

Compound	%Recovery
Oxygen	100
Nitrogen	100
Carbon Monoxide	101
Methane	99
Carbon Dioxide	101
Ethane	101
Ethene	98
Helium	100

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1203398BR1-03AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9032928	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/29/12 10:06 PM

Compound	%Recovery
Oxygen	100
Nitrogen	100
Carbon Monoxide	98
Methane	100
Carbon Dioxide	100
Ethane	101
Ethene	98
Helium	100

Container Type: NA - Not Applicable



CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
 Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend and indemnify Air Toxics Limited against any claim, demand or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
 FOLSOM, CA 95630-4719
 (916) 985-1000 FAX (916) 985-1020

Page 1 of 1

Project Manager PAUL GRAHAM

Collected by: (Print and Sign) REN KEV Scott, Ken Smith

Company FARALLON Email Ren.Graham@farallon.com

Address 275 5th AVE NW CITY ISSAQUAH State WA ZIP 98027

Phone 425-295-0800 Fax 425-295-0850

Project Info:
 P.O. # _____
 Project # 301-004
 Project Name CHS AUBURN

Turn Around Time:
 Normal
 Rush
specify

Lab Use Only:
 Pressurized by: _____
 Date: _____
 Pressurization Gas: _____
 N₂ He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum		
						Initial	Final	Receipt Final (psi)
01A	FAR-34607-031512	34607	3/15/12	1407	TO-15 (BTEX)	-29.5	-6.5	
					ASTM Method D-1956			

Relinquished by: (signature) Ken Smith Date/Time 3/15/12 @ 1630
 Received by: (signature) Blaine Date/Time 3/15/12 0845

Relinquished by: (signature) _____ Date/Time _____
 Received by: (signature) _____ Date/Time _____

Relinquished by: (signature) _____ Date/Time _____
 Received by: (signature) _____ Date/Time _____

Notes: REN KEV ONLY

Shipper Name: Felder Air Bill #: 87479730 Temp (°C): 15.1A Condition: Good
 Custody Seals Intact? Yes No None Work Order #: 1203393