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March 11, 2009
(date)

Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Chevron Facility #_20-6127_____

Address: 2301-2311 Blanding Avenue, Alameda, California_____

I have reviewed the attached report titled *Work Plan for Additional Site Investigation* _____ and dated March 11, 2009.

I agree with the conclusions and recommendations presented in the referenced report. The information in this report is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by Conestoga-Rovers & Associates, upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13267(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

SH Frerichs

Stacie H. Frerichs
Project Manager

Enclosure: Report

CONESTOGA-ROVERS
& ASSOCIATES

2000 Opportunity Dr, Suite 110, Roseville, California 95678
Telephone: 916-677-3407, ext. 100 Facsimile: 916-677-3687
www.CRAworld.com

March 11, 2009 Reference No. 631916

Mr. Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: Work Plan for Additional Site Investigation
Former Signal Oil Marine Storage and Distribution Facility
(Former Chevron Bulk Plant 20-6127)
2301-2311 Blanding Avenue
Alameda, California
LOP Case No. RO0002466

Dear Mr. Wickham:

Conestoga-Rovers & Associates (CRA) has prepared this *Work Plan for Additional Site Investigation* on behalf of Chevron Environmental Management Company (Chevron) for the site referenced above. In a letter dated November 10, 2008, Alameda County Environmental Health (ACEH) requested further evaluation of potential vapor intrusion issues and groundwater quality at the site. A copy of the letter is included as Attachment A. The site description and background, and our proposed investigation are presented in the following sections.

SITE DESCRIPTION AND BACKGROUND

The approximately 3.5-acre site is located on the northeast side of Blanding Avenue between Oak and Park Streets in Alameda, California (Figure 1). Land use in the site vicinity is primarily commercial and industrial. The Alameda Canal is located adjacent to the northeast of the site. The site is currently occupied by three large structures and one smaller structure used as an office and retail center, restaurant, and marina; and is identified as Park Street Landing at 2307-2337 Blanding Avenue (Figure 2).

A Sanborn map dated 1897 showed several residential structures and associated outbuildings onsite; the southeast portion of the site was shown as occupied by a laundry facility and a blacksmith. From at least 1930 until approximately 1961, the northwestern portion of the site was occupied by a petroleum bulk plant operated by Signal Oil & Gas Company. Former bulk plant facilities consisted of one large and seven smaller gasoline aboveground storage tanks (ASTs) within concrete secondary containment, underground piping, an office building, a loading rack, and a small structure containing gasoline pumps (Figure 2). A structure identified as auto garage/paint storage was shown in the northeast portion of the facility on Sanborn

maps dated between 1932 and 1950. A rail spur in Blanding Avenue was shown to service the facility. Two structures identified as "wholesale tires" and a "can warehouse" were shown in the central portion of the site. An additional larger structure was shown in the central portion of the site that was identified as vacant and as a ladder factory on the 1948 and 1950 Sanborn maps, respectively. Several structures appeared present in the southeast portion of the site in the 1939 aerial photograph. However, only one or two small sheds were shown in this area on the 1948 and 1950 Sanborn maps. In the 1958 aerial photograph, the ladder factory structure no longer appeared present and the southeast portion of the site appeared vacant and used for vehicle parking. Between 1957 and 1963, the buildings at the site reportedly were removed; and it is assumed that the ASTs and piping were also removed at this time. In the 1965 aerial photograph, all the bulk plant facilities appeared to have been removed and the majority of the site appeared occupied by a construction materials yard with several small structures. Several new structures also appeared present in the southeast portion of the site. From 1973 to 1983, the northwestern portion of the site reportedly was used as a construction yard and for boat repair activities; and the southeastern portion was occupied by a restaurant, paved parking area, and possibly an automobile sales lot. In 1987, the site was redeveloped into its current configuration.

Based on historic city directories, other previous site occupants of note have included Alameda Transportation Co. (2301 Blanding; 1920), United Box Co. (2329 Blanding; 1920), Long S Overall Laundry & Supply Co. (2311 Blanding; 1925), Central Box & Lumber Co. (2313 Blanding; 1925), Hunter Arthur D Boat Builder (2329 Blanding; 1933), Inland Ladder Co. (2329 Blanding; 1950, 1955), Red Sails (2337 Blanding; 1970, 1980), and C and S Cleaners (2327 Blanding; 1996-2000).

Environmental investigation at the site has been ongoing since 1990, including the installation of one monitoring well (MW-1). A summary of the environmental work performed at the site to date is included as Attachment B. The approximate previous boring and sampling locations, and the location of well MW-1, are presented on Figure 2.

RECENT INVESTIGATION

During the most recent investigation performed in July and August 2008 by CRA, six borings (SB-13 through SB-15 and SB-17 through SB-19) were drilled, six soil vapor wells (VP-1 through VP-6) were installed and sampled, and a grab-groundwater sample from well MW-1 was collected. Details of this investigation were presented in CRA's *Site Investigation Report*, dated October 14, 2008. The purpose of the investigation was to: 1) further evaluate the extent of hydrocarbon-impacted soil and groundwater; 2) evaluate whether the former boat yard and paint storage areas had been impacted with volatile organic compounds (VOCs); 3) further evaluate the extent of elevated metals in soil; and 4) evaluate soil vapor quality. Petroleum

hydrocarbons were detected in most of the soil samples collected from the borings; elevated concentrations were detected in several of the samples collected at 5 feet below grade (fbg) or less. The highest concentrations were detected in the area of the former ASTs, and generally appeared to attenuate or be significantly reduced by 10 fbg. Petroleum hydrocarbons were also detected in the groundwater samples collected from the borings; the highest concentrations were detected in boring SB-18 located downgradient of the ASTs and fuel pumps. Lower concentrations of petroleum hydrocarbons were detected in well MW-1. Based on the analytical results, the extent of hydrocarbon-impacted groundwater appeared to be relatively well-defined.

Background arsenic concentrations generally were detected in soil samples collected at 1 fbg. Therefore, the previously detected shallow soil with elevated arsenic concentrations appeared to be relatively well-defined. Elevated concentrations of other metals were detected in several samples collected generally between approximately 1 and 5 fbg. Groundwater did not appear to have been impacted with metals as they generally were not detected in MW-1. Based on the results of this and previous investigations, shallow soil across the northwest portion of the site was impacted with metals. However, the source of the metals did not appear to be former bulk plant operations, and potential exposure to the impacted soil was minimized due to the existing development. Therefore, no further investigation was recommended.

Chlorinated solvents were only detected in the groundwater sample collected from boring SB-15 in the northeast corner of the site. Therefore, it did not appear that the former paint storage area had impacted the site. However, based on the detections in SB-15, it appeared that a former or current onsite operation had impacted groundwater. However, the detected concentrations were low; therefore, no further investigation was recommended.

Elevated concentrations of petroleum hydrocarbons were detected in shallow soil vapor beneath the site. The highest concentrations were detected in vapor wells VP-4, VP-5, and VP-6 located in the area of the former ASTs, with significantly lower concentrations in vapor wells VP-1 and VP-2 (downgradient of VP-4) (Figure 2). The detected concentrations of one or more constituents exceeded the respective shallow soil gas environmental screening levels (ESLs) associated with vapor intrusion concerns at commercial/industrial sites; established by the San Francisco Bay Regional Water Quality Control Board (RWQCB) in May 2008 (Table E). Therefore, potential vapor intrusion into the onsite buildings appeared to be a concern.

In the November 10, 2008 letter, ACEH concurred that no further investigation for metals in soil, or of the former paint storage area, was required. However, further evaluation of potential vapor intrusion, including re-sampling of the existing vapor wells, was requested due to the elevated concentrations of petroleum hydrocarbons detected in soil vapor. Due to the difference in the concentrations detected in groundwater samples from well MW-1 and nearby

boring SB-18, ACEH also requested plans to accurately monitor groundwater quality at the site and potential discharges to Alameda Canal, as MW-1 did not appear to be representative of surrounding conditions. Additional groundwater analysis for metals was also requested to confirm the results in MW-1. Finally, an evaluation of groundwater quality in the area of a former buried drum was requested; ACEH had recently received documentation of work pertaining to the drum from the property owner. In summary, a 15- to 20-gallon buried drum encountered near the southeast corner of the site was removed in 1990; a soil sample collected beneath the drum contained total petroleum hydrocarbons as gasoline (TPHg), TPH as diesel (TPHd), and total oil and grease (TOG) at 360 milligrams per kilogram (mg/kg), 620 mg/kg, and 3,000 mg/kg, respectively; low concentrations of acetone (0.001 mg/kg), xylenes (0.28 mg/kg), and chlorobenzene (0.096 mg/kg) were also detected, as well as polycyclic aromatic hydrocarbons (PAHs) up to 2.3 mg/kg (specific compounds unknown). Over-excavation of impacted soil (approximately 50 cubic yards) was performed in 1994. Five confirmation soil samples were collected from the excavation; the samples contained TPHg, TPHd, and chlorobenzene up to 280 mg/kg, 470 mg/kg, and 0.98 mg/kg, respectively, and low concentrations of benzene, toluene, ethylbenzene, and xylenes (BTEX) (up to 0.34 mg/kg); other VOCs and PAHs were not detected. Further details of this work are presented in the historical summary (Attachment B). The approximate excavation location is shown on Figure 2.

On December 31, 2008, CRA re-sampled vapor wells VP-1 through VP-5 to confirm the previously detected elevated concentrations. Please note that a sample could not be collected from well VP-6 due to low-flow conditions, possibly due to high groundwater levels. The samples were analyzed for the same constituents as during the previous investigation; and significantly lower concentrations of petroleum hydrocarbons were detected. However, significantly elevated concentrations of TPHg and benzene were still detected in wells VP-4 (7.8E+07 µg/m^3 and 5.7E+05 µg/m^3, respectively) and VP-5 (1.3E+07 µg/m^3 and 1.6E+04 µg/m^3, respectively). The TPHg results reported by the laboratory incorporate many different compounds. Therefore, to further evaluate what comprises the reported TPHg in samples VP-4 and VP-5, the laboratory reported the top 20 tentatively identified compounds (TICs) in these samples and also provided a breakdown of the percentage of aliphatic and aromatic compounds present in the TPHg range. For VP-4, the breakdown was 98 percent aliphatic and 2 percent aromatic; and for VP-5, the breakdown was 99.6 percent aliphatic and 0.4 percent aromatic, indicating that most of the compounds present are non-carcinogenic (see attached laboratory report). An ambient air sample was also collected and analyzed for all constituents except TPHd; and only low concentrations of toluene, m,p-xylene, and acetone were detected. The previous and recent soil vapor and ambient air sample analytical results are presented in Table 1. Copies of the laboratory reports from the December 2008 event are included as Attachment C.

PROPOSED SCOPE OF WORK

To further evaluate groundwater quality in the area of the hydrocarbon plume, CRA proposes to install five additional monitoring wells. To evaluate groundwater quality in the former buried drum area, CRA will drill one boring to groundwater in this area and collect a grab-groundwater sample. The proposed well and boring locations are shown on Figure 2. The details of the proposed investigation are presented in the following sections. Please note that the proposed boring and well locations may change due to utility conflicts or surface impediments.

To further evaluate potential vapor intrusion, sub-slab sampling within the two northwestern onsite buildings is proposed, and is the next logical step in the evaluation of potential concerns at the site. We anticipate the collection of several samples within each of the two buildings. Please note however, that due to the number of tenants and access issues the exact sub-slab sampling locations have not been determined, but will be identified following further evaluation of access/use issues within each building. The proposed final sampling locations will be provided to ACEH once the details of the proposed sub-slab investigation are finalized.

PRE-FIELD ACTIVITIES

Permits and Access Agreements: CRA will obtain all necessary permits and access agreements for the proposed boring, wells, and sub-slab samples prior to the initiation of field activities. A minimum of 72 hours written notification will be given to ACEH before initiation of field activities.

Site Health and Safety Plan: CRA will prepare a site-specific health and safety plan (HASP) to inform site workers of known hazards and to provide health and safety guidance. The plan will be reviewed and signed by all site workers and visitors and will be kept onsite during field activities.

Underground Utility Location: CRA will notify Underground Service Alert (USA) at least 48 hours prior to drilling to clear the proposed boring and well locations with public utility companies. A private utility locator will also be retained to further minimize the risk of damaging underground utilities. Additionally, the upper 8 feet of each boring will be cleared for utilities using a hand auger and/or an air-knife in accordance with Chevron and CRA safety protocols.

GROUNDWATER QUALITY ASSESSMENT – HYDROCARBON PLUME

Drilling: To further evaluate groundwater quality in the area of the hydrocarbon plume, CRA proposes the drilling of five borings for the installation of monitoring wells. After utility clearance to 8 fbg, the five well borings will be advanced to approximately 15 to 20 fbg using 8-inch hollow-stem augers. Groundwater is anticipated to be encountered at approximately 10 to 15 fbg. The final locations and depths of the borings will be based on field conditions.

Soil Sampling and Laboratory Analysis: Soil samples will be collected continuously from the upper 8 feet of each boring for logging and observation purposes; below 8 fbg, soil samples will be collected approximately every 5 feet. The soil encountered in the borings will be logged in accordance with the Unified Soil Classification System (USCS). Soil samples from each boring will be screened in the field for volatile organic vapors using a photo-ionization detector (PID). Samples which return PID readings of 100 parts per million by volume (ppmv) or greater, or those in which evidence of contamination is observed, may be retained for laboratory analysis. Soil samples retained for laboratory analysis will be collected in brass or stainless steel liners, capped using Teflon tape and plastic end caps, labeled, placed in an ice-chilled cooler, and transported under chain of custody to Lancaster Laboratories, Inc. (Lancaster) in Lancaster, Pennsylvania for analysis. The soil samples will be analyzed for TPHg and TPHd (with silica gel cleanup) by EPA Method 8015M; and BTEX by EPA Method 8260B.

Well Installation: The well screen intervals will be determined based on field observations, but are anticipated to be from approximately 5 to 15 fbg. The wells will be constructed using 2-inch diameter, Schedule 40 PVC casing with 0.010-inch slotted screen, and a #2/16 Monterey Sand filter pack. CRA's standard field procedures for monitoring well installation are included as Attachment D.

Well Development and Sampling: The wells will be developed to remove fine-grained material a minimum of 72 hours after installation. The wells will be incorporated into the quarterly monitoring and sampling program; depending on when the wells are installed, initial samples may be collected during the next scheduled quarterly event.

Well Surveying: The well locations and top of casing elevations will be surveyed relative to mean sea level by a California Licensed Land Surveyor and uploaded into the State Water Resources Control Board (SWRCB) GeoTracker database.

GROUNDWATER QUALITY ASSESSMENT - FORMER BURIED DRUM AREA

Drilling and Groundwater Sampling: To evaluate groundwater quality in the former buried drum area, CRA proposes to drill one boring to groundwater in this area and collect a grab-groundwater sample using a Hydropunch sampling device. The Hydropunch consists of a stainless steel probe with an expendable drive point and an internal screen that will be hydraulically driven to the desired depth following utility clearance to 8 fbg. The depth to groundwater will be determined from the monitoring well borings. When the desired depth is reached, the probe will be retracted to expose the internal screen and allow for the infiltration of groundwater. The groundwater sample will then be collected through the inside of the drill rods. As the former drum location appears to be just offsite, the proposed boring will be located onsite just downgradient of this area to avoid the need for an additional access agreement. The proposed boring location is shown on Figure 2.

Laboratory Analysis: The groundwater sample will be analyzed by Lancaster for TPHg and TPHd (with silica gel cleanup) by EPA Method 8015; and BTEX by EPA Method 8260B. Please note that as PAHs and other VOCs (with the exception of low concentrations of chlorobenzene not exceeding the ESL of 1.5 mg/kg) were not detected in the previous sidewall or bottom excavation confirmation soil samples, we have not included analysis for these compounds.

SUB-SLAB SOIL VAPOR INTRUSION ASSESSMENT

Sub-Slab Vapor Probe Installation: To further evaluate potential vapor intrusion concerns in the onsite buildings, CRA proposes sub-slab sampling within the two northwestern buildings. At each selected location, sub-slab vapor probes will be installed in general accordance with the procedures outlined in the U.S. Environmental Protection Agency (EPA) *Draft Standard Operating Procedure (SOP) for Installation of Sub-Slab Vapor Probes and Sampling Using EPA Method TO-15 to Support Vapor Intrusion Investigations*. A copy of this document is included as Attachment E.

Soil Vapor Sampling and Laboratory Analysis: Soil vapor samples will be collected from the sub-slab probes in 1-liter SUMMA™ canisters for laboratory analysis. The samples will be collected in general accordance with the EPA document and the Department of Toxic Substances Control (DTSC) *Advisory-Active Soil Gas Investigations* guidance document dated January 28, 2003. CRA's standard field procedures for soil vapor sampling are included in Attachment D; a generalized schematic of the soil vapor sampling apparatus is presented on Figure B of Attachment D. The samples will be collected no sooner than 24 hours after probe installation to allow adequate concrete curing time.

A minimum of one field duplicate sample per building will also be collected. In accordance with the DTSC guidance, leak testing will be performed during sampling. Helium will be used as a leak check compound to evaluate if significant leakage of ambient air into the SUMMA™ canisters occurred during sampling.

Laboratory Analysis: The sub-slab vapor samples will be kept at ambient temperature and submitted under chain-of-custody to Air Toxics Ltd. in Folsom, California, for analysis. The samples will be analyzed for TPHg and VOCs by EPA Method TO-15. The samples will also be analyzed for oxygen, carbon dioxide, methane, and helium (leak check compound) by ASTM Method D-1946.

INVESTIGATION-DERIVED WASTE

Soil cuttings and decontamination rinsate generated during field activities will be temporarily stored onsite in 55-gallon steel drums, and sampled for disposal purposes. Once profiled, the drums will be removed from the site for disposal at a Chevron-approved facility.

REPORTING

As mentioned above, once access and use issues in the site buildings have been evaluated, we will provide to ACEH the final details of the proposed sub-slab vapor sampling.

Following receipt of the analytical results, CRA will prepare a subsurface investigation report presenting the results of the investigation and summarizing our conclusions and recommendations. Our conclusions and recommendations will be based on readily available information, observations of existing site conditions, and our interpretation of the analytical data.

CLOSING

We appreciate your assistance on this project. If you have any questions please contact Mr. James Kiernan at (916) 751-4102.

Sincerely,

CONESTOGA-ROVERS & ASSOCIATES

James P. Kiernan, P.E. #C68498

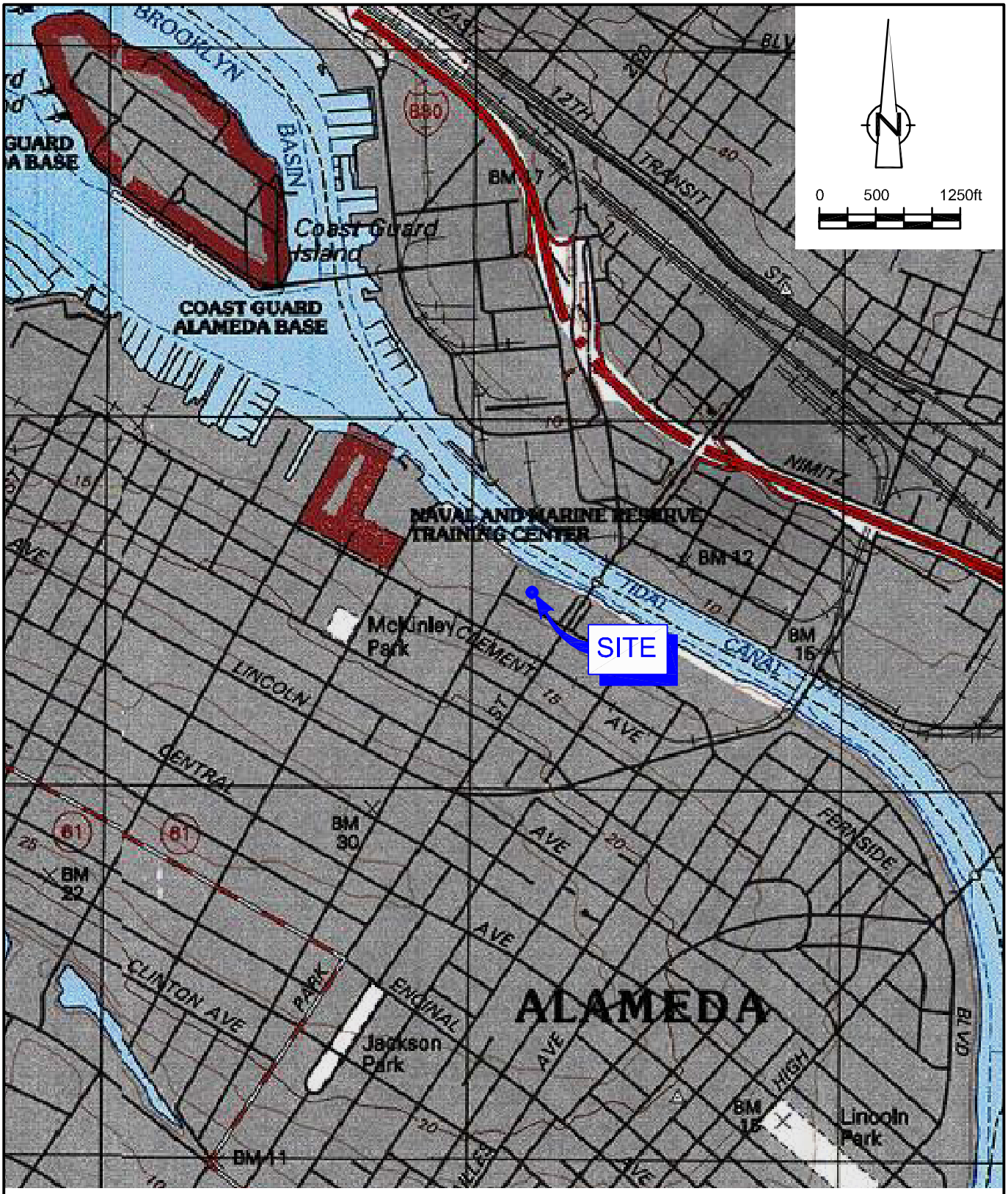
REGISTERED PROFESSIONAL ENGINEER
JAMES P. KIERNAN
No. 68498
Exp. 9/30/09
CIVIL
STATE OF CALIFORNIA
JK
3/11/09

JK/kw/2
Encl.

Figure 1	Vicinity Map
Figure 2	Site Plan
Table 1	Soil Vapor and Ambient Air Sample Analytical Results
Attachment A	ACEH November 10, 2008 Letter
Attachment B	Summary of Previous Environmental Work
Attachment C	Soil Vapor Laboratory Reports-December 2008 Event
Attachment D	Standard Field Procedures
Attachment E	EPA Sub-Slab Guidance Document

cc: Ms. Stacie Frerichs, Chevron Environmental Management Company
Ms. Julie Beck Ball, Mr. Peter Reinhold Beck
Mr. Monroe Wingate
Mr. Tom Foley, Gallagher & Miersch

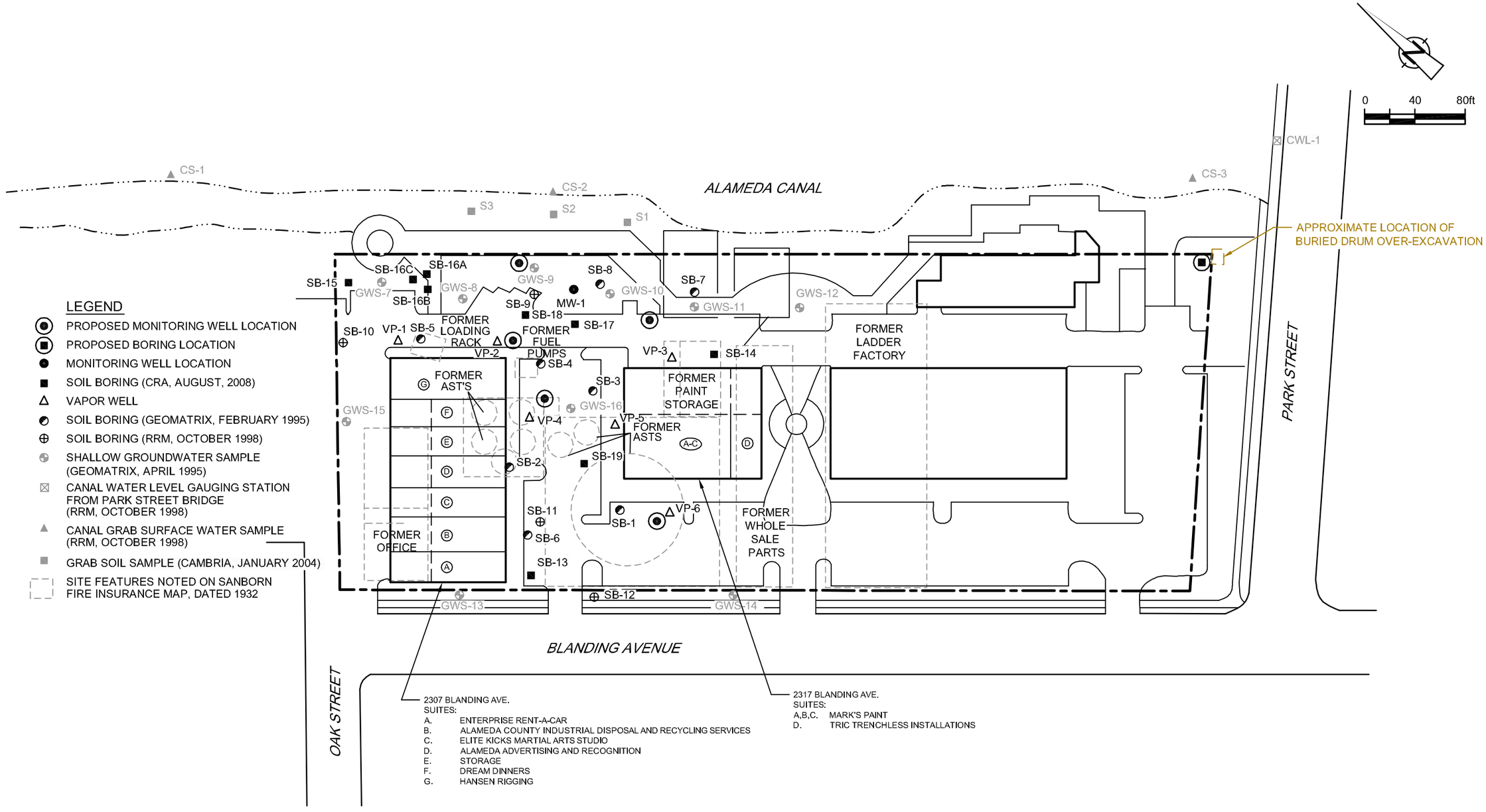
FIGURES



SOURCE: TOPO! MAPS.

figure 1

VICINITY MAP
CHEVRON # 206127 - FORMER SIGNAL OIL BULK PLANT
2301-2311 BLANDING AVENUE
Alameda, California



NOTE:
ALL LOCATIONS ARE APPROXIMATE.

figure 2

SITE PLAN
CHEVRON # 206127 - FORMER SIGNAL OIL BULK PLANT
2301-2311 BLANDING AVENUE
Alameda, California

631916-203(PRES002)GN-WA001 FEB 26/2009

TABLES

TABLE 1
SOIL VAPOR AND AMBIENT AIR SAMPLE ANALYTICAL RESULTS
FORMER CHEVRON 20-6127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Vapor Point ID	*Date Sampled*	*TPHd*	*TPHg*	*Benzene*	*Toluene*	*Ethyl-benzene*	*m,p-Xylene*	*Acetone*	*Chloro-methane*	*Bromo-methane*	*MEK*	*Hexane*	*Cyclo-hexane*	*Heptane*	*Cumene*	*Propyl-benzene*	*1,2,4-Trimethyl benzene*	*1,3,5-Trimethyl benzene*	*4-Ethyl-toluene*	*O_2 (%)*	*CO_2 (%)*
Concentrations in micrograms per cubic meter (µg/m^3); except where noted																					
VP-1	8/19/2008	**13,000**	**1,300,000**	**300**	**140**	**240**	**540**	<180	<160	<75	<57	**9,400**	**12,000**	**27,000**	**1,600**	**2,800**	<95	<95	**660**	17	4.0
VP-1	12/31/2008	<2,000	**1,700**	<3.4	<4.0	**7.3**	**11**	<10	<8.8	<4.1	<3.1	<3.8	<3.7	<4.4	**50**	**58**	<5.2	<5.2	<5.2	17	3.3
VP-2	8/19/2008	**24,000**	**1,500,000**	**140**	<86	**130**	**300**	<220	<190	<89	<68	**5,500**	**19,000**	**12,000**	**900**	**1,700**	<110	<110	**370**	8.9	11
Dup	8/19/2008	**22,000**	**840,000**	**100**	<86	**130**	**290**	<220	<190	<89	<68	**4,400**	**9,800**	**12,000**	**890**	**1,700**	<110	<110	**390**	9.2	10
VP-2	12/31/2008	**5,600**	**1,800**	<3.5	<4.1	<4.8	<4.8	**12**	<9.1	<180	**4.4**	<3.9	<3.8	<4.5	<5.4	<5.4	<5.4	<5.4	<5.4	17	5.4
VP-3	8/19/2008	**53,000E**	**4,100,000**	<700	<830	<960	**1,200**	<2,100	<1,800	<850	<650	**38,000**	**47,000**	**77,000**	**4,000**	**5,700**	<1,100	**1,200**	<1,100	1.7	11
VP-3	12/31/2008	**33,000**	**1,100,000**	<150	<170	<200	<200	<440	<380	<180	<140	**16,000**	**14,000**	**4,100**	<220	<220	<220	<220	<220	1.4	5.5
VP-4	8/19/2008	**91,000S**	**220,000,000**	**1,100,000**	**49,000**	**570,000**	**70,000**	<38,000	**3,900,000**	**70,000**	<12,000	**8,400,000**	**3,600,000**	**5,100,000**	**57,000**	**84,000**	<19,000	<19,000	**37,000**	0.55	16
VP-4	12/31/2008	**350,000**	**78,000,000**	**570,000**	**22,000**	**310,000**	**35,000**	<19,000	<17,000	<8,000	<6,000	**3,500,000**	**1,600,000**	**2,200,000**	**27,000**	**40,000**	**13,000**	**<10,000**	**23,000**	3.4	8.8
Dup	12/31/2008	**280,000**	**110,000,000**	**600,000**	**22,000**	**320,000**	**35,000**	<55,000	<48,000	<22,000	<17,000	**3,800,000**	**1,700,000**	**2,300,000**	**30,000**	**43,000**	<28,000	<28,000	<28,000	0.94	9.8
VP-5	8/19/2008	**110,000S**	**29,000,000**	**28,000**	<4,400	<5,000	<5,000	<11,000	<9,600	<4,500	<3,400	**630,000**	**430,000**	**660,000**	**7,000**	<5,700	<5,700	<5,700	<5,700	2.0	15
VP-5	12/31/2008	**260,000**	**13,000,000**	**16,000**	<4,500	<5,200	<5,200	<11,000	<9,800	<4,600	<3,500	**310,000**	**230,000**	**390,000**	<5,800	<5,800	<5,800	<5,800	<5,800	1.4	12
VP-6	8/19/2008	**96,000S**	**150,000,000**	**20,000**	<10,000	<12,000	<12,000	<26,000	**1,200,000**	**25,000**	<8,100	**3,300,000**	**3,200,000**	**2,800,000**	**17,000**	<14,000	<14,000	<14,000	<14,000	3.9	9.8
Ambient	12/31/2008	--	<160	<2.5	**4.1**	<3.4	**4.6**	**9.3**	<6.4	<3.0	<2.3	<2.7	<2.7	<3.2	<3.8	<3.8	<3.8	<3.8	<3.8	22	0.046
ESLs		29,000	29,000	280	180,000	3,300	58,000*	1,800,000	53,000	2,900	2,900,000	NE	NE	NE	NE	NE	NE	NE	NE		

Abbreviations/notes:
TPHg = Total petroleum hydrocarbons as gasoline by EPA Method TO-3
TPHd = Total petroleum hydrocarbons as diesel by EPA Method TO-17
VOCs = Volatile Organic Compounds by EPA Method TO-15
O_2, CO_2, and He = Oxygen, Carbon Dioxide, and Helium by ASTM Method D-1946
< = Not detected at or above stated laboratory reporting limit
E = Laboratory data qualifier; exceeds instrument calibration range
S = Laboratory data qualifier; saturated peak, data reported as estimated
ESLs = Shallow soil gas Environmental Screening Levels associated with vapor intrusion concerns at commercial/industrial sites (Table E). SFRWQCB - May 2008
* ESL is for total xylenes
NE = Not established

TABLE 1
SOIL VAPOR AND AMBIENT AIR SAMPLE ANALYTICAL RESULTS
FORMER CHEVRON 20-6127
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

He (%)
<0.12
<0.11
<0.11
<0.11
<0.11
<0.11
<0.11
<0.13
<0.10
<0.12
<0.12
<0.12
<0.11
<0.078

ATTACHMENT A

ACEH LETTER DATED NOVEMBER 10, 2008

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

631416
20-6127

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-93

November 10, 2008

Mr. Tom Bauhs
Chevron Environmental Management Company
P.O. Box 6012, K2204
San Ramon, CA 94583

Ms. Julie Beck Ball
Mr. Peter Reinhold Beck
2720 Broderick Street
San Francisco, CA 94123

Subject: SLIC Case No. RO0002466 and Geotracker Global ID T06019744728, Park Street Landing 2301-2337 Blanding Avenue, Alameda, CA 94501

Dear Mr. Bauhs and Ms. Ball:

Alameda County Environmental Health (ACEH) staff has reviewed the Spills, Leaks, Investigations, and Cleanups (SLIC) case file for the above referenced site including the recently submitted document entitled, "*Site Investigation Report*," dated October 14, 2008 and prepared on Chevron's behalf by Conestoga-Rovers Associates. The Site Investigation Report presents the results of soil, soil vapor, and groundwater sampling conducted at the site to further evaluate the extent of petroleum hydrocarbons in shallow groundwater, evaluate whether VOCs are present in the vicinity of the former paint storage area and boat yard, evaluate the extent of elevated metals concentrations in soil, and perform soil vapor sampling to evaluate potential vapor intrusion.

Based on our review of the Site Investigation Report and the case file, additional evaluation of the site is required. Most significantly, elevated concentrations of VOCs have been detected in soil vapor samples collected adjacent to the on-site buildings. We request that you submit a Work Plan to conduct sub-slab soil vapor and/or indoor air sampling to directly and quickly evaluate potential vapor intrusion. Please submit a Work Plan that addresses the technical comments below **by December 19, 2008**.

TECHNICAL COMMENTS

1. **Soil Vapor Sampling Results.** Elevated concentrations of total petroleum hydrocarbons as gasoline (TPHg) and volatile organic compounds (VOCs) were detected in soil vapor samples collected from vapor wells installed adjacent to two of the on-site buildings. The highest concentration of benzene (1,100,000 micrograms per cubic meter [µg/m3] detected in a sample from probe SV-4) exceeds the Environmental Screening Level (ESL) for soil vapor under industrial/commercial land use by more than three orders of magnitude. Chloromethane and bromomethane were also detected in the soil vapor sample from SV-4 at concentrations that exceed the ESL for vapor intrusion by more than an order of magnitude. In addition, coarse-grained soils consisting of sands and gravels are described in shallow soil at each of the soil vapor probes. All soil vapor samples were considered to pass the leak detection test and the analytical results are assumed to be valid. Based on the highly elevated concentrations of VOCs in soil vapor, further investigation of potential vapor intrusion consisting of

sub-slab sampling and/or indoor air sampling is required. Please refer to the December 15, 2004 DTSC Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air to help plan the additional investigation. We request that you present plans for further assessment of potential vapor intrusion in the Work Plan requested below. Further assessment should include re-sampling of the existing soil vapor probes.

2. **Evaluation of Shallow Groundwater.** In correspondence dated October 17, 2007, we questioned the representativeness of the groundwater monitoring data for well MW-1 and requested additional sampling of shallow groundwater in the area of well MW-1. Two shallow groundwater samples were proposed in the area of well MW-1 (SB-17 and SB-18). TPHg, TPHd, and benzene were detected in the grab groundwater sample from boring SB-18 at concentrations of 3,800, 19,000, and 590 µg/L. The concentrations detected in the grab groundwater sample from SB-18 are significantly higher than the concentrations detected in groundwater from MW-1. This further indicates that the data collected from well MW-1 may not accurately reflect shallow groundwater quality at the site and also indicates that fuel hydrocarbons are likely discharging to the Alameda Canal. Unfortunately, a groundwater sample was not collected from boring SB-17. As shown on cross section A-A', the water level in well MW-1 is approximately 3 feet MSL. Boring SB-17, which is located approximately 30 feet from MW-1, was advanced to an elevation of 9 feet below MSL but no groundwater was reportedly encountered. In the Work Plan requested below, please present plans to accurately monitor groundwater quality at the site and discharges to the Alameda Canal.

3. **Metals in Soil and Groundwater.** Based on the sampling results for metals in soils, we concur with the conclusion that no further investigation for metals in soils is required at this time. However, the elevated concentrations of metals detected in shallow soil to date will require land use restrictions to prevent exposure under more future more conservative land use scenarios. Although metals were not detected at elevated concentrations in a groundwater sample from well MW-1, the representativeness of data from well MW-1 is questionable. Therefore, please include analyses for metals in groundwater in the plans to accurately monitor groundwater quality at the site and discharges to the Alameda Canal as requested in technical comment 2.

4. **Former Paint Storage Area.** Based on the results from soil boring SB-14, we concur that the former paint storage area does not appear to be a source of soil or groundwater contamination. No further investigation of the paint storage area is required at this time.

5. **Buried Drum Excavation.** In response to our request for further information, we received a technical report in March 2008 entitled, "*Soil Investigation and Remediation*," dated April 1995 and prepared by Geomatrix. The report describes excavation of soil containing petroleum hydrocarbons and polynuclear aromatic compounds in the area of a buried drum near the eastern corner of the site. The Geomatrix report recommended investigation of shallow groundwater to evaluate whether groundwater has been affected by chemicals associated with the underground drum. We did not find a record of groundwater sampling in this area of the site. In the Work Plan requested below, please include plans to assess whether groundwater quality has been impacted in the area of the excavated drum.

6. **Hydrogeologic Cross Section.** The hydrogeologic cross sections are useful for interpretation of site conditions. ACEH appreciates the preparation of the hydrogeologic cross sections for the Site Investigation Report.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Jerry Wickham), according to the following schedule:

- **December 19, 2008** – Work Plan

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/cleanup/electronic_reporting).

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at jerry.wickham@acgov.org.

Sincerely,

Jerry Wickham

Jerry Wickham, California PG 3766, CEG 1177, and CHG 297
Senior Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Mr. Brian Carey, Conestoga-Rovers & Associates, 2000 Opportunity Drive, Suite 110 Roseville, CA 95678

Mr. James Kiernan, Conestoga-Rovers & Associates, 2000 Opportunity Drive, Suite 110 Roseville, CA 95678

Mr. Monroe Wingate, C/o Alan Wingate, 18360 Carriger Road, Sonoma, CA 95476

Donna Drogos, ACEH
Jerry Wickham, ACEH
File

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**ISSUE DATE:** July 5, 2005
	REVISION DATE: December 16, 2005
	PREVIOUS REVISIONS: October 31, 2005
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

Effective **January 31, 2006**, the Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection.** (Please do not submit reports as attachments to electronic mail.)
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements **must** be included and have either original or electronic signature.
- **Do not password protect the document.** Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted.**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:
  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Additional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in **Excel** format. These are for use by assigned Caseworker only.

Submission Instructions

1) Obtain User Name and Password:
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to dehloptoxic@acgov.org
         or
      ii) Send a fax on company letterhead to (510) 337-9335, to the attention of Alicia Lam-Finneke.
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses,** and the **Case Numbers (RO# available in Geotracker) you will be posting for.**

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape and Firefox browsers will not open the FTP site.
   b) Click on File, then on Login As.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name at acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload.** (e.g., Subject: RO1234 Report Upload)

ATTACHMENT B

SUMMARY OF PREVIOUS ENVIRONMENTAL WORK

SUMMARY OF PREVIOUS ENVIRONMENTAL WORK

1990 Drum Removal: In June 1990, Aqua Terra Technologies (ATT) supervised the removal of a 15- to 20-gallon drum buried near the southeast corner of the site. The property adjacent to the southeast of the site reportedly was formerly owned and used by the City of Alameda. The bottom of the drum reportedly was at least 3 feet below grade (fbg). Five 1½-inch diameter holes reportedly were observed in the drum, and approximately 6 inches of gravel fill was present beneath the drum. The fill was removed and a soil sample was collected beneath the fill and analyzed for total petroleum hydrocarbons as gasoline (TPHg) and diesel (TPHd), total oil and grease (TOG), volatile organic compounds (VOCs), and semi-VOCs. TPHg, TPHd, and TOG were detected in the sample at 360 milligrams per kilogram (mg/kg), 620 mg/kg, and 3,000 mg/kg, respectively. Low concentrations of acetone (0.001 mg/kg), xylenes (0.28 mg/kg), and chlorobenzene (0.096 mg/kg) were also detected; as well as polycyclic aromatic hydrocarbons (PAHs) (up to 2.3 mg/kg) (specific compounds unknown).

1994 Over-Excavation: In November 1994, Geomatrix Consultants, Inc. (Geomatrix) performed over-excavation of impacted soil in the former buried drum area. The top 3 feet of excavated material appeared to be fill as debris including clay pots, asphalt, and concrete was observed. The excavation area was approximately 12 feet by 8 feet by 10 feet deep, and was limited laterally by the presence of utilities. Groundwater was not encountered in the excavation. Following excavation, four soil samples (EX-1, EX-2, EX-4, and EX-5) were collected from the excavation sidewalls at depths ranging from 6.7 to 9.5 fbg. A soil sample (EX-3) was also collected from the bottom of the excavation at 10.2 fbg. The five soil samples were analyzed for TPHg, TPHd, benzene, toluene, ethylbenzene, and xylenes (BTEX), VOCs, and PAHs (plus 2-methylnaphthalene). Sample EX-3 was additionally analyzed for CAM 17 metals. TPHg, TPHd, and chlorobenzene were detected in all five of the samples at concentrations up to 280 mg/kg, 470 mg/kg, and 0.98 mg/kg, respectively; the highest concentrations were detected in bottom sample EX-3. Low concentrations of BTEX (up to 0.34 mg/kg) were detected in three of the samples. Other VOCs and PAHs were not detected in any of the samples. The metals concentrations detected in sample EX-3 were consistent with background levels. Based on the analytical results, no further excavation was performed. The excavated soil (approximately 50 cubic yards) was disposed at Forward Landfill in Manteca, California, and the excavation was backfilled with clean, aggregate baserock imported from local quarries. Geomatrix recommended further investigation to evaluate if groundwater had been impacted by the drum. Details of the investigation were presented in Geomatrix's *Soil Investigation and Remediation* dated April 1995.

1995 Soil and Groundwater Investigation: In February 1995, Geomatrix advanced eight borings (SB-1 through SB-8) to approximately 10 fbg in the northwestern portion of the site (Figure 2) to evaluate if previous site uses had impacted soil and groundwater quality. Groundwater was not encountered in the borings. A total of 19 soil samples were collected at

various depths from each boring and analyzed for TPHg, TPHd, and BTEX. TPHg was detected in six of the samples at concentrations ranging from 4 to 2,000 mg/kg. TPHd was detected in the majority of the samples at concentrations ranging from 10 to 250 mg/kg. BTEX were also detected in several of the samples (benzene up to 3.7 mg/kg). The highest concentrations generally were detected in borings SB-2 and SB-4 located in the vicinity of the former ASTs and gasoline pump, respectively, between 4 and 7 fbg. One soil sample from each boring (depths ranging from 0.5 to 3 fbg) was also analyzed for CAM 17 metals. The detected metals concentrations generally appeared to be within the range of natural background levels with the exception of slightly elevated arsenic in a few samples. Arsenic was detected in the samples collected at 1 fbg from borings SB-3, SB-4, and SB-6 at 68 mg/kg, 46 mg/kg, and 130 mg/kg, respectively. As a result, deeper samples collected from borings SB-3 (6.5 fbg) and SB-6 (8 fbg) were also analyzed for arsenic (non-detect and 2.5 mg/kg, respectively). Therefore, the soil impacted with arsenic appeared to be of limited vertical extent. Three soil samples (SB-4-7', SB-5-6', and SB-8-7') were also analyzed for VOCs, which were not detected. Based on the soil analytical results, a shallow groundwater survey was recommended to evaluate if groundwater had been impacted by petroleum hydrocarbons.

In April 1995, Geomatrix collected groundwater samples from 10 borings (GWS-7 through GWS-16) drilled to depths of 15 to 21.5 fbg at the site (Figure 2). Borings GWS-7 through GWS-12 were located in the northeastern portion of the site near Alameda Canal to evaluate if impacted groundwater was flowing toward the canal; based on an assumed groundwater flow direction toward the canal. Borings GWS-13 through GWS-15 were located on the southwest and northwest property boundaries in the assumed upgradient and perimeter crossgradient directions to evaluate the quality of groundwater coming onto the site. Boring GWS-16 was located to the northeast of the former ASTs and was drilled approximately 6 feet deeper than the other borings to evaluate deeper groundwater quality. The groundwater samples were filtered by the laboratory, a silica-gel cleanup performed, and analyzed for TPHg, BTEX, and TPHd. TPHg was detected in the samples collected from borings GWS-8 through GWS-11 and GWS-16 at concentrations ranging from 70 (GWS-16) to 22,000 micrograms per liter (µg/L) (GWS-9). TPHd was detected in the samples collected from borings GWS-8 through GWS-11 at concentrations ranging from 60 (GWS-8) to 1,200 µg/L (GWS-9). Benzene was detected in the samples collected from borings GWS-8 through GWS-10 at 36 µg/L, 6,200 µg/L, and 880 µg/L, respectively. Toluene, ethylbenzene, and xylenes (up to 1,200 µg/L) were also detected in several of the samples. The maximum concentrations were detected in boring GWS-9 located downgradient of the gasoline pump and loading rack. Petroleum hydrocarbons were not detected in up and crossgradient borings GWS-13 through GWS-15. The deeper sample (GWS-16) contained only low to trace concentrations.

A black granular material was encountered from approximately 2.5 to 6 fbg in boring GWS-7 in the northern corner of the site. A small pile of similar material was observed on the northwestern property boundary that appeared to have originated from the adjacent metal

fabrication facility. A sample of this material was collected from the boring and analyzed for TPHd, VOCs, semi-VOCs, and CAM 17 metals. An elevated concentration of copper (1,700 mg/kg) was detected in the sample. The sample was subsequently analyzed for soluble copper, which was detected at 0.04 milligrams per liter (mg/L). The total and soluble copper concentrations did not exceed the California hazardous waste thresholds. Details of the investigations were presented in Geomatrix's *Soil Investigation and Shallow Groundwater Survey* dated September 1995.

1998 RBCA Tier 1 Evaluation: In July 1998, RRM, Inc. (RRM) performed a Tier 1 Risk-Based Corrective Action (RBCA) assessment to evaluate potential health risks posed by residual petroleum hydrocarbons in soil and groundwater at the site. Based on the results, RRM recommended the collection of site-specific data to complete a Tier 2 RBCA evaluation; the identification of the beneficial uses of groundwater beneath the site; an evaluation of background water quality in Alameda Canal; and an evaluation of biodegradation. Details of this investigation were presented in RRM's *Risk-Based Corrective Action (RBCA) Tier 1 Evaluation* dated July 24, 1998.

1998 Soil and Groundwater Investigation: In October 1998, RRM performed an additional soil and groundwater investigation at the site. Four additional borings (SB-9 through SB-12) were advanced to depths of 15 to 18 fbg (Figure 2). A total of eight soil samples were collected at various depths from the borings and analyzed for TPHg, TPHd, BTEX, and methyl tertiary butyl ether (MTBE). TPHg was detected in the soil samples collected at 5 and 13 fbg from boring SB-9 (130 and 900 mg/kg, respectively); and at 6 fbg from boring SB-11 (140 mg/kg). TPHd was detected in the soil samples collected at 5, 13, and 15 fbg from boring SB-9 (3,300 mg/kg, 1,300 mg/kg, and 1.2 mg/kg, respectively); at 5.5 fbg from boring SB-10 (130 mg/kg); and at 6 fbg from boring SB-11 (60 mg/kg). BTEX (up to 3.3 mg/kg) were detected in the soil samples collected from borings SB-9 and SB-11; MTBE (using EPA Method 8020) was only detected in the sample collected at 13 fbg from boring SB-9 (12 mg/kg). Following the initial TPHd analysis, two rounds of silica gel cleanup followed by TPHd analysis were performed on the soil samples from boring SB-9. The detected TPHd concentrations were reduced after each round, indicating that biodegradation was occurring, and natural organic matter was present in the subsurface.

Groundwater samples were collected from each boring and analyzed for TPHg, TPHd, BTEX, and MTBE. TPHg was only detected in the samples collected from borings SB-9 (14,000 µg/L) and SB-11 (310 µg/L). TPHd was detected in the samples collected from borings SB-9 (83,000 µg/L), SB-10 (97 µg/L), and SB-11 (270 µg/L). Benzene was only detected in the sample collected from boring SB-9 (1,400 µg/L). Toluene, ethylbenzene, and xylenes (up to 630 µg/L) were detected in the samples collected from borings SB-9 and SB-11. MTBE was not detected in any of the samples. As with the soil samples, a silica-gel cleanup reduced the detected TPHd concentrations. Based on the depth to water in the borings, and the elevation of the borings, the

groundwater flow direction was calculated to be northerly. Based on natural biodegradation indicator parameters in groundwater, it appeared that petroleum hydrocarbons were being degraded both aerobically and anaerobically, but anaerobic processes dominated.

Three surface water grab samples (CS-1 through CS-3) were collected from Alameda Canal (Figure 2) and analyzed for TPHg, TPHd, BTEX, and MTBE; which were not detected. Water level measurements were collected from Alameda Canal and the temporary wells placed in borings SB-9 through SB-12 to evaluate potential tidal influence on groundwater beneath the site. The fluctuations in SB-10 through SB-12 were minimal indicating that tidal influence was limited in these areas. A more significant fluctuation was observed in SB-9; suggesting that groundwater in this area was tidally influenced, and tidal fluctuations would tend to stabilize the petroleum hydrocarbon plume in this area. Two concrete sea walls separated shallow groundwater beneath the site from canal water; likely causing the limited tidal influence. Based on the site data, relevant beneficial uses, and associated water quality parameters, the most applicable beneficial use of groundwater beneath the site was determined to be freshwater replenishment to surface water.

A well survey was performed for a ½-mile radius around the site. Nine wells were identified within the search radius (one recovery well, one irrigation well, five extraction wells, and two industrial wells). However, all the wells were either located upgradient of the site or across Alameda Canal. Based on the results of the Tier 2 RBCA evaluation, soil and groundwater petroleum hydrocarbon concentrations at the site did not exceed the site-specific target levels (SSTLs). Details of this investigation were presented in RRM's *Soil and Groundwater Investigation Results* dated May 7, 1999.

2000 Monitoring Well Installation: In December 2000, Delta Environmental Consultants, Inc. (Delta) installed groundwater monitoring well MW-1 in the northeastern portion of the site adjacent to Alameda Canal (Figure 2). Soil samples were collected at depths of 5, 10, and 15 fbg from the well boring and analyzed for TPHg, TPHd, BTEX, and MTBE. TPHg was only detected in the sample collected at 10 fbg (320 mg/kg). TPHd was only detected in the samples collected at 5 and 10 fbg (30 and 160 mg/kg, respectively). Low concentrations of BTEX were detected in all the samples; MTBE was not detected in any of the samples. The initial groundwater sample collected from the well contained TPHg, TPHd, and benzene at 5,210 µg/L, 1,100 µg/L, and 868 µg/L, respectively. Details of this investigation were presented in Delta's *Monitoring Well Installation Report*, dated April 10, 2001.

2004 Soil Investigation: In January 2004, Cambria Environmental Technology, Inc. (now CRA) collected three surface soil samples (S1, S2, and S3) from the bank above the southwestern shore of the Alameda Canal (Figure 2). Sample S2 was collected directly down-slope of well MW-1 near a water seep observed on the slope above the canal. Samples S1 and S3 were collected southeast and northwest of S2, respectively, to evaluate background concentrations. The three

samples were analyzed for TPHg, TPHd, BTEX, and MTBE. TPHg, BTEX, and MTBE were not detected in any of the samples. TPHd was detected in samples S1, S2, and S3 at 14 mg/kg, 220 mg/kg, and 220 mg/kg, respectively. The laboratory chromatograms indicated that the observed hydrocarbon pattern was not typical of diesel fuel. Therefore, it was concluded the TPHd detections may have represented either highly-degraded diesel fuel or residual organic material present in local fill material. Details of this investigation were presented in Cambria's *Soil Sampling Report*, dated February 18, 2004.

2008 Investigation: In July and August 2008, CRA drilled six additional borings (SB-13 through SB-15 and SB-17 through SB-19), installed and sampled six soil vapor wells (VP-1 through VP-6), and collected a grab-groundwater sample from well MW-1 (Figure 2). The purpose of the investigation was to: 1) further evaluate the extent of hydrocarbon-impacted soil and groundwater; 2) evaluate whether the former boat yard and paint storage areas were impacted with VOCs; 3) further evaluate the extent of elevated metals in soil; and 4) evaluate soil vapor quality. Petroleum hydrocarbons were detected in most of the soil samples collected from the borings; elevated concentrations (TPHg and TPHd up to 11,000 mg/kg and 6,900 mg/kg) were detected in several of the samples at 5 fbg or less. The highest concentrations were detected in the area of the former ASTs. Concentrations generally appeared to attenuate or be significantly reduced by 10 fbg. TPHd (up to 19,000 µg/L) was detected in all the groundwater samples collected from the borings; TPHg (up to 3,800 µg/L) and benzene (up to 590 µg/L) were only detected in the samples collected from borings SB-18 and SB-19. The highest concentrations were detected in boring SB-18 located downgradient of the ASTs and fuel pump. Lower concentrations of TPHd (2,800 µg/L), TPHg (120 µg/L), and benzene (0.8 µg/L) were detected in the grab-groundwater sample collected from well MW-1. Based on the analytical results, the extent of petroleum hydrocarbon-impacted groundwater appeared to be relatively well-defined.

Generally background arsenic concentrations were detected in the soil samples collected at 1 fbg, with the exception of two samples which contained slightly elevated arsenic (up to 22.2 mg/kg). Therefore, the previously detected shallow soil with elevated arsenic concentrations appeared to be relatively well-defined. Elevated concentrations of other metals (barium, cadmium, chromium, copper, lead, nickel, and zinc) were detected in a number of samples generally between 1 and 5 fbg. Groundwater did not appear to have been impacted with metals as they were not detected in the sample collected from well MW-1 with the exception of barium. Based on the results of this and previous investigations, shallow soil across the northwest portion of the site was impacted with metals. However, the source of the metals did not appear to be former bulk plant operations, and potential exposure to the impacted soil was minimized due to the existing development. Therefore, no further investigation was recommended.

Chlorinated solvents were not detected in any of the soil samples, and generally were not detected in the groundwater samples with the exception of low concentrations of

trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride in boring SB-15 in the northeast corner of the site. Therefore, it did not appear that the former paint storage area had impacted the site. However, based on the detections in boring SB-15, it appeared that a former or current onsite operation had impacted groundwater. However, the detected concentrations were low; therefore, no further investigation was recommended.

Elevated concentrations of petroleum hydrocarbons were detected in shallow soil gas beneath the site. The highest concentrations were detected in vapor wells VP-4, VP-5, and VP-6 located in the area of the former ASTs, with significantly lower concentrations in vapor wells VP-1 and VP-2 downgradient of VP-4. The elevated concentrations were likely due to residual impacted shallow soil present at similar depths as the vapor probes in these areas. The detected TPHg concentrations in all of the samples; the TPHd and benzene concentrations in several of the samples; and the ethylbenzene, xylenes, chloromethane, and bromomethane concentrations in one or two of the samples exceeded the respective shallow soil gas environmental screening levels (ESLs) associated with vapor intrusion concerns at commercial/industrial sites. Therefore, potential vapor intrusion into the onsite buildings appeared to be a concern. Details of this investigation were presented in CRA's *Site Investigation Report*, dated October 14, 2008.

ATTACHMENT C

SOIL VAPOR LABORATORY REPORTS – DECEMBER 2008 EVENT

AN ENVIRONMENTAL ANALYTICAL LABORATORY

1/8/2009

Mr. Chris Benedict
Conestoga-Rovers Associates (CRA)
2000 Opportunity Drive
Suite 110
Roseville CA 95678

Project Name:
Project #:

Dear Mr. Chris Benedict

The following report includes the data for the above referenced project for sample(s) received on 1/2/2009 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-3 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 you 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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0901007B

Work Order Summary

CLIENT:	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 2000 Opportunity Drive Suite 110 Roseville, CA 95678	**BILL TO:**	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 2000 Opportunity Drive Suite 110 Roseville, CA 95678
PHONE:	916-677-3407 x125	**P.O. #**	20-6127
FAX:	916-677-3687	**PROJECT #**	
DATE RECEIVED:	01/02/2009	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	01/08/2009		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	VP-1	Modified TO-3	1.5 "Hg	15 psi
01AA	VP-1 Lab Duplicate	Modified TO-3	1.5 "Hg	15 psi
02A	VP-2	Modified TO-3	2.5 "Hg	15 psi
03A	VP-3	Modified TO-3	3.5 "Hg	15 psi
04A	VP-4	Modified TO-3	0.5 "Hg	15 psi
05A	VP-5	Modified TO-3	4.5 "Hg	15 psi
06A	Dupe	Modified TO-3	4.0 "Hg	15 psi
07A	Ambient	Modified TO-3	4.0 "Hg	5 psi
08A	Lab Blank	Modified TO-3	NA	NA
09A	LCS	Modified TO-3	NA	NA

CERTIFIED BY: Linda D. Fruman DATE: 01/08/09

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/08, Expiration date: 06/30/09
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-3
Conestoga-Rovers Associates (CRA)
Workorder# 0901007B

Six 1 Liter Summa Canister (100% Certified) and one 6 Liter Summa Canister (100% Certified) samples were received on January 02, 2009. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with flame ionization detection. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. The TPH (Gasoline Range) results are calculated using the response factor of Gasoline. A molecular weight of 100 is used to convert the TPH (Gasoline Range) ppmv result to ug/m3.

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

Requirement	***TO-3***	***ATL Modifications***
Daily Calibration Standard Frequency	Prior to sample analysis and every 4 - 6 hrs	Prior to sample analysis and after the analytical batch </= 20 samples
Initial Calibration Calculation	4-point calibration using a linear regression model	5-point calibration using average Response Factor
Initial Calibration Frequency	Weekly	When daily calibration standard recovery is outside 75 - 125 %, or upon significant changes to procedure or instrumentation
Moisture Control	Nafion system	Sorbent system
Minimum Detection Limit (MDL)	Calculated using the equation DL = A+3.3S, where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard	40 CFR Pt. 136 App. B
Preparation of Standards	Levels achieved through dilution of gas mixture	Levels achieved through loading various volumes of the gas mixture

Receiving Notes

Sample identification for sample Ambient was not provided on the Chain of Custody. The information on the sample tag was used to process and report the sample.

Analytical Notes

The recovery of surrogate Fluorobenzene in samples VP-3, VP-4, VP-5 and Dupe was outside control limits due to high level hydrocarbon matrix interference. Data is reported as qualified.

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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED EPA METHOD TO-3 GC/FID

Client Sample ID: VP-1

Lab ID#: 0901007B-01A

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
TPH (Gasoline Range)	0.053	0.41	220	1700

Client Sample ID: VP-1 Lab Duplicate

Lab ID#: 0901007B-01AA

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
TPH (Gasoline Range)	0.053	0.40	220	1600

Client Sample ID: VP-2

Lab ID#: 0901007B-02A

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
TPH (Gasoline Range)	0.055	0.44	220	1800

Client Sample ID: VP-3

Lab ID#: 0901007B-03A

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
TPH (Gasoline Range)	0.46	270	1900	1100000

Client Sample ID: VP-4

Lab ID#: 0901007B-04A

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
TPH (Gasoline Range)	34	19000	140000	78000000

Client Sample ID: VP-5

Lab ID#: 0901007B-05A

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
TPH (Gasoline Range)	6.0	3200	24000	13000000

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED EPA METHOD TO-3 GC/FID

Client Sample ID: Dupe

Lab ID#: 0901007B-06A

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
TPH (Gasoline Range)	33	27000	140000	110000000

Client Sample ID: Ambient

Lab ID#: 0901007B-07A

No Detections Were Found.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-1

Lab ID#: 0901007B-01A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6010303**	**Date of Collection: 12/31/08**	
Dil. Factor:	**2.13**	**Date of Analysis: 1/3/09 10:23 AM**	

Compound	**Rpt. Limit (ppmv)**	**Amount (ppmv)**	**Rpt. Limit (uG/m3)**	**Amount (uG/m3)**
TPH (Gasoline Range)	0.053	0.41	220	1700

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

Surrogates	**%Recovery**	**Method Limits**
Fluorobenzene (FID)	96	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-1 Lab Duplicate

Lab ID#: 0901007B-01AA

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6010304**	**Date of Collection:**	**12/31/08**
Dil. Factor:	**2.13**	**Date of Analysis:**	**1/3/09 11:13 AM**

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
TPH (Gasoline Range)	0.053	0.40	220	1600

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

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	95	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-2

Lab ID#: 0901007B-02A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6010305**	**Date of Collection:**	**12/31/08**
Dil. Factor:	**2.20**	**Date of Analysis:**	**1/3/09 11:59 AM**

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
TPH (Gasoline Range)	0.055	0.44	220	1800

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

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	97	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-3

Lab ID#: 0901007B-03A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6010307**	**Date of Collection: 12/31/08**	
Dil. Factor:	**18.3**	**Date of Analysis: 1/3/09 01:30 PM**	

Compound	**Rpt. Limit (ppmv)**	**Amount (ppmv)**	**Rpt. Limit (uG/m3)**	**Amount (uG/m3)**
TPH (Gasoline Range)	0.46	270	1900	1100000

Q = Exceeds Quality Control limits, due to matrix effects. Matrix effects confirmed by re-analysis.

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

Surrogates	**%Recovery**	**Method Limits**
Fluorobenzene (FID)	595 Q	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-4

Lab ID#: 0901007B-04A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6010311**	**Date of Collection: 12/31/08**	
Dil. Factor:	**1370**	**Date of Analysis: 1/3/09 04:18 PM**	

Compound	**Rpt. Limit (ppmv)**	**Amount (ppmv)**	**Rpt. Limit (uG/m3)**	**Amount (uG/m3)**
TPH (Gasoline Range)	34	19000	140000	78000000

Q = Exceeds Quality Control limits, due to matrix effects. Matrix effects confirmed by re-analysis.

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

Surrogates	**%Recovery**	**Method Limits**
Fluorobenzene (FID)	297 Q	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-5

Lab ID#: 0901007B-05A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6010309**	**Date of Collection: 12/31/08**	
Dil. Factor:	**238**	**Date of Analysis: 1/3/09 02:51 PM**	

Compound	**Rpt. Limit (ppmv)**	**Amount (ppmv)**	**Rpt. Limit (uG/m3)**	**Amount (uG/m3)**
TPH (Gasoline Range)	6.0	3200	24000	13000000

Q = Exceeds Quality Control limits, due to matrix effects. Matrix effects confirmed by re-analysis.

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

Surrogates	**%Recovery**	**Method Limits**
Fluorobenzene (FID)	378 Q	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Dupe

Lab ID#: 0901007B-06A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6010312**	**Date of Collection: 12/31/08**	
Dil. Factor:	**1330**	**Date of Analysis: 1/3/09 05:00 PM**	

Compound	**Rpt. Limit (ppmv)**	**Amount (ppmv)**	**Rpt. Limit (uG/m3)**	**Amount (uG/m3)**
TPH (Gasoline Range)	33	27000	140000	110000000

Q = Exceeds Quality Control limits, possibly due to matrix effects.

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

Surrogates	**%Recovery**	**Method Limits**
Fluorobenzene (FID)	374 Q	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Ambient

Lab ID#: 0901007B-07A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6010313**	**Date of Collection: 12/31/08**	
Dil. Factor:	**1.55**	**Date of Analysis: 1/3/09 05:41 PM**	

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
TPH (Gasoline Range)	0.039	Not Detected	160	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	90	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0901007B-08A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6010302**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/3/09 09:28 AM**	

Compound	Rpt. Limit (ppmv)	Amount (ppmv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
TPH (Gasoline Range)	0.025	Not Detected	100	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	86	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0901007B-09A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6010314**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/3/09 06:27 PM**	

Compound	**%Recovery**
TPH (Gasoline Range)	95

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Fluorobenzene (FID)	108	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

1/29/2009

Mr. Chris Benedict
Conestoga-Rovers Associates (CRA)
2000 Opportunity Drive
Suite 110
Roseville CA 95678

Project Name:
Project #:

Dear Mr. Chris Benedict

The following report includes the data for the above referenced project for sample(s) received on 1/2/2009 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 you 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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0901007AR1

Work Order Summary

CLIENT:	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 2000 Opportunity Drive Suite 110 Roseville, CA 95678	**BILL TO:**	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 2000 Opportunity Drive Suite 110 Roseville, CA 95678
PHONE:	916-677-3407 x125	**P.O. #**	20-6127
FAX:	916-677-3687	**PROJECT #**	
DATE RECEIVED:	01/02/2009	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	01/14/2009		
DATE REISSUED:	01/28/2009		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	VP-1	Modified TO-15/TICs	1.5 "Hg	15 psi
01AA	VP-1 Lab Duplicate	Modified TO-15/TICs	1.5 "Hg	15 psi
02A	VP-2	Modified TO-15/TICs	2.5 "Hg	15 psi
03A	VP-3	Modified TO-15/TICs	3.5 "Hg	15 psi
04A	VP-4	Modified TO-15/TICs	0.5 "Hg	15 psi
05A	VP-5	Modified TO-15/TICs	4.5 "Hg	15 psi
06A	Dupe	Modified TO-15/TICs	4.0 "Hg	15 psi
07A	Ambient	Modified TO-15/TICs	4.0 "Hg	5 psi
07AA	Ambient Lab Duplicate	Modified TO-15/TICs	4.0 "Hg	5 psi
08A	Lab Blank	Modified TO-15/TICs	NA	NA
08B	Lab Blank	Modified TO-15/TICs	NA	NA
08C	Lab Blank	Modified TO-15/TICs	NA	NA
09A	CCV	Modified TO-15/TICs	NA	NA
09B	CCV	Modified TO-15/TICs	NA	NA
09C	CCV	Modified TO-15/TICs	NA	NA
10A	LCS	Modified TO-15/TICs	NA	NA
10B	LCS	Modified TO-15/TICs	NA	NA

Continued on next page

WORK ORDER #: 0901007AR1

Work Order Summary

CLIENT:	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 2000 Opportunity Drive Suite 110 Roseville, CA 95678	**BILL TO:**	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 2000 Opportunity Drive Suite 110 Roseville, CA 95678
PHONE:	916-677-3407 x125	**P.O. #**	20-6127
FAX:	916-677-3687	**PROJECT #**	
DATE RECEIVED:	01/02/2009	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	01/14/2009		
DATE REISSUED:	01/28/2009		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
10C	LCS	Modified TO-15/TICs	NA	NA

CERTIFIED BY: Linda D. Frumarn DATE: 01/28/09

Laboratory Director

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15 Std & Soil Gas
Conestoga-Rovers Associates (CRA)
Workorder# 0901007AR1

Six 1 Liter Summa Canister (100% Certified) and one 6 Liter Summa Canister (100% Certified) samples were received on January 02, 2009. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan mode. The method involves concentrating up to 1.0 liter of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

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***
Daily CCV	+- 30% Difference	</= 30% Difference with two allowed out up to </=40%.; flag and narrate outliers
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
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

Receiving Notes

Sample identification for sample Ambient was not provided on the Chain of Custody. The information on the sample tag was used to process and report the sample.

Analytical Notes

All Quality Control Limit failures 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. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

Due to matrix interference in the Total Ion Chromatogram internal standard Bromochloromethane was not used to calculate concentration of TICs in sample VP-4 .

THE WORKORDER WAS REISSUED ON 01/28/09 TO REPORT THE TOP 20 TICS FOR SAMPLE VP-5 PER CLIENT'S REQUEST. ALSO, AS PART OF THE REISSUE THE PERCENT AROMATIC

AND ALIPHATIC COMPOUNDS FOR VP-4 AND VP-5 WERE CALCULATED. TPHG WAS ALSO CALCULATED FOR ALL SAMPLES.

VP-4 98.0% ALIPHATIC AND 2.0% AROMATIC
VP-5 99.6% ALIPHATIC AND 0.4% AROMATIC

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

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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

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

Client Sample ID: VP-1

Lab ID#: 0901007AR1-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Ethyl Benzene	1.1	1.7	4.6	7.3
m,p-Xylene	1.1	2.4	4.6	11
Cumene	1.1	10	5.2	50
Propylbenzene	1.1	12	5.2	58
TPH ref. to Gasoline (MW=100)	21	330	87	1300

Client Sample ID: VP-1 Lab Duplicate

Lab ID#: 0901007AR1-01AA

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Ethyl Benzene	1.1	1.6	4.6	7.1
m,p-Xylene	1.1	2.6	4.6	11
Cumene	1.1	10	5.2	50
Propylbenzene	1.1	12	5.2	57
TPH ref. to Gasoline (MW=100)	21	300	87	1200

Client Sample ID: VP-2

Lab ID#: 0901007AR1-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Acetone	4.4	5.0	10	12
2-Butanone (Methyl Ethyl Ketone)	1.1	1.5	3.2	4.4
TPH ref. to Gasoline (MW=100)	22	1700	90	7000

Client Sample ID: VP-3

Lab ID#: 0901007AR1-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Hexane	46	4400	160	16000
Cyclohexane	46	4000	160	14000
Heptane	46	1000	190	4100
TPH ref. to Gasoline (MW=100)	920	140000	3700	570000

AN ENVIRONMENTAL ANALYTICAL LABORATORY

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

Client Sample ID: VP-4

Lab ID#: 0901007AR1-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Hexane	2000	1000000	7200	3500000
Cyclohexane	2000	460000	7000	1600000
Benzene	2000	180000	6500	570000
Heptane	2000	530000	8400	2200000
Toluene	2000	5900	7700	22000
Ethyl Benzene	2000	72000	8900	310000
m,p-Xylene	2000	8000	8900	35000
Cumene	2000	5500	10000	27000
Propylbenzene	2000	8200	10000	40000
4-Ethyltoluene	2000	4700	10000	23000
1,2,4-Trimethylbenzene	2000	2700	10000	13000
TPH ref. to Gasoline (MW=100)	41000	12000000	170000	49000000

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount (ppbv)
Butane	106-97-8	52%	130000 N J
Butane, 2-methyl-	78-78-4	86%	500000 N J
Pentane	109-66-0	90%	840000 N J
Cyclopropane, 1,1-dimethyl-	1630-94-0	87%	200000 N J
Pentane, 2-methyl-	107-83-5	72%	970000 N J
2-Pentene, 4-methyl-, (Z)-	691-38-3	72%	280000 N J
Pentane, 3-methyl-	96-14-0	78%	510000 N J
1H-Tetrazole, 5-methyl-	4076-36-2	80%	960000 N J
Bicyclo[3.1.0]hexane	285-58-5	64%	250000 N J
Hexane, 2-methyl-	591-76-4	91%	340000 N J
Decane, 3,3,4-trimethyl-	49622-18-6	64%	540000 N J
Cyclopentane, 1,3-dimethyl-, cis-	2532-58-3	83%	500000 N J
Unknown	NA	NA	530000 J
Cyclopentane, 1,2-dimethyl-	2452-99-5	78%	480000 N J
Cyclohexane, methyl-	108-87-2	94%	1100000 N J
Cyclopentane, 1,2,3-trimethyl-, (1.alpha	15890-40-1	58%	240000 N J
Heptane, 2-methyl-	592-27-8	76%	460000 N J
Cyclohexane, 1,2-dimethyl-, trans-	6876-23-9	91%	190000 N J
Octane	111-65-9	86%	230000 N J
Cyclooctane, (1-methylpropyl)-	16538-89-9	59%	180000 N J

AN ENVIRONMENTAL ANALYTICAL LABORATORY

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

Client Sample ID: VP-5

Lab ID#: 0901007AR1-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Hexane	1200	87000	4200	310000
Cyclohexane	1200	67000	4100	230000
Benzene	1200	5000	3800	16000
Heptane	1200	95000	4900	390000
TPH ref. to Gasoline (MW=100)	24000	2500000	97000	10000000

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount (ppbv)
Pentane, 2-methyl-	107-83-5	91%	130000 N J
Pentane, 3-methyl-	96-14-0	78%	63000 N J
Cyclobutane, ethyl-	4806-61-5	64%	160000 N J
Hexane, 2-methyl-	591-76-4	90%	83000 N J
Hexane, 3-methyl-	589-34-4	78%	150000 N J
Cyclopentane, 1,3-dimethyl-, trans-	1759-58-6	91%	85000 N J
Cyclopentane, 1,2-dimethyl-, trans-	822-50-4	87%	120000 N J
Cyclopentene, 1,5-dimethyl-	16491-15-9	68%	68000 N J
Cyclohexane, methyl-	108-87-2	95%	310000 N J
Cyclopentane, ethyl-	1640-89-7	94%	47000 N J
Cyclopentane, 1,2,4-trimethyl-, (1.alpha	4850-28-6	78%	54000 N J
Cyclopentane, 1,2,3-trimethyl-, (1.alpha	15890-40-1	87%	110000 N J
Heptane, 2-methyl-	592-27-8	81%	220000 N J
Piperidine	110-89-4	38%	84000 N J
Cyclohexene, 1-methyl-	591-49-1	93%	49000 N J
Cyclohexane, 1,3-dimethyl-, trans-	2207-03-6	90%	100000 N J
Octane	111-65-9	53%	100000 N J
Cyclohexane, 1,2-dimethyl-, trans-	6876-23-9	90%	66000 N J
Cyclopropane, 2-(1,1-dimethyl-2-pentenyl	74663-76-6	56%	59000 N J
Cyclohexane, 1,1,3-trimethyl-	3073-66-3	91%	120000 N J

Client Sample ID: Dupe

Lab ID#: 0901007AR1-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Hexane	5800	1100000	20000	3800000
Cyclohexane	5800	480000	20000	1700000
Benzene	5800	190000	18000	600000

AN ENVIRONMENTAL ANALYTICAL LABORATORY

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

Client Sample ID: Dupe

Lab ID#: 0901007AR1-06A

Heptane	5800	560000	24000	2300000
Toluene	5800	6000	22000	22000
Ethyl Benzene	5800	74000	25000	320000
m,p-Xylene	5800	8100	25000	35000
Cumene	5800	6000	28000	30000
Propylbenzene	5800	8800	28000	43000
TPH ref. to Gasoline (MW=100)	120000	12000000	470000	49000000

Client Sample ID: Ambient

Lab ID#: 0901007AR1-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Acetone	3.1	3.9	7.4	9.3
Toluene	0.78	1.1	2.9	4.1
m,p-Xylene	0.78	1.1	3.4	4.6

Client Sample ID: Ambient Lab Duplicate

Lab ID#: 0901007AR1-07AA

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Acetone	3.1	3.8	7.4	9.0
Toluene	0.78	1.1	2.9	4.2
m,p-Xylene	0.78	1.0	3.4	4.5

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-1

Lab ID#: 0901007AR1-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010727**	**Date of Collection: 12/31/08**	
Dil. Factor:	**2.13**	**Date of Analysis: 1/8/09 05:10 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	1.1	Not Detected	5.3	Not Detected
Freon 114	1.1	Not Detected	7.4	Not Detected
Chloromethane	4.3	Not Detected	8.8	Not Detected
Vinyl Chloride	1.1	Not Detected	2.7	Not Detected
1,3-Butadiene	1.1	Not Detected	2.4	Not Detected
Bromomethane	1.1	Not Detected	4.1	Not Detected
Chloroethane	1.1	Not Detected	2.8	Not Detected
Freon 11	1.1	Not Detected	6.0	Not Detected
Ethanol	4.3	Not Detected	8.0	Not Detected
Freon 113	1.1	Not Detected	8.2	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.2	Not Detected
Acetone	4.3	Not Detected	10	Not Detected
2-Propanol	4.3	Not Detected	10	Not Detected
Carbon Disulfide	1.1	Not Detected	3.3	Not Detected
3-Chloropropene	4.3	Not Detected	13	Not Detected
Methylene Chloride	1.1	Not Detected	3.7	Not Detected
Methyl tert-butyl ether	1.1	Not Detected	3.8	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.2	Not Detected
Hexane	1.1	Not Detected	3.8	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.3	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.1	Not Detected	3.1	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.2	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.1	Not Detected
Chloroform	1.1	Not Detected	5.2	Not Detected
1,1,1-Trichloroethane	1.1	Not Detected	5.8	Not Detected
Cyclohexane	1.1	Not Detected	3.7	Not Detected
Carbon Tetrachloride	1.1	Not Detected	6.7	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.0	Not Detected
Benzene	1.1	Not Detected	3.4	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.3	Not Detected
Heptane	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	5.7	Not Detected
1,2-Dichloropropane	1.1	Not Detected	4.9	Not Detected
1,4-Dioxane	4.3	Not Detected	15	Not Detected
Bromodichloromethane	1.1	Not Detected	7.1	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	4.8	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.4	Not Detected
Toluene	1.1	Not Detected	4.0	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	4.8	Not Detected

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-1

Lab ID#: 0901007AR1-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010727**	**Date of Collection: 12/31/08**	
Dil. Factor:	**2.13**	**Date of Analysis: 1/8/09 05:10 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
1,1,2-Trichloroethane	1.1	Not Detected	5.8	Not Detected
Tetrachloroethene	1.1	Not Detected	7.2	Not Detected
2-Hexanone	4.3	Not Detected	17	Not Detected
Dibromochloromethane	1.1	Not Detected	9.1	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.2	Not Detected
Chlorobenzene	1.1	Not Detected	4.9	Not Detected
Ethyl Benzene	1.1	1.7	4.6	7.3
m,p-Xylene	1.1	2.4	4.6	11
o-Xylene	1.1	Not Detected	4.6	Not Detected
Styrene	1.1	Not Detected	4.5	Not Detected
Bromoform	1.1	Not Detected	11	Not Detected
Cumene	1.1	10	5.2	50
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.3	Not Detected
Propylbenzene	1.1	12	5.2	58
4-Ethyltoluene	1.1	Not Detected	5.2	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.2	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.2	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.4	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.4	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.5	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.4	Not Detected
1,2,4-Trichlorobenzene	4.3	Not Detected	32	Not Detected
Hexachlorobutadiene	4.3	Not Detected	45	Not Detected
Naphthalene	4.3	Not Detected	22	Not Detected
TPH ref. to Gasoline (MW=100)	21	330	87	1300

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

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	83	70-130
4-Bromofluorobenzene	110	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-1 Lab Duplicate

Lab ID#: 0901007AR1-01AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010728**	**Date of Collection: 12/31/08**	
Dil. Factor:	**2.13**	**Date of Analysis: 1/8/09 05:45 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	1.1	Not Detected	5.3	Not Detected
Freon 114	1.1	Not Detected	7.4	Not Detected
Chloromethane	4.3	Not Detected	8.8	Not Detected
Vinyl Chloride	1.1	Not Detected	2.7	Not Detected
1,3-Butadiene	1.1	Not Detected	2.4	Not Detected
Bromomethane	1.1	Not Detected	4.1	Not Detected
Chloroethane	1.1	Not Detected	2.8	Not Detected
Freon 11	1.1	Not Detected	6.0	Not Detected
Ethanol	4.3	Not Detected	8.0	Not Detected
Freon 113	1.1	Not Detected	8.2	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.2	Not Detected
Acetone	4.3	Not Detected	10	Not Detected
2-Propanol	4.3	Not Detected	10	Not Detected
Carbon Disulfide	1.1	Not Detected	3.3	Not Detected
3-Chloropropene	4.3	Not Detected	13	Not Detected
Methylene Chloride	1.1	Not Detected	3.7	Not Detected
Methyl tert-butyl ether	1.1	Not Detected	3.8	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.2	Not Detected
Hexane	1.1	Not Detected	3.8	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.3	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.1	Not Detected	3.1	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.2	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.1	Not Detected
Chloroform	1.1	Not Detected	5.2	Not Detected
1,1,1-Trichloroethane	1.1	Not Detected	5.8	Not Detected
Cyclohexane	1.1	Not Detected	3.7	Not Detected
Carbon Tetrachloride	1.1	Not Detected	6.7	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.0	Not Detected
Benzene	1.1	Not Detected	3.4	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.3	Not Detected
Heptane	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	5.7	Not Detected
1,2-Dichloropropane	1.1	Not Detected	4.9	Not Detected
1,4-Dioxane	4.3	Not Detected	15	Not Detected
Bromodichloromethane	1.1	Not Detected	7.1	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	4.8	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.4	Not Detected
Toluene	1.1	Not Detected	4.0	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	4.8	Not Detected

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-1 Lab Duplicate

Lab ID#: 0901007AR1-01AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010728**	**Date of Collection: 12/31/08**	
Dil. Factor:	**2.13**	**Date of Analysis: 1/8/09 05:45 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
1,1,2-Trichloroethane	1.1	Not Detected	5.8	Not Detected
Tetrachloroethene	1.1	Not Detected	7.2	Not Detected
2-Hexanone	4.3	Not Detected	17	Not Detected
Dibromochloromethane	1.1	Not Detected	9.1	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.2	Not Detected
Chlorobenzene	1.1	Not Detected	4.9	Not Detected
Ethyl Benzene	1.1	1.6	4.6	7.1
m,p-Xylene	1.1	2.6	4.6	11
o-Xylene	1.1	Not Detected	4.6	Not Detected
Styrene	1.1	Not Detected	4.5	Not Detected
Bromoform	1.1	Not Detected	11	Not Detected
Cumene	1.1	10	5.2	50
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.3	Not Detected
Propylbenzene	1.1	12	5.2	57
4-Ethyltoluene	1.1	Not Detected	5.2	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.2	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.2	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.4	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.4	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.5	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.4	Not Detected
1,2,4-Trichlorobenzene	4.3	Not Detected	32	Not Detected
Hexachlorobutadiene	4.3	Not Detected	45	Not Detected
Naphthalene	4.3	Not Detected	22	Not Detected
TPH ref. to Gasoline (MW=100)	21	300	87	1200

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

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	79	70-130
4-Bromofluorobenzene	112	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-2

Lab ID#: 0901007AR1-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010915**	**Date of Collection: 12/31/08**	
Dil. Factor:	**2.20**	**Date of Analysis: 1/9/09 07:06 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	1.1	Not Detected	5.4	Not Detected
Freon 114	1.1	Not Detected	7.7	Not Detected
Chloromethane	4.4	Not Detected	9.1	Not Detected
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,3-Butadiene	1.1	Not Detected	2.4	Not Detected
Bromomethane	1.1	Not Detected	4.3	Not Detected
Chloroethane	1.1	Not Detected	2.9	Not Detected
Freon 11	1.1	Not Detected	6.2	Not Detected
Ethanol	4.4	Not Detected	8.3	Not Detected
Freon 113	1.1	Not Detected	8.4	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Acetone	4.4	5.0	10	12
2-Propanol	4.4	Not Detected	11	Not Detected
Carbon Disulfide	1.1	Not Detected	3.4	Not Detected
3-Chloropropene	4.4	Not Detected	14	Not Detected
Methylene Chloride	1.1	Not Detected	3.8	Not Detected
Methyl tert-butyl ether	1.1	Not Detected	4.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Hexane	1.1	Not Detected	3.9	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.4	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.1	1.5	3.2	4.4
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.2	Not Detected
Chloroform	1.1	Not Detected	5.4	Not Detected
1,1,1-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Cyclohexane	1.1	Not Detected	3.8	Not Detected
Carbon Tetrachloride	1.1	Not Detected	6.9	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.1	Not Detected
Benzene	1.1	Not Detected	3.5	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.4	Not Detected
Heptane	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.1	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.4	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.5	Not Detected
Toluene	1.1	Not Detected	4.1	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-2

Lab ID#: 0901007AR1-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010915**	**Date of Collection: 12/31/08**	
Dil. Factor:	**2.20**	**Date of Analysis: 1/9/09 07:06 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
1,1,2-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Tetrachloroethene	1.1	Not Detected	7.5	Not Detected
2-Hexanone	4.4	Not Detected	18	Not Detected
Dibromochloromethane	1.1	Not Detected	9.4	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.4	Not Detected
Chlorobenzene	1.1	Not Detected	5.1	Not Detected
Ethyl Benzene	1.1	Not Detected	4.8	Not Detected
m,p-Xylene	1.1	Not Detected	4.8	Not Detected
o-Xylene	1.1	Not Detected	4.8	Not Detected
Styrene	1.1	Not Detected	4.7	Not Detected
Bromoform	1.1	Not Detected	11	Not Detected
Cumene	1.1	Not Detected	5.4	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.6	Not Detected
Propylbenzene	1.1	Not Detected	5.4	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.4	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.7	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
1,2,4-Trichlorobenzene	4.4	Not Detected	33	Not Detected
Hexachlorobutadiene	4.4	Not Detected	47	Not Detected
Naphthalene	4.4	Not Detected	23	Not Detected
TPH ref. to Gasoline (MW=100)	22	1700	90	7000

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

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	109	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-3

Lab ID#: 0901007AR1-03A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010723r1**	**Date of Collection:**	**12/31/08**
Dil. Factor:	**9.16**	**Date of Analysis:**	**1/7/09 05:18 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	46	Not Detected	230	Not Detected
Freon 114	46	Not Detected	320	Not Detected
Chloromethane	180	Not Detected	380	Not Detected
Vinyl Chloride	46	Not Detected	120	Not Detected
1,3-Butadiene	46	Not Detected	100	Not Detected
Bromomethane	46	Not Detected	180	Not Detected
Chloroethane	46	Not Detected	120	Not Detected
Freon 11	46	Not Detected	260	Not Detected
Ethanol	180	Not Detected	340	Not Detected
Freon 113	46	Not Detected	350	Not Detected
1,1-Dichloroethene	46	Not Detected	180	Not Detected
Acetone	180	Not Detected	440	Not Detected
2-Propanol	180	Not Detected	450	Not Detected
Carbon Disulfide	46	Not Detected	140	Not Detected
3-Chloropropene	180	Not Detected	570	Not Detected
Methylene Chloride	46	Not Detected	160	Not Detected
Methyl tert-butyl ether	46	Not Detected	160	Not Detected
trans-1,2-Dichloroethene	46	Not Detected	180	Not Detected
Hexane	46	4400	160	16000
1,1-Dichloroethane	46	Not Detected	180	Not Detected
2-Butanone (Methyl Ethyl Ketone)	46	Not Detected	140	Not Detected
cis-1,2-Dichloroethene	46	Not Detected	180	Not Detected
Tetrahydrofuran	46	Not Detected	140	Not Detected
Chloroform	46	Not Detected	220	Not Detected
1,1,1-Trichloroethane	46	Not Detected	250	Not Detected
Cyclohexane	46	4000	160	14000
Carbon Tetrachloride	46	Not Detected	290	Not Detected
2,2,4-Trimethylpentane	46	Not Detected	210	Not Detected
Benzene	46	Not Detected	150	Not Detected
1,2-Dichloroethane	46	Not Detected	180	Not Detected
Heptane	46	1000	190	4100
Trichloroethene	46	Not Detected	250	Not Detected
1,2-Dichloropropane	46	Not Detected	210	Not Detected
1,4-Dioxane	180	Not Detected	660	Not Detected
Bromodichloromethane	46	Not Detected	310	Not Detected
cis-1,3-Dichloropropene	46	Not Detected	210	Not Detected
4-Methyl-2-pentanone	46	Not Detected	190	Not Detected
Toluene	46	Not Detected	170	Not Detected
trans-1,3-Dichloropropene	46	Not Detected	210	Not Detected

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-3

Lab ID#: 0901007AR1-03A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010723r1**	**Date of Collection: 12/31/08**	
Dil. Factor:	**9.16**	**Date of Analysis: 1/7/09 05:18 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
1,1,2-Trichloroethane	46	Not Detected	250	Not Detected
Tetrachloroethene	46	Not Detected	310	Not Detected
2-Hexanone	180	Not Detected	750	Not Detected
Dibromochloromethane	46	Not Detected	390	Not Detected
1,2-Dibromoethane (EDB)	46	Not Detected	350	Not Detected
Chlorobenzene	46	Not Detected	210	Not Detected
Ethyl Benzene	46	Not Detected	200	Not Detected
m,p-Xylene	46	Not Detected	200	Not Detected
o-Xylene	46	Not Detected	200	Not Detected
Styrene	46	Not Detected	200	Not Detected
Bromoform	46	Not Detected	470	Not Detected
Cumene	46	Not Detected	220	Not Detected
1,1,2,2-Tetrachloroethane	46	Not Detected	310	Not Detected
Propylbenzene	46	Not Detected	220	Not Detected
4-Ethyltoluene	46	Not Detected	220	Not Detected
1,3,5-Trimethylbenzene	46	Not Detected	220	Not Detected
1,2,4-Trimethylbenzene	46	Not Detected	220	Not Detected
1,3-Dichlorobenzene	46	Not Detected	280	Not Detected
1,4-Dichlorobenzene	46	Not Detected	280	Not Detected
alpha-Chlorotoluene	46	Not Detected	240	Not Detected
1,2-Dichlorobenzene	46	Not Detected	280	Not Detected
1,2,4-Trichlorobenzene	180	Not Detected	1400	Not Detected
Hexachlorobutadiene	180	Not Detected	2000	Not Detected
Naphthalene	180	Not Detected	960	Not Detected
TPH ref. to Gasoline (MW=100)	920	140000	3700	570000

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	99	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-4

Lab ID#: 0901007AR1-04A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010728**	**Date of Collection: 12/31/08**	
Dil. Factor:	**410**	**Date of Analysis: 1/7/09 08:00 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	2000	Not Detected	10000	Not Detected
Freon 114	2000	Not Detected	14000	Not Detected
Chloromethane	8200	Not Detected	17000	Not Detected
Vinyl Chloride	2000	Not Detected	5200	Not Detected
1,3-Butadiene	2000	Not Detected	4500	Not Detected
Bromomethane	2000	Not Detected	8000	Not Detected
Chloroethane	2000	Not Detected	5400	Not Detected
Freon 11	2000	Not Detected	12000	Not Detected
Ethanol	8200	Not Detected	15000	Not Detected
Freon 113	2000	Not Detected	16000	Not Detected
1,1-Dichloroethene	2000	Not Detected	8100	Not Detected
Acetone	8200	Not Detected	19000	Not Detected
2-Propanol	8200	Not Detected	20000	Not Detected
Carbon Disulfide	2000	Not Detected	6400	Not Detected
3-Chloropropene	8200	Not Detected	26000	Not Detected
Methylene Chloride	2000	Not Detected	7100	Not Detected
Methyl tert-butyl ether	2000	Not Detected	7400	Not Detected
trans-1,2-Dichloroethene	2000	Not Detected	8100	Not Detected
Hexane	2000	1000000	7200	3500000
1,1-Dichloroethane	2000	Not Detected	8300	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2000	Not Detected	6000	Not Detected
cis-1,2-Dichloroethene	2000	Not Detected	8100	Not Detected
Tetrahydrofuran	2000	Not Detected	6000	Not Detected
Chloroform	2000	Not Detected	10000	Not Detected
1,1,1-Trichloroethane	2000	Not Detected	11000	Not Detected
Cyclohexane	2000	460000	7000	1600000
Carbon Tetrachloride	2000	Not Detected	13000	Not Detected
2,2,4-Trimethylpentane	2000	Not Detected	9600	Not Detected
Benzene	2000	180000	6500	570000
1,2-Dichloroethane	2000	Not Detected	8300	Not Detected
Heptane	2000	530000	8400	2200000
Trichloroethene	2000	Not Detected	11000	Not Detected
1,2-Dichloropropane	2000	Not Detected	9500	Not Detected
1,4-Dioxane	8200	Not Detected	30000	Not Detected
Bromodichloromethane	2000	Not Detected	14000	Not Detected
cis-1,3-Dichloropropene	2000	Not Detected	9300	Not Detected
4-Methyl-2-pentanone	2000	Not Detected	8400	Not Detected
Toluene	2000	5900	7700	22000
trans-1,3-Dichloropropene	2000	Not Detected	9300	Not Detected

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-4

Lab ID#: 0901007AR1-04A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010728**	**Date of Collection:**	**12/31/08**
Dil. Factor:	**410**	**Date of Analysis:**	**1/7/09 08:00 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
1,1,2-Trichloroethane	2000	Not Detected	11000	Not Detected
Tetrachloroethene	2000	Not Detected	14000	Not Detected
2-Hexanone	8200	Not Detected	34000	Not Detected
Dibromochloromethane	2000	Not Detected	17000	Not Detected
1,2-Dibromoethane (EDB)	2000	Not Detected	16000	Not Detected
Chlorobenzene	2000	Not Detected	9400	Not Detected
Ethyl Benzene	2000	72000	8900	310000
m,p-Xylene	2000	8000	8900	35000
o-Xylene	2000	Not Detected	8900	Not Detected
Styrene	2000	Not Detected	8700	Not Detected
Bromoform	2000	Not Detected	21000	Not Detected
Cumene	2000	5500	10000	27000
1,1,2,2-Tetrachloroethane	2000	Not Detected	14000	Not Detected
Propylbenzene	2000	8200	10000	40000
4-Ethyltoluene	2000	4700	10000	23000
1,3,5-Trimethylbenzene	2000	Not Detected	10000	Not Detected
1,2,4-Trimethylbenzene	2000	2700	10000	13000
1,3-Dichlorobenzene	2000	Not Detected	12000	Not Detected
1,4-Dichlorobenzene	2000	Not Detected	12000	Not Detected
alpha-Chlorotoluene	2000	Not Detected	11000	Not Detected
1,2-Dichlorobenzene	2000	Not Detected	12000	Not Detected
1,2,4-Trichlorobenzene	8200	Not Detected	61000	Not Detected
Hexachlorobutadiene	8200	Not Detected	87000	Not Detected
Naphthalene	8200	Not Detected	43000	Not Detected
TPH ref. to Gasoline (MW=100)	41000	12000000	170000	49000000

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Butane	106-97-8	52%	130000 N J
Butane, 2-methyl-	78-78-4	86%	500000 N J
Pentane	109-66-0	90%	840000 N J
Cyclopropane, 1,1-dimethyl-	1630-94-0	87%	200000 N J
Pentane, 2-methyl-	107-83-5	72%	970000 N J
2-Pentene, 4-methyl-, (Z)-	691-38-3	72%	280000 N J
Pentane, 3-methyl-	96-14-0	78%	510000 N J
1H-Tetrazole, 5-methyl-	4076-36-2	80%	960000 N J
Bicyclo[3.1.0]hexane	285-58-5	64%	250000 N J
Hexane, 2-methyl-	591-76-4	91%	340000 N J

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-4

Lab ID#: 0901007AR1-04A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010728**	**Date of Collection: 12/31/08**	
Dil. Factor:	**410**	**Date of Analysis: 1/7/09 08:00 PM**	

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Decane, 3,3,4-trimethyl-	49622-18-6	64%	540000 N J
Cyclopentane, 1,3-dimethyl-, cis-	2532-58-3	83%	500000 N J
Unknown	NA	NA	530000 J
Cyclopentane, 1,2-dimethyl-	2452-99-5	78%	480000 N J
Cyclohexane, methyl-	108-87-2	94%	1100000 N J
Cyclopentane, 1,2,3-trimethyl-, (1.alpha	15890-40-1	58%	240000 N J
Heptane, 2-methyl-	592-27-8	76%	460000 N J
Cyclohexane, 1,2-dimethyl-, trans-	6876-23-9	91%	190000 N J
Octane	111-65-9	86%	230000 N J
Cyclooctane, (1-methylpropyl)-	16538-89-9	59%	180000 N J

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	100	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-5

Lab ID#: 0901007AR1-05A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010729r1**	**Date of Collection:**	**12/31/08**
Dil. Factor:	**238**	**Date of Analysis:**	**1/7/09 08:27 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	1200	Not Detected	5900	Not Detected
Freon 114	1200	Not Detected	8300	Not Detected
Chloromethane	4800	Not Detected	9800	Not Detected
Vinyl Chloride	1200	Not Detected	3000	Not Detected
1,3-Butadiene	1200	Not Detected	2600	Not Detected
Bromomethane	1200	Not Detected	4600	Not Detected
Chloroethane	1200	Not Detected	3100	Not Detected
Freon 11	1200	Not Detected	6700	Not Detected
Ethanol	4800	Not Detected	9000	Not Detected
Freon 113	1200	Not Detected	9100	Not Detected
1,1-Dichloroethene	1200	Not Detected	4700	Not Detected
Acetone	4800	Not Detected	11000	Not Detected
2-Propanol	4800	Not Detected	12000	Not Detected
Carbon Disulfide	1200	Not Detected	3700	Not Detected
3-Chloropropene	4800	Not Detected	15000	Not Detected
Methylene Chloride	1200	Not Detected	4100	Not Detected
Methyl tert-butyl ether	1200	Not Detected	4300	Not Detected
trans-1,2-Dichloroethene	1200	Not Detected	4700	Not Detected
Hexane	1200	87000	4200	310000
1,1-Dichloroethane	1200	Not Detected	4800	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1200	Not Detected	3500	Not Detected
cis-1,2-Dichloroethene	1200	Not Detected	4700	Not Detected
Tetrahydrofuran	1200	Not Detected	3500	Not Detected
Chloroform	1200	Not Detected	5800	Not Detected
1,1,1-Trichloroethane	1200	Not Detected	6500	Not Detected
Cyclohexane	1200	67000	4100	230000
Carbon Tetrachloride	1200	Not Detected	7500	Not Detected
2,2,4-Trimethylpentane	1200	Not Detected	5600	Not Detected
Benzene	1200	5000	3800	16000
1,2-Dichloroethane	1200	Not Detected	4800	Not Detected
Heptane	1200	95000	4900	390000
Trichloroethene	1200	Not Detected	6400	Not Detected
1,2-Dichloropropane	1200	Not Detected	5500	Not Detected
1,4-Dioxane	4800	Not Detected	17000	Not Detected
Bromodichloromethane	1200	Not Detected	8000	Not Detected
cis-1,3-Dichloropropene	1200	Not Detected	5400	Not Detected
4-Methyl-2-pentanone	1200	Not Detected	4900	Not Detected
Toluene	1200	Not Detected	4500	Not Detected
trans-1,3-Dichloropropene	1200	Not Detected	5400	Not Detected

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-5

Lab ID#: 0901007AR1-05A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010729r1**	**Date of Collection:**	**12/31/08**
Dil. Factor:	**238**	**Date of Analysis:**	**1/7/09 08:27 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
1,1,2-Trichloroethane	1200	Not Detected	6500	Not Detected
Tetrachloroethene	1200	Not Detected	8100	Not Detected
2-Hexanone	4800	Not Detected	19000	Not Detected
Dibromochloromethane	1200	Not Detected	10000	Not Detected
1,2-Dibromoethane (EDB)	1200	Not Detected	9100	Not Detected
Chlorobenzene	1200	Not Detected	5500	Not Detected
Ethyl Benzene	1200	Not Detected	5200	Not Detected
m,p-Xylene	1200	Not Detected	5200	Not Detected
o-Xylene	1200	Not Detected	5200	Not Detected
Styrene	1200	Not Detected	5100	Not Detected
Bromoform	1200	Not Detected	12000	Not Detected
Cumene	1200	Not Detected	5800	Not Detected
1,1,2,2-Tetrachloroethane	1200	Not Detected	8200	Not Detected
Propylbenzene	1200	Not Detected	5800	Not Detected
4-Ethyltoluene	1200	Not Detected	5800	Not Detected
1,3,5-Trimethylbenzene	1200	Not Detected	5800	Not Detected
1,2,4-Trimethylbenzene	1200	Not Detected	5800	Not Detected
1,3-Dichlorobenzene	1200	Not Detected	7200	Not Detected
1,4-Dichlorobenzene	1200	Not Detected	7200	Not Detected
alpha-Chlorotoluene	1200	Not Detected	6200	Not Detected
1,2-Dichlorobenzene	1200	Not Detected	7200	Not Detected
1,2,4-Trichlorobenzene	4800	Not Detected	35000	Not Detected
Hexachlorobutadiene	4800	Not Detected	51000	Not Detected
Naphthalene	4800	Not Detected	25000	Not Detected
TPH ref. to Gasoline (MW=100)	24000	2500000	97000	10000000

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Pentane, 2-methyl-	107-83-5	91%	130000 N J
Pentane, 3-methyl-	96-14-0	78%	63000 N J
Cyclobutane, ethyl-	4806-61-5	64%	160000 N J
Hexane, 2-methyl-	591-76-4	90%	83000 N J
Hexane, 3-methyl-	589-34-4	78%	150000 N J
Cyclopentane, 1,3-dimethyl-, trans-	1759-58-6	91%	85000 N J
Cyclopentane, 1,2-dimethyl-, trans-	822-50-4	87%	120000 N J
Cyclopentene, 1,5-dimethyl-	16491-15-9	68%	68000 N J
Cyclohexane, methyl-	108-87-2	95%	310000 N J
Cyclopentane, ethyl-	1640-89-7	94%	47000 N J

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-5

Lab ID#: 0901007AR1-05A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010729r1**	**Date of Collection: 12/31/08**	
Dil. Factor:	**238**	**Date of Analysis: 1/7/09 08:27 PM**	

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS Number	Match Quality	Amount ((ppbv))
Cyclopentane, 1,2,4-trimethyl-, (1.alpha	4850-28-6	78%	54000 N J
Cyclopentane, 1,2,3-trimethyl-, (1.alpha	15890-40-1	87%	110000 N J
Heptane, 2-methyl-	592-27-8	81%	220000 N J
Piperidine	110-89-4	38%	84000 N J
Cyclohexene, 1-methyl-	591-49-1	93%	49000 N J
Cyclohexane, 1,3-dimethyl-, trans-	2207-03-6	90%	100000 N J
Octane	111-65-9	53%	100000 N J
Cyclohexane, 1,2-dimethyl-, trans-	6876-23-9	90%	66000 N J
Cyclopropane, 2-(1,1-dimethyl-2-pentenyl	74663-76-6	56%	59000 N J
Cyclohexane, 1,1,3-trimethyl-	3073-66-3	91%	120000 N J

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	100	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Dupe

Lab ID#: 0901007AR1-06A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010730**	**Date of Collection:**	**12/31/08**
Dil. Factor:	**1160**	**Date of Analysis:**	**1/7/09 08:59 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	5800	Not Detected	29000	Not Detected
Freon 114	5800	Not Detected	40000	Not Detected
Chloromethane	23000	Not Detected	48000	Not Detected
Vinyl Chloride	5800	Not Detected	15000	Not Detected
1,3-Butadiene	5800	Not Detected	13000	Not Detected
Bromomethane	5800	Not Detected	22000	Not Detected
Chloroethane	5800	Not Detected	15000	Not Detected
Freon 11	5800	Not Detected	32000	Not Detected
Ethanol	23000	Not Detected	44000	Not Detected
Freon 113	5800	Not Detected	44000	Not Detected
1,1-Dichloroethene	5800	Not Detected	23000	Not Detected
Acetone	23000	Not Detected	55000	Not Detected
2-Propanol	23000	Not Detected	57000	Not Detected
Carbon Disulfide	5800	Not Detected	18000	Not Detected
3-Chloropropene	23000	Not Detected	73000	Not Detected
Methylene Chloride	5800	Not Detected	20000	Not Detected
Methyl tert-butyl ether	5800	Not Detected	21000	Not Detected
trans-1,2-Dichloroethene	5800	Not Detected	23000	Not Detected
Hexane	5800	1100000	20000	3800000
1,1-Dichloroethane	5800	Not Detected	23000	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5800	Not Detected	17000	Not Detected
cis-1,2-Dichloroethene	5800	Not Detected	23000	Not Detected
Tetrahydrofuran	5800	Not Detected	17000	Not Detected
Chloroform	5800	Not Detected	28000	Not Detected
1,1,1-Trichloroethane	5800	Not Detected	32000	Not Detected
Cyclohexane	5800	480000	20000	1700000
Carbon Tetrachloride	5800	Not Detected	36000	Not Detected
2,2,4-Trimethylpentane	5800	Not Detected	27000	Not Detected
Benzene	5800	190000	18000	600000
1,2-Dichloroethane	5800	Not Detected	23000	Not Detected
Heptane	5800	560000	24000	2300000
Trichloroethene	5800	Not Detected	31000	Not Detected
1,2-Dichloropropane	5800	Not Detected	27000	Not Detected
1,4-Dioxane	23000	Not Detected	84000	Not Detected
Bromodichloromethane	5800	Not Detected	39000	Not Detected
cis-1,3-Dichloropropene	5800	Not Detected	26000	Not Detected
4-Methyl-2-pentanone	5800	Not Detected	24000	Not Detected
Toluene	5800	6000	22000	22000
trans-1,3-Dichloropropene	5800	Not Detected	26000	Not Detected

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Dupe

Lab ID#: 0901007AR1-06A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010730**	**Date of Collection: 12/31/08**	
Dil. Factor:	**1160**	**Date of Analysis: 1/7/09 08:59 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
1,1,2-Trichloroethane	5800	Not Detected	32000	Not Detected
Tetrachloroethene	5800	Not Detected	39000	Not Detected
2-Hexanone	23000	Not Detected	95000	Not Detected
Dibromochloromethane	5800	Not Detected	49000	Not Detected
1,2-Dibromoethane (EDB)	5800	Not Detected	44000	Not Detected
Chlorobenzene	5800	Not Detected	27000	Not Detected
Ethyl Benzene	5800	74000	25000	320000
m,p-Xylene	5800	8100	25000	35000
o-Xylene	5800	Not Detected	25000	Not Detected
Styrene	5800	Not Detected	25000	Not Detected
Bromoform	5800	Not Detected	60000	Not Detected
Cumene	5800	6000	28000	30000
1,1,2,2-Tetrachloroethane	5800	Not Detected	40000	Not Detected
Propylbenzene	5800	8800	28000	43000
4-Ethyltoluene	5800	Not Detected	28000	Not Detected
1,3,5-Trimethylbenzene	5800	Not Detected	28000	Not Detected
1,2,4-Trimethylbenzene	5800	Not Detected	28000	Not Detected
1,3-Dichlorobenzene	5800	Not Detected	35000	Not Detected
1,4-Dichlorobenzene	5800	Not Detected	35000	Not Detected
alpha-Chlorotoluene	5800	Not Detected	30000	Not Detected
1,2-Dichlorobenzene	5800	Not Detected	35000	Not Detected
1,2,4-Trichlorobenzene	23000	Not Detected	170000	Not Detected
Hexachlorobutadiene	23000	Not Detected	250000	Not Detected
Naphthalene	23000	Not Detected	120000	Not Detected
TPH ref. to Gasoline (MW=100)	120000	12000000	470000	49000000

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	100	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Ambient

Lab ID#: 0901007AR1-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010916**	**Date of Collection: 12/31/08**	
Dil. Factor:	**1.55**	**Date of Analysis: 1/9/09 08:05 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.78	Not Detected	3.8	Not Detected
Freon 114	0.78	Not Detected	5.4	Not Detected
Chloromethane	3.1	Not Detected	6.4	Not Detected
Vinyl Chloride	0.78	Not Detected	2.0	Not Detected
1,3-Butadiene	0.78	Not Detected	1.7	Not Detected
Bromomethane	0.78	Not Detected	3.0	Not Detected
Chloroethane	0.78	Not Detected	2.0	Not Detected
Freon 11	0.78	Not Detected	4.4	Not Detected
Ethanol	3.1	Not Detected	5.8	Not Detected
Freon 113	0.78	Not Detected	5.9	Not Detected
1,1-Dichloroethene	0.78	Not Detected	3.1	Not Detected
Acetone	3.1	3.9	7.4	9.3
2-Propanol	3.1	Not Detected	7.6	Not Detected
Carbon Disulfide	0.78	Not Detected	2.4	Not Detected
3-Chloropropene	3.1	Not Detected	9.7	Not Detected
Methylene Chloride	0.78	Not Detected	2.7	Not Detected
Methyl tert-butyl ether	0.78	Not Detected	2.8	Not Detected
trans-1,2-Dichloroethene	0.78	Not Detected	3.1	Not Detected
Hexane	0.78	Not Detected	2.7	Not Detected
1,1-Dichloroethane	0.78	Not Detected	3.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.78	Not Detected	2.3	Not Detected
cis-1,2-Dichloroethene	0.78	Not Detected	3.1	Not Detected
Tetrahydrofuran	0.78	Not Detected	2.3	Not Detected
Chloroform	0.78	Not Detected	3.8	Not Detected
1,1,1-Trichloroethane	0.78	Not Detected	4.2	Not Detected
Cyclohexane	0.78	Not Detected	2.7	Not Detected
Carbon Tetrachloride	0.78	Not Detected	4.9	Not Detected
2,2,4-Trimethylpentane	0.78	Not Detected	3.6	Not Detected
Benzene	0.78	Not Detected	2.5	Not Detected
1,2-Dichloroethane	0.78	Not Detected	3.1	Not Detected
Heptane	0.78	Not Detected	3.2	Not Detected
Trichloroethene	0.78	Not Detected	4.2	Not Detected
1,2-Dichloropropane	0.78	Not Detected	3.6	Not Detected
1,4-Dioxane	3.1	Not Detected	11	Not Detected
Bromodichloromethane	0.78	Not Detected	5.2	Not Detected
cis-1,3-Dichloropropene	0.78	Not Detected	3.5	Not Detected
4-Methyl-2-pentanone	0.78	Not Detected	3.2	Not Detected
Toluene	0.78	1.1	2.9	4.1
trans-1,3-Dichloropropene	0.78	Not Detected	3.5	Not Detected

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Ambient

Lab ID#: 0901007AR1-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010916**	**Date of Collection: 12/31/08**	
Dil. Factor:	**1.55**	**Date of Analysis: 1/9/09 08:05 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
1,1,2-Trichloroethane	0.78	Not Detected	4.2	Not Detected
Tetrachloroethene	0.78	Not Detected	5.2	Not Detected
2-Hexanone	3.1	Not Detected	13	Not Detected
Dibromochloromethane	0.78	Not Detected	6.6	Not Detected
1,2-Dibromoethane (EDB)	0.78	Not Detected	6.0	Not Detected
Chlorobenzene	0.78	Not Detected	3.6	Not Detected
Ethyl Benzene	0.78	Not Detected	3.4	Not Detected
m,p-Xylene	0.78	1.1	3.4	4.6
o-Xylene	0.78	Not Detected	3.4	Not Detected
Styrene	0.78	Not Detected	3.3	Not Detected
Bromoform	0.78	Not Detected	8.0	Not Detected
Cumene	0.78	Not Detected	3.8	Not Detected
1,1,2,2-Tetrachloroethane	0.78	Not Detected	5.3	Not Detected
Propylbenzene	0.78	Not Detected	3.8	Not Detected
4-Ethyltoluene	0.78	Not Detected	3.8	Not Detected
1,3,5-Trimethylbenzene	0.78	Not Detected	3.8	Not Detected
1,2,4-Trimethylbenzene	0.78	Not Detected	3.8	Not Detected
1,3-Dichlorobenzene	0.78	Not Detected	4.6	Not Detected
1,4-Dichlorobenzene	0.78	Not Detected	4.6	Not Detected
alpha-Chlorotoluene	0.78	Not Detected	4.0	Not Detected
1,2-Dichlorobenzene	0.78	Not Detected	4.6	Not Detected
1,2,4-Trichlorobenzene	3.1	Not Detected	23	Not Detected
Hexachlorobutadiene	3.1	Not Detected	33	Not Detected
Naphthalene	3.1	Not Detected	16	Not Detected
TPH ref. to Gasoline (MW=100)	16	Not Detected	63	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	86	70-130
4-Bromofluorobenzene	101	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Ambient Lab Duplicate

Lab ID#: 0901007AR1-07AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010917**	**Date of Collection: 12/31/08**	
Dil. Factor:	**1.55**	**Date of Analysis: 1/9/09 08:52 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.78	Not Detected	3.8	Not Detected
Freon 114	0.78	Not Detected	5.4	Not Detected
Chloromethane	3.1	Not Detected	6.4	Not Detected
Vinyl Chloride	0.78	Not Detected	2.0	Not Detected
1,3-Butadiene	0.78	Not Detected	1.7	Not Detected
Bromomethane	0.78	Not Detected	3.0	Not Detected
Chloroethane	0.78	Not Detected	2.0	Not Detected
Freon 11	0.78	Not Detected	4.4	Not Detected
Ethanol	3.1	Not Detected	5.8	Not Detected
Freon 113	0.78	Not Detected	5.9	Not Detected
1,1-Dichloroethene	0.78	Not Detected	3.1	Not Detected
Acetone	3.1	3.8	7.4	9.0
2-Propanol	3.1	Not Detected	7.6	Not Detected
Carbon Disulfide	0.78	Not Detected	2.4	Not Detected
3-Chloropropene	3.1	Not Detected	9.7	Not Detected
Methylene Chloride	0.78	Not Detected	2.7	Not Detected
Methyl tert-butyl ether	0.78	Not Detected	2.8	Not Detected
trans-1,2-Dichloroethene	0.78	Not Detected	3.1	Not Detected
Hexane	0.78	Not Detected	2.7	Not Detected
1,1-Dichloroethane	0.78	Not Detected	3.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.78	Not Detected	2.3	Not Detected
cis-1,2-Dichloroethene	0.78	Not Detected	3.1	Not Detected
Tetrahydrofuran	0.78	Not Detected	2.3	Not Detected
Chloroform	0.78	Not Detected	3.8	Not Detected
1,1,1-Trichloroethane	0.78	Not Detected	4.2	Not Detected
Cyclohexane	0.78	Not Detected	2.7	Not Detected
Carbon Tetrachloride	0.78	Not Detected	4.9	Not Detected
2,2,4-Trimethylpentane	0.78	Not Detected	3.6	Not Detected
Benzene	0.78	Not Detected	2.5	Not Detected
1,2-Dichloroethane	0.78	Not Detected	3.1	Not Detected
Heptane	0.78	Not Detected	3.2	Not Detected
Trichloroethene	0.78	Not Detected	4.2	Not Detected
1,2-Dichloropropane	0.78	Not Detected	3.6	Not Detected
1,4-Dioxane	3.1	Not Detected	11	Not Detected
Bromodichloromethane	0.78	Not Detected	5.2	Not Detected
cis-1,3-Dichloropropene	0.78	Not Detected	3.5	Not Detected
4-Methyl-2-pentanone	0.78	Not Detected	3.2	Not Detected
Toluene	0.78	1.1	2.9	4.2
trans-1,3-Dichloropropene	0.78	Not Detected	3.5	Not Detected

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Ambient Lab Duplicate

Lab ID#: 0901007AR1-07AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010917**	**Date of Collection: 12/31/08**	
Dil. Factor:	**1.55**	**Date of Analysis: 1/9/09 08:52 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
1,1,2-Trichloroethane	0.78	Not Detected	4.2	Not Detected
Tetrachloroethene	0.78	Not Detected	5.2	Not Detected
2-Hexanone	3.1	Not Detected	13	Not Detected
Dibromochloromethane	0.78	Not Detected	6.6	Not Detected
1,2-Dibromoethane (EDB)	0.78	Not Detected	6.0	Not Detected
Chlorobenzene	0.78	Not Detected	3.6	Not Detected
Ethyl Benzene	0.78	Not Detected	3.4	Not Detected
m,p-Xylene	0.78	1.0	3.4	4.5
o-Xylene	0.78	Not Detected	3.4	Not Detected
Styrene	0.78	Not Detected	3.3	Not Detected
Bromoform	0.78	Not Detected	8.0	Not Detected
Cumene	0.78	Not Detected	3.8	Not Detected
1,1,2,2-Tetrachloroethane	0.78	Not Detected	5.3	Not Detected
Propylbenzene	0.78	Not Detected	3.8	Not Detected
4-Ethyltoluene	0.78	Not Detected	3.8	Not Detected
1,3,5-Trimethylbenzene	0.78	Not Detected	3.8	Not Detected
1,2,4-Trimethylbenzene	0.78	Not Detected	3.8	Not Detected
1,3-Dichlorobenzene	0.78	Not Detected	4.6	Not Detected
1,4-Dichlorobenzene	0.78	Not Detected	4.6	Not Detected
alpha-Chlorotoluene	0.78	Not Detected	4.0	Not Detected
1,2-Dichlorobenzene	0.78	Not Detected	4.6	Not Detected
1,2,4-Trichlorobenzene	3.1	Not Detected	23	Not Detected
Hexachlorobutadiene	3.1	Not Detected	33	Not Detected
Naphthalene	3.1	Not Detected	16	Not Detected
TPH ref. to Gasoline (MW=100)	16	Not Detected	63	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	84	70-130
4-Bromofluorobenzene	104	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0901007AR1-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010706**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 01:27 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	2.0	Not Detected	4.1	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	2.0	Not Detected	4.8	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	0.50	Not Detected	1.7	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0901007AR1-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010706**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 01:27 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected
TPH ref. to Gasoline (MW=100)	10	Not Detected	41	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	83	70-130
4-Bromofluorobenzene	102	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0901007AR1-08B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010904**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/9/09 10:17 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	2.0	Not Detected	4.1	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	2.0	Not Detected	4.8	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	0.50	Not Detected	1.7	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0901007AR1-08B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010904**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/9/09 10:17 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected
TPH ref. to Gasoline (MW=100)	10	Not Detected	41	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	85	70-130
4-Bromofluorobenzene	99	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0901007AR1-08C

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010707**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 11:22 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	5.0	Not Detected	25	Not Detected
Freon 114	5.0	Not Detected	35	Not Detected
Chloromethane	20	Not Detected	41	Not Detected
Vinyl Chloride	5.0	Not Detected	13	Not Detected
1,3-Butadiene	5.0	Not Detected	11	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	5.0	Not Detected	13	Not Detected
Freon 11	5.0	Not Detected	28	Not Detected
Ethanol	20	Not Detected	38	Not Detected
Freon 113	5.0	Not Detected	38	Not Detected
1,1-Dichloroethene	5.0	Not Detected	20	Not Detected
Acetone	20	Not Detected	48	Not Detected
2-Propanol	20	Not Detected	49	Not Detected
Carbon Disulfide	5.0	Not Detected	16	Not Detected
3-Chloropropene	20	Not Detected	63	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	5.0	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Hexane	5.0	Not Detected	18	Not Detected
1,1-Dichloroethane	5.0	Not Detected	20	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.0	Not Detected	15	Not Detected
cis-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Tetrahydrofuran	5.0	Not Detected	15	Not Detected
Chloroform	5.0	Not Detected	24	Not Detected
1,1,1-Trichloroethane	5.0	Not Detected	27	Not Detected
Cyclohexane	5.0	Not Detected	17	Not Detected
Carbon Tetrachloride	5.0	Not Detected	31	Not Detected
2,2,4-Trimethylpentane	5.0	Not Detected	23	Not Detected
Benzene	5.0	Not Detected	16	Not Detected
1,2-Dichloroethane	5.0	Not Detected	20	Not Detected
Heptane	5.0	Not Detected	20	Not Detected
Trichloroethene	5.0	Not Detected	27	Not Detected
1,2-Dichloropropane	5.0	Not Detected	23	Not Detected
1,4-Dioxane	20	Not Detected	72	Not Detected
Bromodichloromethane	5.0	Not Detected	34	Not Detected
cis-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
4-Methyl-2-pentanone	5.0	Not Detected	20	Not Detected
Toluene	5.0	Not Detected	19	Not Detected
trans-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0901007AR1-08C

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010707**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 11:22 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
1,1,2-Trichloroethane	5.0	Not Detected	27	Not Detected
Tetrachloroethene	5.0	Not Detected	34	Not Detected
2-Hexanone	20	Not Detected	82	Not Detected
Dibromochloromethane	5.0	Not Detected	42	Not Detected
1,2-Dibromoethane (EDB)	5.0	Not Detected	38	Not Detected
Chlorobenzene	5.0	Not Detected	23	Not Detected
Ethyl Benzene	5.0	Not Detected	22	Not Detected
m,p-Xylene	5.0	Not Detected	22	Not Detected
o-Xylene	5.0	Not Detected	22	Not Detected
Styrene	5.0	Not Detected	21	Not Detected
Bromoform	5.0	Not Detected	52	Not Detected
Cumene	5.0	Not Detected	24	Not Detected
1,1,2,2-Tetrachloroethane	5.0	Not Detected	34	Not Detected
Propylbenzene	5.0	Not Detected	24	Not Detected
4-Ethyltoluene	5.0	Not Detected	24	Not Detected
1,3,5-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,2,4-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,3-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,4-Dichlorobenzene	5.0	Not Detected	30	Not Detected
alpha-Chlorotoluene	5.0	Not Detected	26	Not Detected
1,2-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,2,4-Trichlorobenzene	20	Not Detected	150	Not Detected
Hexachlorobutadiene	20	Not Detected	210	Not Detected
Naphthalene	20	Not Detected	100	Not Detected

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	98	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	103	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0901007AR1-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 09:09 AM**	

Compound	%Recovery
Freon 12	103
Freon 114	104
Chloromethane	94
Vinyl Chloride	97
1,3-Butadiene	106
Bromomethane	97
Chloroethane	100
Freon 11	109
Ethanol	98
Freon 113	98
1,1-Dichloroethene	104
Acetone	102
2-Propanol	96
Carbon Disulfide	107
3-Chloropropene	105
Methylene Chloride	108
Methyl tert-butyl ether	132 Q
trans-1,2-Dichloroethene	109
Hexane	109
1,1-Dichloroethane	112
2-Butanone (Methyl Ethyl Ketone)	123
cis-1,2-Dichloroethene	109
Tetrahydrofuran	106
Chloroform	114
1,1,1-Trichloroethane	106
Cyclohexane	104
Carbon Tetrachloride	105
2,2,4-Trimethylpentane	106
Benzene	115
1,2-Dichloroethane	110
Heptane	116
Trichloroethene	114
1,2-Dichloropropane	111
1,4-Dioxane	107
Bromodichloromethane	112
cis-1,3-Dichloropropene	112
4-Methyl-2-pentanone	113
Toluene	113
trans-1,3-Dichloropropene	115

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0901007AR1-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 09:09 AM**	

Compound	**%Recovery**
1,1,2-Trichloroethane	113
Tetrachloroethene	120
2-Hexanone	107
Dibromochloromethane	115
1,2-Dibromoethane (EDB)	118
Chlorobenzene	115
Ethyl Benzene	115
m,p-Xylene	115
o-Xylene	116
Styrene	113
Bromoform	120
Cumene	121
1,1,2,2-Tetrachloroethane	116
Propylbenzene	124
4-Ethyltoluene	125
1,3,5-Trimethylbenzene	108
1,2,4-Trimethylbenzene	121
1,3-Dichlorobenzene	124
1,4-Dichlorobenzene	122
alpha-Chlorotoluene	118
1,2-Dichlorobenzene	120
1,2,4-Trichlorobenzene	108
Hexachlorobutadiene	106
Naphthalene	109
TPH ref. to Gasoline (MW=100)	Not Spiked

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	104	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0901007AR1-09B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010902**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/9/09 08:23 AM**	

Compound	%Recovery
Freon 12	95
Freon 114	95
Chloromethane	89
Vinyl Chloride	92
1,3-Butadiene	99
Bromomethane	95
Chloroethane	96
Freon 11	100
Ethanol	98
Freon 113	92
1,1-Dichloroethene	98
Acetone	94
2-Propanol	88
Carbon Disulfide	103
3-Chloropropene	99
Methylene Chloride	101
Methyl tert-butyl ether	140 Q
trans-1,2-Dichloroethene	102
Hexane	96
1,1-Dichloroethane	101
2-Butanone (Methyl Ethyl Ketone)	109
cis-1,2-Dichloroethene	99
Tetrahydrofuran	95
Chloroform	103
1,1,1-Trichloroethane	96
Cyclohexane	98
Carbon Tetrachloride	95
2,2,4-Trimethylpentane	99
Benzene	107
1,2-Dichloroethane	100
Heptane	104
Trichloroethene	104
1,2-Dichloropropane	103
1,4-Dioxane	100
Bromodichloromethane	102
cis-1,3-Dichloropropene	103
4-Methyl-2-pentanone	104
Toluene	105
trans-1,3-Dichloropropene	101

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0901007AR1-09B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010902**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/9/09 08:23 AM**	

Compound	%Recovery
1,1,2-Trichloroethane	102
Tetrachloroethene	108
2-Hexanone	96
Dibromochloromethane	104
1,2-Dibromoethane (EDB)	108
Chlorobenzene	106
Ethyl Benzene	105
m,p-Xylene	104
o-Xylene	106
Styrene	105
Bromoform	109
Cumene	111
1,1,2,2-Tetrachloroethane	106
Propylbenzene	113
4-Ethyltoluene	116
1,3,5-Trimethylbenzene	98
1,2,4-Trimethylbenzene	110
1,3-Dichlorobenzene	112
1,4-Dichlorobenzene	110
alpha-Chlorotoluene	107
1,2-Dichlorobenzene	108
1,2,4-Trichlorobenzene	90
Hexachlorobutadiene	88
Naphthalene	89
TPH ref. to Gasoline (MW=100)	Not Spiked

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	102	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0901007AR1-09C

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 09:30 AM**	

Compound	%Recovery
Freon 12	98
Freon 114	100
Chloromethane	95
Vinyl Chloride	98
1,3-Butadiene	103
Bromomethane	96
Chloroethane	92
Freon 11	96
Ethanol	119
Freon 113	96
1,1-Dichloroethene	94
Acetone	100
2-Propanol	105
Carbon Disulfide	96
3-Chloropropene	96
Methylene Chloride	94
Methyl tert-butyl ether	87
trans-1,2-Dichloroethene	96
Hexane	95
1,1-Dichloroethane	96
2-Butanone (Methyl Ethyl Ketone)	102
cis-1,2-Dichloroethene	90
Tetrahydrofuran	99
Chloroform	96
1,1,1-Trichloroethane	98
Cyclohexane	98
Carbon Tetrachloride	98
2,2,4-Trimethylpentane	100
Benzene	96
1,2-Dichloroethane	98
Heptane	98
Trichloroethene	96
1,2-Dichloropropane	100
1,4-Dioxane	106
Bromodichloromethane	97
cis-1,3-Dichloropropene	100
4-Methyl-2-pentanone	101
Toluene	97
trans-1,3-Dichloropropene	100

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0901007AR1-09C

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 09:30 AM**	

Compound	%Recovery
1,1,2-Trichloroethane	95
Tetrachloroethene	91
2-Hexanone	100
Dibromochloromethane	98
1,2-Dibromoethane (EDB)	98
Chlorobenzene	97
Ethyl Benzene	94
m,p-Xylene	95
o-Xylene	95
Styrene	96
Bromoform	92
Cumene	97
1,1,2,2-Tetrachloroethane	97
Propylbenzene	97
4-Ethyltoluene	97
1,3,5-Trimethylbenzene	96
1,2,4-Trimethylbenzene	98
1,3-Dichlorobenzene	92
1,4-Dichlorobenzene	93
alpha-Chlorotoluene	100
1,2-Dichlorobenzene	92
1,2,4-Trichlorobenzene	92
Hexachlorobutadiene	91
Naphthalene	110
TPH ref. to Gasoline (MW=100)	Not Spiked

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	102	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0901007AR1-10A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 09:55 AM**	

Compound	%Recovery
Freon 12	88
Freon 114	90
Chloromethane	83
Vinyl Chloride	87
1,3-Butadiene	95
Bromomethane	88
Chloroethane	90
Freon 11	92
Ethanol	98
Freon 113	97
1,1-Dichloroethene	99
Acetone	92
2-Propanol	87
Carbon Disulfide	102
3-Chloropropene	105
Methylene Chloride	99
Methyl tert-butyl ether	98
trans-1,2-Dichloroethene	105
Hexane	103
1,1-Dichloroethane	101
2-Butanone (Methyl Ethyl Ketone)	118
cis-1,2-Dichloroethene	96
Tetrahydrofuran	104
Chloroform	102
1,1,1-Trichloroethane	93
Cyclohexane	105
Carbon Tetrachloride	94
2,2,4-Trimethylpentane	106
Benzene	104
1,2-Dichloroethane	97
Heptane	109
Trichloroethene	98
1,2-Dichloropropane	97
1,4-Dioxane	108
Bromodichloromethane	109
cis-1,3-Dichloropropene	96
4-Methyl-2-pentanone	113
Toluene	104
trans-1,3-Dichloropropene	97

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0901007AR1-10A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 09:55 AM**	

Compound	**%Recovery**
1,1,2-Trichloroethane	96
Tetrachloroethene	104
2-Hexanone	105
Dibromochloromethane	112
1,2-Dibromoethane (EDB)	99
Chlorobenzene	102
Ethyl Benzene	99
m,p-Xylene	100
o-Xylene	102
Styrene	103
Bromoform	117
Cumene	109
1,1,2,2-Tetrachloroethane	104
Propylbenzene	123
4-Ethyltoluene	122
1,3,5-Trimethylbenzene	96
1,2,4-Trimethylbenzene	104
1,3-Dichlorobenzene	106
1,4-Dichlorobenzene	102
alpha-Chlorotoluene	106
1,2-Dichlorobenzene	99
1,2,4-Trichlorobenzene	82
Hexachlorobutadiene	83
Naphthalene	105
TPH ref. to Gasoline (MW=100)	Not Spiked

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	104	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0901007AR1-10B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010903**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/9/09 09:12 AM**	

Compound	%Recovery
Freon 12	90
Freon 114	91
Chloromethane	85
Vinyl Chloride	90
1,3-Butadiene	100
Bromomethane	91
Chloroethane	95
Freon 11	95
Ethanol	104
Freon 113	102
1,1-Dichloroethene	104
Acetone	95
2-Propanol	90
Carbon Disulfide	109
3-Chloropropene	109
Methylene Chloride	105
Methyl tert-butyl ether	158 Q
trans-1,2-Dichloroethene	110
Hexane	109
1,1-Dichloroethane	104
2-Butanone (Methyl Ethyl Ketone)	123
cis-1,2-Dichloroethene	100
Tetrahydrofuran	108
Chloroform	105
1,1,1-Trichloroethane	96
Cyclohexane	110
Carbon Tetrachloride	97
2,2,4-Trimethylpentane	111
Benzene	109
1,2-Dichloroethane	101
Heptane	117
Trichloroethene	104
1,2-Dichloropropane	104
1,4-Dioxane	116
Bromodichloromethane	115
cis-1,3-Dichloropropene	102
4-Methyl-2-pentanone	121
Toluene	112
trans-1,3-Dichloropropene	100

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0901007AR1-10B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t010903**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/9/09 09:12 AM**	

Compound	**%Recovery**
1,1,2-Trichloroethane	102
Tetrachloroethene	108
2-Hexanone	111
Dibromochloromethane	115
1,2-Dibromoethane (EDB)	104
Chlorobenzene	105
Ethyl Benzene	104
m,p-Xylene	104
o-Xylene	106
Styrene	107
Bromoform	120
Cumene	112
1,1,2,2-Tetrachloroethane	106
Propylbenzene	126
4-Ethyltoluene	127
1,3,5-Trimethylbenzene	95
1,2,4-Trimethylbenzene	106
1,3-Dichlorobenzene	108
1,4-Dichlorobenzene	103
alpha-Chlorotoluene	108
1,2-Dichlorobenzene	100
1,2,4-Trichlorobenzene	79
Hexachlorobutadiene	82
Naphthalene	99
TPH ref. to Gasoline (MW=100)	Not Spiked

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	102	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0901007AR1-10C

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 09:50 AM**	

Compound	%Recovery
Freon 12	98
Freon 114	100
Chloromethane	93
Vinyl Chloride	95
1,3-Butadiene	100
Bromomethane	104
Chloroethane	95
Freon 11	101
Ethanol	94
Freon 113	89
1,1-Dichloroethene	87
Acetone	96
2-Propanol	112
Carbon Disulfide	93
3-Chloropropene	88
Methylene Chloride	87
Methyl tert-butyl ether	90
trans-1,2-Dichloroethene	89
Hexane	87
1,1-Dichloroethane	94
2-Butanone (Methyl Ethyl Ketone)	94
cis-1,2-Dichloroethene	91
Tetrahydrofuran	89
Chloroform	97
1,1,1-Trichloroethane	99
Cyclohexane	89
Carbon Tetrachloride	101
2,2,4-Trimethylpentane	89
Benzene	93
1,2-Dichloroethane	93
Heptane	84
Trichloroethene	95
1,2-Dichloropropane	97
1,4-Dioxane	97
Bromodichloromethane	87
cis-1,3-Dichloropropene	102
4-Methyl-2-pentanone	92
Toluene	93
trans-1,3-Dichloropropene	106

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0901007AR1-10C

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w010703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 09:50 AM**	

Compound	%Recovery
1,1,2-Trichloroethane	97
Tetrachloroethene	93
2-Hexanone	94
Dibromochloromethane	92
1,2-Dibromoethane (EDB)	103
Chlorobenzene	99
Ethyl Benzene	100
m,p-Xylene	99
o-Xylene	99
Styrene	106
Bromoform	91
Cumene	101
1,1,2,2-Tetrachloroethane	104
Propylbenzene	92
4-Ethyltoluene	96
1,3,5-Trimethylbenzene	99
1,2,4-Trimethylbenzene	110
1,3-Dichlorobenzene	101
1,4-Dichlorobenzene	104
alpha-Chlorotoluene	113
1,2-Dichlorobenzene	104
1,2,4-Trichlorobenzene	104
Hexachlorobutadiene	108
Naphthalene	106
TPH ref. to Gasoline (MW=100)	Not Spiked

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	103	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

1/16/2009

Mr. Chris Benedict
Conestoga-Rovers Associates (CRA)
2000 Opportunity Drive
Suite 110
Roseville CA 95678

Project Name:
Project #:

Dear Mr. Chris Benedict

The following report includes the data for the above referenced project for sample(s) received on 1/2/2009 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-17 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 you 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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0901005

Work Order Summary

CLIENT:	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 2000 Opportunity Drive Suite 110 Roseville, CA 95678	**BILL TO:**	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 2000 Opportunity Drive Suite 110 Roseville, CA 95678
PHONE:	916-677-3407 x125	**P.O. #**	20-6127
FAX:	916-677-3687	**PROJECT #**	
DATE RECEIVED:	01/02/2009	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	01/15/2009		

FRACTION #	NAME	TEST
01A	VP-1	Modified TO-17
02A	VP-2	Modified TO-17
03A	VP-3	Modified TO-17
04A	VP-4	Modified TO-17
05A	VP-5	Modified TO-17
06A	Dupe	Modified TO-17
07A	Lab Blank	Modified TO-17
07B	Lab Blank	Modified TO-17
08A	CCV	Modified TO-17
08B	CCV	Modified TO-17
09A	LCS	Modified TO-17
09B	LCS	Modified TO-17

CERTIFIED BY: Linda D. Frumarn DATE: 01/16/09

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/08, Expiration date: 06/30/09
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
TO-17 - Markes ATD
Conestoga-Rovers Associates (CRA)
Workorder# 0901005

The laboratory performed the analysis via modified EPA Method TO-17 using GC/MS in the full scan mode. TO-17 sorbent tubes are thermally desorbed onto a secondary trap. The trap is thermally desorbed to elute the components into the GC/MS system for further separation.

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

Requirement	*TO-17*	*ATL Modifications*
Laboratory Blank	At least 2 tubes from the same cleaning batch as the samples are analyzed at the beginning and end of the analytical sequence. Do not dry purge Lab Blanks.	Tubes used for daily lab blank may or may not be from the same batch or sampling media. Only 1 lab blank is analyzed prior to sample analysis. Lab blanks are dry purged to eliminate the possibility of sample anomaly attributed to dry purge process.
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-17 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The reported results for TPH-Diesel in all samples do not match a typical diesel pattern in the C9 to C22 carbon range. Results were calculated by summing the hydrocarbons present in the C9-C22 range.

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

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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED METHOD TO-17

Client Sample ID: VP-1

Lab ID#: 0901005-01A

No Detections Were Found.

Client Sample ID: VP-2

Lab ID#: 0901005-02A

Compound	Rpt. Limit (ng)	Rpt. Limit (uG/m3)	Amount (ng)	Amount (uG/m3)
TPH (Diesel Range)	1000	2000	2800	5600

Client Sample ID: VP-3

Lab ID#: 0901005-03A

Compound	Rpt. Limit (ng)	Rpt. Limit (uG/m3)	Amount (ng)	Amount (uG/m3)
TPH (Diesel Range)	1000	2000	16000	33000

Client Sample ID: VP-4

Lab ID#: 0901005-04A

Compound	Rpt. Limit (ng)	Rpt. Limit (uG/m3)	Amount (ng)	Amount (uG/m3)
TPH (Diesel Range)	1000	2000	180000	350000

Client Sample ID: VP-5

Lab ID#: 0901005-05A

Compound	Rpt. Limit (ng)	Rpt. Limit (uG/m3)	Amount (ng)	Amount (uG/m3)
TPH (Diesel Range)	1000	2000	130000	260000

Client Sample ID: Dupe

Lab ID#: 0901005-06A

Compound	Rpt. Limit (ng)	Rpt. Limit (uG/m3)	Amount (ng)	Amount (uG/m3)
TPH (Diesel Range)	1000	2000	140000	280000

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-1

Lab ID#: 0901005-01A

MODIFIED METHOD TO-17

File Name:	**n011213**	**Date of Extraction: NA**	**Date of Collection: 12/31/08**
Dil. Factor:	**1.00**		**Date of Analysis: 1/13/09 12:30 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (uG/m3)	Amount (ng)	Amount (uG/m3)
TPH (Diesel Range)	1000	2000	Not Detected	Not Detected

Container Type: TO-17 Tube (Tenax-GR)

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-2

Lab ID#: 0901005-02A

MODIFIED METHOD TO-17

File Name:	**n011214**	**Date of Extraction: NA**	**Date of Collection: 12/31/08**
Dil. Factor:	**1.00**		**Date of Analysis: 1/13/09 01:09 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (uG/m3)	Amount (ng)	Amount (uG/m3)
TPH (Diesel Range)	1000	2000	2800	5600

Container Type: TO-17 Tube (Tenax-GR)

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-3

Lab ID#: 0901005-03A

MODIFIED METHOD TO-17

File Name:	**n011215**	**Date of Extraction: NA**	**Date of Collection: 12/31/08**
Dil. Factor:	**1.00**		**Date of Analysis: 1/13/09 01:49 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (uG/m3)	Amount (ng)	Amount (uG/m3)
TPH (Diesel Range)	1000	2000	16000	33000

Container Type: TO-17 Tube (Tenax-GR)

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-4

Lab ID#: 0901005-04A

MODIFIED METHOD TO-17

File Name:	**n011216**	**Date of Extraction: NA**	**Date of Collection: 12/31/08**
Dil. Factor:	**1.00**		**Date of Analysis: 1/13/09 02:29 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (uG/m3)	Amount (ng)	Amount (uG/m3)
TPH (Diesel Range)	1000	2000	180000	350000

Container Type: TO-17 Tube (Tenax-GR)

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-5

Lab ID#: 0901005-05A

MODIFIED METHOD TO-17

File Name:	**n011217**	**Date of Extraction: NA**	**Date of Collection: 12/31/08**
Dil. Factor:	**1.00**		**Date of Analysis: 1/13/09 03:08 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (uG/m3)	Amount (ng)	Amount (uG/m3)
TPH (Diesel Range)	1000	2000	130000	260000

Container Type: TO-17 Tube (Tenax-GR)

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Dupe

Lab ID#: 0901005-06A

MODIFIED METHOD TO-17

File Name:	**n011410**	**Date of Extraction: NA**	**Date of Collection: 12/31/08**
Dil. Factor:	**1.00**		**Date of Analysis: 1/14/09 10:48 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (uG/m3)	Amount (ng)	Amount (uG/m3)
TPH (Diesel Range)	1000	2000	140000	280000

Container Type: TO-17 Tube (Tenax-GR)

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0901005-07A

MODIFIED METHOD TO-17

File Name:	**n011212**	**Date of Extraction: NA**	**Date of Collection: NA**
Dil. Factor:	**1.00**		**Date of Analysis: 1/13/09 12:59 AM**

Compound	Rpt. Limit (ng)	Rpt. Limit (uG/m3)	Amount (ng)	Amount (uG/m3)
TPH (Diesel Range)	1000	2000	Not Detected	Not Detected

Container Type: NA - Not Applicable

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0901005-07B

MODIFIED METHOD TO-17

File Name:	**n011409**	**Date of Extraction: NA**	**Date of Collection: NA**
Dil. Factor:	**1.00**		**Date of Analysis: 1/14/09 10:08 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (uG/m3)	Amount (ng)	Amount (uG/m3)
TPH (Diesel Range)	1000	2000	Not Detected	Not Detected

Container Type: NA - Not Applicable

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0901005-08A

MODIFIED METHOD TO-17

File Name:	**n011205A**	**Date of Extraction: NA**	**Date of Collection: NA**
Dil. Factor:	**1.00**		**Date of Analysis: 1/12/09 07:17 PM**

Compound	%Recovery
TPH (Diesel Range)	105

Container Type: NA - Not Applicable

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0901005-08B

MODIFIED METHOD TO-17

File Name:	**n011405**	**Date of Extraction: NA**	**Date of Collection: NA**
Dil. Factor:	**1.00**		**Date of Analysis: 1/14/09 06:55 PM**

Compound	%Recovery
TPH (Diesel Range)	111

Container Type: NA - Not Applicable

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0901005-09A

MODIFIED METHOD TO-17

File Name:	**n011210**	**Date of Extraction: NA**	**Date of Collection: NA**
Dil. Factor:	**1.00**		**Date of Analysis: 1/12/09 11:38 PM**

Compound	**%Recovery**
TPH (Diesel Range)	87

Container Type: NA - Not Applicable

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0901005-09B

MODIFIED METHOD TO-17

File Name:	**n011407**	**Date of Extraction: NA**	**Date of Collection: NA**
Dil. Factor:	**1.00**		**Date of Analysis: 1/14/09 08:20 PM**

Compound	**%Recovery**
TPH (Diesel Range)	92

Container Type: NA - Not Applicable

AN ENVIRONMENTAL ANALYTICAL LABORATORY

1/9/2009

Mr. Chris Benedict
Conestoga-Rovers Associates (CRA)
2000 Opportunity Drive
Suite 110
Roseville CA 95678

Project Name:
Project #:

Dear Mr. Chris Benedict

The following report includes the data for the above referenced project for sample(s) received on 1/2/2009 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 you 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

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 .FAX (916) 985-1020
Hours 8:00 A.M to 6:00 P.M. Pacific

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0901007C

Work Order Summary

CLIENT:	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 2000 Opportunity Drive Suite 110 Roseville, CA 95678	**BILL TO:**	Mr. Chris Benedict Conestoga-Rovers Associates (CRA) 2000 Opportunity Drive Suite 110 Roseville, CA 95678
PHONE:	916-677-3407 x125	**P.O. #**	20-6127
FAX:	916-677-3687	**PROJECT #**	
DATE RECEIVED:	01/02/2009	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	01/09/2009		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	VP-1	Modified ASTM D-1946	1.5 "Hg	15 psi
02A	VP-2	Modified ASTM D-1946	2.5 "Hg	15 psi
03A	VP-3	Modified ASTM D-1946	3.5 "Hg	15 psi
04A	VP-4	Modified ASTM D-1946	0.5 "Hg	15 psi
04AA	VP-4 Lab Duplicate	Modified ASTM D-1946	0.5 "Hg	15 psi
05A	VP-5	Modified ASTM D-1946	4.5 "Hg	15 psi
06A	Dupe	Modified ASTM D-1946	4.0 "Hg	15 psi
07A	Ambient	Modified ASTM D-1946	4.0 "Hg	5 psi
08A	Lab Blank	Modified ASTM D-1946	NA	NA
08B	Lab Blank	Modified ASTM D-1946	NA	NA
09A	LCS	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Linda D. Fruman DATE: 01/09/09

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/08, Expiration date: 06/30/09
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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
Conestoga-Rovers Associates (CRA)
Workorder# 0901007C

Six 1 Liter Summa Canister (100% Certified) and one 6 Liter Summa Canister (100% Certified) samples were received on January 02, 2009. The laboratory performed analysis via Modified ASTM Method D-1946 for fixed gases in air using 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.

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

Sample identification for sample Ambient was not provided on the Chain of Custody. The information on the sample tag was used to process and report the sample.

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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

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

Client Sample ID: VP-1

Lab ID#: 0901007C-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.21	17
Carbon Dioxide	0.021	3.3

Client Sample ID: VP-2

Lab ID#: 0901007C-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	17
Carbon Dioxide	0.022	5.4

Client Sample ID: VP-3

Lab ID#: 0901007C-03A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	1.4
Carbon Dioxide	0.023	5.5

Client Sample ID: VP-4

Lab ID#: 0901007C-04A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.20	3.4
Carbon Dioxide	0.020	8.8

Client Sample ID: VP-4 Lab Duplicate

Lab ID#: 0901007C-04AA

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.20	3.4
Carbon Dioxide	0.020	8.7

Client Sample ID: VP-5

Lab ID#: 0901007C-05A

AN ENVIRONMENTAL ANALYTICAL LABORATORY

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

Client Sample ID: VP-5

Lab ID#: 0901007C-05A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	1.4
Carbon Dioxide	0.024	12

Client Sample ID: Dupe

Lab ID#: 0901007C-06A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	0.94
Carbon Dioxide	0.023	9.8

Client Sample ID: Ambient

Lab ID#: 0901007C-07A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.16	22
Carbon Dioxide	0.016	0.046

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-1

Lab ID#: 0901007C-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9010708b**	**Date of Collection: 12/31/08**	
Dil. Factor:	**2.13**	**Date of Analysis: 1/7/09 12:06 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.21	17
Carbon Dioxide	0.021	3.3
Helium	0.11	Not Detected

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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-2

Lab ID#: 0901007C-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9010709b**	**Date of Collection: 12/31/08**	
Dil. Factor:	**2.20**	**Date of Analysis: 1/7/09 12:56 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.22	17
Carbon Dioxide	0.022	5.4
Helium	0.11	Not Detected

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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-3

Lab ID#: 0901007C-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9010711b**	**Date of Collection: 12/31/08**	
Dil. Factor:	**2.29**	**Date of Analysis: 1/7/09 01:50 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.23	1.4
Carbon Dioxide	0.023	5.5
Helium	0.11	Not Detected

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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-4

Lab ID#: 0901007C-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9010710b**	**Date of Collection: 12/31/08**	
Dil. Factor:	**2.05**	**Date of Analysis: 1/7/09 01:23 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.20	3.4
Carbon Dioxide	0.020	8.8
Helium	0.10	Not Detected

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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-4 Lab Duplicate

Lab ID#: 0901007C-04AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9010712b**	**Date of Collection: 12/31/08**	
Dil. Factor:	**2.05**	**Date of Analysis: 1/7/09 02:12 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.20	3.4
Carbon Dioxide	0.020	8.7
Helium	0.10	Not Detected

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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: VP-5

Lab ID#: 0901007C-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9010713b**	**Date of Collection: 12/31/08**	
Dil. Factor:	**2.38**	**Date of Analysis: 1/7/09 02:35 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.24	1.4
Carbon Dioxide	0.024	12
Helium	0.12	Not Detected

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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Dupe

Lab ID#: 0901007C-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9010714b**	**Date of Collection: 12/31/08**	
Dil. Factor:	**2.33**	**Date of Analysis: 1/7/09 03:04 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.23	0.94
Carbon Dioxide	0.023	9.8
Helium	0.12	Not Detected

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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Ambient

Lab ID#: 0901007C-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9010716b**	**Date of Collection: 12/31/08**	
Dil. Factor:	**1.55**	**Date of Analysis: 1/7/09 03:57 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.16	22
Carbon Dioxide	0.016	0.046
Helium	0.078	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0901007C-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9010707b**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 11:34 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0901007C-08B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9010706b**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 11:13 AM**	

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

Container Type: NA - Not Applicable

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0901007C-09A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9010727b**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/7/09 09:07 PM**	

Compound	%Recovery
Oxygen	100
Carbon Dioxide	100
Helium	105

Container Type: NA - Not Applicable

Air Toxics LTD.

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

Project Manager J. Kiernan

Collected by: (Print and Sign) Chris Benedict

Company CRA Email ____

Address 7000 Opportunity Dr Ste 100 City Roseville State CA Zip 95678

Phone 677 3407 Fax ____

Project Info:
P.O. # 70-6127
Project # ____
Project Name ____

Turn Around Time:
☐ Normal
☒ Rush 5 day (specify)

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 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	VP-1	9438	12/31/08	929	TO-15 full scan + TPHg +	-30	-5.5		
02A	VP-2	35557	12/31/08	1038	Naphthalene	-30	-6		
03A	VP-3	35586	12/31/08	1155	O_2, CO_2, He - ASTM1946	-30	-5		
04A	VP-4	#35580	12/31/08	1520		-30	-5		
05A	VP-5	9343	12/31/08	1450		-30	-5		
	~~VP-6*~~	~~1425~~	~~12/31/08~~	~~1447~~		-30	-27		
06A	Dupe	9452I	12/31/08			-30	-5		
07A		4207	12/31/08	1335		-30	-6		

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Chris Benedict	1/2/09 1115	Cindi ATL	1/2/09 1115
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time

Notes:
in µg/m³
Please report top 20 TIC's for VP-4, VP-6

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Door off		N/A	Good	Yes No (None)	0901007

FORM 1238 rev.11

SORBENT SAMPLE COLLECTION

Air Toxics LTD.

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 ____ of ____

Project Manager: J Kiernan
Collected by: (Print and Sign) Chris Benedict
Company: CRA Email:
Address: 2000 Opportunity Dr. Ste 100 City: Roseville State: CA Zip: 95678
Phone: 673 3407 Fax:

Project Info:
P.O. #: 20-6127
Project #:
Project Name:

Turn Around Time:
☐ Normal
☒ Rush
5 day
specify

Circle Reporting Units:
ppbv ppmv
(ug/m3) mg/m3

Lab I.D.	Field Sample I.D. (Location)	Tube # / Cartridge #	Date of Collection	Start Time	End Time	Duration	Final Volume	Analysis Requested
01A	VP-1	M: 18371	12/31/06	940	945		500mL	Titled by TO-17
02A	VP-2	M: 100579	12/31/06	1041	1046		500mL	
03A	VP-3	M: 095537	12/31/06	1155	1156		500mL	
04A	VP-4	M: 106065	12/31/06	1525	1530		500mL	
05A	VP-5	M: 095610	12/31/06	1252	1253		500mL	
	~~VP-6~~							
06A	Dupe	M: 100576	12/31/06				500mL	

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Chris Benedict	1/2/07 1115	[illegible]	1/2/07 1115
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time

Pump Calibration Information
Pre-test Flow Rate:
Post-test Flow Rate:
Average Flow Rate:
Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Dept off	NA	5.8°C	good	Yes No (None)	0901005

ATTACHMENT D

STANDARD FIELD PROCEDURES

Conestoga-Rovers & Associates

STANDARD FIELD PROCEDURES FOR SOIL BORING AND MONITORING WELL INSTALLATION

This document presents standard field methods for drilling and sampling soil borings and installing, developing and sampling groundwater monitoring wells. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

SOIL BORINGS

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and to collect samples for analysis at a State-certified laboratory. All borings are logged using the Unified Soil Classification System by a trained geologist working under the supervision of a California Professional Geologist (PG).

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or direct-push technologies such as the Geoprobe®. Soil samples are collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments at the bottom of the borehole.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Analysis

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4° C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable volatile vapor analyzer measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. Volatile vapor analyzer measurements are used along with the field observations, odors, stratigraphy and groundwater depth to select soil samples for analysis.

Water Sampling

Water samples, if they are collected from the boring, are either collected using a driven Hydropunch® type sampler or are collected from the open borehole using bailers. The groundwater samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Well Construction and Surveying

Groundwater monitoring wells are installed to monitor groundwater quality and determine the groundwater elevation, flow direction and gradient. Well depths and screen lengths are based on groundwater depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines. Well screens typically extend 10 to 15 feet below and 5 feet above the static water level at the time of drilling. However, the well screen will generally not extend into or through a clay layer that is at least three feet thick.

Well casing and screen are flush-threaded, Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. A rinsed and graded sand occupies the annular space between the boring and the well screen to about one to two feet above the well screen. A two feet thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I, II cement.

Well-heads are secured by locking well-caps inside traffic-rated vaults finished flush with the ground surface. A stovepipe may be installed between the well-head and the vault cap for additional security.

The well top-of-casing elevation is surveyed with respect to mean sea level and the well is surveyed for horizontal location with respect to an onsite or nearby offsite landmark.

Well Development

Wells are generally developed using a combination of groundwater surging and extraction. Surging agitates the groundwater and dislodges fine sediments from the sand pack. After about ten minutes of surging, groundwater is extracted from the well using bailing, pumping and/or reverse air-lifting through an eductor pipe to remove the sediments from the well. Surging and extraction continue until at least ten well-casing volumes of groundwater are extracted and the sediment volume in the groundwater is negligible. This process usually occurs prior to installing the sanitary surface seal to ensure sand pack stabilization. If development occurs after surface seal installation, then development occurs 24 to 72 hours after seal installation to ensure that the Portland cement has set up correctly.

All equipment is steam-cleaned prior to use and air used for air-lifting is filtered to prevent oil entrained in the compressed air from entering the well. Wells that are developed using air-lift evacuation are not sampled until at least 24 hours after they are developed.

Groundwater Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of groundwater are purged prior to sampling. Purging continues until groundwater pH, conductivity, and temperature have stabilized. Groundwater samples are collected using bailers or pumps and are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite and covered by plastic sheeting. At least three individual soil samples are collected from the stockpiles and composited at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples in addition to any analytes required by the receiving disposal facility. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Groundwater removed during development and sampling is typically stored onsite in sealed 55-gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Upon receipt of analytic results, the water is either pumped out using a vacuum truck for transport to a licensed waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.

Conestoga-Rovers & Associates

STANDARD FIELD PROCEDURES FOR SOIL VAPOR PROBE INSTALLATION AND SAMPLING

VAPOR POINT METHODS

This document describes Conestoga-Rovers & Associates' standard field methods for soil vapor sampling. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil vapor samples are collected and analyzed to assess whether vapor-phase subsurface contaminants pose a threat to human health or the environment.

Shallow Soil Vapor Point Installation

The shallow soil vapor point method for soil vapor sampling utilizes a hand auger or drill rig to advance a boring for the installation of a soil vapor sampling point. Once the boring is hand augered to the final depth, a probe, connected with Swagelok fittings to nylon or Teflon tubing of ¼-inch outer-diameter, is placed within 12-inches of number 2/16 filter sand (Figure A). A 12-inch layer of dry granular bentonite is placed on top of the filter pack. Pre-hydrated granular bentonite is then poured to fill the borehole. The tube is coiled and placed within a wellbox finished flush to the surface. Soil vapor samples will be collected no sooner than 48 hours after installation of the soil vapor points to allow adequate time for representative soil vapors to accumulate. Soil vapor sample collection will not be scheduled until after a minimum of three consecutive precipitation-free days and irrigation onsite has ceased. Figure B shows the soil vapor sampling apparatus. A measured volume of air will be purged from the tubing using a different Summa purge canister. Immediately after purging, soil vapor samples will be collected using the appropriate size Summa canister with attached flow regulator and sediment filter. The soil vapor points will be preserved until they are no longer needed for risk evaluation purposes. At that time, they will be destroyed by extracting the tubing, hand augering to remove the sand and bentonite, and backfilling the boring with neat cement. The boring will be patched with asphalt or concrete, as appropriate.

Sampling of Soil Vapor Points

Samples will be collected using a SUMMA™ canister connected to sampling tubing at each vapor point. Prior to collecting soil vapor samples, the initial vacuum of the canisters is measured and recorded on the chain-of-custody. The vacuum of the SUMMA™ canister is used to draw the soil vapor through the flow controller until a negative pressure of approximately 5-inches of Hg is observed on the vacuum gauge and recorded on

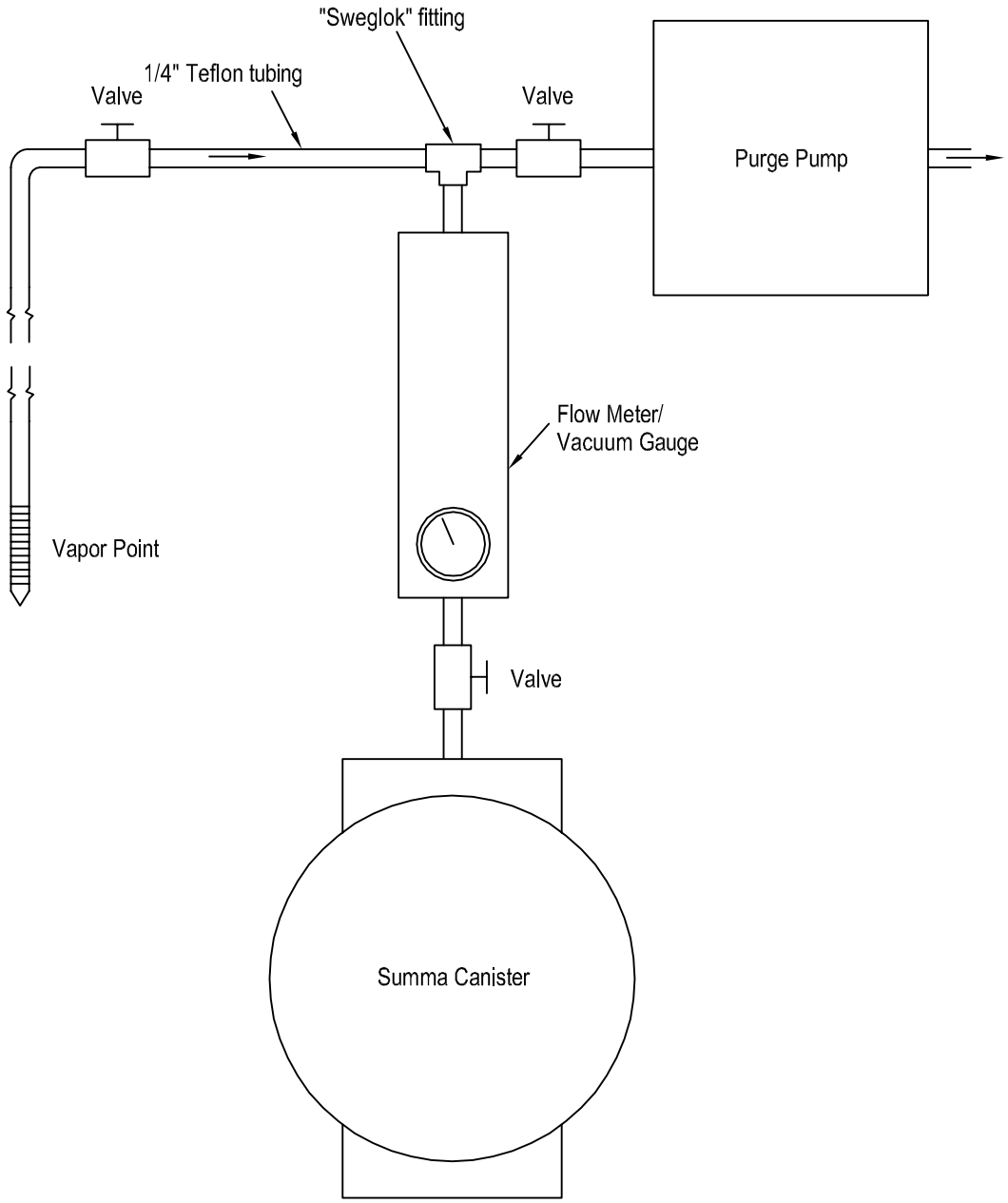
the chain-of-custody. The flow controllers should be set to 100-200 ml/minute. Field duplicates should be collected for every day of sampling and/or for every 10 samples collected.

Prior to sample collection, stagnant air in the sampling apparatus should be removed by purging approximately 3 purge volumes. The purge volume is defined as the amount of air within the probe and tubing.

In accordance with the DTSC Advisory-Active Soil Gas Investigations guidance document, dated January 28, 2003, leak testing needs to be performed during sampling. Helium is recommended, although shaving cream is acceptable.

Vapor Sample Storage, Handling, and Transport

Samples are stored and transported under chain-of-custody to a state-certified analytic laboratory. Samples should never be cooled due to the possibility of condensation within the canister.



Schematic Not to Scale

figure B

SOIL VAPOR SAMPLING APPARATUS DIAGRAM

ATTACHMENT E

EPA SUB-SLAB GUIDANCE DOCUMENT

Draft

Standard Operating Procedure (SOP) for Installation of Sub-Slab Vapor Probes and Sampling Using EPA Method TO-15 to Support Vapor Intrusion Investigations

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Background

Vapor intrusion is defined as vapor phase migration of volatile organic and/or inorganic compounds into occupied buildings from underlying contaminated ground water and/or soil. Until recently, this transport pathway was not routinely considered in RCRA, CERCLA, or UST investigations. Therefore the number of buildings or homes where vapor intrusion has occurred or is occurring is undefined. However, considering the vast number of current and former industrial, commercial, and waste processing facilities in the United States capable of causing volatile organic or inorganic ground-water or soil contamination, contaminant exposure via vapor intrusion could pose a significant risk to the public. Also, consideration of this transport pathway may necessitate review of remedial decisions at RCRA and CERCLA sites as well as implementation of risk-reduction technologies at Brownsfield sites where future development and subsequent potential exposure may occur. EPA's Office of Solid Waste and Emergency Response (OSWER) recently (2002) developed guidance to facilitate assessment of vapor intrusion at sites regulated by RCRA and CERCLA where halogenated organic compounds constitute the bulk of risk to human health. EPA's Office of Underground Storage Tanks (OUST) is considering modifying this guidance to include underground storage tank sites where petroleum compounds primarily determine risk and biodegradation in subsurface media may be a dominant fate process.

The OSWER guidance recommends indoor air and sub-slab gas sampling in potentially affected buildings at sites containing elevated levels of soil-gas and ground-water contamination. To support the guidance and improve site-characterization and data interpretation methods to assess vapor intrusion, EPA's Office or Research and Development is developing a protocol for sub-slab gas sampling. When used in conjunction with indoor air, outdoor air, and soil gas and/or ground-water sampling, sub-slab gas sampling can be used to differentiate indoor and outdoor sources of volatile organic and/or inorganic compounds from compounds emanating from contaminated subsurface media. This information can then be used to assess the need for sub-slab depressurization or other risk-reduction technologies to reduce present or potential future indoor air contamination due to vapor intrusion.

Sub-Slab Vapor Probe Construction and Installation

1. Prior to drilling holes in a foundation or slab, contact local utility companies to identify and mark utilities coming into the building from the outside (e.g., gas, water, sewer, refrigerant, and electrical lines). Consult with a local electrician and plumber to identify the location of utilities inside the building.

2. Prior to fabrication of sub-slab vapor probes, drill a pilot hole to assess the thickness of a slab. As illustrated in **Figure 1**, use a rotary hammer drill to create a "shallow" (e.g., 2.5 cm or 1 in) "outer" hole (e.g., 2.2 cm or 7/8 in diameter) that partially penetrates the slab. Use a small portable vacuum cleaner to remove cuttings from the hole if penetration has not occurred. Removal of cuttings in this manner in a competent slab will not compromise sampling because of lack of pneumatic communication between sub-slab material and the source of vacuum.

3. Then use the rotary hammer drill to create a smaller diameter "inner" hole (e.g., 0.8 cm or 5/16 in) through the remainder of the slab and some depth (e.g., 7 to 8 cm or 3 in) into sub-slab material. **Figure 2** illustrates the appearance of "inner" and "outer" holes. Drilling into sub-slab material will create an open cavity which will prevent obstruction of

probes during sampling by small pieces of gravel.

4. The basic design of a sub-slab vapor probe is illustrated in **Figure 3**. Once the thickness of the slab is known, tubing should be cut to ensure that probes "float" in the slab to avoid obstruction of the probe with sub-slab material. Construct sub-slab vapor probes from small diameter (e.g., 0.64 cm or 1/4 in OD x 0.46 cm or 0.18 in ID) chromatography grade 316 stainless steel tubing and stainless-steel compression to thread fittings (e.g., 0.64 cm or 1/4 in OD x 0.32 cm or 1/8 in NPT Swagelok female thread connectors) as illustrated in **Figure 4**. Use of stainless-steel materials to ensure that construction materials are not a source of VOCs.

5. Set sub-slab vapor probes in holes. As illustrated in **Figure 5**, the top of the probes should be completed flush with the slab and have recessed stainless steel or brass plugs so as not interfere with day-to-day use of buildings. Mix a quick-drying portland cement which expands upon drying (to ensure a tight seal) with water to form a slurry and inject or push into the annular space between the probe and outside of the "outer" hole. Allow cement to cure for at least 24 hours prior to sampling.

6. Install at least 3 sub-slab vapor probes in each residence. As illustrated in **Figure 6**, create a schematic identifying the location of each sub-slab probe.

Sub-Slab Sampling

1. Connect dedicated a stainless-steel fitting and tubing (e.g., 1/8 in NPT to 1/4 in tube Swagelok fitting and 30 cm or 1 ft of 1/4 in I.D. Teflon tubing to a sub-slab vapor probe as illustrated in **Figure 7**. Use of dedicated fitting and tubing will avoid cross-contamination issues.

2. Connect the Teflon tubing to 1/4" ID Masterflex (e.g., 1.4 in ID high performance Tygon LFL) tubing and a peristaltic pump and 1-L Tedlar bag as illustrated in **Figure 8**. Use of a peristaltic pump will ensure that sampled air does not circulate through a pump causing potential cross contamination and leakage.

3. Purge vapor probe by filling two dedicated 1-L Tedlar bags. The internal volume of sub-slab probes is insignificant (< 5 cm^3). A purge volume of 2 L was chosen based on the assumption of a 0.64 cm (1/4") air space beneath a slab and an affected sample diameter of 0.61 m (2 ft).

4. Use a portable landfill gas meter to analyze for O_2, CO_2 and CH_4 in Tedlar bags as illustrated in **Figure 9**.

5. Collect sub-slab vapor samples in evacuated 10% or 100% certified 1-L Summa polished canisters and dedicated particulate filters as illustrated in **Figure 10**. Check vacuum in canisters prior to sampling. Sampling will cease when canister pressure reaches atmospheric pressure. Submit canisters to a commercial laboratory for analysis by EPA Method TO-15.

6. Collect at least one duplicate sub-slab sample per building using dedicated stainless-steel tubing as illustrated in **Figure 11**.

Figure 1. Drilling through a slab

Figure 2. "inner and "outer

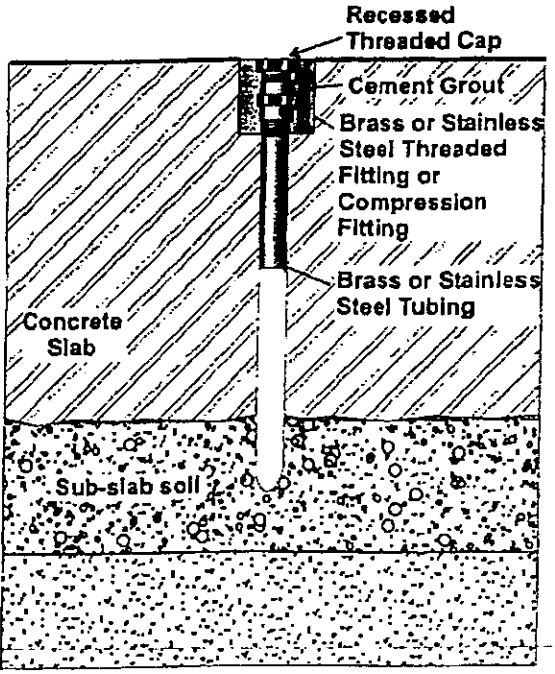

Figure 3. General schematic of sub-slab vapor probe

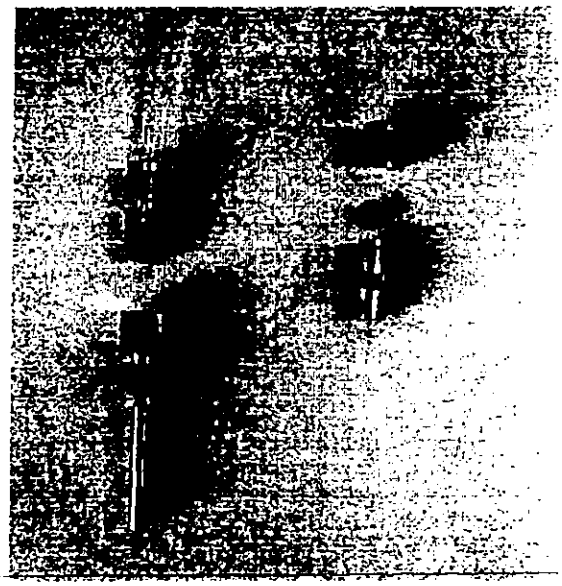

Figure 4. Stainless steel sub-slab vapor probe components

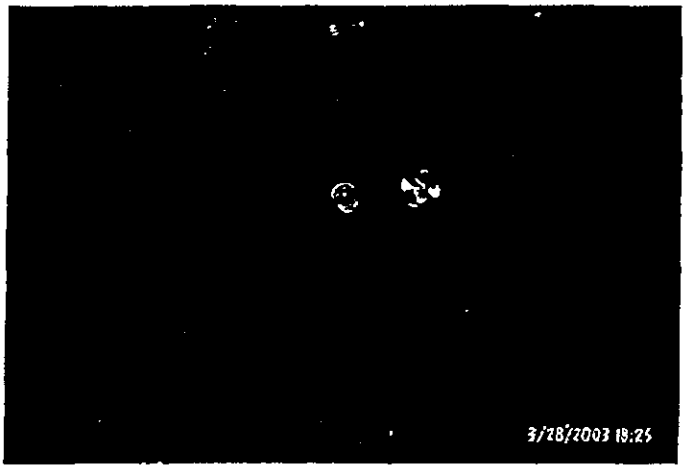

Figure 5. Competed vapor probe installation

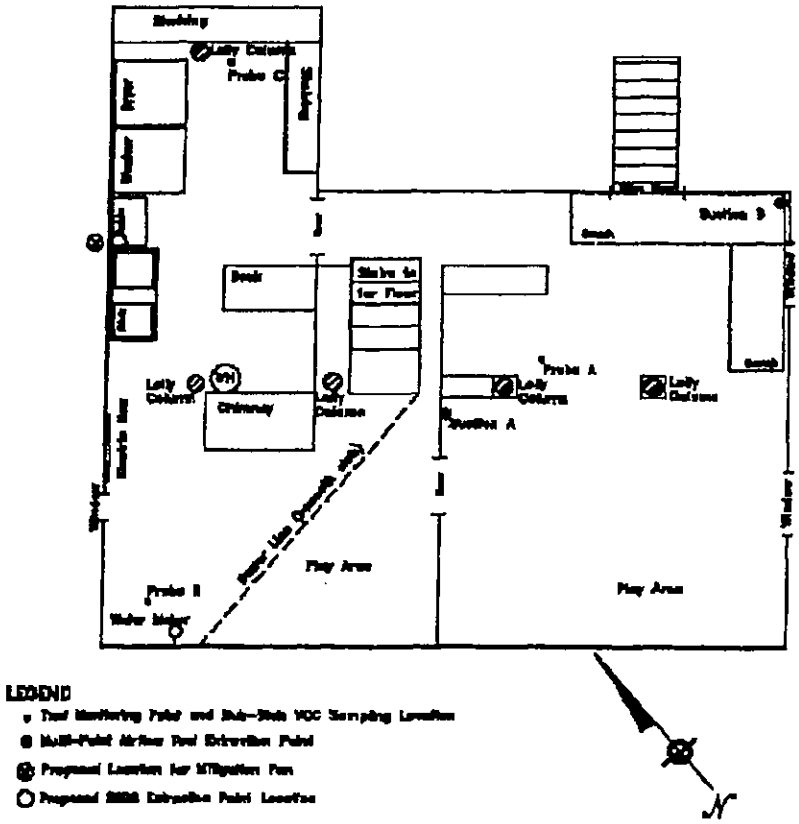

Figure 6. Schematic illustration location of vapor probes in a basement

Figure 7. Compression fitting to probe

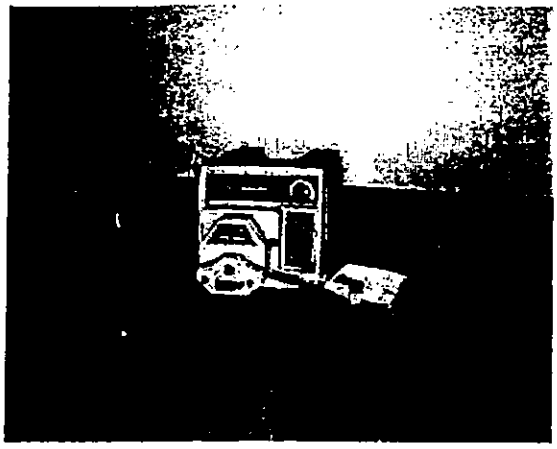

Figure 8. Purge prior to sampling

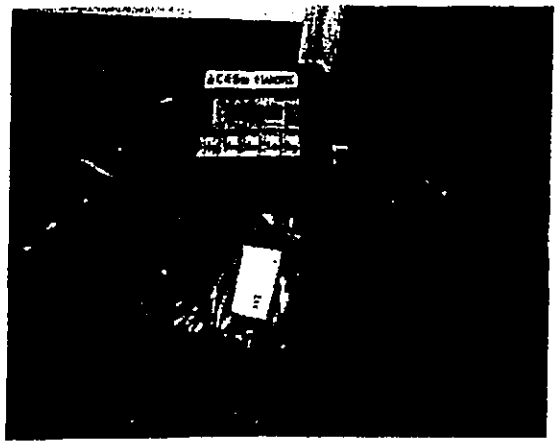

Figure 9. Analysis of O2, CO2, and CH4

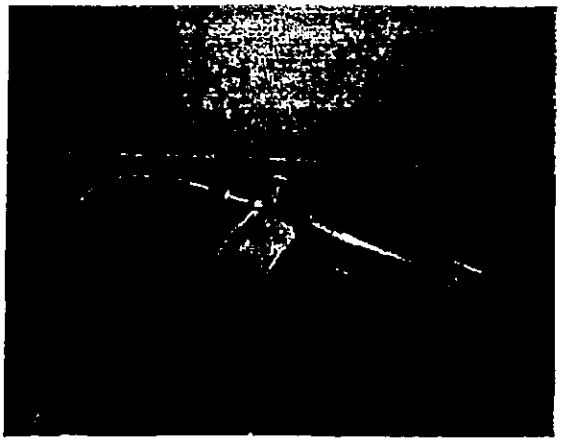

Figure 10. Sampling in 1-L evacuated canister for TO-15 analysis

Figure 11. Collection of duplicate sample