CONESTOGA-ROVERS & ASSOCIATES

5900 Hollis Street, Suite A
Emeryville, California 94608
Telephone: (510) 420-0700 Fax: (510) 420-9170
www.CRAworld.com

TRANSMITTAL

DATE: April 9, 2012

REFERENCE NO.: 521000

PROJECT NAME: 1137-1167 65th Street, Oakland, CA

TO: Ms. Barbara Jakub
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

ACEH No. RO0000082

RECEIVED
3:14 pm, Apr 11, 2012
Alameda County
Environmental Health

Please find enclosed:
- ☐ Draft
- ☐ Originals
- ☐ Prints
- ☒ Final
- ☐ Other

Sent via:
- ☐ Mail
- ☐ Overnight Courier
- ☐ Same Day Courier
- ☒ Other GeoTracker and Alameda FTP server

QUANTITY	DESCRIPTION
1	Offsite Sub-Slab Vapor Probe Installation and Sampling Report

- ☐ As Requested
- ☐ For Your Use
- ☒ For Review and Comment
- ☐
- ☐

COMMENTS:
Shold you have any questions regarding the content of this document, please contact Robert Foss at (510) 420-3348.

Copy to: Mr. Frederic Schrag *(electronic & hard copy)*
Mr. Dennis Parfitt

Completed by: Robert Foss [Please Print]

Signed: Robert Foss

Filing: **Correspondence File**

OFFSITE SUB-SLAB VAPOR PROBE INSTALLATION AND SAMPLING AT 1164 OCEAN AVENUE, OAKLAND, CALIFORNIA

1137-1167 65th STREET
OAKLAND, CALIFORNIA
ACEH Case No. RO 0000082

Prepared by:
Conestoga-Rovers & Associates

5900 Hollis Street, Suite A
Emeryville, California
U.S.A. 94608

Office: (510) 420-0700
Fax: (510) 420-9170

web: http:\\www.CRAworld.com

APRIL 9, 2012
REF. NO. 521000 (18)
This report is printed on recycled paper

TABLE OF CONTENTS

LIST OF FIGURES
(Following Text)

LIST OF TABLES
(Following Text)

LIST OF APPENDICES

1.0 INTRODUCTION

On behalf of Mr. John Nady, Conestoga-Rovers, and Associates (CRA) is submitting this report titled *Offsite Sub-Slab Vapor Probe Installation and Sampling at 1164 Ocean Avenue, Oakland, California*. Based on conditions encountered beneath the subject site, Alameda County Environmental Health (ACEH) requested a vapor intrusion study at the property adjacent to the site, located at 1164 Ocean Avenue. Figure 1 is a site vicinity map indicating the Nady property location and Figure 2 shows 1164 Ocean directly south of the subject site. The agency was concerned about possible vapor intrusion into the building located on the north end of the Ocean Avenue property. Correspondence regarding this request is included in Appendix A.

CRA installed two sub-slab vapor probes (SSVPs) beneath the slab foundation of this building to test for chemical concentrations in soil gases directly beneath the foundation. CRA conducted this work in accordance with the *Workplan for Sub-Slab Vapor Probe Installation and Sampling at 1164 Ocean Avenue, Oakland, California*, dated June 9, 2011.

1.1 SUBJECT SITE BACKGROUND

Site Description

The subject site consists of a group of four buildings separated by narrow walkways and an outside parking area. The site includes the addresses 1137, 1145 and 1167 65th Street in Oakland. The building spaces are rented to artists and musicians. The surrounding area includes mixed residential, commercial and light industrial uses. A gasoline underground storage tank (UST) had been installed and operated in the southeastern section of the property and a heating-oil UST was located beneath the sidewalk in front of the site along 65th Street. The installation dates of these USTs are unknown, but they were removed in 1982 and 1998, respectively. Additionally, the facility was historically used for dry cleaning operations from approximately 1935 to 1978. Investigation results suggest that stoddard solvent was the primary chemical used for this operation, along with the halogenated volatile organic compound (HVOC) Tetrachloroethene (PCE). Stoddard solvent is composed of a suite of hydrocarbon chemicals ranging from C_7 through C_{12}.

The property at 1164 Ocean Avenue, where this investigation was conducted, is located adjacent to the subject site, on the south side of Peabody Lane. Peabody Lane runs parallel to 65th Street and Ocean Avenue, between the two streets. The property is developed with a house at the front and a two story structure at the north end of the lot. The two story structure is constructed with a slab-on-grade concrete foundation.

Site Ownership and Leasing

The subject property is owned by the Nady Trust. Individual units within the four buildings are rented or leased to individuals or companies. The Ocean Avenue property is owned by Ms. Gloria Lyons.

Current Site Use

The various units within the four buildings are used by musicians, artists and other artisans. The different spaces are used as studios, workshops and galleries. The property at 1164 Ocean Avenue is developed with two buildings. A house is located on the south end of the property adjacent to Ocean Avenue. A second building, located on the north end of the property, adjacent to Peabody Lane, operates as a daycare center on the first floor with a residential unit above.

1.2 SUBJECT SITE INFORMATION

Site Address	1137-1167 65th Street, Oakland, CA
Site Use	Various Commercial Operations
Client and Contact	John Nady, Trustee of the Nady Trust
Consultant and Contact	CRA, Robert Foss, P.G.
Lead Agency and Contact	ACEH, Ms. Barbara Jakub
ACEH Case No.	RO0000082

1.3 HISTORICAL CHEMICAL USE

On the subject site at 1137-1167 65th Street, a gasoline UST and overlying dispenser was located beneath the paved area east of the buildings. This UST appears to have stored and dispensed fuel for delivery vehicles operating from the site. This tank was removed in 1982. A heating oil tank located beneath the sidewalk just north of the building at 1145 65th Street was removed in 1998. Six underground storage tanks (USTs) and conveyance piping associated with stoddard solvent storage were previously in use at the subject site. Four of these six USTs are shown on Figure 2, and these are the four closest to the property at 1164 Ocean Avenue. In addition to stoddard solvent, two of these tanks contained PCE, another dry cleaning chemical. A liquid sample from each tank was collected and analyzed in September 2001 to profile the residual fluids for

removal and disposal. Five of the six tanks were removed in February 2002, while the sixth, UST #5, was abandoned in place with agency approval. Each sample contained varying ranges of petroleum hydrocarbons, with detections in the ranges of gasoline, naphtha and diesel. This hydrocarbon mix suggests primarily Stoddard solvent, the common dry cleaning fluid referenced above. PCE, along with its degradation products were also reported in the some of the samples collected from these USTs.

1.4 ENVIRONMENTAL SETTING

Regional and Local Geology

The site is located in the Coast Ranges Geomorphic Province of California. The origin of the local geology is apparently an alluvial fan interfacing with marine estuarine deposits.

Beneath surface materials (concrete or asphalt) and fill, investigations to date have shown subsurface soils to generally consist of interbedded layers of low permeability silts and clays; moderately permeable mixtures of sandy silt and clay; and higher permeable silty sand. The site is approximately 35 feet above mean sea level (ft msl) and local topography is generally flat. Groundwater flow is typically calculated toward the southwest, in the general direction of San Francisco Bay.

2.0 SUB-SLAB SOIL VAPOR PROBE INSTALLATION AND SAMPLING AT 1164 OCEAN AVENUE

The objective of this investigation was to obtain sub-slab soil vapor data from beneath the building foundation at 1164 Ocean Avenue. This property is located directly downgradient of the subject site. Concern regarding potential vapor intrusion into the building prompted ACEH to request an evaluation of risk associated with possible intrusion and accumulations of vapors in the building. Two SSVPs, labeled SSVP-10 and SSVP-11, were installed on February 9, 2012. Following guidance provided in the document, *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 which is provided in Appendix B), the probes were allowed a minimum of 24 hours for the cement to set prior to sampling. Samples were collected from the two probes on February 11, 2012. Locations and analytic results of the probes are shown on Figure 2. Tasks associated with this investigation are described below.

2.1 ACCESS AGREEMENT NEGOTIATIONS

On behalf of Mr. John Nady, CRA contacted the property owner of 1164 Ocean Avenue to request access to the property for installation and sampling of two SSVPs. CRA provided a draft access agreement, along with an introduction letter to the property owner, Ms. Gloria Lyons. After meeting with Mrs. Lyons to answer her questions and discuss probe locations, she signed the agreement to allow the installation and sampling of the SSVPs.

2.2 VAPOR PROBE INSTALLATION

CRA performed the installation and sampling of the two SSVPs following the guidance document referenced in the workplan and under the guidelines set forth in the site health and safety plan. ACEH approved the location of SSVP-10 in a December 14, 2011 letter and the location of SSVP-11 in a February 3, 2012 email. No permits were required for installation of the probes. CRA senior staff geologist Bryan Fong, working under the supervision of California Professional Geologist Robert Foss, PG No. 7445, directed the installation of SSVP-10 and SSVP-11 by Vapor Tech Services (VTS) of Berkeley, California (C57 #916085), on February 9, 2012.

Field work was conducted working under the Health & Safety Plan developed for onsite SSVP installation/sampling in April 2011 and modified based on site specific conditions. A rotary hammer drill was used to create a 1.5-inch diameter by 2-inch deep "outer" core that partially penetrated the concrete slab. A small vacuum cleaner was used to remove cuttings from the hole. Removal of cuttings in this manner from the 1.5-inch diameter boring did not compromise soil vapor samples because the boring had not penetrated the entire thickness of the concrete slab.

A 0.875-inch (7/8-inch) diameter "inner" core was drilled with the rotary hammer penetrating the remaining thickness of concrete and into the sub-slab material to a depth of approximately 6-inches below the slab.

The SSVPs were constructed using 1/4-inch diameter stainless-steel tubing attached to a 0.5-inch long stainless steel screened probe. Stainless-steel is used to ensure that construction materials do not provide a source of VOCs. A Swagelok valve/fitting was secured to the top of the stainless steel tube to facilitate sampling. The total depth of SSVP-10 was 10 inches below the top of the concrete slab. The screened probe was placed at 8-8.5 inches in depth. Sand was placed from 6-10 inches and dry, granular bentonite was placed from 4-6 inches. Three inches of quick-drying Portland cement

slurry was placed into the annular space between the probe and inner borehole. Construction of SSVP-11 differed slightly as the concrete slab was 3-iches thick so 5 inches of sand were placed in the boring. Two inches of bentonite and 2 inches of cement completed SSVP-11. Both probes were completed flush with the slab surface to prevent tripping hazards. A construction log of the two SSVPs is included as Appendix C.

2.3 VAPOR PROBE SAMPLING

In accordance with the installation and sampling guidance document referenced above, CRA returned to the site to sample SSVP-10 and SSVP-11 on February 11, 2012, approximately 48 hours after installation. One sample was collected from each probe, along with a duplicate sample from SSVP-10. Samples were collected in 1-liter 100 percent certified summa canisters provided by the laboratory. The sampling apparatus included a shroud with an atmosphere of helium as a leak check gas. The samples were labeled, logged on a chain-of-custody form, stored at ambient temperature, and shipped to Air Toxics LTD. of Folsom, California for analysis.

3.0 LABORATORY ANALYSES AND RESULTS

3.1 SAMPLE ANALYSES

The three vapor samples were analyzed for the following constituents:

- TPHss by EPA Method TO-3 (GC/FID)
- TPHg, Benzene, Toluene, Ethylbenzene, Xylenes, Tetrachloroethene, Trichloroethene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene and Vinyl Chloride by EPA Method TO-15 (GC/MS)
- Oxygen, Carbon Dioxide, Methane and Helium by Modified ASTM D-1946 (GC/FID or GC/TCD)

3.2 ANALYTIC RESULTS

No analytes were detected in sub-slab vapor samples from SSVP-10 or SSVP-11 at concentrations above RWQCB Residential Environmental Screening Levels (ESLs). SSVP-10 is located beneath the northern section of the building foundation and is the closer of the two probes to the subject site. SSVP-10 is located approximately 15 feet

laterally equidistant from both VW-7 and VW-8, located along Peabody Lane. SSVP-11 is located near the southern edge of the building in a location requested by the property owner and agreed to by ACEH. ESLs for detected compounds are presented on Table E in Appendix D. Sub-slab vapor probe sampling analytic results are included in Table 1 and on Figure 2. The laboratory reports of vapor sample analyses are included in Appendix E.

No helium was detected in any of the three samples, indicating that all connections and seals were tight and the samples are representative.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

The following conclusions are drawn from information gathered during the sub-slab vapor investigation conducted at 1164 Ocean Avenue:

- Sub-slab vapor samples results collected from beneath the building foundation suggest that there is no significant risk to human health from the potential intrusion of vapors into the building.
- Reported hydrocarbon and HVOC vapors beneath the 1164 Ocean Avenue building foundation decrease to near or below reporting limits with distance from the subject site.

4.2 RECOMMENDATIONS

The laboratory report of sub-slab soil vapor sample SSVP-10 indicates very low to non-detected concentrations of TPHss, TPHg, BTEX and HVOCs in the probe closest to the subject site. SSVP-11, approximately 35 feet further distant from the subject site, contained only TPHg and benzene, and these were at lower concentrations than in SSVP-10. Based on these data, CRA presents the following recommendations.

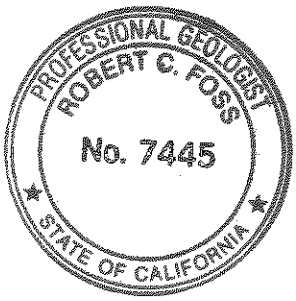
- Destruction of SSVP-10 and SSVP-11 based upon all vapor sample data having indicated that concentrations of chemicals of concern are at least an order of magnitude lower than ESLs, notwithstanding that the vapor intrusion investigation guidance document followed during this investigation recommends ordinarily collecting and analyzing a second set of sub-slab vapor samples.

Respectfully Submitted,
CONESTOGA-ROVERS & ASSOCIATES

Sarah Friesen for

Bryan Fong

Robert Foss



Robert Foss, P.G.

Conestoga-Rovers & Associates, Inc. (CRA) prepared this document for use by our client and appropriate regulatory agencies. It is based partially on information available to CRA from outside sources and/or in the public domain, and partially on information supplied by CRA and its subcontractors. CRA makes no warranty or guarantee, expressed or implied, included or intended in this document, with respect to the accuracy of information obtained from these outside sources or the public domain, or any conclusions or recommendations based on information that was not independently verified by CRA. This document represents the best professional judgment of CRA. None of the work performed hereunder constitutes or shall be represented as a legal opinion of any kind or nature.

I declare under penalty of perjury that the information and/or recommendations contained in this document are true and correct to the best of my knowledge.

Nady Trust U/D/T dated 1/21/1997

John Nady

John Nady, trustee

FIGURES

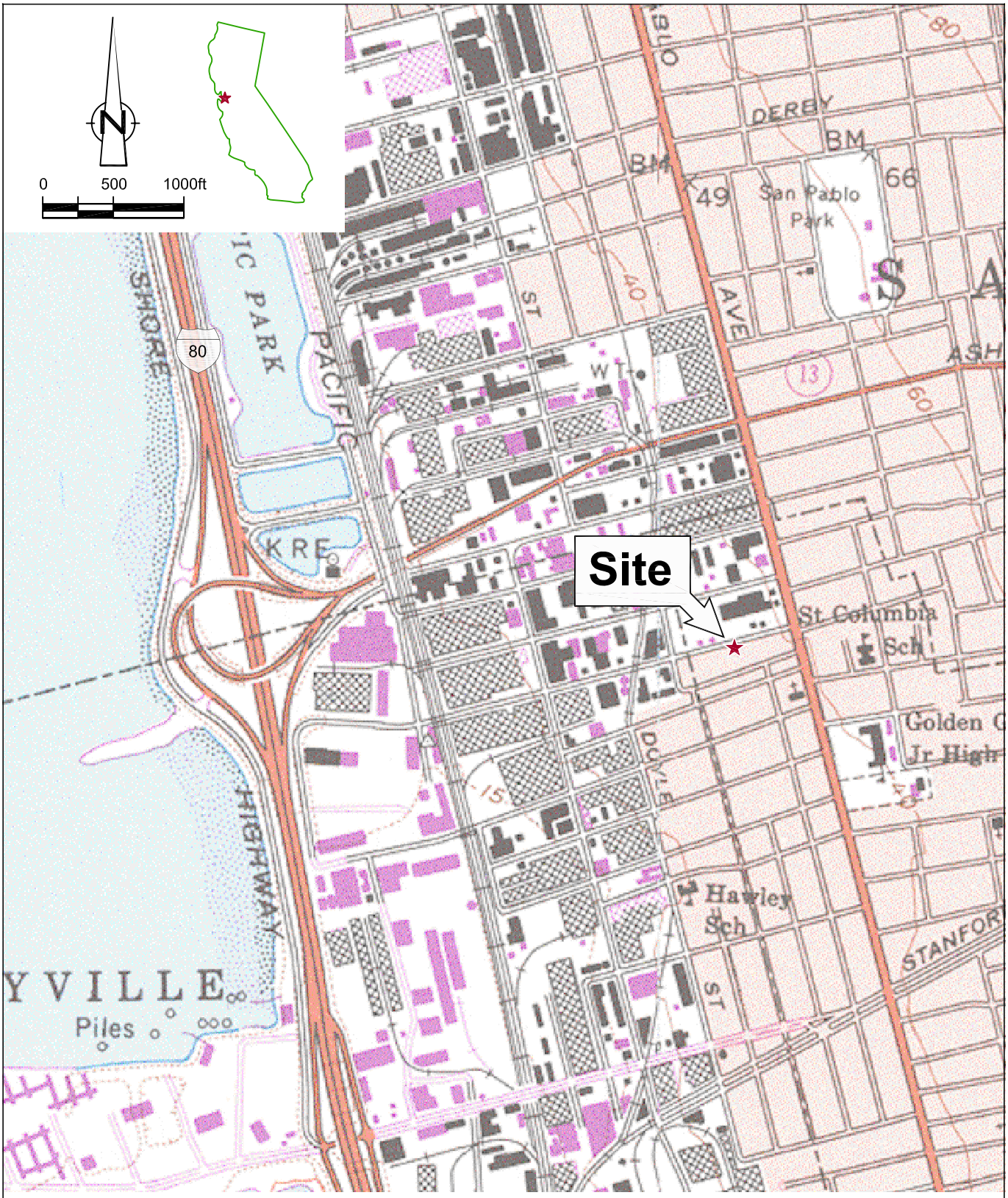
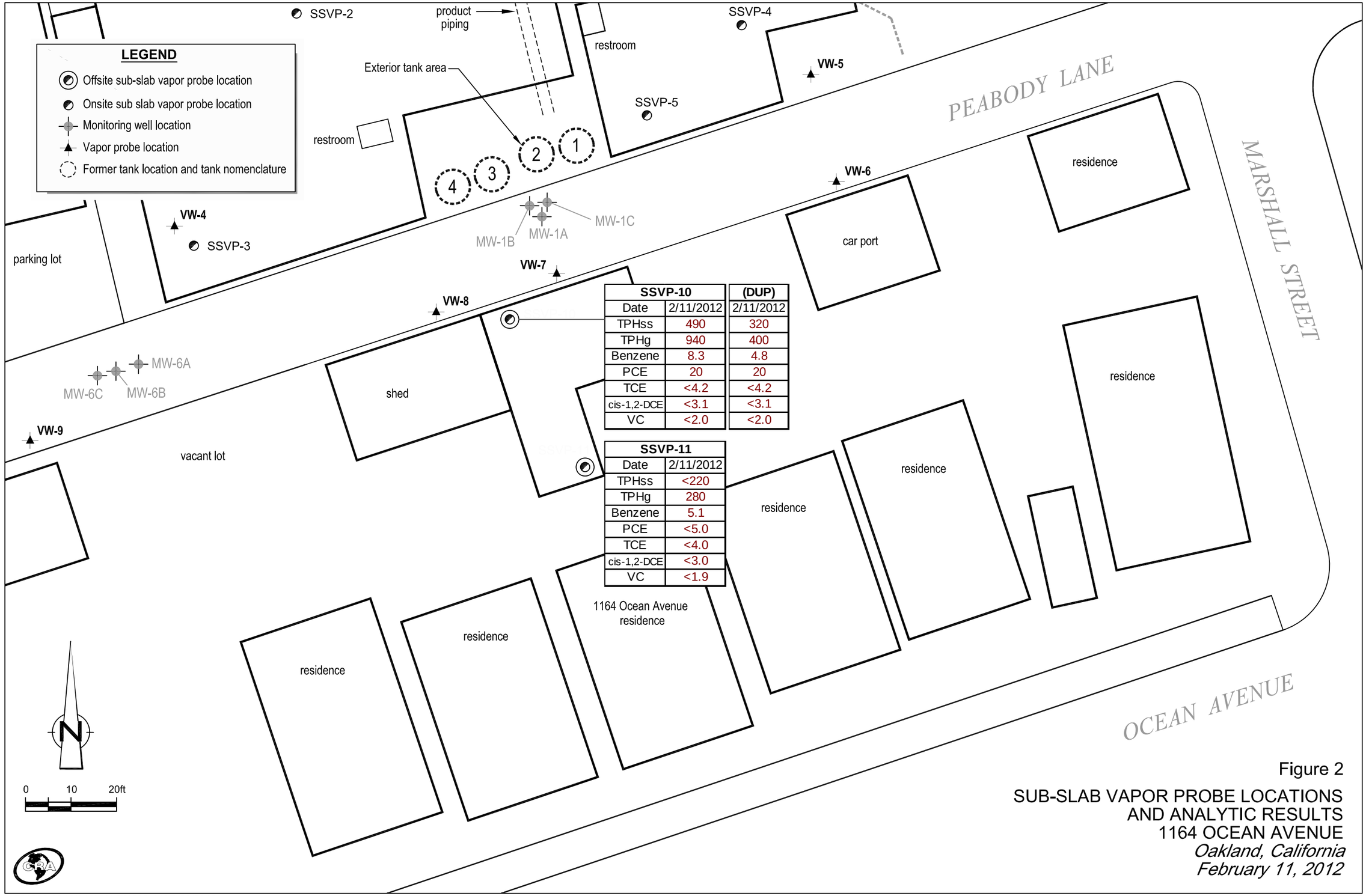


Figure 1

VICINITY MAP

1137-1167 65th STREET

Oakland, California



SSVP-10		(DUP)
Date	2/11/2012	2/11/2012
TPHss	490	320
TPHg	940	400
Benzene	8.3	4.8
PCE	20	20
TCE	<4.2	<4.2
cis-1,2-DCE	<3.1	<3.1
VC	<2.0	<2.0

SSVP-11	
Date	2/11/2012
TPHss	<220
TPHg	280
Benzene	5.1
PCE	<5.0
TCE	<4.0
cis-1,2-DCE	<3.0
VC	<1.9

Figure 2

SUB-SLAB VAPOR PROBE LOCATIONS
AND ANALYTIC RESULTS
1164 OCEAN AVENUE
Oakland, California
February 11, 2012

521000-2012(018)GN-EM002 MAR 20/2012

TABLE

TABLE 1

SUB-SLAB SOIL VAPOR ANALYTICAL DATA
FEBRUARY 2012
1164 OCEAN AVENUE
OAKLAND, CALIFORNIA

Sample ID	*Date Sampled*	*Sample Interval (fbg)*	*TPHss (ug/m^3)*	*TPHg (ug/m^3)*	*Benzene (ug/m^3)*	*Toluene (ug/m^3)*	*Ethylbenzene (ug/m^3)*	*m,p-Xylene (ug/m^3)*	*o-Xylene (ug/m^3)*	*PCE (ug/m^3)*	*TCE (ug/m^3)*	*cis-1,2-DCE (ug/m3)*	*trans-1,2-DCE (ug/m3)*	*Vinyl Chloride (ug/m3)*	*Oxygen (%)*	*Methane (%)*	*Carbon Dioxide (%)*	*Helium (%)*
RWQCB-Reg 2 Environmental Screening Level for Shallow Soil Gas (Commercial/Industrial Land Use) - Table E [1]			29,000	29,000	280	180,000	3,300	58,000	58,000	1,400	4,100	20,000	41,000	100				
RWQCB-Reg 2 Environmental Screening Level for Shallow Soil Gas (Residential Land Use) - Table E [1]			10,000	10,000	84	63,000	980	21,000	21,000	410	1,200	7,300	15,000	31				
SSVP-10	**2/11/2012**	**0.75-0.80**	**490**	**940**	**8.3**	**15**	**<3.4**	**7.7**	**3.6**	**20**	**<4.2**	**<3.1**	**<3.1**	**<2.0**	**20.0**	**<0.00017**	**0.031**	**<0.084**
SSVP-10-Dup (field)	**2/11/2012**	**0.75-0.80**	**320**	**400**	**4.8**	**3.9**	**<3.4**	**4.4**	**<3.4**	**20**	**<4.2**	**<3.1**	**<3.1**	**<2.0**	**21.0**	**<0.00016**	**0.061**	**<0.078**
SSVP-11	**2/11/2012**	**0.75-0.80**	**<220**	**280**	**5.1**	**<2.8**	**<3.2**	**<3.2**	**<3.2**	**<5.0**	**<4.0**	**<3.0**	**<3.0**	**<1.9**	**21.0**	**<0.00015**	**0.10**	**<0.074**

Abbreviations and Analyses:

1 = Table E, *Screening for Environmmental Concerns at Sites with Contaminated Soil and Groundwater* , RWQCB-SFBR, INTERIM FINAL - November 2007 (Revised May 2008)

<n = Not dectected (ND) above laboratory detection limit, n.

ug/m^3 = Microgram per cubic meter.

% = Percent

ft = Measured in feet

TPHss by EPA Method TO-3

TPHg, Benzene, Toluene, Ethylbenzene, m,p&o-Xylenes and five HVOCs by modified EPA Method TO-15

Oxygen, Methane, Carbon Dioxide, Helium by ASTM D-1946

APPENDIX A

REGULATORY CORRESPONDENCE

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Director

ENVIRONMENTAL HEALTH DEPARTMENT
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

December 14, 2011

Mr. John Nady
Nady Systems
11 Glen Alpine Road
Piedmont, CA 94611

Subject: Work Plan Approval for Fuel Leak Case No. RO0000082 and Geotracker Global ID T0600138389, Nady System Inc., 1137 65th St., Oakland, CA 94608

Dear Mr. Nady:

Thank you for the recently submitted documents entitled, *Workplan for Sub-Slab Vapor Probe Installation and Sampling at 1164 Ocean Avenue, Oakland, California* dated June 9, 2011, *Site Conceptual Model, Sub-Slab Vapor Probe Installation and Additional Site Characterization Report* dated June 17, 2011, *Addendum to Workplan for Sub-Slab Vapor Probe Installation and Sampling* dated July 29, 2011, and *Proposed Locations of Sub-Slab Vapor Probes at 1164 Ocean Avenue, Oakland, California* dated December 5, 2011 which were prepared by Conestoga-Rovers & Associates (CRA) for the subject site. Alameda County Environmental Health (ACEH) staff has reviewed the case file including the above-mentioned report and work plans. The work plan proposes sub-slab sampling at 1164 Ocean Avenue and the Addendum proposes resampling sub-slab vapor probe, SSVP-2 since analytical results for tetracholoroethylene (PCE) are above the environmental screening level for commercial land use.

ACEH generally concurs with the proposed scope of work and requests that you address the following technical comments, perform the proposed work, and send us the technical reports described below.

TECHNICAL COMMENTS

1. **Sub-Slab Soil Vapor Sampling at 1164 Ocean Avenue** – ACEH concurs with the proposed modified location SSVP-10 but would prefer the location of SSVP-11B rather than SSVP-11A for the sub-slab sampling at the daycare facility at 1164 Ocean Avenue. Report the results by the date requested below.

2. **Sub-Slab Soil Vapor Sampling** – In accordance with established protocols for soil vapor sampling, ACEH requests that you perform an additional sub-slab vapor sampling event from all of the installed sub-slab vapor points. Concentrations can vary due to depths to water, atmospheric pressures, and a number of other variables that can occur throughout the year

and the current Environmental Protection Agency recommendation to gather multiple lines of evidence includes vapor sampling at various times throughout the year. Since you collected samples at the beginning of May, please collect a second round at each point in the winter months. Please report the results in the report requested below.

NOTIFICATION OF FIELDWORK ACTIVITIES

Please schedule the fieldwork activities and provide ACEH with at least three (3) business days notification (preferably by e-mail) prior to conducting the fieldwork.

TECHNICAL REPORT REQUEST

Please submit technical reports to ACEH (Attention: Barbara Jakub), according to the following schedule:

- **March 15, 2012** – Soil Vapor Investigation Report

Thank you for your cooperation. Should you have any questions or concerns regarding this correspondence or your case, please call me at (510) 639-1287 or send me an electronic mail message at barbara.jakub@acgov.org.

Sincerely,

Digitally signed by Barbara J. Jakub
DN: cn=Barbara J. Jakub, o, ou, email=barbara.jakub@acgov.org, c=US
Date: 2011.12.14 15:32:46 -08'00'

Barbara J. Jakub, P.G.
Hazardous Materials Specialist

Enclosure: Responsible Party(ies) Legal Requirements/Obligations
ACEH Electronic Report Upload (ftp) Instructions

cc: Bob Foss, Conestoga-Rovers & Associates, 5900 Hollis St, Suite A, Emeryville, CA (via e-mail: bfoss@craworld.com)
Frederick Shrag, 6701 Shellmound Street, Emeryville, CA 94608 (via e-mail: schrag@nady.com)
Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032 (*Sent via E-mail to: lgriffin@oaklandnet.com*)
Donna Drogos, ACEH (*Sent via E-mail to: donna.drogos@acgov.org*)
Barbara Jakub, ACEH (*Sent via E-mail to: barbara.jakub@acgov.org*)
GeoTracker, File

Responsible Party(ies) Legal Requirements/Obligations

REPORT REQUESTS

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/electronic_submittal/report_rqmts.shtml.

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.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

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.

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**REVISION DATE:** July 20, 2010
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

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

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**.
- 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)

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 deh.loptoxic@acgov.org
   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, Safari, and Firefox browsers will not open the FTP site.
   b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
   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 deh.loptoxic@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 @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) If site is a new case without an RO#, use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

From: Jakub, Barbara, Env. Health [barbara.jakub@acgov.org]
Sent: Friday, February 03, 2012 3:01 PM
To: Foss, Bob (Robert)
Cc: schrag@nady.com
Subject: RE: Request to relocate installation of sub-slab vapor probe at 1164 Ocean Ave, Oakland (ACEH Case No. RO0000082)

Dear Messrs. Schrag and Foss,

I approve your proposed relocation of the vapor point SSVP-11 to a location that will can be more easily covered rather than the middle of the room (as requested by the property owner). I also approve an extension until April 13, 2012 for the report.

Regards,
Barb Jakub

From: Foss, Bob (Robert) [mailto:bfoss@craworld.com]
Sent: Friday, February 03, 2012 1:50 PM
To: Jakub, Barbara, Env. Health
Cc: schrag@nady.com
Subject: Request to relocate installation of sub-slab vapor probe at 1164 Ocean Ave, Oakland (ACEH Case No. RO0000082)

Barbara:

Per our conversation, this email is submitted to acquire your approval for installation of SSVP-11 in the location designated as SSVP-11B, in the southeastern area of the concrete slab foundation of the building at the rear of 1164 Ocean Avenue in Oakland. The attached figure illustrates this location. The two probes are being installed to fulfill your request for investigation of the potential for vapor accumulations beneath this building. The property owner has expressed her concern that attempting to remove a linoleum tile to install the probe may result in damage to that tile. She has advised us that she does not have any extra tiles to replace the removed one if it is damaged during removal or reinstallation. Out of concern for her floor, we make this request to install the probe in a location that can be covered by furniture or a rug.

As we discussed, the installation of these probes is scheduled for February 9. We did, however, coordinate sampling for Feb 11 rather than the following Saturday, February 18. Sampling of the nine SSVPs on the subject site of 1137-1167 65th Street will occur during the week of February 13-17.

Your December 14, 2011 letter proposed a submittal date of March 15, 2012 for the Soil Vapor Investigation Report. Due to issues resulting in the delay of SSVP installation, and based on our conversation, we request a revised report submittal date of April 13.

Please provide your concurrence with these requests via an email reply. If you have any questions or additional comments, please feel free to contact me either by email or at the phone number(s) below.

Thanks you.

Bob Foss

Robert C. Foss, P.G.
Conestoga-Rovers & Associates (CRA)
5900 Hollis Street, Suite A
Emeryville, CA 94608
(510) 420-3348 office
(925) 413-8707 cell
(510) 420-9170 fax

APPENDIX B

STANDARD FIELD PROCEDURES

Draft

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

Dominic DiGiulio, Ph.D.
U.S. Environmental Protection Agency
Office of Research and Development
National Risk Management Research Laboratory
Ground-Water and Ecosystem Restoration Division
Ada, Oklahoma

phone: 580-436-8605
e-mail: digiulio.dominic@epa.gov

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

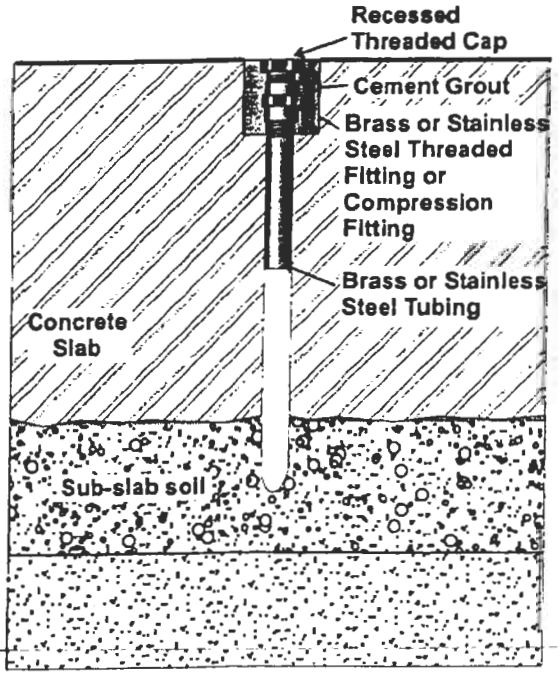


Figure 3. General schematic of sub-slab vapor probe

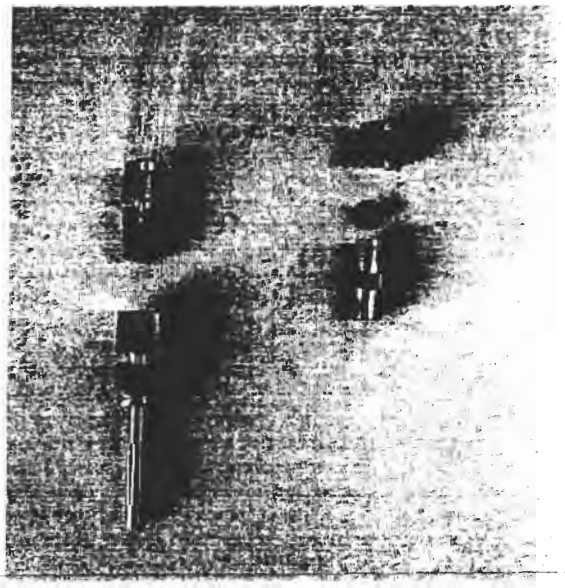


Figure 4. Stainless steel sub-slab vapor probe components

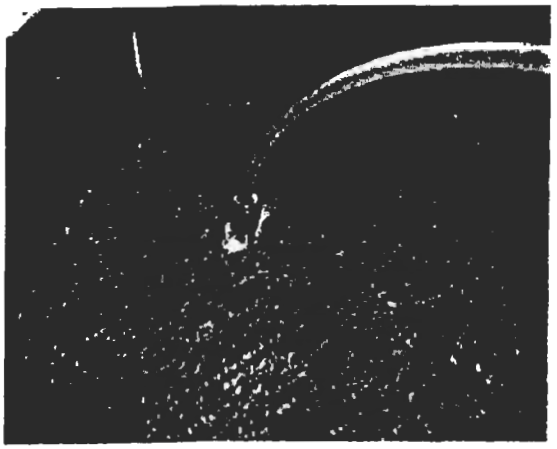


Figure 7. Compression fitting to probe

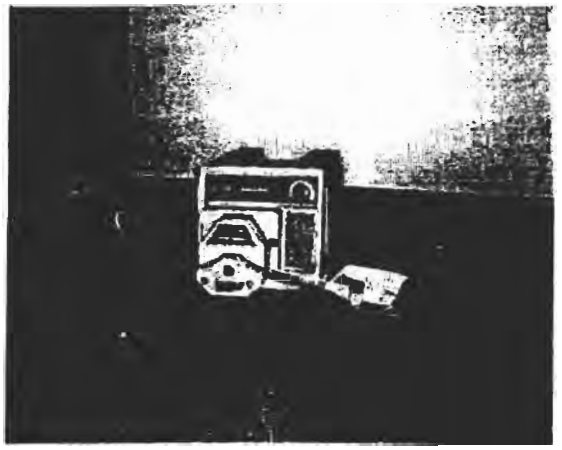


Figure 8. Purge prior to sampling

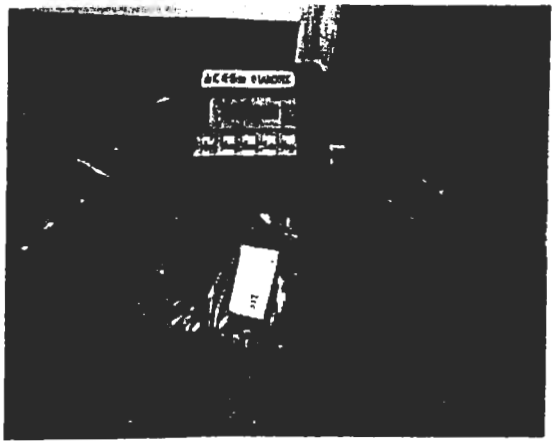


Figure 9. Analysis of O2, CO2, and CH4

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

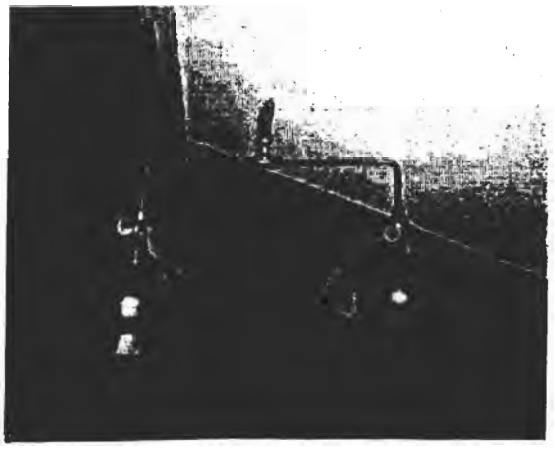


Figure 11. Collection of duplicate sample

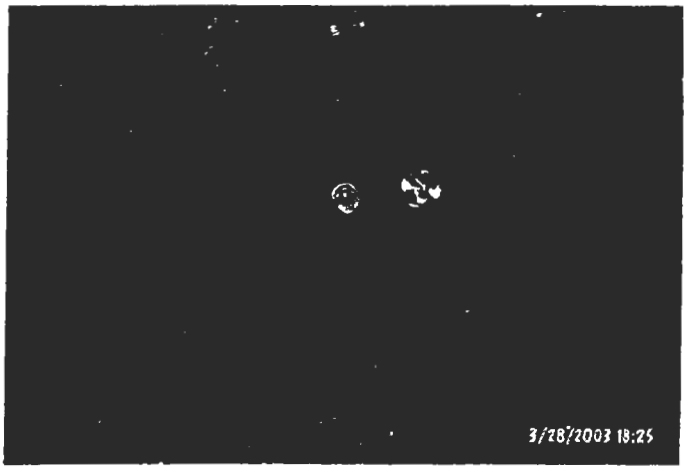


Figure 5. Competed vapor probe installation

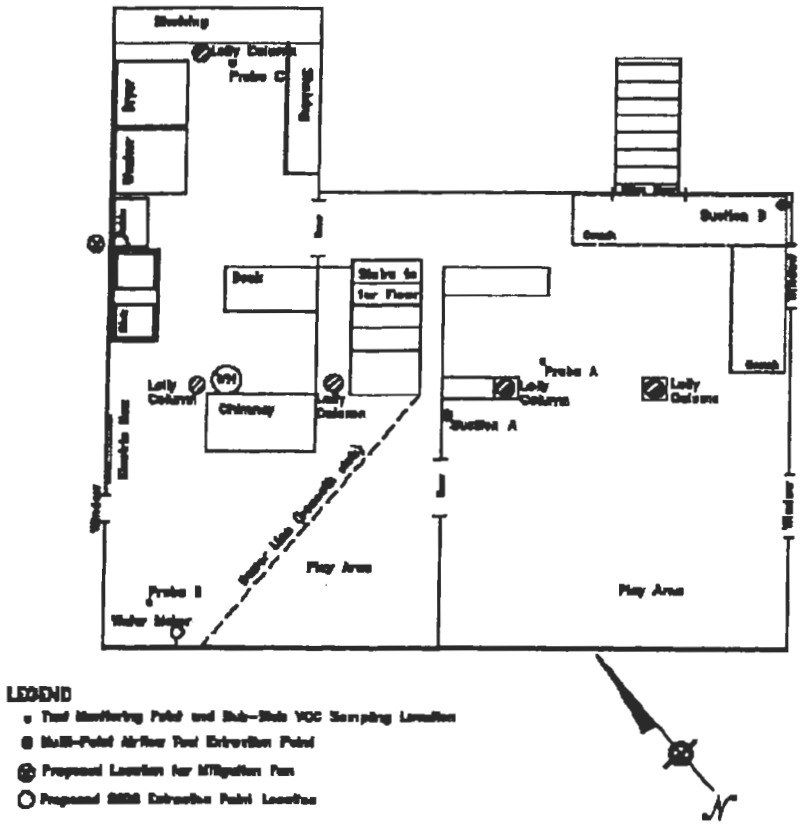


Figure 6. Schematic illustration location of vapor probes in a basement

APPENDIX C

SUB-SLAB SOIL VAPOR PROBE CONSTRUCTION LOGS

Conestoga Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608
Telephone: 510-420-0700
Fax: 510-420-9170

BORING / WELL LOG

CLIENT NAME	John Nady	**BORING/WELL NAME**	SSVP-10
JOB/SITE NAME	Nady Trust	**DRILLING STARTED**	09-Feb-12
LOCATION	1137-1167 65th Street, Oakland, California	**DRILLING COMPLETED**	09-Feb-12
PROJECT NUMBER	521000	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Vapor Tech Services	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Rotohammer	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	1.5 inches	**SCREENED INTERVALS**	0.67 to 0.71 fbg
LOGGED BY	B. Fong	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Boring depth 10 inches		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							CONCRETE: (4 inches thick)	0.3	Anchoring Cement; 1/4" Stainless Steel Tubing
							ENGINEERED FILL	0.8	Dry Granular Bentonite; Monterey Sand #2/12; 1/2" Stainless Steel Screened Probe
							1/2" length Stainless Steel Screened Probe 1/4" diameter Stainless Steel Tube Monterey #2/12 sand Dry Granular Bentonite Anchoring Cement		Bottom of Boring @ 0.83 fbg

WELL LOG (PID) I:\IR\6-CHARS\5210--\521000--1\52BBE5--1\521000-GINT.GPJ DEFAULT.GDT 3/22/12

Conestoga Rovers & Associates
5900 Hollis Street, Suite A
Emeryville, CA 94608
Telephone: 510-420-0700
Fax: 510-420-9170

BORING / WELL LOG

CLIENT NAME	John Nady	**BORING/WELL NAME**	SSVP-11
JOB/SITE NAME	Nady Trust	**DRILLING STARTED**	09-Feb-12
LOCATION	1137-1167 65th Street, Oakland, California	**DRILLING COMPLETED**	09-Feb-12
PROJECT NUMBER	521000	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Vapor Tech Services	**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Rotohammer	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	1.5 inches	**SCREENED INTERVALS**	0.67 to 0.71 fbg
LOGGED BY	B. Fong	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Foss, PG #7445	**DEPTH TO WATER (Static)**	NA
REMARKS	Boring depth 10 inches		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							CONCRETE: (3 inches thick)		Anchoring Cement
								0.3	1/4" Stainless Steel Tubing
							ENGINEERED FILL		Dry Granular Bentonite
									Monterey Sand #2/12
									1/2" Stainless Steel Screened Probe
								0.8	Bottom of Boring @ 0.83 fbg
							1/2" length Stainless Steel Screened Probe 1/4" diameter Stainless Steel Tube Monterey #2/12 sand Dry Granular Bentonite Anchoring Cement		

APPENDIX D

TABLE E - ENVIRONMENTAL SCREENING LEVELS FOR VAPOR INTRUSION CONCERNS

RWQCB-SFBR - SCREENING FOR ENVIRONMENTAL CONCERNS AT SITES WITH CONTAMINATED SOIL AND GROUNDWATER, INTERIM FINAL – NOVEMBER 2007 (REVISED MAY 2008)

Table E. Environmental Screening Levels (ESLs)
Indoor Air and Soil Gas
(Vapor Intrusion Concerns)

	Indoor Air Screening Levels		[2]Shallow Soil Gas Screening Levels	
Chemical	[1]Residential Land Use ($\mu g/m^3$)	Commercial/ Industrial Land Use Only ($\mu g/m^3$)	[1]Residential Land Use ($\mu g/m^3$)	Commercial/ Industrial Land Use Only ($\mu g/m^3$)
Acenaphthene	4.4E+01	6.1E+01	4.4E+04	1.2E+05
Acenaphthylene	2.2E+01	3.1E+01	2.2E+04	6.1E+04
Acetone	6.6E+02	9.2E+02	6.6E+05	1.8E+06
Aldrin				
Anthracene	2.2E+02	3.1E+02	2.2E+05	6.1E+05
Antimony				
Arsenic				
Barium				
Benzene	8.4E-02	1.4E-01	8.4E+01	2.8E+02
Benzo(a)anthracene				
Benzo(b)fluoranthene				
Benzo(k)fluoranthene				
Benzo(g,h,i)perylene				
Benzo(a)pyrene				
Beryllium				
1,1-Biphenyl				
Bis(2-chloroethyl) ether	7.4E-03	1.2E-02	7.4E+00	2.5E+01
Bis(2-chloroisopropyl) ether	3.4E-03	5.8E-03	3.4E+00	1.2E+01
Bis(2-ethylhexyl) phthalate				
Boron				
Bromodichloromethane	1.4E-01	2.3E-01	1.4E+02	4.6E+02
Bromoform (Tribromomethane)				
Bromomethane	1.0E+00	1.5E+00	1.0E+03	2.9E+03
Cadmium				
Carbon tetrachloride	1.9E-02	3.1E-02	1.9E+01	6.3E+01
Chlordane				
p-Chloroaniline				
Chlorobenzene	2.1E+02	2.9E+02	2.1E+05	5.8E+05
Chloroethane	2.1E+01	2.9E+01	2.1E+04	5.8E+04
Chloroform	4.6E-01	7.7E-01	4.6E+02	1.5E+03
Chloromethane	1.9E+01	2.6E+01	1.9E+04	5.3E+04
2-Chlorophenol	3.7E+00	5.1E+00	3.7E+03	1.0E+04
Chromium (total)				
Chromium III				
Chromium VI				
Chrysene				
Cobalt				
Copper				
Cyanide	1.5E+01	2.0E+01	1.5E+04	4.1E+04
Dibenz(a,h)anthracene				
Dibromochloromethane				
1,2-dibromo-3-chloropropane	1.3E-03	2.2E-03	1.3E+00	4.3E+00
1,2-Dibromoethane	4.1E-03	6.8E-03	4.1E+00	1.4E+01
1,2-Dichlorobenzene	4.2E+01	5.8E+01	4.2E+04	1.2E+05

Table E. Environmental Screening Levels (ESLs)
Indoor Air and Soil Gas
(Vapor Intrusion Concerns)

	Indoor Air Screening Levels		[2]Shallow Soil Gas Screening Levels	
Chemical	[1]Residential Land Use ($\mu g/m^3$)	Commercial/ Industrial Land Use Only ($\mu g/m^3$)	[1]Residential Land Use ($\mu g/m^3$)	Commercial/ Industrial Land Use Only ($\mu g/m^3$)
1,3-Dichlorobenzene	2.2E+01	3.1E+01	2.2E+04	6.1E+04
1,4-Dichlorobenzene	2.2E-01	3.7E-01	2.2E+02	7.4E+02
3,3-Dichlorobenzidine				
Dichlorodiphenyldichloroethane (DDD)				
Dichlorodiphenyldichloroethene (DDE)				
Dichlorodiphenyltrichloroethane (DDT)				
1,1-Dichloroethane	1.5E+00	2.6E+00	1.5E+03	5.1E+03
1,2-Dichloroethane	9.4E-02	1.6E-01	9.4E+01	3.1E+02
1,1-Dichloroethene	4.2E+01	5.8E+01	4.2E+04	1.2E+05
cis-1,2-Dichloroethene	7.3E+00	1.0E+01	7.3E+03	2.0E+04
trans-1,2-Dichloroethene	1.5E+01	2.0E+01	1.5E+04	4.1E+04
2,4-Dichlorophenol				
1,2-Dichloropropane	2.4E-01	4.1E-01	2.4E+02	8.2E+02
1,3-Dichloropropene	1.5E-01	2.6E-01	1.5E+02	5.1E+02
Dieldrin				
Diethyl phthalate				
Dimethyl phthalate				
2,4-Dimethylphenol				
2,4-Dinitrophenol				
2,4-Dinitrotoluene				
1,4-Dioxane				
Dioxin (2,3,7,8-TCDD)				
Endosulfan				
Endrin				
Ethylbenzene	9.8E-01	1.6E+00	9.8E+02	3.3E+03
Fluoranthene				
Fluorene	2.9E+01	4.1E+01	2.9E+04	8.2E+04
Heptachlor				
Heptachlor epoxide				
Hexachlorobenzene				
Hexachlorobutadiene				
γ-Hexachlorocyclohexane (Lindane)				
Hexachloroethane				
Indeno(1,2,3-c,d)pyrene				
Lead				
Mercury (elemental)	1.9E-02	2.6E-02	1.9E+01	5.3E+01
Methoxychlor				
Methylene chloride	5.2E+00	8.7E+00	5.2E+03	1.7E+04
Methyl ethyl ketone	1.0E+03	1.5E+03	1.0E+06	2.9E+06
Methyl isobutyl ketone	6.3E+02	8.8E+02	6.3E+05	1.8E+06
Methyl mercury				
2-Methylnaphthalene				
tert-Butyl methyl ether	9.4E+00	1.6E+01	9.4E+03	3.1E+04
Molybdenum				

Table E. Environmental Screening Levels (ESLs)
Indoor Air and Soil Gas
(Vapor Intrusion Concerns)

Chemical	Indoor Air Screening Levels		[2]Shallow Soil Gas Screening Levels	
	[1]Residential Land Use ($\mu g/m^3$)	Commercial/ Industrial Land Use Only ($\mu g/m^3$)	[1]Residential Land Use ($\mu g/m^3$)	Commercial/ Industrial Land Use Only ($\mu g/m^3$)
Naphthalene	7.2E-02	1.2E-01	7.2E+01	2.4E+02
Nickel				
Pentachlorophenol				
Perchlorate				
Phenanthrene	2.2E+01	3.1E+01	2.2E+04	6.1E+04
Phenol				
Polychlorinated biphenyls (PCBs)				
Pyrene	2.2E+01	3.1E+01	2.2E+04	6.1E+04
Selenium				
Silver				
Styrene	1.9E+02	2.6E+02	1.9E+05	5.3E+05
tert-Butyl alcohol				
1,1,1,2-Tetrachloroethane	3.2E-01	5.4E-01	3.2E+02	1.1E+03
1,1,2,2-Tetrachloroethane	4.2E-02	7.0E-02	4.2E+01	1.4E+02
Tetrachloroethene	4.1E-01	6.9E-01	4.1E+02	1.4E+03
Thallium				
Toluene	6.3E+01	8.8E+01	6.3E+04	1.8E+05
Toxaphene				
TPH (gasolines)	1.0E+01	1.4E+01	1.0E+04	2.9E+04
TPH (middle distillates)	1.0E+01	1.4E+01	1.0E+04	2.9E+04
TPH (residual fuels)				
1,2,4-Trichlorobenzene	8.3E-01	1.2E+00	8.3E+02	2.3E+03
1,1,1-Trichloroethane	4.6E+02	6.4E+02	4.6E+05	1.3E+06
1,1,2-Trichloroethane	1.5E-01	2.6E-01	1.5E+02	5.1E+02
Trichloroethene	1.2E+00	2.0E+00	1.2E+03	4.1E+03
2,4,5-Trichlorophenol	7.3E+01	1.0E+02	7.3E+04	2.0E+05
2,4,6-Trichlorophenol				
Vanadium				
Vinyl chloride	3.1E-02	5.2E-02	3.1E+01	1.0E+02
Xylenes	2.1E+01	2.9E+01	2.1E+04	5.8E+04
Zinc				

Notes:

1. Category "Residential Land Use" generally considered adequate for other sensitive uses (e.g., day-care centers, hospitals, etc.)
2. Soil Gas: Screening levels based on soil gas data collected below a building or the ground surface. Intended for evaluation of potential indoor-air impacts.

Soil gas data should be collected and evaluated at all sites with significant areas of VOC-contaminated soil. Screening levels also apply to areas over contaminated groundwater.

TPH -Total Petroleum Hydrocarbons. TPH ESLs must be used in conjunction with ESLs for related chemicals (e.g., BTEX, PAHs, oxidizers, etc.).

APPENDIX E

LABORATORY ANALYTICAL REPORTS

2/29/2012
Mr. Bob Foss
Conestoga-Rovers Associates (CRA)
5900 Hollis Street
Suite A
Emeryville CA 94608

Project Name: Nady
Project #: 521000
Workorder #: 1202374C

Dear Mr. Bob Foss

The following report includes the data for the above referenced project for sample(s) received on 2/16/2012 at Air Toxics Ltd.

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

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

Regards,

Kyle Vagadori

Project Manager

Air Toxics LTD.
Laboratory Services Since 1989

WORK ORDER #: 1202374C

Work Order Summary

CLIENT:	Mr. Bob Foss Conestoga-Rovers Associates (CRA) 5900 Hollis Street Suite A Emeryville, CA 94608	**BILL TO:**	Belew Yifru Conestoga-Rovers Associates (CRA) 5900 Hollis Street Suite A Emeryville, CA 94608
PHONE:	510-420-0700	**P.O. #**	521000-356
FAX:	510-420-9170	**PROJECT #**	521000 Nady
DATE RECEIVED:	02/16/2012	**CONTACT:**	Kyle Vagadori
DATE COMPLETED:	02/29/2012		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
02A	SSVP-10	Modified ASTM D-1946	6.0 "Hg	5 psi
04A	SSVP-10-Dup	Modified ASTM D-1946	4.0 "Hg	5 psi
06A	SSVP-11	Modified ASTM D-1946	3.0 "Hg	5 psi
07A	Lab Blank	Modified ASTM D-1946	NA	NA
07B	Lab Blank	Modified ASTM D-1946	NA	NA
08A	LCS	Modified ASTM D-1946	NA	NA
08AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Linda D. Fruman DATE: 02/29/12

Laboratory Director

Certfication numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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# 1202374C

Three 1 Liter Summa Canister (100% Certified) samples were received on February 16, 2012. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

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

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

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

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

Air Toxics LTD.
Laboratory Services Since 1989

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

Client Sample ID: SSVP-10

Lab ID#: 1202374C-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.17	20
Carbon Dioxide	0.017	0.031

Client Sample ID: SSVP-10-Dup

Lab ID#: 1202374C-04A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.16	21
Carbon Dioxide	0.016	0.061

Client Sample ID: SSVP-11

Lab ID#: 1202374C-06A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.15	21
Carbon Dioxide	0.015	0.10

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: SSVP-10

Lab ID#: 1202374C-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021620**	**Date of Collection: 2/11/12 5:35:00 AM**	
Dil. Factor:	**1.68**	**Date of Analysis: 2/16/12 06:31 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.17	20
Methane	0.00017	Not Detected
Carbon Dioxide	0.017	0.031
Helium	0.084	Not Detected

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

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: SSVP-10-Dup

Lab ID#: 1202374C-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021621**	**Date of Collection: 2/11/12 6:14:00 AM**	
Dil. Factor:	**1.55**	**Date of Analysis: 2/16/12 07:02 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.16	21
Methane	0.00016	Not Detected
Carbon Dioxide	0.016	0.061
Helium	0.078	Not Detected

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

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: SSVP-11

Lab ID#: 1202374C-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021622**	**Date of Collection: 2/11/12 6:35:00 AM**	
Dil. Factor:	**1.49**	**Date of Analysis: 2/16/12 07:29 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.15	21
Methane	0.00015	Not Detected
Carbon Dioxide	0.015	0.10
Helium	0.074	Not Detected

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

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1202374C-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021604**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/16/12 09:53 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1202374C-07B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021603b**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/16/12 09:30 AM**	

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

Container Type: NA - Not Applicable

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1202374C-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021602**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/16/12 08:45 AM**	

Compound	%Recovery
Oxygen	100
Methane	99
Carbon Dioxide	100
Helium	93

Container Type: NA - Not Applicable

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCSD

Lab ID#: 1202374C-08AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021623**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/16/12 07:54 PM**	

Compound	%Recovery
Oxygen	100
Methane	99
Carbon Dioxide	100
Helium	94

Container Type: NA - Not Applicable

Air Toxics LTD.
Laboratory Services Since 1989

3/1/2012
Mr. Bob Foss
Conestoga-Rovers Associates (CRA)
5900 Hollis Street
Suite A
Emeryville CA 94608

Project Name: Nady
Project #: 521000
Workorder #: 1202374BR1

Dear Mr. Bob Foss

The following report includes the data for the above referenced project for sample(s) received on 2/16/2012 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 your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kyle Vagadori at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kyle Vagadori

Project Manager

Air Toxics LTD.
Laboratory Services Since 1989

WORK ORDER #: 1202374BR1

Work Order Summary

CLIENT:	Mr. Bob Foss Conestoga-Rovers Associates (CRA) 5900 Hollis Street Suite A Emeryville, CA 94608	**BILL TO:**	Belew Yifru Conestoga-Rovers Associates (CRA) 5900 Hollis Street Suite A Emeryville, CA 94608
PHONE:	510-420-0700	**P.O. #**	521000-356
FAX:	510-420-9170	**PROJECT #**	521000 Nady
DATE RECEIVED:	02/16/2012	**CONTACT:**	Kyle Vagadori
DATE COMPLETED:	02/29/2012		
DATE REISSUED:	03/01/2012		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
02A	SSVP-10	Modified TO-3	6.0 "Hg	5 psi
04A	SSVP-10-Dup	Modified TO-3	4.0 "Hg	5 psi
06A	SSVP-11	Modified TO-3	3.0 "Hg	5 psi
07A	Lab Blank	Modified TO-3	NA	NA
08A	LCS	Modified TO-3	NA	NA
08AA	LCSD	Modified TO-3	NA	NA

CERTIFIED BY: Linda J. Fruman DATE: 03/01/12

Laboratory Director

Certfication numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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# 1202374BR1

Three 1 Liter Summa Canister (100% Certified) samples were received on February 16, 2012. 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.

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

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

THE WORKORDER WAS REISSUED ON 3/1/12 TO REPORT RESULTS IN PPBV AND UG/M3.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Air Toxics LTD.
Laboratory Services Since 1989

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

Client Sample ID: SSVP-10

Lab ID#: 1202374BR1-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Stoddard Solvent	42	84	240	490

Client Sample ID: SSVP-10-Dup

Lab ID#: 1202374BR1-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Stoddard Solvent	39	54	220	320

Client Sample ID: SSVP-11

Lab ID#: 1202374BR1-06A

No Detections Were Found.

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: SSVP-10

Lab ID#: 1202374BR1-02A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**d022807**	**Date of Collection: 2/11/12 5:35:00 AM**	
Dil. Factor:	**1.68**	**Date of Analysis: 2/28/12 01:05 PM**	

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**	**Rpt. Limit (ug/m3)**	**Amount (ug/m3)**
Stoddard Solvent	42	84	240	490

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

Surrogates	**%Recovery**	**Method Limits**
Fluorobenzene (FID)	105	75-150

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: SSVP-10-Dup

Lab ID#: 1202374BR1-04A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**d022808**	**Date of Collection: 2/11/12 6:14:00 AM**	
Dil. Factor:	**1.55**	**Date of Analysis: 2/28/12 01:48 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Stoddard Solvent	39	54	220	320

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

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	100	75-150

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: SSVP-11

Lab ID#: 1202374BR1-06A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**d022809**	**Date of Collection: 2/11/12 6:35:00 AM**	
Dil. Factor:	**1.49**	**Date of Analysis: 2/28/12 02:26 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Stoddard Solvent	37	Not Detected	220	Not Detected

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

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	104	75-150

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1202374BR1-07A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**d022806a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/28/12 12:20 PM**	

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**	**Rpt. Limit (ug/m3)**	**Amount (ug/m3)**
Stoddard Solvent	25	Not Detected	140	Not Detected

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Fluorobenzene (FID)	102	75-150

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1202374BR1-08A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**d022804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/28/12 10:51 AM**	

Compound	**%Recovery**
Stoddard Solvent	127

Container Type: NA - Not Applicable

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

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCSD

Lab ID#: 1202374BR1-08AA

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**d022814**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/28/12 06:15 PM**	

Compound	**%Recovery**
Stoddard Solvent	139

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Fluorobenzene (FID)	98	75-150

eurofins | Air Toxics

3/2/2012

Mr. Bob Foss
Conestoga-Rovers Associates (CRA)
5900 Hollis Street
Suite A
Emeryville CA 94608

Project Name: Nady
Project #: 521000
Workorder #: 1202374A

Dear Mr. Bob Foss

The following report includes the data for the above referenced project for sample(s) received on 2/16/2012 at Air Toxics Ltd.

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

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

Regards,

Kyle Vagadori

Project Manager

eurofins | Air Toxics

WORK ORDER #: 1202374A

Work Order Summary

CLIENT:	Mr. Bob Foss Conestoga-Rovers Associates (CRA) 5900 Hollis Street Suite A Emeryville, CA 94608	**BILL TO:**	Belew Yifru Conestoga-Rovers Associates (CRA) 5900 Hollis Street Suite A Emeryville, CA 94608
PHONE:	510-420-0700	**P.O. #**	521000-356
FAX:	510-420-9170	**PROJECT #**	521000 Nady
DATE RECEIVED:	02/16/2012	**CONTACT:**	Kyle Vagadori
DATE COMPLETED:	03/02/2012		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SSVP-10	Modified TO-15	4.0 "Hg	5 psi
03A	SSVP-10-Dup	Modified TO-15	4.0 "Hg	5 psi
05A	SSVP-11	Modified TO-15	3.0 "Hg	5 psi
06A	Lab Blank	Modified TO-15	NA	NA
07A	CCV	Modified TO-15	NA	NA
08A	LCS	Modified TO-15	NA	NA
08AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: Linda D. Frumarn DATE: 03/02/12

Laboratory Director

Certfication numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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

LABORATORY NARRATIVE
EPA Method TO-15
Conestoga-Rovers Associates (CRA)
Workorder# 1202374A

Three 1 Liter Summa Canister (100% Certified) samples were received on February 16, 2012. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

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

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

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

Definition of Data Qualifying Flags

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

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the reporting limit.
UJ- Non-detected compound associated with low bias in the CCV and/or LCS.
N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

eurofins | Air Toxics

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

Client Sample ID: SSVP-10

Lab ID#: 1202374A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.78	2.6	2.5	8.3
Toluene	0.78	3.9	2.9	15
Tetrachloroethene	0.78	2.9	5.2	20
m,p-Xylene	0.78	1.8	3.4	7.7
o-Xylene	0.78	0.84	3.4	3.6
TPH ref. to Gasoline (MW=100)	39	230	160	940

Client Sample ID: SSVP-10-Dup

Lab ID#: 1202374A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.78	1.5	2.5	4.8
Toluene	0.78	1.0	2.9	3.9
Tetrachloroethene	0.78	2.9	5.2	20
m,p-Xylene	0.78	1.0	3.4	4.4
TPH ref. to Gasoline (MW=100)	39	97	160	400

Client Sample ID: SSVP-11

Lab ID#: 1202374A-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.74	1.6	2.4	5.1
TPH ref. to Gasoline (MW=100)	37	68	150	280

eurofins | Air Toxics

Client Sample ID: SSVP-10

Lab ID#: 1202374A-01A

EPA METHOD TO-15 GC/MS

File Name:	**o021627**	**Date of Collection: 2/11/12 5:35:00 AM**	
Dil. Factor:	**1.55**	**Date of Analysis: 2/16/12 10:44 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.78	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.78	Not Detected	3.1	Not Detected
Benzene	0.78	2.6	2.5	8.3
Trichloroethene	0.78	Not Detected	4.2	Not Detected
Toluene	0.78	3.9	2.9	15
Tetrachloroethene	0.78	2.9	5.2	20
trans-1,2-Dichloroethene	0.78	Not Detected	3.1	Not Detected
Ethyl Benzene	0.78	Not Detected	3.4	Not Detected
m,p-Xylene	0.78	1.8	3.4	7.7
o-Xylene	0.78	0.84	3.4	3.6
TPH ref. to Gasoline (MW=100)	39	230	160	940

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	118	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	95	70-130

eurofins | Air Toxics

Client Sample ID: SSVP-10-Dup

Lab ID#: 1202374A-03A

EPA METHOD TO-15 GC/MS

File Name:	**o021628**	**Date of Collection:**	**2/11/12 6:14:00 AM**
Dil. Factor:	**1.55**	**Date of Analysis:**	**2/16/12 11:16 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.78	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.78	Not Detected	3.1	Not Detected
Benzene	0.78	1.5	2.5	4.8
Trichloroethene	0.78	Not Detected	4.2	Not Detected
Toluene	0.78	1.0	2.9	3.9
Tetrachloroethene	0.78	2.9	5.2	20
trans-1,2-Dichloroethene	0.78	Not Detected	3.1	Not Detected
Ethyl Benzene	0.78	Not Detected	3.4	Not Detected
m,p-Xylene	0.78	1.0	3.4	4.4
o-Xylene	0.78	Not Detected	3.4	Not Detected
TPH ref. to Gasoline (MW=100)	39	97	160	400

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	118	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	95	70-130

eurofins | Air Toxics

Client Sample ID: SSVP-11

Lab ID#: 1202374A-05A

EPA METHOD TO-15 GC/MS

File Name:	**o021629**	**Date of Collection: 2/11/12 6:35:00 AM**	
Dil. Factor:	**1.49**	**Date of Analysis: 2/16/12 11:53 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.74	Not Detected	1.9	Not Detected
cis-1,2-Dichloroethene	0.74	Not Detected	3.0	Not Detected
Benzene	0.74	1.6	2.4	5.1
Trichloroethene	0.74	Not Detected	4.0	Not Detected
Toluene	0.74	Not Detected	2.8	Not Detected
Tetrachloroethene	0.74	Not Detected	5.0	Not Detected
trans-1,2-Dichloroethene	0.74	Not Detected	3.0	Not Detected
Ethyl Benzene	0.74	Not Detected	3.2	Not Detected
m,p-Xylene	0.74	Not Detected	3.2	Not Detected
o-Xylene	0.74	Not Detected	3.2	Not Detected
TPH ref. to Gasoline (MW=100)	37	68	150	280

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

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	121	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	97	70-130

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1202374A-06A

EPA METHOD TO-15 GC/MS

File Name:	**o021607**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/16/12 11:05 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	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
TPH ref. to Gasoline (MW=100)	25	Not Detected	100	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	95	70-130

eurofins | Air Toxics

Client Sample ID: CCV

Lab ID#: 1202374A-07A

EPA METHOD TO-15 GC/MS

File Name:	**o021602**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/16/12 08:25 AM**	

Compound	%Recovery
Vinyl Chloride	112
cis-1,2-Dichloroethene	98
Benzene	108
Trichloroethene	108
Toluene	106
Tetrachloroethene	98
trans-1,2-Dichloroethene	105
Ethyl Benzene	106
m,p-Xylene	107
o-Xylene	107
TPH ref. to Gasoline (MW=100)	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	95	70-130

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 1202374A-08A

EPA METHOD TO-15 GC/MS

File Name:	**o021603**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/16/12 09:04 AM**	

Compound	%Recovery
Vinyl Chloride	119
cis-1,2-Dichloroethene	101
Benzene	112
Trichloroethene	113
Toluene	107
Tetrachloroethene	98
trans-1,2-Dichloroethene	117
Ethyl Benzene	106
m,p-Xylene	107
o-Xylene	107
TPH ref. to Gasoline (MW=100)	Not Spiked

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	97	70-130

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 1202374A-08AA

EPA METHOD TO-15 GC/MS

File Name:	**o021604**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/16/12 09:24 AM**	

Compound	%Recovery
Vinyl Chloride	116
cis-1,2-Dichloroethene	102
Benzene	108
Trichloroethene	110
Toluene	107
Tetrachloroethene	98
trans-1,2-Dichloroethene	117
Ethyl Benzene	104
m,p-Xylene	108
o-Xylene	106
TPH ref. to Gasoline (MW=100)	Not Spiked

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	99	70-130