Solano Group
P.O. Box 9026
Berkeley, CA 94709

Mr. Mark Detterman
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Albany 1-Hour Cleaners
1187 Solano Avenue
Albany, California
ACEH Case No. 2857

Dear Mr. Detterman:

The Solano Group has retained Pangea Environmental Services, Inc. (Pangea) for environmental consulting services for the project referenced above. On my behalf, Pangea is submitting the attached documentation.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached documentation is true and correct to the best of my knowledge.

Sincerely,

J. Anthony Kershaw
General Partner
Solano Group

September 9, 2013

Mr. Mark Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Re: **Workplan for Preliminary Assessment of Indoor Air**
Former Albany 1-Hour Cleaners
1187 Solano Avenue
Albany, CA 94706
ACEH SLIC Case RO0002857

Dear Mr. Detterman:

On behalf of Mr. J. Anthony Kershaw, Pangea Environmental Services, Inc. has prepared this *Workplan for Preliminary Assessment of Indoor Air* as requested in your email dated August 7, 2013. The workplan proposes to conduct preliminary indoor air sampling in occupied units (1183 and 1191 Solano Avenue) adjacent to the subject site to assess whether any imminent health threats to site occupants are currently present. The workplan also proposes indoor air sampling within the currently vacant units at 1185 and 1187 Solano Avenue.

If you have any questions or comments, please call me at (510) 435-8664.

Sincerely,
Pangea Environmental Services, Inc.

Bob Clark-Riddell, P.E.
Principal Engineer

Attachment: *Workplan for Preliminary Assessment of Indoor Air*

cc: Mr. J. Anthony Kershaw, Solano Group, P.O. Box 9026, Berkeley, California 94709

WORKPLAN FOR PRELIMINARY ASSESSMENT OF INDOOR AIR

Former Albany 1-Hour Cleaners
1187 Solano Avenue
Albany, CA 94706
ACEH SLIC Case RO0002857

September 9, 2013

Prepared for:

Mr. J. Anthony Kershaw
Solano Group
P.O. Box 9026
Berkeley, California 94709

Prepared by:

Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, California 94612

Written by:

REGISTERED PROFESSIONAL ENGINEER
ROBERT G. CLARK-RIDDELL
No. C 049629
Exp. SEPT 2014
CIVIL
STATE OF CALIFORNIA

David S. Diamond, Ph.D., P.G.
Senior Geologist

Bob Clark-Riddell, P.E.
Principal Engineer

INTRODUCTION

On behalf of the Solano Group, Pangea Environmental Services, Inc. (Pangea) has prepared this *Workplan for Preliminary Assessment of Indoor Air Impacts* (Workplan) for commercial units adjacent to the subject property. The purpose of the workplan is to assess whether any imminent health threats to site occupants are currently present due to chemicals from the former drycleaner at the sujbect site. The workplan responds to specific requests in as requested in an email dated August 7, 2013 from Alameda County Environmental Health (ACEH). Our proposed scope of work for the preliminary assessment is detailed herein.

Site Description

Dry cleaner operations occurred at Albany 1-Hour Cleaners at 1187 Solano Avenue (subject site) from approximately 1986 to 2011, although operations using tetrachloroethene, also known as perchloroethene (PCE), were discontinued in 2004.

Previous Environmental Work

Prior site assessment and remediation work is summarized in the *Interim Remediation Workplan* dated July 29, 2013. The report also includes an initial conceptual site model of subsurface conditions. Initial site assessment was performed in 2004 and 2005. Extensive site assessment and remediation has been conducted in 2013. Site assessment found elevated PCE impact near the old drycleaning equipment in soil, subslab gas, and groundwater. The PCE concentrations at select locations in soil, subslab gas, and shallow groundwater impact exceeded applicable environmental screening levels (ESLs).

Due to elevated impact and the potential for vapor intrusion, initial source remediation was performed under most of the former dry cleaning unit at 1187 Solano and also underneath the adjacent unit at 1191 Solano. All identified soil containing PCE concentrations exceeding residential Environmental Screening Levels (ESLs) established by the San Francisco Bay Region - Regional Water Quality Control Board was removed and disposed offsite. Approximately 361.8 tons of soil was removed and disposed offsite. The excavation cavity was primarily backfilled with controlled density fill (CDF) to support the building wall during excavation under the wall, and to help mitigate vapor intrusion from any residual PCE impact.

Additional subslab sampling was conducted shortly following completion of the soil remediation work to assess whether remedial action had produced short-term reductions in vapor concentrations. The sampling results and earlier subslab and soil gas sampling work at the adjacent units indicates that impacts to soil vapor are still present at levels exceeding ESLs and California Human Health Screening Levels (CHHSLs) for PCE and TCE beneath the subject property and the adjacent properties at 1183 Solano (dentist), 1185 Solano (vacant, under construction), and 1191 Solano (US Post Office). Figure 2 shows a summary of the subslab sampling results.

Based on field screening following the initial remedial excavation work, it was discovered that additional areas of significantly contaminated soil were present in the vicinity of the former sewer line and bathroom areas at the north end of 1185 and 1187 Solano. Pangea is currently conducting additional excavation and sampling of excavated areas in that area to reduce residual contamination that could potentially result in indoor air impacts, consistent with the approved *Interim Remediation Workplan.* Approximately 150 to 200 tons of additional soil has been removed from the subject site, and will be reported separately.

To help mitigate potential intrusion of PCE vapors associated with residual contamination, active and/or passive subslab ventilation/depressurization systems are being installed beneath each of the four units at the site. The passive subslab ventilation (SSV) system beneath the future concrete slab at the 1185 and 1187 Solano Avenue units will consist of perforated piping (4" diameter) embedded within gravel/rock overlying a sand layer and underlying a thick (about 18 inches) cement slurry. Riser piping (4" diameter) will allow subslab vapors to ventilate up through the roof, where they will terminate at least 3 feet above the roof and 10 ft away from any air inlet sources for building air systems. A wind-powered turbine fan will enhance natural ventilation through the system. For all four units, subslab slotted piping has been installed for incorporation into an active subslab depressurization (SSD) system, if deemed necessary. The SSD system would use an electric vacuum pump/blower to extract subslab vapors from beneath any or all four units (1183, 1185, 1187 and 1191 Solano), and would be permitted with the Bay Area Air Quality Management District.

PROPOSED INVESTIGATION

The objective of the proposed investigation is to provide a preliminary assessment of indoor air quality in occupied units adjacent to the Site to ascertain whether existing impacts to indoor air are present that require immediate mitigation measures. The occupied units are 1183 Solano (dentist) and 1191 Solano (US Post Office). The proposed scope of work will be conducted in general compliance with procedures described in Step 9 of the California Department of Toxic Substance Control (DTSC) *Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (DTSC, 2011) (Vapor Intrusion Guidance). The tasks that will be conducted, and deviations from the DTSC guidance procedures, are described below.

Task 1 - Pre-Sampling Activities

Prior to initiating field activities, Pangea will conduct the following tasks:

- At least one week prior to initiation of air sampling, Pangea will provide the tenants at 1183 Solano (dentist) and 1191 Solano (US Post Office) with brief fact sheets regarding common sources of volatile organic compounds (VOCs) and procedures to be followed during indoor air sampling. Sample fact sheets are presented in Appendix A. Note that the tenants have previously received general information regarding site investigation work. The Solano Group is the current property owner for both units and will arrange with the tenants for access to conduct the work.
- At least 48 hours prior to sampling, Pangea will conduct a pre-sampling site survey and interview of knowledgeable site occupants to identify and remove sources of VOCs, and to locate an appropriate ambient outdoor air sampling location. The site survey form provided in Appendix B;
- Prior to indoor air sampling, Pangea will retain subcontractors to identify and seal penetrations through the concrete slab in occupied units with a specialized Geo-Seal® caulking to mitigate vapor intrusion.
- Pangea will coordinate with the laboratory subcontractor, property owner, tenants and ACEH personnel. ACEH will be notified at least one day in advance of Pangea's pre-sampling site survey and initiation of indoor air sampling.

Task 2 – Indoor Air Sampling

Pangea proposes to collect one indoor air sample from within each occupied unit and one ambient outdoor air sample from a location outside the property.

A Summa canister equipped with an 8-hour flow controller will be placed within each unit in an area that is normally occupied during business hours and relatively close to the areas with elevated subslab gas concentrations. The sampler will collect a sample during a normal business workday. Figure 2 shows the anticipated locations where the canisters will be placed, although these locations may be modified based on the results of the site survey. The proposed 8-hour sampling period represents a deviation from the *Vapor Intrusion Guidance*, which indicates that, for Step 9 of the recommended multi-step investigation/mitigation approach, 24-hour samples should be collected during the initial sampling event in order to ensure that diurnal fluctuations are included in the sampling period as part of a general assessment of the potential for vapor intrusion. The guidance recommends simultaneous or followup sampling more representative of likely exposure conditions for non-residential properties (i.e., 8-hour samples). Pangea recommends that only 8-hour samples, not 24-hour samples, be collected at this time because the objective of this sampling event is to assess whether an imminent threat is present to site workers (i.e., Step 4 of the guidance), and an 8-hour sample is more representative of that impact. The site is still undergoing remediation and it is therefore highly unlikely that soil vapor and indoor air contamination (if any) has equilibrated at this time, so 24-hour samples would only be of marginal utility in establishing stable site conditions.

For collection of an ambient outdoor air sample (during the same time period as the indoor samples), an additional Summa canister with flow controller will be placed at an outside location with the inlet at least 6 feet above ground level and at least 20 feet upwind of the site. The canister will be located away from any visibly apparent locations where VOC sources may be present.

In addition, to evaluate preliminary conditions in the unoccupied units at 1185 and 1187 Solano, indoor air samples may also be collected from these units concurrent with the sampling at 1183 and 1191 Solano. This sampling will help assess the effect of the extensive soil removal and effectiveness of the subslab ventilation system.

Task 3 – Analysis and Reporting

All samples will be analyzed for VOCs using EPA Method TO-15. Reporting Limits for PCE and TCE shall be less than the ESLs and CHHSLs for indoor air.

After receipt of the sampling results from the laboratory, Pangea will prepare a brief report summarizing the analytical results, discussing any potential human health risks in the sampled properties, and providing recommendations for any required mitigations or followup sampling. Following review and approval of the report by ACEH staff, Pangea will prepare brief fact sheets describing the results and findings suitable for distribution to the building tenants. After review and approval of the fact sheets by ACEH, Pangea staff will meet with the tenants to distribute the fact sheets and field any questions regarding the results.

Schedule

Pangea intends to conduct the pre-sampling site survey and indoor air sampling in late September or ealry October 2013. The specific dates will be dependent on tenant schedule and access considerations. Pangea will notify ACEH staff if sampling is delayed beyond this time period.

REFERENCES

Department of Toxic Substance Control, 2011 (DTSC, 2011) *Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air*, October

Pangea Environmental Services, 2013 (Pangea, 2013), *Interim Remediation Workplan*, July 29.

ATTACHMENTS

Figure 1 – Vicinity Map

Figure 2 – Proposed Indoor Air Sampling Location Map Showing PCE in Subslab Soil Gas, July 2-3, 2013

Appendix A - Sample Fact Sheet

Appendix B - Sample Site Survey Form

Solano Group
1187 Solano Avenue
Albany, California

PANGEA

Vicinity Map

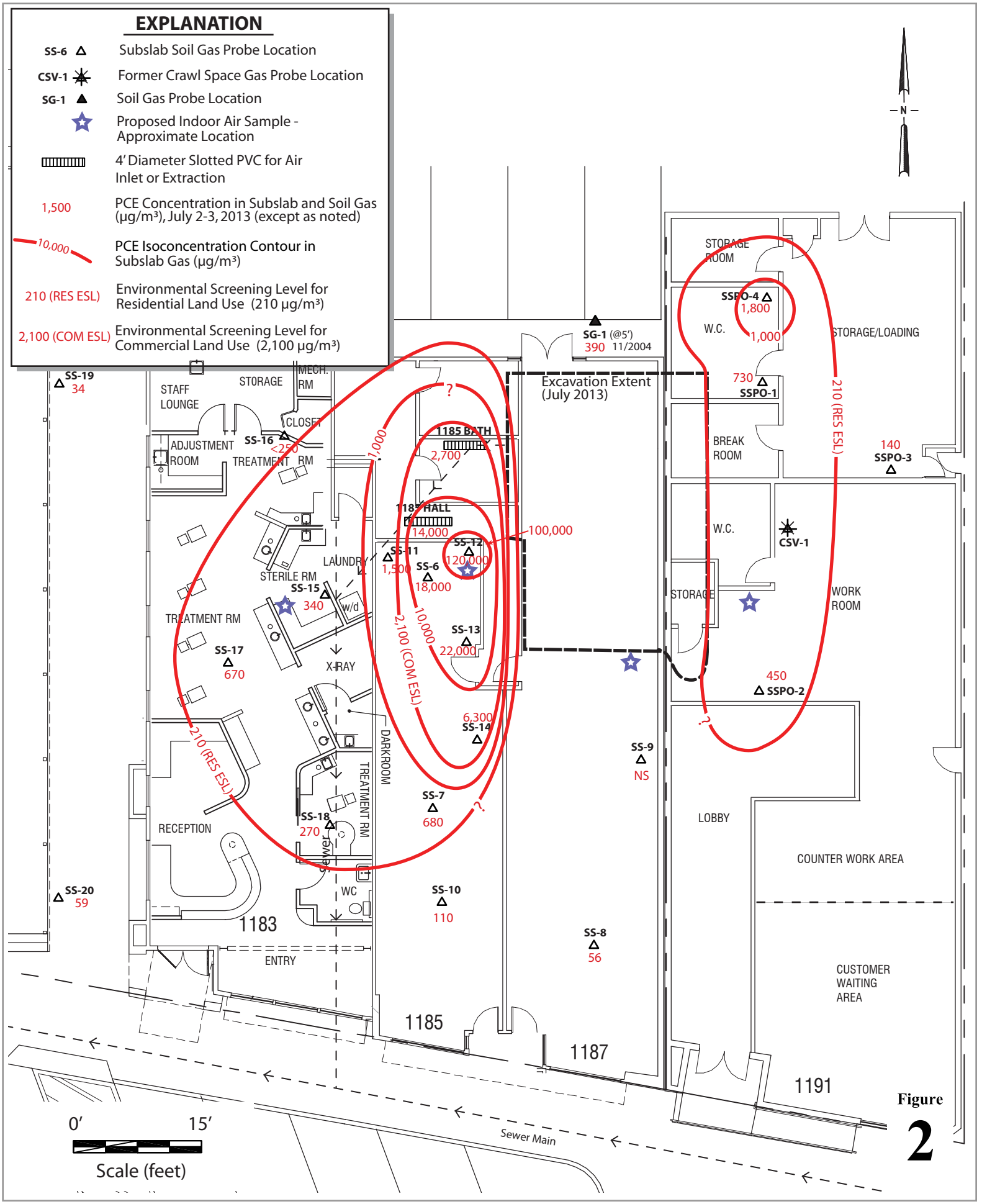


Figure 2

Solano Group
1187 Solano Avenue
Albany, California

PANGEA

Proposed Indoor Air Sampling Location Map
Showing PCE in Subslab Soil Gas
July 2-3, 2013

APPENDIX A

Fact Sheets for Tenants

Fact Sheet, August 2013

VOLATILE ORGANIC COMPOUNDS (VOCS) IN COMMONLY-USED PRODUCTS

Many of the products that we use in our businesses and households contain certain kinds of chemicals that enter the air as gases very easily. Known as volatile organic compounds or VOCs, they are ingredients in commonly used products. Because of their widespread use, VOCs can be found in the air in just about any indoor setting.

Examples of Products	**Possible VOC Ingredients**
Personal care products such as nail polish, nail polish remover, perfumes, hair spray	Acetone, ethyl alcohol, isopropyl alcohol, methacrylates, ethyl acetate
Dry cleaned clothes, spot removers, fabric cleaners, leather cleaners	Tetrachloroethene (perchloroethene (PERC)) Trichloroethene (TCE)
Aerosol spray products	Heptane, butane, pentane
Deodorizers, air fresheners	Naphthalene, 1,4-dichlorobenzene
Upholstered furniture, carpets, plywood, pressed wood products	Formaldehyde
Refrigerant from air conditioners, freezers, refrigerators, dehumidifiers	Freons (trichlorofluoromethane, dichlorofluoromethane)
Moth balls, moth flakes	Naphthalene, 1,4-dichlorobenzene
Fuels and products containing fuel and petroleum distillates. Examples include kerosene, gasoline, furniture polish, oil- based paints, paint thinner, insect pest products	Benzene, toluene, ethylbenzene, xylene, hexane, cyclohexane, 1,2,4- trimethylbenzene
Paint stripper and adhesive removers	Methylene chloride, toluene, carbon tetrachloride
PVC cement and primer, adhesives, contact cement, model cement	Tetrahydrofuran, cyclohexane, methyl ethyl ketone, toluene, acetone, hexane, 1,1,1-trichloroethane, methyl-iso-butyl ketone
Degreasers, brake cleaner, carburetor cleaner, gun cleaner, electronics cleaners, spray lubricants, commercial solvents	Methylene chloride, PERC, TCE, toluene, xylenes, methyl ethyl ketone, 1,1,1-trichloroethane

How can I reduce the levels of VOCs indoors?

- Find out which products used or stored in your home or business contain VOCs.
- Store products containing VOCs in tightly sealed, original containers in secure, well-ventilated areas.
- Store the products in an area where people do not spend much time.
- Buy these products in amounts that are used quickly.
- Safely dispose of unneeded products containing VOCs, such as through a special hazardous waste collection program in your area.
- Use products containing VOCs in well-ventilated areas or outdoors.
- Increase ventilation by opening windows and doors or using an exhaust fan.
- Carefully read labels and follow direction for use.

Where can I find out more?

- DTSC's website for information about the household hazardous waste program http://www.dtsc.ca.gov/HazardousWaste/U niversalWaste/HHW.cfm
- The Inside Story: A Guide to Indoor Air Quality http://www.epa.gov/iaq/pubs/insidest.html
- National Institute of Health's website for information about chemicals found in many household products. http://hpd.nlm.nih.gov/products.htm

Note; This fact sheet excerpted from California Department of Toxic Substances Control March 2012 Sample Fact Sheet

Fact Sheet, August 2013

SAMPLE COLLECTION INSTRUCTIONS – INDOOR AIR SAMPLING EVENTS

Shortly, representatives from Pangea Environmental Services, Inc., under direction from Alameda County Environmental Health (ACEH), will be collecting indoor air samples from your work location. In order to make sure that we have the best possible data quality, we ask you to follow these instructions.

Before Sampling

We ask you to remove sources of Volatile Organic Compounds (VOCs) from within the business location before the indoor air sampling. Sources of VOCs can be identified based on experience and also by use of special instruments. The following household items may contribute VOCs and should be checked, and if necessary removed, prior to indoor air sampling:

- Cleaning products
- Glues and solvents
- Lighter fluid
- Pesticides
- Paints and varnishes
- Fuel or gasoline
- Items with a pressurized spray bottle
- Freshly dry-cleaned clothes
- Products with fragrance or an odor

In general, any of these named products should be removed prior to sampling. Also, with your approval, we would like to use a special instrument to check for other products that are contributing VOCs. It should be noted that many common items found in homes or businesses contribute VOCs to the air and most of them are not harmful in any way.

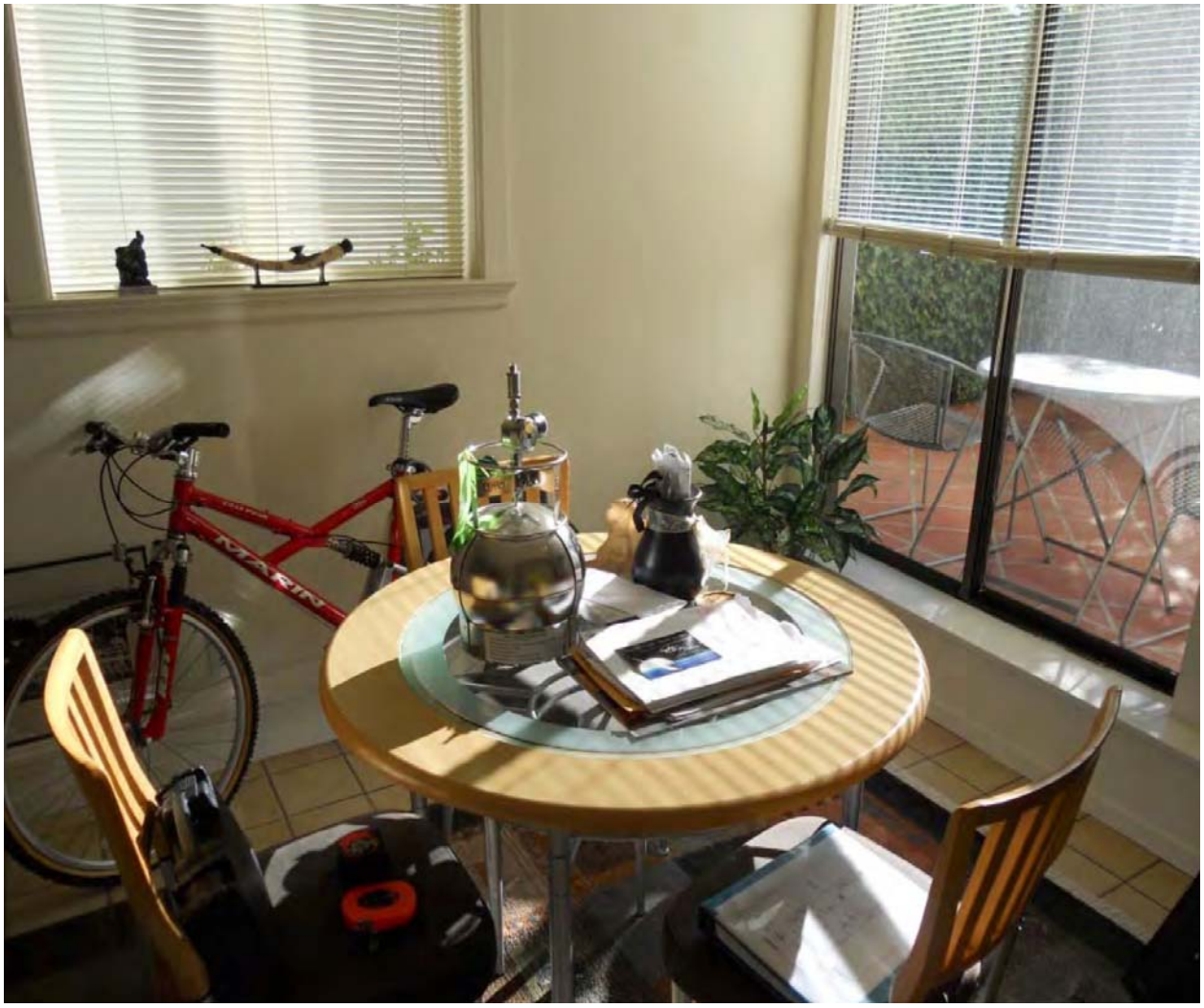
Items removed from the business location should be safely stored until indoor air sampling is completed. An alternative, less preferred option, is to store removed items in a large container with tight-fitting lid.

Special instrument to check for VOCs in household cleaning products.

The goal of the indoor air sampling is to measure the concentration of VOCs in your work location under normal conditions. Therefore, during sampling, you should continue with your regular routine. However, it is important to understand that certain activities will have an impact on the concentration of VOCs in the air. For example, opening windows and external doors for an extended period will generally decrease the concentration of VOCs in indoor air. These activities should be avoided. Also, we would discourage you from smoking or burning of candles in during sampling.

During Sampling

On the day of the sampling, we will arrive to drop off the indoor air sampling canister at a pre-arranged time. The indoor air sampling canister will be calibrated to collect a continuous air sample over the course of several hours ((commonly 8 hours). The canister does not require any power or batteries. Pangea staff will recommend a suitable location for the canister. Once the canister has been located and sampling begins, it is important not to touch or to interfere with it. If other workers or customers are present, we request that you explain what the device is and convey these instructions to them.



Indoor air sampling canister in use.

Note; This fact sheet modified from California Department of Toxic Substances Control March 2012 Sample Fact Sheet

APPENDIX B

Building Survey Form

BUILDING SURVEY FORM

Preparer's Name: _____ Date/Time Prepared:_____
Affiliation: _____ Phone Number: _____

Occupant Information

Occupant Name: _____ Interviewed: ☐ Yes ☐ No
Mailing Address: _____
City: _____ State: _____ Zip Code: _____
Phone: _____ Email: _____

Owner/Landlord Information (Check if same as occupant ☐)

Occupant Name: _____ Interviewed: ☐ Yes ☐ No
Mailing Address: _____
City: _____ State: _____ Zip Code: _____
Phone: _____ Email: _____

Building Type (Check appropriate boxes)

☐ Residential ☐ Residential Duplex ☐ Apartment Building ☐ Mobile Home ☐ Commercial (office)

☐ Commercial (warehouse) ☐ Industrial ☐ Strip Mall ☐ Split Level ☐ Church ☐ School

Building Characteristics

Approximate Building Age (years): _____ Number of Stories: _____
Approximate Building Area (square feet): _____ Number of Elevators: _____

Foundation Type (Check appropriate boxes)

☐ Slab-on-Grade ☐ Crawl Space

Factors Influencing Indoor Air Quality

☐ Sump Pump

☐ Concrete Cracks

☐ Floor Drains

Is there smoking in the building?	☐Yes ☐No
Is there new carpet or furniture?	☐Yes ☐No Describe: _____
Have clothes or drapes been recently dry cleaned?	☐Yes ☐No Describe: _____
Has painting or staining been done with the last six months?	☐Yes ☐No Describe: _____
Has the building been recently remodeled?	☐Yes ☐No Describe: _____
Has the building ever had a fire?	☐Yes ☐No Describe: _____

Has the building been fumigated or sprayed for pests recently? ☐Yes ☐No Describe: _____

Do any building occupants use solvents at work? ☐Yes ☐No Describe: _____

_____

Sampling Locations
Draw and attach the general floor plan of the building and denote locations of sample collection. Indicate locations of doors, windows, indoor air contaminant sources and field instrument readings.

Primary Type of Energy Used (Check appropriate boxes)

☐ Natural Gas ☐ Fuel Oil ☐ Propane ☐ Electricity ☐ Wood ☐ Kerosene

Meteorological Conditions
Describe the general weather conditions during the indoor air sampling event.

_____

General Comments
Provide any other information that may be of importance in understanding the indoor air quality of this building.

_____
_____
_____
_____
_____

Occupant of Building _____
Address _____
City _____
Field Investigator _____ Date _____

Field Instrument Reading	Measurement Location (Ambient Air, Foundation Opening, or Consumer Product)	If Consumer Product, Potential Volatile Ingredients

Comments:

_____

_____

Form derived from State of California October 2011 Vapor Intrusion Guidance Document