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PaulsCorp, LLC  
100 St. Paul Street, Suite 300  
Denver, CO 80206

**RECEIVED**

By Alameda County Environmental Health 8:32 am, Dec 21, 2017

Ms. Dilan Roe  
Alameda County Health Care Services Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

**Re: 1233 Bockman Road – Acknowledgement Statement**  
San Lorenzo, California  
ACEH Case No. 3239

Dear Ms. Roe:

PaulsCorp, LLC, has retained the environmental consultant referenced on the attached report for the project referenced above. The attached report is being submitted on PaulsCorp's, LLC, behalf.

I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the State Water Resources Control Board's GeoTracker website.

Sincerely,



Scott Schoeman  
Development Associate



December 19, 2017

Scott Schoeman  
PaulsCorp, LLC  
100 Saint Paul Street  
Denver, Colorado 80206

Re: **Indoor Air Sampling Workplan**  
1233 Bockman Road (East Sector)  
San Lorenzo, California  
ACDEH Case No. RO00003239

Dear Mr. Schoeman:

On behalf of PaulsCorp, LLC, PANGEA Environmental Services, Inc. (PANGEA) has prepared this Indoor Air Sampling Workplan (workplan) for 1233 Bockman Road (East Sector) in San Lorenzo, California (Site). The workplan scope will evaluate air quality inside the newly constructed residential buildings to help confirm the effectiveness of the vapor mitigation systems beneath each building in the East Sector. This workplan was requested by the Alameda County of Environmental Health in a meeting on December 14, 2017.

If you have any questions or comments, please call me at (510) 435-8664 or email [briddell@pangeaenv.com](mailto:briddell@pangeaenv.com).

Sincerely,  
**PANGEA Environmental Services, Inc.**

A handwritten signature in blue ink, appearing to read "Bob Clark-Riddell".

Bob Clark-Riddell, P.E.  
Principal Engineer

Attachment: *Indoor Air Sampling Workplan*

**PANGEA Environmental Services, Inc.**



## INDOOR AIR SAMPLING WORKPLAN

1233 Bockman Road (East Sector)  
San Lorenzo, CA 94577  
ACEH Case # RO00003239

December 19, 2017

*Prepared for:*

PaulsCorp, LLC  
100 Saint Paul Street  
Denver, Colorado 80206

*Prepared by:*

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

*Written by:*



A handwritten signature in blue ink that reads "Ron Scheele".

Ron Scheele, P.G.  
Principal Geologist

A handwritten signature in blue ink that reads "Bob Clark-Riddell".

Bob Clark-Riddell, P.E.  
Principal Engineer

**PANGEA Environmental Services, Inc.**

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## 1.0 INTRODUCTION

On behalf of PaulsCorp, LLC, PANGEA Environmental Services, Inc. (PANGEA) has prepared this *Indoor Air Sampling Workplan* (workplan) for 1233 Bockman Road (East Sector) in San Lorenzo, California (Site). The workplan scope will evaluate air quality inside each of the six newly constructed residential buildings to help confirm the effectiveness of the vapor mitigation systems beneath each building in the East Sector. This workplan was requested by the Alameda County of Environmental Health in a meeting on December 14, 2017. Described below are the site background, proposed air sampling activities, schedule, and reporting.

## 2.0 SITE BACKGROUND

### 2.1 Site Description and History

The entire Site parcel (assessor parcel number 411-63-17) consists of an approximately 3.87-acre lot along Bockman Road in San Lorenzo, California (Figure 2). The property is owned and currently being redeveloped by PaulsCorp, LLC into 53 two-story residential units. The Site is relatively flat and is surrounded on all sides by single and multi-family residences.

The entire Site is split into a West Sector and an East Sector with two separate legal descriptions. The West Sector environmental case (#RO3239) was closed on July 19, 2017, and pertains to Buildings 1 through 4. The East Sector environmental case (#RO3239) is the subject of this workplan designed to help confirm the effectiveness of the vapor mitigation systems installed beneath Buildings 5 through 10.

Historically, the Site consisted of a strip mall until the buildings were demolished in 2007. A dry cleaners operated in the strip mall between approximately 1960 and 1979 at 1269 Bockman Road. A gasoline service station previously existed on the adjacent parcel located south of the Site across Bockman Road at 1210 Bockman Road. For the East Sector, volatile organic compounds (VOCs) have been detected in the subsurface apparently related to the onsite historical dry cleaner, the offsite former gasoline station at 1210 Bockman Road, and possibly from an adjacent commercial street sweeping business at 17093 Via Chiquita.

### 2.2 Chemicals of Potential Concern

The chemicals of potential concern at this Site primarily include petroleum hydrocarbons as well as tetrachloroethene (PCE) and its potential breakdown products. The following chemicals have been detected in shallow *soil gas* in excess of conservative residential soil vapor environmental screening levels (ESLs) established by the San Francisco Bay Region Water Quality Control Board (RWQCB) and were identified as chemicals of concern (COCs): PCE, benzene, and ethylbenzene. The following additional VOCs have been detected at the Site below ESLs: trichloroethene (TCE); 1,2-dichloroethane; naphthalene; acetone; chloroform;

toluene; xylenes; and gas-range, diesel-range, and motor oil-range total petroleum hydrocarbons. No significant VOC impact has been detected in soil or groundwater relative to ESLs.

### **2.3 Previous Assessment and Remediation Activities**

Between 2004 and 2017, several environmental investigations were conducted to characterize the extent of VOCs in the Site subsurface. In 2017, a remedial soil excavation was conducted in the East Sector to remove residual PCE and ethylbenzene impact in shallow soil and reduce the potential risk of vapor intrusion to future buildings. To further mitigate the potential risk of vapor intrusion, a ‘full-blown’ vapor mitigation system (VMS) was installed beneath each of the East Sector buildings (Buildings 5 through 10). Each VMS system consists of a passive sub-slab ventilation system and a sub-slab engineered chemical vapor barrier. Additional information relating to Site assessment, remediation, and vapor mitigation can be found on the Geotracker database located at [www.geotracker.com](http://www.geotracker.com).

## **3.0 PROPOSED AIR SAMPLING ACTIVITIES**

The proposed work scope involves the collection of indoor air within each building and ambient (outdoor) air. An initial sampling event is proposed for Building 5 to provide initial indoor air sampling data via two indoor air samples. Subsequently, one indoor air sample will be collected within each of the five remaining building (Buildings 6 through 10) in the East Sector. PANGEA will conduct a pre-sampling survey to document any identified VOC-bearing materials that could affect indoor air data. Proposed sampling locations are shown on Figure 2 and a copy of the building survey form is included in Appendix A.

### **3.1 Indoor and Outdoor Air Sample Collection**

Two phases of air sampling are proposed. All sampling will be performed within the first floor of each building. The first sampling event will involve the collection of two indoor air samples (IA-1 and IA-2) within Building 5 and one ambient air sample (AA-1) collected upwind of Building 5. Indoor air sample IA-1 will be collected from the kitchen/open area of Unit #23, and indoor air sample IA-2 will be collected from the bathroom area of Unit #26, where shown on Figure 2. Data from the first sampling event will help determine if future indoor air sampling is most appropriate within the bathroom (where plumbing penetrates the slab) or within the kitchen/open area of the first floor.

The second air sampling event will involve the collection of one indoor air sample (IA-3 through IA-7) from each of the five remaining buildings (Buildings 6 through 10), along with two ambient air samples (AA-2 and AA-3) from upwind Site perimeter locations, where shown on Figure 2. If the construction schedule slips, the proposed second air sampling event may get split into two separate events. If this were to occur, Buildings 8 and 10 would likely be sampled in January 2018 and be followed by the sampling of Buildings 6, 7 and 9 in March 2018. If necessary, additional ambient air samples will be collected such that each sampling event has the results from two ambient air samples for comparison to indoor air samples.

All air samples will be collected in general accordance with DTSC's *October 2011 Vapor Intrusion Guidance*. Indoor and outdoor air samples will be collected concurrently over a 24-hour period using 6-liter SIM-certified Summa® canisters equipped with 24-hour calibrated flow controllers. Indoor air samples will be collected within the breathing zone at a height of approximately three to five feet above the floor. Ambient air samples will be collected at a height of approximately six feet above grade and at a distance of at least twice the height of the adjacent downwind building. Ambient air sample canisters will also be placed at least 10 feet beyond the drip line of any trees.

Samples will be transported under chain-of-custody to a California-certified laboratory for analysis of chemicals of concern including PCE, TCE, benzene, and ethylbenzene by EPA Method TO-15 SIM.

#### **4.0 SCHEDULE AND REPORTING**

The first sampling event (Building 5) is scheduled for December 2017 to expeditiously evaluate air conditions, and to allow additional Building 5 sampling or VMS system inspection, if merited. The construction of Building 5 is nearly complete. The shell and most interior is complete, with primarily the flooring installation incomplete. The second sampling event (Buildings 6 through 10) is scheduled for February 2018 but is subject to change as described in Section 3.1. Sampling activities and results will be documented in an *Indoor Air Sampling Report*.

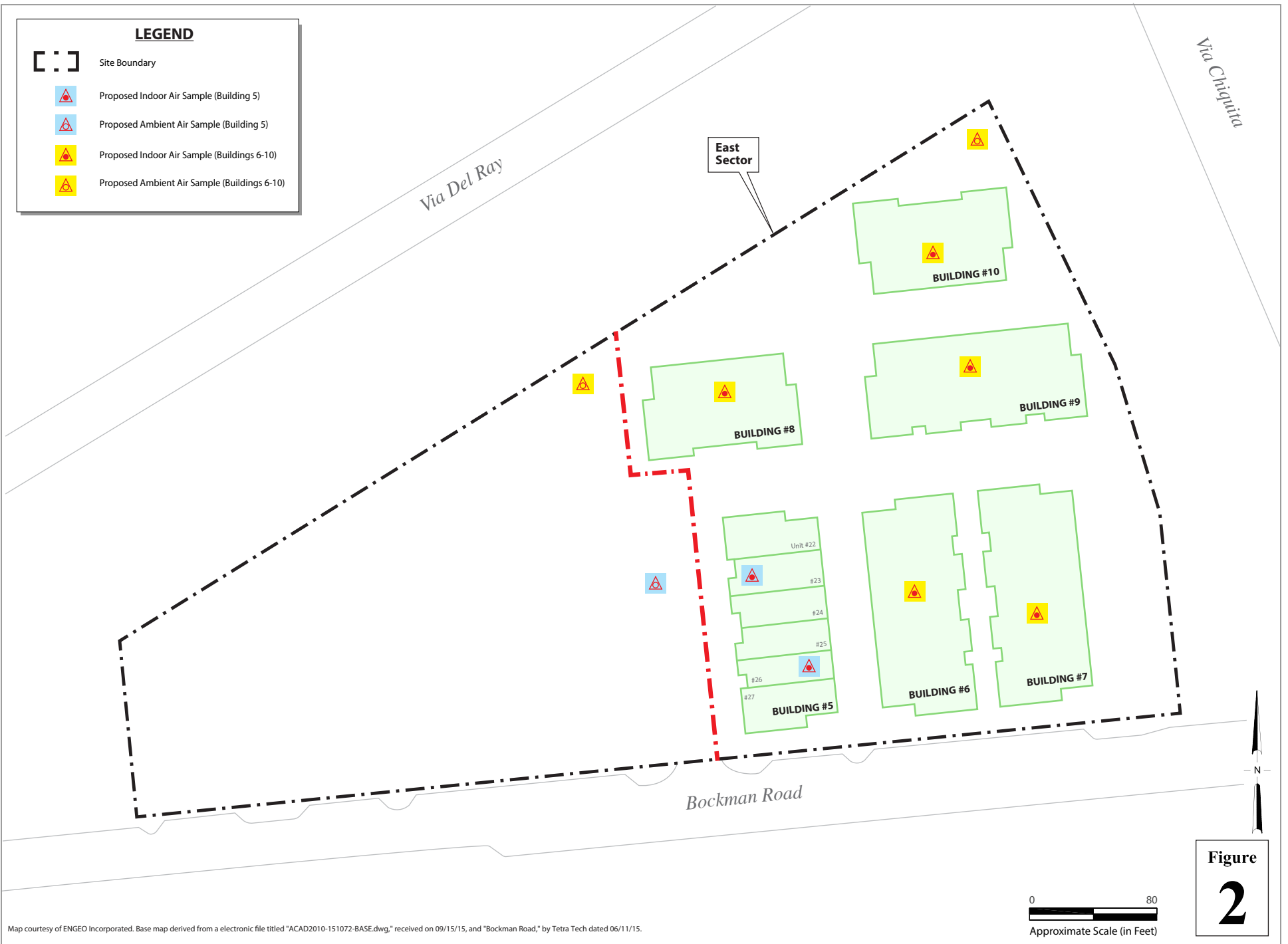


1233 Bockman Road  
San Lorenzo, California



Vicinity Map





East Sector  
1233 Bockman Road  
San Lorenzo, California



**PANGEA**

Proposed Air Sampling Locations

**APPENDIX A**

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

**HVAC**(Check appropriate boxes)

Air Conditioner Yes No Model/Describe Operation Hours: \_\_\_\_\_  
Heater Yes No Model/Describe Operation Hours: \_\_\_\_\_  
Fan/Other Yes No Model/Describe Operation Hours: \_\_\_\_\_

**Factors Influencing Indoor Air Quality**

Sump Pump Yes No Describe: \_\_\_\_\_  
Concrete Cracks Yes No Describe: \_\_\_\_\_  
Floor Drains Yes No Describe: \_\_\_\_\_

Is there smoking in the building? Yes No Describe: \_\_\_\_\_

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:  
 \_\_\_\_\_  
 \_\_\_\_\_