V I P SERVICE STATION
385 Century Circle
Danville, CA 94526
925-838-0768

August 6, 2008

Mr. Paresh Khatri
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

SUBJECT: SOIL GAS SAMPLE COLLECTION WORK PLAN (SG13 THROUGH SG16) CERTIFICATION
County Case # RO 209
VIP Service
3889 Castro Valley Blvd.
Castro Valley, CA

Dear Mr. Khatri:

You will find enclosed one copy of the following document prepared by P&D Environmental, Inc.

- Soil Gas Sample Collection Work Plan (SG13 Through SG16) dated August 6, 2008 (document 0047.W6).

I declare, under penalty of perjury, that the information and/or recommendations contained in the above-mentioned document for the subject site is true and correct to the best of my knowledge.

Should you have any questions, please do not hesitate to contact me at (510) 459-6525.

Sincerely,

VIP Service

Lalji Patel

Enclosure

0047.L96

P&D ENVIRONMENTAL, INC.

55 Santa Clara Ave, Suite 240
Oakland, CA 94610
(510) 658-6916

August 6, 2008
Work Plan 0047.W6

Mr. Paresh Khatri
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

SUBJECT: SOIL GAS SAMPLE COLLECTION WORK PLAN (SG13 THROUGH SG16)
VIP Service
3889 Castro Valley Boulevard
Castro Valley, CA

Dear Mr. Khatri:

P&D Environmental, Inc. (P&D) is pleased to present this work plan for collection of four soil gas samples designated as SG13 through SG16 to evaluate present day soil gas conditions at the adjacent down gradient residential structure located at 3875 Castro Valley Boulevard. This work plan is written in response to a request by the Alameda County Department of Environmental Health (ACDEH) in a letter dated April 18, 2008 which stated that interim remedial action appears warranted based upon previous soil gas sample results. Based upon a recent telephone conversation with Paresh Khatri the ACDEH caseworker, it was determined that a work plan for collection of additional soil gas samples to evaluate present day soil gas concentrations is the next step necessary for the interim remedial action discussed in the April 18, 2008 letter.

A detailed site investigation background discussion is provided in P&D's Remedial Investigation and Feasibility Study (RI/FS) Work Plan dated May 17, 2005 (document 0047.W5). The May 17, 2005 document includes soil gas sample results for 12 soil gas samples historically collected at locations downgradient from the subject site, including samples B10, B11 and B12 which were collected on September 9, 1999 from locations adjacent to the downgradient slab-on-grade constructed residence located at 3875 Castro Valley Boulevard. Because of the time elapsed since the 1999 soil gas sample collection, and because the samples collected in 1999 were collected prior to establishment of industry-accepted protocol, petroleum hydrocarbon soil gas concentrations detected in 1999 will be re-evaluated using current industry-accepted protocol.

A Site Vicinity Map showing the proposed soil gas sample collection locations is attached as Figure 1, and a picture of a typical soil gas sampling manifold is attached as Figure 2. All work will be performed under the supervision of a professional geologist.

SCOPE OF WORK

To determine the extent of impact to soil and groundwater in the vicinity of the subject site, P&D will perform the following tasks:

- Coordinate with regulatory agencies, including permitting for drilling soil borings for soil gas sample collection, scheduling inspection of borehole grouting, and arrange for offsite property access.
- Prepare a health and safety plan.
- Collect soil gas samples at four locations at a depth of five feet at the site to investigate the presence of gasoline constituents in soil gas at the offsite residence foundation perimeter.
- Arrange for laboratory analysis.
- Prepare a report.

Each of these is discussed below in detail.

Permitting and Regulatory Agency Coordination

Following ACDEH approval of this work plan, permits will be obtained for the drilling of the soil borings for soil gas sample collection, and for offsite property access. Notification will be provided to ACDEH of the scheduled drilling dates prior to drilling.

Health and Safety Plan Preparation

A health and safety plan will be prepared for the scope of work identified in this work plan. Prior to the beginning of field work, the drilling locations will be marked with white paint and Underground Service Alert will be notified for underground utility location.

Soil Gas Sample Collection

Soil gas samples will be collected at four locations designated as SG13 through SG16 (see Figure 2). The samples will be collected into one-liter Summa canisters at a depth of 5 feet using temporary soil gas sampling wells constructed using direct-push drilling equipment. The rationale for the proposed sample collection locations is as follows.

- SG13, SG14 and SG15 – To re-evaluate the 1999 petroleum hydrocarbon soil gas sample results from boreholes B10, B11 and B12, respectively.
- SG16 – To evaluate petroleum hydrocarbon soil gas concentrations on the downgradient side of the residential structure located at 3875 Castro Valley Boulevard.

Soil gas samples will be collected in accordance with general procedures set forth in the Department of Toxic Substances Control (DTSC) January 13, 2003 Advisory - Active Soil Gas Investigations.

Soil gas samples will be collected using temporary soil gas sampling wells. The temporary wells will be constructed by driving a hollow 1-inch diameter Geoprobe rod with an expendable tip to a depth of 5 feet and then inserting a 7-foot length of 0.250-inch outside diameter (0.187-inch inside diameter) Teflon tube to the bottom of the hollow rod. Prior to inserting the Teflon tubing the lowermost 6 inches of the Teflon tube will be perforated at several locations by

notching the sides of the tube with a clean razor blade. A #2/16 Lonestar sack sand will then be added to the annular space between the hollow rod and the Tefon tube as the hollow rod is withdrawn from the ground until the lowermost 8 inches of the hole is filled with sand. Granular bentonite (with grains the size of kitty litter) will be placed in the annular space above the sand to the ground surface. The bentonite will be hydrated and the temporary well will be undisturbed for a minimum of 30 minutes prior to purging for sample collection to allow soil gas equillibration.

Prior to purging the soil gas from the temporary soil gas sampling well, the sample canister will be checked for vacuum with a vacuum gauge, followed by a 10 minute leak check of the sampling manifold. The leak check will be performed by closing the valve located between the filter and the pressure gauge and opening the purge canister and recording the manifold system vacuum (see Figure 2 for a picture of a typical manifold). Following successful verification of the manifold leak check, the purge volume will be calculated. No purge testing will be done because no mobile laboratory will be at the site. A default of three purge volumes will be extracted prior to sample collection. All purge volume calculation information will be provided in the report documenting field activities.

One purge volume is calculated as the volume of the tubing interior plus the volume of the sand interval of the borehole.

The tubing interior volume is calculated as follows.

V tubing = pi X (r X r) X h, where pi = 3.14, r = 0.187 in./2, and h = 7 ft.

V tubing = 3.14 X (0.0935 X 0.0935) X (7 ft. X 12 in./ft.) = 2.31 cubic inches.

The sand interval volume is calculated as follows.

V sand interval = pi X (r X r) X h X porosity, where pi = 3.14, r = 1.0 in./2, h = 8 in., and porosity = 0.35.

V sand interval = 3.14 X (0.5 X 0.5) X 8 in. X 0.35 = 2.20 cubic inches.

The total volume for one purge volume is V tubing + V sand interval, where

V total = 2.31 cubic inches + 2.20 cubic inches = 2.51 cubic inches.

To convert to cubic centimeters,

V total = 2.51 cubic inches X 16.39 cubic centimeters/cubic inches = 41.14 cubic centimeters.

The total volume to be purged is 3 purge volumes.

V purge total = 41.14 cubic centimeters X 3 = 123.42 cubic centimeters.

The flow controller has a nominal flow rate of 200 cubic centimeters per minute.

The purge time is calculated as follows.

T purge = 123.42 cubic centimeters/200 cubic centimeters per minute = 0.62 minutes.

Converting the purge time to seconds, 0.62 minutes X 60 seconds/minute = 37 seconds.

Following completion of purging 3 purge volumes, the valve to the purge canister will be closed and a tracer gas (2-Propanol) will be placed in a dish adjacent to the purge canister and a clear Rubbermaid bin will be placed over the top of the temporary well, the sampling manifold, and the 1-liter sample canister. The vapor concentration of the 2-Propanol will be monitored with a photoionization detector until 2-Propanol vapor concentrations appear to have equilibrated. The Rubbermaid bin will then be temporarily and partially lifted long enough to open the sample canister valve and the bin will then be replaced over the sampling equipment and the 2-Propanol vapor concentrations will then again be monitored with the PID. Once the vacuum for the sample canister decreases to 6 inches of Mercury, the Rubbermaid lid will be removed and the sample canister valve closed.

One duplicate soil gas sample will be collected into a one-liter Summa canister using procedures described above immediately after the collection of one original sample. The void space and tubing will not be purged of three purge volumes prior to collection of the duplicate sample. Following soil gas sample collection, the soil gas samples will be stored in a box and promptly shipped to the laboratory for extraction and analysis. The requested laboratory analysis will include the tracer gas 2-Propanol. Soil gas sampling will not be performed during or following a precipitation event.

All drilling rods and associated drilling fittings will be cleaned with an Alconox solution wash and clean water rinse followed by a clean water rinse using steam distilled water. New Teflon tubing will be used at each sample collection location. Clean, unused vacuum gages and stainless steel tee and valve assemblies will be used at each sample collection location. Following soil gas sample collection the Teflon tubing will be pulled from each temporary soil gas sampling well and a 1-inch diameter solid steel rod will be driven through the bentonite and sand to a total depth of 5 feet. The solid steel rod will then be removed, and the borehole filled with neat cement.

Arrange for Sample Analysis

All of the soil gas samples will be analyzed at Air Toxics Limited of Folsom California for TPH-G and MBTEX using EPA Method TO-15.

Report Preparation

Upon receipt of the laboratory analytical results, a report will be prepared. The report will document soil gas sample collection procedures and sample results. The report will include a site vicinity map showing the drilling locations, tables summarizing the sample results, recommendations based on the results, and the stamp of an appropriately registered professional.

SCHEDULE

The following schedule addresses elements identified in this work plan.

Activity	Calender Days
Work plan submittal to ACDEH	Day 0
Permit application submittal to ACPWA	Day 1
Request offsite access	Day 1
Obtain offsite access permission	Day 10
Permit application approval by ACPWA	Day 10
Work plan approval by ACDEH	Day 25
Collect soil gas samples	Day 30
Send soil gas samples to lab	Day 33
Receive soil gas sample results	Day 43
Report uploaded to ACDEH website	Day 65

Should you have any questions, please do not hesitate to contact us at (510) 658-6916.

Sincerely,

P&D Environmental, Inc.

Paul H. King

Paul H. King
Professional Geologist #5901
Expires: 12/31/09

Attachments: Figure 1 – Site Vicinity Map
Figure 2 - Typical Soil Gas Sampling Manifold

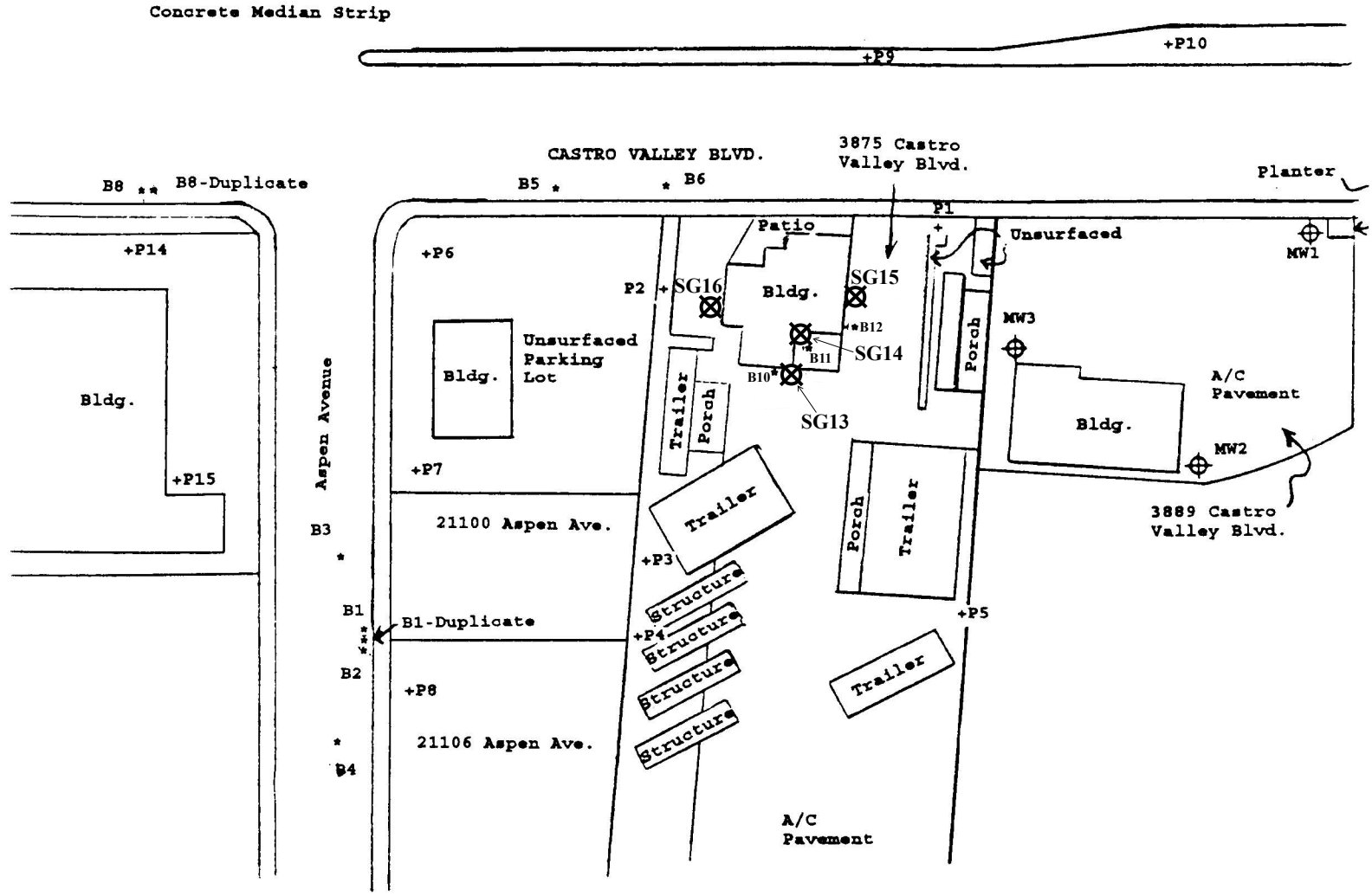
cc: Mr. Lalji Patel & Mr. Pawan Gupta, VIP Service

PHK
0047.W6

FIGURES

P&D ENVIRONMENTAL, INC.

55 Santa Clara Ave, Suite 240
Oakland, CA 94610
(510) 658-6916



LEGEND

- Historical Soil Gas (and some Groundwater) Sample Collection Locations
- Historical Groundwater Grab Sample Collection Location
- Existing Groundwater Monitoring Well
- Proposed Soil Gas sample Location

Base Map From
P&D Environmental
October, 1993
January, 1995
June, 1995, and
February, 1995
Prepared Using a Rolatape

0 30 60
Scale in Feet

Figure 1
Site Vicinity Map
VIP Service
3889 Castro Valley Blvd.
Castro Valley, California

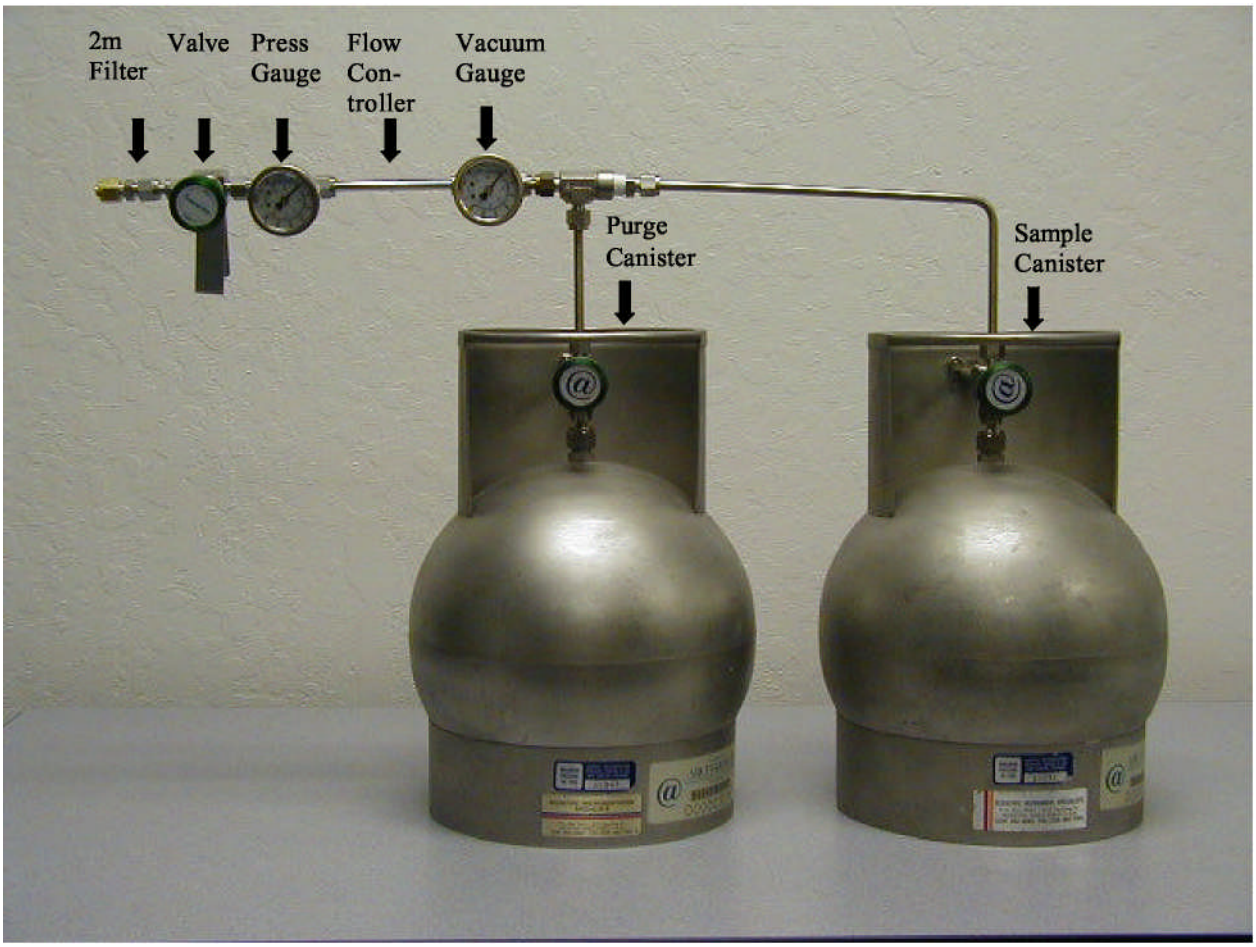


Figure 2. Typical Soil Gas Sampling Manifold.