Since site is active gas station, will not do SV, rather go for closure w/ RMP

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Ms. Eva Chu
Alameda County Health Care Services
Department of Environmental Health
1153 Harbor Bay Parkway, Suite 250
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Subject: *Letter Work Plan For Soil Vapor Survey*
Chevron Service Station #9-5542
7007 San Ramon Road, San Ramon, California
Delta Project No.: 9-5542

Ms. Chu,

At the request of Chevron Products Company (Chevron), Delta Environmental Consultants, Inc. (Delta) has prepared this letter work plan proposing a soil vapor survey at the above referenced site. The work plan is being prepared in response to Delta's *Site Closure Request Using Risk Based Corrective Action Analysis and Appendix B Guidelines Report*, dated December 6, 2000. The Risk Based Corrective Action (RBCA) portion of the report analyzed the commercial/construction worker 10^{-5} risk scenario only. However, in an email dated August 6, 2001, Alameda County Health Care Services (ACHCS) indicated the site would not pass a residential scenario of 10^{-6} risk and that if Chevron required the site to be closed, ACHCS would need a deed restriction. The scope of work is being proposed to collect additional shallow soil vapor data for comparison to residential soil volatilization site specific target levels (SSTL's) generated by Delta's Risk Based Corrective Action (RBCA) Tier 2 model.

SITE DESCRIPTION

The site is located on the northeast corner of the intersection of San Ramon Road and Dublin Boulevard as depicted on the site location map (Figure 1). Neighboring properties primarily consist of commercial businesses. Located to the west, across San Ramon Road, was a Unocal service station, currently a Petco, and beyond are residential homes. Located to the southwest is a Shell service station and to the south is a shopping center that is composed of retail shops and a restaurant. To the north and east are vacant lots with commercial businesses consisting of retail shops and restaurants beyond (Figure 2). The site elevation is approximately 360 feet above mean sea level as depicted on the Dublin, California U.S. Geological Survey 7.5-minute quadrangle map (Figure 1).

Background

Four, single wall steel underground storage tanks (USTs) were installed at the site in 1965. The USTs consisted of two 10,000-gallon tanks containing leaded gasoline, one 4,000-gallon tank containing leaded gasoline, and one 500-gallon used oil tank.

In 1983, a hole was discovered in the regular leaded tank and the tank was re-lined with fiberglass. In December 1983, five monitoring wells were installed at the site to approximately 20-feet below surface grade (bsg). Groundwater was not encountered in any of these wells. In January 1984, monitoring well MW-3 was deepened to a depth of 25-feet bsg. Motor oil was observed and bailed from the well. No further separate phase hydrocarbons (SPH) were observed during biweekly monitoring through October 1984.

In September 1984, a corroded section of product piping was replaced, and cathodic protection was installed. In November 1984, the regular leaded product line failed a leak test and was subsequently repaired.

In February 1990, the station was remodeled. During this time, USTs and product lines were excavated and replaced. Three, 12,000-gallon fiberglass USTs were installed in a new tank basin located southeast of the former tank basin. During removal of the old USTs, soil was over-excavated to a depth between 16 feet bsg on the north end and 22 feet bsg on the south end. Chemical analytical results from soil samples collected within the former tank basin and former product distribution lines indicated the presence of petroleum hydrocarbons.

In March 1990, the five original monitoring wells were destroyed and four new monitoring wells (MW-1 through MW-4) were installed at the site by Burlington Environmental Inc. Petroleum hydrocarbons were detected in the soil samples collected from borings MW-1, MW-3, and MW-4.

In June 1991, three offsite groundwater monitoring wells (MW-5 through MW-7) were installed by Sierra Environmental Services. Petroleum hydrocarbons were detected in the soil sample analyzed from boring MW-6. In December 1991, an additional groundwater monitoring well MW-8 was installed offsite by GeoStrategies, Inc.

During November 1992, Geraghty & Miller, Inc. installed two vapor extraction wells (VW-1 and VW-2) and reinstalled MW-1 to a depth of 50 feet bsg. Analytical results from soil samples collected from borings VW-1 and VW-2 indicate the presence of petroleum hydrocarbons. VW-1 and VW-2 were never used as vapor extraction wells.

On June 8, 1994, Sierra Environmental Services, Inc. advanced three borings (B-1, B-2, and MW-9) in the vicinity of the site. Petroleum hydrocarbon constituents were reported in samples collected from each boring location.

On July 12, 1995, Groundwater Technology, Inc. advanced three GeoProbe® soil borings (SB-1 through SB-3) along Dublin Boulevard for the collection of grab groundwater samples. Petroleum hydrocarbons were reported in each of the grab groundwater samples collected.

On June 12, 1996, Gettler-Ryan, Inc. advanced three soil borings (B-3, B-4, and MW-10) in the vicinity of the site. Soil samples collected from borings B-3 and B-4 were submitted for geotechnical and chemical analysis. No petroleum hydrocarbon constituents were reported in samples from B-3 and B-4.

During September 1998, Gettler-Ryan, Inc. was onsite to collect soil samples beneath the product distribution lines and product dispensers during replacement of the lines. Analytical results from soil samples collected did not indicate the presence of petroleum hydrocarbons.

Groundwater monitoring has been performed at the site since April 1990. The historical groundwater flow direction has been to the east, and the historical depth to water beneath the site has ranged from a high of 15.42 to a low of 29.80 feet below the top of casings.

Regional Geology

The site is located in the north central portion of the Livermore Valley, within the Coast Range Geomorphic Province. The Livermore Valley slopes gently towards the west. Livermore Valley is underlain by non-water bearing rocks, and water bearing rock and sediments (DWR, 118-2, 1996, 1974). The non-water bearing rocks are of marine origin and consist of sandstone, shale and conglomerate and are Eocene to Miocene age. These rocks are exposed at higher elevations surrounding Livermore Valley and are found at depths greater than 1,000 feet beneath the valley floor.

The Plio-Pleistocene age Livermore Formation overlaps the Tassajara Formation beneath the north portion of the valley and is exposed over a broad region south of the valley. Sediments of this formation consist primarily of clayey gravel in a sandy clay matrix. Sedimentary units south of the valley dip gently north, and are nearly level beneath the valley floor, and dip gently south beneath the north edge of the valley. Depth to the top of the Livermore Formation ranges from a few feet to greater than 40 feet (DWR, 118-2 1996, 1974).

Site Geology

Based on the boring logs from wells and soil borings drilled at the site to date, the material underlying the site is described as a silt to silty clay extending from the surface to a depth of approximately 7 feet bsg, underlain by sequences of sandy clay, clay, and silty sand to an approximate depth of 26 feet bsg, which is underlain by sandy gravel to approximately 29 feet bsg. Beneath the sandy gravel lens are sequences of clayey sand to sandy clay with silt to the total depth explored of 51.5 feet bsg.

SCOPE OF WORK

To evaluate whether shallow soils (<10 feet) beneath the site have the potential to impact human health through soil volatilization of petroleum hydrocarbons, Delta proposes to conduct a soil vapor survey at the locations shown on Figure 2. The vapor samples collected will be compared to Site Specific Target Levels (SSTL's) presented in the RBCA Tier 2 model prepared by Delta.

Pre-Field Work

Task 1. Prior to conducting the soil vapor survey, all appropriate soil boring permits will be submitted to Zone 7 Water Agency for approval. All boring locations will be located on-site and marked with visible white paint. Underground Service Alert (USA) and ACHCS will be notified 48-hours in advance of the proposed work. The station manager will be notified 2-weeks in advance.

Task 2. Delta will contract a California licensed well driller to advance three Geoprobe® borings at the locations shown on Figure 2. The three borings will be advanced to a depth of approximately five to six feet below surface grade (bsg). Upon reaching the target depth, a soil vapor sample will be collected using Suma canisters as required by ACHCS. Following collection of the vapor samples, the borings will be driven to a depth of approximately seven feet bsg, where an undisturbed soil sample can be collected for chemical analysis. The soil samples collected will be field analyzed for volatile organic compounds (VOCs) using a photo-ionization detector (PID) and recorded on the boring logs. The soil samples that contain the highest PID readings will be submitted for chemical analysis (maximum three soil samples). Field work will be performed in accordance with Delta's Standard Operating Procedures (SOPs) included in the Enclosures.

Following completion of soil vapor collection and soil sampling, Delta will supervise the abandonment of the six borings. The borings will be backfilled with neat cement contain approximately 5% bentonite powder. The upper 0.5-foot of each boring will be completed to surface grade with concrete.

Laboratory Analysis

All vapor and soil samples submitted will be analyzed by a California certified laboratory. Soil vapor samples will be analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX) and total petroleum hydrocarbons as gasoline (TPHg) by EPA Method Toxic Organics (TO3). Delta will request that methyl tertiary butyl ether (MTBE) be read directly from the chromatogram and reported. The soil samples will be analyzed for the above constituents by DHS LUFT.

Reporting

Upon receipt of analytical results, Delta will compare the soil vapor chemical analytical results to the residential SSTL's for volatilization to indoor air. The soil chemical analytical results will be inputed into the RBCA Tier 2 model for residential risk of soil volatilization to indoor air. The results and amended RBCA will be submitted to ACHCS for review.

The proposed scope of work will be performed following work plan approval from ACHCS and permission from Chevron. Once approval and permission is granted, Delta will schedule the proposed work.

If you have any questions please call me at (916) 536-2612.

Sincerely,
Delta Environmental Consultants

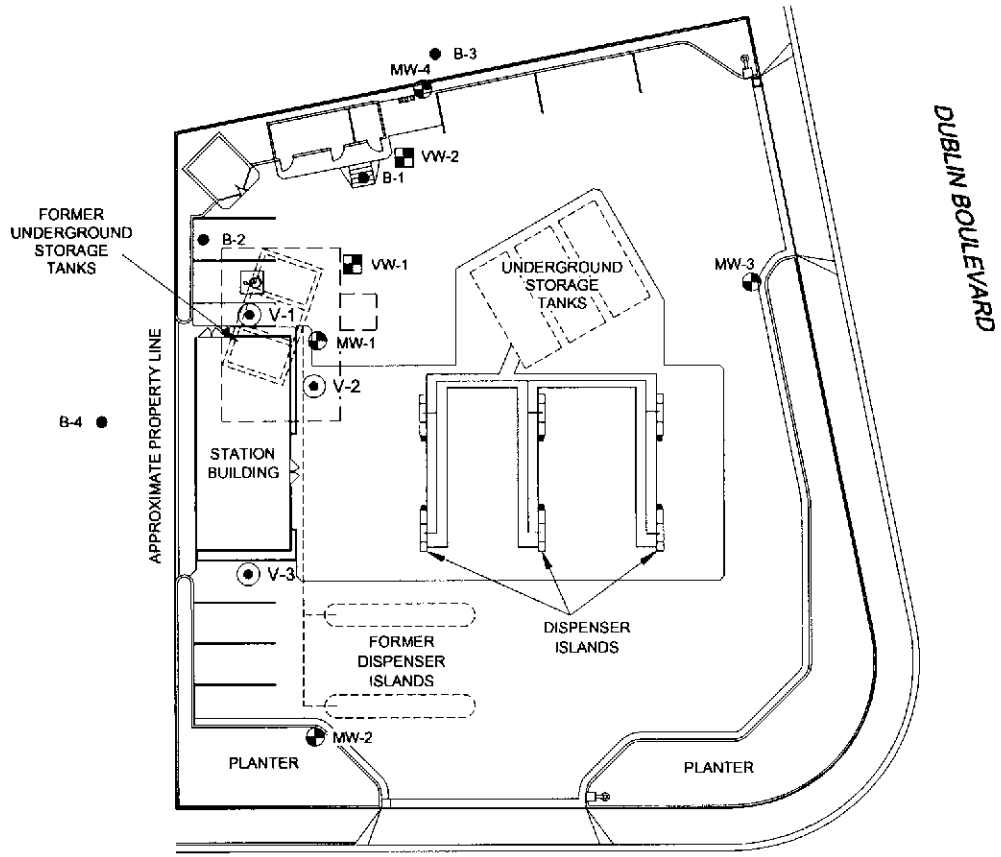
Todd A. Del Frate
Project Manager

Steve Meeks
California Registered Civil Engineer No. C057461

TAD (Lrp001.9-5542.doc)

Enclosures Figure 2: Site Plan
Standard Operating Procedures

Cc: Mr. Tom Bauhs, Chevron Products Company



LEGEND:

◔	MW-1	MONITORING WELL LOCATION
▩	VW-2	VADOSE MONITORING WELL LOCATION
●	B-1	SOIL BORING LOCATION
◉	V-1	PROPOSED SOIL VAPOR SAMPLING POINT

North

0 40 FT

SCALE

FIGURE 2

SITE MAP

CHEVRON SERVICE STATION NO. 9-5542

7007 SAN RAMON ROAD

DUBLIN, CA.

PROJECT NO. DG95-542	DRAWN BY TLA 10/30/01
FILE NO. DG95542B	PREPARED BY TD
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.

NOTE: FORMER PUMP ISLANDS LOCATED FROM A BLAIN TECH SERVICES HAND SKETCH DRAWING.

PRE-FIELD WORK ACTIVITIES

Health and Safety Plan

Fieldwork performed by Delta and Delta's subcontractors at the site is conducted according to guidelines established in a Site Health and Safety Plan (SHSP). The SHSP is a document that describes the hazards that may be encountered in the field and specifies protective equipment, work procedures and emergency information. A copy of the SHSP is at the site and available for reference by appropriate parties during work at the site.

Locating Underground Utilities

Prior to commencement of any work that is to be below surface grade, the location of the excavation, boring, etc. is marked with white paint as required by law. An underground locating service such as Underground Service Alert (USA) is contacted. The locating company contacts the owners of the various utilities in the vicinity of the site to mark the locations of their underground utilities. Any invasive work is preceded by hand augering to a minimum depth of five feet below surface grade to avoid contact with underground utilities.

FIELD METHODS AND PROCEDURES

Soil Gas Sampling

Soil gas samples are collected using direct-push sampling rigs such as a Geoprobe®. Each sampling rig is equipped with a Vacuum/Volume System Pump and a Direct Read Flowmeter. The GeoProbe Post Run Tubing (PRT) System with ¼ inch Polyethylene Tubing and Expandable or Rectractable drive points will be incorporated into the sampling procedure.

Sampling Procedures
Soil gas samples are collected at discrete depths using the Vacuum/Volume System to purge and draw a sample through the PRT System. Vironex uses polyethylene tubing through which the sample is drawn, used tubing is discarded after each sample. A regulator is placed in line with ¼-inch polyethylene tubing to maintain a 200 cc (ml) per min flow rate while purging or collecting soil gas samples. Once samples have been purged, samples can be extracted with a syringe or can be captured in a tedlar bag with the use of a vacuum box.

All drilling and sampling equipment are either steam-cleaned or washed prior to use at each site and between boreholes to minimize the potential for cross-contamination. Sampling equipment is also cleaned between samples.

QUALITY ASSURANCE PLAN

General Sample Collection and Handling Procedures

Proper collection and handling are essential to ensure the quality of a sample. Each sample is collected in a suitable container, preserved correctly for the intended analysis and stored, prior to

analysis, for no longer than the maximum allowable holding time. Details on the procedures for collection and handling of samples used on this project can be found in this section.

Soil Vapor Sample Collection for Volatile Organic Analysis

For VOA, the air sample is extracted with a syringe, SUMMA canister or can be captured in a tedlar bag. Samples are collected in a manner that there is no ambient air introduced to sample. Once the sample has been extracted the container is sealed and checked for leaks using a PID or Vacuum gauge. If none are present, the container is labeled, placed in a black plastic bag, and refrigerated according to Soil and Water Sampling and Labeling Presentation.

Soil and Water Sample Labeling and Preservation

Label information includes a unique sample identification number, job identification number, date and time. After labeling, all soil and water samples are placed in a Ziploc® type bag and placed in an ice chest cooled to approximately 4° Celsius. Upon arriving at Delta's office, the samples are transferred to a locked refrigerator cooled to approximately 4° Celsius. Chemical preservation is controlled by the required analysis and is noted on the chain-of-custody form.

Upon recovery, the sample container is sealed to minimize the potential of volatilization and cross-contamination prior to chemical analysis. Soil sampling tubes are typically closed at each end with Teflon® sheeting and plastic caps. The sample is then placed in a Ziploc® type bag and sealed. The sample is labeled and refrigerated at approximately 4° Celsius for delivery, under strict chain-of-custody, to the analytical laboratory.

Sample Identification and Chain-of-Custody Procedures

Sample identification and chain-of-custody procedures document sample possession from the time of collection to ultimate disposal. Each sample container submitted for analysis has a label affixed to identify the job number, sampler, date and time of sample collection and a sample number unique to that sample. This information, in addition to a description of the sample, field measurements made, sampling methodology, names of on-site personnel and any other pertinent field observations, is recorded on the borehole log or in the field records. A California-certified laboratory analyzes the samples.

A chain-of-custody form is used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them relinquishes the samples by signing the chain-of-custody form and noting the time. The sample-control officer at the laboratory verifies sample integrity and confirms that the samples are collected in the proper containers, preserved correctly, and contain adequate volumes for analysis.

If these conditions are met, each sample is assigned a unique log number for identification throughout analysis and reporting. The log number is recorded on the chain-of-custody form and in the legally required logbook maintained by the laboratory in the laboratory. The sample description, date received, client's name and other relevant information is also recorded.