Weiss Associates Environmental and Geologic Services

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November 21, 1999

Scott Seery
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California, 94502

RE: **Re-Evaluation of Vapor Purge Technique**
Former Chevron Service Station #9-5607
5269 Crow Canyon Road
Castro Valley, California
WA Job #4-1129-70

Dear Mr. Seery:

On behalf of Chevron Products Company (Chevron), Weiss Associates (WA) has re-evaluated the soil vapor survey data collected on July 30, 1998 at the above referenced site. WA previously stated, in the February 5, 1999, Soil Vapor Sample Collection Update, that the data were rejected due to unknown purge volume. At that time WA was unable to determine the volume removed from the sample lines by the purge equipment. The purge volume was not known because the field geologist recorded only the duration of the purge and did not record the purging equipment flow rate or total volume. WA later re-investigated whether a volume estimate was possible and found that the maximum possible volume could be estimated.

Upon contacting the purge equipment manufacturer, Geoprobe™ Systems, WA found that the purge equipment is capable of removing a maximum of approximately 7.72 liters. The purge volume is equal to the air displaced by Geoprobe's 11 liter vacuum/volume tank when the vacuum is drawn down to 21" of mercury. The vacuum/volume system is only capable of removing one purge volume per sample location due to the pump and valve system operation. A drawing of the vacuum/volume equipment and a description of the pump and valve system operation are presented in Figure 1.

Based on our discussion with the vacuum/volume system manufacturer, Geoprobe Systems, the purge technique employed at the subject site was consistent with the standard procedures for use of the Vacuum/Volume system. The Vac/Vol system evacuates an 11 liter tank until 21" Hg gage pressure is achieved. The vacuum pump is shut off and the pump shut off valve is closed. The vapor sampling lines are then purged by opening the tank valve and drawing purge air in under the tank vacuum. The WA geologists allowed the tank to draw purge air in for 5 minutes. The maximum purge volume that can be removed by this system under 21" Hg is 7.72 liters. 7.72 liters will influence a subsurface spherical volume of approximately 14" diameter, which would be within the area of the trench backfill (see Insets 1 & 2 of Figure 1). The sand backfill is approximately 100 times more permeable than the surrounding soil. Thus, we are confident that only trench vapors were sampled.

It is our opinion that data integrity was not compromised by the purge technique employed at the subject site on July 30, 1998. Therefore, the July 30, 1998 data are considered valid and useable for their intended purpose. Please retract our February 5, 1999 Soil Vapor Sample Collection Update and replace it with the attached Soil Vapor Sample Report.

Please call us at (510) 450-6000 if you have technical questions about the findings of this letter.

REGISTERED PROFESSIONAL ENGINEER
TIMOTHY R. UTTERBACK
No. C050926
Exp. 6/30/2001
CIVIL
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Sincerely,
Weiss Associates

Tim Utterback
Project Engineer

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Senior Project Engineer

REGISTERED PROFESSIONAL ENGINEER
MICHAEL J. ZIMMERMAN
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Enclosures: Figure 1. Description of Soil Vapor Purge Technique
Soil Vapor Sample Report

cc: Brett Hunter, Chevron Products Company, PO Box 5004, San Ramon, CA 94583-0804

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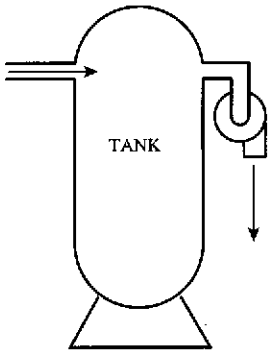
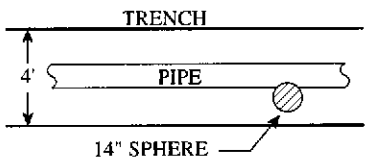


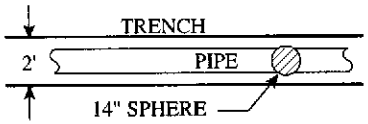
February 5, 1999 Soil Vapor Collection Update

WA previously thought Vac/Vol system was pumping continuously for 5 minutes with unknown flow rate.



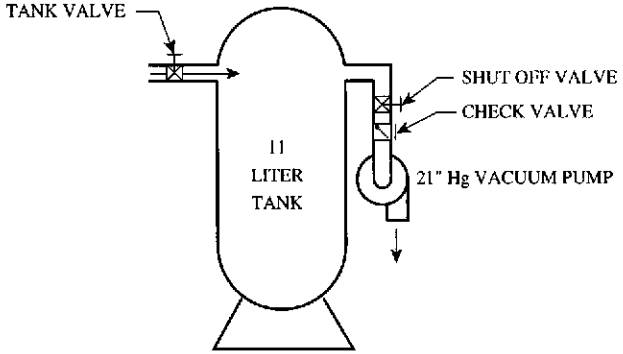
PLAN VIEW
SCALE: 1" = 8'

FIGURE 1



SECTION VIEW
SCALE: 1" = 8'

FIGURE 2



Corrected Interpretation of Sampling Apparatus

Based on our discussion with the manufacturer, Geoprobe Systems, the purge technique was consistent with their standard procedures for use of the Vacuum/Volume system. The Vac/Vol system evacuates an 11 liter tank until 21" Hg gage pressure is achieved. The vacuum pump is shut off and the pump shut off valve is closed. The vapor sampling lines are then purged by opening the tank valve and drawing purge air in under the tank vacuum. The WA geologists allowed the tank to draw purge air in for 5 minutes. The maximum purge volume that can be removed by this system under 21" Hg is 7.72 liters. 7.72 liters will influence a subsurface spherical volume of approximately 14" diameter, which would be within the area of the trench backfill (see Figure 1 & 2). The sand backfill is approximately 100 times more permeable than the surrounding soil. Thus, we are confident that only trench vapors were sampled.

Figure 1. Description of Soil Vapor Purge Technique, Chevron SS# 9-5607, 5269 Crow Canyon Rd. Castro Valley, California