RO209

August 7, 2007

VIP Service Station
C/O L. B. Patel
385 Century Circle
Danville, CA 94526

Ms. Donna Grogos
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Subject: Delay of review and approval of our Work Study Plan Dated April 2, 2005
Site clean address: VIP Service Station at 3885 Castro Valley Blvd., Castro Valley, Ca 94547

Dear Ms. Grogos

We have submitted to your department "Remedial Investigation/Feasibility Study Work Plan" as directed by The Alameda County Health Care Services (ACHS) for the subject site on April 2, 2005 and May 18, 2005 for your review and approval (see attached copy for your information).

It is more than two years since we sent the report to your department, we did not hear regarding instructions for the next step or closure of the site. Our consultant (P & D Environmental) and we have called several times, but are not able to get clear answers as when the review would be completed.

We are afraid that the Water Resource Board may cut the funding beginning from the year 2010, which would curtail the remedial activities.

We are very anxiously waiting for your response to take next step or closure of the site.

We highly appreciate your urgent action in this matter.

Should you have any questions, please write to call me at 510-622-5973 or our consultant Mr. Paul King at 510-459-6525.

Thank you in anticipation.

Sincerely,

LBPatel

L . B. Patel

Attachment

Cc: Steven Plunkett (ACHS), Paul King (P&D Environmental), 55 Santa Clara, Suite 240, Oakland, CA 94610

ALAMEDA COUNTY
HEALTH CARE SERVICES AGENCY
Department Of Environmental Health
Environmental Protection Division
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

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94502654031 94502@6540

May 18, 2005

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

SUBJECT: DOCUMENT CERTIFICATION
VIP Service
3889 Castro Valley Blvd.
Castro Valley, CA

Dear Mr. Wang:

The following documents for the subject site were transmitted to you under separate cover.

- Semi-Annual Groundwater Monitoring and Sampling Report (document 0047.R34) dated May 16, 2005 prepared by P&D Environmental, and
- Remedial Investigation/Feasibility Study Work Plan (document 0047.W5) dated May 17, 2005 prepared by P&D Environmental

I declare, under penalty of perjury, that the information and/or recommendations contained in the above-mentioned report and work plan 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

P Gupta

Pawan Gupta.

Cc: Mr. Paul King, P&D Environmental

0047.L80

April 2, 2005
Work Plan 0047.W5

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

SUBJECT: REMEDIAL INVESTIGATION/FEASIBILITY STUDY WORK PLAN
VIP Service
3889 Castro Valley Boulevard
Castro Valley, CA

Dear Mr. Wang:

P&D Environmental, a division of Paul H. King, Inc. (P&D), is pleased to present this Remedial Investigation and Feasibility Study (RI/FS) Work Plan to further evaluate the vertical and horizontal extent of petroleum hydrocarbons in groundwater in the vicinity of the site and to evaluate the feasibility of soil vapor extraction, air sparging, and groundwater pumping as remedial alternatives at the subject site.

Remedial action is required to reduce petroleum hydrocarbon soil vapor concentrations detected in soil during a soil gas survey adjacent to the slab-on-grade structure immediately adjacent to and downgradient of the subject site. The results of the most recent subsurface soil and groundwater investigation in the vicinity of the subject site identified an area of elevated benzene concentrations in groundwater immediately downgradient of the subject site, and an area of elevated benzene concentrations in shallow soil (at a depth of 4.0 feet below the ground surface) adjacent to the offsite slab-on-grade structure located immediately adjacent to and downgradient of the subject site.

The objectives of the feasibility studies are to determine if the coarse-grained layer can effectively be dewatered to achieve the following goals:

- allow hydraulic control of contaminant movement,
- dewater and expose petroleum-impacted soil that is presently below the water table for the introduction of air to enhance biodegradation of contaminants, and
- inhibit the movement of water upwards into vapor extraction locations.

BACKGROUND

It is P&D's understanding that the subject site was purchased by VIP Service in December, 1984. Prior to purchase of the property by VIP Service, the site was operated as a retail gasoline station for an undetermined period of time. In addition, the site was operated as a retail gasoline station from the time of purchase by VIP Service until the tanks were removed by Accutite on April 26, 1993. The site is presently operated as an automotive repair facility.

The subject site is currently paved, with one slab-on-grade structure that is used for automotive

repair. Most of the surfaces surrounding the site are paved. The site is surrounded to the east and south by a trailer park, and to the west by a different trailer park. The topography at the site visibly slopes westward with a slope of approximately 0.0055. Approximately 200 feet to the west of the site the ground surface slope reduces noticeably to approximately 0.0086. The change in slope is approximately coincident with Aspen Avenue. The adjacent trailer park located to the west and downgradient from the subject site is predominantly paved, with the exception of several planters and trailer parking locations. One slab-on-grade structure is located on the adjacent trailer park, immediately adjacent to Castro Valley Boulevard.

The underground tank system at the subject site consisted of three 10,000 gallon capacity gasoline tanks, two dispenser islands, and one 550 gallon waste oil tank. It is P&D's understanding that the fuel tanks contained leaded and unleaded gasoline while in use by VIP Service. In addition, VIP Service reported that diesel fuel was not stored at the site at any time.

Historical investigations at the site are summarized in greater detail in the background sections of previous reports. In addition to quarterly groundwater monitoring and sampling reports, the following subsurface investigation and associated reports have been prepared.

- Soil Excavation Report dated January 24, 1994 prepared by P&D (document 0047.R1) documenting UST removal and associated soil and water sample collection by others in April 1993 and excavation of approximately 680 cubic yards of petroleum-impacted soil between August and November, 1993.
- Monitoring Well Installation Report dated January 24, 1994 prepared by P&D (document 0047.R2) documenting installation of wells MW1, MW2 and MW3 and drilling of one exploratory soil boring at the site in November, 2003.
- Offsite Groundwater Quality Investigation Report dated July 14, 1995 prepared by P&D (document 0047.R8) documenting hand augering of boreholes P1 through P5 and the collection of groundwater samples.
- Offsite Groundwater Quality Investigation Report dated December 27, 1995 prepared by P&D (document 0047.R11) documenting hand augering of boreholes P6 through P10 and the collection of groundwater samples.
- Offsite Groundwater Quality Investigation Report dated October 9, 1996 prepared by P&D (document 0047.R15) documenting hand augering of boreholes P11 through P15 and the collection of groundwater samples. In addition, soil sample analysis for organic carbon, moisture content and dry density was performed.
- Risk-Based Corrective Action Evaluation Tier 2 report dated October 16, 1997 prepared by P&D (document 0047.RBCA TR2) documenting underground utility location in the vicinity of the site and unacceptable levels of risk from subsurface petroleum hydrocarbons, based on the results of the RBCA evaluation.
- Potential Receptor Evaluation Report dated May 20, 1998 prepared by P&D (document 0047.R21) documenting visual evaluation and recording of building

foundation construction conditions, evaluation of buried utility depths, identification of potential sensitive receptors, and recommended locations for soil gas sample collection.

- Soil Gas Investigation Report dated January 14, 2000 prepared by P&D (document 0047.R23) documenting the hand augering of 12 boreholes and collection of 12 soil gas samples and four groundwater grab samples. The samples were collected in utility trench backfill. Detectable concentrations of TPH-G, MTBE and benzene were present in soil gas samples collected from boreholes adjacent to the house at 3875 Castro Valley Boulevard. The boreholes were only approximately 2.5 feet deep because of the shallow depth of the utilities at these locations.
- Subsurface Investigation Report (P16 – P27) dated July 2, 2002 prepared by P&D (document 0047.R28) documenting Geoprobe drilling of boreholes P16 through P27 and the collection of soil and groundwater samples. The report includes geologic cross-sections containing surveyed ground surface elevations and isoconcentration contours, and site vicinity maps with isoconcentration contours for benzene and TPH as Gasoline in soil and water.
- Corrective Action Plan dated November 26, 2002 prepared by P&D (document 0047.W4) recommending that a vapor extraction and air sparging feasibility study be performed.

Figures 1 through 15 from the most recent Subsurface Investigation Report (document 0047.R28) are attached with this report. The geologic cross sections (Figures 4, 5, 12, 13, 14, and 15) have been amended to incorporate subsurface information obtained during hand augering of boreholes P1 through P5. All historic boring logs (including field notes from hand augering boreholes P1 through P5 in June 1995 (see report 0047.R8) and field notes from hand augering boreholes B1 through B12 for collection of 12 soil gas and four groundwater grab samples (see report 0047.R23)) are attached as Appendix A, all historic soil sample results are tabulated in Appendix B, all historic water sample results are tabulated in Appendix C, and all historic soil gas sample results are tabulated in Appendix D.

In addition, a Site Plan showing UST pit confirmation soil sample collection locations and associated TPH-G and benzene concentrations is attached as Figure 16, a Site Plan showing locations where separate phase hydrocarbons were present in samples in the immediate site vicinity is attached as Figure 17, historic soil gas sample collection locations are shown in Figure 18, the extent of TPH-G and benzene in groundwater exceeding RWQCB February 2005 Table B ESL values and proposed locations for additional investigation is attached as Figure 19, proposed groundwater extraction wells and observation wells for aquifer remediation evaluation is attached as Figure 20, and proposed locations for soil vapor extraction and air sparging evaluation is attached as Figure 21.

In a letter dated June 21, 2004, the ACDEH requested a detailed feasibility study evaluating a

minimum of two corrective action alternatives for remedying or mitigating adverse impacts caused by the UST release for both soil and groundwater.

SITE CONCEPTUAL MODEL

Components of a site conceptual model have been addressed at different times in different reports. In summary, the contaminants of concern are TPH-Gasoline, BTEX and MTBE. The horizontal extent of contamination appears to be largely defined in both soil (see Figures 6, 7, 8, 9, 12. 13. 14 and 15) and groundwater (see Figures 3, 10, 11, 12, 13, 14 and 15), and recommendations are provided in this RI/FS Work Plan to verify that identification of the horizontal extent of petroleum hydrocarbons is complete. However, the vertical extent of the petroleum hydrocarbons in groundwater at and near the site has not been defined. Recommendations are provided in this RI/FS to define the vertical extent of petroleum hydrocarbons in groundwater.

Groundwater is encountered when drilling at and near the site at depths ranging from approximately 7.5 to 12.5 feet below the ground surface in the investigation area, and historically the measured depth to water has seasonally fluctuated in the three wells located at the site between the depths of approximately 6 and 12 feet below the ground surface. Based on water level measurements in the three wells, the groundwater flow direction at the site has historically been consistently towards the west.

Based on TPH-G and benzene concentrations in groundwater, it appears that the highest concentrations of petroleum hydrocarbons are encountered immediately downgradient of the site with benzene concentrations in groundwater exceeding 10 mg/L in an area measuring approximately 40 feet in width and approximately 100 feet in length (see Figure 11). Figure 10 shows the approximate extent of TPH-G in groundwater at the site. Figure 3 shows the approximate horizontal extent of petroleum hydrocarbons in groundwater in the vicinity of the site and Figures 6 through 9 show the approximate extent of petroleum hydrocarbons in soil at the site.

A coarse-grained layer of sandy material is encountered at the site at a depth of approximately seven to 12 feet below the ground surface, and ranges from approximately 0.5 to 5 feet in thickness. The layer is interpreted to be horizontally continuous beneath the site and site vicinity (see Figures 4 and 5), and the petroleum hydrocarbon contamination is interpreted to be transported by groundwater in this coarse-grained layer. The petroleum hydrocarbons are also interpreted to diffuse upwards from the coarse-grained layer into the overlying fine-grained material (see Figures 12, 13, 14 and 15). Immediately downgradient of the site, the fine-grained layer overlying the coarse grained layer is interpreted to thicken considerably, resulting in substantial reduction in the coarse-grained layer thickness and a bifurcation of the contaminant plume (see Figure 3 and location P26 in cross sections B-B' and F-F'). The increase in clay content in the subsurface materials directly downgradient of the site is further supported by the complete absence of a coarse-grained layer and the absence of petroleum hydrocarbons at location P6 (see Figure 3). The coarse-

grained layer also thins to the northeast and southwest of the site.

Based on findings presented in the CAP (document 0047.W4), groundwater is not considered a drinking water source in the immediate site vicinity, and impacts to surface water bodies are not considered probable. The only anticipated pathway for exposure by sensitive receptors is the migration of contaminant soil gas into business and residential structures. The sensitive receptors in the vicinity of the site consist of the inhabitants of the commercial building at the site, and the inhabitants of the trailers in the adjacent trailer parks. At the trailer park located immediately downgradient of the site, a house constructed with a slab-on-grade foundation has had historical odor complaints and soil gas sample results that have suggested an unacceptable level of risk may be posed by soil vapors migrating into the house. Based on groundwater not being used as a current or potential drinking water source, Table B of the February 2005 RWQCB ESLs is used as a guide for establishing acceptable remedial goals. The extent of groundwater exceeding the TPH-G and benzene ESL is shown on Figure 18. This RI/FS assumes that remediation will not be actively performed beneath Castro Valley Boulevard.

Review of the concentrations of contaminants of concern (TPH-G, BTEX and MTBE) encountered in soil and water at and near the site show that MTBE has not been encountered in soil or groundwater at concentrations exceeding the ESL. However, MTBE soil gas sample results exceeding the ESL were obtained immediately downgradient of the site, resulting in MTBE being included in the list of contaminants evaluated for achieving remedial objectives.

ADDITIONAL SUBSURFACE INVESTIGATION

Prior to the beginning of drilling and hand augering, permission for offsite access will be obtained, permits will be obtained from the Alameda County Public Works Department, drilling locations will be marked with white paint, Underground Service Alert will be notified for underground utility location , and a health and safety plan will be prepared.

To further define the horizontal extent of petroleum hydrocarbons in soil and groundwater, one soil boring designated as P28 will be hand augered at the locations shown on Figure 18. To further define the horizontal extent of petroleum hydrocarbons in groundwater, additional boreholes will be hand augered at locations P29, P30 and P31 as shown on Figure 18.

Soil samples will be collected at depths of approximately 5 and 10 feet below ground surface in borehole P28 by first using a hand auger with extensions to drill to the desired depth, and then driving a stainless steel sampler containing a stainless steel or brass tube with a percussion hammer and extensions into the soil at the bottom of the borehole. After a sample tube is filled with soil, the ends of the tube will be sequentially covered with aluminum foil and plastic endcaps. One groundwater sample will be collected using a Teflon bailer from each of boreholes P28, P29, P30, and P31 from a depth of approximately two feet below first encountered groundwater.

To further define the vertical extent of petroleum hydrocarbons in soil, two soil borings designated as EW1 and EW2 will be drilled at locations shown on Figure 20. These two borings will be completed as wells for evaluation of groundwater pumping feasibility as discussed below in the Groundwater Remediation Feasibility Study section.

Boreholes EW1 and EW2 will be drilled using a truck-mounted hollow stem auger drill rig. Soil samples will be collected at five-foot intervals in the boreholes using a California-modified split spoon sampler. The soil from all of the borings will be logged in the field in accordance with standard geologic field techniques and the Unified Soil Classification System. All of the soil will be evaluated with a 10.3 eV Photoionization Detector (PID) calibrated using a 100 ppm isobutylene standard. The PID values will be recorded on the boring logs. Samples will be retained for laboratory analysis from boreholes EW1 and EW2 at depths of 10, 15 and 20 feet below the ground surface. Stainless steel or brass tubes will be removed from the split spoon sampler and the ends of the tubes will be sequentially covered with aluminum foil and plastic endcaps.

Immediately following sample collection, all samples will be labeled and stored in a cooler with ice pending delivery to McCampbell Analytical, Inc. of Pacheco, California (McCampbell). McCampbell is a State-accredited hazardous waste testing laboratory. Chain of custody procedures will be observed for all sample handling.

All of the soil and groundwater samples from boreholes P28, P29, P30, EW1, and EW2 will be analyzed at McCampbell for TPH-G using EPA Method 5030 in conjunction with Modified EPA Method 8015; and for BTEX as well as MTBE using EPA Method 8021.

GROUNDWATER REMEDIATION FEASIBILITY STUDY

A total of three four-inch diameter extraction wells, designated as EW1 through EW3, will be installed to total depths of 20 feet to evaluate the potential for groundwater pumping to achieve hydraulic control of contaminant migration and to dewater the coarse-grained layer for remedial action. Well EW1 will be constructed with 10 feet of blank and 10 feet of slotted PVC pipe. Wells EW2 and EW3 will be constructed with 5 feet of blank and 15 feet of slotted PVC pipe (see Figures 4, 5 and 20).

A total of four two-inch diameter observation wells, designated as OW1 through OW4, will be installed to total depths of 15 feet to evaluate the effectiveness of extraction from the extraction wells. All of the observation wells will be constructed using 5 feet of blank and 10 feet of slotted PVC pipe. The boreholes for the observation wells will be drilled using a truck-mounted hollow stem auger drill rig. The proposed locations of the extraction wells and observation wells are shown on Figure 20.

The wells will be constructed using Schedule 40 PVC pipe. The slotted intervals will consist of 0.020-inch factory slot placed in the bottom of the borehole. The annular space surrounding the PVC pipe will be filled with #2/12 sack sand to a height of one foot above the top of the slotted interval. A one-foot thick layer of bentonite pellets will be placed above the sand and hydrated. Neat cement grout will be placed in the annular space above the bentonite layer, and a one-foot thick layer of concrete will be placed in the annular space at and immediately below the ground surface. The tops of the wells will be enclosed in flush-mounted water-tight traffic-rated well covers.

Pumping will be performed at each extraction well. Pumping rates and the surrounding wells will be monitored during pumping to determine drawdown for each well and associated radius of influence associated with different pumping rates. Water pumped from the wells will be discharged to the sanitary sewer in accordance with local wastewater treatment plant requirements.

Based on the results of the well pumping, a trench may be proposed at the location of Trench A in Figure 19 for dewatering. In addition, based on the pumping results, an additional trench may be proposed at the location of Trench B in Figure 20 for air sparging.

SOIL REMEDIATION FEASIBLITY STUDY

Vapor extraction and air injection feasibility for fine-grained soil remediation will be evaluated by installing four shallow 1-inch diameter PVC wells designated as F1 through F4. Vacuum will be applied to F1, and the effects of vacuum at F1 will be evaluated at F2, F3 and F4 located 10, 20 and 30 feet from F1, respectively. In addition, air will be pumped into F1 and the other locations evaluated for evidence of pressure effects from F1.

The average depth below the ground surface at which native fine-grained material is encountered between cross-section B-B' and C-C' is four feet. In this areas the fine-grained layer extends to an average depth of 10 feet below the ground surface. The total depth of the shallow wells for fine-grained soil vapor extraction feasibility evaluation will be nine feet below the surface, with the top of the sand interval for the wells five feet below the ground surface.

Similarly, vapor extraction and air injection feasibility for coarse-grained soil remediation will be evaluated by installing four shallow wells designated as C1 through C4. Assuming that well pumping effectively lowers the water level in the coarse-grained materials, vacuum will be applied to C1, and the effects of vacuum at C1 will be evaluated at C2, C3 and C4 located 10, 20 and 30 feet from C1, respectively. In addition, air will be pumped into C1 and the other locations evaluated for evidence of pressure effects from C1.

The average depth below the ground surface at which native coarse-grained material is encountered between cross-section A-A' and B-B' is seven to eight feet. In this areas the coarse-grained layer

extends to unknown depths below the ground surface. The total depth of the shallow wells for coarse-grained soil vapor extraction feasibility evaluation will be 13 feet below the surface, with the top of the sand interval for the wells eight feet below the ground surface.

The proposed locations for F1 through F4 and C1 through C4 are shown in Figure 21.

REPORT

A report will be prepared documenting the findings of the subsurface investigation and feasibility studies. The report will include recommendations for remediation at the site.

SCHEDULE

The following schedule addresses elements identified in this work plan.

Activity	Calender Days
Work plan submittal to ACDEH	Day 0
Work plan approval by ACDEH	Day 30
Permit application submittal to ACDPW	Day 35
Request offsite access	Day 35
Obtain offsite access permission	Day 45
Submit sanitary sewer discharge permit app	Day 45
Schedule driller	Day 47
Permit application approval by ACDPW	Day 50
Sanitary sewer discharge permit approval	Day 65
Well installation	Day 68
Well installation	Day 69
Well installation	Day 70
Well development	Day 72
Well development	Day 73
Pumped water equip in place	Day 78
Aquifer feasibility test	Day 80
Aquifer feasibility test	Day 81
Vapor extraction/air sparge feasibility test	Day 82
Vapor extraction/air sparge feasibility test	Day 83
Report delivered to ACDEH	Day 128

May 2, 2005
Work Plan 0047.W5

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

Sincerely,

P&D Environmental

Paul H. King
President
California Registered Geologist
Registration No. 5901
Expires: 12/31/05

May 2, 2005
Work Plan 0047.W5

Attachments:
Tables 1, 2 & 3
Site Location Map (Figure 1)
Site Vicinity Map (Figure 2)
Site Vicinity Map Showing Previous Investigation Borehole Locations (Figure 3)
Geologic Cross Sections A-A', B-B', C-C' (Figure 4)
Geologic Cross Sections D-D', E-E', F-F' (Figure 5)
Site Vicinity Map Showing TPH-G in Soil at 4.0 Foot Depth (Figure 6)
Site Vicinity Map Showing TPH-G in Soil at 9.0 Foot Depth (Figure 7)
Site Vicinity Map Showing Benzene in Soil at 4.0 Foot Depth (Figure 8)
Site Vicinity Map Showing Benzene in Soil at 9.0 Foot Depth (Figure 9)
Site Vicinity Map Showing TPH-G in Groundwater (Figure 10)
Site Vicinity Map Showing Benzene in Groundwater (Figure 11)
Geologic Cross Sections A-A', B-B', C-C' TPH-G Isoconcentration Contours (Figure 12)
Geologic Cross Sections D-D', E-E', F-F' TPH-G Isoconcentration Contours (Figure 13)
Geologic Cross Sections A-A', B-B', C-C' Benzene Isoconcentration Contours (Figure 14)
Geologic Cross Sections D-D', E-E', F-F' Benzene Isoconcentration Contours (Figure 15)
Site Plan Showing UST Pit Confirmation Soil Sample Collection Locations and Sample Results (Figure 16)
Site Vicinity Map Showing Soil Gas Sample Collection Locations (Figure 17)
Site Plan Showing Locations Where Separate Phase Hydrocarbons Are Present (Figure 18)
Extent of TPH-G and Benzene in Groundwater Exceeding RWQCB February 2005 Table B ESL Values and proposed Locations for Additional Investigation (Figure 19)
Proposed Groundwater Extraction Well and Observation Well Locations (Figure 20)
Proposed Soil Vapor Extraction and Air Sparging Evaluation Locations (Figure 21)
Appendix A – Boring Logs
Appendix B – Historic Soil Sample Results
Appendix C – Historic Water Sample Results
Appendix D – Historic Soil Gas Sample Results

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

PHK
0014.W5