September 14, 2009

Mr. Paresh C. Khatri
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

RE: Soil Vapor Survey- Work Plan Addendum
BP Service Station No. 11270
3255 Mecartney Road
Alameda, California
Fuel Leak Case No. RO0000511

DELTA

Dear Mr. Khatri:

On behalf of Atlantic Richfield Company (ARC), Delta Consultants (Delta) has prepared this Soil Vapor Survey-Work Plan Addendum (Work Plan Addendum) as directed by the Alameda County Health Care Services Agency (ACHCSA) in their letter to ARC dated August 13, 2009. The agency letter is presented as **Attachment A**.

The general site description, previous environmental compliance activities at the site, site geology and hydrogeology, sensitive receptor survey, as well as, a discussion on the drilling, installation and sampling of soil vapor wells was presented in Delta's "Soil Vapor Survey Work Plan", dated June 8, 2009.

This addendum report deals with the following additional technical comments as outlined in the August 13, 2009 ACHCSA letter, all other site activities should be referenced in the June 2008 work plan.

1. Sampling Density- Additional soil vapor sampling.
2. Soil Vapor Sampling
3. Tracer Compound

The site location map is shown on **Figure 1**. The additional vapor sampling point locations are shown on **Figure 2**.

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1. Sampling Density: TPH-G and benzene at the site were detected as high as 2,000 mg/kg and 18 mg/kg, respectively in the location of the former fuel USTs. The June 2008 work plan proposed two soil vapor sampling points to evaluate potential contaminant volatilization in the vicinity of the service station building. ACHCSA recommends additional soil vapor sampling points to more adequately characterize the site.

In addition to the previously mentioned soil vapor points in the June 2009 work plan, Delta recommends three soil vapor points (SV-3 through SV-5), shown on **Figure 2**. Based on the August 1992 site assessment product sheen was observed in the purge groundwater from each of the former monitoring wells MW-1 through MW-4. Therefore, Delta recommends a soil vapor point (SV-4) be installed in the vicinity of former monitoring wells MW-1 and MW-2.

To fully characterize the site in the vicinity of the fuel islands, soil vapor point SV-5 should be installed. In addition, based on the groundwater flow direction and to determine the potential of off-site migration, soil vapor point SV-3 should also be installed. Groundwater samples previously collected from boring TB-1, as referenced in the June 8, 2009 work plan, which is in the vicinity of proposed soil vapor point SV-3 contained TPH-G at concentrations of 1,500 parts per billion (ppb).

2. Soil Vapor Sampling Point Methodology: ACHCSA is concerned that installing a sampling tip using direct push technology may push hydrated bentonite into the sand effectively sealing off accumulated soil vapor which is being sampled. ACHCSA recommends an alternative method be conducted by installation of appropriate tubing into the borehole during construction and subsequently collect a soil vapor sample through the pre-installed tubing.

The temporary vapor sampling points will be excavated using a two-inch diameter hand auger to a depth of five (5) feet bgs. Delta personnel will place an appropriate length, based on the depth of the hole of ¼-inch Teflon tubing into the auger hole. This tubing will be screened at the down-hole end with an appropriate vapor sampling tip. A vapor tight Swagelock® valve will be placed on the other end of the tubing. A sand pack composed of #30 sand will be placed from the bottom of the hole to approximately 6 inches above the top of the screen (5 to 4 feet bgs). Bentonite chips will be installed above the sand pack from 4 to 3 feet bgs, and thick bentonite grout will be placed between 3 feet and 1 foot bgs in the temporary vapor sampling point. A surface seal of concrete will seal the hole from 1 foot to .5 feet bgs to the surface, which will be completed with an 8-inch diameter traffic rated vault box concreted in place. A construction diagram for the temporary vapor sampling points is included at **Figure 3**.

Delta personnel will ensure the Swagelock® valve on the down-hole side of the Swagelock® tee is in the closed position, connected to the sampling point, and installed in the vault box immediately following installation. The temporary vapor sampling points will remain in place for a minimum of fourteen days prior to vapor sampling. Delta will not perform vapor sampling if measurable precipitation has occurred within those fourteen days. 6-liter Summa purge and sample canisters will be connected to a tee and a pressure gauge will be installed on the top of each canister. The sample tubing will be connected to the down-hole side of the tee to a laboratory filter. The filter will be connected to a regulator set at a flow rate of approximately 200

milliliters/minute, and a Swagelock® vapor tight valve. Swagelock® type fittings will be used for all connections. The process flow diagram of the sampling set up is shown on **Figure 4**.

A vacuum test between the summa canisters and vapor tight valve will be performed for ten (10) minutes by opening and closing the purge canister valve. If vacuum cannot be maintained for ten (10) minutes, further work will be terminated until the vacuum can be maintained with a new summa canister. The vapor tight valve and purge canister valve will then be opened and one volume of air from the sample tubing will be purged. This will clear away stagnant air that exists in the line with minimal subsurface air influence. Since the canisters' sampling flow will be preset by the laboratory at an average of 200 milliliters per minute, 5 feet of tubing should require approximately 15 seconds of purge time. In the same manner, 3 feet of ¼ inch Teflon tubing will require 9 seconds of purge time. Therefore, the combined purge time will be 24 seconds. When purging is complete, the vapor tight valve and purge canister valve will be closed. If during the installation soils are noted to be very tight or impermeable or if during the sampling event the soils do not provide the necessary flows for purging due to low permeability, then Delta will pull a direct sample from the sampling points without purging only after equilibrium has been established in the sampling point with the surrounding soils. This will typically require a two week period after the sampling point has been disturbed or installed.

3. Tracer Compound: In the June 2009 work plan the tracer compound used to evaluate potential ambient air intrusion for leak check purposes was not identified. The work plan also did not identify how the tracer would be applied. ACHCSA recommends that soil vapor wells or probes be constructed with the sampling device and all fittings placed under a shroud with pliable weather stripping along its base to maintain a tracer gas around all sampling connections.

Delta personnel will apply an isopropyl alcohol leak tracer every five minutes during sampling. Paper towels or gauze saturated with isopropyl alcohol will be placed on the top of the well casing to Teflon® tubing joint and the vapor tight valve down-hole connection.

The sample collection will begin by opening the sample canister valve and recording the vacuum. Next, the vapor tight valve will be opened, allowing vapors to be collected. When the vacuum gauge on the sampling canister decreases to approximately five (5) inches of Mercury (inches Hg), the vapor tight valve and the sample canister valve will be closed and the final vacuum will be recorded. A duplicate vapor sample will be taken from the vapor sampling point with the highest PID reading.

The Summa canisters will be submitted to a California-certified laboratory under chain of custody and analyzed for BTEX compounds, MTBE, and total petroleum hydrocarbons (TPH) in the gasoline range using EPA Methods TO-15 and TO-3. The samples will be analyzed for the leak test compound (isopropyl alcohol) at a reporting limit of 0.0025 micrograms per liter. The samples will also be analyzed for O_2, CO_2, and methane ensuring the laboratory reporting limits are below the concentrations of these gases in the atmosphere.

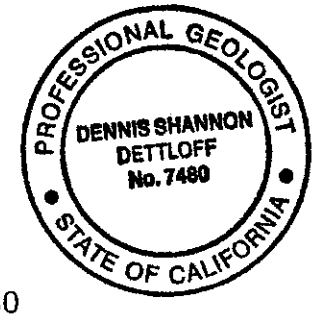
Once the temporary vapor points have served their purpose, they will be abandoned by pulling the tubing, removing the well-box and removing the annular space fill with a

hand auger. All boreholes will be backfilled with Portland neat cement. Surface cover will be patched with color matching cement.

If you have any questions regarding this project, please contact Tony Perini at (408) 826-1867.

Sincerely,
DELTA CONSULTANTS

Tony Perini
Senior Project Manager
Remediation Lead



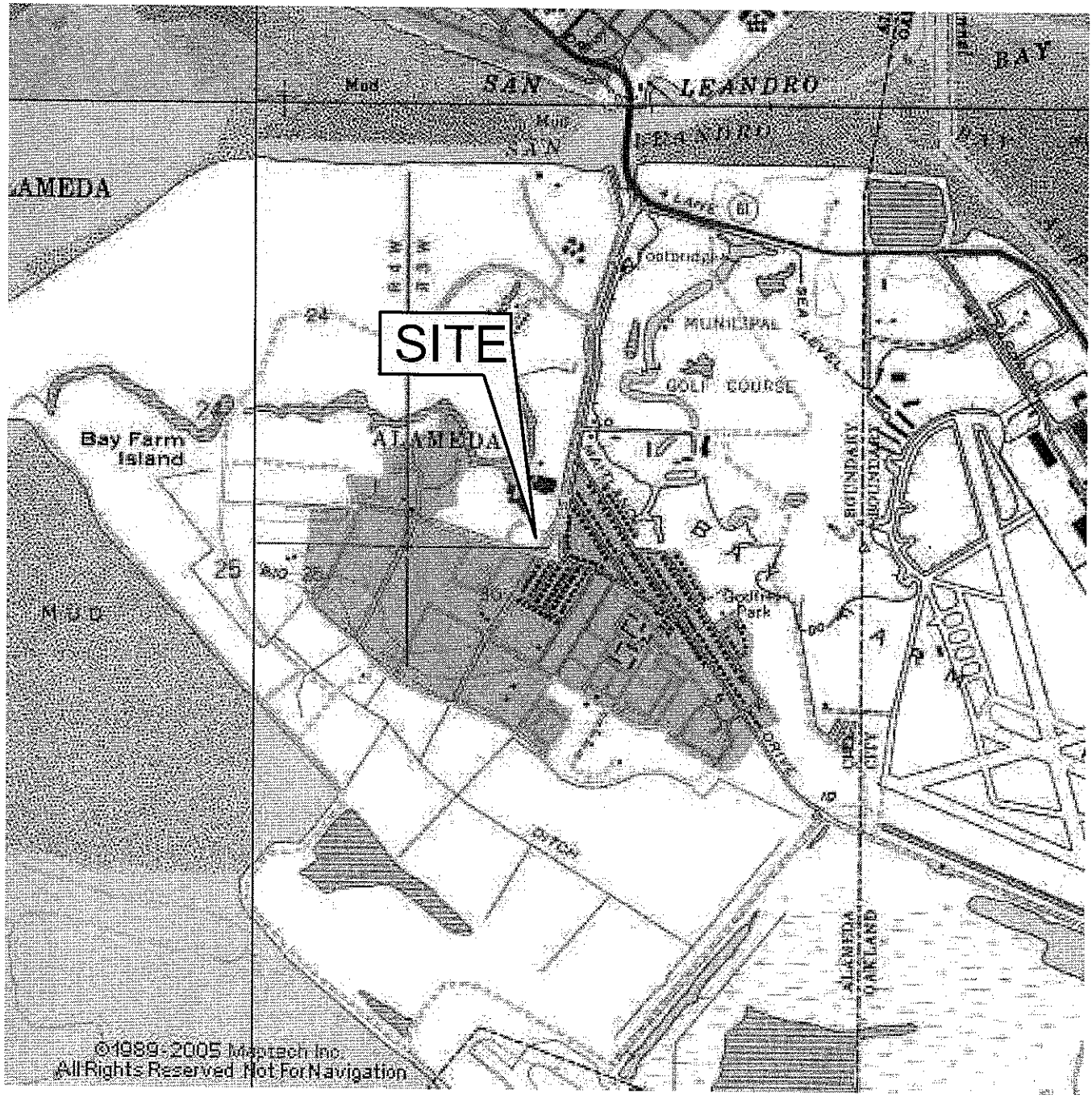
Dennis S. Dettloff, P.G.
Senior Project Manger
California Registered Professional Geologist No. 7480

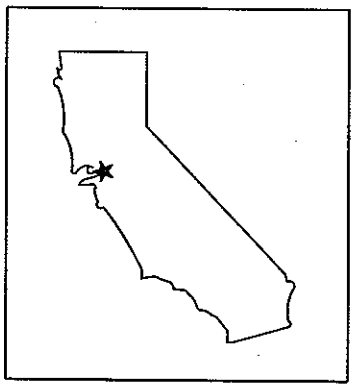
Figures:
- Figure 1 – Site Location Map
- Figure 2 – Site Map with Soil Vapor Sampling Locations
- Figure 3 – Temporary Vapor Sampling Points Construction Detail
- Figure 4 – Process Flow Diagram

Attachments:
- Attachment A – ACHCSA letter dated September 24, 2008

cc: Mr. Paul Supple, ARC

Figures





North

0 900 1800 FT

SCALE

FIGURE 1

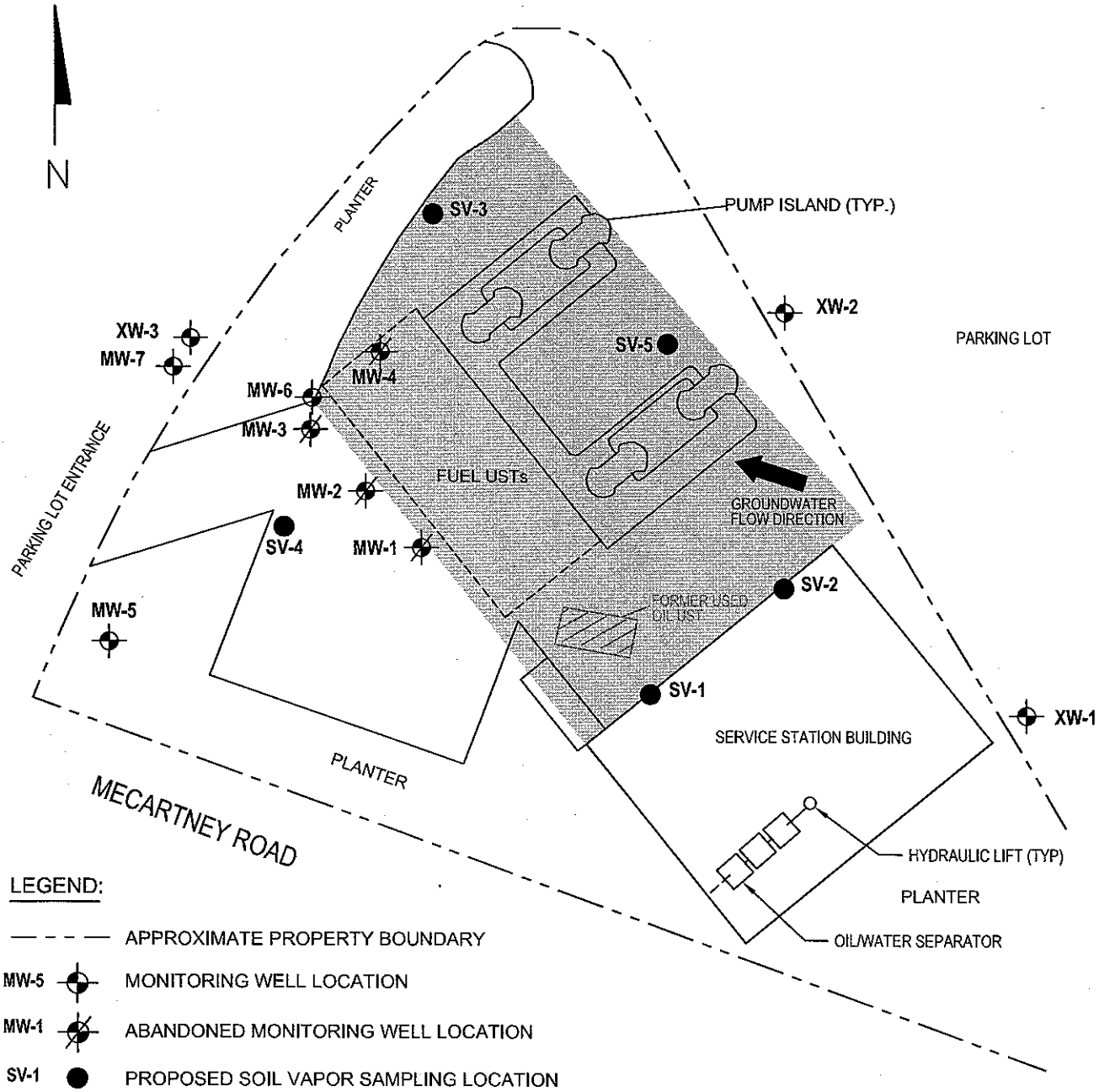
SITE LOCATION MAP

BP STATION NO. 11270
3255 MECARTNEY ROAD
ALAMEDA, CALIFORNIA

PROJECT NO. 142611270	DRAWN BY JH 06/02/09
FILE NO. 11270-SiteLocator	PREPARED BY DD
REVISION NO.	REVIEWED BY

DELTA®

SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP, SAN LEANDRO & HUNTERS POINTE QUADRANGLES (1973)



LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW-5 — MONITORING WELL LOCATION
- MW-1 — ABANDONED MONITORING WELL LOCATION
- SV-1 — PROPOSED SOIL VAPOR SAMPLING LOCATION
- APPROXIMATE AREA FILLED WITH PEA GRAVEL IN THE SHALLOW SUB-SURFACE PER FACILITY OPERATOR

0 20 FT
SCALE

MAP ADAPTED FROM A MAP DATED 10/14/08 BY BROADBENT & ASSOCIATES, INC ENTITLED "SITE MAP".

FIGURE 2
SITE PLAN WITH PROPOSED SOIL VAPOR LOCATIONS
BP STATION NO. 11270
3255 MECARTNEY ROAD
ALAMEDA, CALIFORNIA

PROJECT NO.	PREPARED BY	DRAWN BY
142611270	TP	JH
DATE	REVIEWED BY	FILE NAME
09/09/09	DD	11270-Site

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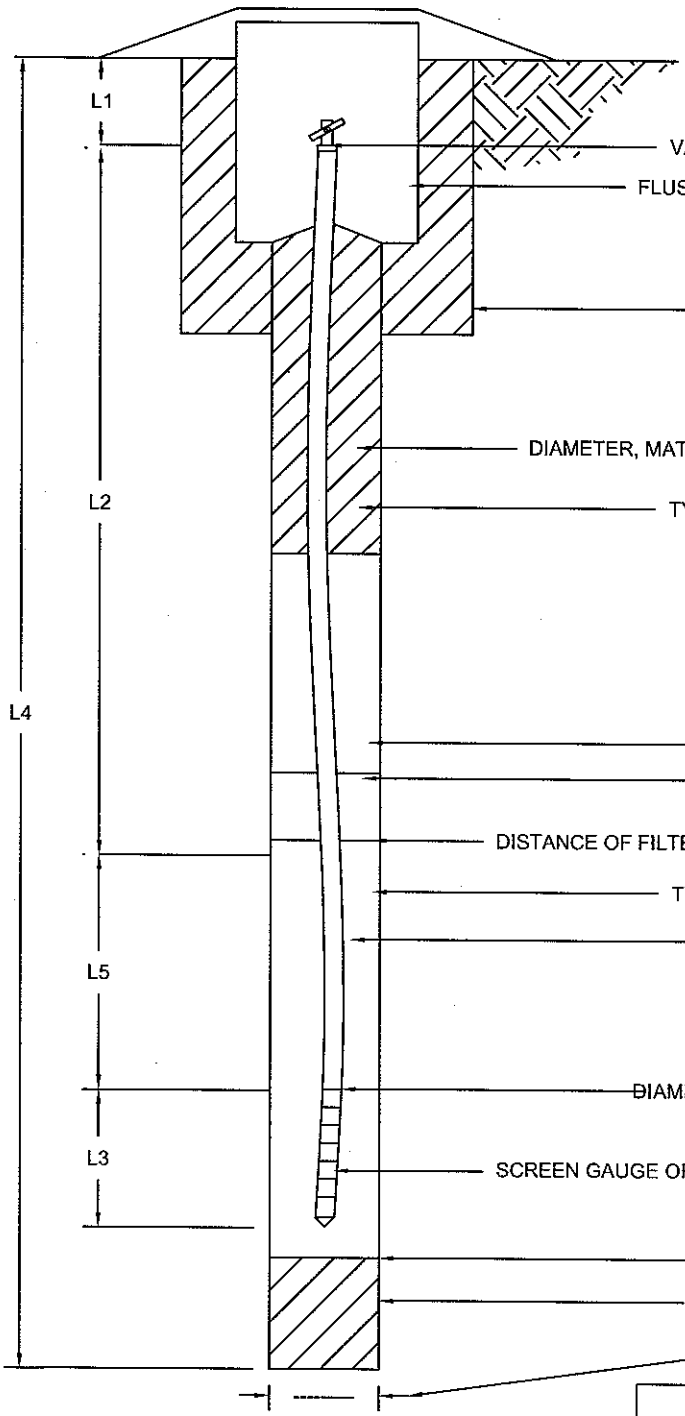

VAPOR TIGHT SWAGELOK FITTING: VAPOR TIGHT SWAGELOK FITTING

FLUSH GRADE WELL CONSTRUCTION

DIAMETER AND MATERIAL: 8" STEEL

TOTAL LENGTH: 8"

THICKNESS AND TYPE OF SEAL: NEAT CEMENT

DIAMETER, MATERIAL AND JOINT TYPE OF RISER: ¼" TEFLON TUBING

TYPE OF BACKFILL AROUND RISER: PORTLAND NEAT CEMENT (1' TO 0.5' BGS)

THICKNESS AND TYPE OF SEAL: THICK LIQUID BENTONITE GROUT(1.5' TO 1' BGS)

GRANULAR BENTONITE: 2'-1.5' BGS

DISTANCE OF FILTER SAND ABOVE TOP OF SCREEN: .5'

TYPE OF FILTER AROUND SCREEN: RMC # 30 SAND

WELL MATERIAL: TEFLON TUBING

DIAMETER AND LENGTH OF SCREEN: ¼" DIAMETER 6" LONG OR APPROPRIATE VAPOR SAMPLING TIP

SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE): 0.020 OR APPROPRIATE VAPOR SAMPLING TIP

DEPTH TO BOTTOM OF WELL: 3.0'

THICKNESS AND TYPE OF SEAL: ----

DIAMETER OF BOREHOLE: 2"

L1	0.5	FT
L2	1.5	FT
L3	0.5	FT
L4	3.0	FT
L5	0.5	FT

FIGURE 3
WELL CONSTRUCTION DETAIL
SV-1 THROUGH SV-5
BP STATION NO. 11270
3255 MECARTNEY ROAD
ALAMEDA, CALIFORNIA

PROJECT NO.	PREPARED BY	DRAWN BY
142611270	TP	JH
DATE	REVIEWED BY	FILE NAME
09/11/09	DD	11270-SVWell

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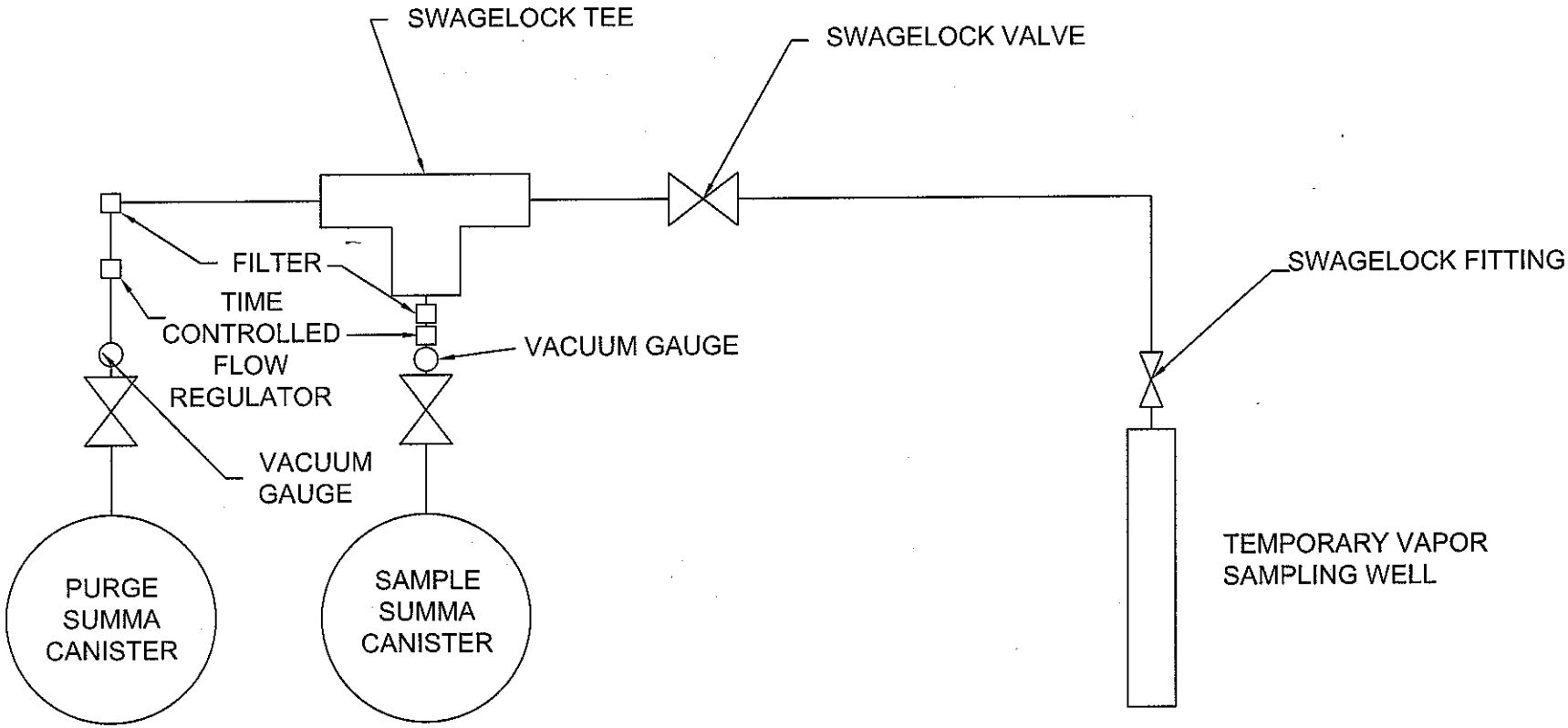

NOT TO SCALE

FIGURE 4
SAMPLING FLOW DIAGRAM

BP STATION NO. 11270
3255 MECARTNEY ROAD
ALAMEDA, CALIFORNIA

PROJECT NO.	PREPARED BY	DRAWN BY
142611270	TP	JH
DATE	REVIEWED BY	FILE NAME
09/11/09	DD	11270-Flow

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Attachment A

ACHCSA Letter
Dated
August 13, 2009

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

August 13, 2009

Paul Supple (*Sent via E-mail to: paul.supple@bp.com*)
Atlantic Richfield Company
(A BP Affiliated Company)
P.O. Box 1257
San Ramon, CA 94583

Terry Grayson (*Sent via E-mail to: Terry.L.Grayson@contractor.conocophillips.com*)
ConocoPhillips
76 Broadway
Sacramento, CA 95818

Ping Liu Chien
Harbor Bay Landing, LLC.
P.O. Box 117610
Burlingame, CA 94011

Subject: Work Plan Addendum for Fuel Leak Case No. RO0000511 and GeoTracker Global ID T0600101198, BP #11270, 3255 Mecartney Road, Alameda, CA 94501

Dear Messrs. Supple, Grayson, and Chien:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the recently submitted document entitled, "Work Plan – Soil Vapor Survey," dated June 8, 2009, which was prepared by Delta Consultants. Delta has proposed to collect two soil vapor samples at the site in response to our May 8, 2009 correspondence. ACEH is concerned that the proposed soil vapor locations may not address concerns identified in our May 8, 2009 correspondence and the proposed methodology may not allow soil vapor sample collection that is representative of actual vadose zone soil conditions.

ACEH requests that you address the following technical comments and send us the work plan addendum requested below.

TECHNICAL COMMENTS

1. **Sampling Density** – As stated in our May 8, 2009 correspondence, concentrations of TPH-g and benzene at the site were detected as high as 2,000 mg/kg and 18 mg/kg, respectively, located in the vicinity of the former fuel USTs. Delta proposes to install two soil vapor sampling points near the service station building, approximately 45 feet southeast of the elevated residual hydrocarbons detected in soil. Although the proposed sampling locations appear to evaluate potential contaminant volatilization to indoor in the vicinity of the service station building, the proposed locations do not appear to evaluate the "hot spot" at the site. Also, it is important to note that case closure for the site is based on not only the current land use scenario, but future land use as well. Therefore, it is conceivable that a commercial

structure could be constructed over areas of elevated residual hydrocarbons at the site, which were not adequately characterized. To adequately characterize the site, additional sampling locations in the areas of likely impact are necessary. Please propose a scope of work to address the above-mentioned concerns and submit a work plan addendum due by the date specified below.

2. **Soil Vapor Sampling Point Methodology** – Delta states that "[s]oil vapor sampling points will be hand augered to five (5) feet bgs for utility clearance. The borehole will be backfilled as follows: sand from 3.5 to five (5) feet bgs, hydrated bentonite granules from 3.5 to 2.5 feet bgs, thick bentonite mixture from just below existing asphalt to 2.5 feet bgs, and thin layer of cold patch asphalt to grade." Following the two week stabilization period, Delta states that "[a] boring will be advanced, using direct push technology, to place a soil vapor sampling tip into the previously installed sand zone (approximately 3.5 to five feet bgs)." ACEH is concerned that installing a sampling tip using direct push technology may push hydrated bentonite into the sand effectively sealing off accumulated soil vapor, which we are attempting to sample. It may be advantageous to install appropriate tubing into the bore hole during construction and subsequently collect a soil vapor sample through the pre-installed tubing. Please propose a scope of work to address the above-mentioned concerns and submit a work plan addendum due by the date specified below.

3. **Tracer Compound** – Delta states that a tracer compound will be analyzed to evaluate potential ambient air intrusion for leak check purposes. However, Delta does not identify the tracer compound. Delta does not identify how the tracer will be applied or whether the tracer is a gas or liquid compound. It is recommended that soil vapor wells or probes are constructed with the sampling device and all fittings placed under a shroud with pliable weather-stripping along its base to maintain a tracer gas atmosphere. The shroud should ensure that there is sufficient tracer gas around all sampling connections. The shroud should have a port for inserting a monitoring and sampling device (e.g. Photo Ionization Detector) to ensure that tracer gas atmosphere is maintained. Please propose a scope of work to address the above-mentioned concerns and submit a work plan addendum due by the date specified below.

TECHNICAL REPORT REQUEST

Please submit technical reports to ACEH (Attention: Paresh Khatri), according to the following schedule:

- **September 14, 2009** – Soil and Water Investigation Work Plan Addendum

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml.

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

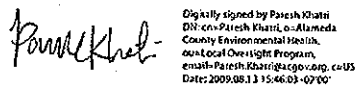
Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

Thank you for your cooperation. Should you have any questions regarding this letter, please call me at (510) 777-2478 or send me an electronic mail message at paresh.khatri@acgov.org.

Sincerely,



Paresh C. Khatri
Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Dennis S. Dettloff, Delta, 11050 White Rock Road, Suite 110, Rancho Cordova, CA 95670
Donna Drogos, ACEH (*Sent via E-mail to: donna.drogos@acgov.org*)
Paresh Khatri, ACEH (*Sent via E-mail to: paresh.khatri@acgov.org*)
GeoTracker
File