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Alameda County
Environmental Health

September 28, 2009
DELTA Project No. SCA4895H1
SAP No. 165112

Mr. Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: Soil and Groundwater Investigation Work Plan
Shell-Branded Service Station
4895 Hacienda Drive
Dublin, California



Dear Mr. Wickham:

On behalf of Shell Oil Products U.S. (Shell), Delta Consultants (Delta) has prepared this *Soil and Groundwater Investigation Work Plan* at the referenced site. The presence of hydrocarbon fuel components in the soil and groundwater was indicated in a Phase II environmental site assessment of the subject site completed by Delta and documented in a report dated October 28, 2008. Upon completion of that investigation, Delta notified Alameda County Environmental Health (ACEH) and filed an *Underground Storage Tank Unauthorized Release (Leak)/-Contamination Site Report* (Attachment A). This work plan was prepared in response to a request from the ACEH to investigate the extent of soil and groundwater contamination associated with the release of petroleum hydrocarbons at the site.

SITE DESCRIPTION

The subject property is located on the northeast corner at the intersection of Hacienda Drive and Hacienda Crossings/Martinelli Way in Dublin, California (Figure 1). The property is currently an active Shell-branded service station. The station facilities include a convenience store, a car wash, two underground storage tanks (USTs) and a large canopy covering two dispenser islands with six total dispenser stations (Figure 2).

WORK PLAN

Regional groundwater flow is reportedly to the southeast, but has not been locally verified. To laterally evaluate the extent of petroleum hydrocarbons beneath the site, Delta proposes the installation of six

onsite groundwater monitoring wells (MW-1 through MW-6) in the locations shown on Figure 2. To vertically evaluate conditions beneath site, Delta proposes drilling one deeper boring, in one of the proposed well locations closest to the USTs (MW-2).

PRE-FIELD ACTIVITIES

Prior to field activities, Delta will obtain the necessary drilling permits from the Zone 7 Water Agency. Delta will also mark the proposed well locations onsite; notify Underground Service Alert (USA) a minimum of 48 hours before work begins; and a contract a private utility locating company to survey the borehole locations for the presence of subsurface utilities. Upon mobilization to the field, an air-knife will be employed to pre-excavate each boring location to a depth of approximately eight feet below ground surface (bgs).

WELL CONSTRUCTION DETAILS

Previous work at the site indicates groundwater is first encountered at a depth of approximately 20 feet bgs. Five of the well borings (MW-1 and MW-3 through MW-6) will be drilled to a total depth of approximately 25 to 30 feet bgs using 10-inch diameter hollow-stem auger drilling equipment. The sixth well boring (MW-2) will be drilled to a total depth of approximately 50 feet bgs using 8-inch diameter to hollow-stem auger drilling equipment. Depth-discrete groundwater water samples will be collected from the sixth well boring as appropriate using a Hydropunch® type sampler and a disposable or reusable bailer. Upon completion, the bottom 20 to 25 feet of the well boring will be backfilled with an impermeable material such as neat cement and/or hydrated bentonite. The top 25 to 30 feet of the well boring will be re-drilled with 10-inch diameter hollow stem augers and a shallow monitoring well will be constructed as described below. All proposed well construction and sampling protocols may be modified depending on the field conditions encountered.

Soil samples will be collected from each well boring at approximate 5-foot depth intervals for logging and potential laboratory analysis using a split-spoon sampler fitted with brass or steel sample sleeves. The soil samples will be field-screened using a photo-ionization detector (PID), and logged by Delta field staff in accordance with the Unified Soil Classification System. At least one soil sample collected from the soil-groundwater interface in each boring will be submitted for chemical analysis. Additional soil samples will be retained for laboratory analysis if the PID readings are greater than 10 parts per million or obvious indications of petroleum hydrocarbons (i.e. strong odor or staining) are observed.

The borings will be converted to groundwater monitoring wells by the installation of 4-inch diameter, Schedule 40 polyvinyl chloride (PVC) well casing with ten feet of 0.010-inch factory-slotted well screen at the bottom. A filter pack of # 2/12 sand will placed in the annular space from the bottom of each boring to approximately 1-2 feet above the top of the screen, followed by a sanitary seal consisting of approximately 2-3 feet of hydrated bentonite and neat cement grout that extends to the surface. Upon completion, all wells will be protected with traffic rated well boxes installed flush with the ground surface.

All down-hole drilling and sampling equipment will be cleaned prior to use and between boring locations. All soils, water and debris generated during the well installation activities will be stored onsite in Department of Transportation rated, 55-gallon drums pending characterization and appropriate disposal.

A minimum of three days following installation, the monitoring wells will be developed by Blaine Tech Services, Inc. (Blaine) using a surge and bail technique. Each well will be developed until a minimum of ten casing volumes are removed, groundwater quality parameters (i.e. turbidity, pH, electric conductivity and temperature) begin to stabilize and a relative change in groundwater clarity is observed. Following development, the wells will be incorporated into a quarterly groundwater monitoring and sampling program for the site.

The wells will also be surveyed by a licensed surveyor for northings, eastings, latitude, longitude and elevation relative to mean sea level using both conventional survey techniques and GPS technology. The survey data will be uploaded to the California State GeoTracker database.

ANALYTICAL TESTING

Soil and groundwater samples will be analyzed for the presence of diesel range organics (DRO) by Environmental Protection Agency (EPA) Method 8015M, and for total purgeable petroleum hydrocarbons (TPPH), benzene, toluene, ethylbenzene, and xylenes (BTEX compounds), methyl tert-butyl ether (MTBE) di-isopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), tert-butyl alcohol (TBA), ethanol, 1,2-dichloroethane (1,2-DCA) and 1,2-dibromoethane (EDB) by EPA Method 8260B.

SCHEDULE

Delta will begin pre-field preparations following approval of this work plan by the ACEH and will commence field activities within 60 days of receipt of the approval letter, assuming all permits and pre-field requirements have been met.

REMARKS

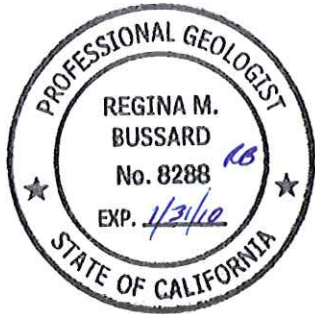
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If you have any questions, please contact Regina Bussard (Delta) at (408) 826-1876 or Denis Brown (Shell) at (707) 865-0251.

Sincerely,
Delta Consultants



Regina Bussard, PG
Project Manager



Abhik Dutta
Senior Staff Geologist

Attachments

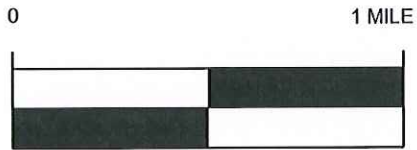
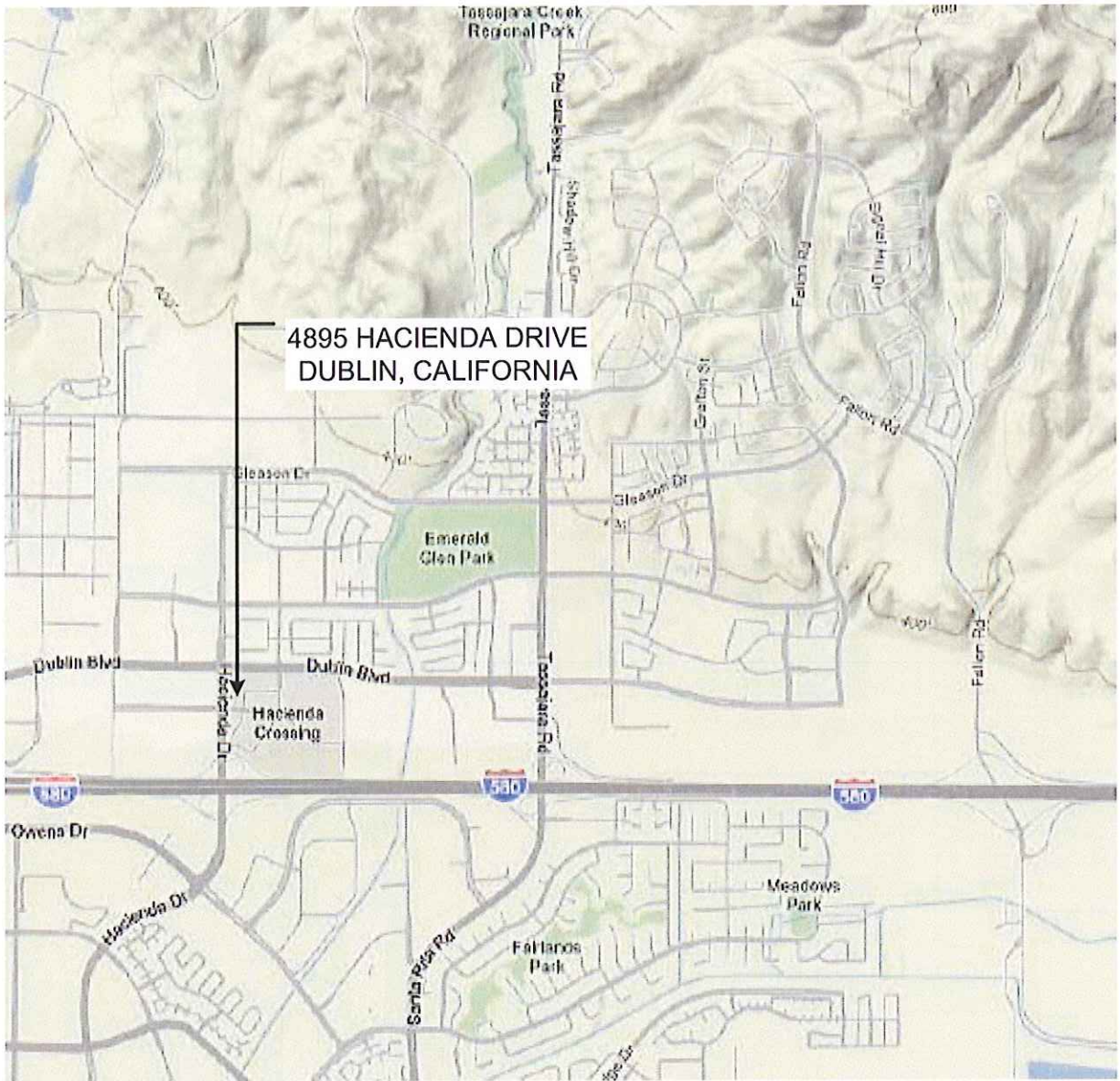
Figure 1 - Site Location Map

Figure 2 - Site Map

Attachment A- Underground Storage Tank Unauthorized Release (Leak)/Contamination Site Report

cc: Denis Brown, Shell Oil Products US, Carson
Cheryl Dizon, Zone 7 Water Agency, Livermore

FIGURES

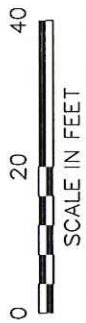


APPROX. SCALE

FIGURE 1
SITE LOCATION MAP
SHELL-BRANDED SERVICE STATION
4895 HACIENDA DRIVE
DUBLIN, CALIFORNIA

PROJECT NO. SCA4895H1	DRAWN BY AD SEPT, 2009
FILE NO.	PREPARED BY AD
REVISION NO. 2	REVIEWED BY





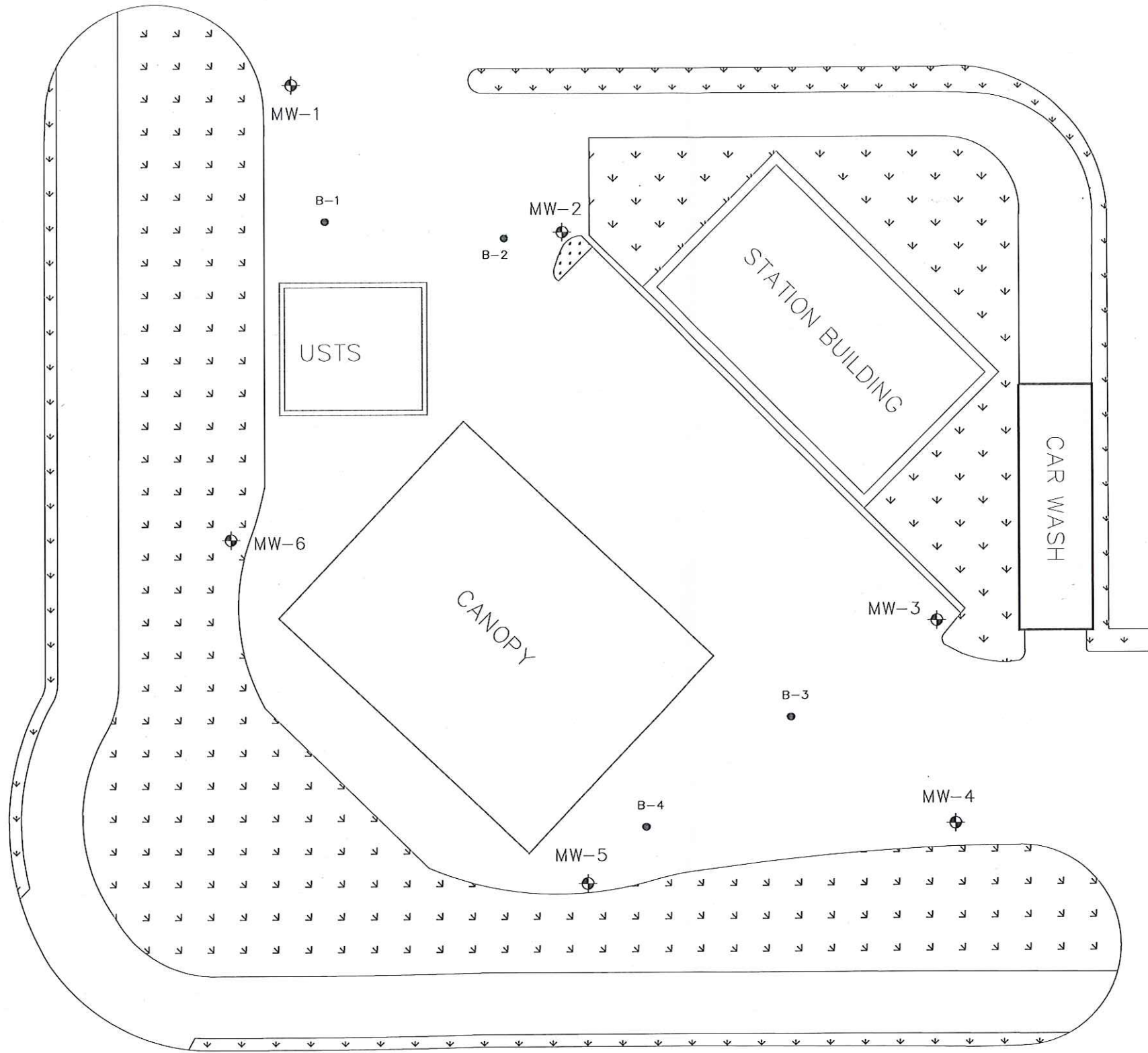
DRAWN BY
AD SEPT. 2009

CHECKED BY

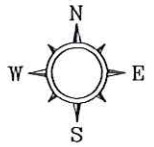
APPROVED BY

PROJECT NUMBER
SCA4895H1

HACIENDA DRIVE



HACIENDA CROSSINGS/MARTINELLI WAY



LEGEND

- B-1 ● SOIL BORING (AUGUST 20, 2008)
- MW-1 ◈ PROPOSED GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION



SHELL OIL PRODUCTS US
SHELL SERVICE STATION
CAPITOLA, CALIFORNIA

FIGURE 2

SITE MAP

4895 HACIENDA DRIVE
DUBLIN, CALIFORNIA

ATTACHMENT A

**UNDERGROUND STORAGE TANK
UNAUTHORIZED RELEASE (LEAK)/CONTAMINATION SITE REPORT**

Instructions for Completing UST Unauthorized Release (Leak) / Contamination Site Report

EMERGENCY: Indicate whether emergency response personnel and equipment were involved at any time. If so, a Hazardous Material Incident Report should be filed with the State Office of Emergency Services (OES). Indicate whether the OES report has been filed as of the date of this report.

LOCAL AGENCY USE ONLY: To avoid duplicate notifications pursuant to Health and safety Code Section 25180.7, a designated government employee should sign and date the form in this block. A signature here does not mean that the leak has been determined to pose a significant threat to human health or safety, only that notification procedures have been followed if required.

REPORTED BY: Enter name, telephone number, and address. Indicate which party you represent and provide company or agency name.

SIGNATURE: Sign the form in the space provided.

RESPONSIBLE PARTY: Enter the name, telephone number, contact person, and address of the party responsible for the leak. The Responsible Party would normally be the tank owner.

SITE LOCATION: Enter information regarding the tank facility. At a minimum, you must provide the facility name and full site address.

IMPLEMENTING AGENCIES: Enter the names of the local agency and Regional Water Quality Control Board having jurisdiction over the site.

SUBSTANCES INVOLVED: Enter the name and quantity lost of the hazardous substance(s) involved. If more than two substances leaked, list the two of most concern for cleanup.

DISCOVERY/ABATEMENT: Provide information regarding the discovery and abatement of the leak.

SOURCE/CAUSE: Indicate the source(s) of leak. Check box(es) indicating the cause(s) of leak.

CASE TYPE: Check one box only. Indicate the Case Type category for this leak. Case Type is based on the most sensitive resource affected. For example, if both soil and ground water have been affected, Case Type will be "Groundwater." Indicate "Drinking Water" only if one or more municipal or domestic water wells have actually been affected. A "Groundwater" designation does not imply that the affected water cannot be, or is not, used for drinking water, but only that water wells have not yet been affected. It is understood that Case Type may change upon further investigation.

CURRENT STATUS: Check one box only. Indicate the category which best describes the Current Status of the case. The response should be relative to the Case Type. For example, if the Case Type is "Groundwater," then Current Status should refer to the status of the ground water investigation or cleanup, as opposed to that of soil. Descriptions of options are as follows:

- **No Action Taken** – No action has been taken by the Responsible Party beyond initial reporting of the leak.
- **Leak Being Confirmed** – A leak is suspected at the site, but has not yet been confirmed.
- **Remediation Plan** – Remediation Plan submitted evaluating long term remediation options. Proposal and implementation schedule for appropriate remediation options also submitted.
- **Preliminary Site Assessment Workplan Submitted** – Workplan/proposal requested of/submitted by Responsible Party to determine whether ground water has been, or will be, impacted as a result of the release.
- **Preliminary Site Assessment Underway** – Workplan is being implemented.
- **Case Closed** – Regional Water Quality Control Board and local agency Local Oversight Program (LOP) agree that no further work is necessary at the site.
- **Pollution Characterization** – Responsible Party is in the process of fully defining the extent of contamination in soil and ground water and assessing impacts on surface and/or ground water.
- **Post Cleanup Monitoring in Progress** – Periodic ground water or other monitoring at site, as necessary, to verify and/or evaluate the effectiveness of remedial activities.
- **Cleanup Underway** – Remediation Plan is being implemented.

IMPORTANT: THE INFORMATION PROVIDED ON THIS FORM IS INTENDED FOR GENERAL STATISTICAL PURPOSES ONLY AND IS NOT TO BE CONSTRUED AS REPRESENTING THE OFFICIAL POSITION OF ANY GOVERNMENTAL AGENCY.

REMEDIAL ACTION: Indicate which actions have been used to clean up or remediate the leak. Descriptions of options are as follows:

- **Cap Site** – Install horizontal impermeable layer to reduce rainfall infiltration.
- **Containment Barrier** – Install vertical dike to block horizontal movement of contaminants.
- **Excavate and Dispose** – Remove contaminated soil and dispose at approved site.
- **Excavate and Treat** – Remove contaminated soil and treat (includes spreading or land farming).
- **Remove Free Product** – Remove floating product from water table.
- **Pump and Treat Groundwater** – Generally employed to remove dissolved contaminants.
- **Enhanced Biodegradation** – Use of any available technology to promote bacterial decomposition of contaminants.
- **Replace Supply** – Provide alternate water supply to affected parties.
- **Treatment at Hookup** – Install water treatment devices at each dwelling or other place of use.
- **Vacuum Extract** – Use pumps or blowers to draw air through soil.
- **Vent Soil** – Bore holes in soil to allow volatilization of contaminants.
- **No Action Required** – Incident is minor, requiring no remedial action.

COMMENTS: Use this space to elaborate on any aspects of the incident.

DISTRIBUTION: If this form is completed by the tank owner or his/her agent, retain a copy and forward the original to your local tank permitting agency for distribution.

- Original – Local UST permitting agency. (Agency contact information is available at www.unidocs.org.)
- Copy – Regional Water Quality Control Board. (Boundaries and contact information are available at www.swrcb.ca.gov/regions.html.)
- Copy – Local Oversight Program (LOP) agency. (Agency contact information is available at www.unidocs.org.)
- Copy – Local Health Officer and County Board of Supervisors or their designee to receive Proposition 65 notifications.
- Copy – Owner/Responsible Party.