



9:11 am, Jan 14, 2010

Alameda County Environmental Health

January 5, 2010

Alameda County Department of Environmental Health 1131 Harbor Bay Parkway, 2<sup>nd</sup> Floor Alameda, CA 94502

Attention: Paresh Khatri

Subject: Soil and Water Investigation Workplan Dublin Toyota UST Site, 6450 Dublin Court, Dublin, California Alameda County LOP Site ID No. 699

Ladies and Gentlemen:

Attached please find the *Soil and Water Investigation Workplan, Dublin Toyota UST Site,* 6450 *Dublin Court, Dublin, California,* prepared by Gribi Associates. 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.

Very truly yours,

th RAle

Scott F. Anderson Chief Financial Officer Dublin Toyota



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Alameda County Environmental Health 1131 Harbor Bay Parkway, 2<sup>nd</sup> Floor Alameda, CA 94502

Attention: Mr. Paresh Khatri

Subject: Soil and Water Investigation Workplan Dublin Toyota UST Site, 6450 Dublin Court, Dublin, California Fuel Leak Case RO# 0000333

Ladies and Gentlemen:

Gribi Associates is pleased to submit this Soil and Water Investigation Workplan on behalf of Dublin Toyota for the underground storage tank (UST) site located at 6450 Dublin Court in Dublin, California (Site). This workplan addresses technical comments and provides proposed site investigational activities to comply with requests included in a letter from Alameda County Environmental Health (ACEH) dated December 3, 2009.

#### SITE BACKGROUND

#### **Site Description**

The Site is located in a primarily commercial area of Dublin, California and is formerly the location of a Toyota/Scion automobile dealership (Figures 1 and 2). The site comprises an irregularly shaped land parcel of nearly 3.5 acres. An irregularly shaped building is located in the center of the site parcel that houses the business activities of the dealership. The west portion of the site building was primarily used as a show room and sales area. The east portion of the site building was primarily used as an automotive service area. The site, with the exception of the site building, is entirely paved with asphalt.

The Site is bounded to the south by Interstate 580 freeway, to the west by Dublin Sports Grounds Park, to the north by Dublin Court followed by a retail plaza, and to the east by an office-supply warehouse store.

#### Past Environmental Investigation and Remediation Activities

The Dublin Toyota UST site consisted of three USTs located in a common tank farm located adjacent to the northeast corner of the maintenance garage (see Figure 3). The tank farm was composed of two 2,000-gallon steel gasoline tanks and one 1,000-gallon steel waste oil tank. The three USTs were removed from a common excavation by Scott Company on June 10, 1998. Based on soil and grab groundwater sampling results, which showed elevated levels of gasoline-

and diesel-range hydrocarbons, the UST excavation cavity was over-excavated, and approximately 500 gallons of groundwater was pumped from the excavation cavity. Approximately 92 tons of hydrocarbon-impacted soil were disposed of offsite.

In December 1998, Gribi Associates drilled and sampled four investigative soil borings (IB-1 through IB-4), and drilled, installed, and sampled two groundwater monitoring wells (MW-1 and MW-2) at the site. Soil and groundwater samples collected from the borings and wells contained no significant levels of hydrocarbons, except for the groundwater sample from well MW-1, located about 15 feet southwest from the former UST cavity. Groundwater samples from this well contained levels of methyl tert-butyl ether (MTBE).

In August 2000, Gribi Associates drilled and sampled one soil boring (IB-5) sited inside the Dublin Toyota service building west from the former USTs, and drilled, installed, and sampled one groundwater monitoring well (MW-3) sited south-southwest from the former USTs. Soil analytical results from these borings showed no detectable concentrations of gasoline-range hydrocarbons. Groundwater samples from these borings showed concentrations of MTBE that were significantly lower than MTBE concentrations in MW-1, indicating lateral attenuation of MTBE impacts in groundwater southwest from the former USTs. Subsequent groundwater monitoring of the three site groundwater monitoring wells in May 2002, November 2002, and April 2003 showed decreasing concentrations of MTBE in MW-1.

In May 2005, a soil and water investigation (SWI) was conducted that consisted of drilling and sampling twelve soil boring (B-1 through B-12) at the site (*SWI Summary of Findings*, Gribi Associates, June 2005). Results of the investigation indicated groundwater MTBE impacts in a shallow "A" zone immediately downgradient from the source (former location of site USTs) and in a deeper "B" zone further downgradient from the source. The SWI summary report included a brief workplan proposing the installation of ten groundwater monitoring wells, to include four shallow "A" zone wells and six deeper "B" zone wells.

In July 2005, two 2-inch diameter extraction wells (EW-1 and EW-2) were installed in a carwash bay of the Dublin Toyota facility to a depth of approximately 15 feet below surface grade. The extraction wells were constructed within the gravel backfill of the former UST excavation.

Between February and April 2006, Gribi Associates conducted seven aggressive fluid vapor recovery (AFVR) events (*Report or Interim Remedial Measures*, Gribi Associates, April 2006). Each event consisted of approximately four hours of extraction of soil vapor and groundwater at wells EW-1 and EW-2 using a vacuum truck. During the AFVR events, groundwater and vapor samples were collected to monitor remedial progress. The combined total estimated volume of removed groundwater (approximately 3,200 gallons) and the combined total estimated mass of removed gasoline-range hydrocarbons (four pounds) during the seven AFVR events were relatively small. These results indicated that AFVR had only limited applicability as a source area remedial option for the project site. Given the results and conclusions, implementation of additional AFVR activities at the site was not recommended.



In April 2006, Gribi Associates drilled and installed ten 3/4-inch diameter groundwater monitoring wells (MW-4S, MW-4D, MW-5S, MW-5D, MW-6S, MW-6D, MW-7, MW-8, MW-9, and MW-10) at the site under a workplan that was approved by ACEH in a letter dated January 6, 2006. The locations of the monitoring wells closely mirrored the locations of the soil borings conducted during the 2005 investigation. Results of groundwater monitoring and sampling were very similar to results from the soil and water investigation conducted in May 2005. Groundwater results show elevated MTBE concentrations in Zone A (shallow aquifer) immediately downgradient from the former UST excavation and elevated MTBE levels in Zone B (deeper aquifer) further downgradient from the former UST excavation.

#### **Recent Site Investigative Activities**

Recent site investigations included: (1) A downgradient CPT investigation, described and reported in *Report of CPT Groundwater Investigation, Dublin Toyota UST Site, 6450 Dublin Court, Dublin, California*, (Gribi Associates, June 19, 2009); and (2) A source area direct-push soil boring investigation, described and reported in *Source Area Soil Boring Investigation Report, Dublin Toyota UST Site, 6450 Dublin Court, Dublin, California*, (Gribi Associates, October 6, 2009).

In April 2009, Gribi Associates conducted a cone penetrometer (CPT) investigation that comprised the drilling of four onsite borings (CPT-1 through CPT-4) and three offsite borings (CPT-5, CPT-6, and CPT-7). Results of this investigation showed a fairly pervasive permeable thin sand zone, previously identified as the "B" Zone, between approximately 30 and 35 feet bgs. This zone was present in all borings except downgradient borings CPT-6 and CPT-7, the respective middle and westerly CPT borings on Johnson Drive. Groundwater analytical results from this investigation and from onsite "B" Zone wells MW-4D, MW-5D, MW-6D, MW-8, MW-9, and MW-10 define a groundwater MTBE plume in the "B" Zone that appears to extend southwest from the UST source area and then, apparently due to lithologic variability, turns to the south beneath US Interstate 580. This "B" Zone MTBE plume appears to extend at least as far south as CPT-5, in Johnson Drive approximately 500 feet south from the Dublin Toyota UST source area.

The CPT investigation identified two deeper unnamed sand zones, one between 50 and 60 feet bgs and the other between 70 and 80 feet bgs. Grab groundwater samples from these deeper water-bearing zones showed no detectable groundwater MTBE impacts. Thus, it appears that MTBE from the project site has migrated laterally in the "B" Zone, but has not migrated vertically deeper than the "B" Zone in significant quantities.

In order to provide additional long-term groundwater MTBE data, Gribi Associates recommended installing four "B" Zone groundwater monitoring wells. Three of these wells would be located near CPT boring locations CPT-3 (onsite, southwest corner), CPT-5 (Johnson Drive, east boring), and CPT-6 (Johnson Drive, middle boring). The fourth well would be located approximately 150 east of CPT-5.



In July 2009, Gribi Associates drilled and sampled six soil borings (GB-1 through GB-6) along the perimeter of the former UST excavation cavity. Soil analytical results showed no TPH-G or BTEX concentration in any of the soil samples, except very minor ethylbenzene concentrations (0.0078 mg/kg and 0.0097 mg/kg) in soil samples collected at depths of 4.5 feet and 7.5 feet in boring GB-1. Low concentrations of TBA and MTBE, ranging from nondetect to 3.5 mg/kg for TBA and nondetect to 0.30 mg/kg for MTBE, were reported in soil samples at varying depths in all six borings.

Groundwater analytical results showed very low to non-detectable concentrations of TPH-G and BTEX constituents in both shallow and deep groundwater samples from the six borings. Oxygenate concentrations in groundwater were more persistent in shallow samples, with TBA concentrations ranging from less than laboratory detection levels in GB-4 to 6,000 ug/l in GB-6, and MTBE concentrations ranging from 17 ug/l in GB-6 to 240 ug/l in GB-2. Deeper groundwater samples showed TBA concentrations ranging from less than laboratory detection levels in GB-2, GB-3, GB-4, and GB-6 to 11 ug/l in GB-5, and MTBE concentrations ranging from less than laboratory detection levels in GB-2, GB-3, GB-4, and GB-6 to 11 ug/l in GB-5, and MTBE concentrations ranging from less than laboratory detection levels in GB-3 to 3.9 ug/l in GB-6. Results of this investigation indicate that residual hydrocarbon impacts in soil and groundwater immediately surrounding the former UST excavation cavity are limited primarily to oxygenate impacts (primarily TBA and MTBE). Further, given the apparent reduction in hydrocarbon mass over time and the disproportionately high ratio of TBA to MTBE, it appears that hydrocarbons in the former UST source area have attenuated over time via natural processes. We would expect these processes to continue in the future and for source area hydrocarbon concentrations to decrease over time.

On December 3, 2009, ACEH issued a letter requesting: (1) Justification that the oxygenate contaminates in the former UST source area do not pose a significant risk to human health or the environment or a scope of work to address the apparent risk posed by these contaminants; and (2) A workplan for additional wells to monitor downgradient "B" Zone groundwater oxygenate impacts.

# **PROJECT APPROACH**

# **Contaminant Source Area Characterization**

In order to address potential risks associated with source area contaminants, we recommend: (1) Including existing source area wells EW-1 and EW-2 in all future groundwater monitoring events; (2) Installing three shallow groundwater monitoring wells in the UST source area; and (3) Conducting soil gas sampling in the former UST source area. Results from these activities will be used to evaluate whether monitored natural attenuation will be effective in mitigating source area contaminant concerns.

# **Downgradient Groundwater Characterization**

In order to provide additional long-term groundwater MTBE data, Gribi Associates recommended installing four "B" Zone groundwater monitoring wells. Three of these wells



would be located near CPT boring locations CPT-3 (onsite, southwest corner), CPT-5 (Johnson Drive, east boring), and CPT-6 (Johnson Drive, middle boring). The fourth well would be located approximately 150 east of CPT-5.

### WORKPLAN ELEMENTS

The proposed soil and water investigation (SWI) will include: (1) The installation and sampling of three shallow source area wells(MW-11, MW-12, and MW-13) and four downgradient "B" Zone wells (MW-14 through MW-17); and (2) The collection and analysis of four shallow soil gas samples (SG-1 through SG-4) in the former UST source area. These tasks are described below. All activities will be conducted in accordance with applicable State and Federal guidelines and statutes.

### **Monitoring Well Installation and Sampling**

Approximately three shallow source area wells, MW-11, MW-12, and MW-13, and four downgradient "B" Zone wells, MW-14 through MW-17, will be installed in accordance with the following scope of work.

### **Pre-Field Activities**

Prior to implementing this workplan, written approval will be obtained from the ACEH. Drilling permits for the four monitoring wells will be obtained from Zone 7 Water Agency, and an access agreement or encroachment permit will be obtained from the offsite, downgradient property owner. At least 48 hours prior to the start of drilling activities, proposed well locations will be marked with white paint and Underground Services Alert (USA) will be notified. In addition, a private underground utility locator will be contracted to clear proposed boring locations. A Site Safety Plan will be prepared, and a tailgate safety meeting will be conducted with all site workers, prior to the start of drilling activities.

Regarding the three downgradient monitoring wells on Johnson Drive, an attempt will be made to obtain an access agreement in order to install the wells in the landscaping or parking lot of the retail property to the south. Doing so, would relocate the wells approximately 20 to 40 feet south from the original CPT boring locations. If possible, this would eliminate the need for an encroachment permit to install the wells in the City of Pleasanton right-of-way and would improve site worker safety during installation and sampling of these wells.

#### Location of Wells

Proposed source area shallow well locations are shown on Figure3, and proposed downgradient "B" Zone wells are shown on Figure 4. Shallow wells MW-11 and MW-12 will be located on the respective north and west sides of the former UST cavity, adjacent to recent borings GB-1, GB-5, and GB-6, to provide representative groundwater quality data in areas where grab groundwater samples showed elevated MTBE concentrations. Shallow well MW-13 will be



sited southwest from the former UST source area to provide representative groundwater quality data immediately southwest from the former UST cavity.

"B" Zone well MW-14, will be located in the southwest corner of the site, near recent CPT boring CPT-3 and will help delineate the western limit of the "B" Zone MTBE plume. Monitoring wells MW-15, MW-16, and MW-17 will be sited in a west-east fashion along Johnson Drive and will help delineate leading edge of the "B" Zone groundwater MTBE plume. MW-12 and MW-13 will be located near recent CPT borings CPT-5 and CPT-6, respectively. MW-14 will be located approximately 150 feet east from proposed monitoring well MW-13.

### Drilling and Sampling of Well Borings

The seven wells will be drilled and installed by a California-licensed (C-57) drilling contractor using hollow stem auger equipment. The shallow source area wells (MW-11, MW-12, and MW-13) will be drilled to about 20 feet in depth and will be screened from approximately five feet to 20 feet in depth. The downgradient "B" Zone wells (MW-14 through MW-17) will be drilled to approximately 40 feet in depth and will be screened from approximately 30 feet to 40 feet below surface grade. Actual well construction may vary based on previously determined site lithology for specific well locations. During drilling, soils from each well boring will be logged by a qualified scientist using sight and an photoionization detector (PID). Soil cuttings from the well borings will be placed in sealed DOT-approved 55-gallon drums pending laboratory results.

For the shallow source area wells, soil samples will be collected at approximately five-foot intervals and in intervals that exhibit field evidence of hydrocarbons. For the downgradient "B" Zone wells, soil samples will not be collected, since results from recent CPT borings showed hydrocarbon impacts to be limited to groundwater only.

For the shallow source area wells, undisturbed soils will be sampled in advance of the auger as follows: (1) A two-inch inside diameter California-style split spoon sampler will be driven into undisturbed soil ahead of the drill bit; (2) The sampler will be raised quickly to the surface and the brass liners exposed; (3) The brass liner containing the most undisturbed soil will be quickly sealed with aluminum foil and plastic end caps, labeled, and wrapped tightly with tape; and (4) The sealed soil sample will be placed immediately in a cooler with crushed ice for transport to the analytical laboratory under formal chain-of-custody.

All sampling equipment will be thoroughly cleaned and decontaminated between each sample collection by triple rinsing first with water, then with dilute tri-sodium phosphate solution, and finally with distilled water. All downhole drilling equipment, including auger and drill bit, will be steam cleaned before and after drilling the well boring. Steam cleaning rinseate will be contained in sealed drums pending laboratory results.

# Installation of Monitoring Wells

The seven groundwater monitoring wells will be constructed using two-inch diameter Schedule 40 threaded PVC casing. The shallow source area wells (MW-11, MW-12, and MW-13) will be



installed according to the following specifications: (1) 0.020-inch slotted well casing will be placed from approximately 20 feet to five feet in depth (exact screen depths will be determined based field logging results data); (2) No. 2/12 filter sand will be placed around the casing to a depth of one foot above top of casing (approximately four feet below grade); (3) A one foot bentonite seal will be placed above the filter sand to approximately three feet below grade; and (4) The remaining annulus will be grouted using neat to approximate grade. The top of the wells will be enclosed in a traffic-rated locking well box set in concrete slightly above surface grade.

The four downgradient monitoring wells (MW-14 through MW-17) will be installed according to the following specifications: (1) 0.020-inch slotted well casing will be placed from approximately 40 feet to 30 feet in depth (exact screen depths will be determined based on previously generated CPT soil lithology data); (2) No. 2/12 filter sand will be placed around the casing to a depth of two feet above top of casing (approximately 28 feet below grade); (3) A two-foot bentonite seal will be placed above the filter sand to approximately 26 feet below grade; and (4) The remaining annulus will be grouted using neat to approximate grade. The top of the wells will be enclosed in a traffic-rated locking well box set in concrete slightly above surface grade.

### Well Development and Sampling

After allowing the cement seal to cure for at least 48 hours, the newly-installed wells will be developed by surging and pumping groundwater from the wells until pumped groundwater is clear and free of fines. During well development, groundwater will be monitored periodically for pH, specific conductance, temperature, visible clarity, and odor. If possible, at least 10 gallons will be pumped from each well during well development.

At least 48 hours after well development, approximately three well volumes of groundwater will be pumped from each of the four wells followed by groundwater sampling using either a clean disposable PVC bailer or a clean purge pump. During well purging, groundwater will be monitored periodically for pH, specific conductance, temperature, odor, and visible clarity. After these parameters have stabilized, groundwater will be sampled in the following manner: (1) Laboratory supplied containers will be completely filled directly from the bailer or effluent hose with minimum agitation; (2) After making sure that no air bubbles are present (when applicable), each container will be tightly sealed; and (3) Each container will be labeled and placed in cold storage for transport to the analytical laboratory under formal chain-of-custody.

All purged groundwater generated during well development and sampling will be stored on site in a sealed container pending groundwater analytical results. All sampling equipment will be thoroughly cleaned and decontaminated between each sample collection by triple rinsing as described above.

#### Determination of Groundwater Potentiometric Gradient

Following well installation, wellhead elevations will be surveyed by a State-licensed land surveyor in accordance with State Geotracker requirements. Prior to purging and sampling,



groundwater depths in the five project site wells will be measured to the nearest 0.01 foot using an electronic probe. These data will then be used to calculate groundwater potentiometric gradient.

# Laboratory Analysis of Soil and Water Samples

Approximately nine soil samples and seven groundwater samples will be analyzed for the following parameters:

- USEPA 8260B Total Petroleum Hydrocarbons ad Gasoline (TPH-G)
- USEPA 8260B Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX)
- USEPA 8260B Fuel Oxygenates (TAME, ETBE, DIPE, TBA, and MTBE)

All samples will be analyzed by a state-certified laboratory with standard turn around on laboratory results.

### **Soil Gas Sampling Activities**

In order to assess potential risk from indoor air exposure, this workplan proposes the sampling of approximately four shallow soil gas samples, SG-1 through SG-4, in the former UST source area. Soil gas sampling activities will be conducted in accordance with *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (DTSC, December 14, 2004, revised February 7, 2005).

#### Location of Soil Gas Samples

Soil gas sample locations are shown on Figure 5. Sample locations SG-1 and SG-2 will be sited in the newer former detail shop area, which overlies the former UST excavation cavity. Sample locations SG-3 and SG-4 will be sited in the former maintenance shop building immediately adjacent to the former UST excavation cavity. These locations were chosen to best provide assessment of possible indoor vapor risk associated with residual source area hydrocarbon impacts.

#### Soil Gas Sampling Procedures

Soil vapor sampling and laboratory analysis will be conducted by a qualified subcontractor, such as Optimal Technology, under the direction of a Gribi Associates scientist. One soil gas sample will be collected at each location at a depth of approximately three to five feet below surface grade (exact sampling depth will depend on ability to pump soil vapors from the subsurface). Vapor sampling will be performed by hydraulically pushing a soil gas probe to a depth of 5.0 feet below ground surface, sealing the probe at the surface with bentonite powder, and then opening the probe and waiting approximately 30 minutes prior to sampling to allow for formational equilibrium. At each sampling location, an electric vacuum pump set to draw 0.2 liters per minute of soil gas will be attached to the probe and purged prior to sample collection. Vapor samples will then be obtained in a SGE gastight syringe by drawing the sample through a



luer-lock connection which connects the sampling probe and the vacuum pump. New tubing will be used at each sampling point to prevent cross contamination. Samples will be immediately injected into the gas chromatograph/purge and trap after collection. All analyses were performed using a DHS certified mobile laboratory.

At the beginning of the sampling event, a replicate analysis (duplicate) will be conducted at varying purge volumes to assess optimum number of purge volumes ("Purge volume" is the total internal volume of the sampling probe). Three separate purge volumes will be tested: 1, 3, and 7 volumes. During sampling, a surrogate chemical, typically 1,1-Difluoroethane (1,1-DFA) in the form of dust remover aerosol, will be sprayed on the sampling apparatus periodically to assess possible sample equipment leaks.

After completion of sampling activities, the soil gas sample locations will be grouted to match surface grade.

# Laboratory Analysis of Vapor Samples

A minimum of seven soil gas samples (three variable purge volume samples at one location and one sample at three additional locations) will be analyzed for the following parameters, with appropriate detection levels which are below regulatory ESLs.

- USEPA 8260B Total Petroleum Hydrocarbons ad Gasoline (TPH-G)
- USEPA 8260B Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX)

All analyses will be conducted by a California-certified analytical laboratory, with standard turnaround on results.

# DATA EVALUATION AND REPORTING

Upon completion of the proposed investigative activities, a summary report will be prepared for submittal to the ACEH. This report will describe and document the results of field investigations. The report will also include a revised conceptual site model (CSM) and will provide recommendations for additional investigation and/or remediation activities for the Site.

# **PROJECT SCHEDULE**

Subject to ACEH workplan approval, Gribi Associates is prepared to begin project activities immediately, with completion of proposed investigative activities within approximately eight to 12 weeks.



We appreciate this opportunity to provide this workplan for your review. Please contact the undersigned if you have any questions or if additional information is required.

Very truly yours,

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Matthew A. Rosman Project Engineer

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James E. Gribi, P.G. Professional Geologist California No. 5843



c Mr. Scott Anderson, Dublin Toyota

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FIGURES











