Mr. Erik Koppl
Copeland Park Properties, LLC
800 Airport Blvd., Suite 510,
Burlingame, California 94010

August 1, 2016

Keith Nowell
Hazardous Materials Specialist
Alameda County Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Subject: **Data Gap Investigation Work Plan**
Tudor Hall Apartments
150 17th Street, Oakland, California
Fuel Leak Case No. RO0003165

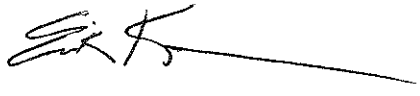
Dear Mr. Nowell:

In regards to the above-referenced site and submittal, I am providing this letter to state 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.

If you have any questions or require additional information, please contact me at (650) 342-0002.

Sincerely,



Mr. Erik Koppl
Copeland Park Properties, LLC

cc: Mr. Bryan Campbell, PG, CHG, ATC Group Services LLC, 2400 Camino Diablo, Suite 360, San Ramon, CA 94583

ENVIRONMENTAL • GEOTECHNICAL
BUILDING SCIENCES • MATERIALS TESTING

2400 Camino Ramon, Suite 360
San Ramon, California 94583
Telephone 925-460-5300
Fax 925-328-1090
www.atcgroupservices.com

July 29, 2016

Keith Nowell
Hazardous Materials Specialist
Alameda County Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Subject: **Data Gap Investigation Work Plan**
Tudor Hall Apartments
150 17th Street, Oakland, California
Fuel Leak Case No. RO0003165
ATC Project Number 118BM01002

Dear Mr. Nowell:

On behalf of Copeland Park Properties, LLC, the following work plan has been prepared by ATC Group Services LLC (ATC) in order to perform an investigation at the above-referenced property (Figures 1 and 2). This work plan is being provided in response to a letter from the Alameda County Environmental Health Department (ACEH) dated May 26, 2016 which is a follow up letter to a previous letter from the ACEH dated June 22, 2015 (Attachment A).

DESCRIPTION

The property is located on the northern corner of the intersection of Madison Street and 17th Street in Oakland, California. A multi-unit building is located on the property. The property is at an elevation of approximately 25 feet above mean sea level. The property slopes to the northeast.

PROPOSED INVESTIGATION SCOPE

ATC was requested to perform a subsurface investigation in the vicinity of an underground storage tank (UST) which was abandoned in place in order to characterize the petroleum hydrocarbon impacts to the subsurface. This work will be performed under the oversight of a licensed professional geologist.

In the letter dated June 22, 2015, the ACEH requested the submission of an initial Site Conceptual Model (SCM) and data gaps and proposed investigation that relate to the State Water Resources Control Board Low Threat Underground Storage Tank Case Closure Policy (LTCP) in tabular format. These tables have been prepared as Tables 1 and 2.

Pre-Field Setup

A site-specific health and safety plan will be prepared, reviewed by onsite personnel, and kept onsite for the duration of the fieldwork. Drilling permits will be obtained from the Alameda County Public Works Agency (ACPWA) and the City of Oakland for this investigation. The public underground utility locating service USA North will be notified to identify public utilities in the work

area. Private utility locating will be conducted an independent utility locating company. All borings will be cleared to a depth of at least 5 feet below ground surface prior to drilling.

Drilling and Soil Sampling

The scope of work proposed consists of the drilling and logging of a total of five (5) borings (B1 through B5) at the property (Figure 2). The selected drilling contractor will hold a California C57 driller's license. Soil borings will be advanced with the direct-push drilling method.

The locations of the borings may be altered based on site access issues or permitting requirements and particularly if underground utilities are identified within the drilling areas. The presumed groundwater flow direction is to the northeast based on the site topography and proximity to the nearest water body. The purpose of each boring is listed below:

- Boring B1 will be advanced adjacent to and south of the UST. It is anticipated that three soil samples and one groundwater sample will be analyzed from this location with at least one soil sample analyzed from a depth of 10 feet bgs.
- Borings B2 and B3 will be advanced cross-gradient and up gradient, respectively, of the UST. It is anticipated that one soil and one groundwater sample will be analyzed from each location.
- Borings B4 and B5 will be advanced downgradient and northeast of the tank. It is anticipated that one soil and one groundwater sample will be analyzed from each location.

The borings will be advanced to a planned depth of approximately 30 feet bgs or to first encountered groundwater, whichever is shallower, for the collection of soil and groundwater samples.

Soil in the borings will be continuously collected in acetate liners within the sampling barrel from which a 6-inch sample will be collected at appropriate depths. The sample will be sealed with Teflon tape and plastic end caps. At least one soil sample will be collected every 3 to 5 feet or at a change in lithology, whichever comes first.

The soil borings will be logged using the Unified Soil Classification System. A photo ionization detector (PID) will be used to screen soil samples in the field and the PID readings for each sample will be included on the boring logs. The selection of the soil samples for analysis will be based on the PID readings and professional judgment.

Groundwater Sampling

Boring will be advanced approximately 5 feet deeper than first encountered groundwater to facilitate groundwater sample collection. Slotted PVC casing will be temporarily inserted and groundwater samples will be collected using either a disposable bailer or peristaltic pump and into the appropriate laboratory-supplied sample containers.

Soil Gas Sampling

The scope of work proposed consists of soil gas sampling from a total of two locations (V1 and V2) (Figure 2). The sampling will be conducted in accordance with the guidelines outlined in Advisory Active Soil Gas Investigations by the Department of Toxic Substances Control et al. dated July 2015. The purpose of each boring is listed below:

- Borings V1 and V2 will be advanced near to the onsite building and close to the tank for the collection of soil gas samples at a depth of 5 feet bgs.

The soil gas samples will be collected at a depth of depth 5 feet bgs using a temporary soil gas well. The well is constructed of 0.25-inch diameter tubing connected to a probe type probe tip. The probe tip is placed in the middle of an annular filter pack composed of #2/12 Sand placed at 5 feet bgs. The probe is then sealed with a 1-foot layer of dry granular bentonite followed by hydrated granular bentonite to just below ground surface.

Sampling will consist of vacuum testing the connections and purging with the use of helium as a tracer compound and a shroud. An ambient air leak up to 5% will be considered acceptable. If the concentration of the tracer compound in the purge sample is greater than or equal to 5% of the tracer compound concentration in the shroud, corrective action will be necessary to either remedy the leak or relocate the probe prior to collecting a soil gas sample.

The samples will be collected through a calibrated flow controller and into 1-liter summa canisters. Each canister will be individually checked, tested and certified by the laboratory for air tightness and proper vacuum prior to shipping. Prior to sampling, a vacuum gauge will be used to measure and record the initial summa canister vacuum pressure. Once sampling is conducted, each summa canister will be sealed with a slight vacuum prior to sealing.

Boring Destruction

Following completion of sample collection and removal of tooling, the borings will be backfilled with sealing material as required by the ACPWA and completed at the surface to match the surrounding conditions.

Investigation Derived Waste

Any investigation derived waste will be left onsite in drums. Disposal will depend upon the receipt of the analytical results and upon client approval.

Laboratory Analysis

The soil and groundwater samples will be labeled and placed into a cooler with ice following sampling. All of the samples will be transferred under appropriate chain-of-custody documentation to a state-certified laboratory.

Laboratory analysis of the soil and groundwater samples will consist of the following:

- Total Petroleum Hydrocarbons as diesel (TPH-d) by EPA Method 8015
- Benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, and methyl tertiary butyl ether (MTBE) by EPA Method 8260

Laboratory analysis of the soil gas samples will consist of the following:

- MTBE, BTEX, and naphthalene by TO-15
- Percent Oxygen by ASTM D-1945 or D-1946

SCHEDULE AND REPORTING

Completion of this work is contingent upon approval of this work plan, receipt of approved permits, and pending subcontractor availability. A final report will be prepared following the receipt of

analytical data. The report will detail the investigation methods along with the analytical results and boring logs. The results will be compared to the Regional Water Quality Control Board, Region 2, Environmental Screening Levels and the LTCP as applicable. The report will be uploaded to the ACEH and GeoTracker websites per instructions provided by the ACEH (Attachment A).

LIMITATIONS

This report was prepared in accordance with the scope of work outlined in ATC's contract and with generally accepted professional engineering and environmental consulting practices existing at the time this report was prepared and applicable to the location of the site. It was prepared for the exclusive use of Copeland Park Properties, LLC, for the express purpose stated above. Any re-use of this report for a different purpose or by others not identified above shall be at the user's sole risk without liability to ATC. To the extent that this report is based on information provided to ATC by third parties, ATC may have made efforts to verify this third party information, but ATC cannot guarantee the completeness or accuracy of this third party information. The opinions expressed and data collected are based on the conditions of the site existing at the time of the field investigation. No other warranties, expressed or implied are made by ATC.

If you have any questions or require additional information, please contact us at (925) 460-5300.

Sincerely,
ATC Group Services LLC

Gabriel V. Stivala, P.G.
Senior Geologist

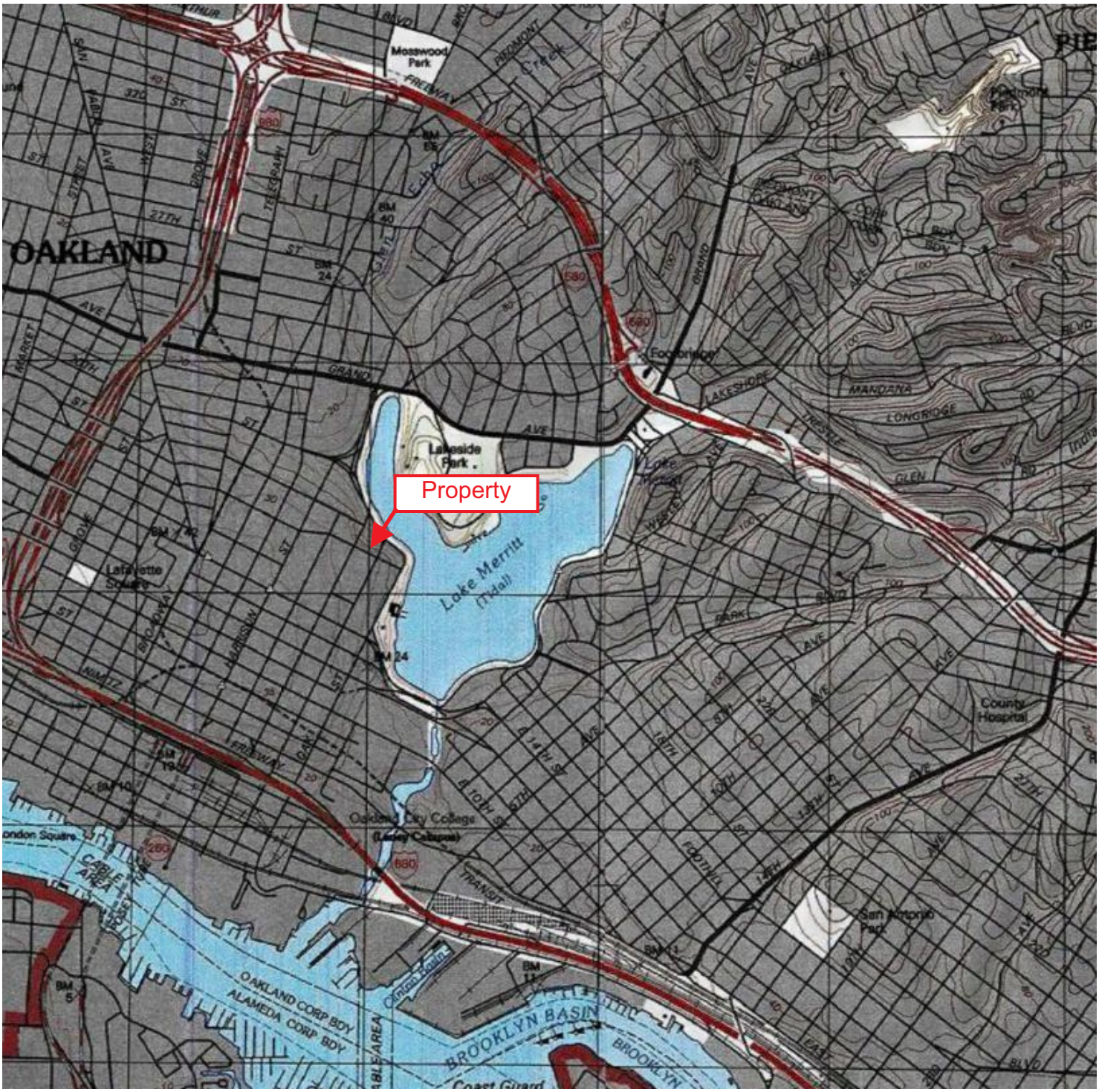
Bryan Campbell, PG, CHG
Branch Manager

cc: Mr. Erik Koppl, Copeland Park Properties, LLC, 800 Airport Blvd., Suite 510, Burlingame, California 94010

Attachments

Figure 1	Site Location Map
Figure 2	Site Map
Table 1	Initial Site Conceptual Model
Table 2	Data Gaps and Proposed Investigation
Attachment A	Agency Correspondence

FIGURES



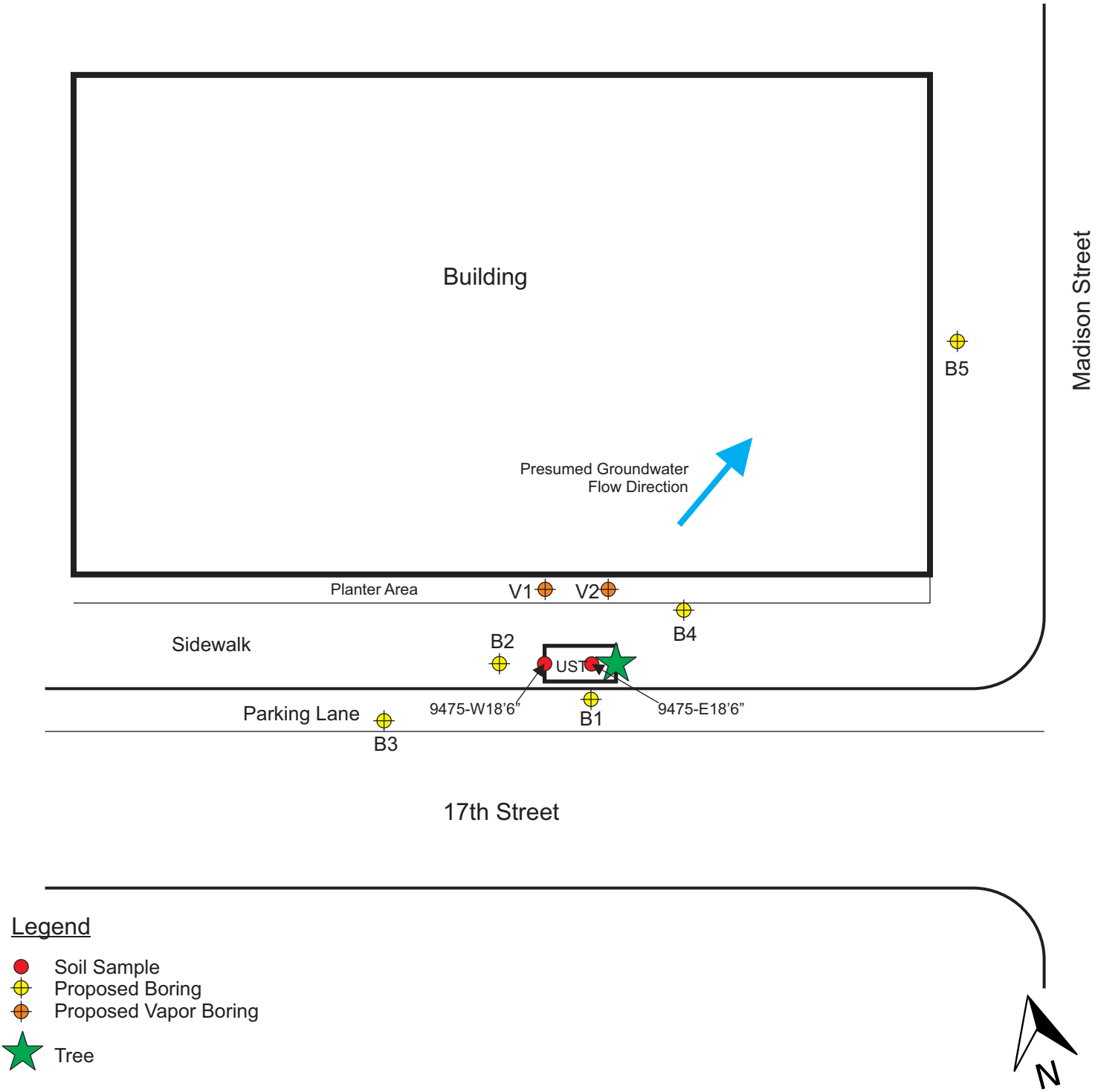
2400 Camino Ramon, Suite 360
San Ramon, California 94583
(925) 460-5300

PROJECT NO.

DESIGNED BY:	SCALE:1"=2,000'	REVIEWED BY:
DRAWN BY:	DATE:	FILE:

SITE LOCATION MAP

150 17th Street
Oakland, California



2400 Camino Ramon, Suite 360
San Ramon, California 94583
(925) 460-5300

PROJECT NO.

DESIGNED BY:	SCALE:1"=20'	REVIEWED BY:
DRAWN BY:	DATE:	FILE:

SITE MAP

150 17th Street
Oakland, California

TABLES

TABLE 1

INITIAL SITE CONCEPTUAL MODEL

SCM Element	SCM Sub-Element	Description	Data Gap	How to Address
Geology and Hydrogeology	Regional	According to the State of California Department of Water Resources, California's Groundwater Bulletin 118, dated February 27, 2004, the site is located along the eastern margin of the San Francisco Bay within the Coast Range Geomorphic Province and is characterized by broad alluvial fan margins slopping westward towards the San Francisco Bay. The site is underlain by Holocene and Pleistocene alluvial fan deposits and underlain by the Franciscan Formation bedrock at depth. The site is located in the East Bay Plain Subbasin of the Santa Clara Groundwater Basin. The cumulative aquifer thickness in the vicinity is approximately 1,000 feet, consisting of unconsolidated sediments.	None	None
	Site	According to the Underground Storage Tank and Abandonment Report dated May 7, 2015 by Golden Gate Tank Removal (GGTR), the overburden soil removed above the tank consisted predominantly of clay. According to information for a nearby site (1633 Harrison Street located approximately 1,100 feet to the west) the soil beneath the vicinity of the site consists primarily of silty sand with some intermittent sandy, clayey, and gravelly silt to at least approximately 35 feet below ground surface (bgs). The depth to groundwater in the vicinity of the property ranges from approximately 16 to 22 feet bgs. Groundwater is expected to flow to the northeast and towards Lake Merritt which is located approximately 330 feet from the property.	Information on the specific subsurface soil types, the depth to groundwater, and the groundwater flow direction and magnitude at the site are lacking.	The proposed investigation includes the advancement of soil borings for the collection of soil and groundwater samples. The soil types will be logged and the depth to groundwater will be noted but a groundwater gradient and magnitude will not be calculated at this time.
Surface Water Bodies		The nearest known water body is Lake Merritt which is located approximately 330 feet to the east of the property.	None	None
Nearby Wells		The State Water Resources Control Board's GeoTracker GAMA website includes information regarding the approximate locations of water supply wells in California. In the vicinity of the site, the closest water supply well presented on this website is depicted approximately 1,500 feet to the northwest of the site. No other wells are located within 2,000 feet of the site according to the GeoTracker GAMA website.	No formal well or sensitive receptor survey has been conducted for the site.	Conduct a formal sensitive receptor survey including a well survey of potential public and domestic wells.
Release History		Between November 2014 and March 2015, one 1,500-gallon underground storage tank containing heating oil was abandoned in place in the sidewalk along 17th Street as detailed in the report by GGTR. The tank measured approximately 10 feet by 5 feet and was constructed of single wall steel. The bottom of the tank was reported at 16.5 feet bgs. The fill port was located at the west end of the tank. The age of the tank is reportedly unknown. During the tank abandonment, the tank was found to be in poor condition with visible holes. Soil discoloration or hydrocarbon odors were observed in the tank overburden soil and in the soil underlying the tank. The overburden soil consisted predominantly of clay. No groundwater was encountered in the excavation. Due to the presence of utility lines and a large tree directly above the tank, the removal of the tank was reportedly not possible. Two discrete soil samples were collected from the east and west ends of the tank at approximately 18.5 feet below ground surface; samples 9475-E18'6" and 9475-W18'6", respectively. One composite sample was collected from the overburden; sample 9475-SP. The results indicated: 13,800 mg/kg TPH (C10-C28) and 1.75 mg/kg xylenes in sample 9475-E18'6"; 12,600 mg/kg TPH (C10-C28) and 1.71 mg/kg xylenes in sample 9475-W18'6"; and 297 mg/kg TPH (C10-C28) in sample 9475-SP. The tank was filled in place by completely filling the tank with concrete slurry. The excavation was backfilled with clean import fill material and the stockpile was removed and disposed by the Owner although no manifest was provided in the report by GGTR.	None	None

mg/kg	milligrams per kilogram
TPH	Total Petroleum Hydrocarbons
SCM	Site Conceptual Model
bgs	below ground surface

TABLE 2

DATA GAPS AND PROPOSED INVESTIGATION

Item	LTCP Element	Data Gap*	Proposed Investigation	Rational	Analysis
1	General Criteria section d. Free product has been removed to the maximum extent practicable. General Criteria section e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed. General Criteria section f. Secondary source has been removed to the extent practicable.	Site visit documentation reports visible oil in the tank pit. No documentation has been provided to the ACEH evaluating free product removal. Therefore at this time, it is unclear to ACEH that free product has been removed to the maximum extent practicable. The SCM is inadequate as soil contamination and potential impacts to groundwater have not been adequately addressed, and sensitive receptors have not been identified. ACEH considers the SCM a living document and considers the document incomplete until the site has been shown to meet closure criteria. As the UST was abandoned in-place, it is unclear to ACEH if secondary source may be present beneath the tank.	The proposed investigation includes the advancement of boring B1 which is located adjacent to the tank and the collection of soil and groundwater samples.	The analysis of soil and groundwater samples from boring B1 should provide information as to whether or not free product or a secondary source remains. In addition, the initial SCM is provided as Table 1. The SCM can be updated as new information is obtained.	Soil and Groundwater: - TPH as diesel by EPA Method 8015 - BTEX, naphthalene, and MTBE ether by EPA Method 8260
2	Media Specific Criterial for Groundwater	Impacts to groundwater have not been evaluated at this site. Therefore, no plume length determination or stability evaluation, if warranted, can be performed.	The investigation involves the advancement of soil borings for the collection and analysis of groundwater samples. The borings are proposed at and around the tank in the up- and downgradient directions.	Although a sensitive receptor survey has not been completed, the nearest known water body is Lake Merritt which is located approximately 330 feet from the property. As such, the sampling strategy is intended to apply to Groundwater Specific Criteria (1) of the LTCP where the nearest existing water supply well or surface water body is greater than 250 feet from the defined plume boundary.	Soil and Groundwater: - TPH as diesel by EPA Method 8015 - BTEX, naphthalene, and MTBE ether by EPA Method 8260
3	Media Specific Criterial for Vapor Intrusion to Indoor Air	The distribution of TPH in soil within the proximity of the foundation has not been evaluated. Oxygen data and soil gas sampling has not been conducted. Therefore, no vapor intrusion to indoor air determination, if warranted, can be performed.	The scope of work proposed consists of soil gas sampling from a total of two locations.	The locations of the vapor samples were selected to be near to the tank and the onsite building with samples collected at a depth of 5 feet bgs. The results are intended to be compared to the scenarios outlined in the LTCP Petroleum Vapor Intrusion to Indoor Air.	Soil Gas: - MTBE, BTEX, and naphthalene by TO-15 - Percent Oxygen by ASTM D-1945 or D-1946
4	Media Specific Criterial for Direct Contact	It is unclear to ACEH that the distribution of TPH and fuel components in soil in the subsurface has been adequately characterized in relation to the LTCP. Therefore, direct contact exposure determination, if warranted, can not be performed.	The investigation involves the advancement of soil borings for the collection and analysis of soil samples.	The bottom of the tank was reported at 16.5 feet bgs and impacts above 10 feet bgs in soil are not expected although soil sampling will be conducted adjacent to the tank in B1 at 10 feet as a confirmation.	Soil and Groundwater: - TPH as diesel by EPA Method 8015 - BTEX, naphthalene, and MTBE ether by EPA Method 8260

Notes:

LTCP State Water Resources Control Board Low Threat Underground Storage Tank Case Closure Policy

TPH Total Petroleum Hydrocarbons

BTEX Benzene, toluene, ethylbenzene, and total xylenes

MTBE Methyl tertiary butyl ether

SCM Site Conceptual Model

bgs below ground surface

* Data gaps were noted in the letter in the Alameda County Environmental Health Department (ACEH) dated June 22, 2015.

ATTACHMENT A

AGENCY CORRESPONDENCE

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
REBECCA GEBHART, Acting Director

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

Late Letter

May 26, 2016

Tudor Hall Apartments, LP
800 Airport Boulevard, #510
Burlingame, CA 94010

Subject: Request for Work Plan; Fuel Leak Case No. RO0003165 and GeoTracker Global ID T10000007042, Tudor Hall Apartments, 150 17th Street, Oakland, CA 94612

Dear Responsible Party:

A review of the case file for the above-referenced site indicates that your case is currently in not in compliance with Alameda County Environmental Health's (ACEH) letter dated June 22, 2015 which required the submittal of a work plan by August 31, 2015. Approximately nine (9) months have lapsed and the work plan has not been received.

Implementation of site characterization and/or cleanup at this site is crucial to be protective of human health and the environment and to move this case towards closure evaluation. Please note that as the Responsible Party, you are required by California Code of Regulations, Title 23, Division 3, Chapter 16, Article 11, §2720 through §2728 to characterize the site and implement corrective action, if needed.

Also, a review of California State Water Resources Control Board (SWRCB) GeoTracker website indicates that not all submittals have been electronically uploaded rendering the site to non-compliance status. Please note that in addition to GeoTracker, all reports, work plans, correspondences, etc. must be uploaded to ACEH's ftp site (see the enclosed "ACEH Electronic Report Upload (ftp) Instructions.").

In order to regain compliance, please submit the requested work plan, and electronically upload all documents to GeoTracker and ACEH's ftp server by the dates specified below. Failure to submit the work plan by the due date specified below may result in an issuance of a Notice of Violation and possible enforcement action by the District Attorney and/or ineligibility for reimbursement of corrective action costs incurred at the site from the Underground Storage Tank Clean-up Fund.

As your electronic mail address is not listed on the first page of this letter, ACEH is requesting your electronic mail address to help expedite communications. Additionally, ACEH requests that you provide your environmental consultant's contact information to ACEH via electronic mail, Attn. Keith Nowell, so that future ACEH correspondences may include your consultant as a cc.

TECHNICAL REPORT REQUEST

Please upload technical reports to the ACEH ftp site (Attention: Keith Nowell), and to the SWRCB Geotracker website, in accordance with the following specified file naming convention by the date specified below:

- **June 28, 2016** – **Claim site in GeoTracker**
- **June 28, 2016** – **Electronic Submittal of Information**
- **June 28, 2016** – **Environmental Consultant Contact Information** (provided by electronic mail Attn. Keith Nowell)
- **July 29, 2016 – Work Plan** (file to be named: RO0003165_WP_R_yyyy-mm-dd)

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.

Thank you for your cooperation. Should you have any questions or concerns regarding this correspondence or your case, please call me at (510) 567-6764 or send me an electronic mail message at keith.nowell@acgov.org.

Sincerely,

Keith Nowell

Digitally signed by Keith Nowell
DN: cn=Keith Nowell, o, ou, email=keith.nowell@acgov.org, c=US
Date: 2016.05.26 15:50:28 -07'00'

Keith Nowell
Hazardous Materials Specialist

Enclosure: Attachment 1- Responsible Party(ies) Legal Requirements/Obligations
ACEH Electronic Report Upload (ftp) Instructions

Attachment A- Alameda County Environmental Health Correspondence dated June 22, 2015

cc: Dilan Roe, ACEH (*Sent via electronic mail to: dilan.roe@acgov.org*)

Keith Nowell, ACEH (*Sent via electronic mail to*: *keith.nowell@acgov.org*)

GeoTracker / File

Attachment 1

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

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.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/).

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.

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**REVISION DATE:** May 15, 2014
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010, July 25, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**.
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and perjury statements must be included and have either original or electronic signature.**
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted**.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

1) Obtain User Name and Password
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to deh.loptoxic@acgov.org
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
   b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

ATTACHMENT A

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Agency Director

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

June 22, 2015

Tudor Hall Apartments, LP
800 Airport Boulevard, #510
Burlingame, CA 94010

Subject: Request for Information; Fuel Leak Case No. RO0003165 and GeoTracker Global ID T10000007042, Tudor Hall Apartments, 150 17th Street, Oakland, CA 94612

Dear Responsible Parties:

I would like to take this opportunity to introduce myself. I will be the case worker for the subject Alameda County Environmental Health (ACEH) Local Oversight Program (LOP) case. I have reviewed the ACEH case file and the State Water Resources Control Board's (SWRCBs) GeoTracker website for the above-referenced site. ACEH has not received any documents from you addressing activities associated with the abandonment of a 1,500-gallon heating oil underground storage tank (UST) on March 16, 2015 at the subject site.

The laboratory analytical report documents results of soil samples collected at the subject site on March 11, 2015 contained up to 13,800 milligrams per kilogram (mg/kg) total petroleum hydrocarbons (TPH) in the C10 to C28 range and 1.75 mg/kg total xylenes. These concentrations indicate an unauthorized release has occurred from the underground storage tank system at this site. Upon review of the laboratory analytical report, the ACEH Certified Unified Program Agency (CUPA) transferred the case to the ACEH LOP.

Therefore, please address the following technical comments by the dates specified below:

TECHNICAL COMMENTS

1. **List Landowners Form** - In order to insure that site's current property owner has been identified and informed of these activities, please complete the attached *List Landowners* form and return to ACEH by the date specified below. Please complete form and submit to the ACEH ftp and GeoTracker websites by the date identified below.

2. **Unauthorized Release Form** – based on the documented unauthorized release, an *Unauthorized Release Form* (URF) will need to be completed for the site. A link to the URF is provided below. Please complete the URF and submit to the ACEH ftp and GeoTracker websites by the date identified below. A copy of the URF can be found at the following link:

   http://www.waterboards.ca.gov/ust/forms/docs/unauth_release.pdf

3. **GeoTracker** - Please claim your site and upload existing and all future submittals to GeoTracker and ACEH's ftp websites by the date specified below. Please note that the case will need to be claimed in GeoTracker prior to the electronic submittal of information (ESI) to the SWRCB website requested below. Electronic reporting is described on the attachments. Additional information regarding the SWRCB's GeoTracker website may be obtained online at:

http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/
and at
http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml.

Additional information and/or clarification may be obtained by contacting the GeoTracker Help Desk at geotracker@waterboards.ca.gov or (866) 480-1028.

Please provide ACEH with a list of uploaded documents by the date specified below. The document listing may be provided via email to my attention.

4. **Electronic Submittal of Information** – In order to initiate a case review, ACEH will need to review all documents related to investigation performed for the site in order to develop an adequate picture of the current status of the case. As requested above, please upload any and all documents pertaining to the tank abandonment, investigation, and remedial activities, including all Phase I and Phase II Environmental Site Assessments, and tank closure reports, for your site to the ACEH ftp and the SWRCB GeoTracker websites. Additionally, GeoTracker requires electronic submittal of information (ESI). Hence, once the site is claimed, please upload the laboratory analysis report(s) in electronic deliverable format (EDF), reports (GEO_REPORTs) and figures (GEO_MAPs) to GeoTracker.

5. **Data Gap Investigation Work Plan and Focused Site Conceptual Model** – Due to the presence of residual TPH, please prepare a Data Gap Investigation Work Plan to address the State Water Resources Control Board's (SWRCBs) Low Threat Underground Storage Tank Case Closure Policy (LTCP) criteria identified below. Please support the scope of work in the Data Gap Investigation Work Plan with a focused Site Conceptual Model (SCM) and Data Quality Objectives (DQOs) that relate the data collection to each LTCP criteria. For example, please clarify which scenario within each Media-Specific Criteria a sampling strategy is intended to apply to.

   In order to expedite review, ACEH requests the focused SCM be presented in a tabular format that highlights the major SCM elements and associated data gaps, which need to be addressed to progress the site to case closure under the LTCP. Please see Attachment A "Site Conceptual Model Requisite Elements". Please sequence activities in the proposed revised data gap investigation scope of work to enable efficient data collection in the fewest mobilizations possible.

   a. **General Criteria sections d, e and f** – Site visit documentation reports visible oil in the tank pit. No documentation has been provided to ACEH evaluating free product removal. Therefore at this time, it is unclear to ACEH that free product has been removed to the maximum extent practicable.

      The Site Conceptual Model (SCM) is inadequate as soil contamination and potential impacts to groundwater have not been adequately addressed, and sensitive receptors have not been identified. ACEH considers the SCM a living document and considers the document incomplete until the site has been shown to meet closure criteria.

      As the UST was abandoned in-place, it is unclear to ACEH if secondary source may be present beneath the tank.

   b. **Media Specific Criteria for Groundwater** – Impacts to groundwater have not been evaluated at this site. Therefore, no plume length determination or stability evaluation, if warranted, can be performed.

   c. **Media Specific Criteria for Vapor Intrusion to Indoor Air** – The distribution of total petroleum hydrocarbons (TPH) in soil within the proximity to the foundation has not been evaluated. Oxygen

data and soil gas sampling has not been conducted. Therefore, no vapor intrusion to indoor air determination, if warranted, can be performed.

d. **Media Specific Criteria for Direct Contact** – It is unclear to ACEH that the distribution of TPH and fuel components in soil in the subsurface has been adequately characterized in relation to the LTCP. Therefore, direct contact exposure determination, if warranted, can be performed.

TECHNICAL REPORT REQUEST

Please upload technical reports to the ACEH ftp site (Attention: Keith Nowell), and to the State Water Resources Control Board's Geotracker website, in accordance with the following specified file naming convention and schedule:

- **July 20, 2015** – Claim Site in GeoTracker
- **July 20, 2015** –*List of Landowners* Form (file to be named LNDOWNR_F_yyyy-mm-dd)
- **July 20, 2015** – *Unauthorized Release Form* (file to be named URF_R_yyyy-mm-dd)
- **July 20, 2015** – Electronic Submittal of Information
- **July 20, 2015** – List of uploaded documents (provided via email - Attn.: Keith Nowell)
- **August 31, 2015 – Data Gap Identification Work Plan** (file to be named RO0003165_WP_R_yyyy-mm-dd).

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.

Online case files are available for review at the following website: http://www.acgov.org/aceh/index.htm.

If your email address does not appear on the cover page of this notification, ACEH is requesting you provide your email address so that we can correspond with you quickly and efficiently regarding your case.

Thank you for your cooperation. ACEH looks forward to working with you and your consultants to advance the case toward closure. Should you have any questions regarding this correspondence or your case, please call me at (510) 567-6764 or send an electronic mail message at keith.nowell@acgov.org.

Sincerely,

Keith Nowell

Digitally signed by Keith Nowell
DN: cn=Keith Nowell, o=Alameda County, ou=Department of Environmental Health, email=keith.nowell@acgov.org, c=US
Date: 2015.06.19 12:36:25 -07'00'

Keith Nowell, PG, CHG
Hazardous Materials Specialist

Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements/Obligations and Electronic Report Upload (ftp) Instructions

Attachment 2 - *List of Landowners Form*

Attachment A - Site Conceptual Model Requisite Elements

Dilan Roe, ACEH (*Sent via E-mail to: dilan.roe@acgov.org*)
Keith Nowell, ACEH, (*Sent via electronic mail to keith.nowell@acgov.org*)
GeoTracker, file

Attachment 1

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

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.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/).

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.

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**REVISION DATE:** May 15, 2014
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010, July 25, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection.**
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and perjury statements must be included and have either original or electronic signature.**
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted**.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

1) Obtain User Name and Password
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to deh.loptoxic@acgov.org
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
   b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site:
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

ATTACHMENT 2

LIST OF LANDOWNERS FORM

County of Alameda
Environmental Health Services
Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

CERTIFIED LIST OF RECORD FEE TITLE OWNERS FOR:

Site Name: Tudor Hall Apartments

Address: 150 17th Street

City, State, Zip: Oakland, CA 94612

Record ID #: RO0003165

Please fill out item 1 if there are multiple site landowners (attach an extra sheet if necessary). If you are the sole site landowner, skip item 1 and fill out item 2.

1. In accordance with Section 25297.15(a) of Chapter 6.7 of the California Health & Safety Code, I, _____ (name of primary responsible party), certify that the following is a complete list of current record fee title owners and their mailing addresses for the above site:

   Name: _____

   Address: _____

   City, State, Zip: _____

   E-mail Address: _____

   Name: _____

   Address: _____

   City, State, Zip: _____

   E-mail Address: _____

   Name: _____

   Address: _____

   City, State, Zip: _____

   E-mail Address: _____

2. In accordance with Section 25297.15(a) of Chapter 6.7 of the California Health & Safety Code, I _____, certify that I am the sole landowner for the above site.

Sincerely,

_____	_____	_____	_____
Signature of Primary Responsible Party	Printed Name	Date	E-mail Address

ATTACHMENT A

Site Conceptual Model Requisite Elements

ATTACHMENT A

Site Conceptual Model

The site conceptual model (SCM) is an essential decision-making and communication tool for all interested parties during the site characterization, remediation planning and implementation, and closure process. A SCM is a set of working hypotheses pertaining to all aspects of the contaminant release, including site geology, hydrogeology, release history, residual and dissolved contamination, attenuation mechanisms, pathways to nearby receptors, and likely magnitude of potential impacts to receptors.

The SCM is initially used to characterize the site and identify data gaps. As the investigation proceeds and the data gaps are filled, the working hypotheses are modified, and the overall SCM is refined and strengthened until it is said to be "validated". At this point, the focus of the SCM shifts from site characterization towards remedial technology evaluation and selection, and later remedy optimization, and forms the foundation for developing the most cost-effective corrective action plan to protect existing and potential receptors.

For ease of review, Alameda County Environmental Health (ACEH) requests utilization of tabular formats to (1) highlight the major SCM elements and their associated data gaps which need to be addressed to progress the site to case closure (see Table 1 of attached example), and (2) highlight the identified data gaps and proposed investigation activities (see Table 2 of the attached example). ACEH requests that the tables presenting the SCM elements, data gaps, and proposed investigation activities be updated as appropriate at each stage of the project and submitted with work plans, feasibility studies, corrective action plans, and requests for closures to support proposed work, conclusions, and/or recommendations.

The SCM should incorporate, but is not limited to, the topics listed below. Please support the SCM with the use of large-scaled maps and graphics, tables, and conceptual diagrams to illustrate key points. Please include an extended site map(s) utilizing an aerial photographic base map with sufficient resolution to show the facility, delineation of streets and property boundaries within the adjacent neighborhood, downgradient irrigation wells, and proposed locations of transects, monitoring wells, and soil vapor probes.

a. Regional and local (on-site and off-site) geology and hydrogeology. Include a discussion of the surface geology (e.g., soil types, soil parameters, outcrops, faulting), subsurface geology (e.g., stratigraphy, continuity, and connectivity), and hydrogeology (e.g., water-bearing zones, hydrologic parameters, impermeable strata). Please include a structural contour map (top of unit) and isopach map for the aquitard that is presumed to separate your release from the deeper aquifer(s), cross sections, soil boring and monitoring well logs and locations, and copies of regional geologic maps.

b. Analysis of the hydraulic flow system in the vicinity of the site. Include rose diagrams for depicting groundwater gradients. The rose diagram shall be plotted on groundwater elevation contour maps and updated in all future reports submitted for your site. Please address changes due to seasonal precipitation and groundwater pumping, and evaluate the potential interconnection between shallow and deep aquifers. Please include an analysis of vertical hydraulic gradients, and effects of pumping rates on hydraulic head from nearby water supply wells, if appropriate. Include hydraulic head in the different water bearing zones and hydrographs of all monitoring wells.

c. Release history, including potential source(s) of releases, potential contaminants of concern (COC) associated with each potential release, confirmed source locations, confirmed release locations, and existing delineation of release areas. Address primary leak source(s) (e.g., a tank, sump, pipeline, etc.) and secondary sources (e.g., high-

ATTACHMENT A

Site Conceptual Model (continued)

concentration contaminants in low-permeability lithologic soil units that sustain groundwater or vapor plumes). Include local and regional plan view maps that illustrate the location of sources (former facilities, piping, tanks, etc.).

d. Plume (soil gas and groundwater) development and dynamics including aging of source(s), phase distribution (NAPL, dissolved, vapor, residual), diving plumes, attenuation mechanisms, migration routes, preferential pathways (geologic and anthropogenic), magnitude of chemicals of concern and spatial and temporal changes in concentrations, and contaminant fate and transport. Please include three-dimensional plume maps for groundwater and two-dimensional soil vapor plume plan view maps to provide an accurate depiction of the contaminant distribution of each COC.

e. Summary tables of chemical concentrations in different media (i.e., soil, groundwater, and soil vapor). Please include applicable environmental screening levels on all tables. Include graphs of contaminant concentrations versus time.

f. Current and historic facility structures (e.g., buildings, drain systems, sewer systems, underground utilities, etc.) and physical features including topographical features (e.g., hills, gradients, surface vegetation, or pavement) and surface water features (e.g. routes of drainage ditches, links to water bodies). Please include current and historic site maps.

g. Current and historic site operations/processes (e.g., parts cleaning, chemical storage areas, manufacturing, etc.).

h. Other contaminant release sites in the vicinity of the site. Hydrogeologic and contaminant data from those sites may prove helpful in testing certain hypotheses for the SCM. Include a summary of work and technical findings from nearby release sites, including the two adjacent closed LUFT sites, (i.e., Montgomery Ward site and the Quest Laboratory site).

i. Land uses and exposure scenarios on the facility and adjacent properties. Include beneficial resources (e.g., groundwater classification, wetlands, natural resources, etc.), resource use locations (e.g., water supply wells, surface water intakes), subpopulation types and locations (e.g., schools, hospitals, day care centers, etc.), exposure scenarios (e.g. residential, industrial, recreational, farming), and exposure pathways, and potential threat to sensitive receptors. Include an analysis of the contaminant volatilization from the subsurface to indoor/outdoor air exposure route (i.e., vapor pathway). Please include copies of Sanborn maps and aerial photographs, as appropriate.

j. Identification and listing of specific data gaps that require further investigation during subsequent phases of work. Proposed activities to investigate and fill data gaps identified.

TABLE 1

INITIAL SITE CONCEPTUAL MODEL

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Geology and Hydrogeology	Regional	The site is in the northwest portion of the Livermore Valley, which consists of a structural trough within the Diablo Range and contains the Livermore Valley Groundwater Basin (referred to as "the Basin") (DWR, 2006). Several faults traverse the Basin, which act as barriers to groundwater flow, as evidenced by large differences in water levels between the upgradient and downgradient sides of these faults (DWR, 2006). The Basin is divided into 12 groundwater basins, which are defined by faults and non-water-bearing geologic units (DWR, 1974). The hydrogeology of the Basin consists of a thick sequence of fresh-water-bearing continental deposits from alluvial fans, outwash plains, and lacustrine environments to up to approximately 5,000 feet bgs (DWR, 2006). Three defined fresh-water bearing geologic units exist within the Basin: Holocene Valley Fill (up to approximately 400 feet bgs in the central portion of the Basin), the Plio-Pleistocene Livermore Formation (generally between approximately 400 and 4,000 feet bgs in the central portion of the Basin), and the Pliocene Tassajara Formation (generally between approximately 250 and 5,000 or more feet bgs) (DWR, 1974). The Valley Fill units in the western portion of the Basin are capped by up to 40 feet of clay (DWR, 2006).	None	NA
	Site	***Geology:*** Borings advanced at the site indicate that subsurface materials consist primarily of finer-grained deposits (clay, sandy clay, silt and sandy silt) with interbedded sand lenses to 20 feet below ground surface (bgs), the approximate depth to which these borings were advanced. The documented lithology for one on-site boring that was logged to approximately 45 feet bgs indicates that beyond approximately 20 feet bgs, fine-grained soils are present to approximately 45 feet bgs. A cone penetrometer technology test indicated the presence of sandier lenses from approximately 45 to 58 feet bgs and even coarser materials (interbedded with finer-grained materials) from approximately 58 feet to 75 feet bgs, the total depth drilled. The lithology documented at the site is similar to that reported at other nearby sites, specifically the Montgomery Ward site (7575 Dublin Boulevard), the Quest laboratory site (6511 Golden Gate Drive), the Shell-branded Service Station site (11989 Dublin Boulevard), and the Chevron site (7007 San Ramon Road). ***Hydrogeology:*** Shallow groundwater has been encountered at depths of approximately 9 to 15 feet bgs. The hydraulic gradient and groundwater flow direction have not been specifically evaluated at the site.	As noted, most borings at the site have been advanced to approximately 20 feet bgs, and one boring has been advanced and logged to 45 feet bgs; CPT data was collected to 75 feet bgs at one location. Lithologic data will be obtained from additional borings that will be advanced on site to further the understanding of the subsurface, especially with respect to deeper lithology. The on-site shallow groundwater horizontal gradient has not been confirmed. Additionally, it is not known if there may be a vertical component to the hydraulic gradient.	Two direct push borings and four multi-port wells will be advanced to depth (up to approximately 75 feet bgs) and soil lithology will be logged. See items 4 and 5 on Table 2. Shallow and deeper groundwater monitoring wells will be installed to provide information on lateral and vertical gradients. See Items 2 and 5 on Table 2.
Surface Water Bodies		The closest surface water bodies are culverted creeks. Martin Canyon Creek flows from a gully west of the site, enters a culvert north of the site, and then bends to the south, passing approximately 1,000 feet east of the site before flowing into the Alamo Canal. Dublin Creek flows from a gully west of the site, enters a culvert approximately 750 feet south of the site, and then joins Martin Canyon Creek approximately 750 feet southeast of the site.	None	NA
Nearby Wells		The State Water Resources Control Board's GeoTracker GAMA website includes information regarding the approximate locations of water supply wells in California. In the vicinity of the site, the closest water supply wells presented on this website are depicted approximately 2 miles southeast of the site; the locations shown are approximate (within 1 mile of actual location for California Department of Public Health supply wells and 0.5 mile for other supply wells). No water-producing wells were identified within 1/4 mile of the site in the well survey conducted for the Quest Laboratory site (6511 Golden Gate Drive; documented in 2009); information documented in a 2005 report for the Chevron site at 7007 San Ramon Road indicates that a water-producing well may exist within 1/2 mile of the site.	A formal well survey is needed to identify water-producing, monitoring, cathodic protection, and dewatering wells.	Obtain data regarding nearby, permitted wells from the California Department of Water Resources and Zone 7 Water Agency (Item 11 on Table 2).

TABLE 2

DATA GAPS AND PROPOSED INVESTIGATION

Item	Data Gap	Proposed Investigation	Rationale	Analysis
5	Evaluate the possible presence of impacts to deeper groundwater. Evaluate deeper groundwater concentration trends over time. Obtain data regarding the vertical groundwater gradient. Obtain more lithological data below 20 feet bgs.	Install four continuous multichannel tubing (CMT) groundwater monitoring wells (aka multi-port wells) to approximately 65 feet bgs in the northern parking lot with ports at three depths (monitoring well locations may be adjusted pending results of shallow grab groundwater samples; we will discuss any potential changes with ACEH before proceeding). Groundwater monitoring frequency to be determined. Soil samples will be collected only if there are field indications of impacts. Soil lithology will be logged. However, information regarding the moisture content of soil may not be reliable using sonic drilling technology (two borings will be logged using direct push technology; see Item 4, above).	One well is proposed at the western (upgradient) property boundary to confirm that there are no deeper groundwater impacts from upgradient. Two wells are proposed near the center of the northern parking lot to evaluate potential impacts in an area where deeper impacts, if any, would most likely to be found. One well is proposed at the eastern (downgradient) property boundary to confirm that there are no impacts extending off-site. Port depths will be chosen based on the locations of saturated soils (as logged in direct push borings; see Item 4, above), but are expected at approximately 15, 45, and 60 feet bgs.	*Groundwater:* VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance.
6	Evaluate possible off-site migration of impacted soil vapor in the downgradient direction (east). Evaluate concentration trends over time.	Install 4 temporary nested soil vapor probes at approximately 4 and 8 feet bgs along the eastern property boundary. Based on the results of the sampling, two sets of nested probes will be converted to vapor monitoring wells to allow for evaluation of VOC concentration trends over time.	Available data indicate that PCE and TCE are present in soil vapor in the eastern portion of the northern parking lot. Samples are proposed on approximately 50-foot intervals along the eastern property boundary to provide a transect of concentrations through the vapor plume. The depths of 4 and 8 feet bgs are chosen to provide data closest to the source (i.e., groundwater) while avoiding saturated soil, and also provide shallower data to help evaluate potential attenuation within the soil column. Two sets of nested vapor probes will be converted into vapor monitoring wells (by installing well boxes at ground surface); the locations of the permanent wells will be chosen based on the results of samples from the temporary probes.	*Soil vapor*: VOCs by EPA Method TO-15.
7	Evaluate potential for off-site migration of impacted groundwater in the downgradient direction (east).	Advance two borings to approximately 20 feet bgs in the parking lot of the property east of the Crown site for collection of grab groundwater samples.	Two borings are proposed off-site, on the property east of the Crown site, just east of the building in the expected area of highest potential VOC concentrations.	*Groundwater:* VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance.
8	Evaluate VOC concentrations just north of the highest concentration area.	Advance two borings to approximately 20 feet bgs north of Building A for collection of soil and grab groundwater samples. Soil samples will be collected at two depths in the vadose zone. Soil samples will be collected based on field indications of impacts (PID readings, odor, staining) or, in the absence of field indications of impacts, at 5 and 10 feet bgs.	The highest concentrations of PCE in groundwater were detected at boring NM-B-32, just north of Building A. The nearest available data to the north are approximately 75 feet away. One of the borings will be advanced approximately 20 feet north of NM-B-32 to provide data close to the highest concentration area. A second boring will be advanced approximately halfway between the first boring and former boring NM-B-33 to provide additional spatial data for contouring purposes. These borings will be part of a transect in the highest concentration area.	*Groundwater:* VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance. *Soil:* VOCs by EPA Method 8260 (soil samples to be collected using field preservation in accordance with EPA Method 5035).
9	Evaluate VOC concentrations in soil vapor in the south parcel of the site.	Install four temporary soil vapor probes at approximately 5 feet bgs around boring SV-25, where PCE was detected in soil vapor at a low concentration.	PCE was detected in soil vapor sample SV-25 in the southern parcel, although was not detected in groundwater in that area. Three probes will be installed approximately 30 feet from of boring SV-25 to attempt to delineate the extent of impacts. A fourth probe is proposed west of the original sample, close to the property boundary and the location of mapped utility lines, which may be a potential conduit, to evaluate potential impacts from the west.	*Soil vapor*: VOCs by EPA Method TO-15.
10	Obtain additional information regarding subsurface structures and utilities to further evaluate migration pathways and sources.	Ground penetrating radar (GPR) and other utility locating methodologies will be used, as appropriate, to further evaluate the presence of unknown utilities and structures at the site.	Utilities have been identified at the site that include an on-site sewer lateral and drain line, and shallow water, electric, and gas lines. Given the current understanding of the distribution of PCE in groundwater at the site, it is possible that other subsurface utilities, and specifically sewer laterals, exist that may act as a source or migration pathway for distribution of VOCs in the subsurface.	NA