

ExxonMobil Environmental Services Company
4096 Piedmont Avenue #194
Oakland, California 94611
510 547 8196 Telephone
510 547 8706 Facsimile

Jennifer C. Sedlachek
Project Manager

RECEIVED

9:55 am, Sep 07, 2010

Alameda County
Environmental Health

ExxonMobil

September 3, 2010

Mr. Jerry T. Wickham
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, California 94502-6577

Subject: Fuel Leak Investigation Site No. RO0002635
Former Exxon RAS #74121, 10605 Foothill Boulevard, Oakland, California

Dear Mr. Wickham:

Attached for your review and comment is a copy of the *Vapor Sampling Work Plan* for the above-referenced site. The letter, prepared by ETIC Engineering, Inc. of Pleasant Hill, California, is submitted in response to your letter dated July 22, 2010 which requested a summary report.

Upon information and belief, I declare, under penalty of perjury, that the information contained in the attached document is true and correct.

If you have any questions or comments, please contact me at 510.547.8196.

Sincerely,



Jennifer C. Sedlachek
Project Manager

Attachment: ETIC Vapor Sampling Work Plan

c: w/ attachment:
Mr. Ken Phares - MacArthur Boulevard Associates, Oakland, California
Mr. Peter McIntyre - AEI Consultants

c: w/o attachment:
Mr. Bryan Campbell - ETIC Engineering, Inc.

3 September 2010

Ms. Jennifer C. Sedlachek
ExxonMobil Environmental Services Company
4096 Piedmont Avenue #194
Oakland, California 94611

Subject: Vapor Sampling Work Plan
Former Exxon Retail Site 74121, 10605 Foothill Boulevard, Oakland, California
Fuel Leak Investigation Site No. RO0002635

Dear Ms. Sedlachek:

ETIC Engineering, Inc. (ETIC) has prepared this Vapor Sampling Work Plan for ExxonMobil Environmental Services Company on behalf of ExxonMobil Oil Corporation for former Exxon Retail Site 74121, 10605 Foothill Boulevard, Oakland, California (Figure 1). This work plan was prepared in response to a request by the Alameda County Health Care Services Agency (ACHCSA) dated 22 July 2010 (Appendix A).

In its letter dated 22 July 2010, the ACHCSA responded to the Post-Remedial Excavation Report dated 30 June 2010 (ETIC 2010) and requested a summary report with either a request for case closure or a recommendation for future action. As a part of either report, the ACHCSA requested an evaluation of the potential risk of vapor intrusion to existing adjacent residential properties and future commercial onsite uses.

Soil vapor sampling of vapor wells was conducted in March 2009. Source removal through excavation was expected to lead to a decrease of hydrocarbon concentrations in the vapor wells and excavation activities were subsequently conducted in February 2010 (ETIC 2010). During the excavation, vapor monitoring wells VW7 and VW8 were removed as the limits of the excavation extended beyond the locations of the vapor monitoring wells. Sampling of the remaining existing vapor wells (VW1 through VW6 and VW9 through VW12) is expected to provide adequate information in order to evaluate the potential risk of vapor intrusion to existing adjacent residential properties and future commercial onsite properties following the excavation activities.

Scope of Work

The following work will be conducted and data collected to evaluate the potential vapor intrusion to existing adjacent residential properties and future commercial onsite properties. Sampling of the existing vapor monitoring wells (VW1 through VW6 and VW9 through VW12) is proposed. An advisory published by the Department of Toxic Substances Control and the California Regional Water Quality Control Board, Los Angeles Region (DTSC/LARWQCB) will be used as a guideline for the collection of the soil vapor samples proposed below (DTSC/LARWQCB 2003).

Well construction details are provided in Table 1.

ETIC proposes to conduct the following activities:

- An attempt will be made to collect soil vapor samples from the existing 10 vapor wells (VW1 through VW6 and VW9 through VW12). Prior to the collection of the vapor samples, irrigation of the onsite landscaping will be discontinued and the vapor samples will not be collected during periods of precipitation.
- Soil vapor samples will be collected in 1-liter Summa canisters and will be analyzed by a state-certified laboratory. Sample collection methods are described in Appendix B.
- Guidelines by the DTSC state that every attempt should be made to collect representative vapor samples but that it may not be possible to collect soil vapor samples from the subsurface in some instances including for sites with a “saturated vadose zone due to a shallow water table or sites with clay-rich soil” (DTSC 2004). If water is encountered in the vapor wells during the proposed sampling, attempts will not be made to remove the water as this may preclude performing the proper purging of soil vapor before sampling. It may not be possible to collect soil vapor samples due to “low-flow” or “no-flow” conditions, often caused by the presence of clayey soils (DTSC/LARWQCB 2003). If vapor samples cannot be collected from the wells, then an evaluation of vapor intrusion without vapor samples will be considered.
- The results of the analysis of the above mentioned vapor samples will be used for the evaluation of potential vapor intrusion risks resulting from potential exposure to hydrocarbons beneath the site for existing adjacent residential properties and future commercial onsite cases.

The soil vapor samples will be analyzed for:

- Total Petroleum Hydrocarbons as gasoline by EPA Method TO-3M.
- Benzene, toluene, ethylbenzene, and total xylenes by EPA Method TO-15.
- Methyl tertiary butyl ether, tertiary butyl alcohol, diisopropyl ether, ethyl tertiary butyl ether, tertiary amyl methyl ether, 1,2-dibromoethane, and 1,2-dichloroethane by EPA Method TO-15.
- Oxygen, argon, carbon dioxide, and methane by ASTM D1946.

Schedule and Reporting

Completion of the field work is contingent upon approval of this work plan by the ACHCSA. ETIC will keep the ACHCSA informed of the status of the proposed work.


The results of the proposed work will be evaluated and incorporated into the summary report with either a request for case closure or a recommendation for future action. Data will be uploaded to the state GeoTracker database.

If you have any questions, please contact ETIC at (925) 602-4710 (ext. 21 for K. Erik Appel or ext. 24 for Bryan Campbell).

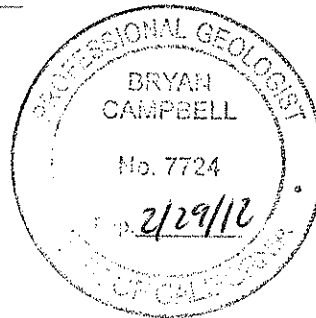
Sincerely,



K. Erik Appel
Project Manager



Bryan Campbell, P.G. #7724
Senior Geologist



Attachments:

- Figure 1: Site Map
- Table 1: Well Construction Details
- Appendix A: Regulatory Correspondence
- Appendix B: Field Protocols

References

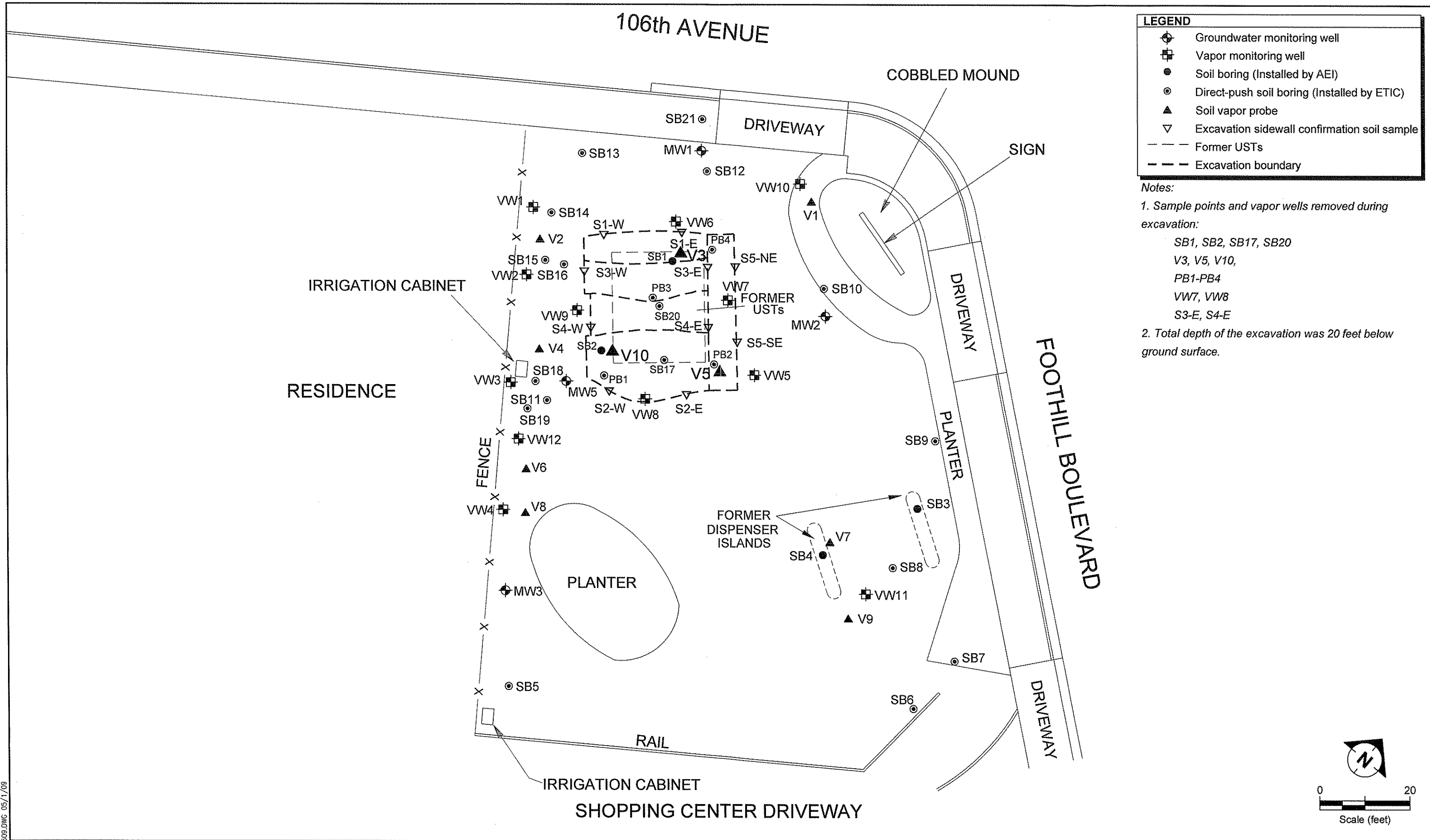
DTSC/LARWQCB (Department of Toxic Substances Control and California Regional Water Quality Control Board – Los Angeles Region). 2003. Advisory – Active Soil Gas Investigations. DTSC and LARWQCB, Glendale and Los Angeles, California. 28 January.

DTSC (Department of Toxic Substances Control). 2004. Guidance for the Evaluation and Mitigation of Substance Vapor Intrusion to Indoor Air – Interim Final. 15 December.

ETIC (ETIC Engineering, Inc.). 2009. Vapor Sampling Report, Former Exxon Retail Site 74121, 10605 Foothill Boulevard, Oakland, California. ETIC, Pleasant Hill, California. May.

ETIC (ETIC Engineering, Inc.). 2010 Post-Remedial Excavation Report, Former Exxon Retail Site 74121, 10605 Foothill Boulevard, Oakland, California. ETIC, Pleasant Hill, California. June.

Figures



FILENAME: Sample0509.DWG 05/1/09



SITE MAP
 FORMER EXXON RS 74121
 10605 FOOTHILL BOULEVARD
 OAKLAND, CALIFORNIA

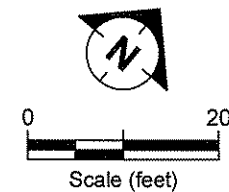


FIGURE:

1

Tables

TABLE 1 WELL CONSTRUCTION DETAILS, FORMER EXXON RS 74121, 10605 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

Well Number	Well Installation Date	Elevation TOC (feet)	Casing Material	Total Depth (feet)	Well Depth (feet)	Borehole Diameter (inches)	Casing Diameter (inches)	Screened Interval (feet)	Slot Size (inches)	Filter Pack Interval (feet)	Filter Pack Material
MW1	a 01/23/07	82.47	PVC	26.5	25	8	2	10 - 25	0.010	8 - 25	#2/12 Sand
MW2	a 01/23/07	84.40	PVC	26.5	25	8	2	10 - 25	0.010	8 - 25	#2/12 Sand
MW3	a 01/24/07	83.25	PVC	26.5	25	8	2	10 - 25	0.010	8 - 25	#2/12 Sand
MW5	a 01/23/07	82.65	PVC	26.5	25	8	2	10 - 25	0.010	8 - 25	#2/12 Sand
VW1	a 01/22/07	--	SS	6	6	6	0.25	5.25 - 5.75	0.0057	5 - 6	#2/12 Sand
VW2	a 01/22/07	--	SS	6	6	6	0.25	5.25 - 5.75	0.0057	5 - 6	#2/12 Sand
VW3	a 01/22/07	--	SS	6	6	6	0.25	5.25 - 5.75	0.0057	5 - 6	#2/12 Sand
VW4	a 01/22/07	--	SS	6	6	6	0.25	5.25 - 5.75	0.0057	5 - 6	#2/12 Sand
VW5	a 01/22/07	--	SS	6	6	6	0.25	5.25 - 5.75	0.0057	5 - 6	#2/12 Sand
VW6	b 03/23/09	--	SS	6	6	6	0.25	5.25 - 5.75	0.0057	5 - 6	#2/12 Sand
VW7	c 03/23/09	--	SS	6	6	6	0.25	5.25 - 5.75	0.0057	5 - 6	#2/12 Sand
VW8	c 03/23/09	--	SS	6	6	6	0.25	5.25 - 5.75	0.0057	5 - 6	#2/12 Sand
VW9	b 03/23/09	--	SS	6	6	6	0.25	5.25 - 5.75	0.0057	5 - 6	#2/12 Sand
VW10	b 03/23/09	--	SS	6	6	6	0.25	5.25 - 5.75	0.0057	5 - 6	#2/12 Sand
VW11	b 03/23/09	--	SS	6	6	6	0.25	5.25 - 5.75	0.0057	5 - 6	#2/12 Sand
VW12	b 03/23/09	--	SS	6	6	6	0.25	5.25 - 5.75	0.0057	5 - 6	#2/12 Sand

TABLE 1 WELL CONSTRUCTION DETAILS, FORMER EXXON RS 74121, 10605 FOOTHILL BOULEVARD, OAKLAND, CALIFORNIA

Well Number	Well Installation Date	Elevation TOC (feet)	Casing Material	Total Depth (feet)	Well Depth (feet)	Borehole Diameter (inches)	Casing Diameter (inches)	Screened Interval (feet)	Slot Size (inches)	Filter Pack Interval (feet)	Filter Pack Material
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Notes:

- a Well surveyed on 12 March 2007 by Morrow Surveying.
 - b Well surveyed on 4 May 2009 by Morrow Surveying.
 - c Well destroyed during remedial excavation.
- PVC Polyvinyl chloride.
 SS Stainless steel.
 TOC Top of casing.

Appendix A

Regulatory Correspondence

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

July 22, 2010

Ms. Jennifer Sedlachek (Sent via E-mail to: jennifer.c.sedlachek@exxonmobil.com)
Exxon Mobil
4096 Piedmont, #194
Oakland, CA 94611

RECEIVED

JUL 26 2010

MacArthur Boulevard Associates
c/o Mr. John Jay, Management Agent (Sent via E-mail to: johnjay@jayphares.com)
10700 MacArthur Boulevard, Suite 200
Oakland, CA 94605

ETIC ENGINEERING

Subject: Review of Excavation Report for Fuel Leak Case No. RO0002635 and Geotracker Global ID T0600120383, Exxon #7-4121, 10605 Foothill Boulevard, Oakland, CA 94605

Dear Ms. Sedlacheck and Mr. Jay:

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the above-referenced site, including the most recently submitted document entitled, "Post-Remedial Excavation Report," dated June 30, 2010. The "Post-Remedial Excavation Report," which was prepared by ETIC Engineering, Inc., presents results from excavation of petroleum impacted soil in the area of former underground storage tanks (USTs). The concentrations of petroleum hydrocarbons in confirmation samples collected at the edges of the excavation were less than screening levels.

The "Post-Remedial Excavation Report," concludes that the majority of petroleum impacted soil was removed and recommends that site closure be requested if groundwater concentrations continue to show a stable or decreasing trend following the next planned sampling event in August or September 2010. Based on the trends in the groundwater monitoring data collected to date and the fact that source removal was completed, we are not requesting additional groundwater sampling to demonstrate plume stability.

Therefore, you may prepare a summary report requesting case closure or a recommendation for future action without additional groundwater sampling. As part of your summary report, we request that you present your evaluation of the potential for vapor intrusion to existing adjacent residential properties and future commercial on-site properties to support your request for case closure. This evaluation should consider the need for confirmation soil vapor sampling following excavation.

Please note, that public participation will be required as part of the case closure process. Upon ACEH review of your summary report, ACEH will prepare and distribute a fact sheet to notify potentially affected members of the public who live or own property in the surrounding area of the potential for case closure. Public comments on the potential case closure will be accepted for a 30-day period.

Jennifer Sedlachek
John Jay
RO0002635
July 22, 2009
Page 2

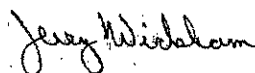
TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Jerry Wickham), according to the following schedule:

- **September 25, 2010** – Summary Report with Request for Case Closure or Recommendation for Future Action

If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at jerry.wickham@acgov.org.

Sincerely,



Digitally signed by Jerry Wickham
DN: cn=Jerry Wickham, o, ou,
email=jerry.wickham@acgov.org, c=US
Date: 2010.07.22 18:44:06 -07'00'

Jerry Wickham, California PG 3766, CEG 1177, and CHG 297
Senior Hazardous Materials Specialist

Attachments: Responsible Party(ies) Legal Requirements/Obligations

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032

K. Erik Appel, ETIC Engineering, Inc., 2285 Morello Avenue, Pleasant Hill, CA 94523

Peter McIntyre, AEI Consultants, 2500 Camino Diablo, Suite 100, Walnut Creek CA 94597

Donna Drogos, ACEH
Jerry Wickham, ACEH
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.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml).

PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

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

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

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

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	ISSUE DATE: July 5, 2005
	REVISION DATE: July 8, 2010
	PREVIOUS REVISIONS: December 16, 2005, October 31, 2005
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

- Entire report including cover letter must be submitted to the ftp site as a **single portable document format (PDF) with no password protection.** (Please do not submit reports as attachments to electronic mail.)
- 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)

Additional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in **Excel** format. These are for use by assigned Caseworker only.

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 dehloptoxic@acgov.org
 - Or
 - ii) Send a fax on company letterhead to (510) 337-9335, to the attention of Teena Le Khan.
 - 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 and Firefox browsers will not open the FTP site.
 - b) Click on Page on upper right side of browser, 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 dehloptoxic@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.

Appendix B
Field Protocols

PROTOCOLS FOR INSTALLATION AND SAMPLING OF SOIL VAPOR WELLS

SUBSURFACE CLEARANCE SURVEY PROCEDURES

Prior to drilling, the proposed locations of borings will be marked with white paint. Underground Service Alert (USA) will be contacted prior to subsurface activities and a “ticket” will be issued for this investigation. USA members will mark underground utilities in the delineated areas using standard color code identifiers.

Once USA has marked the site, all proposed borehole locations will be investigated by subsurface clearance surveys to identify possible buried hazards (pipelines, drums, tanks). Subsurface clearance surveys use several geophysical methods to locate shallow buried man-made objects. The geophysical methods include electromagnetic induction (EMI) profiling, ground penetrating radar (GPR), and/or magnetic surveying. The choice of methods depends on the target object and potential interference from surrounding features.

Prior to drilling, all boreholes will be cleared of underground utilities to a depth of at least 4 feet below ground surface (bgs) in “non-critical zones” and to 8 feet bgs in “critical zones”. Critical zones are defined as locations that are within 10 feet from the furthest edge of any underground storage tank (UST), within 10 feet of the product dispenser islands, the entire area between the UST field and the product dispenser islands, and within 10 feet of any suspected underground line. An 8- to 12-inch-diameter circle will be cut in the surface cover at each boring location. A hole will then be cleared at each boring location using a 4-inch diameter hand auger.

SOIL SAMPLING

Shallow soil samples are collected using a 6-inch long sample barrel connected to a slide hammer and containing a 6-inch long stainless steel sample sleeve. After driving the hammer 6 inches, the rods and sample barrel are withdrawn from the borehole and the sample sleeve is removed.

Soil from the hand auger is removed and placed in a sealed plastic bag. The soil is scanned with an organic vapor analyzer (OVA) equipped with a flame ionization detector (FID) or photoionization detector (PID) and the readings are noted on the soil boring logs. The remaining soil from the hand auger is examined and classified according to the Unified Soil Classification System (USCS).

Soil samples are delivered, under chain of custody, to a laboratory certified by the California Department of Health Services (DHS) for analyses.

SOIL VAPOR WELL INSTALLATION PROCEDURES

The vapor wells are constructed with 0.25-inch-diameter stainless steel tubing connected to 0.4-inch-diameter vapor sampling implant with a 0.0057-inch pore screen size stainless steel screen and bottom implant anchor. All connections are sealed with Swagelok® type fittings. A filter pack of 1 foot of #2/12 sand is placed at the screened interval and above and below the screen for each well. The wells are then sealed with 1 foot of dry granular bentonite followed by hydrated granular

bentonite to just below ground surface. The tubing is sealed at the surface with a stainless steel Swagelok® valve and a stainless steel cap.

The wells are finished at the surface with a slightly raised, watertight steel traffic-rated box set in concrete. The lid on the traffic-rated box is bolted to the rim of the well box.

SOIL VAPOR SAMPLING PROCEDURES

To allow for subsurface conditions to equilibrate, the wells are not disturbed for a period of at least 48 hours.

To ensure air-tight connections between the tubing, sampling port, valves, and other connections, a vacuum tightness test is performed on each well. The test consists of the application of a vacuum and monitoring of vacuum tightness using vacuum gauges and/or flow meter for 5 to 10 minutes. A leak would be evident if the vacuum gauges registered a decrease in the vacuum.

A purge test will be conducted for one well. The selected well should be the one with the highest expected concentrations. The test consists of the collection of vapor samples using Tedlar bags after purging the well of one (1), three (3), and seven (7) purge volumes by drawing vapor into the Tedlar bag using a vacuum chamber and vacuum pump. The purge volume is estimated based on the internal volume of the tubing used, the volume of the screen, and the voids in the sand pack within the annular space around the screen. The samples are collected through a particulate filter and flow controller which regulates the flow of soil vapor to no more than 200 milliliters per minute. The purge test samples are analyzed in the field using a PID. The results of the purge test are used to dictate the purge volume to be used during the sampling of subsequent wells.

The vapor samples are collected in 1-liter stainless steel Summa canisters. The samples are collected through a particulate filter and flow controller which regulates the flow of soil vapor to no more than 200 milliliters per minute. To ensure an air-tight connection at the well head and that ambient air does not enter the well at the well head, a tracer is applied. The tracer used is helium gas. To apply the tracer, a small shroud is placed over the well head and the tracer gas is allowed to fill the shroud at a constant rate. A hand-held helium detector is used in the field to measure the tracer within the shroud. Vapor is drawn into a Tedlar bag from the well using a vacuum chamber and vacuum pump.

A leak will be evident if the concentration of the tracer in the well exceeds 10% of the concentration of the tracer in the shroud.

The 1-liter Summa canisters are labeled and packaged for delivery to a state-certified laboratory for chemical analysis. The initial pressure and the final pressure readings taken from the gauges on the Summa canisters are recorded. A small vacuum of about 5 inches of mercury is left inside the sample canister and is recorded on the chain-of-custody. Upon receipt, the laboratory will check the pressure in the sample canister and compare it to the pressure recorded on the chain-of-custody for quality control purposes.