ConocoPhillips
76 Broadway
Sacramento, California 95818

November 4, 2009

Jerry Wickham
Alameda County Health Agency
1131 Harbor Bay parkway, Suite250
Alameda, California 94502-577

Re: ***Well Abandonment Work Plan***
76 Service Station # 1156
4276 MacAuthur Blvd
Oakland, CA

Dear Mr. Wickham:

I declare under penalty of perjury that to the best of my knowledge the information and/or recommendations contained in the attached report is/are true and correct.

If you have any questions or need additional information, please call me at (916) 558-7666.

Sincerely,

Terry L. Grayson
Site Manager
Risk Management & Remediation

November 3, 2009

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

RE: **Well Abandonment Workplan**
76 Station No. 1156
4276 MacArthur Boulevard
Oakland, California

DELTA

Dear Mr. Wickham:

On behalf of ConocoPhillips Company (COP), Delta Consultants (Delta) is submitting this *Well Abandonment Workplan*, dated for the following location:

Service Station	**Location**
76 Service Station No. 1156	4276 MacArthur Boulevard Oakland, California

Please contact James Barnard at (916) 503-1279 if you have questions.

Sincerely,
DELTA CONSULTANTS

James B. Barnard

REGISTERED PROFESSIONAL GEOLOGIST
JAMES B. BARNARD
No. 7478
Expires: 9/10
GEOLOGY
STATE OF CALIFORNIA

James B. Barnard, P.G.
Project Manager
California Registered Professional Geologist No. 7478

cc: Mr. Terry Grayson - ConocoPhillips (electronic copy only)

WELL ABANDONMENT WORKPLAN

76 Service Station No. 1156
4276 MacArthur Boulevard
Oakland, California

County: Alameda

INTRODUCTION

On behalf of ConocoPhillips, Delta is submitting this *Well Abandonment Workplan* to the Alameda County Health Care Services Agency for the site located at 4276 MacArthur Boulevard in Oakland, California (Figure 1). This workplan describes the methods used in the abandonment of two off-site monitoring wells in MacArthur Boulevard west of the site (MW-6 covered during street paving, and MW-8). Abandonment activities were proposed in Delta's *Monitoring Well Abandonment Request*, dated August 10, 2009. Approval of this well abandonment request was granted in an ACEH letter to COP dated October 15, 2009 (Attachment A).

WELL ABANDONMENT ACTIVITIES

Permitting, Utility Notification and Borehole Clearance

Before commencing field activities Delta will prepare a Health and Safety Plan in accordance with state and federal requirements for use during offsite abandonment activities. In addition, drilling permits will be obtained for abandonment of all wells and encroachment onto MacArthur Boulevard. Prior to drilling, Delta will review available as-built drawings, notify Underground Service Alert (USA) and contract a private utility locator as required to clear the proposed abandonment locations for underground utilities. Prior to drilling, each abandonment locations will be cleared to at least 5 feet bgs around the well casings with an air vacuum or water vacuum to minimize potential impact to underground utilities.

Well Abandonment

In accordance with the ACEH letter dated October 15, 2009, Delta will oversee the abandonment of two off-site monitoring wells: MW-6 (covered during street paving) and MW-8 located on MacArthur Boulevard west of the site. The locations of the wells are presented on Figure 2. All wells will be abandoned by removing the existing well boxes and over-drilling with a hollow stem auger rig equipped with 10-inch diameter augers to approximately two feet below the constructed depth of the well. The boreholes will be backfilled in accordance with Alameda County standards to approximately one foot below ground surface and finished with concrete dyed to match the existing surface conditions. Historical boring logs showing the constructed well depths are included as Attachment B.

Both offsite monitoring wells (MW-6 and MW-8) are located in the public right of way of MacArthur Boulevard. Delta will obtain the necessary encroachment permit(s) and employ a professional traffic control company in order to complete abandonment activities of these two wells.

Disposal of Drill Cuttings and Wastewater

Drill cuttings and wastewater generated during well abandonment activities will be placed into properly labeled 55-gallon Department of Transportation (DOT) approved steel drums and temporarily stored at the service station site. Samples of the drill cuttings and wastewater will be collected, properly labeled and placed on ice for submittal to a California-certified laboratory and analyzed for TPHg, BTEX, and MtBE by EPA Method 8260B, and CAM 17 metals by EPA Method 6020. A chain-of-custody will accompany the samples during transportation to the laboratory. Subsequent to receiving the laboratory analytical results, the drummed drill cuttings and wastewater will be profiled, transported, and disposed of at a COP approved facility.

Reporting

Following completion of well abandonment activities, a site investigation report will be prepared and submitted within 60 days. The report will present the details of the abandonment activities and include copies of applicable permits. Required electronic submittals will be uploaded to the State Geotracker database.

LIMITATIONS AND CERTIFICATIONS

This report was prepared in accordance with the scope of work outlined in Delta'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 ConocoPhillips for the expressed 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 Delta. To the extent that this report is based on information provided to Delta by third parties, Delta may have made efforts to verify this third party information, but Delta cannot guarantee the completeness or accuracy of this 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 Delta.

CONSULTANT: Delta Consultants

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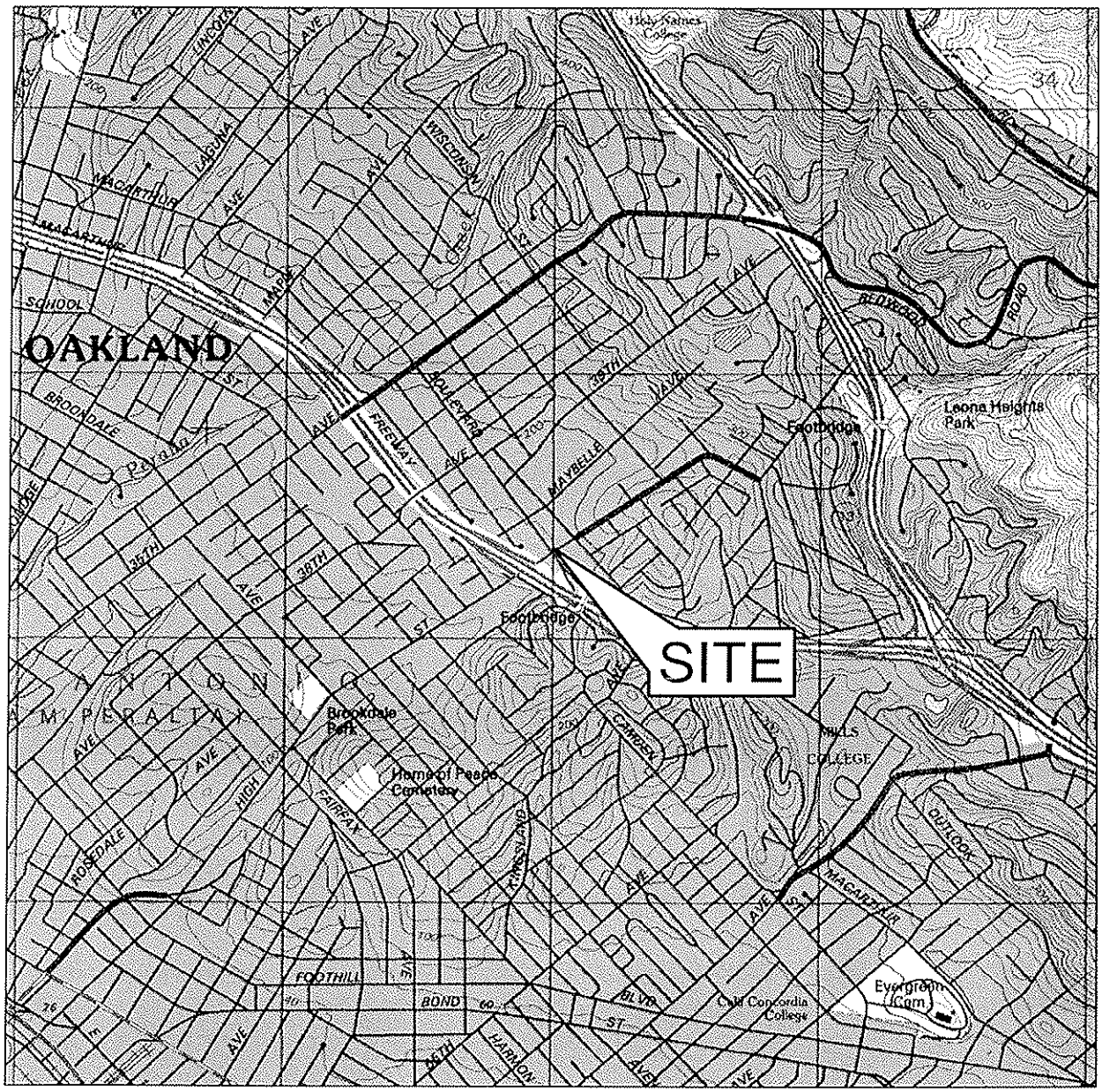
Figures

Figure 1 – Site Locator Map
Figure 2 – Site Plan with Well Locations

Attachments

Attachment A – ACEH Letter dated October 15, 2009
Attachment B – Historical Boring Logs (MW-6 and MW-8)

Figure 1 – Site Locator Map



North

FIGURE 1

SITE LOCATOR MAP

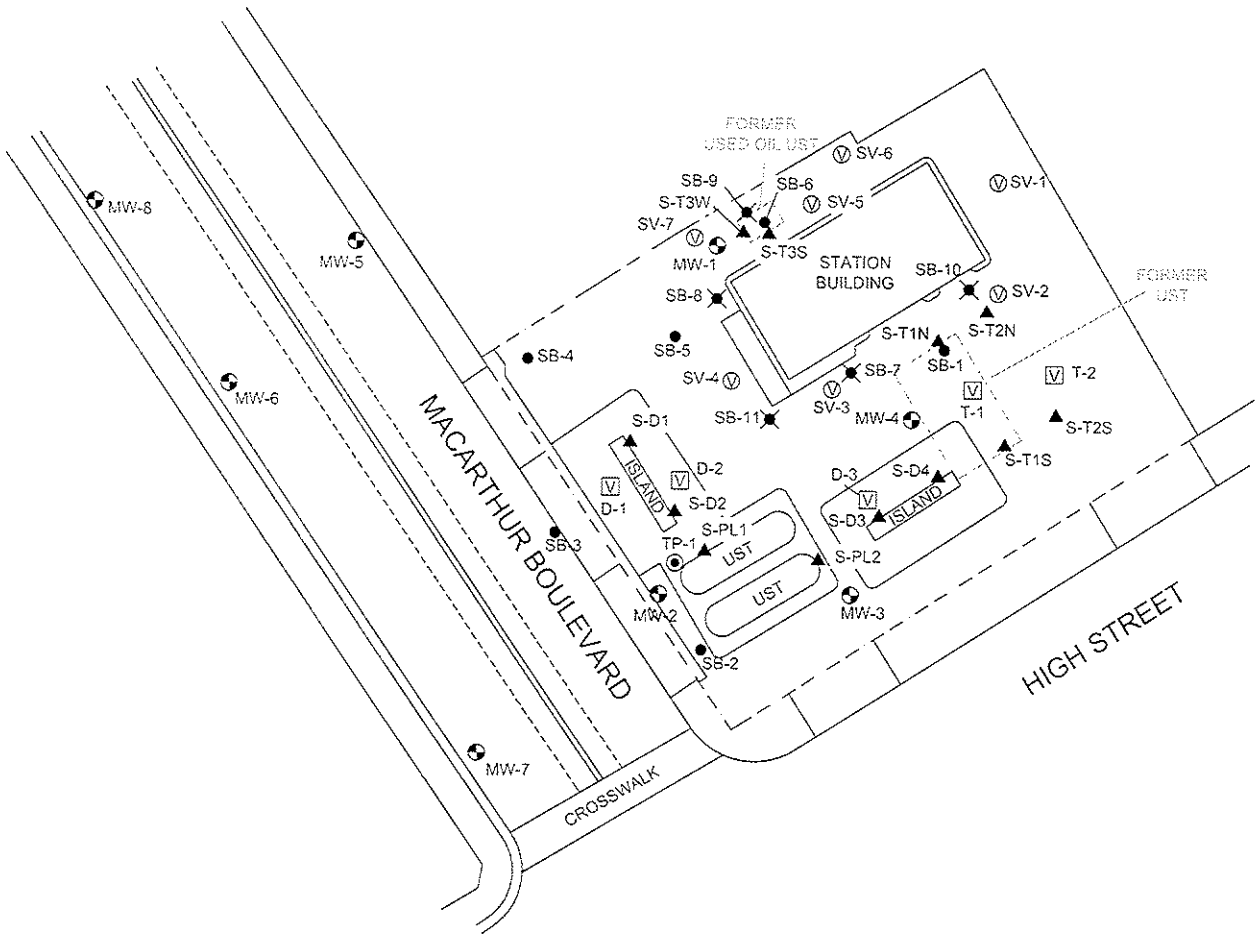
76 SERVICE STATION NO. 1156
4276 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

PROJECT NO. C101-156	DRAWN BY JH 03/01/07
FILE NO. Site Locator	PREPARED BY MC
REVISION NO.	REVIEWED BY

DELTA

SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP, OAKLAND EAST QUADRANGLE, 1967

Figure 2 – Site Plan with Well Locations



LEGEND

- GROUNDWATER MONITORING WELL
- TANK PIT BACKFILL WELL
- SOIL & GROUNDWATER SAMPLE LOCATION (DELTA, 2009)
- SOIL VAPOR SAMPLE LOCATION (DELTA, 2009)
- SOIL & GROUNDWATER BORING LOCATION (DELTA, 2007)
- SOIL SAMPLE LOCATION (TOSCO, 1998)
- SOIL VAPOR SAMPLE LOCATION (PACIFIC, 1997)

North

0 40 FT

SCALE

FIGURE 2

SITE MAP WITH HISTORICAL SAMPLING LOCATIONS

76 SERVICE STATION NO. 1156
4276 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

PROJECT NO. C101-156	DRAWN BY JM 07/23/09
FILE NO. 76-1156	PREPARED BY SM
REVISION NO. 7	REVIEWED BY JB

DELTA

Attachment A – ACEH Letter dated October 15, 2009

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Acting Director

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

October 15, 2009

Terry Grayson
ConocoPhillips
76 Broadway
Sacramento, CA 95818

Carole Quick and Lorraine Mudget
P.O. Box 2165
Gearheart, OR 97138

Rajan Goswamy
4276 MacArthur Boulevard
Oakland, CA 94619

Subject: Fuel Leak Case No. RO0000409 and Geotracker Global ID T0600102279, Unocal #1156, 4276 MacArthur Boulevard, Oakland, CA 94619 – Site Investigation Report

Dear Mr. Grayson, Ms. Quick, Ms. Mudget, and Mr. Goswamy:

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the above-referenced site, including the recently submitted document entitled, "*Site Investigation Report, 76 Service station, 4276 MacArthur Blvd., Oakland, CA,*" dated August 265, 2009 (Report). The Report, which was prepared in on behalf of ConocoPhillips by Delta Environmental, presents the results of soil, soil vapor, and groundwater sampling conducted at the site in July 2009.

The general objectives of the proposed work were to:

- Define the horizontal and vertical extent of contamination in the area of the station building, waste oil tank, and former UST basin to determine whether a preferential pathway exists between the former tank pit and monitoring well MW-1.
- Collect soil vapor samples to assess the potential for vapor intrusion.

As discussed in the technical comments below, the proposed field investigation could not be completed as planned and the first objective was not met due to limitations in the collected data. The four soil vapor samples collected indicate there is a potential for vapor intrusion that requires further investigation. Therefore, we request that you prepare a Work Plan that addresses the items identified in the technical comments below.

We have also received a document entitled, "*Monitoring Well Abandonment Request,*" dated August 10, 2009. The document requests that well MW-6, which was covered during street paving, be decommissioned. The document also requests that well MW-8, which is located in MacArthur Boulevard west of the site and has not contained reportable concentrations of fuel hydrocarbons during recent sampling events, also be decommissioned. We have no objection to decommissioning wells MW-6 and MW-8 in accordance with Alameda County Public Works requirements.

TECHNICAL COMMENTS

1. **Soil Vapor Sampling Results.** Soil vapor sampling was attempted at seven locations but samples could only be collected at four locations adjacent to the station building and along the property boundary. Total petroleum hydrocarbons as gasoline (TPHg) were detected in soil vapor at concentrations up to 82,000,000 micrograms per cubic meter ($\mu g/m^3$). Benzene was detected in soil vapor at concentrations that exceed the Environmental Screening Level (ESLs [May 2008]) for commercial land use in each of the four soil vapor samples collected. Methane was detected in two of the soil vapor samples at concentrations of 20,000 and 24,000 ppmV, respectively. We also note that the results for SV-7 are unusual in that the samples contained highly elevated concentrations of fuel hydrocarbons but oxygen is at an ambient air level. In addition, sample SV-7 contains 24,000 ppmV methane. The Report lists these results and notes that the concentrations exceed ESLs but does not evaluate the results or make any recommendations for future work. It is apparent that additional work is required to evaluate the potential for vapor intrusion. In future reports, an evaluation of the sampling results must be included with recommendations for appropriate future actions. In the Work Plan requested below, please present plans to confirm the soil vapor sampling results and evaluate the potential for vapor intrusion on-site and off-site. We suggest that you consider the installation of semi-permanent soil vapor probes that can be re-sampled.

2. **Method for Collection of Groundwater Samples.** Groundwater samples were collected using a temporary PVC well placed in an open borehole. As proposed in the "*Revised Work Plan – Site Investigation*," dated March 16, 2009, depth-discrete groundwater samples were to have been collected using a "Hydropunch sampling tool." The purpose of advancing the CPT borings was to identify and target coarse-grained zones for depth-discrete groundwater sampling and vertical delineation. Vertical delineation was not achieved and the grab groundwater sampling results are not comparable between borings or with results from monitoring wells due to the collection of grab groundwater samples from open boreholes of different depths. The source of the groundwater in the borehole is not well known and the amount of mixing from other intervals is also not well known. These differences likely result in higher variability and some uncertainty in the grab groundwater sampling results. Please include plans for collection of depth-discrete groundwater samples in the Work Plan requested below.

3. **CPT Borings.** Five CPT borings were originally proposed to be advanced to a depth of 45 feet bgs. However, CPT borings were advanced at only three locations due to operational problems. In correspondence dated June 30, 2009, Delta requested that the proposed five CPT borings be limited to a depth of 30 feet bgs based on the depth to water for the site. The collection of depth-discrete water samples and vertical delineation was considered feasible with the reduced depth of 30 feet bgs. ACEH agreed to limiting the depth of four CPT borings to 30 feet bgs provided that the downgradient boring (S-11) was extended to a depth of 45 feet bgs. The three CPT borings that were advanced reached depths of approximately 18 to 21 feet bgs. Vertical delineation was not accomplished. Due to the limited number and depth of the CPT borings, the field investigation did not achieve the objective of defining the horizontal and vertical extent of contamination. We request that you submit a Work Plan to conduct further CPT investigation using methods and equipment that are capable of achieving the objective of horizontal and vertical delineation.

4. **Preferential Pathway.** One of the objectives of the proposed investigation activities was to evaluate whether a preferential pathway exists between the former UST tank pit and MW-1 or whether a separate source of TPHg exists in the area of MW-1. The Report concludes that there does not appear to be a preferential pathway between the former USTs and MW-1 based on a comparison of the concentrations of fuel hydrocarbons in the three grab groundwater samples. Given the limitations of the grab groundwater sampling data discussed in technical comment 2, we do not believe that a comparison of the magnitude of concentrations is sufficient to support the interpretation that no preferential pathway exists. A comparison of the results from grab groundwater sample SB-7 to groundwater from MW-1 indicates that the results are generally similar in magnitude. More importantly, a review of grab groundwater sampling results collected from depth does not consider the potential for shallow preferential pathways. A review of the boring logs indicates the potential for a shallow preferential pathway in the area of the station building. In boring SB-10, which is located immediately adjacent to the station building, we note that coarse-grained fill material is identified in the upper 10 feet. Therefore, a shallow preferential pathway potentially exists from the tank pit to beneath the station building in this area. In boring SB-8, which is also adjacent to the station building, the fill material extended to a depth of more than 8 feet bgs and could not be penetrated in the boring. Visible black product was noted in a gravel with sand layer below a depth of 5 feet bgs. Further investigation of the visible black product and fill material and the potential for a shallow preferential pathway is required. Please include these plans in the Work Plan requested below.

5. **Figure 3.** The diagram in Figure 3 includes only depths and filter pack materials and does not show the soil vapor point. In future documents, please show soil vapor sampling point details.

6. **Discussion and Recommendations.** We do not concur with a magnesium sulfate feasibility test at this time.

7. **Groundwater Monitoring.** Groundwater monitoring is to be continued on a semi-annual basis during the first and third quarters. Please present the results in the Groundwater Monitoring Reports requested below.

TECHNICAL REPORT REQUEST

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

- **December 15, 2009** – Work Plan
- **30 days following end of First and Third Quarters** – Semi-annual Groundwater Monitoring Report

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/cleanup/electronic_reporting).

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.

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,

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

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

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

Denis Brown, Shell Oil Products US, 20945 S. Wilmington Ave., Carson, CA 90810-1039

Peter Schaefer, Conestoga-Rovers & Associates, 5900 Hollis Street, Suite A, Emeryville, CA 94608

James Barnard, Delta Environmental Consultants, Inc., 11050 White Rock Road, Suite 110 Rancho Cordova, CA 95670

Donna Drogos, ACEH
Jerry Wickham, ACEH
Geotracker, File

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	ISSUE DATE: July 5, 2005
	REVISION DATE: March 27, 2009
	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 My Le Huynh.
   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 File, then on Login As.
   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.

Attachment B – Historical Boring Logs (MW-6 and MW-8)

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2235 Boring: MW6 Plate: Attachment
Site: Tosco 76 Service Station 1156 Date: 8/29/01
Drill Contractor: Woodward Drilling Company, Inc.
Sample Method: Split Spoon Geologist: JOHN B. BOBBITT
Drill Rig: BK-81 Bore Hole Diameter: 8" Signature: [signature]
Location: Western side of MacArthur Boulevard Registration: R.G. 4313
approx. 30 feet north of Shell station Logged by: Rob Saur

DEPTH (ft)	BLOW COUNTS	PID/OVM (ppm)	SAMPLE	COLUMN	USCS	GEOLOGIC DESCRIPTION	WELL DESIGN
						6" Concrete	
5	24	10.6	▽			CLAYEY SILT: greenish gray, very moist, medium plasticity.	
10	19	10.0			ML	light brown, trace of fine-grained sub-angular sand (approx. 5%).	
15	24	6.0				CLAYEY SILT WITH SAND: light brown, fine-grained sub-angular sand (approx. 15%).	
20	48	7.7			SM	SAND WITH SILT: orange brown, wet, medium-grained well-sorted well-rounded sand.	
25	50/5"					Boring terminated at 25 feet. Boring converted to groundwater monitoring well. Groundwater encountered at 5.5 feet.	

Casing Diameter: 2" Slot Size: 0.020 , Sand Size: #3 , Grout: Portland Cement

FN: 2235B000

Delta Consultants

Project No: **C101156151**	Client: **ConocoPhillips**	Well No: **MW-8**
Logged By: **Tabbitha Croy**	Location: **4276 MacArthur Boulevard**	Date Drilled: **10/30/07**
Driller: **Gregg Drilling & Testing**	**Oakland, CA**	Page **1** of **2**
Drilling Method: **HSA**	Hole Diameter: **8"**	
Sampling Method: **Split Spoon**	Hole Depth: **25'**	▽ = First Water
Casing Type: **Schedule 40 PVC**	Well Diameter: **2"**	▼ = Static Groundwater
Slot Size: **0.010"**	Well Depth: **25'**	* = Selected for lab analysis
Gravel Pack: **#2/12**	First Water Depth: **23'**	
Elevation	Northing	Easting

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Sample Identification	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Well Box	▼								**Concrete = 6"**
				Air-Knife	1–4				CL **Silty clay**; black and brown; medium soft; medium to high plasticity; low toughness; trace orange mottling; moist; (0,0,100)
Neat Cement		moist	0.1	@ 5 9:46	5–6				CL **Lean clay**; black; medium stiff; medium plasticity and toughness; some fine sand; some fine to medium sub round gravel; moist; no odor; (15,20,65)
		moist	0.2	@ 10* 9:51	10–11				Tan; some orange mottling; trace roots; some black staining; slight odor; (5,15,80)
		moist	0.2	@ 15* 9:56	15–16				CL **Sandy clay**; tan; orange mottling; trace roots; trace black staining; medium stiff; medium plasticity and toughness; sand fine grain; moist; no odor; (0,40,60)
		moist	0.2	@ 20* 10:P37	19–20				Soft; medium to high plasticity; low toughness; (0,30,70)
					21				SC