Atlantic Richfield Company
(a BP affiliated company)

P.O. Box 1257
San Ramon, California 94583
Phone: (925) 275-3801
Fax: (925) 275-3815

"I declare, that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct.

Submitted by:

Paul Supple
Environmental Business Manager

Stantec Consulting Corporation
3017 Kilgore Road Suite 100
Rancho Cordova CA 95670
Tel: (916) 861-0400
Fax: (916) 861-0430

June 1, 2009

Mr. Paresh Khatri
Alameda County Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Reference: **Work Plan for Additional Assessment and Extension Request**
76 (Former BP) Service Station No. 11126
1700 Powell Street
Emeryville, California 94608
Stantec Project No: 211601178.201/211402419.200

Dear Mr. Khatri:

On behalf of Atlantic Richfield Company (a BP affiliated company) and ConocoPhillips (COP), Stantec Consulting Corporation (Stantec) has prepared this work plan for the installation of one off-site monitoring well (MW-12) in the vicinity of the site referenced above (Figure 1). The purpose of the work is to further define the lateral extent of dissolved fuel oxygenate impacts in soil and groundwater down-gradient to the southwest of the site. Additionally, Stantec proposes three on-site exploratory soil borings in the vicinity of MW-9 for the purpose of vertical and lateral delineation of the extent of soil contamination (Figure 2). This work is being conducted in response to a regulatory request from Alameda County Environmental Health Department (ACEHD) dated April 2, 2009 (Attachment A). A brief discussion of site background, proposed scope of work, and schedule are presented below. A summary of previous assessments is included in Attachment B.

SITE BACKGROUND

The site is located on the northwest corner of Powell Street and Christie Avenue in Emeryville, California (Figure 1), and is currently utilized as a retail gasoline service station. Three single-walled, fiberglass, gasoline underground storage tanks (USTs), associated product lines, two dispenser islands, a station building, and a convenience store are present at the site. The three unleaded gasoline USTs, consisting of one 12,000-gallon UST, one 10,000-gallon UST, and one 6,000-gallon UST, were installed in 1982 (State Water Resources Control Board [SWRCB], 1992).

The properties in the vicinity of the site are a mixture of industrial and commercial developments. South of the site and across Powell Street is Powell Street Plaza, a retail commercial development with a number of groundwater monitoring wells on-site and around its perimeter. Immediately east of Powell Street Plaza and approximately 1,000 feet southeast of the site are monitoring wells installed in the immediate vicinity of Harcros Pigments, located at 4650 Shell Mound Street. The area surrounding the site was historically used for industrial purposes before being developed into a shopping center.

SCOPE OF WORK

The proposed scope of work will consist of the installation of one off-site groundwater monitoring well (MW-12) to a depth of 25 feet below ground surface (bgs) at the location shown on Figure 1. The proposed scope of work for this site assessment additionally includes hand auger exploratory borings and soil sampling at three locations (SB-1 through SB-3) to investigate shallow soil at the site (Figure 2). Boring locations have been located adjacent to previous soil sampling locations and outside of previous excavations to provide for comparison to historic soil sampling results. A summary of the field work is presented below. Field and laboratory procedures are provided in Attachment C. Historical soil analytical data is presented in Attachment D.

- **Health and Safety Plan (HASP).** As required by the Occupational Health and Safety Administration (OSHA) Standard "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120), and by the California Occupational Health and Safety Administration (Cal-OSHA) "Hazardous Waste Operations and Emergency Response" guidelines (CCR Title 8, Section 5192), SECOR will update the current site-specific HASP prior to the commencement of fieldwork. The HASP will be reviewed by the field staff and contractors before beginning field operations at the site.

- **Permitting.** A permit for the installation of the groundwater monitoring well will be obtained from ACEHD prior to beginning work. Additionally, permits for encroachment onto private and public property will be obtained prior to starting work.

- **Borehole Clearance Activities**. Prior to initiating field activities, Stantec will mark the boring locations, contact Underground Service Alert (USA) at least 48 hours prior to the initiation of field work, and will contract a private utility locator to determine whether the proposed boring locations are clear of potential subsurface obstructions. After clearance is verified by USA and the utility locator, the off-site boring will be air-knifed to a depth of approximately two meters bgs to further minimize the risk of encountering subsurface structures that are not anticipated at the location.

- **Soil Sampling and Analysis.** The soil boring for monitoring well MW-12 will be advanced at the location shown on Figure 1 using hollow stem auger drilling equipment. During drilling activities, soil samples will be collected at five-foot intervals using a California-modified Split Spoon sampler for the purpose of logging stratigraphy, moisture content, odor, and other physical characteristics. The extracted soil samples for stratigraphic interpretation will be analyzed in the field for the presence of volatile organic compounds (VOCs) with a photo-ionization detector (PID). Based on positive PID readings and field observations, at least two samples from the boring will be selected for laboratory analysis. Soil samples selected for laboratory analysis will be sent under chain-of-custody documentation to Lancaster Laboratories of Lancaster, Pennsylvania, a state of California certified lab (No. 2116) for analysis of total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and xylenes (collectively BTEX), fuel oxygenates [methyl-tert butyl ether (MtBE), di-isopropyl ether (DIPE), tert amyl methyl ether (TAME), ethyl tert-butyl ether (EtBE), tert butyl alcohol

(TBA) and ethanol], and lead scavengers [1,2-dichloroethane (1,2-DCA) and ethylene dibromide (EDB)] by United States Environmental Protection Agency (EPA) Method 8260B.

- **Groundwater Monitoring Well Installation.** The borehole for MW-12 will be completed as a groundwater monitoring well at an approximate depth of 17 feet bgs, depending on the depth to groundwater and the stratigraphy encountered. A two-inch diameter Schedule 40 polyvinyl chloride (PVC) well will be installed within the borehole with ten feet of 0.010-inch slotted screen extending from approximately 7 feet to 17 feet bgs. The well will be completed such that the potentiometric surface penetrates the screened interval.

- **Monitoring Well Development/Sampling/Analysis.** The newly installed groundwater monitoring well will be developed by rigorously surging the well over the length of the screen interval, and by purging approximately ten casing volumes of water. Unless recharge takes more than two hours, the well will be sampled once the well is recharged to within 80 percent of the pre-purge groundwater elevation. For very slow recharging wells (wells pumped dry during purging), samples may be collected after two hours of recharge. Groundwater samples will be collected and analyzed for the presence of TPHg, BTEX, fuel oxygenates (MtBE, DIPE, TAME, EtBE, TBA, and ethanol), and lead scavengers (1,2-DCA and EDB) by EPA Method 8260B.

- **Well Surveying.** Following installation, the newly installed groundwater well will be surveyed by a licensed surveyor to a local benchmark relative to mean sea level. Survey data including elevation, longitude, and latitude will be included in information uploaded to the State Water Resources Control Board (SWRCB) Geotracker Database (www.swrcb.geotracker.ca.gov) in accordance with Assembly Bill (AB) 2886 requirements.

- **Hand Auger Borings.** Three hand auger borings (SB-1 through SB-3) will be conducted at the approximate locations shown on Figure 2. The borings will be pushed to a maximum depth of six feet bgs or groundwater, whichever is encountered first. Following the completion of sampling the boreholes will be grouted from the total depth to ground surface using neat cement.

- **Hand Auger Boring Soil Selection and Analysis.** Soil from the borings will be logged continuously to the total depth and examined for odors, visible signs of petroleum hydrocarbons, and screened for organic vapors using a PID. Soil borings will be described in accordance with the Unified Soil Classification System by a Stantec scientist working under the direction of a California Professional Geologist. Soil samples will be sent under chain-of-custody procedures to a California state-certified laboratory. Two soil samples from above the phreatic surface will be selected from each boring based on the highest PID readings. In the event that there are no anomalous readings, soil samples from approximately three feet and six feet bgs will be saved for analysis. The samples will be analyzed for TPHg, BTEX, and fuel oxygenates MtBE, EtBE, TBA, TAME, DIPE, and ethanol, and lead scavengers 1,2-DCA and EDB by EPA Method 8260B.

- **Compliance with AB 2886 Requirements.** Also per AB 2886 requirements, Stantec will electronically upload the data obtained during this investigation into the SWRCB Geotracker Database (www.swrcb.geotracker.ca.gov). Documentation of the electronic data format (EDF) submittals will be included in the final report.

- **Soil and Water Disposal.** Soil cuttings and purge/rinsate water generated during well installation activities will temporarily be stored in California Department of Transportation (DOT)-approved, 55-gallon steel drums on-site pending characterization and disposal. The drums containing soil and rinsate/purge water will be removed by a certified waster contractor, and transported to an approved facility for recycling/disposal.

- **Report.** Following the completion of well installation activities, Stantec will submit a report documenting the findings. The report will include boring logs and well construction details, soil and groundwater analytical results, certified laboratory analytical reports and chain-of-custody documentation, conclusions, and recommendations for future work if deemed necessary.

SCHEDULE

Upon approval of this work plan, Stantec is prepared to initiate on-site investigation activities with field work beginning approximately three to four weeks after regulatory approval. Stantec is prepared to install the off-site well beginning approximately three to four weeks after applicable permits and agreements are received. A report documenting the results of this assessment will be submitted to the ACEHD within six to eight weeks following the completion of field work, and the receipt of laboratory analytical results.

EXTENSION REQUEST

At this time Stantec would like to request an extension to the July 2, 2009 deadline for submitting a revised Feasibility Study/ Corrective Action Plan (FS/CAP). Data generated during this assessment may help in selecting an appropriate remedial method. Stantec requests an extension of 60 days from the receipt of on-site assessment data.

LIMITATIONS

This report was prepared in accordance with the scope of work outlined in Stantec'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 Atlantic Richfield Company, a BP affiliated company and ConocoPhillips 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 Stantec. To the extent that this report is based on information provided to Stantec by third parties, Stantec may have made efforts to verify this third party information, but Stantec 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 Stantec.

Prepared by:

Kimber Collins
Project Scientist

All information, conclusions, and recommendations provided by Stantec in this document regarding the site at 1700 Powell Street, Emeryville, California has been prepared under the supervision of and reviewed by the licensed professional whose signature appears below.

Licensed Approver:

Brad Shelton, P.G.
Associate Geologist

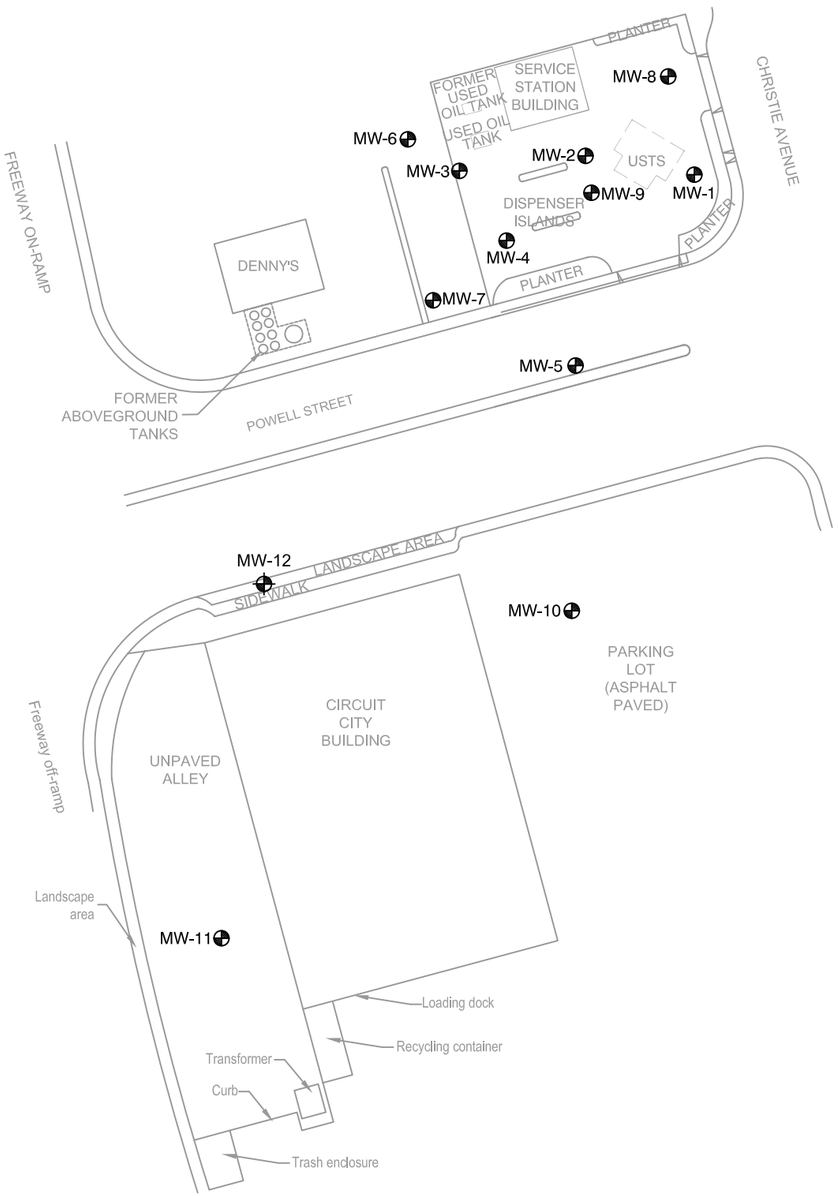
Date: June 1, 2009

Attachments: Figure 1 – Extended Site Plan with Proposed Monitoring Well Location
Figure 2 – Site Plan with Proposed Boring Locations

Attachment A – Regulatory Correspondence
Attachment B – Previous Investigations and Site History Summary
Attachment C – Field and Laboratory Procedures
Attachment D – Historical Soil Analytical Data

cc: Mr. Paul Supple, BP (Electronic Upload into Enfos)
Ms. Shelby Lathrop, ConocoPhillips (Electronic Upload into LiveLink)

Figures



LEGEND:

MW-1 ⊕ GROUNDWATER MONITORING WELL LOCATION

MW-12 ⊕ PROPOSED GROUNDWATER MONITORING WELL LOCATION

N

0 80 160

SCALE IN FEET

NOTE: SITE MAP ADAPTED FROM CAMBRIA ENVIRONMENTAL FIGURES.
SITE DIMENSIONS AND FIGURES FACILITY LOCATIONS NOT VERIFIED.

Stantec

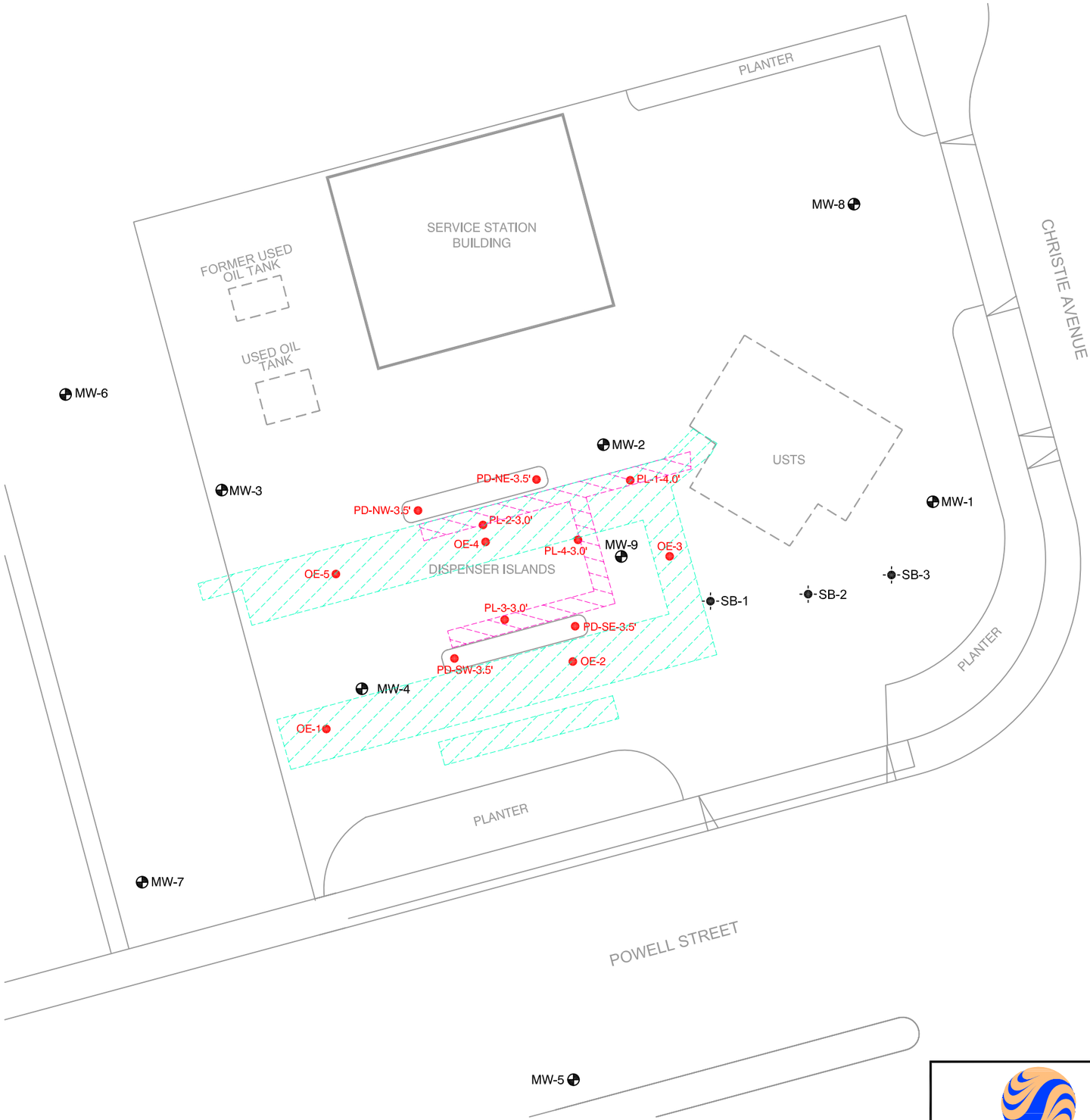
FOR:
76 (FORMER BP)
SERVICE STATION NO. 11126
1700 POWELL STREET
EMERYVILLE, CALIFORNIA

EXTENDED SITE PLAN WITH PROPOSED MONITORING WELL LOCATION

FIGURE: **1**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
211601178.201 211402419.200	MDR/STA	KC	BS	05/27/09

FILEPATH:M:\BP-ARCO\11126\FIG-1-PROPOSED MONITORING WELL LOCATIONS.dwg|saguinaldo|May 27, 2009 at 13:59|Layout: 11x17



LEGEND:

- MW-1 — GROUNDWATER MONITORING WELL LOCATION
- SB-1 — PROPOSED BORING LOCATION
- PD-SE-3.5' — SOIL/DISPENSER SAMPLE LOCATION
- OE-1 — OVER EXCAVATION SAMPLE LOCATION
- PRODUCT LINE TRENCH - 3/28/01
- OVER EXCAVATION - 3/30/01

N

0 20 40

SCALE IN FEET

NOTE: SITE MAP ADAPTED FROM CAMBRIA ENVIRONMENTAL FIGURES.
SITE DIMENSIONS AND FIGURES FACILITY LOCATIONS NOT VERIFIED.

Stantec

FOR:
76 (FORMER BP)
SERVICE STATION NO. 11126
1700 POWELL STREET
EMERYVILLE, CALIFORNIA

SITE PLAN WITH PROPOSED BORING LOCATIONS

FIGURE: **2**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
211601178.201 211402419.200	MDR/STA	KC	BS	05/22/09

FILEPATH:M:\BP-ARCO\11126\FIG-2-PROPOSED BORING LOCATIONS.dwg|saguinaldo|May 28, 2009 at 9:26|Layout: 11x17

Attachment A

Regulatory Correspondence

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

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

April 2, 2009

Paul Supple
Atlantic Richfield Company
(A BP Affiliated Company)
P.O. Box 1257
San Ramon, CA 94583

Shelby Lathrop
ConocoPhillips
76 Broadway
Sacramento, CA 95818

Subject: Fuel Leak Case No. RO0000066 and GeoTracker Global ID T0600100208, BP #11126, 1700 Powell Street, Emeryville, CA 94608

Dear Mr. Supple and Ms. Lathrop:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the recently submitted document entitled, "Response to ACEH Correspondence Dated February 1, 2007," and the "Remedial Action Plan," both dated March 30, 2007, which were prepared by SECOR International Incorporated, now Stantec Consulting Corporation (Stantec) for the subject site. In our February 1, 2007 correspondence, ACEH requested groundwater contaminant plume delineation to the west of the site and a Remedial Action Plan to address source area contamination that may be adding contaminant mass to the dissolved-phase contaminant plume in groundwater currently present at the site.

In Stantec's response to ACEH's concerns regarding lack of groundwater contaminant plume definition, Stantec "feels the site is adequately delineated to the west," and submitted a remedial action plan. ACEH respectfully disagrees that the groundwater contaminant plume is adequately delineated to the west and also has concerns regarding the proposed remedial technology for the site.

ACEH requests that you address the following technical comments and send us the soil and groundwater characterization work plan and revised Feasibility Study/Corrective Action Plan (FS/CAP) requested below.

TECHNICAL COMMENTS

1. **Soil and Groundwater Characterization** – As mentioned above, Stantec believes that the groundwater contaminant plume is adequately characterized and states that "since April 2005 the groundwater gradient has been to the southwest." Stantec further states that MTBE was detected at a concentration of 6.7 µg/L in groundwater monitoring well located 50 feet south monitoring well MW-4 during the fourth quarter of 2006 and that monitoring well MW-11, also located to the southwest of the site has not detected MTBE above the laboratory detection limit since April 2005. Stantec also states that the "two offsite wells to the south of the site (MW-5 and MW-10) have contained low to non-detect levels of MtBE since 2003, with MtBE only being detected above the California Primary MCL three times; the highest detection

being 18 µg/L in MW-5 in August 2003. Based on this data, SECOR [now Stantec] feels the site is adequately delineated to the west."

Based on the groundwater elevation contours in Stantec's January 23, 2009, "Quarterly Monitoring Progress Report Fourth Quarter 2008," it would appear that there may be at least two different gradients directions present at the site (see Figure 1). While Stantec identifies that the groundwater gradient is to the southwest, to which ACEH concurs, Stantec does not consider the possibility that there may be a westerly component of groundwater flow direction at the site, as illustrated on Figure 1. Figure 2 illustrates the TBA concentrations detected in groundwater samples collected at the site. Based on the isoconcentration contours, the down-gradient extent of the TBA plume appears undefined in the direction of the plume axis. Concentrations of TBA in monitoring well MW-7 appear to have been increasing in the recent past with TBA being detected at 3,500 µg/L during the fourth quarter 2008 monitoring event. Since concentrations of TBA appear to be increasing and the extent of the contaminant plume in the western direction appears undefined, based on groundwater elevation contours and TBA isoconcentration contours, a work plan to define the extent of the groundwater contaminant plume is required. Please propose a scope of work to address the above-mentioned concerns and submit a work plan due by the date specified below.

Figure 1: Groundwater Elevation Contours

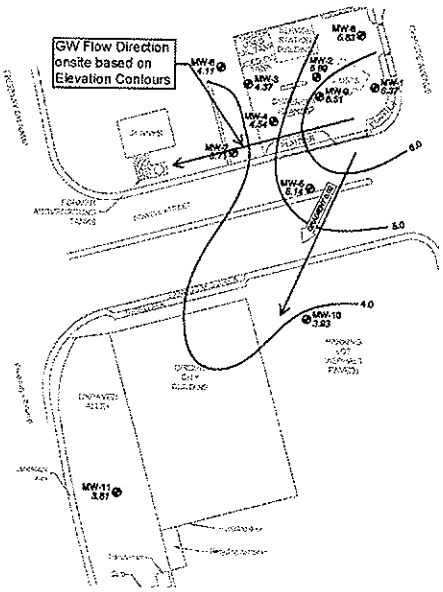
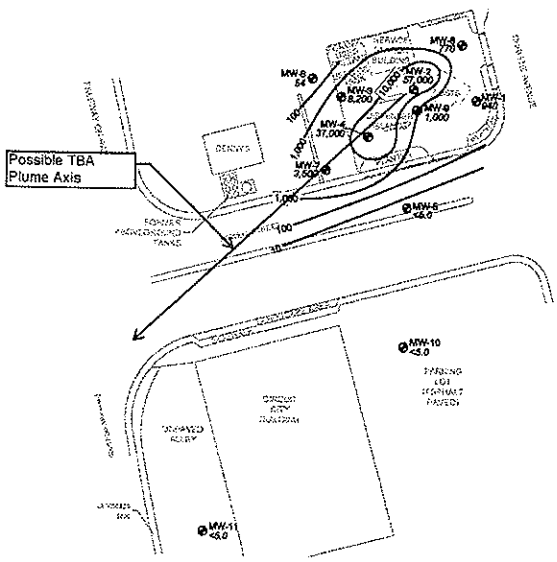


Figure 2: TBA Isoconcentration Map



2. **Contaminant Source Area Characterization** – In September 1993, Alisto oversaw the installation of groundwater monitoring wells MW-5 through MW-9. Soil sample analytical results detected TPH-g and benzene at concentrations of 4,600 mg/kg and 76 mg/kg, respectively, in soil sample MW-9 collected at 4.5 feet bgs, indicating that a secondary source of contamination exists at the site, the vertical and lateral extent of soil contamination is undefined and the site appears to pose a risk to human health and the environment. A groundwater sample collected from monitoring well MW-9 detected 0.08 feet of free product, confirming that a significant release(s) had occurred at the site. Based on the analytical results, the contaminant source area appears undefined. Please propose a scope of work to

address the above-mentioned concerns and submit a work plan due by the date specified below.

3. **Feasibility Study/Corrective Action Plan** – Stantec evaluated six remediation alternatives and selected Oxygen Injection as the most cost-effective remedial alternative. However, no cleanup goals were discussed and some of the alternatives that were evaluated appear to have been dismissed solely due to cost concerns and not whether the alternative, if employed could remediate the site. ACEH is concerned that the proposed selected remediation alternative may not achieve cleanup in a reasonable timeframe.

   At this time, please submit a revised Feasibility Study/Corrective Action Plan (FS/CAP) prepared in accordance with Title 23, California Code of Regulations, Section 2725. Please include a concise site background and description of previous site investigations, as well as but not limited to, a detailed description of site lithology, including soil permeability, and most importantly, contamination cleanup levels and cleanup goals, in accordance with the San Francisco Regional Water Quality Control Board Basin Plan and appropriate ESL guidance for all COCs and for the appropriate groundwater designation. Please note that according to the San Francisco Bay RWQCB's Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin, 'the term 'groundwater' includes all subsurface waters, whether or not these waters meet the classic definition of an aquifer or occur within identified groundwater basins.' It is also stated in the Basin Plan that 'all groundwaters are considered suitable, or potentially suitable, for municipal or domestic water supply (MUN).' Therefore, the groundwater beneath the subject site must be considered beneficial for these uses unless shown to be non-beneficial using criteria presented in the Basin Plan. It is also stated in the Basin Plan that '[a]t a minimum, groundwaters designated for use as domestic or municipal supply shall not contain concentrations in excess of the secondary maximum contaminant levels (Secondary MCLs) specified in Tables 64449-A (Secondary MCLs-Consumer Acceptance Limits) and 64449-B (Secondary MCLs-Ranges) of Section 64449 of Title 22 of the California Code of Regulations, which is incorporated by reference into this plan.' Currently, concentrations of contaminants in groundwater are significantly above the secondary MCLs as well as RWQCB's ESLs. Lastly, please note that soil cleanup levels should ultimately (within a reasonable timeframe) achieve water quality objectives (cleanup goals) for groundwater in accordance with San Francisco Regional Water Quality Control Board Basin Plan. Please propose appropriate cleanup levels and cleanup goals in accordance with 23 CCR Section 2725, 2726, and 2727 in the FS/CAP.

   The FS/CAP must evaluate at least two viable alternatives for remedying or mitigating the actual or potential adverse effects of the unauthorized release(s) besides the 'no action' and 'monitored natural attenuation' remedial alternatives. Each alternative shall be evaluated for its likelihood to achieve cleanup goals within a reasonable timeframe in a cost-effective manner and the Responsible Party must propose the most cost-effective corrective action. Please submit the FS/CAP by the date specified below.

4. **ACEH FTP Server & GeoTracker Uploads** – ACEH requires that that all submittals are uploaded to ACEH's FTP Server as well as the SWRCB's GeoTracker website. The remedial action plan was not uploaded to the FTP server, which has resulted in delays in its review as well as non-compliance with ACEH's directives. At this time, please reconcile both ACEH's

FTP server and GeoTracker and upload the missing documents. Please see the attachment for upload instructions.

5. **Groundwater Contaminant Plume Monitoring** – Several years of quarterly groundwater monitoring has been conducted at the site. Your consultant may propose a revised groundwater monitoring plan for review. You may include your proposal in the work plan due by the date specified below.

NOTIFICATION OF FIELDWORK ACTIVITIES

Please schedule and complete the fieldwork activities by the date specified below and provide ACEH with at least three (3) business days notification prior to conducting the fieldwork, including routine groundwater sampling.

TECHNICAL REPORT REQUEST

Please submit technical reports to ACEH (Attention: Paresh Khatri), according to the following schedule:

- **April 30, 2009** – Quarterly Monitoring Report (1st Quarter 2009)
- **June 2, 2009** – Soil and Water Investigation Work Plan
- **July 2, 2009** – FS/CAP
- **July 30, 2009** – Quarterly Monitoring Report (2nd Quarter 2009)
- **October 30, 2009** – Quarterly Monitoring Report (3rd Quarter 2009)
- **January 30, 2010** – Quarterly Monitoring Report (4th Quarter 2009)

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.

If you have any questions, please call me at (510) 777-2478 or send me an electronic mail message at paresh.khatri@acgov.org.

Sincerely,

Paresh C. Khatri
Hazardous Materials Specialist

Donna L. Drogos, PE
Supervising Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Brad Shelton, Stantec Consulting Corporation, 3017 Kilgore Road, Suite 100, Rancho Cordova, CA 95670
Donna Drogos, ACEH
Paresh Khatri, ACEH
GeoTracker
File

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**ISSUE DATE:** July 5, 2005
	REVISION DATE: December 16, 2005
	PREVIOUS REVISIONS: October 31, 2005
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

Effective **January 31, 2006**, 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 Alicia Lam-Finneke.
   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 at 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)

Attachment B

Previous Investigations and Site History Summary

PREVIOUS INVESTIGATIONS AND SITE HISTORY SUMMARY

A soil gas survey was conducted on April 10, 1989 by Target Environmental Services, Inc. (TES) on behalf of Mobil Oil Corporation (Mobil) prior to the transfer of ownership of the property to BP. Soil gas samples were collected from 19 sampling points at an approximate depth of four feet below ground surface (bgs) across the site. Results indicated that gasoline may have entered the site subsurface at the pump islands, UST complex, or along the product supply lines. Total volatile hydrocarbons were detected in soil vapor using a flame-ionization detector (FID) at concentrations up to 932,000 micrograms per Liter (µg/L), with the highest detections detected in the vicinity of the pump islands and east of the USTs (TES, *Soil Gas Survey*, April 1989).

On April 24, 1989, one 550-gallon waste oil UST was removed from the site, and was replaced with a suspected 1,000-gallon waste oil UST in a separate excavation. A soil sample collected from beneath the UST (seven feet bgs) and sidewalls (nine feet bgs, approximately six inches above groundwater) of the initial waste oil UST excavation contained total oil and grease (TOG), total petroleum hydrocarbons as diesel (TPHd), and total petroleum hydrocarbons as gasoline (TPHg) up to concentrations of 340 parts per million (ppm), 27 ppm, and 9.6 ppm, respectively. A capillary fringe soil sample (six inches above groundwater) collected on April 27, 1989 from the sidewall of the new waste oil UST excavation, located approximately 20 feet south of the former waste oil UST location, contained TOG and TPHd at respective concentrations of 10,000 ppm and 370 ppm. An *Underground Storage Tank Unauthorized Release (Leak) / Contamination Site Report* dated May 2, 1989 documenting the past occurrence of a release of unknown quantity was subsequently submitted to Alameda County Environmental Health Department (ACEHD), Hazardous Materials Division (EMCON, *Baseline Assessment Report*, December 27, 1994).

In October 1992, Alisto Engineering (Alisto) performed a preliminary site assessment to investigate the extent of petroleum hydrocarbon impacts beneath the site. Eight soil borings (B-1 through B-3, B-4A, B-4B, B-4, B-5A, and B-5) were advanced to depths ranging from four feet to 20 feet bgs. Auger refusal was encountered during the drilling of borings B-1, B-4A, B-4B, and B-5A; and borings B-2 through B-5 were converted to monitoring wells MW-1 through MW-4, respectively. Soil samples collected to a depth of 5.5 feet bgs from the borings advanced in the immediate vicinity of the USTs and dispenser islands contained TPHg and benzene at maximum concentrations of 280 ppm and 0.94 ppm, respectively. Groundwater samples collected from the wells in November 1992 contained elevated concentrations of TPHg (12,000 parts per billion [ppb]) and benzene (3,900 ppb). Groundwater from well MW-3 contained TPHd at 690 ppb. The direction of groundwater flow was established toward the southwest (Alisto, *Supplemental Site Investigation Report*, April 8, 1994).

In September 1993, Alisto supervised the installation of five additional groundwater monitoring wells (MW-5 through MW-9). Soil samples collected from approximately 4.5 feet bgs from borings MW-5 and MW-9 contained TPHg and benzene, toluene, ethylbenzene, and xylenes (BTEX) up to respective concentrations of 4,600 ppm, 76 ppm, 330 ppm, 130 ppm, and 420 ppm. The highest concentrations of petroleum hydrocarbons were found in groundwater from well MW-2; maximum concentrations of TPHg and benzene were detected at 4,500 µg/L and 3,400 µg/L, respectively. Well MW-9, which is located in the area of the product dispensers contained liquid phase hydrocarbons (LPH) at an initial thickness of 0.08 feet. A product

recovery canister was subsequently installed to assist in the removal of LPH from beneath the site. The direction of groundwater flow was generally toward the east to southeast. Off-site sources identified in the site vicinity included former Pabco Products, a paint, roofing, and floor coverings manufacturing facility, which stored oil in aboveground storage tanks (ASTs) at the site (located on and northeast of the site); former Auto Freight Depot (southeast corner of Shellmound Road and Powell Street, approximately 450 feet east of the site); former Truck Repair Shop (approximately 480 feet east to southeast of the site), which stored diesel and gasoline in ASTs; and former Pacific Intermountain Express Truck Terminal (approximately 440 feet southeast of the site), which utilized ASTs and USTs.

In October 1994, EMCON conducted a supplementary site assessment to establish baseline subsurface conditions prior to the purchase of the site by Tosco Corporation (Tosco, now ConocoPhillips) from BP. Three soil borings (THP-1, TB-2 and THP-3, and also respectively referred to as TB-1, TB-2 and TB-3) were advanced on-site using cone penetrometer testing (CPT) equipment. Refusal was encountered in TB-2 and TPH-3 at 10 feet and 4.5 feet bgs, respectively. Soil samples from borings THP-1 and THP-3 contained TPHg and benzene up to 290 ppm and 1.6 ppm, respectively; TPHd was detected in soil from THP-1 (33 ppm); and TOG was detected in the 4.5-foot sample from THP-3 (1,800 ppm). Hydropunch groundwater samples from borings THP-1 and THP-3 contained concentrations of TPHg up to 4,600 ppb, and benzene up to 800 ppb. TOG (3,300 ppb), trans-1,2-dichloroethane (DCE, 2.4 ppb), cis-1,2-DCE (41 ppb), and 1,2-dichloroethane (1,2-DCA, 6.4 ppb) were also detected in the groundwater sample from boring THP-1. EMCON personnel returned to the site on December 5, 1994 to inspect the fuel dispensers for the presence of spill containment boxes, and for indications of leakage. No spill containment boxes were in place, and staining was observed beneath the northeast and southwest fuel dispensers. Photo-ionization detector (PID) readings collected from backfill material beneath the dispensers indicated the presence of volatile organic compounds (VOCs) ranging from 27 ppm to 1,063 ppm. Grab soil samples collected from beneath the fuel dispensers (TD-1, TD-2, TD-3 and TD-4) indicated the presence of TPHg and TPHd up to concentrations of 1,400 ppm and 4,600 ppm, respectively (EMCON, *Baseline Assessment Report*, December 27, 1994).

In February 1995, Alisto performed baildown testing at the site. Using the Aqtesolv groundwater modeling program (Geraghty and Miller, 1991), the average hydraulic conductivity (K) and transmissivity (T) were estimated at 5.97E-05 centimeters per second (cm/sec), and 1.16E-06 square meters per second, respectively. The calculated K value was consistent with the expected K values for the soil type encountered beneath the site (1×10^{-1} to 10^{-6} cm/sec), which consisted predominantly of silty clay containing interbedded layers of sand (Alisto, *Baildown Test Results*, February 10, 1995).

In April 1999, Environmental Resolutions Inc. (ERI) performed a five-day soil vapor extraction (SVE) test at the site (ERI, 1999). UST backfill wells (TP-1 and TP-2) were used for SVE, and wells MW-1, MW-2, and MW-4 were utilized as observation wells. Results of vapor samples from well TP-1 indicated a decrease in methyl tertiary butyl ether (MTBE) concentrations from an initial concentration of 4,820 µg/L to 300 µg/L during the test. TPHg concentrations also decreased from an initial concentration of 12,800 µg/L to 464 µg/L during the test. ERI estimated that approximately 21.5 pounds of TPHg and 16.7 pounds of MTBE were removed by SVE. SVE flow rates ranged from 88 to 98 standard cubic feet per minute (scfm) at an applied

vacuum of 12 inches of mercury. No effective radius of influence was measured in native soil outside the UST backfill (ERI, *Extended Soil Vapor Extraction Test Report*, July 20, 1999).

Following the performance of the SVE test by ERI, SECOR observed the removal of one 550-gallon, fiberglass, waste oil UST, along with a clarifier and two hoists (Hoist No. 1 and Hoist No. 2) from the former service bays as part of site remodeling activities on April 28, 1999. The waste oil UST and Hoist No. 2, were removed from two separate excavations, and the clarifier and Hoist No. 1 were removed from another excavation. One soil sample (OILT-1) from the waste oil UST excavation contained TPHg (180 milligrams per kilogram [mg/kg]), benzene (0.19 mg/kg), TPHd (370 mg/kg), and total petroleum hydrocarbons as motor oil (TPHmo, 7,000 mg/kg). A grab groundwater sample collected from 7.5 feet bgs from the waste oil UST excavation contained TPHd (560 µg/L), TPHmo (710 µg/L), benzene (10 µg/L), and MTBE (2,400 µg/L). Soil samples were collected from beneath the former clarifier (four feet bgs), former Hoist No. 1 (eight feet bgs), and the former Hoist No. 2 (eight feet bgs); TPHg, TPHd, TPHmo, benzene, and lead were detected at maximum respective concentrations of 3.0 mg/kg (clarifier), 870 mg/kg (Hoist No. 1), 4,200 mg/kg (Hoist No. 1), 0.013 mg/kg (clarifier), and 22,000 mg/kg (clarifier). MTBE was not detected in soil from the excavations (SECOR, *Removal of Waste Oil UST, Hoists No. 1 and No. 2 and Clarifier Sump*, June 29, 1999).

Based on the presence of petroleum hydrocarbons in soil, the clarifier and hoist areas were over-excavated on May 7, 1999. Soil samples collected from the clarifier excavation at five feet bgs, and the hoist excavations at five feet bgs contained concentrations of TPHg up to 1,200 mg/kg (Hoist No. 1), TPHd up to 1,200 mg/kg (Hoist No. 1), TPHmo up to 5,000 mg/kg (Hoist No. 1), and lead up to 410 mg/kg (clarifier). Over-excavation confirmation soil samples were not analyzed for the presence of BTEX and other metals. A composite sample collected from the pea gravel was also analyzed for the presence of petroleum hydrocarbons; based on the relatively minor levels of TPHd and TPHmo, relatively low to non-detectable levels of BTEX, and non-detectable concentrations of MTBE, the excavated pea gravel was used as backfill for the waste oil UST excavation. Approximately 17.41 tons of soil were removed from the site as a result of the initial excavation and over-excavation activities (SECOR, *Removal of Waste Oil UST, Hoists No. 1 and No. 2 and Clarifier Sump*, June 29, 1999).

On March 28 and 30, 2001, Gettler-Ryan Incorporated (GRI) oversaw the removal and replacement of product lines, dispensers, and the station canopy. During the removal of the product lines, petroleum hydrocarbon-stained soil and odors were observed within the excavated trench. The entire length of the former product line trench was subsequently over-excavated an additional 1.5 feet to 3.5 feet bgs prior to sampling, resulting in the removal of approximately 150 cubic yards of soil from beneath the site. The former trenches were backfilled with clean, imported backfill as it was discovered that the former trenches were not suitable for re-use due to insufficient grading. An additional 100 cubic yards of soil were excavated to accommodate the new product lines. A total of 13 confirmation soil samples were collected from product line, dispenser and trench excavations by SECOR from the initial excavation and following over-excavation of soil. TPHg and TPHd were detected in the 13 samples at concentrations up to 5,300 mg/kg and 630 mg/kg in the initial excavation soil samples, respectively. The highest concentrations of petroleum hydrocarbons were detected in a 3.5-foot soil sample from a former product line location near well MW-9. MTBE was detected in 12 of the 13 samples up to 8.4 mg/kg. A total of 400 cubic yards of soil were removed from the site, and approximately 15,000 gallons of groundwater were removed from beneath the site

during the dewatering of the UST cavity (SECOR, *Removal and Replacement of Product Lines, Dispensers and Canopy*, May 4, 2001).

Between June and October 2004 in accordance with their July 11, 2003 *Interim Remedial Action and Off-Site Assessment Workplan* and the April 20, 2004 *Modifications to Interim Remedial Action and Offsite Assessment Work Plan*, URS Corporation (URS) implemented biweekly groundwater batch extraction at the site utilizing a vacuum truck (URS, *Off-Site Soil and Water Investigation Report*, June 15, 2005). Over this time period, groundwater was periodically extracted from wells MW-1, MW-2, MW-4, MW-8, and MW-9, which resulted in the removal of approximately 125 gallons of groundwater. Due to the limited groundwater recovery and the slow recharge of groundwater levels in the wells, URS discontinued groundwater batch extraction upon approval of Alameda County Health Care Services Agency (ACHCSA). Based on information within the Regional Water Quality Control Board – San Francisco Bay Region's (RWQCB-SFBR) June 1999 *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report* classifying the area of the site as a Zone B Groundwater Management Zone, an area where groundwater is unlikely to be used as a drinking water source and monitored natural attenuation (MNA) was the recommended remedial alternative based on this designation, URS recommended the submittal of a corrective action plan (CAP) proposing MNA as a potential remedial option for the site (URS, *Discontinuation of Interim Remedial Action, ACEH Case #RO0000066*, October 7, 2004).

In June 2005, URS supervised the installation of two off-site, downgradient groundwater monitoring wells (MW-10 and MW-11) on the Powell Street Plaza property, located south of the site. Soil samples from both of the borings at depths of seven feet bgs (MW-10), and 18 and 23.5 feet bgs did not contain petroleum hydrocarbons or fuel oxygenates at or above laboratory method reporting limits (MRLs). With the exception of a concentration of MTBE in well MW-10 (1.5 µg/L), petroleum hydrocarbons and fuel oxygenates were not detected in groundwater from the wells. The direction of groundwater flow was toward the southwest at a calculated hydraulic gradient of 0.02 feet per foot (ft/ft). URS concluded that the off-site, lateral extent of dissolved impacts had been delineated during this investigation. URS again recommended the submittal of a CAP that will include an outline of possible remedial alternatives, and a proposal for implementing a selected remedial strategy based on the evaluation of historical and current subsurface site conditions, and the past performance of remedial feasibility testing and interim remedial action at the site (URS, *Off-Site Soil and Water Investigation Report*, June 15, 2005).

Current Consultant Information

Stantec Consulting Corporation (Stantec) acquired SECOR on February 1, 2008. Consequently the SECOR corporate name changed to Stantec. Stantec continues to manage the site referenced above on behalf of Atlantic Richfield Company, a BP Affiliated Company and ConocoPhillips.

SENSITIVE RECEPTOR SURVEY

A sensitive receptor survey was initially performed by Alisto during site assessment activities in October 1992. The results of the survey indicated the presence of a surface water body within 1,000 feet of the site. Alisto further indicated that the aquifer beneath the site was not a potential source of drinking water (EMCON, *Baseline Assessment Report*, December 27, 1994).

Attachment C

Field and Laboratory Procedures

STANDARD PROCEDURE FOR HOLLOW STEM AUGER DRILLING

Prior to drilling, the boring locations are marked with white paint or other discernible marking and cleared for underground utilities through USA. In addition, the first two meters of each borehole are drilled with a hand auger, posthole digger, or air/water knife to evaluate the presence of underground structures or utilities.

Once pre-drilling efforts to identify subsurface structures are complete, precleaned hollow stem augers (typically 8 to 10 inches in diameter) are advanced using a rotary drill rig for the purpose of collecting samples and evaluating subsurface conditions. Upon completion of drilling and sampling, the augers are retracted and the borehole is either completed as a well or filled with concrete, bentonite grout, hydrated bentonite chips or pellets as required by the regulatory agency. In areas where the borehole penetrates asphalt or concrete, the borehole is capped with an equivalent thickness of asphalt or concrete patch to match finish grade.

During the drilling process, a physical description of the encountered soil characteristics (i.e. moisture content, consistency, odor, color, etc.), drilling difficulty and soil type as a function of depth are described on boring logs. The soil cuttings are classified in accordance with the Unified Soil Classification System (USCS).

Soil cuttings are temporarily stored on-site in 55-gallon, DOT-approved drums pending waste profiling and proper disposal. A label is affixed to the drums indicating the contents of the drum, suspected contaminants, date of drilling, borehole number, and depth interval from which the contents were generated.

STANDARD PROCEDURE FOR SOIL SAMPLING SPLIT SPOON SAMPLING

The pre-cleaned split spoon sampler lined with three 6-inch long brass or stainless steel tubes is driven 18 inches into the underlying soils at the desired sample depth interval. The sampler is driven by repeatedly dropping a 140-pound hammer a free fall distance of 30 inches. The number of blows (blow count) to advance the sampler for each six-inch drive length are recorded on the field logs. Once the sampler is driven the full 18-inch drive length or the sampler has met refusal (typically 50 blows per six inches), the sampler is retrieved.

Of the three sample tubes, the bottom sample is generally selected for laboratory analysis. The sample is carefully packaged for chemical analysis by capping each end of the sample with a Teflon sheet followed by a tight-fitting plastic cap and sealing the cap with non- volatile organic compound (VOC), self-adhering silicon tape. A label is affixed to the sample indicating the sample identification number, borehole number, sampling depth, sample collection date and time, the sampler's name, job number, etc. The sample is then annotated on a chain-of-custody form and placed in an ice-filled cooler for transport to the laboratory.

The remaining soil samples are used for soil classification and field evaluation of headspace volatile organic vapors, where applicable, using a PID or flame-ionization detector calibrated to a calibration gas (typically isobutylene or hexane). VOC vapor concentrations are recorded on

the boring logs. A physical description of the encountered soil characteristics (i.e. moisture content, consistency, odor, color, etc.) and soil type as a function of depth are recorded on the boring logs. In addition, the sample recovery and sampler penetration are also noted on the boring logs. The sampled soils are classified in accordance with the USCS.

STANDARD PROCEDURE FOR EQUIPMENT DECONTAMINATION

Equipment that could potentially contact subsurface media and compromise the integrity of the samples is carefully decontaminated prior to drilling and sampling. Drill augers and other large pieces of equipment are decontaminated using high pressure hot water spray. Samplers, groundwater pumps, liners and other equipment are decontaminated in an Alconox scrub solution, and double-rinsed in clean tap water rinse followed by a final distilled water rinse.

The rinsate and other wastewater are contained in 55-gallon, DOT-approved drums, labeled (to identify the contents, generation date and project) and stored on-site pending waste profiling and disposal.

STANDARD PROCEDURE FOR WELL CONSTRUCTION HOLLOW STEM AUGER METHOD

Groundwater monitoring wells are constructed by inserting or tremmieing well materials through the annulus of the hollow stem auger. Once the borehole has been drilled to the desired depth, filter sand is placed in the bottom of the boring. A two-inch or four-inch diameter, Schedule 40 or 80 PVC blank or steel well casing is then inserted through the annulus of the hollow stem augers. A sand pack is placed around the well by tremmieing the appropriate filter sand (RMC 2/12 or No. 3 sand or equivalent) through the annulus between the casing and augers while slowly retracting the augers. During this operation, the depth of the sand pack in the auger is continuously sounded to make sure that the sand remains in the auger annulus during auger retraction to avoid short-circuiting the well. The sand pack is tremmied to at least two feet above the well screen, which typically contains 0.010-inch or 0.020-inch perforations, depending on the stratigraphy anticipated beneath the site or site vicinity. Following construction of the sand pack, at least a two-foot thick bentonite seal is tremmied over the sand and hydrated in place. The remainder of the borehole is backfilled with bentonite grout, pellets, or chips. The well head is equipped with fittings for remedial piping and/or instrumentation if applicable. The well head is protected from damage with traffic-rated well box in paved areas or locking steel riser in undeveloped areas. The protective boxes or risers are set in concrete. The details of well construction are recorded on well construction logs.

STANDARD PROCEDURE FOR GROUNDWATER SAMPLING

Depth to Groundwater/LPH Thickness Measurements

Prior to purging each of the wells, the depth to groundwater and thickness of liquid phase hydrocarbons (LPH), if present, within each well casing is measured to the nearest 0.01 foot using either an electronic Solinst water level indicator or an electronic oil-water interface probe. Measurements are taken from a point of known elevation on the top of each well casing as determined in accordance with previous surveys.

Groundwater Monitoring Well Purging

Groundwater wells will be purged prior to sampling with a bailer or groundwater pump. Purge water may be contained on-site in 55-gallon, DOT-approved, steel drums. To help assure that the collected samples are representative of fresh formation water, the conductivity, temperature, and pH of the delivered effluent are monitored and recorded using a Cambridge Hydac meter or another meter similar in nature during purge operations. Purge operations are determined to be sufficient once successive measurements of pH, conductivity, and temperature stabilize to within +/- 10 percent.

During purging a minimum of three well casing volumes, measured as the annular space of the well casing below the groundwater surface, are removed from each well. However, in the case of very slow recharging wells, purging is deemed sufficient if the well contents are completely evacuated during purge operations. Unless recharge takes more than two hours, wells are sampled once the well is recharged to within 80 percent of the pre-purge groundwater elevation. For very slow recharging wells (wells pumped dry during purging), samples may be collected after two hours of recharge.

Groundwater Sample Acquisition and Handling

Following purging operations, groundwater samples are collected from each well using pre-cleaned, single-sample polypropylene, disposable bailers. The groundwater is discharged from the bailer to the sample container through a bottom emptying flow control valve to minimize volatilization.

Collected water samples are discharged directly into laboratory provided, pre-cleaned, 40-milliliter (ml) glass vials and sealed with Teflon-lined septum, screw-on lids. Labels documenting sample number, well identification, collection date and time, type of sample and type of preservative (if applicable) are affixed to each sample. The samples are then placed into an ice-filled cooler for delivery under chain-of-custody to a laboratory certified to perform the specified tests by the State of California Department of Health Services Environmental Laboratory Accreditation Program.

Trip Blanks

To help assure the quality of the collected samples and to evaluate the potential for cross contamination during transport to the laboratory, a distilled-water trip blank accompanies the samples in the cooler. The trip blank is typically analyzed for the presence of VOCs of concern.

For petroleum hydrocarbons, the trip blank is typically analyzed for TPHg, BTEX, and MtBE by EPA Method 8260B.

Containment and Disposal of Generated Water/LPH

Purge water and LPH (if present) generated during the field activities are retained on-site in appropriate containers (i.e. DOT-approved drums or bulk tanks) for future disposal. The wastewater is delivered under appropriate manifest to a facility certified and licensed to receive such waste streams.

Attachment D

Historical Soil Analytical Data

Table 1
Historical Soil Analytical Data
Borings, Product Lines, Dispensers, and Over Excavations
76 (Former BP) Service Station No. 11126
1700 Powell Street, Emeryville, CA

Sample Name	Sample Depth (feet bgs)	Date Sampled	TPHg (mg/kg)	TPHd (mg/kg)	TOG (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	Total Lead (mg/kg)
Borings															
B-2 (MW-1)	4	10/20/1992	32	NA	NA	0.94	1.8	0.53	2.2	NA	NA	NA	NA	NA	NA
B-3 (MW-2)	5	10/20/1992	2.6	NA	NA	0.019	0.13	0.06	0.3	NA	NA	NA	NA	NA	NA
B-4 (MW-3)	7	10/20/1992	ND<1.0	ND<5.0	ND<50	ND<0.005	ND<0.005	ND<0.005	ND<0.005	NA	NA	NA	NA	NA	NA
B-5 (MW-4)	5.5	10/20/1992	280	NA	NA	0.42	0.58	3.8	1.6	NA	NA	NA	NA	NA	NA
MW-5	4.5	9/3/1993	2.5	NA	NA	0.087	0.0059	0.0067	0.028	NA	NA	NA	NA	NA	NA
MW-6	4.5	9/3/1993	ND<1.0	NA	NA	ND<0.005	ND<0.005	ND<0.005	ND<0.005	NA	NA	NA	NA	NA	NA
MW-7	4.5	9/3/1993	ND<1.0	NA	NA	ND<0.005	ND<0.005	ND<0.005	ND<0.005	NA	NA	NA	NA	NA	NA
MW-8	5	9/3/1993	ND<1.0	NA	NA	ND<0.005	ND<0.005	ND<0.005	ND<0.005	NA	NA	NA	NA	NA	NA
MW-9	4.5	9/3/1993	4,600	NA	NA	76	330	430	420	NA	NA	NA	NA	NA	NA
Product Dispenser Samples															
PD-NW,3.5'	3.5'	03/28/01	130	43	NA	0.65	<0.1	3.7	1.9	0.87	<0.25	<0.1	<0.1	<0.1	83
PD-NE,3.5'	3.5'	03/28/01	96	15	NA	0.38	0.11	0.55	1.3	8.4	<0.25	<0.1	<0.1	1.5	46
PD-SW,3.5'	3.5'	03/28/01	260	6.6	NA	1.1	0.4	3.8	12	1.1	<0.25	<0.1	<0.1	0.13	6.7
PD-SE,3.5'	3.5'	03/28/01	12	8.1	NA	0.15	0.95	0.28	1.8	1	<0.25	<0.1	<0.1	<0.1	6.8
Product Line Samples															
PL-1,4'	4'	03/28/01	1,000	38	NA	1.8	0.2	9.7	25	5.8	<0.25	<0.1	<0.1	0.28	NA
PL-2,3'	3'	03/28/01	180	24	NA	0.14	0.17	2.8	13	0.28	<0.25	<0.1	<0.1	<0.1	NA
PL-3,3'	3'	03/28/01	4,700	630	NA	3.6	57	68	340	3.8	<0.25	<0.1	<0.1	<0.1	NA
PL-4,3'	3'	03/28/01	5,300	570	NA	4.9	96	48	280	7.4	<0.25	<0.1	<0.1	<0.1	NA
Overexcavation Samples															
OE-1	NA	03/30/01	8.6	3.3	NA	0.059	0.065	0.047	0.065	<0.1	<0.25	<0.1	<0.1	<0.1	19
OE-2	NA	03/30/01	63	16	NA	1.7	0.84	5	1.7	2.1	<0.25	<0.1	<0.1	0.15	870
OE-3	NA	03/30/01	22	3.4	NA	0.42	1.5	0.6	3	2.1	<0.25	<0.1	<0.1	<0.1	54
OE-4	NA	03/30/01	14	9.9	NA	0.09	0.1	0.18	0.18	0.15	<0.25	<0.1	<0.1	<0.1	87
OE-5	NA	03/30/01	2.9	1	NA	0.071	0.047	0.061	0.043	0.95	<0.25	<0.1	<0.1	<0.1	27

Explanations:

TPHg = Total petroleum hydrocarbons as gasoline
TPHd = Total petroleum hydrocarbons as diesel
TOG = Total oil and grease
MTBE = Methyl tertiary butyl ether
TBA= Tertiary butyl alcohol
DIPE= Di-isopropyl ether
ETBE= Ethyl tertiary butyl ether
TAME= Tertiary amyl methyl ether
NA = Not analyzed
ND = Not detected above laboratory method reporting limits
mg/kg = Milligrams per kilogram