ConocoPhillips
76 Broadway
Sacramento, California 95818

February 28, 2006

Mr. Don Hwang
Alameda County Health Agency
1131 Harbor Bay Parkway
Alameda, California 94502

Re: **Report Transmittal**
WORK PLAN FOR EVALUATION OF LOW-FLOW PURGING AND SAMPLING METHODS
76 Service Station #0752
800 Harrison Street
Oakland, CA

Dear Mr. Hwang:

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 contact

Shelby S. Lathrop (Contractor)
ConocoPhillips
Risk Management & Remediation
76 Broadway
Sacramento, CA 95818
Phone: 916-558-7609
Fax: 916-558-7639

Sincerely,

Thomas Kosel
Risk Management & Remediation

Attachment

TRC
Customer-Focused Solutions

February 28, 2005 TRC Project No. 42-0162-06

Mr. Don Hwang
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

SITE: 76 STATION NO. 0752
800 HARRISON STREET
OAKLAND, CA

RE: WORK PLAN FOR EVALUATION OF LOW-FLOW PURGING AND SAMPLING METHODS

Dear Mr. Hwang:

On behalf of ConocoPhillips Company (ConocoPhillips), TRC submits this Work Plan for Evaluation of Low-Flow Purging and Sampling Methods for 76 Station No. 0752, located at 800 Harrison Street, Oakland, California (Figure 1). The scope of work described herein has been developed pursuant to a request by the Alameda County Environmental Health (ACEH) in their letter dated January 6, 2006 (Appendix A).

1.0 OBJECTIVES AND SCOPE OF WORK

The objective of this evaluation is to determine if more consistent groundwater analytical data can be obtained using low-flow purging and sampling methods. The scope of work includes the following:

- Implement Low-Flow purging and sampling methods for all site wells.
- Concurrently sample selected site wells using standard purging and sampling methods.
- Evaluate data variability between the two sampling methods over two consecutive quarters and make recommendations regarding future purging and sampling methods based on that evaluation.

2.0 SITE DESCRIPTION

The subject site contains a 76 service station located on the eastern corner of Harrison Street and 8th Street in Oakland, California (Figure 2). The site is located northeast and across 8th Street from a former Shell service station that is located adjacent to and northeast of a currently closed Arco service station. In addition, a gasoline and diesel service station referred to as "Mandarin Auto Service" is located east-southeast of the 76 service station. The current site facilities include a station building, two dispenser islands, and underground storage tanks (USTs).

There are four groundwater monitoring wells located onsite and four groundwater monitoring wells located offsite.

2.1 Geology and Hydrogeology

The site is underlain by Quaternary-age dune sand deposits referred to as the Merritt Sand. The Merritt Sand is described as typically consisting of loose, well-sorted, fine- to medium-grained sand with silt. This sand apparently reaches a maximum depth of approximately 50 feet below grade (fbg) in the Oakland area (Gettler Ryan, 2001).

Based on the results of Kaprealian Engineering, Inc. (KEI) subsurface studies, the site is underlain by fill materials to a depth of between 1 and 7 fbg. The fill is in turn underlain by unconsolidated sediments to the maximum depth explored of 35 fbg.

The deposits underlying the fill consist of fine-grained sand with silt. This sand sequence is in turn underlain by silty to sandy clay, clayey sand, and clayey or sandy silt, beginning at a depth of between 30 and 33 fbg and extending to the total depth explored of 35 fbg (Gettler Ryan, 2001).

Depth to groundwater has been encountered between 16 and 24 fbg. The nearest surface waters are Lake Merritt and the Oakland Estuary which are located approximately 0.5 miles from the site.

3.0 SITE BACKGROUND

November 1990: KEI initial fieldwork was conducted when two USTs and a waste oil tank were removed from the site. The tanks were made of steel, and no apparent holes or cracks were observed in the fuel tanks; however, one ⅛ th-inch square hole was observed in the waste oil tank. KEI collected an additional soil sample from the fuel tank pit at a depth of approximately 19 fbg.

December 1990: KEI returned to the site to collect soil samples from beneath the pump islands. KEI returned to the site in order to collect a sample from the pump island excavation.

January 1991: At the request of the ACEH, KEI returned to the site in order to collect one additional soil sample from the waste oil tank pit. After sampling, the waste oil tank pit was excavated to the sample depth of 9.5 fbg.

May 1991: Three monitoring wells and two exploratory borings were installed at the site. The monitoring wells were drilled and completed to total depths ranging from 33 to 35 fbg. The exploratory borings were each drilled to total depths of 23 fbg. Groundwater was encountered at depths ranging from about 22.5 to 24 fbg during drilling.

Based on the analytical results, a monthly groundwater monitoring and quarterly groundwater-sampling program was implemented.

September-October 1992: Three additional monitoring wells were installed to further delineate the extent of groundwater contamination. These wells were drilled to total depths ranging from 32 to 33 fbg. Groundwater was encountered at depths ranging from 21.5 to 23 fbg.

April 1993: Two additional monitoring wells were installed in the vicinity of the site. These monitoring wells were drilled to a total depth of 31 to 33 fbg. Groundwater was encountered at depths of 21 to 21.5 fbg. Based on the analytical results of all of the soil samples collected, KEI concluded that the horizontal extent of the soil contamination at the site had been defined, and that the contamination was limited to the areas beneath the fuel tanks and the southernmost pump island. Based on the groundwater monitoring data collected and evaluated through April of 1993, the groundwater flow direction had been consistently to the southwest or south-southwest. In addition, no free product or sheen had been detected in any well through April of 1993. KEI recommended quarterly monitoring frequency.

October 2003: Site environmental consulting responsibilities were transferred to TRC.

4.0 REVISED GROUNDWATER SAMPLING PLAN

Water Level Gauging

Prior to purging, fluid/water levels will be measured in all site wells. Fluid levels are monitored in the wells using an electronic interface probe with conductance sensors. The depth to liquid-phase hydrocarbons and water is measured relative to the well box top or top of casing. Well boxes or casing elevations are surveyed to within 0.02 foot relative to a county or city bench mark.

Low-Flow Purging

Following water level gauging, low-flow purging will be performed on all wells in accordance with Environmental Protection Agency (EPA) guidelines. Low-flow purging will be accomplished using a peristaltic pump equipped with Teflon-lined polyethylene tubing. The polyethylene tubing will be lowered into the well and set to sample from a depth of approximately two thirds of water column height. Pumping will begin with a low-flow rate (0.2 to 0.5 liter per minute) and be increased such that drawdown in the well casing is no more than 10% of the well screen length. During purging, a multi-parameter water quality meter equipped with a flow-through cell will be used to periodically measure pH, oxidation reduction potential (ORP), dissolved oxygen (DO), turbidity, specific conductance and temperature. Purging will continue and readings will be recorded every three minutes until groundwater parameters stabilize to within the following variances for three consecutive measurements:

Parameter	Stabilization Criteria
pH	0.1 pH units
Electrical Conductance	3% seconds/centimeter (S/cm)
ORP	10 millivolts (mV)
Turbidity	10% NTUs (or less than 10 NTUs)
DO	0.3 milligrams per liter (mg/L)

Low-Flow Sampling

When all the parameters have stabilized for three consecutive readings, samples will be collected at the same low flow rate using the same polyethylene tubing.

Standard Sampling

Following sample collection using low-flow purging and sampling methods, duplicate samples will be collected using standard purging and sampling methods from wells MW-1, MW-2, MW-3 MW-4 and MW-5. The analytical results from samples collected by both low-flow and standard purging and sampling methods will be compared to evaluate data variability and to determine if more consistent groundwater data is obtained through low-flow purging and sampling methods.

Sample Analysis

The groundwater samples collected by both methods will be appropriately preserved and submitted to a state-certified laboratory for analysis. Chain-of-Custody protocol will be followed, providing a continuous record of sample possession before actual analysis. The laboratory will analyze the groundwater samples for total purgeble petroleum hydrocarbons (TPPH), benzene, toluene, ethyl benzene, and xylenes (BTEX), and fuel oxygenates, including MTBE, by EPA Method 8260B.

5.0 WORK SCHEDULE

Planned activities will be performed according to the following estimated completion schedule:

- Agency approval of Work Plan for Evaluation of Low-Flow Purging and Sampling Methods expected within six weeks of submittal.
- Conduct quarterly groundwater sampling in accordance with agency-approved workplan during next two quarterly monitoring and sampling events. This implies a change in monitoring schedule to quarterly.

- Provide an evaluation and discussion of results and recommendations for long-term modification of the purging and sampling program within eight weeks of completion of second quarterly monitoring event.

6.0 REFERENCES

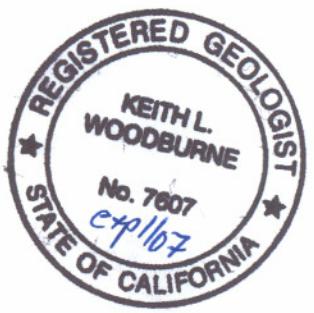
Gettler-Ryan Inc., 2001, Site Conceptual Model for 76 Service Station No. 0752, 800 Harrison Street, Oakland, California. April 23, 2001.

If you have any questions regarding this work plan, please contact Keith Woodburne at (925) 688-2488.

Sincerely,
TRC

Mark Trevor
Project Geologist

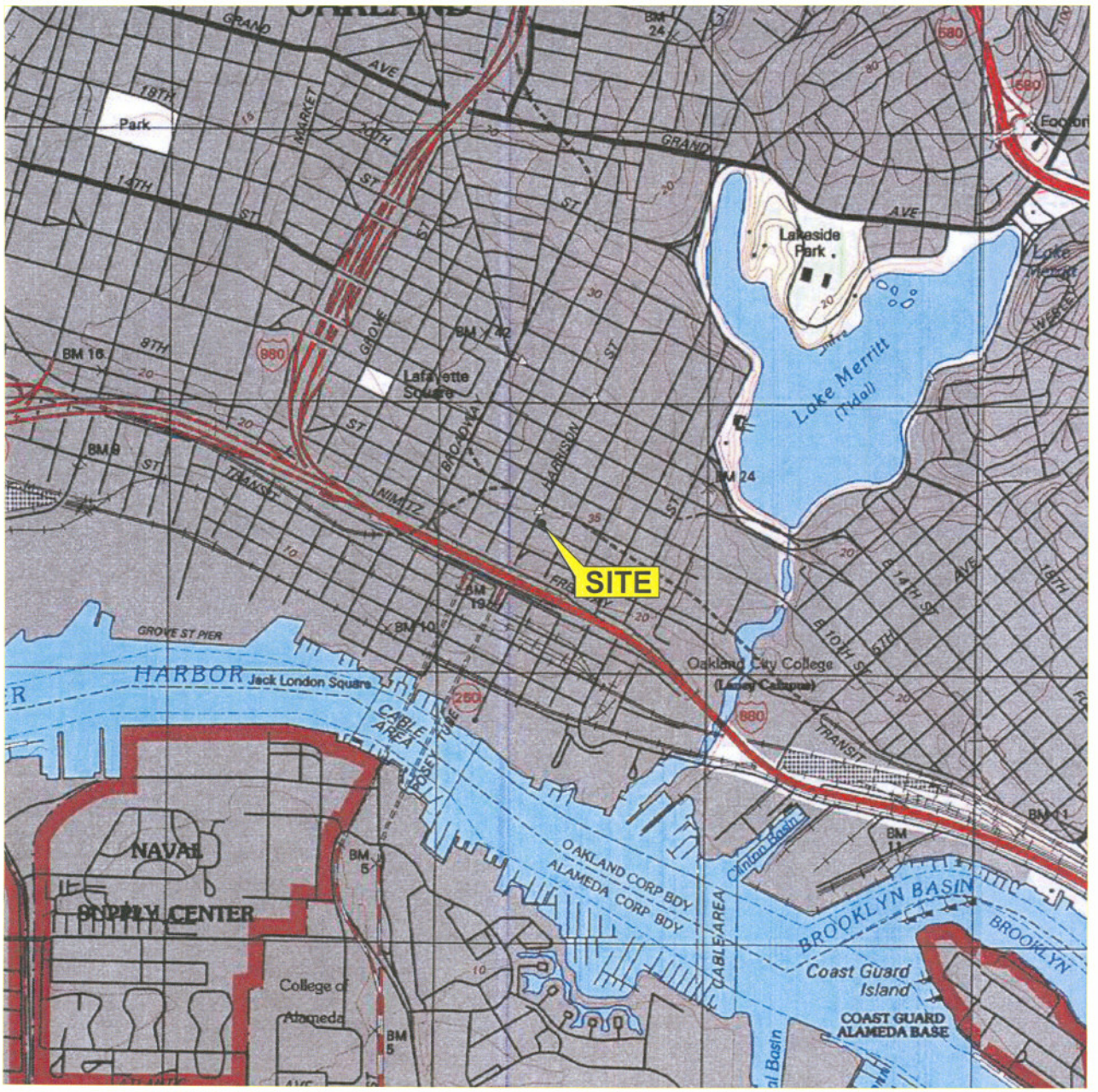
Keith Woodburne P.G.
Senior Project Geologist



Attachments: Figure 1: Vicinity Map
Figure 2: Site Plan
Appendix A January 6, 2006 ACEH Letter

cc: Shelby Lathrop, ConocoPhillips (electronic upload)

FIGURES



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SOURCE:

United States Geological Survey
7.5 Minute Topographic Maps:
Oakland East and Oakland West
Quadrangles, California

VICINITY MAP

76 Service Station #0752
800 Harrison Street
Oakland, California

TRC

FIGURE 1

SITE PLAN

76 Service Station #0752
800 Harrison Street
Oakland, California

TRC

FIGURE 2

APPENDIX A

ACEH LETTER

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

January 6, 2006

Ms. Shelby Lathrop
ConocoPhillips Company
76 Broadway
Sacramento, CA 95818

Subject: Fuel Leak Case No. RO0000231, Unocal #0752, 800 Harrison Street, Oakland, CA

Dear Ms. Lathrop:

Alameda County Environmental Health (ACEH) staff have reviewed the fuel leak case file for the above-referenced site and the document entitled, "Semi-Annual Monitoring Report April through September 2005," dated October 26, 2005. ACEH is concerned with the significant increases in fuel hydrocarbon concentrations that have occurred in several wells across the site. These increases have occurred not only in on-site wells but also in downgradient off-site wells. Quarterly groundwater monitoring data from a fuel leak site south of 8th Street (726 Harrison Street) also indicates that significant increases in fuel hydrocarbon concentrations recently occurred downgradient of your site. Interim remediation is required to address the elevated concentrations of fuel hydrocarbons in soil and groundwater at your site. We request that you address the following technical comments, perform the proposed work, and send us the reports described below.

TECHNICAL COMMENTS

1. Interim Remediation. The elevated concentrations of fuel hydrocarbons currently present on-site and migrating off-site require interim remediation. Please present plans for interim remediation in the Work Plan requested below.

2. Groundwater Monitoring. Groundwater monitoring results for individual wells at the site have frequently increased or decreased several orders of magnitude between sampling events. A recent, but by no means isolated, example of these dramatic fluctuations in results is the concentrations of TPHg and MTBE detected in water samples from well MW-7 between 02/04/2004 and 9/30/2005. For well MW-7, the concentration of MTBE increased from 3.2 µg/L during the 2/14/04 sampling event to 5,100 µg/L during the 8/11/04 sampling event. The concentration of MTBE detected in well MNW-7 subsequently decreased from 8,400 µg/L during the 3/31/2005 sampling event to <0.5 µg/L during the 9/30/2005 sampling event. These abrupt variations in results are not consistent across the site and do not appear to correlate with water level changes or to be seasonal in nature. The hydraulic gradient at this site and in sites immediately south of this site appears to be generally consistent both in magnitude and direction. Therefore, the hydrogeology of the site does not appear to be a likely cause of these dramatic variations in results. The significant temporal variations in results make the data difficult to use for decision-making and create uncertainty in the reliability of the data. In order to assess whether minor variations in sampling techniques

may be introducing variability in monitoring results, we request that you modify your sampling methods. We request that you implement low-flow purging and sampling methods using controlled and consistent sampling methods for all future groundwater monitoring events. Due to the elevated concentrations of fuel hydrocarbons that have been detected, please implement quarterly groundwater monitoring rather than semi-annual groundwater monitoring at this site. In addition, you may wish to vary your sampling techniques and collect multiple groundwater samples from individual wells during a quarterly sampling event to test the effects of varying the purging and sampling methods. Please prepare a work plan, which describes the proposed sampling methods for future groundwater monitoring events.

TECHNICAL REPORT REQUEST

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

- March 6, 2006 – Work Plan for Groundwater Sampling Methods
- March 6, 2006 – Work Plan for Interim Remediation
- April 30, 2006 - Quarterly Report for the First Quarter 2006

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.

If you have any questions, please call me at (510) 567-6746.

Sincerely,

Don Hwang
Hazardous Materials Specialist

cc: Keith Woodburne
TRC
1590 Solano Way, Suite A
Concord, CA 94520

Donna Drogos, ACEH
Jerry Wickham, ACEH
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