04-30-03

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 29, 2003

Ms. Jill Pollock
Department of Transportation
P.O. Box 23660
Oakland, CA 94623-0660

Dear Ms. Pollock:

Subject: Fuel Leak Case RO0000250, Vacant Parcel, 6th and Castro St., Oakland, CA 94607

Alameda County Environmental Health, Local Oversight Program (LOP) staff, has reviewed the case file for the subject site including the July 18, 2002 letter report from Ms. Celia McCuaig of your office. In this letter, Cal Trans questions whether groundwater monitoring should continue at this site and if so, if our office could provide more relevant regulatory standards as opposed to drinking water standards. In addition to responding to these questions, we request that you address the following technical comments and submit the reports requested below.

Technical Comments

1. We are aware that the Port of Oakland performed subsurface investigations on this and the two adjacent parcels, which Cal Trans considers as replacement for the previously approved August 6, 2001 ERM work plan. However, there are significant differences in the number and locations of the borings ERM proposed and actual borings advanced for the Port of Oakland. The primary goal of the ERM work plan was to determine the appropriate location(s) for down-gradient well(s) relative to the source area (MW-2). Also, groundwater gradient could be further confirmed with the additional well(s). It appears the Port of Oakland investigation was a general survey of soil and groundwater conditions on three prospective sites being considered for purchase.
2. The Port of Oakland report is incomplete and cannot be reviewed by our office. The report is only a partial summary of analytical data and tables. It lacks necessary items including the stamp and signature of a registered professional, boring logs, signed analytical data sheets from a certified laboratory, figures to scale, cross sectional diagrams, prior boring and monitoring well locations and recommendations and conclusions. The only conclusions made were that of Ms. McCuaig of Cal Trans.
3. The statistical analysis presented in the Port of Oakland report is not appropriate for characterizing the 6th and Castro St. site. Although 25 data points are evaluated, they represent only five discrete locations sampled for the entire block. A better statistical evaluation should include all prior analytical data. In addition, data from the known hot spots should be evaluated separately, since remediation may be an alternative for those areas.
4. The absence of elevated contamination down-gradient of the 6th & Castro block on Parcel A is stated as evidence that bio-remediation has occurred, however, the petroleum concentration in MW-2 has not shown attenuation, therefore, bio-remediation cannot be assumed to be occurring elsewhere. In addition, the locations of the samples taken on Block A have not been shown to be appropriately down-gradient. Additional samples are necessary to verify the extent of contamination and an additional well is desirable to confirm gradient.

Ms. Jill Pollock
RO0000250
6th and Castro St. Parcel, Oakland, CA 94607
April 29, 2003

5. Appropriate cleanup levels for soil and groundwater can be obtained using guidance documents such as the San Francisco Bay Region Water Quality Control Board Guidance Document (12/01), the City of Oakland Urban Land Redevelopment Program Guidance Document and EPA Preliminary Remediation Goals (PRGs). Cleanup levels should be consistent with the most conservative potential future use of the site, although it is recognized that some areas in Oakland are not considered as sources for drinking water.
6. Continued groundwater monitoring is necessary to demonstrate plume stability, define the extent of the plume and confirm the absence of halogenated volatile organic compounds.

Technical Report Request

- May 30, 2003- Copy of complete Port of Oakland investigation report (please address items in #2) and a work plan to complete off-site evaluation of soil and groundwater. Please also include soil and groundwater iso-concentration contours for TPHg and BTEX constituents and an evaluation of potential remediation alternatives.
- June 30, 2003- groundwater monitoring report.

If you have any questions, please contact me at (510) 567-6765.

Sincerely,

Barney M. Chan
Hazardous Materials Specialist

C: B. Chan, D. Drogos

6th&Castro 1

12-7-01

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

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December 5, 2001

Jill Pollock
State of California-Business, Transportation, Housing Agency
Dept. of Transportation
Office of Environmental Engineering
Box 23660
Oakland, CA 94623-0660

Dear Ms. Pollock:

Subject: Vacant Parcel, 6th St. and Castro St., Oakland, CA
RO0000250

"1st Quarter 2001, 7th Quarterly Groundwater Monitoring Report" by PSI dated July 26, 2001 and "Site Investigation Workplan" by Environmental Resources Management dated August 6, 2001 were reviewed. The contaminant concentrations found in the groundwater samples collected on March 5, 2001 increased compared to prior sampling results. Monitoring well MW-2's concentrations were 65,000 ug/l Total Petroleum Hydrocarbons-Gasoline (TPH-G), 6,500 ug/l TPH-Diesel (TPH-D), <400 ug/l Total Petroleum Hydrocarbons-Motor Oil (TPH-MO), 730 ug/l Benzene, 4,100 ug/l Toluene, 3,100 ug/l Ethylbenzene, and 18,400 ug/l Xylene (BTEX), <50 ug/l Methyl Tertiary-Butyl Ether (MTBE), 4,720 ug/l Volatile Organic Compounds (VOCs), and <20 ug/l lead. Monitoring well MW-2's VOC concentrations were 200 ug/l n-Butylbenzene, <13 ug/l 1,2-Dichloroethane, <13 ug/l 1,2- Dichloropropane, 100 ug/l Isopropylbenzene, 34 ug/l p- Isopropyltoluene, 1,200 ug/l Naphthalene, 370 ug/l n-Propylbenzene, <13 ug/l Trichloroethene, 2,300 ug/l 1,2,4-Trimethylbenzene, and 700 ug/l 1,3,5 Trimethylbenzene. TPH-D was not found previously. No samples were analyzed for Oil & Grease. Previous quarters found Oil & Grease concentrations at a minimum of 4,400 ug/l. Therefore, resume analyses for Oil & Grease. Concentrations found in monitoring wells MW-1 and MW-3 were below detection limits for all contaminants.

The workplan proposes grab groundwater sampling on the 6th St. side of the parcel to determine where to locate additional monitoring wells. For soil and groundwater samples from the monitoring wells, include analyses for BTEX. Additionally, for the groundwater samples include VOCs and Oil & Grease. If Oil & Grease analyses cannot be performed, then explain. Please state whether you agree with these changes. If you have any questions, you may call me at 510/567-6746.

Sincerely,

Don Hwang
Hazardous Materials Specialist

C: John Cavanaugh, Michael Blanchard, Environmental Resources Management, 1777 Botelho Dr., Walnut Creek, CA 94596

file

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

05-09-01

ENVIRONMENTAL HEALTH SERVICES
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May 8, 2001

Celia McCuaig, District Branch Chief
State of California-Business, Transportation, Housing Agency
Dept. of Transportation
Office of Environmental Engineering
Box 23660
Oakland, CA 94623-0660

Subject: Vacant Parcel, 6th St. and Castro St., Oakland, CA
RO0000250

"Fourth Quarter 2000, Sixth Quarterly Groundwater Monitoring Report" dated December 6, 2000 was reviewed. The contaminant concentrations found in the groundwater samples collected on November 16, 2000 were consistent with prior sampling results. Monitoring well MW-2's concentrations were 25,000 ug/l Total Petroleum Hydrocarbons-Gasoline (TPH-G), <400 ug/l TPH-Diesel (TPH-D), 550 ug/l Benzene, 2,900 ug/l Toluene, 1,500 ug/l Ethylbenzene, and 7,100 ug/l Xylene (BTEX), <50 ug/l Methyl Tertiary-Butyl Ether (MTBE), 5,000 ug/l Oil & Grease, 2,247 ug/l Volatile Organic Compounds (VOCs), and <15 ug/l lead. Monitoring well MW-2's VOC concentrations were <25 ug/l n-Butylbenzene, 91 ug/l 1,2-Dichloroethane, <25 ug/l 1,2- Dichloropropane, 46 ug/l Isopropylbenzene, <25 ug/l p- Isopropyltoluene, 460 ug/l Naphthalene, 160 ug/l n-Propylbenzene, <25 ug/l Trichloroethene, 1,200 ug/l 1,2,4-Trimethylbenzene, and 290 ug/l 1,3,5 Trimethylbenzene. Concentrations found in monitoring wells MW-1 and MW-3 were nondetectable or nearly nondetectable for all contaminants.

We concur with Professional Service Industries' recommendation to continue groundwater monitoring and to conduct an investigation to determine the extent of the groundwater plume to the south. Therefore, a workplan for such an investigation is required. Additionally, if the results for MW-2 for the next round of sampling are consistent with those obtained recently, then a Corrective Action Plan, which includes an assessment of impacts, a feasibility study, and applicable cleanup levels should be considered. Also, the report was not signed, please check that future reports are signed.

If you have any questions, you may call me at 510/567-6746.

Sincerely,

Don Hwang
Hazardous Materials Specialist

C: Frank Poss, Professional Service Industries, 1320 W. Winton Ave., Hayward, CA 94545
file

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

Sent 11-4-99
Including cc's

R0250

ENVIRONMENTAL HEALTH SERVICES
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(510) 337-9335 (FAX)

November 04, 1999

Jill Pollock
Department of Transportation
P.O. Box 23660
Oakland, CA 94623-0660

STID: 6517
Re: Investigations at the CalTrans vacant lot, located at 6th and Castro Street, Oakland, CA

Dear Ms. Pollock,

This office has reviewed the October 14, 1999 Hazardous Waste Preliminary Site Investigation Report, prepared by Professional Service Industries, Inc. (PSI) for the above site. Based on our review of the analysis results of soil and groundwater samples collected from the eleven borings emplaced at the site (OAK-1 through OAK-11) and the three monitoring wells installed at the site (MW-1 through MW-3) the following is a list of our primary concerns:

- Elevated levels of lead were identified in both the soil and groundwater at the site. Up to 1,700 parts per million (ppm) lead was identified in the soil, exceeding the 400ppm human-health protective threshold value for a residential site and the 1,000ppm threshold value for a commercial site, per Region IX EPA's Preliminary Remediation Goals (PRGs). Contaminants in soil exceeding the PRG levels for the planned site use should be excavated. Otherwise, a Risk Management Plan (RMP) will be required stating that a cap will be maintained on the soil and that a Health & Safety Plan, in compliance with OSHA requirements, shall be prepared and followed every time there is construction/excavation work at the site. You will be required to file this RMP with the Deed to the property.
- Additionally, a number of soil samples exceeded the lead leachability threshold values for both the State STLC and Federal TCLP tests, indicating that the lead-contaminated soil may be impacting groundwater. Although groundwater samples also identified lead concentrations, these samples were not filtered with a .45 micron filter prior to analysis in order to obtain the actual dissolved lead concentrations. Therefore, in order to confirm whether the elevated lead-contaminated soil at the site is impacting groundwater, this office is requiring that the next round of quarterly groundwater samples be analyzed for dissolved lead, instead of total lead. If the dissolved lead analysis indicates that groundwater has, in fact, been impacted, excavation of the lead-contaminated soil may be required to prevent further impact. Additionally, the dissolved lead plume will need to be further delineated/characterized downgradient of OAK5 and OAK9.
- 1,2-Dichlorethane was identified in a groundwater sample collected from Well MW-2 at 160 parts per billion (ppb). This concentration exceeds the 5ppb drinking water Maximum Contaminant Level (MCL) for California. Currently, the San Francisco Bay-Regional Water Quality Control Board (RWQCB) is not

- closing cases with chlorinated hydrocarbons (VOCs) exceeding MCL concentrations, and is requiring on-going groundwater monitoring for these sites. Therefore, the monitoring wells shall continue to be analyzed for VOCs.

- Elevated levels of Oil & Grease were identified both in shallow soils at the site and in groundwater. Based on the elevated levels of Oil & Grease in shallow soils, this office will be requiring, as part of future closure requirements, that a cap be maintained over this contaminated soil and that a Health & Safety Plan be prepared as part of any future construction/excavation work at the site.

- Elevated levels of Total Petroleum Hydrocarbons as gasoline (TPHg) and benzene were identified at the western end of the site. Based on the identified concentrations,

Quarterly groundwater monitoring of the three monitoring wells is required. Analysis of the groundwater samples shall include TPHg, TOG, BTEX, dissolved lead, and VOCs. Based on the results of the next several quarterly groundwater monitoring events, this office will determine whether further delineation of the observed groundwater contamination will be required, and whether a risk assessment will be required and what it will entail. The site is overdue for a quarterly groundwater monitoring event. The monitoring wells shall be sampled within the next 30 days of the date of this letter (i.e., by December 02, 1999), and the corresponding monitoring report shall be submitted to this office by January 13, 2000.

Lastly, there are a number of issues that were outlined in the November 16, 1998 letter that this office sent you that was not addressed in the report:

- This office required that a well survey be conducted within 0.5 miles radius of the site. This office has not received any response to this request;
- According to ENGEO Inc.'s January 27, 1993 Phase One Assessment Report, a former groundwater production well was reported to be on site. This office requested additional information on this well, and has not yet received any response. This office needs to know whether this well is currently being used. If it is, this office will need to know the screened interval of this well to determine whether it may be drawing or influencing the migration of the contaminant plume. If this well is no longer in use, it must be properly destroyed under permit; and
- This office required that research be conducted to determine whether the storm drain utility line trench running along the property was providing a conduit for contaminant plume migration at the site. This issue has not yet been addressed.

The above issues must be addressed and included with the next quarterly groundwater monitoring report.

If you have any questions or comments, please contact me at (510) 567-6763.

Sincerely,

Juliet Shin, R.G.
Hazardous Materials Specialist

Cc: Frank R. Poss
Professional Service Industries, Inc.
1320 West Winton Ave.
Hayward, CA 94545

Leroy Griffin
City of Oakland Fire Dept., OES
1605 Martin Luther King Jr. Way
Oakland, CA 94612-1393

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

Ro#250

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June 15, 1999

Chris Zdunkiewicz
Cal Trans, District 4
Environmental Engineering
P.O. Box 23660
Oakland, CA 94623-0660

STID: 6517
Re: Proposed monitoring well locations for the Cal Trans vacant lot, located at 6th and Castro Street, Oakland, CA 94607

Dear Ms. Zdunkiewicz,

Per Professional Service Industries, Inc.'s (PSI) workplan, dated May 14, 1999, for the above site, an initial round of borings have been sampled at the site and PSI is ready to install the three required permanent monitoring wells. Frank Poss, PSI, has faxed me a copy of the proposed well locations which were selected based on the analytical results of the boring samples (please refer to attached copy of figure showing proposed well locations). These locations are acceptable to this office. Per Mr. Poss's message to me, the three wells will be installed at the site on Thursday, June 17, 1999. Please be reminded that a report detailing both the boring and well work shall be submitted to this office within 45 days after completing field activities (i.e. ~ by July 30, 1999).

If you have any questions or comments, please contact me at (510)567-6763.

Sincerely,

Juliet Shin
Hazardous Materials Specialist

ATTACHMENT

Cc: Frank R. Poss
Professional Service Industries, Inc.
1320 West Winton Ave.
Hayward, CA 94545

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

RO#250

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May 18, 1999

Chris Zdunkiewicz
Cal Trans, District 4
Environmental Engineering
P.O. Box 23660
Oakland, CA 94623-0660

STID: 6517
Re: Workplan for investigations at the Cal Trans vacant lot, located at 6th and Castro Street, Oakland, CA 94607

Dear Ms. Zdunkiewicz,

This office has reviewed Professional Service Industries, Inc.'s workplan, dated May 14, 1999, for the above site and finds this workplan acceptable with the following changes:

- One of the three proposed groundwater monitoring wells must be located in the area of the former gas station adjacent to former Boring B-1, which identified elevated concentrations of Total Petroleum Hydrocarbons as gasoline (TPHg) and benzene in groundwater in 1996.
- The three groundwater monitoring wells must be surveyed to Mean Sea Level from an established benchmark.
- You are required to wait a minimum of 72 hours after installing the three monitoring wells before developing them. Additionally, you are required to wait a minimum of 72 hours after developing the wells before purging and sampling the wells. Per the attached guidance document from RWQCB, you have the option of seeking the non-purge approach for these wells in the future. If you are interested in the non-purge option, you must follow the protocol in the attached guidance document, which includes collecting both a purge and non-purge sample during this upcoming sampling event.
- Please be reminded that the analysis for benzene, toluene, ethylbenzene, and total xylenes should be included in your 8260 analysis of soil and groundwater samples.
- Lastly, a former site plan from 1995 indicates a groundwater production well on site, southwest of the former Durham Farm Creamery. Please provide information to this office as to whether this well still exists at the site. If it does not, please provide documentation that this well was properly destroyed. Based on the fact that this site is vacant, it is assumed that this well is no longer in use. If it is still in use, operation of this well must be discontinued until this site is closed.

It is the understanding of this office that this workplan will be implemented at the site on Wednesday and Thursday, May 19 and 20, 1999. A report documenting the work shall be submitted to this office within 45 days after completing field activities.

If you have any questions or comments, please contact me at (510) 567-6763.

Sincerely,

Juliet Shin
Hazardous Materials Specialist

ATTACHMENT

Cc: Frank R. Poss
Professional Service Industries, Inc.
1320 West Winton Ave.
Hayward, CA 94545

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

RO# 2486 (STID# 6591)
✓ RO# 250 (STID# 6517)

ENVIRONMENTAL HEALTH SERVICES
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January 19, 1999

Ronald Moriguchi, Dist. Office Chief
Calif. Department of Transportation
P.O. Box 23660
Oakland, CA 94623-0660

STID: 6517 & 6591
Re: Investigations at two Caltrans sites, located at the corner of Mattox Road and Foothill in Hayward, CA, and 6th and Castro Street in Oakland, CA

Dear Mr. Moriguchi,

This office has received and read your letter, dated January 7, 1999, requesting an extension of the due date, from January 11, 1999 to March 31, 1999, for the submittal of a workplan for each of the two above referenced sites. This office will grant you this requested extension.

In response to your question, the State reimburses our office for overseeing investigations and cleanup related to sites that have had a release from petroleum underground storage tanks. Therefore, this office is reimbursed by the State for oversight of your 6th and Castro site in Oakland. However, the contaminants identified at the Mattox Road and Foothill site cannot definitely be related to releases from petroleum underground storage tanks, so this office must seek reimbursement for our oversight costs from the Responsible Parties, and not the State. The contaminants of concern at your Hayward site are Lead and Oil & Grease, and these constituents do not appear to be resulting from the former Exxon station tanks since analysis of samples collected from the site did not identify any gasoline or diesel constituents. Therefore, a deposit for this site is required for oversight costs. Please submit the requested $500.00 deposit for the Hayward site prior to March 31, 1999.

As stated above, the workplans for the two above Caltrans sites will be submitted to this office by March 31, 1999. If you have any further questions, please contact me at (510) 567-6763.

Sincerely,

Juliet Shin
Hazardous Materials Specialist

Cc: Chris Zdunkiewicz
Caltrans, District 4
Environmental Engineering
P.O. Box 23660
Oakland, CA 94623-0660

ALAMEDA COUNTY
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November 16, 1998

Chris Zdunkiewicz
CalTrans, District 4
Environmental Engineering
P.O. Box 23660
Oakland, CA 94623-0660

STID 6517

Re: Investigations at the CalTrans vacant lot, located at 6th and Castro Street, Oakland, CA 94607

Dear Ms. Zdunkiewicz,

In 1987, ERM-West Consultants (ERM) conducted an environmental site assessment to identify any environmental problems at the above site resulting from past uses of the site. Historical records searches determined that the site had formerly been occupied by a number of businesses, most notably a gas station, an auto repair garage, Durham Farm Creamery, a machine shop, and laundry facility. At least four underground storage tanks were associated with the former gas station, and dairy. ERM drilled seven borings at the site, B-1 through B-7, down to 15- to 17-feet below ground surface (bgs). Soil samples collected from Borings B-2 through B-5 were analyzed for Volatile Organics using Method 8240, which included the analyses for benzene, toluene, ethylbenzene, and total xylenes (BTEX). Soil samples collected from Borings B-1, B-6, and B-7 were specifically analyzed for BTEX, ethylene dibromide (a lead scavenger), napthalene, and Total Petroleum Hydrocarbons as Gasoline (TPHG). Analyses of the soil samples identified up to 1.3 parts per million (ppm) ethylbenzene, 1.5ppm toluene, and 7.9ppm total xylenes.

Groundwater samples were collected from Borings B1 and B6 and analyzed for Volatile Organics using Method 8240. Analysis of these groundwater samples identified up to 0.5 parts per billion (ppb) ethylbenzene, 0.3ppb toluene, and 5ppb total xylenes.

Additional investigations were continued at the site in 1995 when Geocon advanced seven hydropunches, OAK1 through OAK7, at the site. Soil samples were collected between 1- and 3-feet bgs from OAK3 through OAK7, and between 1- and 17-feet bgs in the remaining hydropunch locations. Soil samples collected from all seven borings were analyzed for Total Lead and Oil and Grease, and selected soil samples were additionally analyzed for CAM 17 metals, TPHG, Total Petroleum Hydrocarbons as Diesel (TPHD), and BTEX. Analysis of these soil samples identified up to 410ppm Total Lead, and 8,000ppm Oil and Grease. Groundwater samples were collected from OAK2 and OAK6 and analyzed for TPHG, TPHD, and BTEX. No contaminants were identified in these two samples above detection limits.

In response to the above identified contamination, International Technology Corporation (IT) drilled eleven borings, Borings B1-1 through B1-11, at the site in 1996. Soil samples collected from all the borings were analyzed for TPHG, TPHD, Oil and Grease, BTEX, Total Lead, and STLC and TCLP leachability tests. Selected soil samples were also analyzed for Halogenated Volatiles using Method 8010. Analysis of these soil samples identified up to 1,100ppm TPHG, 2.6ppm benzene, 34ppm toluene, 25ppm ethylbenzene, 140ppm total xylenes, and 397ppm Total Lead. Several soil samples containing lead exceeded the Hazardous Waste threshold value of 5ppm for lead in the STLC leachability test, however, these samples were below threshold values for the TCLP test. A total of four "grab" groundwater samples were collected from Borings B1-4, B1-6, B1-8, and B1-11 and analyzed for TPHG, TPHD, BTEX, and Halogenated Volatiles. Analysis of these groundwater samples identified up to 1,700ppb TPHG, 51ppb benzene, 200ppb toluene, 59ppb ethylbenzene, 290ppb total xylenes, and 5.4ppb 1,2-dichloroethane.

Per Article 11, Division 3, Chapter 16, Title 23 of the California Code of Regulations, you are required to conduct a Preliminary Site Assessment (PSA) to determine the lateral and vertical extent and severity of soil and groundwater contamination which has resulted from the release at the site. The information gathered by the PSA will be used to determine an appropriate course of action to remediate the site, if deemed necessary. The major elements of such an investigation, include, but are not limited to, the following:

- A minimum of three groundwater monitoring wells shall be installed at the site. During the installation of the groundwater monitoring wells, soil samples are to be collected at five-foot-depth intervals and any significant changes in lithology.
- Subsequent to the installation of the monitoring wells, these wells must be surveyed to Mean Sea Level to an accuracy of 0.01 foot. Groundwater samples are to be collected and analyzed quarterly, along with water level measurements to calculate groundwater flow directions at the site. Groundwater samples collected from these wells shall be analyzed for TPHG, BTEX, Oil & Grease, soluble lead, and chlorinated hydrocarbons using Method 8010.

This Department will oversee the assessment and remediation of your site. Our oversight will include the review of and comment on work proposals and technical guidance on appropriate investigative approaches and monitoring schedules. All reports and proposals must be submitted under a seal of a California –Registered Geologist, -Certified Engineering Geologist, or – Registered Civil Engineer.

The PSA workplan is due within 60 days of the receipt of this letter. Once the proposal is approved, field work should commence within 60 days. A report must be submitted within 45 days after the completion of this phase of work at the site. Subsequent reports are to be submitted quarterly until this site qualifies for final RWQCB "sign-off". Such quarterly reports are due the first day of the second month of each subsequent quarter.

The referenced initial and quarterly reports must describe the status of the investigation and must include, among others, the following elements:

- Details and results of all work performed during the designated period of time: records of field observations and data, boring and well construction logs, water level data, chain-of-custody forms, laboratory results for all samples collected and analyzed, tabulations of free product thicknesses and dissolved fractions, etc.;
- Status of groundwater contamination characterization;
- Interpretations of results: water level contour maps showing gradients, free and dissolved product plume definition maps for each target component, geologic cross sections, etc.;
- Recommendations or plans for additional investigative work or remediation; and
- An Interpretation and Conclusions section

As part of the required groundwater investigations, a well survey shall be conducted within 0.5 miles of the site to locate any wells that may be impacted by the site or influencing the groundwater flow directions at the site. According to ENGEO Inc.'s January 27, 1993 Phase One Assessment report, a former groundwater production well may be located on the site.

Additionally, research must be conducted to determine whether the storm drain utility line trench running along the property could influence the flow direction of the contaminant plume. Information must also be submitted to this office regarding whether the temporary wells installed by ERM were ever destroyed properly under permit. If not, these wells must be properly closed to prevent contaminated surface water from infiltrating into the groundwater.

In addition to the above required groundwater investigations, a human-health risk assessment shall be conducted for the shallow lead-contaminated soil at the site. The potential threat of these lead concentrations will depend on the planned future uses of the site. For example, the California Environmental Protection Agency's Preliminary Remediation Goals for lead in soil at a residential site is 130ppm. Based on the results of additional soil and groundwater investigations at the site, a risk assessment addressing some of the other contaminants, such as benzene, may eventually be required as well.

Lastly, please submit the original laboratory analytical results with the QA/QC information and chemist's signature to accompany the sample results listed in Table 1 of the December 4, 1996 IT Report.

RO#250

The PSA workplan, along with your responses to the above requests for information, shall be submitted to this office within 60 days of the date of this letter, i.e., by January 11, 1998.

If you have any questions or comments, please contact me at (510) 567-6763.

Sincerely,

Juliet Shin
Hazardous Materials Specialist

Cc: Kristen L Schober, Cal Trans, District 4
Office of Right-Of-Way, P.O. Box 23660, Oakland, CA 94623-0660