

ALAMEDA COUNTY  
HEALTH CARE SERVICES

AGENCY  
DAVID J. KEARS, Agency Director



R0767

ENVIRONMENTAL HEALTH SERVICES

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

StID 5538

July 15, 1999

Diane Heinz  
Port of Oakland  
530 Water Street, 2<sup>nd</sup> Floor  
Oakland, CA 94607

**RE: Well Decommission at 1755 Embarcadero, Oakland, CA 94606**

Dear Ms. Heinz:

This office and the San Francisco Bay-Regional Water Quality Control Board have reviewed the case closure summary for the above referenced site and concur that no further action related to the release from the three former petroleum underground storage tanks is required at this time. Before a remedial action completion letter is sent, the two on-site monitoring wells (MW-1 and MW-2) should be decommissioned if they will no longer be monitored. Please notify this office upon completion of well destruction so a closure letter can be issued.

Well destruction permits may be obtained from Alameda County Public Works. They can be reached at (510) 670-5575.

Well destruction permits may be obtained from Alameda County Flood Control and Water Conservation, Zone 7. They can be reached at (510) 484-2600.

If you have any questions, I can be reached at (510) 567-6763.

Sincerely,

Juliet Shin, R.G.  
Hazardous Materials Specialist

ALAMEDA COUNTY  
HEALTH CARE SERVICES



AGENCY  
DAVID J. KEARS, Agency Director

R0767

Diane Heinz  
Port of Oakland  
530 Water Street  
Jack London Square  
P.O. Box 2064  
Oakland, CA 94604-2064

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

STID: 5538

INTENT TO MAKE A DETERMINATION THAT NO FURTHER ACTION IS  
REQUIRED OR ISSUE A CLOSURE LETTER FOR *the Port of Oakland site located  
at 1755 Embarcadero (Executive Inn), Oakland, CA*

Dear Ms. Heinz:

This letter is to inform you that Alameda County Environmental Health Department, Local Oversight Program (LOP), intends to make a determination that no further action is required at the above site or to issue a closure letter. Please notify this agency of any input and recommendations you may have on these proposed actions within 20 days of the date of this letter.

In accordance with section 25297.15 of Ch. 6.7 of the Health & Safety Code, you must provide certification to the local agency that all of the current record fee title owners have been informed of the proposed action. Please provide this certification to this office within 20 days of the date of this letter. You may use the enclosed "Certified List of Record Fee Title Owners" form and the "Notice of Proposed Action" form as templates to comply with this requirement.

If you have any questions about these proposed actions, please contact Juliet Shin at (510) 567-6763.

Sincerely,

Juliet Shin  
Hazardous Materials Specialist

ATTACHMENTS

cc: Chuck Headlee, RWQCB  
Files-JMS

ALAMEDA COUNTY  
HEALTH CARE SERVICES

AGENCY

DAVID J. KEARS, Agency Director



RO#767

October 16, 1996

Diane Heinze  
Port of Oakland  
530 Water Street  
2nd Floor  
Oakland, CA 94607

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

STID 5538

Re: Investigations at 1755 Embarcadero, Oakland, California

Dear Ms. Heinze,

This office has reviewed Geomatrix Consultants' Monitoring Well Installation and Sampling Report for the above site. The following is a list of comments and requests in response to our review of the report:

- o In addition to the analysis for TPHd and TPHmo, analysis for BTEX should also be conducted for groundwater samples collected from Well MW-1 for the remaining three quarterly monitoring events. Moderate levels of benzene were identified from "grab" groundwater samples collected from TW-1 and TW-2 in August 1995, and analysis for BTEX should continue to account for seasonal fluctuations. Additionally, the next groundwater sample collected from MW-1 should be analyzed for Pb and Cr. Elevated levels of Pb and Cr were also identified from "grab" groundwater samples collected from TW-1 and TW-2 in August 1995, and levels of Pb and Cr were also identified in soil concentrations from this location exceeding ten times the STLC. Additionally, the recently collected groundwater sample from MW-1, which was filtered through a 0.45 micron filter, identified dissolved levels of Pb which exceed the California Enclosed Bays & Estuaries Plan's 4-day average for Saltwater Aquatic Life Protection. Due to the site's close proximity to the Bay, these threshold values seem applicable for the observed **dissolved** concentrations. If dissolved concentrations of either of these metals exceeds any threshold values of concern in the next sampling event, analysis for these constituents should continue for the remaining groundwater sampling events.
- o Future groundwater samples collected from Well MW-2 should be analyzed for TPHg and BTEX, in addition to TPHd and TPHmo, to account for any seasonal fluctuations in concentrations due to fluctuating water tables, etc.. TPHg and benzene were identified in the soil sample collected from TW-3 in August 1995 and elevated levels of TPHg and benzene were identified in the "grab"

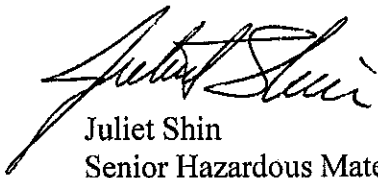
Diane Heinz  
Re: 1755 Embarcadero  
October 16, 1996  
Page 2 of 2

groundwater sample collected from TW-3. Additionally, the next groundwater sample collected from Well MW-2 should be analyzed for dissolved Cu. The last sampling event identified dissolved concentrations of Cu from Well MW-2 which exceed the 1-hr average threshold value for Saltwater Aquatic Life Protection. If the dissolved concentrations of Cu continue to exceed threshold values, analysis for Cu should continue for the remaining sampling events.

- o The depth-to-water was not noted on the boring logs for MW-1 and MW-2. This office is requesting that future groundwater monitoring reports include copies of field notes listing depth-to-water, pH, temperature, conductivity, etc.
- o It was noted that some RPDs for diesel, chromium, copper, and mercury analysis exceeded acceptance limits for the lab. Greater attempts should be made to avoid these errors in future analyses.
- o Page 4 of the lab analysis results, which is located immediately after the analysis results for the unfiltered water sample for MW-2, lists a Well MW-3. This office is not aware of any Well MW-3. Could you please check this analysis and clarify.

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

Sincerely,



Juliet Shin  
Senior Hazardous Materials Specialist

cc: Sally Goodin  
Geomatrix Consultants, Inc.  
4721 Tidewater Avenue, Ste C  
Oakland, CA 94614

Acting Chief

ALAMEDA COUNTY  
HEALTH CARE SERVICES



AGENCY

DAVID J. KEARS, Agency Director

20767

Alameda County CC4580  
Environmental Health Services  
1131 Harbor Bay Pkwy., #250  
Alameda CA 94502-6577  
(510)567-6700 FAX(510)337-9335

July 25, 1996

Ms. Diane Heinze  
Port of Oakland  
530 Water Street  
2nd Floor  
Oakland, CA 94607

STID 5538

Re: Work plan for site at 1755 Embarcadero, Oakland, CA

Dear Ms. Heinze,

This office has reviewed your work plan, dated July 24, 1996, addressing the installation of two monitoring wells and the collection of soil and water samples. This work plan is acceptable to this office with the following requirements/requests:

- o Per my conversations with the Regional Water Quality Control Board (RWQCB), you will be required to conduct both Total metals analyses and filtered metals analyses on the water samples for comparison purposes.
- o Per the County's groundwater sampling policies, you are required to wait a minimum of 24 hours after developing the wells before purging and sampling them. The water levels in the wells shall be collected immediately prior to purging/sampling the wells, and not immediately after well development.
- o Your work plan states that "the groundwater samples...[will be] transferred into the appropriate sample containers.....and stored in an ice-cooled chest," however, you did not provide any standard operating procedures that detailed the types of containers and the required temperatures of the samples collected. Per the HML User's Manual, dated October 31, 1995, the samples collected for diesel and motor oil analyses should be placed in glass containers with Teflon-lined closures. The samples collected for the gasoline and BTEX analyses should be placed in glass VOA vials or bottles with Teflon septums. All of the above samples should be stored at a temperature of 4 degrees Celsius. Samples collected for metals analyses should be collected in polyethylene containers with polypropylene closures or glass containers with Teflon-lined closures.

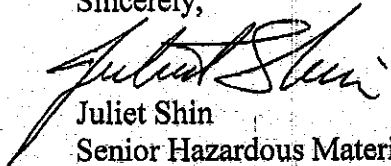
Ms. Diane Heinze  
Re: 1755 Embarcadero  
July 25, 1996  
Page 2 of 2

- o Please be reminded to collect the shallow soil samples from above 3-feet below ground surface.
- o Per RWQCB guidelines, this office is requesting that you survey the monitoring wells to Mean Sea Level.
- o This office is missing most of the investigation reports for the site that were listed in the Appendix to the work plan. Please submit copies of all the listed reports, except for the April 1989 and October 1995 reports. This office has one report that was not mentioned in your list, which is the November 4, 1991 report describing the disposition of excavated soil. If you need a copy of this report, please let me know.

Field work should commence within 45 days of the date of this letter. It is the understanding of this office that a final report describing the well installation, sampling results, and the results of the Port's literature search to assess potential threats from surficial soil exposures will be submitted within ten weeks of the date of this letter (i.e., by October 3, 1996).

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

Sincerely,



Juliet Shin  
Senior Hazardous Materials Specialist

cc: Acting Chief-File

ALAMEDA COUNTY  
HEALTH CARE SERVICES



AGENCY

DAVID J. KEARS, Agency Director

Ro# 767

Alameda County CC4580  
Environmental Health Services  
1131 Harbor Bay Pkwy., #250  
Alameda CA 94502-6577  
(510)567-6700 FAX(510)337-9335

May 31, 1996

Mr. Dan Schoenholz  
Port of Oakland  
530 Water Street  
Oakland, CA 94604-2064

STID 5538

Re: Investigations at 1755 Embarcadero, Oakland, California 94606

Dear Mr. Schoenholz,

On August 24, 1995, two temporary wells, TW-1 and TW-2, were installed at the site in the assumed downgradient direction from a former 10,000-gallon underground storage tank (UST). Additionally, two temporary wells, TW-3 and TW-4, were installed in the assumed downgradient direction from the former 10,000-gallon diesel and 2,000-gallon gasoline USTs. Groundwater samples were collected from all four temporary monitoring points and analyzed for Total Petroleum Hydrocarbons as diesel (TPHd), Total Petroleum Hydrocarbons as gasoline (TPHg), Motor Oil (MO), benzene, toluene, ethylbenzene, and total xylenes (BTEX), heavy metals (Ca, Cr, Pb, Zn, Ni), halogenated volatile organics, and semi-volatile organics. Analyses of these samples identified elevated levels of petroleum hydrocarbons and heavy metals that greatly exceed the Water Quality Objectives established by the Regional Water Quality Control Board (RWQCB) in its Basin Plan and from bioassay studies conducted recently on other Bay-fringe sites.

Based on my conversations with the RWQCB and the fact that groundwater contaminant concentrations exceeded the RWQCB's threshold values for the Bay, this office is requiring that a minimum of four permanent monitoring wells be installed at the site to better determine whether these contaminants are impacting the aquatic organisms in the Bay. Groundwater samples should be collected on a quarterly basis from these wells and analyzed for TPHd, TPHg, MO, BTEX, and heavy metals. Quarterly reports documenting the sampling work and results shall be submitted to this office.

If contaminant levels continue to exceed the RWQCB's Water Quality Objectives for the first two quarterly groundwater monitoring events, additional work will be required. This additional work will include, but not be limited to: 1) pore/water tests, to try and determine exactly what portion of the observed contaminant concentrations, both dissolved and solid, may actually be migrating into the Bay; 2) studies to establish the degree of hydraulic connection between the

Mr. Dan Schoenholz  
Re: 1755 Embarcadero  
May 31, 1996  
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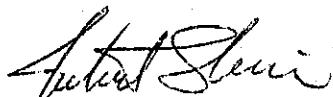
groundwater at the site and the Bay; 3) the collection of sediments from the Bay immediately off the shoreline, and comparison of these concentrations with established ambient concentrations; and 4) bioassay tests.

A work plan addressing the installation and sampling of the four monitoring wells should be submitted to this office **within 60 days of the date of this letter (i.e., by July 26, 1996).**

Lastly, it is the understanding of this office that the entire site is paved. If there are unpaved areas of the site that are potentially accessible to human contact, this office is requesting that surficial soil samples (i.e., samples collected from 0- to 3-feet below ground surface) be collected from these areas and analyzed for the contaminants of concern. This is to assure that site soils do not pose any human health threat.

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

Sincerely,



Juliet Shin  
Senior Hazardous Materials Specialist

cc: Acting Chief-file



ALAMEDA COUNTY  
HEALTH CARE SERVICES  
AGENCY

DAVID J. KEARS, Agency Director



R0767

RAFAT A. SHAHID, DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH  
State Water Resources Control Board  
Division of Clean Water Programs  
UST Local Oversight Program  
1131 Harbor Bay Parkway  
Alameda, CA 94502-6577  
(510) 567-6700

July 25, 1995

Dan Schoenholz  
Port of Oakland  
530 Water St.  
Oakland, CA 94604-2064

StId 5538

Subject: Investigations at 1755 Embarcadero, Oakland, CA 94606

Dear Mr. Schoenholz:

This office has reviewed Alisto Engineering Group's work plan, dated July 11, 1995 for a groundwater investigation at the subject site. This work plan is acceptable to this office provided that the following item is included:

- o Groundwater samples in the vicinity of the former 10,000-gallon underground storage tank (UST) of unclassified use must be analyzed for constituents listed under Table 2 of the Tri-Regional Board Recommendations for analyses for USTs of unknown use. These analyses include TPHg, TPHd, TOG, and BTEX as specified in the work plan and chlorinated hydrocarbons (method 601 or 624), ICAP or AA to detect metals (Cd, Cr, Pb, Zn, Ni), and semi-volatiles (method 8270).

Implementation of this work plan should begin within 30 days from the date of this letter. A report documenting the results of this investigation is due to this office within 45 days of implementing the work plan.

Please notify this office at least 72 hours before field work begins. If you have questions or comments, please call me at (510) 567-6755

Sincerely,

Amy Leech  
Hazardous Materials Specialist

c: Brady Nagle  
Alisto Engineering Group  
1575 Treat Blvd., Suite 201  
Walnut Creek CA 94595

Acting Chief of Environmental Protection - Files (ALL)

ALAMEDA COUNTY  
HEALTH CARE SERVICES  
AGENCY

DAVID J. KEARS, Agency Director



R0767

RAFAT A. SHAHID, DIRECTOR

June 2, 1995

Dan Schoenholz  
Port of Oakland  
530 Water St.  
Oakland, CA 94604-2064

DEPARTMENT OF ENVIRONMENTAL HEALTH  
State Water Resources Control Board  
Division of Clean Water Programs  
UST Local Oversight Program  
1131 Harbor Bay Parkway  
Alameda, CA 94502-6577  
(510) 567-6700

StId 5538

Subject: Required investigations at 1755 Embarcadero, Oakland,  
CA 94606

Dear Mr. Schoenholz:

This letter confirms our telephone conversation on June 2, 1995, and also, confirms that this office has received and reviewed your letter to us dated April 26, 1995. In the April 26th letter, the Port of Oakland requested that this office reconsider their requirement to complete groundwater investigation in regard to the removal of three underground storage tanks (USTs) at the subject site for the following reasons:

- o Due to the proximity of the tanks to the estuary, any samples collected would be effectively testing Bay water as opposed to groundwater.
- o Records indicate that all soil contaminated with TPH and BTEX have been removed; therefore, there is no continuing source of contamination.
- o A "similar" site located at 1363 Embarcadero required no further work after a 2,000 gallon gasoline tank was removed.

As we discussed, the contaminant concentrations found at the 1363 Embarcadero site are not comparable to 1755 Embarcadero. Furthermore, it is my understanding that the tank at 1363 Embarcadero was located approximately five feet from the estuary. This office agrees that the extent of contamination to soil at the subject site appears to have been defined. However, the extent and severity of groundwater contamination still must be defined at 1755 Embarcadero.

We agreed that it would be helpful to determine where the three USTs were located at the site in relation to the estuary. A "grab" groundwater investigation at this site could be proposed that includes collecting sample(s) from the estuary prior to considering the need for permanent monitoring wells. This information may assist in determining whether the estuary is hydraulically connected to this site.

Schoenholz  
1755 Embarcadero  
June 2, 1995  
Page 2 of 2

Please find enclosed a site map that was attached to the July 1990 Tank Closure Plan for the 10,000 gallon UST of unclassified use (file notes indicate that this UST was assumed to be used for fuel oil). It appears this tank was located approximately 100 or more feet from the estuary.

Please submit a workplan to this office within the next 30 days which includes the locations of the former USTs and a proposal to complete preliminary groundwater investigation at the site.

If you have questions of need additional information, please call me at (510)567-6755.

Sincerely,



Amy Leech  
Hazardous Materials Specialist

c: Acting Chief of Environmental Protection - Files(ALL)

enclosure

ALAMEDA COUNTY  
HEALTH CARE SERVICES  
AGENCY

DAVID J. KEARS, Agency Director



RO767

RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

March 16, 1995

DEPARTMENT OF ENVIRONMENTAL HEALTH  
State Water Resources Control Board  
Division of Clean Water Programs  
UST Local Oversight Program

Neil Werner  
Port of Oakland  
530 Water St.  
Oakland, CA 94604-2064

ALAMEDA COUNTY-ENV. HEALTH DEPT.  
ENVIRONMENTAL PROTECTION DIV.  
1131 HARBOR BAY PKWY., #250  
ALAMEDA CA 94502-6577  
(510)567-6700

StId 5538

Subject: Required investigations at 1755 Embarcadero, Oakland,  
CA 94606

Dear Mr. Werner:

In January 1989, two (2) underground storage tanks (USTs) were removed from the subject site: one 2,000-gallon gasoline tank and one 10,000-gallon diesel tank. In July 1990, a 10,000-gallon UST of unclassified use was removed from the site. Elevated levels of Total Petroleum Hydrocarbons as diesel and gasoline (TPHd & TPHg), Kerosene, and Total Oil and Grease (TOG) were detected in the soil collected from the excavation locations. TPHd, TPHg, and TOG were identified as high as 3,600, 500, and 30,000 parts per billion (ppb), respectively, in the "grab" groundwater samples collected from the tank pits.

Overexcavation of soil was conducted in the locations of the former gasoline and fuel oil tanks. The removal of soil during the overexcavation appears to have addressed the extent of soil contamination. However, our records show that a groundwater investigation was never pursued to delineate the extent of groundwater contamination, if any, due to the use of the former USTs.

Guidelines established by the California Regional Water Quality Control Board (RWQCB) require that soil and ground water investigations be conducted when there is evidence to indicate that a release from an UST will impact or may have impacted the ground water.

You are required to conduct a **Preliminary Site Assessment (PSA)** to determine the lateral and vertical extent and severity of **both soil and ground water** contamination resulting 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 PSA must be conducted in accordance with the RWQCB's Staff Recommendations for the Initial Evaluation and Investigation of Underground Tanks, and be consistent with requirements set forth in Article 11 of Title 23, California Code of Regulations. The major elements of such an investigation are summarized in the attached **Appendix A**. The major elements of the guidelines include, but are not limited to, the following:

Werner  
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March 16, 1995  
Page 2 of 3

- o At least one permanent ground water monitoring well must be installed within 10 feet of the observed soil contamination, oriented in the confirmed downgradient direction relative to groundwater flow. In the absence of neighboring monitoring wells located within 100 feet of the site, or any other data identifying the confirmed downgradient direction, a minimum of three wells will be required to verify gradient direction. During the installation of these wells, soil samples are to be collected at five-foot-depth intervals and any significant changes in lithology.
- o Subsequent to the installation of the monitoring wells, these wells must be **surveyed to an established benchmark**, (i.e., Mean Sea Level) with an accuracy of 0.01 foot. Ground water samples are to be collected and analyzed quarterly, and water level measurements are to be collected monthly for the first three months, and then quarterly thereafter. If the initial ground water elevation contours indicate that ground water flow directions vary greatly then you will be required to continue monthly water level measurements until the ground water gradient behavior is known. **Both soil and ground water samples must be analyzed for TPHg, TPHd, BTEX, and TOG and other constituents listed under Waste and Used Oil or Unknown in Table 2 of the Tri-regional Board Staff Recommendations .**

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. The issuance of well drilling permits, however, will be through the Alameda County Flood Control and Water Conservation District, Zone 7, in Pleasanton. The RWQCB may choose to take over as lead agency if it is determined, following the completion of the initial assessment, that there has been a substantial impact to ground water.

In order to properly conduct a site investigation, you are required to obtain professional services of a reputable environmental consultant. **All reports and proposals must be submitted under seal of a California-Registered Geologist, -Certified Engineering Geologist, or -Registered Civil Engineer.**

**The PSA proposal is due within 60 days of the date 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.

Werner  
StId 5538  
March 16, 1995  
Page 3 of 3

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:

- o 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.
- o Status of ground water contamination characterization.
- o Interpretations of results: water level contour maps showing gradients, free and dissolved product plume definition maps for each target component, geologic cross sections, etc.
- o Recommendations or plans for additional investigative work or remediation.

Please be advised that this is a formal request for a work plan pursuant to **Section 2722 (c) (d) of Title 23 California Code of Regulations**. Any extensions of the stated deadlines, or modifications of the required tasks, must be confirmed in writing by either this agency or RWQCB.

If you need additional information or have questions, please call me at (510)567-6755.

Sincerely,



Amy Leech  
Hazardous Materials Specialist

**ATTACHMENT**

cc: Gordon Coleman - Files(ALL)

ALAMEDA COUNTY  
HEALTH CARE SERVICES

AGENCY  
DAVID J. KEARS, Director



Department of Environmental Health  
Hazardous Materials Program  
80 Swan Way, Rm. 200  
Oakland, CA 94621

R0767

Telephone Number: (415) 271-4320

February 8, 1989

Port of Oakland  
66 Jack London Square, Suite L  
Oakland, CA 94621  
Attn: Michele Heffes

RE: Underground tank closure, Port of Oakland, 1755 Embarcadero  
East, Oakland, CA

Dear Ms Heffes:

We have received the report of analytical results from the soil and ground water sampling that was performed at your facility, Port of Oakland, 1755 Embarcadero East, Oakland, CA, during the removal of the tanks; 1-10,000 gallon diesel, and 1-2000 gallon gasoline, on January 18, 1989. The samples were analyzed for total petroleum hydrocarbons as gasoline or diesel, (TPH-G, TPH-D), and Benzene, Toluene, Xylenes, and Ethylbenzene (BTXE), and were found to contain up to 990 parts per million (ppm) TPH-D, 30 ppm TPH-G, and 0.47, 0.63, and 0.38 BEX in the soil samples, and 550 ppm TPH-D in the ground water sample taken in the diesel tank pit.

Our office will be the lead agency overseeing the remediation of this site. We will be working with the Regional Water Quality Control Board (RWQCB) to ensure that their remediation requirements are met. We require that you submit a work plan which, at a minimum, addresses the items listed below. All work must be performed according to the Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks, 2 June 1988.

You will need to immediately submit an Unauthorized Release Form, one of which is enclosed, both to our office and to the RWQCB.

A. You will need to obtain professional services from a reputable engineering/consulting firm.

The responsibility of your consultant will be to establish the extent of contamination and provide professional judgment/recommendations, based on scientific data, of the necessary remedial actions needed. A plan and time schedule for investigation should be submitted to this agency within thirty (30) days.

The following is a summary of the steps your consultant should take to evaluate the problem.

Port of Oakland  
February 8, 1989  
Page 2 of 3

#### Preliminary Assessment

1. Determination of the extent and magnitude of soil contamination.

- results of initial work done
- proposal for the delineation of the site's contamination
- site history

#### Site Investigation

2. Definition of the horizontal and vertical extent of the ground water plume/contamination, both on- and off-site.

- site geology and hydrogeology
- definition of lateral and vertical extent of contamination including soil and groundwater
- ground water monitoring wells are required to define the horizontal and vertical extent of groundwater contamination.
- construction of monitoring and extraction wells should be consistent with Guideline of the RWQCB.
- monitoring wells should be sampled for free product, dissolved constituents and water levels. In no case should the monitoring be less frequent than quarterly.
- definition of groundwater contamination should be presented in plume maps of each constituent.

3. Interpretation of Hydrogeologic Data

- water levels should be monitored on all wells quarterly. Water level records, contour maps and gradient determinations should be submitted with other sampling results.
- the geologic characteristics of the aquifer must be adequately described.

4. Determination of the Potential Short- and Long-Term Impacts of the Pollution Plume on the Beneficial Uses of Ground and Surface Water.

- beneficial uses include municipal water supply, ground water recharge, fresh water habitat, wildlife habitat, contact and noncontact recreation, and fish migration.



Port of Oakland  
February 8, 1989  
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Remediation Action

5. Development of Final Remediation Plan

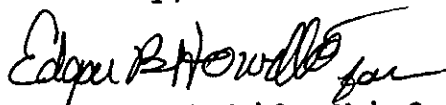
In addition to the above investigative work, a remediation plan for the site should be developed. The plan must include a time schedule and address the following items:

- plans for the removal of soil contaminants and recovery of fuel product and removal of dissolved constituents from the groundwater, if necessary.
- all free product must be removed by an appropriate remediation system.
- evaluation of mitigation alternatives
- the design of remedial action systems should be based on appropriate review of hydrogeologic and water quality data.
- the overall effectiveness of the remedial program should be verified by an appropriate monitoring program.

B. Submit \$300.00 deposit for additional Health Agency costs. The information requested must be submitted to this office within thirty (30) days, on or before March 10, 1989.

Should you have any questions concerning this matter, please contact Ms. Mary Jo Meyers-Barnes, Hazardous Materials Specialist at 271-4320.

Sincerely,



Rafat A. Shahid, Chief  
Hazardous Materials Division

RAS:MJM-B

Enclosure

cc: John B. Norton, Johnathan Western Development Co.  
Eddy Tabit, Accutite Tank Testing  
Gil Jensen, District Attorney, Alameda County Consumer and  
Environmental Protection  
Lisa McCann, RWQCB  
Howard Hatayama, DOHS  
Mary Jo Meyers-Barnes, HazMat  
Files