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**Consultants**

Engineering & sciences applied to the earth & its environment

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94 FEB 14 PM 1:55

February 9, 1994

STIP 3928

Ms. Susan Hugo  
Senior Hazardous Materials Specialist  
Alameda County Health Care Services Agency  
Department of Environmental Health  
80 Swan Way, Room 200  
Oakland, CA 94621

**Subject: Continental Baking Company, 1010 46th Street, Oakland, CA 94609  
Preliminary Site Assessment Workplan**

Dear Ms. Hugo:

In response to your letter to Mr. Fred Dannecker, Continental Baking Company (CBC), dated December 16, 1993, and to my subsequent conversations with you, the attached Preliminary Site Assessment Workplan for CBC's Oakland facility is being submitted for your review and approval.

Woodward-Clyde Consultants is providing environmental engineering consulting services to CBC and is submitting this Workplan on their behalf. If you have any questions, please feel free to phone me at (510) 874-3138.

I am looking forward to continuing to work with you and other Alameda County personnel on this project.

Sincerely,



Jo Beth Folger  
Project Manager

cc: Fred Dannecker, CBC-SF  
Charles Gjersvik, CBC-SL  
Jim Hummert, WCC-SL  
Rich Hiett, RWQCB-Oakland



ALCO  
HAZMAT

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**PRELIMINARY SITE  
ASSESSMENT WORK PLAN  
CONTINENTAL BAKING  
COMPANY FACILITY  
1010 46TH STREET  
OAKLAND, CALIFORNIA 94609**

Prepared for

**Continental Baking Company  
1525 Bryant Street  
San Francisco, California 94103**

February 10, 1994

**Woodward-Clyde  
Consultants**



500 12th Street, Suite 100  
Oakland, California 94607-4014

February 9, 1994

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Senior Hazardous Materials Specialist  
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CERTIFICATION

PRELIMINARY SITE ASSESSMENT WORK PLAN  
CONTINENTAL BAKING COMPANY FACILITY  
1010 46TH STREET  
OAKLAND, CALIFORNIA 94609

FEBRUARY 10, 1994  
92CB040-0012

This work plan has been prepared by the staff of Woodward-Clyde Consultants and has been reviewed and approved by the professionals whose signatures appear below.

The findings, recommendations, specifications, or professional opinions are presented within the limits prescribed by the client, and prepared in accordance with generally accepted engineering practice in Northern California at the time this work plan was prepared. No other warranty is either expressed or implied.

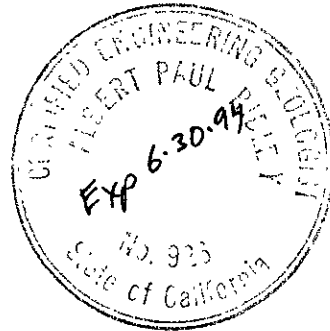
WOODWARD-CLYDE CONSULTANTS



Jo Beth Folger  
Project Manager



Albert P. Ridley, C.E.G.  
Associate Geologist



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**1.1 SCOPE OF WORK**

This work plan has been prepared in accordance with the Tri-Regional Recommendations and Regional Water Quality Control Board guidelines. This plan addresses the procedures involved with the proposed Preliminary Investigation and Evaluation of the Continental Baking Company facility at 1010 46th Street in Oakland, California. This work is proposed in order to investigate the extent and magnitude of the presence of petroleum hydrocarbons in the subsurface soil and groundwater at the site. Specific activities include the collection of soil samples during the drilling and construction of three proposed groundwater monitoring wells at the site, initial monitoring well groundwater sample collection, sample analysis, and waste disposal. The investigation will be centered on the vicinity of three former underground storage tanks.

**1.2 SITE CONTACTS**

The site is owned by Continental Baking Company (CBC) which has its headquarters in Saint Louis, Missouri. There is a local CBC office and site contact in San Francisco, California. Table 1 presents the name and address of the local CBC site contact and lists other important entities involved with the site investigation. Table 1 includes the regulatory agencies who will receive courtesy copies of reports and correspondence regarding this site investigation.

**1.3 SITE DESCRIPTION****1.3.1 Site Location and Local Land Use**

The site is located in the San Francisco Bay area in the City of Oakland in Alameda County, California (Figure 1). The subject CBC facility is located at 1010 46th Street near the Oakland/Emeryville city limits. The site is situated along Adeline Street, at the northwest border of Oakland and occupies the area between 46th and 53rd streets. The local land use is mixed, with light industrial and commercial use along Adeline Street, a main thoroughfare.

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Residential buildings are located along the intersecting streets. There is an elementary school with a fenced playground located across 53rd Street (Figure 2).

## 1.3.2 Site Vicinity

A review of public records has revealed a number of cases of leaking underground fuel tanks in the vicinity of the site. Appendix A is a report by Vista Environmental Information, Inc. showing sites within a one mile radius of the site which are listed in various government records.

## 1.4 SITE BACKGROUND

The site is divided into two separately fenced areas. One area which includes the main building with the site address, at the corner of 46th Street and Adeline Street, is leased by the San Francisco Herb and Natural Food Company (tea company). Prior to leasing the former bakery portion of the site to the tea company, CBC used the building as a bakery. The removed 10,000-gallon single-walled steel underground storage tank (UST), which was used to store standby diesel fuel for the former bakery/current tea company building, was located beneath the parking lot located to the east (Figure 3). The age of the tank at the time of removal is unknown. This UST was already present when the site was acquired by CBC in 1969.

The other portion of the site, located at the intersection of 53rd Street and Adeline Street is a bakery thrift store and distribution center, with a maintenance garage. The maintenance garage is adjacent to the former thrift store. In late 1992, the thrift store was moved to a detached building not shown in Figure 4. There were formerly three USTs and two fuel dispensers located in a cluster behind the garage/former thrift shop building. These USTs consisted of one 200-gallon single-walled steel used oil, one 8,000-gallon single-walled steel diesel, and one 10,000-gallon single-walled fiber-reinforced plastic (fiberglass) gasoline tank.

The 10,000-gallon fiberglass gasoline UST was installed in 1985. The other tanks at the site were already present when the site was acquired by CBC in 1969. The ages of these tanks at the time of removal are unknown.

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The results of tank tests regularly performed prior to the UST removals did not suggest any problems with the integrity of the tanks. There are currently no existing wells at the site. Appendix B contains the inventory reconciliation records for the diesel, gasoline and waste oil tanks.

### 1.5 PREVIOUS WORK AND INVESTIGATIONS

On December 22, 1992, the four underground storage tanks (USTs) were excavated and removed from the site.

One UST was a 10,000-gallon single-walled steel standby fuel storage tank formerly located beneath the parking lot behind the former bakery building. No holes were found in the UST during the above-ground inspection. No odors or evidence of soil staining were observed at this excavation. Two closure samples were collected from the sidewalls of this excavation and they were analyzed for petroleum hydrocarbon constituents. The samples did not contain detectable concentrations of petroleum hydrocarbons.

The remaining three USTs were formerly located in a cluster near the facility garage. As a result, the three USTs were removed from the same excavation. The inspection of the 10,000-gallon fiberglass gasoline UST, conducted immediately following removal from the excavation, revealed no apparent holes. The two closure samples collected from the excavation sidewalls at the ends of the gasoline UST did not contain detectable concentrations of petroleum hydrocarbons. No holes were observed during the inspection conducted immediately following removal of the 8,000-gallon steel diesel UST from the excavation. However, an odor of gasoline and/or diesel was noticed and the analytical results for one of the two soil samples collected from the excavation sidewalls contained low volatility (kerosene and oil range) total petroleum hydrocarbons at 58 and 120 mg/kg. Although benzene was not detected, the other aromatic hydrocarbon constituents of toluene, ethyl benzene, and xylenes were detected above their respective analytical reporting limits.

The single soil sample collected from beneath the used oil UST contained a low but detectable concentration (34 mg/kg) of oil and grease.

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A sample of the soil beneath the former location of the two fuel dispensers was also collected and analyzed. The analytical laboratory detected 790 mg/kg of petroleum hydrocarbons in the range of diesel constituents in that soil sample.

Because some water had accumulated in the excavation during the removal, a grab water sample was collected. Analysis of this water sample found 2.9 mg/L of total petroleum hydrocarbons in the range of gasoline constituents but did not detect the heavier constituents normally associated with diesel. The water sample contained 0.54 mg/L benzene, 0.43 mg/L toluene, 0.02 mg/L ethyl benzene, and 0.22 mg/L xylenes. These concentrations may not necessarily be representative of groundwater conditions beneath the site because the water accumulated in the excavation was in contact with the sloughed soil from the sidewalls. Table 2 is a summary of the analytical results of the closure sampling.

Sixteen stockpile samples were collected from the removed soil and composited into four samples by the laboratory. These samples were analyzed for petroleum hydrocarbons, reactivity, corrosivity and ignitability, volatile organics, semivolatile organics and various metals to conform with the hazardous waste disposal characterization.

The analytical results of the composite samples indicate that petroleum hydrocarbons as high as 56 mg/kg were encountered. The tests indicated the soil was not corrosive, reactive or ignitable. The stockpiled soil totalling approximately 108 cubic yards was subsequently disposed at Forward, Inc. Landfill (Appendix C). Table 3 is a summary of the stockpiled soil analyses for disposal.

### 1.6 REGULATORY REQUIREMENTS

This Site Investigation Workplan falls under the jurisdiction of Chapter 6.7, Division 20 of the Health and Safety Code and the California Underground Storage Tank Regulations (Subchapter 16 of Title 23 of the California Code of Regulations). These regulations prescribe the activities required to investigate and mitigate soil and groundwater affected by the contents of USTs and its appurtenances. Guidance for conducting UST investigations in Oakland is provided by the Regional Water Quality Control Board's (RWQCB) Tri-Regional Recommendations dated 10 August 1990, and Appendix A of these recommendations, dated 30 August 1991. Where these documents do not provide guidance, this investigation will

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proceed in accordance with the current Leaking Underground Fuel Tank (LUFT) guidelines prepared by the State Water Resources Control Board (SWRCB), dated October 1989.

The Appendix A of the Tri-Regional Board Recommendations contains an outline of the reporting requirements. In addition to this Site Characterization Workplan, the reporting requirements include:

1. The Preliminary Investigation and Evaluation Report (PIER), which presents whether the findings of the initial investigation indicate that only soil has been affected by the UST contents or if groundwater must also be investigated. Interim investigations are sometimes conducted in addition to the initial investigation until the lateral and vertical extent of affected soil and groundwater has been defined, prior to preparation of the next report.
2. A Soil Remediation Plan (SRP), which is prepared and implemented if soil only is found to be impacted during the initial investigation which provides the basis of the PIER.
3. The Problem Assessment Report (PAR) is prepared if groundwater is also found to be impacted. The PAR describes the lateral and vertical extent of a problem, and proposes mitigative or remedial actions to cleanup a site.
4. The Final Remediation Plan (FRP) contains proposals to the regulatory agencies of activities to remediate the problem(s) identified in the PAR, based upon negotiations between the Regulatory Agencies and the tank owner and their consultants.
5. Quarterly Status Reports (QSRs) will be submitted following the submission of the first investigation report. QSRs will continue to be submitted concurrent with the activities involved with the previously discussed reports until investigation and cleanup of the site is deemed adequate by the RWQCB.

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## 1.7 TECHNICAL APPROACH

### 1.7.1 Proposed Locations of Monitoring Wells

The objective of the site investigation is to provide adequate data to evaluate and delineate petroleum hydrocarbons in the soil and groundwater. The site investigation is designed to provide additional information on the horizontal and vertical extent of petroleum hydrocarbons in the soil and groundwater at the former UST cluster site. The purpose of the initial site investigation phase proposed in this work plan is to evaluate whether, or to what extent, the soil and shallow groundwater beneath this site has been affected by petroleum hydrocarbons. The initial site investigation includes the following soil boring/groundwater monitoring wells and sampling activities.

- (1) Drill 3 soil borings, with one boring at a location within 10 feet of, and presumed be downgradient of, the former UST cluster location. Collect and analyze soil samples at five-foot intervals.
- (2) Construct monitoring wells (to be designated MW1, MW2, and MW3) in the soil borings. Survey the wells for location and elevation, develop the wells, and measure depth to static groundwater. Examine the wells for free product. It is anticipated that the proposed wells will be completed to a depth of 15 feet below grade.
- (3) Collect and analyze groundwater samples from the monitoring wells for petroleum hydrocarbon constituents.

The borings/wells will be placed between the former UST location and the CBC facility property line to assess the lateral extent of fuel constituents within the property. The proposed well and boring locations are shown in Figure 4.

The available public files for 989, 1001, and 1007 41st Street at Linden Street (California Linen Supply, Boysen Paint and Dunne Paint sites) suggest that the groundwater gradient in the area flows to the west (towards the Bay). At that location, groundwater was first

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encountered at approximately 10 feet below ground and subsequently stabilized in monitoring wells at approximately 6 feet below the ground surface.

Monitoring well MW1 will be located within 10 feet to the west of the former UST and dispenser location. This location was selected to intercept groundwater which may have been impacted by a release associated with the former USTs or dispensers. Monitoring well MW2 is proposed at a location in the anticipated upgradient direction to the former USTs. Analysis of soil and groundwater samples from MW2 will be used to evaluate whether concentrations of petroleum hydrocarbon constituents (if detected) may have originated from an off-site, upgradient source. Monitoring well MW3 is proposed at a crossgradient location strategically selected to confirm the direction of the groundwater gradient.

### **1.7.2 Preliminary Investigation and Evaluation Report (PIER)**

Following completion of the initial field activities and the receipt of laboratory test results, a PIER will be prepared which will describe the initial site investigation activities.

**2.1 SOIL INVESTIGATION**

**2.1.1 Boring Advancement and Soil Sample Collection**

Three soil borings will be advanced at the proposed locations shown in Figure 4. The vicinities of all borings will be surveyed by an underground utility locator. If any underground utilities are discovered at the proposed boring locations, the boring will be relocated to a clear location nearby.

The borings will be advanced to depths of approximately 15 feet, or just below the groundwater table, using 10-inch hollow-stem augers on a truck mounted drill rig. Soil samples will be collected at 5-foot intervals beginning at 5 feet below grade. After the first boring has been advanced and the soil-water interface has been determined using a water interface probe, an attempt will be made to collect a sample from this depth from the next borings to collect soil at a depth of possible floating product. The soil types encountered during drilling will be logged according to the Unified Soil Classification System and summarized on the boring logs.

Sampling will be conducted using a 2- or 2.5-inch diameter modified California split-spoon sampler lined with clean brass tubes. The sampling unit will be decontaminated between uses. The sampler will be driven a maximum of 18 inches using a 140-pound hammer with a 30-inch drop. The number of blows required to drive the sampler the final 12 inches ("blow count") will be recorded on the logs. The soil samples will be retained in four 4-inch-long, 2-inch-diameter or similarly sized brass liners within the sampler. The bottom brass tube will be sealed with Teflon sheeting, plastic end caps, and then labeled and stored in an ice chest cooled with ice, and transported to the certified analytical laboratory, using chain-of-custody documentation, for analysis. The remaining soil in the brass tube liners will be examined by a qualified engineer or geologist to determine the soil types for descriptions consistent with the Unified Soil Classification System (USCS).



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## **2.1.2 Quality Assurance Soil Samples**

One duplicate sample will be submitted to the analytical laboratory for analysis under a fictitious sample identification number ("blind"). The duplicate sample will be collected from the brass liner adjacent to the planned environmental sample. In order to assure representativeness, the adjacent ends of the liners will be marked for the laboratory to extract the sample for analysis. If a sample obviously contains petroleum hydrocarbons, the split-spoon sampler will be decontaminated as usual after sample collection, then rinsed with reagent-grade water which will be collected as a rinsate sample and analyzed. The analytical results of this rinsate sample will be reviewed for potential indications of cross-contamination due to decontamination procedures.

## **2.1.3 Soil Sample Analysis**

The soil samples will be submitted under chain of custody procedures to the analytical laboratory for chemical analysis. The analytical laboratory will be certified by the California Department of Toxic Substance Control for the analysis of hazardous materials. The samples from at and above the water table will be analyzed by EPA method 8015 for total petroleum hydrocarbons (TPH)-extractable (diesel, kerosene and motor oil) and TPH-gasoline, by EPA method 8020 for the petroleum hydrocarbon constituents of benzene, toluene, ethyl benzene, and xylenes (BTEX) and for total oil and grease by standard method 5520. These analyses were selected in accordance with the Tri-Regional Board Recommendations for the investigation of USTs in which gasoline, diesel and waste oil were stored.

## **2.2 GROUNDWATER INVESTIGATION**

### **2.2.1 Monitoring Well Construction**

All three soil borings will be completed as groundwater monitoring wells. The proposed groundwater monitoring wells will be constructed of 4-inch diameter Schedule 40 polyvinyl chloride (PVC) piping with flush-threaded ends. The procedure for well installation follows:

- The drill rig and drilling equipment will be decontaminated by steam cleaning before and after drilling to minimize the potential for cross-contamination.

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- Wells will be drilled utilizing 10-inch inner diameter (ID) hollow-stem augers. Split spoon soil samples or equivalent soil samples will be collected at approximately 5-foot intervals and will be used to prepare lithologic logs as discussed previously.
- Wells will be screened from below the level where the water table is first encountered. The screen will extend approximately 2 feet above the anticipated static water table. The screen length shall be 10 feet.
- Four-inch schedule 40 PVC casing and 0.020-inch slot size PVC screen will be installed through the hollow-stem auger. The bottom of the well will be capped with a slip cap secured in place with screws.
- Sand pack will be placed by the tremie method as the augers are removed. A conservatively small sand size such as Lone Star No. 2/12 will be selected to reduce the amount of sediment entering the well. The sand pack depth will be sounded continuously to ensure a solid pack with no bridging. The sand pack will extend approximately 2 feet above the top of the screen.
- Two feet of bentonite pellets will be placed into the borehole and hydrated with fresh water to form a seal above the sand pack.
- Neat cement grout will be installed from the top of the bentonite seal to the ground surface. The grout will be pumped through a tremie pipe from the bottom of the remaining annulus to the surface. The grout will be allowed to set for 24 hours prior to well development.
- Wells will be completed at grade, with a watertight locking cover and traffic-rated box.

Figure 5 shows a typical well construction detail.

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## **2.2.2 Well Development**

The wells will be allowed to set 24 hours or more after construction prior to well development. The wells will be developed by a combination of bailing, surging, and pumping until the discharge water is relatively free of settleable solids or a maximum of 10 well casing volumes has been evacuated from each well. Particulate matter in water causes certain types of pumps to stall. Therefore bailing and surging are required during the early stage of well development to remove sand or larger particles. After the majority of particulate matter has been removed from the well, development will continue using a pump. Certain water quality parameters will be measured and recorded during development. Following development, the wells will be allowed to stabilize for at least 72 hours prior to groundwater sampling.

## **2.2.3 Water Level Measurement and Groundwater Monitoring**

The wells will be surveyed by a licensed land surveyor for horizontal location and elevation relative to a referenced and established benchmark to a precision of 0.01 foot. The surveyor will produce a scaled site plan showing the boring locations, buildings, paved and unpaved areas. If their locations are known, subsurface utility lines and conduits will also be shown in the site plan. The site plan will show the approximate location of former USTs. The precise location of the former USTs will not be provided because the USTs have been removed and scaled plans of the site showing the former UST locations are unavailable. Depths to groundwater will be measured from the surveyed reference point at the top of the well casing. Water levels will be measured to the nearest 0.01 foot, prior to any purging activities to avoid disturbance of the static water table. This information will be used to calculate the groundwater elevation and groundwater gradient direction. An oil-water interface probe will be used to measure the thickness of any floating immiscible layer, if present. The presence or absence of an immiscible layer above the shallow groundwater will be visually confirmed using a clear bailer.

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## **2.2.4 Groundwater Sample Collection**

Prior to sampling, the wells will be purged to get representative groundwater into the wells. Three to five well casing volumes of groundwater will be purged from each well. Water quality parameters including pH, temperature, and specific conductance will be recorded during well purging. Samples will be collected when these parameters have stabilized, however the water level will be allowed to return to at least 80 percent of its static level prior to sample collection. Stabilization of these water quality parameters suggests that the water within the well is representative of the groundwater around the well. Purge water will also be inspected in the field for the presence of odor and sheen. Groundwater samples will be collected using clean Teflon™ bailers decontaminated after each use. Water samples will be decanted into containers provided by the analytical laboratory specifically designed and prepared to prevent loss of volatile organic constituents from the sample. Samples will be labeled with identifying information and transported under standard chain of custody procedures to an analytical laboratory that is certified by the State of California Department of Toxic Substances Control for the analysis of hazardous materials.

## **2.2.5 Quality Assurance Water Samples**

One duplicate and one sampling equipment rinsate sample will be collected to check for potential cross-contamination. In addition, a travel blank will accompany the cooler in which the samples are stored during transportation from the laboratory, to the site, and back to the laboratory.

The duplicate and rinsate samples will be analyzed for the same parameters as the normal samples. The travel blank will be analyzed for volatile organic hydrocarbons only.

## **2.2.6 Water Sample Analysis**

The groundwater samples will be analyzed for TPH-extractable (diesel, kerosene and motor oil) and TPH-gasoline by EPA Method 8015, total oil and grease by standard method 5520 and for BTEX by EPA Method 8020.

**DECONTAMINATION PROCEDURES**

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Down-hole drilling equipment such as augers and well development equipment will be steam-cleaned between wells. The California split-spoon sampler, brass tube liners, oil-water interface probe/water level indicators and bailers will be decontaminated before use by washing in an Alconox™ solution followed by two tap water rinses and one deionized water rinse.

Drill cuttings, purged groundwater, and equipment decontamination water will be collected in DOT-approved drums and left on site pending characterization, acceptance and transportation to an appropriate disposal facility. To ensure proper handling, treatment and/or disposal, the drums will be labeled. The labels will include the date of collection, the site address, waste material, material origins (e.g. well number), and the name and phone number of a contact person to whom questions may be addressed.

**SITE HEALTH AND SAFETY PLAN**

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The site health and safety plan is attached with this work plan as Appendix D. This health and safety plan outlines the measures that will be taken to ensure the health and safety of workers, regulators, and the public at the site.

Drilling will be scheduled pending approval of the well permit applications and this work plan and contractor availability. Well development will be conducted at least 24 hours following completion of the wells in order to allow the seals to set. Water samples will be collected at least 72 hours following well development. Samples will be analyzed using standard laboratory turnaround times (3 weeks). A report on the findings will be submitted within four weeks of receipt of the final analytical reports.



Following completion of the initial field activities and the receipt of laboratory test results, a Preliminary Investigation and Evaluation Report (PIER) will be prepared which will describe the investigation. The report will follow RWQCB guidelines and will include:

- (1) a summary of field activities;
- (2) copies of boring logs with monitoring well construction details;
- (3) a site plan, drawn to scale, showing boring locations;
- (4) a groundwater elevation contour map showing the local flow direction;
- (5) geologic cross-sections;
- (6) petroleum hydrocarbon distribution maps, if appropriate;
- (7) field data sheets.

The PIER will include discussions of site location, history and background information, site description, investigation methods and procedures, and analytical results. Data interpretation methods and results will be discussed and presented with conclusions and recommendations for the need for additional work. The report and boring logs will be prepared with oversight by a geologist registered in California.

**REFERENCES**

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Woodward-Clyde Consultants, Underground Storage Tank Removal and Closure Report, 1010 46th Street, Oakland, California, October 11, 1993.

State of California Regional Water Quality Control Board, Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites, August 10, 1990 and Appendix A - Reports, August 30, 1991.

**TABLE 1**  
**LIST OF CONTACTS**  
**CONTINENTAL BAKING COMPANY FACILITY**  
**1010 46TH STREET**  
**OAKLAND, CALIFORNIA 94609**

---

**Facility Owner/Operator:**

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San Francisco, California 94103

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**Environmental Consultants to Continental Baking Company:**

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Oakland, California 94621

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(510) 271-4530

**Regional Water Quality Control Board:**

Regional Water Quality Control Board  
2101 Webster Street, Suite 500  
Oakland, California 94612  
(510) 286-1255

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TABLE 2

SUMMARY OF ANALYTICAL RESULTS OF TANK CLOSURE SAMPLES  
 CONTINENTAL BAKING COMPANY  
 1010 46TH STREET  
 OAKLAND, CALIFORNIA  
 (Page 1 of 2)

Sample Location	Sample Depth (feet)	Collection Date	Modified EPA Method 8015/8020								418.1	8010	8270	7421	6010
			TPH-G	TPH-D	TPH-K	TPH-O	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	TRPH	Volatile Organics	Semi-Vol Organics	Total Lead	Metals
<b>SOIL SAMPLES RESULTS (mg/kg, ppm)</b>															
FTP-1	14	12/22/92	--	<1.00	<1.00	<10.0	<0.0062	<0.0062	<0.0062	<0.0062	--	--	--	--	--
FTP-2	14	12/22/92	--	<1.00	<1.00	<10.0	<0.0062	<0.0062	<0.0062	<0.0062	--	--	--	--	--
TP-1	11.5	12/22/92	<1.0	--	--	--	<0.005	<0.005	<0.005	<0.005	--	--	--	4.8	--
TP-2	13	12/22/92	<1.0	--	--	--	<0.005	<0.005	<0.005	<0.005	--	--	--	5.1	--
TP-3	9	12/22/92	<1.0	<4.5 <sup>1</sup>	<1.00	<10.0	<0.005	<0.005	<0.005	<0.005	34	<0.04	ND <sup>2</sup>	5.0	Note 3
TP-4	13	12/22/92	--	<1.00	<1.00	<10.0	<0.0062	<0.0062	<0.0062	<0.0062	--	--	--	--	--
TP-5	11	12/22/92	--	<1.00	120	58	<0.0062	0.014	0.092	0.034	--	--	--	--	--
D-1	4	12/22/92	<70 <sup>4</sup>	790 <sup>5</sup>	<4.0	<40	<0.02	<0.02	<0.02	<0.02	--	--	--	--	--

See following page for abbreviations and explanation of footnotes.

TABLE 2

SUMMARY OF ANALYTICAL RESULTS OF TANK CLOSURE SAMPLES  
 CONTINENTAL BAKING COMPANY  
 1010 46TH STREET  
 OAKLAND, CALIFORNIA  
 (Page 2 of 2)

Sample Location	Sample Depth (feet)	Collection Date	Modified EPA Method 8015/8020								418.1	8010	8270	7421	6010
			TPH-G	TPH-D	TPH-K	TPH-O	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	TRPH	Volatile Organics	Semi-Vol Organics	Total Lead	Metals
<b>WATER SAMPLE RESULTS (mg/L, ppm)</b>															
W-1	--	12/22/92	2.9 <sup>6</sup>	<0.05	<0.05	<0.5	0.54	0.42	0.02	0.22	--	--	--	--	--

NOTES:

- TPH-G Total Petroleum Hydrocarbons Quantified as Gasoline
- TPH-D Total Petroleum Hydrocarbons Quantified as Diesel
- TPH-K Total Petroleum Hydrocarbons Quantified as Kerosene
- TPH-O Total Petroleum Hydrocarbons Quantified as Oil
- TRPH Total Recoverable Petroleum Hydrocarbons

-- Denotes that the sample was not analyzed for the noted parameter

<sup>1</sup> Laboratory reported 4.5 mg/kg of "unknown hydrocarbon." WCC reviewed the chromatogram and the reported quantity is due to a single response peak. Although it occurred in the diesel range, the pattern did not conform to the diesel pattern. The detection limit has been adjusted to reflect the presence of the "unknown hydrocarbon."

<sup>2</sup> All analytes were not detected at/or above their respective reporting limits ranging from 0.33 to 1.6 mg/kg.

<sup>3</sup> Sample was analyzed for select four metals by EPA 6010: [Cd] = <1.0 mg/kg; [Cr] = 31.0 mg/kg; [Ni] = 25 mg/kg; [Zn] = 97 mg/kg

<sup>4</sup> The laboratory reported <4 mg/kg gasoline. However, the laboratory also reported 70 mg/kg of "unknown hydrocarbon." WCC reviewed the chromatogram and the reported quantity appears to be the more volatile portion of diesel eluting. The detection limit has been adjusted to reflect the presence of the "unknown hydrocarbon."

<sup>5</sup> Reported as "unknown hydrocarbon" by the laboratory. WCC has interpreted the result as degraded diesel after having reviewed the chromatogram.

<sup>6</sup> Reported as <0.5 mg/L. However, the laboratory reported 2.9 mg/kg of "unknown hydrocarbon." WCC has interpreted the result as degraded gasoline after having reviewed the chromatogram.

TABLE 3

SUMMARY OF ANALYTICAL RESULTS OF TANK REMOVAL STOCKPILED SOIL DISPOSAL SAMPLES  
CONTINENTAL BAKING COMPANY  
1010 46TH STREET  
OAKLAND, CALIFORNIA

Sample Location	Collection Date	Modified EPA Method 8015/8020 (mg/kg)								418.1	8240	8270	Other Analyses
		TPH-G	TPH-D	TPH-K	TPH-O	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	TRPH (mg/kg)	Volatile Organics	Semi-Vol Organics	
SS1-ABCD	01/25/93	<1.0	<49 <sup>1</sup>	<1.00	<10.0	<0.005	<0.005	<0.005	<0.005	32	ND <sup>2</sup>	ND <sup>3</sup>	See Notes <sup>4</sup>
SS1-EFGH	01/25/93	<1.0	<1.00	<1.00	56	<0.005	<0.005	0.005	0.016	<25	ND <sup>2</sup>	ND <sup>3</sup>	See Notes <sup>5</sup>
SS2-ABCD	01/25/93	--	<1.00	<1.00	<10.0	<0.005	<0.005	<0.005	0.017	--	--	--	See Notes <sup>6</sup>
SS2-EFGH	01/25/93	--	<1.00	<1.00	<10.0	<0.005	<0.005	<0.005	0.008	--	--	--	See Notes <sup>7</sup>

NOTES:

TPH-G Total Petroleum Hydrocarbons Quantified as Gasoline

TPH-O Total Petroleum Hydrocarbons Quantified as Oil

TPH-K Total Petroleum Hydrocarbons Quantified as Kerosene

-- Denotes that the sample was not analyzed for the noted parameter

<sup>1</sup> Reported as "unknown hydrocarbon" by the laboratory. WCC has interpreted the result as degraded diesel after having reviewed the chromatogram.

<sup>2</sup> All analytes were not detected at or above their respective reporting limits ranging from 0.005 to 0.01 mg/kg.

<sup>3</sup> All analytes were not detected at or above their respective reporting limits ranging from 0.33 to 1.6 mg/kg.

<sup>4</sup> Other analyses for SS1-ABCD: Reactive cyanide=<10 mg/kg; Reactive sulfide=12 mg/kg; pH=8.1; Flashpoint>70°C; STLC metals in mg/L: [Ag]<0.010; [As]<0.10; [Ba]=5.7; [Be]=0.0079; [Cd]=0.025; [Co]=0.38; [Cr]=0.47; [Cu]=0.26; [Hg]=0.0059; [Mo]=0.039; [Ni]=1.2; [Pb]=0.30; [Sb]=0.052; [Se]=1.7 by ICP, <0.50 by GFAA; [Ti]=1.3 by ICP, <0.50 by GFAA; [V]=0.55; [Zn]=1.3

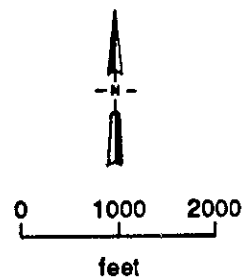
<sup>5</sup> Other analyses for SS1-EFGH: Reactive cyanide=<10 mg/kg; Reactive sulfide=19 mg/kg; pH=8.2; Flashpoint>70°C; STLC metals in mg/L: [Ag]<0.010; [As]<0.10; [Ba]=6.3; [Be]=0.0050; [Cd]=0.020; [Co]=0.48; [Cr]=0.30; [Cu]=0.59; [Hg]=0.0029; [Mo]=0.023; [Ni]=0.83; [Pb]=0.55; [Sb]<0.050; [Se]=0.71 by ICP, <0.50 by GFAA; [Ti]=0.57 by ICP, <0.50 by GFAA; [V]=0.25; [Zn]=1.4

<sup>6</sup> Other analyses for SS2-ABCD: Reactive cyanide=<10; Reactive sulfide=19; pH=8.5; Flashpoint>70°C

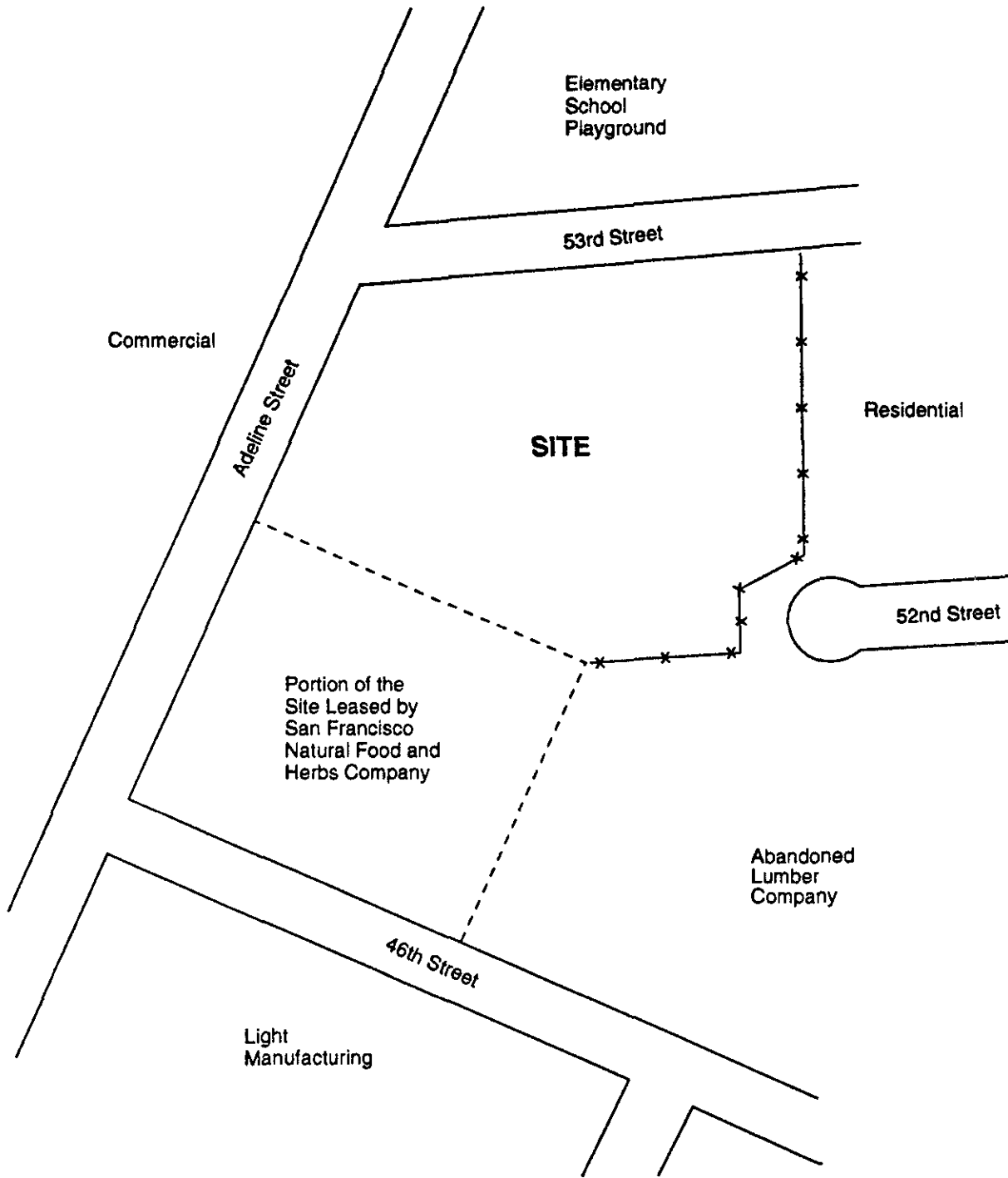
<sup>7</sup> Other analyses for SS2-EFGH: Reactive cyanide=<10; Reactive sulfide=19; pH=8.6; Flashpoint>70°C

TRPH Total Recoverable Petroleum Hydrocarbons

TPH-D Total Petroleum Hydrocarbons Quantified as Diesel



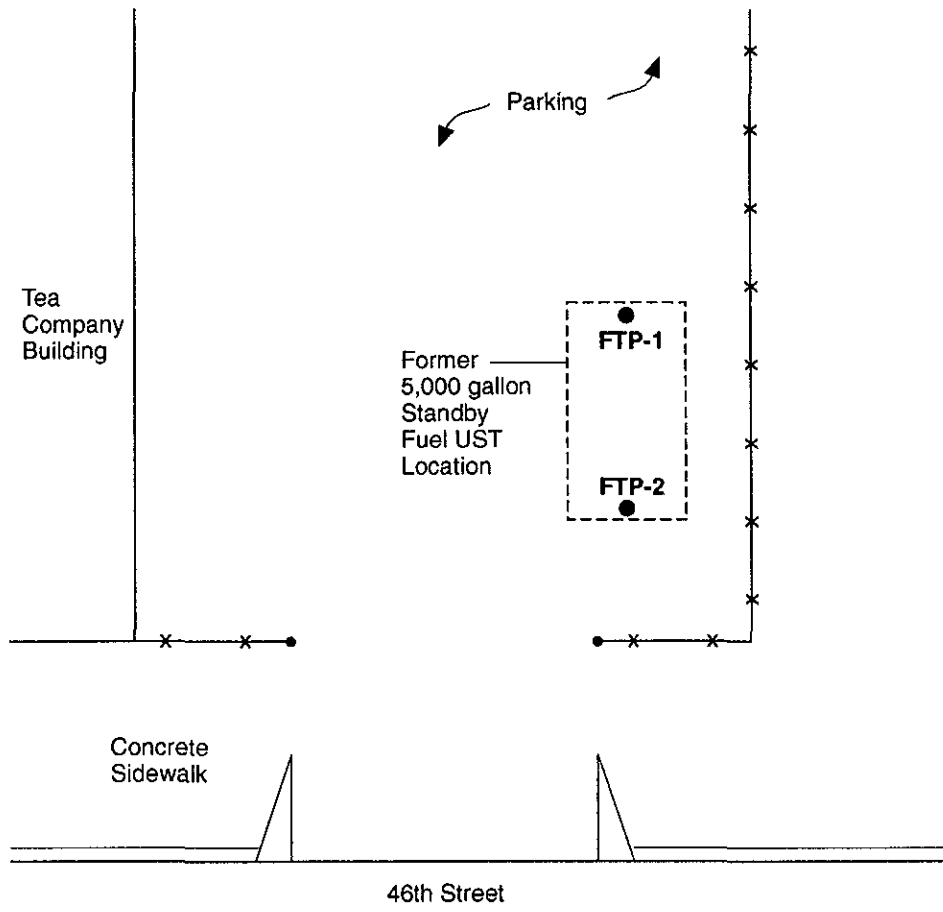
Project No. 92CB040	Continental Baking Company 1010 46th Street Oakland, California	<b>SITE LOCATION</b>	<b>Figure 1</b>
<b>Woodward-Clyde Consultants</b>			



(not to scale)

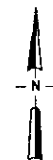
Project No. 92CB040	Continental Baking Company 1010 46th Street Oakland, California	<b>LOCAL LAND USE</b>	<b>Figure 2</b>
<b>Woodward-Clyde Consultants</b>			





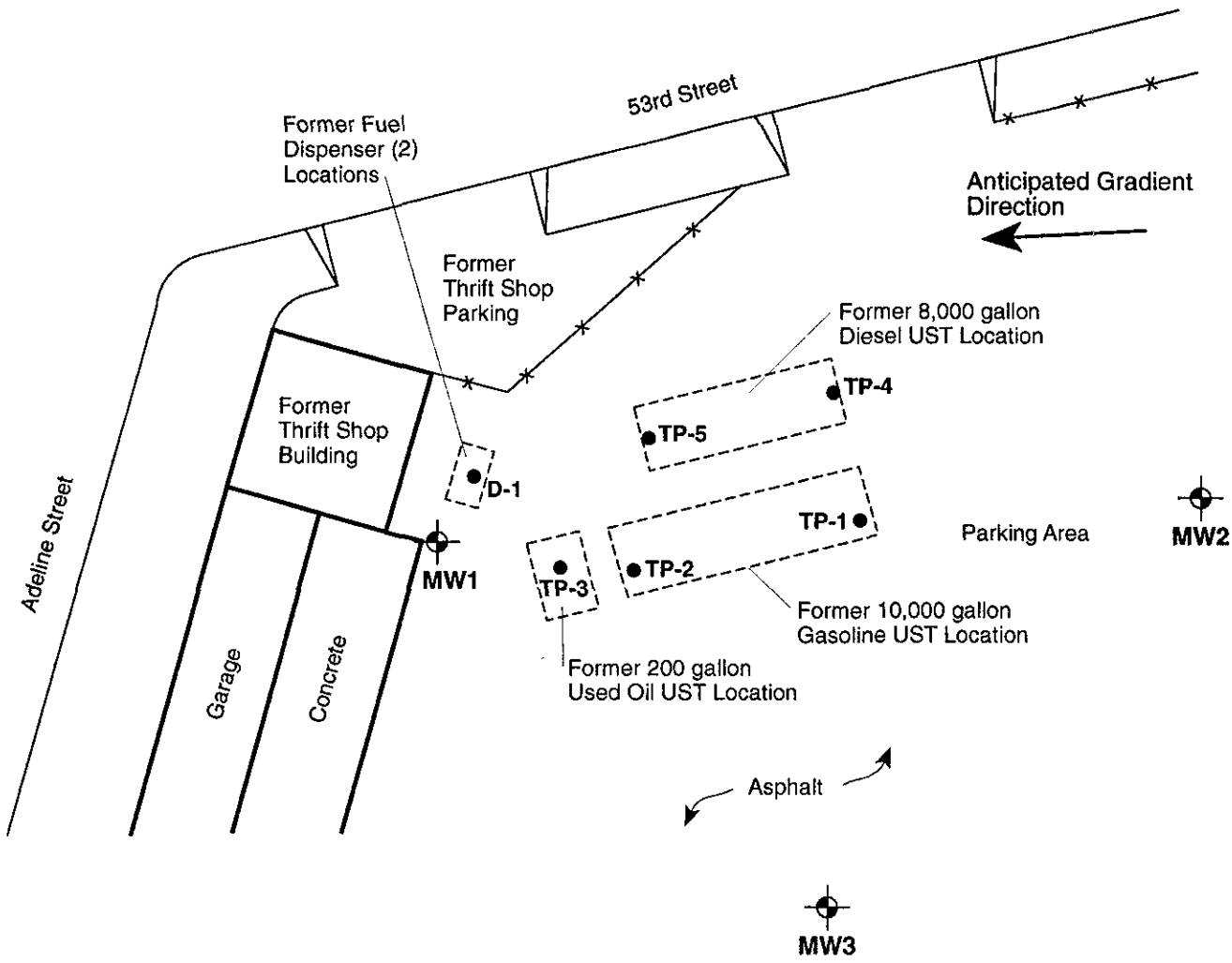
LEGEND

FTP-1 ● Closure Soil Sample Location



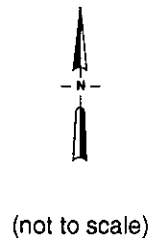
(not to scale)

Project No. 92CB040	Continental Baking Company 1010 46th Street Oakland, California	<b>CLOSURE SAMPLE LOCATIONS FOR THE STANDBY FUEL UST</b>	Figure 3
<b>Woodward-Clyde Consultants</b>			

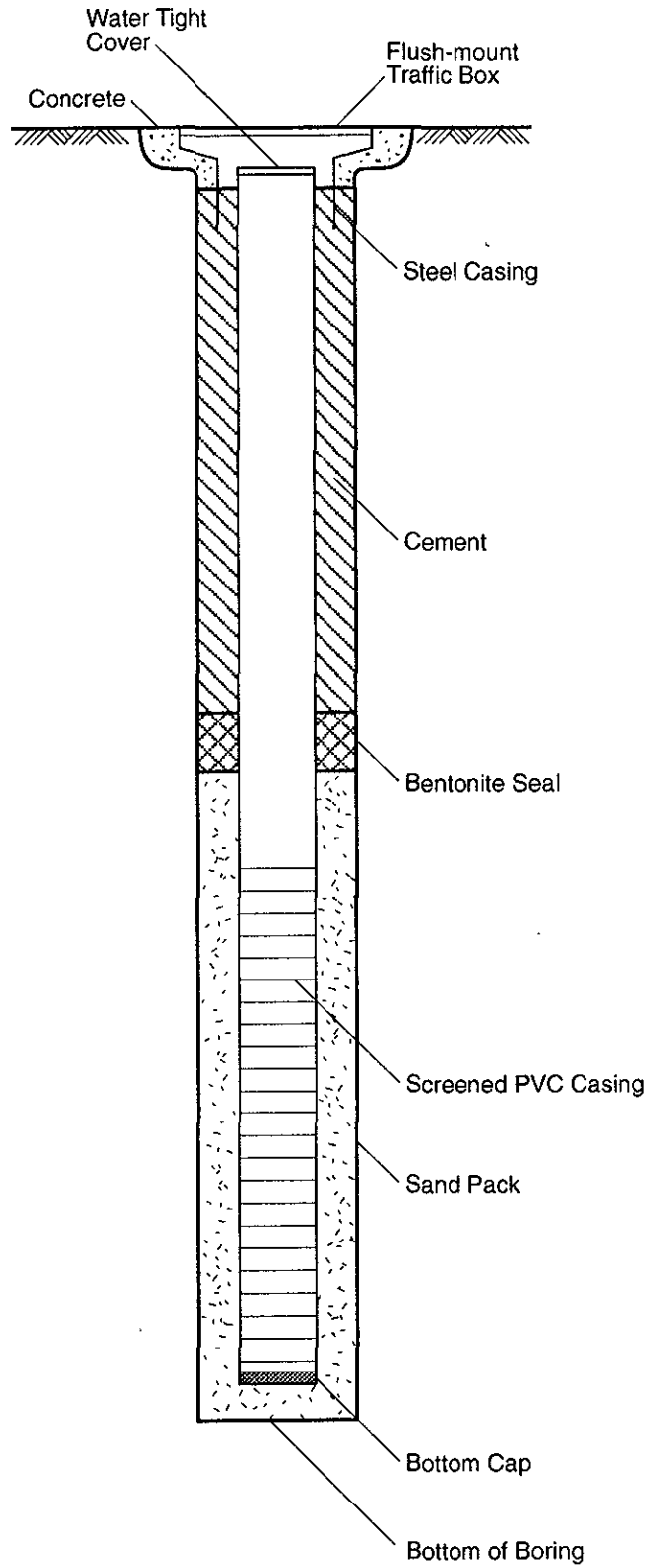


**LEGEND**

- TP-1 ● Closure Soil Sample Location
- MW1 ⊕ Proposed Monitoring Well Location



Project No. 92CB040	Continental Baking Company 1010 46th Street Oakland, California	<b>SITE PLAN WITH PROPOSED MONITORING WELL LOCATIONS</b>	Figure 4
<b>Woodward-Clyde Consultants</b>			



Project No. 92CB040	Continental Baking Company 1010 46th Street Oakland, California	<b>TYPICAL MONITORING WELL CONSTRUCTION</b>	Figure 5
<b>Woodward-Clyde Consultants</b>			

**APPENDIX A**  
**VISTA ENVIRONMENTAL INFORMATION, INC. REPORT**

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CLIENT NAME	: WOODWARD-CLYDE-OAKLAND
ATTENTION	: JO BETH FOLGER
ADDRESS	: 500 12TH ST STE 100
CITY/STATE/ZIP	: OAKLAND, CA 94607
REF/LOAN #	: CONTINENTAL BAKING-WONDER THRIFT STORE

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VISTA REPORT NUMBER	: 1/034284-001
DATE OF REPORT	: 1/05/1994
SUBJECT PROPERTY	: 1010 46TH ST
CITY/COUNTY/STATE/ZIP	: OAKLAND, ALAMEDA, CA 94608

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Dear Client:

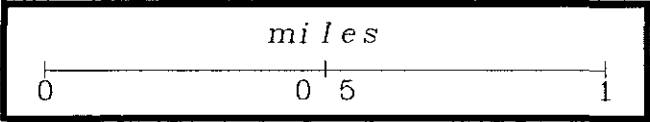
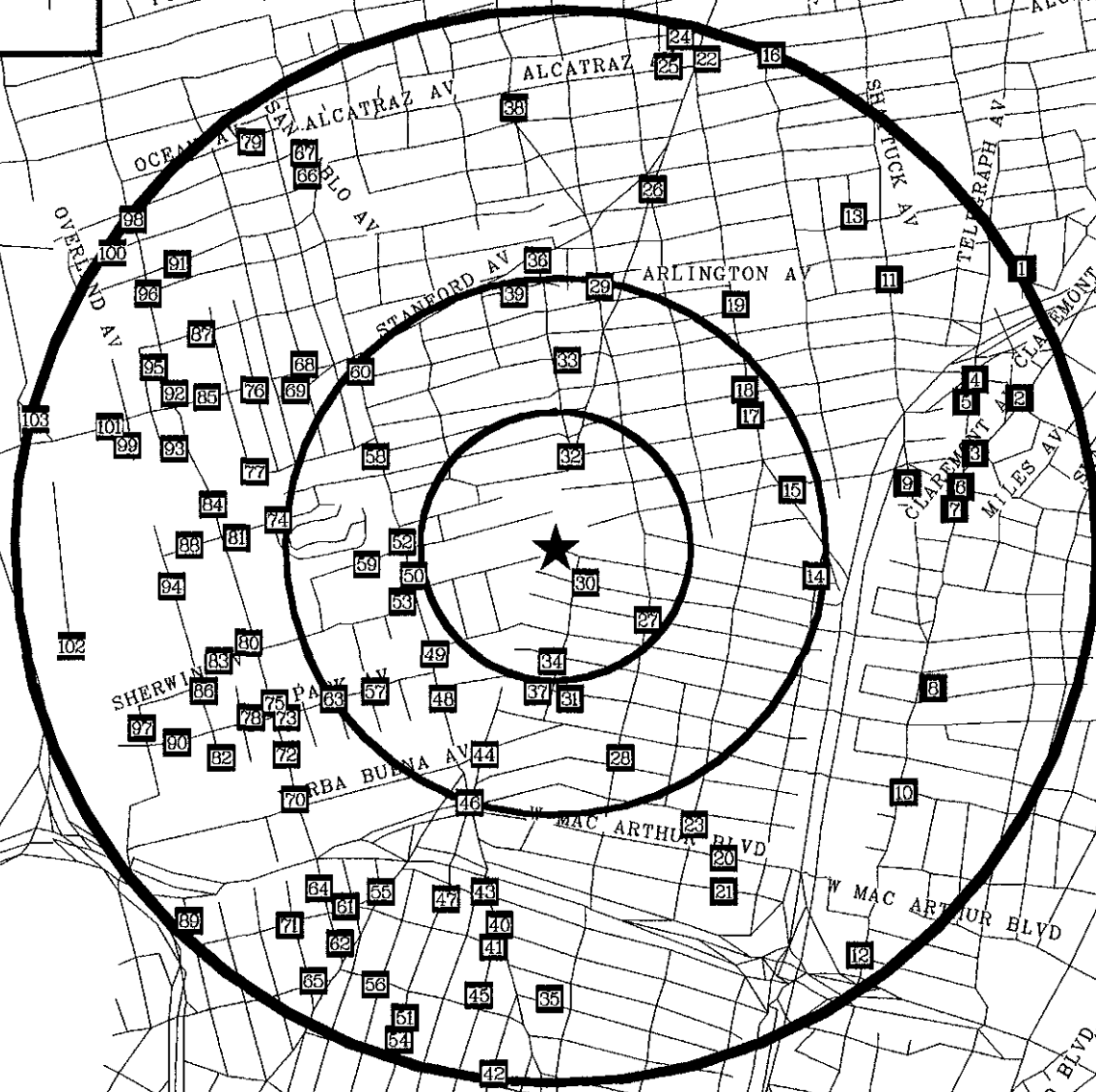
In response to your recent order for services, we enclose your *Vista California Radius Detailed Report*. We hope you find the information helpful in your investigation. In the event you require additional information about any site identified in this report, please contact our *Customer Service Department* at (619) 450-6100.

Please remember that this report represents only a search of the specific government records listed in the table of contents. Vista is aware of additional government record sources that have not been included in this report and Vista makes no representations of adequacy for Client's purposes. Please be aware that government environmental records often have incomplete or inaccurate locations and that all reports reflect locations of street addresses and do not necessarily indicate the size or specific location of any site. In addition, please recognize that government agencies do not list all sites of environmental contamination. Therefore, this report should not be used as a substitute for a complete Phase I Assessment.

This report is intended only for the use and benefit of the Client, and their assigns, who shall be the only parties authorized to review this report. This report is provided pursuant to a subscription agreement with Vista Environmental Information, Inc., and is subject to all of the terms and conditions thereof, SPECIFICALLY INCLUDING, BUT NOT LIMITED TO, PROVISIONS REGARDING CLIENTS USE AND LIMITATIONS OF VISTA ENVIRONMENTAL INFORMATION, INC.'S LIABILITY. We appreciate your patronage.

### California Radius Detailed Report

		Subject Property		Railroads
		Government Listed Sites		Surface hydrology



## LIST OF RECORDS SEARCHED

This report represents a search of the following government database sources:

<u>DATABASE</u>	<u>TYPE OF RECORDS</u>	<u>AGENCY</u>
<i>CERCLIS</i>	: Contaminated Sites Under CERCLA (1980)	U.S. EPA
<i>NPL</i>	: Federal Superfund Sites	U.S. EPA
<i>LIENS</i>	: Filed Notices of Superfund Liens	U.S. EPA
<i>CORTESE</i>	: Hazardous Waste & Substances Site List	CAL-EPA
<i>CAL-SITES/ AWP</i>	: Contaminated sites listed on the Annual Work Plan, and cleanup sites under the Bond Expenditure Plan	California EPA
<i>BZP</i>	: Sites designated as Border Zone Properties (Deed Restrictions)	California EPA
<i>CAL-SITES/ ASPIS</i>	: Actually or potentially contaminated sites under the Abandoned Site Program	California EPA
<i>HWIS</i>	: Hazardous Waste Generators, Treatment, Storage & Disposal Facilities	California EPA
<i>SWIS</i>	: Active & Inactive Sanitary Landfills and Disposal Facilities	California Waste Management Board
<i>LUST</i>	: Leaking Underground Storage Tanks	California Regional Water Resources Control Boards

Due to the scale of the map, red and green squares on the map may represent more than one agency listing or location. For a detailed description of each source, please refer to the legends on the following pages.

For more information please call your VISTA account representative at (619) 450-6100.

## CERCLIS

*The information presented in this report is updated to June, 1993.*

Since 1982, U.S. EPA has developed and maintained lists of contaminated properties under the federal Superfund program pursuant to the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA), 42 U.S.C. Section 9601 (1985). U.S. EPA discovers these sites from citizen reports, routine inspection of hazardous waste generators, treatment, storage and disposal facilities, and reporting requirements.

MAP ID NO.	SITE NAME STREET ADDRESS, CITY and ZIP	EVENT* TYPES	EPA ID, REGIONAL UTILITY DESCRIPTION*
26	GRANT LABORATORIES 6020 ADELINE ST OAKLAND 94608	DS1 PA1-N	CAD093982866 NEW CERCLIS SITE DRUMS ABOVE GROUND: 55 GA DRUMS CALIFORNIA 3012 SITE RCRA REGULATED GEN INORGANICS: ARSENIC TRIOXIDES OTHER: GELATIN/SUGAR BASE RESIDUE IMPOUNDMENTS: SUMPS
65	ZERO WASTE SYSTS INC 1450 32ND ST OAKLAND 94608	DS1 PA1 PA2-N	CAD980637185 ACIDS BASES HEAVY METALS INORGANICS SOLVENTS ORGANICS DRUMS ABOVE GROUND FACILITY CLOSED TAT INSPECTION - CHECKED WITH TOM SEVECINO ON RESU LTS NOTIS 103(C)SITE
78	ELECTRO-COATINGS IND 1401 PARK AVE OAKLAND 94608	DS1 HR1 PA1 SI1	CAD009116229 HEAVY METALS - CR ERRIS SITE RCRA REGULATED: GENERATOR (NON HANDLER) SEE NOTIFI CATION FI RANKING STATE
78	CHROMEX DIV OF CHARLES LOWE CO 1400 PARK AVE EMERYVILLE 94662	DS1 PA1 PA2-N	CAD028799401 NEW CERCLIS SITE CA 3012 SITE REASSESSED PA
80	PG&E EMERYVILLE 4525 HOLLIS EMERYVILLE 94608	DS1 PA1-N	CAD982400418 NEW CERCLIS SITE PG&E GAS PLANT
93	INDUSTRIAL HARD CHROME 5701 HOLLIS ST EMERYVILLE 94608	DS1 PA1-N	CAD980884399 NEW ERRIS SITE

\* See key on last page for definition



CERCLIS continued...

MAP ID NO.	SITE NAME, STREET ADDRESS, CITY and ZIP	EVENT * TYPES	EPA ID, REGIONAL UTILITY DESCRIPTION *
95	WESTINGHOUSE ELECTRIC CORP EMERYVILL 5899 PELADEAU ST EMERYVILLE 94608	DS1 PA1 PA2-N	CAT080032113 ERRIS SITE RCRA REGULATED: GENERATOR SEE NOTIFICATION FILE RANKING STATE CHECK ON RESULTS OF EMERYVILLE MARKET PLACE
101	AMERICAN BITUMALS & ASPHALT 1520 POWELL ST EMERYVILLE 94608	DS1 PA1-N	CAD982358665 NEW CERCLIS SITE CALIFORNIA 3012 SITE
102	PFIZER INC 4650 SHELLMOUND ST EMERYVILLE 94608	DS1 PA1-N	CAD009206178 ACIDS OTHER: PAINT PIGMENTS POSSIBLE RESINS RCRA REGULATED: TSD FACIL (NON HANDLER) SEE NOTIFI CATION & ABOVE GROUND TANKS- FIBERGLASS LINED 13600 GAL CON TAIN P ABOVE GROUND TANKS BRICK LINED 18400 GAL CONTAIN F ERROUS S

\* See key on last page for definition

## NATIONAL PRIORITY LIST (NPL)

*The information presented in this report is updated to June, 1993.*

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U.S. EPA maintains this list under the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) 42 U.S.C. Section 9601 (1985). Once sites have been designated on the CERCLIS List, U.S. EPA uses its Hazard Ranking System (HRS) to determine potential risks to human health and the environment. Only those CERCLIS sites which present the greatest risk are added to the NPL, which qualifies the sites to receive CERCLA remedial funding.

MAP ID NO.	SITE NAME, STREET ADDRESS, CITY and ZIP	EPA ID, REGIONAL UTILITY DESCRIPTION*
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As of the date listed above, no sites listed in this database are located within a one mile radius of the subject property.

\* See key on last page for definition

## FEDERAL SUPERFUND LIENS (LIENS)

*The information presented in this report is updated to September, 1991.*

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Under Section 107(L) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) 42 U.S.C. Section 9607 (1), US EPA has authority to file liens against real property to recover clean up, response, and any other expenditure made by US EPA under the CERCLA program. Because these liens are "statutory liens," they arise when the agency spends money on a site or when notification of potential liability is received by the owner of the property. EPA maintains that these liens can arise without filing, however, and they suggest checking CERCLIS sites for lien status.

MAP  
ID

NO.	SITE NAME	LOCATION	DATE FILED	RELEASE DATE
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As of the date listed above, no sites listed in this database are located within a one mile radius of the subject property.

**HAZARDOUS WASTE AND SUBSTANCES SITES LIST**  
**CORTESE**

*The information presented in this report is updated to November, 1992.*

The California Environmental Protection Agency (Cal-EPA) publishes a compilation of sites throughout the State of California. Under Government Code Section 65962.5, these sites are submitted to the Cal-EPA by the State Water Resources Control Board, the Integrated Waste Management Board, and the Department of Toxic Substances Control. The sites are extracted from the following databases:

A1025	Regulated Air Emissions at 10-25 tons/day.	IUR	Inventory Update Rule (Chemical Manufacturers)
AGT25	Regulated Air Emissions greater than 25 tons/day.	LTANK	Leaking Tank
ASPIS	Abandoned Sites Program Information System (included in CALSITES)	S1987 - S1990	California TRIS
DTSCD	Department of Toxic Substance Control Docket	SWRCB	State Water Resources Control Board
FINDS	Facility Index System	UTANK	Underground Tank
HWIS	Hazardous Waste Information System	WB-LF	Waste Board - Leaking Facility (site has known migration)
		WDSE	Waste Discharge System - Enforcement Action

MAP ID NO.	SITE	LOCATION	CITY	ZIP	DATABASE	AGENCY ID
3	AUTOPRO	5200 TELEGRAPH AVE	OAKLAND	94609	LTANK	N/A
4	CHEVRON	5500 TELEGRAPH AVE	OAKLAND	N/A	LTANK	N/A
4	90338	5500 TELEGRAPH AVE	OAKLAND	N/A	UTANK	61789
4	BILL STAUDER CHEVRON	5500 TELEGRAPH AVE	OAKLAND	N/A	HWIS	CAL000018931
4	CHEVRON STATION #90338	5500 TELEGRAPH AVE	OAKLAND	N/A	HWIS	CAL000030063
6	CHEVRON	5101 TELEGRAPH AVE	OAKLAND	94609	LTANK	N/A
6	93864	5101 TELEGRAPH AVE	OAKLAND	94609	UTANK	62526
6	BURKES CHEVRON SERVICE	5101 TELEGRAPH AVE	OAKLAND	94609	HWIS	CAL000013322
6	BURKES CHEVRON SERVICE	5101 TELEGRAPH AVE	OAKLAND	94609	HWIS	CAL000019682
6	CHEVRON STATION #93864	5101 TELEGRAPH AVE	OAKLAND	94609	HWIS	CAL000030032
8	KELLEY AUTO PARTS	4400 TELEGRAPH AVE	OAKLAND	94547	LTANK	N/A
9	ARCO	5131 SHATTUCK AVE	OAKLAND	94609	LTANK	N/A

CORTESE continued...

MAP ID NO.	SITE	LOCATION	CITY	ZIP	DATABASE	AGENCY ID
10	SHELL	500 40TH ST	OAKLAND	N/A	LTANK	N/A
10	SIMAS BROS.	4013 TELEGRAPH AVE	OAKLAND	N/A	LTANK	N/A
12	CALIFORNIA HIGHWAY PATROL OAKL	3601 TELEGRAPH AVE	OAKLAND	94609	LTANK	N/A
12	CALIFORNIA HIGHWAY PATROL	3601 TELEGRAPH AVE	OAKLAND	94609	UTANK	17964
12	OAKLAND CHP	3601 TELEGRAPH AVE	OAKLAND	94609	HWIS	CAL000021300
12	CALIFORNIA HIGHWAY PATROL	3601 TELEGRAPH AVE	OAKLAND	94609	HWIS	CAL000046137
17	BP OIL	5425 MARTIN LUTHER KING	OAKLAND	94609	LTANK	N/A
18	CHEVRON	5509 MARTIN LUTHER KING	OAKLAND	N/A	LTANK	N/A
18	91583	5509 MARTIN LUTHER KING	OAKLAND	N/A	UTANK	62089
18	CHEVRON STATION #91583	5509 MARTIN LUTHER KING	OAKLAND	N/A	HWIS	CAL000030016
20	ARCO	731 MACARTHUR ST W.	OAKLAND	94610	LTANK	N/A
20	ARCO PRODUCTS CO FAC 4931	731 MACARTHUR ST W.	OAKLAND	94610	HWIS	CAL000048887
21	R.D. MINER CO.	750 37TH ST	OAKLAND	N/A	LTANK	N/A
27	DAMELE PROPERTY	4401 MARKET ST	OAKLAND	94608	LTANK	N/A
31	CALIFORNIA LINEN RENTAL	989 41ST ST	OAKLAND	94608	LTANK	N/A
35	LOOMIS ARMORED INC	936 BROCKHURST ST	OAKLAND	N/A	LTANK	N/A
35	LOOMIS ARMORED CAR SERVICES IN	936 BROCKHURST ST	OAKLAND	N/A	UTANK	45221
37	DUNNE QUALITY PAINTS	1007 41ST ST	OAKLAND	94662	LTANK	N/A
37	FRANK W. DUNNE CO.	1007 41ST ST	OAKLAND	94662	S1989	12486
37	FRANK W. DUNNE CO.	1007 41ST ST	OAKLAND	94662	S1990	12486
37	DUNNE FRANK W COMPANY #	1007 41ST ST	OAKLAND	94662	FINDS	CAD009118597
37	FRANK W DUNNE CO	1007 41ST ST	OAKLAND	94662	FINDS	CAD981618281
38	MOORE PROPERTY	3155 SACRAMENTO ST	BERKELEY	N/A	LTANK	N/A

CORTESE continued...

MAP

MAP ID NO. SITE	LOCATION	CITY	ZIP	DATABASE	AGENCY ID
38 MORTON SALT	3155 SACRAMENTO ST	BERKELEY	N/A	LTANK	N/A
40 SHELL	3420 SAN PABLO AVE	OAKLAND	N/A	LTANK	N/A
40 SAN PABLO AVE. SHELL	3420 SAN PABLO AVE	OAKLAND	N/A	UTANK	52586
41 THRIFTY OIL	3400 SAN PABLO AVE	OAKLAND	94608	LTANK	N/A
41 THRIFTY OIL STN.#049	3400 SAN PABLO AVE	OAKLAND	94608	UTANK	4715
43 CALIFORNIA HOTEL	3501 SAN PABLO AVE	OAKLAND	94612	LTANK	N/A
47 CITY OF PARIS CLEANERS	3516 ADELINE ST	OAKLAND	94608	LTANK	N/A
48 SAN FRANCISCO BREAD COMPANY	4070 SAN PABLO AVE	OAKLAND	N/A	LTANK	N/A
48 TOSCANA BAKING COMPANY	4070 SAN PABLO AVE	OAKLAND	N/A	UTANK	68490
49 CITY OF EMERYVILLE	4300 -4310 SAN PABLO AVE	EMERYVILLE	N/A	LTANK	N/A
50 BERKELEY FARMS	4550 SAN PABLO AVE	EMERYVILLE	94608	LTANK	N/A
50 BERKELEY FARMS INC. EMERYVILLE	4550 SAN PABLO AVE	EMERYVILLE	94608	UTANK	1372
50 BERKELEY FARMS INC	4550 SAN PABLO AVE	EMERYVILLE	94608	HWIS	CAX000224642
53 AC TRANSIT	1140 45TH ST	EMERYVILLE	00050	LTANK	N/A
55 BELOUS PROPERTY	3423 HARLAN	OAKLAND	N/A	LTANK	N/A
57 LES PAUL	1199 PARK AVE	EMERYVILLE	N/A	LTANK	N/A
58 PARINA ENTERPRISES	5433 SAN PABLO AVE	OAKLAND	94608	LTANK	N/A
60 CHIEF AUTO PARTS	5714 SAN PABLO AVE	OAKLAND	94608	LTANK	N/A
60 SUPER-7 #25670	5714 SAN PABLO AVE	OAKLAND	94608	UTANK	12775
61 DRAYAGE PROPERTY	1350 34TH ST	OAKLAND	94608	LTANK	N/A
64 GUITON CHARTER BUSES	3421 HOLLIS ST	OAKLAND	94608	LTANK	N/A
64 GUITON INC	3421 HOLLIS ST	OAKLAND	94608	HWIS	CAL000003077
64 GUITON INC	3421 HOLLIS ST	OAKLAND	94608	HWIS	CAL000018960

CORTESE continued...

MAP  
ID

MAP ID NO. SITE	LOCATION	CITY	ZIP	DATABASE	AGENCY ID
65 ZERO WASTE SYSTEMS INC	1450 32ND ST	OAKLAND	94609	ASPIS	01280073
65 ZERO WASTE SYSTEMS INC.	1450 32ND ST	OAKLAND	94609	FINDS	CAD980637185
65 ZERO WASTE SYSTEMS INC.	1450 32ND ST	OAKLAND	94609	HWIS	CAD980837185
66 BOLIN'S SERVICE GARAGE	6335 SAN PABLO AVE	OAKLAND	94608	LTANK	N/A
67 PCC	6400 SAN PABLO AVE	OAKLAND	94608	LTANK	N/A
70 RANSOME COMPANY	4030 HOLLIS ST	EMERYVILLE	N/A	LTANK	N/A
70 RANSOME COMPANY	4030 HOLLIS ST	EMERYVILLE	N/A	ASPIS	01160019
70 RANSOME CO	4030 HOLLIS ST	EMERYVILLE	N/A	FINDS	CAD006910079
70 RANSOME CO	4030 HOLLIS ST	EMERYVILLE	N/A	HWIS	CAD982326662
70 RANSOME COMPANY	4030 HOLLIS ST	EMERYVILLE	N/A	HWIS	CAL000003098
78 DEL MONTE PLANT #35	4202 HOLLIS ST	EMERYVILLE	N/A	LTANK	N/A
78 CHROMEX	1400 PARK AVE	EMERYVILLE	94608	ASPIS	01340106
78 CHARLES LOWE CO. CHROMEX DIVI	1400 PARK AVE	EMERYVILLE	94608	S1987	11922
78 CHROMEX DIV OF CHARLES LOWE CO	1400 PARK AVE	EMERYVILLE	94608	FINDS	CAD028799401
78 CHARLES LOWE CO	1400 PARK AVE	EMERYVILLE	94608	HWIS	CAD981390925
78 CHARLES LOWE COMPANY	1400 PARK AVE	EMERYVILLE	94608	FINDS	CAD981390925
78 CHARLES LOWE COMPANY	1400 PARK AVE	EMERYVILLE	94608	FINDS	CAD981573223
78 CHARLES LOWE COMPANY	1400 PARK AVE	EMERYVILLE	94608	HWIS	CAD981573223
78 CHROMEX	1400 PARK AVE	EMERYVILLE	94608	HWIS	CAX000019489
79 BAYOX	1171 OCEAN AVE	OAKLAND	N/A	LTANK	N/A
79 BAYOX INC	1171 OCEAN AVE	OAKLAND	N/A	HWIS	CAL000019302
80 SOUTHERN PACIFIC RIGHT-OF-WAY	WEST OF 4525 HOLLIS STREET	EMERYVILLE	94608	ASPIS	01400002
81 BERKELEY FARMS	1313 53RD ST	EMERYVILLE	94549	LTANK	N/A
82 PLYWOOD LUMBER AND SALES	4050 HORTON ST	EMERYVILLE	94608	LTANK	N/A
82 WEYERHAEUSER CO	4050 HORTON ST	EMERYVILLE	94608	UTANK	43104
83 CITY OF EMERYVILLE/FORMER SHEL	1420 45TH ST	EMERYVILLE	94608	LTANK	N/A
83 DICHROMATE INC	1420 45TH ST	EMERYVILLE	94608	ASPIS	01390016

CORTESE continued...

MAP ID NO.	SITE	LOCATION	CITY	ZIP	DATABASE	AGENCY ID
86	SHELL	4250 HORTON ST	EMERYVILLE	N/A	LTANK	N/A
89	TULLUCH CONSTRUCTION	3428 ETTIE ST	OAKLAND	N/A	LTANK	N/A
89	TULLOCH CONSTRUCTION	3428 ETTIE ST	OAKLAND	N/A	HWIS	CAL000007489
90	NATIONAL ENVIRONMENTAL	4055 HUBBARD ST	OAKLAND	94607	LTANK	N/A
90	UNION BANK	1461 PARK AVE	EMERYVILLE	94608	LTANK	N/A
90	STUART WESTERN INC	1461 PARK AVE	EMERYVILLE	94608	FINDS	CAD064154610
90	STUART WESTERN INC	1461 PARK AVE	EMERYVILLE	94608	HWIS	CAD064154610
91	DUTRO COMPANY	1333 62ND ST	EMERYVILLE	94662	LTANK	N/A
91	DUTRO COMPANY	1333 62ND ST	EMERYVILLE	94662	ASPIS	01350015
91	DUTRO COMPANY	1333 62ND ST	EMERYVILLE	94662	FINDS	CAD009117367
91	DUTRO COMPANY	1333 62ND ST	EMERYVILLE	94662	HWIS	CAD009117367
93	SCHWABACKER-FREY	5733 PELLEDEAU	EMERYVILLE	N/A	LTANK	N/A
94	N/A	4543 HORTON ST	EMERYVILLE	N/A	LTANK	N/A
94	RIFKIN REALTY PARTNERS	4549 HORTON ST	EMERYVILLE	N/A	LTANK	N/A
94	CONTAINER CORPORATION OF AMERI	4549 HORTON ST	EMERYVILLE	N/A	ASPIS	01260011
94	ECO SAFE LABORATORIES	4543 HORTON ST	EMERYVILLE	N/A	FINDS	CAD099960312
96	HOLLIS STREET PROJECT	6050 HOLLIS ST	EMERYVILLE	94608	LTANK	N/A
98	HFH LIMITED	6400 HOLLIS ST	EMERYVILLE	N/A	LTANK	N/A
100	PETERSON MANUFACTURING CO.	1600 63RD ST	EMERYVILLE	N/A	LTANK	N/A
100	PETERSON MFG CO INC	1600 63RD ST	EMERYVILLE	N/A	FINDS	CAD041840729
100	FEDERAL EXPRESS CORP	1600 63RD ST	EMERYVILLE	N/A	HWIS	CAL000029366
100	FEDERAL EXPRESS CORPORATION	1600 63RD ST	EMERYVILLE	N/A	HWIS	CAL000039990
101	MICHEL & PELTON	5743 LANDREGAN ST	EMERYVILLE	94608	LTANK	N/A
101	MICHEL AND PELTON CO	5743 LANDREGAN ST	EMERYVILLE	94608	FINDS	CAD009122136
102	PFIZER PIGMENTS INC.	4650 SHELLMOUND ST	EMERYVILLE	94608	LTANK	N/A
102	PFIZER INC	4650 SHELLMOUND ST	EMERYVILLE	94608	ASPIS	01280006
102	MYERS DRUM - EMERYVILLE	4500 SHELLMOUND AVE	EMERYVILLE	94608	ASPIS	01340110



CORTESE continued...

MAP ID NO. SITE	LOCATION	CITY	ZIP	DATABASE	AGENCY ID
102 HARCROS PIGMENTS INC.	4650 SHELLMOUND ST	EMERYVILLE	94608	S1987	10271
102 HARCROS PIGMENTS INC.	4650 SHELLMOUND ST	EMERYVILLE	94608	S1988	10271
102 HARCROS PIGMENTS INC.	4650 SHELLMOUND ST	EMERYVILLE	94608	S1989	10271
102 HARCROS PIGMENTS INC.	4650 SHELLMOUND ST	EMERYVILLE	94608	S1990	10271
102 MYERS CONTAINER CORPORATION	4500 SHELLMOUND AVE	EMERYVILLE	94608	AGT25	1763
102 NPDPFIZER PIGMENTS INC.	4650 SHELLMOUND ST	EMERYVILLE	94608	SWRCB	2 019085001
102 EMERYVILLE - OPEN TOP RECONDIT	4500 SHELLMOUND AVE	EMERYVILLE	94608	UTANK	41769
102 HARCROS PIGMENTS INC	4650 SHELLMOUND ST	EMERYVILLE	94608	A1025	5585
102 PFIZER PIGMENTS INC	4650 SHELLMOUND ST	EMERYVILLE	94608	A1025	88
102 PFIZER PIGMENTS INC	4650 SHELLMOUND ST	EMERYVILLE	94608	FINDS	CAD009206178
102 PFIZER PIGMENTS INC	4650 SHELLMOUND ST	EMERYVILLE	94608	HWIS	CAD009206178
102 MYERS CONTAINER CORP	4500 SHELLMOUND AVE	EMERYVILLE	94608	HWIS	CAT000624957
102 MYERS DRUM CO	4500 SHELLMOUND AVE	EMERYVILLE	94608	FINDS	CAT000624957
103 A & J TRUCKING INC	5600 SHELLMOUND	EMERYVILLE	94662	LTANK	N/A
103 NIELSEN PROPERTY	5800 SHELLMOUND ST	EMERYVILLE	94608	LTANK	N/A
103 A & J TRUCKING CO. INC.	5600 SHELLMOUND	EMERYVILLE	94662	UTANK	12648

## CAL-SITES (AWP)

*The information presented in this report is updated to July, 1993.*

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The Annual Work Plan (AWP) contains a listing of all verified hazardous waste sites that are or will be targeted for abatement by the California Environmental Protection Agency under the Hazardous Substance Cleanup Bond Act of 1984 (Health and Safety Code Section 25356) and the Hazardous Substance Account (HSA). Hazardous waste sites may be discovered by the department directly or referred to the department for confirmation and follow up action by another government agency, such as a local health department, a Regional Water Quality Control Board, a responsible party or a concerned citizen. New sites are added to this database as they are verified and the "Preliminary Assessment, Site Investigation and Hazard Ranking System" processes are completed. This database is updated once annually after approval of the California state legislature and has been incorporated into the CAL-SITES database.

This database currently contains a list of approximately 250 sites in the State of California.

MAP ID NO	SITE NAME	STREET ADDRESS	CITY	ZIP	SITE INFORMATION*
102	MYERS DRUM - EMERYVILLE	4500 SHELLMOUND STREET	EMERYVILLE	94608	See following page(s).

**BORDER ZONE PROPERTY ACT SITES**  
**(DEED RESTRICTIONS)**

*The information provided in this report is updated to July, 1993.*

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In accordance with Assembly Bill 816, and the Hazardous Waste Property/Border Zone Property Law (Health & Safety Code 25220), the CAL-EPA, Toxic Substances Control Program (TSCP) enters into voluntary deed restriction agreements with owners of property who propose building residences, schools, hospitals or day care centers on property that is "on or within 2,000 feet of a significant disposal of hazardous waste". Restrictions may include "activities on, over, or under the land, including, but not limited to, a prohibition against building, filling, grading, excavating, or mining" without the written permission of the TSCP.

This bill requires the TSCP to "notify the planning and building department of each city, county, or regional council of governments when a land use restriction has been recorded, and would require the planning and building department to enforce the restriction," although the TSCP has compiled a list of properties subject to environmental deed restrictions which is used to notify various building and planning departments in local jurisdictions.

MAP ID NO.	SITE NAME	ADDRESS	CITY	ZIP
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As of the date listed above, no sites listed in this database are located within a one mile radius of the subject property.

## CAL-SITES (ASPIS)

*The information presented in this report is updated to July, 1993.*

Developed under Section 25359.6 of the Health and Safety Code, the California EPA Toxic Substance Control Program (TSCP) maintains a listing of potential and known hazardous waste sites. TSCP staff have interviewed officials from county health agencies, local fire departments, county agricultural commissioners, and other local agencies that could reasonably be expected to have information regarding potential waste sites. The Regional Water Quality Control Boards, Department of Fish and Game and other state environmental regulatory agencies' TSCP staffs also review historical land use data sources to generate lists of potentially contaminated sites.

This database was formerly known as the Abandoned Site Program Information System, but was integrated into the CAL-SITES database in 1991. Information concerning most of these sites should be considered preliminary although most confirmed sites from this database are merged into the AWP once they have been hazard ranked. This database currently contains more than 26,000 sites in the State of California.

MAP ID NO.	FACILITY NAME	LOCATION	CITY	ZIP	FACILITY NO.	STATUS CODE*
1	JAMES SLATON TRUCKING	5707 VICENTE STREET	OAKLAND	94609	01420035	NFA
2	KAPS	5301 CLAREMONT AVENUE	OAKLAND	94618	01760021	NFA
3	CLARKS REFINISHING	5200 CLAREMONT AVENUE	OAKLAND	94618	01760018	NFA
7	MARKS PAINT SPOT	5025 TELEGRAPH AVENUE	OAKLAND	94609	01510011	NFA
10	PAYLESS CLEANERS	3936 TELEGRAPH AVENUE	OAKLAND	94609	01720034	NFA
13	WHERE ENDS MEET	5926 WHITNEY STREET	OAKLAND	94609	01330024	NFA
16	PHOTO LAB	1908 ALCATRAZ AVENUE	BERKELEY	94703	01730043	NFA
21	R J S ENTERPRISES	675 37TH STREET	OAKLAND	94609	01350004	NFA
22	EUJELL BATES CLEANERS	1805 ALCATRAZ AVENUE	BERKELEY	94703	01720023	NFA
24	TALLEY COSMETICS	1831 HARMON STREET	BERKELEY	94703	01280056	NFA

\* See "Key to Terms" on last page of report for definition

## CAL-SITES (ASPIS) continued...

MAP ID NO.	FACILITY NAME	LOCATION	CITY	ZIP	FACILITY NO.	STATUS CODE*
25	SIERRA SOUND LABS	1741 ALCATRAZ AVENUE	BERKELEY	94703	01360002	NFA
26	GRANT LABORATORIES INC	6020 ADELINE STREET	OAKLAND	94607	01280062	NFA
27	OLIVIA RECORDS	4400 MARKET STREET	OAKLAND	94607	01720073	NFA
29	CORVIT PHARMACEUTICALS	5780 MARKET STREET	OAKLAND	94607	01510014	NFA
30	FLECTO INTERNATIONAL	1000-12 45TH STREET	OAKLAND	94609	01510002	NFA
33	TOP LINE FIXTURES	941-945 AILEEN STREET	OAKLAND	94609	01350083	NFA
44	PACIFIC TYPOGRAPHIC	1094 YERBA BUENA AVENUE	EMERYVILLE	94608	01350017	NFA
45	LINDEN LAUNDRY	3217 LINDEN STREET	OAKLAND	94607	01720095	NFA
52	ACCURATE MANUFACTURING	4770 SAN PABLO AVENUE	EMERYVILLE	94608	01350016	NFA
53	A C TRANSIT - EMERYVILLE	45TH STREET & SAN PABLO AVENUE	EMERYVILLE	94608	01410002	RWQCB
56	OAKLAND SHORT RUN TOOL & DIE	1201 32ND STREET	OAKLAND	94609	01340028	NFA
58	J R WATSON ASSOCIATES	1133 55TH STREET	OAKLAND	94609	01500055	NFA
58	GENERAL CLEANERS	5426-28 SAN PABLO AVENUE	OAKLAND	94612	01720033	NFA
65	ZERO WASTE SYSTEMS INC	1450 32ND STREET	OAKLAND	94609	01280073	PEARL
68	UTILITY PRODUCTS INC	1212 POWELL STREET	EMERYVILLE	94608	01340104	NFA
69	PROVENZANO AND ASSOCIATES	1303 STANFORD AVENUE	EMERYVILLE	94608	01730098	PEARL
70	RANSOME COMPANY	4030 HOLLIS STREET	EMERYVILLE	94608	01160019	PEARL
71	MASTER TRANSPORTATION	1451 34TH STREET	OAKLAND	94609	01420100	NFA
72	UNITED STAMPING COMPANY	4060 HOLLIS STREET	EMERYVILLE	94608	01330002	NFA

\* See "Key to Terms" on last page of report for definition

CAL-SITES (ASPIS) continued...

MAP ID NO.	FACILITY NAME	LOCATION	CITY	ZIP	FACILITY NO.	STATUS CODE*
72	WESTERN DIE CASTING COMPANY	4065 HOLLIS STREET	EMERYVILLE	94608	01330004	NFA
74	JOSON PRODUCTS COMPANY	1260 53RD STREET	EMERYVILLE	94608	01300002	NFA
76	BROWN & CALDWELL	1255 POWELL STREET	EMERYVILLE	94608	01730006	NFA
77	KARMICHAEL INDUSTRIES	5540 DOYLE STREET	EMERYVILLE	94608	01510015	NFA
78	MOREHOUSE FOODS INC	4221 HOLLIS STREET	EMERYVILLE	94608	01200001	NFA
78	DEAN SANTNER WOODWORKING	4210 HOLDEN STREET	EMERYVILLE	94608	01240019	NFA
78	ELECTRO-COATINGS	1421 PARK AVENUE	EMERYVILLE	94608	01340003	PEARM
78	CHROMEX	1400 PARK AVENUE	EMERYVILLE	94608	01340106	PEARL
78	HOWARD E PITZER COMPANY	1368 PARK AVENUE	EMERYVILLE	94608	01500007	NFA
80	HAULTAIN-CHAMPION COMPANY INC	4512 HOLLIS STREET	EMERYVILLE	94608	01300030	NFA
80	AMERICAN RESIN	1290 45TH STREET	EMERYVILLE	94608	01320007	NFA
80	SOUTHERN PACIFIC RIGHT-OF-WAY EMERYV	WEST OF 4525 HOLLIS STREET	EMERYVILLE	94608	01400002	PEARM
80	PACIFIC GAS & ELECTRIC CO- EMERYVILL	4525 HOLLIS STREET	EMERYVILLE	94608	01490011	CERT
83	DICHROMATE INC	1420 45TH STREET	OAKLAND	94609	01390016	NFA
84	CALIFORNIA PHOTO SERVICE	5440 HOLLIS STREET	EMERYVILLE	94608	01730024	NFA
85	CURTIS PACIFIC	1345 POWELL STREET	EMERYVILLE	94608	01320006	NFA
87	ALABAMA METAL INDUSTRIES	1355 59TH STREET	OAKLAND	94609	01420071	NFA
88	H B CHAPMAN COMPANY	1400 53RD STREET	EMERYVILLE	94608	01320008	NFA
90	TRADER VIC'S FOOD PRODUCTS	1545 PARK AVENUE	EMERYVILLE	94608	01200004	NFA
90	SIEBERT KELLY GRAPHICS	1490 PARK AVENUE	EMERYVILLE	94608	01270002	NFA

\* See "Key to Terms" on last page of report for definition

CAL-SITES (ASPIS) continued...

MAP ID NO.	FACILITY NAME	LOCATION	CITY	ZIP	FACILITY NO.	STATUS CODE*
91	DUTRO COMPANY	1333 62ND STREET	EMERYVILLE	94608	01350015	NFA
93	INDUSTRIAL HARD CHROME	5701-5705 HOLLIS STREET	EMERYVILLE	94608	01340107	PEARL
94	CONTAINER CORPORATION OF AMERICA	4549 HORTON	EMERYVILLE	94608	01260011	NFA
95	WESTINGHOUSE ELECTRIC CO - EMERYVILL	5899 PELADEAU STREET	EMERYVILLE	94608	01360057	BKLG
95	AMERICAN MANUFACTURING COMPANY	5854 HOLLIS STREET	EMERYVILLE	94608	01500008	NFA
96	ITT GRINNELL PROPERTY	6121 HOLLIS STREET	EMERYVILLE	94608	01500101	PEARM
98	SCIENTIFIC MANUFACTURING INDUSTRIES	1399 64TH STREET	EMERYVILLE	94608	01360048	NFA
100	EAST COAST SPECIALITIES	1601 63RD STREET	EMERYVILLE	94608	01510019	NFA
101	FIBERBOARD	1550 POWELL	EMERYVILLE	94608	01260001	NFA
101	CHEVRON ASPHALT PLANT & TERMINAL	1520 POWELL STREET	EMERYVILLE	94608	01290002	PEARM
102	PFIZER INC	4650 SHELLMOUND STREET	EMERYVILLE	94608	01280006	RWQCB
102	MYERS DRUM - EMERYVILLE	4500 SHELLMOUND STREET	EMERYVILLE	94608	01340110	AWP
103	SYBRON / KERR	5770 SHELLMOUND STREET	EMERYVILLE	94608	01220001	NFA

\* See "Key to Terms" on last page of report for definition

## HAZARDOUS WASTE INFORMATION SYSTEMS (HWIS)

*The information presented in this report is updated to December, 1992.*

The California Department of Health Services, Toxic Substances Control Division, has developed and maintained lists of hazardous waste generators and hazardous waste treatment storage and disposal facilities in the State of California, pursuant to the Hazardous Waste Control Law (Health and Safety Code Section 25100 et seq.), and the Hazardous Waste Management Act of 1976 (Health and Safety Code Section 25179.1 et seq). In addition, this law requires all counties to prepare and submit hazardous waste management plans. To assist the counties, the Toxic Substances Control Division maintains lists containing generation and disposal data within each county. This information has been assembled by the Toxic Substances Control Division from manifest reports required from hazardous waste generators. This database currently lists over 20,000 sites in the state of California.

MAP ID NO.	EPA NO.	FACILITY NAME	ADDRESS	CITY	GEN/TSD*
10	CAD076542521	WISE AUTO BODY INC	493 40TH STREET	OAKLAND	GEN
11	CAD980881106	ENVIRONMENTAL QUALITECH	5720 SHATTUCK DR	OAKLAND	GEN
11	CAD980881106	ENVIRONMENTAL QUALITECH	5720 SHATTUCK DR	OAKLAND	TSD
11	CAD981424989	ENVIRONMENTAL CONTROL INDUSTRIES	5720A SHATTUCK AVE	OAKLAND	GEN
15	CAD982041832	CHILDRENS HOSPITAL MEDICAL CTR	747 52ND ST	OAKLAND	GEN
18	CAL000030016	CHEVRON STATION #91583	5509 MARTIN LUTHER KING	OAKLAND	GEN
20	CAL000048687	ARCO PRODUCTS CO FAC 4931	731 W MACARTHUR BLVD	OAKLAND	GEN
24	CAD981453715	MARFIED COMPANY INC	1818 HARMON STREET	BERKELEY	GEN
26	CAD093982866	GRANT LABORATORIES	6020 ADELIN ST	OAKLAND	GEN
30	CAD009140054	FLECTO COMPANY THE INC	1000 45TH STREET	OAKLAND	GEN
33	CAD046069209	EAST BAY FIXTURE CO	941-945 AILEEN ST	OAKLAND	GEN
34	CAD009185307	OAKLAND NATIONAL ENGRAVING CO. INC.	1001 42ND STREET	OAKLAND	GEN
36	CAL000044957	EVERETT GRAPHIC	6050 LOWELL STREET	OAKLAND	GEN
37	CAD009118597	DUNNE FRANK W COMPANY#	1007 41ST ST	OAKLAND	GEN

\* See "Key to Terms" on last page of report for definition



HWIS continued...

MAP ID NO.	EPA NO.	FACILITY NAME	ADDRESS	CITY	GEN/TSD*
39	CAD981667108	MONTAGUE SPRAGENS INC	967 GRACE AVE	OAKLAND	GEN
40	CAD981402688	SHELL STATION #204-5508-5306	3420 SAN PABLO AVE/35TH	OAKLAND	GEN
41	CAD981453475	FRYER INDUSTRIES, INC.	1073 34TH STREET	OAKLAND	GEN
46	CAD040023855	GMC TRUCK & COACH DIVISION	3800 SAN PABLO AVE	OAKLAND	GEN
51	CAD982026486	LENNYS AUTO BODY & PAINTING	3116 ADELINE	OAKLAND	GEN
52	CAD981971682	BERKELEY FARMS	47TH & SAN PABLO	OAKLAND	GEN
54	CAX000077057	SUPERIOR PRESS INC.	3031 ADELINE ST.	OAKLAND	GEN
59	CAD981389547	ALAMEDA CONTRA COSTA TRANSIT DIST	1177 47TH ST	EMERYVILLE	GEN
62	CAL000033897	ROMAK IRON WORKS	3250 HOLLIS STREET	OAKLAND	GEN
63	CAD981391188	DEL MONTE CORP #35	1250 PARK AVE	EMERYVILLE	GEN
63	CAD981965692	INTEGRATED AUTOMATION MFG & SUPL	1255 PARK AVE	EMERYVILLE	GEN
72	CAD009110149	UNITED STAMPING CO	4060 HOLLIS ST	EMERYVILLE	GEN
75	CAL000058136	ARTYPE	4240 HOLLIS #392	EMERYVILLE	GEN
76	CAD981454697	BROWN AND CALDWELL	1255 POWELL STREET	EMERYVILLE	GEN
76	CAD982465551	BOYDS BODY SHOP	1245 POWELL ST	EMERYVILLE	GEN
78	CAD009116229	ELECTRO-COATINGS INC	1421 PARK AVE	EMERYVILLE	GEN
78	CAD981573223	CHARLES LOWE COMPANY	1400 PARK AVENUE	EMERYVILLE	GEN
80	CAT080011620	PG&E/EMERYVILLE MATERAILS DIST CTR	4525 HOLLIS ST	EMERYVILLE	GEN
88	CAD980737431	CETUS CORP	1400 53RD ST	EMERYVILLE	GEN
89	CAD982029084	CALTRANS DISTRICT 4	3465 ETTIE ST	OAKLAND	GEN
90	CAD981992779	DIGI COM ELECTRONICS	1500 PARK AVE STE A305	EMERYVILLE	GEN
90	CAD982000812	WEATHERFORD BMW	4056 HUBBARD ST	EMERYVILLE	GEN
91	CAD009134271	RACO MFG & ENG CO	1400 62ND ST	EMERYVILLE	GEN
94	CAD046866463	CHIRON CORPORATION	4560 HORTON ST SUITE Q214	OAKLAND	GEN

\* See "Key to Terms" on last page of report for definition

HWIS continued...

MAP ID NO.	EPA NO.	FACILITY NAME	ADDRESS	CITY	GEN/TSD*
97	CAD981375983	TECHNICHEM INC	4245 HALLECK ST	EMERYVILLE	GEN
97	CAD981375983	TECHNICHEM INC	4245 HALLECK ST	EMERYVILLE	TSD
98	CAD981649494	GRAPHIC COATING INC	6355 HOLLIS ST	EMERYVILLE	GEN
98	CAL000007242	BAY CITIES ENVELOPE CORP	1399 64TH ST	EMERYVILLE	GEN
99	CAD981390750	WHITNEY RESEARCH TOOL CO	5679 LANDREGAN ST	EMERYVILLE	GEN
100	CAD980888689	PPG IND INC LOC #1855 & 2156	1601-63RD AVE	EMERYVILLE	GEN
101	CAT080010846	CHEVRON USA INC-WESTERN ASPHALT LAB	1520 POWELL ST	EMERYVILLE	GEN
102	CAD009206178	PFIZER PIGMENTS INC	4650 SHELLMOUND ST	EMERYVILLE	GEN
102	CAT000624957	MYERS CONTAINER CORP	4500 SHELLMOUND AVE	EMERYVILLE	GEN
103	CAT000619130	SHERWIN WILLIAMS CO	5815 SHELLMOUND AVE	OAKLAND	GEN

See "Key to Terms" on last page of report for definition

## SOLID WASTE INFORMATION SYSTEM (SWIS)

*The information presented in this report is updated to March, 1993.*

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The California Integrated Waste Management Board maintains an inventory list of both open as well as closed and inactive solid waste disposal facilities and transfer stations pursuant to the Solid Waste Management and Resource Recovery Act of 1972, Government Code Section 2.66790(b). Generally, the California Integrated Waste Management Board learns of locations of disposal facilities through permit applications and from local enforcement agencies. Since 1977, the SWIS system has grown to track over 1000 solid waste disposal facilities and transfer stations in the State of California.

MAP ID	SWIS NO. ID	FACILITY NAME	ADDRESS	CITY	OPERATIONAL STATUS	WASTE RECEIVED	TONS/DAY
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As of the date listed above, no sites listed in this database are located within a one mile radius of the subject property.

\* See "Key to Terms" on last page of report for definition

## LEAKING UNDERGROUND STORAGE TANKS (LUST)

*The information presented in this report is updated to:*

Region 1 - September 1993: North Coast	Region 5 - July 1993: Central Valley
Region 2 - September 1993: San Francisco Bay Area	Region 6 - October 1993: Lahontan Area
Region 3 - September 1993: Central Coast	Region 7 - August 1993: Colorado River Basin
Region 4 - August 1993: Greater Los Angeles Area	Region 8 - July 1993: Santa Ana Area
Region 9 - September 1993: Greater San Diego Area	

The California State Water Resources Control Board, in cooperation with the Office of Emergency Services, compiles lists of all leaks of hazardous substances from underground storage tanks in the State of California pursuant to Section 25295 (b) of the Health and Safety Code. The nine regional boards maintain information on all reported leak cases within their jurisdiction, both for those where the regional board and where other local agencies take the lead in overseeing investigations and remedial actions. The California Environmental Protection Agency's Department of Hazardous Materials Data Management collects the nine regional lists and publishes them as one database named LUSTIS.

Status codes for some regions are not available directly from the nine boards. For those regions VISTA supplements the region's status codes with state LUSTIS status codes. Information from LUSTIS is placed in parentheses and has been updated to May, 1993.

MAP ID NO.	FACILITY	STREET	CITY	ZIP	SUBSTANCE *	GALLONS LOST	CASE TYPE *	STATUS *	REMEDIAL ACTION CODE *
3	AUTOPRO	5200 TELEGRAPH AVE	OAKLAND	N/A	(8006619)		(G)	(3A)	(NT)
4	CHEVRON	5500 TELEGRAPH AVE	OAKLAND	N/A	(8006619)		(G)	(3B)	(NT)
5	TELEGRAPH BUSINESS PARK	5427 TELEGRAPH AVE	OAKLAND	N/A					
6	CHEVRON	5101 TELEGRAPH AVE	OAKLAND	N/A	(8006619)		(G)	(3B)	(NT)
8	KELLEY AUTO PARTS	4400 TELEGRAPH AVE	OAKLAND	N/A	(12036)		(G)	(3B)	(NT)
8	BLUMERT COMPANY	490      43RD ST	OAKLAND	N/A	(8006619)		(S)	(0)	(NT)
9	ARCO	5131 SHATTUCK AVE	OAKLAND	N/A	(12035)		(G)	(3B)	(ED)
10	SHELL	500      40TH ST	OAKLAND	N/A	(12035)		(G)	(5R)	(FP)
10	SIMAS BROS.	4013 TELEGRAPH AVE	OAKLAND	N/A	(8006619)		(G)	(0)	(NT)

\* See "Key to Terms" on last page of report for definition

LUST continued...

MAP ID NO.	FACILITY	STREET	CITY	ZIP	SUBSTANCE	GALLONS LOST	CASE TYPE*	STATUS*	REMEDIAL ACTION CODE*
12	CALIFORNIA HIGHWAY PATROL OAKL	3601 TELEGRAPH AVE	OAKLAND	N/A	(12031)		(S)	(0)	(NT)
14	NIGHTINGALE PROPERTY	4629 MARTIN LUTHER KING W	OAKLAND	N/A					
14	CHILDRENS HOSPITAL OAKLAND	4701 MARTIN LUTHER KING D	OAKLAND	N/A					
17	BP OIL	5425 MARTIN LUTHER KING	OAKLAND	N/A	(12034)		(G)	(3B)	(NT)
17	MOBIL	5425 GROVE ST	OAKLAND	N/A	(8006619)		(S)	(3B)	(GTEDET)
18	CHEVRON	5509 MARTIN LUTHER KING	OAKLAND	N/A	(8006619)		(G)	(5C)	(NT)
19	MARTIN LUTHER KING SCHOOL	5714 MARTIN LUTHER KING	OAKLAND	N/A					
20	ARCO	731 MACARTHUR BLVD W	OAKLAND	N/A	(12031)		(G)	(5C)	(FP)
21	R.D. MINER CO.	750 37TH ST	OAKLAND	N/A	(8006619)		(S)	(0)	(NT)
23	NEIGHBORHOOD LAUNDROMAT	3838 WEST ST	OAKLAND	N/A					
27	DAMELE PROPERTY	4401 MARKET ST	OAKLAND	N/A	(8006619)		(S)	(0)	(NT)
28	SAN FRANCISCO FRENCH BREAD CO	3924 MARKET ST	OAKLAND	N/A					
31	CALIFORNIA LINEN RENTAL	989 41ST ST	OAKLAND	N/A	(8006619)		(G)	(3B)	(NT)
32	RED TOP ELECTRIC INC	4377 ADELINE ST	EMERYVILL E	N/A					
34	OAKLAND NATIONAL ENGRAVERS	1001 42ND ST	OAKLAND	N/A					
35	LOOMIS ARMORED INC	936 BROCKHURST ST	OAKLAND	N/A	(12034)		(G)	(0)	(NT)
38	MOORE PROPERTY	3155 SACRAMENTO ST	BERKELEY	N/A	(8006619)		(S)	(0)	(NT)
40	SHELL	3420 SAN PABLO AVE	OAKLAND	N/A	(8006619)		(G)	(5C)	(NT)
41	THRIFTY OIL	3400 SAN PABLO AVE	OAKLAND	N/A	(8006619)		(G)	(5C)	(FP)
42	CROWLEY PROPERTY	3016 FILBERT ST	OAKLAND	N/A					

\* See "Key to Terms" on last page of report for definition

LUST continued...

MAP ID NO.	FACILITY	STREET	CITY	ZIP	SUBSTANCE	GALLONS LOST	CASE* TYPE	STATUS*	REMEDIAL ACTION CODE*
43	CALIFORNIA HOTEL	3501 PABLO AVE	SAN OAKLAND	N/A	(41)		(S)	(0)	(NT)
47	CITY OF PARIS CLEANERS	3516 ADELINE ST	OAKLAND	N/A	(8052413)		(S)	(3B)	(ET)
48	SAN FRANCISCO BREAD COMPANY	4070 PABLO AVE	SAN EMERYVILL E	N/A	(12036)		(S)	(0)	(NT)
49	CITY OF EMERYVILLE	4300-4310 PABLO AVE	SAN EMERYVILL E	N/A	(8006619)		(G)	(3B)	(NT)
50	BERKELEY FARMS	4550 PABLO AVE	SAN EMERYVILL E	N/A	(12036)		(S)	(0)	(NT)
53	AC TRANSIT	1140 45TH ST	EMERYVILL E	N/A	(8006619)		(G)	(5C)	(ETED)
54	CALIFORNIA ELECTRIC CO	3015 ADELINE ST	OAKLAND	N/A					
55	BELOUS PROPERTY	3423 HARLAN	OAKLAND	N/A	(12036)		(S)	(0)	(NT)
57	LES PAUL	1199 PARK AVE	EMERYVILL E	N/A	(12035)		(S)	(0)	(NT)
58	PARINA ENTERPRISES	5433 PABLO AVE	SAN OAKLAND	N/A	(106423)		(S)	(0)	(NT)
60	CHIEF AUTO PARTS	5714 PABLO AVE	SAN OAKLAND	N/A	(8006619)		(G)	(3B)	(NT)
61	DRAYAGE PROPERTY	1350 34TH ST	OAKLAND	N/A	(8006619)		(S)	(0)	(NT)
62	ROMAK IRON WORKS	3250 HOLLIS ST	OAKLAND	N/A					
64	GUITON CHARTER BUSES	3421 HOLLIS ST	OAKLAND	N/A	(12034)		(G)	(5R)	(IT)
66	BOLIN'S SERVICE GARAGE	6335 PABLO AVE	SAN OAKLAND	N/A	(8006619)		(S)	(0)	(NT)
67	PCC	6400 PABLO AVE	SAN OAKLAND	N/A	(8006619)		(S)	(0)	(NT)
68	KITE MAKERS	5813 FREMONT ST	OAKLAND	N/A					
70	BAY AREA WAREHOUSE	4001 HOLLIS ST	EMERYVILL E	N/A	(8006619)		(G)	(0)	(NT)
70	RANSOME COMPANY	4030 HOLLIS ST	EMERYVILL E	N/A	(12036)		(G)	(5C)	(NT)
70	BASHLAND INC	4015 HOLLIS ST	EMERYVILL E	N/A					

\* See "Key to Terms" on last page of report for definition

LUST continued...

MAP ID NO.	FACILITY	STREET	CITY	ZIP	SUBSTANCE	GALLONS LOST	CASE TYPE*	STATUS*	REMEDIAL ACTION CODE*
73	CITY OF EMERYVILLE	1333 AVE	PARK	EMERYVILL E	N/A (8006619)		(G)	(3B)	(NT)
77	CLEMENTIA LTD	5521 DOYLE ST		EMERYVILL E	N/A				
77	CALIFORNIA SYRUP & EXTRACT	1375 55TH ST		EMERYVILL E	N/A				
78	DEL MONTE PLANT #35	4202 ST	HOLLIS	EMERYVILL E	N/A (8006619)		(G)	(5C)	(NT)
79	BAYOX	1171 AVE	OCEAN	OAKLAND	N/A (12034)		(G)	(3B)	(NT)
80	PG&E	4525 HOLLIS ST		EMERYVILL E	N/A				
82	PLYWOOD LUMBER AND SALES	4050 ST	HORTON	EMERYVILL E	N/A (8006619)		(G)	(0)	(NT)
83	CITY OF EMERYVILLE/FORMER SHEL	1420 ST	45TH	EMERYVILL E	N/A (12035)		(S)	(0)	(NT)
86	SHELL	4250 ST	HORTON	EMERYVILL E	N/A (12036)		(S)	(3A)	(NT)
89	SHIREK ESTATE	3425 ST	ETTIE	OAKLAND	N/A (8006619)		(S)	(3B)	(NT)
89	TULLOCH CONSTRUCTION	3428 ST	ETTIE	OAKLAND	N/A (8006619)		(G)	(5C)	(NT)
90	NATIONAL ENVIRONMENTAL	4055 HUBBARD ST		OAKLAND	N/A (8006619)		(S)	(3A)	(NT)
90	UNION BANK	1461 AVE	PARK	EMERYVILL E	N/A (12036)		(G)	(3B)	(NT)
91	DUTRO COMPANY	1333 ST	62ND	EMERYVILL E	N/A (8006619)		(G)	(0)	(NT)
92	HYDAULIC ELECTRO SERVICE CORP	5812 HOLLIS ST		EMERYVILL E	N/A				
93	SCHWABACKER-FREY	5733 PELLEDEAU		EMERYVILL E	N/A (8006619)		(S)	(0)	(NT)
94	RIFKIN REALTY PARTNERS	4549 ST	HORTON	EMERYVILL E	N/A (8006619)		(S)	(0)	(NT)
94	N/A	4543 ST	HORTON	EMERYVILL E	N/A (12036)		(G)	(3B)	(NT)
96	HOLLIS STREET PROJECT	6050 ST	HOLLIS	EMERYVILL E	N/A (8006619)		(G)	(3B)	(NT)

\* See "Key to Terms" on last page of report for definition

LUST continued...

MAP ID NO.	FACILITY	STREET	CITY	ZIP	SUBSTANCE	GALLONS LOST	CASE TYPE*	STATUS*	REMEDIAL ACTION CODE*
96	US POSTAL SERVICE	6121 HOLLIS ST #8	EMERYVILL E	N/A					
98	HFH LIMITED	6400 ST	HOLLIS E	EMERYVILL N/A	(8006619)		(S)	(0)	(NT)
100	PETERSON MANUFACTURING CO.	1600 ST	63RD E	EMERYVILL N/A	(8006619)		(G)	(5C)	(NT)
102	PFIZER PIGMENTS INC.	4650 SHELLMOUND ST	EMERYVILL E	N/A	(12034)		(G)	(5C)	(RSED)
102	CITY OF CALIFORNIA CITY	700 MOSS AVENUE	CALIFORNIA CITY, CA	93505	8006619		S	7	
103	A & J TRUCKING INC	5600 SHELLMOUND ST	EMERYVILL E	N/A	(12036)		(S)	(0)	(NT)
103	NIELSEN PROPERTY	5800 SHELLMOUND ST	EMERYVILL E	N/A	(8006619)		(S)	(0)	(NT)

See "Key to Terms" on last page of report for definition



## KEY TO TERMS/ABBREVIATIONS USED IN THIS REPORT:

**N/A:** An entry having "N/A" in a field indicates no information is available at this time.

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### **CERCLIS:**

\* **EVENT TYPE** - Evaluation and disposition information:

AR = Administrative Record	NP = Proposal to NPL
AS = Aerial Survey	NR = Removed from Proposed NPL
CO = Combined RI/SI	OH = Other Event
CR = Remedial Community Relations	OM = Operations and Maintenance
CT = Community Relations Technical Assistance	OS = Oversight of State by Fund
DA = Design Assistance	PA = Preliminary Assessment
DS = Discovery	PD = Public Comments on Deletion Package
ED = Endangerment Assessment	PR = Planned Removal
EO = EDD	RA = Remedial Action
ER = Expedited Response Action	RC = Removal Community Relations
ES = Expanded Site Inspection	RD = Remedial Design
EV = Evacuation State/Local	RI = Remedial Investigation (Primarily for Historical Purposes)
FM = Forward Planning/Management Assistance	RM = RAMP -- Remedial Action Master Plan (for Historical Purposes only)
FP = Forward Planning Activity (for Historical Purposes only)	RO = ROD
FS = Feasibility Study (Primarily for Historical Purposes)	RS = Removal Investigation
GS = Geophysical Support/Mapping	RV = Removal Action
HA = Health Assessment	SE = Site Access
HR = Final Hazard Ranking Determined	SI = Site Inspection
IM = Initial Remedial Measure	TA = Technical Assistance
IR = Immediate Removal	TG = Community Relations Technical Assistance
LA = Long-Term Response	TO = Topographical Mapping
LR = Long-Term Response	TR = Temporary Relocation
MA = Management Assistance	UR = Underground Storage Tank Removal
NA = NAA	WP = RI/FS Workplan Approved by HQ
ND = NPL Deletion Process	Z_ = (For Internal Office Use only)
NF = Final Listing on NPL	

\* **EVENT QUALIFIER** - Actual or anticipated actions and priorities:

C = Clean up.	M = Medium priority.
D = Deferred.	N = No further remedial action planned.
E = Administrative record compilation / remedial event.	S = Stabilization.
G = Recommended for HRS scoring.	U = Unknown.
H = Higher priority.	V = Administrative record compilation / removal event.
L = Lower priority.	

\* **REGIONAL UTILITY DESCRIPTION** - Provides information developed by U.S. EPA's regional office about the nature of contamination at a specific site.

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### **NPL:**

\* **SITE DESCRIPTION** - Provides a brief explanation of the contaminants and circumstances of a particular site.

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**AWP (FORMERLY BEP):**

- \* **SITE INFORMATION** - Provides a brief description of the hazardous wastes on the site, the potential threat to public health and the status of the site.

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**CAL-SITES (FORMERLY ASPIS):**

- \* **STATUS CODE** - Indicates the current status of a site and whether it is scheduled for further investigation by DHS Toxic Substances Control Division.

"AWP"	"Annual Workplan" - in remediation.
"BKLK"	"Backlog" - potential AWP site which has been hazard ranked but which is not on the annual workplan.
"CERT"	"Certified" - has been remediated.
"CNTY"	"County lead site" - not a candidate for the annual workplan and the local county has the lead.
"COM"	"Certified Operation and Maintenance" - has been certified but is still in operation and maintenance.
"DLIST"	"Delisted" - taken off the AWP usually for administrative reasons, for example: if several sites are consolidated, the old sites could be given this status.
"EPA"	"EPA lead" - not on the NPL, yet EPA has assumed the lead.
"HRR"	"Hazard Ranking Required" - has had a Preliminary Endangerment Assessment or equivalent evaluation and needs to be hazard ranked.
"NFA"	"No Further Action" - based on the information available on the site's potential to threaten public health and/or the environment, DTSC staff have judged this site to require no further departmental action.
"OAL"	"Other Agency Lead" - not on the AWP and has a lead agency other than the county, the RWQCB, EPA, or RCRA.
"PEARH"	"Preliminary Endangerment Assessment Required, High priority" - judged by DTSC staff to have a high probability of posing a public health or environmental threat.
"PEARL"	"Preliminary Endangerment Assessment Required, Low priority".
"PEARM"	"Preliminary Endangerment Assessment Required, Medium priority".
"PRP"	"Potential Responsible Party search required" - not on the AWP but needs a PRP search, after which would normally receive a ranking of AWP or BKLK.
"RCRA"	"Resource Conservation and Recovery Act" lead - is being mitigated under the Permitting Program and has never been on the AWP or BEP.
"REFRC"	"Referred to RCRA" - has been on the AWP or BEP in the past and is being mitigated under the lead of the permitting program.
"REFRW"	"Referred to RWRQCB" - formerly on the AWP or BEP and is now being mitigated under the lead of the Regional Water Quality Control Board.
"RWQCB"	"Referred to RWQCB" - has never been on the AWP or BEP; is being mitigated under the lead of the RWQCB.
"SSR"	Site Screen Required. The site requires initial screening.

**HWIS:**

\* GEN/TSD - Indicates whether the listed facility is a generator of hazardous waste or is a treatment, storage or disposal facility.

**LUST:**

**\* SUBSTANCE CODES**

MOTOR OIL = 08  
BOILER FUEL = 09  
#6 FUEL OIL = 10  
HEATER FUEL = 12  
SOLVENTS = 13  
HYDRAULIC OIL = 14  
WASTE WATER = 32  
MINERAL SPIRITS = 41  
PAINT THINNER = 49  
OIL\GREASE WASTE = 51  
DRY CLEANING SOLVENT = 52  
WATER\WASTE OIL MIX = 61  
LUBRICATING OIL = 71  
HYDROCARBONS = 76  
COOLANT = 77  
ALIPHATIC HYDROCARBONS = 78  
TRANSMISSION FLUID = 80  
LACQUER THINNER = 84  
NAPTHA DISTILLATE = 101  
V,M&P NAPTHA = 116  
CUTTING OIL = 122

#5 FUEL OIL = 127  
CHLORINATED HYDROCARBONS = 142  
FREON = 171  
ALCOHOL = 172  
UNLEADED GASOLINE = 12031  
REGULAR GASOLINE = 12032  
PREMIUM GASOLINE = 12033  
DIESEL = 12034  
WASTE OIL = 12035  
MISC. VEHICLE FUEL = 12036  
JET FUEL = 12037  
CYANIDES, SALTS = 57125  
ETHYL ALCOLHOL = 64175  
ACETIC ACID = 64197  
METHYL ALCOLHOL = 67561  
ISOPROPYL ALCOHOL = 67630  
ACETONE = 67641  
BENZENE = 71432  
METHYLENE CHLORIDE = 75092  
METHYL ETHYL KETONES = 78933  
TCE = 79016

PSEUDODOCUMENE = 95636  
XYLENE = 106423  
ETHYLENE DICHLORIDE = 107062  
TOLUENE = 108883  
TETRAHYDROFURAN = 109999  
PERCHLORETHYLENE = 127184  
DINITROTOLUENES = 610399  
NICKEL OXIDE = 1313991  
PCB = 1336363  
LEAD = 7439921  
NICKEL = 7440020  
CHROMIUM = 7440473  
COPPER = 7440508  
CRUDE OIL (HAZ.) = 8002059  
GASOLINE = 8006619  
COAL TAR = 8007452  
KEROSENE = 8008206  
STODDARD SOLVENTS = 8052413  
ASPHALT = 8052424  
POLYESTER RESIN = 25037665

**\* CASE TYPE CODES**

- D* - One or more domestic or municipal supply wells have been contaminated.
- G* - Ground water has been affected.
- S* - Only soil has been affected.
- U* - The type of resources affected or extent of the resources affected are not known.

**\* STATUS CODES**

- C Remedial action (cleanup) in progress.
- 0 No Action  
No action has been taken by the responsible party after the initial report of the leak.
- 1 Leak Being Confirmed  
A leak is suspected at a site, includes inspection of the excavation, and tank and appurtenant plumbing to determine existence of leak.
- 3A Preliminary Site Assessment Workplan Submitted  
A workplan/proposal has been requested of, or submitted by, the responsible party in order to determine whether groundwater has been, or will be, impacted as a result of a release from any underground tanks or associated piping.
- 3B Preliminary Site Assessment Underway  
Implementation of a workplan addressing the above described tasks.
- 5C Pollution Characterization  
Responsible party is in the process of installing additional monitoring wells and/or borings in order to fully define the lateral and vertical extent of contamination in soil and ground water and assess the Hydrogeology of the area. This phase of work may also include performing aquifer tests, soil gas surveys, continued ground water gradient determinations and monitoring, assessing impacts of surface and/or ground water.
- 5R Remediation plan  
A remediation plan has been submitted evaluating long term remediation options. A proposal and implementation schedule for an appropriate remediation option has also been submitted. This phase of work may also include preparing and submitting the necessary information for any permits needed prior to implementation of the plan (NPDES or WDR).
- 7 Remedial Action  
Implementation of corrective action plan.
- 8 Post Remedial Action Monitoring  
Periodic ground water or other monitoring at the site, as necessary, in order to verify and/or evaluate the effectiveness of remedial activities.
- 9 Case Closed  
The Regional Board and the Local Agency are in concurrence that no further work is necessary at the site. (9L: Closed by county. 9R: Closed by RWQCB.)
- 10 Cease and Abate Order

**\* REMEDIAL ACTION CODES**

- CB Containment Barrier -- install vertical dike to block horizontal movement of contaminant.
- CD Cap Site -- install horizontal impermeable layer to reduce rainfall infiltration.
- ED Excavate and Dispose -- remove contaminated soil and dispose in approved site.
- ET Excavate and Treat -- remove contaminated soil and treat (includes spreading or land farming).
- FP Remove Free Product -- remove floating product from water table.
- GT Pump and Treat Ground Water -- generally employed to remove dissolved contaminants.
- HU Treatment at Hookup -- install water treatment devices at each dwelling or other place of use.
- IT Enhanced Biodegradation -- use of any available technology to promote bacterial decomposition of contaminants.
- NA No Action Required -- incident is minor, requiring no remedial action.
- NT No Action Taken -- no indication that action was taken.
- OT Other
- RS Replace Supply -- provide alternative water supply to affected parties.
- UK Unknown -- action not known, or unknown if action taken.
- VE, VES Vapor Extraction
- VS, VT Vent Soil -- bore holes in soil to allow volatilization of contaminants.

**COUNTY:**

Class I	Hazardous Materials Accepted (No Radioactivity)	
Class II	Mixed Municipal rubbish	
Class III	Solid waste (concrete)	Type DB Debris Basin
Class LV	Large Volume transfer station	Type LF Landfill
Class SV	Small Volume transfer station	Type TS Transfer Station

NOTE: ALL DESIGNATIONS ARE SUBJECT TO CHANGE.

Index to Map Id Numbers

Map Id Nbr	Agency Name	Site Name	Street Address	City	ZIP
1	CASITES	JAMES SLATON TRUCKING	5707 VICENTE STREET	OAKLAND	94609
2	CASITES	KAPS	5301 CLAREMONT AVENUE	OAKLAND	94618
3	CASITES	CLARKS REFINISHING	5200 CLAREMONT AVENUE	OAKLAND	94618
3	CORTESE	AUTOPRO	5200 TELEGRAPH AVE	OAKLAND	94609
3	LUST	AUTOPRO	5200 TELEGRAPH AVE	OAKLAND	N/A
4	CORTESE	BILL STAUDER CHEVRON	5500 TELEGRAPH AVE	OAKLAND	00000
4	CORTESE	CHEVRON STATION #90338	5500 TELEGRAPH AVE	OAKLAND	00000
4	CORTESE	CHEVRON	5500 TELEGRAPH AVE	OAKLAND	00000
4	CORTESE	90338	5500 TELEGRAPH AVE	OAKLAND	00000
4	LUST	CHEVRON	5500 TELEGRAPH AVE	OAKLAND	N/A
5	LUST	TELEGRAPH BUSINESS PARK	5427 TELEGRAPH AVE	OAKLAND	N/A
6	CORTESE	BURKES CHEVRON SERVICE	5101 TELEGRAPH AVE	OAKLAND	94609
6	CORTESE	BURKES CHEVRON SERVICE	5101 TELEGRAPH AVE	OAKLAND	94609
6	CORTESE	CHEVRON STATION #93864	5101 TELEGRAPH AVE	OAKLAND	94609
6	CORTESE	CHEVRON	5101 TELEGRAPH AVE	OAKLAND	94609
6	CORTESE	93864	5101 TELEGRAPH AVE	OAKLAND	94609
6	LUST	CHEVRON	5101 TELEGRAPH AVE	OAKLAND	N/A
7	CASITES	MARKS PAINT SPOT	5025 TELEGRAPH AVENUE	OAKLAND	94609
8	LUST	BLUMERT COMPANY	490 43RD ST	OAKLAND	N/A
8	LUST	BLUMERT COMPANY	490 43RD ST	OAKLAND	N/A
8	CORTESE	KELLEY AUTO PARTS	4400 TELEGRAPH AVE	OAKLAND	94547
8	LUST	KELLEY AUTO PARTS	4400 TELEGRAPH AVE	OAKLAND	N/A
9	CORTESE	ARCO	5131 SHATTUCK AVE	OAKLAND	94609
9	LUST	ARCO	5131 SHATTUCK AVE	OAKLAND	N/A
10	HWIS	WISE AUTO BODY INC	493 40TH STREET	OAKLAND	N/A
10	CORTESE	SHELL	500 40TH ST	OAKLAND	00000
10	LUST	SHELL	500 40TH ST	OAKLAND	N/A
10	CASITES	PAYLESS CLEANERS	3936 TELEGRAPH AVENUE	OAKLAND	94609
10	CORTESE	SIMAS BROS.	4013 TELEGRAPH AVE	OAKLAND	00000
10	LUST	SIMAS BROS.	4013 TELEGRAPH AVE	OAKLAND	N/A
11	HWIS	ENVIRONMENTAL CONTROL INDUSTRIES	5720A SHATTUCK AVE	OAKLAND	N/A
11	HWIS	ENVIRONMENTAL QUALITECH	5720 SHATTUCK DR	OAKLAND	N/A
11	HWIS	ENVIRONMENTAL QUALITECH	5720 SHATTUCK DR	OAKLAND	N/A
12	CORTESE	OAKLAND CHP	3601 TELEGRAPH AVE	OAKLAND	94609
12	CORTESE	CALIFORNIA HIGHWAY PATROL	3601 TELEGRAPH AVE	OAKLAND	94609
12	CORTESE	CALIFORNIA HIGHWAY PATROL OAKL	3601 TELEGRAPH AVE	OAKLAND	94609
12	CORTESE	CALIFORNIA HIGHWAY PATROL	3601 TELEGRAPH AVE	OAKLAND	94609
12	LUST	CALIFORNIA HIGHWAY PATROL OAKL	3601 TELEGRAPH AVE	OAKLAND	N/A

Index to Map Id Numbers

Map Id Nbr	Agency Name	Site Name	Street Address	City	ZIP
13	CASITES	WHERE ENDS MEET	5926 WHITNEY STREET	OAKLAND	94609
14	LUST	CHILDRENS HOSPITAL OAKLAND	4701 MARTIN LUTHER KING D	OAKLAND	N/A
14	LUST	NIGHTINGALE PROPERTY	4629 MARTIN LUTHER KING W	OAKLAND	N/A
15	HWIS	CHILDRENS HOSPITAL MEDICAL CTR	747 52ND ST	OAKLAND	N/A
16	CASITES	PHOTO LAB	1908 ALCATRAZ AVENUE	BERKELEY	94703
17	CORTESE	BP OIL	5425 MARTIN LUTHER KING	OAKLAND	94609
17	LUST	BP OIL	5425 MARTIN LUTHER KING	OAKLAND	N/A
17	LUST	MOBIL	5425 GROVE ST	OAKLAND	N/A
18	CORTESE	CHEVRON STATION #91583	5509 MARTIN LUTHER KING	OAKLAND	00000
18	CORTESE	CHEVRON	5509 MARTIN LUTHER KING	OAKLAND	00000
18	HWIS	CHEVRON STATION #91583	5509 MARTIN LUTHER KING	OAKLAND	N/A
18	LUST	CHEVRON	5509 MARTIN LUTHER KING	OAKLAND	N/A
18	CORTESE	91583	5509 MARTIN LUTHER KING	OAKLAND	00000
19	LUST	MARTIN LUTHER KING SCHOOL	5714 MARTIN LUTHER KING	OAKLAND	N/A
20	HWIS	ARCO PRODUCTS CO FAC 4931	731 W MACARTHUR BLVD	OAKLAND	N/A
20	CORTESE	ARCO PRODUCTS CO FAC 4931	731 MACARTHUR ST W.	OAKLAND	94610
20	CORTESE	ARCO	731 MACARTHUR ST W.	OAKLAND	94610
20	LUST	ARCO	731 MACARTHUR BLVD W	OAKLAND	N/A
21	CASITES	R J S ENTERPRISES	675 37TH STREET	OAKLAND	94609
21	CORTESE	R.D. MINER CO.	750 37TH ST	OAKLAND	00000
21	LUST	R.D. MINER CO.	750 37TH ST	OAKLAND	N/A
22	CASITES	EUUELL BATES CLEANERS	1805 ALCATRAZ AVENUE	BERKELEY	94703
23	LUST	NEIGHBORHOOD LAUNDROMAT	3838 WEST ST	OAKLAND	N/A
24	CASITES	TALLEY COSMETICS	1831 HARMON STREET	BERKELEY	94703
24	HWIS	MARFIED COMPANY INC	1818 HARMON STREET	BERKELEY	N/A
25	CASITES	SIERRA SOUND LABS	1741 ALCATRAZ AVENUE	BERKELEY	94703
26	CASITES	GRANT LABORATORIES INC	6020 ADELINE STREET	OAKLAND	94607
26	CERCLIS	GRANT LABORATORIES	6020 ADELINE ST	OAKLAND	94608
26	HWIS	GRANT LABORATORIES	6020 ADELINE ST	OAKLAND	N/A
27	CASITES	OLIVIA RECORDS	4400 MARKET STREET	OAKLAND	94607
27	CORTESE	DAMELE PROPERTY	4401 MARKET ST	OAKLAND	94608
27	LUST	DAMELE PROPERTY	4401 MARKET ST	OAKLAND	N/A
28	LUST	SAN FRANCISCO FRENCH BREAD CO	3924 MARKET ST	OAKLAND	N/A
28	LUST	SAN FRANCISCO FRENCH BREAD CO	3924 MARKET ST	OAKLAND	N/A

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29	CASITES	CORVIT PHARMACEUTICALS	5780 MARKET STREET	OAKLAND	94607
30	CASITES	FLECTO INTERNATIONAL	1000-12 45TH STREET	OAKLAND	94609
30	HWIS	FLECTO COMPANY THE INC	1000 45TH STREET	OAKLAND	N/A
31	CORTESE	CALIFORNIA LINEN RENTAL	989 41ST ST	OAKLAND	94608
31	LUST	CALIFORNIA LINEN RENTAL	989 41ST ST	OAKLAND	N/A
32	LUST	RED TOP ELECTRIC INC	4377 ADELINE ST	EMERYVILLE	N/A
33	CASITES	TOP LINE FIXTURES	941-945 AILEEN STREET	OAKLAND	94609
33	HWIS	EAST BAY FIXTURE CO	941-945 AILEEN ST	OAKLAND	N/A
34	HWIS	OAKLAND NATIONAL ENGRAVING CO. INC.	1001 42ND STREET	OAKLAND	N/A
34	LUST	OAKLAND NATIONAL ENGRAVERS	1001 42ND ST	OAKLAND	N/A
35	CORTESE	LOOMIS ARMORED INC	936 BROCKHURST ST	OAKLAND	00000
35	CORTESE	LOOMIS ARMORED CAR SERVICES IN	936 BROCKHURST ST	OAKLAND	00000
35	LUST	LOOMIS ARMORED INC	936 BROCKHURST ST	OAKLAND	N/A
36	HWIS	EVERETT GRAPHIC	6050 LOWELL STREET	OAKLAND	N/A
37	CORTESE	DUNNE FRANK W COMPANY #	1007 41ST ST	OAKLAND	94662
37	CORTESE	FRANK W DUNNE CO	1007 41ST ST	OAKLAND	94662
37	CORTESE	DUNNE QUALITY PAINTS	1007 41ST ST	OAKLAND	94662
37	CORTESE	FRANK W. DUNNE CO.	1007 41ST ST	OAKLAND	94662
37	CORTESE	FRANK W. DUNNE CO.	1007 41ST ST	OAKLAND	94662
37	HWIS	DUNNE FRANK W COMPANY#	1007 41ST ST	OAKLAND	N/A
38	CORTESE	MORTON SALT	3155 SACRAMENTO ST	BERKELEY	00000
38	CORTESE	MOORE PROPERTY	3155 SACRAMENTO ST	BERKELEY	00000
38	LUST	MOORE PROPERTY	3155 SACRAMENTO ST	BERKELEY	N/A
39	HWIS	MONTAGUE SPRAGENS INC	967 GRACE AVE	OAKLAND	N/A
40	CORTESE	SHELL	3420 SAN PABLO AVE	OAKLAND	00000
40	CORTESE	SAN PABLO AVE. SHELL	3420 SAN PABLO AVE	OAKLAND	00000
40	LUST	SHELL	3420 SAN PABLO AVE	OAKLAND	N/A
40	HWIS	SHELL STATION #204-5508-5306	3420 SAN PABLO AVE/35TH	OAKLAND	N/A
41	CORTESE	THRIFTY OIL	3400 SAN PABLO AVE	OAKLAND	94608
41	CORTESE	THRIFTY OIL STN.#049	3400 SAN PABLO AVE	OAKLAND	94608
41	LUST	THRIFTY OIL	3400 SAN PABLO AVE	OAKLAND	N/A
41	HWIS	FRYER INDUSTRIES, INC.	1073 34TH STREET	OAKLAND	N/A
42	LUST	CROWLEY PROPERTY	3016 FILBERT ST	OAKLAND	N/A
43	CORTESE	CALIFORNIA HOTEL	3501 SAN PABLO AVE	OAKLAND	94612

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43	LUST	CALIFORNIA HOTEL	3501 SAN PABLO AVE	OAKLAND	N/A
44	CASITES	PACIFIC TYPOGRAPHIC	1094 YERBA BUENA AVENUE	EMERYVILLE	94608
45	CASITES	LINDEN LAUNDRY	3217 LINDEN STREET	OAKLAND	94607
46	HWIS	GMC TRUCK & COACH DIVISION	3800 SAN PABLO AVE	OAKLAND	N/A
47	CORTESE	CITY OF PARIS CLEANERS	3516 ADELINE ST	OAKLAND	94608
47	LUST	CITY OF PARIS CLEANERS	3516 ADELINE ST	OAKLAND	N/A
48	LUST	SAN FRANCISCO BREAD COMPANY	4070 SAN PABLO AVE	EMERYVILLE	N/A
48	CORTESE	SAN FRANCISCO BREAD COMPANY	4070 SAN PABLO AVE	OAKLAND	00000
48	CORTESE	TOSCANA BAKING COMPANY	4070 SAN PABLO AVE	OAKLAND	00000
49	LUST	CITY OF EMERYVILLE	4300-4310 SAN PABLO AVE	EMERYVILLE	N/A
49	CORTESE	CITY OF EMERYVILLE	4300 -4310 SAN PABLO AVE	EMERYVILLE	00000
50	CORTESE	BERKELEY FARMS INC	4550 SAN PABLO AVE	EMERYVILLE	94608
50	CORTESE	BERKELEY FARMS	4550 SAN PABLO AVE	EMERYVILLE	94608
50	CORTESE	BERKELEY FARMS INC. EMERYVILLE	4550 SAN PABLO AVE	EMERYVILLE	94608
50	LUST	BERKELEY FARMS	4550 SAN PABLO AVE	EMERYVILLE	N/A
51	HWIS	LENNYS AUTO BODY & PAINTING	3116 ADELINE	OAKLAND	N/A
52	HWIS	BERKELEY FARMS	47TH & SAN PABLO	OAKLAND	N/A
52	CASITES	ACCURATE MANUFACTURING	4770 SAN PABLO AVENUE	EMERYVILLE	94608
53	CASITES	A C TRANSIT - EMERYVILLE	45TH STREET & SAN PABLO AVENUE	EMERYVILLE	94608
53	CORTESE	AC TRANSIT	1140 45TH ST	EMERYVILLE	00050
53	LUST	AC TRANSIT	1140 45TH ST	EMERYVILLE	N/A
54	HWIS	SUPERIOR PRESS INC.	3031 ADELINE ST.	OAKLAND	N/A
54	LUST	CALIFORNIA ELECTRIC CO	3015 ADELINE ST	OAKLAND	N/A
55	CORTESE	BELOUS PROPERTY	3423 HARLAN	OAKLAND	00000
55	LUST	BELOUS PROPERTY	3423 HARLAN	OAKLAND	N/A
56	CASITES	OAKLAND SHORT RUN TOOL & DIE	1201 32ND STREET	OAKLAND	94609
57	CORTESE	LES PAUL	1199 PARK AVE	EMERYVILLE	00000
57	LUST	LES PAUL	1199 PARK AVE	EMERYVILLE	N/A
58	CASITES	GENERAL CLEANERS	5426-28 SAN PABLO AVENUE	OAKLAND	94612
58	CORTESE	PARINA ENTERPRISES	5433 SAN PABLO AVE	OAKLAND	94608
58	LUST	PARINA ENTERPRISES	5433 SAN PABLO AVE	OAKLAND	N/A
58	CASITES	J R WATSON ASSOCIATES	1133 55TH STREET	OAKLAND	94609
59	HWIS	ALAMEDA CONTRA COSTA TRANSIT DIST	1177 47TH ST	EMERYVILLE	N/A



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60	CORTESE	CHIEF AUTO PARTS	5714 SAN PABLO AVE	OAKLAND	94608
60	CORTESE	SUPER-7 #25670	5714 SAN PABLO AVE	OAKLAND	94608
60	LUST	CHIEF AUTO PARTS	5714 SAN PABLO AVE	OAKLAND	N/A
61	CORTESE	DRAYAGE PROPERTY	1350 34TH ST	OAKLAND	94608
61	LUST	DRAYAGE PROPERTY	1350 34TH ST	OAKLAND	N/A
62	HWIS	ROMAK IRON WORKS	3250 HOLLIS STREET	OAKLAND	N/A
62	LUST	ROMAK IRON WORKS	3250 HOLLIS ST	OAKLAND	N/A
63	HWIS	DEL MONTE CORP #35	1250 PARK AVE	EMERYVILLE	N/A
63	HWIS	INTEGRATED AUTOMATION MFG & SUPL	1255 PARK AVE	EMERYVILLE	N/A
64	CORTESE	GUITON INC	3421 HOLLIS ST	OAKLAND	94608
64	CORTESE	GUITON INC	3421 HOLLIS ST	OAKLAND	94608
64	CORTESE	GUITON CHARTER BUSES	3421 HOLLIS ST	OAKLAND	94608
64	LUST	GUITON CHARTER BUSES	3421 HOLLIS ST	OAKLAND	N/A
65	CASITES	ZERO WASTE SYSTEMS INC	1450 32ND STREET	OAKLAND	94609
65	CERCLIS	ZERO WASTE SYSTS INC	1450 32ND ST	OAKLAND	94608
65	CORTESE	ZERO WASTE SYSTEMS INC	1450 32ND ST	OAKLAND	94609
65	CORTESE	ZERO WASTE SYSTEMS INC.	1450 32ND ST	OAKLAND	94609
65	CORTESE	ZERO WASTE SYSTEMS INC.	1450 32ND ST	OAKLAND	94609
66	CORTESE	BOLIN'S SERVICE GARAGE	6335 SAN PABLO AVE	OAKLAND	94608
66	LUST	BOLIN'S SERVICE GARAGE	6335 SAN PABLO AVE	OAKLAND	N/A
67	CORTESE	PCC	6400 SAN PABLO AVE	OAKLAND	94608
67	LUST	PCC	6400 SAN PABLO AVE	OAKLAND	N/A
68	CASITES	UTILITY PRODUCTS INC	1212 POWELL STREET	EMERYVILLE	94608
68	LUST	KITE MAKERS	5813 FREMONT ST	OAKLAND	N/A
69	CASITES	PROVENZANO AND ASSOCIATES	1303 STANFORD AVENUE	EMERYVILLE	94608
70	CORTESE	RANSOME COMPANY	4030 HOLLIS ST	EMERYVILLE	00000
70	CORTESE	RANSOME CO	4030 HOLLIS ST	EMERYVILLE	00000
70	CORTESE	RANSOME COMPANY	4030 HOLLIS ST	EMERYVILLE	00000
70	CORTESE	RANSOME CO	4030 HOLLIS ST	EMERYVILLE	00000
70	CORTESE	RANSOME COMPANY	4030 HOLLIS ST	EMERYVILLE	00000
70	LUST	RANSOME COMPANY	4030 HOLLIS ST	EMERYVILLE	N/A
70	CASITES	RANSOME COMPANY	4030 HOLLIS STREET	EMERYVILLE	94608
70	LUST	BAY AREA WAREHOUSE	4001 HOLLIS ST	EMERYVILLE	N/A
70	LUST	BASHLAND INC	4015 HOLLIS ST	EMERYVILLE	N/A
71	CASITES	MASTER TRANSPORTATION	1451 34TH STREET	OAKLAND	94609
72	HWIS	UNITED STAMPING CO	4060 HOLLIS ST	EMERYVILLE	N/A
72	CASITES	UNITED STAMPING COMPANY	4060 HOLLIS STREET	EMERYVILLE	94608

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72	CASITES	WESTERN DIE CASTING COMPANY	4065 HOLLIS STREET	EMERYVILLE	94608
73	LUST	CITY OF EMERYVILLE	1333 PARK AVE	EMERYVILLE	N/A
74	CASITES	JOSON PRODUCTS COMPANY	1260 53RD STREET	EMERYVILLE	94608
75	HWIS	ARTYPE	4240 HOLLIS #392	EMERYVILLE	N/A
76	HWIS	BOYDS BODY SHOP	1245 POWELL ST	EMERYVILLE	N/A
76	CASITES	BROWN & CALDWELL	1255 POWELL STREET	EMERYVILLE	94608
76	HWIS	BROWN AND CALDWELL	1255 POWELL STREET	EMERYVILLE	N/A
77	LUST	CALIFORNIA SYRUP & EXTRACT	1375 55TH ST	EMERYVILLE	N/A
77	CASITES	KARMICHAEL INDUSTRIES	5540 DOYLE STREET	EMERYVILLE	94608
77	LUST	CLEMENTIA LTD	5521 DOYLE ST	EMERYVILLE	N/A
78	CORTESE	DEL MONTE PLANT #35	4202 HOLLIS ST	EMERYVILLE	00000
78	LUST	DEL MONTE PLANT #35	4202 HOLLIS ST	EMERYVILLE	N/A
78	CASITES	MOREHOUSE FOODS INC	4221 HOLLIS STREET	EMERYVILLE	94608
78	CASITES	HOWARD E PITZER COMPANY	1368 PARK AVENUE	EMERYVILLE	94608
78	CERCLIS	CHROMEX DIV OF CHARLES LOWE CO	1400 PARK AVE	EMERYVILLE	94662
78	CORTESE	CHROMEX	1400 PARK AVE	EMERYVILLE	94608
78	CORTESE	CHROMEX DIV OF CHARLES LOWE CO	1400 PARK AVE	EMERYVILLE	94608
78	CORTESE	CHARLES LOWE COMPANY	1400 PARK AVE	EMERYVILLE	94608
78	CORTESE	CHARLES LOWE COMPANY	1400 PARK AVE	EMERYVILLE	94608
78	CORTESE	CHARLES LOWE COMPANY	1400 PARK AVE	EMERYVILLE	94608
78	CORTESE	CHARLES LOWE COMPANY	1400 PARK AVE	EMERYVILLE	94608
78	CORTESE	CHROMEX	1400 PARK AVE	EMERYVILLE	94608
78	CORTESE	CHARLES LOWE CO	1400 PARK AVE	EMERYVILLE	94608
78	CORTESE	CHARLES LOWE CO. CHROMEX DIVI	1400 PARK AVE	EMERYVILLE	94608
78	HWIS	CHARLES LOWE COMPANY	1400 PARK AVENUE	EMERYVILLE	N/A
78	CASITES	CHROMEX	1400 PARK AVENUE	EMERYVILLE	94608
78	CASITES	DEAN SANTNER WOODWORKING	4210 HOLDEN STREET	EMERYVILLE	94608
78	CERCLIS	ELECTRO-COATINGS IND	1401 PARK AVE	OAKLAND	94608
78	CASITES	ELECTRO-COATINGS	1421 PARK AVENUE	EMERYVILLE	94608
78	HWIS	ELECTRO-COATINGS INC	1421 PARK AVE	EMERYVILLE	N/A
79	CORTESE	BAYOX INC	1171 OCEAN AVE	OAKLAND	00000
79	CORTESE	BAYOX	1171 OCEAN AVE	OAKLAND	00000
79	LUST	BAYOX	1171 OCEAN AVE	OAKLAND	N/A
80	CASITES	AMERICAN RESIN	1290 45TH STREET	EMERYVILLE	94608
80	CASITES	HAULTAIN-CHAMPION COMPANY INC	4512 HOLLIS	EMERYVILLE	94608
80	CASITES	PACIFIC GAS & ELECTRIC CO-EMERYVILL	4525 HOLLIS STREET	EMERYVILLE	94608
80	CERCLIS	PG&E EMERYVILLE	4525 HOLLIS	EMERYVILLE	94608
80	HWIS	PG&E/EMERYVILLE MATERAILS DIST CTR	4525 HOLLIS ST	EMERYVILLE	N/A
80	LUST	PG&E	4525 HOLLIS ST	EMERYVILLE	N/A
80	CASITES	SOUTHERN PACIFIC RIGHT-OF-WAY EMERYV	WEST OF 4525 HOLLIS STREET	EMERYVILLE	94608

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80	CORTESE	SOUTHERN PACIFIC RIGHT-OF-WAY	WEST OF 4525 HOLLIS STREET	EMERYVILLE	94608
81	CORTESE	BERKELEY FARMS	1313 53RD ST	EMERYVILLE	94549
82	CORTESE	PLYWOOD LUMBER AND SALES	4050 HORTON ST	EMERYVILLE	94608
82	CORTESE	WEYERHAEUSER CO	4050 HORTON ST	EMERYVILLE	94608
82	LUST	PLYWOOD LUMBER AND SALES	4050 HORTON ST	EMERYVILLE	N/A
83	CASITES	DICHROMATE INC	1420 45TH STREET	OAKLAND	94609
83	CORTESE	DICHROMATE INC	1420 45TH ST	EMERYVILLE	94608
83	CORTESE	CITY OF EMERYVILLE/FORMER SHEL	1420 45TH ST	EMERYVILLE	94608
83	LUST	CITY OF EMERYVILLE/FORMER SHEL	1420 45TH ST	EMERYVILLE	N/A
84	CASITES	CALIFORNIA PHOTO SERVICE	5440 HOLLIS STREET	EMERYVILLE	94608
85	CASITES	CURTIS PACIFIC	1345 POWELL STREET	EMERYVILLE	94608
86	CORTESE	SHELL	4250 HORTON ST	EMERYVILLE	00000
86	LUST	SHELL	4250 HORTON ST	EMERYVILLE	N/A
87	CASITES	ALABAMA METAL INDUSTRIES	1355 59TH STREET	OAKLAND	94609
88	CASITES	H B CHAPMAN COMPANY	1400 53RD STREET	EMERYVILLE	94608
88	HWIS	CETUS CORP	1400 53RD ST	EMERYVILLE	N/A
89	CORTESE	TULLOCH CONSTRUCTION	3428 ETTIE ST	OAKLAND	00000
89	CORTESE	TULLUCH CONSTRUCTION	3428 ETTIE ST	OAKLAND	00000
89	LUST	TULLOCH CONSTRUCTION	3428 ETTIE ST	OAKLAND	N/A
89	LUST	SHIREK ESTATE	3425 ETTIE ST	OAKLAND	N/A
89	HWIS	CALTRANS DISTRICT 4	3465 ETTIE ST	OAKLAND	N/A
90	CORTESE	STUART WESTERN INC	1461 PARK AVE	EMERYVILLE	94608
90	CORTESE	STUART WESTERN INC	1461 PARK AVE	EMERYVILLE	94608
90	CORTESE	UNION BANK	1461 PARK AVE	EMERYVILLE	94608
90	LUST	UNION BANK	1461 PARK AVE	EMERYVILLE	N/A
90	CASITES	SIEBERT KELLY GRAPHICS	1490 PARK AVENUE	EMERYVILLE	94608
90	HWIS	DIGI COM ELECTRONICS	1500 PARK AVE STE A305	EMERYVILLE	N/A
90	CORTESE	NATIONAL ENVIRONMENTAL	4055 HUBBARD ST	OAKLAND	94607
90	HWIS	WEATHERFORD BMW	4056 HUBBARD ST	EMERYVILLE	N/A
90	LUST	NATIONAL ENVIRONMENTAL	4055 HUBBARD ST	OAKLAND	N/A
90	CASITES	TRADER VIC'S FOOD PRODUCTS	1545 PARK AVENUE	EMERYVILLE	94608
91	CASITES	DUTRO COMPANY	1333 62ND STREET	EMERYVILLE	94608
91	CORTESE	DUTRO COMPANY	1333 62ND ST	EMERYVILLE	94662
91	CORTESE	DUTRO COMPANY	1333 62ND ST	EMERYVILLE	94662
91	CORTESE	DUTRO COMPANY	1333 62ND ST	EMERYVILLE	94662
91	CORTESE	DUTRO COMPANY	1333 62ND ST	EMERYVILLE	94662
91	LUST	DUTRO COMPANY	1333 62ND ST	EMERYVILLE	N/A
91	HWIS	RACO MFG & ENG CO	1400 62ND ST	EMERYVILLE	N/A

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92	LUST	HYDAULIC ELECTRO SERVICE CORP	5812 HOLLIS ST	EMERYVILLE	N/A
93	CASITES	INDUSTRIAL HARD CHROME	5701-5705 HOLLIS STREET	EMERYVILLE	94608
93	CERCLIS	INDUSTRIAL HARD CHROME	5701 HOLLIS ST	EMERYVILLE	94608
93	CORTESE	SCHWABACKER-FREY	5733 PELLEDEAU	EMERYVILLE	00000
93	LUST	SCHWABACKER-FREY	5733 PELLEDEAU	EMERYVILLE	N/A
94	CORTESE	ECO SAFE LABORATORIES	4543 HORTON ST	EMERYVILLE	00000
94	CORTESE	N/A	4543 HORTON ST	EMERYVILLE	00000
94	LUST	N/A	4543 HORTON ST	EMERYVILLE	N/A
94	CASITES	CONTAINER CORPORATION OF AMERICA	4549 HORTON	EMERYVILLE	94608
94	CORTESE	CONTAINER CORPORATION OF AMERI	4549 HORTON ST	EMERYVILLE	00000
94	CORTESE	RIFKIN REALTY PARTNERS	4549 HORTON ST	EMERYVILLE	00000
94	LUST	RIFKIN REALTY PARTNERS	4549 HORTON ST	EMERYVILLE	N/A
94	HWIS	CHIRON CORPORATION	4560 HORTON ST SUITE Q214	OAKLAND	N/A
95	CASITES	AMERICAN MANUFACTURING COMPANY	5854 HOLLIS STREET	EMERYVILLE	94608
95	CASITES	WESTINGHOUSE ELECTRIC CO - EMERYVILL	5899 PELADEAU STREET	EMERYVILLE	94608
95	CERCLIS	WESTINGHOUSE ELECTRIC CORP EMERYVILL	5899 PELADEAU ST	EMERYVILLE	94608
96	CORTESE	HOLLIS STREET PROJECT	6050 HOLLIS ST	EMERYVILLE	94608
96	LUST	HOLLIS STREET PROJECT	6050 HOLLIS ST	EMERYVILLE	N/A
96	CASITES	ITT GRINNELL PROPERTY	6121 HOLLIS STREET	EMERYVILLE	94608
96	LUST	US POSTAL SERVICE	6121 HOLLIS ST #8	EMERYVILLE	N/A
97	HWIS	TECHNICHEM INC	4245 HALLECK ST	EMERYVILLE	N/A
97	HWIS	TECHNICHEM INC	4245 HALLECK ST	EMERYVILLE	N/A
97	HWIS	TECHNICHEM INC	4245 HALLECK ST	EMERYVILLE	N/A
98	HWIS	BAY CITIES ENVELOPE CORP	1399 64TH ST	EMERYVILLE	N/A
98	CORTESE	HFH LIMITED	6400 HOLLIS ST	EMERYVILLE	00000
98	LUST	HFH LIMITED	6400 HOLLIS ST	EMERYVILLE	N/A
98	CASITES	SCIENTIFIC MANUFACTURING INDUSTRIES	1399 64TH STREET	EMERYVILLE	94608
98	HWIS	GRAPHIC COATING INC	6355 HOLLIS ST	EMERYVILLE	N/A
99	HWIS	WHITNEY RESEARCH TOOL CO	5679 LANDREGAN ST	EMERYVILLE	N/A
100	HWIS	PPG IND INC LOC #1855 & 2156	1601-63RD AVE	EMERYVILLE	N/A
100	CASITES	EAST COAST SPECIALITIES	1601 63RD STREET	EMERYVILLE	94608
100	CORTESE	PETERSON MFG CO INC	1600 63RD ST	EMERYVILLE	00000
100	CORTESE	FEDERAL EXPRESS CORP	1600 63RD ST	EMERYVILLE	00000
100	CORTESE	FEDERAL EXPRESS CORPORATION	1600 63RD ST	EMERYVILLE	00000
100	CORTESE	PETERSON MANUFACTURING CO.	1600 63RD ST	EMERYVILLE	00000
100	LUST	PETERSON MANUFACTURING CO.	1600 63RD ST	EMERYVILLE	N/A
101	CORTESE	MICHEL AND PELTON CO	5743 LANDREGAN ST	EMERYVILLE	94608

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101	CORTESE	MICHEL & PELTON	5743 LANDREGAN ST	EMERYVILLE	94608
101	CASITES	CHEVRON ASPHALT PLANT & TERMINAL	1520 POWELL STREET	EMERYVILLE	94608
101	CERCLIS	AMERICAN BITUMALS & ASPHALT	1520 POWELL ST	EMERYVILLE	94608
101	HWIS	CHEVRON USA INC-WESTERN ASPHALT LAB	1520 POWELL ST	EMERYVILLE	N/A
101	CASITES	FIBERBOARD	1550 POWELL	EMERYVILLE	94608
102	CASITES	MYERS DRUM - EMERYVILLE	4500 SHELLMOUND STREET	EMERYVILLE	94608
102	AWP	MYERS DRUM - EMERYVILLE	4500 SHELLMOUND STREET	EMERYVILLE	94608
102	CORTESE	MYERS CONTAINER CORPORATION	4500 SHELLMOUND AVE	EMERYVILLE	94608
102	CORTESE	MYERS DRUM - EMERYVILLE	4500 SHELLMOUND AVE	EMERYVILLE	94608
102	CORTESE	MYERS DRUM CO	4500 SHELLMOUND AVE	EMERYVILLE	94608
102	CORTESE	MYERS CONTAINER CORP	4500 SHELLMOUND AVE	EMERYVILLE	94608
102	CORTESE	EMERYVILLE - OPEN TOP RECONDIT	4500 SHELLMOUND AVE	EMERYVILLE	94608
102	CASITES	PFIZER INC	4650 SHELLMOUND STREET	EMERYVILLE	94608
102	CERCLIS	PFIZER INC	4650 SHELLMOUND ST	EMERYVILLE	94608
102	CORTESE	PFIZER PIGMENTS INC	4650 SHELLMOUND ST	EMERYVILLE	94608
102	CORTESE	HARCROS PIGMENTS INC	4650 SHELLMOUND ST	EMERYVILLE	94608
102	CORTESE	PFIZER INC	4650 SHELLMOUND ST	EMERYVILLE	94608
102	CORTESE	PFIZER PIGMENTS INC	4650 SHELLMOUND ST	EMERYVILLE	94608
102	CORTESE	PFIZER PIGMENTS INC	4650 SHELLMOUND ST	EMERYVILLE	94608
102	CORTESE	PFIZER PIGMENTS INC.	4650 SHELLMOUND ST	EMERYVILLE	94608
102	CORTESE	HARCROS PIGMENTS INC.	4650 SHELLMOUND ST	EMERYVILLE	94608
102	CORTESE	HARCROS PIGMENTS INC.	4650 SHELLMOUND ST	EMERYVILLE	94608
102	CORTESE	HARCROS PIGMENTS INC.	4650 SHELLMOUND ST	EMERYVILLE	94608
102	CORTESE	HARCROS PIGMENTS INC.	4650 SHELLMOUND ST	EMERYVILLE	94608
102	CORTESE	NPB-PFIZER PIGMENTS INC.	4650 SHELLMOUND ST	EMERYVILLE	94608
102	HWIS	PFIZER PIGMENTS INC	4650 SHELLMOUND ST	EMERYVILLE	N/A
102	LUST	PFIZER PIGMENTS INC.	4650 SHELLMOUND ST	EMERYVILLE	N/A
102	LUST	CITY OF CALIFORNIA CITY	700 MOSS AVENUE	CALIFORNIA CITY, CA	93505
102	HWIS	MYERS CONTAINER CORP	4500 SHELLMOUND AVE	EMERYVILLE	N/A
103	LUST	A & J TRUCKING INC	5600 SHELLMOUND ST	EMERYVILLE	N/A
103	CORTESE	A & J TRUCKING INC	5600 SHELLMOUND	EMERYVILLE	94662
103	CORTESE	A & J TRUCKING CO. INC.	5600 SHELLMOUND	EMERYVILLE	94662
103	CORTESE	NIELSEN PROPERTY	5800 SHELLMOUND ST	EMERYVILLE	94608
103	LUST	NIELSEN PROPERTY	5800 SHELLMOUND ST	EMERYVILLE	N/A
103	CASITES	SYBRON / KERR	5770 SHELLMOUND STREET	EMERYVILLE	94608
103	HWIS	SHERWIN WILLIAMS CO	5815 SHELLMOUND AVE	OAKLAND	N/A



Dear Vista Customer:

The report you have just received may show several sites in the mentions section. Mentions are environmental risk sites that have not been or can not be plotted on a map. This is due to one of two circumstances related to how we locate street addresses on our maps. Plotting consists of translating a street address into a latitude and longitude coordinate, or an actual point on a map.

1) A site cannot be plotted because of inaccurate or missing locational information in the record provided by the reporting agency. For many of these records, Vista has corrected or added locational information from private industry address files. However, many site addresses cannot be corrected using these techniques and those sites cannot be mapped.

2) Also, we are continually updating our database. We receive information from the various agencies and go through the mapping process as quickly as possible; however, there are sites that cannot be processed immediately. In order to best serve our customers, we include those sites that we have not been able to rule out, or map. Mappable sites may fall within your radius, or they may have been included because of a similar zip code or area name.

In order to provide you with the most current and comprehensive data it is necessary to include these "unmappables" in your report. As the data matures we will be able to plot more of the sites and look forward to providing you with reports with fewer mentions in the future.

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VISTA ENVIRONMENTAL INFORMATION, INC.

5060 SHOREHAM PLACE, SUITE 300 • SAN DIEGO, CALIFORNIA 92122 • (619) 450-6100 • FAX (619) 450-6195  
415 EAGLEVIEW BOULEVARD, SUITE 112 • EXTON, PA 19341 • (215) 458-1122 • FAX (215) 458-1134  
130 SHORE ROAD, SUITE 296 • PORT WASHINGTON, NY 11050 • (516) 733-4572 • FAX (516) 883-0604

Mentions for report 1/034284-001

Agency	City	Zip	St #	Street Name	Site Name	NFA?
CERCLIS	OAKLAND	94607		1ST BET JEFFERSON & MARKET	PG&E GAS PLANT OAKLAND 601 2	Y
CERCLIS	OAKLAND	94606		EMBARCADERO CV MARINA SITE	PORT OF OAKLAND	Y
CERCLIS	OAKLAND	94623		NAVAL SUPPLY CENTER OAKLAND	NAVY PUBLIC WORKS CENTER SAN FRANCIS	Y
CERCLIS	OAKLAND	94621		OAKLAND ARPT	PACIFIC AIRMOTIVE	Y
CERCLIS	OAKLAND	94621		OAKLAND ARPT	GOLDEN GATE AVIATION	Y
CERCLIS	OAKLAND	94621		OAKLAND ARPT	BUSINESS AIRCRAFT DISTR	Y
CORTESE	BERKELEY	00000		6TH/GROVE&JEFFERSON	CALTRANS	-
CORTESE	BERKELEY	00000		ALS BLDG	UC BERKELEY LABORATORY	-
CORTESE	BERKELEY	94710		BETWEEN I-80 FRONTAGE RD & MA	BERKELEY LANDFILL COMPANY	-
CORTESE	BERKELEY	00000		DELAWARE & VIRGINIA	SOUTHERN PACIFIC	-
CORTESE	BERKELEY	94704	921	SEBASTOPOL RD	BEACON #489 (ULTRAMAR)	-
CORTESE	BERKELEY	94704	921	SEBASTOPOL RD	BEACON STATION #1-489	-
CORTESE	BERKELEY	00000		5 ST CAMELIA	N/A	-
CORTESE	BERKELEY	00000		4 ST HARRISON	UC BERKELEY	-
CORTESE	BERKELEY	00000		4 ST PARKER	CUTTER LABORATORIES	-
CORTESE	BERKELEY	00000		4 ST PARKER	MILES LABORATORY/CUTTER	-
CORTESE	BERKELEY	94619		TILDEN PARK	EAST BAY REGIONAL PARK	-
CORTESE	EMERYVILLE	94608		SHELLMOUND ST. SOUTH TERMINUS	JUDSON STEEL	-
CORTESE	EMERYVILLE	94608		TRANSO/LACOSTE SITE	EMERYVILLE REDEVELOPMENT AGCY	-
CORTESE	OAKLAND	94612	1236	1238 41ST	MOTOR PARTNERS I	-
CORTESE	OAKLAND	94662	1007	41ST ST	DUNNE FRANK W COMPANY #	-
CORTESE	OAKLAND	00000		41ST/42ND ST	GROW GP/OAKLAND NATL ENGRAVING	-
CORTESE	OAKLAND	94621		ASR #9 FACILITY	FAA AIRWAY FACILITY	-
CORTESE	OAKLAND	94606		5 AVE KIRKHAM	SOUTHERN PACIFIC TRANS CO	-
CORTESE	OAKLAND	94605		73 BANCROFT	EASTMONT AUTO SERVICE	-
CORTESE	OAKLAND	94605		73 BANCROFT	BP	-
CORTESE	OAKLAND	94605		73 BANCROFT	FIRESTONE #3659	-
CORTESE	OAKLAND	94625		CODE 6 BUILDING 322	OAKLAND NAVAL SUPPLY CENTER	-
CORTESE	OAKLAND	94606		DENNISON AND EMBARCADERO STREE	PORT OF OAKLAND - EMBARCADERO	-
CORTESE	OAKLAND	94606		DENNISON AND EMBARCADERO STREE	PORT OF OAKLAND	-
CORTESE	OAKLAND	00000		DOOLITTLE DR	OAKLAND INTERNATIONAL AIRPORT	-
CORTESE	OAKLAND	00000		DOOLITTLE DR	POLVOROSA BUSINESS PARK	-
CORTESE	OAKLAND	00000		DOOLITTLE DR	WDR-ALAMEDA CITY LANDFILL	-
CORTESE	OAKLAND	00000		DOOLITTLE DR	NPD MAJ-DBDA JOINT OUTFALL	-
CORTESE	OAKLAND	00000		DOOLITTLE DR	WDR-ALAMEDA CITY LANDFILL	-
CORTESE	OAKLAND	00000		DOOLITTLE DR	NPD MAJ-DBDA JOINT OUTFALL	-
CORTESE	OAKLAND	91505	5425	GROVE ST	BP OIL COMPANY	-
CORTESE	OAKLAND	91505	5425	GROVE ST	MOBIL	-
CORTESE	OAKLAND	94005		JACK LONDON MARINA	PORT OF OAKLAND	-
CORTESE	OAKLAND	00000	1583	JULIE ANN WAY	YANDELL TRUCKING	-
CORTESE	OAKLAND	94621		L-827 TRACON	FAA AIRWAY FACILITIES	-
CORTESE	OAKLAND	00000	2110	MOUNTAIN MERCED	ARCO	-
CORTESE	OAKLAND	94261		OAKLAND AIRPORT--AIRPORT DRIVE	AMERICAN AIRLINES	-
CORTESE	OAKLAND	94261		OAKLAND AIRPORT--AIRPORT DRIVE	PORT OF OAKLAND	-
CORTESE	OAKLAND	94261		OAKLAND AIRPORT--AIRPORT DRIVE	GOLDEN GATE AVIATION	-
CORTESE	OAKLAND	94261		OAKLAND AIRPORT--AIRPORT DRIVE	BUSINESS AIRCRAFT DISTR.	-
CORTESE	OAKLAND	94261		OAKLAND AIRPORT--AIRPORT DRIVE	PACIFIC AIRMOTIVE	-
CORTESE	OAKLAND	94261		OAKLAND AIRPORT--AIRPORT DRIVE	AVIS RENT A CAR	-
CORTESE	OAKLAND	94261		OAKLAND AIRPORT--AIRPORT DRIVE	OAKLAND GS 29	-
CORTESE	OAKLAND	94261		OAKLAND AIRPORT--AIRPORT DRIVE	OAKLAND RTR2	-

Agency	City	Zip	St #	Street Name	Site Name	NFA?
CORTESE	OAKLAND	94261		OAKLAND AIRPORT--AIRPORT DRIVE	OAKLAND ASR	-
CORTESE	OAKLAND	94261		OAKLAND AIRPORT--AIRPORT DRIVE	OAKLAND ATCT	-
CORTESE	OAKLAND	94261		OAKLAND AIRPORT--AIRPORT DRIVE	OAKLAND ALS	-
CORTESE	OAKLAND	94261		OAKLAND AIRPORT--AIRPORT DRIVE	OAKLAND ATCT NORTH	-
CORTESE	OAKLAND	94261		OAKLAND AIRPORT--AIRPORT DRIVE	OAKLAND VORTAC	-
CORTESE	OAKLAND	94261		OAKLAND AIRPORT--AIRPORT DRIVE	OAKLAND GS 27	-
CORTESE	OAKLAND	94102		OAKLAND INTL AIRPORT	BUSINESS AIRCRAFT DISTRIBUTORS	-
CORTESE	OAKLAND	94102		OAKLAND INTL AIRPORT	GOLDEN GATE AVIATION	-
CORTESE	OAKLAND	94102		OAKLAND INTL AIRPORT	PACIFIC AIRMOTIVE	-
CORTESE	OAKLAND	94102		OAKLAND INTL AIRPORT	PSA STORAGE TANKS: NUMBERS 20A	-
CORTESE	OAKLAND	94102		OAKLAND INTL AIRPORT	TRANS AMERICAN AIRLINES	-
CORTESE	OAKLAND	94102		OAKLAND INTL AIRPORT	PSA STORAGE TANKS: NUMBERS 20A	-
CORTESE	OAKLAND	94102		OAKLAND INTL AIRPORT	PACIFIC GAS AND ELECTRIC COMPA	-
CORTESE	OAKLAND	94102		OAKLAND INTL AIRPORT	CHEVRON	-
CORTESE	OAKLAND	94102		OAKLAND INTL AIRPORT	HERTZ SERVICE CENTER	-
CORTESE	OAKLAND	00000		OKPORT ST	EBMUD	-
CORTESE	OAKLAND	94607		PORT OF OAKLAND BIRTH 35	OAKLAND ARMY BASE	-
CORTESE	OAKLAND	94607		PORT OF OAKLAND BIRTH 35	MOBIL BULK PLANT	-
CORTESE	OAKLAND	00000		PRIVATE RD	SOUTHERN PACIFIC	-
CORTESE	OAKLAND	00000		7 ST. 29TH AVE	EBMUD	-
CORTESE	OAKLAND	00000		5 ST. 8TH AVE	BART MAINT. FACILITY	-
CORTESE	OAKLAND	00000		8 ST. E 8TH AVE AVE	SOUTHERN PACIFIC	-
CORTESE	OAKLAND	00000		98 ST. EDES AVE	CITY OF OAKLAND	-
CORTESE	OAKLAND	00000		11 ST. ST	N/A	-
CORTESE	OAKLAND	00000		TERMINAL FACILITY	SHELL	-
CORTESE	OAKLAND	00000		TIDEWATER AVE	TIDEWATER BUSINESS PARK	-
CORTESE	OAKLAND	00000		VALDEZ & 13TH	OLD OAKLAND TRIBUNE GARAGE	-
<hr/>						
AWP	OAKLAND	94625		CODE 6 BUILDING 322	OAKLAND NAVAL SUPPLY CENTER	-
<hr/>						
BZP	OAKLAND	94601		850 42ND AVENUE	CLOROX COMPANY	-
<hr/>						
ASPIS	BERKELEY	94710		W. OF HWY 80 APPROX. VIRGINIA TO GIL	DOT - WEST FRONTAGE RD., BERKELEY	NO
ASPIS	EMERYVILLE	94608		I-80 FRONTAGE ROAD, NORTH OF POWELL	ST ALBANS SENIOR CENTER	NO
ASPIS	OAKLAND	94607		5TH AND KIRKHAM STREETS	SOUTHERN PACIFIC TRANSPORTATION, OAK	NO
ASPIS	OAKLAND	94607		7TH & MARITIME	OAKLAND NAVAL SUPPLY CENTER	NO
ASPIS	OAKLAND	94626		ADDRESS NEEDS TO BE DETERMINED	OAKLAND ARMY BASE, WAREHOUSE AREA	NO
ASPIS	OAKLAND	94608		ALONG WOOD & 32ND STREET	AT & SF RAILROAD PROPERTY	NO
ASPIS	OAKLAND	94607	196	BURMA ROAD	CAN TRANSPORT	NO
ASPIS	OAKLAND	94625		CODE 6 BUILDING 322	OAKLAND NAVAL SUPPLY CENTER	NO
ASPIS	OAKLAND	94606		DENNISON AND EMBARCADERO STREETS	PORT OF OAKLAND - EMBARCADERO COVE	NO
ASPIS	OAKLAND	94607		MARKET BETWEEN 1ST AND GROVE STREET	PG&E - OAKLAND	NO
ASPIS	OAKLAND	94626		PORT OF OAKLAND	OAKLAND ARMY BASE	NO
ASPIS	BERKELEY	94707		523 COVENTRY ROAD	DISCO CORPORATION	Y
ASPIS	BERKELEY	94703	1925	GROVE STREET	IMPAC PHOTO #2	Y
ASPIS	BERKELEY	94707		11 KENILWORTH DRIVE	JEWELRY FROM AROUND THE WORLD	Y
ASPIS	EMERYVILLE	94608		BTW 64TH & POWELL ST ON N & S, BY HW	EMERYVILLE MARKETPLACE	Y
ASPIS	EMERYVILLE	94608		CHRISTIE AT SHELLMOUND	MARKETPLACE	Y
ASPIS	EMERYVILLE	94608	6901	CHRISTIE AVENUE	INTERMODAL TRANSPORTATION SERVICE IN	Y



Mentions for report 1/034284-001

Agency	City	Zip	St #	Street Name	Site Name	NFA?
ASPIS	OAKLAND	94609		GROVE AND 51ST STREET	CHILDREN'S HOSPITAL	Y
ASPIS	OAKLAND	94607	2588	GROVE STREET	PETER LEAF CABINET MAKER	Y
ASPIS	OAKLAND	94614		HANGER #5, OAKLAND INTERNATIONAL AIR	POWER PAC ENGINEERING CORPORATION	Y
ASPIS	OAKLAND	94614		HANGER #6, OAKLAND INTERNATIONAL AIR	AIR CALIFORNIA	Y
ASPIS	OAKLAND	94611	4139	JULIO	ALVAREZ & ORTIZ	Y
ASPIS	OAKLAND	94602	314	MAPLE AVENUE	SHIELD TERMITE	Y
ASPIS	OAKLAND	94607		MARITIME STREET	GLOBAL INTERNATIONAL FORWARDERS	Y
ASPIS	OAKLAND	94621		OAKLAND INTERNATIONAL AIRPORT, BLDG	TRANS-BOX SYSTEMS	Y
ASPIS	OAKLAND	94621		OAKLAND INTERNATIONAL AIRPORT, BLDG	BUSINESS AIRCRAFT DISTRIBUTORS	Y
ASPIS	OAKLAND	94621		OAKLAND INTERNATIONAL AIRPORT, BLDG	GOLDEN GATE AVIATION	Y
ASPIS	OAKLAND	94621		OAKLAND INTERNATIONAL AIRPORT, BLDG	PACIFIC AIRMOTIVE	Y
ASPIS	OAKLAND	94662		PO BOX 8722	STAND COMPANY INDUSTRIES	Y
HWIS	BERKELEY	N/A	481	COWELL ST	UNIVERSITY OF CALIFORNIA BERKELEY	-
HWIS	BERKELEY	N/A		CROSS CAMPUS RD	OLS-ENERGY BERKELEY	-
HWIS	N/A	N/A		ALAMEDA COUNTY	ALAMEDA COUNTY/EMERG RESPONSE ONLY	-
HWIS	N/A	N/A		COUNTY OF ALAMEDA / EMERGENCY RESPONSE	STATE DEPT OF HEALTH SERVICES	-
HWIS	N/A	N/A		COUNTY OF ALAMEDA / EMERGENCY RESPONSE	STATE DEPT OF HEALTH SERVICES	-
HWIS	N/A	N/A		COUNTY OF ALAMEDA / EMERGENCY RESPONSE	STATE DEPT OF HEALTH SERVICES	-
HWIS	N/A	N/A		COUNTY OF ALAMEDA / EMERGENCY RESPONSE	STATE DEPT OF HEALTH SERVICES	-
HWIS	N/A	N/A		COUNTY OF ALAMEDA / EMERGENCY RESPONSE	STATE DEPT OF HEALTH SERVICES	-
HWIS	N/A	N/A		COUNTY OF ALAMEDA / EMERGENCY RESPONSE	STATE DEPT OF HEALTH SERVICES	-
HWIS	N/A	N/A		COUNTY OF ALAMEDA / EMERGENCY RESPONSE	STATE DEPT OF HEALTH SERVICES	-
HWIS	N/A	N/A		COUNTY OF ALAMEDA / EMERGENCY RESPONSE	STATE DEPT OF HEALTH SERVICES	-
HWIS	N/A	N/A		N/A	SMART MODULAR TECHNOLOGIES INC	-
HWIS	OAKLAND	N/A		ADMINISTRATION BUILDING	CALTRANS DISTRICT 4	-
HWIS	OAKLAND	N/A		BLD 99 MARATIME	ARMY & AIR FORCE ESCH SVC	-
HWIS	OAKLAND	N/A		BLDG 1086 OARB	USAR CENTER	-
HWIS	OAKLAND	N/A		BLDG 814 OAKLAND ARPT	S & S ACCESSORY OVERHAUL INC	-
HWIS	OAKLAND	N/A		FOOT OF ADELIN ST	SCHINTZER STEEL	-
HWIS	OAKLAND	N/A	5425	GROVE ST	BP OIL COMPANY	-
HWIS	OAKLAND	N/A		HGR 8 OAKLAND AIRPORT	SOUTHERN AIR TRANSPORT	-
HWIS	OAKLAND	N/A		N FIELD TRNG AREA OAK. AIRPORT	PORT OF OAKLAND	-
HWIS	OAKLAND	N/A		OAKLAND AIRPORT BLD L311	PORT OF OAKLAND	-
HWIS	OAKLAND	N/A		ONE KAISER PLAZA	ORDWAY THE	-
HWIS	OAKLAND	N/A		1 QTR. MILE EAST OF MARTIN / ROAD ON WAKE AVE.	EAST BAY MUNICIPAL UTILITY DISTRICT	-
HWIS	OAKLAND AIRPORT	N/A	112	AIR GARGO BLDG OAKLAND	FEDERAL EXPRESS	-
HWIS	OAKLAND APO	N/A		1 NEIL ARMSTRONG WAY	AVIS RENT-A-CAR	-
SWIS	BERKELEY	N/A		BET 180 & MARINA-NEAR THE RACETRACK	SANTA FE PACIFIC BERKELEY LANDFILL	-
LUST	BERKELEY	N/A		2ND ST	IMPORT TILE SITE	NO
LUST	BERKELEY	N/A		6TH/GROVE&JEFFERSON	CALTRANS	NO
LUST	BERKELEY	N/A		ALS BLDG	UC BERKELEY LABORATORY	NO
LUST	BERKELEY	N/A		DELAWARE & VIRGINIA	SOUTHERN PACIFIC	NO
LUST	BERKELEY	N/A	1149	MARTIN LUTHER KING	N/A	NO
LUST	BERKELEY	N/A	3250	SACRAMENTO ST	CHEVRON	NO
LUST	BERKELEY	N/A	3250	SACRAMENTO ST	CHEVRON	NO

Mentions for report 1/034284-001

Agency	City	Zip	St #	Street Name	Site Name	NFA?
LUST	BERKELEY	N/A		TILDEN PARK	EAST BAY REGIONAL PARK	NO
LUST	EMERYVILLE	N/A	1001	41ST ST	BOYSEN PAINT	NO
LUST	EMERYVILLE	N/A	1001	41ST ST	BOYSEN PAINT	NO
LUST	EMERYVILLE	N/A		SHELLMOUND ST	JUDSON STEEL	NO
LUST	N/A	N/A		HIGHWAY 36	USFS SHASTA-TRINITY NAT FOREST	NO
LUST	N/A	N/A		N/A	K-T JUSD CORPORATION YARD	NO
LUST	N/A	N/A		RAILLINE	NORTH COAST RAILROAD AUTHORITY	NO
LUST	N/A	N/A		RAILLINE	NORTH COAST RAILROAD AUTHORITY	NO
LUST	N/A	N/A		RAILLINE	NORTH COAST RAILROAD AUTHORITY	NO
LUST	OAKLAND	N/A		11TH ST	N/A	NO
LUST	OAKLAND	N/A	16211	14TH ST	GARCIA ENTERPRISES	NO
LUST	OAKLAND	N/A		20TH & BROADWAY	EMPORUIM CAPWELL	NO
LUST	OAKLAND	N/A		20TH & BROADWAY	EMPORUIM CAPWELL	NO
LUST	OAKLAND	N/A		3420/3315 PERALTA/MAGNOLIA STS	CLAWSON HIGH SCHOOL	NO
LUST	OAKLAND	N/A		5TH & 7TH AVE	SOUTHERN PACIFIC TRANS CO	NO
LUST	OAKLAND	N/A		5TH AVE & KIRKHAM	SOUTHERN PACIFIC TRANS CO	NO
LUST	OAKLAND	N/A		73RD & BANCROFT	BP	NO
LUST	OAKLAND	N/A	5829	ADELINE AVE	N/A	NO
LUST	OAKLAND	N/A	5829	ADELINE AVE	N/A	NO
LUST	OAKLAND	N/A		ASR #9 FACILITY	FAA AIRWAY FACILITY	NO
LUST	OAKLAND	N/A	4101	BROADWAY ST	FIVE C GROUP	NO
LUST	OAKLAND	N/A		BROADWAY-SAN PABLO	OAKLAND REDEV AGENCY/GALLERIA	NO
LUST	OAKLAND	N/A		EARHART RD	NATIONAL AIROMOTIVE	NO
LUST	OAKLAND	N/A	7683	EARHART RD	PORT OF OAKLAND	NO
LUST	OAKLAND	N/A	1021	GRUMMAN ST	HANGER L827 OAKLAND AIRPORT	NO
LUST	OAKLAND	N/A	1563	JULIE ANN WY	YANDELL TRUCKING	NO
LUST	OAKLAND	N/A		1 KAISER PLAZA	ORDWAY/BROADWAY BUILDING	NO
LUST	OAKLAND	N/A		1 KAISER PLAZA	ORDWAY BUILDING	NO
LUST	OAKLAND	N/A		L-827 TRACON	FAA AIRWAY FACILITIES	NO
LUST	OAKLAND	N/A	2110	MOUNTAIN & MERCED	ARCO	NO
LUST	OAKLAND	N/A		N/A	OAKLAND ARMY BASE	NO
LUST	OAKLAND	N/A		OAKLAND AIRPORT	AVIS RENT A CAR	NO
LUST	OAKLAND	N/A		OAKLAND AIRPORT	FAA ASR #9	NO
LUST	OAKLAND	N/A		OAKLAND INTN'L AIR	CHEVRON	NO
LUST	OAKLAND	N/A		OAKPORT ST	EBMUD	NO
LUST	OAKLAND	N/A		PETROLEUM ST	MOBIL	NO
LUST	OAKLAND	N/A	2850	POPLAR	LINFORD AIR & REFRIGERATION	NO
LUST	OAKLAND	N/A	2850	POPLAR	LINFORD AIR & REFRIGERATION	NO
LUST	OAKLAND	N/A		PORT OF OAKLAND	MOBIL BULK PLANT	NO
LUST	OAKLAND	N/A		PRIVATE RD	SOUTHERN PACIFIC	NO
LUST	OAKLAND	N/A		TERMINAL FACILITY	SHELL	NO
LUST	OAKLAND	N/A		TIDEWATER AVE	TIDEWATER BUSINESS PARK	NO
LUST	OAKLAND	N/A		VALDEZ & 13TH	OLD OAKLAND TRIBUNE GARAGE	NO
LUST	OAKLAND	N/A	2020	WAKE AVE	EBMUD-WATER POLLUT CONTRL PLNT	NO
LUST	OAKLAND	N/A	2020	WAKE AVE	EBMUD-WATER POLLUT CONTRL PLNT	NO
LUST	ROSAMOND, CA	N/A		LOCUST ST.	ROSAMOND ROAD YARD	NO
LUST	TOM'S PLACE	N/A		RURAL STATION HWY 395	TOM'S PLACE SERVICE STATION	NO
LUST	UNINCORPORATED	N/A	11315	DEL PUERTO RD	SCC TRANS DIST: DEL PUERTO RD	NO
LUST	UNINCORPORATED	N/A		PERMANENTE DR	KAISER CEMENT	NO
LUST	UNINCORPORATED	N/A		RYLAND ST	SCC TRANS DIST: RYLAND ST	NO
LUST	?	N/A		?	MINEART MAINTENANCE STATION	Y
LUST	MT. GLEASON	N/A		APN 9231-204-1-778	AT&T	Y

Mentions for report 1/034284-001

Agency	City	Zip	St #	Street Name	Site Name	NFA?
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NFA code descriptions: "-" indicates the agency did not supply this information; "Y" indicates there was "No Further Action" planned for the site (ASPIS/CAL-SITES) or "Case Closed" (LUST); "NO" indicates the agency did not mark the site "No Further Action" or "Case Closed", but does supply this information. For the CERCLIS database a "Y" indicates that all CERCLIS events for the site show an actual completion date and the most recent event indicates "no further remedial action planned."

**APPENDIX B**  
**INVENTORY RECONCILIATION RECORDS**

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**APPENDIX C**  
**SOIL DISPOSAL DOCUMENTATION**

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oal  
108 yds

# NON-HAZARDOUS WASTE MANIFEST

WASTE TREATMENT AND DISPOSAL FACILITY

## JOB ACCEPTANCE NO.

93 - 406

TO BE COMPLETED BY THE GENERATOR

**GENERATOR**  
Continental Baking Company

**MAILING ADDRESS**  
1525 Byrant Street

**CITY, STATE, ZIP**  
San Francisco, CA 94103

**PHONE**  
(415) 861-3858

**CONTACT PERSON**  
Donna Pedersen

**SIGNATURE OF AUTHORIZED AGENT / TITLE** \_\_\_\_\_ **DATE** 10/21/93

**REQUIRED PERSONAL PROTECTIVE EQUIPMENT**

GLOVES  GOGGLES  RESPIRATOR  HARD HAT

TY-VEK  OTHER

**SPECIAL HANDLING PROCEDURES:**

**WASTE TYPE**

TREATMENT SOIL  SLUDGE

DISPOSAL SOIL  NON-FRIABLE ASBESTOS

CONSTRUCTION SOIL  WOOD

OTHER  ASH

**RECEIVING FACILITY**

**FORWARD INC. LANDFILL**  
9999 SOUTH AUSTIN ROAD  
MANTECA, CALIFORNIA 95336  
(209) 982-4298 PHONE  
(209) 982-1009 FAX

**GENERATING FACILITY**  
Continental Baking Company  
1010 46th Street  
Oakland, CA

TRANSPORTER  
HAULER MUST COMPLETE

**NAME**  
Dillard Trucking, Inc.

**ADDRESS**  
P.O. Box 218

**CITY, STATE, ZIP**  
Byron, CA 94514

**PHONE**  
(510) 634-6850

**SIGNATURE OF AUTHORIZED AGENT OR DRIVER** \_\_\_\_\_ **DATE** 10-20-93

**NOTES:**  
Job# 384/2

**TRUCK NUMBER**  
R1

P.O.# 02-10087

**END DUMP**  **BOTTOM DUMP**  **TRANSFER**

**ROLL-OFF(S)**  **FLAT-BED**  **VAN**  **DRUMS**

FACILITY REQUIREMENTS

**FORWARD INC. LANDFILL**

Forward shall have no obligation to accept the waste if weather or other conditions impair the safe and effective disposal of the waste or if the waste impairs the safe and effective operation of the Landfill. Forward shall use reasonable efforts to promptly notify Disposer of its inability to accept the waste for any reason. If Forward's refusal to accept the waste is based on weather or other site conditions, Forward shall notify the Disposer when site conditions are expected to change such that Forward will be able to accept the waste.

**REMARKS**

**FACILITY TICKET NUMBER**

**SIGNATURE OF AUTHORIZED AGENT** \_\_\_\_\_ **DATE**

**CUBIC YARDS**  
18 Cubic Yards

DISPOSAL METHOD	(TO BE COMPLETED BY FORWARD)				
	DISPOSE	BIO	AERATE	STOCKPILE	OTHER
<input type="checkbox"/> SOIL					
<input type="checkbox"/> SLUDGE					
<input type="checkbox"/> NON-FRIABLE ASBESTOS					
<input type="checkbox"/> WOOD					
<input type="checkbox"/> ASH					
<input type="checkbox"/> OTHER					

SCHEDULING MUST BE MADE PRIOR TO 4:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE TO SCHEDULE CALL (209) 982-4298

MANIFEST # 11300





cat  
10842

# NON-HAZARDOUS WASTE MANIFEST

WASTE TREATMENT AND DISPOSAL FACILITY

JOB ACCEPTANCE NO.

93 — 406

TO BE COMPLETED BY THE GENERATOR

GENERATOR  
Continental Baking Company

MAILING ADDRESS  
1525 Byrant Street

CITY, STATE, ZIP  
San Francisco, CA 94103

PHONE  
(415) 861-3858

CONTACT PERSON  
Donna Pedersen

SIGNATURE OF AUTHORIZED AGENT / TITLE  
\* *Michael Clark* DATE  
10/30/93

WASTE TYPE

<input type="checkbox"/> TREATMENT SOIL	<input type="checkbox"/> SLUDGE
<input checked="" type="checkbox"/> DISPOSAL SOIL	<input type="checkbox"/> NON-FRIABLE ASBESTOS
<input type="checkbox"/> CONSTRUCTION SOIL	<input type="checkbox"/> WOOD
	<input type="checkbox"/> ASH
	<input type="checkbox"/> OTHER

GENERATING FACILITY  
Continental Baking Company  
1010 46th Street  
Oakland, CA

REQUIRED PERSONAL PROTECTIVE EQUIPMENT  
 GLOVES  GOGGLES  RESPIRATOR  HARD HAT  
 TY-VEK  OTHER

SPECIAL HANDLING PROCEDURES:

RECEIVING FACILITY  
**FORWARD INC. LANDFILL**  
9999 SOUTH AUSTIN ROAD  
MANTECA, CALIFORNIA 95336  
(209) 982-4298 PHONE  
(209) 982-1009 FAX

TRANSPORTER  
HAULER MUST COMPLETE

NAME  
Dillard Trucking, Inc.

ADDRESS  
P.O. Box 218

CITY, STATE, ZIP  
Byron, CA 94514

PHONE  
(510) 634-6850

SIGNATURE OF AUTHORIZED AGENT OR DRIVER  
\* *Richard Moreland* DATE  
10/30/93

NOTES:  
Job # 38472  
P.O. # 02-10087

TRUCK NUMBER  
368

END DUMP  BOTTOM DUMP  TRANSFER   
ROLL-OFF(S)  FLAT-BED  VAN  DRUMS

FACILITY REQUIREMENTS

## FORWARD INC. LANDFILL

Forward shall have no obligation to accept the waste if weather or other conditions impair the safe and effective disposal of the waste or if the waste impairs the safe and effective operation of the Landfill. Forward shall use reasonable efforts to promptly notify Disposer of its inability to accept the waste for any reason. If Forward's refusal to accept the waste is based on weather or other site conditions, Forward shall notify the Disposer when site conditions are expected to change such that Forward will be able to accept the waste.

REMARKS

FACILITY TICKET NUMBER

SIGNATURE OF AUTHORIZED AGENT  
\* DATE

CUBIC YARDS  
18 Cubic Yards

DISPOSAL METHOD	(TO BE COMPLETED BY FORWARD)				
	DISPOSE	BIO	AERATE	STOCKPILE	OTHER
<input type="checkbox"/> SOIL					
<input type="checkbox"/> SLUDGE					
<input type="checkbox"/> NON-FRIABLE ASBESTOS					
<input type="checkbox"/> WOOD					
<input type="checkbox"/> ASH					
<input type="checkbox"/> OTHER					

SCHEDULING MUST BE MADE PRIOR TO 4:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE TO SCHEDULE CALL (209) 982-4298

MANIFEST # 11299



JOB ACCEPTANCE NO.

NON-HAZARDOUS WASTE MANIFEST  
WASTE TREATMENT AND DISPOSAL FACILITY

93 - 406

TO BE COMPLETED BY THE GENERATOR

GENERATOR  
Continental Baking Company

MAILING ADDRESS  
1525 Byrant Street

CITY, STATE, ZIP  
San Francisco, CA 94103

PHONE  
(415) 861-3858

CONTACT PERSON  
Donna Pedersen

SIGNATURE OF AUTHORIZED AGENT / TITLE \_\_\_\_\_ DATE 10/24/93

WASTE TYPE

<input type="checkbox"/> TREATMENT SOIL	<input type="checkbox"/> SLUDGE
<input checked="" type="checkbox"/> DISPOSAL SOIL	<input type="checkbox"/> NON-FRIABLE ASBESTOS
<input type="checkbox"/> CONSTRUCTION SOIL	<input type="checkbox"/> WOOD
	<input type="checkbox"/> ASH
	<input type="checkbox"/> OTHER

GENERATING FACILITY  
Continental Baking Company  
1010 46th Street  
Oakland, CA

REQUIRED PERSONAL PROTECTIVE EQUIPMENT

GLOVES    GOGGLES    RESPIRATOR    HARD HAT

TY-VEK    OTHER

SPECIAL HANDLING PROCEDURES:

RECEIVING FACILITY:

**FORWARD INC. LANDFILL**  
**9999 SOUTH AUSTIN ROAD**  
**MANTECA, CALIFORNIA 95336**  
**(209) 982-4298 PHONE**  
**(209) 982-1009 FAX**

TRANSPORTER  
HAULER MUST COMPLETE

NAME  
Dillard Trucking, Inc.

ADDRESS  
P.O. Box 218

CITY, STATE, ZIP  
Byron, CA 94514

PHONE  
(510) 634-6850

SIGNATURE OF AUTHORIZED AGENT OR DRIVER \_\_\_\_\_ DATE 10-20-93

NOTES: Job#384/2

P.O.# 02-10087

TRUCK NUMBER  
113

END DUMP	BOTTOM DUMP	TRANSFER
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ROLL OFF(S)	FLAT-BED	VAN
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		DRUMS
		<input type="checkbox"/>

FACILITY REQUIREMENTS

**FORWARD INC. LANDFILL**

Forward shall have no obligation to accept the waste if weather or other conditions impair the safe and effective disposal of the waste or if the waste impairs the safe and effective operation of the Landfill. Forward shall use reasonable efforts to promptly notify Disposer of its inability to accept the waste for any reason. If Forward's refusal to accept the waste is based on weather or other site conditions, Forward shall notify the Disposer when site conditions are expected to change such that Forward will be able to accept the waste.

REMARKS \_\_\_\_\_

FACILITY TICKET NUMBER \_\_\_\_\_

SIGNATURE OF AUTHORIZED AGENT \_\_\_\_\_ DATE \_\_\_\_\_

CUBIC YARDS  
18 Cubic Yards

	DISPOSAL METHOD: (TO BE COMPLETED BY FORWARD)				
	DISPOSE	BIO	AERATE	STOCKPILE	OTHER
<input type="checkbox"/> SOIL					
<input type="checkbox"/> SLUDGE					
<input type="checkbox"/> NON-FRIABLE ASBESTOS					
<input type="checkbox"/> WOOD					
<input type="checkbox"/> ASH					
<input type="checkbox"/> OTHER					

SCHEDULING MUST BE MADE PRIOR TO 4:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE TO SCHEDULE CALL (209) 982-4298

MANIFEST # 11302



NON-HAZARDOUS WASTE MANIFEST  
WASTE TREATMENT AND DISPOSAL FACILITY

JOB ACCEPTANCE NO.

93 - 406

TO BE COMPLETED BY THE GENERATOR

GENERATOR  
Continental Baking Company

MAILING ADDRESS  
1525 Byrant Street

CITY, STATE, ZIP  
San Francisco, CA 94103

PHONE  
(415) 861-3858

CONTACT PERSON  
Donna Pedersen

SIGNATURE OF AUTHORIZED AGENT / TITLE

DATE  
10/24/93

REQUIRED PERSONAL PROTECTIVE EQUIPMENT  
 GLOVES  GOGGLES  RESPIRATOR  HARD HAT  
 TY-VEK  OTHER

SPECIAL HANDLING PROCEDURES:

WASTE TYPE

- TREATMENT SOIL
- DISPOSAL SOIL
- CONSTRUCTION SOIL
- SLUDGE
- NON-FRIABLE ASBESTOS
- WOOD
- ASH
- OTHER

GENERATING FACILITY  
Continental Baking Company  
1010 46th Street  
Oakland, CA

RECEIVING FACILITY

FORWARD INC. LANDFILL  
9999 SOUTH AUSTIN ROAD  
MANTECA, CALIFORNIA 95336  
(209) 982-4298 PHONE  
(209) 982-1009 FAX

TRANSPORTER  
HAULER MUST COMPLETE

NAME  
Dillard Trucking, Inc.

ADDRESS  
P.O. Box 218

CITY, STATE, ZIP  
Byron, CA 94514

PHONE  
(510) 634-6850

SIGNATURE OF AUTHORIZED AGENT OR DRIVER

DATE  
10-20-93

NOTES:  
Job#384/2

P.O.# 02-10087

TRUCK NUMBER

R-3

END DUMP  BOTTOM DUMP  TRANSFER

ROLL-OFF(S)  FLAT-BED  VAN  DRUMS

FACILITY REQUIREMENTS

FORWARD INC. LANDFILL

Forward shall have no obligation to accept the waste if weather or other conditions impair the safe and effective disposal of the waste or if the waste impairs the safe and effective operation of the Landfill. Forward shall use reasonable efforts to promptly notify Disposer of its inability to accept the waste for any reason. If Forward's refusal to accept the waste is based on weather or other site conditions, Forward shall notify the Disposer when site conditions are expected to change such that Forward will be able to accept the waste.

REMARKS

FACILITY TICKET NUMBER

SIGNATURE OF AUTHORIZED AGENT

DATE

CUBIC YARDS  
18 Cubic Yards

DISPOSAL METHOD: (TO BE COMPLETED BY FORWARD)

	DISPOSE	BIO	AERATE	STOCKPILE	OTHER
<input type="checkbox"/> SOIL					
<input type="checkbox"/> SLUDGE					
<input type="checkbox"/> NON-FRIABLE ASBESTOS					
<input type="checkbox"/> WOOD					
<input type="checkbox"/> ASH					
<input type="checkbox"/> OTHER					

SCHEDULING MUST BE MADE PRIOR TO 4:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE TO SCHEDULE CALL (209) 982-4298

MANIFEST # 11301



NON-HAZARDOUS WASTE MANIFEST  
WASTE TREATMENT AND DISPOSAL FACILITY

JOB ACCEPTANCE NO.

93 - 406

TO BE COMPLETED BY THE GENERATOR

GENERATOR  
Continental Baking Company  
MAILING ADDRESS  
1525 Byrant Street  
CITY, STATE, ZIP  
San Francisco, CA 94103  
PHONE  
(415) 861-3858  
CONTACT PERSON  
Donna Pedersen  
SIGNATURE OF AUTHORIZED AGENT / TITLE  
\* C. [Signature]  
DATE  
10-20-93

REQUIRED PERSONAL PROTECTIVE EQUIPMENT  
 GLOVES  GOGGLES  RESPIRATOR  HARD HAT  
 TY-VEK  OTHER

SPECIAL HANDLING PROCEDURES:

WASTE TYPE  
 TREATMENT SOIL  SLUDGE  
 DISPOSAL SOIL  NON-FRIABLE ASBESTOS  
 CONSTRUCTION SOIL  WOOD  
 OTHER  ASH

RECEIVING FACILITY  
FORWARD INC. LANDFILL  
9999 SOUTH AUSTIN ROAD  
MANTECA, CALIFORNIA 95336  
(209) 982-4298 PHONE  
(209) 982-1009 FAX

GENERATING FACILITY  
Continental Baking Company  
1010 46th Street  
Oakland, CA

TRANSPORTER  
HAULER MUST COMPLETE

NAME  
Dillard Trucking, Inc.  
ADDRESS  
P.O. Box 218  
CITY, STATE, ZIP  
Byron, CA 94514  
PHONE  
(510) 634-6850  
SIGNATURE OF AUTHORIZED AGENT OR DRIVER  
\* John [Signature]  
DATE  
10/20/93

NOTES:  
Job#384/2  
P.O.# 02-10087  
TRUCK NUMBER  
K-#8580  
END DUMP  BOTTOM DUMP  TRANSFER   
ROLL-OFF(S)  FLAT-BED  VAN  DRUMS

FACILITY REQUIREMENTS

**FORWARD INC. LANDFILL**  
Forward shall have no obligation to accept the waste if weather or other conditions impair the safe and effective disposal of the waste or if the waste impairs the safe and effective operation of the Landfill. Forward shall use reasonable efforts to promptly notify Disposer of its inability to accept the waste for any reason. If Forward's refusal to accept the waste is based on weather or other site conditions, Forward shall notify the Disposer when site conditions are expected to change such that Forward will be able to accept the waste.  
REMARKS  
FACILITY TICKET NUMBER  
SIGNATURE OF AUTHORIZED AGENT  
\*  
DATE

CUBIC YARDS  
18 Cubic Yards

DISPOSAL METHOD:	(TO BE COMPLETED BY FORWARD)				
	DISPOSE	BIO	AERATE	STOCKPILE	OTHER
<input type="checkbox"/> SOIL					
<input type="checkbox"/> SLUDGE					
<input type="checkbox"/> NON-FRIABLE ASBESTOS					
<input type="checkbox"/> WOOD					
<input type="checkbox"/> ASH					
<input type="checkbox"/> OTHER					

SCHEDULING MUST BE MADE PRIOR TO 4:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE TO SCHEDULE CALL (209) 982-4298

MANIFEST # 11303



NON-HAZARDOUS WASTE MANIFEST  
WASTE TREATMENT AND DISPOSAL FACILITY

JOB ACCEPTANCE NO.

93 - 406

TO BE COMPLETED BY THE GENERATOR

GENERATOR  
Continental Baking Company

MAILING ADDRESS  
1525 Byrant Street

CITY, STATE, ZIP  
San Francisco, CA 94103

PHONE  
(415) 861-3858

CONTACT PERSON  
Donna Pedersen

SIGNATURE OF AUTHORIZED AGENT / TITLE | DATE  
\* *Matthew W. ...* | 10/20/93  
for Continental Baking

REQUIRED PERSONAL PROTECTIVE EQUIPMENT  
 GLOVES  GOGGLES  RESPIRATOR  HARD HAT  
 TY-VEK  OTHER

SPECIAL HANDLING PROCEDURES:

WASTE TYPE  
 TREATMENT SOIL  
 DISPOSAL SOIL  
 CONSTRUCTION SOIL  
 SLUDGE  
 NON-FRIABLE ASBESTOS  
 WOOD  
 ASH  
 OTHER

RECEIVING FACILITY  
**FORWARD INC. LANDFILL**  
9999 SOUTH AUSTIN ROAD  
MANTECA, CALIFORNIA 95336  
(209) 982-4298 PHONE  
(209) 982-1009 FAX

GENERATING FACILITY  
Continental Baking Company  
1010 46th Street  
Oakland, CA

TRANSPORTER  
HAULER MUST COMPLETE

NAME  
Dillard Trucking, Inc.

ADDRESS  
P.O. Box 218

CITY, STATE, ZIP  
Byron, CA 94514

PHONE  
(510) 634-6850

SIGNATURE OF AUTHORIZED AGENT OR DRIVER | DATE  
\* *Frank ...* | 10-20-93

NOTES: Job #384/2  
P.O.# 02-10087  
TRUCK NUMBER  
8

END DUMP  BOTTOM DUMP  TRANSFER   
ROLL-OFF(S)  FLAT-BED  VAN  DRUMS

FACILITY REQUIREMENTS

**FORWARD INC. LANDFILL**

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REMARKS

FACILITY TICKET NUMBER

SIGNATURE OF AUTHORIZED AGENT | DATE  
\* |

CUBIC YARDS	18 Cubic Yards				
DISPOSAL METHOD: (TO BE COMPLETED BY FORWARD)	DISPOSE	BIO	AERATE	STOCKPILE	OTHER
<input type="checkbox"/> SOIL					
<input type="checkbox"/> SLUDGE	114				
<input type="checkbox"/> NON-FRIABLE ASBESTOS					
<input type="checkbox"/> WOOD					
<input type="checkbox"/> ASH					
<input type="checkbox"/> OTHER					

SCHEDULING MUST BE MADE PRIOR TO 4:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE. TO SCHEDULE CALL (209) 982-4298

**APPENDIX D**  
**SITE HEALTH AND SAFETY PLAN**

---

FORM HS-507  
SITE SAFETY PLAN  
FIELD INVESTIGATION OF UNDERGROUND FUEL SPILLS  
pg 1 of 2

ADMINISTRATIVE INFORMATION

Project Number 92CB040

Project Name CBC Oakland/Emeryville

Project Manager JoBeth Folger

Operating Unit Oakland

Site Safety Officer Mayra Castellanos

Health & Safety Officer Tanya Pawley

Date of Issue Jan. 26, 1994

Effective Dates 1/27/94 - 2/1/94

SITE INFORMATION (attach map of site)

Location: 1010 - 46<sup>TH</sup> STREET

Pertinent History: Thrift shop with attached Maintenance facility

Material(s) Spilled: Possible gasoline, diesel Fuel/WASTE OIL

FIELD ACTIVITIES

• Soil borings, subsequent soil sample collection  
and groundwater

EMERGENCY TELEPHONE NUMBERS

Fire Department 911

Ambulance 911

Hospital (510) 428-3240

Project Manager (510) 874-3138

Health & Safety Officer (510) 874-3146

FORM HS-507  
SITE SAFETY PLAN  
FIELD INVESTIGATION OF UNDERGROUND FUEL SPILLS  
page 2 of 2

HOSPITAL INFORMATION

Name: Childrens Hospital

Address: 747 52<sup>nd</sup> Street, Oakland

Route: From the site, RIGHT (east) on 53<sup>rd</sup> St., Rt (south) on Martin Luther King St., LEFT (east) on 52<sup>nd</sup> St., HOSPITAL on right side.

AUTHORIZED FIELD PERSONNEL

Jobeth Folger

Jon Haus

Al Ridley

Jackie Lee

Steve Penman

\_\_\_\_\_

Mayra Castellanos

\_\_\_\_\_

NAME OF SUBCONTRACTORS (field work)

Name: \_\_\_\_\_ Telephone Number: \_\_\_\_\_

Address: \_\_\_\_\_

Authorized Representatives: \_\_\_\_\_

Name: \_\_\_\_\_ Telephone Number: \_\_\_\_\_

Address: \_\_\_\_\_

Authorized Representative: \_\_\_\_\_

APPROVALS

\_\_\_\_\_  
Project Manager \_\_\_\_\_ Date

J. K. Payne  
Health & Safety Officer \_\_\_\_\_ Date

\_\_\_\_\_  
Corporate Health & Safety Officer\* \_\_\_\_\_ Date

\* Signature required only for modified plans.



HEALTH AND SAFETY EQUIPMENT CHECKLIST

Project Name: CDC OAKLAND / EMERYVILLE

Project Number: 9208040

The checked items shall be present on site:

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Eye Protection   | <input checked="" type="checkbox"/> HNu  |
| <input checked="" type="checkbox"/> Hard Hat   | <input checked="" type="checkbox"/> OVA  |
| <input checked="" type="checkbox"/> Safety Shoes/Boots   | <input type="checkbox"/> Combustible Gas Meter                                 |
| <input checked="" type="checkbox"/> Hearing Protection   | <input type="checkbox"/> Sensidyne or Draeger Tubes and Pump<br>Specify: _____ |
| <input checked="" type="checkbox"/> First Aid Kit  | <input type="checkbox"/> Barricades/Pylons                                     |
| <input type="checkbox"/> Eye Wash  | <input checked="" type="checkbox"/> Barricade Tape                             |
| <input checked="" type="checkbox"/> Fire Extinguisher  | <input type="checkbox"/> "Authorized Personnel Only" signs                     |
| <input type="checkbox"/> Splash Shield   | <input type="checkbox"/> Latex Gloves  |
| <input type="checkbox"/> Splash Apron  | <input checked="" type="checkbox"/> Nitrile Gloves                             |
| <input type="checkbox"/> Dust Mask   | <input type="checkbox"/> Neoprene Gloves                                       |
| <input checked="" type="checkbox"/> Respirator (Half-face APR) <i>on site</i>                      | <input type="checkbox"/> Leather Gloves  |
| <input type="checkbox"/> Respirator (Full-face APR)  | <input checked="" type="checkbox"/> Uncoated Tyvek                             |
| <input type="checkbox"/> Airline System  | <input type="checkbox"/> Poly laminated Tyvek                                  |
| <input type="checkbox"/> SCBA  | <input type="checkbox"/> Saranex coated Tyvek                                  |
| <input checked="" type="checkbox"/> Cartridges   | <input type="checkbox"/> Boot Covers   |
| <input checked="" type="checkbox"/> Organic Vapor (color coded black)                              | <input type="checkbox"/> Duct Tape   |
| <input type="checkbox"/> Acid Gases and Organic Vapor (color coded yellow)                         |  |
| <input type="checkbox"/> Dust and Mists (filter pad with cover)                                    |  |
| <input type="checkbox"/> HEPA (color coded purple)   |  |
| <input type="checkbox"/> Combination- Acid gas, organic vapor and HEPA (color coded yellow/purple) |  |
| <input type="checkbox"/> Other Specify: _____  |  |
| <input checked="" type="checkbox"/> Decontamination Equipment (See Operating Procedure HS-512)     |  |
| <input checked="" type="checkbox"/> Buckets  | <input type="checkbox"/> Plastic Sheeting                                      |
| <input checked="" type="checkbox"/> Scrub Brushes  | <input type="checkbox"/> Paper Towels  |
| <input checked="" type="checkbox"/> Detergent (Alconox)  | <input type="checkbox"/> Hand Soap   |

AIR MONITORING DATA SHEET

Site or Project Name \_\_\_\_\_ Project No. \_\_\_\_\_ Date: \_\_\_\_\_

Person(s) Collecting Data \_\_\_\_\_

General Operation and Location at Site \_\_\_\_\_

Instrument Type, Make, Model \_\_\_\_\_

Instrument Serial or ID No. \_\_\_\_\_ Battery Check Results \_\_\_\_\_

Date of Last Calibration or Check \_\_\_\_\_ Date of Last Service \_\_\_\_\_

Contaminant(s) Suspected \_\_\_\_\_

	Specific Location	Specific Operation or Work Phase	Employee Name If Breathing Zone Monitored	Time	Reading	Comments (e.g., duration, causation of reading)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

General Comments: \_\_\_\_\_

Signature of Person Responsible for Data: \_\_\_\_\_ Date Signed \_\_\_\_\_

ALAMEDA CO.

DETAIL

FOR CONTINUATION SEE MAP 2

502  
500  
498  
490  
488



1,485.

1,488.

FOR CONTINUATION SEE MAP 9

1,497.

1,500.

## OPERATING PROCEDURE NO. HS-507

### 507.0 PROCEDURES FOR FIELD INVESTIGATIONS OF UNDERGROUND SPILLS OF GASOLINE AND OTHER PETROLEUM DISTILLATE FUELS

#### 507.1 PURPOSE

The purpose of this procedure is to establish sound and uniform health and safety procedures and guidelines for field operations associated with investigations of leakage of petroleum hydrocarbon fuels from underground storage tanks and pipes. When this procedure is used, Form HS-507 must be completed and approved and attached to the front of this procedure. Together the procedure and completed form shall comprise a site-specific safety plan.

#### 507.2 SCOPE

This procedure identifies the types of fuels and field activities to which it applies, assesses the hazards of fuels, and describes risk control measures.

#### 507.3 APPLICABILITY

This procedure applies to: collection of samples of surface and subsurface soil; construction, completion, testing, and abandonment of groundwater monitoring wells; collection of water samples from new and existing wells; and observing removal of underground fuel pipes and storage tanks at facilities that currently dispense or store:

- (1) leaded gasoline,
- (2) unleaded gasoline,
- (3) gasohol,
- (4) Numbers 1, 1D (diesel), 2, 2D (diesel), 4, 5, or 6 fuel oils,
- (5) jet A, jet A-1, jet B, JP-1, JP-3, JP-4, and JP-5 fuels,
- (6) crankcase oil,
- (7) methanol (when used as a motor fuel), and/or
- (8) stoddard solvent.

This procedure shall not be used for confined space entry or for installing or operating pilot and full-scale fuel recovery systems. This plan may be used for the installation of vapor extraction systems only by appropriate modification and proper health and safety approvals. It is also not applicable to field work performed at refineries, sites where spills of chemicals other than the substances listed above have occurred, sites of unusual hazard, and any other site or activity for which the use of this plan is identified as inappropriate by the Operating Unit Health and Safety Officer (HSO).

This plan is applicable to work involving the removal of underground fuel pipes and storage tanks only when used with and attached to the American Petroleum Institute (API) Recommended Practice 1604, Second Ed. 1987 as revised March 6, 1989, Removal and Disposal of Used Underground Petroleum Storage Tanks (attached).

This plan is applicable to work involving borings with power equipment only when used with and attached to Woodward-Clyde Operating Procedure HS-203, Safety Guidelines For Drilling.

This plan is applicable to work involving entry into excavations by Woodward-Clyde (W-C) or Woodward-Clyde subcontractor personnel only when used with and attached to Woodward-Clyde Operating Procedure HS-204, Safety Procedures for Trenching/Excavation.

#### **507.4 RESPONSIBILITY AND AUTHORITY**

A completed Form HS-507 shall be approved by the Project Manager and HSO prior to beginning work.

The Project Manager (PM) has overall responsibility for safe conduct of all field work, including ensuring full implementation of this procedure by the site manager, project staff and subcontractors assisting with field work. The PM shall assign (with the concurrence of the Operating Unit HSO or Health and Safety Coordinator (HSC)) a Site Safety Officer (SSO) to attend to day-to-day health and safety matters in the field. The PM may elect, if qualified, to serve as SSO. The SSO must be on-site whenever work by employees of W-C or its subcontractors is being performed at the site.

Both the PM and SSO are authorized to suspend work when working conditions become unacceptable and are authorized to remove from the site any W-C and subcontractor employee whose conduct endangers the health and safety of the employee or of others.

### **507.5 HAZARD EVALUATION**

Petroleum distillate fuels are mixtures of aliphatic and aromatic hydrocarbons, the constituent concentrations of which can vary significantly dependent upon the crude feedstock, refining process, and seasonal variations. The predominant types of compounds in fuels are paraffins (e.g., pentane, hexane), naphthenes (e.g., cyclohexane) and aromatics (e.g., benzene, toluene, polynuclear aromatics). Gasoline contains about 80 percent paraffins, 6 percent naphthenes, and 14 percent aromatics. JP-1 and 4 contain up to 48 percent paraffin, 38 percent naphthenes, and 20 percent aromatics. Fuel oils and certain jet fuels (JP-3 and 5) contain about 10 percent paraffin, up to 23 percent naphthenes, and up to 78 percent non-volatile aromatic hydrocarbons. Gasohol is gasoline containing 10 to 40 percent ethyl alcohol. Methanol as it is used as a motor fuel typically contains up to 20% gasoline to improve cold starting characteristics as a safety factor to provide a visible flame. To improve their burning properties, compounds such as tetraethyl-lead, methyl tertbutyl ether (MTBE) and ethylene dibromide (EDB) are often added to automotive and aviation fuels.

Petroleum distillate fuels exhibit relatively low acute inhalation and dermal toxicity. Concentrations of 160 to 270 ppm gasoline vapor have been reported to cause eye, nose, and throat irritation in people after several hours of exposure. Levels of 500 to 900 ppm have been reported to cause irritation and dizziness in one hour and 2,000 ppm has been reported to cause mild anesthesia in 30 minutes. Gasoline, kerosene, and some jet fuels will cause severe eye irritation on contact with the eye and low to moderate skin irritation on contact with the skin. Methanol can be toxic by either skin or inhalation exposure, and is unique in that it attacks the optic nerve. Methanol blindness can be irreversible.

Ingestion of 10 to 15 grams (2 to 3 teaspoons) of gasoline has caused death in children. In adults, ingestion of 20 to 50 grams may produce severe symptoms of poisoning. The most dangerous aspect of ingestion of these motor fuels is the development of chemical pneumonia from the aspiration of gasoline or other fuels aspirating into the lungs. Aspiration of very small quantities of these motor fuels into the lungs is often fatal. Some gasoline additives,

such as ethylene dichloride, ethylene dibromide, and tetraethyl- and tetramethyl-lead are highly toxic materials; however, their concentrations in gasoline are so low that their contribution to the overall toxicity of gasoline is negligible in most instances.

Benzene is a minor component of petroleum distillate fuels with concentrations ranging from non-detectable to 5%, with gasoline typically at 1%. Benzene has been classified a known human carcinogen by the American Conference of Governmental Industrial Hygienists (ACGIH) based on the increased incidence of leukemia in certain oil refinery workers.

Petroleum distillate fuels are flammable. Under certain conditions, this property presents a greater risk than toxicity. Six of the fuels covered by this procedure are classified by the Federal Department of Transportation as flammable liquids as all six typically have flash points of 100 degrees F or less. These fuels are gasoline, gasohol, Jet B, JP-1, JP-4, and No. 1 fuel oil. Lower explosive limits of the fuels range from 0.6 to 1.4 percent (6,000 to 14,000 ppm).

#### **507.6 HEALTH AND SAFETY CLEARANCE**

W-C employees as well as subcontractor employees assigned to perform field activities covered by this procedure must be currently approved for hazardous waste field work, including:

- Current medical clearance to conduct hazardous waste field work and to wear a respirator;
- Successful completion of a respirator fit test within the last 12 months for the make and model of the respirator assigned to that individual for use at that site;
- Completion of training as required by Title 29 Code of Federal Regulations (CFR) 1910.120(e), including either:
  - 40 hours of hazardous waste worker basic instruction within the last 12 months, or,

- 8 hours of hazardous waste worker refresher training within the last 12 months, subsequent to completion of 40 hours of basic hazardous waste worker training.

### **507.7 HEALTH AND SAFETY BRIEFING**

Before field work begins, all field personnel, including subcontractor employees, must be briefed on their work assignments and the provisions of this procedure, and each person briefed must be given a copy of this document and each must acknowledge receipt and willingness to comply by submitting a signed safety compliance agreement to the W-C Project Manager. Individuals refusing to sign the agreement will be prohibited from working at the site.

### **507.8 PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Equipment listed below must be available on-site in appropriate sizes for use when needed.

1. National Institute for Occupational Safety and Health (NIOSH) approved full- or half-face respirator with organic vapor cartridges. Respirators must be worn when airborne hydrocarbon action levels are reached or exceeded.
2. Saranex or polyethylene coated Tyvek coveralls. Coated coveralls must be worn when product quantities of fuel are encountered and when fuel-saturated soil is handled.
3. Safety goggles or glasses. Must be worn when working within 10 feet of operating heavy equipment (e.g., drill rig, backhoe). Must be splash-proof when handling concentrated fuel product.
4. Nitrile or neoprene gloves for all fuels except methanol. Workers handling methanol must wear butyl gloves. Gloves must be worn when handling contaminated soil or water, or when drilling or digging into contaminated soil. Confirm with your HSO the applicability of model and brand of gloves!



5. Neoprene or butyl rubber safety boots, calf-length. Must be worn when walking on obviously contaminated soil and when working within 10 feet of operating heavy equipment.
6. Hard hat. Must be worn when working within 10 feet of operating heavy equipment.

## **507.9 ORGANIC VAPOR MONITORING**

### **507.9.1 Monitoring Instruments**

Two instruments are required for this work:

- 1) Combustible Gas/Oxygen indicator (CGI/O<sub>2</sub>) with readout in % Lower Explosive Limit (LEL) and %O<sub>2</sub>.
- 2) Photoionization (PID) field survey instrument (HNU, ThermoEnvironmental 580A, Photovac Microtip, or equivalent)\*, or, Flame ionization (FID) field survey instrument (Foxboro OVA or equivalent).

\*PID instruments cannot readily detect methanol, and therefore may NOT be used on sites where methanol is or may be encountered.

### **507.9.2 Toxicity Action Levels**

The toxicity action levels given below are set to comply with Occupational Safety and Health Administration (OSHA) Permissible Exposure Levels and ACGIH Threshold Limit Values (TLV). Gasoline averages approximately 1% benzene. Therefore, for fuels which may contain benzene, the action levels specified below are also set to comply with the proposed TLV of 0.1 ppm. These action levels are also adjusted for the relative response of common PID or FID instruments to motor fuel vapors.

Respirators must be worn when meter readings averaged over 10 minutes equal or exceed the action level for upgrade to Level C PPE. Workers must be evacuated from the area when organic vapor concentrations exceeding respiratory protective equipment protection factors

are encountered.

**507.9.2.1 Toxicity Action Levels for Gasoline and Jet B**

**TOXICITY ACTION LEVELS  
GASOLINE AND JET B  
(in PPM)**

<b>Instrument</b>	<b>Calibration Gas</b>	<b>Action Upgrade to Level C</b>	<b>Evacuate</b>
Photoionization meter# (10.0 to 10.2 eV lamp)	HNU calibration gas* or Benzene	4	40** 200***
Photoionization meter# (10.0 to 10.2 eV lamp)	Isobutylene	6	60** 300***
Flame ionization meter (OVA-128)	Methane	10	100** 500***

# Photoionization instruments do not work and shall not be used for work in high (>90%) humidity or rainy weather, or sites where methanol is or may be present.

\* Although the calibration gas purchased for the HNU is isobutylene, the concentration identified on the cylinder for calibration of a HNU with 10.2 eV lamps is a benzene equivalent.

\*\* for workers wearing half-face respirators.

\*\*\* for workers wearing full-face respirators.

**507.9.2.2 Toxicity Action Levels for Fuels other than Gasoline and Jet B**

**TOXICITY ACTION LEVELS  
FUELS OTHER THAN GASOLINE, METHANOL AND JET B  
(in PPM)**

Instrument	Calibration Gas	Action Upgrade to Level C	Evacuate
Photoionization meter# (10.0 to 10.2 eV lamp)	HNU calibration gas* or Benzene	20	100** 600***
Photoionization meter# (10.0 to 10.2 eV lamp)	Isobutylene	35	200** 600***
Flame ionization meter (OVA-128)	Methane	100	300** 600***

# Photoionization instruments do not work and shall not be used for work in high (>90%) humidity or rainy weather.

\* Although the calibration gas purchased for the HNU is isobutylene, the concentration identified on the cylinder for calibration of HNU's with 10.2 eV lamps is a benzene equivalent.

\*\* for workers wearing half-face respirators.

\*\*\* for workers wearing full-face respirators.

All instruments shall be calibrated both immediately prior to commencing the day's field work and after work ceases for the day. Calibration and monitoring records shall be kept in the project file and provided to the operating unit HSO. Records shall include:

- Worker's name,
- Date,

- Time,
- Location,
- Temperature and humidity, and
- Calibration gas identity and concentration.
- Exposure data (time, location, and concentration)

### 507.9.3 Explosion Hazard Action Levels

The explosivity action levels below are set to prevent the creation of flammable or explosive atmospheres. Measurements should be taken at all locations where personnel are present or power/hand tools are in use. API procedures shall be followed for measurements in tanks or piping.

#### EXPLOSIVITY ACTION LEVELS (% of the LEL)

Instrument	Action Level (Evacuate)
Combustible Gas Indicator	20%

The Combustible Gas Indicator (CGI) alarm must be set to sound at the action level. For this work it is highly recommended that hexane or methane to a pentane standard be used for calibration.

When measurements with a CGI indicate the presence of combustible gas levels equal to or exceeding the explosivity action level in the work area, the following action must be taken:

1. Extinguish all possible ignition sources in the work area and shut down all powered equipment.
2. Move personnel at least 100 feet away from work area.

3. Contact the Health and Safety Officer.
4. At the instruction of the HSO and after waiting 15 minutes for organic vapors to dissipate, the SSO or PM may use the CGI to, cautiously and with prudence, approach the worksite to determine the extent and concentration of organic emissions. The SSO or PM shall not enter any area where CGI readings exceed the explosivity action level, nor shall the SSO or PM make any approach if there is possibility of fire or explosion.
5. Personnel may reenter the work area only by clearance of the HSO after the cause of the emission has been determined and the source abated.
6. Prepare incident report and submit to the HSO.

#### **507.9.4 Monitoring Guidelines**

Personnel exposure monitoring should be performed as often as necessary and wherever necessary to protect field personnel from hazardous concentrations of organic vapors. Monitoring must be performed by individuals trained in the calibration, use and care of the required instruments.

Toxicity action levels are considerably lower than explosivity action levels. Therefore, initial and periodic monitoring should be conducted with the PID or FID. Monitoring shall be conducted in the worker's breathing zone, which is a 1 foot diameter sphere surrounding the worker's head. The alarm on this instrument should be set to sound at the action level. If vapors are measured continuously and the instrument must be unattended, the detector inlet should be located as close to the worker's breathing zone as possible. Decisions regarding respirator use should be based on breathing zone vapor concentrations of personnel expected to have the greatest exposures. Particular effort should be made to monitor personnel exposures while trenching, boring or tank inerting progresses.

Explosivity monitoring should be continuous, with the detector set at a location near and downwind of the source of emission. Additional monitoring with the CGI should be performed when organic vapor concentrations exceed the ppm range of the PID or FID

instrument. If the alarm sounds while continuously monitoring with a CGI, initiate shut-down and evacuation procedures immediately.

## **507.10 AREA CONTROL**

Access to hazardous and potentially hazardous areas of spill sites must be controlled to reduce the probability of occurrence of physical injury and chemical exposure of field personnel, visitors, and the public. A hazardous or potentially hazardous area includes any area where (1) field personnel are required to wear respirators, (2) borings are being drilled with powered augers, or (3) excavating operations with heavy equipment are being performed.

The boundaries of hazardous and potentially hazardous areas must be identified by cordons, barricades, or emergency traffic cones or posts, depending on conditions. If such areas are left unattended, signs warning of the danger and forbidding entry must be placed around the perimeter if the areas are accessible to the public. Trenches and other large holes must be guarded with wooden or metal barricades spaced no further than 20 feet apart and connected with yellow or yellow and black nylon tape not less than 3/4-inches wide. The barricades must be placed no less than two feet from the edge of the excavation or hole.

Entry to hazardous areas shall be limited to individuals who must work in those areas. Unofficial visitors must not be permitted to enter hazardous areas while work in those areas is in progress. Official visitors should be discouraged from entering hazardous areas, but may be allowed to enter only if they agree to abide by the provisions of this document, follow orders issued by the site safety officer, and are informed of the potential dangers that could be encountered in the areas.

## **507.11 DECONTAMINATION**

Field decontamination of personnel and equipment is not required except when contamination is obvious (visually or by odor). Recommended decontamination procedures follow.

### **507.11.1 Personnel Decontamination**

Gasoline, kerosene, jet fuel, and gasohol should be removed from skin using a mild detergent

and water. Hot water is more effective than cold. Liquid dishwashing detergent is more effective than hand soap.

#### **507.11.2 Equipment Decontamination**

Gloves, respirators, hard hats, boots and goggles should be cleaned as described under Section 507.11.1; however, if boots do not become clean after washing with detergent and water, wash them with a strong solution of trisodium phosphate and hot water.

Sampling equipment, augers, vehicle undercarriages, and tires should be steam or high pressure washer cleaned. The steam cleaner is a convenient source of hot water for personnel and protective equipment cleaning.

#### **507.12 SMOKING**

Smoking and open flames are strictly prohibited at sites under investigation.

#### **507.13 INERTING OF TANKS**

Whenever W-C personnel must be present during removal or transport of fuel storage tanks, the SSO or designee must determine whether or not the procedures to be used by the firm responsible for tank removal/transport agree with API Recommended Practice 1604, Second Ed. 1987 as revised March 6, 1989, Removal and Disposal of Used Underground Petroleum Storage Tanks. If the firm's procedures, especially those addressing removal/inactivation of flammable vapors, disagree substantially with API's procedures, the PM and HSO must be notified immediately (by telephone, if possible). In turn, the PM shall inform the client that W-C personnel will not report to the site during tank/removal operations unless proper procedures are used. If the firm responsible for tank removal/transport is under subcontract to W-C, the W-C project manager shall require the subcontractor to follow API procedures.

#### **507.14 EXCAVATIONS**

Tank or pipe removal may involve trenching/excavation operations. W-C employees or contractors shall use remote sampling such as poles or backhoe buckets to avoid excavation

entry. If the excavations must be entered, the hazards of trench collapse and accumulated vapors must be considered. W-C Operating Procedures for Confined Space Entry (HS-205) and Safety Guidelines for Trenching/Excavations (HS-204) must be followed.



## OPERATING PROCEDURES NO. HS-201

### 201.0 HEAT STRESS

#### 201.1 PURPOSE

The purpose of this Operating Procedure is to provide general information on heat stress and the methods that can be utilized to prevent or minimize the occurrence of heat stress.

Adverse climatic conditions are important considerations in planning and conducting site operations. Ambient temperature effects can include physical discomfort, reduced efficiency, personal injury, and increased accident probability. Heat stress is of particular concern while wearing impermeable protective garments, since these garments inhibit evaporative body cooling.

#### 201.2 TYPES OF HEAT STRESS

Heat stress is the combination of environmental and physical work factors that constitute the total heat load imposed on the body. The environmental factors of heat stress are the air temperature, radiant heat exchange, air movement, and water vapor pressure. Physical work contributes to the total heat stress of the job by producing metabolic heat in the body in proportion to the intensity of the work. The amount and type of clothing also affects heat stress.

Heat strain is the series of physiological responses to heat stress. When the strain is excessive for the exposed individual, a feeling of discomfort or distress may result, and, finally, a heat disorder may ensue. The severity of strain will depend not only on the magnitude of the prevailing stress, but also on the age, physical fitness, degree of acclimatization, and dehydration of the worker.

Heat disorder is a general term used to describe one or more of the heat-related disabilities or illnesses shown in Table 201-1.

### 201.3 METHODS OF CONTROLLING HEAT STRESS

As many of the following control measures, as appropriate, should be utilized to aid in controlling heat stress:

- Provide for adequate liquids to replace lost body fluids. Encourage personnel to drink more than the amount required to satisfy thirst. Thirst satisfaction is not an accurate indicator of adequate salt and fluid replacement.
- Replace body fluids primarily with water, with commercial mixes such as Gatorade or Quick Kick used only as a portion of the replacement fluids. Avoid excessive use of caffeine drinks such as coffee, colas or tea.
- Establish a work regimen that will provide adequate rest periods for cooling down. The heat exposure *Threshold Limit Values (TLV)* may be used for guidelines.
- Provide shaded work areas, if possible.
- Wear cooling devices such as vortex tubes or cooling vests.
- Consider adjusting work hours to avoid the worst heat of the day.
- Take breaks in a cool rest area.
- Remove any impermeable protective garments during rest periods.
- Do not assign other tasks to personnel during rest periods.
- Inform personnel of the importance of adequate rest, acclimation, and proper diet in the prevention of heat stress.

## 201.6 MONITORING

### 201.6.1 Temperature

The environmental heat stress of an area can be monitored by the Wet Bulb Globe Temperature Index (WBGT) technique. When heat stress is a possibility, a heat stress monitoring device, such as the Wibget Heat Stress Monitor (Reuter Stokes) can be utilized.

The WBGT shall be compared to the TLV outlined by the American Conference of Governmental Industrial Hygienists (ACGIH) TLV guides, and a work-rest regimen can be established in accordance with the WBGT. Note that approximately 5°C must be subtracted from the TLVs listed for heat stress to compensate for the wearing of impermeable protective clothing.

### 201.6.2 Medical

In addition to the provisions of the Woodward-Clyde (W-C) medical surveillance program, on-site medical monitoring of personnel should be performed for projects where heat stress is a significant concern. Blood pressure, pulse, body temperature (oral), and body weight loss may be utilized.

**Heart Rate:** Count the radial pulse during a 30-second period as early as possible in the rest period. If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third. If the heart rate still exceeds 110 beats per minute at the next rest cycle, shorten the following work cycle by one-third.

**Oral Temperature:** Use a clinical thermometer or similar device to measure the oral temperature at the end of the work period (before drinking liquids). If the oral temperature exceeds 99.6°F (37.6°C), shorten the next work cycle by one-third without changing the rest period. If the oral temperature still exceeds 99.6°F (37.6°C) at the beginning of the next rest period, shorten the following work cycle by one-third.

Do not permit a worker to wear a semipermeable or impermeable garment if his/her oral temperature exceeds 100.6°F (38.1°C).

**Body Water Loss:** Measure body weight on a scale accurate to  $\pm 0.25$  pounds at the beginning and end of each work day (also at lunch break, if possible) to see if enough fluids are being taken to prevent dehydration. Weights should be taken while the employee wears similar clothing or, ideally, nude. The body water loss should not exceed 1.5 percent total body weight loss in a work day.

**Physiological Monitoring:** Initially, the frequency of physiological monitoring depends on the air temperature adjusted for solar radiation and the level of physical work. The length of the work cycle will be governed by the frequency of the required physiological monitoring.

## 201.7 REFERENCES

American Conference of Governmental Industrial Hygienists, Threshold Limit Values for Chemical Substances and Physical Agents, 1992-1993.

EPA, Standard Operating Safety Guides, 1992, Pages 91-93.

National Institute for occupational Safety and Health, Criteria for a Recommended Standard: Occupational Exposure to Hot Environments, 1986.

**TABLE 201-1**  
**Classification, Medical Aspects, and Prevention of Heat Illness**

Category and Clinical Features	Predisposing Factors	Underlying Physiological Disturbances	Treatment	Prevention
<p><b>Temperature Regulation Heatstroke</b></p> <p><b>Heatstroke:</b> (1) Hot, dry skin; usually red, mottled, or cyanotic; (2) rectal temperature 40.5°C (104°F) and over; (3) confusion, loss of consciousness, convulsions, rectal temperature continues to rise; fatal if treatment is delayed</p>	<p>(1) Sustained exertion in heat by unacclimatized workers; (2) lack of physical fitness and obesity; (3) recent alcohol intake; (4) dehydration; (5) individual susceptibility; and (6) chronic cardiovascular disease</p>	<p>Failure of the central drive for sweating (cause unknown) leading to loss of evaporative cooling and an uncontrolled accelerating rise in <math>t_{re}</math>; there may be partial rather than complete failure of sweating</p>	<p>Immediate and rapid cooling by immersion in chilled water with massage or by wrapping in wet sheet with vigorous fanning with cool dry air; avoid overcooling; treat shock if present</p>	<p>Medical screening of workers, selection based on health and physical fitness; acclimatization for 5-7 days by graded work and heat exposure; monitoring workers during sustained work in severe heat</p>
<p><b>Circulatory Hypostasis Heat Syncope</b></p> <p>Fainting while standing erect and immobile in heat</p>	<p>Lack of acclimatization</p>	<p>Pooling of blood in dilated vessels of skin and lower parts of body</p>	<p>Remove to cooler area; rest in recumbent position; recovery prompt and complete</p>	<p>Acclimatization; intermittent activity to assist venous return to heat</p>
<p><b>Water and or Salt Depletion</b></p> <p>(a) <u>Heat Exhaustion</u></p> <p>(1) Fatigue, nausea, headache, giddiness; (2) skin clammy and moist; complexion pale, muddy, or hectic flush; (3) may faint on standing with rapid thready pulse and low blood pressure; (4) oral temperature normal or low, but rectal temperature usually elevated (37.5-38.5°C or 99.5-101.3°F); water restriction type: urine volume small, highly concentrated; salt restriction type; urine less concentrated chlorides less than 3 g/L</p> <p>(b) <u>Heat Cramps</u></p> <p>Painful spasms of muscles used during work (arms, legs, or abdominal); onset during or after work hours</p>	<p>(1) Sustained exertion in heat; (2) lack of acclimatization; and (3) failure to replace water lost in sweat</p> <p>(1) Heavy sweating during hot work; (2) drinking large volumes of water without replacing salt loss</p>	<p>(1) Dehydration from deficiency of water; (2) depletion of circulating blood volume; (3) circulatory strain from competing demands for blood flow to skin and to active muscles</p> <p>Loss of body salt in sweat, water intake dilutes electrolytes; water enters muscles, causing spasm</p>	<p>Remove to cooler environment; rest in recumbent position; administer fluids by mouth; keep at rest until urine volume indicates that water balances have been restored</p> <p>Salted liquids by mouth or more prompt relief by IV infusion</p>	<p>Acclimatize workers using a breaking-in schedule for 5-7 days; supplement dietary salt only during acclimatization; ample drinking water to be available at all times and to be taken frequently during work day</p> <p>Adequate salt intake with meals; for unacclimatized workers, supplement salt intake at meals.</p>

**TABLE 201-1 (continued)**  
**Classification, Medical Aspects, and Prevention of Heat Illness**

Category and Clinical Features	Predisposing Factors	Underlying Physiological Disturbances	Treatment	Prevention
<p><b>Skin Eruptions</b></p> <p>(a) <u>Heat Rash</u> (miliaria rubra, or "prickly heat")</p> <p>Profuse tiny raised red vesicles (blisterlike) on affected areas; prickling sensations during heat exposure</p> <p>(b) <u>Anhidrotic Heat Exhaustion</u> (miliaria profunda)</p> <p>Extensive areas of skin which do not sweat on heat exposure, but present gooseflesh appearance, which subsides with cool environments; associated with incapacitation in heat</p>	<p>Unrelieved exposure to humid heat with skin continuously wet from unevaporated sweat</p> <p>Weeks or months of constant exposure to climatic heat with previous history of extensive heat rash and sunburn</p>	<p>Plugging of sweat gland ducts with sweat retention and inflammatory reaction</p> <p>Skin trauma (heat rash; sunburn) causes sweat retention deep in skin; reduced evaporative cooling causes heat intolerance</p>	<p>Mild drying lotions; skin cleanliness to prevent infection</p> <p>No effective treatment available for anhidrotic areas of skin; recovery of sweating occurs gradually on return to cooler climate</p>	<p>Cool sleeping quarters to allow skin to dry between heat exposures</p> <p>Treat heat rash and avoid further skin trauma by sunburn; provide periodic relief from sustained heat</p>
<p><b>Behavioral Disorders</b></p> <p>(a) <u>Heat Fatigue - Transient</u></p> <p>Impaired performance of skilled sensorimotor, mental, or vigilance tasks, in heat</p> <p>(b) <u>Heat Fatigue - Chronic</u></p> <p>Reduced performance capacity; lowering of self-imposed standards of social behavior (e.g., alcoholic over-indulgence); inability to concentrate, etc.</p>	<p>Performance decrement greater in unacclimatized and unskilled worker</p> <p>Workers at risk come from temperate climates for long residence in tropical latitudes</p>	<p>Discomfort and physiologic strain</p> <p>Psychosocial stresses probably as important as heat stress; may involve hormonal imbalance but no positive evidence</p>	<p>Not indicated unless accompanied by other heat illness</p> <p>Medical treatment for serious causes; speedy relief of symptoms on returning home</p>	<p>Acclimatization and training for work in the heat</p> <p>Orientation on life in hot regions (customs, climate, living conditions, etc.)</p>

# HEAT STRESS

FROM

OCCUPATIONAL EXPOSURE TO HOT ENVIRONMENTS, NIOSH

Revised Criteria 1986

NIOSH

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
PUBLIC HEALTH SERVICE  
CENTERS FOR DISEASE CONTROL  
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

## 1. Heatstroke

The classical description of heatstroke includes: (1) a major disruption of central nervous function (unconsciousness or convulsions); (2) a lack of sweating; and (3) a rectal temperature in excess of 41°C (105.8°F) [4,59,75,76]. The 41°C rectal temperature is an arbitrary value for hyperpyrexia, because the disorder has not been produced experimentally in humans so that observations are made only after the admission of patients to hospitals, which may vary in time from about 30 minutes to several hours after the event. In some heatstroke cases, sweating may be present [76]. The local circumstances of metabolic and environmental heat loads which give rise to the disorder are highly variable and are often difficult or impossible to reconstruct with accuracy. The period between the occurrence of the event and admission to a hospital may result in a quite different medical outcome from one patient to another depending on the knowledge, understanding, skill, and facilities available to those who render first aid in the intervening period. Recently, the sequence of biologic events in some fatal heatstroke cases have been described [77].

Heatstroke is a MEDICAL EMERGENCY, and any procedure from the moment of onset which will cool the patient improves the prognosis. Placing the patient in a shady area, removing outer clothing and wetting the skin, and increasing air movement to enhance evaporative cooling are all urgently needed until professional methods of cooling and assessment of the degree of the disorder are available. Frequently, by the time a patient is admitted to a hospital, the disorder has progressed to a multisystem lesion affecting virtually all tissues and organs [77]. In the typical clinical presentation, the central nervous system is disorganized, and there is commonly evidence of fragility of small blood vessels, possibly coupled with the loss of integrity of cellular membranes in many tissues. The blood-clotting mechanism is often severely disturbed, as are liver and kidney functions. It is not clear, however, whether these events are present at the onset of the disorder, or whether their development requires a combination of a given degree of elevated body temperature and a certain period for tissue or cellular damage to occur. Postmortem evaluation indicates there are few tissues which escape pathological involvement. Early recognition of the disorder or its impending onset, associated with appropriate treatment, considerably reduces the death rate and the extent of organ and tissue involvement. An ill worker should not be sent home or left unattended without a physician's specific order.

## 2. Heat Exhaustion

Heat exhaustion is a mild form of heat disorder which readily yields to prompt treatment. This disorder has been encountered frequently in experimental assessment of heat tolerance. Characteristically, it is sometimes but not always accompanied by a small increase in body temperature (38°-39°C or 100.4°-102.2°F). The symptoms of headache, nausea, vertigo, weakness, thirst, and giddiness are common to both heat exhaustion and the early stage of heatstroke. There is a wide interindividual variation in the ability to tolerate an increased body



temperature; some individuals cannot tolerate rectal temperatures of 38°-39°C, and others continue to perform well at even higher rectal temperatures [78].

There are, of course, many variants in the development of heat disorders. Failure to replace water may predispose the individual to one or more of the heat disorders and may complicate an already complex situation. Therefore, cases of hyperpyrexia can be precipitated by hypohydration. It is unlikely that there is only one cause of hyperpyrexia without some influence from another. Recent data suggest that cases of heat exhaustion can be expected to occur some 10 times more frequently than cases of heatstroke [59].

### 3. Heat Cramps

Heat cramps are not uncommon in individuals who work hard in the heat. They are attributable to a continued loss of salt in the sweat, accompanied by copious intake of water without appropriate replacement of salt. Other electrolytes such as  $Mg^{++}$ ,  $Ca^{++}$ , and  $K^{+}$  may also be involved. Cramps often occur in the muscles principally used during work and can be readily alleviated by rest, the ingestion of water, and the correction of any body fluid electrolyte imbalance.

### 4. Heat Rashes

The most common heat rash is prickly heat (*miliaria rubra*), which appears as red papules, usually in areas where the clothing is restrictive, and gives rise to a prickling sensation, particularly as sweating increases. It occurs in skin that is persistently wetted by unevaporated sweat, apparently because the keratinous layers of the skin absorb water, swell, and mechanically obstruct the sweat ducts [21,79,80]. The papules may become infected unless they are treated.

Another skin disorder (*miliaria crystallina*) appears with the onset of sweating in skin previously injured at the surface, commonly in sunburned areas. The damage prevents the escape of sweat with the formation of small to large watery vesicles which rapidly subside once sweating stops, and the problem ceases to exist once the damaged skin is sloughed.

*Miliaria profunda* occurs when the blockage of sweat ducts is below the skin surface. This rash also occurs following sunburn injury, but has been reported to occur without clear evidence of previous skin injury. Discrete and pale elevations of the skin, resembling gooseflesh, are present.

In most cases, the rashes disappear when the individuals are returned to cool environments. It seems likely that none of the rashes occur (or if they do, certainly with greatly diminished frequency) when a substantial part of the day is spent in cool and/or dry areas so that the skin surface can dry.

Although these heat rashes are not dangerous in themselves, each of them carries the possibility of resulting patchy areas which are anhidrotic, and thereby adversely affects evaporative heat loss and thermoregulation. In experimentally induced miliaria rubra, sweating capacity recovers within 3-4 weeks [79,80]. Wet and/or damaged skin could absorb toxic chemicals more readily than dry unbroken skin.

### C. Chronic Heat Disorders

Some long term effects from exposure to heat stress (based on anecdotal, historical, and some epidemiologic and experimental evidence) have been suggested. Recently, the evidence was reviewed by Dukes-Dobos who proposed a three-category classification of possible heat-related chronic health effects [77]. The three categories are Type I - those related to acute heat illnesses such as reduced heat tolerance following heatstroke or reduced sweating capacity; Type II - not clear clinical entities, but are similar to general stress reactions; and Type III - which includes anhidrotic heat exhaustion, tropical neurosthenia, and increased incidence of kidney stones. The primary references cited in the review are suggestive of some possible chronic heat effects. However, the available data do not contribute information of value in protecting workers from heat effects. Nevertheless, the concept of chronic health effects from heat exposure may merit further formal laboratory and hot industry investigations.

TABLE IV-1.--Classification, medical aspects, and prevention of heat illness.

Category and clinical features	Predisposing factors	Underlying physiologic disturbance	Treatment	Prevention
<p>1. Temperature Regulation Heatstroke</p> <p>Heatstroke: (1) Hot dry skin usually red, mottled or cyanotic; (2) <math>t_{re}</math> 40.5°C (104°F) and over; (3) confusion, loss of consciousness, convulsions, <math>t_{re}</math> continues to rise; fatal if treatment delayed</p>	<p>(1) Sustained exertion in heat by unacclimatized workers; (2) Lack of physical fitness and obesity; (3) Recent alcohol intake; (4) Dehydration; (5) Individual susceptibility; and (6) Chronic cardiovascular disease</p>	<p>Failure of the central drive for sweating (cause unknown) leading to loss of evaporative cooling and an uncontrolled accelerating rise in <math>t_{re}</math>. There may be partial rather than complete failure of sweating</p>	<p>Immediate and rapid cooling by immersion in chilled water with massage or by wrapping in wet sheet with vigorous fanning with cool dry air, avoid overcooling, treat shock if present</p>	<p>Medical screening of workers, selection based on health and physical fitness, acclimatization for 5-7 days by graded work and heat exposure, monitoring workers during sustained work in severe heat</p>
<p>2. Circulatory Hypostasis Heat Syncope</p> <p>Fainting while standing erect and immobile in heat</p>	<p>Lack of acclimatization</p>	<p>Pooling of blood in dilated vessels of skin and lower parts of body</p>	<p>Remove to cooler area, rest recumbent position, recovery prompt and complete</p>	<p>Acclimatization, intermittent activity to assist venous return to heart</p>
<p>3. Water and/or Salt Depletion</p> <p>(a) Heat Exhaustion</p> <p>(1) Fatigue, nausea, headache, giddiness; (2) Skin clammy and moist; complexion pale, muddy, or hectic</p>	<p>(1) Sustained exertion in heat; (2) Lack of acclimatization; and (3) Failure to replace water lost in sweat</p>	<p>(1) Dehydration from deficiency of water; (2) Depletion of circulating blood volume; (3) Circulatory strain from</p>	<p>Remove to cooler environment, rest recumbent position, administer fluids by mouth, keep at rest</p>	<p>Acclimatize workers using a breaking-in schedule for 5 to 7 days, supplement dietary salt only</p>

(continued)

TABLE IV-1.--Classification, medical aspects, and prevention of heat illness

Category and clinical features	Predisposing factors	Underlying physiologic disturbance	Treatment	Prevention
flush; (3) May faint on standing with rapid thready pulse and low blood pressure; (4) Oral temperature normal or low but rectal temperature usually elevated (37.5°-38.5°C) (99.5°-101.3°F); water restriction type: urine volume small, highly concentrated; salt restriction type: urine less concentrated, chlorides less than 3 g/L		competing demands for blood flow to skin and to active muscles	until urine volume indicates that water balances have been restored	during acclimatization, ample drinking water to be available at all times and to be taken frequently during work day
(b) Heat Cramps				
Painful spasms of muscles used during work (arms, legs, or abdominal); onset during or after work hours	(1) Heavy sweating during hot work; (2) Drinking large volumes of water without replacing salt loss	Loss of body salt in sweat, water intake dilutes electrolytes, water enters muscles, causing spasm	Salted liquids by mouth, or more prompt relief by I-V infusion	Adequate salt intake with meals; in unacclimatized workers supplement salt intake at meals
4. Skin Eruptions				
(a) Heat Rash (miliaria rubra; "prickly heat")				
Profuse tiny raised red vesicles (blister-like) on affected areas, pricking sensations during heat exposure	Unrelieved exposure to humid heat with skin continuously wet with unevaporated sweat	Plugging of sweat gland ducts with retention of sweat and inflammatory reaction	Mild drying lotions, skin cleanliness to prevent infection	Cool sleeping quarters to allow skin to dry between heat exposures

(Continued)

TABLE IV-1.--Classification, medical aspects, and prevention of heat illness

Category and clinical features	Predisposing factors	Underlying physiologic disturbance	Treatment	Prevention
(b) Anhidrotic Heat Exhaustion (miliaria profunda)				
Extensive areas of skin which do not sweat on heat exposure, but present gooseflesh appearance, which subsides with cool environments; associated with incapacitation in heat	Weeks or months of constant exposure to climatic heat with previous history of extensive heat rash and sunburn	Skin trauma (heat rash; sunburn) causes sweat retention deep in skin, reduced evaporative cooling causes heat intolerance	No effective treatment available for anhidrotic areas of skin, recovery of sweating occurs gradually on return to cooler climate	Treat heat rash and avoid further skin trauma by sunburn, periodic relief from sustained heat
5. Behavioral Disorders				
(a) Heat Fatigue-- Transient				
Impaired performance of skilled sensorimotor, mental, or vigilance tasks, in heat	Performance decrement greater in unacclimatized and unskilled worker	Discomfort and physiologic strain	Not indicated unless accompanied by other heat illness	Acclimatization and training for work in the heat
(b) Heat Fatigue-- Chronic				
Reduced performance capacity, lowering of self-imposed standards of social behavior (e.g., alcoholic over-indulgence), inability to concentrate, etc.	Workers at risk come from temperate climates, for long residence in tropical latitudes	Psychosocial stresses probably as important as heat stress, may involve hormonal imbalance but no positive evidence	Medical treatment for serious cases, speedy relief of symptoms on re-turning home	Orientation on life in hot regions (customs, climate, living conditions, etc.)

Adapted from Reference 73.

## OPERATING PROCEDURE NO. HS-103

### 103.0 Cold Stress

#### 103.1 Purpose

The purpose of this OP is to provide information on cold stress and procedures for preventing and dealing with cold stress. Adverse climatic conditions of cold are important considerations in planning and conducting site operations. Ambient temperature effects can include physical discomfort, reduced efficiency, personal injury, and increased accident probability.

#### 103.2 Types of Cold Stress Effects

Persons working outdoors in temperatures at or below freezing may be frostbitten. Extreme cold for a short time may cause severe injury to the surface of the body, or result in profound generalized cooling, causing death. Areas of the body that have high surface-area-to-volume ratio such as fingers, toes, and ears, are the most susceptible.

Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite of the extremities can be categorized into:

- Frost nip or initial frostbite: characterized by suddenly blanching or whitening of skin.
- Superficial frostbite: skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
- Deep frostbite: tissues are cold, pale, and solid; extremely serious injury.

Another form of cold stress that can be quite serious is hypothermia. Hypothermia results when the body loses heat faster than it can produce it. When this situation first occurs, blood vessels in the skin constrict in an attempt to conserve vital internal heat. Hands and feet are first affected. If the body continues to lose heat, involuntary shivers begin. This is the body's way of attempting to produce more heat, and it is usually the first real warning sign of hypothermia. Further heat loss produces speech difficulty, forgetfulness, loss of manual dexterity, collapse, and finally death.

Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperature. Its symptoms are usually exhibited in five stages:

1. shivering;
2. apathy, listlessness, sleepiness, and (sometimes) rapid cooling of the body to less than 95°F;
3. unconsciousness, glassy stare, slow pulse, and slow respiratory rate;
4. freezing of the extremities; and finally
5. death.

### 103.3 Climatic Factors

Two factors influence the development of a cold injury: ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. For instance, 10°F with a wind of 15 miles per hour (mph) is equivalent in chilling effect to still air at -18°F. See the wind chill chart in Table 103-1.

As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration soaked.

#### 103.4 Exposure Limits

Typical exposure limits for work in cold are presented in Table 103-2, as a guide for establishing work schedules.

#### 103.5 Control Measures

The dead air space between the warm body and clothing and the outside air is essential. Clothing is worn to keep the body warmth in and the cold out. Usually, no one type of clothing is best for all weather conditions. Denim is relatively loosewoven, that not only allows water to penetrate, but permits wind to blow away the body heat that should remain trapped between the body and clothing worn. Duck or goose down is good for stopping wind, but is of little use when wet. Clear plastic or closely woven nylon is good protection from wind and rain but offers little insulation against cold.

Many layers of relatively light clothing with an outer shell of windproof material maintain body temperature much better than a single heavy outer garment worn over ordinary indoor clothing. The more air cells each of these clothing layers has, the more efficient it insulates against body heat loss. Make sure that clothing allows some venting of perspiration. Because wet skin will freeze more rapidly than dry skin, use all feasible means to keep as dry as possible. Make full use of windbreaks and avoid exposing skin to direct effects of the wind. Problems are created by the need to wear layers of special clothing that make the wearer very clumsy in performing many routine work procedures. Increased body dimensions must also be considered if tight spaces are encountered.

#### 103.6 References

Olishefsky, J.B., Fundamentals of Industrial Hygiene, National Safety Council, 1983.



TABLE 103-1. WIND CHILL CHART.

Wind Speed (in mph)	Actual Thermometer Reading (F)									
	50	40	30	20	10	0	-10	-20	-30	-40
calm	50	40	30	20	10	0	-10	-20	-30	-40
5	48	37	27	16	6	-5	-15	-26	-36	-47
10	40	28	16	4	-9	-21	-33	-46	-58	-70
15	36	22	9	-5	-18	-36	-45	-58	-72	-83
20	32	18	4	-10	-25	-39	-53	-67	-82	-96
25	30	16	0	-15	-29	-44	-59	-74	-88	-104
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109
35	27	11	-4	-20	-37	-53	-69	-85	-100	-116
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116
Over 40 mph (little added effect)	LITTLE DANGER (for properly clothed person)				INCREASING DANGER (danger from of exposed			GREAT DANGER freezing flesh)		

The human body senses "cold" as a result of both the air temperature and the wind velocity. Cooling of exposed flesh increases rapidly as the wind velocity goes up. Frostbite can occur at relatively mild temperatures if wind penetrates the body insulation. For example, when the actual air temperature of the wind is 40 F (4.4 C) and its velocity is 30 mph (48 km/h), the exposed skin would perceive this situation as an equivalent still air temperature of 13 F (-11 C).

TABLE 103-2 MAXIMUM DAILY TIME LIMITS FOR EXPOSURE AT LOW TEMPERATURES.

Temperature Range		Maximum Daily Exposure
Celcius (degrees)	Fahrenheit (degrees)	
0 to -18	30 to 0	No limit, providing that the person is properly clothed.
-18 to -34	0 to -30	Total work time; 4 hours. Alternate one hour in and one hour out of the low-temperature area.
-34 to -57	-30 to -70	Two periods of 30 minutes each, at least 4 hours apart. Total low temperature work time allowed: one hour. (Note that some difference exists among individuals: one report recommends 15-minute periods--not over four periods per work 8-hour shift; another limits periods to one hour out of every four, with a low chill factor, i.e., no wind; a third says that continuous operation for 3 hours at -53 has been experienced without ill effect.
-57 to -73	-70 to -100	Maximum permissible work time: 5 minutes during an 8-hour working day. At these extreme temperatures, completely enclosed headgear, equipped with a breathing tube running under the clothing and down the leg to preheat the air, is recommended.

Source: NSC Data Sheet 465, Cold Room Testing of Gasoline and Diesel Engines.

## OPERATING PROCEDURE NO. HS-203

### 203.0 SAFETY GUIDELINES FOR DRILLING INTO SOIL AND ROCKS

#### 203.1 PURPOSE

The purpose of this Operating Procedure (OP) is to provide an overview for working safely around drilling operations with truck-mounted and other engine-powered drill rigs. The procedure addresses off-road movement of drill rigs, overhead and buried utilities, use of augers, rotary and core drilling, and other drilling operations and activities.

#### 203.2 APPLICATION

The guidelines shall be applied in Woodward-Clyde (W-C) projects in which truck-mounted, or other engine-powered, drill rigs are used. The guidelines are applicable to W-C employees and W-C owned rigs. For drill rigs operated by contractors, the primary responsibility for drilling safety is with the drilling contractor.

#### 203.3 RESPONSIBILITY AND AUTHORITY

Drill rig safety and maintenance is the responsibility of the drill rig operator. W-C employees are responsible for their own safety including recognizing and avoiding drill rig hazards. W-C employees that observe a drill rig condition believed to be unsafe, shall advise the drill rig operator of the unsafe condition.

#### 203.4 SAFETY GUIDELINES

##### 203.4.1 Movement of Drill Rigs

Before moving a rig, the operator must do the following:

1. To the extent practical, walk the planned route of travel and inspect it for depressions, gullies, ruts, and other obstacles.

2. Check the brakes of the truck/carrier, especially if the terrain along the route of travel is rough or sloped.
3. Discharge all passengers before moving on rough or steep terrain.
4. Engage the front axle (on 4x4, 6x6, etc. vehicles) before traversing rough or steep terrain.

Driving drill rigs along the sides of hills or embankments should be avoided; however, if side-hill travel becomes necessary, the operator must conservatively evaluate the ability of the rig to remain upright while on the hill or embankment. The possibility must be considered that the presence of drilling tools on the rig may reduce the ability of the rig to remain upright (raises the center of mass of the rig).

Logs, ditches, road curbs, and other long and horizontal obstacles should be normally approached and driven over squarely, not at an angle.

When close lateral or overhead clearance is encountered, the driver of the rig should be guided by another person on the ground.

Loads on the drill rig and truck must be properly stored while the truck is moving, and the mast must be in the fully lowered position.

After the rig has been positioned to begin drilling, all brakes and/or locks must be set before drilling begins. If the rig is positioned on a steep grade and leveling of the ground is impossible or impractical, the wheel of the transport vehicle should be blocked and other means of preventing the rig from moving or topping over employed.

### **203.5 BURIED AND OVERHEAD UTILITIES**

The location of overhead and buried utility lines must be determined before drilling begins, and the locations should be noted on boring plans or assignment sheets.

When overhead power lines are close by, the drill rig mast should not be raised unless the distance between the rig and the nearest power line is at least 20 feet or other distance as required by local ordinances, whichever is greater. The drill rig operator or assistant should walk completely around the rig to make sure that proper distance exists.

When the drill rig is positioned near an overhead line, the rig operator should be aware that hoist lines and power lines can be moved towards each other by wind. When necessary and approved by the Project Manager (PM) and the utility and/or powerlines may be shielded, shut down, or moved by the appropriate personnel.

### **203.6 CLEARING THE WORK AREA**

Before a drill rig is positioned to drill, the area on which the rig is to be positioned should be cleared of removable obstacles and the rig should be leveled if sloped. The cleared/leveled area should be large enough to accommodate the rig and supplies.

### **203.7 SAFE USE OF AUGERS**

Never place hands or fingers under the bottom of an auger flight or drill rods when hoisting the augers or rods over the top of another auger or rod in the ground or other hard surfaces, such as the drill rig platform.

Never allow feet to get under the auger or drill rod while they are being hoisted.

When the drill is rotating, stay clear of the drill string and other rotating components of the drill rig. Never reach behind or around a rotating auger for any reason.

Move auger cuttings away from the auger with a long-handled shovel or spade; never use hands or feet.

Never clean an auger attached to the drill rig unless the transmission is in neutral or the engine is off, and the auger has stopped rotating.

### **203.8 SAFE USE OF HAND TOOLS**

OSHA regulations regarding hand tools should be observed in addition to the guidelines provided below:

1. Each tool should be used only to perform tasks for which it was originally designed.
2. *Damaged tools should be repaired before use or discarded.*
3. Safety goggles or glasses should be worn when using a hammer or chisel. Nearby co-workers and by-standers should be required to wear safety goggles or glasses also, or move away.
4. Tools should be kept cleaned and stored in an orderly manner when not in use.

### **203.9 SAFE USE OF WIRE LINE HOISTS, WIRE ROPE, AND HOISTING HARDWARE**

Safety rules described in Title 29 Code of Federal Regulations (CFR) 1926.552 and guidelines contained in the Wire RPE User's Manual published by the American Iron and Steel Institute shall be used whenever wire line hoists, wire rope, or hoisting hardware are used.

### **203.10 PROTECTIVE GEAR**

#### **203.10.1 Minimum Protective Gear**

Items listed below should be worn by all members of the drilling team while engaged in drilling activities.

- Hard Hat;

- Safety Shoes (shoes or boots with steel toes and shanks); and
- Gloves.

### **203.10.2 Other Gear**

Items listed below should be worn when conditions warrant their use. Some of the conditions are listed after each item.

1. **Safety Goggles or Glasses:** Use when working within 25 feet of a drill rig or when using hand tools or chemicals that may create eye hazards.
2. **Safety Belts and Lifelines:** Safety belts and lifelines should be worn by all persons working on top of an elevated derrick beam. The lifeline should be secured at a position that will allow a person to fall no more than eight feet.
3. **Life Vests:** Use for work over water.

### **203.11 TRAFFIC SAFETY**

Drilling in streets, parking lots or other areas of vehicular traffic requires definition of the work zones with cones, warning tape, etc. and compliance with local police requirements.

### **203.12 FIRE SAFETY**

1. Fire extinguishers shall be kept on or near drill rigs for fighting small fires.
2. If methane is suspected in the area, a combustible gas instrument (CGI) shall be used to monitor the air near the borehole with all work to stop at 20 percent of the Lower Explosive Limit.
3. Work shall stop during lightning storms.

HEALTH AND SAFETY COMPLIANCE AGREEMENT

I, the undersigned, have received a copy of the health and safety plan for the project identified below. I have read the plan, understand it, and agree to comply with all of the health and safety requirements therein. I understand that I may be prohibited from continuing work on the project for failing to comply.

I have  have not  (check one) been briefed by a project safety authority on the health and safety requirements of the project.

Project No. \_\_\_\_\_

Project Title \_\_\_\_\_

Date of Plan \_\_\_\_\_

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Firm

\_\_\_\_\_  
Date



HEALTH AND SAFETY COMPLIANCE AGREEMENT

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Signature

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Date

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Signature \_\_\_\_\_

Firm \_\_\_\_\_

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Project Title \_\_\_\_\_

Date of Plan \_\_\_\_\_

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Print Name

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Signature

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Date

**APPENDIX E**  
**RESUMES OF WCC LEAD PROFESSIONALS**

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**ALBERT P. RIDLEY**

engineering geology  
project management  
waste management

**EDUCATION**

California State University, San Jose: M.S., Geology, 1971  
California State University, San Jose: B.S., Geology, 1967

**REGISTRATION**

Certified Engineering Geologist: California, Oregon  
Geologist: California, Oregon

**PROFESSIONAL HISTORY**

Woodward-Clyde Consultants, Senior Associate, 1974-date  
Jo Crosby and Associates, Civil Engineers and Geologists, Mountain View, CA, Engineering Geologist, 1968-1974

**REPRESENTATIVE EXPERIENCE**

Mr. Ridley has more than 20 years of consulting experience in engineering geology applied to waste management. He has been responsible for numerous investigations of soil and groundwater contamination, including development and implementation of mitigation programs. These projects range from environmental site assessments of industrial sites to development of contamination mitigation plans for redevelopment of city block sites.

He has managed site permitting and design studies for landfill and waste management facilities in California. His experience also includes documentation of closure activities for wastewater treatment ponds and associated facilities under California Regional Water Quality Control Board and California Department of Health Services requirements. Representative studies are briefly described below:

- Project manager for Phase I and II environmental site assessments for 2 city block areas for the City of San Leandro Redevelopment Agency and the City of Livermore Redevelopment Agency.
- Investigation of soil and groundwater contamination at a major refinery in the San Francisco Bay Area.
- Siting and preliminary design study for four candidate Class III landfill sites.
- Environmental site assessments of city block sites for redevelopment agencies in two large Bay Area cities.
- Site exploration and development of remedial measures for soil and groundwater contamination for a commercial site in Alameda, California.

- Development and implementation of a cleanup plan for dust containing heavy metals in a former pipe manufacturing plant in the Bay Area.

**AFFILIATIONS**

Association of Engineering Geologists  
Geological Society of America

**PUBLICATIONS**

Investigation of the activity of the Franklin fault and reported Quaternary fault traces near Tice Valley, Walnut Creek, California. Conference on Earthquake Hazards in the eastern San Francisco Bay Area, California State University, Hayward, California, March 24-27, 1982.

Discontinuous en echelon faulting and ground warping, Portola Valley, California. Studies of the San Andreas Fault Zone in Northern California, California Division of Mines and Geology Special Report No. 140, 1980.

Geotechnical aspects of rubble-mound coastal structure. Ports '80 Conference, Norfolk, Virginia, American Society of Civil Engineers, May 1980.

Surface deformation and afterslip associated with the Livermore Valley, California earthquakes of 24 and 26 January, 1980. 1980 Spring Meeting, American Geophysical Union, Toronto, May 1980.

Geologic exploration methods for siting power plants and other structures in landslide and hydrothermally altered terrain at The Geysers, California. 1978 Annual Meeting of the Geothermal Resources Council, Hilo, Hawaii, July 25-28, 1978.

Discontinuous en echelon faulting and ground warping, Portola Valley, California. Twenty-first Annual Meeting of the Association of Engineering Geologists, Hershey, Pennsylvania, October 16-20, 1978.

Multiple data approach in evaluating active faults. Eighteenth Annual Meeting of the Association of Engineering Geologists, Lake Tahoe, California, November 2-8, 1975.

**JO BETH FOLGER**

underground storage tanks  
environmental engineering  
civil/structural engineering  
geotechnical engineering  
construction management

**EDUCATION**

Rice University, Texas: Master of Civil Engineering, 1985  
Vanderbilt University, Tennessee: B.E. Civil Engineering, cum laude, 1981

**REGISTRATION**

Professional Engineer, Texas #60885

**PROFESSIONAL HISTORY**

Woodward-Clyde Consultants, Project Engineer, 1992-date  
Exxon Company, U.S.A., Senior Engineer, 1986-1992  
Sohio Petroleum Company, Facilities Engineer, 1985-1986  
Brown & Root, Inc., Design Engineer 1981-1984

**REPRESENTATIVE EXPERIENCE**

Ms. Folger has more than 12 years of diverse civil and environmental engineering experience in industry. Her responsibilities have included various aspects of design and construction of underground storage and dispensing systems, environmental remediation systems, retail gasoline stations, offshore platforms, and petroleum production facilities. She has extensive general construction management experience, and technical expertise in environmental, geotechnical and structural engineering.

At present, she is a project manager in the Waste Remediation Group in Oakland, California.

Examples of Ms. Folger's experience with underground storage tank sites include:

At Woodward-Clyde Consultants -

- Produced construction plans and specifications and design for replacement of tanks at seventeen underground storage tank sites in Washington for the U.S. Army Corps of Engineers.
- Coordinated design of remediation systems at four underground storage tank sites in Colorado for the U.S. Army Corps of Engineers. Produced construction drawings, a cost estimate, and design report.
- Managed the removal of underground storage tanks and subsequent ongoing environmental investigations at 8 sites in northern California. Produced bid documents,

evaluated general contractor bids for the client, coordinated all field work, communicated with regulators and prepared reports for all sites.

- Analyzed and advised client regarding the remediation of underground storage tank sites in California and New Jersey. Communicated with regulators and prepared cost estimates.

At Exxon Company, U.S.A. -

- Removed and replaced underground storage tanks at 14 sites in northern California. Activities included design to meet latest regulatory and industry standards, bidding and contracting, construction management and oversight of environmental contractors.
- Coordinated divestment activities at 7 locations, which included the removal of underground gasoline tanks, environmental assessment and remediation.
- Responsible for regulatory compliance, construction and maintenance of a territory of retail gasoline stations in 8 California counties. This included operational, record-keeping, reporting and facility design aspects.
- Stewarded maintenance budget in excess of \$1 million per year for retail gasoline stations in northern California. Selected contractors and monitored their quality and cost-effectiveness.
- Worked closely and effectively with city, county, regional, state and federal regulatory agencies.
- Bid, contracted and supervised 13 "EPA Retrofit" projects, which involved the renovation of underground storage and dispensing systems to meet EPA 1998 standards. These projects included addition of overfill protection, spill containment at fills, and corrosion protection of all metal components. Corrosion protection included secondary containment of components such as turbine risers and piping.
- Managed bidding, contracting, and construction of new gasoline stations and convenience stores, whose costs totalled several million dollars.
- Worked closely with equipment manufacturers and dealers to evaluate products for fuel dispensing systems and developed new products on several occasions.
- As a headquarters staff engineer, provided assistance to field engineers and staff personnel nationwide regarding design and regulatory compliance of fuel storage and dispensing systems.



**JO BETH FOLGER**

page 3

- Reviewed new legislation, formulated strategies and responses, and appraised impact on employer. An example is the evaluation of and reply to request for comments on OSHA's proposed changes to regulations concerning excavations, particularly as applied to the installation of underground tank systems.
- Managed engineering of site development projects for 38 independent gasoline retailers nationwide.

## Woodward-Clyde

**MAYRA R. CASTELLANOS**

hydrogeology  
geology  
geophysics  
hazardous waste site investigation/  
remediation

### EDUCATION

Florida Atlantic University: B.S., Geology, 1981

Miami Dade Community College South: A.A., Ocean Engineering, 1978

### PROFESSIONAL HISTORY

Woodward-Clyde Consultants, Assistant Project Hydrogeologist, 1987-date

Fenix and Scisson, Inc., Las Vegas, Nev., Geologist 1982-1987

### REPRESENTATIVE EXPERIENCE

Ms. Castellanos has over 10 years of experience in the implementation, documentation, and evaluation of hydrogeologic, geologic, and geophysical investigations. She is certified to handle radioactive materials (Gulf Nuclear, 40-hour course).

Representative project experience and responsibilities include the following:

- On-site field hydrogeologist performing Quality Assurance oversight during the closure and capping of a hazardous waste unit for a formulating facility in the Central Valley of California. Tasks included verification of backfilling operations, liner placement and seam sealing, draining line emplacement, drainage sand placement, compaction and grade of drainage sand, reinforcing steel placement, and concrete pour, all according to ASTM Standards and specifications.
- Hydrogeologist for investigations of groundwater and soil contamination for two retail agricultural chemical sales and service facilities located in the central coast of California. Tasks included drilling and performing detailed lithologic description and geologic interpretation of the materials encountered at each well site, emplacing the wells, supervising groundwater monitoring, and performing data analysis and reporting.
- Directed a soil sampling program to quantify and evaluate contaminant concentrations detectable in soils to be used as guidance for soil remediation. Investigation responsibilities included design and implementation of field programs, data analysis, and reporting.
- Hydrogeological Task Manager involved in RI/FS under CERCLA. Investigations included defining the lateral and vertical extent of groundwater and soil contamination at an Army Base in the San Joaquin area of California. Tasks included design and implementation of field programs involving drilling and well installations, coordinating and supervising quarterly sampling of 89 groundwater monitoring wells, analysis of

hydrogeologic and chemical data, and reporting to meet both county and state agency requirements.

- Designed and conducted instantaneous soil moisture profile test investigations to characterize unsaturated zone hydrogeology in low hydraulic conductivity materials for a Class I landfill.
- Directed and performed aquifer testing in small- and large-diameter monitoring wells at multiple sites.
- Conducted geologic, hydrogeologic, and geophysical testing in small and large diameter boreholes drilled with conventional and specialized methods.
- Performed surface and subsurface (tunnels) geologic mapping, prepared cross sections, performed seismic refraction surveys, interpreted structural data, and prepared reports.
- Hydrogeologic investigations, including unsaturated zone studies, at a potential high-level radioactive waste storage facility in Nevada.
- Conducted geophysical surveys, including seismic refraction, sonic velocity, resistivity, epithermal neutron logging, and natural gamma ray logging.

### **AFFILIATIONS**

Association for Women Geoscientists

### **PUBLICATIONS**

Stratigraphic and Structural Relation of Volcanic Rock in Drill Holes, WSW-GU3 and USG-G3, Yucca Mountain, Nye County, Nevada, with Scott, R.B., Open file report #0491, 1984.