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CITY CENTER PROJECT
ENVIRONMENTAL SITE ASSESSMENT
PARCEL T9
Oakland, California

Woodward-Clyde Consultants

March 23, 1990

Project No. 90C0039A

City of Oakland
Office of Economic Development
and Employment
City Attorney's Office
One City Hall Plaza
Oakland, California 94607

Attention: Mr. Donnell Choy

CITY CENTER PROJECT
ENVIRONMENTAL SITE ASSESSMENT
PARCEL T9
Oakland, California

Dear Mr. Choy:

We are pleased to present the results of our environmental site assessment of the subject parcel. This work was performed to provide the City of Oakland with information about the presence of hazardous materials at the site resulting from previous or current site use. This assessment included a review of site history and published regulatory listings, performance of environmental field work and preparation of this report. If you have any questions, please contact the undersigned.

Sincerely,
WOODWARD-CLYDE CONSULTANTS

George A. Ford
Senior Project Geologist

John A. Bischoff
Vice President and
Senior Managing Principal

90C0039AL9/CON

TABLE OF CONTENTS

90C0039AP9 CON-1

ENVIRONMENTAL SITE ASSESSMENT CITY CENTER PARCEL T9, Jefferson and 11th Streets, Oakland, California

INTRODUCTION

Woodward-Clyde Consultants (WCC) has performed an environmental assessment of parcel T9 located on the east side of Jefferson between 12th and 11th Streets in Oakland, California (Figure 1).

The environmental assessment was performed in accordance with the January 19, 1990 Contract for Professional Services between WCC and the Office of Economic Development and Employment of the City of Oakland (Agency) and consisted of four tasks: 1) Information on site history was collected from fire insurance maps, City of Oakland records, and historic aerial photographs; 2) Federal, State, and local regulatory agency listings of nearby sites with toxic problems which could impact the site were consulted; 3) A series of seven soil borings, three of which were converted to groundwater monitoring wells were constructed on-site; samples of the soil and groundwater were chemically analyzed; and 4) The results of the environmental field work were integrated with data from the historic and regulatory review, evaluated, and the results presented in this report.

SITE DESCRIPTION

The parcel presently consists of a level asphalt concrete parking lot, approximately 200 feet by 300 feet, surrounded by a chain link fence. The ground surface elevation is somewhere between 35 and 38 feet City of Oakland Datum (C.O.O.D.). No visible evidence of prior occupation remains on the parcel.

SITE HISTORY

This evaluation of environmental site history focuses on previous site uses requiring underground tanks or involving: 1) manufacturing and machine shops, 2) painters and paint companies, 3) auto repair and service stations, 4) photo processing laboratories, 5) printers and publishers, and 6) dry cleaning establishments. Underground fuel storage tanks are a potential source of various petroleum hydrocarbons. Similarly, service station waste oil tanks are a potential source of waste oil, fuel hydrocarbons, and solvents. Manufacturing processes may have used a variety of chemicals, especially lubricating oils and solvents. Paint products contain high concentrations of lead and petroleum-based solvents. Ink and other fluids used in printing contain elevated quantities of various heavy metals. Dry cleaners are a potential source of trichloroethane (TCA), tetrachloroethene (PCE), carbon tetrachloride, and other chlorinated solvents. Until recently, the use and disposal of many of these substances was largely unregulated.

A review of selected available records was performed in order to collect information on historical uses of parcel T9 and the surrounding area within one block of the site. Information was obtained from various historic maps, the Oakland Library and Oakland City Business Tax records and historic aerial photographs.

Parcel T9 was occupied primarily by retail businesses. Historic business occupation of all types on the subject parcels are listed in Table 1. Some of the source records for this list are incomplete and some addresses listed are therefore uncertain. The locations of noteworthy business occupation at parcel T9 are indicated on Figure 1.

Noteworthy historic business occupation on parcel T9, with approximate dates of occupation included in parentheses, is listed below:

- A multi-story garage structure at the northeast corner of 11th and Jefferson Streets (pre-1926 to at least 1950), which may have also contained underground fuel storage tanks;

- a machine shop at or adjacent to 597 12th Street (circa 1950);

- an auto body shop at 512 12th Street (1922 to pre-1926);

- various parking lots at various times (1926 to present);

- two hat cleaners located at 567 and 595 12th Street (1940s to 1950s) and a laundry, which may have provided dry cleaning services, at 597 12th Street (1930s to at least 1950s); and

- four printing shops located at 1160 Jefferson Street (post-1950), 555 12th Street (circa 1950), 571 12th Street (pre-1939 to at least 1950), and 597 12th Street (pre-1926). A publishing business, which may have also contained printing machinery, was located at 562 11th Street (circa 1935).

Noteworthy historic business occupation within one block of parcel T9, with approximate dates of occupation included in parentheses, is listed below:

- two service stations located at the intersection of Martin Luther King, Jr. Way (formally Grove Street) and 12th Street (circa 1958) and at the intersection of Clay and 11th Streets (1926 to mid-1950s).

- various parking lots at various times located between Martin Luther King, Jr. Way and Clay Streets and between 11th and 13th Streets (1926 to present);

- a "waste dump" at 565 11th Street (1959), about which no more is known at this time;

- dry cleaning establishments located at 1209 Jefferson Street (1933 to 1960), 562 12th Street (1926 to 1932) and 604 12th Street (circa 1935);

- two printing shops located at 587 11th Street (circa 1956), and 566 12th Street (circa 1935); publishing businesses which may also have contained printing machinery were located at 1008 Clay Street (circa 1929), and 531 11th Street (circa 1937);

- a "vulcanizing" shop (possibly engaged in retreading of rubber tires) at 602 12th Street (circa 1935);

- apparently two photo labs located at 482 12th Street (circa 1935) and 530 12th Street (circa 1945); and

- a paint store at 534 12th Street (circa 1941), and sign painters at 544 12th Street (circa 1955), 573 11th Street (circa 1934), and 1014 Clay Street (circa 1962).

Underground Storage Tank Activity

The primary records source for review of underground storage tank capacity was the City of Oakland Fire Marshal's records of Applications to Install, Remove, or Repair Tanks for the period from 1973 to 1989 (Table 2). Records for periods before 1973 were not retained by the City of Oakland.

The State of California, Office of Planning and Research, Hazardous Waste and Substance List indicates a tank leak at 1160 Jefferson Street, within parcel T9. This property belonged to the Blue Print Service Company at the time the leak was reported. No other information regarding this reported leak is available at this time.

A permit was issued by the Oakland Fire Department for the removal of two 500-gallon tanks at 1215 Clay Street on April 11, 1977. This address is located at the site of the proposed Oakland Federal Building. Although a tank leak apparently associated with this address is shown on the State of California Hazardous Waste and Substances Site List, we have not been able to associate soil or groundwater contamination with these tanks.

Removal of two 5,000-gallon tanks from a former auto body and paint shop at 1229 Grove Street was permitted on May 12, 1977. This location is currently occupied by Preservation Park on Martin Luther King Jr. Way. Possible contamination from these tanks or paint from the body shop are not likely to impact parcel T9 because the 1229 Grove Street address is located downgradient.

Two 5,000-gallon tanks, presumably located adjacent to the gas station on the northeast corner of 12th and Grove Streets (Martin Luther King Jr. Way) were removed on August 23, 1979. The tanks are believed to have been located under the sidewalk of Martin Luther King Jr. Way. This site is located down-gradient from parcel T9.

A 500-gallon diesel tank within the 12th Street right-of-way, near its former intersection with Washington Street was removed in March, 1987 (WCC, 1987). The RWQCB reports this as a "type BE" leak, meaning that the soil has been impacted, but impact to the water is unknown. Based on observations made by WCC at the site, it is believed that no significant diesel contamination presently exists in either the soil or the groundwater at this location.

Available records of the City of Oakland Fire Marshal (1973 to present) do not indicate the occurrence of underground tank removal at the former site of the service station across the street from Parcel T9 at the intersection of 11th and Clay Streets.

Regulatory Records Reviewed

The following lists were examined to determine if regulatory agencies were aware of any discharges of hazardous substances within one block of Parcel T9:

1) United States Environmental Protection Agency (EPA) "National Priority List, Final and Proposed Sites", June, 1988;

2) EPA, Office of External Affairs, "Comprehensive Environmental Response, Compensation and Liability Information System" (CERCLIS);

3) EPA, Office of External Affairs, "Hazardous Waste Data Management System" (HWDMS), regulated under the Resource Conservation and Recovery Act of 1976, February, 1989;

4) California Department of Health Services (DHS) "Expenditure Plan for Hazardous Substances Cleanup Bond Act of 1984", Revision 4, 1989;

5) State Office of Planning and Research, "Hazardous Waste and Substances Site List";

6) Regional Water Quality Control Board (RWQCB), San Francisco Bay Region, North Bay Toxic Case List;

7) RWQCB, San Francisco Bay Region, "Fuel Leak Case List," February, 1989;

8) RWQCB, San Francisco Bay Region, "General Waste Discharger List"; and

9) City of Oakland, Fire Marshal's records of "Application for Permit to Install, Remove, or Repair Tanks," 1973 through October, 1988.

With the exception of underground tank leaks and tank activity previously described, these lists did not report releases that are judged likely to impact the site.

SOIL AND GROUNDWATER SAMPLING

Soil borings were drilled at seven locations on the site between February 8 and 16, 1990, using 8-inch outside-diameter hollow-stem augers. Monitoring wells were subsequently installed in three of the borings. Locations of these soil borings/monitor are shown on Figure 2. The borings were drilled and monitoring wells constructed by Sierra Pacific Exploration of Concord, California at the direction of WCC's field representative, Ms. Lois Gruenberg. The rationale for locating borings was based on the results of the historical review and hydrologic considerations, and is summarized below:

Boring	Location Rationale
W-1, -2, and -3	Monitoring Well W-1 was located at the extreme upgradient end of the parcel to determine if contaminated groundwater, possibly from the former site of the service station across Clay Street, has migrated to the parcel. Monitoring Wells W-2 and W-3 were located at the downgradient end of the parcel to detect possible groundwater contaminant plumes exiting the site and for the additional purpose of collecting soil samples at the locations of businesses that may prove to have been contaminant sources. Specifically, Monitoring Well W-2 was placed at the northwest corner of the parcel at the former site of a machine shop, while W-3 was located near the southwest corner of the parcel at the former site of a parking garage structure that may have also contained underground gasoline storage tanks.
B-1	Located in the immediate vicinity of the former locations of dry cleaning and printing establishments.

B-2 Located near the center of the parcel at the site of printing and painting establishments and to provide general coverage.

B-3 Located at the site of a printing establishment (Blue Print Service Company at 1160 Jefferson Street) that reportedly experienced an underground tank leak.

B-4 Located immediately downgradient of a former surface parking lot and adjacent to the former parking garage structure.

Soil samples for chemical analyses were obtained at selected intervals within each boring using a 2-inch inside-diameter drive sampler. Logs of the borings showing the depth of soil samples are included in Appendix A. Soil samples for chemical analyses were retained in brass sample liners capped with Teflon sheets and plastic end caps. The soil sampler was cleaned between each sample and between borings by washing in an Alconox detergent and deionized water solution, followed by deionized water rinses. Following drilling, the borings were backfilled to the ground surface using a cement grout, in accordance with local regulatory requirements. Soil cuttings were placed in drums for storage and later disposal. Soil samples were immediately placed in cooled ice chests for transport to the analytical laboratory under chain-of-custody control.

Monitoring wells (W-1, -2 and -3) were constructed using 2-inch-diameter PVC well casing and machine-slotted, 0.020-inch aperture well screen. The boring annulus surrounding the screened casing was backfilled with Lonestar No. 3 sand. The screened and/or sand-packed interval of these wells extends from approximately 22 to 35 feet below ground surface. The screened and sand-packed interval of the wells are sealed from the surface by a 2-foot-thick bentonite seal and cement grout extending to the ground surface in accordance with the permit requirements of Zone 7 of the Alameda County Flood Control and Water Conservation District. The well collars

include a locking cap located beneath a flush-mounted steel cover. A schematic drawing of the construction of these wells is shown with the boring logs in Appendix A.

The wells were developed using a truck-mounted Smeal well development rig operated by Sierra Pacific Exploration. Development and purging was performed by alternate surging and bailing until the discharged water become substantially less turbid. Approximately 20 gallons (equivalent to approximately 17 wetted casing volumes) of water was discharged prior to groundwater sampling and placed in drums and stored at a depot in the site vicinity maintained by WCC. No hydrocarbon sheen or floating product was noted on the groundwater in any of the monitoring wells.

The groundwater samples were obtained with a Teflon bailer and placed immediately in prepared sample bottles. The bottles were placed in an ice chest and transported to the laboratory under chain-of-custody control.

Groundwater levels were recorded at the time of drilling, during groundwater sampling, and at a later time for the express purpose of determining site groundwater gradient and flow direction. Elevations of the tops of the well casing was recorded by a survey conducted on March 1, 1990 by Harris Consulting Group, Inc. of Oakland. On March 13 the depths to groundwater varied from 27.70 to 29.74 feet (top of casing) in the monitoring wells. These water levels were used to calculate the groundwater gradient across the site of 0.0023 ft/ft and a groundwater flow direction of N60W, as shown on Figure 2.

LABORATORY TESTING

In accordance with the January 19, 1990 Contract of Professional Services, soil and groundwater samples from all borings and monitoring wells were analyzed by Eureka Laboratories, Inc. of Sacramento. Vertical composite soil samples made from the discrete samples in individual borings were analyzed for purgeable volatile organic compounds (EPA Method 8240). One

composite sample, from Boring B-2 near the center of the site was additionally analyzed for extractable semi-volatile organic compounds (EPA Method 8270), EPA Priority Pollutant metals, and cyanide.

Groundwater samples obtained from Monitoring Wells W-1 and W-2 were analyzed for volatile organic compounds (EPA Method 624) and Title 22 metals (total). Groundwater samples obtained from Monitoring Well W-3 were analyzed for volatile organic compounds, semi-volatile organic compounds (EPA Method 625), EPA Priority Pollutant metals, and cyanide.

The analytical program was designed to screen for compounds that might have been introduced to the site by previous activities at or near the site. This analytical program was based on the contract requirements of the Agency.

The results of the laboratory testing of soil and groundwater samples are tabulated in Tables 3 through 6. Laboratory results are included in Appendix B.

The results of the soil analyses may be summarized as follows:

1. No EPA Method 8240 volatile organic compounds (VOCs) were identified at concentrations exceeding detection limits in any of the composite soil samples.

2. The EPA Method 8270 semi-volatile organic compound phenol was identified at a concentration of 0.180 ppm in the composite soil sample from Boring B-2. No other semi-volatile compounds were identified at concentrations exceeding detection limits in this sample.

3. EPA Priority Pollutant metals concentrations identified in the composite soil sample from Boring B-2 were well below California Title 22-specified Total Threshold Limit Concentrations (TTLCs). Nickel, lead and thallium occurred at concentrations slightly above their

Soluble Threshold Limit Concentration (STLC) values of 20, 5 and 7 ppm, respectively.

4. The cyanide concentration of the composite soil sample from Boring B-2 was below detection limits.

Test results for soil samples are summarized in Tables 3 through 5.

The results of the analysis groundwater samples from monitoring wells W-1, -2 and -3 may be summarized as follows:

1. No EPA Method 624 volatile organic compounds (VOCs) were identified at concentrations exceeding detection limits in any of the composite soil samples.

2. No EPA Method 625 semi-volatile organic compounds were identified at concentrations exceeding detection limits in the groundwater sample from Monitoring Well W-3.

3. EPA Priority Pollutant and California Title 22 metal concentrations were generally below applicable drinking water standards (for those compounds for which standards have been set), with the exception of total chromium, nickel, thallium, aluminum, iron and manganese. Chromium (non-differential species) exceeded the maximum contaminant level (MCL) for soluble chromium VI (a conservative standard for comparison) in the groundwater samples from Monitoring Wells W-1 and W-2 by 0.04 ppm and 0.03 ppm, respectively. Nickel exceeded its MCL in these same samples by 0.05 ppm. The thallium concentration of 0.2 ppm identified in the groundwater sample from monitoring well W-1 exceeded the EPA National Ambient Water Quality Criteria level of 0.013 ppm by a factor of about 15. The groundwater sample from monitoring well W-3 exceeded the MCLs for aluminum, iron and manganese by 1.44 ppm, 4.8 ppm, and 0.58 ppm, respectively.

DISCUSSION

Chemical analyses performed on soil samples taken from parcel T9 indicate that phenol occurs in low concentrations in the composite sample from boring B-2 near the center of the property. No other chemicals were identified at concentrations exceeding their threshold of detection in the soil samples from other soil borings drilled on the site. No chemicals were detected at concentrations exceeding the limits of detection in the groundwater samples taken from the monitoring wells installed at the site.

Soil boring WCC-2 drilled on March 20, 1990 at a location midway between borings W-3 and B-4 by WCC as part of a separate geotechnical study encountered at a depth of between 22 and about 26 feet below ground surface a zone of soil apparently containing petroleum hydrocarbons. A soil sample taken from a depth of 25 feet in this boring is presently being analyzed for total petroleum hydrocarbons and benzene, toluene, ethylbenzene and xylenes (BTEX) at WCC's Pleasant Hill laboratory. The results of this analysis will be transmitted as soon as it becomes available.

While the chemical analyses detected the metals chromium, nickel, thallium, aluminum, iron and manganese at concentrations exceeding their respective applicable (or potentially applicable in the case of chromium) drinking water standards, experience with similar sites in the immediate area demonstrates that these levels are typical of those found elsewhere and are very probably not due to industrial contamination but reflect naturally occurring "background" levels. Furthermore, while the groundwater sample metals concentrations reported present total concentrations (i.e., both soluble and insoluble components), the drinking water standards applicable to these elements are based on soluble concentrations. Additionally, the same body of experience indicates that the more toxic species of chromium, chromium VI, is probably a nonexistent or minor component of the total chromium detected and therefore the drinking water standard for soluble chromium VI is probably not exceeded.

Possible Sources of Contamination

The source of the phenol identified in the composite soil sample from boring B-2 is unknown. The boring was located on a portion of the site that was historically occupied by a painting and/or printing shop, both of which might have been a source of phenol or phenolic compounds. However, the lack of detectable EPA Method 8240 VOCs or other EPA Method 8270 semi-volatiles in the B-2 soil samples suggests that the detected phenol was not part of a spill of solvents or other organics. The occurrence of a low concentration of phenol in the absence of other organics strongly suggests that the phenol occurs naturally in the soil at the site.

The petroleum hydrocarbons identified along the southwesterly edge of the site probably result from leaks from an underground storage tank (or tanks) located beneath or adjacent to the parking garage formerly located on the corner of 11th and Jefferson Street. The presently available data does not permit precise location of the tank(s) and/or piping. Because the petroleum was found on the 11th Street side of the property, it is believed to be unrelated to the 1160 Jefferson Street fuel leak found on the California Office of Planning and Research, Hazardous Substance List. Although the lateral extent of the leak at the former site of the parking garage is presently unknown, it is inferred to be limited, in that petroleum hydrocarbons were not detected in soil or groundwater samples from monitoring well W-3, located downgradient of soil boring WCC-2.

Regulatory Considerations

The chemical analyses completed to date on soil and groundwater samples from borings B-1 through B-4 and monitoring wells W-1 through W-3 have not disclosed any conditions requiring cleanup of soil or groundwater. If the analyses of the soil sample from soil boring WCC-1 indicates significant concentrations of petroleum hydrocarbons in the soil, then some cleanup of soil and/or groundwater may be required. Cleanup requirements for soil and groundwater contamination by fuels are established on a case-by-case basis

by the Alameda County Department of Environmental Health (DEH), and/or the San Francisco Bay region office of the California Regional Water Quality Control Board (RWQCB), with participation by the Department of Health Services (DHS) in some cases. Generally, the DEH uses guidelines that have been established by the RWQCB. The scope of the cleanup typically depends on (1) the concentration and extent of soil and groundwater contamination; (2) the threat posed to public health and/or beneficial uses of the groundwater; (3) the local geologic/hydraulic regime; and (4) whether the plume is still migrating.

As a general rule, the agencies will require remediation of total petroleum hydrocarbon (TPH) soil contamination in excess of 1000 ppm. TPH concentrations in soil between 100 and 1000 ppm fall into a "gray area" where remediation may be required in sensitive cases but not in others. Based on previous experience in the area, additional characterization of the site would be required before a regulatory agency would render a decision regarding the requirement for cleanup. Remediation of soil contamination in similar cases has consisted of removing tanks still located on the parcel, excavating and aerating the soil on-site until TPH concentrations decrease to acceptable levels, then replacing and recompacting the soil in the excavation or disposing of the aerated soil at a commercial Class III landfill. In cases where the contamination is relatively deep and/or has spread over a wide area, excavation and aeration may be impractical. In these cases, cleanup may sometimes be accomplished using insitu vapor extraction or bioremediation methods which do not require large excavations.

It is our understanding that current development plans for parcel T9 call for a high-rise office building with two underground parking levels, requiring an excavation approximately 25 feet deep. This excavation will encompass the entire site, including the portion of the site along 11th Street where soil and groundwater contamination by petroleum hydrocarbons is suspected. In this case, the most practical method of soil remediation will most likely be excavation and on-site aeration of soil followed by

off-site disposal. The excavation may be left open (with proper shoring and/or other safety precautions) and later incorporated into the foundation excavation for the structure.

No petroleum hydrocarbons have been identified in the groundwater at the site to date. If subsequent work identifies hydrocarbons in groundwater, cleanup of groundwater in fuel leak cases is typically governed by regulatory action levels for components of gasoline or other fuels where the contaminated groundwater is (or may be) used as a source of potable water. The requirement for a cleanup would depend upon: 1) the extent and concentration of a plume; 2) whether it is still moving and; 3) whether natural biodegradation and adsorption in the soil are reducing petroleum concentrations in the groundwater.

Regardless of whether petroleum hydrocarbons or other contaminants are found in the groundwater on-site, the occurrence of petroleum hydrocarbons in groundwater on the western edge of parcel T6, located on the east side of Clay Street, indicates that any excavation dewatering system used will probably require a backup groundwater treatment system to reduce hydrocarbon concentrations to levels suitable for discharge to the storm sewer or the sanitary sewer system. The requirements for, and cost of, such a system will depend on the depth and extent of excavation.

Hazard to Public Health - Based on the assumption (presently unconfirmed) that the local shallow groundwater is not used as a domestic water supply, it appears that the soil contamination identified at the site does not pose an immediate threat to public health and safety. Excavation and removal of soil for remediation or to construct the proposed office building would most likely expose some contaminated soil to the air, increasing the risk of exposure of construction personnel and the nearby public to petroleum vapors. However, use of relatively simple precautions that are routinely employed on similar projects would serve to limit these exposures and reduce health hazards to acceptably low levels.

CONCLUSIONS AND RECOMMENDATIONS

Based on the historical use review and soil and groundwater sampling and analysis performed for this study, we may conclude the following:

1. TPH quantified as gasoline may occur in the soil along the southwestern edge of the site. The phenol detected in soil samples from soil boring B-1 near the center of the site is not believed to result from a spill or leak of chemicals.

2. The source of the TPH contamination is unknown at this time, but is believed to be a tank or tanks located on the parking garage property on the southwest corner of the block.

3. The present data do not permit quantification of the concentration and extent of soil contamination.

4. The lack of elevated priority pollutant metals levels in the soil tested indicates it is unlikely the site has been contaminated by materials containing toxic levels of heavy metals.

Based on these conclusions, WCC recommends additional soil and groundwater sampling and analyses to more fully characterize the vertical and lateral extent and concentration of gasoline in the soil and groundwater. A typical characterization program for this site could consist of six to ten additional soil borings and one to three additional monitoring wells concentrated in the area along the southern edge of the property, near the southwest corner.

LIMITATIONS

This report was prepared in general accordance with the accepted standard of practice which exists in northern California at the time the investigation was performed. Judgments leading to conclusions and

recommendations are generally made with an incomplete knowledge of the subsurface conditions present. More extensive studies including additional subsurface investigation can tend to reduce the inherent uncertainties associated with inferring subsurface conditions.

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TABLE 1

Project No. 90C0039A

BUSINESSES ON PARCEL T9

Data taken from Curry (1950), Wachs Bros (1926), Wachs Co. (1932), Map of Downtown Oakland (Source Unknown, 1928), Oakland Chamber of Commerce (1948), Sanborn (1902, 1912, 1935, 1950), and City of Oakland Business Tax Records. Dates in brackets are known records of business licence applications.

Location	1926	1928	1932	1948	1950
<u>550 Block of 12th Street:</u>					
553 12th St.					
Jeweler	X	X	--	--	--
Candy Store	--	--	X	--	--
Coffee Shop	--	--	--	X	--
Barber shop [1943]	--	--	--	--	--
555 12th St.					
Sewing Machine Shop	X	X	X	--	--
Printer [1950]	--	--	--	--	X
557 12th St.					
Furniture Store	X	X	--	--	--
Capitol Outfitting Co.	--	--	X	--	--
Music Store	--	--	--	--	X
559 12th St.					
Electrical Contractor [1931]	X	X	--	--	--
Retail (?)	--	--	X	X	X
563 12th St.					
Parking Lot [1954]	X	X	X	X	X
567 12th St.					
Fence Mfg.[1931]	--	--	X	--	--
Book Store [1937]	--	--	--	--	--
Hat Cleaner [1951]	--	--	--	--	--
571 12th St.					
Printer [1931, 32, 37, 41, 43, 46, 48, 49, 52]	--	--	--	X	X
Hosiery	X	X	--	--	--
Dress Shop	--	--	X	--	--
575 12th St.					
Tobacco Store [1934]	--	--	--	--	--
Butcher/Grocery [1945]	--	--	--	X?	X?
579? 12th St.					
Restaurant	--	--	--	--	X
Shoe Repair	--	--	X	--	X
Bakery	X	X	--	--	--
Pool Hall	--	X	--	--	--

TABLE 1 (Continued)

Project No. 90C0039A

BUSINESSES ON PARCEL T9

Location	1926	1928	1932	1948	1950
550 Block of 12th Street (Cont.):					
581 12th St.					
Auto Body [1922]	--	--	--	--	--
Cabaret/Restaurant [1946, 1972]	--	--	--	X?	X
Rooms [1943]	--	--	--	X	X
589 12th St					
Rooms [1923,1973]	X	X	X	X	X
Popcorn Wagon [1950]	--	--	--	--	X
Costume Jewelry [1964, 1966]	--	--	--	--	--
591? 12th St.					
Express Transfers	X	X	--	--	--
Window Cleaner	--	X	?	--	--
Leather Store	--	--	--	--	X
Chinese Wicker	--	--	X	--	--
595 12th St.					
Hat Cleaner [1946]	--	--	--	--	X
597 12th St.					
Printer [pre-1926]	--	--	--	--	--
Creamery	X	X	--	--	--
Laundry	--	--	X	X	X
Machine Shop	--	--	--	--	X
599? 12th St.					
Restaurant	X	X	--	X	--
Malted Milk Shop	--	--	X	--	--
Circle (Retail?)	--	--	--	--	X
1100 Block of Jefferson Street:					
Antique Shop	--	--	--	--	X
1146 Jefferson St.					
Printer [1930, 1934]	--	--	--	X	X
1128 Jefferson St.					
Typewriter Supply [1952, 1957]	--	--	--	--	--
Vending Machine Service [1964, 1966]	--	--	--	--	--
550 Block of 11th Street:					
11th and Jefferson					
Garage	X	X	X	X	X

TABLE 1 (Continued)

Project No. 90C0039A

BUSINESSES ON PARCEL T9

Location	1926	1928	1932	1948	1950
550 Block of 11th Street (Cont.):					
11th next door to garage					
Parking lot	X	X	X	X	X
560 11th					
Employment Agency [1951]	--	--	--	--	X
562 11th					
Electric Lamps	X?	X?	X?	--	--
Publisher [1934,1937]	--	--	--	--	--
Food & Tobacco [1938,1952]	--	--	--	--	X
590 11th					
Rooms	--	X	--	--	--

TABLE 2

Project No. 90C0039A

FIRE MARSHAL'S PERMIT APPLICATIONS

Date	Permit Number	Address	Description
10/11/74	7965	1215 Clay St.	Install vapor lines (4,000 gal tank)
4/11/77	8198	1215 Clay St.	Remove two 500 gal tanks
5/12/77	8208	1229 Grove St.	Remove two 5,000 gal tanks
8/23/79	8385	650-644 12th St.	Remove two 5,000 gal tanks
8/23/79	8386	589-599 12th St.	Remove two 5,000 gal tanks
1/25/82	8542	11th & Broadway	Install two 2,000 gal tanks
7/6/82	8570	550 10th St.	Install one 1,000 gal tank
3/3/87	8865	1221 Broadway	Remove one 500 gal tank

Table 3. CITY CENTER ENVIRONMENTAL SITE ASSESSMENT, PARCEL T9
SUMMARY OF ANALYTICAL RESULTS[1]
VOLATILE ORGANIC COMPOUNDS (EPA METHOD 8240, 624)

Sample #	Matrix[2] Type	Benzene	Toluene	Ethylbenzene	Xylenes	Other
T9-W1	Soil	ND	ND	ND	ND	ND
T9-W2	Soil	ND	ND	ND	ND	ND
T9-W3	Soil	ND	ND	ND	ND	ND
T9-B1	Soil	ND	ND	ND	ND	ND
T9-B2	Soil	ND	ND	ND	ND	ND
T9-B3	Soil	ND	ND	ND	ND	ND
T9-B4	Soil	ND	ND	ND	ND	ND
T9-MW1	Water	ND	ND	ND	ND	ND
T9-MW2	Water	ND	ND	ND	ND	ND
T9-MW3	Water	ND	ND	ND	ND	ND
Drinking Water[3]		0.001	0.1	0.68	0.62	

1 All results reported as parts-per-million (ppm).

2 All soil samples are composited.

3 California State Department of Health Services (DHS) Maximum Contaminant Levels (MCLs).

ND = Not Detected

Table 4. CITY CENTER ENVIRONMENTAL SITE ASSESSMENT, PARCEL T9 SUMMARY OF ANALYTICAL RESULTS, SEMI-VOLATILE ORGANIC COMPOUNDS (EPA METHOD 8270, 625), CYANIDE (EPA METHOD 9010)

Sample #	Matrix* Type	Semi-Volatile Compounds Concentration (ppm)	Cyanide
T9-B2	Soil	0.18[a]	ND
T9-MW3	Water	ND	ND

* All soil samples are composites.

[a] Phenol

ND = Not Detected

Table 5. CITY CENTER ENVIRONMENTAL SITE ASSESSMENT PARCEL T9 SUMMARY OF ANALYTICAL RESULTS, METAL CONCENTRATIONS[1] IN SOIL

	Detection Limit Soil	T9-B2 Composite Soil	Limit Concentrations STLC[2]	TTLC[3]
Silver	0.5	0.6	5	500
Arsenic	0.2	2.6	5	500
Barium	0.1	34.1		
Beryllium	0.5	ND	0.75	75
Cadmium	1.0	ND	1	100
Cobalt	1.0	5.2		
Chromium	0.5	39.5	560	2500
Copper	0.5	9.6	25	2500
Mercury	0.05	ND	0.2	20
Molybdenum	1.0	ND		
Nickel	1.0	30.2	20	2000
Lead	3.0	5.8	5	1000
Antimony	3.0	ND	15	500
Selenium	0.15	ND	1	100
Thallium	1.0	15.6	7	700
Vanadium	0.5	21.3		
Zinc	0.5	19.5	250	5000
Aluminum	2.5	4580		
Calcium	5.0	970		
Magnesium	10.0	1960		
Iron	5.0	7840		
Sodium	10.0	150		
Manganese	0.5	82.9		
Potassium	150	217		
Boron	10.0	8.9		

1 All concentrations are reported in parts-per-million (ppm)

2 STLC = Soluble Threshold Limit Concentration

3 TTLC = Total Threshold Limit Concentration

Table 6. CITY CENTER ENVIRONMENTAL SITE ASSESSMENT
PARCEL T9,
SUMMARY OF ANALYTICAL RESULTS, METAL
CONCENTRATION (ppm) IN GROUNDWATER

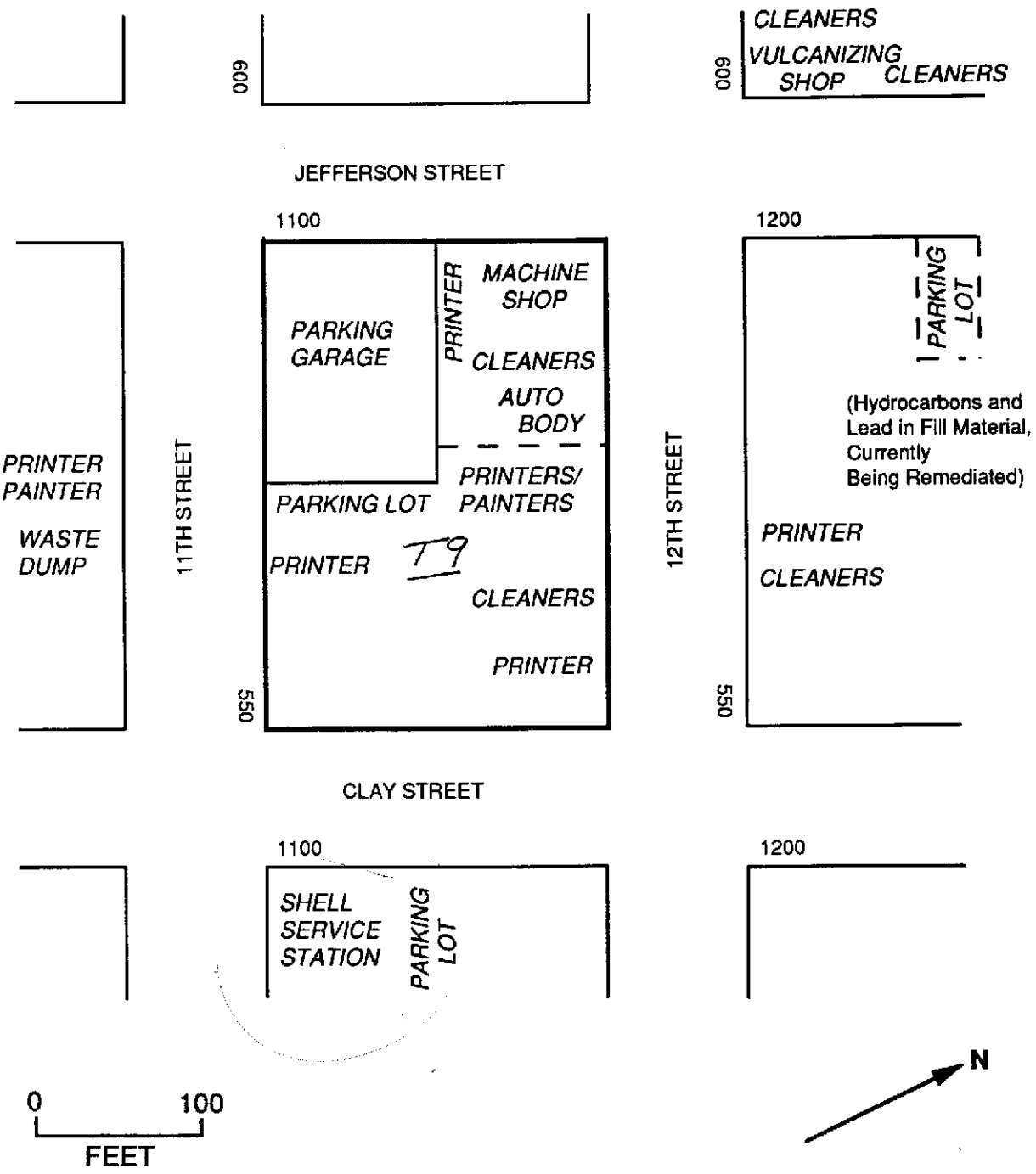
	Detection Limit Water	T9-MW1 Water	T9-MW2 Water	T9-MW3 Water	DHS/EPA Health & Human Welfare[1] Regulatory Standards
Silver	0.01	ND	ND	ND	0.050 DHS Primary MCL[3]
Arsenic	0.004	0.006	ND	ND	0.05 DHS Primary MCL
Barium	0.02	0.47	0.13	0.7	
Beryllium	0.01	ND	ND	ND	---
Cadmium	0.02	ND	ND	ND	0.010 DHS Primary MCL
Cobalt	0.02	ND	0.03	ND	
Chromium	0.02	0.09 ?	0.08 ?	0.03	0.050 DHS Primary MCL (CrVI)
Copper	0.01	0.04	0.03	0.02	1.0 DHS Secondary MCL
Mercury	0.001	ND	ND	ND	0.002 DHS Primary MCL
Molybdenum	0.02	ND	ND	ND	
Nickel	0.1	0.2	0.2	ND	0.15 EPA SNARL[4]
Lead	0.05	ND	ND	ND	0.05 DHS Primary MCL
Antimony	0.05	ND	ND	ND	0.146 EPA NAWQC
Selenium	0.003	ND	ND	ND	0.010 DHS Primary MCL
Thallium	0.1	0.2	ND	ND	0.013 EPA NAWQC[2]
Vanadium	0.01	0.07	0.07	0.02	
Zinc	0.01	0.21	0.11	0.02	5.0 DHS Secondary MCL
Aluminum	0.05			2.44	1.0 DHS Primary MCL
Calcium	0.1			26.2	
Magnesium	0.2			29.9	
Iron	0.1			5.1	0.3 DHS Secondary MCL
Sodium	0.2			98.4	
Manganese	0.01			0.63	0.05 DHS Secondary MCL
Potassium	3.0			4.5	
Boron	0.2			0.3	

[1] Source: Marshack, J.B., 1989, A Compilation of Water Quality Goals; staff report of the CRWQCB, Central Valley Region

[2] NAWQC: National Ambient Water Quality Criteria, based on Public Health Effects

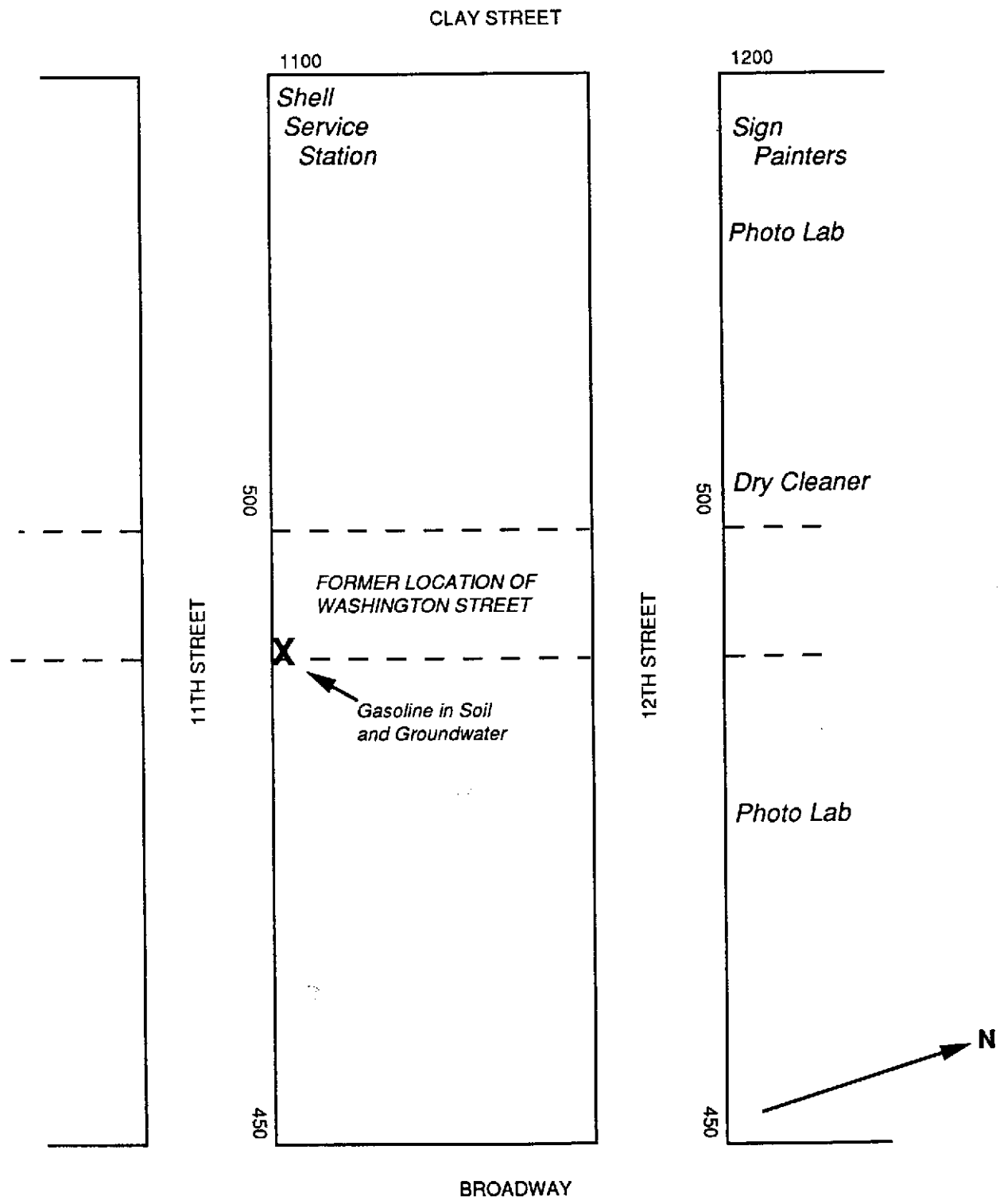
[3] MCL: Maximum Contaminant Level

[4] SNARL: EPA Suggested No Adverse Response Levels



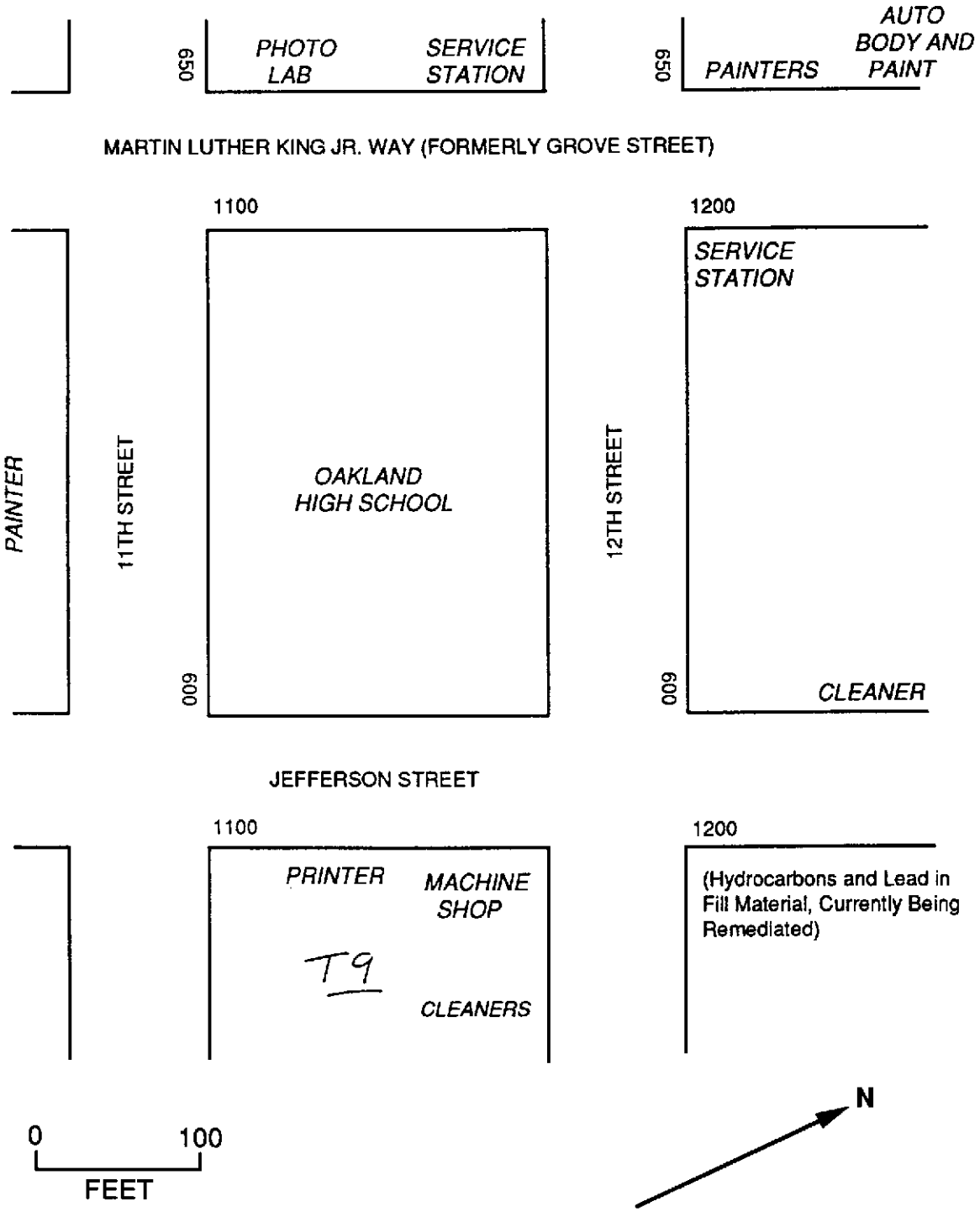
Source of business information: Curry (1950), Sanborn (1902, 1912, 1935, 1950), Wachs Bros (1926), Wachs Co. (1932), Oakland Chamber of Commerce (1948), Map of Downtown Oakland (Source Unknown, 1928), City of Oakland business tax records, and selected aerial photographs of Downtown Oakland.

Project No. 90C0039A	City Center Environmental Assesment	PARCEL T9 - Vicinity Map with Potential Sources of Soil and/or Groundwater Contamination	FIGURE 1A
Woodward-Clyde Consultants			



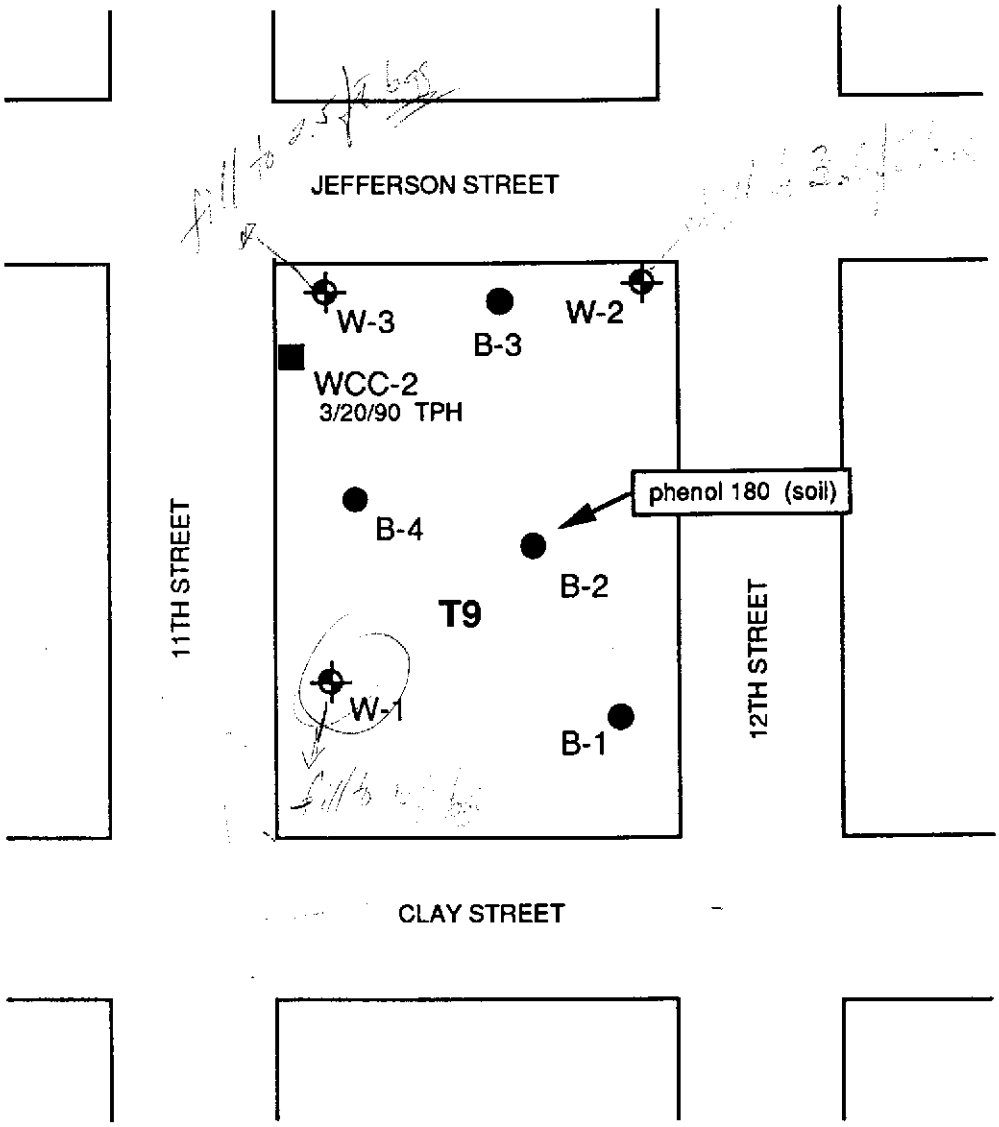
Source of business information: Curry (1950), Sanborn (1902, 1912, 1935, 1950), Wachs Bros (1926), Wachs Co. (1932), Oakland Chamber of Commerce (1948), Map of Downtown Oakland (Source Unknown, 1928), City of Oakland business tax records, and selected aerial photographs of Downtown Oakland.

Project No. 90C0039A	City Center Environmental Assesment	PARCEL T9- Vicinity Map with Potential Sources of Soil and/or Groundwater Contamination (Continued)	FIGURE 1B
Woodward-Clyde Consultants			



Source of business information: Curry (1950), Sanborn (1902, 1912, 1935, 1950), Wachs Bros (1926), Wachs Co. (1932), Oakland Chamber of Commerce (1948), Map of Downtown Oakland (Source Unknown, 1928), City of Oakland business tax records, and selected aerial photographs of Downtown Oakland.

Project No. 90C0039A	City Center Environmental Assesment	PARCEL T9 - Vicinity Map with Potential Sources of Soil and/or Groundwater Contamination (Continued)	FIGURE 1C
Woodward-Clyde Consultants			



groundwater gradient = 0.0023 ft/ft

Approximate Groundwater Flow Direction

0 100
FEET

N

Legend:

- Monitoring Well
- Soil Boring
- WCC Geotechnical Boring

phenol 180 (soil) - analysis indicates compound in groundwater (gw) or soil (soil), concentration expressed as ppb

Project No. 90C0039A	City Center Environmental Assesment	PARCEL T9 - BORING AND MONITORING WELL LOCATIONS	FIGURE 2
Woodward-Clyde Consultants			

APPENDIX A

LOGS OF SOIL BORINGS AND GROUNDWATER MONITORING WELLS

Woodward-Clyde Consultants	90C0039A City Center ESA	LOG OF BORING T-9 B-1

LOCATION Parcel T-9, 12th & Clay Sts., Oakland, California			ELEVATION AND DATUM
AGENCY Sierra Pacific	DRILLER Derald/Aaron		DATE STARTED 2/13/90
EQUIPMENT Mobil Drill B-53			DATE COMPLETED 2/13/90
METHOD 8"-diam Hollow Stem Auger	DRILL BIT		COMPLETION DEPTH 26-1/2'
CASING			SAMPLERS Modified California 2-in.-diam.
PERFORATIONS	FROM TO		NO. OF SAMPLES DIST. UNDIST. 5
PACK	FROM TO		WATER LEVEL ATD COMPL 24 HR
TYPE OF SEALS	FROM TO		LOGGED BY Lois Gruenberg
Sand cement grout	FROM 0' TO 26-1/2'		CHECKED BY Michael McGuire

DEPTH (FT)	DESCRIPTION	DEPTH (FT)	SAMPLES	Blow Counts	Recovery	REMARKS (Strength, moisture content, etc.)
	Asphalt surface approximately 6".					
	SILTY SAND (SM) - brown with orange stain - fine to medium sand - trace clay - loose - damp	5	1	3 4 6		
10	becomes brown, dense.	10	2	10 30 36		
15		15	3	12 21 30		
20	becomes brown with blue-gray veins.	20	4	29 35 50/3		
25	becomes light gray.	25	5	10 25 32		
30	Bottom of Boring at 26.5 feet	30				

Woodward-Clyde Consultants	90C0039A City Center ESA	LOG OF BORING T-9 B-2

LOCATION Parcel T-9, 12th & Clay Sts., Oakland, California			ELEVATION AND DATUM
AGENCY Sierra Pacific	DRILLER Derald/Aaron		DATE STARTED 2/13/90
EQUIPMENT Mobil Drill B-53			DATE COMPLETED 2/13/90
METHOD 8"-diam Hollow Stem Auger	DRILL BIT		COMPLETION DEPTH 26-1/2'
CASING			SAMPLERS Modified California 2-in.-diam.
PERFORATIONS	FROM TO		NO. OF SAMPLES DIST. / UNDIST. 5
PACK	FROM TO		WATER LEVEL ATD / COMPL 24 HR
TYPE OF SEALS	FROM TO		LOGGED BY Lois Gruenberg / CHECKED BY Michael McGuire
Sand cement grout	FROM 0' TO 26-1/2'		

DEPTH (FT)	DESCRIPTION	DEPTH (FT)	SAMPLES	Blow Counts	Recovery	REMARKS (Strength, moisture content, etc.)
	Asphalt surface approximately 6".					
	SILTY SAND (SM) - brown with orange stain - fine to medium sand - trace clay - loose - damp	5	1	6 8 6		
10	becomes very dense.	10	2	9 36 48		
15	becomes gray.	15	3	6 16 28		
20	becomes brown.	20	4	18 28 35		
25		25	5	21 38 49		
30	Bottom of Boring at 26.5 feet	30				

Woodward-Clyde Consultants

90C0039A
City Center ESA

LOG OF BORING
T-9 B-3

LOCATION	Parcel T-9, 12th & Clay Sts., Oakland, California	ELEVATION AND DATUM	
AGENCY	Sierra Pacific	DRILLER Derald/Aaron	DATE STARTED 2/15/90
EQUIPMENT	Mobil Drill B-53		DATE COMPLETED 2/15/90
METHOD	8"-diam Hollow Stem Auger	DRILL BIT	COMPLETION DEPTH 26-1/2'
CASING			SAMPLERS Modified California 2-in.-diam.
PERFORATIONS		FROM TO	NO. OF SAMPLES DIST. UNDIST. 5
PACK		FROM TO	WATER LEVEL ATD COMPL 24 HR
TYPE OF SEALS		FROM TO	LOGGED BY Lois Gruenberg
	Sand cement grout	FROM 0' TO 26-1/2'	CHECKED BY Michael McGuire

DEPTH (FT)	DESCRIPTION	DEPTH (FT)	SAMPLES	Blow Counts	Recovery	REMARKS (Strength, moisture content, etc.)
	Asphalt surface approximately 6".					
	FILL - contains brick fragments					
5	SILTY SAND (SM) - brown with orange stain - fine to medium sand - medium dense - damp	5	1	6 13 21		
10		10	2	18 21 30		
15	becomes gray, some clay.	15	3	21 35 48		
20	becomes brown, no clay.	20	4	15 25 38		
25	becomes gray, some clay.	25	5	30 41 49		
30	Bottom of Boring at 26.5 feet	30				

Woodward-Clyde Consultants	90C0039A City Center ESA	LOG OF BORING **T-9 B-4**

LOCATION Parcel T-9, 12th & Clay Sts., Oakland, California			ELEVATION AND DATUM
AGENCY Sierra Pacific	DRILLER Derald/Aaron		DATE STARTED 2/16/90
EQUIPMENT Mobil Drill B-53			DATE COMPLETED 2/16/90
METHOD 8"-diam Hollow Stem Auger	DRILL BIT		COMPLETION DEPTH 26-1/2'
CASING			SAMPLERS Modified California 2-in.-diam.
PERFORATIONS	FROM TO		NO. OF SAMPLES DIST. UNDIST. 5
PACK	FROM TO		WATER LEVEL ATD COMPL 24 HR
TYPE OF SEALS	FROM TO		LOGGED BY Lois Gruenberg
Sand cement grout	FROM 0' TO 26-1/2'		CHECKED BY Michael McGuire

DEPTH (FT)	DESCRIPTION	DEPTH (FT)	SAMPLES	Blow Counts	Recovery	REMARKS (Strength, moisture content, etc.)
	Asphalt surface approximately 6".					
	FILL - contains some brick fragments.					
5	SILTY SAND (SM) - brown - fine to medium sand - medium dense - damp	5	1	6 18 21		
10	becomes brown with orange stain.	10	2	13 20 30		
15	becomes brown.	15	3	18 24 31		
20	increasing clay.	20	4	18 25 38		
25	becomes brown with orange stain.	25	5	21 25 39		
30	Bottom of Boring at 26.5 feet	30				

Woodward-Clyde Consultants

90C0039A
City Center ESA

LOG OF MONITORING WELL
T-9 W-1

LOCATION	Parcel T-9, 12th & Clay Streets, Oakland, California	ELEVATION AND DATUM	33.93 feet (C. O.O. D.)
AGENCY	Sierra Pacific	DRILLER	Derald/Aaron
EQUIPMENT	Mobile Drill B-53	DATE STARTED	2/13/90
METHOD	8"-diam Hollow Stem Auger	DRILL BIT	DATE COMPLETED 2/13/90
CASING	2 in.-diameter Schedule 40 PVC	COMPLETION DEPTH	37-1/2'
PERFORATIONS	0.020 in. slot FROM 25' TO 35'	SAMPLERS	Modified California 2-in.-diam.
PACK	#3 Monterey sand FROM 23' TO 37-1/2'	NO. OF SAMPLES	DIST. UNDIST. 6
TYPE OF SEALS	Activated 3/8" bentonite pellets FROM 20' TO 23'	WATER LEVEL	ATD 27' COMPL 24 HR
	Sand cement grout FROM 0' TO 20'	LOGGED BY	Lois Gruenberg
		CHECKED BY	Michael McGuire

DEPTH (FT)	DESCRIPTION	PIEZOMETER INSTALLTION	SAMPLES	Blow Counts	Recovery	REMARKS (Strength, moisture content, etc.)
	Asphalt surface approximately 6".					
5	FILL - contains brick fragments and SILTY CLAY (CL) - dark and light gray - very stiff - damp		1	6 10 15		
10			2	25 27 30		No recovery.
15	SILTY SAND (SM) - brown - fine to medium sand - medium dense - damp		3	8 8 21		
20	becomes dense.		4	12 30 30		
25						Continued on next page.

Woodward-Clyde Consultants	90C0039A City Center ESA	LOG OF MONITORING WELL **T-9 W-1**

DEPTH (FT)	DESCRIPTION	PIEZOMETER INSTALLTION	DEPTH (FT)	SAMPLES	Blow Counts	Recovery	REMARKS (Strength, moisture content, etc.)
25	SILTY SAND (SM) Continued increasing clay, becomes moist. ▽ ATD ▽ 3/13/90		25	5	14 18 19		
				6	20 38 45		
30			30				
35			35				
	Bottom of Boring at 37.5 feet						
40			40				
45			45				
50			50				
55			55				

Woodward-Clyde Consultants

90C0039A
City Center ESA

LOG OF MONITORING WELL
T-9 W-2

LOCATION	Parcel T-9, 12th & Clay Streets, Oakland, California	ELEVATION AND DATUM	34.61 feet (C.O.O.D.)
AGENCY	Sierra Pacific	DRILLER Derald/Aaron	DATE STARTED 2/8/90
EQUIPMENT	Mobile Drill B-53		DATE COMPLETED 2/8/90
METHOD	8"-diam Hollow Stem Auger	DRILL BIT	COMPLETION DEPTH 37-1/2'
CASING	2 in.-diameter Schedule 40 PVC		SAMPLERS Modified California 2-in.-diam.
PERFORATIONS	0.020 in. slot	FROM 28' TO 38'	NO. OF SAMPLES DIST. UNDIST. 6
PACK	#3 Monterey sand	FROM 21' TO 38-1/2'	WATER LEVEL ATD 27' COMPL 24 HR
TYPE OF SEALS	Activated 3/8" bentonite pellets	FROM 18' TO 21'	LOGGED BY Lois Gruenberg
	Sand cement grout	FROM 0' TO 18'	CHECKED BY Michael McGuire

DEPTH (FT)	DESCRIPTION	PIEZOMETER INSTALLTION	DEPTH (FT)	SAMPLES	Blow Counts	Recovery	REMARKS (Strength, moisture content, etc.)
	Asphalt surface approximately 6".						
	FILL - SANDY CLAY (CL)-dark brown, some silt, damp						
5	SILTY SAND (SM) - brown with dark brown patches - fine to medium sand - trace clay - medium dense - damp		5	1	10 12 13		
10	becomes brown with blue-gray veins, some clay.		10	2	5 7 12		
15			15	3	8 10 22		
20	becomes very dense.		20	4	18 23 50/3		
25			25				Continued on next page.

Woodward-Clyde Consultants

90C0039A
City Center ESA

LOG OF MONITORING WELL
T-9 W-2

DEPTH (FT)	DESCRIPTION	PIEZOMETER INSTALLTION	DEPTH (FT)	SAMPLES	Blow Counts	Recovery	REMARKS (Strength, moisture content, etc.)
25	SILTY SAND (SM) Continues becomes moist. ▽ ATD ▽ 3/13/90		25	5	18 29 32		
				6	14 31 45		
30			30				
35			35				
40	Bottom of Boring at 38.5 feet		40				
45			45				
50			50				
55			55				

Woodward-Clyde Consultants	90C0039A City Center ESA	LOG OF MONITORING WELL T-9 W-3

LOCATION	Parcel T-9, 12th & Clay Streets, Oakland, California	ELEVATION AND DATUM	32.77 feet (C.O.O. D.)
AGENCY	Sierra Pacific / DRILLER Derald/Aaron	DATE STARTED	2/8/90
EQUIPMENT	Mobile Drill B-53	DATE COMPLETED	2/8/90
METHOD	8"-diam Hollow Stem Auger / DRILL BIT	COMPLETION DEPTH	37-1/2'
CASING	2 in.-diameter Schedule 40 PVC	SAMPLERS	Modified California 2-in.-diam.
PERFORATIONS	0.020 in. slot / FROM 25' TO 35'	NO. OF SAMPLES / DIST.	UNDIST. 6
PACK	#3 Monterey sand / FROM 23' TO 37-1/2'	WATER LEVEL / ATD	27' / COMPL / 24 HR
TYPE OF SEALS	Activated 3/8" bentonite pellets / FROM 20' TO 23'	LOGGED BY	Lois Gruenberg
	Sand cement grout / FROM 0' TO 20'	CHECKED BY	Michael McGuire

DEPTH (FT)	DESCRIPTION	PIEZOMETER INSTALLTION	DEPTH (FT)	SAMPLES	Blow Counts	Recovery	REMARKS (Strength, moisture content, etc.)
	Asphalt surface approximately 6".						
	FILL - SILTY CLAY (CL)-damp, dark brown.						
5	SILTY SAND (SM) - brown with orange stain - fine to medium grain - contains clayey lenses - medium dense - damp		5	1	6 13 18		
10	becomes very dense.		10	2	16 39 49		
15	increasing clay, gray brown, medium dense, moist.		15	3	7 7 12		
20	little clay, brown		20	4	16 51 35		
25			25				Continued on next page.

Woodward-Clyde Consultants	90C0039A City Center ESA	LOG OF MONITORING WELL T-9 W-3

DEPTH (FT)	DESCRIPTION	PIEZOMETER INSTALLTION	DEPTH (FT)	SAMPLES	Blow Counts	Recovery	REMARKS (Strength, moisture content, etc.)
25	SILTY SAND (SM) Continues increasing clay, gray, very moist to wet. ▽ ATD ▽ 3/13/90 little clay, gray.		25	5	16 18 21		
30			30	6	16 21 25		
35			35				
	Bottom of Boring at 38.5 feet						
40			40				
45			45				
50			50				
55			55				

APPENDIX B

RESULTS OF LABORATORY TESTING,

CHAIN OF CUSTODY FORMS AND SAMPLING RECORDS

ORGANIC ANALYSIS REPORT
Volatile Compound, EPA Method 8240

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-125
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-B1-1D,2D,3D,4D,5D

DATE RECEIVED: 02/16/1990
DATE EXTRACTED: 02/22/1990
DATE COMPLETED: 03/01/1990

COMP. No.	COMPOUND	ug/Kg	DETECTION LIMIT ug/Kg (ppb)
V1	Chloromethane	<500	500
V2	Bromomethane	<500	500
V3	Vinyl chloride	<500	500
V4	Chloroethane	<500	500
V5	Methylene chloride	<500	500
V6	Trichlorofluoromethane	<100	100
V7	1,1-Dichloroethene	<100	100
V8	1,1-Dichloroethane	<100	100
V9	trans-1,2-Dichloroethene	<100	100
V10	Chloroform	<100	100
V11	1,2-Dichloroethane	<100	100
V12	1,1,1,-Trichloroethane	<100	100
V13	Carbon tetrachloride	<100	100
V14	Bromodichloromethane	<100	100
V15	1,2-Dichloropropane	<100	100
V16	trans-1,3-Dichloropropene	<100	100
V17	Trichloroethene	<100	100
V18	Benzene	<100	100
V19	Dibromochloromethane	<100	100
V20	1,1,2-Trichloroethane	<100	100
V21	cis-1,3-Dichloropropene	<100	100
V22	2-Chloroethylvinyl ether	<200	200
V23	Bromoform	<100	100
V24	1,1,2,2-Tetrachloroethane	<100	100
V25	Tetrachloroethene	<100	100
V26	Toluene	<100	100
V27	Chlorobenzene	<100	100
V28	Ethylbenzene	<100	100
V29	Total Xylenes	<100	100

Chung P. Li, Ph.D.
Chemist

March 5, 1990
Date

ORGANIC ANALYSIS REPORT
Volatile Compound, EPA Method 8240

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-125
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-B2-1D,2D,3D,4D,5D

DATE RECEIVED: 02/16/1990
DATE EXTRACTED: 02/22/1990
DATE COMPLETED: 03/01/1990

COMP. No.	COMPOUND	ug/Kg	DETECTION LIMIT ug/Kg (ppb)
V1	Chloromethane	<500	500
V2	Bromomethane	<500	500
V3	Vinyl chloride	<500	500
V4	Chloroethane	<500	500
V5	Methylene chloride	<500	500
V6	Trichlorofluoromethane	<100	100
V7	1,1-Dichloroethene	<100	100
V8	1,1-Dichloroethane	<100	100
V9	trans-1,2-Dichloroethene	<100	100
V10	Chloroform	<100	100
V11	1,2-Dichloroethane	<100	100
V12	1,1,1,-Trichloroethane	<100	100
V13	Carbon tetrachloride	<100	100
V14	Bromodichloromethane	<100	100
V15	1,2-Dichloropropane	<100	100
V16	trans-1,3-Dichloropropene	<100	100
V17	Trichloroethene	<100	100
V18	Benzene	<100	100
V19	Dibromochloromethane	<100	100
V20	1,1,2-Trichloroethane	<100	100
V21	cis-1,3-Dichloropropene	<100	100
V22	2-Chloroethylvinyl ether	<200	200
V23	Bromoform	<100	100
V24	1,1,2,2-Tetrachloroethane	<100	100
V25	Tetrachloroethene	<100	100
V26	Toluene	<100	100
V27	Chlorobenzene	<100	100
V28	Ethylbenzene	<100	100
V29	Total Xylenes	<100	100

Chung P. Li

Chung P. Li, Ph.D.
Chemist

March 5, 1990
Date

ORGANIC ANALYSIS REPORT
Volatile Compound, EPA Method 8240

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-125
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-B2-1D,2D,3D,4D,5D MATRIX SPIKE RECOVERY

DATE RECEIVED: 02/16/1990
DATE EXTRACTED: 02/22/1990
DATE COMPLETED: 03/01/1990

COMP No.	COMPOUND	SPIKE RECOVERY
V7	1,1-Dichloroethene	98%
V17	Trichloroethene	65%
V18	Benzene	105%
V26	Toluene	106%
V27	Chlorobenzene	107%

Chung P. Li, Ph.D.
Chemist

March 5, 1990
Date

ORGANIC ANALYSIS REPORT
Volatile Compound, EPA Method 8240

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-125
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-B2-1D,2D,3D,4D,5D MATRIX SPIKE RECOVERY DUP.

DATE RECEIVED: 02/16/1990
DATE EXTRACTED: 02/22/1990
DATE COMPLETED: 03/01/1990

COMP No.	COMPOUND	SPIKE RECOVERY
V7	1,1-Dichloroethene	96%
V17	Trichloroethene	63%
V18	Benzene	104%
V26	Toluene	106%
V27	Chlorobenzene	107%

Chung P. Li, Ph.D.
Chemist

March 5, 1990
Date

ORGANIC ANALYSIS REPORT
Volatile Compound, EPA Method 8240

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-161
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-B3-1D,2D,3D,4D,5D

DATE RECEIVED: 02/22/1990
DATE EXTRACTED: 02/26/1990
DATE COMPLETED: 03/05/1990

COMP. No.	COMPOUND	ug/Kg	DETECTION LIMIT ug/Kg (ppb)
V1	Chloromethane	<500	500
V2	Bromomethane	<500	500
V3	Vinyl chloride	<500	500
V4	Chloroethane	<500	500
V5	Methylene chloride	<500	500
V6	Trichlorofluoromethane	<100	100
V7	1,1-Dichloroethene	<100	100
V8	1,1-Dichloroethane	<100	100
V9	trans-1,2-Dichloroethene	<100	100
V10	Chloroform	<100	100
V11	1,2-Dichloroethane	<100	100
V12	1,1,1,-Trichloroethane	<100	100
V13	Carbon tetrachloride	<100	100
V14	Bromodichloromethane	<100	100
V15	1,2-Dichloropropane	<100	100
V16	trans-1,3-Dichloropropene	<100	100
V17	Trichloroethene	<100	100
V18	Benzene	<100	100
V19	Dibromochloromethane	<100	100
V20	1,1,2-Trichloroethane	<100	100
V21	cis-1,3-Dichloropropene	<100	100
V22	2-Chloroethylvinyl ether	<200	200
V23	Bromoform	<100	100
V24	1,1,2,2-Tetrachloroethane	<100	100
V25	Tetrachloroethene	<100	100
V26	Toluene	<100	100
V27	Chlorobenzene	<100	100
V28	Ethylbenzene	<100	100
V29	Total Xylenes	<100	100

Harlan Loui
Chemist

March 9, 1990
Date

ORGANIC ANALYSIS REPORT
Volatile Compound, EPA Method 8240

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-161
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-B4-1D,2D,3D,4D,5D

DATE RECEIVED: 02/22/1990
DATE EXTRACTED: 02/26/1990
DATE COMPLETED: 03/05/1990

COMP. No.	COMPOUND	ug/Kg	DETECTION LIMIT ug/Kg (ppb)
V1	Chloromethane	<500	500
V2	Bromomethane	<500	500
V3	Vinyl chloride	<500	500
V4	Chloroethane	<500	500
V5	Methylene chloride	<500	500
V6	Trichlorofluoromethane	<100	100
V7	1,1-Dichloroethene	<100	100
V8	1,1-Dichloroethane	<100	100
V9	trans-1,2-Dichloroethene	<100	100
V10	Chloroform	<100	100
V11	1,2-Dichloroethane	<100	100
V12	1,1,1,-Trichloroethane	<100	100
V13	Carbon tetrachloride	<100	100
V14	Bromodichloromethane	<100	100
V15	1,2-Dichloropropane	<100	100
V16	trans-1,3-Dichloropropene	<100	100
V17	Trichloroethene	<100	100
V18	Benzene	<100	100
V19	Dibromochloromethane	<100	100
V20	1,1,2-Trichloroethane	<100	100
V21	cis-1,3-Dichloropropene	<100	100
V22	2-Chloroethylvinyl ether	<200	200
V23	Bromoform	<100	100
V24	1,1,2,2-Tetrachloroethane	<100	100
V25	Tetrachloroethene	<100	100
V26	Toluene	<100	100
V27	Chlorobenzene	<100	100
V28	Ethylbenzene	<100	100
V29	Total Xylenes	<100	100

Harlan Loui
Chemist

March 9, 1990
Date

ORGANIC ANALYSIS REPORT
Volatile Compound, EPA Method 8240

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-125
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-W1-1AD,2AD,3AD,4AD,5AD

DATE RECEIVED: 02/16/1990
DATE EXTRACTED: 02/22/1990
DATE COMPLETED: 03/01/1990

COMP. No.	COMPOUND	ug/Kg	DETECTION LIMIT ug/Kg (ppb)
V1	Chloromethane	<500	500
V2	Bromomethane	<500	500
V3	Vinyl chloride	<500	500
V4	Chloroethane	<500	500
V5	Methylene chloride	<500	500
V6	Trichlorofluoromethane	<100	100
V7	1,1-Dichloroethene	<100	100
V8	1,1-Dichloroethane	<100	100
V9	trans-1,2-Dichloroethene	<100	100
V10	Chloroform	<100	100
V11	1,2-Dichloroethane	<100	100
V12	1,1,1,-Trichloroethane	<100	100
V13	Carbon tetrachloride	<100	100
V14	Bromodichloromethane	<100	100
V15	1,2-Dichloropropane	<100	100
V16	trans-1,3-Dichloropropene	<100	100
V17	Trichloroethene	<100	100
V18	Benzene	<100	100
V19	Dibromochloromethane	<100	100
V20	1,1,2-Trichloroethane	<100	100
V21	cis-1,3-Dichloropropene	<100	100
V22	2-Chloroethylvinyl ether	<200	200
V23	Bromoform	<100	100
V24	1,1,2,2-Tetrachloroethane	<100	100
V25	Tetrachloroethene	<100	100
V26	Toluene	<100	100
V27	Chlorobenzene	<100	100
V28	Ethylbenzene	<100	100
V29	Total Xylenes	<100	100

Chung P. Li

Chung P. Li, Ph.D.
Chemist

March 5, 1990
Date

ORGANIC ANALYSIS REPORT
Volatile Compound, EPA Method 8240

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-064
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE CONSULTANTS
PROJECT #: 90C0039A
SAMPLE ID: T9W2-1C,2D,3D,4D,5D,6D COMPOSITE

DATE RECEIVED : 02/09/1990
DATE EXTRACTED: 02/12/1990
DATE COMPLETED: 02/12/1990

COMP. No.	COMPOUND	ug/Kg	DETECTION LIMIT ug/Kg (ppb)
V1	Chloromethane	<500	500
V2	Bromomethane	<500	500
V3	Vinyl chloride	<500	500
V4	Chloroethane	<500	500
V5	Methylene chloride	<500	500
V6	Trichlorofluoromethane	<100	100
V7	1,1-Dichloroethene	<100	100
V8	1,1-Dichloroethane	<100	100
V9	trans-1,2-Dichloroethene	<100	100
V10	Chloroform	<100	100
V11	1,2-Dichloroethane	<100	100
V12	1,1,1,-Trichloroethane	<100	100
V13	Carbon tetrachloride	<100	100
V14	Bromodichloromethane	<100	100
V15	1,2-Dichloropropane	<100	100
V16	trans-1,3-Dichloropropene	<100	100
V17	Trichloroethene	<100	100
V18	Benzene	<100	100
V19	Dibromochloromethane	<100	100
V20	1,1,2-Trichloroethane	<100	100
V21	cis-1,3-Dichloropropene	<100	100
V22	2-Chloroethylvinyl ether	<200	200
V23	Bromoform	<100	100
V24	1,1,2,2-Tetrachloroethane	<100	100
V25	Tetrachloroethene	<100	100
V26	Toluene	<100	100
V27	Chlorobenzene	<100	100
V28	Ethylbenzene	<100	100
V29	Total Xylenes	<100	100

Chung P. Li, Ph.D.
Chemist

February 26, 1990
Date

ORGANIC ANALYSIS REPORT
Volatile Compound, EPA Method 8240

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-064
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE CONSULTANTS
PROJECT #: 90C0039A
SAMPLE ID: T9W3-1D,2D,3D,4D,5D,6D COMPOSITE

DATE RECEIVED : 02/09/1990
DATE EXTRACTED: 02/12/1990
DATE COMPLETED: 02/12/1990

COMP. No.	COMPOUND	ug/Kg	DETECTION LIMIT ug/Kg (ppb)
V1	Chloromethane	<500	500
V2	Bromomethane	<500	500
V3	Vinyl chloride	<500	500
V4	Chloroethane	<500	500
V5	Methylene chloride	<500	500
V6	Trichlorofluoromethane	<100	100
V7	1,1-Dichloroethene	<100	100
V8	1,1-Dichloroethane	<100	100
V9	trans-1,2-Dichloroethene	<100	100
V10	Chloroform	<100	100
V11	1,2-Dichloroethane	<100	100
V12	1,1,1,-Trichloroethane	<100	100
V13	Carbon tetrachloride	<100	100
V14	Bromodichloromethane	<100	100
V15	1,2-Dichloropropane	<100	100
V16	trans-1,3-Dichloropropene	<100	100
V17	Trichloroethene	<100	100
V18	Benzene	<100	100
V19	Dibromochloromethane	<100	100
V20	1,1,2-Trichloroethane	<100	100
V21	cis-1,3-Dichloropropene	<100	100
V22	2-Chloroethylvinyl ether	<200	200
V23	Bromoform	<100	100
V24	1,1,2,2-Tetrachloroethane	<100	100
V25	Tetrachloroethene	<100	100
V26	Toluene	<100	100
V27	Chlorobenzene	<100	100
V28	Ethylbenzene	<100	100
V29	Total Xylenes	<100	100

Chung P. Li, Ph.D.
Chemist

February 26, 1990
Date

ORGANIC ANALYSIS REPORT
Volatile Compound, EPA Method 8240

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-064
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE CONSULTANTS
PROJECT #: 90C0039A
SAMPLE ID: T9W3 MATRIX SPIKE RECOVERY COMPOSITE.

DATE RECEIVED : 02/09/1990
DATE EXTRACTED: 02/12/1990
DATE COMPLETED: 02/12/1990

COMP No.	COMPOUND	SPIKE RECOVERY
V7	1,1-Dichloroethene	106%
V17	Trichloroethene	87%
V18	Benzene	102%
V26	Toluene	99%
V27	Chlorobenzene	99%

Chung P. Li, Ph.D.
Chemist

February 26, 1990
Date

ORGANIC ANALYSIS REPORT
Volatile Compound, EPA Method 8240

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-064
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE CONSULTANTS
PROJECT #: 90C0039A
SAMPLE ID: T9W3 MATRIX SPIKE
RECOVERY COMPOSITE DUP.

DATE RECEIVED : 02/09/1990
DATE EXTRACTED: 02/12/1990
DATE COMPLETED: 02/12/1990

COMP No.	COMPOUND	SPIKE RECOVERY
V7	1,1-Dichloroethene	106%
V17	Trichloroethene	97%
V18	Benzene	100%
V26	Toluene	104%
V27	Chlorobenzene	101%

Chung P. Li, Ph.D.
Chemist

February 26, 1990
Date

ORGANIC ANALYSIS REPORT

Semi-Volatile Compound, EPA Method 8270

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-125
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-B2-1D,2D,3D,4D,5D

DATE RECEIVED: 02/16/1990
DATE EXTRACTED: 02/20/1990
DATE COMPLETED: 03/01/1990

COMP No.	COMPOUND	ug/Kg	DETECTION LIMIT ug/Kg (ppb)
I. PRIORITY POLLUTANT ACID COMPOUNDS			
A1	Phenol	180	150
A2	2-Chlorophenol	<150	150
A3	2-Nitrophenol	<150	150
A4	2,4-Dimethylphenol	<150	150
A5	2,4-Dichlorophenol	<150	150
A6	4-Chloro-3-methylphenol	<150	150
A7	2,4,6-Trichlorophenol	<150	150
A8	2,4-Dinitrophenol	<800	800
A9	4-Nitrophenol	<800	800
A10	2-Methyl-4,6-Dinitrophenol	<800	800
A11	Pentachlorophenol	<150	150
II. PRIORITY POLLUTANT BASE/NEUTRAL COMPOUNDS			
B1	N-Nitrosodimethylamine	<150	150
B2	Bis(2-Chloroethyl)ether	<150	150
B3	1,3-Dichlorobenzene	<150	150
B4	1,2-Dichlorobenzene	<150	150
B5	1,4-Dichlorobenzene	<150	150
B6	Bis(2-Chloroisopropyl)ether	<150	150
B7	Hexachloroethane	<150	150
B8	N-Nitrosodi-n-propylamine	<150	150
B9	Nitrobenzene	<150	150
B10	Di-n-octyl phthalate	<150	150
B11	1,2,4-Trichlorobenzene	<150	150
B12	Naphthalene	<150	150
B13	Hexachlorobutadiene	<150	150
B14	2-Methylnaphthalene	<150	150
B15	Hexachlorocyclopentadiene	<150	150
B16	2-Chloronaphthalene	<150	150
B17	Dimethyl phthalate	<150	150
B18	Acenaphthylene	<150	150
B19	Acenaphthene	<150	150
B20	2,4-Dinitrotoluene	<300	300
B21	2,6-Dinitrotoluene	<300	300
B22	Fluorene	<150	150
B23	Diethyl phthalate	<150	150
B24	4-Chlorophenyl phenyl ether	<150	150
B25	1,2-Diphenylhydrazine	<300	300
B26	4-Bromophenyl phenyl ether	<150	150
B27	Hexachlorobenzene	<150	150
B28	Phenanthrene	<150	150
B29	Anthracene	<150	150
B30	Di-n-butyl phthalate	<150	150
B31	Fluoranthene	<150	150

Semi-Volatile Compound, EPA Method 8270

CLIENT: WOODWARD-CLYDE

SAMPLE ID: T9-B2-1D,2D,3D,4D,5D

COMP No.	COMPOUND	ug/Kg	DETECTION LIMIT ug/Kg (ppb)
II. PRIORITY POLLUTANT BASE/NEUTRAL COMPOUNDS			
B32	Benzidine	<1200	1200
B33	Bis(2-Chloroethoxy)methane	<300	300
B34	Pyrene	<150	150
B35	Butyl benzyl phthalate	<150	150
B36	3,3-Dichlorobenzidine	<300	300
B37	Chrysene	<150	150
B38	Benzo[a]anthracene	<150	150
B39	Bis(2-Ethylehexyl)phthalate	1900	500
B40	Benzo[k]fluoranthene	<150	150
B41	Benzo[b]fluoranthene	<150	150
B42	Benzo[a]pyrene	<150	150
B43	Indeno[1,2,3-cd]pyrene	<150	150
B44	Dibenzo[a,h]anthracene	<150	150
B45	Benzo[g,h,i]perylene	<150	150
B46	Isophrone	<150	150
III. PESTICIDES			
P1	a-BHC	<500	500
P2	g-BHC	<500	500
P3	b-BHC	<500	500
P4	d-BHC	<500	500
P5	Heptachlor	<500	500
P6	Aldrin	<500	500
P7	Heptachlor epoxide	<500	500
P8	Dieldrin	<500	500
P9	4,4'-DDE	<500	500
P10	Endosulfan	<1000	1000
P11	Endrin	<1000	1000
P12	4,4'-DDD	<500	500
P13	4,4'-DDT	<500	500
P14	Endosulfan sulfate	<1000	1000
P15	Chlordane	<5000	5000
P16	Toxaphene	<10000	10000
P17	PCB	<10000	10000

March 5, 1990

Paul Poon
Chemist

Date

PRIORITY POLLUTANT METALS, EPA Method 6010 ARSENIC, EPA 7060, MERCURY, EPA 7470, AND SELENIUM, EPA 7740

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-125
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-B2-1D,2D,3D,4D,5D

DATE RECEIVED: 02/16/1990
DATE EXTRACTED: 02/26/1990
DATE COMPLETED: 03/01/1990

	CONCENTRATION [mg/Kg (ppm)]	DETECTION LIMIT [mg/Kg (ppm)]
Silver	0.6	0.5
Arsenic	2.6	0.2
Barium	34.1	0.1
Beryllium	<0.5	0.5
Cadmium	<1.0	1.0
Cobalt	5.2	1.0
Chromium	39.5	0.5
Copper	9.6	0.5
Mercury	<0.05	0.05
Molybdenum	<1.0	1.0
Nickel	30.2	1.0
Lead	5.8	3.0
Antimony	<3.0	3.0
Selenium	<0.15	0.15
Thallium	15.6	1.0
Vanadium	21.3	0.5
Zinc	19.5	0.5
Aluminum	4580	2.5
Calcium	970	5.0
Magnesium	1960	10.0
Iron	7840	5.0
Sodium	150	10.0
Manganese	82.9	0.5
Potassium	217	150
Boron	8.9	10.0

This detection limit for soil is based on the dilution factor of 50.

Josie Quiambao — March 5, 1990
Josie Quiambao, Chemist — Date

PRIORITY POLLUTANT METALS, EPA Method 6010

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-125
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-B2-1D,2D,3D,4D,5D MATRIX SPIKE RECOVERY

DATE RECEIVED: 02/16/1990
DATE EXTRACTED: 02/26/1990
DATE COMPLETED: 03/01/1990

SPIKE RECOVERY

Aluminum	102% *
Calcium	96%
Magnesium	92% *
Iron	91% *
Sodium	92%
Manganese	85%
Potassium	102%
Boron	80% *

* Reagent Spike Recovery

Josie Quiambao — March 5, 1990
Josie Quiambao — Date
Chemist

PRIORITY POLLUTANT METALS, EPA Method 6010

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-125
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-B2-1D,2D,3D,4D,5D MATRIX SPIKE RECOVERY DUP.

DATE RECEIVED: 02/16/1990
DATE EXTRACTED: 02/26/1990
DATE COMPLETED: 03/01/1990

SPIKE RECOVERY

Aluminum	103% *
Calcium	96%
Magnesium	93% *
Iron	92% *
Sodium	90%
Manganese	84%
Potassium	102%
Boron	81% *

* Reagent Spike Recovery Dup.

Josie Quiambao
Chemist

March 5, 1990
Date

CYANIDE
EPA Method 9010

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-125
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A

DATE RECEIVED: 02/16/1990
DATE EXTRACTED: 02/23/1990
DATE COMPLETED: 02/26/1990

SAMPLE ID.	CYANIDE [mg/Kg (ppm)]
T6-W2-1D,2D,3D,4D,5D,6D	<0.05
T9-B2-1D,2D,3D,4D,5D	<0.05
METHOD BLANK	<0.05

REAGENT SPIKE RECOVERY - 107%
REAGENT SPIKE RECOVERY DUP. - 104%

DETECTION LIMIT: 0.05 [mg/Kg (ppm)]

Hung Nguyen
Chemist

March 5, 1990
Date

ORGANIC ANALYSIS REPORT
Volatile Compound, EPA Method 624

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-161
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT :90C0039A
SAMPLE ID: T9-MW1-1

DATE RECEIVED : 02/22/1990
DATE ANALYZED : 03/01/1990
DATE COMPLETED: 03/05/1990

COMP. No.	COMPOUND	ug/L (ppb)	DETECTION LIMIT ug/L (ppb)
V1	Chloromethane	<10	10
V2	Bromomethane	<10	10
V3	Vinyl chloride	<10	10
V4	Chloroethane	<10	10
V5	Methylene chloride	<50	50
V6	Trichlorofluoromethene	<5	5
V7	1,1-Dichloroethene	<5	5
V8	1,1-Dichloroethane	<5	5
V9	trans-1,2-Dichloroethene	<5	5
V10	Chloroform	<5	5
V11	1,2-Dichloroethane	<5	5
V12	1,1,1,-Trichloroethane	<5	5
V13	Carbon tetrachloride	<5	5
V14	Bromodichloromethane	<5	5
V15	1,2-Dichloropropane	<5	5
V16	trans-1,3-Dichloropropene	<5	5
V17	Trichloroethene	<5	5
V18	Benzene	<5	5
V19	Dibromochloromethane	<10	10
V20	1,1,2-Trichloroethane	<5	5
V21	cis-1,3-Dichloropropene	<5	5
V22	2-Chloroethylvinyl ether	<10	10
V23	Bromoform	<5	5
V24	1,1,2,2-Tetrachloroethane	<5	5
V25	Tetrachloroethene	<5	5
V26	Toluene	<5	5
V27	Chlorobenzene	<5	5
V28	Ethylbenzene	<5	5
V29	Total Xylenes	<5	5

Harlan Loui
Chemist

March 9, 1990
Date

ORGANIC ANALYSIS REPORT
Volatile Compound, EPA Method 624

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-161
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT :90C0039A
SAMPLE ID: T9-MW2-1

DATE RECEIVED : 02/22/1990
DATE ANALYZED : 03/01/1990
DATE COMPLETED: 03/05/1990

COMP. No.	COMPOUND	ug/L (ppb)	DETECTION LIMIT ug/L (ppb)
V1	Chloromethane	<10	10
V2	Bromomethane	<10	10
V3	Vinyl chloride	<10	10
V4	Chloroethane	<10	10
V5	Methylene chloride	<50	50
V6	Trichlorofluoromethene	<5	5
V7	1,1-Dichloroethene	<5	5
V8	1,1-Dichloroethane	<5	5
V9	trans-1,2-Dichloroethene	<5	5
V10	Chloroform	<5	5
V11	1,2-Dichloroethane	<5	5
V12	1,1,1,-Trichloroethane	<5	5
V13	Carbon tetrachloride	<5	5
V14	Bromodichloromethane	<5	5
V15	1,2-Dichloropropane	<5	5
V16	trans-1,3-Dichloropropene	<5	5
V17	Trichloroethene	<5	5
V18	Benzene	<5	5
V19	Dibromochloromethane	<10	10
V20	1,1,2-Trichloroethane	<5	5
V21	cis-1,3-Dichloropropene	<5	5
V22	2-Chloroethylvinyl ether	<10	10
V23	Bromoform	<5	5
V24	1,1,2,2-Tetrachloroethane	<5	5
V25	Tetrachloroethene	<5	5
V26	Toluene	<5	5
V27	Chlorobenzene	<5	5
V28	Ethylbenzene	<5	5
V29	Total Xylenes	<5	5

Harlan Loui
Chemist

March 9, 1990
Date

ORGANIC ANALYSIS REPORT
Volatile Compound, EPA Method 624

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-161
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT :90C0039A
SAMPLE ID: T9-MW3-1

DATE RECEIVED : 02/22/1990
DATE ANALYZED : 03/01/1990
DATE COMPLETED: 03/05/1990

COMP. No.	COMPOUND	ug/L (ppb)	DETECTION LIMIT ug/L (ppb)
V1	Chloromethane	<10	10
V2	Bromomethane	<10	10
V3	Vinyl chloride	<10	10
V4	Chloroethane	<10	10
V5	Methylene chloride	<50	50
V6	Trichlorofluoromethene	<5	5
V7	1,1-Dichloroethene	<5	5
V8	1,1-Dichloroethane	<5	5
V9	trans-1,2-Dichloroethene	<5	5
V10	Chloroform	<5	5
V11	1,2-Dichloroethane	<5	5
V12	1,1,1,-Trichloroethane	<5	5
V13	Carbon tetrachloride	<5	5
V14	Bromodichloromethane	<5	5
V15	1,2-Dichloropropane	<5	5
V16	trans-1,3-Dichloropropene	<5	5
V17	Trichloroethene	<5	5
V18	Benzene	<5	5
V19	Dibromochloromethane	<10	10
V20	1,1,2-Trichloroethane	<5	5
V21	cis-1,3-Dichloropropene	<5	5
V22	2-Chloroethylvinyl ether	<10	10
V23	Bromoform	<5	5
V24	1,1,2,2-Tetrachloroethane	<5	5
V25	Tetrachloroethene	<5	5
V26	Toluene	<5	5
V27	Chlorobenzene	<5	5
V28	Ethylbenzene	<5	5
V29	Total Xylenes	<5	5

Harlan Loui
Chemist

March 9, 1990
Date

ORGANIC ANALYSIS REPORT

Semi-Volatile Compound, EPA Method 625

EUREKA LABORATORIES, INC.
6790 Florin Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-161
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT :90C0039A
SAMPLE ID: T9-MW3-1

DATE RECEIVED : 02/22/1990
DATE EXTRACTD : 02/27/1990
DATE COMPLETED: 03/08/1990

COMP No.	COMPOUND	ug/L (ppb)	DETECTION LIMIT ug/L (ppb)
I. PRIORITY POLLUTANT ACID COMPOUNDS			
A1	Phenol	<10	10
A2	2-Chlorophenol	<10	10
A3	2-Nitrophenol	<10	10
A4	2,4-Dimethylphenol	<10	10
A5	2,4-Dichlorophenol	<10	10
A6	4-Chloro-3-methylphenol	<10	10
A7	2,4,6-Trichlorophenol	<10	10
A8	2,4-Dinitrophenol	<50	50
A9	4-Nitrophenol	<50	50
A10	2-Methyl-4,6-Dinitrophenol	<50	50
A11	Pentachlorophenol	<10	10
II. PRIORITY POLLUTANT BASE/NEUTRAL COMPOUNDS			
B1	N-Nitrosodimethylamine	<10	10
B2	Bis(2-Chloroethyl)ether	<10	10
B3	3-Dichlorobenzene	<10	10
B4	1,2-Dichlorobenzene	<10	10
B5	1,4-Dichlorobenzene	<10	10
B6	Bis(2-Chloroisopropyl)ether	<10	10
B7	Hexachloroethane	<10	10
B8	N-Nitrosodi-n-propylamine	<10	10
B9	Nitrobenzene	<10	10
B10	Di-n-octyl phthalate	<10	10
B11	1,2,4-Trichlorobenzene	<10	10
B12	Naphthalene	<10	10
B13	Hexachlorobutadiene	<10	10
B14	2-Methylnaphthalene	<10	10
B15	Hexachlorocyclopentadiene	<10	10
B16	2-Chloronaphthalene	<10	10
B10	Dimethyl phthalate	<10	10
B18	Acenaphthylene	<10	10
B19	Acenaphthene	<10	10
B20	2,4-Dinitrotoluene	<20	20
B21	2,6-Dinitrotoluene	<20	20
B22	Fluorene	<10	10
B23	Diethyl phthalate	<10	10
B24	4-Chlorophenyl phenyl ether	<10	10
B25	1,2-Diphenylhydrazine	<20	20
B26	4-Bromophenyl phenyl ether	<10	10
B27	Hexachlorobenzene	<10	10
B28	Phenanthrene	<10	10
B29	Anthracene	<10	10
B30	Di-n-butyl phthalate	<10	10

ORGANIC ANALYSIS REPORT

Semi-Volatile Compound, EPA Method 625

CLIENT: WOODWARD-CLYDE

SAMPLE ID.: T9-MW3-1

COMP No.	COMPOUND	ug/L (ppb)	DETECTION LIMIT ug/L (ppb)
II.	PRIORITY POLLUTANT BASE/NEUTRAL COMPOUNDS		
B31	Fluoranthene	<10	10
B32	Benzidine	<80	80
B33	Bis(2-Chloroethoxy)methane	<20	20
B34	Pyrene	<10	10
B35	Butyl benzyl phthalate	<10	10
B36	3,3-Dichlorobenzidine	<20	20
B37	Chrysene	<10	10
B38	Benzo[a]anthracene	<10	10
B39	Bis(2-Ethylehexyl)phthalate	36	10
B40	Benzo[k]fluoranthene	<10	10
B41	Benzo[b]fluoranthene	<10	10
B42	Benzo[a]pyrene	<10	10
B43	Indeno[1,2,3-cd]pyrene	<10	10
B44	Dibenzo[a,h]anthracene	<10	10
B45	Benzo[g,h,i]perylene	<10	10
B46	Isophrone	<10	10
III.	PESTICIDES		
P1	a-BHC	<10	10
P2	g-BHC	<10	10
P3	b-BHC	<10	10
P4	d-BHC	<10	10
P5	Heptachlor	<10	10
P6	Aldrin	<10	10
P7	Heptachlor epoxide	<10	10
P8	Dieldrin	<10	10
P9	4,4'-DDE	<10	10
P10	Endosulfan	<20	20
P11	Endrin	<20	20
P12	4,4'-DDD	<10	10
P13	4,4'-DDT	<10	10
P14	Endosulfan sulfate	<20	20
P15	Chlordane	<100	100
P16	Toxaphene	<500	500
P10	PCB	<100	100

March 9, 1990

Paul Poon
Chemist

Date

TTLC/CAM Metals, EPA Method 6010
ARSENIC, EPA Method 7060, MERCURY, EPA Method 7470
SELENIUM, EPA Method 7740

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-161
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-MW1-1

DATE RECEIVED: 02/22/1990
DATE EXTRACTED: 02/26/1990
DATE COMPLETED: 03/01/1990

	CONCENTRATION [mg/L (ppm)]	DETECTION LIMIT [mg/L (ppm)]
Silver	<0.01	0.01
Arsenic	0.006	0.004
Barium	0.47	0.02
Beryllium	<0.01	0.01
Cadmium	<0.02	0.02
Cobalt	<0.02	0.02
Chromium	0.09	0.02
Copper	0.04	0.01
Mercury	<0.001	0.001
Molybdenum	<0.02	0.02
Nickel	0.2	0.1
Lead	<0.1	0.1
Antimony	<0.05	0.05
Selenium	<0.003	0.003
Thallium	0.2	0.1
Vanadium	0.07	0.01
Zinc	0.21	0.01

Josie Quiambao
Chemist

March 9, 1990
Date

TTLC/CAM Metals, EPA Method 6010
ARSENIC, EPA Method 7060, MERCURY, EPA Method 7470
SELENIUM, EPA Method 7740

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-161
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-MW2-1

DATE RECEIVED: 02/22/1990
DATE EXTRACTED: 02/26/1990
DATE COMPLETED: 03/01/1990

	CONCENTRATION [mg/L (ppm)]	DETECTION LIMIT [mg/L (ppm)]
Silver	<0.01	0.01
Arsenic	<0.004	0.004
Barium	0.13	0.02
Beryllium	<0.01	0.01
Cadmium	<0.02	0.02
Cobalt	0.03	0.02
Chromium	0.08	0.02
Copper	0.03	0.01
Mercury	<0.001	0.001
Molybdenum	<0.02	0.02
Nickel	0.2	0.1
Lead	<0.1	0.1
Antimony	<0.05	0.05
Selenium	<0.003	0.003
Thallium	<0.1	0.1
Vanadium	0.07	0.01
Zinc	0.11	0.01

Josie Quiambao
Chemist

March 9, 1990
Date

PRIORITY POLLUTANT METALS, EPA Method 6010 ARSENIC, EPA 7060, MERCURY, EPA 7470, AND SELENIUM, EPA 7740

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-161
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-MW3-1

DATE RECEIVED: 02/22/1990
DATE EXTRACTED: 02/26/1990
DATE COMPLETED: 03/01/1990

	CONCENTRATION [mg/L (ppm)]	DETECTION LIMIT [mg/L (ppm)]
Silver	<0.01	0.01
Arsenic	<0.004	0.004
Barium	0.07	0.02
Beryllium	<0.01	0.01
Cadmium	<0.02	0.02
Cobalt	<0.02	0.02
Chromium	0.03	0.02
Copper	0.02	0.01
Mercury	<0.001	0.001
Molybdenum	<0.02	0.02
Nickel	<0.1	0.1
Lead	<0.05	0.05
Antimony	<0.05	0.05
Selenium	<0.003	0.003
Thallium	<0.1	0.1
Vanadium	0.02	0.01
Zinc	0.02	0.01
Aluminum	2.44	0.05
Calcium	26.2	0.1
Magnesium	29.9	0.2
Iron	5.1	0.1
Sodium	98.4	0.2
Manganese	0.63	0.01
Potassium	4.5	3.0
Boron	0.3	0.2

Josie Quiambao
Chemist

March 9, 1990
Date

PRIORITY POLLUTANT METALS, EPA Method 6010
ARSENIC, EPA 7060, MERCURY, EPA 7470,
AND SELENIUM, EPA 7740

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-161
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-MW3-1 MATRIX SPIKE RECOVERY

DATE RECEIVED: 02/22/1990
DATE EXTRACTED: 02/26/1990
DATE COMPLETED: 03/01/1990

	SPIKE RECOVERY
Silver	98%
Arsenic	80% *
Barium	90%
Beryllium	94%
Cadmium	92%
Cobalt	94%
Chromium	88%
Copper	93%
Mercury	106%
Molybdenum	96%
Nickel	93%
Lead	92%
Antimony	96%
Selenium	92% *
Thallium	91%
Vanadium	93%
Zinc	91%
Aluminum	99%
Calcium	89%
Magnesium	97%
Iron	95%
Sodium	88%
Manganese	88%
Potassium	116%
Boron	85% *

* Reagent Spike Recovery

Josie Quiambao
Chemist

March 9, 1990
Date

PRIORITY POLLUTANT METALS, EPA Method 6010 ARSENIC, EPA 7060, MERCURY, EPA 7470, AND SELENIUM, EPA 7740

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-161
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A
SAMPLE ID: T9-MW3-1 MATRIX SPIKE RECOVERY DUPLICATE

DATE RECEIVED: 02/22/1990
DATE EXTRACTED: 02/26/1990
DATE COMPLETED: 03/01/1990

	SPIKE RECOVERY
Silver	92%
Arsenic	81% *
Barium	84%
Beryllium	85%
Cadmium	86%
Cobalt	88%
Chromium	83%
Copper	86%
Mercury	108%
Molybdenum	89%
Nickel	85%
Lead	86%
Antimony	89%
Selenium	92% *
Thallium	83%
Vanadium	86%
Zinc	85%
Aluminum	89%
Calcium	84%
Magnesium	96%
Iron	95%
Sodium	77%
Manganese	84%
Potassium	109%
Boron	85% *

* Reagent Spike Recovery Duplicate

Josie Quiambao
Chemist

March 9, 1990
Date

CYANIDE
EPA Method 9010

EUREKA LABORATORIES, INC.
6790 Florin-Perkins Road
Sacramento, CA 95828
(916) 381-7953

Order No: 90-02-161
Hazardous Waste Testing
Certification: 108

CLIENT: WOODWARD-CLYDE
PROJECT: 90C0039A

DATE RECEIVED: 02/22/1990
DATE EXTRACTED: 03/02/1990
DATE COMPLETED: 03/02/1990

SAMPLE ID.	LOCATION	CYANIDE [mg/L (ppm)]
T9-MW3-1	-	<0.01
T6-MW3-1	-	<0.01
T12-MW3-1	-	<0.01
METHOD BLANK		<0.01

REAGENT SPIKE RECOVERY - 104%
REAGENT SPIKE RECOVERY DUP. - 102%

DETECTION LIMIT: 0.01 [mg/L (ppm)]

Hung Nguyen
Chemist

March 9, 1990
Date

90-OJ-064 CSJ

Woodward-Clyde Consultants

500 12th Street, Suite 100, Oakland, CA 94607-4041
(415) 893-3600

Chain of Custody Record

PROJECT NO. 90C0039A

SAMPLERS: (Signature) Lois Gruenberg

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	ANALYSES: EPA Method 8240	EPA Method	EPA Method	EPA Method	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
2/8/1990	8a	TQ W2-1-C	S					1	Eureka Laboratories 6790 FLORIN PERKINS RD. SACRAMENTO, CALIFORNIA Tel (916) 381-7953
		TQ W2-2-D						1	
		TQ W2-3-D *						1	
		TQ W2-4-D						1	
		TQ W2-5-D						1	
		TQ W2-6 D						1	
		TQ W2-1-B	S			HOLD		1	Results to Mike McGuire (415) 874-3288
		TQ W2-2-C				HOLD		1	
		TQ W2-3-C				HOLD		1	
		TQ W2-4-C				HOLD		1	
		TQ W2-5-C				HOLD		1	
		TQ W2-6-C				HOLD		1	
		TQ W3-1-D	S					1	
		TQ W3-2-D						1	
		TQ W3-3-D *						1	* Composite into 1 sample and analyze for EPA Method 8240
		TQ W3-4-D						1	
		TQ W3-5-D						1	
		TQ W3-6-D						1	
		TQ W3-1-C	S			HOLD		1	
		TQ W3-2-C				HOLD		1	
		TQ W3-3-C				HOLD		1	
		TQ W3-4-C				HOLD		1	
		TQ W3-5-C				HOLD		1	
	5p	TQ W3-6-C				HOLD		1	
							TOTAL NUMBER OF CONTAINERS	24	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Lois Gruenberg	2/8/1990 4:35 P			2/9/1990 4:35 P	

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
ICE CHEST		Laurie Thornton Courier	Pat Egan/FLI	2/9/90 1000

Woodward-Clyde Consultants

500 12th Street, Suite 100, Oakland, CA 94607-4041
(415) 893-3600

Chain of Custody Record

PROJECT NO. 90C0039A

SAMPLERS: (Signature) Lois Gruenberg

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	ANALYSES: EPA Method 8240	EPA Method	EPA Method	EPA Method	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
2/12/1990		T12-W3-1-D	S					1	Results to Mike McGuire (415) 874-3288
		T12-W3-2-D						1	
		T12-W3-3-D						1	
		T12-W3-4-D*						1	* Composite into one (1) sample and analyze for EPA Method 8240
		T12-W3-5-D						1	
		T12-W3-6-D						1	
		T12-W3-1-C				HOLD		1	
		T12-W3-2-C				HOLD		1	
		T12-W3-3-C				HOLD		1	
		T12-W3-4-C				HOLD		1	
		T12-W3-5-C				HOLD		1	
		T12-W3-6-C				HOLD		1	
		T9-W1-1-D				HOLD		1	
		T9-W1-1-C				HOLD		1	
		T9-W1-31-D				HOLD		1	
		T9-W1-31-C				HOLD		1	
		T9-W1-2-C				HOLD		1	Eureka Laboratories 6

TOTAL NUMBER OF CONTAINERS: 17

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Lois Gruenberg	445 P 2/12/1990				

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
ICE CHEST				2/13/90 1055

Woodward-Clyde Consultants

500 12th Street, Suite 100, Oakland, CA 94607-4041
(415) 893-3600

Chain of Custody Record

PROJECT NO. 90C0039A

SAMPLERS: (Signature) Lois Gruenberg

DATE	TIME	SAMPLE NUMBER	~~General Mineral~~ MATRIX	Priority Pollutant Metals	EPA Method 624	EPA Method 625	EPA Method 608	EPA M 8240	" 8270	" 353	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
2/15		T9-B2-1-D	S	X				X	X	X	1	Results to Mike McGuire (415) 874-3288
1990		T9-B2-2-D		X				X	X	X	1	
		T9-B2-3-D *		X				X	X	X	1	
		T9-B2-4-D		X				X	X	X	1	
		T9-B2-5-D		X				X	X	X	1	
		~~T9-B2-6-D~~									0	* Composite into one (1) sample and analyze as marked
		T9-B2-1-C									1	
		T9-B2-2-C									1	
		T9-B2-3-C									1	
		T9-B2-4-C									1	
		T9-B2-5-C	↓								1	Eureka Lab 6790 FLORIN PERKINS RD Sacramento, CA (916) 381-7953

TOTAL NUMBER OF CONTAINERS: 10

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Lois Gruenberg	2/15 1990 430p			2/15 4:35	

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
ICE CHEST		[signature]	[signature]	4/6 10

Woodward-Clyde Consultants

500 12th Street, Suite 100, Oakland, CA 94607-4041
(415) 893-3600

Chain of Custody Record

PROJECT NO. 90L00394

SAMPLERS: (Signature) Lois Gruenberg

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method 8240	EPA Method	EPA Method	EPA Method	ANALYSES	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
2/13		TQ-W1-1A-D	S						1	Results to Mike McGuire @ (415) 874-3288
1440		~~TQ-W1-2A-D~~							0	
		TQ-W1-3A-D	*						1	
		TQ-W1-4A-D							1	
		TQ-W1-5A-D							1	
		TQ-W1-6A-D							1	
		TQ-W1-1A-C						HOLD	1	* Composite into (1) one sample and analyze by EPA Method 8240
		~~TQ-W1-2A-C~~						~~HOLD~~	0	
		TQ-W1-3A-C						HOLD	1	
		TQ-W1-4A-C						HOLD	1	
		TQ-W1-5A-C						HOLD	1	
		TQ-W1-6A-C						HOLD	1	
		TQ-B1-1-D							1	
		TQ-B1-2-D							1	
		TQ-B1-3-D							1	
		TQ-B1-4-D							1	
		TQ-B1-5-D							1	
		TQ-B1-1-C							1	
		TQ-B1-2-C							1	
		TQ-B1-3-C							1	
		TQ-B1-4-C							1	
		TQ-B1-5-C							1	

TOTAL NUMBER OF CONTAINERS: 20

Eureka Lab
6790 FLORIN PERKINS RD
Sacramento, CA
(916) 381-7953

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Lois Gruenberg	2/15/90 1430			2/15 1435	

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
ICE CHEST				2/16/90 1100

Woodward-Clyde Consultants

500 12th Street, Suite 100, Oakland, CA 94607-4041
(415) 893-3600

Chain of Custody Record

PROJECT NO.

SAMPLERS: (Signature)

DATE	TIME	SAMPLE NUMBER	General Mineral	Priority Pollutant Metals	EPA Method 624	EPA Method 625	EPA Method 608	6010 - Title 22	Cyanide	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
2/26	1100	TG-MW1-1-Z						X		1	
		TG-MW1-1-Y			X					2	
	1130	TG-MW2-1-Z						X		1	
		TG-MW2-1-Y			X					2	
	1400	TG-MW3-1-Z		X						1	
		TG-MW3-1-V							X	1	
		TG-MW3-1-X				X				0	
		TG-MW3-1-W			X					2	
										0	
	1500	TG-MW4-1-Z						X		1	
		TG-MW4-1-Y			X					2	
										0	
										0	
										0	

TOTAL NUMBER OF CONTAINERS: 14

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
	2/26 1500		Conrad Currie		

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME

11

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(415) 893-3600

Chain of Custody Record

PROJECT NO. 96C00394

SAMPLERS: (Signature) Doris Ghirardelli

DATE	TIME	SAMPLE NUMBER	General Mineral	Priority Pollutant Metals	EPA Method 624	EPA Method 625	EPA Method 608	EPA 8240							CONTAINERS	REMARKS (Sample preservation, handling procedures, etc.)
7/16		T9-B4-1-C						HOLD							1	Results to Mike McGinn (415) 874-3288
1490		T9-B4-2-C						HOLD							1	
		T9-B4-3-C						HOLD							1	
		T9-B4-4-C						HOLD							1	
		T9-B4-5-C						HOLD							1	
		T6-B1-1-D						X							1	* Composite into one sample and analyze EPA 8240
		T6-B1-2-D													1	
		T6-B1-3-D													0	
		T6-B1-4-D													0	
		T6-B1-5-D													0	
		T6-B1-1-C						HOLD							1	Eureka Labs 4790 FLORIN PERKINS RD. Sacramento, CA 95826 (916) 381-7953
		T6-B1-2-C						HOLD							1	
		T6-B1-3-C						HOLD							0	
		T6-B1-4-C						HOLD							0	
		T6-B1-5-C						HOLD							0	

TOTAL NUMBER OF CONTAINERS: 15

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	7/17 1500	[signature]	[signature]		

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
			[signature]	7/20/90 1040

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(415) 893-3600

Chain of Custody Record

PROJECT NO. 95C0039A

SAMPLERS: (Signature) Lois Galloway

DATE	TIME	SAMPLE NUMBER	General Mineral	Priority Pollutant Metals	EPA Method 8240	EPA Method 625	EPA Method 608	8270	Cd	Pb	Zn	Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
7/16		T12-B1-2-D	S	X	X			X	X	X		1	Results to Mike McGuire (415) 874-3288
1990		T12-B1-3-D *		X	X			X	X	X		1	
		T12-B1-4-D		X	X			X	X	X		1	
		T12-B1-5-D		X	X			X	X	X		1	
		T12-B1-3-C				HOLD						1	
		T12-B1-4-C				HOLD						1	
		T12-B1-5-C				HOLD						1	
		T9-B3-1-D			X							1	* Composite into one (1) sample and analyze EPA 8240
		T9-B3-2-D			X							1	
		T9-B3-3-D *			X							1	
		T9-B3-4-D			X							1	
		T9-B3-5-D			X							1	
		T9-B3-1-C				HOLD						1	
		T9-B3-2-C				HOLD						1	
		T9-B3-3-C				HOLD						1	
		T9-B3-4-C				HOLD						1	
		T9-B3-5-C				HOLD						1	
		T9-B4-1-D			X							1	Eureka Lab 6790 FLORIN PERKINS RD. Sacramento, CA 958-E (916) 381-7955
		T9-B4-2-D			X							1	
		T9-B4-3-D *			X							1	
		T9-B4-4-D			X							1	
		T9-B4-5-D			X							1	

TOTAL NUMBER OF CONTAINERS: 22

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
	7/16 1550				

METHOD OF SHIPMENT	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
				7/16 1550

WATER SAMPLE LOG

Sample No. TG-W1-1

Project No. : 9000039A Date: 2/21/90

Project Name: City Center EIA

Sample Location: TG-W1

Well Description: 2" PVC, 25'-35' screen

Weather Conditions: Sunny, warm

Observations / Comments:

Quality Assurance

Sampling Method: teflon bailer

Method to Measure Water Level : Power Sounder

Pump Lines: New / Cleaned Bailer Lines: (New) / Cleaned

Method of cleaning Pump / Bailer: Alconox w/ DI rinse

pH Meter No.: Calibrated daily

Specific Conductance Meter No.: Calibrated daily.

Comments: well developed by surging / bailing using Smeal rig.

Sampling Measurements

Water Level (below MP) at Start: 27.5' End:

Measuring Point (MP): TOC.

Time	Discharge (gallons)	pH	Temp. (°C)	Specific Conductance (µmhos / cm)	Turbidity	Color	Odor	Comments
1555	20	7.62	21.5	2100 µmhos				
					mod	brn		

Total Discharge: 20 gals Casing Volumes Removed: 1.6

Method of disposal of discharged water: drum on site

Number and size of sample containers filled: 2-40 ml VOAs, 1-1L plastic bottle

∴ TG-MW1-1-2,Y

Collected by: McGuire/Hesse

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500 12th Street, Suite 100, Oakland, CA 94607-4014
(415) 893-3600

WATER SAMPLE LOG

Sample No. T9-MW2-1

Project No.: 90C00039A Date: 2/21/90

Project Name: City Center ESA

Sample Location: Hwy T9-W2

Well Description: 2" PVC, 25-35' screen

Weather Conditions: Sunny, warm

Observations / Comments:

Quality Assurance

Sampling Method: teflon bailer

Method to Measure Water Level: power sounder

Pump Lines: New / Cleaned Bailer Lines: (New) / Cleaned

Method of cleaning Pump / Bailer: Alconox w/ DI rinse.

pH Meter No.: Calibrated daily

Specific Conductance Meter No.: Calibrated daily.

Comments: well developed by surging / bailing using small rig

Sampling Measurements

Water Level (below MP) at Start: 28.7' End:

Measuring Point (MP):

Time	Discharge (gallons)	pH	Temp. (°C)	Specific Conductance (µmhos / cm)	Turbidity	Color	Odor	Comments
1450	20	7.11	20	500 µmhos	mod	brn		

Total Discharge: 20 gal Casing Volumes Removed: 19

Method of disposal of discharged water: drum on site

Number and size of sample containers filled: 2-40ml VOA; 1-1L plastic bottle

T9-MW2-1-2, Y

Collected by: McGuire / Hesse

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500 12th Street, Suite 100 Oakland, CA 94607-4014
(415) 893-3600

WATER SAMPLE LOG

Sample No. T9-MW3-(

Project No.: 9DC00394 Date: 2/21/90

Project Name: City Center ESA

Sample Location: T9-W3

Well Description: 2" PVC, 25'-35' screen

Weather Conditions: sunny, warm

Observations / Comments:

Quality Assurance

Sampling Method: teflon bailer

Method to Measure Water Level: power sounder

Pump Lines: New / Cleaned Bailer Lines: (New) / Cleaned

Method of cleaning Pump / Bailer: Alconox w/ DI rinse

pH Meter No.: Calibrated daily

Specific Conductance Meter No.: Calibrated daily

Comments: well developed by bursing/bailing using Smeal rig

Sampling Measurements

Water Level (below MP) at Start: 26.75' End:

Measuring Point (MP): TOC

Time	Discharge (gallons)	pH	Temp. (°C)	Specific Conductance (µmhos / cm)	Turbidity	Color	Odor	Comments
1530	20	6.92	20	700 µmhos				
					mod	brn		

Total Discharge: 20 gal Casing Volumes Removed: 14

Method of disposal of discharged water: drum on site

Number and size of sample containers filled: 2-40ml VOA, 1-1L glass bottle; 2-1L plastic bottles

∴ T9-MW3-1-Z, Y, X, W

Collected by: McGuire / Hayse

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