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COPY

ADDITIONAL SITE INVESTIGATION REPORT

Ron Goode Toyota
1825 Park Street
Alameda, California

ACC Job No. 95-6089-1.3

Prepared for:

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Ron Goode Toyota
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March 26, 1996

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ADDITIONAL SITE INVESTIGATION REPORT
Ron Goode Toyota
1825 Park Street
Alameda, California

1.0 INTRODUCTION

This report presents the procedures and findings of additional site investigation conducted by ACC Environmental Consultants, Inc., (ACC) on behalf of Mr. Len Goode, President of Ron Goode Toyota, 1825 Park Avenue, Alameda, California. The project objective was to further evaluate subsurface conditions at the property by collecting and analyzing soil and grab groundwater samples from selected locations at the property perimeter and interior. Data was specifically collected and evaluated to characterize current subsurface conditions, attempt to verify offsite sources, and confirm data collected during previous site investigation.

The property is located in the northwestern corner of the intersection of Park Street and Clement Avenue in Alameda, California, and is approximately 700 feet from the inner channel separating Alameda Island and Oakland. It is currently being operated as an automobile dealership and showroom (Figure 1).

2.0 BACKGROUND

Two underground storage tanks (USTs) were removed from the site by Zaccor Corporation (Zaccor) on December 27, 1990. Both tanks were constructed of single-walled steel. The 300-gallon waste-oil tank was located in the main building near the southern exterior wall (Figure 2). During removal, the waste-oil tank was observed to have several holes near the bottom. The second UST, a 550-gallon gasoline tank, was located outside the building. During removal, no holes were observed in the gasoline tank. Analytical results of soil samples collected from the waste-oil tank excavation indicated detectable levels of total oil and grease (TOG), total petroleum hydrocarbons as diesel (TPHd), and total petroleum hydrocarbons as gasoline (TPHg). Soil samples collected from the gasoline tank excavation did not indicate detectable levels of TPHg.

On March 21, 1991, and April 11, 1991, a field program was conducted by Environmental Bio-Systems, Inc., under contract with Zaccor, to evaluate the horizontal and vertical extent of petroleum hydrocarbon impact in subsurface soil. Sixty-four hand augured borings were advanced and field conditions described. Forty-one soil samples were collected, of which 14 samples were submitted for analysis. The extent of soil and groundwater impact was not defined. Concentrations of TPHg ranged from nondetect to 1,900 parts per million (ppm). TOG concentrations ranged from nondetect to 380 ppm.

On November 8, 1991, three groundwater monitoring wells were installed on and adjacent to the property by Environmental Bio-Systems. Analytical results of soil samples collected during drilling wells MW-1 and MW-2 indicated no detectable TPHg concentrations. Analysis of soil collected from monitoring well MW-3 indicated a concentration of 250 ppm TPHg.

The approximate monitoring well locations are illustrated on Figure 2. On November 18, 1991, the wells were developed and sampled by Environmental Bio-Systems. Analytical results of groundwater collected from monitoring wells indicated no detectable concentrations of TPHg and benzene, toluene, ethylbenzene, and total xylenes (BTEX) above the reporting limits. A concentration of 4.0 ppm TOG was reported in the groundwater sample collected from well MW-1. Analysis of groundwater collected in subsequent sampling events has indicated decreasing amounts of dissolved TOG. Samples collected in February 4, 1993, contained no concentrations of hydrocarbon constituents above the reporting limits.

In April 1993, ACC performed a soil and groundwater investigation to help determine the onsite vertical and lateral extent of petroleum hydrocarbon impact in order to provide remediation options and associated costs. Seventeen exploratory soil borings were drilled and "grab" groundwater samples collected from each boring to help further evaluate groundwater conditions across the site. Results of the investigation were inconsistent with a pattern that might be expected from known sources at the site. The highest TPHg concentrations were noted in samples collected adjacent to Clement Avenue and in areas crossgradient and approximately 70 to 120 feet downgradient from the former gasoline tank.

According to the requirement of the Regional Water Quality Control Board, ACC installed groundwater monitoring well MW-4 approximately 12 feet downgradient of the former waste-oil tank. Groundwater monitoring of well MW-4 and one or more of the three existing groundwater monitoring wells was conducted by ACC between November 1994 and December 1995. Analytical results have predominantly indicated no detectable concentrations of TPHg in wells MW-1 and MW-2, and TPHg concentrations in well MW-3 have ranged from nondetect to 190 parts per billion (ppb). Based on review of previous site investigation, results of quarterly monitoring, and discussion with Ms. Eva Chu of Alameda County Health Care Services Agency, Department of Environmental Health (ACHCSA), ACC proposed conducting additional site investigation, including collecting perimeter soil and grab groundwater samples, to help evaluate possible offsite sources and assess current conditions.

2.1 Previous Site Investigation

The following is a summary of the work performed to date:

- December 1990: Zaccor removed USTs
- April 1991: Environmental Bio-Systems hand augered 64 exploratory soil borings, collected 41 soil samples, and analyzed 14 soil samples.
- November 1991: Environmental Bio-Systems installed monitoring wells MW-1 through MW-3.
- November 1991 to February 1993: three wells were monitored and sampled.
- April 1993: ACC installed monitoring well MW-4.
- April 1993: ACC drilled 17 exploratory soil borings.
- May 1993 to June 1995: four wells were monitored and sampled.
- September 1995 to December 1995: two wells were monitored and sampled.

ACC has not reviewed site investigation performed prior to April 1993, so this work has not been included for evaluation as part of this report.

Tables 1 and 2 summarize historical analytical results of soil and grab groundwater samples collected by ACC in April 1993. The boring locations are illustrated on Figure 2. Table 3 summarizes historical monitoring well sample analytical results.

TABLE 1 - HISTORICAL SOIL SAMPLE ANALYTICAL RESULTS

Boring-Sample Depth	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TOG (mg/kg)
S1-5	<1.0	<0.005	<0.005	<0.005	<0.005	<50
S2-5	<1.0	<0.005	<0.005	<0.005	<0.005	<50
S3-5	<1.0	<0.005	<0.005	<0.005	<0.005	73
S4-5	5.8	<0.005	<0.005	0.010	0.056	<50
S5-5	580	<0.005	3.7	2.8	13	<50
S6-5	270	0.028	0.46	1.8	8.0	<50
S7-5	<1.0	<0.005	<0.005	<0.005	<0.005	<50
S8-5	39	0.053	0.55	0.22	0.92	<50
S9-5	120	<0.005	0.068	0.48	1.8	55
S10-5	<1.0	<0.005	<0.005	<0.005	<0.005	<50
S11-5	<1.0	<0.005	<0.005	<0.005	<0.005	<50
S12-5	<1.0	<0.005	<0.005	<0.005	<0.005	<50
S13-5	<1.0	<0.005	<0.005	<0.005	<0.005	<50
S14-5	<1.0	<0.005	<0.005	<0.005	<0.005	<50
S15-5	<1.0	<0.005	<0.005	<0.005	<0.005	<50
S16-5	1.1	<0.005	<0.005	<0.005	0.012	<50
S17-5	1,200	0.44	0.58	6.4	29	160
MW-4-5	1,500	<0.20	0.31	6.1	33	10,000

Notes: mg/kg = milligrams per kilogram = parts per million (ppm)

TABLE 2 - HISTORICAL GRAB GROUNDWATER ANALYTICAL RESULTS

Groundwater Sample Number	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TOG (µg/L)
S1-H2O	130	2.7	10	0.8	5.6	<10
S2-H2O	52	0.7	1.9	<0.5	0.6	<10
S3-H2O	77	1.9	4.9	0.6	3.5	<10
S4-H2O	140	2.7	6.6	1.2	7.1	<10
S5-H2O	6,000	75	280	160	54	<10
S6-H2O	46,000	170	90	1,300	460	20
S7-H2O	50	0.5	1.1	<0.5	0.8	<10
S8-H2O	6,000,000	21,000	420,000	110,000	440,000	<10
S9-H2O	22,000	98	380	500	1,900	<30
S10-H2O	42,000	<50	150	370	1,300	14
S11-H2O	35,000	790	490	1,700	4,500	<10
S12-H2O	100	2.0	4.8	1.0	5.5	<10
S13-H2O	580	8	10	<5	19	<10
S14-H2O	180	1.4	3.2	1.2	5.5	<10
S15-H2O	52	<0.5	<0.5	<0.5	<0.5	<10
S16-H2O	180	1.4	2.4	0.6	3.2	<10
S17-H2O	3,400	20	6	56	220	<10

Notes: µg/L = micrograms per liter, approximately equal to parts per billion (ppb)

TABLE 3 - HISTORICAL MONITORING WELL ANALYTICAL RESULTS

WELL#/ Date Sampled	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TOG (µg/L)	TPHd (µg/L)	EPA Method 8010 (1,2-Dichloroethane) (µg/L)
MW-1								
11/18/91	ND	ND	ND	ND	ND	4	ND	NA
05/30/92	ND	ND	ND	ND	2.7	20	ND	NA
09/10/92	ND	ND	ND	ND	ND	1.1	ND	NA
02/04/93	ND	ND	ND	ND	ND	ND	ND	NA
05/03/93	ND	ND	ND	ND	ND	ND	ND	NA
12/09/94	ND	ND	ND	ND	ND	NA	NA	NA
03/15/95	ND	ND	ND	ND	ND	NA	NA	NA
06/19/95	ND	ND	ND	ND	ND	NA	NA	NA
09/19/95	ND	ND	ND	ND	ND	NA	NA	NA
12/21/95	NA	NA	NA	NA	NA	NA	NA	NA
MW-2								
11/18/91	ND	ND	ND	ND	ND	3.0	ND	NA
05/30/92	ND	ND	ND	ND	2.0	<10	ND	NA
09/10/92	ND	ND	ND	ND	ND	ND	ND	NA
02/04/93	ND	ND	ND	ND	ND	ND	ND	NA
05/03/93	ND	ND	ND	ND	ND	ND	ND	NA
12/09/94	ND	ND	ND	ND	ND	NA	NA	NA
03/15/95	ND	ND	ND	ND	ND	NA	NA	NA
06/19/95	ND	ND	ND	ND	ND	NA	NA	NA
09/19/95	NA	NA	NA	NA	NA	NA	NA	NA
12/21/95	NA	NA	NA	NA	NA	NA	NA	NA
MW-3								
11/18/91	ND	ND	ND	ND	ND	1.0	ND	NA
05/30/92	ND	ND	ND	ND	ND	20	ND	NA
09/10/92	ND	ND	ND	ND	ND	0.4	ND	NA
02/04/93	ND	ND	ND	ND	ND	ND	ND	NA
05/03/93	ND	ND	ND	ND	ND	ND	ND	NA
12/09/94	NA	NA	NA	NA	NA	NA	NA	NA
03/15/95	140	ND	ND	ND	2.2	NA	NA	NA
06/19/95	190	7.9	1.5	2.6	6.3	NA	NA	NA
09/19/95	180	4.7	1.4	2.0	13.0	NA	NA	NA
12/21/95	ND	ND	ND	ND	ND	NA	NA	NA
MW-4								
05/14/93	ND	ND	ND	ND	ND	3.1	ND	5.7
12/09/94	ND	ND	ND	ND	ND	550	ND	1.3
03/15/95	ND	ND	ND	ND	ND	ND	ND	1.2
06/19/95	ND	ND	ND	ND	ND	ND	ND	2.1
09/19/95	ND	ND	ND	ND	ND	ND	ND	1.0
12/21/95	ND	ND	ND	ND	ND	ND	NA	0.8

Notes: µg/L = micrograms per liter, approximately equal to parts per billion (ppb)
ND = concentration below laboratory reporting limit
NA = not analyzed

2.2 Results from April 1993 Study

Petroleum hydrocarbons were detected in soil at various locations across the site and adjacent to the former waste-oil UST. The petroleum hydrocarbons appeared to occur randomly and may have been the result of previous site practices or surface infiltration. Elevated petroleum hydrocarbon concentrations were detected in the shallow groundwater primarily under Clement Avenue and immediately adjacent to the primary sewer line entering the property from Clement Avenue. A TPHg concentration was also detected to a much lesser degree in the water sample collected from boring S17, located downgradient of the former waste-oil UST. Soil analytical results did not correlate with grab groundwater analytical results, indicating migration appears to occur primarily in shallow groundwater.

3.0 FIELD PROCEDURES

3.1 Well Monitoring

ACC initiated annual well monitoring on December 21, 1995, in anticipation of additional subsurface site investigation and in accordance with updated sampling frequency protocol. Work at the site included measuring depth to water, subjectively evaluating groundwater in the wells, purging the wells, and sampling groundwater from wells MW-3 and MW-4. Wells MW-3 and MW-4 were sampled according to the recently changed sampling protocol approved by ACHCSA in a letter dated December 4, 1995.

3.2 Subsurface Investigation - Borings

Prior to conducting the subsurface investigation, a boring permit was obtained through the Zone 7 Water Agency. On February 7, 1996, 10 borings (B1 through B10) were drilled along Park Street and Clement Avenue and along the primary sewer line entering the property using a pneumatic sampling tool. Boring locations were drilled at: 1) selected locations at the property perimeter and evaluated for offsite sources of petroleum hydrocarbons; 2) locations adjacent to the primary sewer line entering the property; and 3) locations designed to help characterize current subsurface conditions and confirm data collected during previous site investigation. Boring locations are illustrated on Figure 2.

The pneumatic sampling tool used for the subsurface investigation was equipped with 5-foot sections of a 3/4-inch inside diameter, galvanized steel probe pipe that was connected to a 1-foot-long galvanized steel soil core tube. Stainless steel insert rods were placed through the probe pipe and sampling core. The probe pipe, insert rods, and sampling core were all pre-cleaned prior to use and between sample drives by washing with trisodium phosphate as potable water solution, a potable water rinse, and distilled water rinse. The probe pipe, soil core, and insert rods were together driven pneumatically using a percussion hammer to the desired depth. The insert rods were then removed and the probe pipe and core were driven 12 inches into undisturbed soil to obtain a sample. Soil samples were collected at a depth of 3 to 4 feet below ground surface (bgs).

Upon removal from the sampler, each sample was inspected for lithologic differences, logged by an ACC geologist, labeled, and stored in a pre-chilled, insulated container and transported under chain of custody to Chromalab, Inc., a state-certified laboratory. The soil cuttings and samples collected from borings B9 and B10 were described in accordance with the Unified Soil Classification System (USCS) after review by a California Registered Geologist. Lithologic logs of the borings and the USCS are attached as Appendix 1. Soil samples were evaluated subjectively for field evidence of petroleum hydrocarbons (i.e., odor, photoionization detector [PID] readings, and discoloration). Petroleum odors and green soil discoloration were observed in samples collected from borings B5 and B10. Water was encountered at a depth of approximately 5.5 to 6.5 feet bgs within the borings completed to a depth of 8 to 10 feet bgs.

Selected soil samples collected from the borings were submitted for analysis of TPHg, BTEX, and methyl tertiary butyl ether (MTBE) by EPA Method 8015/8020. Analytical results and chain of custody forms are attached as Appendix 2.

Water samples were collected from the borings with the use of pre-cleaned stainless steel bailers. The water was transferred immediately to laboratory supplied 40-milliliter VOA vials (without head space), and the vials were placed in a pre-chilled, insulated container prior to transport to Chromalab, Inc., a state-certified analytical laboratory.

4.0 FINDINGS

4.1 Well Monitoring

Figure 2 illustrates the locations of the four monitoring wells. Groundwater flow direction and gradient remain consistent at approximately 0.01 foot/foot in the northerly direction. Analytical results of the groundwater samples collected on December 21, 1995, indicated TPHg and BTEX were not present above reportable concentrations in either well. Table 3 summarizes previous monitoring well analytical results.

Due to the variable nature of grab groundwater sampling in exploratory soil borings, ACC feels the lack of detectable fuel hydrocarbons in shallow groundwater, as evidenced by periodic monitoring well sampling, is more representative of groundwater conditions. For this reason, wells MW-3 and MW-4 were sampled prior to March 1996 so that analytical results could be incorporated in this report.

4.2 Subsurface Conditions

During the February 1996 investigation, the subject site and surrounding areas were covered with concrete or asphalt pavement above approximately 6 inches of baserock/fill material consisting of silty sand and gravel. Below the baserock, soils consisted of yellow brown to medium brown silty sand (SP). Sands observed at the site were fine to medium grained, poorly graded, medium dense, contained approximately 1% to 5% disseminated silts, and are known locally as Merritt Sand.

Lithologic logs and the USCS of the borings in which soil samples were collected (B9 and B10) are included as Appendix 1. Soil samples were not collected for analysis in borings B1 through B8; therefore, no boring logs were completed for these borings. Borings were completed to a total depth of 8 to 10 feet bgs, and during the investigation, water was encountered at a depth of approximately 5.5 to 6.5 feet bgs. A grab water sample was collected from each boring at the depth groundwater was encountered.

4.3 Analytical Results

Analytical results from soil samples collected from borings B9 and B10 are summarized in Table 4. Analytical results for grab groundwater samples collected from borings B1 through B10 are summarized in Table 5. Copies of laboratory results with chain of custody forms are attached as Appendix 2.

TABLE 4 - SOIL SAMPLE ANALYTICAL RESULTS (2/7/96)

Boring-Sample Depth	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)
B9-3.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005
B10-4.0	<1.0	0.013	0.021	0.022	0.060	0.042

Notes: mg/kg = milligrams per kilogram = parts per million (ppm)

TABLE 5 - GROUNDWATER SAMPLE ANALYTICAL RESULTS (2/7/96)

Groundwater Sample Number	TPHg (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl-benzene (µg/kg)	Total Xylenes (µg/kg)
B1-W	<50	<0.5	<0.5	<0.5	<0.5
B2-W	<50	1.0	2.1	<0.5	1.6
B3-W	<50	<0.5	0.89	<0.5	<0.5
B4-W	<50	<0.5	1.1	<0.5	0.55
B5-W	12,000	<50	100	580	1,400
B6-W	790	2.6	8.0	19	26
B7-W	210	<0.5	1.0	3.1	13
B8-W	<50	0.57	2.0	<0.5	3.1
B9-W	<50	<0.5	<0.5	<0.5	0.71

Groundwater Sample Number	TPHg (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl-benzene (µg/kg)	Total Xylenes (µg/kg)
B10-W	27,000	960	3,500	1,800	6,200

Notes: µg/L = micrograms per liter, approximately equal to parts per billion (ppb)

5.0 DISCUSSION

Two USTs were removed from the site in December 1990. Verification soil sampling indicated an unauthorized release of petroleum hydrocarbons had occurred from the waste-oil UST but concentrations of TPHg were not detected in soil samples collected under the gasoline UST. Subsequent subsurface investigation performed by Zaccor included 64 exploratory soil borings and 14 sample analyses, but could not define the extent of petroleum hydrocarbon impact to soil and shallow groundwater. TPHg concentrations in soil samples were reported to range from nondetect to 1,900 ppm. Three groundwater monitoring wells were subsequently installed in November 1991 and minor concentrations of dissolved fuel hydrocarbons were detected during the first year of well monitoring.

ACC performed subsurface site investigation in April 1993 by drilling 17 exploratory soil borings, collecting soil and grab groundwater samples in each boring, and installing monitoring well MW-4 approximately 10 feet downgradient of the former waste-oil UST. While concentrations of TPHg in grab groundwater samples do not represent overall groundwater conditions, grab groundwater samples are indicative of water conditions at the top of the saturated zone and have proven to be a useful investigative tool to determine the relative degree and extent of impacted groundwater. Analytical results indicated impacted soil and groundwater existed in various locations around the site; however, petroleum hydrocarbon concentrations in soil did not correlate with concentrations in shallow groundwater. The largest concentrations of TPHg were detected in samples collected from offsite borings drilled in Clement Avenue, with lesser concentrations detected in samples collected from borings immediately adjacent to the primary sewer line entering the property from Clement Avenue. Due to elevated concentrations of TPHg noted in grab groundwater samples collected in April 1993, ACHCSA requested additional site investigation to determine the source of these hydrocarbons.

ACC conducted additional subsurface site investigation in February 1996, utilizing exploratory soil borings and grab groundwater sampling to characterize current subsurface conditions, verify offsite sources, and attempt to confirm any conclusions made during previous site investigation. Analytical results indicated that minor impacts to groundwater exist in the vicinity of borings B6 and B7; however, the greatest impacts continue to be noted offsite in Clement Avenue, immediately adjacent to the sewer main trench entering the subject property from Clement Avenue.

For comparison purposes, ACC evaluated grab groundwater analytical results from April 1993 and February 1996 utilizing iso-concentration maps generated using Surfer® (Golden Software, Inc.), an interpolation software package. Iso-concentration contours are an interpolated approximation

based on limited data points, and generally do not reflect actual subsurface conditions because they cannot incorporate flow direction or gradient. However, they help to visualize how dissolved hydrocarbon concentrations might behave in a homogeneous, uniform aquifer, and where the bulk of impacted groundwater may exist.

TPHg concentration data collected in April 1993 are illustrated on Figure 3. The contour interval is 100,000 ppb, and the TPHg concentration detected in the groundwater sample collected from boring S8 was reduced from 6,000,000 ppb to 600,000 ppb to better reflect actual groundwater conditions and minimize the effects of free-phase product in the sample on TPHg concentration contours. Figure 3 demonstrates that concentrations of TPHg appear to be centered in the vicinity of boring S8, and contours indicate the majority of impacted groundwater exists outside the site property line. Impacted groundwater also appears to exist adjacent to the sewer line entering the property at the rear of the showroom.

Concentration data from February 1996 is illustrated on Figure 4. This data also indicates that the majority of impacted groundwater exists in the vicinity of offsite borings B5 and B10, in the vicinity of the sewer line entering the property from Clement Avenue, and is consistent with Figure 3.

Soil samples were collected for analysis in borings B9 and B10 to determine soil conditions adjacent to the surface drain pipeline leading from a surface drain grate toward the primary sewer line. TPHg and BTEX concentrations were not detected in soil samples collected from boring B9. BTEX concentrations were detected in boring B10, which appear to be the result of contact with impacted shallow groundwater. Field indications of petroleum hydrocarbons (i.e., odor, PID readings, or discoloration) were not noted in shallow soil samples collected for soil classification in the borings.

6.0 CONCLUSIONS

Based on observations and analytical results of soil and groundwater samples collected in the general vicinity of the showroom at 1825 Park Street, ACC has made the following conclusions:

- previous site investigation indicated shallow groundwater impacted by TPHg exists predominantly offsite in Clement Avenue in the vicinity of the sewer connection line entering the property, and this conclusion was verified by sampling activity conducted in February 1996;

- shallow groundwater under a majority of the site does not contain reportable concentrations of TPHg or BTEX constituents, and the majority of groundwater impact appears to be 150 feet crossgradient from the USTs; therefore, impact is not UST related;

- concentrations of TPHg and BTEX reported from grab groundwater sampling have generally decreased approximately 5-fold to 10-fold since April 1993;

- concentrations of TPHg and BTEX were not observed in soil samples collected from boring B9, immediately adjacent to the surface drainage pipeline;

- analytical results of groundwater monitoring well samples have consistently indicated petroleum hydrocarbon impacts to groundwater quality are nonexistent or minimal in degree;

- offsite sources along Park Street do not appear to be impacting groundwater;

- additional site investigation confirmed that petroleum hydrocarbon impacts on the property are incidental; and

- biodegradation of petroleum hydrocarbons is naturally occurring in shallow groundwater at the site, and site conditions (e.g., depth to groundwater, soil type, microbial populations) appear be highly conducive to bioremedial processes.

7.0 RECOMMENDATIONS

Based on the conclusions of additional subsurface investigation performed at 1825 Park Street, and recent instructions from the Regional Water Quality Control Board to local oversight agencies concerning UST cleanups and subsurface investigation of low risk groundwater cases, ACC has the following recommendations:

- no additional subsurface investigation or monitoring is necessary to characterize groundwater conditions at the site;

- natural bioremediation of any petroleum hydrocarbon residues in soil and shallow groundwater should be considered the remedial alternative of choice; and

- the site should be evaluated for immediate closure.

8.0 REFERENCES

California Regional Water Quality Control Board, San Francisco Bay Region. January 5, 1996. *Memorandum to: San Francisco Bay Area Agencies Overseeing UST Cleanup and Other Interested Parties*. Prepared by Mr. Kevin Graves, P.E.

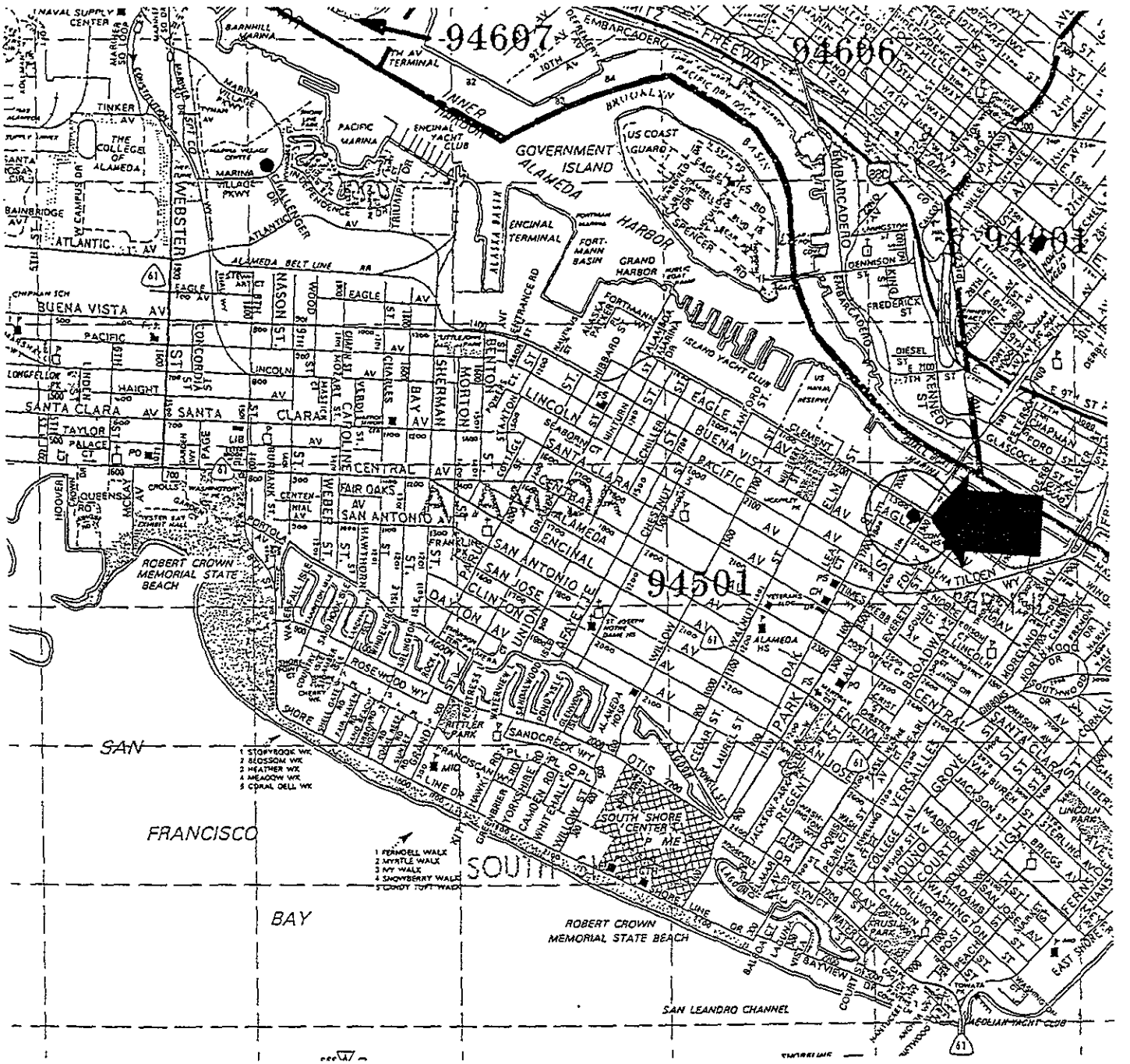
Lawrence Livermore National Laboratory, Environmental Protection Department. October 16, 1995. *Recommendations to Improve the Cleanup Process for California's Leaking Underground Fuel Tanks (LUFTs)*. Prepared by David W. Rice, et al., submitted to the California State Water Resources Control Board and the Senate Bill 1764 Leaking Underground Fuel Tank Advisory Committee.

9.0 LIMITATIONS

The service performed by ACC has been conducted in a manner consistent with the levels of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area. No other warranty, expressed or implied, is made.

The conclusions presented in this report are professional opinions based on the indicated data described in this report and applicable regulations and guidelines currently in place. They are intended only for the purpose, site, and project indicated. Opinions and recommendations presented herein apply to site conditions existing at the time of our study.

ACC has included analytical results from a state-certified laboratory, which performs analyses according to procedures suggested by the U.S. Environmental Protection Agency and the State of California. ACC is not responsible for laboratory errors in procedure or result reporting.



SOURCE: THOMAS BROTHERS GUIDE

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Figure Number:	1.0	Scale:	1" = 1/4 mi
Drawn By:	JVC	Date:	2/22/96
Project Number:	95-6089-1.3		

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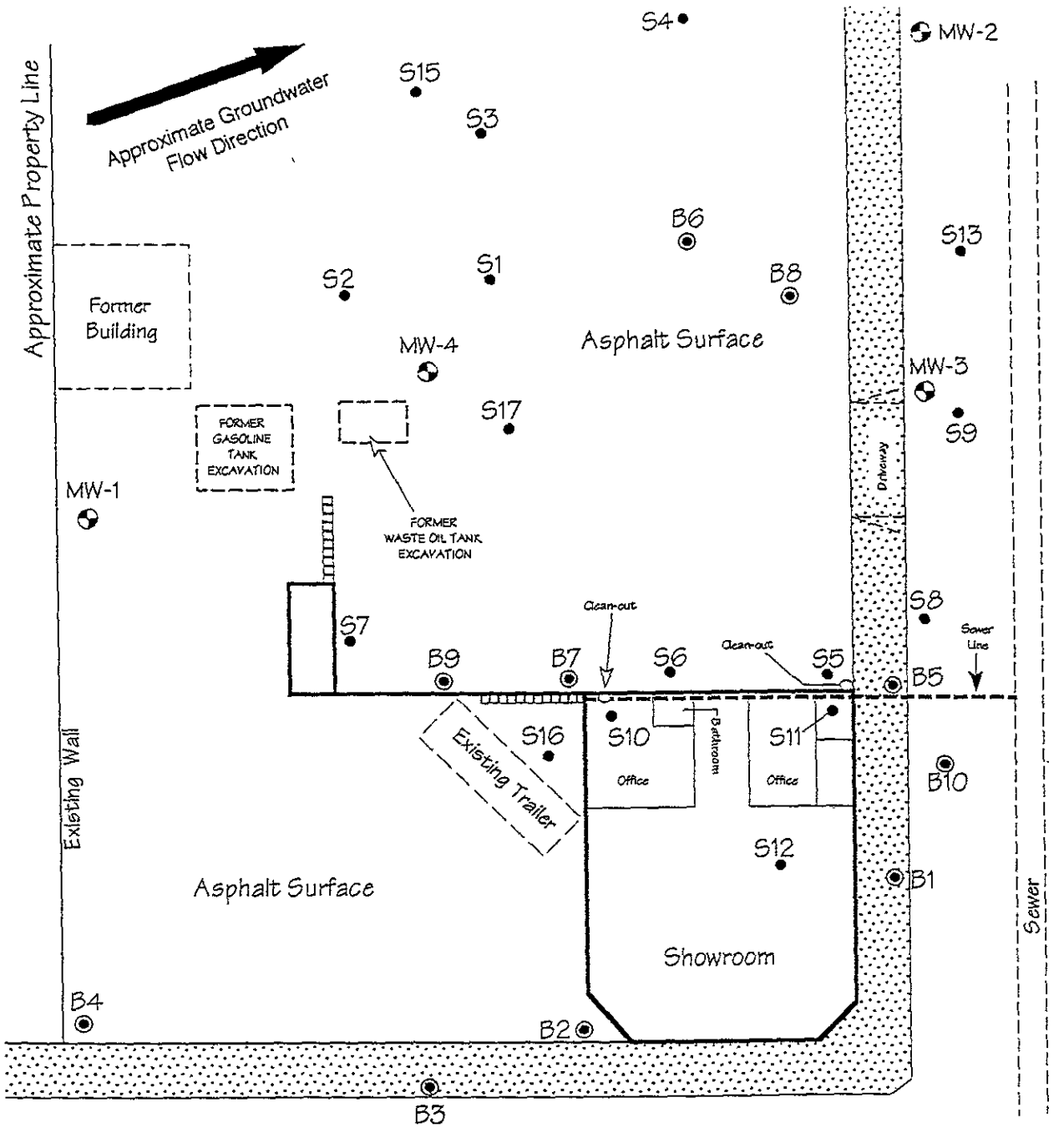

Legend

MW-1 - Monitoring Well Location

S12 - Soil Boring Location: 4/16/93

B3 - Soil Boring Location: 2/7/96

- Storm water grate

Title:	Site Map 1825 Park Street Alameda, California
Figure Number: 2.0	Scale: 1" = 30'
Drawn By: JVC	Date: 02/22/96
Project Number: 95-6089-1.3	

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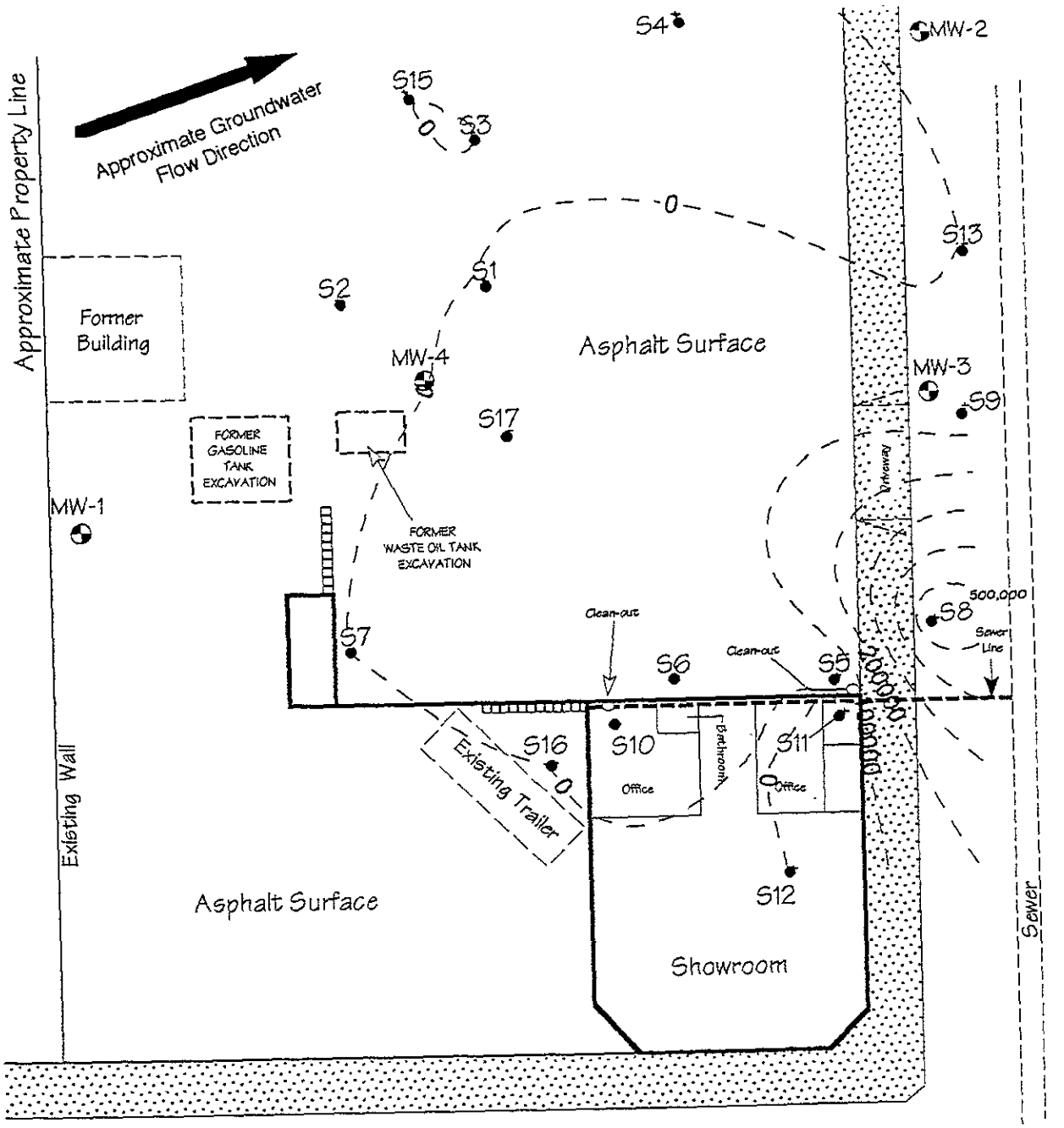


Legend

MW-1 - Monitoring Well Location

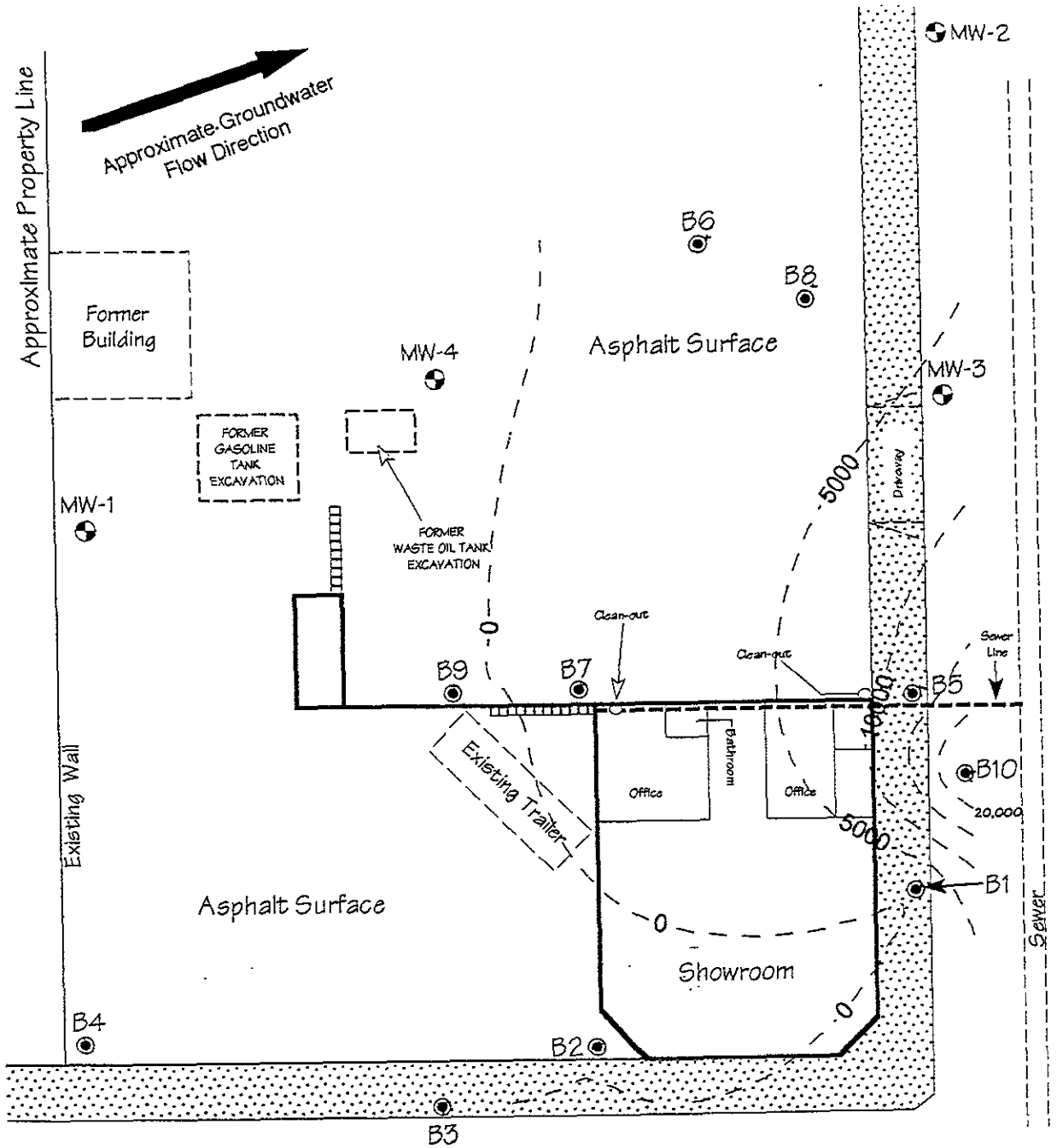
S12 - Soil Boring Location: 4/16/93

- Storm water grate

- Groundwater Contour (Contour Interval = 100,000 ppb)

Title:	Iso-Concentration Map TPH - Gasoline (4/16/93) 1825 Park Street, Alameda
Figure Number: 3.0	Scale: 1" = 30'
Drawn By: JVC	Date: 02/22/96
Project Number: 95-6089-1.3	

ACC Environmental Consultants
7977 Capwell Drive, Suite 100
Oakland, California 94621
(510) 638-8400 Fax: (510) 638-8404



Legend

MW-1 - Monitoring Well Location

B8 - Soil Boring Location: 2/7/96

- Storm water grate

- Groundwater Contour (Contour Interval = 5,000 ppb)

Title:	Iso-Concentration Map TPH - Gasoline (2/7/96) 1825 Park Street, Alameda
Figure Number: 4.0	Scale: 1" = 30'
Drawn By: JVC	Date: 02/22/96
Project Number: 95-6089-1.3	

ACC Environmental Consultants
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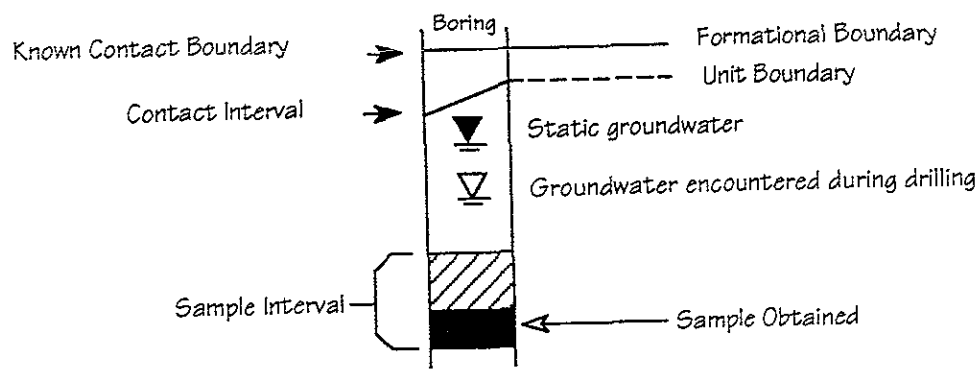
UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS more than half > #200 sieve	GRAVELS more than half coarse fraction is larger than No. 4 sieve	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	well graded gravels, gravel-sand mixtures
			GP	poorly graded gravels, gravel-sand mixtures
		GRAVELS WITH OVER 12% FINES	GM	silty gravels, poorly graded gravel-sand silt mixtures
			GC	clayey gravels, poorly graded gravel-sand clay mixtures
	SANDS more than half coarse fraction is smaller than No. 4 sieve	CLEAN SANDS WITH LITTLE OR NO FINES	SW	well graded sands, gravelly sands
			SP	poorly graded sands, gravelly sands
		SANDS WITH OVER 12% FINES	SM	silty sands, poorly graded sand-silt mixtures
			SC	clayey sands, poorly graded sand-clay mixtures
FINE GRAINED SOILS more than half < #200 sieve	SILTS AND CLAYS liquid limit less than 50		ML	inorg. silts and v.fine sands, rock flour silty or clayey sands, or clayey silts w/sl. plasticity
			CL	inorg. clays of low-med plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	organic clays and organic silty clays of low plasticity
	SILTS AND CLAYS liquid limit greater than 50		MH	inorganic silty, micaceous or diatomacious fine sandy or silty soils, elastic silts
			CH	inorganic clays of high plasticity, fat clays
			OH	organic clays of medium to high plasticity organic silts
	HIGHLY ORGANIC SOILS		PT	peat and other highly organic soils

Legend for Boring Logs



ACC Environmental Consultants
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Oakland, California 94621
(510) 638-8400 Fax: (510) 638-8404

Site: RON GOODE TOYOTA
1825 Park Street
Alameda, California

Date: 2/7/96

Project No. 95-6089-1.3

EQUIPMENT: Geoprobe Pneumatic Sampling Device
OPERATED BY: Environmental Control Associates
LOGGED BY: D. DeMent
PROJECT: Ron Goode Toyota, 1825 Park St., Alameda
WORK DATE: 2/7/96
Boring B-9 of 10

Soil Color Color Code (Munsell Soil Color Chart)	HNu (ppm)	SAMPLE ID	depth below ground surface (ft)	
			0	Concrete / Baserock
10YR 5/4	0	B9-3.0	2	Silty Sand (SP), yellow brown to med. brown, fine - med. grained, poorly graded, uniform, with 1-5% fines, disseminated, med. dense, moist, no petroleum hydrocarbon odor or discoloration
			4	
			6	Water sample collected - (B9-W) slightly silty, cloudy, brown color, trace fine grained sand
		B9-W	8	BOTTOM OF BORING @ 8 FEET
			10	
			12	
			14	
			16	
			18	
			20	
			22	
			24	
			26	
			28	

ACC ENVIRONMENTAL CONSULTANTS
7977 Capwell Drive, Suite 100
Oakland, California 94621
(510)638-8400 FAX: (510)638-8404

Project No: 6089-1.3

Date: 3/1/96

Title: LOG OF BORING B-9
RON GOODE TOYOTA
1825 Park Street
Alameda, California

EQUIPMENT: Geoprobe Pneumatic Sampling Device
OPERATED BY: Environmental Control Associates
LOGGED BY: D. DeMent
PROJECT: Ron Goode Toyota, 1825 Park St., Alameda
WORK DATE: 2/7/96
Boring B-10 of 10

Soil Color Color Code (Munsell Soil Color Chart)	HNu (ppm)	SAMPLE ID	SAMPLE INTERVAL	depth below ground surface (ft)	
				0	Concrete / Baserock
10YR 5/4				2	Silty Sand (SP), yellow brown to med. brown, fine - med. grained, poorly graded, uniform, with 1-5% fines, disseminated, med. dense, moist, slight petroleum hydrocarbon odor - green soil discoloration noted at 4.0 feet
5G 5/1	0	B10-4.0		4	
		B10-W		6	water sample collected - (B10-W), water appeared cloudy with greenish color, slight petroleum hydrocarbon odor
				8	BOTTOM OF BORING @ 8 FEET
				10	
				12	
				14	
				16	
				18	
				20	
				22	
				24	
				26	
				28	

ACC ENVIRONMENTAL CONSULTANTS
7977 Capwell Drive, Suite 100
Oakland, California 94621
(510)638-8400 FAX: (510)638-8404

Project No: 6089-1.3

Date: 3/1/96

Title: LOG OF BORING B-10
RON GOODE TOYOTA
1825 Park Street
Alameda, California

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 9602539

February 15, 1996

ACC ENVIRONMENTAL CONSULTANTS

Atten: David Dement

Project: 1825 PARK STREET *Project#:* 6089-1.3

Received: February 7, 1996

re: 10 samples for Gasoline and BTEX compounds analysis.

Method: EPA 5030/8015M/8020

Matrix: WATER

Sampled: February 7, 1996 *Run#:* 658 *Analyzed:* February 14, 1996

Spl#	CLIENT SPL ID	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
78879	B10-W	27000	960	3500	1800	6200
	Note:	*Reporting limit : BTEX = 25 ug/l & gasoline = 2500 ug/l.*				
78882	B1-W	N.D.	N.D.	N.D.	N.D.	N.D.
78883	B2-W	N.D.	1.0	2.1	N.D.	1.6
78886	B5-W	12000	N.D.	100	580	1400
	Note:	*Reporting limit : BTEX = 50 ug/l & gasoline = 5000 ug/l.*				

Matrix: WATER

Sampled: February 7, 1996 *Run#:* 659 *Analyzed:* February 13, 1996

Spl#	CLIENT SPL ID	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
78884	B3-W	N.D.	N.D.	0.89	N.D.	N.D.
78885	B4-W	N.D.	N.D.	1.1	N.D.	0.55
78887	B6-W	790	2.6	8.0	19	26
78888	B7-W	210	N.D.	1.0	3.1	13
78889	B8-W	N.D.	0.57	2.0	N.D.	3.1
78890	B9-W	N.D.	N.D.	N.D.	N.D.	0.71
Reporting Limits		50	0.50	0.50	0.50	0.50
Blank Result		N.D.	ND	ND	ND	ND
Blank Spike Result (%)		93.7	97.2	94.3	97.7	94.6

Billy Thach
Chemist

Marianne Alexander
Gas/BTEX Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 9602539

February 16, 1996

ACC ENVIRONMENTAL CONSULTANTS

Atten: David Dement

Project: 1825 PARK STREET
Project#: 6089-1.3
Received: February 7, 1996

re: One sample for Gasoline and BTEX compounds analysis.

Method: EPA 5030/8015M/8020

Client Sample ID: B9-3.0
Matrix: SOIL
Spl#: 78880
Run#: 660
Analyzed: February 14, 1996
Sampled: February 7, 1996

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	1.0	N.D.	93.7	1
BENZENE	N.D.	0.0050	N.D.	103	1
TOLUENE	N.D.	0.0050	N.D.	101	1
ETHYL BENZENE	N.D.	0.0050	N.D.	104	1
XYLENES	N.D.	0.0050	N.D.	100	1
MTBE	N.D.	0.0050	N.D.	110	1

Billy Thach
Chemist

Marianne Alexander
Gas/BTEX Supervisor

510-838-8404 PM

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

V120 0:0C0218 SYS:

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 9602539

February 16, 1996

ACC ENVIRONMENTAL CONSULTANTS

Atten: David Dement

Project#: 6089-1.3

Project: 1825 PARK STREET
Received: February 7, 1996

re: One sample for Gasoline and BTEX compounds analysis.

Method: EPA 5030/8015M/8020

Client Sample ID: B10-4.0
Spl#: 78881
Sampled: February 7, 1996

Matrix: SOIL
Run#: 660

Analyzed: February 14, 1996

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	1.0	N.D.	93.7	1
BENZENE	0.013	0.0050	N.D.	103	1
TOLUENE	0.021	0.0050	N.D.	101	1
ETHYL BENZENE	0.022	0.0050	N.D.	104	1
XYLENES	0.060	0.0050	N.D.	100	1
MTBE	0.042	0.0050	N.D.	110	1

Billy Thach
Chemist

Marianne Alexander
Gas/BTEX Supervisor

510-838-8404 PM

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.
SAMPLE RECEIPT CHECKLIST

Client Name ACC

Project 1825 PARK STREET

Reference/Subm # 26335/9602539

Checklist completed by: Minie Jan 2/8/96 (Signature / Date)

Date/Time Received 2/8/96 (Date) 0700 (Time)

Received by C. Rowley / Pedro Solis 2/7/96

Carrier name

Logged in by CR (Initials) 2/8/96 (Date)

Matrix Soil & Water

Shipping container in good condition?			NA___	Yes___ No___
Custody seals present on shipping container?	Intact___	Broken___		Yes___ No___
Custody seals on sample bottles?	Intact___	Broken___		Yes___ No___
Chain of custody present?				Yes✓ No___
Chain of custody signed when relinquished and received?				Yes✓ No___
Chain of custody agrees with sample labels?				Yes✓ No___
Samples in proper container/bottle?				Yes✓ No___
Samples intact?				Yes✓ No___
Sufficient sample volume for indicated test?				Yes✓ No___
VOA vials have zero headspace?			NA___	Yes___ No___
Trip Blank received?			NA___	Yes___ No✓
All samples received within holding time?				Yes✓ No___

Container temperature? 3.7°C

pH upon receipt ___ pH adjusted ___ Check performed by: ___ NA✓

Any NO response must be detailed in the comments section below. If items are not applicable, they should be marked NA.

Client contacted? ___ Date contacted? ___

Person contacted? ___ Contacted by? ___

Regarding? ___

Comments: pH checked by chemist

Corrective Action: ___

SMPLRECD.CK

960534

CHROMALAB, INC.

Environmental Services (SDB) (DOHS 1094)

1220 Quarry Lane • Pleasanton, California 94566-4756
510/484-1919 • Facsimile 510/484-1096

Chain of Custody

DATE 2/7/96 PAGE 1 OF 2

PROJ MGR Dave DeMent
COMPANY ACC Environmental
ADDRESS 7977 Capwell Drive #100
Oakland CA 94621

SAMPLERS (SIGNATURE)

(PHONE NO.) (510) 638-8400
(FAX NO.) (510) 638-8404

ANALYSIS REPORT

SAMPLE ID.	DATE	TIME	MATRIX	PRESERV.	TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel, TEPH (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)		LUFT METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)				NUMBER OF CONTAINERS
B1-W	2/7/96	8:45	WATER	Cold		X																			2
B2-W		9:30				X																			2
B3-W		9:45				X																			2
B4-W		10:05				X																			2
B5-W		10:45				X																			2
B6-W		11:10				X																			2
B7-W		11:45				X																			2
B8-W		12:15				X																			2
B9-W		13:00				X																			2

PROJECT INFORMATION

PROJECT NAME 1825 Park St
PROJECT NUMBER 6089-1.3
P.O. # 6089-1.3

TAT: STANDARD 5-DAY | 24 | 48 | 72 | OTHER

SPECIAL INSTRUCTIONS/COMMENTS:
All water results in ppb

SAMPLE RECEIPT

TOTAL NO OF CONTAINERS	
HEAD SPACE	
REC'D GOOD CONDITION/COLD	
CONFORMS TO RECORD	

	1.	2.	
RELINQUISHED BY	(SIGNATURE)	(SIGNATURE)	(SIGNATURE)
	17:00 (TIME)	(TIME)	0700 (TIME)
	David DeMent (PRINTED NAME)	(PRINTED NAME)	Pedro Solis (PRINTED NAME)
	17:00 (DATE)	(DATE)	2/8/96 (DATE)
	ACC Env. (COMPANY)	(COMPANY)	CHROMALAB INC (COMPANY)
RECEIVED BY	1	2.	
	(SIGNATURE) 1650 (TIME)	(SIGNATURE) (TIME)	(SIGNATURE) 0700 (TIME)
	Pedro Solis 2/7/96 (PRINTED NAME) (DATE)	(PRINTED NAME) (DATE)	Chris Rodley 2/8/96 (PRINTED NAME) (DATE)
	CHROMALAB INC (COMPANY)	(COMPANY)	Chromalab (LAB)

CHROMALAB, INC.

Environmental Services (SDB) (DOHS 1094)

SDG #: 96[illegible] REP: [illegible]
CLIENT: ACC
DUE: 02/14/96
REF #:26335

Chain of Custody

DATE 2/7/96 PAGE 2 OF 2

PROJ. MGR Dave DeMent
COMPANY ACC Environmental
ADDRESS 7977 Capwell Drive
Oakland
SAMPLERS (SIGNATURE) (PHONE NO.)
(FAX NO.)

ANALYSIS REPORT

SAMPLE ID.	DATE	TIME	MATRIX	PRESERV.	TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel, TEPH (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)		LUFT METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)			NUMBER OF CONTAINERS
B10-W	2/7/96	14:30	Water	Cold		X																		2
B9-3.0	2/7/96	12:45	Soil	Cold		X																		1
B10-4.0	↓	14:30	Soil	Cold		X																		1

PROJECT INFORMATION

PROJECT NAME 1825 Park Street
PROJECT NUMBER 6089-1.3
P.O. # 6089-1.3
TAT STANDARD 5-DAY | 24 | 48 | 72 | OTHER

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS	22
HEAD SPACE	
REC'D GOOD CONDITION/COLD	
CONFORMS TO RECORD	

SPECIAL INSTRUCTIONS/COMMENTS.
All Water results in ppb
" Soil " " ppm.

RELINQUISHED BY 1	RELINQUISHED BY 2.	RELINQUISHED BY 3
(SIGNATURE) 17:00 (TIME)	(SIGNATURE) (TIME)	(SIGNATURE) 0700 (TIME)
David DeMent 2/7/96 (PRINTED NAME) (DATE)	(PRINTED NAME) (DATE)	Pedro Solis 2/8/96 (PRINTED NAME) (DATE)
ACC Env. (COMPANY)	(COMPANY)	CHROMALAB INC (COMPANY)
RECEIVED BY 1	**RECEIVED BY 2.**	**RECEIVED BY (LABORATORY) 3**
(SIGNATURE) 1656 (TIME)	(SIGNATURE) (TIME)	(SIGNATURE) 0700 (TIME)
Pedro Solis 2/7/96 (PRINTED NAME) (DATE)	(PRINTED NAME) (DATE)	Chris Rowley 2/8/96 (PRINTED NAME) (DATE)
CHROMALAB INC (COMPANY)	(COMPANY)	Chromalab (LAB)