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ENVIRONMENTAL
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Transmittal

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Date 2 May 1995

To Juliette Shin

Alameda County Health Care Services

1131 Harbor Bay Parkway

Alameda, CA 94502

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1 Soil and Groundwater Investigation: Former Fuel Tank Areas for Encinal
Terminals, May 1995

Remarks

From: C. Dickerson

cc:

ENVIRONMENTAL
PROTECTION

95 MAY -3 AM 8: 52



**SOIL AND GROUNDWATER INVESTIGATION
FORMER FUEL TANK AREAS**

Encinal Terminals
1521 Buena Vista Avenue
Alameda, California

Prepared for

Encinal Terminals
1521 Buena Vista Avenue
Alameda, California

May 1995
Project No. 2530.01

Geomatrix Consultants

100 Pine Street, 10th Floor
San Francisco, CA 94111
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1 May 1995

Project 2530.01



Mr. Peter Wang
Encinal Terminals, Inc.
1521 Buena Vista Avenue
Alameda, California 94501

Subject: Soil and Groundwater Investigation
Former Fuel Tank Areas
Encinal Terminals
1521 Buena Vista Avenue
Alameda, California

Dear Mr. Wang:

Enclosed are two copies of the subject report for characterization of soil and groundwater near former gasoline, waste oil, and diesel tanks at Encinal Terminals. At your request, we are also forwarding a copy to Ms. Juliette Shin at Alameda County Health Care Services Agency.

We appreciate the opportunity to provide our environmental consulting services to Encinal Terminals. Please call either of the undersigned if you have any questions or require further information.

Sincerely,
GEOMATRIX CONSULTANTS, INC.

A handwritten signature in cursive script that reads "Cheri Y. Page".

Cheri Y. Page, R.G. #5288
Project Geologist

A handwritten signature in cursive script that reads "Tom Graf".

Tom Graf, P.E. #34719
Principal Engineer

CYP/TG/cld
CONTR\253001ft.ltr

cc: Juliette Shin, Alameda County Health Care Services Agency



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FORMER FUEL TANK AREAS**

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1521 Buena Vista Avenue
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SOIL AND GROUNDWATER INVESTIGATION FORMER FUEL TANK AREAS

Encinal Terminals
Alameda, California

1.0 INTRODUCTION

At the request of Encinal Terminals, Geomatrix Consultants, Inc. (Geomatrix) has completed soil and groundwater sampling at 1521 Buena Vista Avenue in Alameda, California (the site), in the vicinity of former petroleum hydrocarbon fuel tanks to assess whether petroleum hydrocarbons are migrating toward Alameda Harbor. The sampling was conducted in response to Alameda County Health Care Services Agency (ACHCSA) requests for work in their letters to Encinal Terminals dated 9 May 1994 and 7 July 1994. Sampling was performed in February 1995 in three areas of the site which formerly contained fuel tanks; one area contained three underground gasoline tanks and one above-ground waste oil tank, and two areas each contained one underground diesel tank, as shown on Figure 1. The work was conducted in accordance with our work plans dated 22 June 1994 and 19 September 1994 and amended 19 January 1995, and was discussed with the ACHCSA by phone on 25 January 1995 followed by our 30 January 1995 clarification letter to ACHCSA. This report presents the activities and results of the work described in the proposals.

2.0 PREVIOUS INVESTIGATIONS

Previous investigations have been conducted by others in the three gasoline and diesel tank areas. This work is summarized below. More detailed descriptions of these investigations are presented in Blymyer Engineers, Inc., 1993; Fugro-McClelland, 1994; and SEMCO Environmental Contractors & General Engineering, 1994.

2.1 GASOLINE AND WASTE OIL TANKS AREA

Trace Environmental Services removed three gasoline underground storage tanks in January 1988 and a concrete containment sump which previously surrounded an above-ground waste oil storage tank in February 1989, shown on Figure 2. Blymyer Engineers, Inc. documented the removal of the tanks and surrounding soil as well as excavation sampling in a report titled "Site Assessment - Preliminary Site Investigation" (Blymyer, 1993). According to Blymyer's report, limited releases of petroleum hydrocarbons into the subsurface may have occurred in the vicinities of two of the gasoline tanks (T-1 and T-3) and the waste oil tank (T-4) (Figure 2). Results of soil and groundwater sample chemical analysis in the vicinity of Tank T-2 at the time of the tank removal did not indicate that a release of petroleum had occurred. Blymyer subsequently installed three monitoring wells and one piezometer, and drilled three additional borings. This work, along with the collection and analysis of soil and groundwater samples, also was discussed in their 9 June 1993 report. Based on a 9 May 1994 letter from ACHCSA to Encinal Terminals, the wells were not constructed appropriately to fulfill ACHCSA groundwater monitoring requirements because the screened interval was installed below the first encountered groundwater beneath the site. Geomatrix was requested by Encinal Terminals to investigate first encountered groundwater near former gasoline tanks T-1 and T-3, and the former waste oil tank.

2.2 DIESEL TANK AREAS "A" AND "B"

Three borings were drilled in September 1993 near each of the two diesel tank locations shown on Figures 3 and 4 before tank removal by Fugro-McClelland (Fugro). Fugro presented the results of this work in a report titled "Phase II Environmental Site Assessment for Capital Holding Company," (Fugro-McClelland, 1994). One soil sample from each boring collected at a depth of 5.0 or 5.5 feet below grade was analyzed for diesel, gasoline, and benzene, toluene, ethylbenzene, and xylenes (BTEX). One sample collected from a depth of 10.0 feet below grade in each boring from Tank "B" location, and one grab groundwater sample from a boring in each tank location were also analyzed for the same constituents. Diesel in soil was reported at concentrations up to 1700 ppm near Tank "B", and up to 1000 ppm near Tank "A". Diesel was also reported in the groundwater grab

samples at concentrations of 0.45 ppm near Tank "B", and 15 ppm near Tank "A". Traces of gasoline, toluene, ethylbenzene, and xylenes were reported in one soil sample from each location and in the groundwater grab sample from the Tank "A" area. Benzene was not detected in soil or groundwater from either tank area.

The tanks were removed in April 1994 by SEMCO environmental contractors, and removal was documented in their Tank Removal Report (SEMCO, 1994). Soil samples were collected from the tank excavations near the ends of the tanks at the soil/water interface, and diesel was reported in all the samples. Concentrations of diesel at the Tank "A" site were reportedly 160 ppm and 39 ppm, at the north and south ends, respectively. Concentrations of diesel at the Tank "B" site were reportedly 380 ppm and 4 ppm, at the north and south ends, respectively.

3.0 SOIL AND GROUNDWATER CHARACTERIZATION PROCEDURES

Installation of borings, collection of soil and groundwater samples, measurement of groundwater elevations, and boring destruction proceeded according to Geomatrix protocols, and are described in the sections below. Groundwater samples were collected with a clean polyethylene bailer and new string and were transferred slowly into laboratory-prepared bottles. Soil samples were collected in clean 6-inch stainless steel liners, capped with teflon sheets and plastic liners, and taped. Groundwater and soil samples were immediately labeled, placed on ice in a cooler, and were submitted to the analytical laboratory under chain-of-custody procedures as soon as possible after sampling.

3.1 GASOLINE AND WASTE OIL TANKS AREA

Shallow grab groundwater samples were collected at three locations around each of the former underground gasoline tank locations (T-1 and T-3) and the former above-ground waste oil tank location (T-4) as shown on Figure 2. Because previous work in the vicinity of gasoline tank T-2 suggested this tank had not released petroleum hydrocarbons, groundwater sampling in this area was not proposed in the approved work plans.

Eleven borings were advanced in this area by Precision Sampling, Inc. of San Rafael under the supervision of a California registered geologist. The borings were advanced to a depth of 13 feet into the first encountered groundwater using a 2-inch diameter direct-push EnviroCore system. Groundwater was observed at depths of 6 to 8 feet below the ground surface in the borings. Soil cores were collected and observed for moisture content as the boring was advanced, and one boring around each former tank location was logged by a Geomatrix geologist according to Geomatrix protocols. The boring logs are presented in Appendix A.

A temporary piezometer was constructed in each boring using 1-inch diameter 0.01-inch diameter slotted screen from a depth of 3.0 to 13.0 feet below ground surface, and blank casing from 3.0 feet to approximately 1 foot above the ground surface. A filter pack consisting of Lonestar No. 2/12 sand was placed around the casing to a depth of approximately 2 feet below the ground surface, and bentonite was placed above the sand to the ground surface. The borings were sealed from surface infiltration using bentonite at the ground surface and a slip-cap at the top of the casing.

Grab groundwater samples for volatile constituents were collected as soon as possible after boring completion from 9 of the 11 piezometers using a clean polyethylene bailer; semi-volatile and metals samples were collected after completion of the 24-hour water-level study. Samples collected for BTEX analysis were not acidified due to the presence of a foaming reaction with previous groundwater samples collected from this site. These samples were analyzed within allowable holding times for samples without acid (7 days). Samples collected for metals analyses were filtered in the field with a 0.045 micron filter and were preserved with acid. Samples from former gasoline tank areas T-1 and T-3 were analyzed for gasoline using the California LUFT Method (GCFID), for BTEX by EPA Method 8020, and for lead using EPA Method 6010. Samples from the former waste oil tank were analyzed for gasoline, BTEX, and lead by the methods listed above, as well as for diesel and motor oil by modified EPA Method 8015, and for cadmium, chromium, nickel, and zinc by EPA Method 6010. Piezometers P-4 and P-8 were not located adjacent to a former tank and were installed primarily to monitor water levels. However, because

P-4 was located directly downgradient of the former waste oil tank, a grab groundwater sample was collected and analyzed for polynuclear aromatic hydrocarbons (PNAs) by EPA Method 8270. Petroleum hydrocarbons analyses (including BTEX) were performed by Friedman and Bruya, Inc. of Seattle, Washington; all other analyses were performed by AEN laboratory of Pleasant Hill, California.

3.2 DIESEL TANK AREAS "A" AND "B"

Three borings were advanced around each of the two former diesel tank excavations "A" and "B", as shown on Figures 3 and 4. Borings were advanced and completed as temporary piezometers by the same methods described above for the gasoline tank area, except for borings P-14 and P-15, which were hand-augered due to potential utility or access issues.

Soil samples were collected in each boring at the soil/water interface, which ranged from 4.0 to 7.5 feet. These six soil samples were collected and handled in accordance with Geomatrix protocols, and were submitted to Friedman and Bruya, Inc. for analysis for diesel by modified EPA Method 8015, and for BTEX by EPA Method 8020.

Grab groundwater samples were collected from each of the six piezometers using a clean polyethylene bailer. Geomatrix protocols were observed with the following exceptions. Samples collected for diesel analysis were filtered either in the field or the laboratory due to high turbidity of the sample, which is typical for grab groundwater samples which are collected from boreholes without developed monitoring wells. Additionally, samples collected for BTEX analysis were not acidified due to the presence of a foaming reaction with previous groundwater samples collected from this site. These samples were analyzed within allowable holding times for samples without acid (7 days). Groundwater samples in this area were analyzed for diesel by modified EPA Method 8015 with a silica gel clean-up, and for BTEX by EPA Method 8020 at Friedman and Bruya, Inc. In addition, groundwater samples from piezometer P-13 and P-15 were collected and sent to AEN laboratory for analysis of PNAs by EPA Method 8270.

3.3 GROUNDWATER ELEVATIONS

A point at the top of each PVC piezometer casing was marked and the elevation was surveyed by Bates and Bailey, California certified surveyors, of Berkeley, California. Depth to groundwater was measured three times over a 24-hour period in the seventeen piezometers with an electric sounder to identify the groundwater flow direction at various times in a tidal cycle. Groundwater elevations were then calculated and evaluated.

3.4 TEMPORARY PIEZOMETER DESTRUCTION

The seventeen temporary piezometers were destroyed by Precision Sampling, Inc. on 10 February 1995 under the supervision of a Geomatrix geologist. The casing was pulled and each boring was filled with cement/bentonite grout according to Alameda County Zone 7 Water Agency requirements.

4.0 RESULTS

Results of the soil and groundwater sampling are presented below. Tables 1 through 4 summarize the analytical results.

4.1 GASOLINE AND WASTE OIL TANKS AREA

The analytical results for grab groundwater samples near former underground gasoline tanks T-1 and T-3, as well as the former above-ground waste oil tank, are discussed below, and results are presented in Tables 1 and 2. Laboratory reports and chain-of-custody records are presented in Appendix B. Gasoline, BTEX, and lead were not detected above reporting limits of 50 $\mu\text{g}/\text{l}$, 1.0 $\mu\text{g}/\text{l}$, and 40 $\mu\text{g}/\text{l}$, respectively, in grab groundwater samples collected from the three temporary piezometer locations around each former underground gasoline tank (P-1, P-2, P-3, P-9, P-10, and P-11; Figure 2).

Total petroleum hydrocarbons as gasoline, diesel, and motor oil and BTEX were not detected above reporting limits of 50 $\mu\text{g}/\text{l}$, 50 to 100 $\mu\text{g}/\text{l}$, 250 to 500 $\mu\text{g}/\text{l}$, and 1.0 $\mu\text{g}/\text{l}$ respectively, in grab groundwater samples collected from the three temporary piezometer locations around the former above-ground waste oil tank (P-5, P-6, and P-7; Figure 2).

Volatile organics reported by EPA Method 8010 were not detected above laboratory reporting limits as listed in the laboratory reports in Appendix B. Cadmium, chromium, lead, zinc, and nickel were not detected above reporting limits of 5 $\mu\text{g/l}$, 10 $\mu\text{g/l}$, 40 $\mu\text{g/l}$, 10 $\mu\text{g/l}$, and 10 $\mu\text{g/l}$, respectively, with the exception of zinc which was detected at 20 $\mu\text{g/l}$ in groundwater from piezometer P-6, and at the detection limit of 10 $\mu\text{g/l}$ in piezometer P-7. PNAs were not detected in the groundwater sample collected from piezometer P-4, located approximately 80 feet downgradient of the former waste oil tank, above the laboratory reporting limits of 200 $\mu\text{g/l}$.

4.2 DIESEL TANK AREAS

The analytical results for soil and grab groundwater samples near former underground diesel Tanks "A" and "B" are discussed below, and are presented in Tables 3 and 4. Laboratory reports and chain-of-custody records for groundwater samples are presented in Appendix B, and those for soil samples are presented in Appendix C.

Diesel Tank Area "A"

Total petroleum hydrocarbons as diesel were reported in one of three piezometer boring soil samples (P-15-7.5) near former underground diesel tank "A" at a concentration of 20 mg/kg. The laboratory has reported that the material is not indicative of diesel, and cannot be positively identified at this low concentration. BTEX was not detected in any of the three soil samples from the piezometer borings above the laboratory reporting limits of 0.02 mg/kg for benzene, toluene, and ethylbenzene, and 0.04 mg/kg for xylenes.

Total petroleum hydrocarbons as diesel were reported in groundwater from two of the three piezometers in this area at concentrations of 100 $\mu\text{g/l}$ in P-15 and 190 $\mu\text{g/l}$ in P-16. Based on the chromatogram pattern, the laboratory has reported that this material appears to be indicative of biogenic material, and not diesel fuel. Biogenic material is biological in origin, is naturally occurring and is not a fuel hydrocarbon. BTEX was not detected in groundwater from any of the three piezometers in this area above a reporting limit of 0.5 $\mu\text{g/l}$. PNAs were not detected in groundwater from piezometer P-15 above laboratory reporting limits of 200 $\mu\text{g/l}$.

Diesel Tank Area "B"

Total petroleum hydrocarbons as diesel were reported in two of three piezometer boring soil samples (P-12-4.0 and P-13-5.5) near former underground diesel tank "B" at a concentration of 20 mg/kg. The laboratory reported that the material present is heavier than diesel #2, and appears to be motor oil. BTEX was not detected in any of the three soil samples from the piezometer borings above the laboratory reporting limits of 0.02 mg/kg for benzene, toluene, and ethylbenzene, and 0.04 mg/kg for xylenes.

Total petroleum hydrocarbons as diesel were not reported in groundwater samples from two of the three piezometers (P-12 and P-13) near former diesel tank "B" above a reporting limit of 100 $\mu\text{g/l}$, and were reported at a concentration of 140 $\mu\text{g/l}$ in groundwater from piezometer P-14. The laboratory has reported that the material detected in the diesel range appears to be indicative of biogenic material based on the chromatogram pattern. The reporting limit for diesel in groundwater from piezometers P-12 and P-13 was raised from 50 ppb to 100 ppb because of low surrogate recoveries. However, surrogate recoveries were near acceptance limits, allowing the laboratory to adjust their reporting limits according to the percent of surrogate recovered.

BTEX were not reported in groundwater from the three piezometers in this area, with the following exceptions. Benzene was detected in groundwater samples from P-12 and P-14 at the laboratory reporting limit of 1.0 $\mu\text{g/l}$. Toluene was reported in groundwater from P-12 at a concentration of 2 $\mu\text{g/l}$, slightly above the laboratory reporting limit of 1 $\mu\text{g/l}$. PNAs were not detected in groundwater from piezometer P-13, located approximately 11 feet from the former tank in the approximate downgradient direction, above laboratory reporting limits of 200 $\mu\text{g/l}$.

4.3 GROUNDWATER ELEVATIONS

Groundwater elevations measured in temporary piezometers P-1 through P-17 did not vary significantly over a 24-hour period on 6 and 7 February 1995, based on three sets of measurements. The estimated potentiometric surface gradient also did not change over this time period, indicating tidal cycles were not influencing the groundwater flow direction in

the investigation areas. However, heavy rainfall in January 1995 resulted in recharge to shallow groundwater in unpaved portions of the site during the period of water-level measurement, which appears to have affected groundwater measurements and possibly flow directions. The results of the groundwater-elevation study are discussed below for each of the three tank areas. Measured depths to groundwater and calculated groundwater elevations are presented in Table 5.

Gasoline and Waste Oil Tanks Area

Potentiometric surface maps based on three sets of water-level measurements in temporary piezometers P-1 through P-11, located in the vicinity of the former gasoline and waste oil tanks, are presented as Figures 5 through 7. Groundwater elevations appeared to be affected by differential recharge between paved and unpaved portions of the site. Piezometers P-8, P-9, P-10, and P-11 were located in paved positions of the site; piezometers P-1 through P-7 were located in unpaved areas of the site. In the immediate vicinity of former gasoline tank T-3 and the waste oil tank, the groundwater flow direction appeared to be to the northeast or east, toward Fortmann Basin during this site investigation. In the vicinity of piezometers P-8 through P-11 near former gasoline tank T-1 and the office, low groundwater elevations may be due to little recharge from rainwater infiltration through asphalt present in these areas. The general direction of groundwater flow, when rainwater infiltration is not affecting groundwater measurements, is probably northeast toward Fortmann Basin.

Diesel Tank Area "A"

Due to infiltration of rainwater in this area, groundwater elevations were not at equilibrium and were not conclusive for determining the direction of groundwater movement. Groundwater elevations in piezometers P-16 and P-17 near Tank "A" were higher than the elevation in P-15, indicating groundwater movement away from Fortmann Basin which is unlikely.

Diesel Tank Area "B"

Due to infiltration of rainwater in this area, groundwater elevations were not at equilibrium and are not considered conclusive for determining the direction of groundwater movement. Groundwater elevations measured in P-13 were depressed relative to elevations measured in P-12 and P-14, indicating groundwater movement toward the former tank excavation which is unlikely. Based on the fairly close proximity of Alaska Basin northeast of the former tank excavation as well as the elevations in the piezometers of about eight feet above sea level, it is probable that the general groundwater flow direction in this area is northeast toward Alaska Basin.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 GASOLINE AND WASTE OIL TANKS AREA

Based on water-level measurements collected from the temporary piezometers, the piezometers installed near the former gasoline and waste oil tanks were placed appropriately, both laterally and vertically, to assess if petroleum hydrocarbons have significantly affected groundwater quality near the tanks. At least one piezometer was located in the assumed downgradient direction from each former tank location to assess whether groundwater containing petroleum hydrocarbons had migrated from the tank area. Analytical results in grab groundwater samples from the temporary piezometers did not indicate that gasoline or waste oil from the tanks had significantly affected groundwater. PNAs, a potentially hazardous constituent of diesel fuel and motor oil, were not present in groundwater samples collected downgradient of the former waste oil tank. Therefore, the results did not indicate movement of petroleum hydrocarbons in groundwater toward the nearest body of water, Fortmann Basin. Based on these analytical results, as well as the fact that the former tanks have been in place since before 1960 and were removed six years ago; and that soil around the tanks was overexcavated, additional analysis of groundwater would likely provide similar data. We recommend that this portion of the site be considered for case closure with regard to the former underground tanks.

5.2 DIESEL TANK AREAS

Former Diesel Tank "A"

Analytical results from three grab groundwater samples located between the former tank and Fortmann Basin, including one sample result from within approximately three feet of the former tank, did not indicate that the uppermost groundwater had been affected by diesel fuel or the associated fuel products of benzene, toluene, xylenes, and ethylbenzene. Analytical results from soil samples collected from each of the three piezometer locations just above the groundwater table did not indicate that soil had been affected by diesel or BTEX. PNAs were not detected in groundwater approximately three feet from the former tank excavation. Therefore, the results did not indicate movement of petroleum hydrocarbons in groundwater towards Fortmann Basin, the nearest body of water. Based on these analytical results, and the fact that the former tanks had been in place since the 1960s and were removed a year ago, additional analysis of groundwater would likely provide similar data. Analytical results immediately adjacent to the former tank did not show fuel-derived petroleum hydrocarbons, indicating that there is not an area-wide problem from storage of fuel in this vicinity. We recommend that this portion of the site be considered for case closure with regard to the former underground diesel tank.

Former Diesel Tank "B"

Analytical results from grab groundwater samples collected from three piezometers located in probable downgradient directions from former underground diesel tank "B" did not indicate that the uppermost groundwater had been significantly affected by diesel or BTEX. Analytical results from soil samples collected from each of the three piezometer locations just above the groundwater table did not indicate impact to soil from diesel or BTEX. An unknown compound reported in two of the three soil samples at a concentration of 20 mg/kg is likely motor oil according to the analytical laboratory, and was not present at a concentration expected to be of concern. PNAs were not detected in groundwater approximately 11 feet north (likely downgradient) of the former tank. Based on these analytical results, and the fact that the former tank had been in place since the 1960s and was removed a year ago, additional analysis of groundwater would likely provide similar data. Analytical results from a piezometer 11 feet from the tank in the direction of the

nearest surface body of water did not show fuel-derived petroleum hydrocarbons, which does not indicate movement of petroleum hydrocarbons in water toward Alaska Basin, and also does not indicate an area-wide problem from fuel storage in this vicinity. We recommend that this portion of the site be closed with regard to the former underground tank.

6.0 REFERENCES

Blymyer Engineers, Inc., 1993, Site assessment; preliminary site investigation, Encinal Terminals, 1521 Buena Vista Avenue, Alameda, California, 9 June.

Fugro-McClelland, 1994, Phase II environmental site assessment for Capital Holding Company, Encinal Terminal, Alameda, California, 5 January.

SEMCO Environmental Contractors & General Engineering, 1994, Tank removal report, Alameda Terminals, 1521 Buena Vista, Alameda, California, 11 May.

TABLES

TABLE 1

ANALYTICAL RESULTS FOR GRAB GROUNDWATER SAMPLES¹
 Former Underground Gasoline Tank Areas
 Encinal Terminals
 Alameda, California

Concentration in micrograms per liter ($\mu\text{g/l}$)

Temporary Piezometer No.	Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene	Lead
P-1 ²	< 50	< 1	< 1	< 1	< 1	< 40
P-2 ²	< 50	< 1	< 1	< 1	< 1	< 40
P-3 ²	< 50	< 1	< 1	< 1	< 1	< 40
P-9 ³	< 50	< 1	< 1	< 1	< 1	< 40
P-10 ³	< 50	< 1	< 1	< 1	< 1	< 40
P-11 ³	< 50	< 1	< 1	< 1	< 1	< 40
EB-1 ⁴	< 50	< 1	< 1	< 1	< 1	NA ⁵

Notes:

- 1 Samples were collected in February 1995 and were analyzed by GC/FID according to the California LUFT Method for gasoline and EPA Method 8020 for benzene, toluene, xylenes, and ethylbenzene by Friedman and Bruya, Inc. laboratory of Seattle, Washington; and by EPA Method 6010 for lead by AEN Laboratory of Pleasant Hill, California.
- 2 Temporary piezometers located near former gasoline tank T-1.
- 3 Temporary piezometers located near former gasoline tank T-3.
- 4 Equipment blank.
- 5 Not analyzed.

TABLE 2

ANALYTICAL RESULTS FOR GRAB GROUNDWATER SAMPLES¹
 Former Above-Ground Waste Oil Tank
 Encinal Terminals
 Alameda, California

Concentrations in micrograms per liter ($\mu\text{g/l}$)

Analyte	Temporary Piezometer Number			
	P-4	P-5	P-6	P-7
Gasoline	NA ²	< 50	< 50	< 50
Benzene	NA	< 1	< 1	< 1
Toluene	NA	< 1	< 1	< 1
Xylenes	NA	< 1	< 1	< 1
Ethylbenzene	NA	< 1	< 1	< 1
Diesel	NA	< 50	< 50	< 100 ³
Motor Oil	NA	< 250	< 250	< 500 ³
Volatile Organics	NA	ND ⁴	ND ⁴	ND ⁴
Cadmium	NA	< 5	< 5	< 5
Chromium	NA	< 10	< 10	< 10
Lead	NA	< 40	< 40	< 40
Zinc	NA	< 10	20	10
Nickel	NA	< 10	< 10	< 10
Polynuclear Aromatics (PNAs)	< 200	NA	NA	NA

Notes:

- 1 Samples were collected in February 1995 and were analyzed by GC/FID according to the California LUFT Method for gasoline, diesel, and motor oil, and by EPA Method 8020 for benzene, toluene, xylenes and ethylbenzene at Friedman and Bruya, Inc. laboratory of Seattle, Washington. Samples were analyzed by EPA Method 8010 for volatile organics, by EPA Method 6010 for cadmium, chromium, lead, zinc, and nickel; and by EPA Method 8270 for polynuclear aromatics (PNAs) at AEN laboratory of Pleasant Hill, California.
- 2 NA = not analyzed.
- 3 Surrogate recoveries for these compounds were below historical laboratory acceptance limits; therefore, the detection limit has been increased to reflect the percent of surrogate recovered.
- 4 ND = not detected. Detection limits for each compound analyzed are listed in the laboratory reports.

TABLE 3

ANALYTICAL RESULTS FOR SOIL SAMPLES¹
 Former Underground Diesel Tanks
 Encinal Terminals
 Alameda, California

Concentrations in milligrams/kilogram (mg/kg)

Temporary Piezometer Number	Diesel	Benzene	Toluene	Xylenes	Ethylbenzene
P-12-4.0	20 ²	<0.02	<0.02	<0.04	<0.02
P-13-5.5	20 ²	<0.02	<0.02	<0.04	<0.02
P-14-5.5	<10	<0.02	<0.02	<0.04	<0.02
P-15-7.5	20 ³	<0.02	<0.02	<0.04	<0.02
P-16-4.0	<10	<0.02	<0.02	<0.04	<0.02
P-17-7.5	<10	<0.02	<0.02	<0.04	<0.02

Notes:

- 1 Samples were collected in February 1995 and were analyzed for diesel by GC/FID according to the California LUFT Method and for benzene, toluene, xylenes, and ethylbenzene by EPA Method 8240 by Friedman and Bruya, Inc. of Seattle, Washington.
- 2 The laboratory has reported that the material present is heavier than diesel #2.
- 3 The laboratory has reported that the material present is not indicative of diesel #2.

TABLE 4

ANALYTICAL RESULTS FOR GRAB GROUNDWATER SAMPLES
 Former Underground Diesel Tanks
 Encinal Terminals
 Alameda, California

Concentrations in micrograms/liter ($\mu\text{g/l}$)

Temporary Piezometer Number	Diesel ¹	Benzene ¹	Toluene ¹	Xylenes ¹	Ethylbenzene ¹	PNAs ²
P-12	<100 ³	1	2	<1	<1	NA ⁴
P-13	<100 ³	<1	<1	<1	<1	<200
P-14	140 ⁵	1	<1	<1	<1	NA
P-15	100 ⁵	<0.5	<0.5	<0.5	<0.5	<200
P-16	190 ⁵	<0.5	<0.5	<0.5	<0.5	NA
P-17	<50	<0.5	<0.5	<0.5	<0.5	NA
EB-1 ⁶	<50	NA	NA	NA	NA	NA

Notes:

- 1 Samples were collected in February 1995 and were analyzed by GC/FID according to the California LUFT Method for diesel and by EPA Method 8020 or 8240 for benzene, toluene, xylenes, and ethylbenzene by Friedman and Bruya, Inc. of Seattle, Washington.
- 2 Samples analyzed for polynuclear aromatics (PNAs) by EPA Method 8270 by AEN of Pleasant Hill, California.
- 3 Surrogate recoveries for these compounds were below historical laboratory acceptance limits; therefore, the detection limit has been increased to reflect the percent of surrogate recovered.
- 4 NA = not analyzed.
- 5 The laboratory has reported that these results are indicative of biogenic material.
- 6 Equipment blank collected on 9 February 1995.

TABLE 5

SUMMARY OF WATER-LEVEL ELEVATIONS
 6 AND 7 FEBRUARY 1995
 ENCINAL TERMINAL
 1521 Buena Vista Avenue
 Alameda, California

Well I.D.	Date Measured	Time Measured ¹ (hours)	Measuring Point Elevation (feet) ²	Depth Below Measuring Point (feet)	Water-level Elevation (feet) ²
P-1	2/6/95	10:08	10.40	7.16	3.24
	2/6/95	16:20	10.40	7.16	3.24
	2/7/95	9:21	10.40	7.16	3.24
P-2	2/6/95	10:07	8.41	5.71	2.70
	2/6/95	16:21	8.41	5.75	2.66
	2/7/95	9:20	8.41	5.75	2.66
P-3	2/6/95	10:06	9.23	5.76	3.47
	2/6/95	16:23	9.23	5.77	3.46
	2/7/95	9:20	9.23	5.80	3.43
P-4	2/6/95	10:05	8.18	4.11	4.07
	2/6/95	16:24	8.18	4.16	4.02
	2/7/95	9:19	8.18	4.22	3.96
P-5	2/6/95	10:04	10.66	4.07	6.59
	2/6/95	16:26	10.66	4.10	6.56
	2/7/95	9:18	10.66	4.16	6.50
P-6	2/6/95	10:03	10.09	4.01	6.08
	2/6/95	16:27	10.09	4.02	6.07
	2/7/95	9:17	10.09	4.06	6.03

TABLE 5 (continued)

SUMMARY OF WATER-LEVEL ELEVATIONS
 6 AND 7 FEBRUARY 1995
 ENCINAL TERMINAL
 1521 Buena Vista Avenue
 Alameda, California

Well I.D.	Date Measured	Time Measured ¹ (hours)	Measuring Point Elevation (feet) ²	Depth Below Measuring Point (feet)	Water-level Elevation (feet) ²
P-7	2/6/95	10:01	10.96	4.42	6.54
	2/6/95	16:30	10.96	4.43	6.53
	2/7/95	9:16	10.96	4.48	6.48
P-8	2/6/95	9:59	10.99	5.52	5.47
	2/6/95	16:32	10.99	5.52	5.47
	2/7/95	9:15	10.99	5.58	5.41
P-9	2/6/95	9:55	10.51	6.02	4.49
	2/6/95	16:33	10.51	6.04	4.47
	2/7/95	9:13	10.51	6.05	4.46
P-10	2/6/95	9:54	10.16	6.26	3.90
	2/6/95	16:34	10.16	6.25	3.91
	2/7/95	9:12	10.16	6.26	3.90
P-11	2/6/95	9:51	10.19	5.54	4.65
	2/6/95	16:37	10.19	5.60	4.59
	2/7/95	9:10	10.19	5.57	4.62
P-12	2/6/95	9:47	11.77	3.77	8.00
	2/6/95	16:40	11.77	3.72	8.05
	2/7/95	9:07	11.77	3.80	7.97

TABLE 5 (continued)

SUMMARY OF WATER-LEVEL ELEVATIONS
 6 AND 7 FEBRUARY 1995
 ENCINAL TERMINAL
 1521 Buena Vista Avenue
 Alameda, California

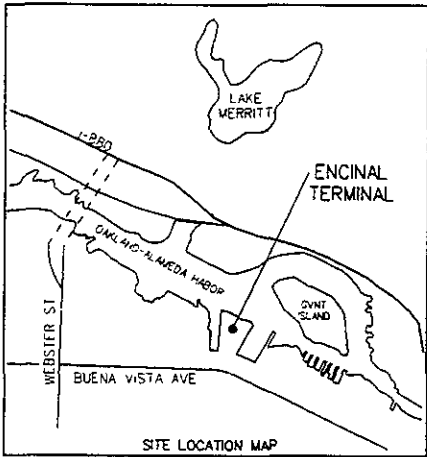
Well I.D.	Date Measured	Time Measured ¹ (hours)	Measuring Point Elevation (feet) ²	Depth Below Measuring Point (feet)	Water-level Elevation (feet) ²
P-13	2/6/95	9:41	11.68	4.20	7.48
	2/6/95	16:41	11.68	4.14	7.54
	2/7/95	9:06	11.68	4.22	7.46
P-14	2/6/95	9:45	11.22	3.38	7.84
	2/6/95	16:42	11.22	3.31	7.91
	2/7/95	9:05	11.22	3.40	7.82
P-15	2/6/95	9:42	9.39	5.34	4.05
	2/6/95	17:22	9.39	5.42	3.97
	2/7/95	9:01	9.39	5.42	3.97
P-16	2/6/95	9:39	9.67	4.07	5.60
	2/6/95	17:21	9.67	4.09	5.58
	2/7/95	9:00	9.67	4.11	5.56
P-17	2/6/95	9:37	9.65	4.21	5.44
	2/6/95	17:20	9.65	4.22	5.43
	2/7/95	8:59	9.65	4.22	5.43

Notes:

¹ Low tide at Alameda was 1.6 feet at 11:11 AM on 2/6/95.
 High tide at Alameda was 4.3 feet at 17:34 PM on 2/6/95.
 Low tide at Alameda was 1.4 feet at 12:22 PM on 2/7/95.

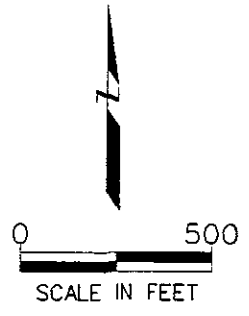
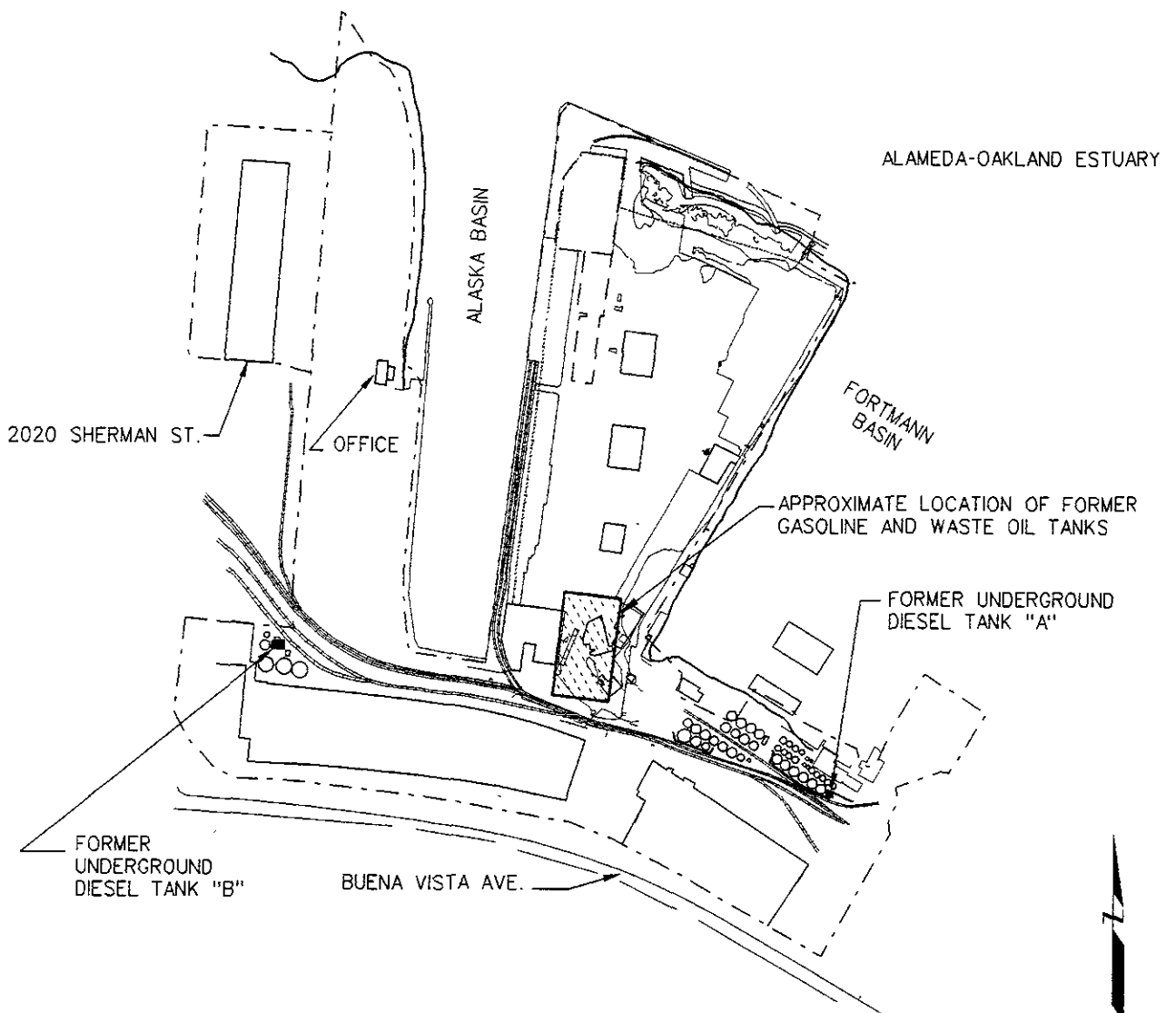
² Elevation datum is National Geodetic Vertical Datum (N.G.V.D.)

FIGURES



EXPLANATION

- FORMER UNDERGROUND DIESEL TANK
- FENCE
- RAILROAD
- - - PROPERTY BOUNDARY



BASEMAP SOURCE:
 KISTER, SAVIO, AND REI
 PROPERTY MAP OF MARCH 1987 WITH APRIL 1994 REVISIONS;
 AND FUGRO - McCLELLAND, PHASE I ENVIRONMENTAL SITE
 ASSESSMENT FOR CAPITAL HOLDING COMPANY
 5 JANUARY 1994



LOCATIONS OF FORMER FUEL TANKS
 ENCINAL TERMINALS
 ALAMEDA, CALIFORNIA

Figure
 1
 Project No.
 2530.01

ENC1395/Encl.01.dgn, Rev. 04-20-95

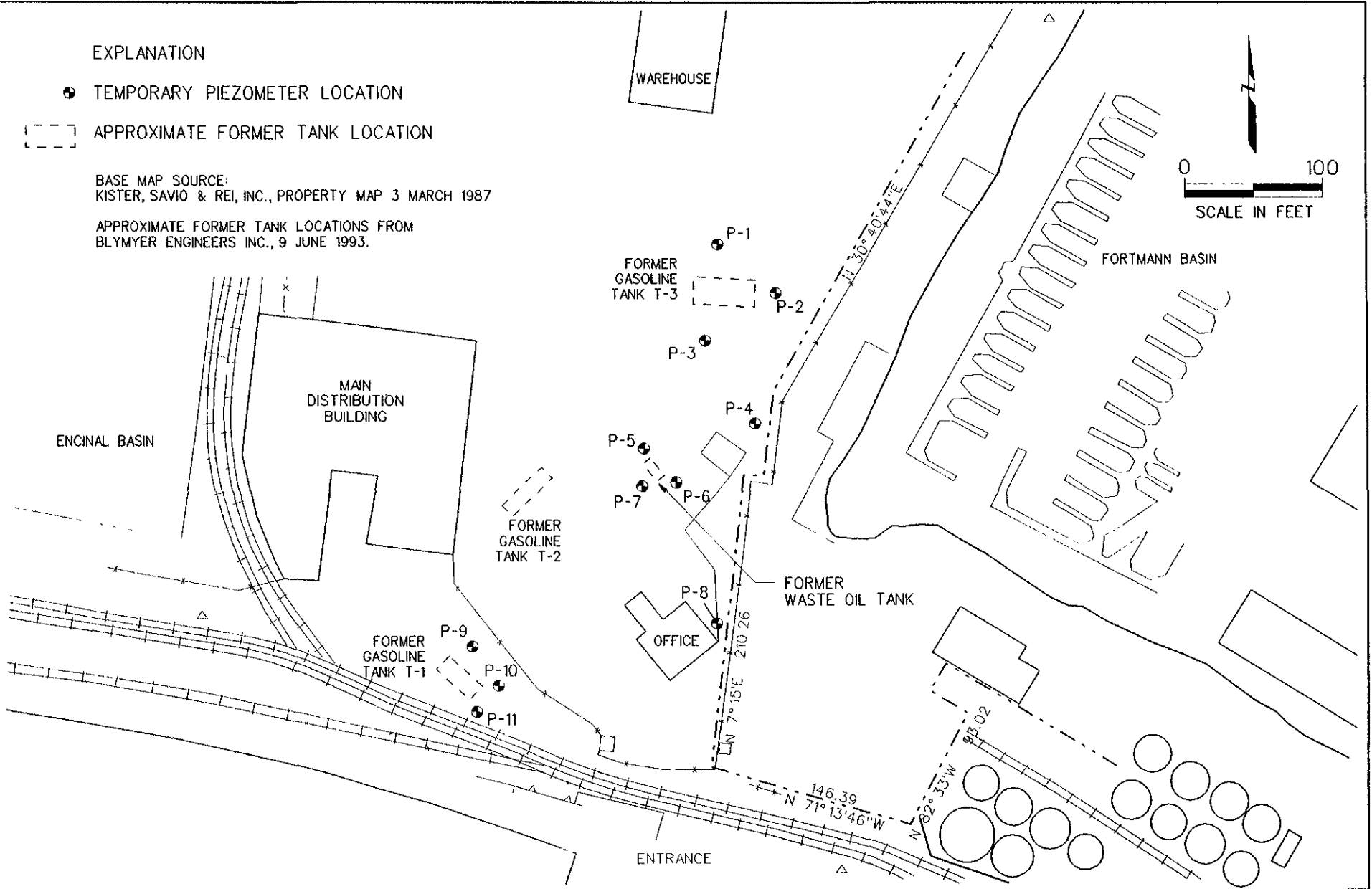
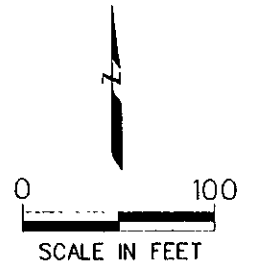
EXPLANATION

● TEMPORARY PIEZOMETER LOCATION

[- - -] APPROXIMATE FORMER TANK LOCATION

BASE MAP SOURCE:
KISTER, SAVIO & REI, INC., PROPERTY MAP 3 MARCH 1987

APPROXIMATE FORMER TANK LOCATIONS FROM
BLYMYER ENGINEERS INC., 9 JUNE 1993.

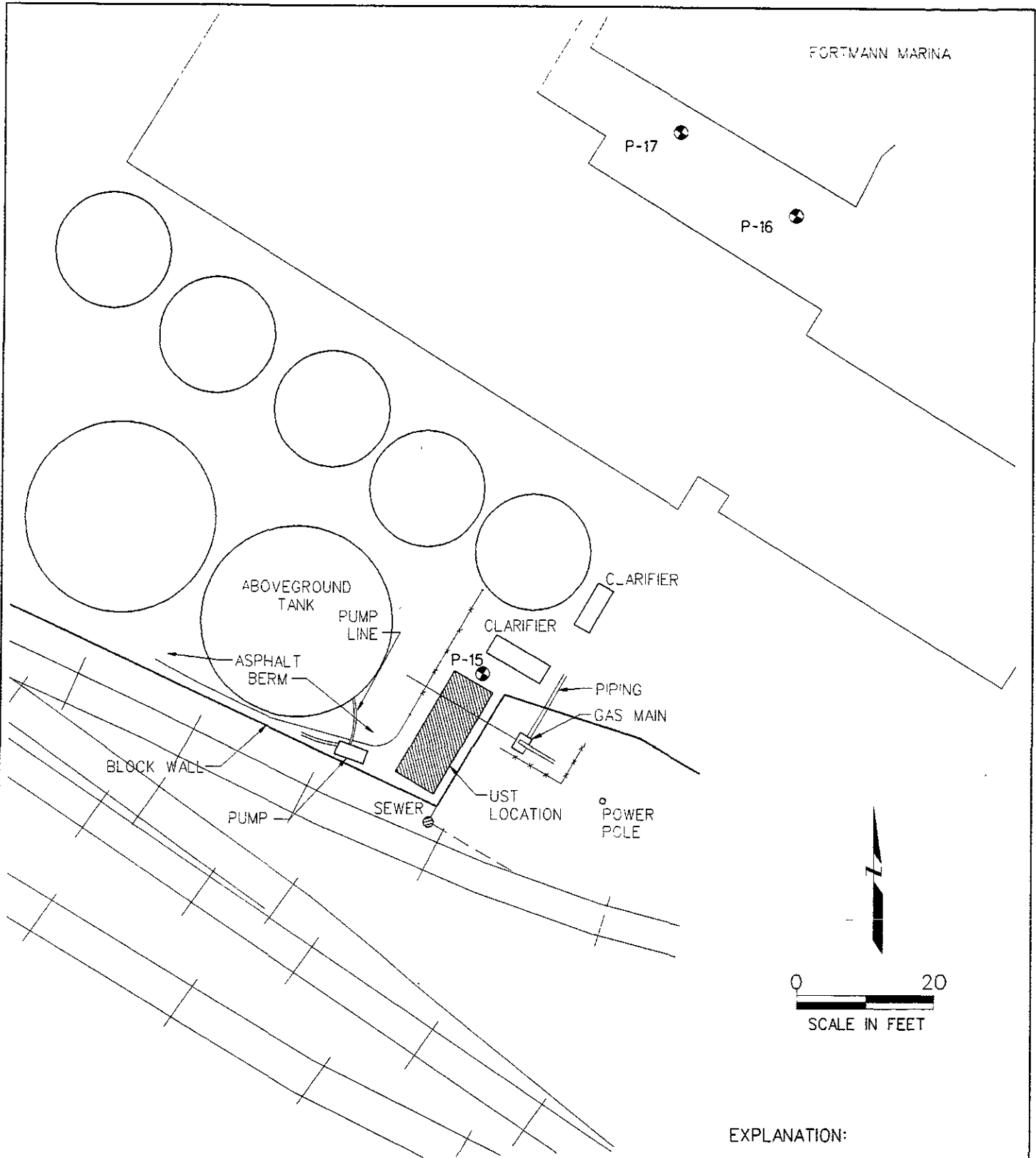


LOCATIONS OF FORMER GASOLINE AND WASTE OIL TANKS AND TEMPORARY PIEZOMETERS
ENCINAL TERMINALS
1521 BUENA VISTA AVENUE
ALAMEDA, CALIFORNIA

Figure
2
Project No.
2530.01

ENCL395/Encl_02.dgn Rev. 04-28-95





EXPLANATION:

- ⊗ APPROXIMATE PIEZOMETER LOCATION

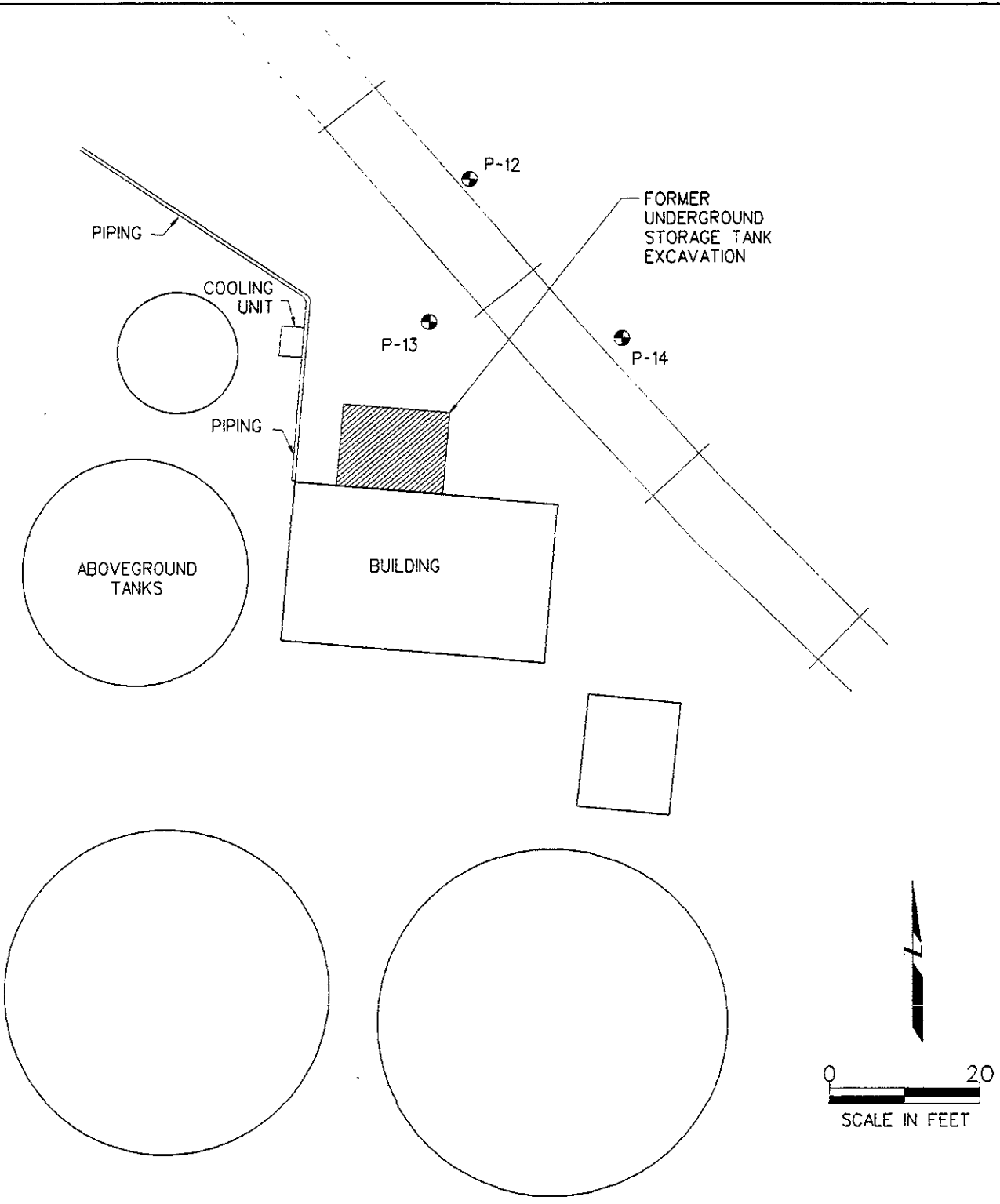
BASEMAP SOURCE:
 FUGRO - McCLELLAND, PHASE I ENVIRONMENTAL SITE
 ASSESSMENT FOR CAPITAL HOLDING COMPANY
 5 JANUARY 1994 AND KISTER, SAVIO & REI, INC.,
 PROPERTY MAP 3 MARCH 1987



LOCATIONS OF FORMER UNDERGROUND DIESEL TANK "A"
 AND TEMPORARY PIEZOMETERS
 ENCINAL TERMINALS
 ALAMEDA, CALIFORNIA

Figure
 3

Project No.
 2530.01



BASEMAP SOURCE:
 FUGRO - McCLELLAND, PHASE I ENVIRONMENTAL SITE
 ASSESSMENT FOR CAPITAL HOLDING COMPANY
 5 JANUARY 1994 AND KISTER, SAVIO & REI, INC.,
 PROPERTY MAP 3 MARCH 1987

EXPLANATION:
 ● APPROXIMATE PIEZOMETER
 LOCATION

INCL 391/1 incl 04 dtpb Rev. 04 28 97

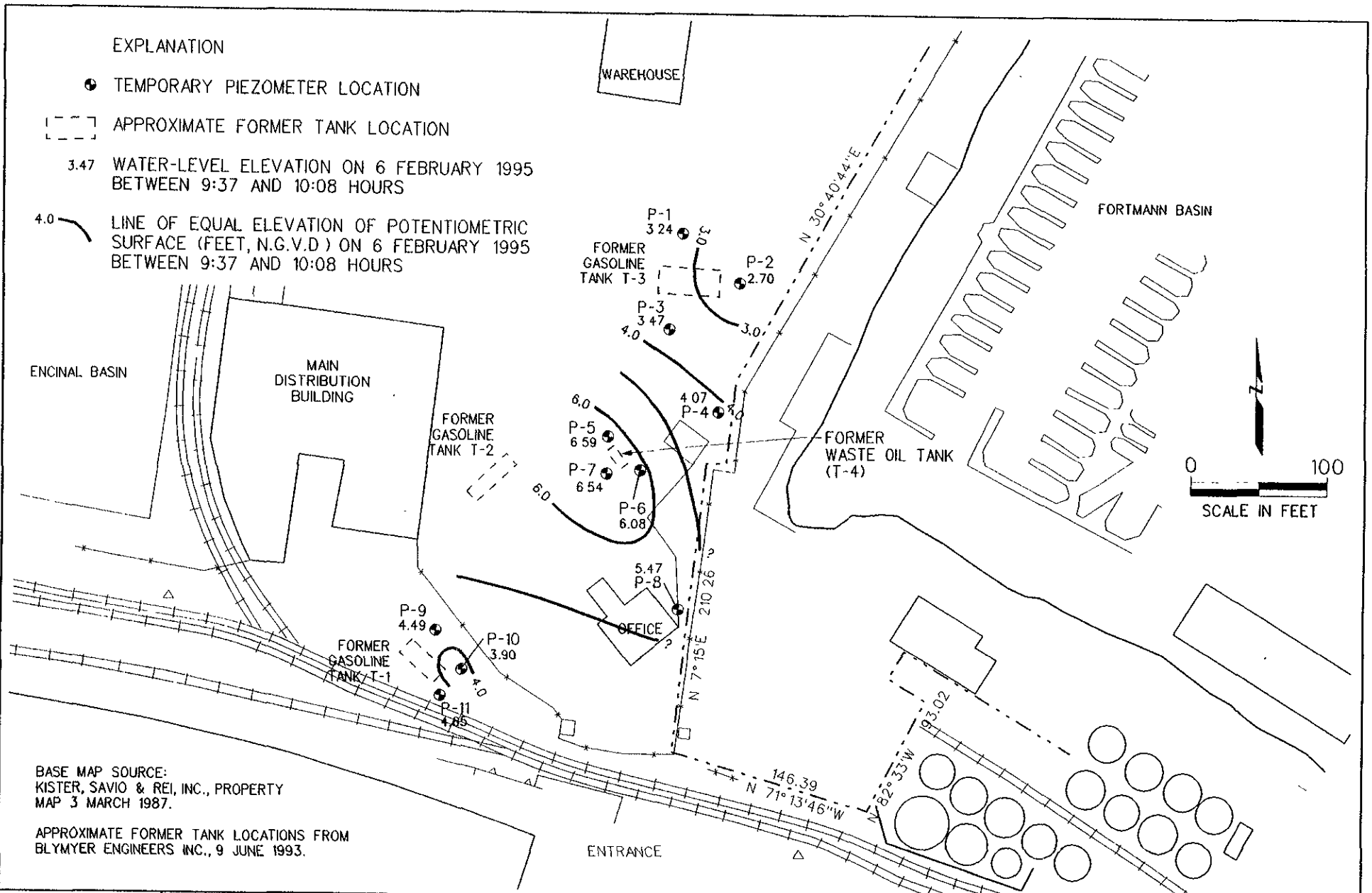


LOCATIONS OF FORMER UNDERGROUND DIESEL TANK "B"
 AND TEMPORARY PIEZOMETERS
 ENCINAL TERMINALS
 ALAMEDA, CALIFORNIA

Figure
 4
 Project No.
 2530.01

EXPLANATION

- TEMPORARY PIEZOMETER LOCATION
- [---] APPROXIMATE FORMER TANK LOCATION
- 3.47 WATER-LEVEL ELEVATION ON 6 FEBRUARY 1995 BETWEEN 9:37 AND 10:08 HOURS
- 4.0 LINE OF EQUAL ELEVATION OF POTENTIOMETRIC SURFACE (FEET, N.G.V.D) ON 6 FEBRUARY 1995 BETWEEN 9:37 AND 10:08 HOURS



BASE MAP SOURCE:
KISTER, SAVIO & REI, INC., PROPERTY
MAP 3 MARCH 1987.

APPROXIMATE FORMER TANK LOCATIONS FROM
BLYMYER ENGINEERS INC., 9 JUNE 1993.

WATER-LEVEL ELEVATIONS, MORNING OF 6 FEBRUARY 1995
FORMER GASOLINE & WASTE OIL TANK LOCATIONS
ENCINAL TERMINALS, 1521 BUENA VISTA AVENUE
ALAMEDA, CALIFORNIA

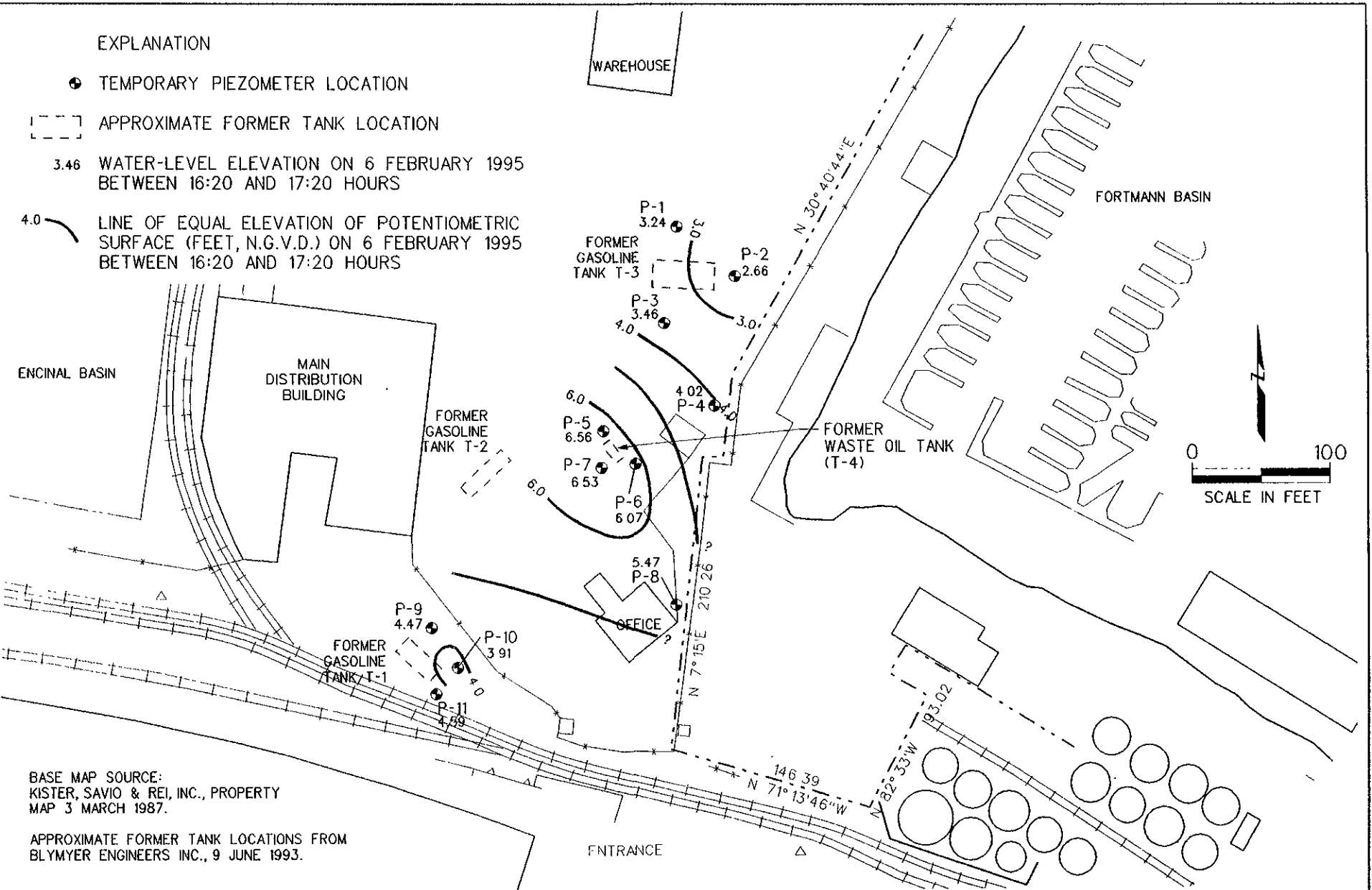
Figure
5

Project No.
2530.01



EXPLANATION

- TEMPORARY PIEZOMETER LOCATION
- APPROXIMATE FORMER TANK LOCATION
- 3.46 WATER-LEVEL ELEVATION ON 6 FEBRUARY 1995 BETWEEN 16:20 AND 17:20 HOURS
- 4.0 LINE OF EQUAL ELEVATION OF POTENTIOMETRIC SURFACE (FEET, N.G.V.D.) ON 6 FEBRUARY 1995 BETWEEN 16:20 AND 17:20 HOURS



BASE MAP SOURCE:
KISTER, SAVIO & REI, INC., PROPERTY
MAP 3 MARCH 1987.

APPROXIMATE FORMER TANK LOCATIONS FROM
BLYMYER ENGINEERS INC., 9 JUNE 1993.

WATER-LEVEL ELEVATIONS, AFTERNOON OF 6 FEBRUARY 1995
FORMER GASOLINE & WASTE OIL TANK LOCATIONS
ENCINAL TERMINALS, 1521 BUENA VISTA AVENUE
ALAMEDA, CALIFORNIA

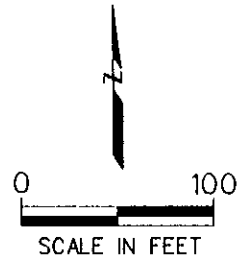
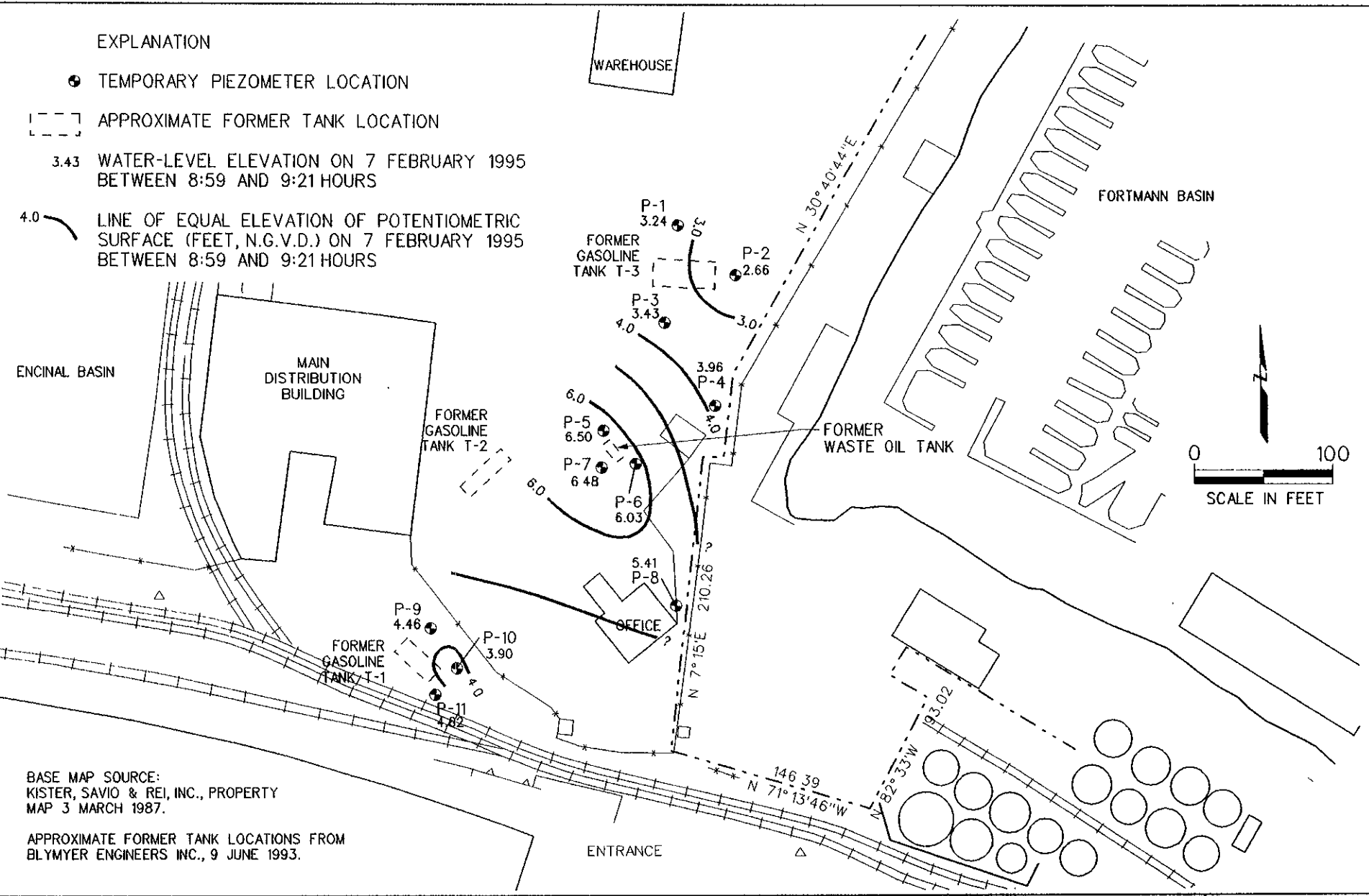
Figure
6
Project No.
2530.01

ENCL 395/Encl_06.dgn Rev: 04-28-95



EXPLANATION

- TEMPORARY PIEZOMETER LOCATION
- [---] APPROXIMATE FORMER TANK LOCATION
- 3.43 WATER-LEVEL ELEVATION ON 7 FEBRUARY 1995 BETWEEN 8:59 AND 9:21 HOURS
- 4.0 LINE OF EQUAL ELEVATION OF POTENTIOMETRIC SURFACE (FEET, N.G.V.D.) ON 7 FEBRUARY 1995 BETWEEN 8:59 AND 9:21 HOURS



BASE MAP SOURCE:
KISTER, SAVIO & REI, INC., PROPERTY
MAP 3 MARCH 1987.

APPROXIMATE FORMER TANK LOCATIONS FROM
BLYMYER ENGINEERS INC., 9 JUNE 1993.

WATER-LEVEL ELEVATIONS, MORNING OF 7 FEBRUARY 1995
FORMER GASOLINE & WASTE OIL TANK LOCATIONS
ENCINAL TERMINALS, 1521 BUENA VISTA AVENUE
ALAMEDA, CALIFORNIA

Figure
7

Project No.
2530.01



ENCL 395/Encl_07.dgn: Rev: 04-28-95

APPENDIX A

Boring Logs

PROJECT: ENCINAL TERMINALS		Log of Boring No. P-2			
BORING LOCATION: Near former gasoline tank T-3		ELEVATION AND DATUM: Ground Surface			
DRILLING CONTRACTOR: Precision Sampling, Inc.		DATE STARTED: 2/2/95		DATE FINISHED: 2/2/95	
DRILLING METHOD: Direct Push		TOTAL DEPTH: 13' bgs		MEASURING POINT: T.O.C.	
DRILLING EQUIPMENT: Enviro Core System		DEPTH TO WATER	FIRST ~6' bgs	COMPL.	24 HRS.
SAMPLING METHOD: Continuous core with liners		LOGGED BY: T.F. Wood			
HAMMER WEIGHT: --		DROP: --		RESPONSIBLE PROFESSIONAL: C.Y. Page	REG. NO. 5288

DEPTH (feet)	SAMPLES			OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt, plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
	Sample No.	Sample	Blows/ Foot			
0					Gravel and sand fill	
0.5					Asphalt	
1					CLAYEY SAND (SC) Brown (10YR, 4/3), moist, 60% fine to medium sand, 40% medium plasticity fines	
2						
3					Color change to dark yellowish brown (10YR, 4/6), decrease in fines to 20% (80% sand)	
4						
5					Lens of degraded organic material, dark yellowish brown and black mottled	
6	P-2 -6.5					
7					POORLY GRADED SAND (SP) Dark gray (7.5YR, 4/0), wet, 100% fine to medium sand, loose	
8					Lens of lean clay, dark gray (7.5YR 4/0), wet, 100% medium plasticity fines, soft organic material (degraded wood) present	
9						
10						
11						
12						
13					Bottom of boring at 13.0 feet bgs	
14						

2530.011.001

B-1 (11/92)

PROJECT: ENCINAL TERMINALS		Log of Boring No. P-5			
BORING LOCATION: Near former waste oil tank		ELEVATION AND DATUM: Ground Surface			
DRILLING CONTRACTOR: Precision Sampling, Inc.		DATE STARTED: 2/2/95		DATE FINISHED: 2/2/95	
DRILLING METHOD: Direct Push		TOTAL DEPTH: 13' bgs		MEASURING POINT: T.O.C.	
DRILLING EQUIPMENT: Enviro Core System		DEPTH TO WATER	FIRST -6' bgs	COMPL.	24 HRS.
SAMPLING METHOD: Continuous core with liners		LOGGED BY: T.F. Wood			
HAMMER WEIGHT: --		DROP: --		RESPONSIBLE PROFESSIONAL: C.Y. Page	REG. NO. 5288

DEPTH (feet)	SAMPLES			OVM Reading	DESCRIPTION <small>NAME (USCS Symbol): color, moist, % by wt., plast, density, structure, cementation, react. w/HCl, geo. inter.</small>	REMARKS
	Sample No.	Sample	Blows/ Foot			
Surface Elevation:						
1					CLAYEY SAND (SC) Dark brown (10YR, 3/3) to dark yellowish brown (10YR 3/6), dry, 80% fine to medium sand, 20% medium plasticity fines (FILL)	
2					POORLY GRADED SAND (SP) Brown (10YR, 5/3), moist, 100% fine to medium sand, loose — Lens of lean clay	
3						
4					LEAN CLAY (CL) Gray (7.5YR, 5/0), moist to wet, 100% fines, medium plasticity, soft — Lens of poorly graded sand with clay (90% sand, 10% clay)	
5						
6					Color change to dark gray (7.5YR, 4/0)	
7					Color change to very dark gray (7.5YR 3/0)	
8					Lens of organic rich clay, black (7.5YR, 2/0)	
9						
10						
11						
12					Lens of very dark gray clay (7.5YR, 3/0), with yellowish to yellowish brown grasses matted in horizontal orientation (i.e., not root structures), slight organic odor, grasses not very decomposed	
13					Bottom of boring at 13.0 feet bgs	
14						

2530 011.002

B-1 (11/92)

PROJECT: ENCINAL TERMINALS

Log of Boring No. P-11

BORING LOCATION: Near former gasoline tank T-1

ELEVATION AND DATUM:
Ground Surface

DRILLING CONTRACTOR: Precision Sampling, Inc.

DATE STARTED:
2/3/95

DATE FINISHED:
2/3/95

DRILLING METHOD: Direct Push

TOTAL DEPTH:
13' bgs

MEASURING POINT:
T.O.C.

DRILLING EQUIPMENT: Enviro Core System

DEPTH TO WATER: FIRST ~8.25'

COMPL. 24 HRS.

SAMPLING METHOD: Continuous core with liners

LOGGED BY:
T.F. Wood

HAMMER WEIGHT: --

DROP: --

RESPONSIBLE PROFESSIONAL:
C.Y. Page

REG. NO.
5288

DEPTH (feet)	SAMPLES				OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
	Sample No.	Sample	Blows/ Foot	Foot			
Surface Elevation:							
1						Asphalt (~2") Concrete (5") slab	
2						CLAYEY SAND (SC) Very dark grayish brown (10YR, 3/2) to dark yellowish brown (10YR, 4/4), moist, 50% fine to coarse sand, 40% medium plasticity fines, 10% fine subangular to angular gravel (FILL)	
4						LEAN CLAY (CL) Dark gray (7.5YR, 4/0), moist, 100% fines, medium plasticity, soft	
5						Lens of 90% fine to medium sand, 10% fine subangular gravel	
6						Black, organic rich layer (degraded wood and grasses), 80% medium plasticity fines, 20% fine to medium sand	
8						▽	
9						CLAYEY SAND (SC) Black (7.5YR, 2/0); wet, 80% fine to medium sand, 20% medium plasticity fines, soft, roots and grasses present throughout	
11						POORLY GRADED SAND (SP) Dark gray (7.5YR, 4/0), wet, 95% fine to medium sand, 5% medium plasticity fines	
12						Color change to dark greenish gray (5GY 4/1) Lens of sandy lean clay (65% medium plasticity fines, 35% fine to medium sand)	
13						Bottom of boring at 13.0 feet bgs	

P-11
-8.5

B-1 (11/92)

2530.011.003

PROJECT: ENCINAL TERMINALS		Log of Boring No. P-12	
BORING LOCATION: Near former diesel tank "B"		ELEVATION AND DATUM: Ground Surface	
DRILLING CONTRACTOR: Precision Sampling, Inc.		DATE STARTED: 2/3/95	DATE FINISHED: 2/3/95
DRILLING METHOD: Direct Push		TOTAL DEPTH: 13' bgs	MEASURING POINT: T.O.C.
DRILLING EQUIPMENT: Enviro Core System		DEPTH TO WATER	FIRST ~3.5'
SAMPLING METHOD: Continuous core with liners		LOGGED BY: T.F. Wood	COMPL. 24 HRS.
HAMMER WEIGHT: --	DROP: --	RESPONSIBLE PROFESSIONAL: C.Y. Page	REG. NO. 5288

DEPTH (feet)	SAMPLES				OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
	Sample No.	Sample	Blows/ Foot				
						Surface Elevation:	
0						Asphalt (FILL)	
1						CLAYEY GRAVEL WITH SAND (GC) 50% road base gravels with 25% fine to medium sand, 25% medium plasticity fines, dry [FILL]	
2						POORLY GRADED SAND (SP) Dark yellowish brown (10YR, 4/4), moist, 95% fine to medium sand, 5% medium plasticity fine, soft, loose	
3							
4	P-12 4.0						
5						LEAN CLAY (CL) Dark gray (7.5YR, 4/0) to very dark gray (7.5YR, 3/0), wet, 95-100% fines, <5% fine sand, medium plasticity, firm	
6							
7							
8						POORLY GRADED SAND WITH CLAY (SP-SC) Black (7.5YR, 2/0), wet, 90% fine to medium sand, 10% medium plasticity fines, loose	
9							
10						Gradational color change to dark gray (7.5YR, 4/0) Color change to dark gray (10YR, 4/1)	
11							
12						CLAYEY SAND (SC) Dark grayish brown (10YR, 4/2), wet, 65% fine to medium sand, 35% medium plasticity fines	
13						Bottom of boring at 13.0 feet bgs	
14							

2530.011.004

B-1 (11/92)

PROJECT: ENCINAL TERMINALS		Log of Boring No. P-16	
BORING LOCATION: Near former diesel tank "A"		ELEVATION AND DATUM: Ground Surface	
DRILLING CONTRACTOR: Precision Sampling, Inc.		DATE STARTED: 2/3/95	DATE FINISHED: 2/3/95
DRILLING METHOD: Direct Push		TOTAL DEPTH: 13' bgs	MEASURING POINT: T.O.C.
DRILLING EQUIPMENT: Enviro Core System		DEPTH TO WATER	FIRST -3.5'
SAMPLING METHOD: Continuous core with liners		LOGGED BY: T.F. Wood	COMPL. 24 HRS.
HAMMER WEIGHT: --	DROP: --	RESPONSIBLE PROFESSIONAL: C.Y. Page	REG. NO. 5288

DEPTH (feet)	SAMPLES				OVM Reading	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
	Sample No.	Sample	Blows/ Foot	Foot			
						Surface Elevation:	
						Concrete	
1						CLAYEY SAND WITH GRAVEL (SC) Dark yellowish brown (10YR, 4/4), moist, 50% fine to coarse sand, 35% medium plasticity fines, 15% angular fine gravel, glass fragments present (FILL)	
2						CLAYEY SAND (SC) Brown (10YR, 4/3), moist 70% fine to medium sand, 30% medium plasticity fines	
3						Lens of lean clay	
4	P-16 4.0					Wet Color change to dark gray (7.5YR, 4/0)	
5						LEAN CLAY (CL) Very dark gray (7.5YR, 3/0), wet, 95-100% fines, <5% fine sand, medium plasticity, firm	
6						Soft Black, organic rich lens	
7						CLAYEY SAND (SC) Black (7.5YR, 2/0), wet, 85% fine to medium sand, 15% medium plasticity fines	
8						Color change to dark gray (7.5YR, 4/0)	
9							
10						Color change to olive brown (2.5Y, 4/4), increase in medium plasticity fines to 25%	
11							
12							
13						Bottom of boring at 13.0 feet bgs	
14							

2530.011.004

B-1 (11/92)

APPENDIX B

**Laboratory Reports
Grab Groundwater Samples**

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

February 13, 1995

Cheri Page, Project Leader
Geomatrix Consultants, Inc.
100 Pine Street, Suite 1000
San Francisco, CA 94111-5112

Dear Ms. Page:

Enclosed are the results from the testing of material submitted on February 6, 1995 from your project #2530.01.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Beth Albertson

Beth Albertson
Chemist

jdp
Enclosures

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: February 13, 1995

Date Received: February 6, 1995

Project: #2530.01

Date Samples Extracted: February 6, 1995

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE AND THE XYLENES
USING METHOD 8020**

per California LUFT Guidelines

Results Reported as µg/L (ppb)

<u>Sample ID</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl- benzene</u>	<u>Total Xylenes</u>	<u>Surrogate Standard % Recovery</u>
P-12	1	2	<1	<1	116%
P-13	<1	<1	<1	<1	114%
P-14	1	<1	<1	<1	116%
<u>Quality Assurance</u>					
Blank	<1	<1	<1	<1	116%
P-14 (Duplicate)	1	<1	<1	<1	110%
Spike Blank % Recovery	113%	103%	108%	105%	113%
Spike Blank Duplicate % Recovery	114%	102%	107%	104%	110%
Spike Level	100	100	100	300	

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: February 13, 1995

Date Received: February 6, 1995

Project: #2530.01

Date Samples Extracted: February 6, 1995


**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND GASOLINE
USING EPA METHODS 8020 AND 8015
per California LUFT Guidelines
Results Reported as µg/L (ppb)**

<u>Sample ID</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl- benzene</u>	<u>Total Xylenes</u>	<u>Gasoline</u>	<u>Surrogate Standard % Recovery</u>
P-1	<1	<1	<1	<1	<50	123%
P-2	<1	<1	<1	<1	<50	122%
P-3	<1	<1	<1	<1	<50	122%
P-5	<1	<1	<1	<1	<50	120%
P-6	<1	<1	<1	<1	<50	123%
P-7	<1	<1	<1	<1	<50	119%
P-9	<1	<1	<1	<1	<50	121%
P-10	<1	<1	<1	<1	<50	124%
P-11	<1	<1	<1	<1	<50	122%
EB1	<1	<1	<1	<1	<50	116%
<u>Quality Assurance</u>						
Blank	<1	<1	<1	<1	<50	115%
P-11 (Duplicate)	<1	<1	<1	<1	<50	126%
Spike Blank % Recovery	120%	107%	115%	110%	91%	119%
Spike Blank Duplicate % Recovery	121%	107%	115%	111%	100%	116%
Spike Level	100	100	100	300	1,000	

2017 BAO
02-26-95
10103

Chain-of-Custody Record No 5184 Date 2/3/95 Page 1 of 2

Project No 2530.01			ANALYSES											REMARKS					
Samplers (Signatures) <i>[Signature]</i>			EPA Method 801C	EPA Method 8020	EPA Method 8240	EPA Method 8270	TPH as gasoline 8015	TPH as diesel 8020	TPH as BTEX 8020										Additional comments
Date	Time	Sample Number																	
2/3/95	745	P-1	56762-63	X				X								✓	W	2	* <u><u>VOAS ARE NOT ACIDIFIED</u></u> Friedman & Gray
	815	P-2	56764-65	X				X								✓	W	2	
	830	P-3	56766-67	X				X								✓	W	2	
	900	P-5	56768-69	X				X								✓	W	2	
	930	P-6	56770-71	X				X								✓	W	2	
	950	P-7	56772-73	X				X								✓	W	2	
	1055	P-9	56774-75	X				X								✓	W	2	
	1015	P-10	56776-77	X				X								✓	W	2	
	200	P-11	56778-79	X				X								✓	W	2	
	230	P-12	56780-81					X								✓	W	2	
	245	P-13	56782-83					X								✓	W	2	
	245	P-14	56784-85					X								✓	W	2	

Turn around time <i>Normal</i>		Results to <i>Cheri Page</i>		Total No of containers <i>24</i>	
Relinquished by <i>[Signature]</i> Printed name JAMES HONNIBALL Company Geomatrix	Date 2/3/95	Relinquished by Signature Printed name Company	Date	Relinquished by Signature Printed name Company	Date
Received by <i>[Signature]</i> Printed name CATHY KIGGS Company <i>[Signature]</i>	Time 2:00 10:00	Received by Signature Printed name Company	Time	Received by Signature Printed name Company	Time
Method of shipment <i>By Courier</i>					
Laboratory comments and Log No					
 Geomatrix Consultants 100 Pine St 10th Floor San Francisco CA 94111 (415) 434 9400					

02 BA A0
2-6-95
10:03

Chain-of-Custody Record No. **5428** Date **2/3/95** Page **1**

Project No. 2530.01			ANALYSES										REMARKS								
Samplers (Signatures)			EPA Method 801C	EPA Method 802C	EPA Method 824C	EPA Method 827C	TPH as gasoline	TPH as diesel	TPH as BTEX											Additional comments	
Date	Time	Sample Number																			
2/3/95	3:00	E01	56786-87X					X												<p>WAS MET MIDWEST Friedman & Boyd</p> <p>Also run one Method Blank with samples since Travel Blank is not available</p>	
 			 			 			 			 			 			 			

Turnaround time: *Normal* Results to: *Chris Page* Total No. of containers: **2**

Relinquished by	Date	Relinquished by	Date	Relinquished by	Date	Method of shipment
<i>[Signature]</i>	2/3/95					<i>By Courier</i>
Printed name		Signature		Signature		Laboratory comments and Log No
<i>James Harold</i>		Printed name		Printed name		
Company		Company		Company		
<i>Geomatrix</i>						
Received by	Time	Received by	Time	Received by	Time	
<i>[Signature]</i>	2/4/95					
Printed name		Signature		Signature		
<i>CHRIS RIGGS</i>	10:00	Printed name		Printed name		
Company		Company		Company		
<i>J & RT</i>						

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

February 27, 1995

Cheri Page, Project Leader
Geomatrix Consultants, Inc.
100 Pine Street, Suite 1000
San Francisco, CA 94111-5112

Dear Ms. Page:

Enclosed are the amended results from the testing of material submitted on February 8, 1995 from your project #2530.01. The report has been amended to include sample P-16 and to denote samples filtered in field.

We apologize for any inconvenience this may have caused you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Bradley T. Benson
Chemist

jdp
Enclosures

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

AMENDED 2/27/95

Date of Report: February 20, 1995
Date Received: February 8, 1995
Project: #2530.01

CASE NARRATIVE

Samples P-7 and P-12 were consumed in the original Modified 8015 TPH as diesel analysis, giving the following results:

<u>Sample ID</u>	<u>Diesel</u> (ppb)	<u>Motor Oil</u> (ppb)	<u>Surrogate Recovery</u>
P-7	<50	<250	36%
P-7 Duplicate	<50	<250	58%
P-12	<50		34%
P-12 Duplicate	<50		41%

With low surrogate recoveries and low spike blank and spike blank duplicate recoveries, the results are not within acceptance limits. Given surrogate recoveries near acceptance limits, we have a comfortable level of certainty that diesel is not present at >100 ppb and motor oil is not present at >500 ppb in these samples.

Sample P-16 was not analyzed for TPH as diesel by modified 8015 as requested on the original chain of custody because samples broke during shipment. Sample P-16 was subsequently resampled and received by our laboratory and results are included.

Sample P-13 was also consumed in the original analysis and its duplicate was consumed in the subsequent analysis. These analyses resulted in the following data:

<u>Sample ID</u>	<u>Diesel</u>	<u>Surrogate Recovery</u>
P-13	<50	42%
P-13 Duplicate	<50	15%

With unacceptable surrogate recoveries, we are not reporting these values in the usual format and are not charging you for these analyses. The original P-13, however, shows surrogate recoveries near the acceptance limits and we have a comfortable level of certainty that diesel is not present at >100 ppb and motor oil is not present at >500 ppb.

BTEX analyses by 8240 resulted in spike recoveries and surrogate recoveries well within control limits.

The final TPH as diesel and motor oil by modified 8015 results for samples P-5, P-6, P-14, P-15, and P-17 showed surrogate and spike recoveries within control limits.

We regret any inconvenience we have caused you.

AMENDED 2/27/95

Date of Report: February 20, 1995
 Date Received: February 8, 1995
 Project: #2530.01
 Date Samples Extracted: February 15, 1995

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
 FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL
 BY GC/FID (Modified 8015)
 per California LUFT Guidelines
 Results Reported as µg/L (ppb)**

<u>Sample ID</u>	<u>Diesel</u>	<u>Motor Oil</u>	<u>Surrogate Standard (% Recovery)</u>
P-5 ^a	<50	<250	141%
P-6 ^a	<50	<250	120%
P-14 ^b	140 ^{b,c}	d	126%
P-15 ^b	100 ^c	d	154% ^e
P-17 ^a	<50	d	119%
 <u>Quality Assurance</u>			
Blank	<50	<250	120%
Deionized Water (Matrix Spike) % Recovery	79%	f	130%
Deionized Water (Matrix Spike Duplicate) % Recovery	80%	f	144%
Spike Level	2,500		

^a The sample was filtered in the field prior to analysis.

^b The sample was filtered in the laboratory prior to analysis.

^c The material present appears to be indicative of biogenic material.

^d Analyte concentrations not requested.

^e The value reported fell outside the control limits established for this analyte.

^f The analyte indicated was not added to the matrix spike sample.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

AMENDED 2/27/95

Date of Report: February 23, 1995
Date Received: February 13, 1995
Project: #2530.01
Date Samples Extracted: February 15, 1995

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL
BY GC/FID (Modified 8015)
per California LUFT Guidelines
Results Reported as $\mu\text{g/L}$ (ppb)**

<u>Sample ID</u>	<u>Diesel</u>	<u>Surrogate Standard</u> (% Recovery)
P-16 ^b	190 ^c	130%
<u>Quality Assurance</u>		
Blank	<50	133%
P-16 ^b (Duplicate)	250 ^c	135%
Spike Blank % Recovery	94%	144%
Spike Blank Duplicate % Recovery	94%	144%
Spike Level	2,500	

^b The sample was filtered in the laboratory prior to analysis.

^c The material present appears to be indicative of biogenic material.

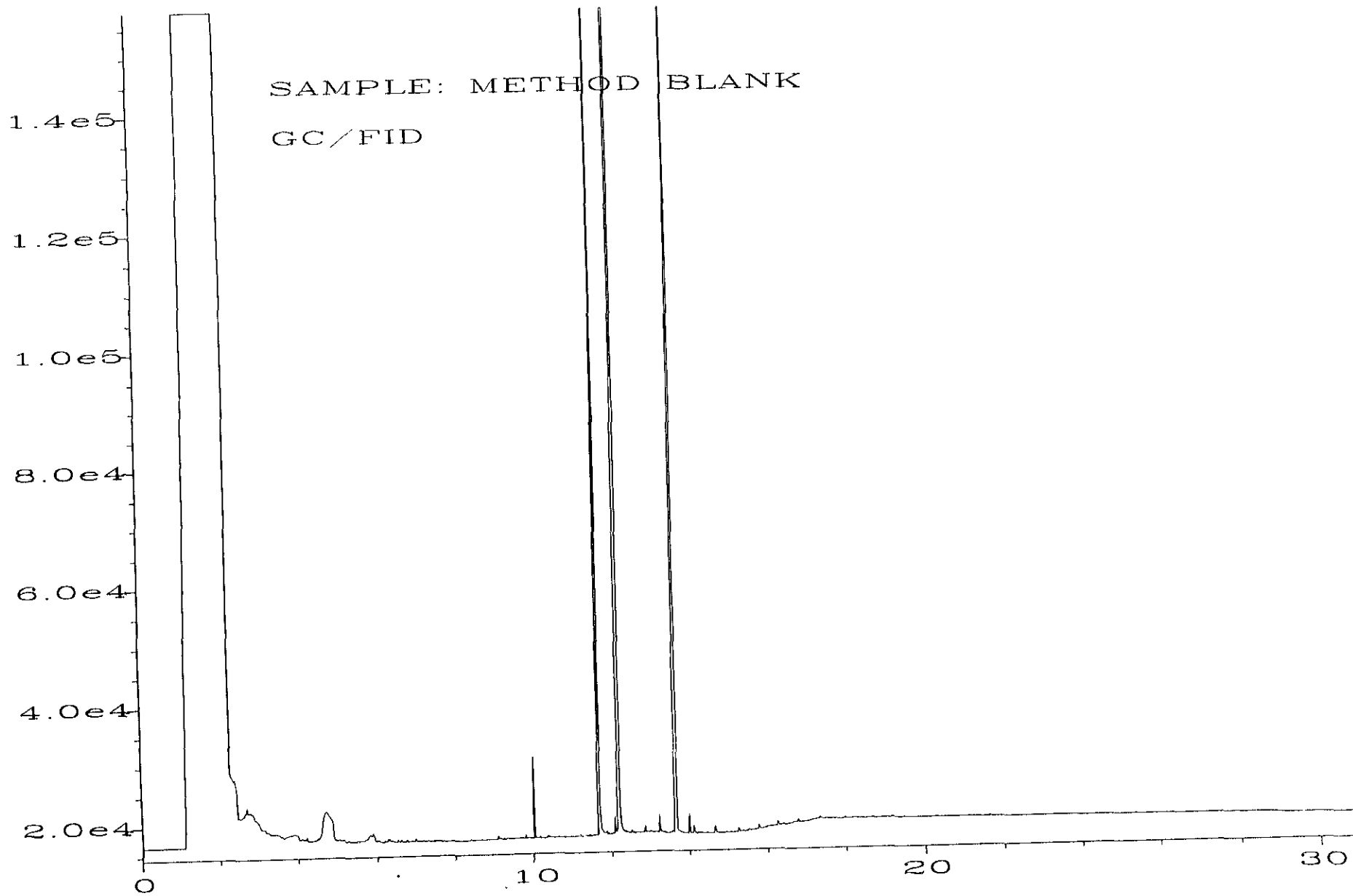
FRIEDMAN & BRUYA, INC.

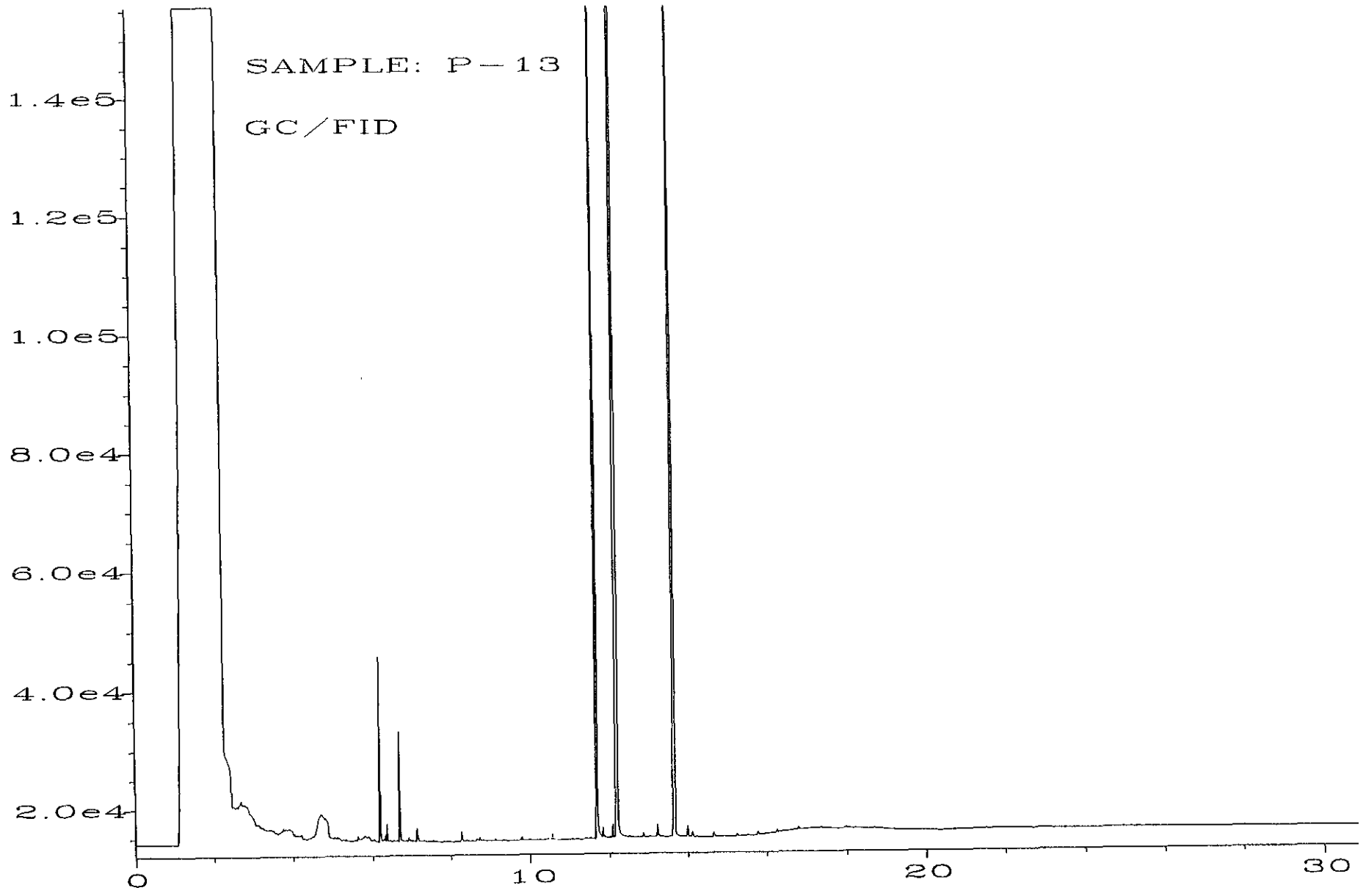
ENVIRONMENTAL CHEMISTS

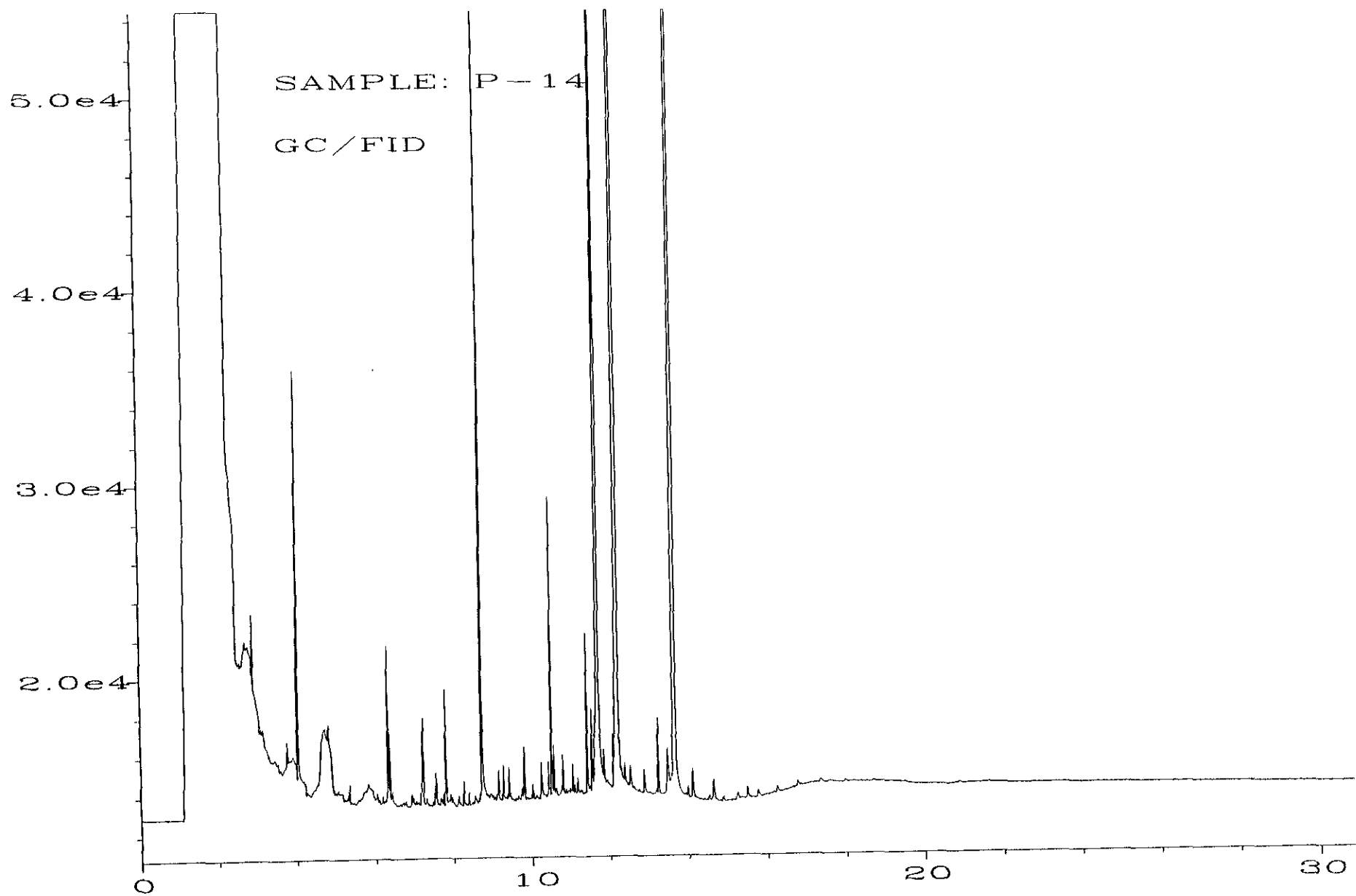
Date of Report: February 20, 1995
 Date Received: February 8, 1995
 Project: #2530.01
 Date Samples Extracted: February 14, 1995

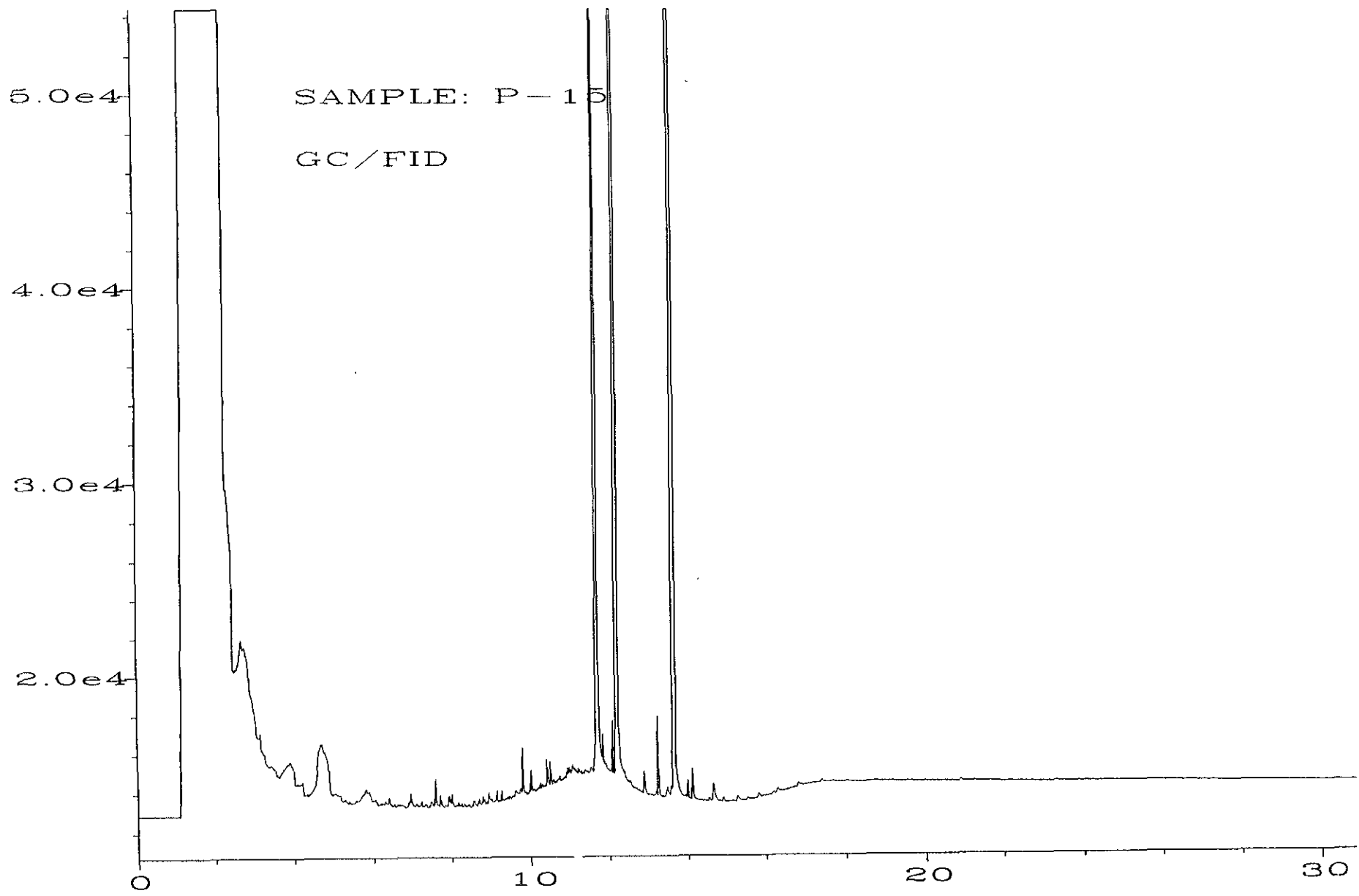
**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
 FOR BENZENE, TOLUENE, ETHYLBENZENE AND THE XYLENES
 USING METHOD 8240**
 Results Reported as µg/L (ppb)

<u>Sample ID</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl- benzene</u>	<u>Total Xylenes</u>	<u>Surrogate Standard % Recovery</u>
P-15	<0.5	<0.5	<0.5	<0.5	126%
P-16	<0.5	<0.5	<0.5	<0.5	126%
P-17	<0.5	<0.5	<0.5	<0.5	126%
<u>Quality Assurance</u>					
Blank	<0.5	<0.5	<0.5	<0.5	124%
P-16 (Duplicate)	<0.5	<0.5	<0.5	<0.5	127%
Spike Blank % Recovery	108%	101%	106%	102%	119%
Spike Blank Duplicate % Recovery	107%	100%	102%	102%	116%
Spike Level	50	50	50	150	









BA^{CO} 2 containers
 02-0895
 4:34

Chain-of-Custody Record

No 5187

Date 2/1/95

Page 1 of 1

Project No 2530.01			ANALYSES										REMARKS			
Samplers (Signatures)			EPA Method 8010	EPA Method 8020	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel 8015*	TPH as BTEX*	Motor Oil	Cooled	Soil (S) or water (W)	Acidified	Number of containers	Additional comments	
Date	Time	Sample Number														
2/1/95	945	P-5	56888	89	90	X			X				2	*8015 TPH'd shall use silica gel cleanup, P-5, P-6 & P-7 shall include motor oil		
	950	P-6	56891	92	X			X					2			
	1030	P-7	56893	94	X			X					2			
	1300	P-12	56895	96	X								2	Friedman & Brya		
	1330	P-13	56897	98	X								2	*TPH BTEX 8020 samples taken 2/6/95 no acid in UOAS The following samples shall be altered by the lab for diesel analysis P16, P12, P13, P14 P15		
	1240	P-14	56899	900	X								2			
	1150	P-15	56901	05	X	X							2			
	1230	P-16	56906	08	X	X							2			
	1230	P-17	56909	13	X	X							2			

Turnaround time: Normal


Results to: CITIZEN PAGE

Total No. of containers: 28

Relinquished by: [Signature]
 Signature: Jim Henshall
 Printed name:
 Company:
 Received by: [Signature]
 Signature: Cathy Riggs
 Printed name:
 Company:

Date: 2/1/95
 Relinquished by:
 Signature:
 Printed name:
 Company:
 Time: 1330
 Received by:
 Signature:
 Printed name:
 Company:

Date:
 Relinquished by:
 Signature:
 Printed name:
 Company:
 Time:
 Received by:
 Signature:
 Printed name:
 Company:

Date:
 Method of shipment:
 Laboratory comments and Log No:

Geomatrix Consultants
 100 Pine St 10th Floor
 San Francisco, CA 94111
 (415) 421-0400


07-BH-80
02-13-95
10:38

Chain-of-Custody Record **No** 6207 Date 2/10/95 Page 1 of 1

Project No.: <u>2530.01</u>			ANALYSES													REMARKS											
Samplers (Signatures) <u>W. McWhorter</u>			EPA Method 8010	EPA Method 8020	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	TPH as BTEX	TPH diesel															Additional comments		
Date	Time	Sample Number																									
<u>2/10</u>	<u>1100</u>	<u>P-16</u>	<u>57024</u>	<u>-</u>	<u>25</u>					<u>X</u>										<u>X</u>	<u>W</u>			<u>2</u>			
 																											

Turnaround time: normal Results to: Client Page: Total No of containers: 2

Relinquished by	Date	Relinquished by	Date	Relinquished by	Date	Method of shipment
Signature: <u>W. McWhorter</u> Printed name: <u>W. McWHORTER</u> Company: <u>GEOMATRIX</u>	<u>2/10/95</u>	Signature: Printed name: Company:		Signature: Printed name: Company:		<u>FED EX</u>
Received by	Time	Received by	Time	Received by	Time	Laboratory comments and Log No
Signature: <u>Cathy Riggs</u> Printed name: <u>CATHY RIGGS</u> Company: <u>FBI</u>	<u>1230</u>	Signature: Printed name: Company:		Signature: Printed name: Company:		

 **Geomatrix Consultants**
100 Pine St 10th Floor
San Francisco, CA 94111
(415) 434 9400
FAX 415-434-1365

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

February 24, 1995

Cheri Page, Project Leader
Geomatrix Consultants, Inc.
100 Pine Street, Suite 1000
San Francisco, CA 94111-5112

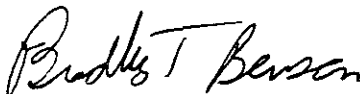
Dear Ms. Page:

Enclosed are the results from the testing of material submitted on February 9, 1995 from your project #2530.01.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Bradley T. Benson
Chemist

jdp
Enclosures

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: February 24, 1995
Date Received: February 9, 1995
Project: #2530.01
Date Samples Extracted: February 16-17, 1995
Date Extracts Analyzed: February 16-17, 1995

**RESULTS FROM THE ANALYSIS OF THE WATER SAMPLE
FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL
BY GC/FID (Modified 8015)
per California LUFT Guidelines
Results Reported as $\mu\text{g/L}$ (ppb)**

<u>Sample ID</u>	<u>Diesel</u>	<u>Surrogate Standard</u> (% Recovery)
EB1	<50	139%
<u>Quality Assurance</u>		
Blank	<50	129%
EB1 (Duplicate)	<50	82%
Spike Blank % Recovery	102%	150%
Spike Blank Duplicate % Recovery	101%	120%
Spike Level	2,500	

02 BA AD
02.09.95
10:16

Chain-of-Custody Record

No. 6205

Date: 2/7/95

REMARKS

Project No.: 253001
Samplers (Signatures): *[Signature]*

ANALYSES			EPA Method 8010	EPA Method 8020	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	TPH as BTEX	Cooled	Soil (S) or water (W)	Acidified	Number of containers
Date	Time	Sample Number											
2/7/95	1600	EBI						X			W		2
Empty grid rows													

Arbill #
3585552283
56925-26

Consumed in analysis *[Signature]*
02 10.95

Turnaround time: *Normal*

Results to: *Chris Pizzo*

Total No of containers: 2

Relinquished by: *[Signature]*
Signature: *[Signature]*
Printed name:

Date: 2/7/95
Relinquished by:
Signature:
Printed name:
Company:


Date:
Relinquished by:
Signature:
Printed name:
Company:

Date:
Method of shipment: *By Carrier*
Laboratory comments and Log No.:

Company: *Geomatrix*
Received by:
Signature: *[Signature]*
Printed name: *Cathy Riggs*

Time: 2.9.95 10:10A
Received by:
Signature:
Printed name:
Company:

Time:
Received by:
Signature:
Printed name:
Company:

 **Geomatrix Consultants**
100 Pine St 10th Floor
San Francisco, CA 94111
(415) 434-9400

American Environmental Network

Certificate of Analysis

OHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

GEOMATRIX CONSULTANTS
100 PINE ST., SUITE 1000
SAN FRANCISCO, CA 94111

ATTN: CHERI PAGE
CLIENT PROJ. ID: 2530.01

C.O.C. NUMBER: 5188

REPORT DATE: 02/13/95

DATE(S) SAMPLED: 02/03/95

DATE RECEIVED: 02/03/95

AEN WORK ORDER: 9502044

PROJECT SUMMARY:

On February 3, 1995, this laboratory received 9 water sample(s).

Client requested sample(s) be analyzed for inorganic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

GEOMATRIX CONSULTANTS

SAMPLE ID: P-1
AEN LAB NO: 9502044.01
AEN WORK ORDER: 9502044
CLIENT PROJ. ID: 2530.01

DATE SAMPLED: 02/03/95
DATE RECEIVED: 02/03/95
REPORT DATE: 02/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	02/06/95
Lead	EPA 6010	ND	0.04	mg/L	02/07/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GEOMATRIX CONSULTANTS

SAMPLE ID: P-2
 AEN LAB NO: 9502044-02
 AEN WORK ORDER: 9502044
 CLIENT PROJ. ID: 2530.01

DATE SAMPLED: 02/03/95
 DATE RECEIVED: 02/03/95
 REPORT DATE: 02/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	02/06/95
Lead	EPA 6010	ND	0.04	mg/L	02/07/95

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

GEOMATRIX CONSULTANTS

SAMPLE ID: P-3
 AEN LAB NO: 9502044.03
 AEN WORK ORDER: 9502044
 CLIENT PROJ. ID: 2530.01

DATE SAMPLED: 02/03/95
 DATE RECEIVED: 02/03/95
 REPORT DATE: 02/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	02/06/95
Lead	EPA 6010	ND	0.04	mg/L	02/07/95

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

GEOMATRIX CONSULTANTS

SAMPLE ID: P-5
AEN LAB NO: 9502044-04
AEN WORK ORDER: 9502044
CLIENT PROJ. ID: 2530.01

DATE SAMPLED: 02/03/95
DATE RECEIVED: 02/03/95
REPORT DATE: 02/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	02/06/95
Cadmium	EPA 6010	ND	0.005	mg/L	02/07/95
Chromium	EPA 6010	ND	0.01	mg/L	02/07/95
Lead	EPA 6010	ND	0.04	mg/L	02/07/95
Nickel	EPA 6010	ND	0.01	mg/L	02/07/95
Zinc	EPA 6010	ND	0.01	mg/L	02/07/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GEOMATRIX CONSULTANTS

SAMPLE ID: P-6
AEN LAB NO: 9502044-05
AEN WORK ORDER: 9502044
CLIENT PROJ. ID: 2530.01

DATE SAMPLED: 02/03/95
DATE RECEIVED: 02/03/95
REPORT DATE: 02/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	02/06/95
Cadmium	EPA 6010	ND	0.005	mg/L	02/07/95
Chromium	EPA 6010	ND	0.01	mg/L	02/07/95
Lead	EPA 6010	ND	0.04	mg/L	02/07/95
Nickel	EPA 6010	ND	0.01	mg/L	02/07/95
Zinc	EPA 6010	0.02 *	0.01	mg/L	02/07/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GEOMATRIX CONSULTANTS

SAMPLE ID: P-7
AEN LAB NO: 9502044-06
AEN WORK ORDER: 9502044
CLIENT PROJ. ID: 2530.01

DATE SAMPLED: 02/03/95
DATE RECEIVED: 02/03/95
REPORT DATE: 02/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	02/06/95
Cadmium	EPA 6010	ND	0.005	mg/L	02/07/95
Chromium	EPA 6010	ND	0.01	mg/L	02/07/95
Lead	EPA 6010	ND	0.04	mg/L	02/07/95
Nickel	EPA 6010	ND	0.01	mg/L	02/07/95
Zinc	EPA 6010	0.01 *	0.01	mg/L	02/07/95

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

GEOMATRIX CONSULTANTS

SAMPLE ID: P-9
 AEN LAB NO: 9502044.07
 AEN WORK ORDER: 9502044
 CLIENT PROJ. ID: 2530.01

DATE SAMPLED: 02/03/95
 DATE RECEIVED: 02/03/95
 REPORT DATE: 02/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	02/06/95
Lead	EPA 6010	ND	0.04	mg/L	02/07/95

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

GEOMATRIX CONSULTANTS

SAMPLE ID: P-10
AEN LAB NO: 9502044-08
AEN WORK ORDER: 9502044
CLIENT PROJ. ID: 2530.01

DATE SAMPLED: 02/03/95
DATE RECEIVED: 02/03/95
REPORT DATE: 02/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	02/06/95
Lead	EPA 6010	ND	0.04	mg/L	02/07/95

ND = Not detected at or above the reporting limit
** = Value at or above reporting limit

GEOMATRIX CONSULTANTS

SAMPLE ID: P-11
 AEN LAB NO: 9502044-09
 AEN WORK ORDER: 9502044
 CLIENT PROJ. ID: 2530.01

DATE SAMPLED: 02/03/95
 DATE RECEIVED: 02/03/95
 REPORT DATE: 02/13/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	02/06/95
Lead	EPA 6010	ND	0.04	mg/L	02/07/95

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9502044

CLIENT PROJECT ID: 2530.01

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

AEN JOB NO: 9502044
DATE ANALYZED: 02/07/95
SAMPLE SPIKED: DI WATER
MATRIX: WATER

Method Spike Recovery Summary

Analyte	Inst./ Method	Spike Conc. (mg/L)	Blank Result (mg/L)	MS Result (mg/L)	MSD Result (mg/L)	Average Percent Recovery	RPD	QC Limits	
								Percent Recovery	RPD
Cd, Cadmium	ICP/6010	0.050	ND	0.048	0.050	98	4	78-119	10
Cr, Chromium	ICP/6010	0.100	ND	0.101	0.106	104	6	87-117	8
Ni, Nickel	ICP/6010	0.250	ND	0.257	0.261	104	2	88-116	6
Pb, Lead	ICP/6010	0.500	ND	0.525	0.529	105	1	87-119	7
Zn, Zinc	ICP/6010	0.250	ND	0.257	0.261	104	2	87-117	7

*** END OF REPORT ***

9502044

Chain-of-Custody Record No. 5188 Date: 2/3/95 Page 1 of 1

Project No.
2530101

Samplers (Signatures):
[Signature]

ANALYSES

REMARKS

Date	Time	Sample Number	EPA Method 8010	EPA Method 8020	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	TPH as BTEX	LEAD											Cooled	Soil (S) or water (W)	Acidified	Number of containers
2/3/95	745	P-1	01N							X												W	✓	1
	815	P-2	02A							X												W	✓	1
	830	P-3	03A							X												W	✓	1
	900	P-5	04A								X											W	✓	1
	930	P-6	05A								X											W	✓	1
	950	P-7	06A								X											W	✓	1
	1055	P-9	07A								X											W	✓	1
	1015	P-10	08A								X											W	✓	1
	200	P-11	09A								X											W	✓	1

Additional comments
① Metals analysis for Cd, Cr, Pb, Zn & Ni


AEN
Samples filtered & Acidified in field

Turnaround time: *Normal* Results to: *Chain of Custody* Total No. of containers: *9*

Relinquished by:
[Signature]
Signature: *James Honnball*
Printed name:
Company: *Geomatrix*
Received by:
Signature: *[Signature]*
Printed name: *Michael McKillop*
Company: *AEN*

Date: 2/3/95
Relinquished by:
Signature: *[Signature]*
Printed name:
Company:
Received by:
Signature: *Lori L Pruitt*
Printed name: *Lori L Pruitt*
Company: *AEN*

Date: 2/3/95
Relinquished by:
Signature:
Printed name:
Company:
Received by:
Signature:
Printed name:
Company:

Date: Method of shipment
Laboratory comments and Log No
 **Geomatrix Consultants**
100 Pine St 10th Floor
San Francisco, CA 94111
(415) 434 9400

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

GEOMATRIX CONSULTANTS
100 PINE ST., SUITE 1000
SAN FRANCISCO, CA 94111

ATTN: CHERI PAGE
CLIENT PROJ. ID: 2530.01

C.O.C. NUMBER: 5186

REPORT DATE: 02/20/95

DATE(S) SAMPLED: 02/03/95

DATE RECEIVED: 02/03/95

AEN WORK ORDER: 9502043


PROJECT SUMMARY:

On February 3, 1995, this laboratory received 4 water sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

GEOMATRIX CONSULTANTS

SAMPLE ID: P-5
 AEN LAB NO: 9502043-01
 AEN WORK ORDER: 9502043
 CLIENT PROJ. ID: 2530.01

DATE SAMPLED: 02/03/95
 DATE RECEIVED: 02/03/95
 REPORT DATE: 02/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
EPA 8010 - Water matrix	EPA 8010				
Bromodichloromethane	75-27-4	ND	0.5	ug/L	02/08/95
Bromoform	75-25-2	ND	0.5	ug/L	02/08/95
Bromomethane	74-83-9	ND	2	ug/L	02/08/95
Carbon Tetrachloride	56-23-5	ND	0.5	ug/L	02/08/95
Chlorobenzene	108-90-7	ND	0.5	ug/L	02/08/95
Chloroethane	75-00-3	ND	2	ug/L	02/08/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5	ug/L	02/08/95
Chloroform	67-66-3	ND	0.5	ug/L	02/08/95
Chloromethane	74-87-3	ND	2	ug/L	02/08/95
Dibromochloromethane	124-48-1	ND	0.5	ug/L	02/08/95
1,2-Dichlorobenzene	95-50-1	ND	0.5	ug/L	02/08/95
1,3-Dichlorobenzene	541-73-1	ND	0.5	ug/L	02/08/95
1,4-Dichlorobenzene	106-46-7	ND	0.5	ug/L	02/08/95
Dichlorodifluoromethane	75-71-8	ND	2	ug/L	02/08/95
1,1-Dichloroethane	75-34-3	ND	0.5	ug/L	02/08/95
1,2-Dichloroethane	107-06-2	ND	0.5	ug/L	02/08/95
1,1-Dichloroethene	75-35-4	ND	0.5	ug/L	02/08/95
cis-1,2-Dichloroethene	156-59-2	ND	0.5	ug/L	02/08/95
trans-1,2-Dichloroethene	156-60-5	ND	0.5	ug/L	02/08/95
1,2-Dichloropropane	78-87-5	ND	0.5	ug/L	02/08/95
cis-1,3-Dichloropropene	10061-01-5	ND	0.5	ug/L	02/08/95
trans-1,3-Dichloropropene	10061-02-6	ND	0.5	ug/L	02/08/95
Methylene Chloride	75-09-2	ND	2	ug/L	02/08/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5	ug/L	02/08/95
Tetrachloroethene	127-18-4	ND	0.5	ug/L	02/08/95
1,1,1-Trichloroethane	71-55-6	ND	0.5	ug/L	02/08/95
1,1,2-Trichloroethane	79-00-5	ND	0.5	ug/L	02/08/95
Trichloroethene	79-01-6	ND	0.5	ug/L	02/08/95
Trichlorofluoromethane	75-69-4	ND	2	ug/L	02/08/95
1,1,2-Trichlorotrifluoroethane	76-13-1	ND	0.5	ug/L	02/08/95
Vinyl Chloride	75-01-4	ND	2	ug/L	02/08/95

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

GEOMATRIX CONSULTANTS

SAMPLE ID: P-6
 AEN LAB NO: 9502043-02
 AEN WORK ORDER: 9502043
 CLIENT PROJ. ID: 2530.01

DATE SAMPLED: 02/03/95
 DATE RECEIVED: 02/03/95
 REPORT DATE: 02/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
EPA 8010 - Water matrix	EPA 8010				
Bromodichloromethane	75-27-4	ND	0.5	ug/L	02/08/95
Bromoform	75-25-2	ND	0.5	ug/L	02/08/95
Bromomethane	74-83-9	ND	2	ug/L	02/08/95
Carbon Tetrachloride	56-23-5	ND	0.5	ug/L	02/08/95
Chlorobenzene	108-90-7	ND	0.5	ug/L	02/08/95
Chloroethane	75-00-3	ND	2	ug/L	02/08/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5	ug/L	02/08/95
Chloroform	67-66-3	ND	0.5	ug/L	02/08/95
Chloromethane	74-87-3	ND	2	ug/L	02/08/95
Dibromochloromethane	124-48-1	ND	0.5	ug/L	02/08/95
1,2-Dichlorobenzene	95-50-1	ND	0.5	ug/L	02/08/95
1,3-Dichlorobenzene	541-73-1	ND	0.5	ug/L	02/08/95
1,4-Dichlorobenzene	106-46-7	ND	0.5	ug/L	02/08/95
Dichlorodifluoromethane	75-71-8	ND	2	ug/L	02/08/95
1,1-Dichloroethane	75-34-3	ND	0.5	ug/L	02/08/95
1,2-Dichloroethane	107-06-2	ND	0.5	ug/L	02/08/95
1,1-Dichloroethene	75-35-4	ND	0.5	ug/L	02/08/95
cis-1,2-Dichloroethene	156-59-2	ND	0.5	ug/L	02/08/95
trans-1,2-Dichloroethene	156-60-5	ND	0.5	ug/L	02/08/95
1,2-Dichloropropane	78-87-5	ND	0.5	ug/L	02/08/95
cis-1,3-Dichloropropene	10061-01-5	ND	0.5	ug/L	02/08/95
trans-1,3-Dichloropropene	10061-02-6	ND	0.5	ug/L	02/08/95
Methylene Chloride	75-09-2	ND	2	ug/L	02/08/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5	ug/L	02/08/95
Tetrachloroethene	127-18-4	ND	0.5	ug/L	02/08/95
1,1,1-Trichloroethane	71-55-6	ND	0.5	ug/L	02/08/95
1,1,2-Trichloroethane	79-00-5	ND	0.5	ug/L	02/08/95
Trichloroethene	79-01-6	ND	0.5	ug/L	02/08/95
Trichlorofluoromethane	75-69-4	ND	2	ug/L	02/08/95
1,1,2Trichlorotrifluoroethane	76-13-1	ND	0.5	ug/L	02/08/95
Vinyl Chloride	75-01-4	ND	2	ug/L	02/08/95

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

GEOMATRIX CONSULTANTS

SAMPLE ID: P-7
 AEN LAB NO: 9502043-03
 AEN WORK ORDER: 9502043
 CLIENT PROJ. ID: 2530.01

DATE SAMPLED: 02/03/95
 DATE RECEIVED: 02/03/95
 REPORT DATE: 02/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
EPA 8010 - Water matrix	EPA 8010				
Bromodichloromethane	75-27-4	ND	0.5	ug/L	02/08/95
Bromoform	75-25-2	ND	0.5	ug/L	02/08/95
Bromomethane	74-83-9	ND	2	ug/L	02/08/95
Carbon Tetrachloride	56-23-5	ND	0.5	ug/L	02/08/95
Chlorobenzene	108-90-7	ND	0.5	ug/L	02/08/95
Chloroethane	75-00-3	ND	2	ug/L	02/08/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5	ug/L	02/08/95
Chloroform	67-66-3	ND	0.5	ug/L	02/08/95
Chloromethane	74-87-3	ND	2	ug/L	02/08/95
Dibromochloromethane	124-48-1	ND	0.5	ug/L	02/08/95
1,2-Dichlorobenzene	95-50-1	ND	0.5	ug/L	02/08/95
1,3-Dichlorobenzene	541-73-1	ND	0.5	ug/L	02/08/95
1,4-Dichlorobenzene	106-46-7	ND	0.5	ug/L	02/08/95
Dichlorodifluoromethane	75-71-8	ND	2	ug/L	02/08/95
1,1-Dichloroethane	75-34-3	ND	0.5	ug/L	02/08/95
1,2-Dichloroethane	107-06-2	ND	0.5	ug/L	02/08/95
1,1-Dichloroethene	75-35-4	ND	0.5	ug/L	02/08/95
cis-1,2-Dichloroethene	156-59-2	ND	0.5	ug/L	02/08/95
trans-1,2-Dichloroethene	156-60-5	ND	0.5	ug/L	02/08/95
1,2-Dichloropropane	78-87-5	ND	0.5	ug/L	02/08/95
cis-1,3-Dichloropropene	10061-01-5	ND	0.5	ug/L	02/08/95
trans-1,3-Dichloropropene	10061-02-6	ND	0.5	ug/L	02/08/95
Methylene Chloride	75-09-2	ND	2	ug/L	02/08/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5	ug/L	02/08/95
Tetrachloroethene	127-18-4	ND	0.5	ug/L	02/08/95
1,1,1-Trichloroethane	71-55-6	ND	0.5	ug/L	02/08/95
1,1,2-Trichloroethane	79-00-5	ND	0.5	ug/L	02/08/95
Trichloroethene	79-01-6	ND	0.5	ug/L	02/08/95
Trichlorofluoromethane	75-69-4	ND	2	ug/L	02/08/95
1,1,2Trichlorotrifluoroethane	76-13-1	ND	0.5	ug/L	02/08/95
Vinyl Chloride	75-01-4	ND	2	ug/L	02/08/95

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

GEOMATRIX CONSULTANTS

SAMPLE ID: TBB
 AEN LAB NO: 9502043-04
 AEN WORK ORDER: 9502043
 CLIENT PROJ. ID: 2530.01

DATE SAMPLED:
 DATE RECEIVED: 02/03/95
 REPORT DATE: 02/20/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
EPA 8010 - Water matrix	EPA 8010				
Bromodichloromethane	75-27-4	ND	0.5	ug/L	02/07/95
Bromoform	75-25-2	ND	0.5	ug/L	02/07/95
Bromomethane	74-83-9	ND	2	ug/L	02/07/95
Carbon Tetrachloride	56-23-5	ND	0.5	ug/L	02/07/95
Chlorobenzene	108-90-7	ND	0.5	ug/L	02/07/95
Chloroethane	75-00-3	ND	2	ug/L	02/07/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5	ug/L	02/07/95
Chloroform	67-66-3	ND	0.5	ug/L	02/07/95
Chloromethane	74-87-3	ND	2	ug/L	02/07/95
Dibromochloromethane	124-48-1	ND	0.5	ug/L	02/07/95
1,2-Dichlorobenzene	95-50-1	ND	0.5	ug/L	02/07/95
1,3-Dichlorobenzene	541-73-1	ND	0.5	ug/L	02/07/95
1,4-Dichlorobenzene	106-46-7	ND	0.5	ug/L	02/07/95
Dichlorodifluoromethane	75-71-8	ND	2	ug/L	02/07/95
1,1-Dichloroethane	75-34-3	ND	0.5	ug/L	02/07/95
1,2-Dichloroethane	107-06-2	ND	0.5	ug/L	02/07/95
1,1-Dichloroethene	75-35-4	ND	0.5	ug/L	02/07/95
cis-1,2-Dichloroethene	156-59-2	ND	0.5	ug/L	02/07/95
trans-1,2-Dichloroethene	156-60-5	ND	0.5	ug/L	02/07/95
1,2-Dichloropropane	78-87-5	ND	0.5	ug/L	02/07/95
cis-1,3-Dichloropropene	10061-01-5	ND	0.5	ug/L	02/07/95
trans-1,3-Dichloropropene	10061-02-6	ND	0.5	ug/L	02/07/95
Methylene Chloride	75-09-2	ND	2	ug/L	02/07/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5	ug/L	02/07/95
Tetrachloroethene	127-18-4	ND	0.5	ug/L	02/07/95
1,1,1-Trichloroethane	71-55-6	ND	0.5	ug/L	02/07/95
1,1,2-Trichloroethane	79-00-5	ND	0.5	ug/L	02/07/95
Trichloroethene	79-01-6	ND	0.5	ug/L	02/07/95
Trichlorofluoromethane	75-69-4	ND	2	ug/L	02/07/95
1,1,2Trichlorotrifluoroethane	76-13-1	ND	0.5	ug/L	02/07/95
Vinyl Chloride	75-01-4	ND	2	ug/L	02/07/95

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9502043

CLIENT PROJECT ID: 2530.01

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 8010

AEN JOB NO: 9502043
 DATE ANALYZED: 02/07/95
 AEN LAB NO: 0207-BLANK
 INSTRUMENT: G
 MATRIX: WATER

Method Blank

Analyte	CAS #	Result (ug/L)	Reporting Limit (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	2
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	2
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	2
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	2
1,1-Dichloroethane	75-34-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	156-59-2	ND	0.5
trans-1,2-Dichloroethene	156-60-5	ND	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	2
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	79-01-6	ND	0.5
Trichlorofluoromethane	75-69-4	ND	2
1,1,2-Trichloro- 1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	75-01-4	ND	2

QUALITY CONTROL DATA

METHOD: EPA 8010

AEN JOB NO: 9502043
 DATE ANALYZED: 02/08/95
 AEN LAB NO: 0208-BLANK
 INSTRUMENT: G
 MATRIX: WATER

Method Blank

Analyte	CAS #	Result (ug/L)	Reporting Limit (ug/L)
Bromodichloromethane	75-27-4	ND	0.5
Bromoform	75-25-2	ND	0.5
Bromomethane	74-83-9	ND	2
Carbon Tetrachloride	56-23-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.5
Chloroethane	75-00-3	ND	2
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	2
Dibromochloromethane	124-48-1	ND	0.5
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	2
1,1-Dichloroethane	75-34-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.5
1,1-Dichloroethene	75-35-4	ND	0.5
cis-1,2-Dichloroethene	156-59-2	ND	0.5
trans-1,2-Dichloroethene	156-60-5	ND	0.5
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-Dichloropropene	10061-02-6	ND	0.5
Methylene Chloride	75-09-2	ND	2
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.5
Trichloroethene	79-01-6	ND	0.5
Trichlorofluoromethane	75-69-4	ND	2
1,1,2-Trichloro-			
1,2,2-trifluoroethane	76-13-1	ND	0.5
Vinyl Chloride	75-01-4	ND	2

QUALITY CONTROL DATA

METHOD: EPA 8010

AEN JOB NO: 9502043
 INSTRUMENT: G
 MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery	
			Bromochloro-methane	1-Bromo-3-chloro-propane
02/08/95	P-5	01	99	105
02/08/95	P-6	02	98	106
02/08/95	P-7	03	99	105
02/07/95	TBB	04	102	110
QC Limits:			78-153	74-143

DATE ANALYZED: 02/07/95
 SAMPLE SPIKED: LCS
 INSTRUMENT: G

Laboratory Control Sample

Analyte	Spike Added (ug/L)	LCS Result (ug/L)	Percent Recovery	QC Limits
				Percent Recovery
1,1-Dichloroethene	50.0	43.4	87	60-115
Trichloroethene	50.0	50.9	102	64-137
Chlorobenzene	50.0	44.9	90	54-122

*** END OF REPORT ***

R-3,53

9502043

Chain-of-Custody Record

No 5186

Date: 2/3/95

Page 1 of 1

Project No.: 2530.01

ANALYSES

REMARKS

Samplers (Signatures):

[Signature]

Date	Time	Sample Number
2/3/95	900	P-5 01AB
	930	P-6 02AB
	950	P-7 03AB
	1400	TBB 04AB

EPA Method 8010	EPA Method 8020	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	TPH as BTEX													Cooled	Soil (S) or water (W)	Acidified	Number of containers
X																			-	W		2
X																			-	W		2
X																			-	W		2
X																			-	W		2

*VOAs are Not Acidified.
AEN

Turnaround time: ~~Normal~~ Normal

Results to: *Cheri Page*

Total No. of containers: 6

Relinquished by: *[Signature]*
 Signature: *Sampson*
 Printed name: *Sampson*
 Company: *Geomatrix*


Received by: *[Signature]*
 Signature: *Michael McNeill*
 Printed name: *Michael McNeill*
 Company: *AEN*

Date: 2/3/95
 Relinquished by: *[Signature]*
 Signature: *Michael McNeill*
 Printed name:
 Company:

Time: 10:20
 Received by: *[Signature]*
 Signature: *Lori L. Pruitt*
 Printed name: *Lori L. Pruitt*
 Company: *AEN*

Date: 2/3/95
 Relinquished by:
 Signature:
 Printed name:
 Company:

Time: 17:30
 Received by:
 Signature:
 Printed name:
 Company:

Date:
 Method of shipment: *By Courier*
 Laboratory comments and Log No:
 **Geomatrix Consultants**
 100 Pine St 10th Floor
 San Francisco, CA 94111
 (415) 434-9400

American Environmental Network

Certificate of Analysis

ALHA Accreditation: 11134

PAGE 1

GEOMATRIX CONSULTANTS
100 PINE ST., SUITE 1000
SAN FRANCISCO, CA 94111

REPORT DATE: 03/03/95

DATE(S) SAMPLED: 02/07/95

DATE RECEIVED: 02/08/95

ATTN: CHERI PAGE
CLIENT PROJ. ID: 2580.01

AEN WORK ORDER: 9502100

C.O.C. NUMBER: 5432

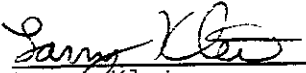
PROJECT SUMMARY:

On February 8, 1995, this laboratory received 3 water sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

GEOMATRIX CONSULTANTS

SAMPLE ID: P-4
 AEN LAB NO: 9502100-01
 AEN WORK ORDER: 9502100
 CLIENT PROJ. ID: 2580.01

DATE SAMPLED: 02/07/95
 DATE RECEIVED: 02/08/95
 REPORT DATE: 03/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration		-		Filtr Date	02/12/95
#Extraction for PNAs	EPA 3520	-		Extrn Date	02/12/95
PNAs	EPA 8270				
Acenaphthene	83-32-9	ND	200	ug/L	02/20/95
Acenaphthylene	208-96-8	ND	200	ug/L	02/20/95
Anthracene	120-12-7	ND	200	ug/L	02/20/95
Benzo(a)anthracene	56-55-3	ND	200	ug/L	02/20/95
Benzo(b)fluoranthene	205-99-2	ND	200	ug/L	02/20/95
Benzo(k)fluoranthene	207-08-9	ND	200	ug/L	02/20/95
Benzo(g,h,i)perylene	191-24-2	ND	200	ug/L	02/20/95
Benzo(a)pyrene	50-32-8	ND	200	ug/L	02/20/95
Chrysene	218-01-9	ND	200	ug/L	02/20/95
Dibenzo(a,h)anthracene	53-70-3	ND	200	ug/L	02/20/95
Fluoranthene	206-44-0	ND	200	ug/L	02/20/95
Fluorene	86-73-7	ND	200	ug/L	02/20/95
Indeno(1,2,3-cd)pyrene	193-39-5	ND	200	ug/L	02/20/95
Naphthalene	91-20-3	ND	200	ug/L	02/20/95
Phenanthrene	85-01-8	ND	200	ug/L	02/20/95
Pyrene	129-00-0	ND	200	ug/L	02/20/95

Reporting limits elevated due to high levels of non-target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

GEOMATRIX CONSULTANTS

SAMPLE ID: P-15
 AEN LAB NO: 9502100-02
 AEN WORK ORDER: 9502100
 CLIENT PROJ. ID: 2580.01

DATE SAMPLED: 02/07/95
 DATE RECEIVED: 02/08/95
 REPORT DATE: 03/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration		-		Filtr Date	02/12/95
#Extraction for PNAs	EPA 3520	-		Extrn Date	02/12/95
PNAs	EPA 8270				
Acenaphthene	83-32-9	ND	200	ug/L	02/20/95
Acenaphthylene	208-96-8	ND	200	ug/L	02/20/95
Anthracene	120-12-7	ND	200	ug/L	02/20/95
Benzo(a)anthracene	56-55-3	ND	200	ug/L	02/20/95
Benzo(b)fluoranthene	205-99-2	ND	200	ug/L	02/20/95
Benzo(k)fluoranthene	207-08-9	ND	200	ug/L	02/20/95
Benzo(g,h,i)perylene	191-24-2	ND	200	ug/L	02/20/95
Benzo(a)pyrene	50-32-8	ND	200	ug/L	02/20/95
Chrysene	218-01-9	ND	200	ug/L	02/20/95
Dibenzo(a,h)anthracene	53-70-3	ND	200	ug/L	02/20/95
Fluoranthene	206-44-0	ND	200	ug/L	02/20/95
Fluorene	86-73-7	ND	200	ug/L	02/20/95
Indeno(1,2,3-cd)pyrene	193-39-5	ND	200	ug/L	02/20/95
Naphthalene	91-20-3	ND	200	ug/L	02/20/95
Phenanthrene	85-01-8	ND	200	ug/L	02/20/95
Pyrene	129-00-0	ND	200	ug/L	02/20/95

Reporting limits elevated due to high levels of non-target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

GEOMATRIX CONSULTANTS

SAMPLE ID: P-13
 AEN LAB NO: 9502100-03
 AEN WORK ORDER: 9502100
 CLIENT PROJ. ID: 2580.01

DATE SAMPLED: 02/07/95
 DATE RECEIVED: 02/08/95
 REPORT DATE: 03/03/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration		-		Filtr Date	02/12/95
#Extraction for PNAs	EPA 3520	-		Extrn Date	02/12/95
PNAs	EPA 8270				
Acenaphthene	83-32-9	ND	200	ug/L	02/20/95
Acenaphthylene	208-96-8	ND	200	ug/L	02/20/95
Anthracene	120-12-7	ND	200	ug/L	02/20/95
Benzo(a)anthracene	56-55-3	ND	200	ug/L	02/20/95
Benzo(b)fluoranthene	205-99-2	ND	200	ug/L	02/20/95
Benzo(k)fluoranthene	207-08-9	ND	200	ug/L	02/20/95
Benzo(g,h,i)perylene	191-24-2	ND	200	ug/L	02/20/95
Benzo(a)pyrene	50-32-8	ND	200	ug/L	02/20/95
Chrysene	218-01-9	ND	200	ug/L	02/20/95
Dibenzo(a,h)anthracene	53-70-3	ND	200	ug/L	02/20/95
Fluoranthene	206-44-0	ND	200	ug/L	02/20/95
Fluorene	86-73-7	ND	200	ug/L	02/20/95
Indeno(1,2,3-cd)pyrene	193-39-5	ND	200	ug/L	02/20/95
Naphthalene	91-20-3	ND	200	ug/L	02/20/95
Phenanthrene	85-01-8	ND	200	ug/L	02/20/95
Pyrene	129-00-0	ND	200	ug/L	02/20/95

Reporting limits elevated due to high levels of non-target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9502100

CLIENT PROJECT ID: 2580.01

Quality Control Summary

EPA 8270 surrogates diluted out due to high levels of non-target compounds; samples run at dilution.

All other laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 8270

AEN JOB NO: 9502100
AEN LAB NO: 0212-BLANK
DATE EXTRACTED: 02/12/95
DATE ANALYZED: 02/15/95
INSTRUMENT: 11
MATRIX: WATER

Method Blank

Analyte	CAS #	Result (ug/L)	Reporting Limit (ug/L)
Acenaphthene	83-32-9	ND	10
Acenaphthylene	208-96-8	ND	10
Anthracene	120-12-7	ND	10
Benzo(a)anthracene	56-55-3	ND	10
Benzo(b)fluoranthene	205-99-2	ND	10
Benzo(k)fluoranthene	207-08-9	ND	10
Benzo(g,h,i)perylene	191-24-2	ND	10
Benzo(a)pyrene	50-32-8	ND	10
2-Chloronaphthalene	91-58-7	ND	10
Chrysene	218-01-9	ND	10
Dibenzo(a,h)anthracene	53-70-3	ND	10
Fluoranthene	206-44-0	ND	10
Fluorene	86-73-7	ND	10
Indeno(1,2,3-cd)pyrene	193-39-5	ND	10
Naphthalene	91-20-3	ND	10
Phenanthrene	85-01-8	ND	10
Pyrene	129-00-0	ND	10

QUALITY CONTROL DATA

METHOD: EPA 8270

AEN JOB NO: 9502100
 DATE EXTRACTED: 02/12/95
 INSTRUMENT: 11
 MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery					
			Nitro-benzene-d ₅	2-Fluoro-biphenyl	Terphenyl-d ₁₄	Phenol-d ₅	2-Fluoro-phenol	2,4,6-Tribromo-phenol
02/20/95	P-4	01	D	D	D	D	D	D
02/20/95	P-15	02	D	D	D	D	D	D
02/20/95	P-13	03	D	D	D	D	D	D
QC Limits:			16-128	22-130	36-144	20-111	12-121	40-162

D: Surrogate diluted out

DATE EXTRACTED: 02/02/95
 DATE ANALYZED: 02/06/95
 SAMPLE SPIKED: DI WATER
 INSTRUMENT: 11

Method Spike Recovery Summary

Analyte	Spike Conc. (ug/L)	MS Result (ug/L)	MSD Result (ug/L)	Average Percent Recovery	RPD	QC Limits	
						Percent Recovery	RPD
1,4-Dichlorobenzene	204	157	154	76	2	34-105	38
N-Nitrosodi-n-propylamine	199	184	138	81	28	46-118	30
1,2,4-Trichlorobenzene	200	141	142	71	<1	34- 88	28
Acenaphthene	200	159	137	74	15	55-117	18
2,4-Dinitrotoluene	200	165	147	78	12	58-104	29
Pyrene	199	169	202	93	18	44-117	26


*** END OF REPORT ***

Chain-of-Custody Record No. **5432** Date **2/7/95** Page **1** of **1**

Project No 2580.01			ANALYSES										REMARKS					
Samplers (Signatures): <i>[Signature]</i>			EPA Method 8010	EPA Method 8020	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	TPH as BTEX									Additional comments
Date	Time	Sample Number											Cooled	Soil (S) or water (W)	Acidified	Number of containers		
2/7/95	1145	P-4 01AB				X								W		2	* 8270 for PNAS Only. Samples shall be filtered in the LAB	
	1150	P-15 02AB				X								W		2		
	1400	P-13 03AB				X								W		2		

2/9/95 Per Cheri Page, analyze as indicated on COC RB																		

Turnaround time: **Normal** Results to: **Share Page** Total No. of containers: **6**

Relinquished by: <i>[Signature]</i> Signature: Jim Honnigell Printed name: Jim Honnigell Company: Geomatrix	Date: 2/6/95	Relinquished by: <i>[Signature]</i> Signature: NEIL HERRICK Printed name: NEIL HERRICK Company: _____	Date: 2/9/95	Relinquished by: Signature: _____ Printed name: _____ Company: _____	Date: _____	Method of shipment: By Courier Laboratory comments and Log No: 9502100
Received by: <i>[Signature]</i> Signature: NEIL HERRICK Printed name: _____ Company: _____	Time: 17:55	Received by: <i>[Signature]</i> Signature: Lori L. Pruitt Printed name: Lori L. Pruitt Company: AEN	Time: 14:46	Received by: Signature: _____ Printed name: _____ Company: _____	Time: _____	 Geomatrix Consultants 100 Pine St 10th Floor San Francisco, CA 94111 (415) 434 9400

APPENDIX C

**Laboratory Reports
Soil Samples**

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

February 16, 1995

Cheri Page, Project Leader
Geomatrix Consultants, Inc.
100 Pine Street, Suite 1000
San Francisco, CA 94111-5112

Dear Ms. Page:

Enclosed are the results from the testing of material submitted on February 8, 1995 from your #2530.01 project.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Beth Albertson

Beth Albertson
Chemist

jdp
Enclosures

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: February 16, 1995
Date Received: February 8, 1995
Project: #2530.01
Date Samples Extracted: February 9, 1995

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL
BY GC/FID (Modified 8015)
per California LUFT Guidelines
Extracts Cleaned With Silica Gel
Results Reported as $\mu\text{g/g}$ (ppm)**

<u>Sample ID</u>	<u>Diesel</u>	<u>Surrogate Standard</u> (% Recovery)
P14-5.5	<10	103%
P17-7.5	<10	97%
P13-5.5	20 ^a	105%
P12-4.0	20 ^a	105%
 <u>Quality Assurance</u>		
Blank	<10	95%
P14-5.5 (Duplicate)	<10	96%
P14-5.5 (Matrix Spike) % Recovery	91%	99%
P14-5.5 (Matrix Spike Duplicate) % Recovery	90%	99%
Spike Blank % Recovery	84%	95%
Spike Level	250	

^a The product present is indicative of a material heavier than diesel #2.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: February 16, 1995
 Date Received: February 8, 1995
 Project: #2530.01
 Date Samples Extracted: February 10, 1995

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
 FOR BENZENE, TOLUENE, ETHYLBENZENE AND THE XYLENES
 BY GC/MS EPA METHOD 8240
 per California LUFT Guidelines
 Results Reported as µg/g (ppm)**

<u>Sample ID</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl- benzene</u>	<u>Total Xylenes</u>	<u>Surrogate Standard % Recovery</u>
P14-5.5	<0.02	<0.02	<0.02	<0.04	101%
P17-7.5	<0.02	<0.02	<0.02	<0.04	100%
P13-5.5	<0.02	<0.02	<0.02	<0.04	101%
P12-4.0	<0.02	<0.02	<0.02	<0.04	97%
<u>Quality Assurance</u>					
Blank	<0.02	<0.02	<0.02	<0.04	101%
P13-5.5 (Duplicate)	<0.02	<0.02	<0.02	<0.04	95%
P13-5.5 (Matrix Spike) % Recovery	78%	77%	75%	73%	91%
P13-5.5 (Matrix Spike Duplicate) % Recovery	78%	78%	76%	74%	92%
Spike Blank % Recovery	87%	85%	82%	81%	102%
Spike Level	2	2	2	4	

02-08-95
5:10

K-7,5-F
9502042
Page 1 of 2

Chain-of-Custody Record No 5429 Date 2/13/95


Project No 2530.01			ANALYSES											REMARKS								
Samplers (Signatures)			EPA Method 8010	EPA Method 8020	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	TPH as BTEX											Additional comments		
Date	Time	Sample Number												Cooled	Soil (S) or water (W)	Acidified	Number of containers					
01A	2/2/95	1035	P10-10.0							1				✓	S		1					
02A	2/2/95	1500	P7-5.0							1				✓	S		1					
03A	2/2/95	1410	P6-5.5							1				✓	S		1					
04A	2/3/95	1040	P9-6.5							1				✓	S		1					
05A	2/3/95	1370	P5-6.5							1				✓	S		1					
06A	2/3/95	0936	P11-8.5							1				✓	S		1					
07A	2/2/95	1340	P5-12.0							1				✓	S		1					
08A	2/2/95	0420	P1-7.0							1				✓	S		1					
09A	2/2/95	1020	P2-6.5							1				✓	S		1					
10A	2/3/95	1230	P14-5.5			56916				1				✓	S		1					
11A	2/3/95	1510	P17-7.5			56917				1				✓	S		1					
12A	2/3/95	1245	P13-5.5			56918				1				✓	S		1					

Hold ALL samples till further notice

Sample # P12, P13, P14, P17 to be sent to Friedman & Bryano 2/9/95 per request by Cheri Page. Also include P15 & P16 to be received today to Friedman & Bryano (COC# 5431)

Client called requesting BTEX / TPHD


Turnaround time: Normal Results to: Cheri Page Total No. of containers: 12

Relinquished by: <i>Jim Harold</i> Signature: <i>Jim Harold</i> Printed name: Company: <i>ExxonMobil</i>	Date: 2/3/95	Relinquished by: <i>Michael McKelvey</i> Signature: <i>Michael McKelvey</i> Printed name: Company: <i>AEN</i>	Date: 2/3/95	Relinquished by: <i>Denise Harrington</i> Signature: <i>DENISE HARRINGTON</i> Printed name: <i>AEN</i> Company:	Date: 2/7/95	Method of shipment: <i>Fed X to Friedman & Bryano</i> Laboratory comments and Log No: <i>Please contact Cheri Page @ Geomatrix w/ questions</i>
Received by: <i>Michael McKelvey</i> Signature: <i>Michael McKelvey</i> Printed name: Company: <i>AEN</i>	Time: 10:24	Received by: <i>Lori L. Pruitt</i> Signature: <i>Lori L. Pruitt</i> Printed name: Company: <i>AEN</i>	Time: 17:30	Received by: <i>Cathy Riggs</i> Signature: <i>Cathy Riggs</i> Printed name: Company: <i>FABI</i>	Time: 12:10 02-08-95 5:10	 Geomatrix Consultants 100 Pine St 10th Floor San Francisco, CA 94111 (415) 434 9400

Chain-of-Custody Record No **5430** Date: **2/3/95** Page **2** of **2**

Project No: 2530101			ANALYSES										REMARKS						
Samplers (Signatures): <i>[Signature]</i>			EPA Method 8010	EPA Method 8020	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	TPH as BTEX										Additional comments
Date	Time	Sample Number											Cooled	Soil (S) or water (W)	Acidified	Number of containers			
13A 2/2/95	1145	P12-410.7											✓	S		1		① 7 total sec samples till further noted 2/7/95. Samples P12-410 sent to Friedman at Peruya per Chain Page 264	
14A 2/2/95	1140	P3-6.5	56919										✓	S		1			
 																			

Turnaround time: **Normal** Results to: **Cheri Page** Total No. of containers: **2**

Relinquished by: <i>[Signature]</i> Signature: <i>[Signature]</i> Printed name: Sam Houston Company: Environ Air	Date: 2/3/95	Relinquished by: <i>Michael E. McKelley</i> Signature: Printed name: Company:	Date: 2/3/95	Relinquished by: <i>Denise Harrington</i> Signature: DENISE HARRINGTON Printed name: AEN Company:	Date: 2/7/95	Method of shipment: Fed X to Friedman + Peruya Laboratory comments and Log No: Please contact Cheri Page @ Geomatrix w/ questions
Received by: <i>Michael E. McKelley</i> Signature: <i>Michael E. McKelley</i> Printed name: Michael E. McKelley Company: AEN	Time: 16:23	Received by: <i>Loei L. Pruitt</i> Signature: <i>Loei L. Pruitt</i> Printed name: Loei L. Pruitt Company: AEN	Time: 17:30	Received by: <i>Cathy Riggs</i> Signature: <i>Cathy Riggs</i> Printed name: CATHY RIGGS Company: FBI	Time: 12:10 02-08-95 5:10	 Geomatrix Consultants 100 Pine St 10th Floor San Francisco, CA 94111 (415) 434-9400

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

February 16, 1995

Cheri Page, Project Leader
Geomatrix Consultants, Inc.
100 Pine Street, Suite 1000
San Francisco, CA 94111-5112

Dear Ms. Page:

Enclosed are the results from the testing of material submitted on February 8, 1995 from your project #2530.01F.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Beth Albertson

Beth Albertson
Chemist

jdp
Enclosures

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: February 16, 1995
 Date Received: February 8, 1995
 Project: #2530.01F
 Date Samples Extracted: February 10, 1995

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
 FOR BENZENE, TOLUENE, ETHYLBENZENE AND XYLENES
 BY GC/MS EPA METHOD 8240
 per California LUFT Guidelines
 Results Reported as µg/g (ppm)**

<u>Sample ID</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl- benzene</u>	<u>Total Xylenes</u>	<u>Surrogate Standard % Recovery</u>
P16-4-0	<0.02	<0.02	<0.02	<0.04	106%
P15-7.5	<0.02	<0.02	<0.02	<0.04	97%
<u>Quality Assurance</u>					
Blank	<0.02	<0.02	<0.02	<0.04	106%
P16-4-0 (Duplicate)	<0.02	<0.02	<0.02	<0.04	97%
P16-4-0 (Matrix Spike) % Recovery	78%	75%	74%	72%	93%
P16-4-0 (Matrix Spike Duplicate) % Recovery	79%	76%	74%	71%	91%
Spike Blank % Recovery	86%	94%	82%	81%	102%
Spike Level	2	2	2	4	

Date of Report: February 16, 1995
 Date Received: February 8, 1995
 Project: #2530.01F
 Date Samples Extracted: February 10, 1995

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
 FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL
 BY GC/FID (Modified 8015)
 per California LUFT Guidelines
 Extracts Cleaned With Silica Gel
 Results Reported as µg/g (ppm)**

<u>Sample ID</u>	<u>Diesel</u>	<u>Surrogate Standard</u> (% Recovery)
P16-4-0	<10	98%
P15-7.5	20 ^a	100%
<u>Quality Assurance</u>		
Blank	<10	99%
P15-7.5 (Duplicate)	20 ^a	99%
P15-7.5 (Matrix Spike) % Recovery	97%	101%
P15-7.5 (Matrix Spike Duplicate) % Recovery	97%	101%
Spike Blank % Recovery	90%	98%
Spike Level	250	

^a The pattern of peaks present is not indicative of diesel #2.

Chain-of-Custody Record

No. 5431

02 BA A0
02-08-95
14150

R-7,5-F
9502050

Date: 2/6/95

Page 1 of 1

Project No. 2530.01F

ANALYSES

REMARKS

Samplers (Signatures):
[Signature]

Date	Time	Sample Number	EPA Method 8010	EPA Method 8020	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	TPH as BTEX	TPH +	Cooled	Soil (S) or water (W)	Acidified	Number of containers
2/6/95	1600	P16-40			56914					X		S		1
2/6/95	1550	P15-75			56915					X		S		1
Client called requesting BTEX/TPH														

Additional comments

* TO BE PLACED ON HOLD.
CALL CHERI PAGE
For further procedures

2/7/95 - Samples sent to Friedman + Brunga per Cheri Page - DSH

Please contact Cheri Page @ Geomatrix w/ questions

Turnaround time
Normal

Results to
CHERI PAGE

Total No. of containers
2

Relinquished by
[Signature]

Date: 2/6/95
Relinquished by
[Signature]
Printed name: W. McILHATTAN

Date: 2/6/95
Relinquished by
[Signature]
Printed name: Michael McKellan

Date: 2/6/95
Method of shipment: AEN Courier Fed-X to Friedman + Brunga
Laboratory comments and Log No
Relinquished by: Denise Harrington (AEN)
2/7/95 1210

Printed name: Jim Hornsball
Company: Geomatrix

Company: GEOMATRIX

Company: AEN

Received by
[Signature]
Printed name: W. McILHATTAN
Company: GEOMATRIX

Time: 0930
Received by
[Signature]
Printed name: Michael McKellan
Company: AEN

Time: 1130
Received by
[Signature]
Printed name: D. HARRINGTON
Company: AEN

Time: 11:55