

93 OCT 15 PM 12: 16



**UNDERGROUND  
STORAGE TANK  
CLOSURE AT THE  
OAKLAND  
FACILITY**

Prepared for

Continental Baking Company  
Checkerboard Square  
St. Louis, Missouri

October 11, 1993



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

**Woodward-Clyde**   
**Consultants**

Engineering & sciences applied to the earth & its environment

October 14, 1993

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

Subject: Continental Baking Facility, 1010 46th Street, Oakland, CA  
Underground Storage Tank Removal and Closure Report

Dear Ms. Hugo:

Attached is a copy of the report dated October 11, 1993, which provides details regarding the underground storage tank removal at the Continental Baking Company site noted above. Analytical results were submitted to your office previously.

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

Sincerely,



Jo Beth Folger

Attachment

c: Mr. Fred Dannecker, CBC-SF  
Mr. Charles Gjersvik, CBC-SL  
Mr. Jim Hummert, WCC-SL  
California Regional Water Quality Control Board



UNDERGROUND  
STORAGE TANK  
CLOSURE AT THE  
OAKLAND  
FACILITY

Prepared for

Continental Baking Company  
Checkerboard Square  
St. Louis, Missouri

October 11, 1993



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

CERTIFICATION

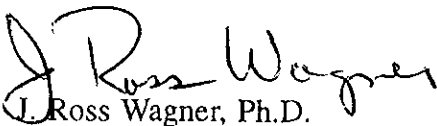
UNDERGROUND STORAGE TANK  
CLOSURE AT THE OAKLAND FACILITY

OCTOBER 11, 1993  
92CB040-0000

This report has been prepared by the staff of Woodward-Clyde Consultants and has been reviewed and approved by the professional whose signature appears below.

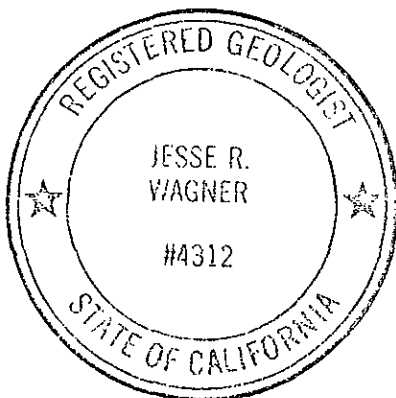
The findings, recommendations, specifications, or professional opinions are presented within the limits prescribed by the client and in accordance with generally accepted engineering practice in Northern California at the time this work plan was prepared. No other warranty is either expressed or implied.

WOODWARD-CLYDE CONSULTANTS

  
J. Ross Wagner, Ph.D.

R.G. No. 4312

Senior Project Geologist



**TABLE OF CONTENTS**

---

<u>Section</u>	<u>Page</u>
EXECUTIVE SUMMARY	
1.0 INTRODUCTION	1-1
1.1 Scope of Work	1-1
1.2 Site Location	1-1
1.3 Site Description and UST History	1-1
2.0 TANK REMOVAL AND DISPOSAL	2-1
2.1 Tank Removal	2-1
2.2 Tank and Piping Integrity	2-1
2.3 Observations at the UST Excavations	2-2
2.4 Sludge, Tank, and Soil Disposal	2-2
3.0 UST CLOSURE SAMPLES	3-1
3.1 Closure Sample Collection and Analysis	3-1
3.2 Stockpile Soil Sample Collection and Analysis	3-3
3.3 Analytical Data Quality Control/Quality Assurance	3-3
3.4 Analytical Results	3-5
4.0 CONCLUSIONS	4-1



LIST OF TABLES

Table 1	Site Contacts
Table 2	Analytical Results for Samples Collected in Support of the Underground Tank Closure at the Continental Baking Facility
Table 3	Analytical Results for Samples Collected for Waste Characterization at the Continental Baking Facility

LIST OF FIGURES

Figure 1	Site Location
Figure 2	Local Land Use
Figure 3	Closure Sample Locations for the Standby Fuel UST
Figure 4	Clustered Underground Storage Tank and Closure Sample Locations

LIST OF APPENDIXES

Appendix A	Site Photographs
Appendix B	Tank Disposal Documentation
Appendix C	Laboratory-Generated Analytical Reports for Closure Samples
Appendix D	Laboratory-Generated Analytical Reports for Waste Characterization Samples

**EXECUTIVE SUMMARY**

---

On December 22, 1992, four underground storage tanks (USTs) were excavated and removed from the Continental Baking Company site located at 1010 46th Street in Oakland, California. This site is divided into two facilities. One portion of the site, with the building of the site address, is part of the former CBC Bakery which is currently leased to a tea manufacturing company. Continental Baking Company operates a local distribution center, thrift store, and a delivery truck maintenance center on the other portion.

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

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

During the removal of the tank from the excavation, it was observed that the 200-gallon steel used oil tank was heavily dented at the top and it had several large holes at the top. However, the contractor indicated that those dents and holes had been made during the initial excavation and uncovering of the USTs. No other holes were observed on the surface of the

## **Woodward-Clyde Consultants**

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

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

Because some water had accumulated in the excavation during the removal, a grab water sample was collected. Analysis of this water sample found 2.9 mg/L of total petroleum hydrocarbons in the range of gasoline constituents but did not detect the heavier constituents normally associated with diesel. The water sample contained 0.54 mg/L benzene, 0.43 mg/L toluene, 0.02 mg/L ethyl benzene, and 0.22 mg/L xylenes. These concentrations may not necessarily be representative of groundwater conditions beneath the site because the water accumulated in the excavation was in contact with the sloughed soil from the sidewalls. However, the detected concentration of dissolved benzene is above the State maximum contaminant level of 0.001 mg/L, a State drinking water standard.

In summary, the analytical results of soil samples suggest that total petroleum hydrocarbons in the range of diesel constituents and heavier (less volatile) constituents exist beneath the site in the vicinity of the former fuel dispenser and clustered UST locations. In addition, there is a strong possibility that groundwater beneath this site in the vicinity of the former fuel dispensers and the former cluster of USTs contains dissolved concentrations of petroleum hydrocarbons. However, the observations and analytical results of soil samples for the standby fuel UST excavation did not suggest that petroleum hydrocarbons were present in the soil surrounding the former UST.





## 1.1 SCOPE OF WORK

On December 22, 1992, four underground storage tanks (USTs) were excavated and removed from the Continental Baking Company Facility at 1010 46th Street in Oakland, California. This report presents the observations and analytical results of soil samples collected by Woodward-Clyde Consultants (WCC) on behalf of CBC in support of UST closure and soil disposal activities at the site.

## 1.2 SITE LOCATION

The site is located in the San Francisco Bay area in the City of Oakland in Alameda County, California (Figure 1). The subject CBC facility is located at 1010 46th Street near the Oakland/Emeryville city limits. The site is situated along Adeline Street, at the northwest border of Oakland and occupies the area between 46th and 53rd streets. The local land use is mixed, with light industrial and commercial use along Adeline Street, a main thoroughfare. Residential buildings are located along the intersecting streets. There is an elementary school with a fenced playground located across 53rd Street (Figure 2).

## 1.3 SITE DESCRIPTION AND UST HISTORY

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



## **Woodward-Clyde Consultants**

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

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

**TANK REMOVAL AND DISPOSAL**

---

Mr. Brian P. Oliva of the Alameda County Department of Environmental Health (the County) was present during the UST removal to conduct the inspections of the UST conditions immediately following removal from the excavations.

**2.1 TANK REMOVAL**

The remaining product and accumulated sludge were pumped from each of the USTs. The vapors within the USTs were then rendered inert by displacement using dry ice. The oxygen concentration and combustibility of the vapors remaining in each tank were measured and compared against the lower explosive limit using a combustible gas indicator under the supervision of the County Inspector. After the oxygen and volatile vapor levels were acceptable to the inspector, the County Inspector gave approval to remove the USTs. All access holes in the USTs were then capped and the USTs were removed from the excavation.

**2.2 TANK AND PIPING INTEGRITY**

Immediately following removal from the excavation pit, each UST was subjected to an above-ground inspection by the County Health Inspector. Based on the observation of wires attached at each end of the UST, the 10,000-gallon standby fuel storage tank apparently had been cathodically protected. No apparent holes were observed during the above-ground inspection. The removed steel piping, which led to the former bakery building, was protectively wrapped and no apparent holes were observed in the piping.

The 200-gallon used oil UST was heavily dented at the top and large holes were observed at the top. However, the foreman had disclosed that the dents and holes at the top of the tank had been inflicted by the excavation contractor during the tank uncovering process. No other holes were observed on the used oil tank.

The above-ground inspection of the tanks did not reveal holes in either the 10,000-gallon fiberglass gasoline tank or the 8,000-gallon steel diesel tank.

### **2.3 OBSERVATIONS AT THE UST EXCAVATIONS**

The native soil encountered at the standby diesel fuel UST excavation behind the former bakery building generally consisted of clayey brown material mottled with gray coloring. No odors were noted at this excavation. Although the soil appeared moist at approximately 14 feet below grade, the soil did not appear stained.

The native soil encountered at the cluster of tanks near the garage varied according to location and depth. In general, the soil encountered at this excavation was silty and clayey with some sandy material. The colors ranged from brown to gray. Darker staining was observed in the soils encountered at the portion of the excavation near the former 8,000-gallon steel diesel UST and in the shallow soil beneath the removed fuel dispensers. Photographs of the two UST excavations and of the four removed USTs are included in Appendix A.

### **2.4 SLUDGE, TANK, AND SOIL DISPOSAL**

The USTs and the removed sludge were transported under manifest by Erickson, Incorporated to their facility in Richmond, California. The removed sludge was transported under manifest by Erickson, Incorporated to the Gibson Oil/Pilot Petroleum Plant in Redwood City, California. Copies of the uniform hazardous waste manifests have been included in Appendix B.

Approximately 100 cubic yards of soil were each excavated from the former bakery standby fuel storage tank location and the clustered UST location. The excavated material from the standby fuel tank removal was stockpiled in the parking area adjacent to the excavation while those from the clustered tank excavation was stockpiled onsite near the fence which separates the two facilities. The stockpiles were covered with plastic and were later sampled on January 25, 1993 and the samples were submitted to an analytical laboratory for waste characterization purposes. The excavation was resurfaced with asphaltic concrete to match the surrounding surfaces.

The samples of the stockpiled soil from the clustered tank excavation were reanalyzed by the laboratory for selenium and thallium. The reanalysis was requested because it was believed

## **Woodward-Clyde Consultants**

that the analytical method (using inductively coupled plasma, ICP) originally used is subject to interferences that could therefore result in misleading, but relatively high concentrations of these metals. The high reported concentrations of these metals analyzed by ICP significantly limited the disposal options available for the soil. In addition, the reported concentrations were anomalous with the known natural concentrations in the area. As a result, the samples were reanalyzed using graphite furnace atomic absorption methods which reported concentrations which were consistent with known natural soil concentrations.



### 3.1 CLOSURE SAMPLE COLLECTION AND ANALYSIS

Samples were collected and analyzed in accordance with the Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites. At the excavation of the 10,000-gallon standby diesel fuel UST, two samples of native soil were collected from the bottom, near the former locations of the ends of the tank. Both samples consisted of brown clay with grey mottling. These samples were identified as FTP-1 (from the northernmost end of the excavation) and FTP-2 (from the southernmost end) and they both were collected at approximately 14 feet below grade (Figure 3).

At the excavation pit of the cluster of three USTs, a total of five closure samples were collected (Figure 4). Two samples, TP-1 and TP-2, were collected from beneath the ends of the 10,000-gallon gasoline UST at depths of 11.5 feet and 13 feet below grade. Sample TP-1, from near the southeast corner of the excavation, consisted of sandy brown clay, while TP-2, from the southwest portion of the excavation, consisted of grayish brown sandy and silty material. The former used oil UST was located on a perpendicular axis to the west of the former gasoline UST, near its end. One sample, TP-3, was collected from beneath the former 200-gallon used oil UST. Sample TP-3 consisted of dark brown silty clay and was collected from near the southwest corner of the excavation, approximately 9 feet below grade. The former 8,000-gallon diesel UST was located on a parallel axis to the former gasoline UST to the north. Because water had accumulated in the excavation pit a approximately 12 to 13 feet below grade, samples TP-4 and TP-5 were collected from the sidewalls of the excavation. Sample TP-4 consisted of dark gray sandy material which appeared to have an oily film on its surface. Sample TP-4 was collected from near the northeast corner of the excavation, approximately 13 feet below grade. Sample TP-5, also dark gray sandy material, was collected from near the northwest corner of the excavation at an approximate depth of 11 feet below grade. The soil in the backhoe bucket from which Sample TP-5 was collected also appeared to have an oil film on its surface. In addition to the UST closure samples, a relatively shallow (4 feet below grade) soil sample was collected from beneath the former fuel dispenser area, D-1. Sample D-1 consisted of dark brownish black clay. Finally, a grab

## **Woodward-Clyde Consultants**

sample of the water which had accumulated in the excavation was collected using a new disposable bailer.

The following paragraph describes the standard soil sample collection procedure and sample handling. The soil was first removed from either the bottom of sidewalls of the excavation using a backhoe bucket. A clean brass tube was driven into the soil contained in the bucket manually, with the aid of a mallet. The filled tube was removed from the soil, the ends covered with teflon sheeting and capped with plastic endcaps. After being labeled with identifying information, the samples were placed in resealable plastic bags and stored on ice in an ice chest, pending submittal to the analytical laboratory.

The samples were submitted to Mid-Pacific Environmental Laboratories, Incorporated (MPELI) in Mountain View, California for analysis. MPELI is certified by the State of California Department of Toxic Substances Control for the analysis of hazardous materials. The requested analyses were selected in consultation with the County Health Inspector. The requested chemical analysis for each sample was selected in accordance with the Tri-Regional Staff Recommendations. All samples were analyzed for the aromatic petroleum hydrocarbon constituents of benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA method 8020. The samples associated with the diesel storage tanks and piping (samples FTP-1, FTP-2 from the standby fuel excavation and samples TP-4, TP-5, D-1, and W-1 from the cluster excavation pit near the diesel UST) were also analyzed for total petroleum hydrocarbons quantified as diesel (TPH-D) using modified EPA method 8015. Meanwhile, the samples associated with gasoline storage tanks and piping (samples TP-1, TP-2, D-1 and W-1) were also analyzed for total petroleum hydrocarbons quantified as gasoline (TPH-G) using modified EPA method 8015 and, to assess whether leaded gasoline may have impacted the soil, the samples were also analyzed for lead. Sample TP-3, collected from beneath the former used oil tank, was analyzed for both gasoline and diesel constituents (TPH-G and TPH-D), oil & grease (also known as total recoverable petroleum hydrocarbons) by infrared spectroscopy (EPA method 418.1), volatile organic hydrocarbons (using EPA method 8010, as specifically requested by the County Health Inspector), semi-volatile organic hydrocarbons (by EPA method 8270), and for the following select five metals: cadmium, chromium, nickel, lead, and zinc.



### **3.2 STOCKPILE SOIL SAMPLE COLLECTION AND ANALYSIS**

The stockpiled soils were sampled on January 25, 1993.

Approximately 100 cubic yards of excavated material from the clustered tank excavation (Soil Stockpile 1) was stored on the south end of the active CBC portion of the site. Two four point composite samples consisting of four discrete samples (SS1-ABCD and SS1-EFGH) were collected from this stockpile.

Another 100 cubic yards of excavated material (fill and soil) from the standby diesel fuel tank excavation (soil stockpile 2) was stored to the north of the standby fuel tank excavation. As with the other stockpile, two four point composite samples (SS2-ABCD and SS2-EFGH) of this stockpile were collected.

At each sample point, a clean brass tube was driven into the stockpiled soil manually, with the aid of a mallet. As with the closure samples, the ends of the filled tube were covered and capped. The samples were submitted to the analytical laboratory (MPELI) where they were composited and analyzed for waste characterization purposes. The samples from soil stockpiles 1 and 2 were analyzed for TPH-D, BTEX, reactivity, corrosivity, and ignitability. The samples from Soil Stockpile 1 were also analyzed for TPH-G and the soluble threshold limit concentrations (STLC) of the California Assessment Metals (CAM) 17 metals because the tank cluster excavation formerly held gasoline and used oil tanks.

### **3.3 ANALYTICAL DATA QUALITY CONTROL/QUALITY ASSURANCE**

The laboratory-generated analytical reports of the tank closure samples are included in Appendix C while those of waste characterization samples are in Appendix D. The analytical data was reviewed for exceeded sample holding times, accuracy, precision, elevated detection limits, proper decontamination procedures, and potential laboratory contamination.

Samples were extracted and analyzed within the method-prescribed holding times. Therefore sample integrity was not compromised by an excessive time period before analysis. Accuracy was assessed by reviewing spike recoveries while precision was assessed by reviewing the relative percent difference (RPD) between the spike and spike duplicate recoveries. The spike





## **Woodward-Clyde Consultants**

recoveries for each of the analysis were within the respective established limits for the laboratory, which indicates acceptable accuracy. The surrogate samples for the EPA method 8020 analyses were within the laboratory's established limits, further indicating acceptable accuracy for this method. The spike duplicate RPDs for each analysis were within the laboratory's established limits, indicating acceptable sample precision. Samples were diluted only when a high concentration of a target compound was detected, thus the samples were analyzed at the lowest possible detection limit. The method blank for the EPA 8010 analysis was positive for dichlorodifluoromethane. Sample TP-3 showed contamination at a similar level, therefore the detection limit for this compound had been raised by the laboratory in this sample.

Unknown hydrocarbons were reported in several TPH analyses. The unknown hydrocarbons appeared during the TPH-D analyses of soil samples TP-3, D-1, and SS1-ABCD and during the TPH-G analysis of soil sample D-1 and water sample W-1. After an additional review of the chromatograms was conducted by WCC, it was concluded that, in the case of unknown hydrocarbons in the TPH-D analyses of samples D-1 and SS1-ABCD, the chromatograms closely match the diesel standard. In the case of unknown hydrocarbons detected during the TPH-G analysis in sample D-1, the compounds appear later in the analysis and the pattern appeared uncharacteristic of gasoline. It is likely, however, that the detected hydrocarbons represent the lighter portion of diesel carried over into the gasoline analysis. This theory is further supported by the observation that high concentrations of diesel were detected in sample D-1. This theory, however, cannot be confirmed since gasoline standards are not analyzed in the TPH-D scan and diesel standards are not analyzed in the TPH-G scans. In the case where the unknown hydrocarbon was detected in the diesel analysis of sample TP-3, the reported quantity of unknown hydrocarbon was due to the presence of one peak which did not follow the standard pattern of diesel peaks. The detection limit reported in the Table 2, which summarizes the analytical results, has been adjusted to reflect a higher detection limit. The pattern of the unknown hydrocarbons reported in the TPH-G analysis of sample W-1 appears to closely match that of gasoline. As a result, Table 2 has been adjusted to interpret the unknown hydrocarbons as gasoline for this sample.

### 3.4 ANALYTICAL RESULTS

The analytical results of the closure samples are summarized in Table 2. Although it was not requested, the laboratory allowed the scan for TPH to continue into the kerosene and motor oil ranges. The analyses detected concentrations of petroleum hydrocarbons greater than 100 mg/kg (or parts per million, ppm) in the samples collected from locations TP-5 (790 mg/kg diesel) and D-1 (120 mg/kg TPH-kerosene and 58 mg/kg TPH-oil), at the northernmost portions of the excavation. Only the sample collected from location TP-3 contained petroleum hydrocarbons at detectable concentrations below 100 mg/kg (34 mg/kg of oil & grease using EPA method 418.1 but less than 10 mg/kg using modified EPA 8020). No other soil samples contained detectable concentrations of petroleum hydrocarbons.

Sample TP-5 was collected approximately 11 feet below grade from the sidewall at the west end of the former diesel UST (nearest the fuel dispensers). Sample TP-5 also contained detectable concentrations of toluene, ethyl benzene, and xylenes (0.014, 0.092, and 0.034 mg/kg, respectively). However, benzene was not detected above the reporting limit of 0.0062 mg/kg.

Sample D-1 was collected approximately 4 feet below grade, directly below the former fuel dispenser location. Sample D-1 is located to the west of sample TP-5, at a shallower depth. Due to elevated reporting limits as a result of what is believed to be coelution of the lighter portion of diesel constituents, BTEX constituents were not detected above the sample reporting limit of 0.02 mg/kg.

Sample TP-3, collected from beneath the former used oil UST, did not contain other analyzed petroleum hydrocarbon constituents. The volatile aromatic hydrocarbon constituents of BTEX were not detected above the sample reporting limit of 0.005 mg/kg. In addition, none of the analyzed chlorinated volatile organic or semi-volatile organic compounds analyzed by EPA 8010 and 8270 were detected above their respective reporting limits.

The grab water sample, W-1 contained 2.9 mg/L of TPH-G constituents, but less than the respective reporting limits for other TPH parameters. However, the dissolved benzene concentration, detected at 0.54 mg/L was detected above the drinking water maximum contaminant level (MCL) of 0.001 mg/L. In addition, toluene was detected at 0.42 mg/L.

# Woodward-Clyde Consultants

ethylbenzene at 0.02 mg/L, and xylenes at 0.22 mg/L, although these constituents were not detected above their respective MCLs.



With the exception of holes that were inflicted during the tank removal process, no holes were observed in any of the four tanks during the above-ground inspection. The soil observed on the sidewalls of the standby fuel tank excavation was not stained and no odors were noted. These observations were further supported by the analytical results of the two closure samples collected from the excavation.

However, the soil from the clustered tank excavation appeared to be stained, especially in the vicinity of the former diesel UST. These visual observations correlate with the noted odor of gasoline and/or diesel and they also correlate with the analytical results of samples. The analytical results suggest that petroleum hydrocarbons in the diesel range and heavier are present in the soil at concentrations greater than 100 ppm beneath the former fuel dispenser and the west end of the former diesel UST.

The soil beneath the former used oil tank, also appeared very dark, possibly stained. The analytical results seem to confirm that some oil has been adsorbed by the soil beneath the UST. However, no chlorinated volatile or semi-volatile organic compounds, whose presence would suggest solvent storage at the UST, were detected in the soil sample from beneath the used oil UST. Samples collected from various depths from other areas of the excavation did not contain detectable concentrations of petroleum hydrocarbons.

Grab water samples from excavations where petroleum hydrocarbons are also present in the soil typically contain concentrations of petroleum hydrocarbons that are elevated from those that might be collected from a well in the near vicinity. These elevated concentrations are believed to be due to the contact of the water with sloughed contaminated material which may not normally be in contact with the shallow groundwater. Although the concentrations detected in the grab water sample from the tank cluster excavation are believed to be elevated, based on the relative depths of the affected soil and the shallow groundwater surface, there is a high probability that the shallow groundwater has been impacted.



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

---

**Facility Owner/Operator:**

Continental Baking Company  
Fred Dannecker  
Fleet Superintendent  
1525 Bryant Street  
San Francisco, California 94103

(415) 552-0950

**Environmental Consultants to Continental Baking Company:**

Woodward-Clyde Consultants  
JoBeth Folger  
500-12th Street, Suite 100  
Oakland, California 94607

(510) 874-3138

**UST Removal Inspector:**

Alameda County Health Agency  
Brian P. Oliva  
80 Swan Way, Room 200  
Oakland, California 94621

(510) 271-4230

---

TABLE 2

ANALYTICAL RESULTS FOR SAMPLES COLLECTED IN SUPPORT OF THE UNDERGROUND STORAGE TANK CLOSURE  
 AT THE CONTINENTAL BAKING COMPANY FACILITY  
 1010 46TH STREET  
 OAKLAND, CALIFORNIA  
 (Page 1 of 2)

Sample Location	Sample Depth (feet)	Collection Date	Modified EPA Method 8015/8020								418.1	8010	8270	7421
			TPH-G	TPH-D	TPH-K	TPH-O	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	TRPH	Volatile Organics	Semi-Vol Organics	Total Lead
<b>SOIL SAMPLES RESULTS (mg/kg, ppm)</b>														
FTP-1	14	12/22/92	-	< 1.00	< 1.00	< 10.0	< 0.0062	< 0.0062	< 0.0062	< 0.0062	-	-	-	-
FTP-2	14	12/22/92	-	< 1.00	< 1.00	< 10.0	< 0.0062	< 0.0062	< 0.0062	< 0.0062	-	-	-	-
TP-1	11.5	12/22/92	<1.0	-	-	-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	4.8
TP-2	13	12/22/92	<1.0	-	-	-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-	5.1
TP-3	9	12/22/92	<1.0	< 4.5 <sup>1</sup>	< 1.00	< 10.0	< 0.005	< 0.005	< 0.005	< 0.005	34	< 0.04	ND <sup>2</sup>	5.0 <sup>3</sup>
TP-4	13	12/22/92	-	< 1.00	< 1.00	< 10.0	< 0.0062	< 0.0062	< 0.0062	< 0.0062	-	-	-	-
TP-5	11	12/22/92	-	< 1.00	120	58	< 0.0062	0.014	0.092	0.034	-	-	-	-
D-1	4	12/22/92	<70 <sup>4</sup>	790 <sup>5</sup>	< 4.0	< 40	< 0.02	< 0.02	< 0.02	< 0.02	-	-	-	-
<b>WATER SAMPLE RESULTS (mg/L, ppm)</b>														
W-1	-	12/22/92	2.96 <sup>6</sup>	< 0.05	< 0.05	< 0.5	0.54	0.42	0.02	0.22	-	-	-	-

See following page for abbreviations and explanation of footnotes.

TABLE 2

ANALYTICAL RESULTS FOR SAMPLES COLLECTED IN SUPPORT OF THE UNDERGROUND STORAGE TANK CLOSURE  
AT THE CONTINENTAL BAKING COMPANY FACILITY  
1010 46TH STREET  
OAKLAND, CALIFORNIA  
(Page 2 of 2)

---

NOTES:

- TPH-G Total Petroleum Hydrocarbons Quantified as Gasoline  
TPH-D Total Petroleum Hydrocarbons Quantified as Diesel  
TPH-K Total Petroleum Hydrocarbons Quantified as Kerosene  
TPH-O Total Petroleum Hydrocarbons Quantified as Oil  
TRPH Total Recoverable Petroleum Hydrocarbons
- Denotes that the sample was not analyzed for the noted parameter
  - 1 Laboratory reported 4.5 mg/kg of "unknown hydrocarbon." WCC reviewed the chromatogram and the reported quantity is due to a single response peak. Although it occurred in the diesel range, the pattern did not conform to the diesel pattern. The detection limit has been adjusted to reflect the presence of the "unknown hydrocarbon".
  - 2 All analytes were not detected at or above their respective reporting limits ranging from 0.33 to 1.6 mg/kg.
  - 3 Sample was also analyzed for select four metals by EPA 6010: [Cd] = <1.0 mg/kg; [Cr] = 31.0 mg/kg; [Ni] = 25 mg/kg; [Zn] = 97 mg/kg
  - 4 The laboratory reported <4 mg/kg gasoline. However, the laboratory also reported 70 mg/kg of "unknown hydrocarbon." WCC reviewed the chromatogram and the reported quantity appears to be the more volatile portion of diesel eluting. The detection limit has been adjusted to reflect the presence of the "unknown hydrocarbon".
  - 5 Reported as "unknown hydrocarbon" by the laboratory. WCC has interpreted the result as degraded diesel after having reviewed the chromatogram.
  - 6 Reported as <0.5 mg/L. However, the laboratory reported 2.9 mg/kg of "unknown hydrocarbon." WCC has interpreted the result as degraded gasoline after having reviewed the chromatogram.

TABLE 3

**ANALYTICAL RESULTS (IN mg/kg) FOR SAMPLES COLLECTED WASTE DISPOSAL CHARACTERIZATION  
AT THE CONTINENTAL BAKING COMPANY FACILITY  
1010 46TH STREET  
OAKLAND, CALIFORNIA**

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

## NOTES:

TPH-G Total Petroleum Hydrocarbons Quantified as Gasoline

TRPH Total Recoverable Petroleum Hydrocarbons

TPH-O Total Petroleum Hydrocarbons Quantified as Oil

TPH-D Total Petroleum Hydrocarbons Quantified as Diesel

TPH-K Total Petroleum Hydrocarbons Quantified as Kerosene

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

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

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

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

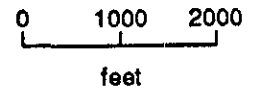
4 Other analyses for SS1-ABCD: Reactive cyanide=&lt;10 mg/kg; Reactive sulfide=12 mg/kg; pH=8.1; Flashpoint&gt;70°C; STLC metals in mg/L: [Ag]&lt;0.010; [As]&lt;0.10; [Ba]=5.7; [Be]=0.0079; [Cd]=0.025; [Co]=0.38; [Cr]=0.47; [Cu]=0.26; [Hg]=0.0059; [Mo]=0.039; [Ni]=1.2; [Pb]=0.30; [Sb]=0.052; [Se]=1.7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

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

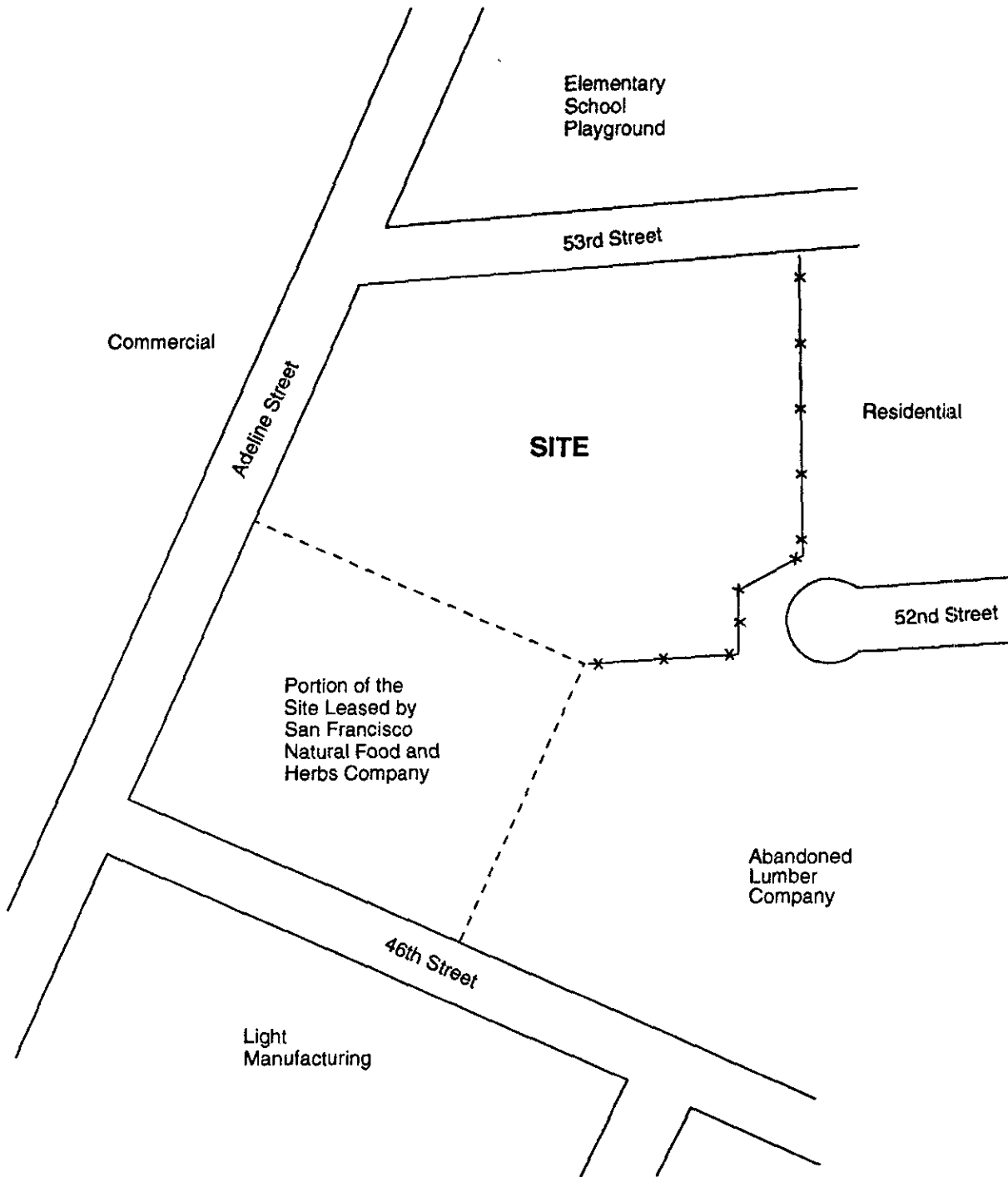
6 Other analyses for SS2-ABCD: Reactive cyanide=&lt;10; Reactive sulfide=19; pH=8.5; Flashpoint&gt;70°C

7 Other analyses for SS2-EFGH: Reactive cyanide=&lt;10; Reactive sulfide=19; pH=8.6; Flashpoint&gt;70°C



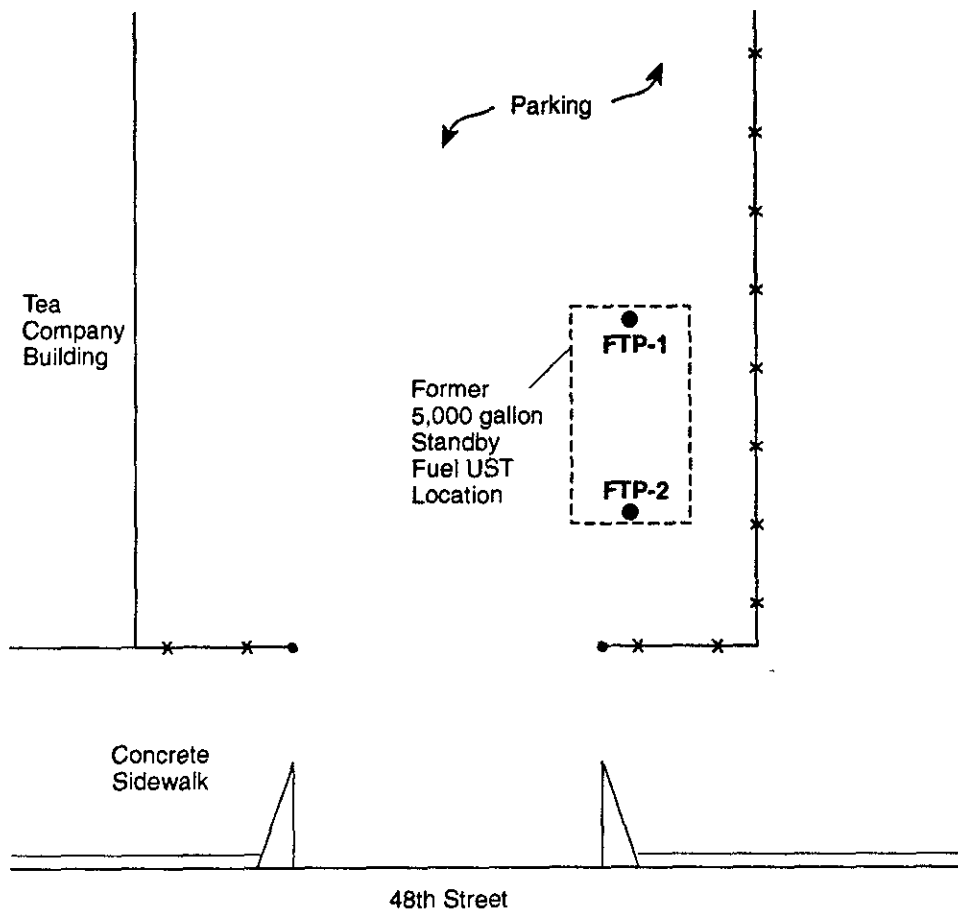


Project No. 92CB040	Continental Baking Company 1010 46th Street Oakland, California	<b>SITE LOCATION</b>	<b>Figure 1</b>
<b>Woodward-Clyde Consultants</b>			



(not to scale)

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



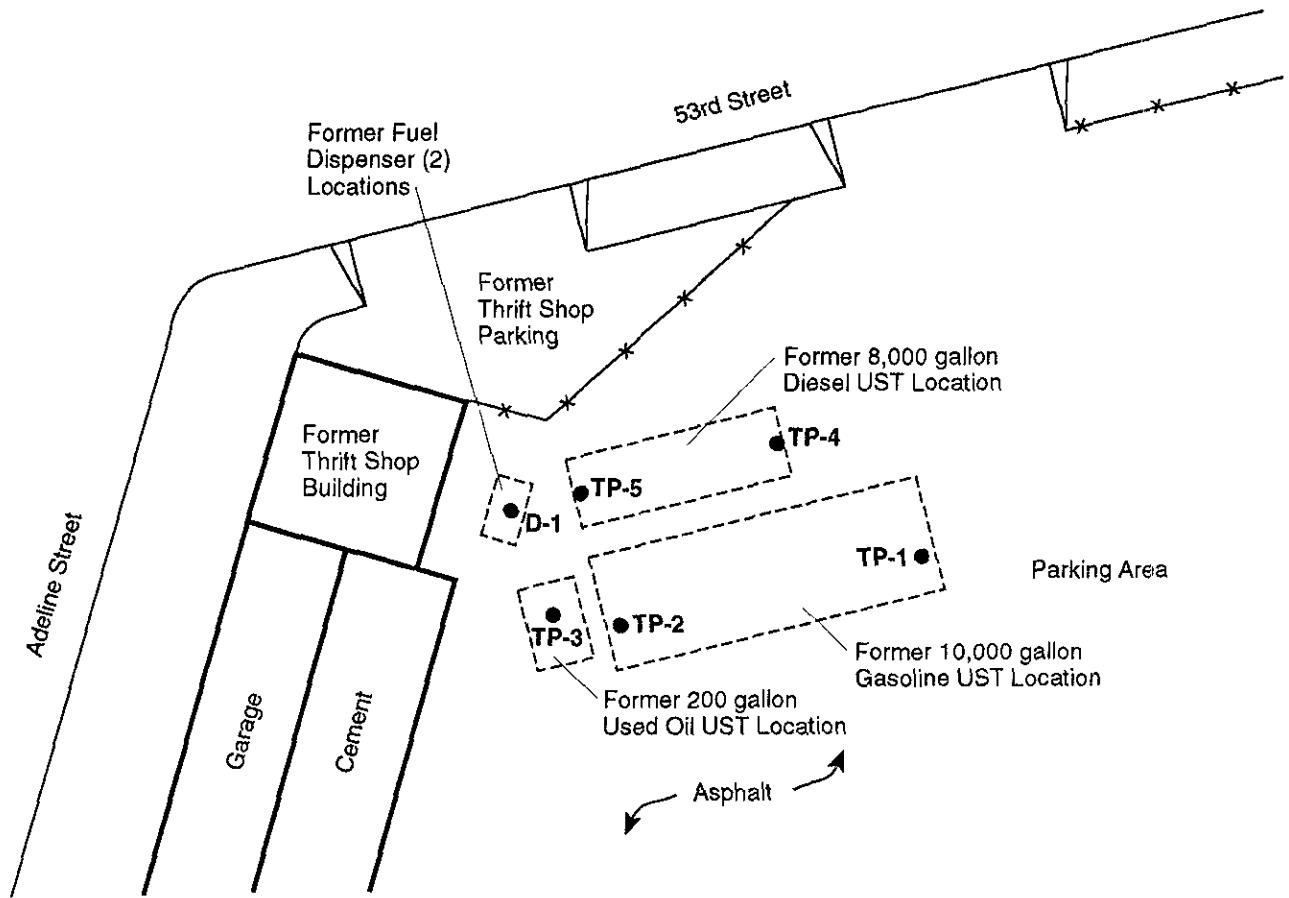
LEGEND

FTP-1 ● Closure Soil Sample Location



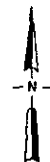
(not to scale)

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



**LEGEND**

**TP-1 ●** Closure Soil Sample Location



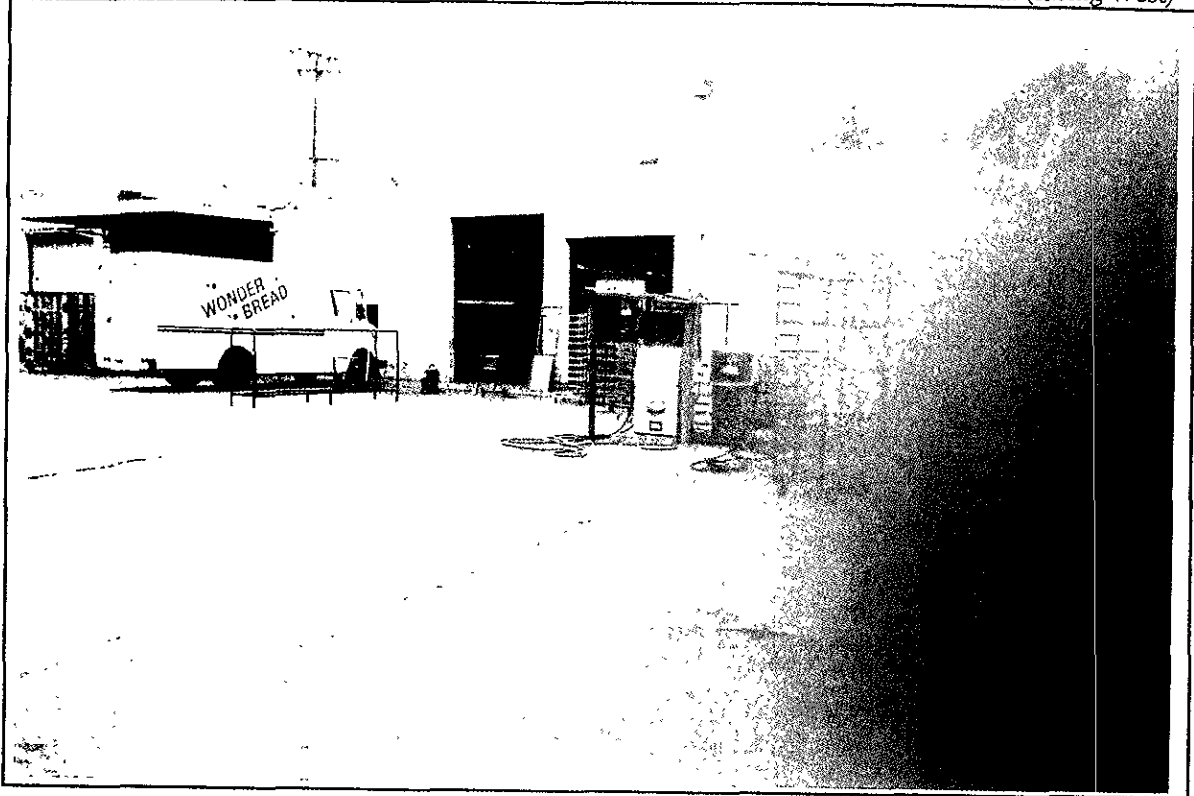
(not to scale)

Project No. 92CB040	Continental Baking Company 1010 46th Street Oakland, California	<b>CLUSTERED UNDERGROUND STORAGE TANK AND CLOSURE SAMPLE LOCATIONS</b>	Figure 4
<b>Woodward-Clyde Consultants</b>			



CONTINENTAL BAKING COMPANY  
1010 46TH STREET (53RD AND ADELIN)  
EMERYVILLE, CALIFORNIA

May 6, 1992: Garage, Fuel Dispensers, and Ground Surface of Two Tanks Prior to Removal (facing West)

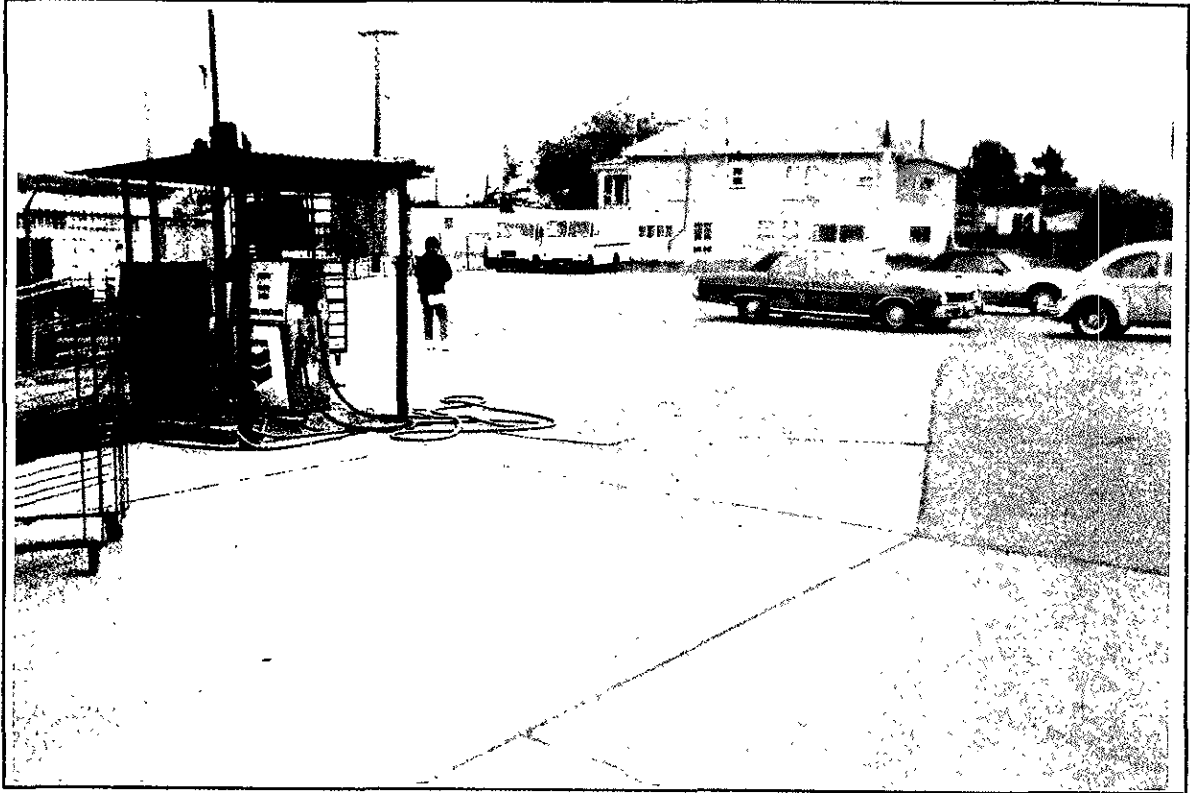


May 6, 1992: Ground Surface of UST Cluster Prior to Excavation and Removal (facing East)

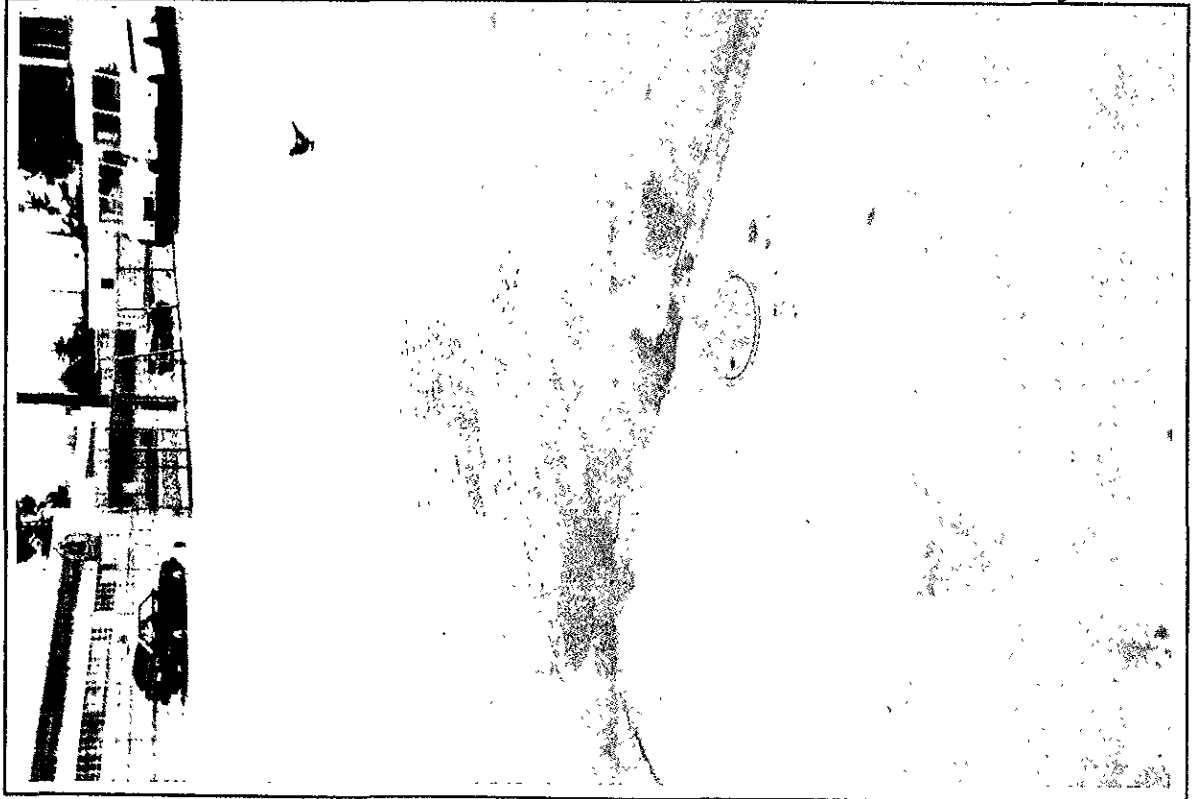


CONTINENTAL BAKING COMPANY  
1010 46TH STREET (53RD AND ADELIN)  
EMERYVILLE, CALIFORNIA

May 6, 1992: Ground Surface of UST Cluster (Garage/Thriftshop Side) Prior to Removal (facing East)

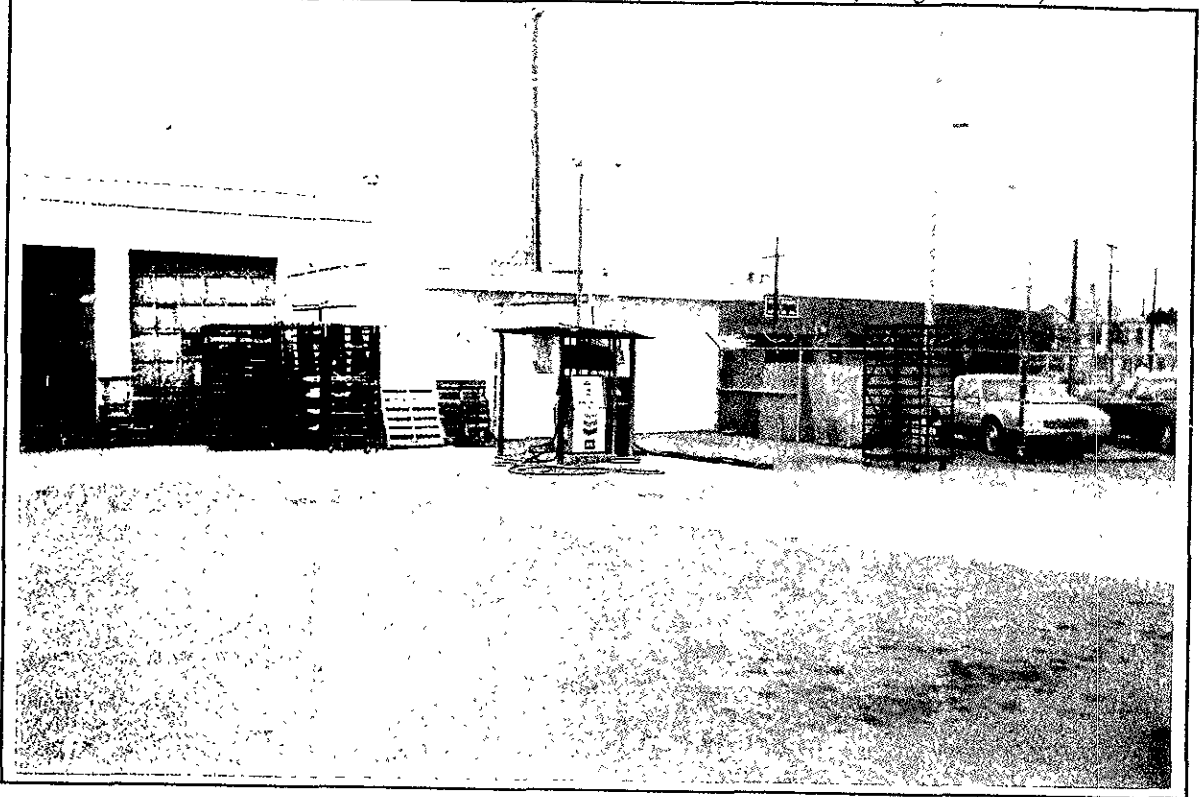


May 6, 1992: Closeup of Northernmost UST (at Garage/Thriftshop Half of Site) and Surrounding Stained Asphalt



CONTINENTAL BAKING COMPANY  
1010 46TH STREET (53RD AND ADELINE)  
EMERYVILLE, CALIFORNIA

May 6, 1992: Fuel Dispensers and Surrounding UST Area Prior to Removal (facing Northeast)



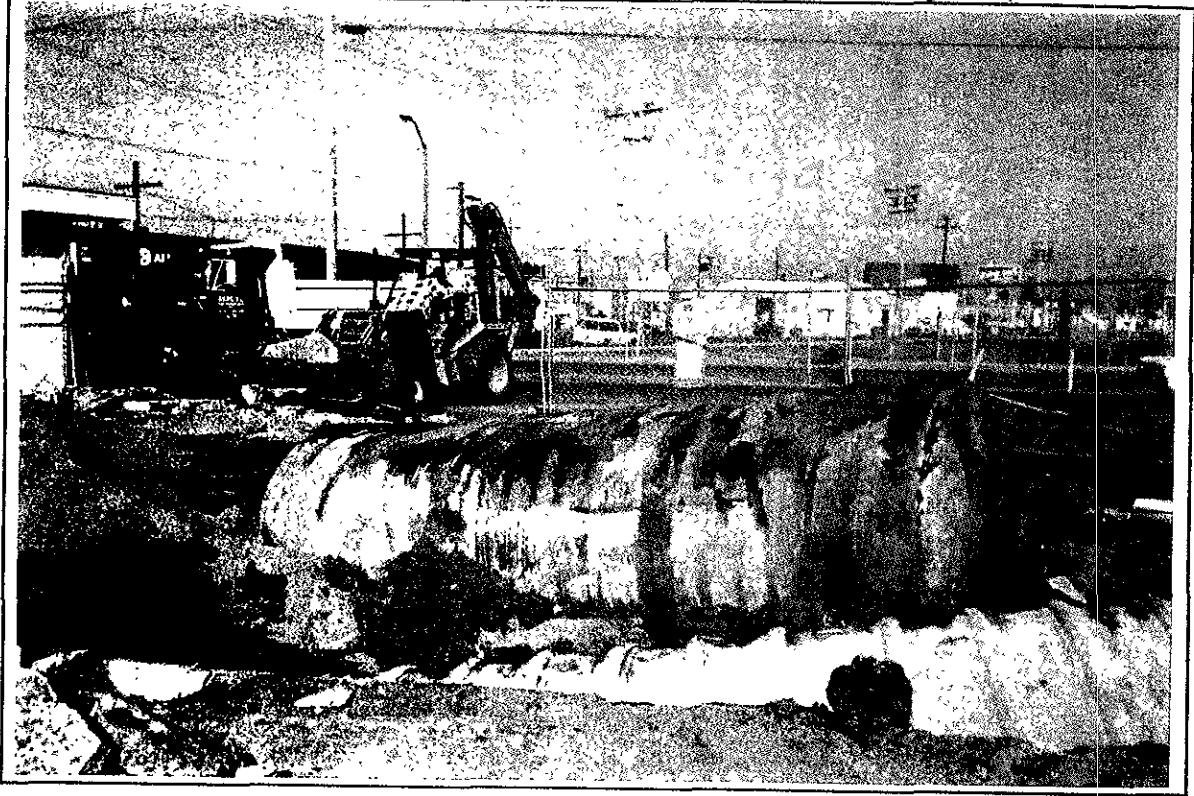
December 22, 1992: Exposed Waste Oil UST During Excavation (facing West)





CONTINENTAL BAKING COMPANY  
1010 46TH STREET (53RD AND ADELIN)  
EMERYVILLE, CALIFORNIA

December 22, 1992: Large Steel UST (Fiberglass UST Visible in Foreground, facing North)

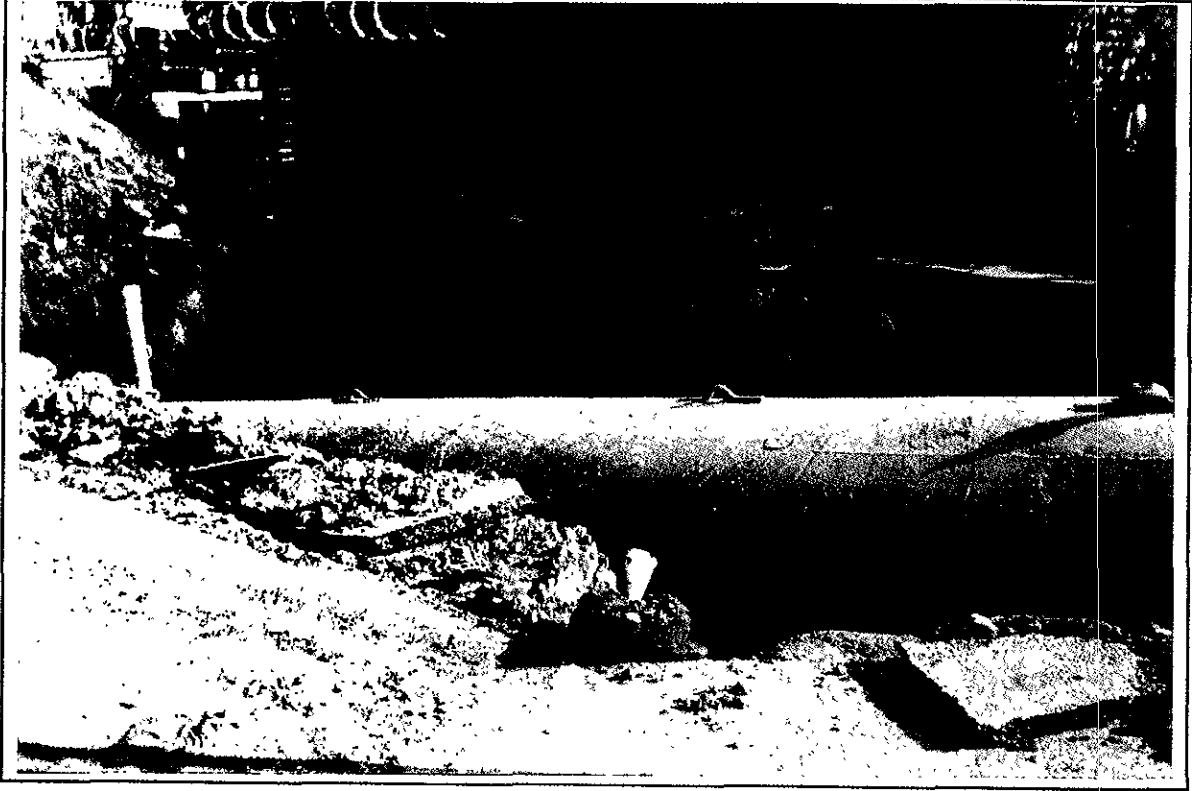


December 22, 1992: Exposed Fiberglass and Steel USTs During Excavation (facing North)

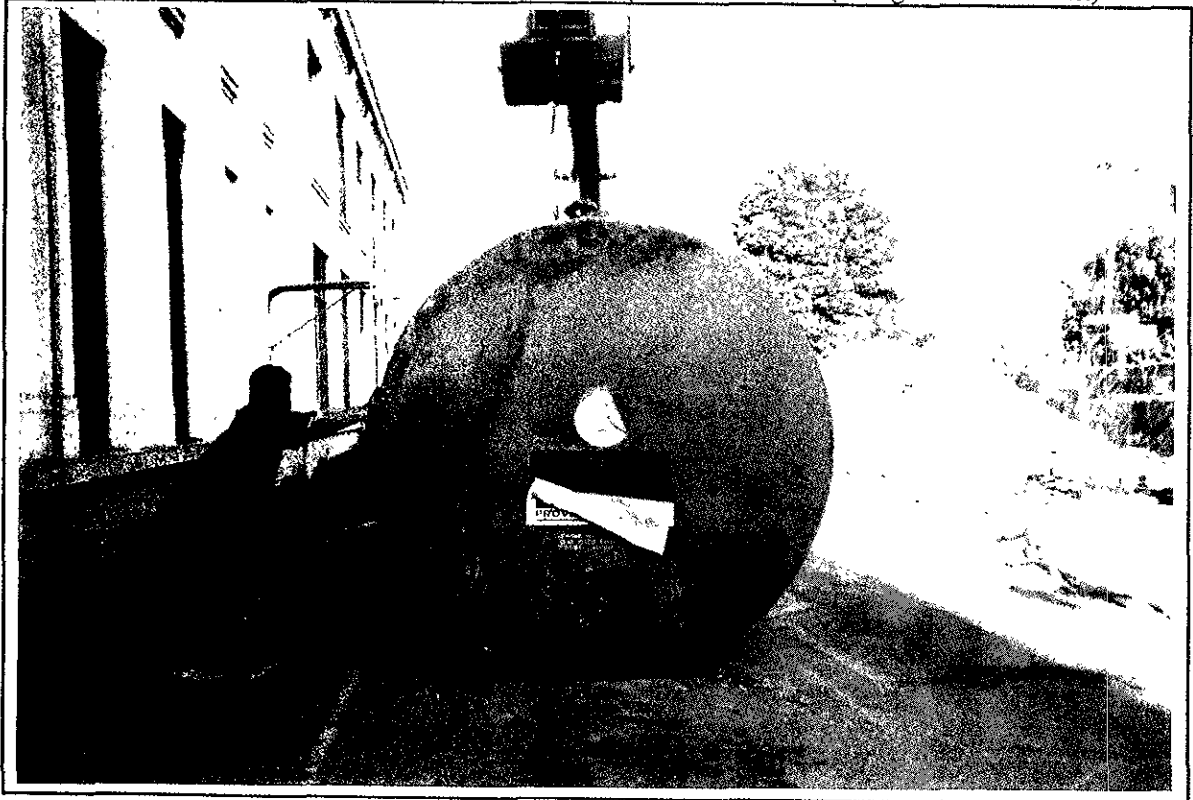


CONTINENTAL BAKING COMPANY  
1010 46TH STREET (53RD AND ADELINE)  
EMERYVILLE, CALIFORNIA

December 22, 1992: Exposed Tea Company Building Backup Fuel Steel UST (facing East)

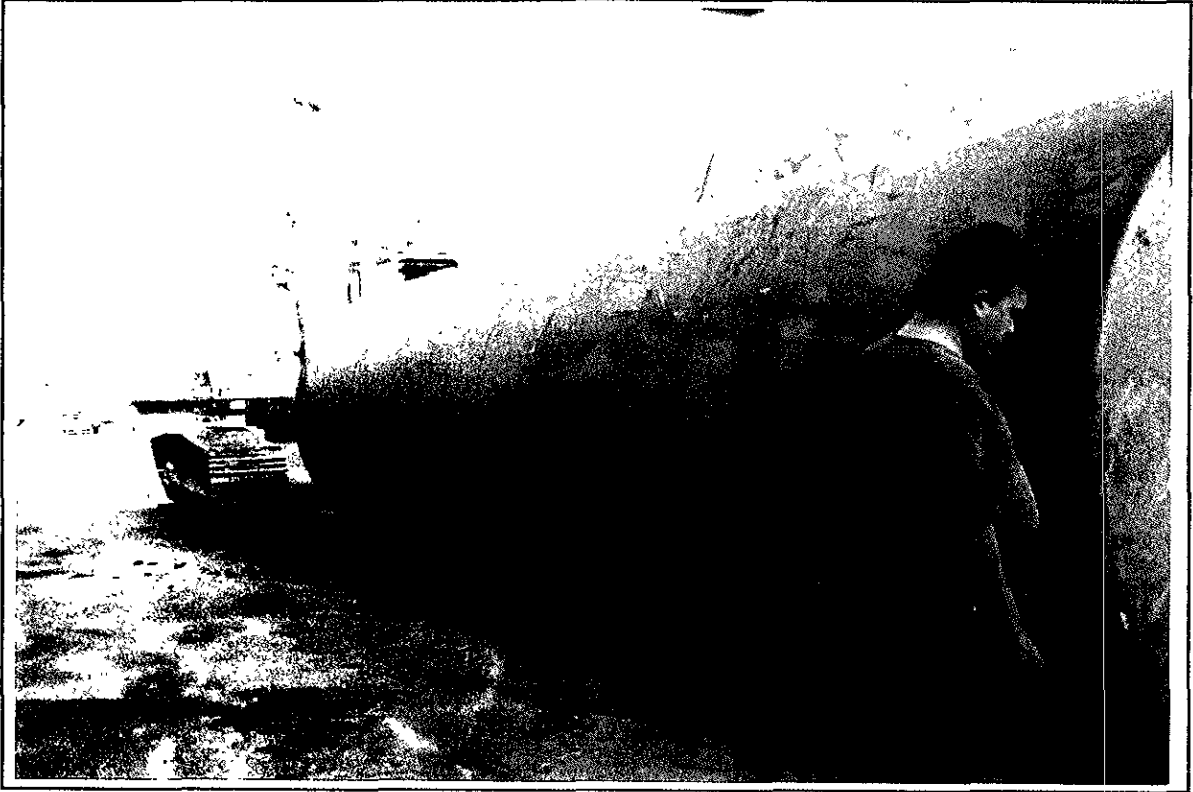


December 22, 1992: Southwest End of Excavated Backup Fuel Steel UST (facing North-Northeast)



CONTINENTAL BAKING COMPANY  
1010 46TH STREET (53RD AND ADELIN)  
EMERYVILLE, CALIFORNIA

December 22, 1992: West Side of Excavated Backup Fuel Steel UST

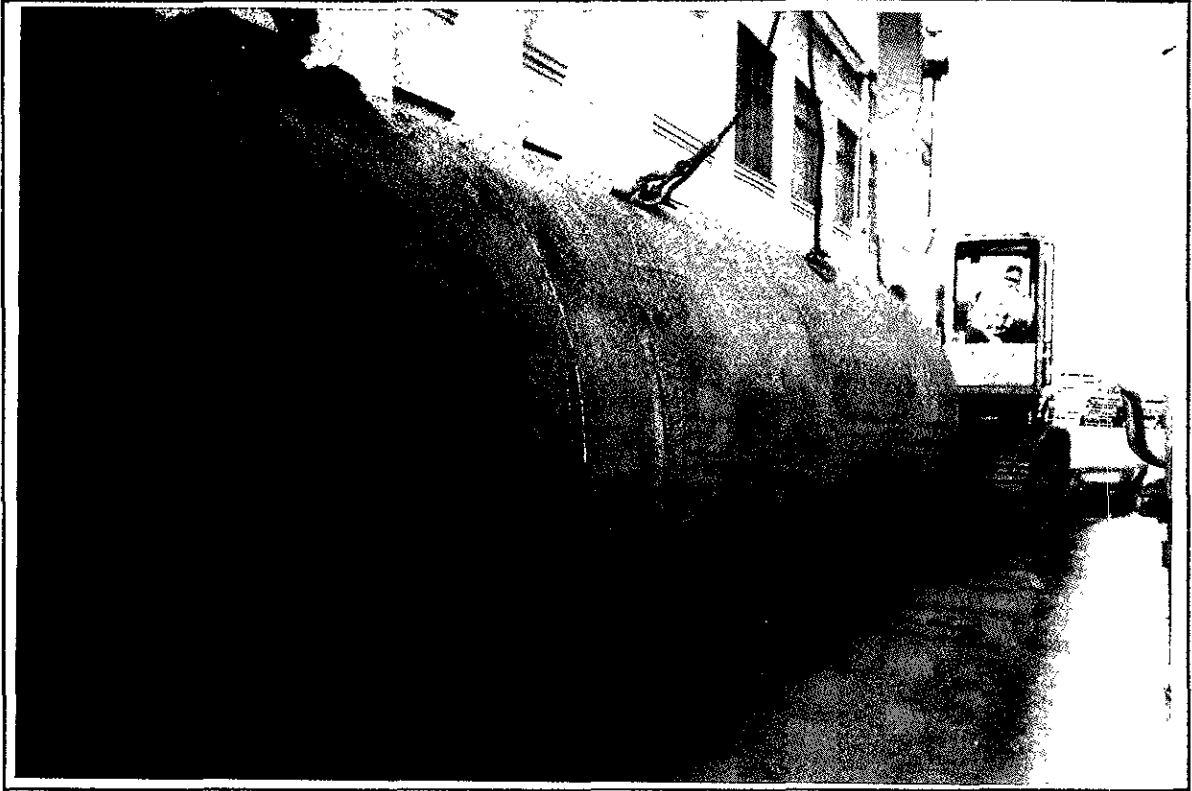


December 22, 1992: Northeast End of Excavated Backup Fuel Steel UST



CONTINENTAL BAKING COMPANY  
1010 46TH STREET (53RD AND ADELINE)  
EMERYVILLE, CALIFORNIA

December 22, 1992: East Side of Excavated Backup Fuel Steel UST



December 22, 1992: Northeast Corner of Backup Fuel UST Excavation (Showing Sampling Location of FTP-1)

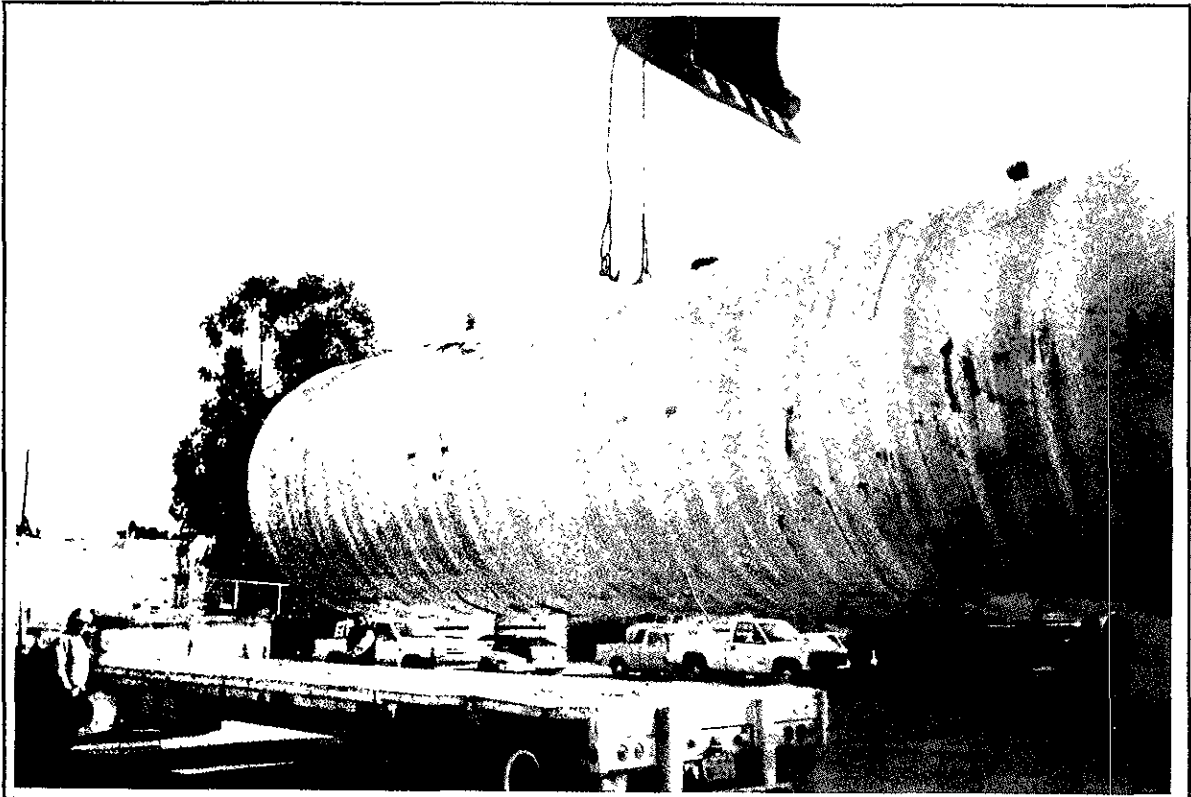


CONTINENTAL BAKING COMPANY  
1010 46TH STREET (53RD AND ADELINE)  
EMERYVILLE, CALIFORNIA

December 22, 1992: Southeast Corner of Backup Fuel UST Excavation (Showing Sampling Location of FTP-2)

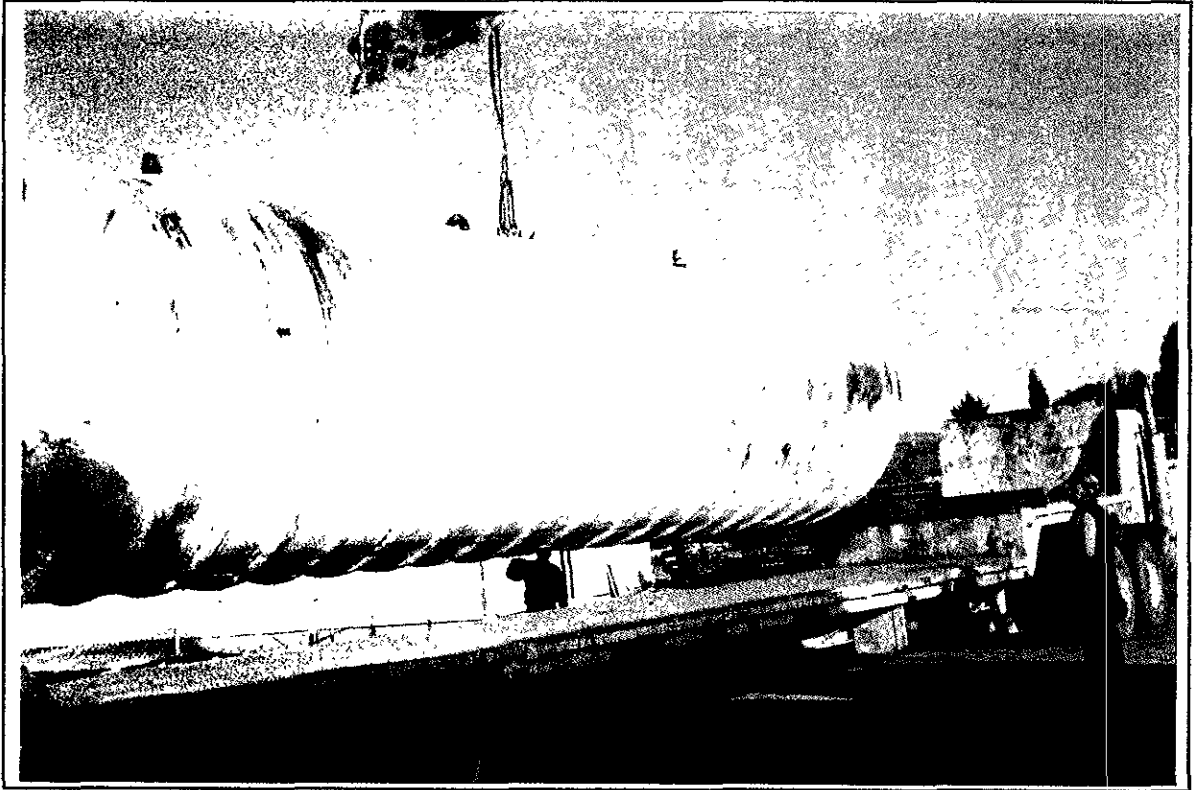


December 22, 1992: North Side of Excavated FRP Gasoline UST

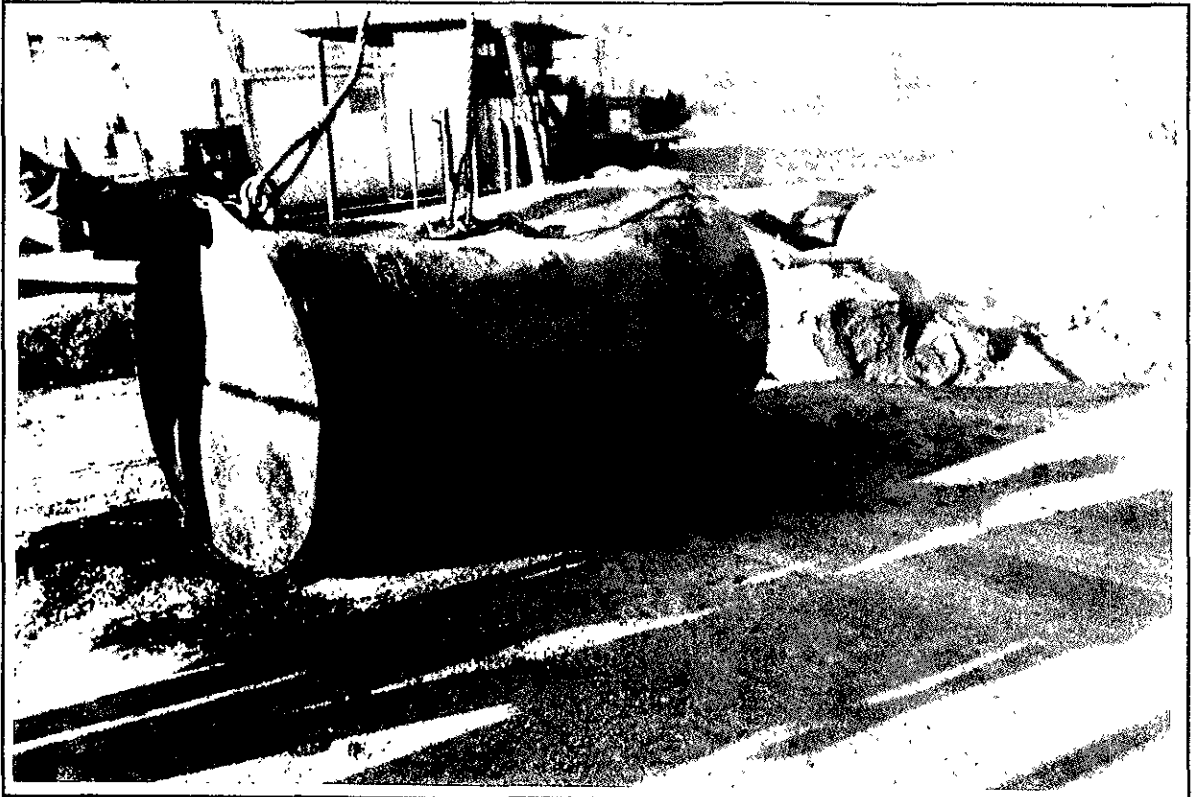


CONTINENTAL BAKING COMPANY  
1010 46TH STREET (53RD AND ADELINE)  
EMERYVILLE, CALIFORNIA

December 22, 1992: South Side of Excavated FRP Gasoline UST

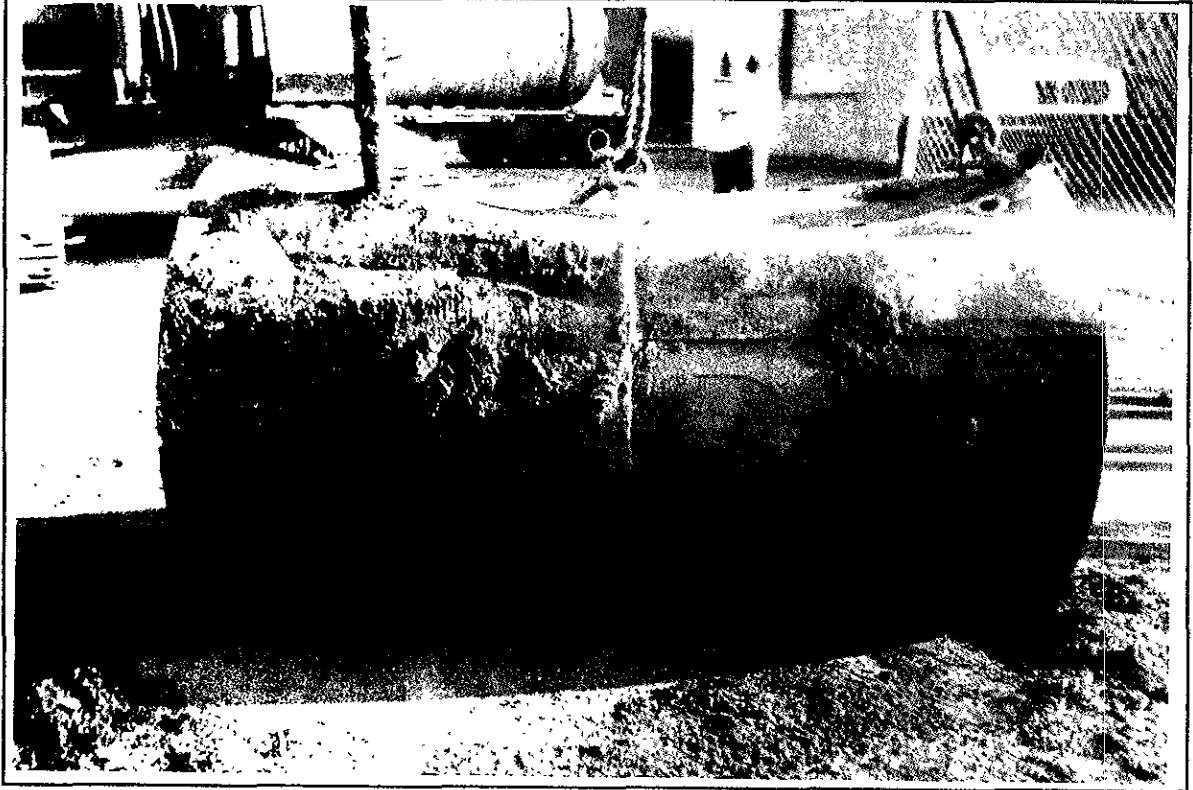


December 22, 1992: East Side of Excavated Waste Oil UST



CONTINENTAL BAKING COMPANY  
1010 46TH STREET (53RD AND ADELIN)  
EMERYVILLE, CALIFORNIA

December 22, 1992: West Side of Excavated Waste Oil UST

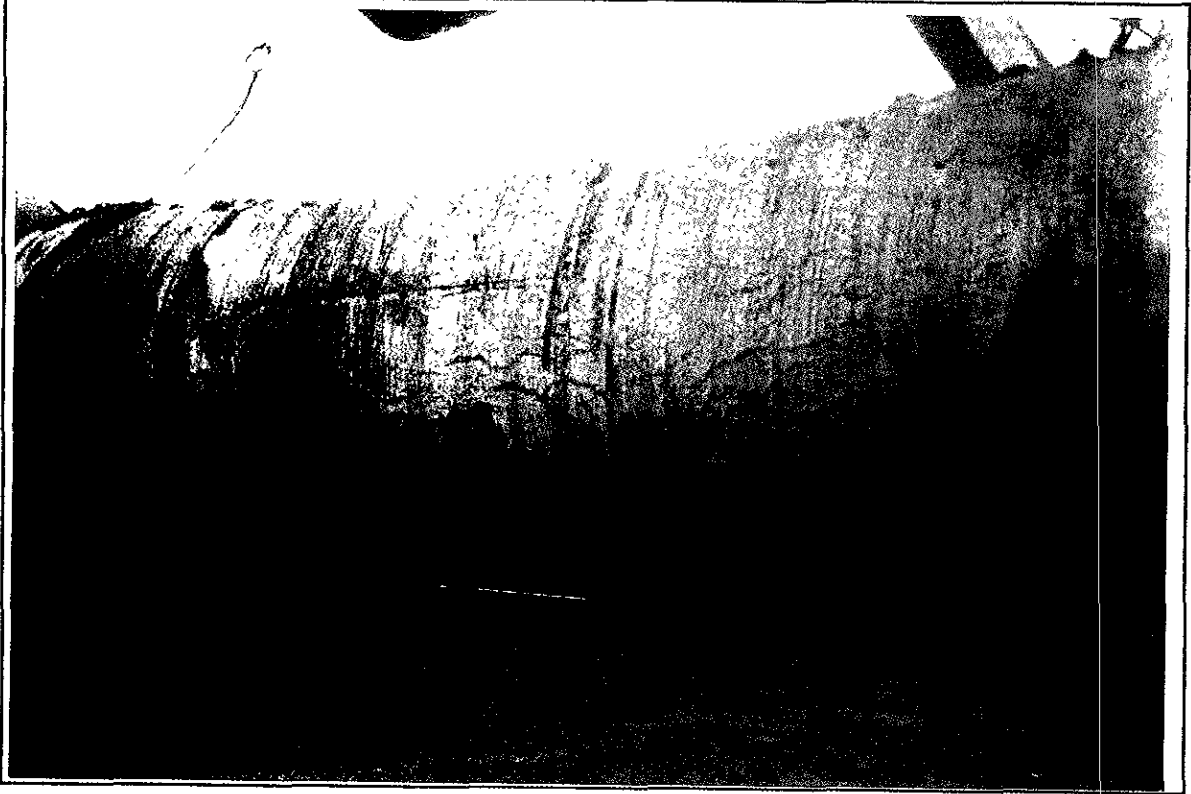


December 22, 1992: South Side of Excavated Steel Diesel UST

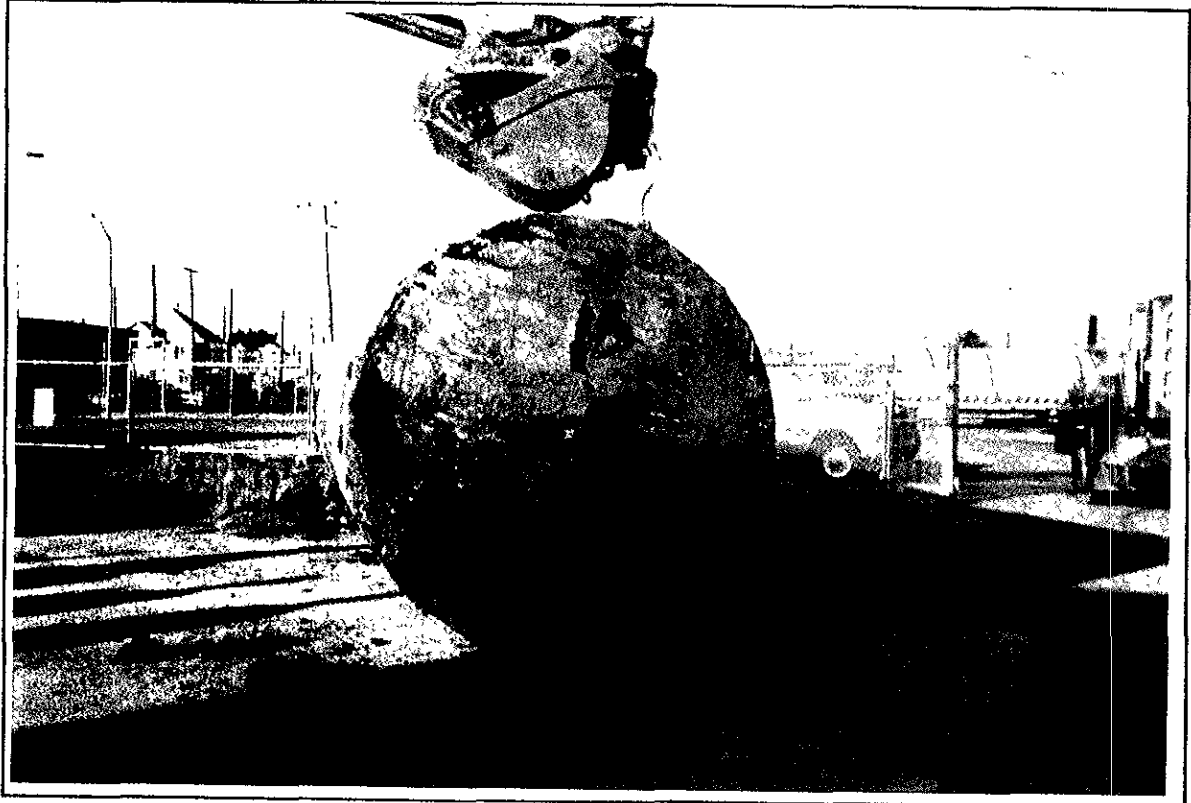


CONTINENTAL BAKING COMPANY  
1010 46TH STREET (53RD AND ADELINE)  
EMERYVILLE, CALIFORNIA

December 22, 1992: North Side of Excavated Steel Diesel UST



December 22, 1992: East End of Excavated Steel Diesel UST





CONTINENTAL BAKING COMPANY  
1010 46TH STREET (53RD AND ADELINE)  
EMERYVILLE, CALIFORNIA

December 22, 1992: Bottom and West End of Excavated Steel Diesel UST

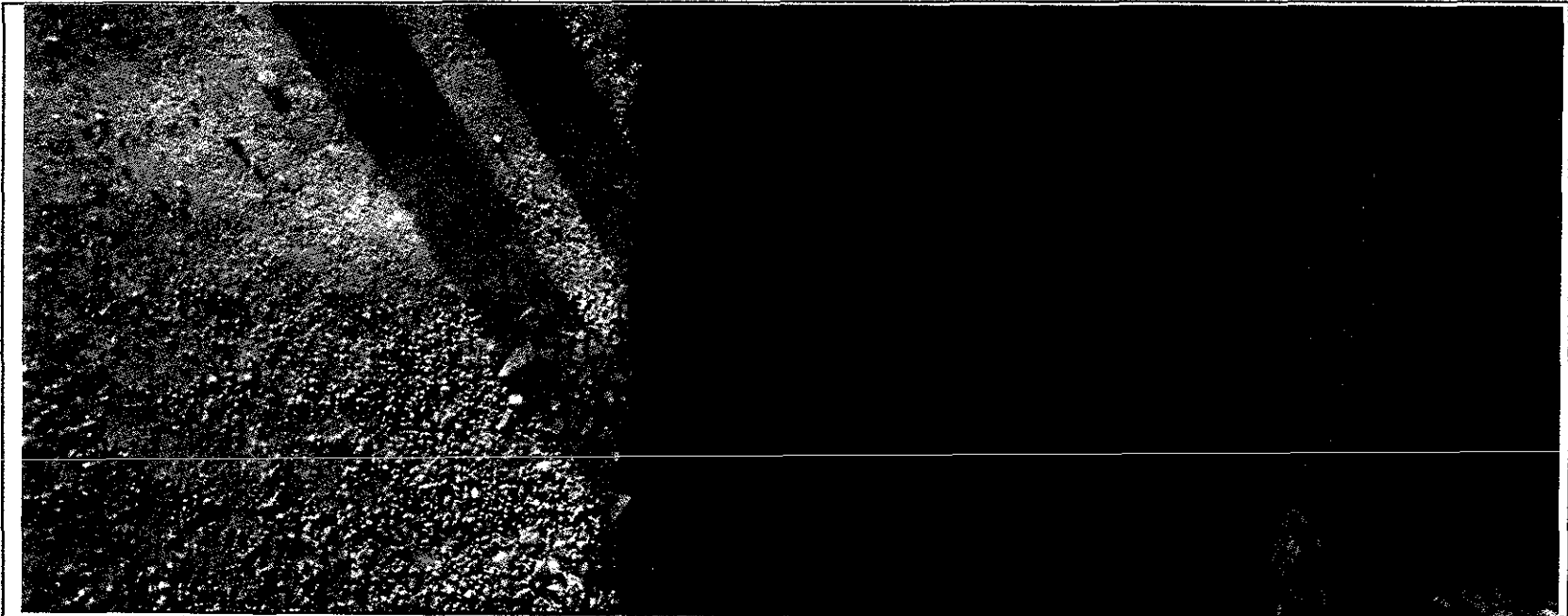


CONTINENTAL BAKING COMPANY 1010-46TH STREET (53RD AND ADELINE) EMERYVILLE, CALIFORNIA

December 22, 1992: North Side (East End) of UST Cluster Excavation (Showing Location of Sample TP-1)



December 22, 1992: West End of former FRP UST Location (Into Excavation, Showing Location of Sample TP-2)

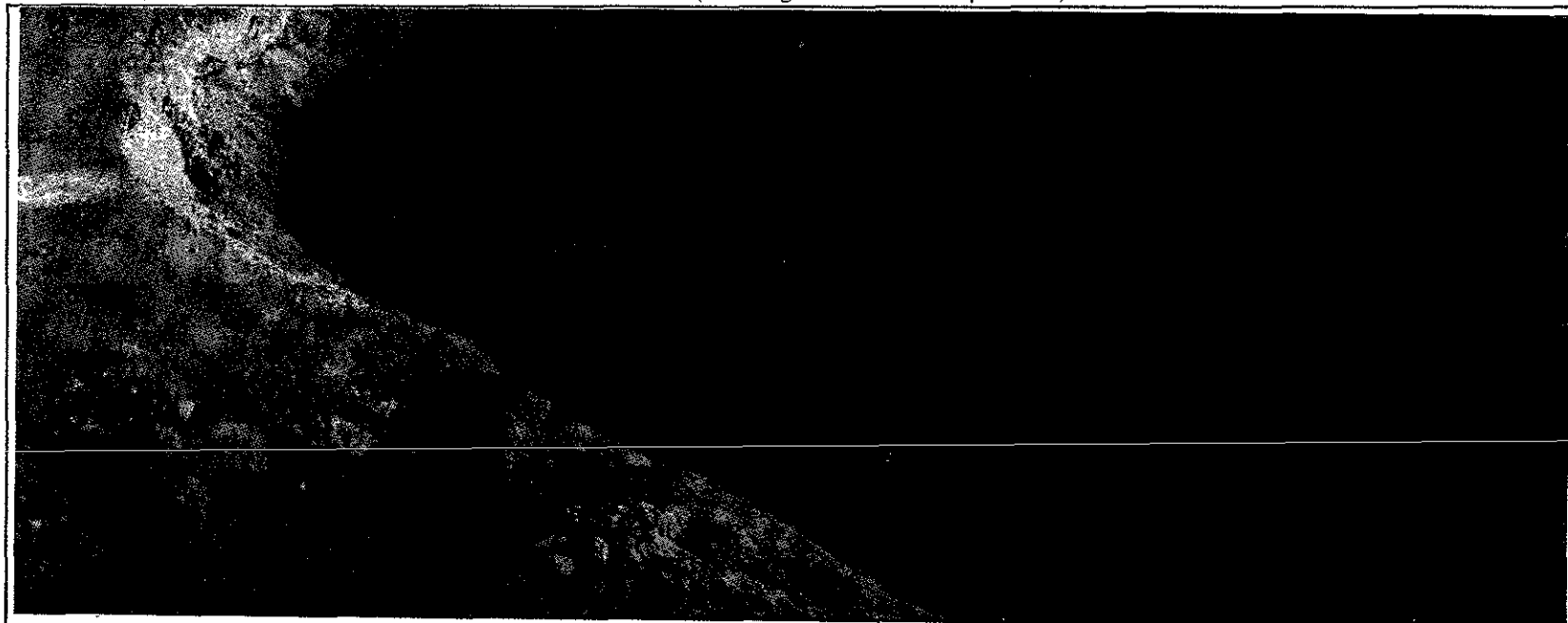


CONTINENTAL BAKING COMPANY 1010-46TH STREET (53RD AND ADELINE) EMERYVILLE, CALIFORNIA

December 22, 1992: West End of UST Cluster Excavation, Near Former Waste Oil UST Location (Showing Location of Sample TP-3)

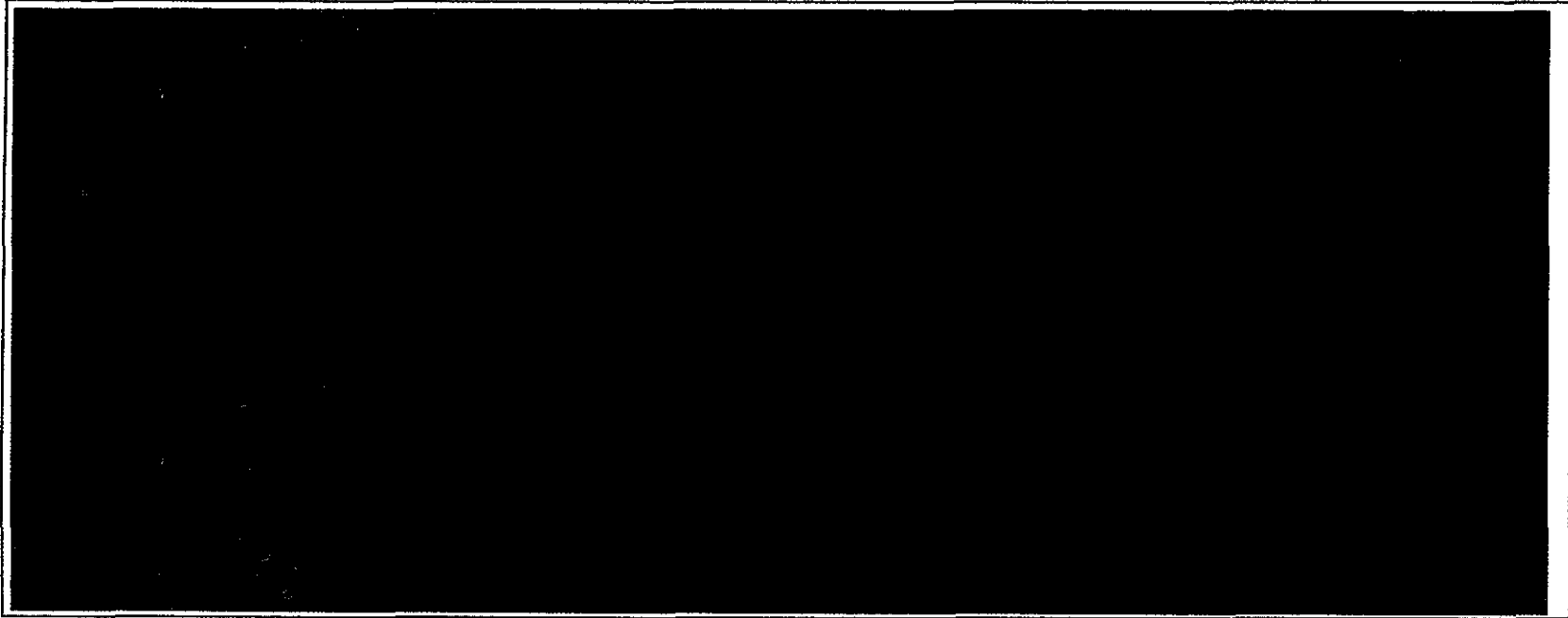


December 22, 1992: Northeast Corner of UST Cluster Excavation (Showing Location of Sample TP-4)

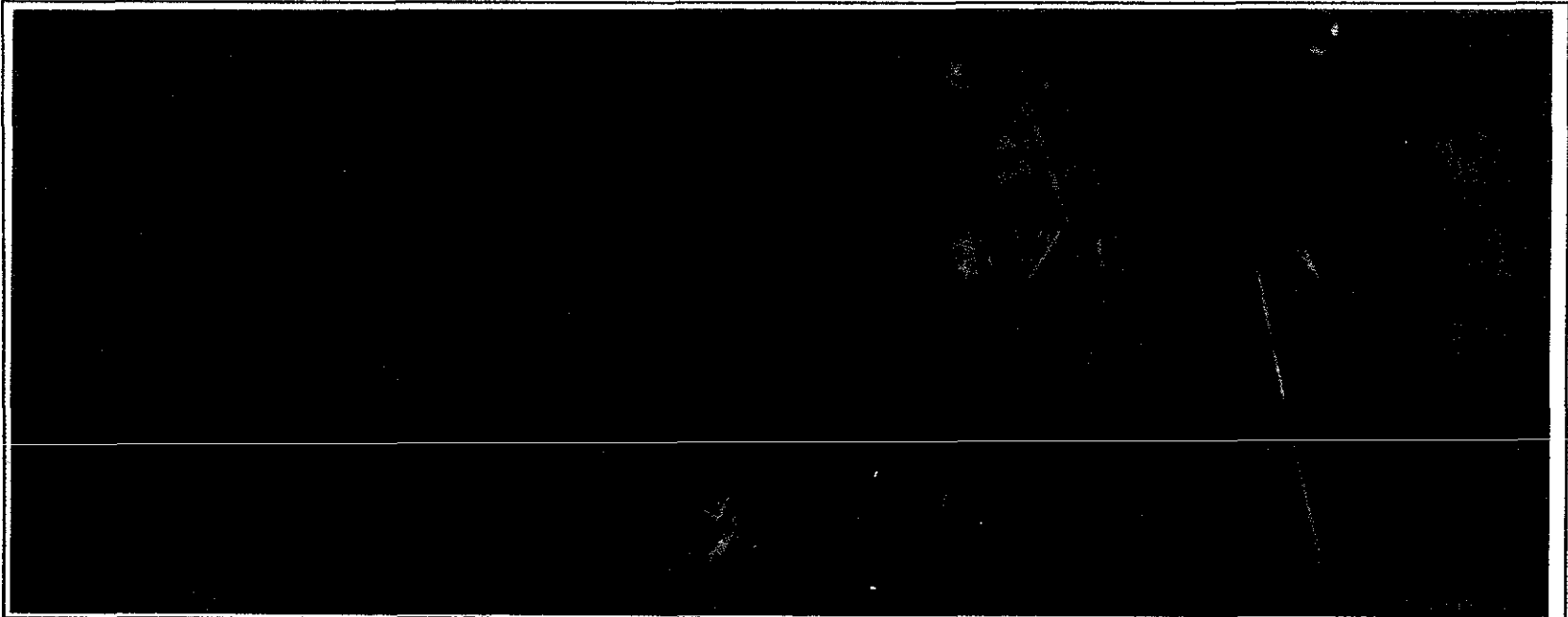


CONTINENTAL BAKING COMPANY 1010-46TH STREET (53RD AND ADELINE) EMERYVILLE, CALIFORNIA

December 22, 1992: West End of UST Cluster Excavation, Near End of Former Steel Diesel UST Location (Showing Location of Sample TP-5)



December 22, 1992: West End of UST Cluster Excavation (Showing Location of Sample D-1)





92080986

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. <u>CA1149101913321181014015</u>		Manifest Document No. _____		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address <u>Continental Baking Co 10115 46TH ST EMERYVILLE CA 94662</u>				Manifest Document Number <b>92080986</b>					
4. Generator's Phone <u>(415) 552-0950</u>		6. US EPA ID Number <u>94662</u>							
5. Transporter 1 Company Name <u>Erickson INC</u>		8. US EPA ID Number <u>CA10109146613912</u>							
7. Transporter 2 Company Name _____				10. US EPA ID Number _____					
9. Designated Facility Name and Site Address <u>Erickson, Inc. 255 Parr Blvd. Richmond, Ca. 94801</u>									
11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number) <b>Waste Empty Storage Tank NON-RCRA Hazardous Waste Solid:</b>		12. Containers		13. Total Quantity		14. Unit		15. Waste Number	
		No. Type		Quantity		Wt/Vol		EPA Code	
		0102 <sup>T</sup> P		1510106		P		EPA Code	
		b.						EPA Code	
		c.						EPA Code	
d.						EPA Code			
1. Additional Descriptions for Materials Listed Above Qty: <u>1</u> Empty Storage Tank (s) <u>15,106 lbs</u>				2. Additional Descriptions for Materials Listed Above		a.		b.	
Tank (s) have been inerted with 15 lbs Dry Ice per 1000 Gal. Capacity.				c.		d.			
15. Special Handling Instructions and Additional Information Keep away from sources of ignition. Always wear hardhats when working around U.S.T.'s 24 Hr. Contact Name <u>Fred Dannecker</u> & Phone <u>415-552-0950</u>									
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state and international laws.  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.									
Printed/Typed Name <u>FRED DANNECKER</u>				Signature <u>Fred Dannecker</u>				Month Day Year <u>1 2 2 19 9</u>	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name <u>Robert Noiri</u>				Signature <u>Robert Noiri</u>				Month Day Year <u>1 2 2 19 9</u>	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name _____				Signature _____				Month Day Year _____	
19. Discrepancy Indication Space									
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name _____				Signature _____				Month Day Year _____	

DO NOT WRITE BELOW THIS LINE.

Blue: GENERATOR SENDS THIS COPY TO DTSC WITHIN 30 DAY  
 To: P.O. Box 400, Sacramento, CA 95812-0400

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

92080968

GENERATOR FACILITY

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. <b>CAK00001332180405</b>		Manifest Document No.		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.			
3. Generator's Name and Mailing Address <b>Continental Baking Co 1010 46th St Emeryville CA 94662</b>				Manifest Document Number <b>92080968</b>							
4. Generator's Phone <b>415-552-0950</b>		6. US EPA ID Number <b>CAAD01091466B192</b>		Generator's ID <b>327174</b>							
5. Transporter 1 Company Name <b>Erickson Inc</b>		8. US EPA ID Number <b>CAAD009466392</b>		Transporter's ID <b>510 235 138</b>							
7. Transporter 2 Company Name		10. US EPA ID Number									
9. Designated Facility Name and Site Address <b>Erickson, Inc. 255 Parr Blvd. Richmond, Ca. 94801</b>				10. US EPA ID Number <b>CAAD009466392</b>							
11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number) <b>a. Waste Empty Storage Tank NON-RCRA Hazardous Waste Solids:</b>				12. Containers		13. Total Quantity		14. Unit Wt/Vol		15. Waste Name	
				No. Type		Quantity		Wt/Vol		State	
				0102 TP		18000		P			
b.											
c.											
d.											
16. Additional Descriptions for Materials Listed Above Qty. <u>2</u> Empty Storage Tank (s) <u>1032</u> Tank (s) have been inerted with 15 lbs. Dry Ice per 1000 Gal. Capacity:				a.		b.		c.		d.	
15. Special Handling Instructions and Additional Information Keep away from sources of ignition. Always wear hardhats when working around U.S.T.'s 24 Hr. Contact Name <u>FRED DANNEKER</u> & Phone <u>415-552-0950</u>											
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state and international laws.  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.											
Printed/Typed Name <b>FRED DANNEKER</b>		Signature <i>[Signature]</i>		Month		Day		Year			
				12		22		1991			
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature <i>[Signature]</i>		Month		Day		Year			
Printed/Typed Name <b>JERRY L. HULSEY</b>				12		22		1991			
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature		Month		Day		Year			
Printed/Typed Name											
19. Discrepancy Indication Space											
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.				Signature		Month		Day		Year	
Printed/Typed Name											

DO NOT WRITE BELOW THIS LINE.

Blue: GENERATOR SENDS THIS COPY TO DTSC WITHIN 30 DAYS  
 To: P.O. Box 400, Sacramento, CA 95812-0400

UNIFORM HAZARDOUS WASTE MANIFEST

CAL 000013331 01850 of 1

is not required by Federal law.

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

92201850

3. Generator's Name and Mailing Address <b>CONTINENTAL BAKING COMPANY</b> 1010 46th St EMERYVILLE CA 94618		4. Generator's Phone ( ) <b>(415) 552-0950</b>		5. Transporter 1 Company Name <b>Erickson, Inc</b>		6. Transporter 1 Phone <b>(510) 315-1300</b>		7. Transporter 2 Company Name		8. US EPA ID Number <b>CA0009466392</b>		9. Designated Facility Name and Site Address <b>Gibson Oil / Pilot Petroleum</b> 475 Sea Port Blvd Redwood City, Ca 94604		10. US EPA ID Number <b>CA0043260702</b>		11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number) <b>RQ Hazardous Waste Liquids NOS ORM E</b> <b>NA9189 D018</b>		12. Containers No. Type <b>- 1 IT</b>		13. Total Quantity <b>109 G</b>		14. Unit Wt/Vol <b>G</b>		15. Special Handling Instructions and Additional Information <b>Gibson Oil Waste Stream Profile #</b> <b>24 Hr. Contact Fred DANNECKER</b>		16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state and international laws.  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.		17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name: <b>ANTHONY M. NASON</b> Signature: <i>[Signature]</i> Month Day Year: <b>12/2/91</b>		18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name: <b>DAVID BUNCE</b> Signature: <i>[Signature]</i> Month Day Year: <b>12/2/91</b>		19. Discrepancy Indication Space		20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19. Printed/Typed Name: _____ Signature: _____ Month Day Year: _____	
---	--	---	--	---	--	---	--	-------------------------------	--	--	--	--	--	---	--	---	--	---	--	------------------------------------	--	--------------------------------	--	--	--	---	--	---	--	--	--	----------------------------------	--	---	--

DO NOT WRITE BELOW THIS LINE.

Blue: GENERATOR SENDS THIS COPY TO DTSC WITHIN 30 DAYS.  
To: P.O. Box 400, Sacramento, CA 95812-0400



**APPENDIX C  
ANALYTICAL REPORTS FOR CLOSURE SAMPLES**

---



# NAT /ETC

*Mid-Pacific Environmental Laboratory, Inc.*  
625B Clyde Avenue  
Mountain View, CA 94043  
(415) 964-0844  
FAX (415) 961-7113

March 11, 1993


Ms. Anita Yan  
Woodward Clyde Consultants  
500 12th Street, Suite 100  
Oakland, CA 94607-4014

Dear Ms. Yan:

Enclosed is a revised report for MPELI Order# 92-12-144, your work ID 92CB040/0000, originally issued on January 15, 1993.

Per the request of Anita Quesada, the narrative portion has been revised to include a more detailed explanation of the "unknown hydrocarbons" reported. Copies of standard and sample chromatograms are included.

If you should have any further questions, please do not hesitate to contact me at (415) 964-0844.

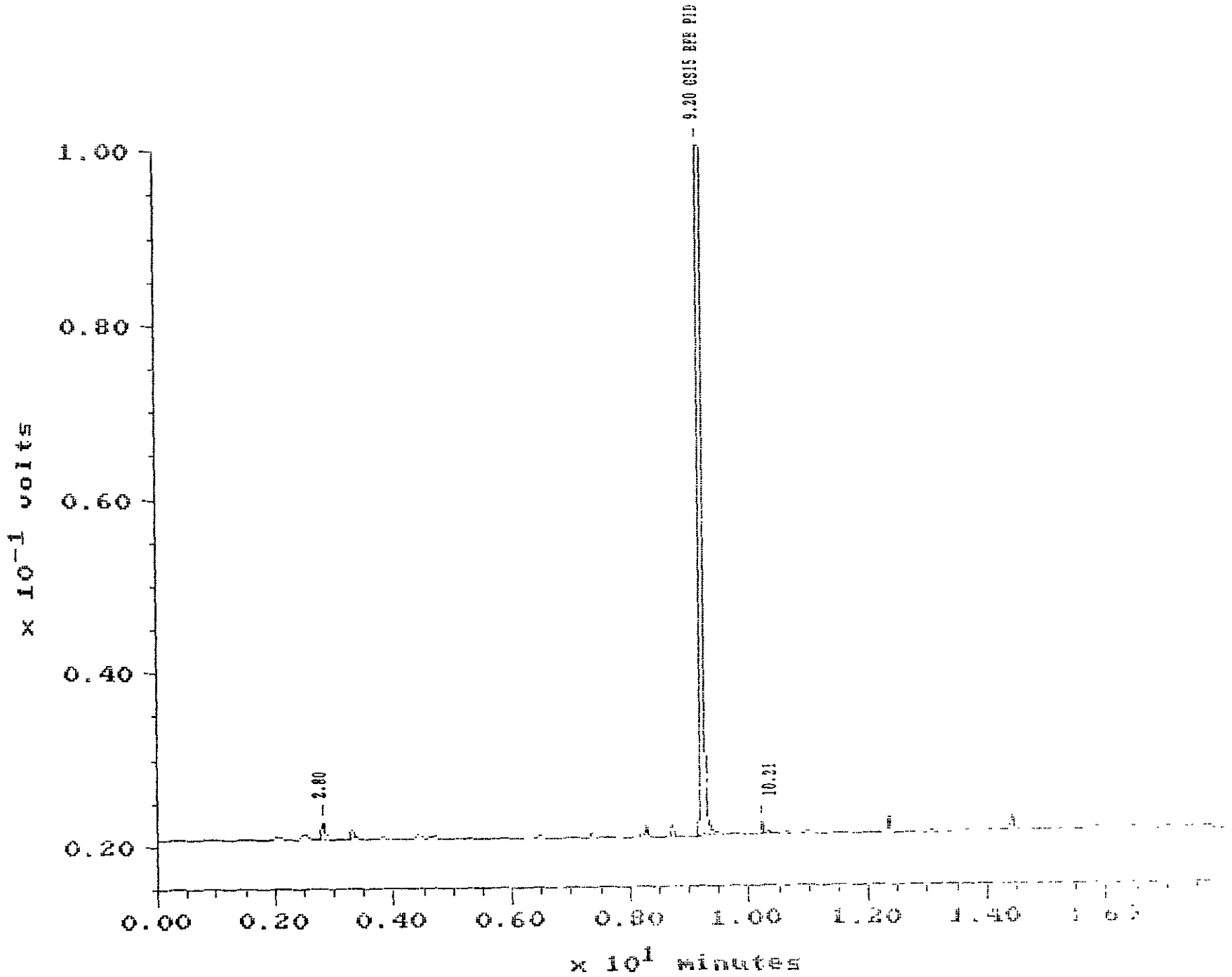
  
\_\_\_\_\_  
Donald Magarian  
Project Manager

Sample: 2121405A, S089A Channel: PID-D  
Acquired: 30-DEC-92 17:44 Method: C:\MAX\3700D\DECS2\GPTX1230  
Dilution: 1 : 1.000 Amount: 20.000  
Comments: 3700D DBS 30 METER 0.52 MM PRIMARY GPTX INSTRUMENT

Filename: 1230D14

Operator: CS  
Inj Vol: 200.00

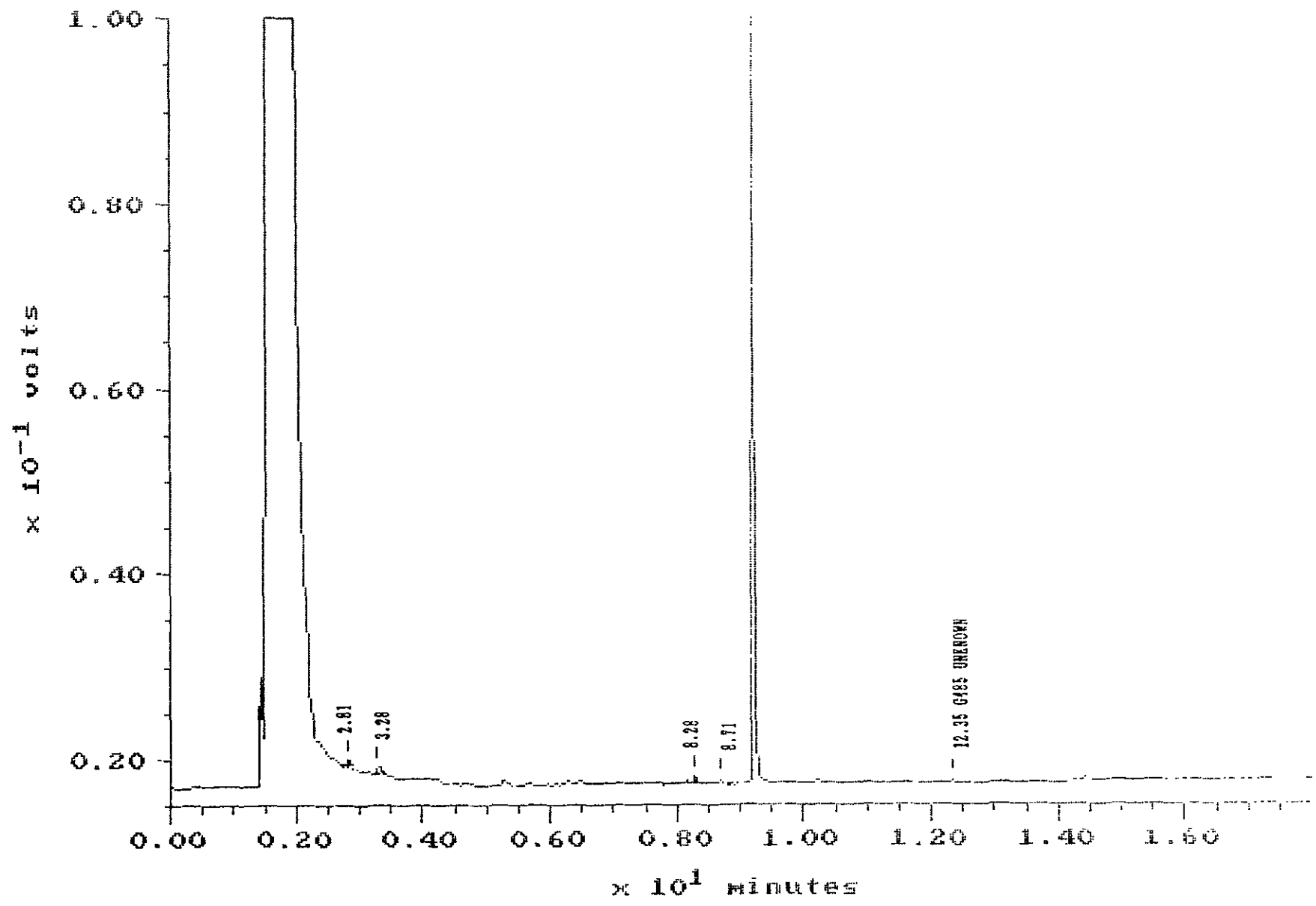
TP-3 (TPH-Gas/BTEX PID)



TP-3 (TPH-Gas/BTEX FID)

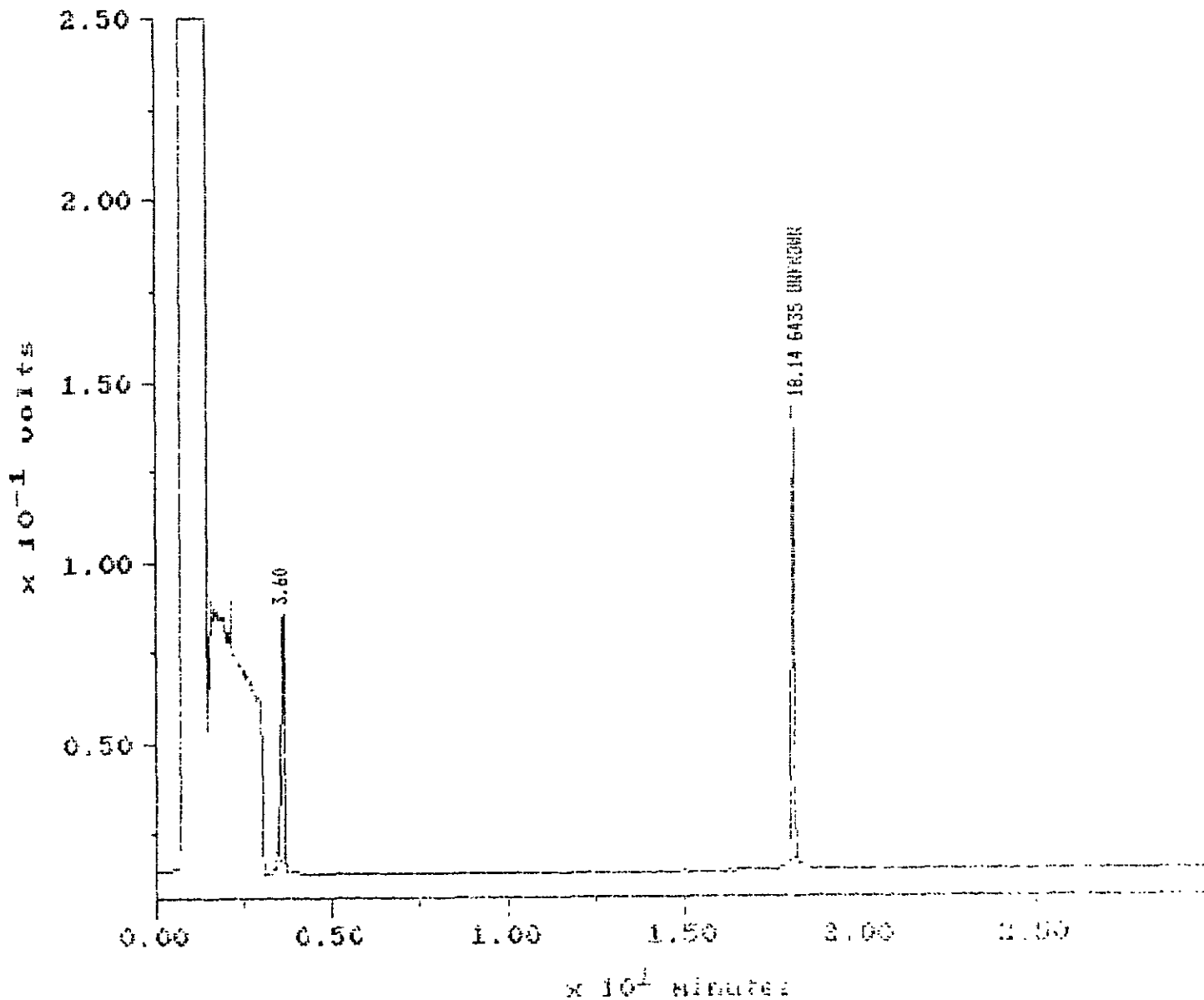
Sample: 2121405A,S089A Channel: FID-D  
Acquired: 30-DEC-92 17:41 Method: C:\MAX\3700D\DEC92\GBTX1230  
Injection: 1 : 1.000 Amount: 20.000  
Comments: 3700D DBS 30 METER 0.52 MM PRIMARY GBTEX INSTRUMENT

Filename: 1230014  
Operator: CS  
Inj Vol: 200.00



TP-3 (TPH-Diesel)

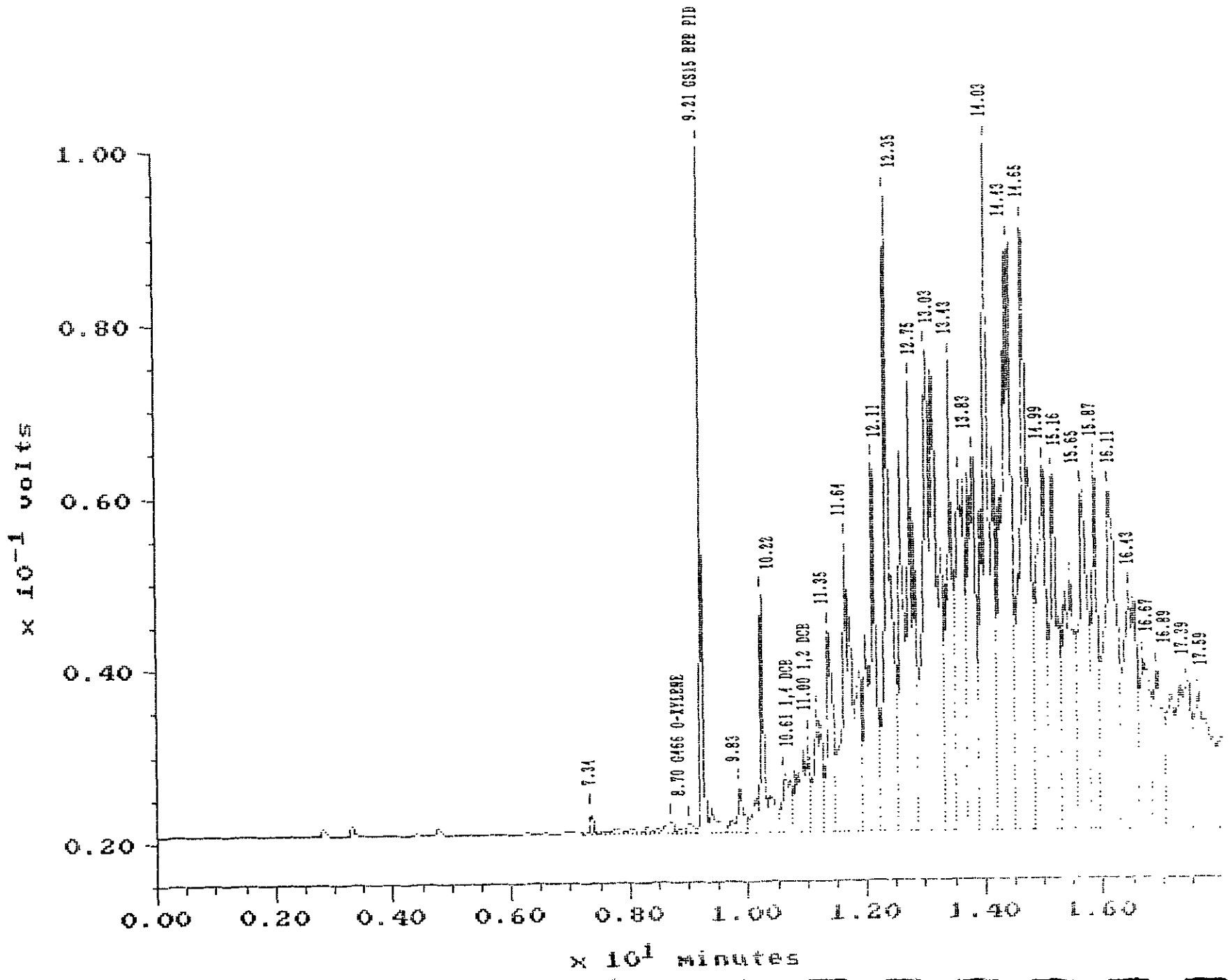
Sample: 21214405B.0124A Channel: FID-E File: 0104E20  
Acquired: 05-JAN-93 1:38 Method: C:\MAX\DATAE\JAN93\80150104 Operator: KV  
Inj Vol: 1.00  
Comments: GC-E FUELS



Sample: 21214084.S089A Channel: PID-D  
 Acquired: 30-DEC-97 18:20 Method: C:\MAX\3700D\DEC97\GBTT1230  
 Analyst: J. J. 1.0000 AROUND!  
 Comments: 3700D DB5 30 METER 0.52 MM PRIMARY GBTEX INSTRUMENT

Filename: 1230D15  
 Operator: JH  
 Inj Vol: 50.00

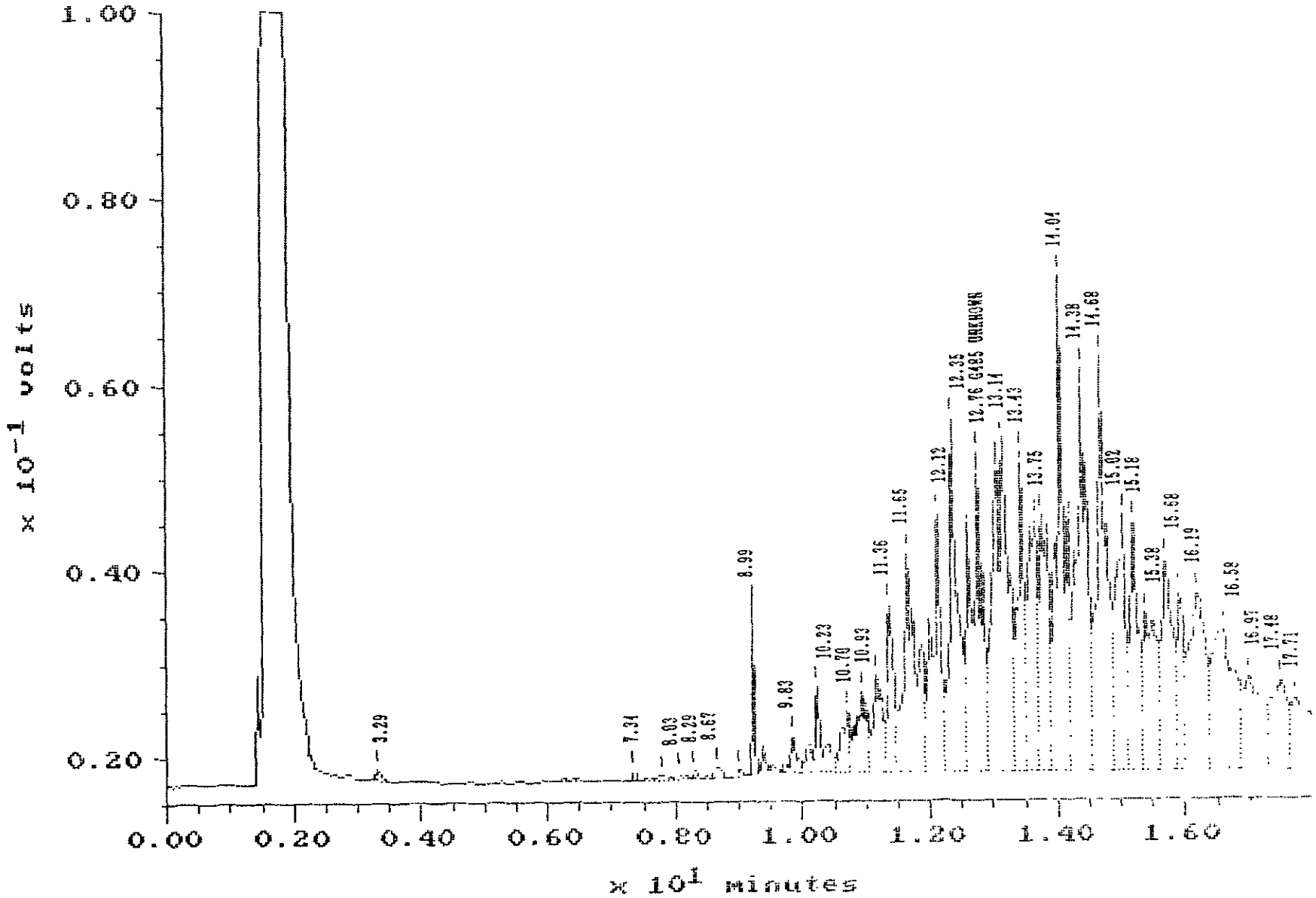
D-1 (TPH-Gas/BTEX PID)



Filename: 1230015  
Operator: CS  
Inj Vol: 50.00

Sample: 2121408A, S089A Channel: FID-0  
Acquired: 30-DEC-92 18:20 Method: C:\MAX\3700D\DEC92\GBY11230  
Dilution: 1 : 1.000 Amount: 30.000  
Comments: 3700D DB5 30 METER 0.52 MM PRIMARY GBYEX INSTRUMENT

D-1 (TPH-Gas/BTEX FID)



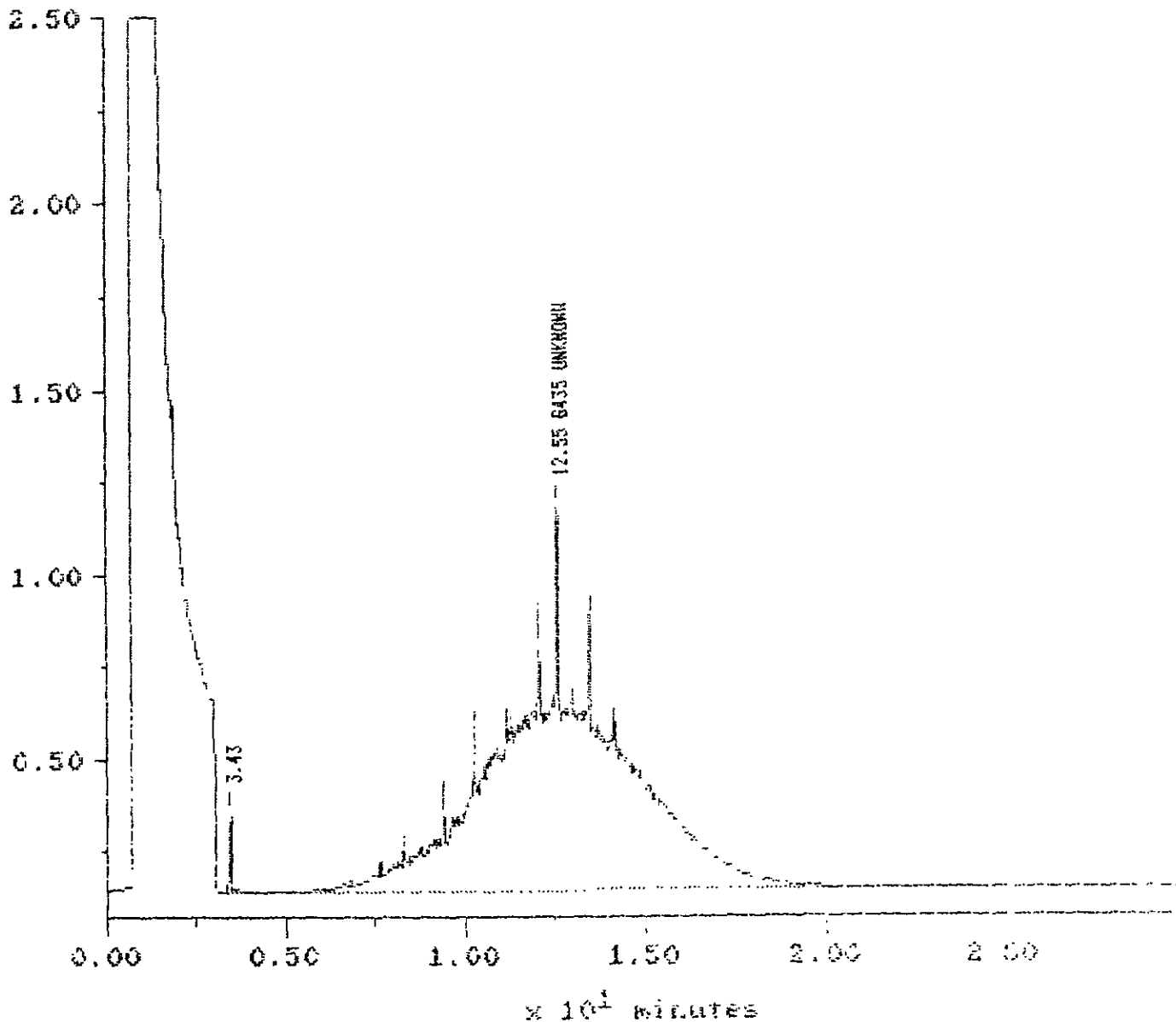
D-1 (TPH-Diesel)

Filename: 0105E27  
Operator: KY

Sample: 2121408R-0124A Channel: FID-E  
Acquired: 06-JUN-93 2:32 Method: C:\MAX\DATAE\JAN93\B0150105

Inj Vol: 1.00  
Comments: GC-E FUELS

*YH*  
 $\times 10^{-1}$  volts

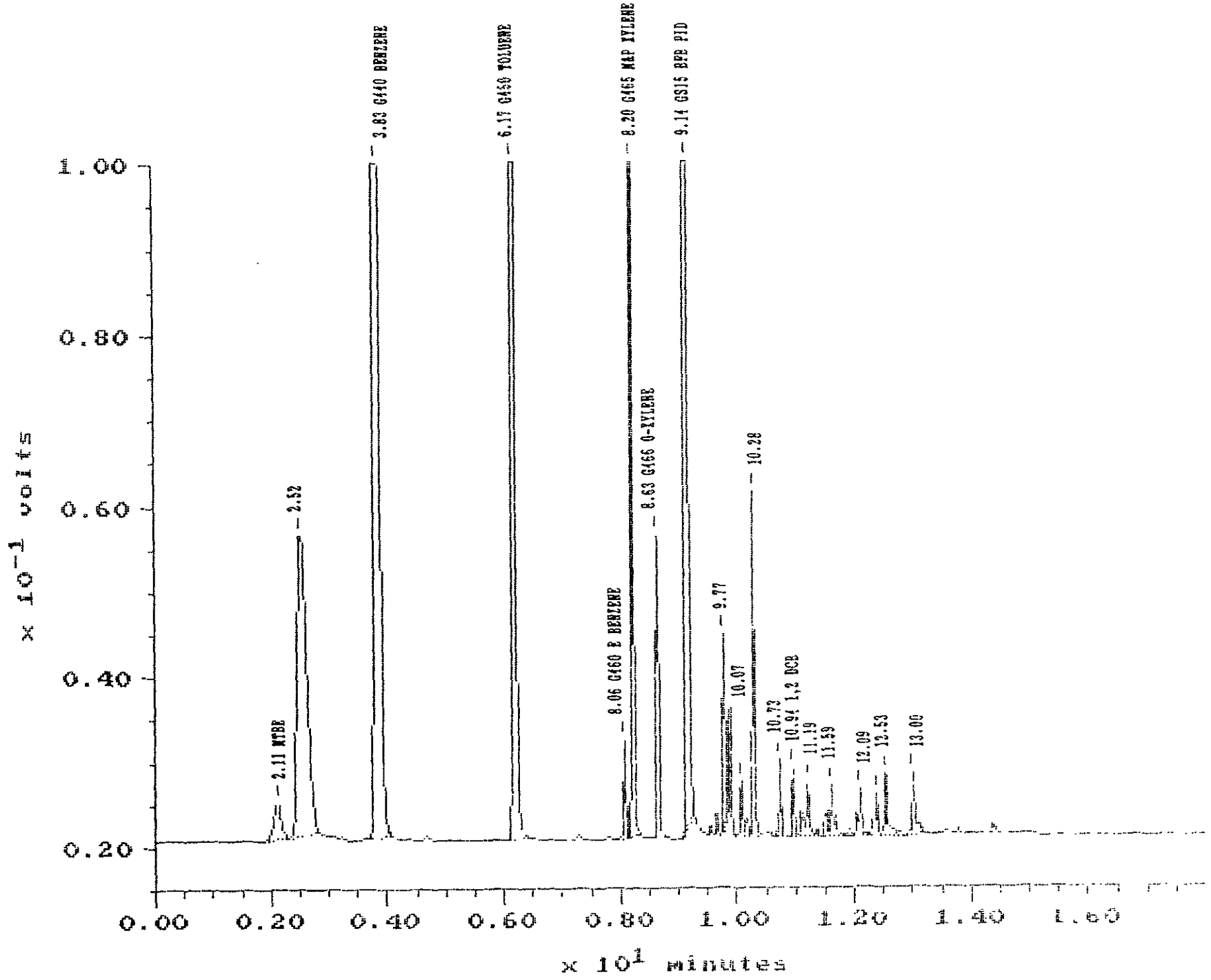




Sample: 21214109A.D195A Channel: PID-P  
Acquired: 29-DEC-92 17:53 Method: C:\MAX\3700D\DEC92\GRTK1229  
Dilution: 1 : 10.000 Inj Vol: 1.00  
Comments: 3700D DB5 30 METER 0.52 MM PRIMARY GRTX INSTRUMENT

Filename: 1229D12  
Operator: CS

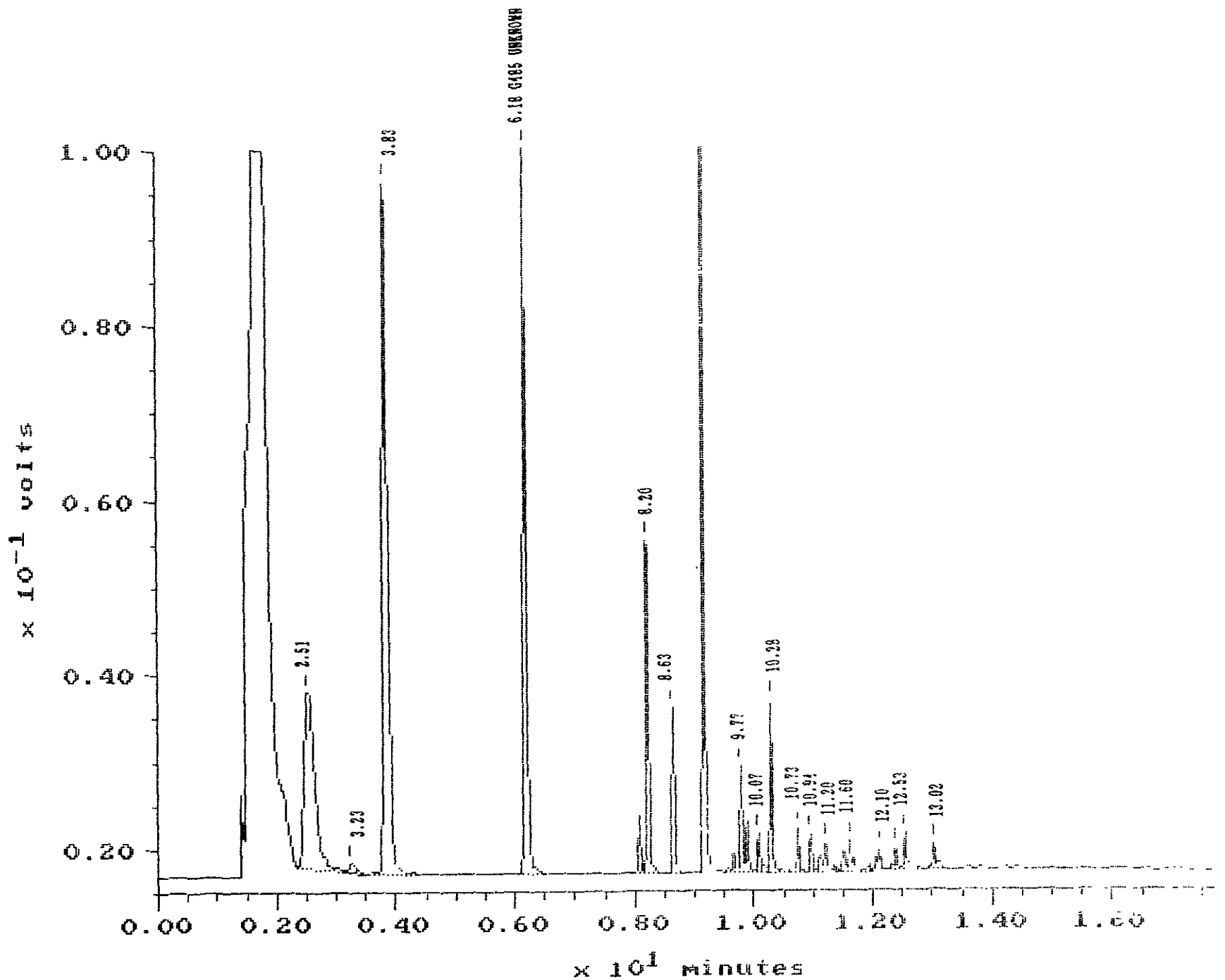
W-1 (TPH - Gas / BTEX PID)



Filename: 1229D12  
Operator: CS

Sample: 2121409A.D195A Channel: PID-D  
Acquired: 29-DEC-92 17:53 Method: C:\MAX\3700D\DEC92\GRT11229  
Dilution: 1 : 10,000 Inj Vol: 1.00  
Comments: 3700 DB5 30 METER 0.52 MM PRIMARY GBTX INSTRUMENT

W-1 (TPH-Gas/BTEX FID)



20 3/11/93

~~D~~ +

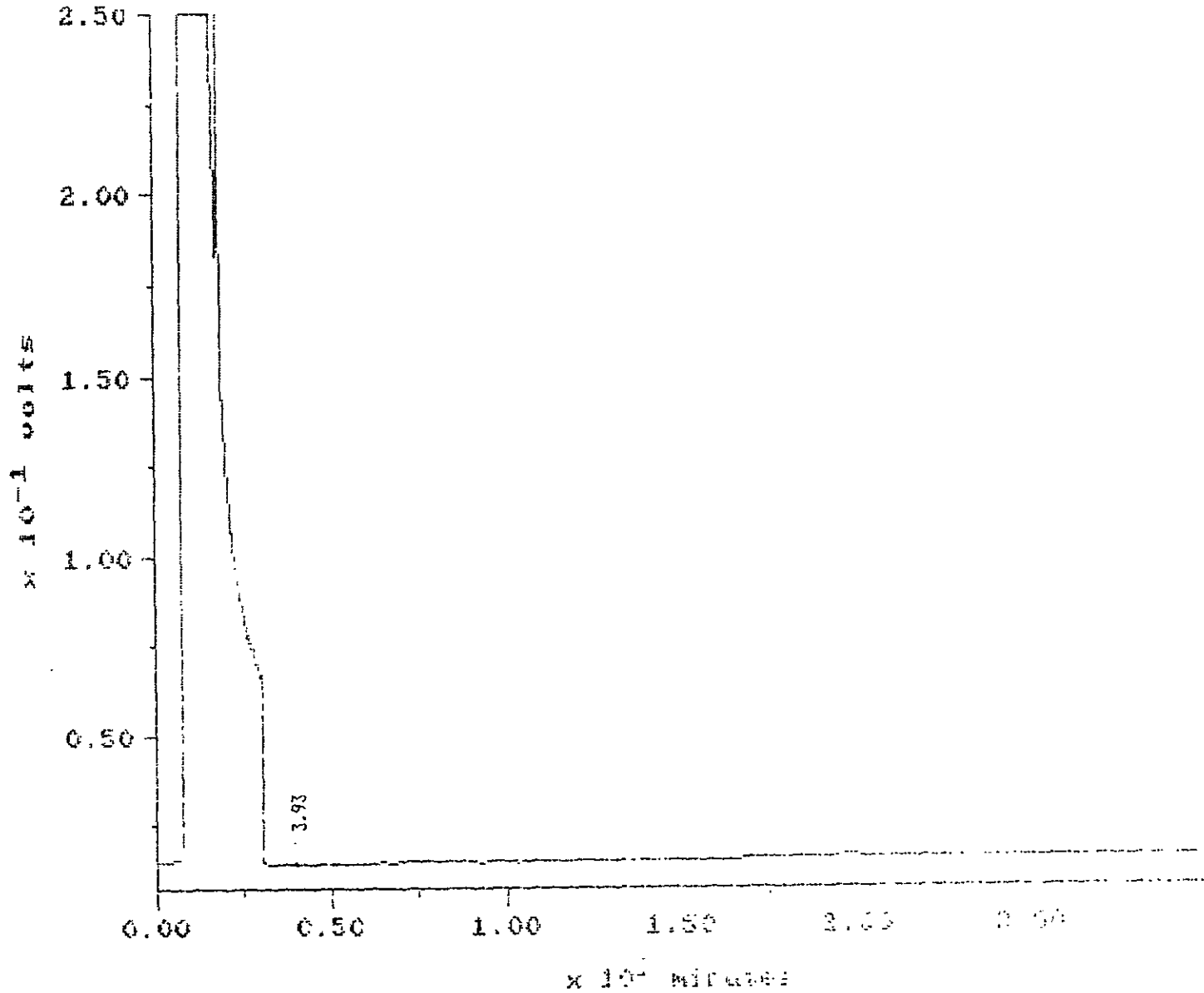
W-1 (TPH-Diesel)

Filename: 0104E21  
Operator: KY

Channel: FID-E  
Method: C:\MAX\DATAE\JAN93\80J50104

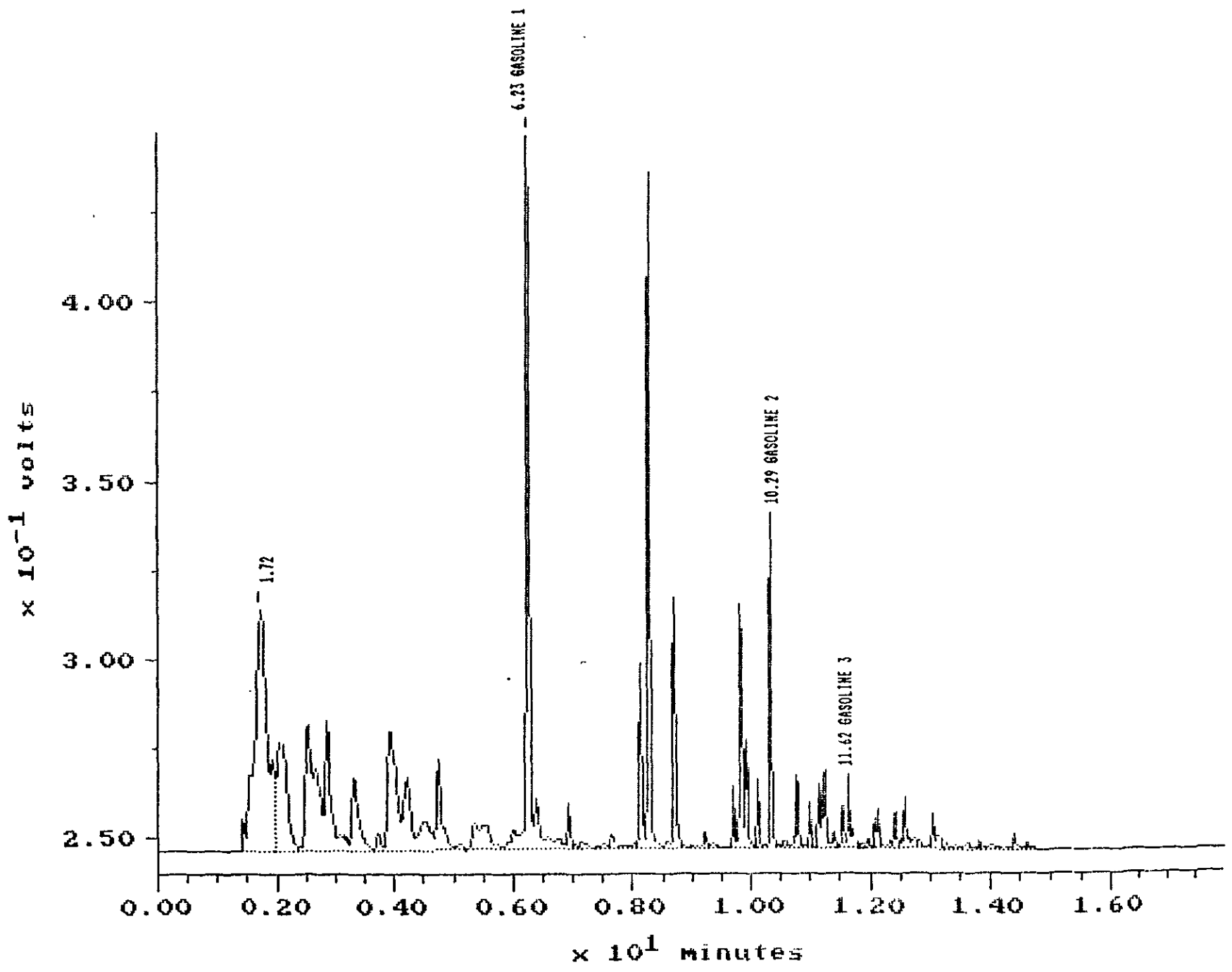
Sample: 21214098,0132A  
Acquired: 05-JAN-93 2:16

Inj Vol: 1.00  
Comments: GC-E FUELS



# Gasoline Standard

Inj Vol: 1.00  
Contents: 37000 DBS 30 METER 0.52 MM PRIMARY GBTEX INSTRUMENT

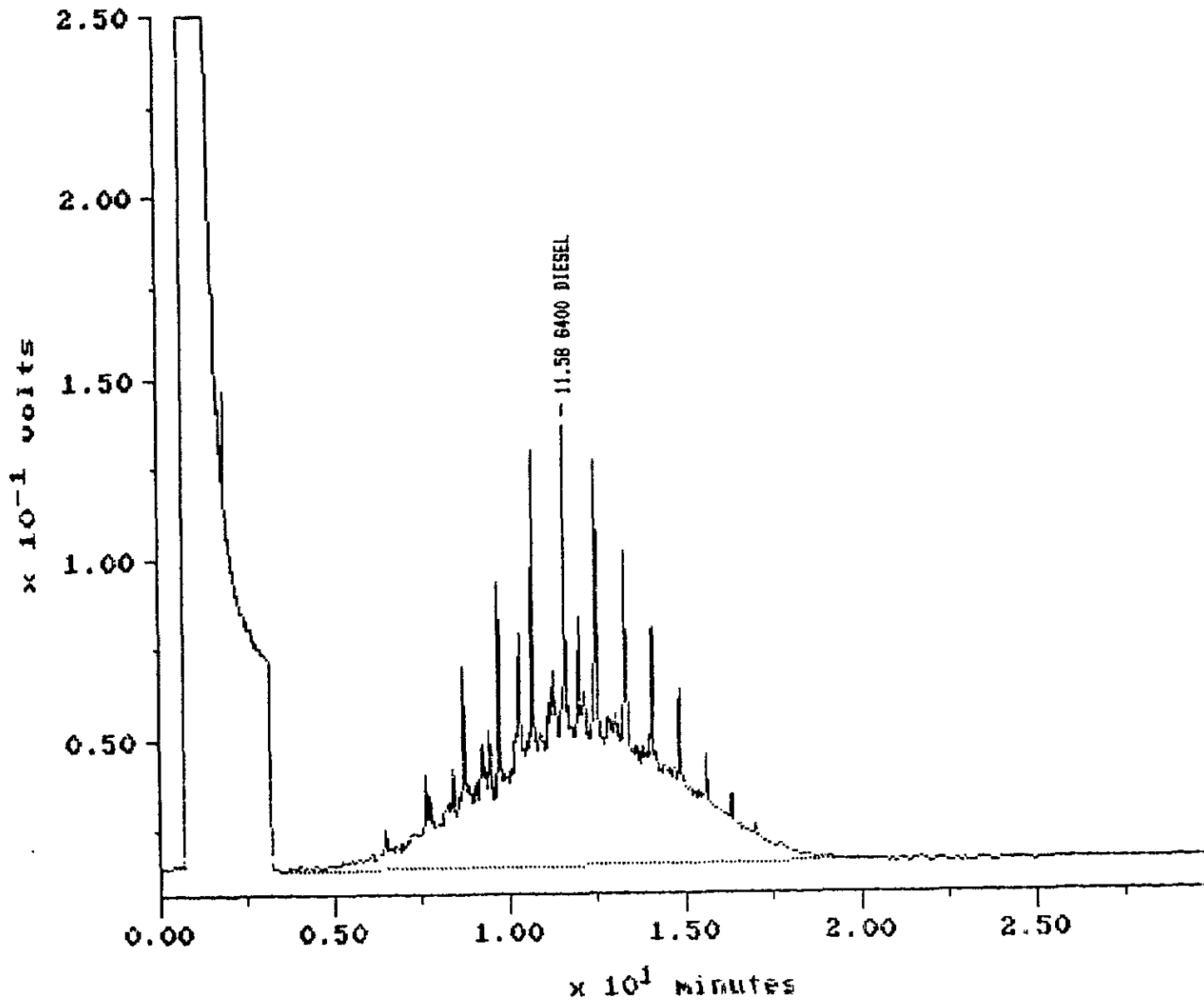


# Diesel Standard

Sample: IDESL-0216D  
Acquired: 16-FEB-93 9:31  
Inj Vol: 1.00  
Comments: GC-E FUELS

Channel: FID-E  
Method: C:\MAX\DATA\FEB93\80150216

File name: 0216E02  
Operator: KV

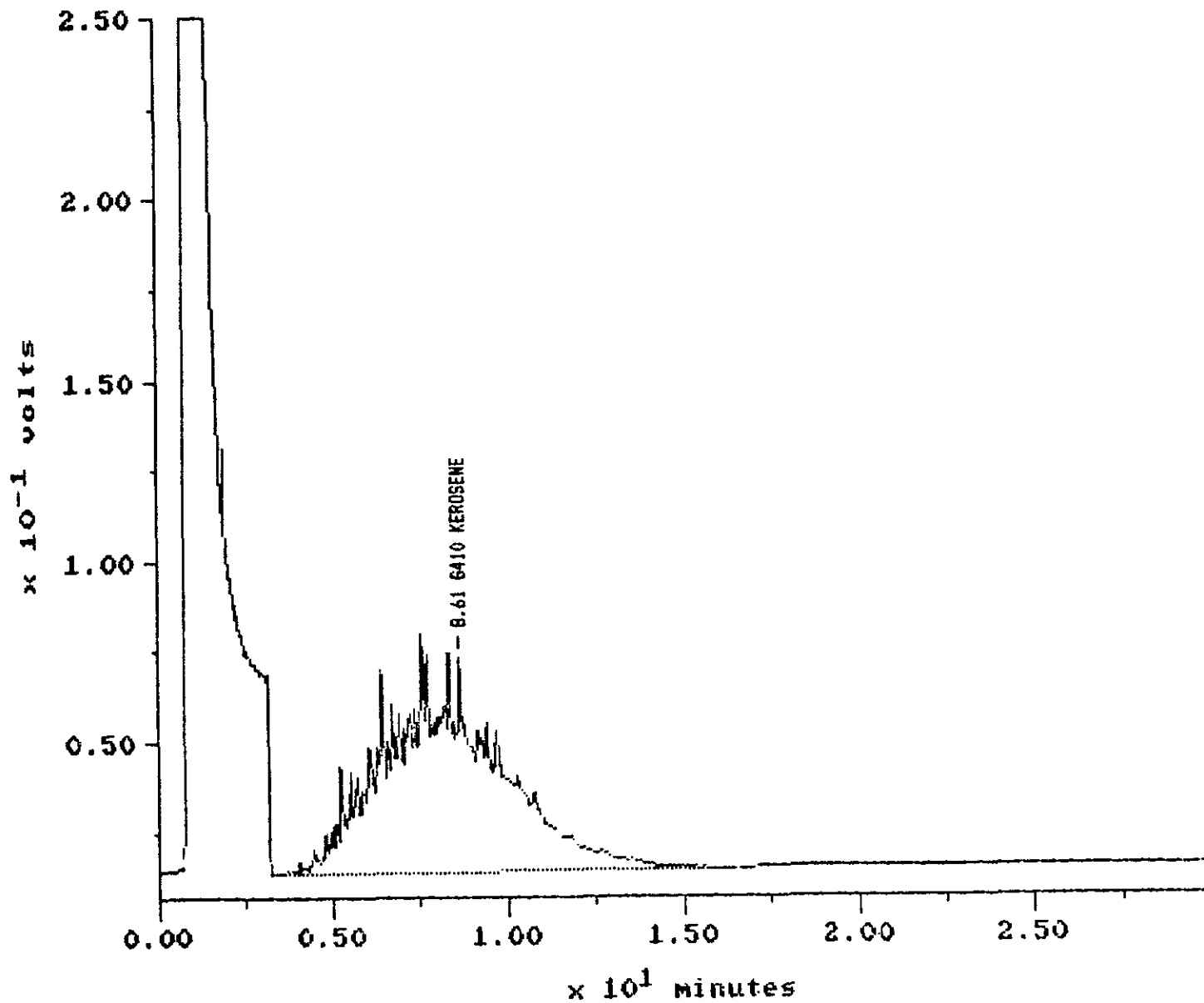


# Kerosene Standard

Sample: IKERD-0216D  
Acquired: 16-FEB-93 10:09  
Inj Volt: 1.00  
Comments: GC-E FUELS

Channel: FID-E  
Method: C:\MAX\DATA\E\FEB93\80150216

Filename: 0216E03  
Operator: KV

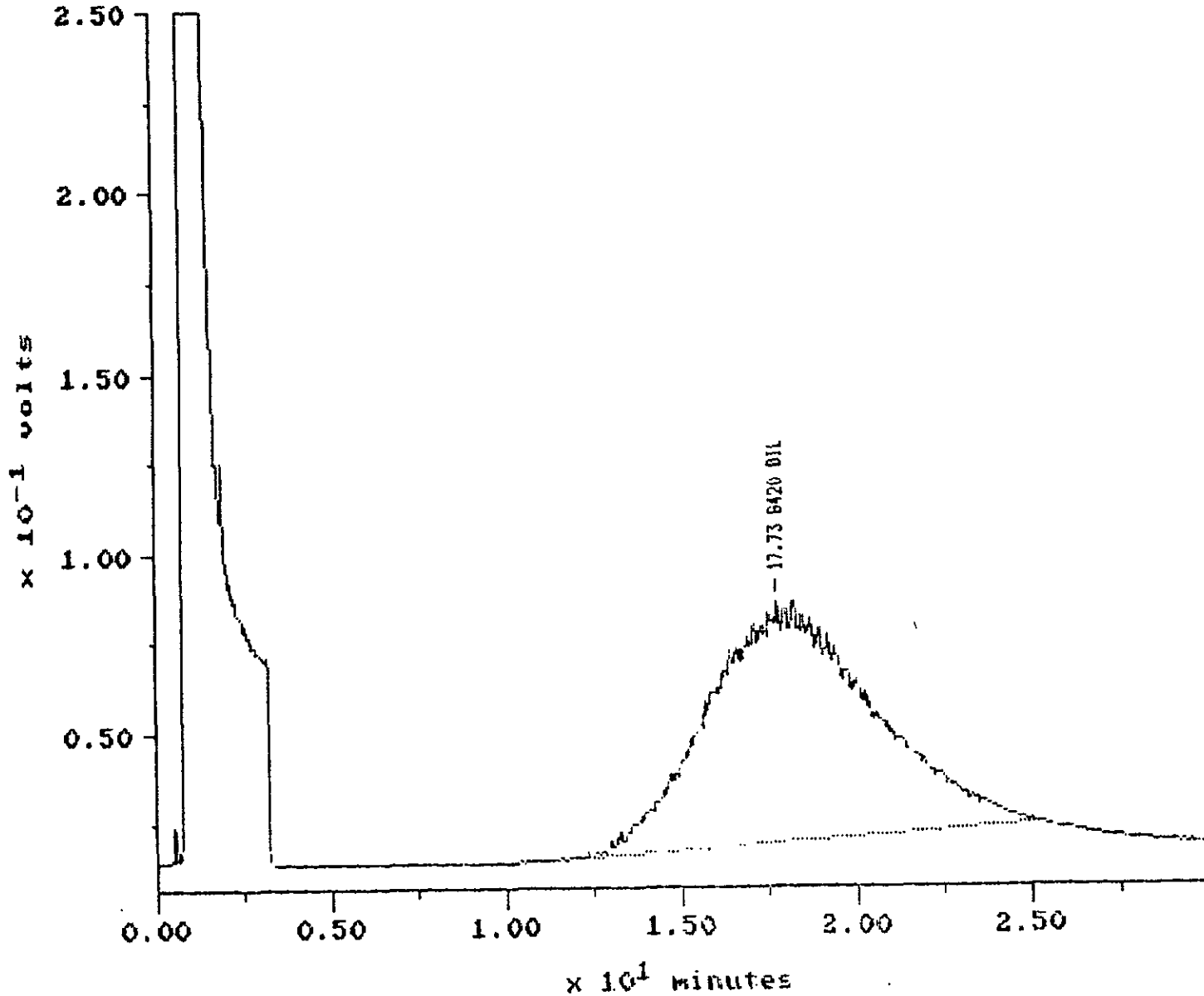


Oil Standard

Sample: INOIL-0216D  
Acquired: 16-FEB-93 19:56  
Inj Vol: 1.00  
Comments: GC-E FUELS

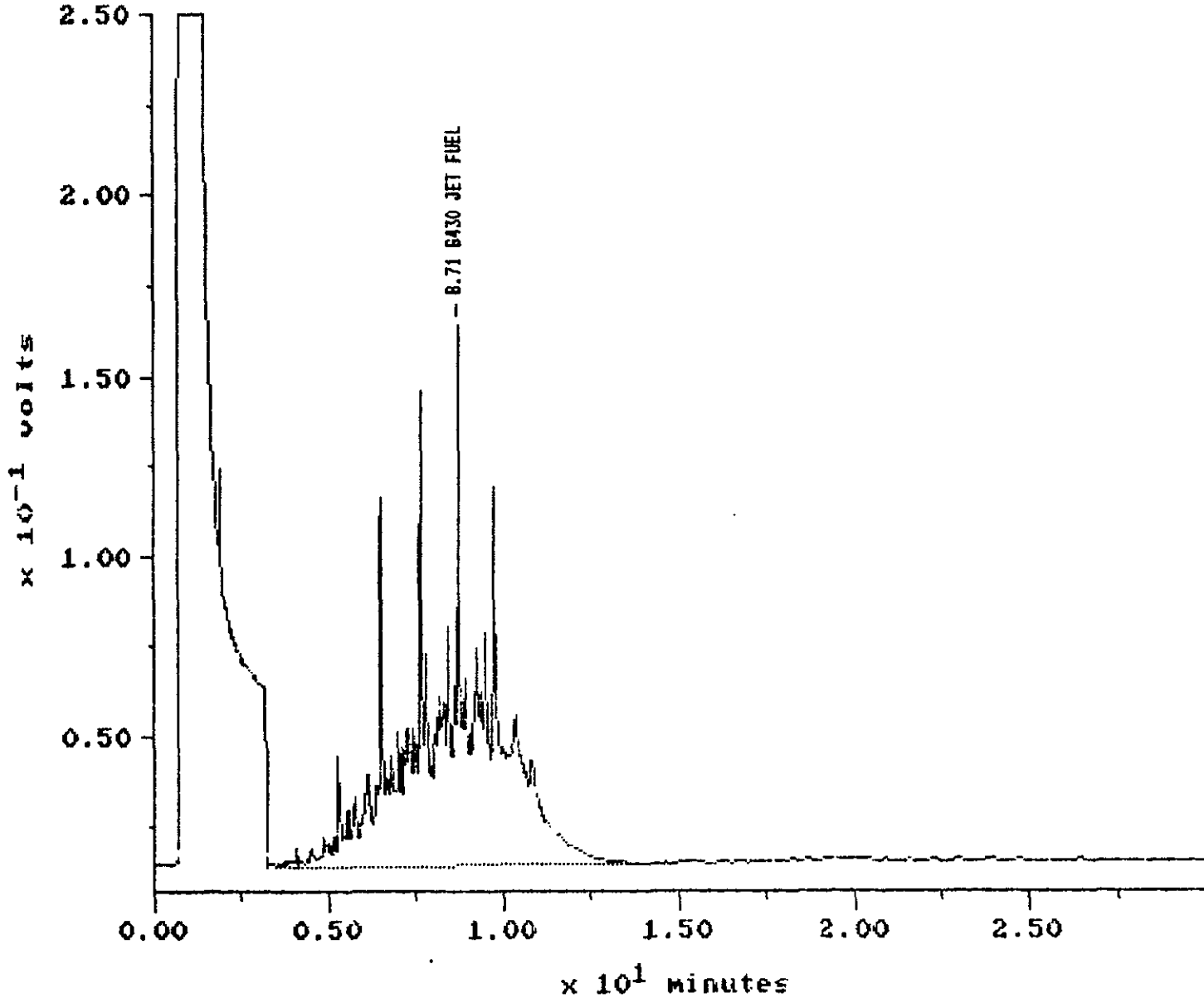
Channel: FID-E  
Method: C:\MAX\DATA\FEB93\80150216

Filename: 0216E16  
Operator: KV



Jet Fuel Standard

Sample: IJP 5-0216D  
Acquired: 16-FEB-93 11:26  
Inj Vol: 1.00  
Comments: GC-E FUELS  
Channel: FID-E  
Method: C:\MAX\DATA\FEB93\80150216  
Operator: KV  
Filename: 0216E05





# NATX/ETC

Mid-Pacific Environmental Laboratory  
625B Clyde Avenue  
Mountain View, CA 94043  
(415) 964-0844  
FAX (415) 961-7113

June 14, 1993

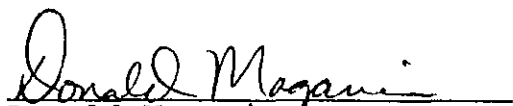
Ms. Anita Yan  
Woodward Clyde Consultants  
500 12th Street, Suite 100  
Oakland, CA 94607-4014

Dear Ms. Yan:

Enclosed is the revised page 10 for the MPELI Order# 92-12-144 analytical report, your work ID 92CB040/0000, originally issued on January 15, 1993.

The detection limit has been changed for dichlorodifluoromethane in sample TP-3 as mentioned in the cover letter statement. Also, the the compound name has been corrected in the cover letter.

If you should have any further questions, please do not hesitate to contact me at (415) 964-0844.

  
\_\_\_\_\_  
Donald Magarian  
Project Manager

# NATX/ETC

Mid-Pacific Environmental Laboratory

625B Clyde Avenue  
Mountain View, CA 94043  
(415) 964-0844  
FAX (415) 961-7113

## REVISED

Woodward Clyde Consultants  
500 12th Street Suite 100  
Oakland, CA 94607-4014

June 14, 1993  
MPELI Order#: 92-12-144  
Date Received: 12/23/92

Attn: Anita Yan

Subject: Analysis of 1 Water, 8 Soil Samples

Work ID: 92CB040/0000

P.O. #: none given

Pages in report: 35

Analysis of soil samples for purgeable halogenated organic compounds was performed according to USEPA Method 8010 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986).

Analysis of soil samples for higher boiling petroleum hydrocarbons (diesel, kerosene, & oil) was performed according to guidelines established in the Regional Water Quality Control Board (RWQCB) Leaking Underground Fuel Tank (LUFT) manual. This is also known as the modified 8015 protocol based on USEPA Method 8015 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986).

Analysis of water samples for higher boiling petroleum hydrocarbons (diesel, kerosene, & oil) was performed according to guidelines established in the Regional Water Quality Control Board (RWQCB) Leaking Underground Fuel Tank (LUFT) manual. This is also known as the modified 8015 protocol based on USEPA Method 8015 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986).

Analysis of soil samples for purgeable aromatic organic compounds was performed according to USEPA Method 8020 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986).

Analysis of soil samples for semivolatle organic compounds was performed according to USEPA Method 8270 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986).

Preparation of soil samples for metals analysis by Graphite Furnace Atomic Absorption were performed by following USEPA Method 3050 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986). The specific analytical method employed is listed alongside the test description in the report table.

Preparation and analysis of soil samples for metals by Inductively Coupled Argon Plasma Spectroscopy (ICAP) or Flame Atomic Absorption (FAA) were performed by following Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986). The specific test method number is listed next to the analyte in the report.

Analysis of soil samples for lower boiling petroleum hydrocarbons (benzene, toluene, ethylbenzene, xylenes, and gasoline) was performed according to guidelines established in the Regional Water Quality Control Board (RWQCB) Leaking Underground Fuel Tank (LUFT) manual. This is also known as the modified 8015 protocol based on USEPA Method 8015 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986).

Analysis of water samples for lower boiling petroleum hydrocarbons (benzene, toluene, ethylbenzene, xylenes, and gasoline) was performed according to guidelines established in the Regional Water Quality Control Board (RWQCB) Leaking Underground Fuel Tank (LUFT) manual. This is also known as the modified 8015 protocol based on USEPA Method 8015 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986).

Solid samples were analyzed for total petroleum hydrocarbons by SM 5520 (Standard Methods for the Examination of Water and Wastewater - 17th Ed. 1989).

#### NOTES

Sample TP-3: In the analysis for TPH-Diesel, a single peak constituent appears in the chromatogram at the end of where diesel would elute. The TPH-Gas/BTEX scan shows no identifiable or unidentifiable peaks. The peak is semi-quantitated using the Diesel standard and reported as an "unknown hydrocarbon".

Sample D-1: In both of the analyses for TPH-Diesel and TPH-Gasoline/BTEX, chromatographic patterns are observed that do not match the pattern of any of our in-house standards for these methods. These components are semi-quantitated by comparison with the diesel standard and gasoline standard respectively and reported as "unknown hydrocarbons". The unknown appears in the TPH-Diesel scan as a pattern similar to that of Diesel. In the TPH-Gasoline/BTEX scan the pattern elutes late in the gasoline elution profile which is consistent with the findings in the TPH-Diesel scan.

Sample W-1: In the analysis for TPH-Gasoline/BTEX, a chromatographic pattern appeared which did not match the in-house standard for gasoline. This component is semi-quantitated using the gasoline standard and reported as an "unknown hydrocarbon". The TPH-Diesel scan is negative.

Method 8020, Volatiles by GC: Surrogate recovery TP-5 was outside of QC limits due to matrix interferences.

Method 8010, Volatiles by GC: The method blank was positive for dichlorodifluoromethane. Sample TP-3 showed contamination at the same level, therefore, the detection limit for this compound has been raised in this sample.

All analyses have been conducted in batches of 20 samples or less. Each QC batch consists of a method blank, a Matrix Spike, a Matrix Spike Duplicate and a Laboratory Control Sample. The QC information is in a separate QC Report at the end of the regular report. To find the associated QC data, identify the batch number for the analysis of interest and look for that number in the QC Report for that test. Occasionally a sample will be associated with a sub-batch, which will end in a letter other than "A". The main batch will include the original blank, MS, MSD, and LCS. The sub-batch will contain the additional blank associated with the sample and LCS.

All analytes reported above detection limits on gas chromatography analyses have been confirmed by a second dissimilar column.

Samples were diluted when one or both of the following situations existed:

- 1) one or more analytes was present at a level above the linear calibration range of the instrument; or
- 2) compounds were present at levels that could damage the instrument.

The following flags and abbreviations are used in this report:

ND - Not detected above the detection limit stated.

\*\* - See other dilution.

Freon 113 - 1,1,2-Trichloro-1,2,2-trifluoroethane. Not an 8010 compound.

MS(D) - Matrix spike (Duplicate)

LCS(D) - Laboratory Control Sample (Duplicate)

RPD - Relative percent difference

N/A - Not applicable

If you should have any technical questions, please contact the undersigned at (415) 964-0844.

Approved by:

  
Client Services

These results were obtained by following standard laboratory procedures; the liability of Mid-Pacific Environmental Laboratory, Inc. shall not exceed the amount paid for this report. In no event shall Mid-Pacific be liable for special or consequential damages.

Woodward Clyde Consultants  
Analytical Results - TPH as Diesel by GC /soil

Client ID: FTP-1  
MPELI ID: 9212144-01B  
Matrix: SOIL  
QC Batch: 0124A

Collected: 12/22/92  
Received: 12/23/92  
Extracted: 12/29/92  
Analyzed: 01/05/93  
Dilution factor: 1.00

---

Concentration, mg/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Diesel	ND	1.00
Kerosene	ND	1.00
Motor Oil	ND	10.0

Woodward Clyde Consultants  
Analytical Results - 8020 Volatiles by GC /soilClient ID: FTP-1

Collected: 12/22/92

MPELI ID: 9212144-01A

Received: 12/23/92

Matrix: SOIL

Analyzed: 12/31/93

QC Batch: S023A

Dilution factor: 1.00

---

Concentration, ug/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Benzene	ND	6.2
Toluene	ND	6.2
Chlorobenzene	ND	6.2
Ethylbenzene	ND	6.2
Total Xylenes	ND	6.2
1,3-Dichlorobenzene	ND	6.2
1,4-Dichlorobenzene	ND	6.2
1,2-Dichlorobenzene	ND	6.2
<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
Bromofluorobenzene	124	58-136

Woodward Clyde Consultants  
Analytical Results - TPH as Diesel by GC /soil

Client ID: FTP-2  
MPELI ID: 9212144-02B  
Matrix: SOIL  
QC Batch: 0124A

Collected: 12/22/92  
Received: 12/23/92  
Extracted: 12/29/92  
Analyzed: 01/05/93  
Dilution factor: 1.00

---

Concentration, mg/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Diesel	ND	1.00
Kerosene	ND	1.00
Motor Oil	ND	10.0

Woodward Clyde Consultants  
Analytical Results - 8020 Volatiles by GC /soilClient ID: FTP-2  
MPELI ID: 9212144-02A  
Matrix: SOIL  
QC Batch: S023ACollected: 12/22/92  
Received: 12/23/92  
Analyzed: 12/31/93  
Dilution factor: 1.00

---

	<u>Concentration, ug/kg</u>	
<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Benzene	ND	6.2
Toluene	ND	6.2
Chlorobenzene	ND	6.2
Ethylbenzene	ND	6.2
Total Xylenes	ND	6.2
1,3-Dichlorobenzene	ND	6.2
1,4-Dichlorobenzene	ND	6.2
1,2-Dichlorobenzene	ND	6.2
<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
Bromofluorobenzene	115	58-136



Woodward Clyde Consultants  
Analytical Results - TPH as Gas, BTEX by GC/soil

Client ID: TP-1  
MPELI ID: 9212144-03A  
Matrix: SOIL  
QC Batch: S089A

Collected: 12/22/92  
Received: 12/23/92  
Analyzed: 12/30/92  
Dilution factor: 1.00

Concentration, ug/Kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Benzene	ND	5.0
Toluene	ND	5.0
Ethylbenzene	ND	5.0
Total Xylenes	ND	5.0
Gasoline	ND	1000
<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
Bromofluorobenzene	66	42-137

Woodward Clyde Consultants  
Analytical Results - TPH as Gas, BTEX by GC/soil

Client ID: TP-2  
MPELI ID: 9212144-04A  
Matrix: SOIL  
QC Batch: S089A

Collected: 12/22/92  
Received: 12/23/92  
Analyzed: 12/30/92  
Dilution factor: 1.00

Concentration, ug/Kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Benzene	ND	5.0
Toluene	ND	5.0
Ethylbenzene	ND	5.0
Total Xylenes	ND	5.0
Gasoline	ND	1000

<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
Bromofluorobenzene	68	42-137

Woodward Clyde Consultants  
Analytical Results - 8010 Volatiles by GC /soil

Client ID: TP-3

Collected: 12/22/92

MPELI ID: 9212144-05A

Received: 12/23/92

Matrix: SOIL

Analyzed: 12/31/93

QC Batch: S023A

Dilution factor: 1.00

**REVISED**Concentration, ug/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Dichlorodifluoromethane	ND	40
Chloromethane	ND	6.2
Vinyl Chloride	ND	6.2
Bromomethane	ND	6.2
Chloroethane	ND	6.2
Trichlorofluoromethane	ND	6.2
1,1-Dichloroethene	ND	6.2
Methylene Chloride	ND	6.2
trans-1,2-Dichloroethene	ND	6.2
1,1-Dichloroethane	ND	6.2
cis-1,2-Dichloroethene	ND	6.2
Chloroform	ND	6.2
1,1,1-Trichloroethane	ND	6.2
Carbon Tetrachloride	ND	6.2
1,2-Dichloroethane	ND	6.2
Trichloroethene	ND	6.2
1,2-Dichloropropane	ND	6.2
Bromodichloromethane	ND	6.2
2-Chloroethylvinyl ether	ND	62
trans-1,3-Dichloropropene	ND	6.2
1,1,2-Trichloroethane	ND	6.2
Tetrachloroethene	ND	6.2
Dibromochloromethane	ND	6.2
Chlorobenzene	ND	6.2
Bromoform	ND	6.2
1,1,2,2-Tetrachloroethane	ND	6.2
1,3-Dichlorobenzene	ND	6.2
1,4-Dichlorobenzene	ND	6.2
1,2-Dichlorobenzene	ND	6.2
<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
Bromochloromethane	89	66-126

Woodward Clyde Consultants  
Analytical Results - TPH as Diesel by GC /soil

Client ID: TP-3  
MPELI ID: 9212144-05B  
Matrix: SOIL  
QC Batch: 0124A

Collected: 12/22/92  
Received: 12/23/92  
Extracted: 12/29/92  
Analyzed: 01/05/93  
Dilution factor: 1.00

---

Concentration, mg/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Diesel	ND	1.00
Kerosene	ND	1.00
Motor Oil	ND	10.0
Unknown Hydrocarbon	4.5	1.00

Woodward Clyde Consultants  
Analytical Results - 8270 SVOA by GCMS/soil

Client ID: TP-3  
MPELI ID: 9212144-05E

Collected: 12/22/92

Received: 12/23/92

Extracted: 12/29/92

Analyzed: 01/09/93

Matrix: SOIL  
QC Batch: 0154A

Dilution factor: 1.00

Concentration, ug/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Phenol	ND	330
Bis(2-chloroethyl) ether	ND	330
2-Chlorophenol	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
Benzyl alcohol	ND	660
1,2-Dichlorobenzene	ND	330
2-Methylphenol	ND	330
Bis(2-chloroisopropyl) ether	ND	330
4-Methylphenol	ND	330
N-Nitroso-di-n-propylamine	ND	330
Hexachloroethane	ND	330
Nitrobenzene	ND	330
Isophorone	ND	330
2-Nitrophenol	ND	330
2,4-Dimethylphenol	ND	330
Benzoic acid	ND	1600
Bis(2-chloroethoxy)methane	ND	330
2,4-Dichlorophenol	ND	330
1,2,4-Trichlorobenzene	ND	330
Naphthalene	ND	330
4-Chloroaniline	ND	660
Hexachlorobutadiene	ND	330
4-Chloro-3-methylphenol	ND	330
2-Methylnaphthalene	ND	330
Hexachlorocyclopentadiene	ND	330
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	330
2-Chloronaphthalene	ND	1600
2-Nitroaniline	ND	1600
Dimethyl phthalate	ND	330
Acenaphthylene	ND	330
3-Nitroaniline	ND	1600
Acenaphthene	ND	330
2,4-Dinitrophenol	ND	1600
4-Nitrophenol	ND	1600
Dibenzofuran	ND	330
2,4-Dinitrotoluene	ND	330
2,6-Dinitrotoluene	ND	330
Diethyl phthalate	ND	330
4-Chlorophenyl phenylether	ND	330
Fluorene	ND	330
4-Nitroaniline	ND	1600
4,6-Dinitro-2-methylphenol	ND	1600
N-Nitrosodiphenylamine	ND	330
4-Bromophenyl phenylether	ND	330

Woodward Clyde Consultants  
Analytical Results - 8270 SVOA by GCMS/soil

Client ID: TP-3  
MPELI ID: 9212144-05E

Collected: 12/22/92  
Received: 12/23/92  
Extracted: 12/29/92  
Analyzed: 01/09/93

Matrix: SOIL  
QC Batch: 0154A

Dilution factor: 1.00

Concentration, ug/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Hexachlorobenzene	ND	330
Pentachlorophenol	ND	1600
Phenanthrene	ND	330
Anthracene	ND	330
Di-n-butyl phthalate	ND	330
Fluoranthene	ND	330
Pyrene	ND	330
Butyl benzyl phthalate	ND	330
3,3'-Dichlorobenzidine	ND	660
Benzo(a) anthracene	ND	330
Bis(2-ethylhexyl)phthalate	ND	330
Chrysene	ND	330
Di-n-octyl phthalate	ND	330
Benzo (b) fluoranthene	ND	330
Benzo (k) fluoranthene	ND	330
Benzo (a) pyrene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Dibenzo(a,h)anthracene	ND	330
Benzo(g,h,i)perylene	ND	330
<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
2-Fluorophenol	48	25-121
Phenol-d5	67	24-113
Nitrobenzene-d5	61	23-120
2-Fluorobiphenyl	63	30-115
2,4,6-Tribromophenol	52	19-122
p-Terphenyl-d14	85	18-137

Woodward Clyde Consultants  
Analytical Results - TPH as Gas, BTEX by GC/soilClient ID: TP-3  
MPELI ID: 9212144-05A  
Matrix: SOIL  
QC Batch: S089ACollected: 12/22/92  
Received: 12/23/92  
Analyzed: 12/30/92  
Dilution factor: 1.00

---

	<u>Concentration, ug/Kg</u>	
<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Benzene	ND	5.0
Toluene	ND	5.0
Ethylbenzene	ND	5.0
Total Xylenes	ND	5.0
Gasoline	ND	1000
<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
Bromofluorobenzene	61	42-137

Woodward Clyde Consultants  
Analytical Results - TPH as Diesel by GC /soil

Client ID: TP-4  
MPELI ID: 9212144-06B  
Matrix: SOIL  
QC Batch: 0124A

Collected: 12/22/92  
Received: 12/23/92  
Extracted: 12/29/92  
Analyzed: 01/05/93  
Dilution factor: 1.00

---

Concentration, mg/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Diesel	ND	1.00
Kerosene	ND	1.00
Motor Oil	ND	10.0



Woodward Clyde Consultants  
Analytical Results - 8020 Volatiles by GC /soilClient ID: TP-4  
MPELI ID: 9212144-06A  
Matrix: SOIL  
QC Batch: S023ACollected: 12/22/92  
Received: 12/23/92  
Analyzed: 12/31/93  
Dilution factor: 1.00

---

<u>Concentration, ug/kg</u>		
<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Benzene	ND	6.2
Toluene	ND	6.2
Chlorobenzene	ND	6.2
Ethylbenzene	ND	6.2
Total Xylenes	ND	6.2
1,3-Dichlorobenzene	ND	6.2
1,4-Dichlorobenzene	ND	6.2
1,2-Dichlorobenzene	ND	6.2
<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
Bromofluorobenzene	114	58-136

Woodward Clyde Consultants  
Analytical Results - TPH as Diesel by GC /soil

Client ID: TP-5  
MPELI ID: 9212144-07B  
Matrix: SOIL  
QC Batch: 0124A

Collected: 12/22/92  
Received: 12/23/92  
Extracted: 12/29/92  
Analyzed: 01/05/93  
Dilution factor: 1.00

---

Concentration, mg/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Diesel	ND	1.00
Kerosene	120	1.00
Motor Oil	58	10.0

Woodward Clyde Consultants  
Analytical Results - 8020 Volatiles by GC /soilClient ID: TP-5  
MPELI ID: 9212144-07A  
Matrix: SOIL  
QC Batch: S023ACollected: 12/22/92  
Received: 12/23/92  
Analyzed: 12/31/93  
Dilution factor: 1.00Concentration, ug/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Benzene	ND	6.2
Toluene	14	6.2
Chlorobenzene	ND	6.2
Ethylbenzene	92	6.2
Total Xylenes	34	6.2
1,3-Dichlorobenzene	ND	6.2
1,4-Dichlorobenzene	ND	6.2
1,2-Dichlorobenzene	ND	6.2
<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
Bromofluorobenzene	141	58-136

Woodward Clyde Consultants  
Analytical Results - TPH as Diesel by GC /soil

Client ID: D-1  
MPELI ID: 9212144-08B  
Matrix: SOIL  
QC Batch: 0124A

Collected: 12/22/92  
Received: 12/23/92  
Extracted: 12/29/92  
Analyzed: 01/05/93  
Dilution factor: 4.00

---

Concentration, mg/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Diesel	ND	4.0
Kerosene	ND	4.0
Motor Oil	ND	40
Unknown Hydrocarbon	790	4.0

Woodward Clyde Consultants  
Analytical Results - TPH as Gas, BTEX by GC/soilClient ID: D-1  
MPELI ID: 9212144-08A  
Matrix: SOIL  
QC Batch: S089ACollected: 12/22/92  
Received: 12/23/92  
Analyzed: 12/30/92  
Dilution factor: 1.00Concentration, ug/Kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Benzene	ND	20
Toluene	ND	20
Ethylbenzene	ND	20
Total Xylenes	ND	20
Gasoline	ND	4000
Unknown	70000	4000

<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
Bromofluorobenzene	62	42-137

Woodward Clyde Consultants  
Analytical Results - TPH as Diesel by GC /H2O

Client ID: W-1  
MPELI ID: 9212144-09B  
Matrix: WATER  
QC Batch: 0132A

Collected: 12/22/92  
Received: 12/23/92  
Extracted: 12/30/92  
Analyzed: 01/05/93  
Dilution factor: 1.00

---

Concentration, ug/L

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Diesel	ND	50
Kerosene	ND	50
Motor Oil	ND	500

Woodward Clyde Consultants  
Analytical Results - TPH as Gas, BTEX by GC /H2OClient ID: W-1  
MPELI ID: 9212144-09A  
Matrix: WATER  
QC Batch: D195ACollected: 12/22/92  
Received: 12/23/92  
Analyzed: 12/29/92  
Dilution factor: 10.0

---

	<u>Concentration, ug/L</u>	
<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Benzene	540	5.0
Toluene	420	5.0
Ethylbenzene	20	5.0
Total Xylenes	220	5.0
Gasoline	ND	500
Unknown	2900	500
<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
Bromofluorobenzene	90	58-127

Woodward Clyde Consultants

Client ID: TP-1  
MPELI ID: 9212144 - 03B  
Matrix: SOIL

Date collected: 12/22/92  
Date received: 12/23/92

---

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Lead by GFAA	EPA 7421	4.8	0.20 mg/kg	01/04	01/13	0935A

---



Woodward Clyde Consultants

Client ID: TP-2  
MPELI ID: 9212144 - 04B  
Matrix: SOIL

Date collected: 12/22/92  
Date received: 12/23/92

---

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Lead by GFAA	EPA 7421	5.1	0.20 mg/kg	01/04	01/13	0935A

Woodward Clyde Consultants

Client ID: TP-3  
MPELI ID: 9212144 - 05C  
Matrix: SOIL

Date collected: 12/22/92  
Date received: 12/23/92

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Cadmium by ICAP	EPA 6010	ND	1.0 mg/kg	01/04	01/13	0934A
Chromium by ICAP	EPA 6010	31	2.0 mg/kg	01/04	01/13	0934A
Nickel by ICAP	EPA 6010	25	4.0 mg/kg	01/04	01/13	0934A
Lead by GFAA	EPA 7421	5.0	0.20 mg/kg	01/04	01/13	0935A
Zinc by ICAP	EPA 6010	97	2.0 mg/kg	01/04	01/13	0934A

Client ID: TP-3  
MPELI ID: 9212144 - 05D  
Matrix: SOIL

Date collected: 12/22/92  
Date received: 12/23/92

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
TRPH by IR	EPA 418.1	ND	34 mg/kg	12/29	12/30	0040A

Woodward Clyde Consultants

## 8010 Volatiles in Soil

QC Batch#: S023A

Units: ug/kg

Prep Date: N/A

Analysis Dates

Blank: 12/31/92

MS: 12/31/92

MSD: 12/31/92

LCS: 12/31/92

<u>Analytes</u>	Blank		Spike <u>level</u>	%Recovery		<u>LCS</u>	QC	
	<u>Result</u>	<u>Limit</u>		<u>MS</u>	<u>MSD</u>		<u>LIMITS</u>	<u>RPD</u>
Dichlorodifluoromethane	39.7	6.2						
Chloromethane	ND	6.2						
Vinyl Chloride	ND	6.2						
Bromomethane	3.4	6.2						
Chloroethane	ND	6.2						
Trichlorofluoromethane	ND	6.2						
1,1-Dichloroethene	ND	6.2	250	52	48	83		8.0
Methylene Chloride	ND	6.2						
trans-1,2-Dichloroethene	ND	6.2						
1,1-Dichloroethane	ND	6.2						
cis-1,2-Dichloroethene	ND	6.2						
Chloroform	ND	6.2	250	89	86	106		3.4
1,1,1-Trichloroethane	ND	6.2						
Carbon Tetrachloride	ND	6.2	250	90	84	110		6.9
1,2-Dichloroethane	ND	6.2	250	82	87	94		5.9
Trichloroethene	ND	6.2	250	97	96	113		1.0
1,2-Dichloropropane	ND	6.2						
Bromodichloromethane	ND	6.2						
2-Chloroethylvinyl ether	ND	6.2						
trans-1,3-Dichloropropene	ND	6.2						
1,1,2-Trichloroethane	ND	6.2						
Tetrachloroethene	ND	6.2	250	100	91	108		9.4
Dibromochloromethane	ND	6.2						
Chlorobenzene	ND	6.2	250	102	94	102		8.2
Bromoform	ND	6.2						
1,1,2,2-Tetrachloroethane	ND	6.2						
1,3-Dichlorobenzene	ND	6.2						
1,4-Dichlorobenzene	ND	6.2	250	88	82	94		7.1
1,2-Dichlorobenzene	ND	6.2						
Freon 113	ND	6.2						
Bromochloromethane (surr)	82%			99	97	91	66-126	

Woodward Clyde Consultants

Tot. Pet. Hydrocarbon/soil

QC Batch#: 0124A  
Units: mg/kg  
Prep Date: 12/29/93

Analysis Dates  
Blank: 01/04/93  
MS: 01/04/93  
MSD: 01/04/93  
LCS: 01/04/93

<u>Analytes</u>	Blank		Spike <u>level</u>	%Recovery		<u>LCS</u>	QC	<u>RPD</u>
	<u>Result</u>	<u>Limit</u>		<u>MS</u>	<u>MSD</u>		<u>LIMITS</u>	
Diesel	ND	1	2000	74	79	85		6.5
Kerosene	ND	1						
Motor Oil	ND	10						

Woodward Clyde Consultants

Tot. Pet. Hydrocarbon/H2O

QC Batch#: 0132A  
Units: ug/L  
Prep Date: 12/30/93

Analysis Dates  
Blank: 01/04/93  
MS:  
MSD:  
LCS: 01/04/93

---

<u>Analytes</u>	Blank		Spike <u>level</u>	%Recovery		QC		
	<u>Result</u>	<u>Limit</u>		<u>MS</u>	<u>MSD</u>	<u>LCS</u>	<u>LIMITS</u>	<u>RPD</u>
Diesel	ND	50	2000			96		
Kerosene	ND	50						
Motor Oil	ND	500						

Woodward Clyde Consultants

8020 Volatiles in Soil

QC Batch#: S023A

Units: ug/kg

Prep Date: N/A

Analysis Dates

Blank: 12/31/92

MS: 12/31/92

MSD: 12/31/92

LCS: 12/31/92

<u>Analytes</u>	Blank		Spike <u>level</u>	%Recovery		<u>LCS</u>	QC	<u>RPD</u>
	<u>Result</u>	<u>Limit</u>		<u>MS</u>	<u>MSD</u>		<u>LIMITS</u>	
Benzene	ND	6.2	250	94	82	87		14
Toluene	ND	6.2						
Chlorobenzene	ND	6.2	250	109	98	113		11
Ethylbenzene	ND	6.2						
Total xylenes	ND	6.2						
1,3-Dichlorobenzene	ND	6.2						
1,4-Dichlorobenzene	ND	6.2	250	92	88	100		4.4
1,2-Dichlorobenzene	ND	6.2						
Acetone	ND	380						
Bromofluorobenzene (surr)	133%			130	120	119	58-136	

8270 SVOA by GCMS /soil

QC Batch#: 0154A  
Units: ug/kg  
Prep Date: 12/29/92Analysis Dates  
Blank: 01/09/93  
LCS: 01/09/93  
LCSD: 01/09/93

Analytes	Blank		Spike level	%Recovery		QC	
	Result	Limit		LCS	LCSD	LIMITS	RPD
Phenol	ND	330	150	63	65		3.1
Bis(2-chloroethyl)ether	ND	330					
2-Chlorophenol	ND	330	150	52	60		14
1,3-Dichlorobenzene	ND	330					
1,4-Dichlorobenzene	ND	330	100	67	63		6.2
Benzyl alcohol	ND	670					
1,2-Dichlorobenzene	ND	330					
2-Methylphenol	ND	330					
Bis(2-chloroisopropyl)ether	ND	330					
4-Methylphenol	ND	330					
N-nitroso-di-n-propylamine	ND	330	100	84	84		0
Hexachloroethane	ND	330					
Nitrobenzene	ND	330					
Isophorone	ND	330					
2-Nitrophenol	ND	330					
2,4-Dimethylphenol	ND	330					
Benzoic acid	ND	330					
Bis(2-chloroethoxy)methane	ND	330					
2,4-Dichlorophenol	ND	330					
1,2,4-Trichlorobenzene	ND	330	100	78	77		1.3
Naphthalene	ND	330					
4-Chloroaniline	ND	670					
Hexachlorobutadiene	ND	330					
4-Chloro-3-methylphenol	ND	330	150	61	70		14
2-Methylnaphthalene	ND	330					
Hexachlorocyclopentadiene	ND	330					
2,4,6-Trichlorophenol	ND	330					
2,4,5-Trichlorophenol	ND	330					
2-Chloronaphthalene	ND	330					
2-Nitroaniline	ND	1700					
Dimethyl phthalate	ND	330					
Acenaphthylene	ND	330					
3-Nitroaniline	ND	1700					
Acenaphthene	ND	330	100	79	77		2.6
2,4-Dinitrophenol	ND	1700					
4-Nitrophenol	ND	1700	150	84	85		1.2
Dibenzofuran	ND	330					
2,4-Dinitrotoluene	ND	330	100	81	81		0
2,6-Dinitrotoluene	ND	330					
Diethyl phthalate	ND	330					
4-Chlorophenyl phenylether	ND	330					
Fluorene	ND	330					
4-Nitroaniline	ND	1700					
4,6-Dinitro-2-methylphenol	ND	1700					
N-Nitrosodiphenylamine	ND	330					

Woodward Clyde Consultants

8270 SVOA by GCMS /soil

QC Batch#: 0154A  
 Units: ug/kg  
 Prep Date: 12/29/92

Analysis Dates  
 Blank: 01/09/93  
 LCS: 01/09/93  
 LCSD: 01/09/93

<u>Analytes</u>	Blank		Spike <u>level</u>	%Recovery		QC	
	<u>Result</u>	<u>Limit</u>		<u>LCS</u>	<u>LCSD</u>	<u>LIMITS</u>	<u>RPD</u>
4-Bromophenyl phenylether	ND	330					
Hexachlorobenzene	ND	330					
Pentachlorophenol	ND	1700	150	84	89		5.8
Phenanthrene	ND	330					
Anthracene	ND	330					
Di-n-butyl phthalate	ND	330					
Fluoranthene	ND	330					
Pyrene	ND	330	100	81	79		2.5
Butyl benzyl phthalate	ND	330					
3,3'-Dichlorobenzidine	ND	670					
Benzo(a)anthracene	ND	330					
Bis(2-ethylhexyl) phthalate	ND	330					
Chrysene	ND	330					
Di-n-octyl phthalate	ND	330					
Benzo(b)fluoranthene	ND	330					
Benzo(k)fluoranthene	ND	330					
Benzo(a)pyrene	ND	330					
Indeno(1,2,3-c,d)pyrene	ND	330					
Dibenzo(a,h)anthracene	ND	330					
Benzo(g,h,i)perylene	ND	330					
2-Fluorophenol (surr)	46 %		150	51	54	25-121	
Phenol-d5 (surr)	66 %		150	73	72	24-113	
Nitrobenzene-d5 (surr)	67 %		100	72	68	23-120	
2-Fluorobiphenyl (surr)	66 %		100	71	70	30-115	
2,4,6-Tribromophenol (surr)	43 %		150	34	55	19-122	
Terphenyl-d14 (surr)	86 %		100	92	86	18-137	



Woodward Clyde Consultants

Gas BTEX in soil

QC Batch#: S089A  
Units: ug/kg  
Prep Date: 12/30/92

Analysis Dates  
Blank: 12/30/92  
MS: 12/30/92  
MSD: 12/30/92  
LCS: 12/30/92

---

<u>Analytes</u>	Blank		Spike <u>level</u>	%Recovery			QC	
	<u>Result</u>	<u>Limit</u>		<u>MS</u>	<u>MSD</u>	<u>LCS</u>	<u>LIMITS</u>	<u>RPD</u>
Benzene	ND	5	125	55	54	76		1.8
Toluene	ND	5	125	58	56	78		3.5
Ethylbenzene	ND	5	125	61	60	82		1.7
Total Xylenes	ND	5	125	62	61	82		1.6
Gasoline	ND	1000						
Bromofluorobenzene (surr)	103%		1250	72	70	96	42-137	

Woodward Clyde Consultants

## Gas BTEX in Water

QC Batch#: D195A

Units: ug/L

Prep Date: N/A

Analysis Dates

Blank: 12/29/92

MS: 12/29/92

MSD: 12/29/92

LCS: 12/29/92

<u>Analytes</u>	Blank		Spike <u>level</u>	%Recovery			QC	
	<u>Result</u>	<u>Limit</u>		<u>MS</u>	<u>MSD</u>	<u>LCS</u>	<u>LIMITS</u>	<u>RPD</u>
Benzene	ND	.5	10	95	85	90		11
Toluene	ND	.5	10	88	91	90		3.4
Ethylbenzene	ND	.5	10	92	95	92		3.2
Total Xylenes	ND	.5	20	96	92	92		4.3
Gasoline	ND	50						
Bromofluorobenzene (surr)	90%			97	95	98	58-127	

## Woodward Clyde Consultants

Instrument Type: Furnace Atomic Absorption  
 QC Batch #: 0935A Units: mg/kg Matrix: SOIL Prep date: 01/04/93

Test Description	Method	Blank		Spike Amt	%Recovery				Date Run
		Result	Limit		MS	MSD	LCS	RPD	
Lead by GFAA	EPA 7421	ND	0.20	4.0	98	99	98	1.0	01/13

Instrument Type: Inductively Coupled Argon Plasma  
 QC Batch #: 0934A Units: mg/kg Matrix: SOIL Prep date: 01/04/93

Test Description	Method	Blank		Spike Amt	%Recovery				Date Run
		Result	Limit		MS	MSD	LCS	RPD	
Cadmium by ICAP	EPA 6010	ND	1.0	10	115	110	103	4.5	01/13
Chromium by ICAP	EPA 6010	ND	2.0	40	82	87	97	6.0	01/13
Nickel by ICAP	EPA 6010	ND	4.0	100	102	103	98	0.9	01/13
Zinc by ICAP	EPA 6010	3.2	2.0	100	88	93	98	5.6	01/13

Woodward Clyde Consultants

Batch #: 0040A

Units: mg/kg

Test Description	Method	Blank		Spike		%Recovery				Date Run
		Result	Lmt	Level	MS	MSD	LCS	RPD		
TRPH by IR	EPA 418.1	<25	25	2.0	106	104	104	1.9	12/30	

92-12-144

**Woodward-Clyde Consultants**

500 12th Street, Suite 100, Oakland, CA 94607-4014  
(510) 893-3600

**Chain of Custody Record**

PROJECT NO. 92CB040/0000			Sample Matrix (Soil, Water, Air)	ANALYSES							Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)	
SAMPLERS: (Signature) <i>[Signature]</i>				EPA Method 8015 TH-D	EPA Method 8015 TH-G	EPA Method 8020 BTEX	EPA Method 8010	EPA 7021 Total Pb	ICAP (Cd, Cr, Zn, Ni)	016 418.1			EPA 8270
DATE	TIME	SAMPLE NUMBER											
1	12/22/92 1350	FTP-1	S	X		X						1	Report and invoices to: Anita Yan
2	12/22/92 1400	FTP-2	S	X		X						1	
3	12/22/92 1520	TP-1	S		X	X		X				1	
4	12/22/92 1530	TP-2	S		X	X		X				1	
5	12/22/92 1540	TP-3	S	X	X	X	X	X	X	X		1	
6	12/22/92 1545	TP-4	S	X		X						1	
7	12/22/92 1550	TP-5	S	X		X						1	
8	12/22/92 1610	D-1	S	X	X	X						1	
9	12/22/92 1615	W-1	W	X	X	X						4	
										TOTAL NUMBER OF CONTAINERS	12		
RELINQUISHED BY: (Signature) <i>[Signature]</i>		DATE/TIME 23 Dec 1992 1570	RECEIVED BY: (Signature)		RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)				
METHOD OF SHIPMENT: Courier			SHIPPED BY: (Signature) <i>[Signature]</i>		COURIER: (Signature) <i>[Signature]</i>		RECEIVED FOR LAB BY: (Signature) <i>[Signature]</i>		DATE/TIME 12/23/92 1700				

**APPENDIX D  
ANALYTICAL REPORTS FOR WASTE CHARACTERIZATION SAMPLES**

---

# NAT → /ETC

Mid-Pacific Environmental Laboratory, Inc.  
625B Clyde Avenue  
Mountain View, CA 94043  
(415) 964-0844  
FAX (415) 961-7113

Woodward Clyde Consultants  
500 12th Street Suite 100  
Oakland, CA 94607-4014

February 10, 1993  
MPELI Order#: 93-01-086  
Date Received: 01/26/93

Attn: Anita Yan

Subject: Analysis of 16 Soil Samples

Work ID: 92CB040/0000

P.O. #: none given

Pages in report: 29

Analysis of soil samples for higher boiling petroleum hydrocarbons (diesel, kerosene, & oil) was performed according to guidelines established in the Regional Water Quality Control Board (RWQCB) Leaking Underground Fuel Tank (LUFT) manual. This is also known as the modified 8015 protocol based on USEPA Method 8015 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986).

Analysis of soil samples for purgeable organic compounds was performed according to U.S. EPA Method 8240 (Test Methods for Evaluating Solid Waste - SW846, 3rd Ed., 1986).

Analysis of soil samples for semivolatile organic compounds was performed according to USEPA Method 8270 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986).

Digestion and analysis of extract samples for metals by Inductively Coupled Argon Plasma spectroscopy or Flame Atomic Absorption were performed by following USEPA Method 6010 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986) or Methods for Chemical Analysis of Water and Wastes, 1983, respectively. The specific method number is listed next to the analyte in the report.

Analysis of soil samples for lower boiling petroleum hydrocarbons (benzene, toluene, ethylbenzene, xylenes, and gasoline) was performed according to guidelines established in the Regional Water Quality Control Board (RWQCB) Leaking Underground Fuel Tank (LUFT) manual. This is also known as the modified 8015 protocol based on USEPA Method 8015 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986).

Preparation and analysis of extract samples for Mercury by Cold Vapor Atomic Absorption were performed by following USEPA Method 245.1 in Methods for Chemical Analysis of Water and Wastes (EPA 1983).

Solid samples were analyzed for total petroleum hydrocarbons by SM 5520 (Standard Methods for the Examination of Water and Wastewater - 17th Ed. 1989).

STLC samples were prepared by extraction in a citrate buffer for 48 hours. The resulting extract was filtered and analyzed for requested analytes. The resulting values are the soluble threshold limit concentrations for the requested analytes.

Samples were analyzed for requested general chemical parameters following Methods for Chemical Analysis of Water and Wastes (EPA 1983) or Test Methods for Evaluating Solid Wastes (SW-846, 3rd Ed., 1986). The test method used is listed along with the particular analysis.

#### NOTES

Method 8015, TPH as Diesel: In the analysis of composite sample SS1-ABCD, a chromatographic pattern was observed that did not match the pattern of any of our in-house standards for this method. This component was semi-quantitated by comparison with the diesel standard, and is reported as "unknown hydrocarbon".

QC Batch 0044A: In the analysis of Total Recoverable Petroleum Hydrocarbons by IR (418.1), the relative percent difference between the matrix spike and matrix spike duplicate recoveries is outside of QC limits. The laboratory control sample is within limits demonstrating that the system is in control and the high RPD is attributed to matrix effects, possibly due to non-homogeneity of composites.

All analyses have been conducted in batches of 20 samples or less. Each QC batch consists of a method blank, a Matrix Spike, a Matrix Spike Duplicate and a Laboratory Control Sample. The QC information is in a separate QC Report at the end of the regular report. To find the associated QC data, identify the batch number for the analysis of interest and look for that number in the QC Report for that test. Occasionally a sample will be associated with a sub-batch, which will end in a letter other than "A". The main batch will include the original blank, MS, MSD, and LCS. The sub-batch will contain the additional blank associated with the sample and LCS.

All analytes reported above detection limits on gas chromatography analyses have been confirmed by a second dissimilar column.

Samples were diluted when one or both of the following situations existed:

- 1) one or more analytes was present at a level above the linear calibration range of the instrument; or
- 2) compounds were present at levels that could damage the instrument.

The following flags and abbreviations are used in this report:

ND - Not detected above the detection limit stated.

\*\* - See other dilution.

Freon 113 - 1,1,2-Trichloro-1,2,2-trifluoroethane. Not an 8010 compound.

MS(D) - Matrix spike (Duplicate)

LCS(D) - Laboratory Control Sample (Duplicate)

RPD - Relative percent difference

N/A - Not applicable



If you should have any technical questions, please contact the undersigned at (415) 964-0844.

Approved by: Donald Magarini  
Client Services

These results were obtained by following standard laboratory procedures; the liability of Mid-Pacific Environmental Laboratory, Inc. shall not exceed the amount paid for this report. In no event shall Mid-Pacific be liable for special or consequential damages.

Woodward Clyde Consultants  
Analytical Results - TPH as Diesel by GC /soil

Client ID: SS1-A,B,C,D  
MPELI ID: 9301086-17C  
Matrix: SOIL  
QC Batch: 0130A

Collected: 01/25/93  
Received: 01/26/93  
Extracted: 01/28/93  
Analyzed: 02/03/93  
Dilution factor: 1.00

---

Concentration, mg/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Diesel	ND	1.00
Kerosene	ND	1.00
Motor Oil	ND	10.0
*Unknown Hydrocarbon	49	1.00

Woodward Clyde Consultants  
Analytical Results - 8240 VOA by GCMS /soil

Client ID: SS1-A,B,C,D

Collected: 01/25/93

MPELI ID: 9301086-17A

Received: 01/26/93

Matrix: SOIL

Analyzed: 01/27/93

QC Batch: A187A

Dilution factor: 1.00

Concentration, ug/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Chloromethane	ND	10
Vinyl chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
1,1-Dichloroethene	ND	5.0
Carbon Disulfide	ND	5.0
Acetone	ND	10
Methylene chloride	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
Vinyl acetate	ND	10
2-Butanone	ND	10
Chloroform	ND	5.0
1,1,1-Trichloroethane	ND	5.0
Carbon tetrachloride	ND	5.0
Benzene	ND	5.0
1,2-Dichloroethane	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
4-Methyl-2-pentanone	ND	10
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Tetrachloroethene	ND	5.0
2-Hexanone	ND	10
Dibromochloromethane	ND	5.0
Chlorobenzene	ND	5.0
Ethylbenzene	ND	5.0
Total xylenes	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
1,2-Dichloroethane-d4	104	70-121
Toluene-d8	104	84-138
p-Bromofluorobenzene	102	59-113

Woodward Clyde Consultants  
Analytical Results - 8270 SVOA by GCMS/soil

Client ID: SS1-A,B,C,D

Collected: 01/25/93

MPELI ID: 9301086-17E

Received: 01/26/93

Extracted: 01/28/93

Matrix: SOIL

Analyzed: 02/02/93

QC Batch: 0158a

Dilution factor: 1.00

Concentration, ug/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Phenol	ND	330
Bis(2-chloroethyl)ether	ND	330
2-Chlorophenol	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
Benzyl alcohol	ND	660
1,2-Dichlorobenzene	ND	330
2-Methylphenol	ND	330
Bis(2-chloroisopropyl) ether	ND	330
4-Methylphenol	ND	330
N-Nitroso-di-n-propylamine	ND	330
Hexachloroethane	ND	330
Nitrobenzene	ND	330
Isophorone	ND	330
2-Nitrophenol	ND	330
2,4-Dimethylphenol	ND	330
Benzoic acid	ND	1600
Bis(2-chloroethoxy)methane	ND	330
2,4-Dichlorophenol	ND	330
1,2,4-Trichlorobenzene	ND	330
Naphthalene	ND	330
4-Chloroaniline	ND	660
Hexachlorobutadiene	ND	330
4-Chloro-3-methylphenol	ND	330
2-Methylnaphthalene	ND	330
Hexachlorocyclopentadiene	ND	330
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	330
2-Chloronaphthalene	ND	1600
2-Nitroaniline	ND	1600
Dimethyl phthalate	ND	330
Acenaphthylene	ND	330
3-Nitroaniline	ND	1600
Acenaphthene	ND	330
2,4-Dinitrophenol	ND	1600
4-Nitrophenol	ND	1600
Dibenzofuran	ND	330
2,4-Dinitrotoluene	ND	330
2,6-Dinitrotoluene	ND	330
Diethyl phthalate	ND	330
4-Chlorophenyl phenylether	ND	330
Fluorene	ND	330
4-Nitroaniline	ND	1600
4,6-Dinitro-2-methylphenol	ND	1600
N-Nitrosodiphenylamine	ND	330
4-Bromophenyl phenylether	ND	330

Woodward Clyde Consultants  
Analytical Results - 8270 SVOA by GCMS/soil

Client ID: SS1-A,B,C,DMPELI ID: 9301086-17E

Matrix: SOIL

QC Batch: 0158a

Collected: 01/25/93

Received: 01/26/93

Extracted: 01/28/93

Analyzed: 02/02/93

Dilution factor: 1.00

Concentration, ug/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Hexachlorobenzene	ND	330
Pentachlorophenol	ND	1600
Phenanthrene	ND	330
Anthracene	ND	330
Di-n-butyl phthalate	ND	330
Fluoranthene	ND	330
Pyrene	ND	330
Butyl benzyl phthalate	ND	330
3,3'-Dichlorobenzidine	ND	660
Benzo(a) anthracene	ND	330
Bis(2-ethylhexyl)phthalate	ND	330
Chrysene	ND	330
Di-n-octyl phthalate	ND	330
Benzo (b) fluoranthene	ND	330
Benzo (k) fluoranthene	ND	330
Benzo (a) pyrene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Dibenzo(a,h)anthracene	ND	330
Benzo(g,h,i)perylene	ND	330
<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
2-Fluorophenol	46	25-121
Phenol-d5	63	24-113
Nitrobenzene-d5	66	23-120
2-Fluorobiphenyl	68	30-115
2,4,6-Tribromophenol	39	19-122
p-Terphenyl-d14	93	18-137

Woodward Clyde Consultants  
Analytical Results - TPH as Gas, BTEX by GC/soilClient ID: SS1-A,B,C,D  
MPELI ID: 9301086-17B  
Matrix: SOIL  
QC Batch: S094ACollected: 01/25/93  
Received: 01/26/93  
Analyzed: 02/03/93  
Dilution factor: 1.00

---

	<u>Concentration, ug/kg</u>	
<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Benzene	ND	5.0
Toluene	ND	5.0
Ethylbenzene	ND	5.0
Total Xylenes	ND	5.0
Gasoline	ND	1000
<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
Bromofluorobenzene	43	42-137

Woodward Clyde Consultants  
Analytical Results - TPH as Diesel by GC /soil

Client ID: SS1-E,F,G,H  
MPELI ID: 9301086-18C  
Matrix: SOIL  
QC Batch: 0130A

Collected: 01/25/93  
Received: 01/26/93  
Extracted: 01/28/93  
Analyzed: 02/03/93  
Dilution factor: 1.00

---

Concentration, mg/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Diesel	ND	1.00
Kerosene	ND	1.00
Motor Oil	56	10.0

Woodward Clyde Consultants  
Analytical Results - 8240 VOA by GCMS /soil

Client ID: SS1-E,F,G,H

Collected: 01/25/93

MPELI ID: 9301086-18A

Received: 01/26/93

Matrix: SOIL

Analyzed: 01/27/93

QC Batch: A187A

Dilution factor: 1.00

Concentration, ug/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Chloromethane	ND	10
Vinyl chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
1,1-Dichloroethene	ND	5.0
Carbon Disulfide	ND	5.0
Acetone	ND	10
Methylene chloride	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
Vinyl acetate	ND	10
2-Butanone	ND	10
Chloroform	ND	5.0
1,1,1-Trichloroethane	ND	5.0
Carbon tetrachloride	ND	5.0
Benzene	ND	5.0
1,2-Dichloroethane	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
4-Methyl-2-pentanone	ND	10
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Tetrachloroethene	ND	5.0
2-Hexanone	ND	10
Dibromochloromethane	ND	5.0
Chlorobenzene	ND	5.0
Ethylbenzene	ND	5.0
Total xylenes	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0

<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
1,2-Dichloroethane-d4	96	70-121
Toluene-d8	109	84-138
p-Bromofluorobenzene	99	59-113



Woodward Clyde Consultants  
Analytical Results - 8270 SVOA by GCMS/soil

Client ID: SS1-E,F,G,H  
MPELI ID: 9301086-18E

Collected: 01/25/93

Received: 01/26/93

Extracted: 01/28/93

Analyzed: 02/02/93

Matrix: SOIL  
QC Batch: 0158a

Dilution factor: 1.00

---

Concentration, ug/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Phenol	ND	330
Bis(2-chloroethyl)ether	ND	330
2-Chlorophenol	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
Benzyl alcohol	ND	660
1,2-Dichlorobenzene	ND	330
2-Methylphenol	ND	330
Bis(2-chloroisopropyl) ether	ND	330
4-Methylphenol	ND	330
N-Nitroso-di-n-propylamine	ND	330
Hexachloroethane	ND	330
Nitrobenzene	ND	330
Isophorone	ND	330
2-Nitrophenol	ND	330
2,4-Dimethylphenol	ND	330
Benzoic acid	ND	1600
Bis(2-chloroethoxy)methane	ND	330
2,4-Dichlorophenol	ND	330
1,2,4-Trichlorobenzene	ND	330
Naphthalene	ND	330
4-Chloroaniline	ND	660
Hexachlorobutadiene	ND	330
4-Chloro-3-methylphenol	ND	330
2-Methylnaphthalene	ND	330
Hexachlorocyclopentadiene	ND	330
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	330
2-Chloronaphthalene	ND	1600
2-Nitroaniline	ND	1600
Dimethyl phthalate	ND	330
Acenaphthylene	ND	330
3-Nitroaniline	ND	1600
Acenaphthene	ND	330
2,4-Dinitrophenol	ND	1600
4-Nitrophenol	ND	1600
Dibenzofuran	ND	330
2,4-Dinitrotoluene	ND	330
2,6-Dinitrotoluene	ND	330
Diethyl phthalate	ND	330
4-Chlorophenyl phenylether	ND	330
Fluorene	ND	330
4-Nitroaniline	ND	1600
4,6-Dinitro-2-methylphenol	ND	1600
N-Nitrosodiphenylamine	ND	330
4-Bromophenyl phenylether	ND	330

Woodward Clyde Consultants  
Analytical Results - 8270 SVOA by GCMS/soil

Client ID: SS1-E,F,G,H

Collected: 01/25/93

MPELI ID: 9301086-18E

Received: 01/26/93

Extracted: 01/28/93

Matrix: SOIL

Analyzed: 02/02/93

QC Batch: 0158a

Dilution factor: 1.00

Concentration, ug/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Hexachlorobenzene	ND	330
Pentachlorophenol	ND	1600
Phenanthrene	ND	330
Anthracene	ND	330
Di-n-butyl phthalate	ND	330
Fluoranthene	ND	330
Pyrene	ND	330
Butyl benzyl phthalate	ND	330
3,3'-Dichlorobenzidine	ND	660
Benzo(a) anthracene	ND	330
Bis(2-ethylhexyl)phthalate	ND	330
Chrysene	ND	330
Di-n-octyl phthalate	ND	330
Benzo (b) fluoranthene	ND	330
Benzo (k) fluoranthene	ND	330
Benzo (a) pyrene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Dibenzo(a,h)anthracene	ND	330
Benzo(g,h,i)perylene	ND	330

<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
2-Fluorophenol	36	25-121
Phenol-d5	54	24-113
Nitrobenzene-d5	56	23-120
2-Fluorobiphenyl	63	30-115
2,4,6-Tribromophenol	41	19-122
p-Terphenyl-d14	91	18-137

Woodward Clyde Consultants  
Analytical Results - TPH as Gas, BTEX by GC/soil

Client ID: SS1-E,F,G,H  
MPELI ID: 9301086-18B  
Matrix: SOIL  
QC Batch: S094A

Collected: 01/25/93  
Received: 01/26/93  
Analyzed: 02/03/93  
Dilution factor: 1.00

Concentration, ug/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Benzene	ND	5.0
Toluene	ND	5.0
Ethylbenzene	ND	5.0
Total Xylenes	16	5.0
Gasoline	ND	1000

<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
Bromofluorobenzene	55	42-137

Woodward Clyde Consultants  
Analytical Results - TPH as Diesel by GC /soil

Client ID: SS2-A,B,C,D  
MPELI ID: 9301086-19B  
Matrix: SOIL  
QC Batch: 0130A

Collected: 01/25/93  
Received: 01/26/93  
Extracted: 01/28/93  
Analyzed: 02/03/93  
Dilution factor: 1.00

---

Concentration, mg/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Diesel	ND	1.00
Kerosene	ND	1.00
Motor Oil	ND	10.0

Woodward Clyde Consultants  
Analytical Results - TPH as Gas, BTEX by GC/soilClient ID: SS2-A,B,C,D  
MPELI ID: 9301086-19A  
Matrix: SOIL  
QC Batch: S094ACollected: 01/25/93  
Received: 01/26/93  
Analyzed: 02/03/93  
Dilution factor: 1.00

---

Concentration, ug/kg

<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>
Benzene	ND	5.0
Toluene	ND	5.0
Ethylbenzene	ND	5.0
Total Xylenes	17	5.0

<u>SURROGATE</u>	<u>%RECOVERY</u>	<u>LIMITS</u>
Bromofluorobenzene	68	42-137

## Woodward Clyde Consultants

Client ID: SS1-A,B,C,D  
 MPELI ID: 9301086 - 17D  
 Matrix: SOIL

Date collected: 01/25/93  
 Date received: 01/26/93

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
TRPH by IR	EPA 418.1	32	25 mg/kg	01/28	02/02	0044A

Client ID: SS1-A,B,C,D  
 MPELI ID: 9301086 - 17F  
 Matrix: SOIL

Date collected: 01/25/93  
 Date received: 01/26/93

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Flashpoint:nonliquid	EPA 1010	>70	0 Degr.C	02/05	02/05	0018B
pH in soil	EPA 9045	8.1	N/A pH	02/01	02/01	0122A

Client ID: SS1-A,B,C,D  
 MPELI ID: 9301086 - 17G  
 Matrix: SOIL

Date collected: 01/25/93  
 Date received: 01/26/93

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
WET Ext. for STLC	CAM WET	N/A	N/A N/A	02/01	N/A	

Client ID: SS1-A,B,C,D  
 MPELI ID: 9301086 - 17H  
 Matrix: EXTRACT

Date collected: 01/25/93  
 Date received: 01/26/93

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Silver by ICAP	EPA 6010	ND	0.010 mg/L	02/03	02/08	0975B
Arsenic by ICAP	EPA 6010	ND	0.10 mg/L	02/03	02/08	0975B
Barium by ICAP	EPA 6010	5.7	0.010 mg/L	02/03	02/08	0975B
Beryllium by ICAP	EPA 6010	0.0079	0.0050 mg/L	02/03	02/08	0975B
Cadmium by ICAP	EPA 6010	0.025	0.0050 mg/L	02/03	02/08	0975B
Cobalt by ICAP	EPA 6010	0.38	0.010 mg/L	02/03	02/08	0975B
Chromium by ICAP	EPA 6010	0.47	0.010 mg/L	02/03	02/08	0975B
Copper by ICAP	EPA 6010	0.26	0.010 mg/L	02/03	02/08	0975B
Mercury by CVAA	EPA 7470	0.0059	0.0020 mg/L	02/09	02/09	0354A
Molybdenum by ICAP	EPA 6010	0.039	0.020 mg/L	02/03	02/08	0975B
Nickel by ICAP	EPA 6010	1.2	0.020 mg/L	02/03	02/08	0975B
Lead by ICAP	EPA 6010	0.30	0.050 mg/L	02/03	02/08	0975B
Antimony by ICAP	EPA 6010	0.052	0.050 mg/L	02/03	02/08	0975B
Selenium by ICAP	EPA 6010	1.7	0.20 mg/L	02/03	02/08	0975B
Thallium by ICAP	EPA 6010	1.3	0.20 mg/L	02/03	02/08	0975B
Vanadium by ICAP	EPA 6010	0.55	0.010 mg/L	02/03	02/08	0975B
Zinc by ICAP	EPA 6010	1.3	0.010 mg/L	02/03	02/08	0975B

## Woodward Clyde Consultants

Client ID: SS1-E,F,G,H

Date collected: 01/25/93

MPELI ID: 9301086 - 18D

Date received: 01/26/93

Matrix: SOIL

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
TRPH by IR	EPA 418.1	ND	25 mg/kg	01/28	02/02	0044A

Client ID: SS1-E,F,G,H

Date collected: 01/25/93

MPELI ID: 9301086 - 18F

Date received: 01/26/93

Matrix: SOIL

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Flashpoint:nonliquid	EPA 1010	>70	0 Degr.C	02/05	02/05	0018B
pH in soil	EPA 9045	8.2	N/A pH	02/01	02/01	0122A

Client ID: SS1-E,F,G,H

Date collected: 01/25/93

MPELI ID: 9301086 - 18G

Date received: 01/26/93

Matrix: SOIL

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
WET Ext. for STLC	CAM WET	N/A	N/A N/A	02/01	N/A	

Client ID: SS1-E,F,G,H

Date collected: 01/25/93

MPELI ID: 9301086 - 18H

Date received: 01/26/93

Matrix: SOIL

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Silver by ICAP	EPA 6010	ND	0.010 mg/L	02/03	02/08	0975B
Arsenic by ICAP	EPA 6010	ND	0.10 mg/L	02/03	02/08	0975B
Barium by ICAP	EPA 6010	6.3	0.010 mg/L	02/03	02/08	0975B
Beryllium by ICAP	EPA 6010	ND	0.0050 mg/L	02/03	02/08	0975B
Cadmium by ICAP	EPA 6010	0.020	0.0050 mg/L	02/03	02/08	0975B
Cobalt by ICAP	EPA 6010	0.48	0.010 mg/L	02/03	02/08	0975B
Chromium by ICAP	EPA 6010	0.30	0.010 mg/L	02/03	02/08	0975B
Copper by ICAP	EPA 6010	0.59	0.010 mg/L	02/03	02/08	0975B
Mercury by CVAA	EPA 7470	0.0029	0.0020 mg/L	02/09	02/09	0354A
Molybdenum by ICAP	EPA 6010	0.023	0.020 mg/L	02/03	02/08	0975B
Nickel by ICAP	EPA 6010	0.83	0.020 mg/L	02/03	02/08	0975B
Lead by ICAP	EPA 6010	0.55	0.050 mg/L	02/03	02/08	0975B
Antimony by ICAP	EPA 6010	ND	0.050 mg/L	02/03	02/08	0975B
Selenium by ICAP	EPA 6010	0.71	0.20 mg/L	02/03	02/08	0975B
Thallium by ICAP	EPA 6010	0.57	0.20 mg/L	02/03	02/08	0975B
Vanadium by ICAP	EPA 6010	0.25	0.010 mg/L	02/03	02/08	0975B
Zinc by ICAP	EPA 6010	1.4	0.010 mg/L	02/03	02/08	0975B

Woodward Clyde Consultants

Client ID: SS2-A,B,C,D  
MPCLI ID: 9301086 - 19C  
Matrix: SOIL

Date collected: 01/25/93  
Date received: 01/26/93

---

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Flashpoint:nonliquid	EPA 1010	>70	0 Degr.C	02/05	02/05	0018B
pH in soil	EPA 9045	8.5	N/A pH	02/01	02/01	0122A

---



Woodward Clyde Consultants

Client ID: SS2-E,F,G,H  
MPELI ID: 9301086 - 20C  
Matrix: SOIL

Date collected: 01/25/93  
Date received: 01/26/93

---

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Flashpoint:nonliquid	EPA 1010	>70	0 Degr.C	02/05	02/05	0018B
pH in soil	EPA 9045	8.6	N/A pH	02/01	02/01	0122A

Woodward Clyde Consultants

Tot. Pet. Hydrocarbon/soil

QC Batch#: 0130A  
Units: mg/kg  
Prep Date: 01/28/93

Analysis Dates  
Blank: 02/03/93  
MS: 02/03/93  
MSD: 02/03/93  
LCS: 02/03/93

<u>Analytes</u>	Blank		Spike <u>level</u>	%Recovery			QC	
	<u>Result</u>	<u>Limit</u>		<u>MS</u>	<u>MSD</u>	<u>LCS</u>	<u>LIMITS</u>	<u>RPD</u>
Diesel	ND	1	2000	68	74	70		8.5
Kerosene	ND	1						
Motor Oil	ND	10						

Woodward Clyde Consultants

8240 VOA by GCMS /Soil

QC Batch#: A187A

Units: ug/kg

Prep Date: N/A

Analysis Dates

Blank: 01/27/93

MS: 01/27/93

MSD: 01/27/93

LCS: 01/27/93

Analytes	Blank		Spike level	%Recovery		LCS	QC	
	Result	Limit		MS	MSD		LIMITS	RPD
Chloromethane	ND	10						
Vinyl chloride	ND	10						
Bromomethane	ND	10						
Chloroethane	ND	10						
1,1-Dichloroethene	ND	5.0	50	108	78	95		32
Carbon Disulfide	ND	5.0						
Acetone	ND	10						
Methylene chloride	ND	5.0						
trans-1,2-Dichloroethene	ND	5.0						
1,1-Dichloroethane	ND	5.0						
Vinyl acetate	ND	10						
2-Butanone	ND	10						
Chloroform	ND	5.0						
1,1,1-Trichloroethane	ND	5.0						
Carbon tetrachloride	ND	5.0						
Benzene	ND	5.0	50	95	89	105		6.5
1,2-Dichloroethane	ND	5.0						
Trichloroethene	ND	5.0	50	109	114	103		4.5
1,2-Dichloropropane	ND	5.0						
Bromodichloromethane	ND	5.0						
cis-1,3-Dichloropropene	ND	5.0						
4-Methyl-2-pentanone	ND	10						
Toluene	ND	5.0	50	106	105	96		0.9
trans-1,3-Dichloropropene	ND	5.0						
1,1,2-Trichloroethane	ND	5.0						
Tetrachloroethene	ND	5.0						
2-Hexanone	ND	10						
Dibromochloromethane	ND	5.0						
Chlorobenzene	ND	5.0	50	103	104	103		0.9
Ethylbenzene	ND	5.0						
Total xylenes	ND	5.0						
Styrene	ND	5.0						
Bromoform	ND	5.0						
1,1,2,2-Tetrachloroethane	ND	5.0						
1,2-Dichloroethane-d4(surr)	98%			94	83	94	70-121	
Toluene-d8 (surr)	99%			104	106	94	84-138	
p-Bromofluorobenzene (surr)	107%			104	102	106	59-113	

Woodward Clyde Consultants

8270 SVOA by GCMS /soil

QC Batch#: 0158A

Units: ug/kg

Prep Date: 01/28/93

Analysis Dates

Blank: 02/02/93

MS: 02/02/93

MSD: 02/02/93

LCS: 02/02/93

Analytes	Blank		Spike level	%Recovery		LCS	QC	
	Result	Limit		MS	MSD		LIMITS	RPD
Phenol	ND	330	150	61	65	70		6.3
Bis(2-chloroethyl)ether	ND	330						
2-Chlorophenol	ND	330	150	55	55	63		0
1,3-Dichlorobenzene	ND	330						
1,4-Dichlorobenzene	ND	330	100	58	58	61		0
Benzyl alcohol	ND	670						
1,2-Dichlorobenzene	ND	330						
2-Methylphenol	ND	330						
Bis(2-chloroisopropyl)ether	ND	330						
4-Methylphenol	ND	330						
N-nitroso-di-n-propylamine	ND	330	100	74	71	76		4.1
Hexachloroethane	ND	330						
Nitrobenzene	ND	330						
Isophorone	ND	330						
2-Nitrophenol	ND	330						
2,4-Dimethylphenol	ND	330						
Benzoic acid	ND	330						
Bis(2-chloroethoxy)methane	ND	330						
2,4-Dichlorophenol	ND	330						
1,2,4-Trichlorobenzene	ND	330	100	70	70	69		0
Naphthalene	ND	330						
4-Chloroaniline	ND	670						
Hexachlorobutadiene	ND	330						
4-Chloro-3-methylphenol	ND	330	150	54	56	68		3.6
2-Methylnaphthalene	ND	330						
Hexachlorocyclopentadiene	ND	330						
2,4,6-Trichlorophenol	ND	330						
2,4,5-Trichlorophenol	ND	330						
2-Chloronaphthalene	ND	330						
2-Nitroaniline	ND	1700						
Dimethyl phthalate	ND	330						
Acenaphthylene	ND	330						
3-Nitroaniline	ND	1700						
Acenaphthene	ND	330	100	75	72	70		4.1
2,4-Dinitrophenol	ND	1700						
4-Nitrophenol	ND	1700	150	79	87	102		9.6
Dibenzofuran	ND	330						
2,4-Dinitrotoluene	ND	330	100	75	76	74		1.3
2,6-Dinitrotoluene	ND	330						
Diethyl phthalate	ND	330						
4-Chlorophenyl phenylether	ND	330						
Fluorene	ND	330						
4-Nitroaniline	ND	1700						
4,6-Dinitro-2-methylphenol	ND	1700						

## Woodward Clyde Consultants

8270 SVOA by GCMS /soil

QC Batch#: 0158A  
 Units: ug/kg  
 Prep Date: 01/28/93

Analysis Dates  
 Blank: 02/02/93  
 MS: 02/02/93  
 MSD: 02/02/93  
 LCS: 02/02/93

Analytes	Blank		Spike level	%Recovery		LCS	QC	
	Result	Limit		MS	MSD		LIMITS	RPD
N-Nitrosodiphenylamine	ND	330						
4-Bromophenyl phenylether	ND	330						
Hexachlorobenzene	ND	330						
Pentachlorophenol	ND	1700	150	83	86	90		3.6
Phenanthrene	ND	330						
Anthracene	ND	330						
Di-n-butyl phthalate	ND	330						
Fluoranthene	ND	330						
Pyrene	ND	330	100	81	82	80		1.2
Butyl benzyl phthalate	ND	330						
3,3'-Dichlorobenzidine	ND	670						
Benzo(a)anthracene	ND	330						
Bis(2-ethylhexyl) phthalate	ND	330						
Chrysene	ND	330						
Di-n-octyl phthalate	ND	330						
Benzo(b)fluoranthene	ND	330						
Benzo(k)fluoranthene	ND	330						
Benzo(a)pyrene	ND	330						
Indeno(1,2,3-c,d)pyrene	ND	330						
Dibenzo(a,h)anthracene	ND	330						
Benzo(g,h,i)perylene	ND	330						
2-Fluorophenol (surr)	61 %		150	47	50	58	25-121	
Phenol-d5 (surr)	67 %		150	62	63	71	24-113	
Nitrobenzene-d5 (surr)	61 %		100	62	61	61	23-120	
2-Fluorobiphenyl (surr)	63 %		100	64	64	62	30-115	
2,4,6-Tribromophenol (surr)	66 %		150	46	52	71	19-122	
Terphenyl-d14 (surr)	87 %		100	80	82	80	18-137	

Woodward Clyde Consultants

Gas BTEX in soil

QC Batch#: S094A  
 Units: ug/kg  
 Prep Date: 02/02/93

Analysis Dates  
 Blank: 02/03/93  
 MS: 02/03/93  
 MSD: 02/03/93  
 LCS: 02/03/93

---

Analytes	Blank		Spike level	%Recovery			QC	
	Result	Limit		MS	MSD	LCS	LIMITS	RPD
Benzene	ND	5	125	54	62	73		14
Toluene	ND	5	125	52	61	72		16
Ethylbenzene	ND	5	125	54	62	75		14
Total Xylenes	ND	5	125	57	65	78		13
Gasoline	ND	1000						
Bromofluorobenzene (surr)	77%		1250	43	59	76	42-137	

## Woodward Clyde Consultants

Instrument Type: Cold Vapor

QC Batch #: 0354A

Units: mg/L

Matrix: Extract

Prep date: 02/09/93

Test Description	Method	Blank		Spike Amt	%Recovery				Date Run
		Result	Limit		MS	MSD	LCS	RPD	
Mercury by CVAA	EPA 7470	ND	0.0020	0.020	103	92	64	11	02/09

Instrument Type: Inductively Coupled Argon Plasma

QC Batch #: 0975A

Units: mg/L

Matrix: Extract

Prep date: 01/28/93

Test Description	Method	Blank		Spike Amt	%Recovery				Date Run
		Result	Limit		MS	MSD	LCS	RPD	
Silver by ICAP	EPA 6010	ND	0.010	0.50	100	100	97	0	02/01
Arsenic by ICAP	EPA 6010	ND	0.10	5.0	115	114	111	0.8	02/01
Barium by ICAP	EPA 6010	0.045	0.010	5.0	95	94	90	1.1	02/01
Beryllium by ICAP	EPA 6010	ND	0.0050	0.50	96	95	92	1.1	02/01
Cadmium by ICAP	EPA 6010	0.0071	0.0050	0.50	120	121	116	0.8	02/01
Cobalt by ICAP	EPA 6010	ND	0.010	0.50	105	106	103	0.9	02/01
Chromium by ICAP	EPA 6010	ND	0.010	0.50	106	106	104	0	02/01
Copper by ICAP	EPA 6010	ND	0.010	0.50	110	111	110	0.9	02/01
Molybdenum by ICAP	EPA 6010	ND	0.020	0.50	106	108	103	1.9	02/01
Nickel by ICAP	EPA 6010	ND	0.020	0.50	105	107	100	1.9	02/01
Lead by ICAP	EPA 6010	ND	0.050	5.0	104	105	103	0.9	02/01
Antimony by ICAP	EPA 6010	0.075	0.050	5.0	109	110	106	0.9	02/01
Selenium by ICAP	EPA 6010	ND	0.20	5.0	133	135	112	1.5	02/01
Thallium by ICAP	EPA 6010	ND	0.20	5.0	105	105	101	0	02/01
Vanadium by ICAP	EPA 6010	ND	0.010	0.50	102	103	101	0.9	02/01
Zinc by ICAP	EPA 6010	0.014	0.010	0.50	103	106	106	2.9	02/01

## Woodward Clyde Consultants

Instrument Type: Inductively Coupled Argon Plasma

QC Batch #: 0975B

Units: mg/L

Matrix: Extract

Prep date: 02/03/93

<u>Test Description</u>	<u>Method</u>	<u>Blank</u>		<u>Spike %Recovery</u>		<u>Date</u>
		<u>Result</u>	<u>Limit</u>	<u>Amt</u>	<u>LCS</u>	
Silver by ICAP	EPA 6010	ND	0.010	0.50	87	02/08
Arsenic by ICAP	EPA 6010	ND	0.10	5.0	99	02/08
Barium by ICAP	EPA 6010	ND	0.010	5.0	85	02/08
Beryllium by ICAP	EPA 6010	ND	0.0050	0.50	84	02/08
Cadmium by ICAP	EPA 6010	ND	0.0050	0.50	96	02/08
Cobalt by ICAP	EPA 6010	ND	0.010	0.50	89	02/08
Chromium by ICAP	EPA 6010	ND	0.010	0.50	92	02/08
Copper by ICAP	EPA 6010	ND	0.010	0.50	93	02/08
Molybdenum by ICAP	EPA 6010	ND	0.020	0.50	90	02/08
Nickel by ICAP	EPA 6010	ND	0.020	0.50	89	02/08
Lead by ICAP	EPA 6010	ND	0.050	5.0	87	02/08
Antimony by ICAP	EPA 6010	ND	0.050	5.0	97	02/08
Selenium by ICAP	EPA 6010	ND	0.20	5.0	112	02/08
Thallium by ICAP	EPA 6010	ND	0.20	5.0	86	02/08
Vanadium by ICAP	EPA 6010	ND	0.010	0.50	88	02/08
Zinc by ICAP	EPA 6010	ND	0.010	0.50	86	02/08



## Woodward Clyde Consultants

Batch #: 0018A Units: Degr.C

Test Description	Method	First Analysis	Duplicate Analysis	Date Run
Flashpoint:nonliquid	EPA 1010	>70	>70	02/01

Batch #: 0018B Units: Degr.C

Test Description	Method	First Analysis	Duplicate Analysis	Date Run
Flashpoint:nonliquid	EPA 1010	>70	>70	02/05

Batch #: 0122A Units: pH

Test Description	Method	First Analysis	Duplicate Analysis	Date Run
pH in soil	EPA 9045	6.229	6.553	02/01

Batch #: 0044A Units: mg/kg

Test Description	Method	%Recovery							Date Run
		Blank Result	Lmt	Spike Level	MS	MSD	LCS	RPD	
TRPH by IR	EPA 418.1	<25	25	100	78	115	105	38	02/02

93-01-086 / 93-01-087 (SUB)

**Woodward-Clyde Consultants**

500 12th Street, Suite 100, Oakland, CA 94607-4014  
(510) 893-3600

**Chain of Custody Record**

PROJECT NO. 92CB040/0000			Sample Matrix (Soil, Water, Air)	ANALYSES										Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)					
SAMPLERS: (Signature) Sharon J. Sullivan				EPA Method 8015 TPH - Diesel	EPA Method 8015 TPH - GAS	EPA Method 8020 BTEX	EPA Method 418.1 TRPAH	EPA method 8240	EPA method 8370	STLC CAM 17 Metals	Peachtree	Concavity	Ignitability							
DATE	TIME	SAMPLE NUMBER																		
1/25/93	3:20pm	SS1-A	S	X	X	X	X	X	X	X	X	X	X	1						
1/25/93	3:30pm	SS1-B	S	X	X	X	X	X	X	X	X	X	X	1						
1/25/93	3:40pm	SS1-C	S	X	X	X	X	X	X	X	X	X	X	1						
1/25/93	3:50pm	SS1-D	S	X	X	X	X	X	X	X	X	X	X	1						
1/25/93	4:00pm	SS1-E	S	X	X	X	X	X	X	X	X	X	X	1						
1/25/93	4:07pm	SS1-F	S	X	X	X	X	X	X	X	X	X	X	1						
1/25/93	4:11pm	SS1-G	S	X	X	X	X	X	X	X	X	X	X	1						
1/25/93	4:15pm	SS1-H	S	X	X	X	X	X	X	X	X	X	X	1						
1/25/93	4:35pm	SS2-A	S	X		X				X	X	X	X	1						
1/25/93	4:40pm	SS2-B	S	X		X				X	X	X	X	1						
1/25/93	4:45pm	SS2-C	S	X		X				X	X	X	X	1						
1/25/93	4:50pm	SS2-D	S	X		X				X	X	X	X	1						
1/25/93	4:55pm	SS2-E	S	X		X				X	X	X	X	1						
1/25/93	5:00pm	SS2-F	S	X		X				X	X	X	X	1						
1/25/93	5:05pm	SS2-G	S	X		X				X	X	X	X	1						
1/25/93	5:10pm	SS2-H	S	X		X				X	X	X	X	1						
												TOTAL NUMBER OF CONTAINERS	16							
RELINQUISHED BY : (Signature) Sharon J. Sullivan		DATE/TIME 1/25/93 6:30pm	RECEIVED BY : (Signature)		RELINQUISHED BY : (Signature)		DATE/TIME		RECEIVED BY : (Signature)		METHOD OF SHIPMENT :		SHIPPED BY : (Signature)		COURIER : (Signature)		RECEIVED FOR LAB BY : (Signature)		DATE/TIME 1-26-93 10:45	

Received Cool (TM)

Standard Turn around time.

If you have questions please contact:  
Sharon Sullivan at  
(916) 368-0988  
(Sacramento WCC office)

# NATX/ETC

Mid-Pacific Environmental Laboratory, Inc.

625B Clyde Avenue  
Mountain View, CA 94043  
(415) 964-0844  
FAX (415) 961-7113

Woodward Clyde Consultants  
500 12th Street Suite 100  
Oakland, CA 94607-4014

March 03, 1993  
MPELI Order#: 93-01-087  
Date Received: 01/26/93

Attn: Anita Yan

Subject: Analysis of 4 Composite Soil Samples

Work ID: 92CB040/0000

P.O. #: none given

Pages in report: 7

Samples were analyzed for requested general chemical parameters following Methods for Chemical Analysis of Water and Wastes (EPA 1983) or Test Methods for Evaluating Solid Wastes (SW-846, 3rd Ed., 1986). The test method used is listed along with the particular analysis.

## NOTES

All analyses have been conducted in batches of 20 samples or less. Each QC batch consists of a method blank, a Matrix Spike, a Matrix Spike Duplicate and a Laboratory Control Sample. The QC information is in a separate QC Report at the end of the regular report. To find the associated QC data, identify the batch number for the analysis of interest and look for that number in the QC Report for that test. Occasionally a sample will be associated with a sub-batch, which will end in a letter other than "A". The main batch will include the original blank, MS, MSD, and LCS. The sub-batch will contain the additional blank associated with the sample and LCS.

All analytes reported above detection limits on gas chromatography analyses have been confirmed by a second dissimilar column.

Samples were diluted when one or both of the following situations existed:

- 1) one or more analytes was present at a level above the linear calibration range of the instrument; or
- 2) compounds were present at levels that could damage the instrument.

The following flags and abbreviations are used in this report:

- ND - Not detected above the detection limit stated.
- \*\* - See other dilution.
- Freon 113 - 1,1,2-Trichloro-1,2,2-trifluoroethane. Not an 8010 compound.
- MS(D) - Matrix spike (Duplicate)
- LCS(D) - Laboratory Control Sample (Duplicate)
- RPD - Relative percent difference

N/A - Not applicable

If you should have any technical questions, please contact the undersigned at (415) 964-0844.

Approved by: Donald Magan  
Client Services

These results were obtained by following standard laboratory procedures; the liability of Mid-Pacific Environmental Laboratory, Inc. shall not exceed the amount paid for this report. In no event shall Mid-Pacific be liable for special or consequential damages.

Woodward Clyde Consultants

Client ID: SS1-A,B,C,D  
MPELI ID: 9301087 - 01A  
Matrix: SOIL

Date collected: 01/25/93  
Date received: 01/26/93

---

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Reactive cyanide	EPA 7.3.3.2	ND	10 mg/Kg	01/31	01/31	QRZ6B
Reactive sulfide	EPA 7.3.4.2	12	10 mg/Kg	01/31	01/31	QRZ9B

Woodward Clyde Consultants

Client ID: SS1-E,F,G,H  
MPELI ID: 9301087 - 02A  
Matrix: SOIL

Date collected: 01/25/93  
Date received: 01/26/93

---

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Reactive cyanide	EPA 7.3.3.2	ND	10 mg/Kg	01/31	01/31	QRZ6B
Reactive sulfide	EPA 7.3.4.2	19	10 mg/Kg	01/31	01/31	QRZ9B

Woodward Clyde Consultants

Client ID: SS2-A,B,C,D  
MPELI ID: 9301087 - 03A  
Matrix: SOIL

Date collected: 01/25/93  
Date received: 01/26/93

---

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Reactive cyanide	EPA 7.3.3.2	ND	10 mg/Kg	01/31	01/31	QRZ6B
Reactive sulfide	EPA 7.3.4.2	19	10 mg/Kg	01/31	01/31	QRZ9B

---

Woodward Clyde Consultants

Client ID: SS2-E,F,G,H  
MPELI ID: 9301087 - 04A  
Matrix: SOIL

Date collected: 01/25/93  
Date received: 01/26/93

---

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Reactive cyanide	EPA 7.3.3.2	ND	10 mg/Kg	01/31	01/31	QRZ6B
Reactive sulfide	EPA 7.3.4.2	19	10 mg/Kg	01/31	01/31	QRZ9B



## Woodward Clyde Consultants

Batch #: QRZ6A		Units: mg/Kg							Date
Test Description	Method	Blank Result	Lmt	Spike Level	%Recovery MS MSD LCS			RPD	Run
Reactive cyanide	EPA 7.3.3.2	ND	10	48.4	72		72		01/31

Batch #: QRZ6B		Units: mg/Kg					Date
Test Description	Method	First Analysis		Duplicate Analysis		RPD	Run
Reactive cyanide	EPA 7.3.3.2	34.9		30.5		13	01/31

Batch #: QRZ9A		Units: mg/Kg							Date
Test Description	Method	Blank Result	Lmt	Spike Level	%Recovery MS MSD LCS			RPD	Run
Reactive sulfide	EPA 7.3.4.2	ND	10	933	67		85		01/31

Batch #: QRZ9B		Units: mg/Kg						Date
Test Description	Method	Blank Result	Limit	Original Result	Duplicate Result	RPD	Run	
Reactive sulfide	EPA 7.3.4.2	ND	10	641	536	18	01/31	

# Woodward-Clyde Consultants

500 12th Street, Suite 100, Oakland, CA 94607-4014  
(510) 893-3600

# Chain of Custody Record

PROJECT NO.

92CB040/0000

SAMPLERS: (Signature)

Sharon J. Sullivan

DATE TIME SAMPLE NUMBER

Sample Matrix (Soil, Water, Air)

ANALYSES

EPA Method 8215 TPH-Distillate  
EPA Method 8215 TPH-GAS L  
EPA Method 8210 PCBs  
EPA Method 418.1 TRBHE  
EPA Method 8240 F  
EPA Method 8270 S  
STLC QM 17 Metals  
Reactivity  
Corrosivity  
Leachability

Number of Containers

REMARKS  
(Sample preservation, handling procedures, etc.)

Received Cont. (Signature)

DATE	TIME	SAMPLE NUMBER	Sample Matrix (Soil, Water, Air)	EPA Method 8215 TPH-Distillate	EPA Method 8215 TPH-GAS L	EPA Method 8210 PCBs	EPA Method 418.1 TRBHE	EPA Method 8240 F	EPA Method 8270 S	STLC QM 17 Metals	Reactivity	Corrosivity	Leachability	Number of Containers
1/25/93	3:20pm	SS1-A	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	3:30pm	SS1-B	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	3:40pm	SS1-C	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	3:50pm	SS1-D	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	4:00pm	SS1-E	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	4:07pm	SS1-F	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	4:11pm	SS1-G	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	4:15pm	SS1-H	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	4:35pm	SS2-A	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	4:40pm	SS2-B	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	4:45pm	SS2-C	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	4:50pm	SS2-D	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	4:55pm	SS2-E	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	5:00pm	SS2-F	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	5:05pm	SS2-G	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	5:10pm	SS2-H	S	X	X	X	X	X	X	X	X	X	X	1

Standard Turn around time.

If you have questions please contact:  
Sharon Sullivan at  
(916) 368-0988  
(Sacramento WCC office)

Composite Inste. per Client 1/26/93

Comp # 1, 2, 3, 4  
Comp # 5, 6, 7, 8  
Comp # 9, 10, 11, 12  
Comp # 13, 14, 15, 16

TOTAL NUMBER OF CONTAINERS

16

RELINQUISHED BY: (Signature)

Sharon J. Sullivan

DATE/TIME

1/25/93 6:30pm

RECEIVED BY: (Signature)

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

METHOD OF SHIPMENT:

SHIPPED BY: (Signature)

COURIER: (Signature)

RECEIVED FOR LAB BY: (Signature)

DATE/TIME

1/26/93 12:45

# NAT X / ETC

Mid-Pacific Environmental Laboratory, Inc.  
625B Clyde Avenue  
Mountain View, CA 94043  
(415) 964-0844  
FAX (415) 961-7113

March 11, 1993

Ms. Anita Yan  
Woodward Clyde Consultants  
500 12th Street, Suite 100  
Oakland, CA 94607-4014

RE: MPEL Order#: 92-01-086  
WCC Project: 92CB040/0000


Dear Ms. Yan:

Per the request of Anita Quesada concerning the identification of "unknown hydrocarbons" reported for TPH-Diesel analyses in certain samples, the following statements apply:

**Sample SS1 A,B,C,D Composite (MPEL ID 9301086-17):** The unknown hydrocarbon pattern that appears in the TPH-Diesel analysis is similar to but does not match our in-house diesel standard. The chromatogram of the TPH-Gasoline analysis is negative.

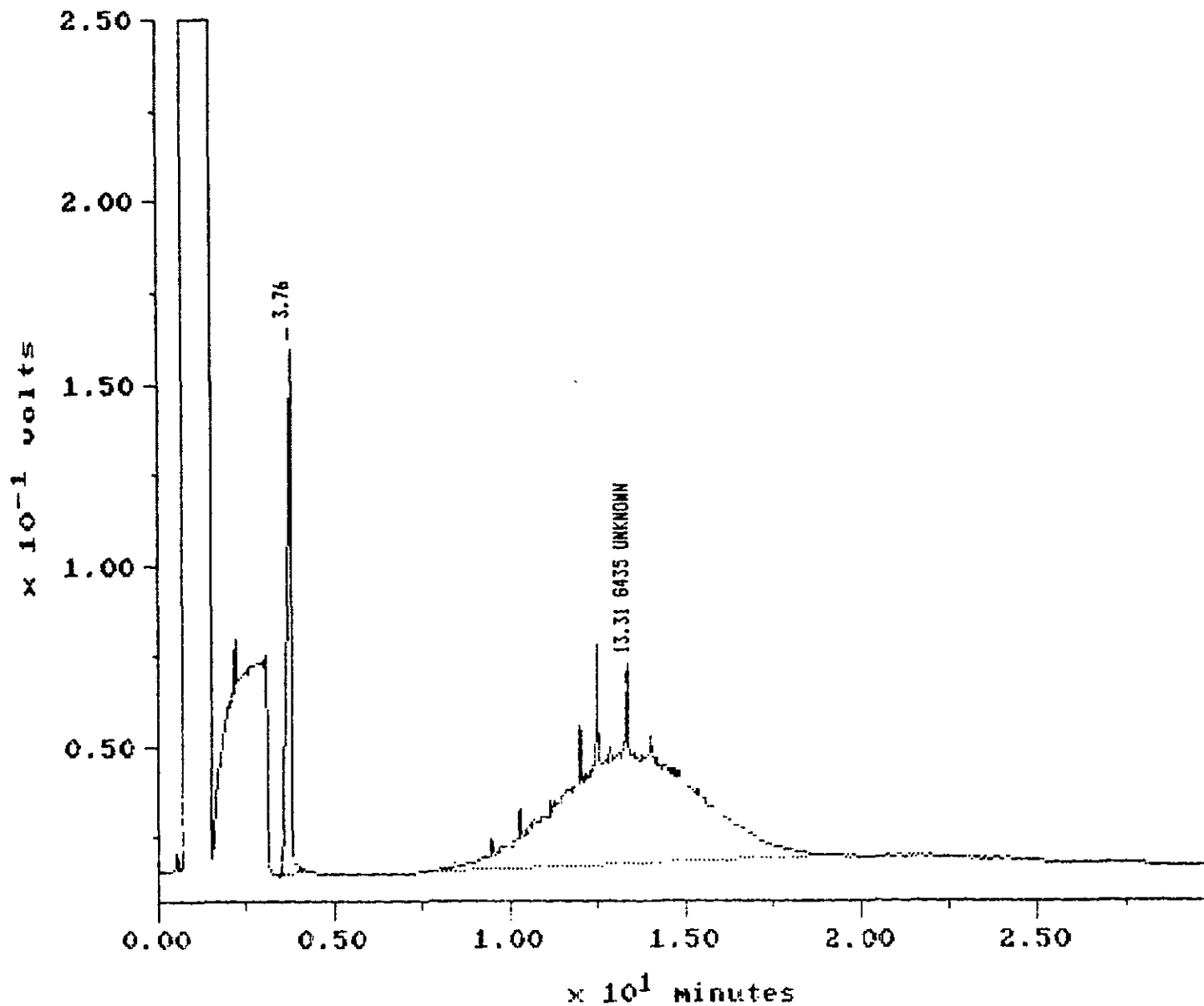
Copies of sample and standard chromatograms are enclosed.

If you should have any further questions, please do not hesitate to contact me at (415) 964-0844.

  
\_\_\_\_\_  
Donald Magarian  
Project Manager

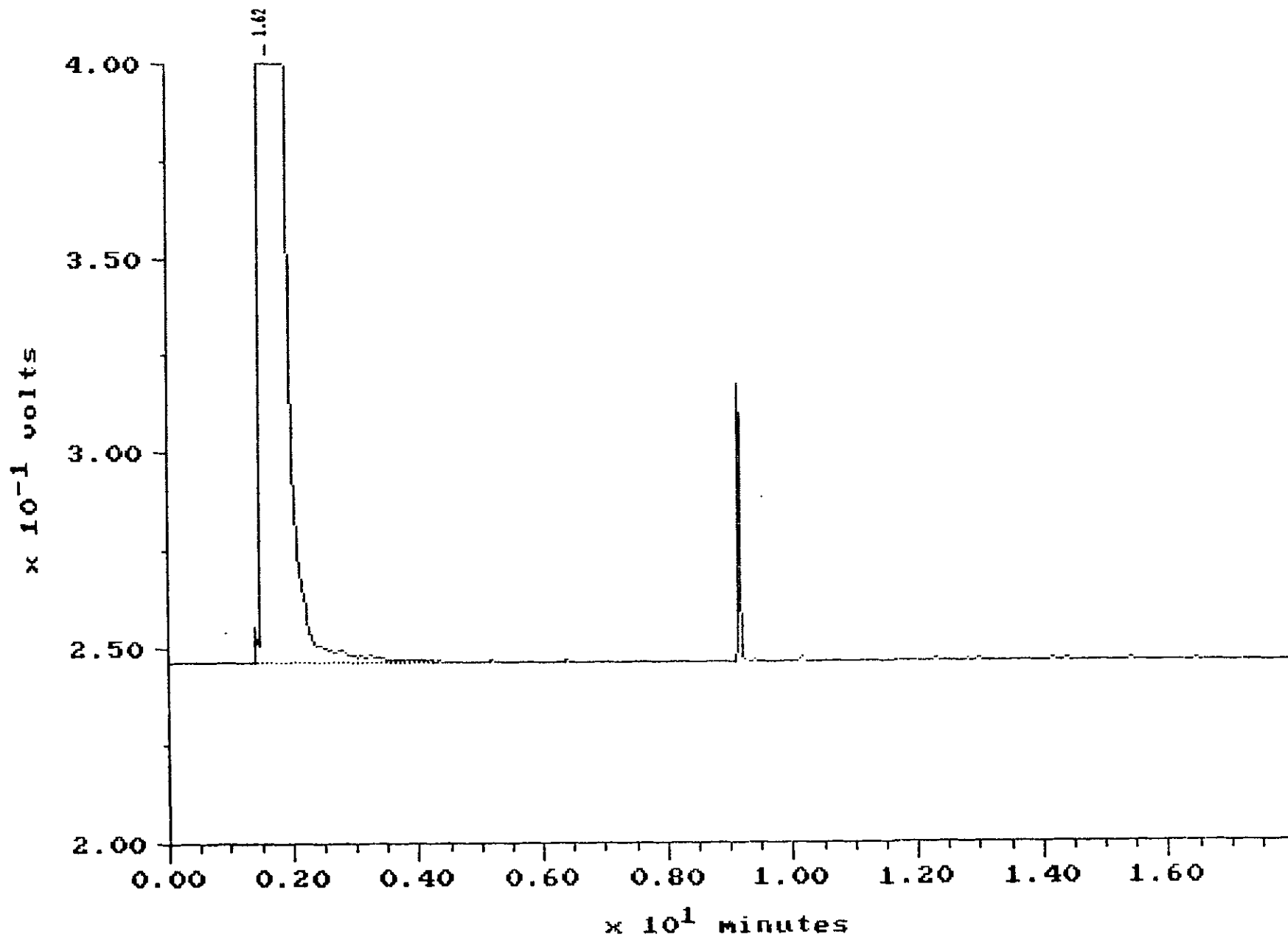
SSI-A,B,C,D Composite (TPH-Diesel)

Sample: 30108617C\_0130A Channel: FID-E Filebase: 0202E28  
Acquired: 03-FEB-93 4:26 Method: C:\MAX\DATA\FEB93\80150202 Operator: KV  
Inj Vol: 1.00 Comments: 6C-E FUELS



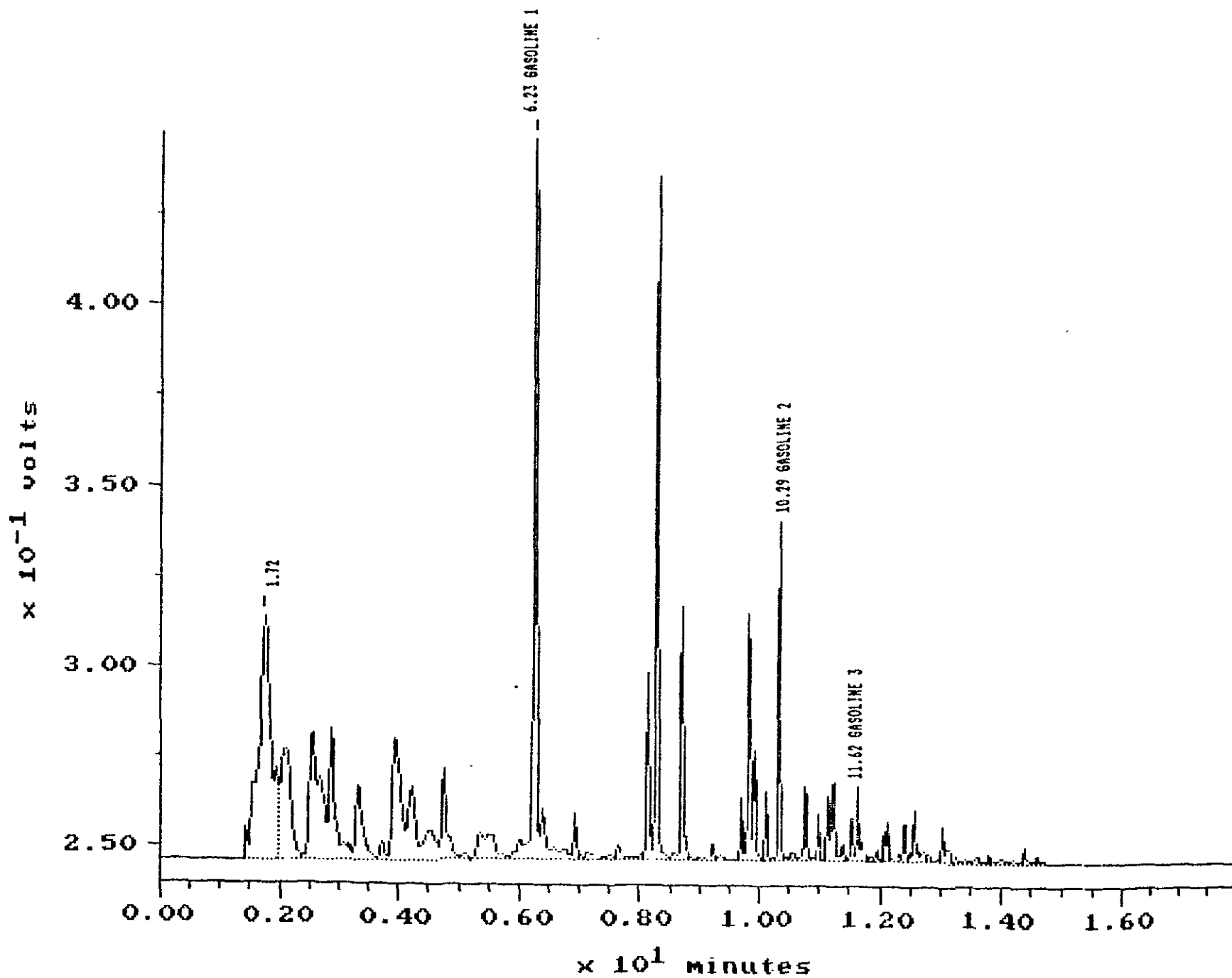
SSI-A,B,C,D Composite (TPH-Gas)

Sample: 301006178, S091A Channel: FID-U  
Acquired: 03-FEB-93 20:24 Method: C:\MAX\37000\FEB93\GBTX0203  
Inj Vol: 1.00  
Comments: 37000 DBS 30 METER 0.52 MM PRIMARY GBTEX INSTRUMENT  
Filename: 02050914 Operator: CS



# Gasoline Standard

Inj Vol: 1.00  
Concn: 37000 DBS 30 METER 0.52 MM PRIMARY GBTEX INSTRUMENT

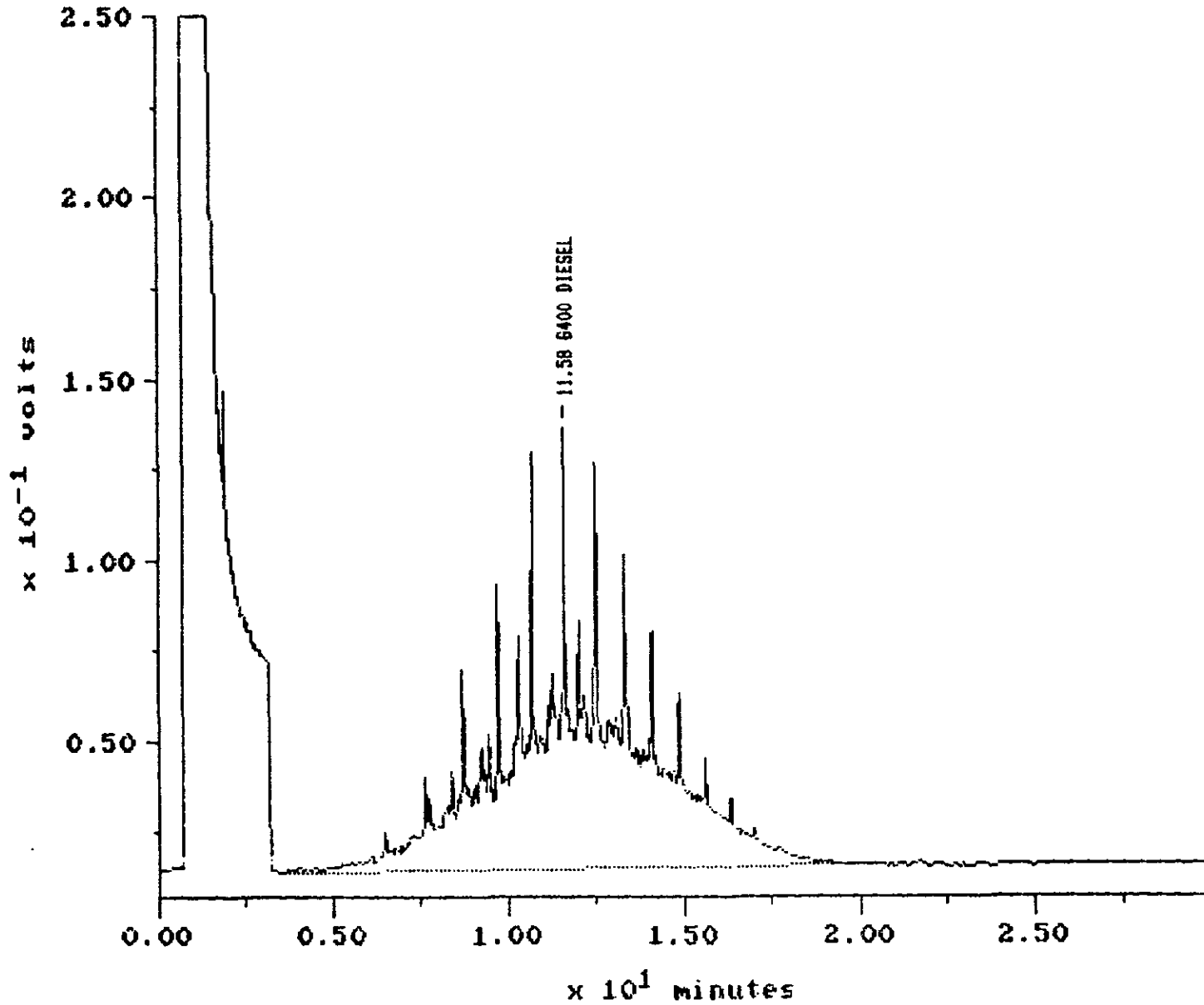


Diesel Standard

Filename: 0216E02  
Operator: KV

Channel: FID-E  
Method: C:\MAX\DATA\FEB93\F0150216

Sample: IDESI-0216D  
Acquired: 16-FEB-93 9:31  
Inj Vol: 1.00  
Comments: GC-E FUELS

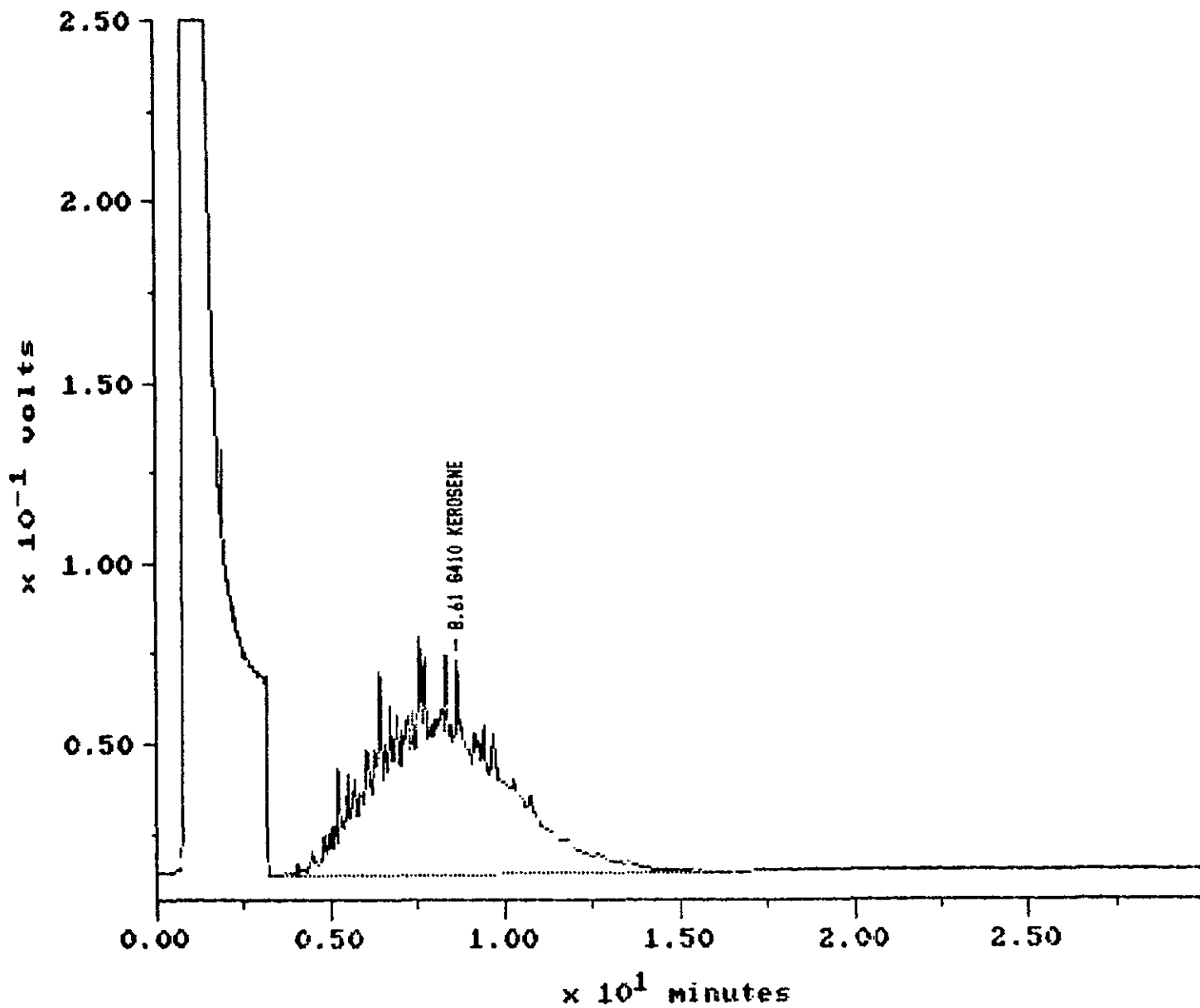


# Kerosene Standard

Sample: IKERO-0216D  
Acquired: 16-FEB-93 10:09  
Inj Vol: 1.00  
Comments: GC-E FUELS

Channel: FID-E  
Method: C:\MAX\DATA\FEB93\80150216

Filename: 0216E03  
Operator: KV



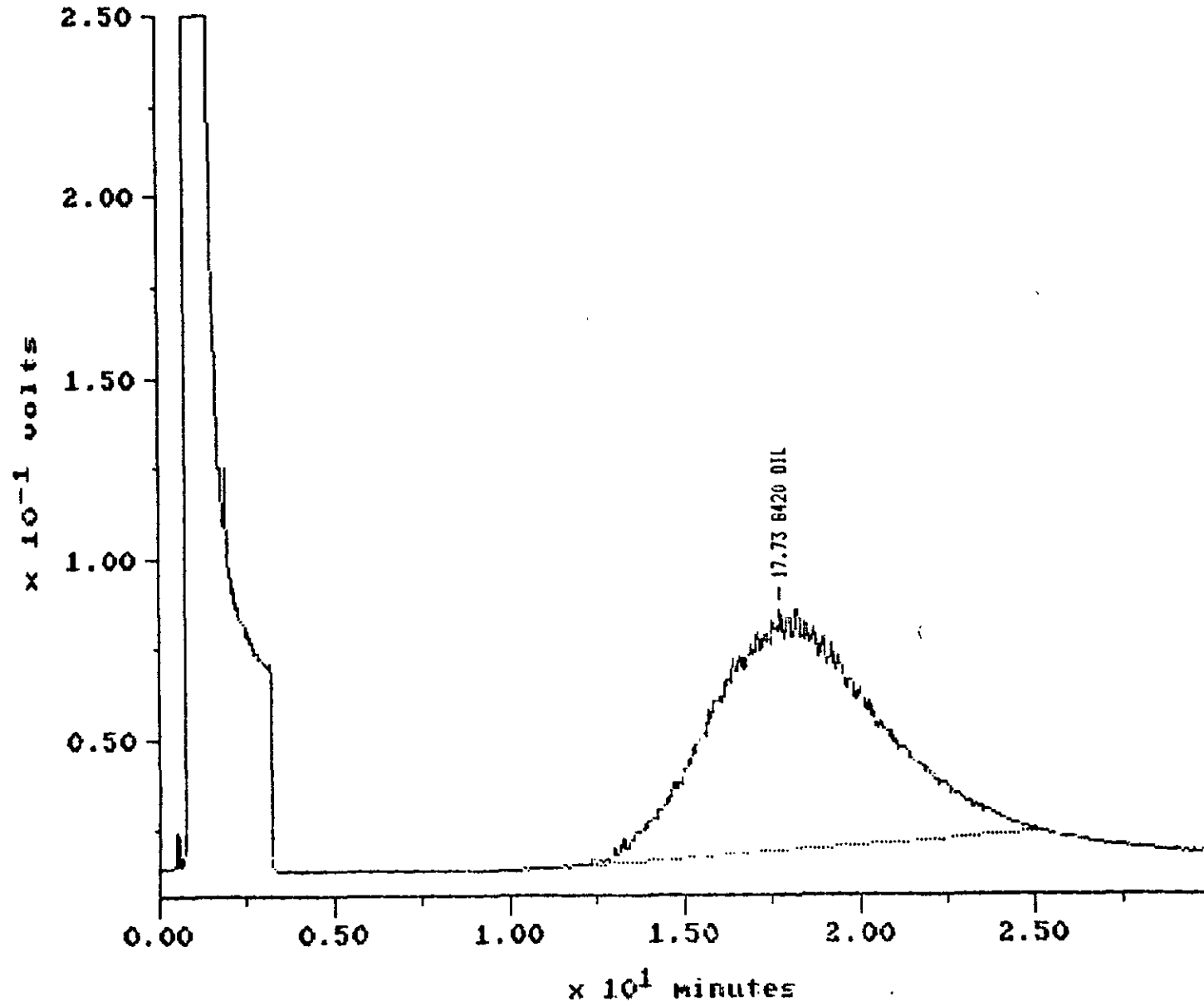


Oil Standard

Filename: 0216E16  
Operator: KV

Channel: FID-E  
Method: C:\MAX\DATA\FEB93\80150216

Sample: IMOIL-0216D  
Acquired: 16-FEB-93 19:56  
Inj Vol: 1.00  
Comments: GC-E FUELS

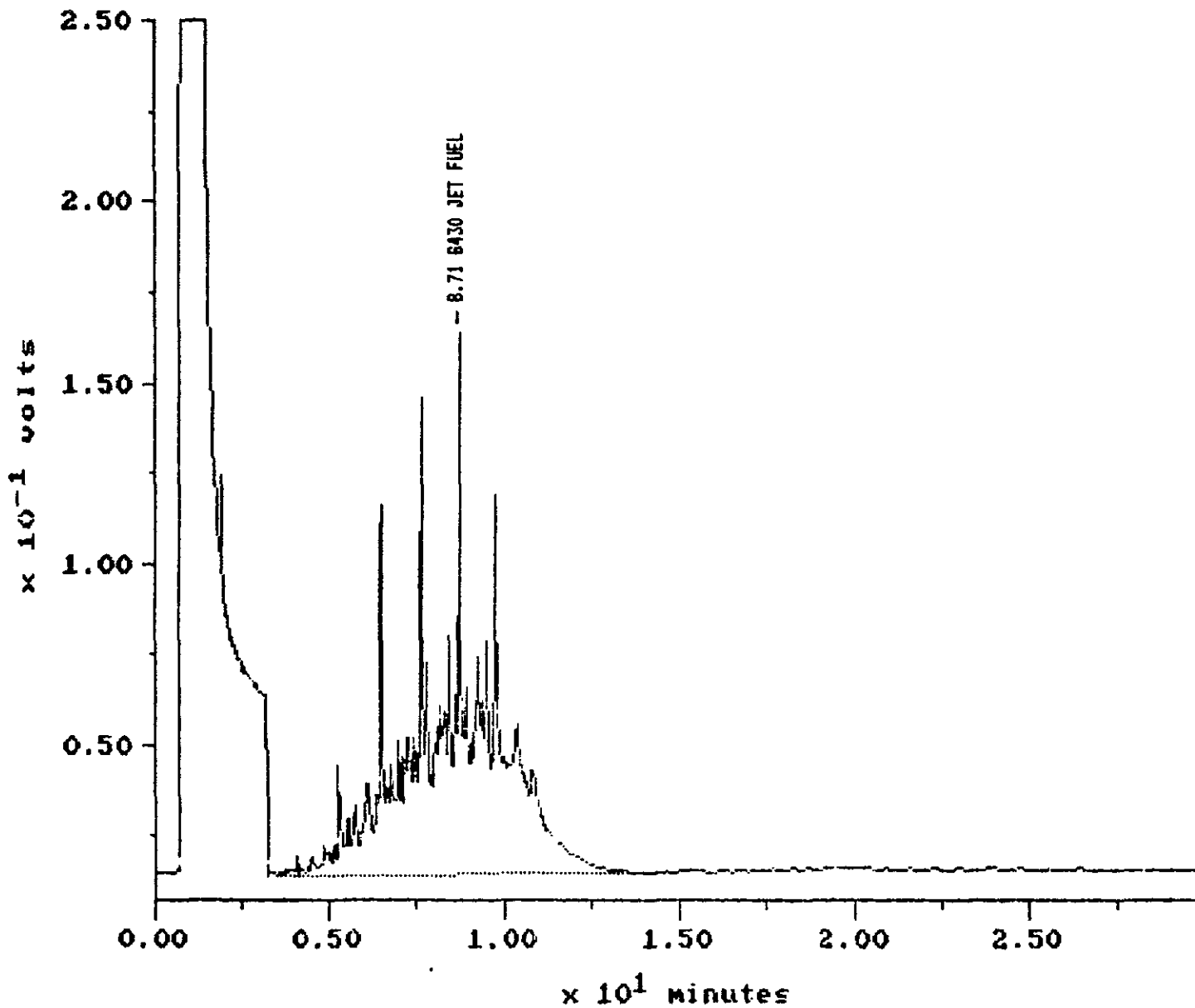


Jet Fuel Standard

Filename: 0216E05  
Operator: KY

Channel: FID-E  
Method: C:\MAX\DATA\FEB93\80150216

Sample: IJP 5-02160  
Acquired: 16-FEB-93 11:26  
Inj Vol: 1.00  
Comments: 60-E FUELS



# NATEX/ETC

Mid-Pacific Environmental Laboratory  
625B Clyde Avenue  
Mountain View, CA 94043  
(415) 964-0844  
FAX (415) 961-7113

May 19, 1993

Ms. Anita Yan  
Woodward Clyde Consultants  
500 12th Street, Suite 100  
Oakland, CA 94607-4014

RE: Project No. 92CB040/0000

Dear Ms. Yan:

This letter is in response to your request to explain the differences in values for selenium and thallium in CAM WET extracts of soil composites submitted for analysis. The affected samples are soil composites identified by ETC/MP laboratory identifications: 9301083-17H and 9301086-18H.

The original analyses performed on the WET extracts of the soil composites employed Inductively Coupled Argon Plasma spectroscopy (ICAP) with positive results reported for both analytes in each sample. The subsequent re-analyses employed Graphite Furnace Atomic Absorption spectroscopy (GFAA) with no detectable levels of either analyte at, or above, reporting limits.

It is suspected that the original positive results were due to matrix interferences which may occur with ICAP analysis due to the presence of high concentrations of aluminum, calcium, magnesium and/or iron. All of these interfering elements are present in the sample extracts at concentrations which may have contributed to false positive results for selenium and thallium.

Interelement correction standards are processed with each analytical batch, however, protocol does not require that each and every element be corrected for by this approach. Selenium and thallium are not.

ICAP has been utilized for the analysis of WET extracts for the following reasons. The buffering solution used in the waste extraction test would require a 1:100 dilution in order to be analyzed via GFAA due to instrument contamination concerns. This

Since GFAA is the preferable technique for the analysis of selenium and thallium, providing that the achievable reporting limits are acceptable, the results of the diluted, re-analyzed extracts provide the more definitive information.

If you should have any further questions, please do not hesitate to contact me at (415) 964-0844.

  
\_\_\_\_\_  
Donald Magarian  
Project Manager

# NATEX/ETC

Mid-Pacific Environmental Laboratory  
625B Clyde Avenue  
Mountain View, CA 94043  
(415) 964-0844  
FAX (415) 961-7113

Woodward Clyde Consultants  
500 12th Street Suite 100  
Oakland, CA 94607-4014

May 19, 1993  
MPELI Order#: 93-05-007  
Date Received: 04/30/93

Attn: Anita Yan

Subject: Analysis of 2 Composites for re-analysis

Work ID: 92CB040/0000

P.O. #: none given

Pages in report: 7

Preparation of soil samples for metals analysis by Graphite Furnace Atomic Absorption were performed by following USEPA Method 3050 (Test Methods for Evaluating Solid Waste -- SW846, 3rd Ed., 1986). The specific analytical method employed is listed alongside the test description in the report table.

STLC samples were prepared by extraction in a citrate buffer for 48 hours. The resulting extract was filtered and analyzed for the requested analytes. The resulting values are the soluble threshold limit concentrations for the requested analytes.

## NOTES

CAM WET extracts for sample composites SS1-A,B,C,D and SS1-E,F,G,H were originally digested and analyzed by Inductively Coupled Argon Plasma spectroscopy (ICAP) and reported under ETC/MP work order number 93-01-086.

Per request, these extract digestates have been re-analyzed for selenium and thallium by Graphite Furnace Atomic Absorption spectroscopy (GFAA) and are reported herein under their original ETC/MP laboratory numbers.

All analyses have been conducted in batches of 20 samples or less. Each QC batch consists of a method blank, a Matrix Spike, a Matrix Spike Duplicate and a Laboratory Control Sample. The QC information is in a separate QC Report at the end of the regular report. To find the associated QC data, identify the batch number for the analysis of interest and look for that number in the QC Report for that test. Occasionally a sample will be associated with a sub-batch, which will end in a letter other than "A". The main batch will include the original blank, MS, MSD, and LCS. The sub-batch will contain the additional blank associated with the sample and LCS.

Samples were diluted when one or both of the following situations existed:

- 1) one or more analytes was present at a level above the linear calibration range of the instrument; or

2) compounds were present at levels that could damage the instrument.

The following flags and abbreviations are used in this report:

ND - Not detected above the detection limit stated.  
MS(D) - Matrix spike (Duplicate)  
LCS(D) - Laboratory Control Sample (Duplicate)  
RPD - Relative percent difference  
N/A - Not applicable

If you should have any technical questions, please contact the undersigned at (415) 964-0844.

Approved by:

  
Client Services

These results were obtained by following standard laboratory procedures; the liability of Mid-Pacific Environmental Laboratory, Inc. shall not exceed the amount paid for this report. In no event shall Mid-Pacific be liable for special or consequential damages.

Woodward Clyde Consultants

Client ID: SS1-A,B,C,D  
MPELI ID: 9305007 - 09A  
Matrix: SOIL

Date collected: 01/25/93  
Date received: 04/30/93

---

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Selenium by GFAA	EPA 7740	ND	0.50 mg/kg	05/10	05/12	1139A
Thallium by GFAA	EPA 7841	ND	0.50 mg/kg	05/10	05/11	1139A

Woodward Clyde Consultants

Client ID: SS1-E,F,G,H  
MPELI ID: 9305007 - 10A  
Matrix: SOIL

Date collected: 01/25/93  
Date received: 04/30/93

---

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Selenium by GFAA	EPA 7740	ND	0.50 mg/kg	05/10	05/12	1139A
Thallium by GFAA	EPA 7841	ND	0.50 mg/kg	05/10	05/11	1139A



Woodward Clyde Consultants

Client ID: 9301086-17H  
MPELI ID: 9305007 - 11A  
Matrix: EXTRACT

Date collected:  
Date received: 04/30/93

---

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Selenium by GFAA	EPA 270.2	ND	500 ug/L	02/03	05/13	0975A
Thallium by GFAA	EPA 279.2	ND	500 ug/L	02/03	05/14	0975A

Woodward Clyde Consultants

Client ID: 9301086-18H  
MPELI ID: 9305007 - 12A  
Matrix: EXTRACT

Date collected:  
Date received: 04/30/93

---

Test description	Method	Result	Report Limit Units	Prep Date	Run Date	QC Batch
Selenium by GFAA	EPA 270.2	ND	500 ug/L	02/03	05/13	0975A
Thallium by GFAA	EPA 279.2	ND	500 ug/L	02/03	05/14	0975A

## Woodward Clyde Consultants

Spiked Sample ID: SS1-A,B,C,D

Instrument Type: Furnace Atomic Absorption

QC Batch #: 1139A

Units: mg/kg

Matrix: SOIL

Prep date: 05/10/93

<u>Test Description</u>	<u>Method</u>	<u>Blank</u>		<u>Spike</u>	<u>%Recovery</u>				<u>Date</u>	
		<u>Result</u>	<u>Limit</u>	<u>Amt</u>	<u>MS</u>	<u>MSD</u>	<u>LCS</u>	<u>QC Lmt</u>	<u>RPD</u>	<u>Run</u>
Selenium by GFAA	EPA 7740	ND	0.50	1.0	90	106	88	75-125	16	05/12
Thallium by GFAA	EPA 7841	ND	0.50	5.0	98	93	99	75-125	5.3	05/11

Spiked Sample ID: SP2-A,B,C,D

Instrument Type: Furnace Atomic Absorption

QC Batch #: 0975A

Units: ug/L

Matrix: WATER

Prep date: 02/03/93

<u>Test Description</u>	<u>Method</u>	<u>Blank</u>		<u>Spike</u>	<u>%Recovery</u>				<u>Date</u>	
		<u>Result</u>	<u>Limit</u>	<u>Amt</u>	<u>MS</u>	<u>MSD</u>	<u>LCS</u>	<u>QC Lmt</u>	<u>RPD</u>	<u>Run</u>
Selenium by GFAA	EPA 270.2	ND	500	5000	102	104	95	75-125	1.9	05/13
Thallium by GFAA	EPA 279.2	ND	500	5000	115	105	100	75-125	9.1	05/14

19-01-006

**Woodward-Clyde Consultants**

500 12th Street, Suite 100, Oakland, CA 94607-4014  
(510) 893-3600

**Chain of Custody Record**

PROJECT NO.

92CB040/0000

SAMPLERS: (Signature)

Sharon J. Sullivan

DATE TIME SAMPLE NUMBER

Sample Matrix  
(Soil, Water, Air)

EPA Method 8015 TPH-Dred

EPA Method 8015 TPH-GAS

EPA Method 8030 BTEX

EPA Method 418.1 TRPA

EPA Method 8240

EPA Method 8270

STLC CAM 17 Metals

Packaging

Corrosivity

Ignitability

Number of Containers

REMARKS  
(Sample preservation, handling procedures, etc.)

DATE	TIME	SAMPLE NUMBER	Sample Matrix (Soil, Water, Air)	EPA Method 8015 TPH-Dred	EPA Method 8015 TPH-GAS	EPA Method 8030 BTEX	EPA Method 418.1 TRPA	EPA Method 8240	EPA Method 8270	STLC CAM 17 Metals	Packaging	Corrosivity	Ignitability	Number of Containers
1/25/93	3:20pm	SS1-A	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	3:30pm	SS1-B	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	3:40pm	SS1-C	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	3:50pm	SS1-D	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	4:00pm	SS1-E	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	4:07pm	SS1-F	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	4:11pm	SS1-G	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	4:15pm	SS1-H	S	X	X	X	X	X	X	X	X	X	X	1
1/25/93	4:35pm	SS2-A	S	X	X					X	X	X	X	1
1/25/93	4:40pm	SS2-B	S	X	X					X	X	X	X	1
1/25/93	4:45pm	SS2-C	S	X	X					X	X	X	X	1
1/25/93	4:50pm	SS2-D	S	X	X					X	X	X	X	1
1/25/93	4:55pm	SS2-E	S	X	X					X	X	X	X	1
1/25/93	5:00pm	SS2-F	S	X	X					X	X	X	X	1
1/25/93	5:05pm	SS2-G	S	X	X					X	X	X	X	1
1/25/93	5:10pm	SS2-H	S	X	X					X	X	X	X	1

Standard Turn around time.  
  
If you have questions please contact:  
Sharon Sullivan at  
(916) 368-0988  
(Sacramento WCC office)

TOTAL NUMBER OF CONTAINERS 10

RELINQUISHED BY: (Signature) Sharon J. Sullivan	DATE/TIME 1/25/93 16:30pm	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature) Sharon J. Sullivan	DATE/TIME 1-26-93 10:45	