W. A. CRAIG, INC.
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Cal/OSHA Statewide Annual Excavation Permit #559351
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EXCAVATION AND SAMPLING REPORT

PACIFIC ELECTRIC MOTOR
1009 66th Avenue
Oakland, California

W.A. Craig, Inc.
Project No. 3471.3
May 12, 1997

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May 12, 1997

Pacific Electric Motor
1009 66th Avenue
Oakland, California 94621

Attention: Terry Knox

WAC Project No. 3471.3

Subject: **REPORT - Excavation and Sampling**
Pacific Electric Motor Site
1009 66th Avenue
Oakland, California

Dear Mr. Knox:

W.A. Craig, Inc. (WAC) is please to submit this remedial action report for the Pacific Electric Motor site at 1009 66th Avenue in Oakland, California. This work included soil excavation to remove residual petroleum hydrocarbon impacted soil. This work was performed in accordance with the scope of work presented in WAC's Workplan dated July 5, 1995.

We appreciate the opportunity to be of service to you on this project. If you have any questions or would like additional information, please do not hesitate to call.

Respectfully,
W.A. Craig, Inc.

W.A. Craig, II
Owner

cc: Barney Chan, Alameda County Environmental Health Services

A:\REPORTS\REMED.RPT\CVRLTR.WPD

PROFESSIONAL CERTIFICATION

Excavation and Sampling Report

Pacific Electric Motor
1009 66th Avenue
Oakland, California

May 12, 1997

This report has been prepared by the staff of W.A. Craig, Inc., under the professional supervision of the persons whose seals and signatures appear hereon. No warranty, either expressed or implied, is made as to the professional advice presented herein. The analysis, conclusions and recommendations contained in this report are based upon the review of existing subsurface investigation reports, review of daily field-work reports, laboratory analytical reports, and discussions with W.A. Craig, Inc., personnel. This information has been reviewed and summarized in this report. The information from these sources has been used to develop a representation of the site conditions as they existed at the time of the corrective actions and they are subject to change.

The conclusions presented in this report are professional opinions based solely upon visual observations of the site and vicinity, and interpretation of available information as described in this report. W.A. Craig, Inc., recognizes that the limited scope of services performed in execution of this investigation may not be appropriate to satisfy the needs, or requirements of other state agencies, or of other users. Any use or reuse of this document or its findings, conclusions or recommendations presented herein is at the sole risk of the user.

Geoffery A. Fiedler, R.G.
Geologist

W.A. Craig, II, R.E.A.
Owner

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EXECUTIVE SUMMARY

Soil and groundwater were remediated by W.A. Craig, Inc. (WAC), at the Pacific Electric Motor site located at 1009 66th Avenue in Oakland, California. The remedial activities were performed in accordance with WAC's "Workplan for Additional Remediation of Soil and Groundwater", dated July 5, 1995. The remedial measures involved the removal of approximately 1500 cubic yards of petroleum hydrocarbon impacted soil and the treatment and discharge of an estimated 116,000 gallons of petroleum hydrocarbon impacted groundwater.

Soils consisting primarily of clay and silty clay, were excavated to a depth of approximately 20 feet below ground surface (bgs). Elevated concentrations of petroleum hydrocarbon compounds (530 to 930 milligrams per kilogram [mg/kg] gasoline and 6.6 To 7.4 mg/kg benzene) remain in soil northeast and southeast of the final excavation limits. Groundwater recharge into the excavation area was slow. Soil boring logs suggest that a discontinuous lens of sandy and gravelly clay associated with perched groundwater occurs at approximately 10 to 14 feet bgs. Shallow groundwater occurs in a sandy soil at a depth of approximately 20 to 25 feet bgs.

Groundwater and surface water runoff accumulated in the excavation. This water was pumped intermittently from the excavation to collect representative soil confirmation samples from the excavation bottom and sidewalls. The water in the excavation was treated using granular activated carbon and discharged to the storm drain system. The discharge of the treated water was performed in accordance with the discharge requirements of the Regional Water Quality Control Board (RWQCB), San Francisco Bay Region. Authorization to discharge was obtained from the City of Oakland, which is the agency having jurisdiction over the use for the storm drain system.

WAC recommends further investigation to assess soil and groundwater quality. The investigation should be performed to assess the site environmental conditions and evaluate appropriate remedial alternatives for site closure. The site investigation should evaluate intrinsic bioremediation (natural degradation) and risk based corrective measures in accordance with the RWQCB recommended use of American Society for Testing and Materials (ASTM) *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites* (ASTM, November 1995).

1.0 INTRODUCTION

This report presents the methods and procedures used during the remediation of petroleum hydrocarbon impacted soil and groundwater at Pacific Electric Motors (PEM) located at 1009 66th Avenue in Oakland, California (site). The site location is shown on **Figure 1**. The site remedial action was performed in response to a request by the Alameda County Environmental Health Division (ACEHD) to address residual petroleum hydrocarbon-affected soil and groundwater with respect to the release of regulated substances from a former Underground Storage Tank (UST) at the site. The remedial action was performed in accordance with the W. A. Craig, Inc. (WAC) "Workplan for Additional Remediation of Soil and Groundwater", dated July 5, 1995.

1.1 Site Location and Description

The site is located at 1009 66th Avenue in Oakland, California, approximately 0.5 miles north-northwest of the Oakland Alameda County Coliseum adjacent to Interstate-880 (**Figure 1**). The site is operating as an electric motor and generator repair/rebuild facility. A large production-warehouse building occupies two thirds of the site and a small stock-parts warehouse occupies the northwest portion of the site. The surrounding area is developed as a mix of residential apartment complexes and commercial/industrial businesses.

The site topography is essentially flat, with a slight regional slope to the southeast toward 66th Avenue. The surface is paved with asphalt. The site is graded to allow surface water runoff to flow into storm drains located throughout the site. There is a sump pump in one of the drains located along the south edge of the site. It is our understanding that there are no domestic water wells or groundwater monitoring wells at the site. The site layout is shown on **Figure 2**.

1.2 Background

On February 16, 1995, WAC removed one 2000-gallon gasoline UST, used to store gasoline. Clean overburden soil was stockpiled at the site and covered with plastic sheeting. Confirmation soil samples collected from the excavation and beneath associated product supply lines were reported to contain concentrations of gasoline ranging from 33 to 500 milligrams per kilogram (mg/kg), and benzene ranging from 0.045 to 0.54 mg/kg. Following their review of the confirmation sampling data, the ACEHD requested corrective action work be performed at the site.

In April, 1995, WAC excavated the petroleum hydrocarbon impacted soil in the UST area. Field observations indicated that the impacted soil extended to the southeast and southwest, beyond the immediate vicinity of the former UST, fuel dispensing island, and materials storage shed locations. Exploratory trenches were excavated southeast, southwest and northeast of the UST excavation to assess the extent of petroleum hydrocarbon impacted soil. Confirmation soil samples were collected from the bottoms and sidewalls of the trenches and analyzed for total petroleum hydrocarbons as gasoline (TPH-g), benzene, toluene, ethylbenzene and xylenes (BTEX).

WAC performed additional subsurface site investigation on April 24 and 25, 1995. The investigation included the drilling of nine exploratory soil borings and the collection of soil samples. The borings were advanced to depths ranging from approximately 17 to 29 feet below ground surface (bgs). Thirty-five soil samples were collected from the soil borings. However, the fine grained soils did not yield enough water in the exploratory borings to obtain representative grab groundwater samples. Laboratory analysis of soil samples collected from borings to the west of the UST excavation reported TPH-g concentrations ranging from 230 to 1300 mg/kg. Concentrations of TPH-g ranging from 530 to 1900 mg/kg and 6.5 to 1300 mg/kg were reported in soil samples collected south and east, respectively, of the UST excavation and the former pump area. The results of the subsurface investigation are presented in WAC's "Subsurface Environmental Investigation Report", dated May 16, 1995.

2.0 SCOPE OF WORK

The scope of work summarized below was performed in accordance with WAC's Workplan, dated July 5, 1995. The field work for this remedial action was performed between August and November, 1995. The results of the soil and groundwater remediation are presented herein. The scope of work for this project included:

- Preparation of an ACEHD approved Workplan and permitting, as required;
- Pumping, treating, and discharging of accumulated water from the excavation;
- Demolition of a fuel dispensing island, associated product supply lines, and a materials storage structure;
- Excavation of petroleum hydrocarbon impacted soil in the vicinity of the former UST excavation;
- Installation of a temporary groundwater monitoring well;

- Collection of excavation sidewall and bottom confirmation soil samples to assess the effectiveness of the soil removal activities;

- Laboratory analysis of excavation soil and water samples for TPH-g and total petroleum hydrocarbons as diesel (TPH-d), using EPA Method 8015 (modified), and BTEX using EPA Method 8020;

- Preparation of this report summarizing the field methods and procedures, the results of laboratory analyses, and our conclusions and recommendations regarding the site environmental quality.

3.0 SUBSURFACE CONDITIONS

The site soil consists of irregularly bedded clay, clayey-silt with sands and gravels, and lenses of coarse-grained, poorly sorted, sand. The upper 6 to 7 feet of soil consists of a mottled, dark and light brown clay with organic material. The soil is dry to moist, medium stiff, and slightly plastic. A coarse sandy-clay layer (with trace gravel), approximately 5 feet thick, was encountered in the excavation and the exploratory soil borings at depths ranging from approximately 10 to 25 feet bgs. During the installation of the temporary monitoring well a coarse-grained sand layer was encountered at a depth of approximately 21 to 25 feet bgs. Underlying this material to the depths explored (28 feet bgs) is a dark-brown clay that is wet, moderately to very stiff, and moderately plastic.

Moist to wet sandy-clay was encountered at a depth of approximately 10 to 14 feet bgs in the exploratory trenches and soil borings, during the a previous subsurface investigation. Soils encountered between this depth and approximately 20 feet bgs contained less water. Beneath this drier zone is wet, loose, coarse-grained, poorly sorted, brown sand and silty-clay at depths of approximately 21 to 25 feet bgs. From approximately 25 feet bgs to the depth explored is wet, clayey-silt.

4.0 EXCAVATION ACTIVITIES

4.1 Excavation

The site excavation activities included the removal of approximately 1500 cubic yards of petroleum hydrocarbon impacted soil. Field observation, olfactory, and confirmation soil sample analytical results were used to direct the excavation activities. The lateral limits of the excavation were restricted to the northeast and northwest by site boundaries and an onsite building.

4.2 Stockpiling

Approximately 1500 cubic yards of petroleum hydrocarbon impacted soil were excavated and stockpiled in the northwest portion of the site. The excavated soil was stockpiled on and covered with plastic sheeting. Approximately 45 cubic yards of clean over-burden soil were segregated and stockpiled separately.

4.3 Backfilling

Prior to backfilling, groundwater or surface water entering the excavation was removed by pumping into temporary storage tanks located onsite. The excavation was backfilled with clean, imported, fill material, and compacted. The backfill was completed to approximately 3-inches below grade. Aggregate rock surface material was used to complete the backfill to surface grade.

5.0 SOIL SAMPLING

5.1 Confirmation Soil Sampling

Confirmation soil samples were collected in accordance with the Workplan. An excavator was used to retrieve soil from the sampling areas in the excavation. Samples collected for laboratory analyses were obtained by driving two-inch diameter brass sampling tubes into the soil in the excavator bucket. Care was taken to immediately seal the sampling tubes and to limit headspace.

Prior to sampling, the soil sampling equipment was washed with a laboratory-grade detergent solution and rinsed with tap water to limit the potential for cross-contamination. Samples contained in the brass tubes were covered with Teflon® film, closed with polyethylene end-caps, and wrapped with duct tape. The sample tubes were labeled and placed inside a sealed plastic bag. All prepared soil samples were immediately placed inside a portable insulated container and stored under refrigeration for delivery. The confirmation soil samples were submitted to McCampbell Analytical, Inc. (MAI), of Pacheco, California, under chain-of-custody control. MAI is certified by the State of California to perform the required analysis.

5.2 Laboratory Analyses

Confirmation soil samples were analyzed by MAI for TPH-g using EPA Method 8015 (modified) and BTEX using EPA Method 8020. Selected soil samples were additionally analyzed for total petroleum hydrocarbons as diesel (TPH-d) and total petroleum hydrocarbons as oil and grease (TPH-o&g) using EPA Method 418.1, total petroleum hydrocarbons as motor oil (TPH-mo), acetone using EPA Method 8240, polychlorinated biphenyls (PCBs) using EPA 8080, and volatile organic compounds (VOCs) using EPA Method 8240.

5.2.1 Soil Sample Analytical Results - Preliminary Excavation

The range of reported petroleum hydrocarbon concentrations in soil samples collected from the preliminary excavation are as follows:

- **TPH-g**: 1.0 to 5700 mg/kg;
- **Benzene**: 0.018 to 62 mg/kg;
- **Toluene**: 0.035 to 420 mg/kg;
- **Ethylbenzene**: 0.024 to 130 mg/kg;
- **Xylenes**: 0.10 to 770 mg/kg; and
- **TPH-d**: 160 milligrams per kilogram (mg/kg);
- **TPH-mo**: 15 mg/kg.

The soil sample locations from the preliminary excavation are shown on **Figure 2** and the laboratory analytical results are summarized on **Table 1**. Copies of the laboratory analytical reports and chain-of custody forms are included in **Appendix A**.

5.2.2 Soil Sample Analytical Results - Final Excavation

Eighteen (18) confirmation soil samples were collected from selected areas to assess soil quality in the final excavation. The range of reported concentrations of petroleum hydrocarbon constituents in soil samples from the final excavation are as follows:

- **TPH-g**: ND to 2800 mg/kg;
- **Benzene**: ND to 18 mg/kg;
- **Toluene**: ND to 150 mg/kg;
- **Ethylbenzene**: ND to 72 mg/kg; and
- **Xylenes**: ND to 420 mg/kg
- **TPH-o&g** ND to 210 mg/kg;
- **VOCs** ND; and
- **PCBs** ND

The confirmation soil sample locations from the final excavation are shown on **Figure 3** and the laboratory analytical results are summarized on **Table 2**. Copies of the laboratory analytical reports and chain-of custody forms are included in **Appendix A**.

6.0 EXCAVATION WATER

Groundwater and surface water in the excavation was pumped intermittently into temporary storage tanks, treated and discharged. A letter of authorization was obtained from the San Francisco Regional Water Quality Control Board (RWQCB), prior to discharging any extracted groundwater. A copy of the letter of is contained in **Appendix B**.

6.1 Sampling

Water samples were collected from the temporary storage tanks, before and after treatment, using a polyethylene disposable bailer, and decanted into laboratory supplied containers. The water samples and travel-blanks were immediately placed on ice, inside a portable insulated container, and delivered to a State-Certified laboratory, under chain-of-custody control.

6.2 Water Treatment and Discharge

A primary and secondary liquid phase granular activated carbon (GAC) treatment system was used to reduce hydrocarbon concentrations to below discharge standards specified in RWQCB Order No. 91-056. Water samples were collected before and after GAC treatment to confirm acceptable petroleum hydrocarbons concentrations before discharge. The treated water was discharged to a storm drain following authorization to discharge by Mr. Joe Trapp, City of Oakland. Approximately 116,000 gallons of water was treated and discharged.

6.3 Laboratory Analytical Results

The excavation-water samples were analyzed by MAI for TPH-g, using EPA Method 8015 (modified); and BTEX, using EPA Method 8020. Selected water samples were additionally analyzed for MTBE, using EPA Method 8020; TPH-o&g, using EPA Method 418.1; PCBs, using EPA Method 8080; VOCs, using EPA Method 8240; total dissolved solids (TDS), using EPA Method 160.1; and LUFT Metals, using EPA Method 6010.

The water contained in the temporary holding tanks was sampled prior to treatment. The laboratory analytical results for these samples are presented on **Table 3** as Influent samples. TPH-g was reported at concentrations ranging from not detected to 81,000 micrograms per liter (μg/l) and benzene was reported at concentrations ranging from not detected to 3100 μg/l in Influent water samples. MTBE was detected in water samples at concentrations ranging from

43 to 250 µg/l. TDS and PCBs were reported at 810 µg/l and 3.1 µg/l, respectively, in groundwater samples.

The analytical results of samples collected from treated water are also summarized on **Table 3** as Effluent samples. Analysis of Effluent water samples reported petroleum hydrocarbons at concentrations below the limits specified in Board Order No. 91-056 for all constituents, except for 60 µg/l TPH-g (reporting limit 50 µg/l) in sample 5-BT-1 collected on August 29, 1995, and 18 µg/l MTBE (reporting limit 5 µg/l) in sample BT4CF1 collected on November 13, 1995. The laboratory analytical reports and chain-of-custody documents are included in **Appendix A**.

7.0 TEMPORARY MONITORING WELL INSTALLATION

7.1 Monitoring Well Construction

WAC supervised the drilling of a soil boring and the installation of a temporary groundwater monitoring well, on September 13, 1995. The borehole was drilled to a depth of approximately 28 feet bgs using a truck-mounted drill rig equipped with 24-inch, outside diameter, bucket auger. The borehole was logged in the field by a WAC geologist under the direct supervision of a California Registered Geologist. No soil samples were collected. The location of the monitoring well is presented on **Figure 2**. The soil boring log is presented in **Attachment C**. Soil cuttings were placed on the previously excavated stockpiled soil located onsite.

The temporary well was installed for the purpose of obtaining a representative groundwater sample in the vicinity of the former UST excavation. The well was installed to a depth of approximately 28 feet bgs. The well was constructed through the open borehole, with the annulus materials placed from the bottom of the borehole to the ground surface. The temporary monitoring well was constructed of ten-inch diameter, 0.032 machine slotted, flush threaded, Schedule 40 polyvinyl chloride (PVC) well screen. The well was screened from approximately 19 to 28 feet bgs. Blank PVC casing completed the well from the top of the screened interval to surface grade. A filter pack consisting of #3 Monterey Sand was placed in the annular space from the bottom of the screen to approximately one-foot above the top of the screened interval. A sanitary seal consisting of 6-feet of hydrated bentonite was placed on top of the filter pack. The remaining annulus was left open to the excavated surface, approximately 3 feet bgs. A protective cap was placed over the open end of the casing to prevent unauthorized entry into the well.

7.2 Monitoring Well Sampling

7.2.1 Methods and Procedures

A groundwater sample was collected after developing the well. A minimum of three well casing volumes were pumped from the monitoring well on November 1, 1995 prior to collecting a groundwater sample.

A groundwater sample was collected using a disposable polyethylene bailer. The bailer was pre-cleaned by the manufacturer and sealed in plastic. The bailer was lowered into the well casing to extract a groundwater sample. The sample was decanted into laboratory supplied containers approved for the analyses required. The groundwater sample was immediately placed inside a portable insulated container, and delivered to MAI under chain-of-custody control.

7.2.2 Laboratory Analytical Results

The groundwater samples were analyzed by MAI for TPH-g using EPA Method 8015 (modified); BTEX and MTBE using EPA Method 8020; and acetone, using EPA Method 8240.

Analysis of the water sample from the temporary monitoring well reported concentrations of 3600 μg/l TPH-g, 62 μg/l MTBE, benzene 47 μg/l, toluene 5.7 μg/l, and xylenes 530 μg/l. The results of the temporary monitoring well groundwater analyses are presented in **Table 4**. Copies of the laboratory analytical report and chain-of-custody documents are in **Appendix A**. The temporary monitoring well was destroyed on December 6, 1995. A copy of the groundwater well abandonment Workplan and well destruction report are included in **Appendix D**.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Petroleum hydrocarbon impacted soil in the former UST location has been excavated and removed from the site. To the northwest and northeast, where further excavation was precluded by the site boundary and the warehouse, analysis of excavation sidewall soil samples reported up to 930 mg/kg TPH-g. TPH-g was reported at a concentration of 2800 mg/kg in a sidewall sample collected at 18 feet bgs from the southwest sidewall. The vertical extent of impacted soil in the excavated area appears to be limited to approximately 23 feet bgs. The highest concentrations of gasoline remaining in soil occur between 10 feet bgs and 18 feet bgs.

Petroleum hydrocarbon impacted groundwater was reported in groundwater samples collected from the temporary monitoring well and excavation dewatering activities.

WAC recommends further investigation to assess soil and groundwater quality. The investigation should be performed to assess the site environmental conditions and evaluate appropriate remedial alternatives for site closure. The site investigation should evaluate intrinsic bioremediation (natural degradation) and risk based corrective measures in accordance with the RWQCB recommended use of American Society for Testing and Materials (ASTM) *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites* (ASTM, November 1995).

TABLE 1

Soil Sample Analytical Results - Preliminary Excavation
1009 66th Avenue, Oakland, California
Analytical Results in milligrams per kilogram

Sample	Depth in feet	Date	ANALYTES						
			TPH-d	TPH-g	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-mo
1D1W	1.75	4-7-95	160	460	1.9	3.1	8.1	24	15
1-SW-1-S	9	4-11-95	NA	1100	16	94	25	140	NA
2-PB-1-W	10.5		NA	400	5.8	33	8.9	53	NA
3-SW-1-W	9		NA	3.6	0.024	0.12	0.054	0.36	NA
4-SW-1-S	9		NA	980	15	82	21	120	NA
5-SW-1-S	9		NA	900	17	90	22	130	NA
6-PB-1-E	10.5		NA	310	4.2	3	8.2	16	NA
7-TB-0-E	10		NA	1200	14	84	26	150	NA
8-TB-0-S	10		NA	500	7.2	16	11	41	NA
9-TB-0-S	10		NA	1	0.018	0.035	0.024	0.1	NA
10-TB-0-W	13		NA	5700	62	420	130	770	NA
11-TB-0-W	6		NA	2800	18	150	72	420	NA

Notes: NA = Not analyzed.

TABLE 2

Soil Sample Analytical Results - Final Excavation Limits
1009 66th Avenue, Oakland, California
Analytical Results in milligrams per kilogram

Sample	Depth in feet	Date	ANALYTES								
			TPH-g	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-o&g	VOCs	PCBs
1 SWN	11	8-24-95	260	NA	4.4	10	8.1	38	NA	NA	NA
2 SWN	20		ND	NA	ND	ND	ND	ND	NA	NA	NA
3 SWN	10		530	NA	6.6	41	14	82	NA	NA	NA
4 SWN	14		51	NA	0.37	0.11	2.3	0.21	NA	NA	NA
5 SWN	21		300	NA	1.4	1.1	0.52	0.33	NA	NA	NA
6 PBN	22		300	NA	2.3	1.2	3.2	0.96	NA	NA	NA
7 PBN	24		68	NA	0.98	0.1	0.86	0.35	NA	NA	NA
8 SWN	13		930	NA	7.4	50	19	110	NA	NA	NA
9 SWN	20		1.7	NA	0.026	0.02	0.034	0.13	NA	NA	NA
10 PBS	21		93	NA	0.75	0.33	0.55	1.5	NA	NA	NA
11 PBS	12		320	NA	0.71	1.1	5.9	7.9	NA	NA	NA
12 SWE	21		120	NA	1.6	0.61	2.1	1.5	NA	NA	NA
1-82595	23	8-25-95	ND	NA	ND	ND	ND	ND	ND	NA	NA
4-82895	9	8-28-95	ND	NA	ND	ND	ND	0.014	ND	ND	ND
5-82895	3		1.2	NA	ND	0.005	ND	0.04	ND	ND	ND
6-82895	5		ND	NA	ND	ND	ND	0.012	ND	NA	NA
1-SW-SSW	13	8-29-95	690	NA	3.1	22	16	90	210	NA	NA
3-PB-N	24		ND	NA	ND	ND	ND	ND	ND	NA	NA
PBSE	19	11-8-95	ND	ND	ND	ND	ND	ND	ND	ND*	NA
PBSM	19	11-9-95	ND	ND	ND	ND	ND	ND	ND	ND*	NA
PBSW	14	11-10-95	ND	ND	ND	ND	ND	ND	NA	ND*	NA
PSSW	13		ND	ND	ND	ND	ND	ND	NA	ND*	NA

Notes: NA = Not Analyzed
ND = Not detected at the laboratory reported limit of detection.
*Acetone analyzed only.

TABLE 3

Water Sample Analytical Results - Excavation Water
1009 66th Avenue, Oakland, California
Analytical Results in micrograms per liter

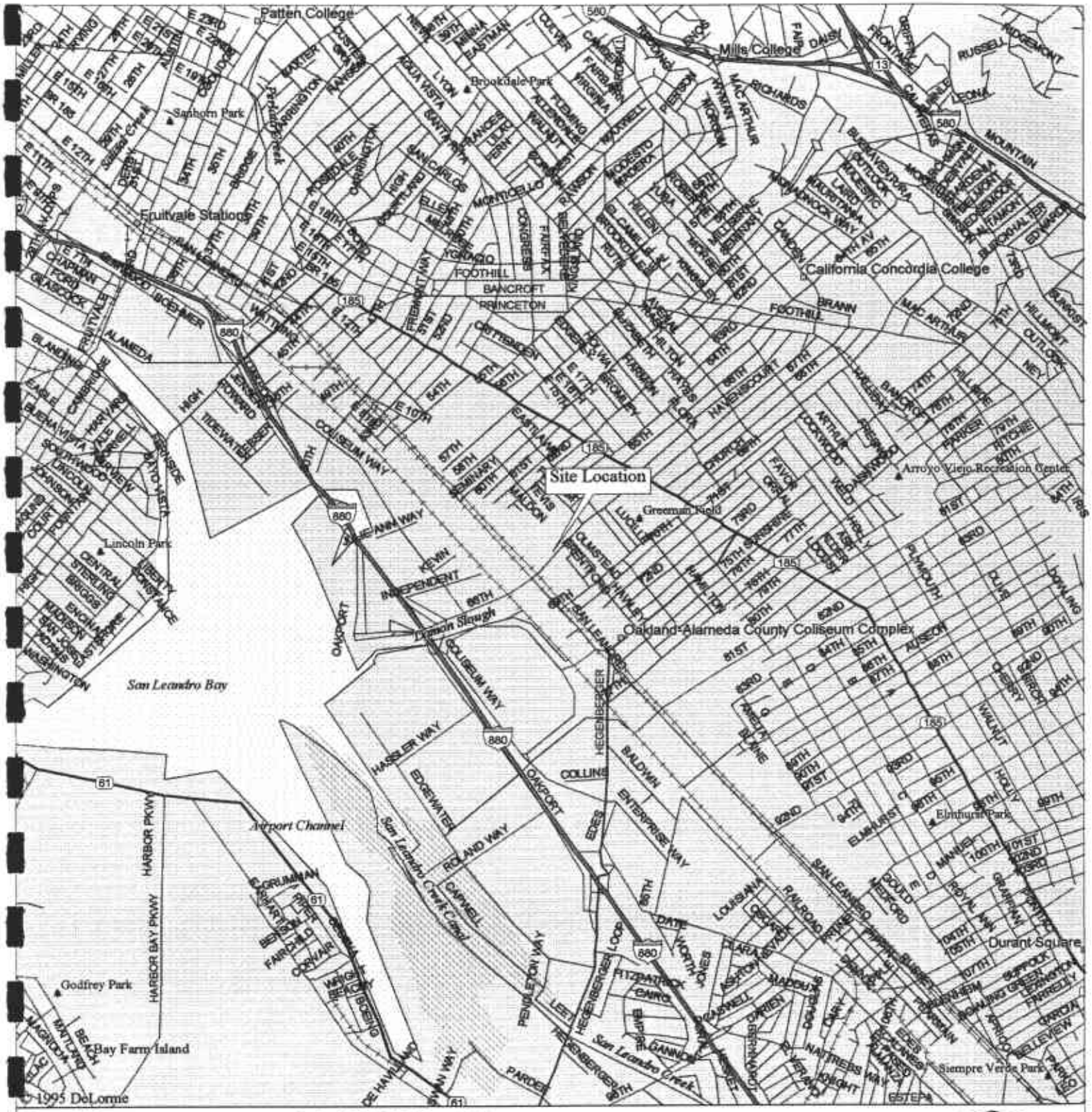
Water Sample Influent		Effluent	Date	ANALYTES										
				TPH-g	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-o&g	VOCs	PCBs	Metals*	TDS
	Bt1,Bt1a	X	6-28-95	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA
X	1-PB-W		8-28-95	NA	NA	**1100**	**690**	**280**	**2200**	NA	ND	ND	NA	NA
X	2-PB-E			NA	NA	**1300**	**2100**	**860**	**4700**	NA	**1200****	ND	NA	NA
X	3-Baker			NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
X	2-PB-W		8-29-95	**81,000**	NA	**3100**	**8600**	**2500**	**15,000**	**42**	NA	**3.1**	NA	**810**
X	3-B			NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
X	4-BT-2			**13,000**	NA	**260**	**93**	**19**	**2900**	**6.2**	NA	ND	NA	NA
	5-BT-1	X		**60**	NA	ND	**0.75**	**0.6**	**1.2**	ND	NA	ND	NA	NA
	GT1	X	10-3-95	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
	BT41a	X		ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
	BT1	X	10-12-95	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.069*****	NA
	BT4	X		NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.11*****	NA
X	BT4		11-6-95	ND	**250**	**5.7**	**2.4**	ND	ND	NA	ND	NA	NA	NA
	BT4CF 1	X	11-13-95	ND	**18**	ND	ND	ND	ND	NA	NA	NA	NA	NA
X	BT3CF1		11-17-95	ND	**59**	ND	ND	ND	ND	NA	NA	NA	NA	NA
	BTCF1	X	11-29-95	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
X	GTP 1		12-14-95	ND	**43**	ND	ND	ND	ND	NA	ND	ND	NA	NA
X	BT 2		12-20-95	ND	**92**	ND	**1.2**	ND	**1.1**	NA	ND	ND	NA	NA

Notes: NA = Not Analyzed
ND = Not detected at the laboratory reported limit of detection.
* Metals = CAM/CCR 17, title 22
** Acetone
*** Barium

TABLE 4

Temporary Groundwater Monitoring Well Sample Analytical Results
1009 66th Avenue, Oakland, California
Analytical Results in micrograms per liter

	Water Sample AW 1
Date	11-7-95
TPH-g	3,600
MTBE	62
Benzene	47
Toluene	5.7
Ethyl-benzene	ND
Xylenes	530
Acetone	ND



SITE LOCATION MAP

Project No. 3471.3

December 1996

PEM
1009 66th Avenue
Oakland, CA

Figure 1

Checked by:

W. A. CRAIG, INC.
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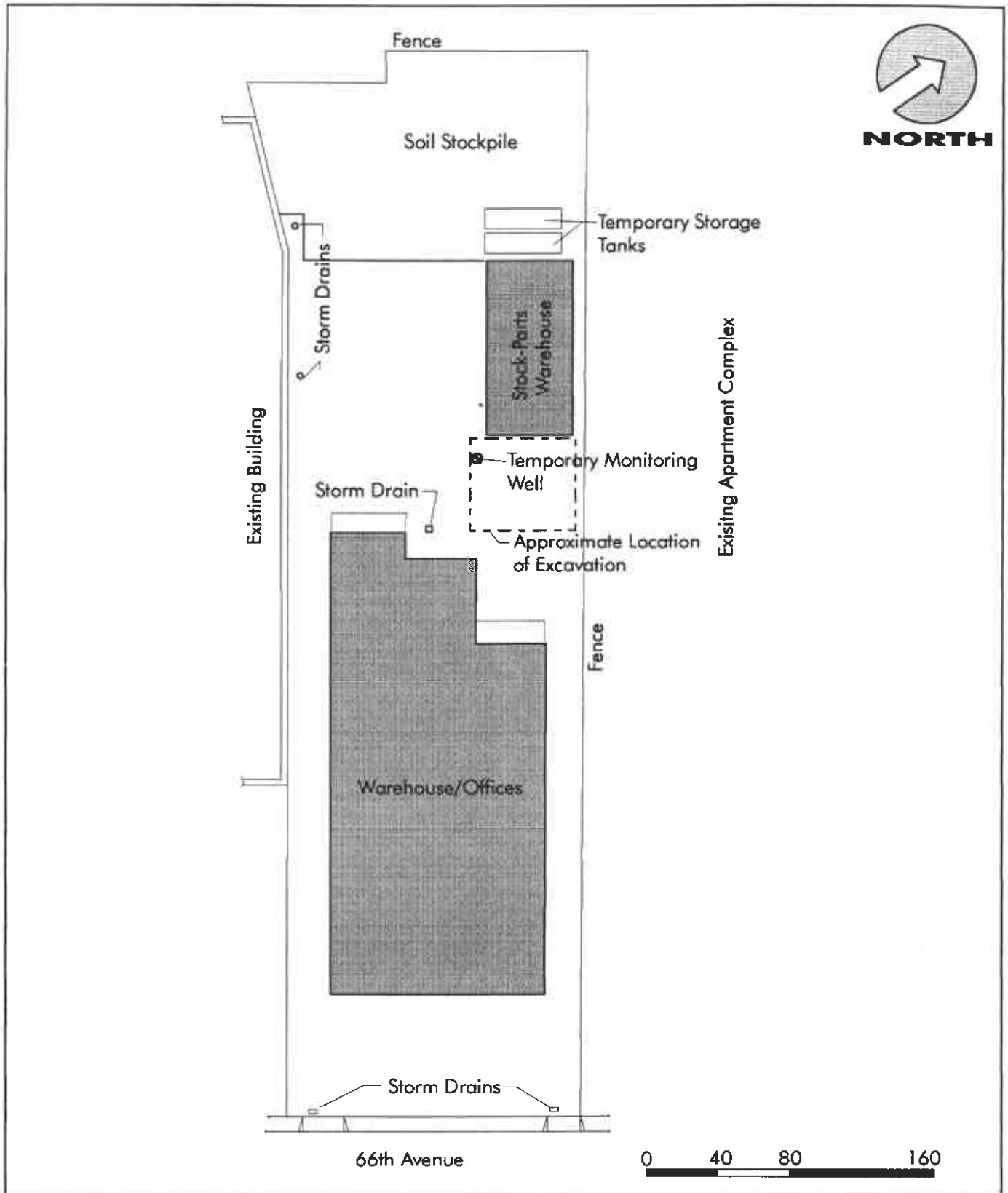


Project No. 3471.3

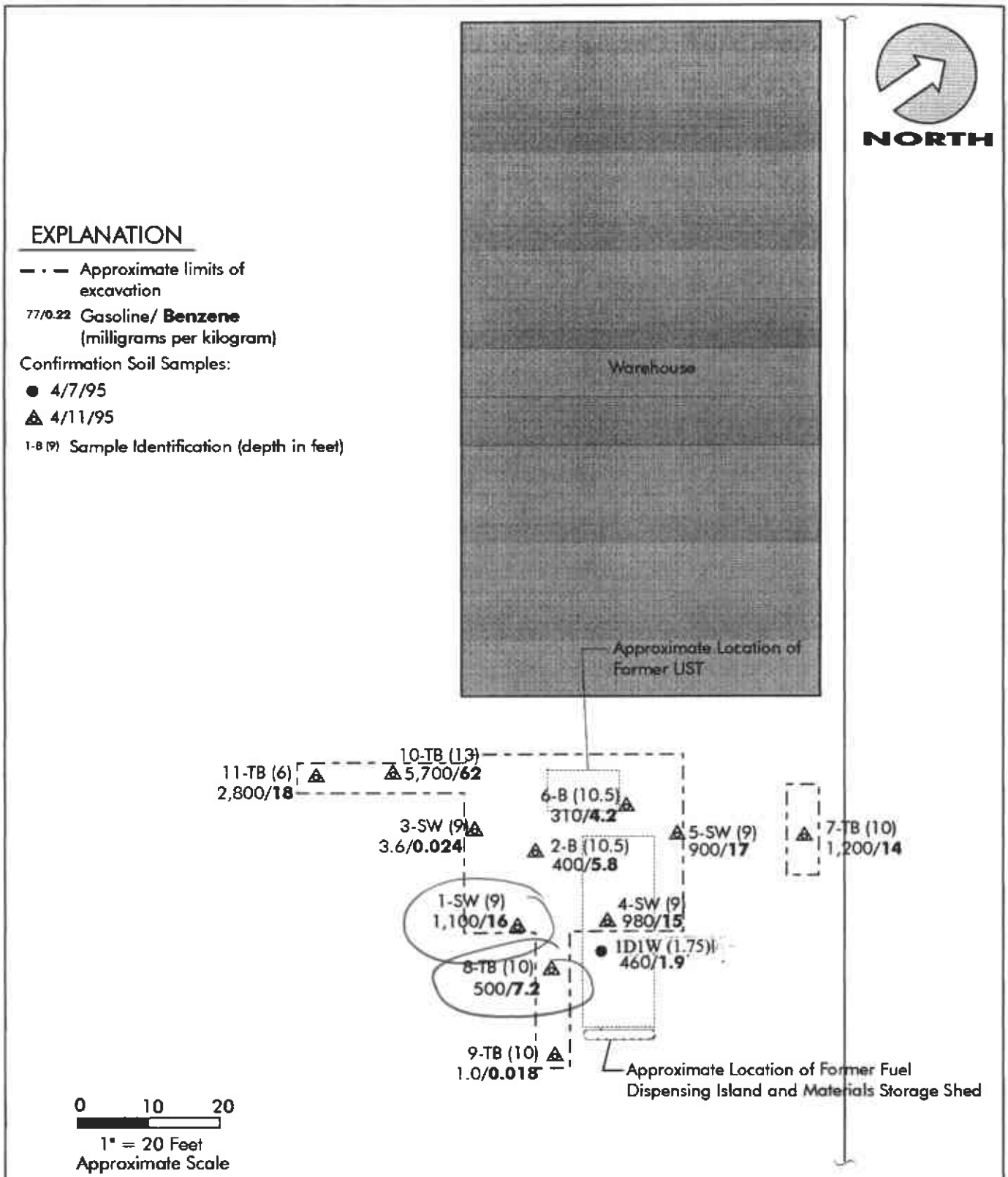
December 1996

Site Plan
PEM
1009 66th Avenue
Oakland, CA

Figure 2

Checked by:

W. A. CRAIG, INC.
Environmental Contracting and Consulting
P. O. Box 448
Napa, California 94559-0448
Cal License #455752
(707) 252-3353
FAX (707) 252-3385



Project No. 3471.3

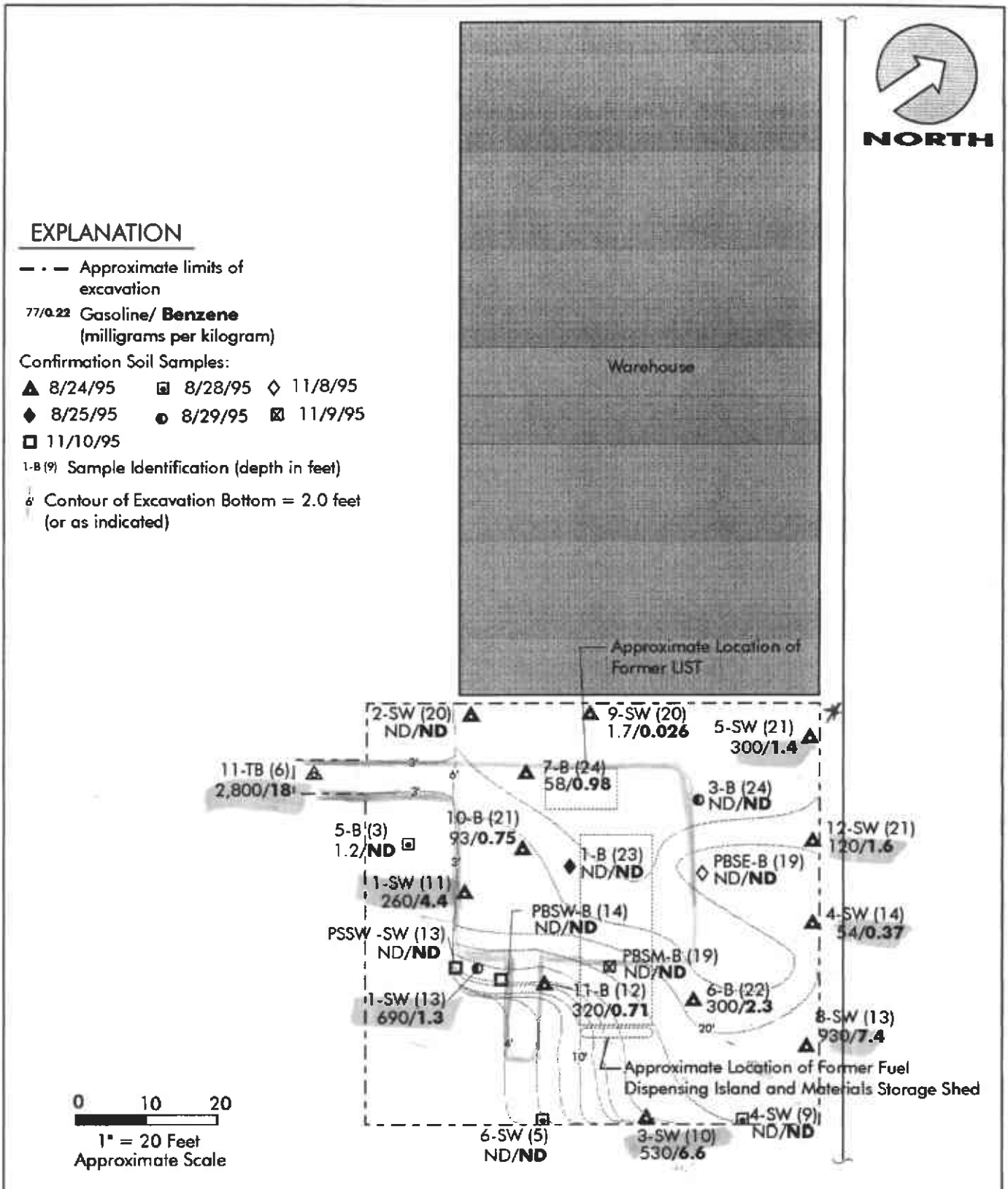
December 1996

Preliminary Excavation Limits
PEM
1009 66th Avenue
Oakland, CA

Figure 3

Checked by:

W. A. CRAIG, INC.
Environmental Contracting and Consulting
P. O. Box 448
Napa, California 94559-0448
Cal License #455752
(707) 252-3353
FAX (707) 252-3385



Project No. 3471.3

December 1996

Final Excavation Limits
PEM
1009 66th Avenue
Oakland, CA

Figure 4

Checked by:

W. A. CRAIG, INC.
Environmental Contracting and Consulting
P. O. Box 448
Napa, California 94559-0448
Cal License #455752
(707) 252-3353
FAX (707) 252-3385

APPENDIX A

LABORATORY ANALYTICAL RESULTS

McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471; PEM	Date Sampled: 12/20/95
		Date Received: 12/20/95
	Client Contact: Bill Craig	Date Extracted: 12/20/95
	Client P.O:	Date Analyzed: 12/20/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with MTBE & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
59755	BT2	W	ND	92	ND	1.2	ND	1.1	110
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 12/20/95-12/21/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	101.8	100.4	100	102	100	1.4
Benzene	0	9.1	9.2	10	91	92	1.1
Toluene	0	8.8	8.9	10	88	89	1.1
Ethyl Benzene	0	9.3	9.3	10	93	93	0.0
Xylenes	0	29.7	29.2	30	99	97	1.7
TPH (diesel)	0	159	167	150	106	111	5.0
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC. CHAIN-OF-CUSTODY RECORD

*5500 ALOACX 576

PROJECT NO.	PROJECT NAME
3471	PEM
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER
	Bill Sullivan

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	MTBE				Preserved?	REMARKS	LABORATORY I. D. NUMBER
12/20		BT 2, ~~BT 2~~ BT 2a	W				X	X				HCL		59755

VOAS | O&G | METALS | OTHER

ICE/T° ✓ PRESERVATIVE ✓
GOOD CONDITION ✓ APPROPRIATE
HEAD SPACE ABSENT ✓ CONTAINERS ✓

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Bill Sullivan	1:50 12/20	Angela Rydelius
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY:

TURNAROUND TIME: 24 hr

PLEASE SEND RESULTS TO:
W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471; PEM	Date Sampled: 1214/95
		Date Received: 12/15/95
	Client Contact: Bill Craig	Date Extracted: 12/15/95
	Client P.O:	Date Analyzed: 12/15/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with MTBE & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
59629	GTP1	W	ND	43	ND	ND	ND	ND	93
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 12/15/95-12/16/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	115.5	99.6	100	116	100	14.8
Benzene	0	8.2	9.0	10	82	90	9.3
Toluene	0	8.2	8.5	10	82	85	3.6
Ethyl Benzene	0	9.3	8.9	10	93	89	4.4
Xylenes	0	27.0	28.1	30	90	94	4.0
TPH (diesel)	0	154	154	150	103	102	0.5
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

5467 AWACx512

PROJECT NO.	PROJECT NAME
3471	P.E.M.
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER
	Bill Sullivan

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	MtBE				Preserved?	REMARKS	LABORATORY I. D. NUMBER
+ 12/4	1130	GTP1, GTP1a	W				X	X				HCl		59629

ICE/T ✓ VOAS | O&G | METALS | OTHER
GOOD CONDITION ✓ PRESERVATIVE ✓
HEAD SPACE ABSENT ✓ APPROPRIATE CONTAINERS ✓

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Bill Sullivan	12-15-95 8:00am	Timo Torres
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
	12/5/95 9:00	Heidi Buer

LABORATORY:

TURNAROUND TIME: ~~5 hr~~ 48 hr

PLEASE SEND RESULTS TO:
W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471; PEM	Date Sampled: 11/29/95
		Date Received: 12/01/95
	Client Contact: Bill Craig	Date Extracted: 12/01/95
	Client P.O:	Date Analyzed: 12/01/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with MTBE & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
59047	BTCF # 1	W	ND	ND	ND	ND	ND	ND	98
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 12/01/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	103.3	103.7	100	103	104	0.4
Benzene	0	9.4	9.2	10	94	92	2.2
Toluene	0	8.9	9.0	10	89	90	1.1
Ethyl Benzene	0	9.3	9.1	10	93	91	2.2
Xylenes	0	29.9	28.8	30	100	96	3.7
TPH (diesel)	0	162	162	150	108	108	0.1
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

5355 AWACx500

PROJECT NO.	PROJECT NAME
3471-	PEM
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER
	Bill Sudbo

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX					Preserved?	REMARKS	LABORATORY I. D. NUMBER
(+) 11/29	2 PM	~~TBTCF #1~~ BTCF #1a	W				X					HCL	2voas MtBE	5800-1

ICE/T* ✓ PRESERVATIVE ✓ VOAS | O&G | METALS | OTHER
GOOD CONDITION ✓ APPROPRIATE
HEAD SPACE ABSENT ✓ CONTAINERS ✓

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Bill Sudbo	12/1/94 0845	Jellette Aldrop
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY:

TURNAROUND TIME: STD

PLEASE SEND RESULTS TO:
W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471; PEM	Date Sampled: 11/17/95
		Date Received: 11/17/95
	Client Contact: Bill Craig	Date Extracted: 11/17/95
	Client P.O:	Date Analyzed: 11/17/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
58819	BT# 3CF1	W	ND	59	ND	ND	ND	ND	105
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

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DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 11/16/95-11/18/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	106.4	103.2	100	106	103	3.1
Benzene	0	10	11	10	104	108	3.8
Toluene	0	10	11	10	102	107	4.8
Ethyl Benzene	0	10	11	10	102	106	3.8
Xylenes	0	30	31	30	101	104	3.2
TPH (diesel)	0	149	148	150	99	98	0.9
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

5302-AWACX490

PROJECT NO.	PROJECT NAME
3471	PEM
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER
	Bill Sullo

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, (Water) Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX					Preserved?	REMARKS	LABORATORY I. D. NUMBER
11/16/95	1:30	BT#3CF-1, BT#3CF-1a	W				X					HCL	M.T.B.E	58819

HEAD SPACE ABSENT ✓ PRESERVATIVE ✓ CONTAINERS ✓

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Bill Sullo	11/17/95 1:40	Paul S. Stanley
RELINQUISHED BY (Signature): Paul S. Stanley	DATE/TIME 11/17/95 3pm	RECEIVED BY (Signature): Angela Rydelius
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY:

TURNAROUND TIME:

24HR

PLEASE SEND RESULTS TO:

W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: PEM	Date Sampled: 11/13/95
		Date Received: 11/14/95
	Client Contact: Bill Craig	Date Extracted: 11/14/95
	Client P.O:	Date Analyzed: 11/14/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
58675	BT4CF 1	W	ND	18	ND	ND	ND	ND	102
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 11/14/95-11/15/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	104.1	106.7	100	104	107	2.4
Benzene	0	11	11	10	105	106	0.9
Toluene	0	10	11	10	104	105	1.0
Ethyl Benzene	0	10	10	10	103	104	1.0
Xylenes	0	31	31	30	102	103	1.0
TPH (diesel)	0	152	150	150	102	100	1.2
TRPH (oil & grease)	0	23400	23200	23700	99	98	0.9

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

AWACX482 5270

PROJECT NO.	PROJECT NAME
3421	PEM
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER
	Bill Sull

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX					Preserved?	REMARKS	LABORATORY I. D. NUMBER
11/13	2:30	BT4CF1, BT4CF1a	W				X					HCl	MTBE	58675

VOAs O&G Metals

PRESERVATIVE APPROPRIATE CONTAINERS

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Bill Sull	11-14 | 9:40	Heidi Rica
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY:

TURNAROUND TIME: 24 HR

PLEASE SEND RESULTS TO:

W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: PEM	Date Sampled: 11/10/95
		Date Received: 11/13/95
	Client Contact: Bill Craig	Date Extracted: 11/13/95
	Client P.O:	Date Analyzed: 11/13/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with MTBE & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
58669	PBSW 14'	S	ND	ND	ND	ND	ND	ND	105
58670	PSSW 13'	S	ND	ND	ND	ND	ND	ND	103
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: PEM	Date Sampled: 11/10/95
		Date Received: 11/13/95
	Client Contact: Bill Craig	Date Extracted: 11/13/95
	Client P.O:	Date Analyzed: 11/13-11/19/95

Acetone *

EPA methods modified 8240 or 624

Lab ID	Client ID	Matrix	Acetone*
58669	PBSW 14'	S	ND
58670	PSSW 13'	S	ND
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	5.0 ug/L
		S	10 ug/kg

* water samples are reported in ug/L, soil samples in ug/kg, and all TCLP and STLC extracts in ug/L

h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 11/13/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	2.003	1.830	2.03	99	90	9.0
Benzene	0.000	0.172	0.182	0.2	86	91	5.6
Toluene	0.000	0.172	0.184	0.2	86	92	6.7
Ethylbenzene	0.000	0.176	0.188	0.2	88	94	6.6
Xylenes	0.000	0.552	0.580	0.6	92	97	4.9
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

5267AWACX487

PROJECT NO.	PROJECT NAME
3471	PENN
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER
	Bill Sullivan

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX (Soil, Water, Air, Sludge, Other)	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	Acetone				Preserved?	REMARKS	LABORATORY I. D. NUMBER
11/02	2:00	PBSW 14'	S				X	X				ICE	MTBE ALSO	58669
	2:20	PSSW 13'	W				X	X				ICE		58670

VOA [illegible]

HEAD SPACE ABSENT ✓ CONTAINERS ✓

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Bill Sullivan	11/3/95 2:45	Russell Scott
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Russell Scott	11/3/95 3:27	Heidi Rice
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY: M Campbell, Analytical

TURNAROUND TIME:

PLEASE SEND RESULTS TO:

W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: PEM	Date Sampled: 11/09/95
		Date Received: 11/13/95
	Client Contact: Bill Craig	Date Extracted: 11/13/95
	Client P.O:	Date Analyzed: 11/13/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
58671	PBSM 19'	S	ND	ND	ND	ND	ND	ND	110
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: PEM	Date Sampled: 11/09/95
		Date Received: 11/13/95
	Client Contact: Bill Craig	Date Extracted: 11/13/95
	Client P.O:	Date Analyzed: 11/13-11/19/95

Acetone *

EPA methods modified 8240 or 624

Lab ID	Client ID	Matrix	Acetone*
58671	PBSM 19'	S	ND
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	5.0 ug/L
		S	10 ug/kg

* water samples are reported in ug/L, soil samples in ug/kg, and all TCLP and STLC extracts in ug/L

h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 11/13/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	2.003	1.830	2.03	99	90	9.0
Benzene	0.000	0.172	0.182	0.2	86	91	5.6
Toluene	0.000	0.172	0.184	0.2	86	92	6.7
Ethylbenzene	0.000	0.176	0.188	0.2	88	94	6.6
Xylenes	0.000	0.552	0.580	0.6	92	97	4.9
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

5268 AWACX488

PROJECT NO.	PROJECT NAME
3471	P.E.M
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER
	Bill Sullivan

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	Acetone				Preserved? ICE	REMARKS	LABORATORY I. D. NUMBER
11-9-95	2pm	PBSM 19'	S 1				X	X				X	M.T.B.E. ALSO	58671

HEAD SPACE ABSENT ✓ CONTAINER ✓ PRESERVATIVE ✓ APPROPRIATE CONTAINERS ✓

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Bill Sullivan	11/13/95 2:46	Russell Scott
RELINQUISHED BY (Signature): Russell Scott	DATE/TIME 11/13/95 3:28	RECEIVED BY (Signature): Heidi Rivera
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY: McCampbell Analytical

TURNAROUND TIME:

PLEASE SEND RESULTS TO:

W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471; PEM	Date Sampled: 11/08/95
		Date Received: 11/10/95
	Client Contact: Bill Craig	Date Extracted: 11/10/95
	Client P.O:	Date Analyzed: 11/10/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with MTBE & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
58576	PBSE 19	S	ND	ND	ND	ND	ND	ND	101
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471; PEM	Date Sampled: 11/08/95
		Date Received: 11/10/95
	Client Contact: Bill Craig	Date Extracted: 11/19/95
	Client P.O:	Date Analyzed: 11/19/95

Acetone *

EPA methods modified 8240 or 624

Lab ID	Client ID	Matrix	Acetone*
58576	PBSE 19	S	ND
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	5.0 ug/L
		S	10 ug/kg

* water samples are reported in ug/L, soil samples in ug/kg, and all TCLP and STLC extracts in ug/L

h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 11/10/95-11/11/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.925	2.048	2.03	95	101	6.2
Benzene	0.000	0.176	0.176	0.2	88	88	0.0
Toluene	0.000	0.174	0.184	0.2	87	92	5.6
Ethylbenzene	0.000	0.180	0.184	0.2	90	92	2.2
Xylenes	0.000	0.564	0.568	0.6	94	95	0.7
TPH (diesel)	0	272	275	300	91	92	1.4
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

5253 AWACX484

PROJECT NO.	PROJECT NAME
3471	PEM
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER
	Bill Smith

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	Methane				Preserved?	REMARKS	LABORATORY I. D. NUMBER
11-8	1PM	PBSE 19	S				X	X					MTBE ALSO	58576

ICE/T° ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
PRESERVATIVE APPROPRIATE ✓
CONTAINERS ✓

VOAs [illegible]

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Bill Smith	11/6/95 3:30	Russell Gust
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Russell Gust	11/6/95 4:35	Linda Rucci
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY: McCampbell Analytical

TURNAROUND TIME: Stnd

PLEASE SEND RESULTS TO:

W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471; PEM	Date Sampled: 11/07/95
		Date Received: 11/08/95
	Client Contact: Bill Craig	Date Extracted: 11/12/95
	Client P.O:	Date Analyzed: 11/12/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
58376	AW 1	W	3600,b,c	62	47	5.7	ND	530	90
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.	110 2nd Avenue South, #D7, Pacheco, CA 94553 Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471; PEM	Date Sampled: 11/07/95
		Date Received: 11/08/95
	Client Contact: Bill Craig	Date Extracted: 11/17-11/19/95
	Client P.O:	Date Analyzed: 11/17-11/19/95

Acetone *

EPA methods modified 8240 or 624

Lab ID	Client ID	Matrix	Acetone*
58376	AW 1a	W	ND
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	5.0 ug/L
		S	10 ug/kg

* water samples are reported in ug/L, soil samples in ug/kg, and all TCLP and STLC extracts in ug/L

h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 11/12/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	110.5	104.1	100	110	104	6.0
Benzene	0	10	10	10	97.0	96.0	1.0
Toluene	0	10	10	10	100.0	99.0	1.0
Ethyl Benzene	0	10	10	10	100.0	100.0	0.0
Xylenes	0	30	30	30	100.7	99.3	1.3
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

5225 AWAC x 479

PROJECT NO.	PROJECT NAME
3471	PEM
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER
	Bill Sullivan

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	Acetone			Preserved?	REMARKS	LABORATORY I. D. NUMBER
11-7-95	10AM	AW 1, AW 1a	W 1				X X	X				MTBE Also	58376

IDENT. ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
PRESERVATIVE APPROPRIATE ✓
CONTAINERS ✓

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Bill Sullivan	11/7/95 5:00 PM	Todd Fennell
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Todd Fennell	11/8 8:00 AM	Rudi Quick
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY:

TURNAROUND TIME:

PLEASE SEND RESULTS TO:

W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471-C; PEM	Date Sampled: 11/06/95
		Date Received: 11/06/95
	Client Contact: Bill Craig	Date Extracted: 11/06/95
	Client P.O:	Date Analyzed: 11/06/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with MTBE & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Rec. Surrogate
58330	BT4	W	ND,c	250	5.7	2.4	ND	ND	107
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram: sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471-C; PEM	Date Sampled: 11/06/95
		Date Received: 11/06/95
	Client Contact: Bill Craig	Date Extracted: 11/06/95
	Client P.O:	Date Analyzed: 11/06/95

Acetone *

EPA methods modified 8240 or 624

Lab ID	Client ID	Matrix	Acetone*	% Recovery Surrogate
58330	BT4	W	ND	103
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	5.0 ug/L	
		S	10 ug/kg	

* water samples are reported in ug/L, soil samples in ug/kg, and all TCLP and STLC extracts in ug/L

h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 11/06/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	106.7	97.9	100	107	98	8.6
Benzene	0	9.1	8.8	10	91.0	88.0	3.4
Toluene	0	9	8.7	10	90.0	87.0	3.4
Ethyl Benzene	0	9.4	9.1	10	94.0	91.0	3.2
Xylenes	0	29.7	29	30	99.0	96.7	2.4
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

5218AWACX478

PROJECT NO. 3471-C | PROJECT NAME: PEM

PURCHASE ORDER NO. | SIGNATURE OF SAMPLER: Bill Sullivan

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, (Water), Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX (8015)	Acetone			Preserved?	REMARKS	LABORATORY I. D. NUMBER
11-[illegible]-22	2:20	BT 4, BT4a	W				V	V			HCl		58330
	2:28	GT 1, GT 1a					VV						58331

VOAs in duplicate

RECEIPT ✓ | PRESERVATIVE ✓
VOA CONDITION ✓ | APPROPRIATE
HEAD SPACE ABSENT ✓ | CONTAINERS ✓

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Bill Sullivan	11/[illegible]/22	Lori Hamilton
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY:

TURNAROUND TIME: 24 hr. on BT4, BT4a

PLEASE SEND RESULTS TO:

W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

If BT4 has any hits, then cancel GT1; if BT4 clean, run GT-1 for 4 hr TAT

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: PEM	Date Sampled: 10/12/95
		Date Received: 10/12/95
	Client Contact: Bill Craig	Date Extracted: 10/12/95
	Client P.O:	Date Analyzed: 10/13/95

CAM / CCR 17 Metals*

EPA methods 6010/200.7; 7470/245.1 (Hg); 7060/206.2 (As); 7740/270.2 (Se); 7841/279.2 (Tl); 239.2 (Pb, water matrix)

Lab ID	57381	57382			Reporting Limit		
Client ID	BT1	BT4					
Matrix	W	W			S	W	STLC /
Extraction°	TTLC	TTLC			TTLC	TTLC	TCLP
Compound	Concentration*				mg/kg	mg/L	mg/L
Antimony (Sb)	ND	ND			2.5	0.05	0.05
Arsenic (As)	ND< 0.01	ND< 0.01			2.5	0.005	0.25
Barium (Ba)	0.069	0.11			1.0	0.05	0.05
Beryllium (Be)	ND	ND			0.5	0.01	0.01
Cadmium (Cd)	ND	ND			0.5	0.01	0.01
Chromium (Cr)	ND	ND			0.5	0.005	0.05
Cobalt (Co)	ND	ND			2.0	0.02	0.05
Copper (Cu)	ND	ND			2.0	0.02	0.05
Lead (Pb)	ND< 0.01	ND< 0.01			3.0	0.005	0.2
Mercury (Hg)	ND	ND			0.06	0.0008	0.0008
Molybdenum (Mo)	ND	ND			2.0	0.05	0.05
Nickel (Ni)	ND	ND			2.0	0.02	0.05
Selenium (Se)	ND< 0.01	ND< 0.01			2.5	0.005	0.25
Silver (Ag)	ND	ND			1.0	0.01	0.05
Thallium (Tl)	ND< 0.002	ND< 0.002			0.5	0.001	0.05
Vanadium (V)	ND	ND			2.0	0.05	0.05
Zinc (Zn)	ND	ND			1.0	0.05	0.05
% Recovery Surrogate	96	95					
Comments	matrix effect	matrix effect					

* water samples are reported in mg/L, soil samples in mg/kg and all TCLP & STLC extracts in mg/L

ND means not detected above the reporting limit

o EPA extraction methods 1311(TCLP), 3010/3020(water,TTLC), 3040(organic matrices,TTLC), 3050(solids,TTLC); STLC from CA Title 22

surrogate diluted out of range; N/A means surrogate not applicable to this analysis

i) liquid sample that contains greater than ~ 2 vol. % sediment; this sediment is extracted with the liquid, in accordance with EPA methodologies and can significantly effect reported metal concentrations.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR METALS

Date: 10/13/95 Matrix: Water

Extraction: TTLC

Analyte	Concentration (mg/kg,mg/L) Sample	MS	MSD	Amount Spiked	% Recovery MS	MSD	RPD
Arsenic	0.0	5.2	5.2	5.0	104	104	0.7
Selenium	0.0	5.0	4.9	5.0	99	99	0.4
Molybdenum	0.0	5.0	5.0	5.0	100	99	0.5
Silver	0.0	0.493	0.492	0.500	99	98	0.2
Thallium	0.0	5.0	4.9	5.0	100	99	1.1
Barium	0.0	4.8	4.7	5.0	95	95	0.8
Nickel	0.0	5.1	5.1	5.0	103	102	0.5
Chromium	0.0	5.2	5.2	5.0	104	104	0.2
Vanadium	0.0	5.0	5.0	5.0	100	100	0.3
Beryllium	0.0	5.3	5.3	5.0	105	105	0.2
Zinc	0.0	5.0	5.0	5.0	100	99	1.1
Copper	0.0	5.0	4.9	5.0	99	99	0.8
Antimony	0.0	5.1	5.1	5.0	102	102	0.4
Lead	0.0	5.1	5.0	5.0	101	101	0.5
Cadmium	0.0	5.1	5.1	5.0	101	101	0.1
Cobalt	0.0	5.1	5.1	5.0	101	102	0.2
Mercury	0.000	0.174	0.174	0.2	87	87	0.0

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC. CHAIN-OF-CUSTODY RECORD

5045 Airport

PROJECT NO.	PROJECT NAME	PURCHASE ORDER NO.	SIGNATURE OF SAMPLER
	PEm		Bill Suk

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	Cam 17				Preserved?	REMARKS	LABORATORY I. D. NUMBER
			W											
10-12	7:10	BT1						X				NO3		57381
10-12	7:10	BT4						X				"		57382

ICE? ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
PRESERVATIVE APPROPRIATE ✓
CONTAINERS ✓

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Bill Suk	10-12 8:10	Linda Ruiz
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY:

TURNAROUND TIME: 48 HR

PLEASE SEND RESULTS TO:
W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471; PEM	Date Sampled: 10/03/95
		Date Received: 10/03/95
	Client Contact: Bill Craig	Date Extracted: 10/05/95
	Client P.O:	Date Analyzed: 10/05/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	Benzene	Toluene	Ethylbenzene	Xylenes	% Rec. Surrogate
57067	GT1	W	ND	ND	ND	ND	ND	95
57068	BT4a	W	ND	ND	ND	ND	ND	96
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471; PEM	Date Sampled: 10/03/95
		Date Received: 10/03/95
	Client Contact: Bill Craig	Date Extracted: 10/09/95
	Client P.O:	Date Analyzed: 10/09/95

Total Recoverable Petroleum Hydrocarbons as Oil & Grease (with Silica Gel Clean-up) by Scanning IR Spectrometry*

EPA method 418.1 or 9073; Standard Methods 5520 C&F

Lab ID	Client ID	Matrix	TRPH+
57067	GT1	W	ND
57068	BT4a	W	ND
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	1.0 mg/L
		S	10 mg/kg

* water samples are reported in mg/L and soils in mg/kg

surrogate diluted out of range

+ At the laboratory's discretion, one positive sample may be run by direct injection chromatography with FID detection. The following comments pertain to this GC result: a) gasoline-range compounds (C6-C12) are present; b) diesel range compounds (C10-C23) are present; c) oil-range compounds (> C18) are present; d) other patterned solvent (?); e) isolated peaks; f) GC compounds are absent or insignificant relative to TRPH inferring that complex biologically derived molecules (lipids?)are the source of IR absorption; h) a lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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110 2nd Avenue South, #D7, Pacheco, CA 94553
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W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471; PEM	Date Sampled: 10/03/95
		Date Received: 10/03/95
	Client Contact: Bill Craig	Date Extracted: 10/05/95
	Client P.O:	Date Analyzed: 10/05/95

Acetone *

EPA methods modified 8240 or 624

Lab ID	Client ID	Matrix	Acetone*	% Recovery Surrogate
57067	GT1a	W	ND	100
57068	BT4a1	W	ND	108
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	5.0 ug/L	
		S	10 ug/kg	

* water samples are reported in ug/L, soil samples in ug/kg, and all TCLP and STLC extracts in ug/L

h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 10/05/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	102.3	99.7	100	102	100	2.5
Benzene	0	9.4	8.8	10	94.0	88.0	6.6
Toluene	0	9	8.6	10	90.0	86.0	4.5
Ethyl Benzene	0	8.9	8.7	10	89.0	87.0	2.3
Xylenes	0	28.1	27.4	30	93.7	91.3	2.5
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 10/09/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	108.2	102.9	100	108	103	5.1
Benzene	0	9.1	9.6	10	91.0	96.0	5.3
Toluene	0	9.6	9.3	10	96.0	93.0	3.2
Ethyl Benzene	0	9.7	9.1	10	97.0	91.0	6.4
Xylenes	0	30.5	28.5	30	101.7	95.0	6.8
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	0	20300	19700	23700	86	83	3.0

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

4986AWACX457

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

PROJECT NO.	PROJECT NAME
3471	FEM
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER: Bill Sulk[illegible]

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	ACETONE	O&G HS?	Add on per B.S. 10-5-93		Preserved?	REMARKS	LABORATORY I. D. NUMBER
10/3/93	11:30	GT1 - ~~[illegible]~~ GT1a	W	X	X				X			HCL	Ice	GT1 57067
		BT4a BT4a1		X	X				X					BT4 57068
	1134	GT1A ~~[illegible]~~						X						
		BT4A - BT4A1						X						
		Trip Blank (Hold)												Trip Blank 57069

VOAs ... ✓ PRESERVATIVE ✓ APPROPRIATE CONTAINERS ✓ ... ABSENT ✓

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature):	LABORATORY:
Bill Sulk[illegible]	10-5-93 235	[illegible signature]	
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):	TURNAROUND TIME:
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):	

PLEASE SEND RESULTS TO

W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471C; PEM	Date Sampled: 08/29/95
		Date Received: 08/29/95
	Client Contact: Bill Craig	Date Extracted: 08/31-09/05/95
	Client P.O:	Date Analyzed: 08/31-09/05/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	Benzene	Toluene	Ethylbenzene	Xylenes	% Rec. Surrogate
55861	1-082995-SW-SSW-13	S	690,b,d	3.1	22	16	90	98
55862	2-082995-PB-W-19'	W	81,000,b,h	3100	8600	2500	15,000	101
55863	3-082995-PB-N-24'	S	ND	ND	ND	ND	ND	107
55864	4-082995-BT 2	W	13,000,b,d	260	93	19	2900	96
55865	5-082995-BT 1	W	60,d	ND	0.75	0.60	1.2	100
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in ng/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471C; PEM	Date Sampled: 08/29/95
		Date Received: 08/29/95
	Client Contact: Bill Craig	Date Extracted: 08/29-09/06/95
	Client P.O:	Date Analyzed: 08/29-09/06/95

Fuel Fingerprint

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	Fuel Fingerprint
55861	1-082995-SW-SSW-13	S	unmodified or weakly modified gasoline
55862	2-082995-PB-W-19'	W	aged gasoline predominates; sheen present
55863	3-082995-PB-N-24'	S	no peaks
55864	4-082995-BT 2	W	aged gasoline predominates with some lighter, biologically altered?, gasoline range compounds
55865	5-082995-BT 1	W	biologically altered? gasoline range compounds
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	
		S	

* water samples are reported in ug/L, soil samples in mg/kg, and all TCLP and STLC extracts in mg/L

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471C; PEM	Date Sampled: 08/29/95
		Date Received: 08/29/95
	Client Contact: Bill Craig	Date Extracted: 08/31/95
	Client P.O:	Date Analyzed: 08/31/95

Total Recoverable Petroleum Hydrocarbons as Oil & Grease (with Silica Gel Clean-up) by Scanning IR Spectrometry*

EPA method 418.1 or 9073; Standard Methods 5520 C&F

Lab ID	Client ID	Matrix	TRPH+
55861	1-082995-SW-SSW-13	S	210
55862	2-082995-PB-W-19'	W	42
55863	3-082995-PB-N-24'	S	ND
55864	4-082995-BT 2	W	6.2
55865	5-082995-BT 1	W	ND
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	1.0 mg/L
		S	10 mg/kg

* water samples are reported in mg/L and soils in mg/kg

surrogate diluted out of range

+ At the laboratory's discretion, one positive sample may be run by direct injection chromatography with FID detection. The following comments pertain to this GC result: a) gasoline-range compounds (C6-C12) are present; b) diesel range compounds (C10-C23) are present; c) oil-range compounds (> C18) are present; d) other patterned solvent (?); e) isolated peaks; f) GC compounds are absent or insignificant relative to TRPH inferring that complex biologically derived molecules (lipids?)are the source of IR absorption; h) a lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471C; PEM	Date Sampled: 08/29/95
		Date Received: 08/29/95
	Client Contact: Bill Craig	Date Extracted: 08/30/95
	Client P.O:	Date Analyzed: 08/31-09/04/95

Polychlorinated Biphenyls (PCBs)

EPA method 608 and 3510 or 8080 and 3550

Lab ID	55862	55864	55865
Client ID	2-082995-PB-W-19'	4-082995-BT 2	5-082995-BT 1
Matrix	W	W	W
Compound[a]	Concentration*		
Aroclor 1016	ND< 1	ND< 5	ND< 1
Aroclor 1221	ND< 1	ND< 5	ND< 1
Aroclor 1232	ND< 1	ND< 5	ND< 1
Aroclor 1242	ND< 1	ND< 5	ND< 1
Aroclor 1248	ND< 1	ND< 5	ND< 1
Aroclor 1254	ND< 1	ND< 5	ND< 1
Aroclor 1260	3.1	ND< 5	ND< 1
Total PCBs	3.1	ND< 5	ND< 1
% Recovery Surrogate	102	102	102
Comments			

* water and oil samples are reported in ug/L, soil samples in ug/kg and all TCLP and STLC extracts in ug/L

Reporting limits unless otherwise stated; water, STLC and TCLP extracts, ND : 0.5 ug/L; soil, ND< 5 ug/kg

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

surrogate diluted out of range or surrogate coelutes with another peak

(a) the first two digits of the aroclor number convey general structural information, where 12 and 10 denote biphenyl compounds with the latter having one phenyl group that is Cl-free; the last two aroclor digits specify its Cl weight %; (h) a lighter than water immiscible sheen is present; (i) liquid sample that contains > ~ 5 vol. % sediment; (j)sample diluted due to high organic content.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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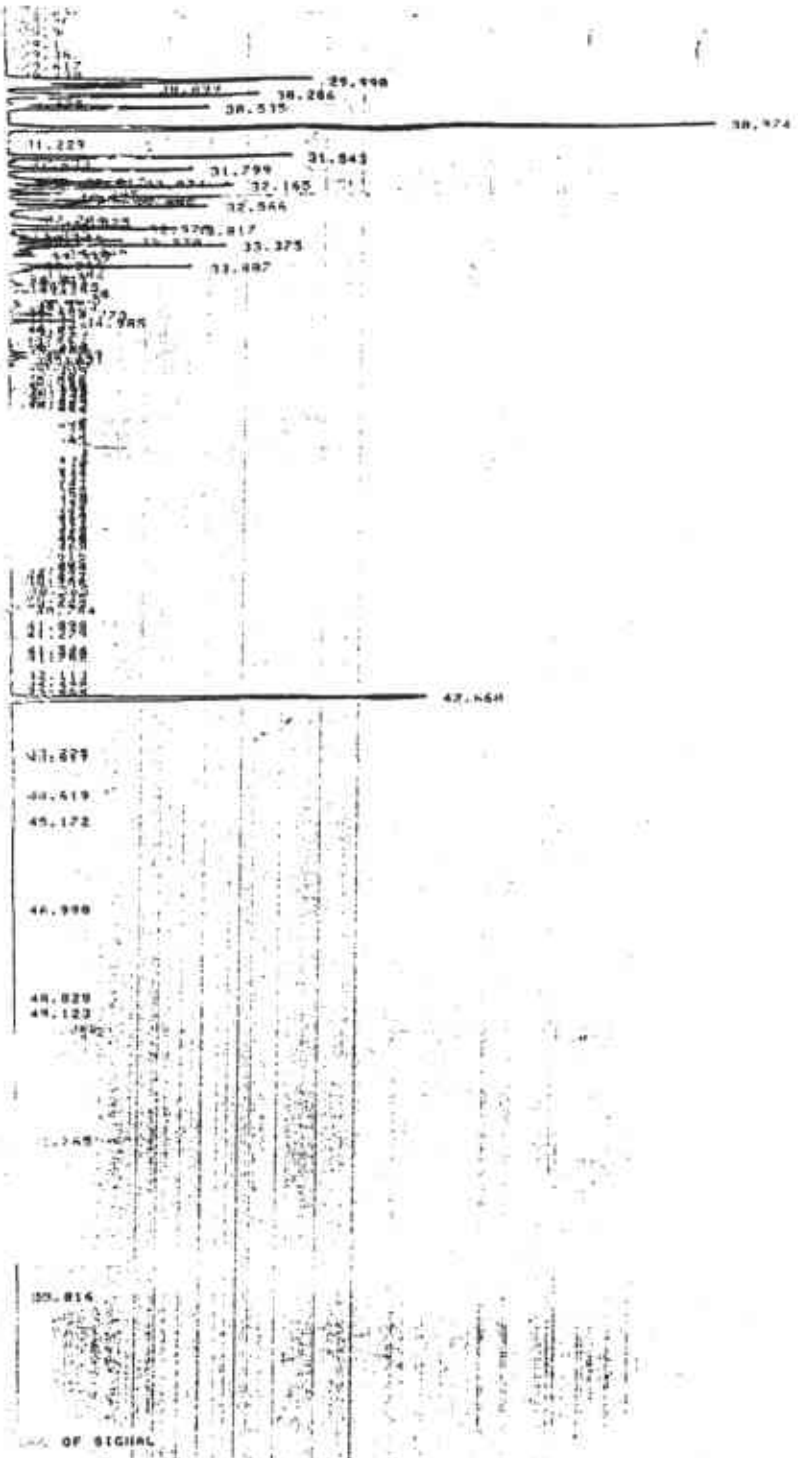
W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471C; PEM	Date Sampled: 08/29/95
		Date Received: 08/29/95
	Client Contact: Bill Craig	Date Extracted: 08/31/95
	Client P.O:	Date Analyzed: 08/31/95

			Total Dissolved Solids
Analytical methods			EPA160.1, SM2540C
Lab ID	Client ID	Matrix	TDS
55862	2-082995-PB-W-19'	W	810
Reporting Limit or Method Accuracy unless otherwise stated; ND		W	10 mg/L
means not detected above the reporting limit; N/A means not applicable		S	N/A
Reporting Units		W,S	mg/L

DHS Certification No. 1644

Edward Hamilton, Lab Director



DIESEL RANGE, 31.09 - 46.27 MINS (C18-23) PEAKSUM= 4178963.

TOTAL GAS, 4.63 - 33.82 MINS (C6..C12) PEAKSUM= 21951776.

RATIO %= DIESEL/TOTALGAS= 19.0313

LBP COMPOUNDS OF GAS RANGE, 4.63 - 6.79 MINS (C7-C8) PEAKSUM= 0 = 0
% OF TOTAL GAS

RBP COMPOUNDS OF GAS RANGE, 6.79 - 31.29 MINS (C8+..C13) PEAKSUM= 14182169.
= 64 % OF TOTAL GAS

HBP COMPOUNDS OF GAS RANGE, 31.29 - 33.82 MINS (C14+..C12) PEAKSUM= 7769629.
= 35 % OF TOTAL GAS

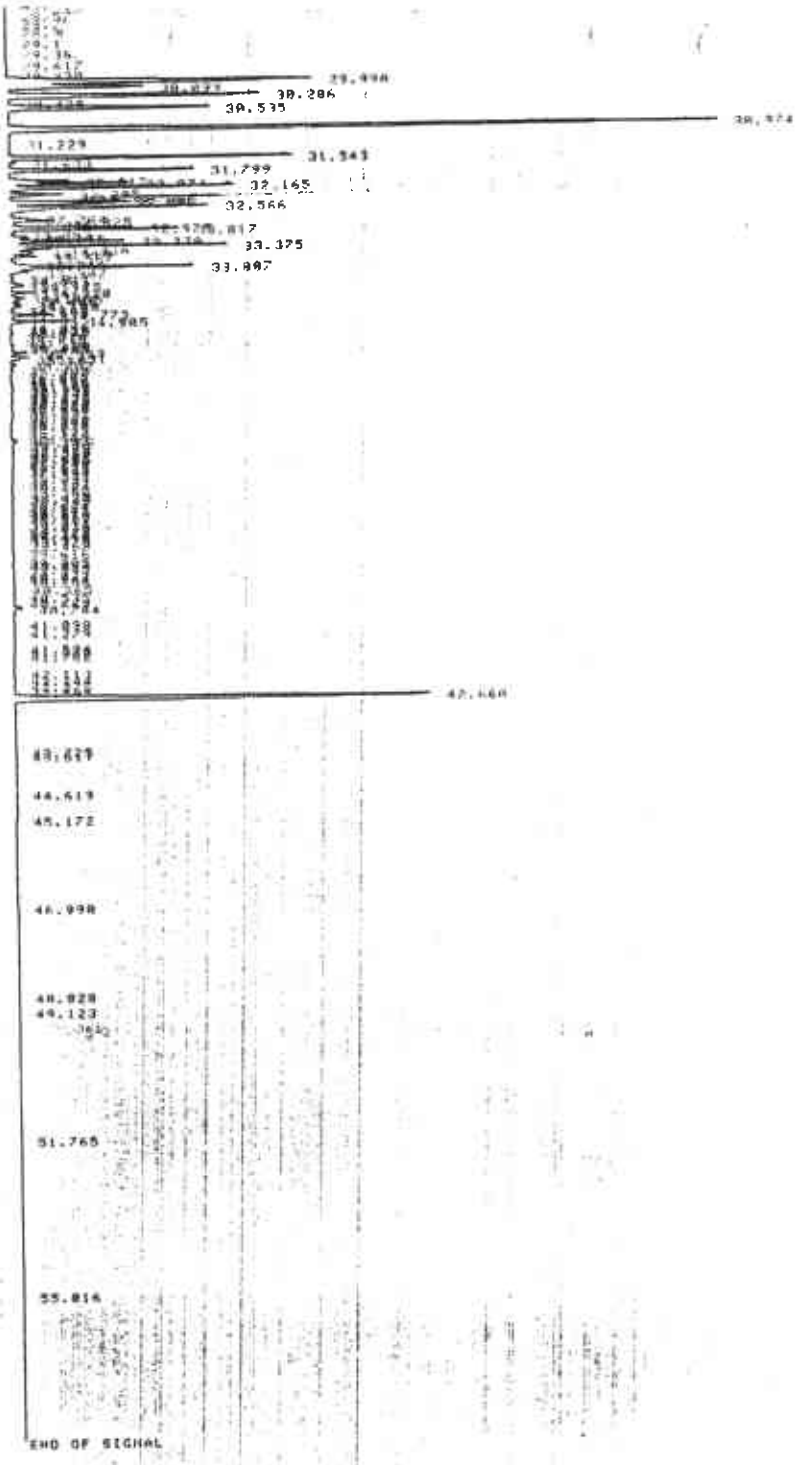
GREASE RANGE, 37.63 + MINS (C18+) PEAKSUM= 2589515.

SOLVENT RANGE, 4.59 - 33.82 MINS (C6-C12) PEAKSUM= 21951776.

RANGE, 4.63 - 37.63 MINS (C7-C18) PEAKSUM = 23142912.

SEP 12, 1995 06:48:13

PAGE 2



DIESEL RANGE: 31.69 - 48.27 MINS (C18-23) PEAKSUM= 9178943.

TOTAL GAS: 4.63 - 33.82 MINS (C6..C12) PEAKSUM= 21951776.
RATIO OF DIESEL/TOTALGAS= 0.418182

LBP COMPOUNDS OF GAS RANGE: 4.63 - 6.79 MINS (C7-C8) PEAKSUM= 0 = 0
% OF TOTAL GAS

HBP COMPOUNDS OF GAS RANGE: 6.79 - 31.29 MINS (C8+..C10) PEAKSUM= 14192149.
= 64 % OF TOTAL GAS

HAP COMPOUNDS OF GAS RANGE: 31.29 - 33.82 MINS (C10+..C12) PEAKSUM= 7769629.
= 35 % OF TOTAL GAS

OIL & GREASE RANGE: 37.63 + MINS (C18+) PEAKSUM= 2589513.

STODDARD SOLVENT RANGE: 4.59 - 33.82 MINS (C8-C12) PEAKSUM= 21951776.

KEROSINE RANGE: 4.63 - 37.63 MINS (C7-C16) PEAKSUM = 23142912.
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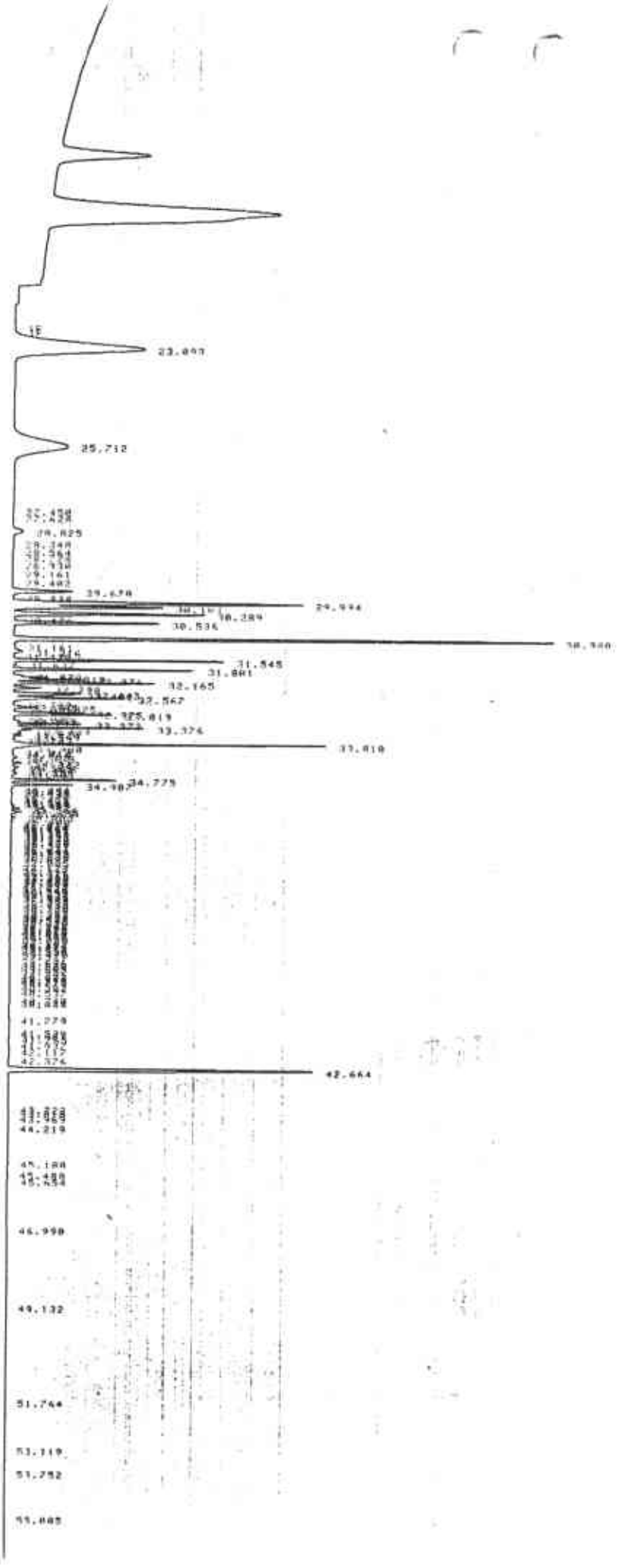
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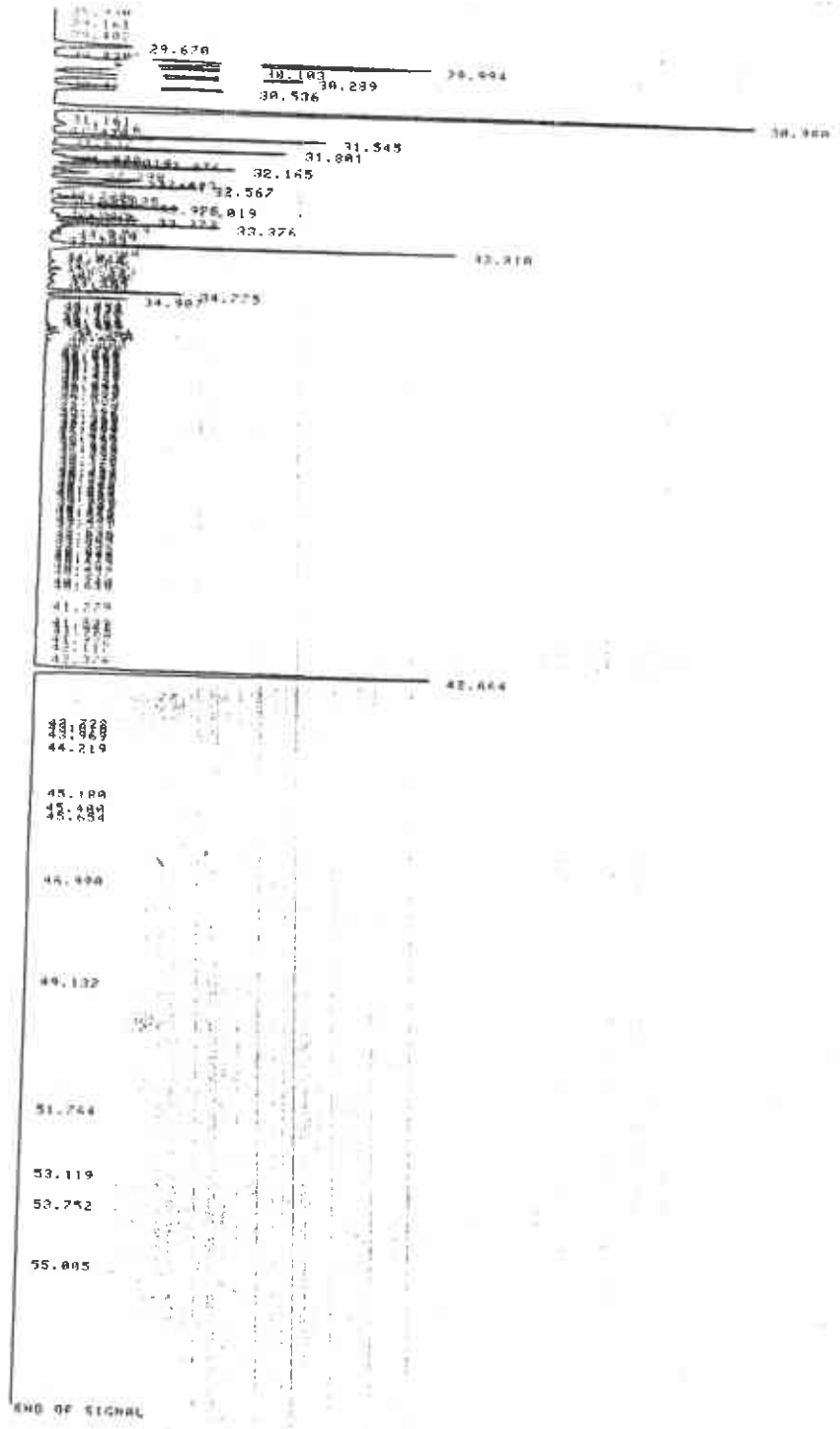
55.885



DIESEL RANGE. 31.89 - 40.27 MINS (C10-C33) PEAKSUM= 8599571.

TOTAL GAS. 4.63 -#33.82 MINS (C6..C12) PEAKSUM= 24680298.
RATIO OF DIESEL/TOTALGAS= 0.348439

LAP COMPOUNDS OF GAS RANGE. 4.63 - 6.79 MINS (C7-C8) PEAKSUM= 0 : = 0
% OF TOTAL GAS

HAP COMPOUNDS OF GAS RANGE. 6.79 - 31.29 MINS (C8+..C10) PEAKSUM= 17377520.
= 70 % OF TOTAL GAS

HAP COMPOUNDS OF GAS RANGE. 31.29 - 33.82 MINS (C10+..C12) PEAKSUM= 7282822.
= 29 % OF TOTAL GAS

OIL & GREASE RANGE. 37.63 + MINS (C16+) PEAKSUM= 2464550.

STODDARD SOLVENT RANGE. 6.59 - 33.82 MINS (C8-C12) PEAKSUM= 24680298.

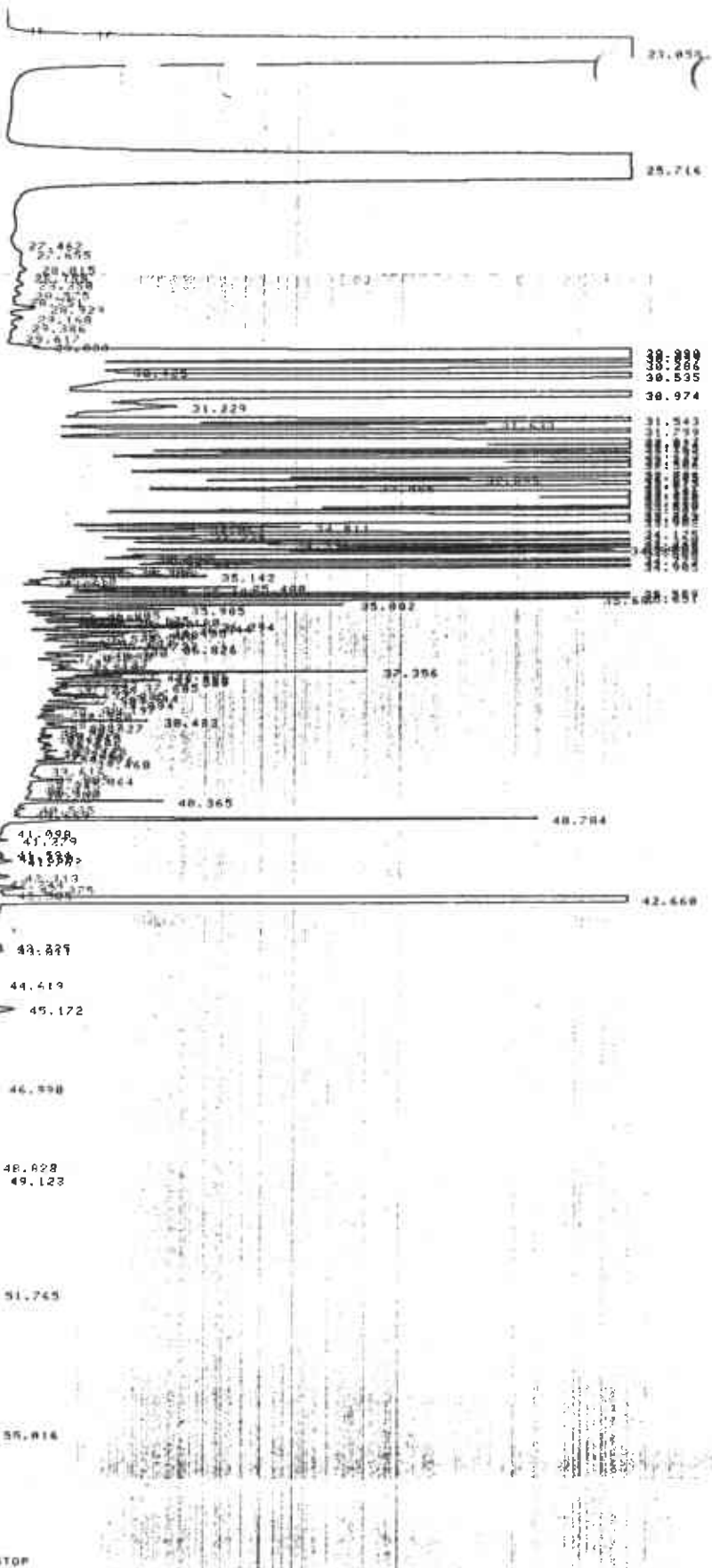
KEROSINE RANGE. 4.63 - 37.63 MINS (C7-C16) PEAKSUM = 25853088.
90.

RUN # 327 SEP 2, 1995 15:28:59
START

#8448

55864

40:1



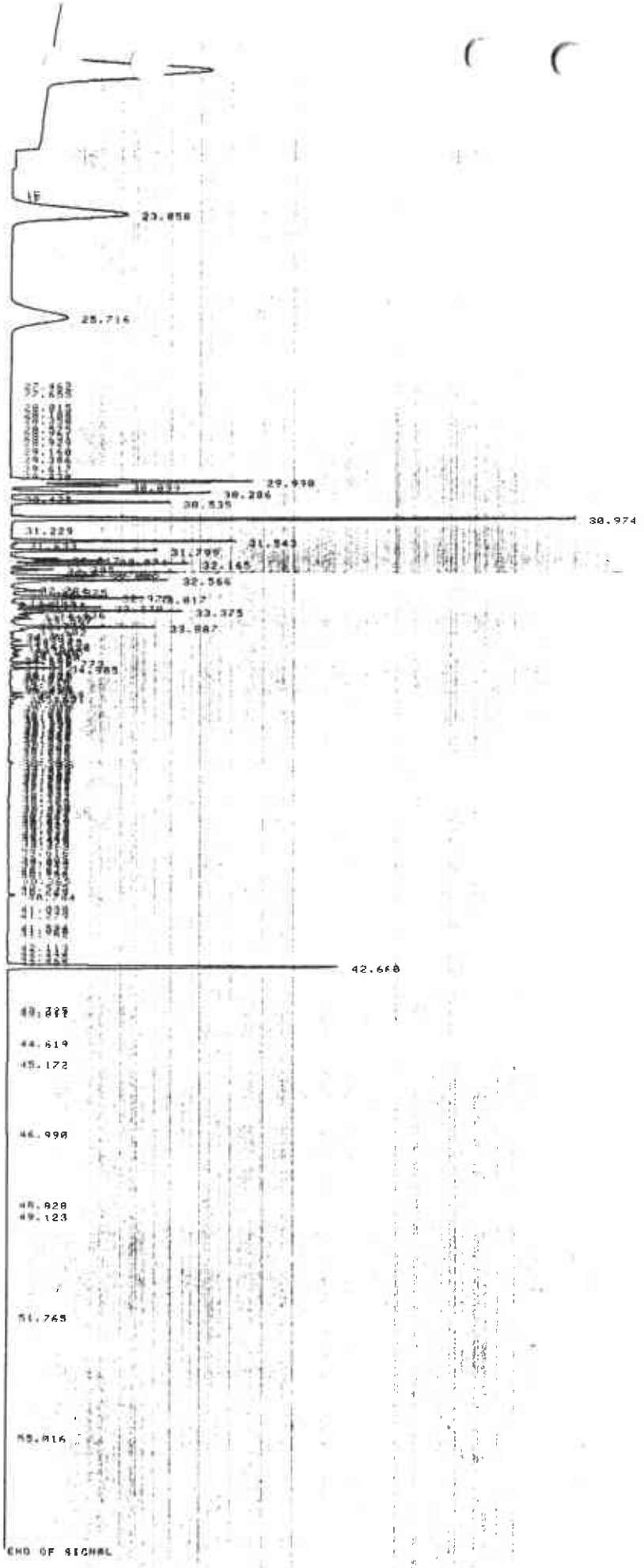
Closing signal file MISIGNAL .BHC

RUN# 327 SEP 2, 1995 05:28:39

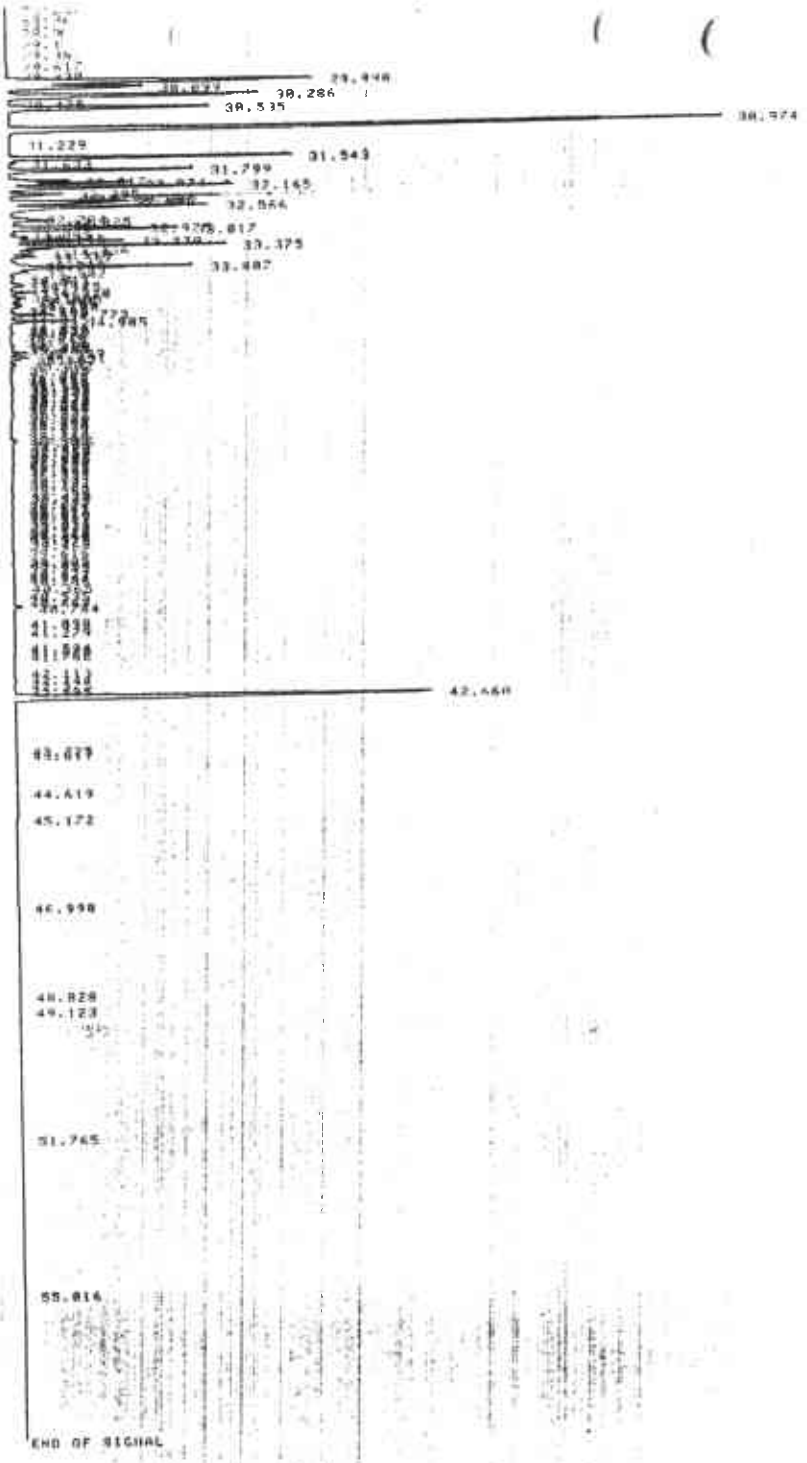
SAMPLES 0

SIGNAL FILE: MISIGNAL.BHC
ESTD-AREA

PT	AREA	TYPE	CAL#	AMOUNT
.848	174	I PH		.849
25.858	1814710	BH		1873.718
25.716	2279896	VH	18	188.276
27.142	186	PH		.858
[illegible]	[illegible]	VH		[illegible]



DIESEL RANGE, 31.09 - 48.27 MINS (C18-28) PEAKSUM= 3178963.



DIESEL RANGE, 31.89 - 40.27 MINS (C18-23) PEAKSUM= 9178943.

TOTAL GAS, 4.63 - 33.82 MINS (C6..C12) PEAKSUM= 21951776.
RATIO OF DIESEL/TOTALGAS= 0.418143

LBP COMPOUNDS OF GAS RANGE, 4.63 - 6.79 MINS (C7-C8) PEAKSUM= 0 = 0
% OF TOTAL GAS

MBP COMPOUNDS OF GAS RANGE, 6.79 - 31.29 MINS (C8+..C10) PEAKSUM= 14192168.
= 64 % OF TOTAL GAS

HBP COMPOUNDS OF GAS RANGE, 31.29 - 33.82 MINS (C10+..C12) PEAKSUM= 7759629.
= 35 % OF TOTAL GAS

OIL & GREASE RANGE, 37.43 + MINS (C18+) PEAKSUM= 2589515.

STODDARD SOLVENT RANGE, 6.59 - 33.82 MINS (C8-C12) PEAKSUM= 21951776.

KEROSINE RANGE, 4.63 - 37.43 MINS (C7-C18) PEAKSUM = 22142912.
90.

RUN # 328 SEP 3, 1995 06:48:13
STRPT

9p016

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 08/31/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.762	1.657	2.03	87	82	6.1
Benzene	0.000	0.180	0.198	0.2	90	99	9.5
Toluene	0.000	0.186	0.198	0.2	93	99	6.3
Ethylbenzene	0.000	0.182	0.200	0.2	91	100	9.4
Xylenes	0.000	0.570	0.620	0.6	95	103	8.4
TPH (diesel)	0	286	288	300	95	96	0.6
TRPH (oil & grease)	0.0	19.8	19.9	20.8	95	96	0.5

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 09/01/95-09/02/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	2.024	1.954	2.03	100	96	3.5
Benzene	0.000	0.190	0.182	0.2	95	91	4.3
Toluene	0.000	0.190	0.180	0.2	95	90	5.4
Ethylbenzene	0.000	0.190	0.180	0.2	95	90	5.4
Xylenes	0.000	0.600	0.580	0.6	100	97	3.4
TPH (diesel)	0	295	299	300	98	100	1.6
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 09/05/95-09/06/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.928	1.737	2.03	95	86	10.4
Benzene	0.000	0.176	0.166	0.2	88	83	5.8
Toluene	0.000	0.168	0.172	0.2	84	86	2.4
Ethylbenzene	0.000	0.166	0.172	0.2	83	86	3.6
Xylenes	0.000	0.528	0.556	0.6	88	93	5.2
TPH (diesel)	0	302	296	300	101	99	2.0
TRPH (oil & grease)	0.0	17.2	17.9	20.8	83	86	4.0

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 09/01/95-09/02/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ethyl Benzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Xylenes	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TPH (diesel)	0	153	154	150	102	103	0.3
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 09/04/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	113.7	112.8	100	114	113	0.8
Benzene	0	9	9.4	10	90.0	94.0	4.3
Toluene	0	9.2	9.5	10	92.0	95.0	3.2
Ethyl Benzene	0	9.3	9.7	10	93.0	97.0	4.2
Xylenes	0	30.4	31	30	101.3	103.3	2.0
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 09/05/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	107.9	92.1	100	108	92	15.7
Benzene	0	9.6	8.7	10	96.0	87.0	9.8
Toluene	0	10.2	8.9	10	102.0	89.0	13.6
Ethyl Benzene	0	10.1	9.1	10	101.0	91.0	10.4
Xylenes	0	34.4	29	30	114.7	96.7	17.0
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	0	20800	21200	23700	88	89	1.9

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 08/31/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ethyl Benzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Xylenes	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TPH (diesel)	0	157	177	150	105	118	11.7
TRPH (oil & grease)	0	21300	21200	23700	90	89	0.5

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR CHLORINATED PESTICIDES and PCB (EPA 8080/608)

Date: 09/03-09/04/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
PCB	0.00	4.93	5.03	5.00	99	101	2.0
Lindane	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Heptachlor	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aldrin	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endrin	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDT	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

510·798 1620

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

4762 AWACX438

PROJECT NO.: 3171C

PROJECT NAME: PEM

PURCHASE ORDER NO.:

SIGNATURE OF SAMPLER: [signature] DAVID ORR

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	418.1 O&G	FUEL FINGERPRINT	PCB 10 5-30	TDS RUSH 9-30	Preserved?	REMARKS	LABORATORY I. D. NUMBER
8-29-95	12:35	1-082995-SW-SSW-13'	SOIL				X	X	X			ICE		55861
↓	1:02	2-082995-PB-W-19'	H2O				↓	↓	↓	X	X	↓		55862
	1:12	3-082995-PB-N-24'	SOIL											55863
	1:30	4-082995-~~BAKER (IN)~~ BT 2	H2O							X				55864
↓	1:48	5-082995-~~BAKER (OUT)~~ BT 1	H2O				↓	↓	↓	X				55865

ICE ✓ — GOOD CONDITION ✓ — HEAD SPACE ABSENT ✓ — PRESERVATIVE — APPROPRIATE CONTAINERS ✗ (VOAS / O&G / METALS / OTHER)

TWO VOAS, ONLY 1 LITER

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
[signature]	8-29-95 2:55	Bill Smith [signature]
Bill Smith [signature]	8-29 4:55	Nicole Ricca [signature]

LABORATORY:

TURNAROUND TIME:

PLEASE SEND RESULTS TO:

W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471C; PEM	Date Sampled: 08/28/95
		Date Received: 08/29/95
	Client Contact: Bill Craig	Date Extracted: 08/29-09/05/95
	Client P.O:	Date Analyzed: 08/29-09/05/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	Benzene	Toluene	Ethylbenzene	Xylenes	% Rec. Surrogate
55851	4-082895-SW-SE-9'	S	ND	ND	ND	ND	0.014	98
55852	5-082895-W-3'	S	1.2,b	ND	0.005	ND	0.040	91
55859	6-082895-SW-SE-5'	S	ND,b	ND	ND	ND	0.012	96
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471C; PEM	Date Sampled: 08/28/95
		Date Received: 08/29/95
	Client Contact: Bill Craig	Date Extracted: 08/31/95
	Client P.O:	Date Analyzed: 08/31/95

Total Recoverable Petroleum Hydrocarbons as Oil & Grease (with Silica Gel Clean-up) by Scanning IR Spectrometry*

EPA method 418.1 or 9073; Standard Methods 5520 C&F

Lab ID	Client ID	Matrix	TRPH+
55851	4-082895-SW-SE-9'	S	ND
55852	5-082895-W-3'	S	ND
55859	6-082895-SW-SE-5'	S	ND
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	1.0 mg/L
		S	10 mg/kg

* water samples are reported in mg/L and soils in mg/kg

surrogate diluted out of range

+ At the laboratory's discretion, one positive sample may be run by direct injection chromatography with FID detection. The following comments pertain to this GC result: a) gasoline-range compounds (C6-C12) are present; b) diesel range compounds (C10-C23) are present; c) oil-range compounds (> C18) are present; d) other patterned solvent (?); e) isolated peaks; f) GC compounds are absent or insignificant relative to TRPH inferring that complex biologically derived molecules (lipids?)are the source of IR absorption; h) a lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 08/31/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.762	1.657	2.03	87	82	6.1
Benzene	0.000	0.180	0.198	0.2	90	99	9.5
Toluene	0.000	0.186	0.198	0.2	93	99	6.3
Ethylbenzene	0.000	0.182	0.200	0.2	91	100	9.4
Xylenes	0.000	0.570	0.620	0.6	95	103	8.4
TPH (diesel)	0	286	288	300	95	96	0.6
TRPH (oil & grease)	0.0	19.8	19.9	20.8	95	96	0.5

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 09/01/95-09/02/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	2.024	1.954	2.03	100	96	3.5
Benzene	0.000	0.190	0.182	0.2	95	91	4.3
Toluene	0.000	0.190	0.180	0.2	95	90	5.4
Ethylbenzene	0.000	0.190	0.180	0.2	95	90	5.4
Xylenes	0.000	0.600	0.580	0.6	100	97	3.4
TPH (diesel)	0	295	299	300	98	100	1.6
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 09/03/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.607	1.679	2.03	79	83	4.4
Benzene	0.000	0.166	0.160	0.2	83	80	3.7
Toluene	0.000	0.170	0.162	0.2	85	81	4.8
Ethylbenzene	0.000	0.170	0.160	0.2	85	80	6.1
Xylenes	0.000	0.544	0.508	0.6	91	85	6.8
TPH (diesel)	0	323	316	300	108	105	2.0
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 09/05/95-09/06/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.928	1.737	2.03	95	86	10.4
Benzene	0.000	0.176	0.166	0.2	88	83	5.8
Toluene	0.000	0.168	0.172	0.2	84	86	2.4
Ethylbenzene	0.000	0.166	0.172	0.2	83	86	3.6
Xylenes	0.000	0.528	0.556	0.6	88	93	5.2
TPH (diesel)	0	302	296	300	101	99	2.0
TRPH (oil & grease)	0.0	17.2	17.9	20.8	83	86	4.0

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

4760 AWACX439

PROJECT NO.: 3471C
PROJECT NAME: PEM
PURCHASE ORDER NO.:
SIGNATURE OF SAMPLER:

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	[redacted]	O&G Grease		Preserved?	REMARKS	LABORATORY I. D. NUMBER
8/28/95	1140	1-082895-FB-W-14'	WATER				X	X	X		HCL/ICE		55848
	1142	2-082895-FB-[redacted]-11'					X		X			3 ROUND	55849
	1152	3-082895-BAKER (IN)					X		X			1-10 DO	55850
	1237	4-082895-SW-SE-9'	SOIL				X		X		ICE		55851
	1241	5-082895-W-3' (PLATFORM)											55852
↓	1100	6-082895-[redacted]SW-SE-5'	↓				↓		↓		↓		55859
↓		TRIP BLANK					X					3 ROUND 8-30	55860

VOC'S — PRESERVATIVE APPROPRIATE
O&G — CONTAINERS
METALS — FACE ABSENT

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
	8/29/95 3:45	
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
	8-29 14:55	
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY:

TURNAROUND TIME:

PLEASE SEND RESULTS TO:
W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471C; PEM	Date Sampled: 08/28/95
		Date Received: 08/29/95
	Client Contact: Bill Craig	Date Extracted: 08/29-09/05/95
	Client P.O:	Date Analyzed: 08/29-09/05/95

Volatile Organics By GC/MS

EPA method 624 or 8240

Lab ID	55848
Client ID	1-082895-PB-W-14'
Matrix	W

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	Concentration*	Reporting Limit W	Reporting Limit S
Acetone (b)	ND< 350	150	5	cis-1,3-Dichloropropene	ND	150	5
Benzene	1100	150	5	trans-1,3-Dichloropropene	ND	150	5
Bromodichloromethane	ND	150	5	Ethylbenzene	280	150	5
Bromoform	ND	150	5	Methyl butyl ketone (d)	ND	150	5
Bromomethane	ND	150	5	Methylene Chloride (e)	ND	150	5
Carbon Disulfide	ND	150	5	Methyl ethyl ketone (f)	ND	150	5
Carbon Tetrachloride	ND	150	5	Methyl isobutyl ketone (g)	ND	150	5
Chlorobenzene	ND	150	5	Styrene (k)	ND	150	5
Chloroethane	ND	150	5	1,1,2,2-Tetrachloroethane	ND	150	5
2-Chloroethyl Vinyl Ether (c)	ND	150	5	Tetrachloroethene	ND	150	5
Chloroform	ND	150	5	Toluene (l)	690	150	5
Chloromethane	ND	150	5	1,1,1-Trichloroethane	ND	150	5
Dibromochloromethane	ND	150	5	1,1,2-Trichloroethane	ND	150	5
1,2-Dichlorobenzene	ND	150	5	Trichloroethene	ND	150	5
1,3-Dichlorobenzene	ND	150	5	Trichlorofluoromethane	ND	150	5
1,4-Dichlorobenzene	ND	150	5	Vinyl Acetate (m)	ND	150	5
1,1-Dichloroethane	ND	150	5	Vinyl Chloride (n)	ND	150	5
1,2-Dichloroethane	ND	150	5	Xylenes, total (o)	2200	150	5
1,1-Dichloroethene	ND	150	5	**Surrogate Recoveries (%)**			
cis-1,2-Dichloroethene	ND	150	5	Dibromofluoromethane	107		
trans-1,2-Dichloroethene	ND	150	5	Toluene-d8	108		
1,2-Dichloropropane	ND	150	5	4-Bromofluorobenzene	111		

Comments:

* water and vapor samples are reported in ug/L, soil samples in ug/kg and all TCLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~ 5 vol. % sediment; (j) sample diluted due to high organic content; (k) ethenylbenzene; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471C; PEM	Date Sampled: 08/28/95
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Volatile Organics By GC/MS

EPA method 624 or 8240

Lab ID	55849
Client ID	2-082895-PB-E-11'
Matrix	W

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	Concentration*	Reporting Limit W	Reporting Limit S
Acetone (b)	1200	250	5	cis-1,3-Dichloropropene	ND	250	5
Benzene	1300	250	5	trans-1,3-Dichloropropene	ND	250	5
Bromodichloromethane	ND	250	5	Ethylbenzene	860	250	5
Bromoform	ND	250	5	Methyl butyl ketone (d)	ND	250	5
Bromomethane	ND	250	5	Methylene Chloride(e)	ND	250	5
Carbon Disulfide	ND	250	5	Methyl ethyl ketone (f)	ND	250	5
Carbon Tetrachloride	ND	250	5	Methyl isobutyl ketone (g)	ND	250	5
Chlorobenzene	ND	250	5	Styrene (k)	ND	250	5
Chloroethane	ND	250	5	1,1,2,2-Tetrachloroethane	ND	250	5
2-Chloroethyl Vinyl Ether(c)	ND	250	5	Tetrachloroethene	ND	250	5
Chloroform	ND	250	5	Toluene (l)	2100	250	5
Chloromethane	ND	250	5	1,1,1-Trichloroethane	ND	250	5
Dibromochloromethane	ND	250	5	1,1,2-Trichloroethane	ND	250	5
1,2-Dichlorobenzene	ND	250	5	Trichloroethene	ND	250	5
1,3-Dichlorobenzene	ND	250	5	Trichlorofluoromethane	ND	250	5
1,4-Dichlorobenzene	ND	250	5	Vinyl Acetate (m)	ND	250	5
1,1-Dichloroethane	ND	250	5	Vinyl Chloride (n)	ND	250	5
1,2-Dichloroethane	ND	250	5	Xylenes, total (o)	4700	250	5
1,1-Dichloroethene	ND	250	5	**Surrogate Recoveries (%)**			
cis-1,2-Dichloroethene	ND	250	5	Dibromofluoromethane	112		
trans-1,2-Dichloroethene	ND	250	5	Toluene-d8	95		
1,2-Dichloropropane	ND	250	5	4-Bromofluorobenzene	99		

Comments:

* water and vapor samples are reported in ug/L, soil samples in ug/kg and all TCLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~ 5 vol. % sediment; (j) sample diluted due to high organic content; (k) ethenylbenzene; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

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	Client Contact: Bill Craig	Date Extracted: 08/31/95
	Client P.O:	Date Analyzed: 08/31/95

Volatile Organics By GC/MS

EPA method 624 or 8240

Lab ID	55851
Client ID	4-082895-SW-SE-9'
Matrix	S

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	Concentration*	Reporting Limit W	Reporting Limit S
Acetone (b)	ND	0.5	5	cis-1,3-Dichloropropene	ND	0.5	5
Benzene	ND	0.5	5	trans-1,3-Dichloropropene	ND	0.5	5
Bromodichloromethane	ND	0.5	5	Ethylbenzene	ND	0.5	5
Bromoform	ND	0.5	5	Methyl butyl ketone (d)	ND	0.5	5
Bromomethane	ND	0.5	5	Methylene Chloride(e)	ND	0.5	5
Carbon Disulfide	ND	0.5	5	Methyl ethyl ketone (f)	ND	0.5	5
Carbon Tetrachloride	ND	0.5	5	Methyl isobutyl ketone (g)	ND	0.5	5
Chlorobenzene	ND	0.5	5	Styrene (k)	ND	0.5	5
Chloroethane	ND	0.5	5	1,1,2,2-Tetrachloroethane	ND	0.5	5
2-Chloroethyl Vinyl Ether(c)	ND	0.5	5	Tetrachloroethene	ND	0.5	5
Chloroform	ND	0.5	5	Toluene (l)	ND	0.5	5
Chloromethane	ND	0.5	5	1,1,1-Trichloroethane	ND	0.5	5
Dibromochloromethane	ND	0.5	5	1,1,2-Trichloroethane	ND	0.5	5
1,2-Dichlorobenzene	ND	0.5	5	Trichloroethene	ND	0.5	5
1,3-Dichlorobenzene	ND	0.5	5	Trichlorofluoromethane	ND	0.5	5
1,4-Dichlorobenzene	ND	0.5	5	Vinyl Acetate (m)	ND	0.5	5
1,1-Dichloroethane	ND	0.5	5	Vinyl Chloride (n)	ND	0.5	5
1,2-Dichloroethane	ND	0.5	5	Xylenes, total (o)	ND	0.5	5
1,1-Dichloroethene	ND	0.5	5	**Surrogate Recoveries (%)**			
cis-1,2-Dichloroethene	ND	0.5	5	Dibromofluoromethane	102		
trans-1,2-Dichloroethene	ND	0.5	5	Toluene-d8	98		
1,2-Dichloropropane	ND	0.5	5	4-Bromofluorobenzene	100		

Comments:

* water and vapor samples are reported in ug/L, soil samples in ug/kg and all TCLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~ 5 vol. % sediment; (j) sample diluted due to high organic content; (k) ethenylbenzene; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

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	Client Contact: Bill Craig	Date Extracted: 08/31/95
	Client P.O:	Date Analyzed: 08/31/95

Volatile Organics By GC/MS

EPA method 624 or 8240

Lab ID	55852
Client ID	5-082895-W-3
Matrix	S

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	Concentration*	Reporting Limit W	Reporting Limit S
Acetone (b)	ND< 20	0.5	5	cis-1,3-Dichloropropene	ND	0.5	5
Benzene	ND	0.5	5	trans-1,3-Dichloropropene	ND	0.5	5
Bromodichloromethane	ND	0.5	5	Ethylbenzene	ND	0.5	5
Bromoform	ND	0.5	5	Methyl butyl ketone (d)	ND	0.5	5
Bromomethane	ND	0.5	5	Methylene Chloride(e)	ND	0.5	5
Carbon Disulfide	ND	0.5	5	Methyl ethyl ketone (f)	ND	0.5	5
Carbon Tetrachloride	ND	0.5	5	Methyl isobutyl ketone (g)	ND	0.5	5
Chlorobenzene	ND	0.5	5	Styrene (k)	ND	0.5	5
Chloroethane	ND	0.5	5	1,1,2,2-Tetrachloroethane	ND	0.5	5
2-Chloroethyl Vinyl Ether(c)	ND	0.5	5	Tetrachloroethene	ND	0.5	5
Chloroform	ND	0.5	5	Toluene (l)	5.6	0.5	5
Chloromethane	ND	0.5	5	1,1,1-Trichloroethane	ND	0.5	5
Dibromochloromethane	ND	0.5	5	1,1,2-Trichloroethane	ND	0.5	5
1,2-Dichlorobenzene	ND	0.5	5	Trichloroethene	ND	0.5	5
1,3-Dichlorobenzene	ND	0.5	5	Trichlorofluoromethane	ND	0.5	5
1,4-Dichlorobenzene	ND	0.5	5	Vinyl Acetate (m)	ND	0.5	5
1,1-Dichloroethane	ND	0.5	5	Vinyl Chloride (n)	ND	0.5	5
1,2-Dichloroethane	ND	0.5	5	Xylenes, total (o)	36	0.5	5
1,1-Dichloroethene	ND	0.5	5	**Surrogate Recoveries (%)**			
cis-1,2-Dichloroethene	ND	0.5	5	Dibromofluoromethane	104		
trans-1,2-Dichloroethene	ND	0.5	5	Toluene-d8	91		
1,2-Dichloropropane	ND	0.5	5	4-Bromofluorobenzene	100		

Comments:

* water and vapor samples are reported in ug/L, soil samples in ug/kg and all TCLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~ 5 vol. % sediment; (j) sample diluted due to high organic content; (k) ethenylbenzene; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

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	Client Contact: Bill Craig	Date Extracted: 08/31/95
	Client P.O:	Date Analyzed: 08/31-09/04/95

Polychlorinated Biphenyls (PCBs)

EPA method 608 and 3510 or 8080 and 3550

Lab ID	55848	55849	55850
Client ID	1-082895-PB-W-14'	2-082895-PB-E-11'	3-082895-Baker (In)
Matrix	W	W	W
Compound[a]	Concentration*		
Aroclor 1016	ND< 2.5	ND< 2.5	ND< 5
Aroclor 1221	ND< 2.5	ND< 2.5	ND< 5
Aroclor 1232	ND< 2.5	ND< 2.5	ND< 5
Aroclor 1242	ND< 2.5	ND< 2.5	ND< 5
Aroclor 1248	ND< 2.5	ND< 2.5	ND< 5
Aroclor 1254	ND< 2.5	ND< 2.5	ND< 5
Aroclor 1260	ND< 2.5	ND< 2.5	ND< 5
Total PCBs	ND< 2.5	ND< 2.5	ND< 5
% Recovery Surrogate	98	102	103
Comments			

* water and oil samples are reported in ug/L, soil samples in ug/kg and all TCLP and STLC extracts in ug/L

Reporting limits unless otherwise stated: water, STLC and TCLP extracts, ND < 0.5 ug/L; soil, ND< 5 ug/kg

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

surrogate diluted out of range or surrogate coelutes with another peak

(a) the first two digits of the aroclor number convey general structural information, where 12 and 10 denote biphenyl compounds with the latter having one phenyl group that is Cl-free; the last two aroclor digits specify its Cl weight %; (h) a lighter than water immiscible sheen is present; (i) liquid sample that contains > ~ 5 vol. % sediment; (j)sample diluted due to high organic content.

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	Client P.O:	Date Analyzed: 08/31-.9/04/95

Polychlorinated Biphenyls (PCBs)

EPA method 608 and 3510 or 8080 and 3550

Lab ID	55851	55852	
Client ID	4-082895-SW-SE-9'	5-082895-W-3'	
Matrix	S	S	
Compound[a]	Concentration*		
Aroclor 1016	ND< 50	ND< 50	
Aroclor 1221	ND< 50	ND< 50	
Aroclor 1232	ND< 50	ND< 50	
Aroclor 1242	ND< 50	ND< 50	
Aroclor 1248	ND< 50	ND< 50	
Aroclor 1254	ND< 50	ND< 50	
Aroclor 1260	ND< 50	ND< 50	
Total PCBs	ND< 50	ND< 50	
% Recovery Surrogate	101	97	
Comments			

* water and oil samples are reported in ug/L, soil samples in ug/kg and all TCLP and STLC extracts in ug/L

Reporting limits unless otherwise stated: water, STLC and TCLP extracts, ND 0.5 ug/L; soil, ND< 50 ug/kg

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

surrogate diluted out of range or surrogate coelutes with another peak

(a) the first two digits of the aroclor number convey general structural information, where 12 and 10 denote biphenyl compounds with the latter having one phenyl group that is Cl-free; the last two aroclor digits specify its Cl weight %; (h) a lighter than water immiscible sheen is present; (i) liquid sample that contains > ~ 5 vol. % sediment; (j)sample diluted due to high organic content.

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QC REPORT FOR VOCs (EPA 624/8240/8260)

Date: 09/02/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
1,1-Dichloroethe	0.00	4.37	4.47	5.0	87	89	2.3
Trichloroethene	0.00	4.38	4.57	5.0	88	91	4.2
EDB	0.00	5.97	5.70	5.0	119	114	4.6
Chlorobenzene	0.00	5.52	5.31	5.0	110	106	3.9
Benzene	0.00	4.91	5.35	5.0	98	107	8.6
Toluene	0.00	4.38	4.61	5.0	88	92	5.1

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

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QC REPORT FOR VOCs (EPA 8240/8260)

Date: 08/29-08/31/95 Matrix: Soil

Analyte	Concentration (ug/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
1,1-Dichloroethe	0.0	23.0	20.2	25	92	81	13.0
Trichloroethene	0.0	19.8	18.4	25	79	73	7.3
EDB	0.0	25.0	22.7	25	100	91	9.9
Chlorobenzene	0.0	26.0	24.5	25	104	98	5.7
Benzene	0.0	23.5	21.7	25	94	87	8.0
Toluene	0.0	23.0	19.2	25	92	77	18.0

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

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QC REPORT FOR CHLORINATED PESTICIDES and PCB (EPA 8080/608)

Date: 09/03-09/04/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
PCB	0.00	4.93	5.03	5.00	99	101	2.0
Lindane	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Heptachlor	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aldrin	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endrin	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDT	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

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QC REPORT FOR CHLORINATED PESTICIDES and PCB (EPA 8080/608)

Date: 08/30/95-08/31/95 Matrix: Soil

Analyte	Concentration (ug/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
PCB	0	97	100	100	97	100	3.6
Lindane	0.0	8.8	8.8	10	88	88	0.0
Heptachlor	0.0	9.9	10.1	10	99	101	1.5
Aldrin	0.0	10.7	10.7	10	107	107	0.5
Dieldrin	0.0	23.5	23.6	25	94	94	0.6
Endrin	0.0	25.4	25.3	25	101	101	0.4
4,4'-DDT	0.0	21.6	21.6	25	86	86	0.0

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

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	Client P.O:	Date Analyzed: 08/31/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	Benzene	Toluene	Ethylbenzene	Xylenes	% Rec. Surrogate
55873	1-082595-22'-23'	S	ND	ND	ND	ND	ND	108
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in ng/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

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		Date Received: 08/29/95
	Client Contact: Bill Craig	Date Extracted: 08/31/95
	Client P.O:	Date Analyzed: 08/31/95

Total Recoverable Petroleum Hydrocarbons as Oil & Grease (with Silica Gel Clean-up) by Scanning IR Spectrometry*

EPA method 418.1 or 9073; Standard Methods 5520 C&F

Lab ID	Client ID	Matrix	TRPH+
55873	1-082595-22'-23'	S	ND
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	1.0 mg/L
		S	10 mg/kg

* water samples are reported in mg/L and soils in mg/kg

surrogate diluted out of range

+ At the laboratory's discretion, one positive sample may be run by direct injection chromatography with FID detection. The following comments pertain to this GC result: a) gasoline-range compounds (C6-C12) are present; b) diesel range compounds (C10-C23) are present; c) oil-range compounds (> C18) are present; d) other patterned solvent (?); e) isolated peaks; f) GC compounds are absent or insignificant relative to TRPH inferring that complex biologically derived molecules (lipids?)are the source of IR absorption; h) a lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 08/31/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.948	1.832	2.03	96	90	6.1
Benzene	0.000	0.180	0.198	0.2	90	99	9.5
Toluene	0.000	0.186	0.198	0.2	93	99	6.3
Ethylbenzene	0.000	0.182	0.200	0.2	91	100	9.4
Xylenes	0.000	0.570	0.620	0.6	95	103	8.4
TPH (diesel)	0	323	325	300	108	108	0.6
TRPH (oil & grease)	0.0	19.8	19.9	20.8	95	96	0.5

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

4764 AWAC X4411

PROJECT NO.	PROJECT NAME
3471C	PEM
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER: D.J.S.Q DAVID ORR

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	Oil & Grease				Preserved?	REMARKS	LABORATORY I. D. NUMBER
8/25/95	1051	1-082595-22'-23'	Soil				X	X				ICE		55873

ICE/T° ✓
COOL CONDITION ✓
HEAD SPACE ABSENT ✓
PRESERVATIVE APPROPRIATE CONTAINERS ✓

VOAs | O&G | METALS | OTHER

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):	LABORATORY:	PLEASE SEND RESULTS TO:
D.J.S.Q	8/29/95 342	Linda Pucci		W. A. CRAIG, INC. P.O. BOX 448 NAPA, CA 94559-0448 (707) 252-3353
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):	TURNAROUND TIME:	ATTN:
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):		

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471; P.E.M.	Date Sampled: 08/24/95
		Date Received: 08/24/95
	Client Contact: Bill Craig	Date Extracted: 08/24/95
	Client P.O:	Date Analyzed: 08/24-08/25/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
55679	1 SWN 11'	S	260,a	4.4	10	8.1	38	101
55680	2 SWN 20'	S	ND	ND	ND	ND	ND	94
55681	3 SWN 10'	S	530,b	6.6	41	14	82	99
55682	4 SWN 14'	S	51,b,d	0.37	0.11	2.3	0.21	95
55683	5 SWN 21'	S	300,d	1.4	1.1	0.52	0.33	95
55684	6 PBN 22'	S	300,d	2.3	1.2	3.2	0.96	92
55685	7 PBN 24'	S	58,j	0.98	0.10	0.86	0.35	98
55686	8 SWE 13'	S	930,b	7.4	50	19	110	97
55687	9 SWE 20'	S	1.7,b	0.026	0.020	0.034	0.13	99
55688	10 PBS 21'	S	93,b,d	0.75	0.33	0.55	1.5	97
55689	11 PBS 12'	S	320,b,d	0.71	1.1	5.9	7.9	99
55690	12 SWE 21'	S	120,b,d	1.6	0.61	2.1	1.5	106
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 08/23/95-08/24/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.711	1.752	2.03	84	86	2.4
Benzene	0.000	0.198	0.194	0.2	99	97	2.0
Toluene	0.000	0.200	0.198	0.2	100	99	1.0
Ethylbenzene	0.000	0.198	0.198	0.2	99	99	0.0
Xylenes	0.000	0.614	0.608	0.6	102	101	1.0
TPH (diesel)	0	296	292	300	99	97	1.2
TRPH (oil & grease)	0.0	20.8	20.8	20.8	100	100	0.0

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

4730 1 of 1 of 4730

PROJECT NO.	PROJECT NAME
3471	P.E.M.
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER
	Eufimio Torres

8-24-95

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	TPH oil & grease				Preserved?	REMARKS	LABORATORY I. D. NUMBER
8-24-95	11:10	1 S.W.N 11	S	X			X							55679
8-24-95	11:30	2 S W N 20	S				X							55680
8-24-95	11:30	3 S W N 10	S				X							55681
8-24-95	11:35	4 S W N 14	S				X							55682
8-24-95	11:55	5 S W N 21	S				X							55683
8-24-95	12:20	6 P.B.N 22	S				X							55684
8-24-95	12:25	7 P.B.N 24	S				X							55685
8-24-95	1:50	8 S.W.E 13'	S				X							55686
8-24-95	2:00	9 S W E 20'	S				X							55687
8-24-95	2:25	10 P.B.E 21'	S				X							55688
8-24-95	2:40	11 P B S 12'	S				X							
8-24-95	3:00	12 S W E 21'												55689
														55690

ICE/T ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
PROPER APPROPRIATE CONTAINERS ✓

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Eufimio Torres	8-24-95 3:25pm	
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
	8-24-95 4:16pm	
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY:

TURNAROUND TIME: 5day

PLEASE SEND RESULTS TO:

W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471; P.E.M.	Date Sampled: 06/28/95
		Date Received: 06/28/95
	Client Contact: Bill Craig	Date Extracted: 07/02/95
	Client P.O:	Date Analyzed: 07/02/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	Benzene	Toluene	Ethylbenzene	Xylenes	% Rec. Surrogate
53756	Bt1, Bt1a	W	ND	ND	ND	ND	ND	109
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 07/02/95-07/03/95 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	95.4	95.5	100	95.4	95.5	0.1
Benzene	0	10.5	10.2	10	105.0	102.0	2.9
Toluene	0	10.2	10	10	102.0	100.0	2.0
Ethyl Benzene	0	10.2	10	10	102.0	100.0	2.0
Xylenes	0	32	31.6	30	106.7	105.3	1.3
TPH (diesel)	0	161	161	150	107	107	0.2
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

4394
AWACX393

PROJECT NO.	PROJECT NAME
3471	FEM
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER
	Bill Suk

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX	Preserved?	REMARKS	LABORATORY I. D. NUMBER
6/28	2:30	B+1, B+1a					✓	HCl/ice Comp		53756
		trip blk								

ICE/T ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓

PRESERVATIVE APPROPRIATE ✓
VOAs O&G METALS OTHER
CONTAINERS ✓

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Bill Suk	6/28/95 630	M. Casanova
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
M. Casanova	6/29/95 8:10AM	
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY:
pd. chk # 6910

TURNAROUND TIME:

PLEASE SEND RESULTS TO:
W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471C; PEM	Date Sampled: 04/11/95
		Date Received: 04/11/95
	Client Contact: Bill Craig	Date Extracted: 04/11/95
	Client P.O:	Date Analyzed: 04/11/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	Benzene	Toluene	Ethylbenzene	Xylenes	% Rec. Surrogate
51603	1-SW-1-SW-9'	S	1100,a	16	94	25	140	97
51604	2-PB-1-W-10.5'	S	400,a	5.8	33	8.9	53	98
51605	3-SW-1-W-9'	S	3.6,b,d	0.024	0.12	0.054	0.36	100
51606	4-SW-1-SE-9'	S	980,a	15	82	21	120	98
51607	5-SW-1-E-9'	S	900,a	17	90	22	130	99
51608	6-PB-1-E-10.5'	S	310,a	4.2	3.0	8.2	16	99
51609	7-TB-0-E-10'	S	1200,a	14	84	26	150	99
51610	8-TB-0-S-10'	S	500,a	7.2	16	11	41	98
51611	9-TB-0-S-10'	S	1.0,a	0.018	0.035	0.024	0.10	102
51612	10-TB-0-W-13'	S	5700,a	62	420	130	770	99
51613	11-TB-0-W-6'	S	2800,b	18	150	72	420	101
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 04/11/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.985	2.010	2.03	98	99	1.3
Benzene	0.000	0.182	0.178	0.2	91	89	2.2
Toluene	0.000	0.192	0.184	0.2	96	92	4.3
Ethylbenzene	0.000	0.194	0.184	0.2	97	92	5.3
Xylenes	0.000	0.614	0.578	0.6	102	96	6.0
TPH (diesel)	0	310	313	300	103	104	1.0
TRPH (oil & grease)	0.0	18.4	19.7	20.8	88	95	6.8

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC. CHAIN-OF-CUSTODY RECORD

3940 AWACX342

PROJECT NO.	PROJECT NAME
3471C	P.E.M.
PURCHASE ORDER NO.	SIGNATURE OF SAMPLER
	Russell Beatty

DATE 1995	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPHg & BTEX					Preserved? ICE	REMARKS	LABORATORY I. D. NUMBER
4/4	12:58	1-SW-1-SW-9'	S				✓					✓		51603
"	13:01	2-PB-1-W-10½'	S				✓					✓		51604
"	13:05	5 SW-1-W 9'	S				✓					✓		51605
"	13:15	4 SW 1-SE 9'	S				✓					✓		51606
"	13:18	5 SW 1 E 9'	S				✓					✓		51607
"	13:23	6-PB-1-E-10½'	S				✓					✓		51608
"	13:36	7 TB-0 E 10'	S				✓					✓		51609
"	13:40	8 TB-0-S 10'	S				✓					✓		51610
"	13:46	9-TB-0-S 10'	S				✓					✓		51611
"	13:52	10-TB 0-W-13'	S				✓					✓		51612
"	13:59	11-TB 0-W-6'	S				✓					✓		51613

ICE/T° ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
PRESERVATIVE (VOAS | O&G | METALS | OTHER)
APPROPRIATE CONTAINERS ✓

Paid $500.00 #6185

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
Russell Beatty	4/4/95 14:35	[signature]
RELINQUISHED BY (Signature): [signature]	4/4 3:24	RECEIVED BY (Signature): Heide Rical
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY: McCampbell Analytical

TURNAROUND TIME: 48hr

PLEASE SEND RESULTS TO:
W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471C; PEM	Date Sampled: 04/07/95
		Date Received: 04/07/95
	Client Contact: Bill Craig	Date Extracted: 04/07/95
	Client P.O:	Date Analyzed: 04/07/95

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	Benzene	Toluene	Ethylbenzene	Xylenes	% Rec. Surrogate
51565	1D1W 13/4	S	460,b,d	1.9	3.1	8.1	24	103
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC. | 110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

W.A. Craig, Inc. P.O. Box 448 Napa, CA 94559-0448	Client Project ID: # 3471C; PEM	Date Sampled: 04/07/95
		Date Received: 04/07/95
	Client Contact: Bill Craig	Date Extracted: 04/07/95
	Client P.O:	Date Analyzed: 04/08-04/09/95

Diesel Range (C10-C23), Motor Oil Range (> C18) Extractable Hydrocarbons as Diesel & Motor Oil *

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d)+	TPH(mo)+	% Recovery Surrogate
51565	1D1W 13/4	S	160,d,a	15	96
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	250 ug/L	
		S	1.0 mg/kg	10 mg/kg	

* water samples are reported in ug/L, soil samples in mg/kg, and all TCLP and STLC extracts in mg/L

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 04/06-04/07/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.822	1.735	2.03	90	85	4.9
Benzene	0.000	0.172	0.182	0.2	86	91	5.6
Toluene	0.000	0.174	0.182	0.2	87	91	4.5
Ethylbenzene	0.000	0.172	0.176	0.2	86	88	2.3
Xylenes	0.000	0.542	0.548	0.6	90	91	1.1
TPH (diesel)	0	304	310	300	101	103	2.0
TRPH (oil & grease)	0.0	19.3	19.7	20.8	93	95	1.8

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 04/08-04/09/95 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ethylbenzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Xylenes	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TPH (diesel)	0	309	308	300	103	103	0.5
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

3930 AWACX340

PROJECT NO.: 5471C
PROJECT NAME: PEM
PURCHASE ORDER NO.:
SIGNATURE OF SAMPLER: Franklin J. Holdaway RG.

DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Soil, Water, Air, Sludge, Other	ANALYSIS: TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015) motor oil	TPHg & BTEX					Preserved?	REMARKS	LABORATORY I. D. NUMBER
4/7/94	2:45	IDIW 1 3/4	S	X	X	X	X							51565

VOAs | O&G | PCBs | PESTICIDES | OTHER

ICE/T ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
PRESERVATIVE APPROPRIATE ✓
CONTAINERS ✓

RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
	4/14/94	
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE/TIME	RECEIVED BY (Signature):

LABORATORY: McCampbell Analytical

TURNAROUND TIME: 48 hrs

PLEASE SEND RESULTS TO:
W. A. CRAIG, INC.
P.O. BOX 448
NAPA, CA 94559-0448
(707) 252-3353

ATTN:

APPENDIX B

TREATED GROUNDWATER DISCHARGE REQUIREMENTS LETTER - SFRWQCB

STATE OF CALIFORNIA - CALIFORNIA ENVIRONMENTAL PROTECTION AGEI. / PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION
2101 WEBSTER STREET, Suite 500
OAKLAND, CA 94612
Tel: (510) 286-1255
FAX: (510) 2861380
BBS: (510) 286-0404

October 18, 1995
File No. 2198.19(KLG)
UST RB File No. 01-2124

Terry Knox
Pacific Electric Motors
1009 66th Avenue
Oakland, CA 94621-3535

SUBJECT: Discharge of Treated Groundwater From Tank Excavation, Pacific Electric Motors Site, 1009 66th Avenue, Oakland, CA

Dear Mr. Knox:

We have received W.A. Craig's Application for the discharge of treated groundwater submitted on your behalf. This report requests permission to discharge approximately 112,000 gallons of treated groundwater from the above site to a storm drain located onsite. The wastewater will be generated as a result of dewatering an underground storage tank excavation for the purpose of excavating contaminated soil at the site. Because of the historical presence of petroleum concentrations in the groundwater beneath the site, the dewatered groundwater from the excavation at the site will be placed in temporary storage tanks. It is proposed to pass the contaminated water through granular activated carbon vessels, test the water stored in the tanks, then discharge to the adjacent storm drain system. The water will be tested for Total Petroleum Hydrocarbons per EPA method 8015 and Volatile Organics per EPA method 8020, including Methyl Tert Butyl Ether (MTBE).

In the event that pollution levels exceed the limits specified in Order No. 91-056, or other provisions of that order are violated, the Regional Board shall be notified, and all discharge activity shall cease until the groundwater is suitably treated.

A discharger is required to obtain a National Pollution Discharge Elimination System (NPDES) permit before disposing of non-stormwater to waters of the State. However, based on the information contained in your report, the water quality concerns are considered to be insignificant. Therefore, I will not recommend that the Regional Board take enforcement action if the subject 112,000 gallons of groundwater is treated and disposed of in the proposed manner without an NPDES permit. Please complete your discharge by December 1, 1995.

Discharge to the storm drain should not exceed 80 gallons per minute. You should also be aware that it is the responsibility of any persons proposing to discharge to a storm drain to obtain authorization to discharge from the agency having jurisdiction over the user of the storm drain system. Please contact Joe Trapp at (510) 238-3171 with the City of Oakland at least seven days prior to commencement of the discharge.

If you wish to perform additional discharge activities at this site, you must first submit a detailed proposal to this Board for review. Please call Kevin Graves at (510) 286-0435 if you have any questions.

Sincerely,

Lawrence P. Kolb
Acting Executive Officer

Stephen I. Morse
Chief, Toxics Division

cc: Frank Goldman, W.A. Craig Inc. w/encl.
Barney Chan, ACDEH w/o encl.
Joe Trapp, City of Oakland w/o encl.

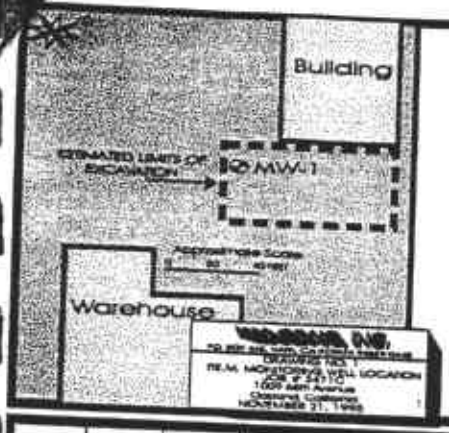
enclosure: Order No. 91-056
100966th.let

APPENDIX C

SOIL BORING LOG

W. A. CRAIG, INC.
ENVIRONMENTAL CONSULTING AND CONTRACTING

DRILLING LOG - DRAWING 2



BORING NO. B1

PROJECT NAME:	PEM	PROJECT NO.	3471-C
ADDRESS:	1009 66th Avenue, Oakland, California		
FIELD GEOLOGIST:	David Orr	DATE:	Sept. 13, 1995
DRILLING COMPANY:	Weeks Drilling	SAMPLER:	None
DRILLING METHOD:	Bucket Auger	TOTAL DEPTH:	28'
BORING DIAMETER:	24"		
REG. GEOLOGIST:	Frank Goldman		

DEPTH	SAMPLE RECOVERY	BLOW COUNT	PID [ppm]	BORING CONSTR.	LITHOLOGIC LOG	USCS SYMBOLS	LITHOLOGIC DESCRIPTION Description, Grain Size, Sorting, Color, Moisture, Mechanical Properties
							0 - 6" Asphalt. 6" - 12" Baserock
5						CL	12" - 18' Clay (Baymud)
10						CL	12" - 18' Clay (Baymud)
15							
20						CL	18' - 20' Clayey Sand with Chert Fragments.
						GW ▽	21' - 25' Sand Layer, coarse grained, loose, saturated.
25							25' - 28' Clay (Baymud)
30							End of boring at 28'. Groundwater encountered at 22'.
35							
0							

APPENDIX D

GROUNDWATER MONITORING WELL ABANDONMENT WORKPLAN and REPORT

FILE COPY

W. A. CRAIG, INC.
Environmental Consulting and Contracting
P. O. Box 448
Napa, California 94559-0448
Contractor and Hazardous Substances License #455752
Cal/OSHA Statewide Annual Excavation Permit #559351
(800) 522-7244
Phone: (510) 525-2780 Berkeley
Napa (707) 252-3353
Fax: (707) 252-3385

November 20, 1995

Mr. Wyman Wong
Water Resources Control Engineer II
Alameda County Flood Control and
Water Conservation District
5997 Parkside Drive
Pleasanton, California 94588-5127

Project No. 3471C

Subject: **WORKPLAN FOR GROUNDWATER MONITORING WELL ABANDONMENT AT:**
Pacific Electric Motors
1009 66th Street - Oakland, California

Dear Mr. Wong :

At your request, W. A. Craig, Inc. has developed a plan for abandoning one groundwater monitoring well according to the California Well standards and your agency's requirements. The existing well was installed on September 13, 1995 under well permit No. 95653 (see **Attachment 1** for "DRILLING PERMIT APPLICATION"). It was installed originally to be used as a construction dewatering well by Weeks Drilling, Inc.; however, it was only used as a groundwater monitoring well.

Our reason for abandoning the well is that it will impede the progress of our current soil excavation operation, it has outlived its usefulness as a monitoring well, and was only meant to be temporary anyway.

During our telephone conversation on Friday, November 17, 1995, you stated that you would provide us with the County's requirements for monitoring well abandonment procedures upon receipt of our written request.

The well is a 24 inch diameter borehole with a 10 inch diameter PVC casing set to a depth of approximately 28 feet below ground surface (bgs). We intend to drill out the well with a 36 inch diameter auger and fill the borehole with a County and State approved grout mix from the bottom (28 feet bgs) up to within 15 feet bgs (e.g. 13 feet of grout). It will not be necessary to grout to the ground surface because our soil excavation operation will extend to a depth of 15 feet bgs in the vicinity of the well immediately after abandoned.

During our phone conversation, you stated that you would require the follow before a permit could be granted:

- Well location map (see **Drawing 1**)
- Lithologic log of borehole (see **Drawing 2**)
- Monitoring well construction detail (see **Drawing 3**)

Please call Frank Goldman at W. A. Craig, Inc., if you have any questions at (707) 252-3353.

Sincerely,

W. A. CRAIG, INC.

William A. Craig II
President, R.E.A. 01414

Frank Goldman, R.G. 5557
Manager of Technical Services

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (510) 484-2600

TELEFAX TRANSMITTAL

DATE: 5 Oct 95

DELIVER TO: Frank Goldman

NAME OF FIRM: W.A. Craig

FAX PHONE #: (707) 252-3385

FROM: Wyman Hong

NUMBER OF PAGES: 2
(Including transmittal)

FOR VOICE CONTACT CALL: (510) 484-2600

FOR RETURN FAX: (510) 462-3914

REMARKS: Drilling permit 95653 for a dewatering well construction project at 1009-65th Street in Oakland for Pacific Electric Motors.

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1009 66th St
Oakland CA. 94621-3535

CLIENT
Name Pacific Electric Motors
Address 1009 66th St Voice
City Oakland CA Zip 94621-3535

APPLICANT
Name Frank Goldman
Address WA Craig, Inc. Fax (707) 252-3385
#10 Cask Court Voice
City American Canyon Zip [illegible] 94589

TYPE OF PROJECT
Well Construction
Cathodic Protection
Water Supply
Monitoring ✓
Geotechnical Investigation
General
Contamination
Well Destruction

PROPOSED WATER SUPPLY WELL USE
Domestic Industrial Other construction dewatering
Municipal Irrigation

DRILLING METHOD:
Mud Rotary Air Rotary Bucket Auger ✓
Cable Other

DRILLER'S LICENSE NO. C57-177681 (Weeks Drilling Inc Selastopol)

WELL PROJECTS
Drill Hole Diameter 24 in. Maximum
Casing Diameter 10 in. Depth 28 ft.
Surface Seal Depth 12 ft. Number 1

GEOTECHNICAL PROJECTS
Number of Borings
Hole Diameter in. Maximum
Depth ft.

ESTIMATED STARTING DATE 9/13/95 10-9-95
ESTIMATED COMPLETION DATE 9/13/95

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Frank Goldman Date 9/21/95

FOR OFFICE USE

PERMIT NUMBER 95653
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

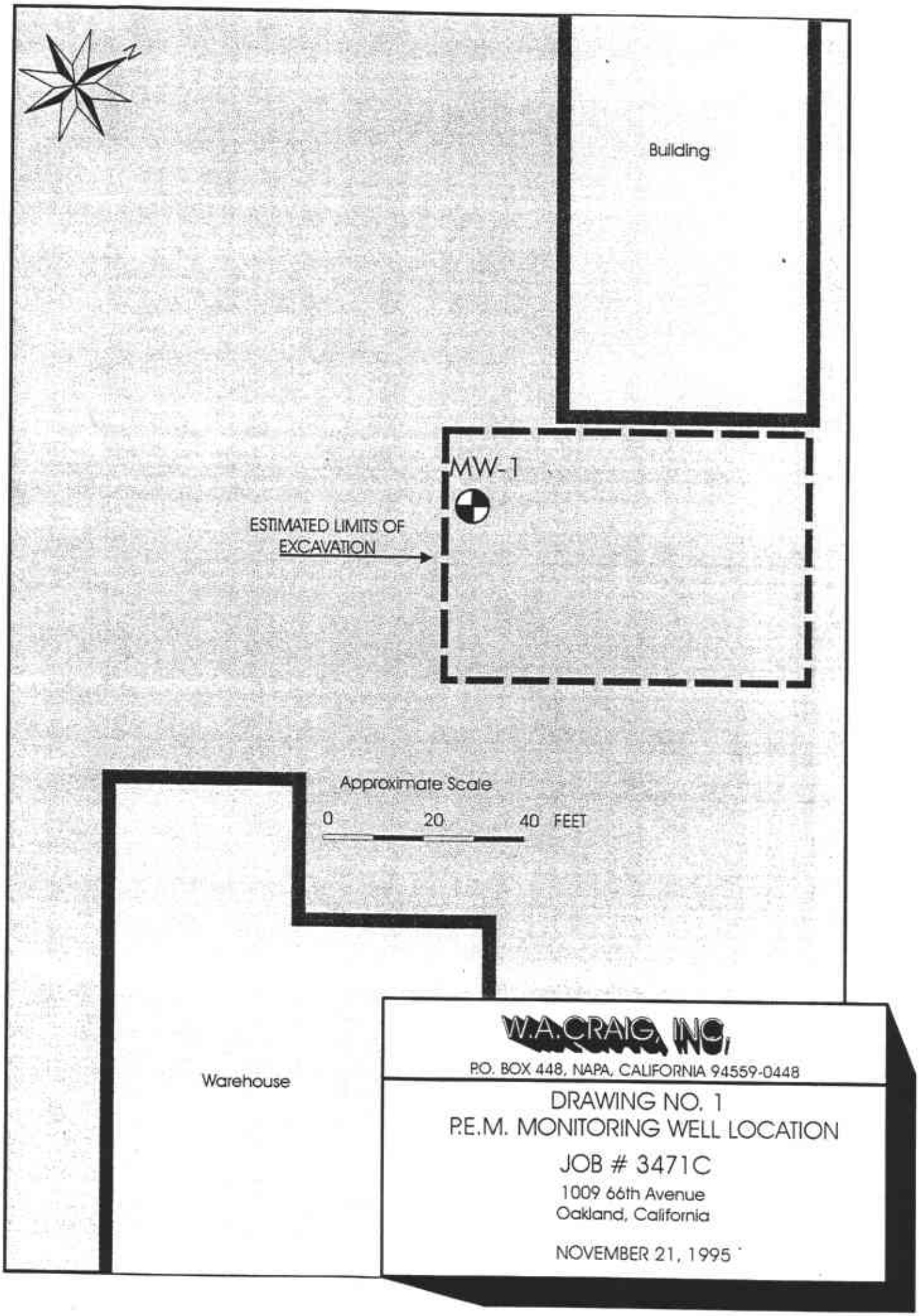
C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

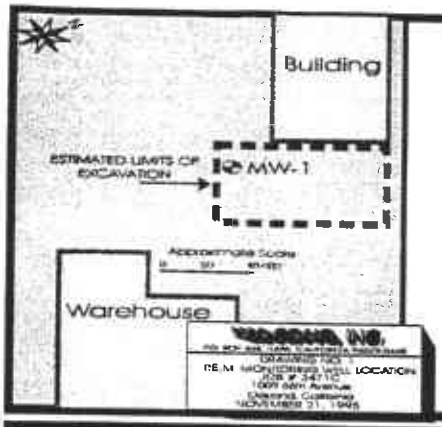
E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 5 Oct 95
Wyman Hong

91992


N
Building
MW-1
ESTIMATED LIMITS OF
EXCAVATION
Approximate Scale
0
20
40 FEET
Warehouse
W.A. CRAIG, INC.
P.O. BOX 448, NAPA, CALIFORNIA 94559-0448
DRAWING NO. 1
P.E.M. MONITORING WELL LOCATION
JOB # 3471C
1009 66th Avenue
Oakland, California
NOVEMBER 21, 1995

W. A. CRAIG, INC.
ENVIRONMENTAL CONSULTING AND CONTRACTING



DRILLING LOG - DRAWING 2

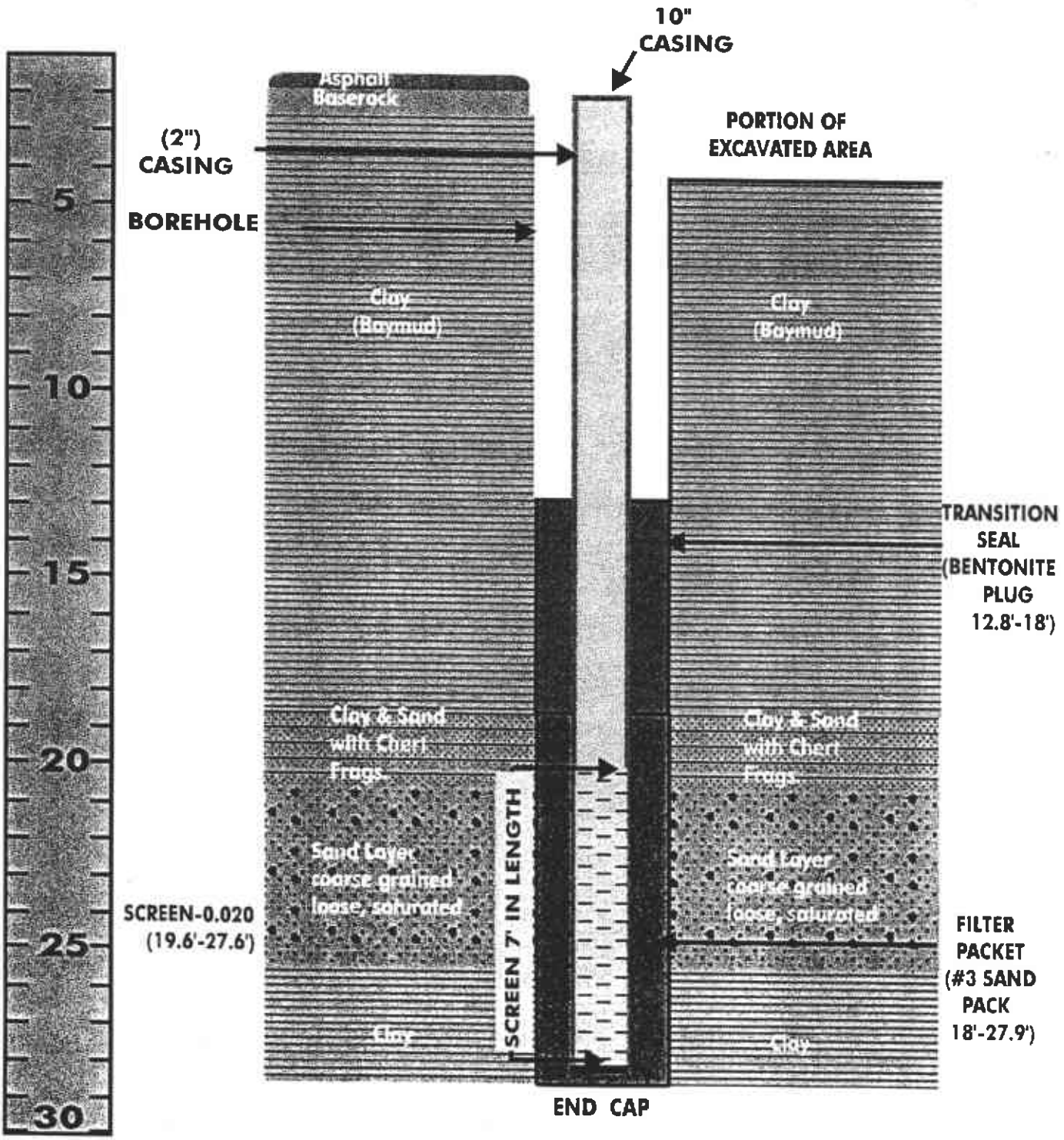
BORING NO. B1

PROJECT NAME:	PEM	PROJECT NO.	3471-C
ADDRESS:	1009 66th Avenue, Oakland, California		
FIELD GEOLOGIST:	David Orr	DATE:	Sept. 13, 1995
DRILLING COMPANY:	Weeks Drilling	SAMPLER:	None
DRILLING METHOD:	Bucket Auger	TOTAL DEPTH:	28'
BORING DIAMETER:	24"		
REG. GEOLOGIST:	Frank Goldman		

DEPTH	SAMPLE RECOVERY	BLOW COUNT	PID [ppm]	BORING CONSTR.	LITHOLOGIC LOG	USCS SYMBOLS	LITHOLOGIC DESCRIPTION Description, Grain Size, Sorting, Color, Moisture, Mechanical Properties
							0 - 6" Asphalt. 6" - 12" Baserock
5						CL	12" - 18' Clay (Baymud)
10						CL	12" - 18' Clay (Baymud)
15							
20						CL	18' - 20' Clayey Sand with Chert Fragments.
						GW ▽	21' - 25' Sand Layer, coarse grained, loose, saturated.
25							25' - 28' Clay (Baymud)
30							End of boring at 28'. Groundwater encountered at 22'.
35							
40							

WELL CONSTRUCTION DETAIL
DRAWING 3

LOCATED AT:
PEM
1009 66TH AVENUE
OAKLAND, CALIFORNIA



ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1009 66th St. Oakland, CA

CLIENT
Name Pacific Electric Motors (Terry Knox)
Address 1009 66th St Voice
City Oakland Zip

APPLICANT
Name Frank Goldman (WA Craig, Inc) Fax
Address PO Box 448 Voice
City Napa Zip 94559

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection		General	
Water Supply		Contamination	
Monitoring		Well Destruction	✓

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other Monitoring Well
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger ✓
Cable ___ Other ___

DRILLER'S LICENSE NO. 259543

WELL PROJECTS
Drill Hole Diameter 24 in. Maximum
Casing Diameter 10 in. Depth 28 ft.
Surface Seal Depth 9 ft. Number 1

GEOTECHNICAL PROJECTS
Number of Borings ~~X~~
Hole Diameter ~~36~~ in. Maximum
Depth ___ ft.

ESTIMATED STARTING DATE Nov 27, 1995
ESTIMATED COMPLETION DATE Nov 27, 1995

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Frank Goldman 11/21/95

FOR OFFICE USE

PERMIT NUMBER ___
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Existing well to be drilled out with a 36 inch auger by Malcolm Drilling and filled with grout

Approved ___ Date ___

91992

28 November 1995

ZONE 7
WATER RESOURCES ENGINEERING
DRILLING ORDINANCE

PACIFIC ELECTRIC MOTORS
1009 - 66TH STREET
OAKLAND
WELL 1S/4W 10R80
PERMIT 95782

Destruction Requirements:

1. Drill out the well so that the casing, seal, and gravel pack are removed to the bottom of the well.
2. Sound the well as deeply as practicable and record for your report.
3. Using a tremie pipe, fill the hole to 2 feet below the lower of finished grade or original ground with neat cement.
4. After the seal has set, backfill the remaining hole with compacted material.

These destruction requirements as proposed by Frank Goldman of E.A. Craig meet or exceed the Zone 7 minimum requirements.