



**Removal of Petroleum-Affected Soils
from the Field Area South of the Powerhouse
Alameda Marina Village
Alameda, California**

October 5, 1988
1245

Prepared for:

Vintage Properties/Alameda Commercial
1150 Marina Village Parkway
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October 5, 1988

LF-1245

Mr. Don Parker
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1150 Marina Village Parkway
Alameda, California 94501

Subject: Report Detailing Excavation of Petroleum-Affected Soils
from the Field Area South of the Powerhouse,
Alameda Marina Village, Alameda, California.

Dear Don:

Enclosed please find the subject report detailing excavation, soil sampling procedures, chemical analysis results, waste characterization and data interpretation.

Diesel-affected soils within an area of approximately 6,300 square yards, with a thickness of about one foot, were excavated from the subject site. The total volume of soils excavated was approximately 5,000 cubic yards.

Laboratory analyses of soil samples collected from the excavation bottom indicate that the petroleum-affected soils have been sufficiently removed from the area, to the extent that no further remediation of the soils should be required.

Fuel identification analyses indicated that several types of fuels were present in the soils, predominantly diesel fuels (#2 and #6) and smaller amounts of heavier oils.

The excavated soils, stockpiled on a vacant lot south of Tyson Street, were tested to assess their average concentration of petroleum hydrocarbons. The soils contained 85 to 370 parts per million (ppm) total petroleum hydrocarbons (TPH), averaging about 200 ppm. These concentrations are above the RWQCB guidelines of 100 ppm TPH for disposal at a Class III landfill.

Two underground fuel storage tanks were removed from the site, and disposed of with a hazardous waste manifest. These tanks had apparently been in the ground for at least 45 years, as indicated by a 1943 Sanborn map of the area. When encountered, the tanks

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were found to contain #2 diesel fuel. There was evidence that leakage from one of the tanks had occurred into surrounding soils.

Besides the apparent underground tank leakage of #2 diesel fuel, sources of other fuels encountered in the soil were not distinguishable, based either on field evidence or laboratory data. It is assumed that the other, heavier fuels were introduced to the site decades ago when previous industrial facilities were active at and in the vicinity of the site.

Although no further remediation requirements are anticipated for the site, it is likely that ground-water quality monitoring will be required.

If you have any questions, comments, or would like to request any modifications to the report, please contact the undersigned at your earliest convenience.

Sincerely,

Tom Graf, P.E.
Principal Engineer

Elizabeth Nixon
Project Engineer

enclosure

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**REMOVAL OF PETROLEUM-AFFECTED SOILS
FROM THE FIELD AREA SOUTH OF THE POWERHOUSE
ALAMEDA MARINA VILLAGE
Alameda, California**

1.0 INTRODUCTION

This report describes excavation activities conducted June 9 through 24 and September 9, 1988, and tank removal activities performed July 26, 1988 in the field area south of the Powerhouse ("the Site"). The area is located southwest of Marina Village Parkway and north of Tyson Street in Alameda Marina Village in Alameda, California (Figure 1).

1.1 Background

A previous investigation conducted in March 1988 by Levine·Fricke revealed the presence of an approximately 1-foot thick interval of petroleum-affected soils in the field area south of the powerhouse. An area of approximately 5,550 square yards (sy) near the water table (6 to 12 feet below ground surface) was affected. The petroleum was identified by a specialty fuel identification laboratory as a degraded diesel fuel. Total petroleum hydrocarbon (TPH) concentrations in the soils ranged from 70 to 13,000 parts per million (ppm).

Water-quality data gathered from the sampling of shallow ground-water monitoring wells (installed in the field area as part of the investigation) indicated that the petroleum-affected soils have had only a minor impact on site ground-water quality. Of two wells located within the affected area, a ground-water sample from one well contained 1.8 ppm TPH, while the other well did not contain detectable concentrations of TPH. Neither well contained detectable concentrations of benzene, toluene, xylenes, or ethylbenzene (BTXE). Of three ground-water monitoring wells 50 to 250 feet northwest and west of the affected area, a ground-water sample from only one well contained very low concentrations of BTXE (less than 1 ppb of toluene and ethylbenzene, and 3 ppb of xylenes). Otherwise, there were no detectable concentrations of TPH or BTXE in ground-water samples from these wells.

Results of this investigation were reported in Levine·Fricke's April 25, 1988 draft report to Vintage Properties/Alameda Commercial.

1.2 Summary of Recently-Completed Work

Vintage Properties/Alameda Commercial chose to remove the petroleum-affected soils from the field area to reduce the potential for future environmental liabilities at the site.

Approximately 5,000 cubic yards (cy) of soil were removed during excavation activities. Excavated soils were stockpiled on an engineered surface at an adjacent property on the south side of Tyson Road, south of the field area (Figure 2). Sampling and chemical analyses of these soils indicated that their TPH concentrations ranged between 87 and 370 ppm, averaging approximately 200 ppm.

A redwood-box tunnel containing utility pipes and two underground fuel storage tanks containing diesel fuel were encountered in the field area during excavation activities. The redwood box and piping were removed during excavation. The wood from the tunnel was stockpiled with the excavated soils. The pipes were disposed of as scrap metal by local metal recyclers (these had apparently been used as water pipes, as indicated on a 1943 Sanborn map). The tanks and their contents were removed after appropriate county and city permits had been obtained; they were manifested and transported to an appropriate receiving facility.

2.0 SITE SETTING

2.1 Geology

Subsurface soils consisted of approximately 5 to 10 feet of brown, silty, sandy and/or gravelly clay fill with variable amounts of large rocks and debris (wood, brick, concrete and asphalt). These materials were underlain by green-grey sand, silty to clayey sand, and sandy and silty clay fill containing variable amounts of shell and wood fragments. The water table was approximately 6 to 12 feet below ground surface, and generally corresponded to 1 to 2 feet below the bottom of the brown fill.

2.2 Subsurface Structures

The location of the redwood-box tunnel and pipes (one 10-inch, one 8-inch, and one 6-inch diameter) is shown on Figure 2. This pipe tunnel was situated at approximately the depth of ground water and was supported by concrete boxes about every 50 feet. The 1943 Sanborn map of that area shows the tunnel and pipes to be part of the facilities located there at that time. The extension of the tunnel and/or pipes beyond the area excavated, as illustrated on the Sanborn map, is partially shown on Figure 2. The present condition or existence of these pipes outside the

field area is not fully known, but it is likely that portions of the pipes were removed during redevelopment of the site over the last several years.

Numerous other pipes or segments of pipes were encountered during the excavation work. Several 2- to 4-inch-diameter pipes, oriented approximately parallel to the railroad tracks, were located close to the eastern edge of the excavation at about the depth of ground water. These pipes were removed during excavation work and, as they did not appear to have carried fuel, were collected by local recyclers as scrap metal. Segments of a deteriorated 18-inch-diameter corrugated drainage culvert running obliquely across the site were encountered, as shown on Figure 2. Petroleum hydrocarbons had accumulated in the pipe, so it was removed and stockpiled with the petroleum-affected soils.

The locations of the two underground storage tanks encountered in the field area are shown on Figure 2. The 1943 Sanborn map indicates that these tanks, one 1,500-gallon capacity (Tank 1), and one 2,400-gallon capacity (Tank 2), were used to store fuel oil. Both tanks contained #2 Diesel fuel when they were encountered. The design of the larger tank (described below) suggested that it had been used at one time to store fuel heavier than #2 Diesel. The smaller tank had not been designed for heavier fuels.

2.3 Distribution of Petroleum-Affected Soils

The black petroleum-stained sediments were contained within the normally green-gray sandy fill material at ground-water depth. The highly-weathered product appeared to be generally immobile, except in a few areas where pockets of product had accumulated, and near one of the underground storage tanks where product appeared less weathered.

Petroleum-affected soils were somewhat discontinuous throughout the area and of variable thicknesses. The thickest areas of staining (1 to 2 feet thick) were located in the central portion near the wooden tunnel and drainage culvert, and in the southwest central portion near the 1,500-gallon capacity fuel oil tank. Near soil sample location 5 (see Figure 2), an apparently isolated pocket of very viscous, dark product was encountered seeping from the excavation sidewall. The product was identified as resembling a Bunker C fuel (see Fuel Fingerprinting Analysis, Section 6.0). The oily material appeared to have accumulated in the drainage culvert located in that area. Concentrated pockets of oily sediments inside and around this culvert continued intermittently for about 50 feet on either side. Near the edges of the affected area, the petroleum staining became very thin and discontinuous and generally pinched out.

3.0 FIELD AREA PETROLEUM-AFFECTED SOILS

3.1 Excavation

Excavation activities were performed by Fanfa, Inc. of San Lorenzo, California on June 9 through June 24, 1988. On September 9, 1988, a small additional area was excavated by O.C. Jones of Oakland, after initial chemical analyses data indicated that a small quantity of petroleum-affected soils had not been removed during the initial excavation work. (This area is represented by the sampling locations 46, 47, and 49 on Figure 2.) Either a Levine·Fricke field engineer or geologist was on-site during excavation activities to observe the removal of petroleum-affected soils.

Excavation boundaries are shown in Figure 2. Approximately 6 to 10 feet of petroleum-free soils overlying the petroleum-affected layer were removed by excavation scrapers. When soils that appeared stained or oily were encountered, an excavator dug these out and loaded them into dump trucks for transport to the prepared stockpile area. The excavated area was then backfilled with the upper, clean fill. The excavation proceeded in sections, so that upper fill removed to expose the petroleum-affected soils was used to backfill an adjacent area where the petroleum-affected soils had already been excavated. Excavating and backfilling in this manner prevented the accumulation of ground water in the excavation area.

The stockpile area was prepared by compacting the top 6 inches of existing soil (by wheel-rolling) and surrounding this area with an earthen berm. Ten-millimeter-thick plastic sheeting was placed on top of the prepared surface. After the soils were stockpiled, a 5-foot high perimeter fence was installed to restrict access to the pile.

3.2 Soil Sampling

Soil samples were collected from the bottom of the excavated area to document removal of petroleum-affected soils. One sample (PHF16) was collected from the sidewall of the excavation adjacent to the wooden tunnel, on the western boundary of the excavation area. Locations of soil samples which were chemically analyzed are shown on Figure 2. Samples were collected in clean brass tubes, capped with aluminum foil and plastic caps, secured with electrical tape, and labeled. The samples were then placed in a cooled ice-chest for transportation to a laboratory for chemical analyses.

3.3 Laboratory Analyses

Twenty-six soil samples were analyzed for TPH using EPA Method 8015 (extraction) to assess whether petroleum-affected soils had been adequately removed. Laboratory analyses were performed by Brown and Caldwell Laboratories, of Emeryville; Med-Tox Associates of Pleasant Hill; and NET Pacific of Santa Rosa.

Twenty-three of these samples represent soils collected from the boundaries of the excavation. Results indicate that residual concentrations of TPH in the remaining soils are generally non-detectable, although one sample (PHF45) contained 60 ppm. Analysis results for these samples are listed on Table 1.

The remaining three soil samples (PHF14, PHF27, and PHF35/36) were collected from soils which were later excavated and added to the stockpile. Sample PHF27 was collected near the 1,500-gallon capacity fuel tank to assess TPH concentrations. Analysis results indicate that 1,400 ppm of diesel were present in these soils. Sample PHF35/36 was a composite analyzed to evaluate concentrations in the soils near the southeastern boundary of the excavation. Analysis results indicated that these soils contained 94 ppm TPH. Sample PHF14, near the northeastern excavation boundary, contained 980 ppm TPH. Soils in this area were excavated on September 9, 1988. Samples PHF46, PHF47 and PHF49 are representative of the soils which remain in this part of the excavation.

Laboratory certificates for all analyses are attached in Appendix A. (Sample identifications on the data sheets are PHF1 through PHF49).

4.0 STOCKPILE CHARACTERIZATION

After the excavated soils were stockpiled and spread evenly over the prepared area, their chemical characterization was completed to assist in evaluating disposal/remediation alternatives. Characterization included the collection and laboratory analysis of twenty-eight soil samples from the stockpile.

Sample locations were spaced evenly across the stockpile. A backhoe was used to dig several feet under the surface of the pile to collect samples. Samples were collected in brass tubes, capped with aluminum foil and plastic caps, secured with electrical tape and stored in a chilled cooler for transportation to the analytical laboratory (Med-Tox Associates of Pleasant Hill).

Laboratory analyses were performed on fourteen composited samples for TPH (extraction). Additionally, four samples were analyzed for benzene, toluene, xylenes, and ethylbenzene (BTXE). Analysis

results indicate that TPH concentrations range between 85 and 370 ppm, with an average of about 200 ppm. Toluene was present in the four samples at concentrations of 0.013 to 0.018 ppm. Concentrations of benzene, xylene and ethylbenzene were not detectable. Tables 2A and 2B summarize this data.

Laboratory certificates of these analyses are included in Appendix A. (Sample identifications on the data sheets are PHFSP1 through PHFSP28).

It is presently anticipated that these soils will be bioremediated on an adjacent parcel of land owned by Vintage Properties. Discussions on this subject are currently being conducted with the RWQCB.

5.0 UNDERGROUND TANK REMOVAL

*2 tanks
6-12 ft down*

Two underground tanks were exposed during the field area excavation activities between June 9 and 24, 1988. Their locations are shown on Figure 2.

A 1,500-gallon capacity tank, located within the boundary of the petroleum-affected soils, was about half-full of water with a floating diesel layer several inches thick. The fluid level appeared to be roughly the same as the surrounding ground water. A thin, oily surface-sheen was present on the ground water surrounding the tank. Visual observations of soils surrounding the tank indicated that product had spilled or leaked from the tank.

The location of the second tank, about 30 feet outside (south) the boundaries of the petroleum-affected soils, was identified by inspection of a 1943 Sanborn map. Soils overlying the tank were excavated to expose the top of the tank. The ground-water level was at about the middle of the tank. The tank was filled nearly to the top with product, whose level was above the surrounding ground-water, indicating that little, if any, fuel had leaked from this tank.

Subsequent removal of the two tanks was postponed until the appropriate county and city tank removal permits could be obtained. Consequent tank removal procedures and soil sampling locations, methods and chemical analyses are described below.

5.1 Tank Excavation

The two underground tanks were removed by Tank Excavators of Santa Cruz on July 26, 1988. A representative from the Alameda Fire Department (AFD) was present during the removals and soil sampling. The Alameda County Environmental Health Department (ACEHD), although notified of the removal, did not attend. A

This office was not at tank removal.

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Levine·Fricke engineer was on-site to observe the removals and to collect soil samples from the tank excavations.

Observations were made during removal activities regarding tank integrity, evidence of leakage, and occurrence of chemicals in the soils. Soil samples were collected from the edges of the excavation at the depth of the ground water (both tanks were submerged approximately half-way below ground-water level). A ground-water sample was collected from the 1,500-gallon capacity tank excavation. A ground-water sample was not collected from the 2,400-gallon capacity tank excavation, as limited spillage of the fuel during removal activities prevented representative sampling. ←

5.2 Tank Stabilization Procedures

The tanks were rendered inert by purging the remaining fluid from them (approximately 3,500 gallons from both tanks) and inserting dry ice to remove organic vapors and oxygen from the tanks. Explosivity meter readings in the tanks at least one hour after the dry ice was inserted indicated that vapor concentrations were below the Lower Explosive Limit (LEL) of 20 percent.

5.3 Tank and Tank Contents Disposal

Fuel and water contained in the tanks were pumped into a vacuum truck and transported with a hazardous waste manifest by H&H Ship Services to their receiving facility in San Francisco. The tanks were also transported with a hazardous waste manifest by H&H Ship Services to the same receiving facility. Copies of the manifests are included in Appendix B.

5.4 Tank Inspection and Field Observations

After the tanks had been emptied and excavated, they were visually inspected. Descriptions of each tank are provided below.

Tank 1

The 1,500-gallon capacity tank was constructed of steel with welded seams. The tank had a 3-inch by 1-inch hole at a seam on the bottom of the south end but otherwise appeared to be in good condition. Appurtenant piping was not attached to the tank.

As mentioned above, evidence of leakage or spillage from the tank was observed in the surrounding ground-water and soils.

Tank 2

The 2,400-gallon tank was constructed of steel with riveted seams and was fitted with a heating element on the west end. The west

end was also fitted with a bolted plate containing a threaded clean-out plug near the bottom. An inlet fixture (1-inch diameter) was located at the center of the east end. The tank construction indicates that it at one time had been used for heavy fuel oil storage, such as a bunker oil or heavy diesel (#6), and may have been later adapted to store a lighter fuel.

Several holes (several inches in diameter) were found along the top of the tank. The remaining body of the tank contained no observable cracks or holes, except that the inlet structure at the east end of the tank was open. Appurtenant piping was not attached to the tanks.

During initial location and removal activities, the wall of the tank was inadvertently punctured and a small quantity of fuel (several gallons) was released into adjacent soils before the holes were plugged. As the tank was virtually full of fuel, it appears that there had been little, if any, leakage since tank use was discontinued. *Spillage on Removal*

5.5 Soils Excavation and Ground-Water Removal

Tank 1

The petroleum-affected soils immediately adjacent to the tank were removed during field area excavation work, as described above. Standing ground water in the tank excavation, which contained a thin sheen of oily residue, was pumped into a vacuum truck and transported under hazardous waste manifest by H&H Ship Services to their receiving facility in San Francisco.

Tank 2

Soils affected by diesel spillage during the removal of Tank 2 were added to the existing stockpile of petroleum-affected soils. Ground water in the open excavation was pumped into a vacuum truck with the ground water from the Tank 1 excavation and transported as described above.

Approximately 500 gallons of ground water were pumped from the two excavations. A copy of the hazardous waste manifest for this water is included in Appendix B.

5.6 Excavation Backfilling

Tank excavations were backfilled during grading work being performed simultaneously at the site by Vintage Properties subcontractors.

5.7 Sampling Locations and Chemical Analyses

Soil samples were collected in clean brass tubes from the bucket of a backhoe. Sample tubes were labeled, capped with aluminum foil and plastic caps, and sealed with electrical tape. Samples were temporarily stored in a chilled cooler for transportation to the analytical laboratory (Brown and Caldwell Laboratories of Emeryville, California). Samples were transported under strict chain-of-custody protocol.

As required by the AFD on-site representative, two soil samples from each tank excavation were collected. Sampling depths corresponded to the depth of the ground water. Sample locations are shown on Figure 3.

Ground-water samples from the Tank 1 excavation was collected in 40 ml volatile organic analyzer (VOA) containers.

Soil and ground-water samples were analyzed for TPH using EPA Method 8015. The ground-water sample was additionally analyzed for purgeable aromatics using EPA method 602. Analysis results indicate that soils and ground water do not contain petroleum hydrocarbon concentrations above current regulatory guidelines and that petroleum-affected soils have been adequately removed from around the tanks. The ground water did not contain concentrations of purgeable aromatics (BTXE and 1,2-, 1,3- and 1,4-dichlorobenzenes) above the DOHS State action levels.

Analysis data is summarized in the table on Figure 3. Laboratory certificates are included in Appendix A.

6.0 FUEL FINGERPRINTING ANALYSIS

Fuel samples were collected from inside the two tanks for fuel identification (labeled as Tank 1 product, from the 1,500-gallon capacity tank, and Tank 2 product and Tank 2 Sludge, from the 2,400-gallon capacity tank). Additionally, a sample of a very viscous oil (labeled as Soil Product) observed near sampling location 5 (as described in section 2.3) was submitted for analysis. Several soil samples containing petroleum product were also fingerprinted. Farr, Friedman, and Bruya, Inc., a specialty fuel identification laboratory in Seattle, Washington, performed the identifications.

The products in both fuel tanks were identified as a #2 Diesel fuel, although the Tank 1 and Tank 2 products were not identical. The viscous oil was identified as a heavy residual product, such as a Bunker C fuel.

Previous identification of the TPH encountered during initial soil borings in March 1988 (also performed by Farr, Friedman and Bruya, and referenced in their current July 5, 1988 report included in Appendix A) indicated that the product resembled a #6 Diesel, a product heavier than a #2 Diesel but lighter than a Bunker C fuel.

The petroleum hydrocarbon encountered in soils outside the 1,500 gallon capacity tank (Samples Tank1-N1 and PHF27) was identified as a weathered #2 Diesel oil. The petroleum hydrocarbons in two soil samples from other parts of the site (PHF35/36 and PHF45) were identified as a heavy diesel fuel (possibly a #6) and a heavy residual petroleum distillate.

Fuel identification data is included in Appendix A.

Based on these identifications, there appears to be a combination of products distributed at the site. However, apart from the apparent leakage of #2 Diesel from the 1,500-gallon capacity tank into surrounding soils, the source of the other, heavier products is not evident. The construction of the 2,400-gallon capacity tank, as discussed in Section 5.4, does however suggest that heavier fuels had been used at the site at one time.

The available information does not enable us to assess how these fuels were introduced into the subsurface. The product distribution across the site appears to have occurred with ground-water movement, since it coincides with the depth of the ground water. Additionally, subsurface conduits, such as the redwood tunnel and drainage culvert, could have provided transport avenues.

7.0 SUMMARY AND CONCLUSIONS

As reported above, Levine·Fricke observed the excavation of petroleum-affected soils and the removal of two underground fuel storage tanks. Based on field observations and laboratory data obtained during the work, the following statements can be made.

- o Diesel-affected soils across an area of approximately 6,300 square yards and a thickness of about 1 foot were excavated. The diesel-affected soils occurred at about the depth of the ground-water level.
- o The volume of soils removed and stockpiled is about 5,000 cubic yards, and reflects some bulking and over-excavation beyond the in-place volume of diesel-affected soils.
- o Laboratory analysis results of soil samples collected from the excavation boundaries indicate that diesel-affected soils have been adequately removed from the site. Reported

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concentrations remaining in the soils are mostly not detectable, and otherwise only one sample contained 60 ppm. This relatively low concentration at a localized sampling point should not require any further action.

- o Two underground diesel storage tanks, which have been in the ground for at least 45 years (as estimated from a 1943 Sanborn Map), were removed and disposed of with a hazardous waste manifest. There was evidence of leakage from one of the tanks (1,500-gallon capacity), as indicated by a hole on the tank bottom, the presence of water in the tank, and the product observed in the surrounding soils. The other tank apparently had not leaked, as indicated by tank integrity and the fact that the tank was virtually full of fuel.
- o The fuels inside the tanks, and ground water from the tank excavations were pumped into vacuum trucks and disposed of with hazardous waste manifests.
- o The fuels inside the two tanks were identified as #2 Diesel. Other product encountered in soils at the site was identified as including #6 Diesel and Bunker C fuel.

The source(s) of the fuels encountered in the soil are not distinguishable based on field evidence and laboratory data, except for leakage of #2 Diesel from one of the tanks. It is assumed that the heavier fuels were introduced to the site when previous industrial facilities were active on and in the vicinity of the site. Distribution of the products at that time likely occurred with ground-water movement and transport through subsurface conduits such as the redwood tunnel and drainage culvert. However, over the years the product has degraded and has become relatively immobile in the subsurface. There appears to be little impact of the petroleum products on current ground-water quality.

- o Characterization results of the stockpiled soils indicated the presence of extractable TPH at concentrations between 85 and 370 ppm. These results indicate that the soils are not classified as a hazardous waste, defined by the Department of Health Services (DOHS) as soils exceeding 1,000 ppm concentration of TPH. However, these concentrations still classify the soils as a designated waste (over 100 ppm). According to this guideline, used by the Regional Water Quality Control Board (RWQCB), the soils do not qualify for disposal at a Class III landfill. Aromatic compounds were generally not detected, except for toluene at very low concentrations of 0.013 and 0.018 ppm.

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- o It is anticipated that the RWQCB will require monitoring wells within the excavated area to document post-remediation ground-water quality.
- o Bioremediation of stockpiled diesel-affected soils is presently planned on an adjacent parcel owned by Vintage Properties.

TABLE 1

TOTAL PETROLEUM HYDROCARBONS
IN SOIL SAMPLES FROM EXCAVATION BOTTOM
(Results expressed in ppm)

Sample No.	Date	TPH	Laboratory
PHF-1	13-Jun-88	<10	B&C
PHF-3	13-Jun-88	<10	B&C
PHF-5	13-Jun-88	<10	B&C
PHF-7	13-Jun-88	<10	B&C
PHF-10	14-Jun-88	<10	B&C
PHF-11	16-Jun-88	<10	B&C
PHF-12	15-Jun-88	<10	B&C
PHF-13	16-Jun-88	<10	B&C
PHF-16	15-Jun-88	<10	B&C
PHF-18	16-Jun-88	<10	B&C
PHF-20	17-Jun-88	<10	B&C
PHF-23	17-Jun-88	<10	B&C
PHF-25	21-Jun-88	<50	M-T
PHF-31, 31 *	21-Jun-88	<10	NET
PHF-33	21-Jun-88	<10	NET
PHF-37	21-Jun-88	<50	M-T
PHF-38	22-Jun-88	<50	M-T
PHF-40	22-Jun-88	<50	M-T
PHF-42	22-Jun-88	<50	M-T
PHF-44	23-Jun-88	<50	M-T
PHF-45	23-Jun-88	60	M-T
PHF-46	09-Sep-88	<10	B&C
PHF-47	09-Sep-88	<10	B&C
PHF-49	09-Sep-88	<10	B&C

* Composite Samples

All samples were analyzed using EPA Method 8015 (extraction).

Laboratories:

B&C = Brown and Caldwell Laboratories of Emeryville, California.

M-T = Med-Tox Associates of Pleasant Hill, California.

NET = National Environmental Testing, Inc. of Santa Rosa, California.

TABLE 2A

TOTAL PETROLEUM HYDROCARBONS
IN SOIL SAMPLES FROM STOCKPILE
(Results expressed in ppm)

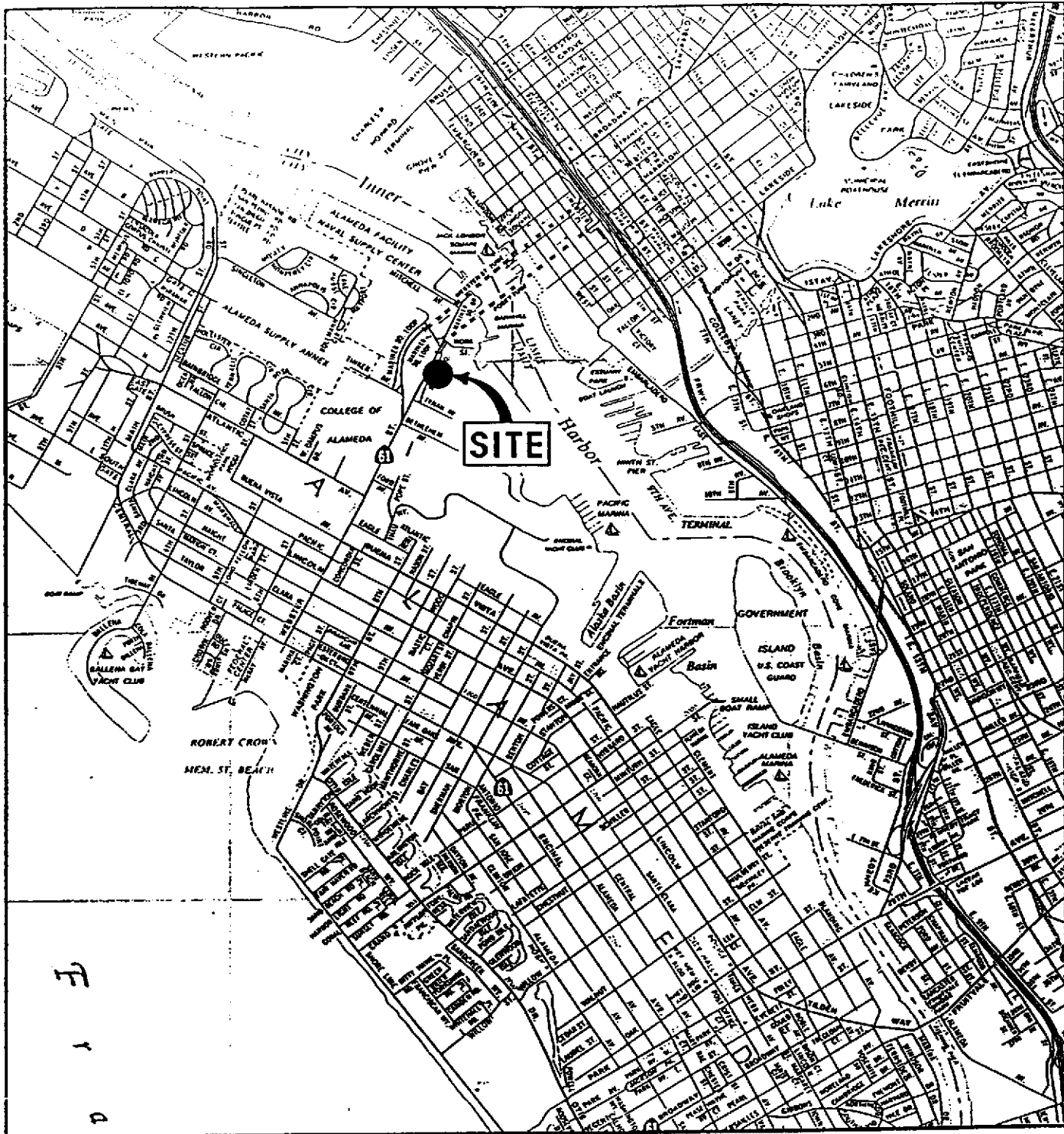
Sample Number	Date	TPH
PHFSP-1,2 Composite	23-Jun-88	170
PHFSP-3,4 Composite	23-Jun-88	230
PHFSP-5	23-Jun-88	85
PHFSP-6,7 Composite	24-Jun-88	320
PHFSP-8,9 Composite	24-Jun-88	300
PHFSP-10,11 Composite	24-Jun-88	170
PHFSP-12,13 Composite	24-Jun-88	87
PHFSP-14,15 Composite	24-Jun-88	150
PHFSP-16,17 Composite	24-Jun-88	98
PHFSP-18,19 Composite	24-Jun-88	280
PHFSP-20,21 Composite	24-Jun-88	190
PHFSP-22,23 Composite	24-Jun-88	160
PHFSP-24,25 Composite	24-Jun-88	150
PHFSP-26,27 Composite	24-Jun-88	370

All analyses performed by Med-Tox Associates of Pleasant Hill, California, using EPA Method 8015 (extraction).

TABLE 2B
 BENZENE, TOLUENE, XYLENE AND ETHYLBENZENE
 IN SOIL SAMPLES FROM STOCKPILE
 (Results expressed in ppm)

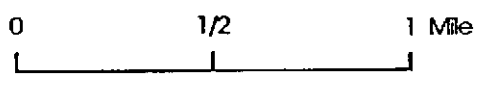
Sample Number	Date	Benzene	Toluene	Xylene	Ethylbenzene
PHFSP-10	24-Jun-88	<0.005	0.014	<0.005	<0.015
PHFSP-11	24-Jun-88	<0.005	0.018	<0.005	<0.015
PHFSP-26	24-Jun-88	<0.005	0.013	<0.005	<0.015
PHFSP-27	24-Jun-88	<0.005	0.014	<0.005	<0.015

All analyses performed by Med-Tox Associates of Pleasant Hill, California, using EPA Method 8020 (BTXE).



E

D



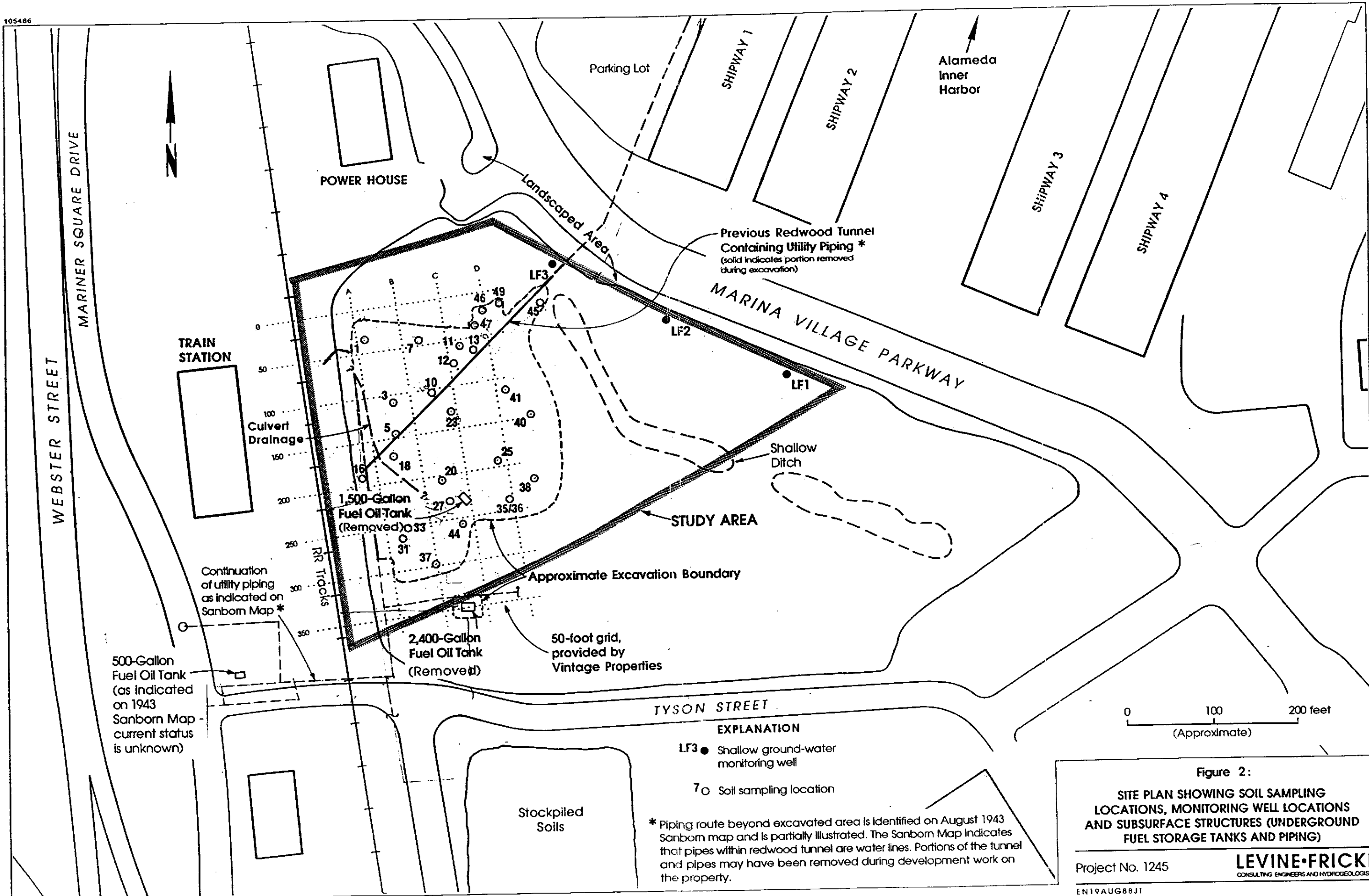
MAP SOURCE:
California State Automobile Association
Oakland/Berkeley/Alameda
June 1962

Figure 1 : SITE VICINITY

Project No.1245

LEVINE·FRICKE
CONSULTING ENGINEERS AND HYDROGEOLOGISTS

MAR 65 6 AN J 11



- EXPLANATION**
- LF3 ● Shallow ground-water monitoring well
 - 7 ○ Soil sampling location

* Piping route beyond excavated area is identified on August 1943 Sanborn map and is partially illustrated. The Sanborn Map indicates that pipes within redwood tunnel are water lines. Portions of the tunnel and pipes may have been removed during development work on the property.

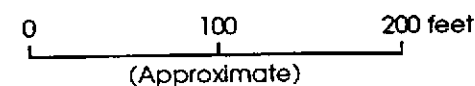
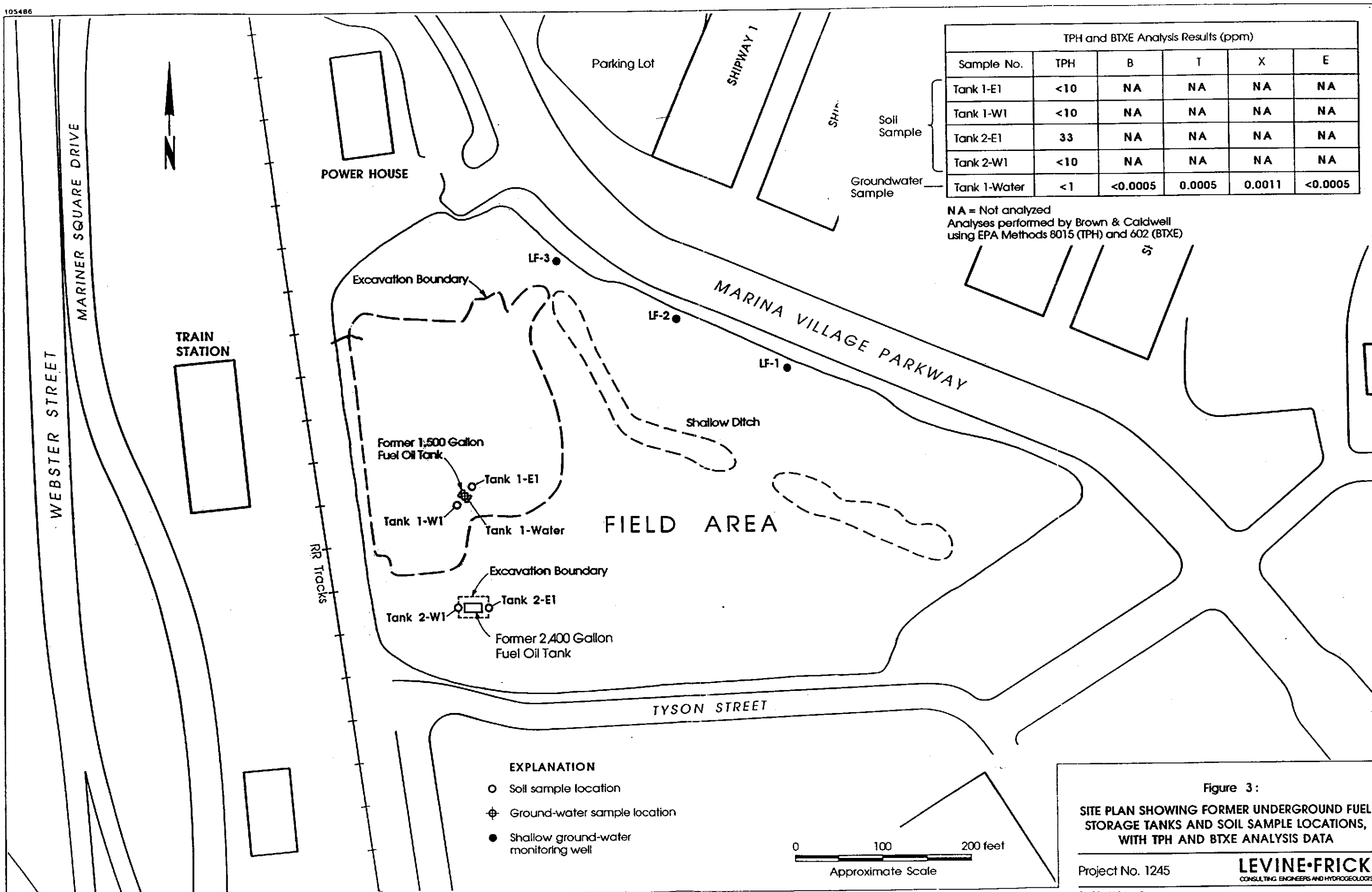


Figure 2:
SITE PLAN SHOWING SOIL SAMPLING LOCATIONS, MONITORING WELL LOCATIONS AND SUBSURFACE STRUCTURES (UNDERGROUND FUEL STORAGE TANKS AND PIPING)



TPH and BTXE Analysis Results (ppm)					
Sample No.	TPH	B	T	X	E
Tank 1-E1	<10	NA	NA	NA	NA
Tank 1-W1	<10	NA	NA	NA	NA
Tank 2-E1	33	NA	NA	NA	NA
Tank 2-W1	<10	NA	NA	NA	NA
Tank 1-Water	<1	<0.0005	0.0005	0.0011	<0.0005

NA = Not analyzed
 Analyses performed by Brown & Caldwell
 using EPA Methods 8015 (TPH) and 602 (BTXE)

EXPLANATION

- Soil sample location
- ⊕ Ground-water sample location
- Shallow ground-water monitoring well

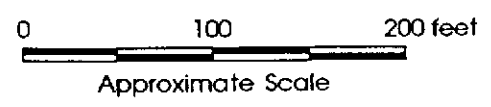


Figure 3:
 SITE PLAN SHOWING FORMER UNDERGROUND FUEL STORAGE TANKS AND SOIL SAMPLE LOCATIONS, WITH TPH AND BTXE ANALYSIS DATA

APPENDIX A
LABORATORY CERTIFICATES

Emeryville, CA



BROWN AND CALDWELL LABORATORIES

1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E88-06-503

Received: 17 JUN 88

Reported: 05 JUL 88

Dr. Akali Igbene
Levine - Fricke
1900 Powell Street 12th Floor
Emeryville, California 94608

Project: 1245

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED				
06-503-1	PHF-1	13 JUN 88				
06-503-2	PHF-3	13 JUN 88				
06-503-3	PHF-5	13 JUN 88				
06-503-4	PHF-7	13 JUN 88				
06-503-5	PHF-10	14 JUN 88				
PARAMETER	06-503-1	06-503-2	06-503-3	06-503-4	06-503-5	
Total Fuel Hydrocarbons						
Date Analyzed	06.30.88	06.30.88	06.30.88	06.30.88	06.30.88	
Total Fuel Hydrocarbons, mg/kg	<10	<10	<10	<10	<10	
Other Total Fuel Hydrocarbons	---	---	---	---	---	

received
JUL 18 1988



BROWN AND CALDWELL LABORATORIES

1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E88-06-503

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Dr. Akali Igbene
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Emeryville, California 94608

Project: 1245

REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES					DATE SAMPLED
06-503-6	PHF-12					15 JUN 88
06-503-7	PHF-14					15 JUN 88
06-503-8	PHF-16					15 JUN 88
06-503-9	PHF-18					16 JUN 88
06-503-10	PHF-20					17 JUN 88
PARAMETER	06-503-6	06-503-7	06-503-8	06-503-9	06-503-10	
Total Fuel Hydrocarbons						
Date Analyzed	06.30.88	06.30.88	06.30.88	06.30.88	06.30.88	
Fuel Characterization	---	OIL	---	---	---	
Total Fuel Hydrocarbons, mg/kg	<10	930	<10	<10	<10	



BROWN AND CALDWELL LABORATORIES

1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E88-06-503

Received: 17 JUN 88

Reported: 05 JUL 88

Dr. Akali Igbene
Levine - Fricke
1900 Powell Street 12th Floor
Emeryville, California 94608

Project: 1245

REPORT OF ANALYTICAL RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES					DATE SAMPLED
06-503-11	PHF-23					17 JUN 88
06-503-12	PHF-2					13 JUN 88
06-503-13	PHF-4					13 JUN 88
06-503-14	PHF-6					13 JUN 88
06-503-15	PHF-8					13 JUN 88
PARAMETER	06-503-11	06-503-12	06-503-13	06-503-14	06-503-15	
Sample Held, Not Analyzed	---	HELD	HELD	HELD	HELD	
Total Fuel Hydrocarbons						
Date Analyzed	06.30.88	---	---	---	---	
Total Fuel Hydrocarbons, mg/kg	<10	---	---	---	---	
Other Total Fuel Hydrocarbons	---	---	---	---	---	



BROWN AND CALDWELL LABORATORIES

1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E88-06-503

Received: 17 JUN 88

Reported: 05 JUL 88

Dr. Akali Igbene
Levine - Fricke
1900 Powell Street 12th Floor
Emeryville, California 94608

Project: 1245

REPORT OF ANALYTICAL RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES					DATE SAMPLED
06-503-16	PHF-9					14 JUN 88
06-503-17	PHF-11					15 JUN 88
06-503-18	PHF-13					15 JUN 88
06-503-19	PHF-15					15 JUN 88
06-503-20	PHF-17					16 JUN 88
PARAMETER	06-503-16	06-503-17	06-503-18	06-503-19	06-503-20	
Sample Held, Not Analyzed	HELD	HELD	HELD	HELD	HELD	

Project No.: 1245 Field Logbook No.: _____ Date: 6-17-88 Serial No.:
 Project Name: ALAMEDA marina village Project Location: ALAMEDA, CA No: 3238

Sampler (Signature) S. V. [Signature] ANALYSES
 Hold RUSH Samplers: E. NIXON, B. DEYO

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE	ANALYSES				HOLD	RUSH	REMARKS
						EPA 601	EPA 624	SOILS - EXTRA	OTHER			
20 PHF-17	6-16-88			1	Soil					X		
9 PHF-18	6-16-88			1			X					
21 PHF-19	6-16-88			1						X		
10 PHF-20	6-17-88			1			X					REGULAR 2-WK TAT
22 PHF-21				1						X		
23 PHF-22				1						X		
11 PHF-23				1			X					
24 PHF-24				1						X		
25 Product				1	liquid					X		Average for 100 gal - water soil

Note:
 Homogenize samples before analysis

RELINQUISHED BY: <u>[Signature]</u>	DATE: <u>6/17/88</u>	TIME:	RECEIVED BY: <u>[Signature]</u>	DATE:	TIME:
RELINQUISHED BY: <u>[Signature]</u>	DATE:	TIME:	RECEIVED BY: <u>[Signature]</u>	DATE: <u>6/17</u>	TIME: <u>6:10</u>
RELINQUISHED BY: _____	DATE:	TIME:	RECEIVED BY: _____	DATE:	TIME:
METHOD OF SHIPMENT:	DATE:	TIME:	LAB COMMENTS:		
SAMPLE COLLECTOR: <input checked="" type="checkbox"/> LEVINE-FRICKE (check one) 625 Oakland Avenue 1900 Powell Oakland, CA 94611-4567 Emeryville (415) 652-4500			<input type="checkbox"/> LEVINE-FRICKE 4019 Westerly Place, Suite 103 Newport Beach, CA 92660 (714) 955-1390		
Analytical Laboratory: <u>BEC Emeryville</u> <u>attn: Larry</u>					

Project No.: **1245** Field Logbook No.: _____ Date: **6/17/88** Serial No.: **No 3237**
 Project Name: **Alameda Marina** Project Location: **Alameda**

Sampler (Signature): *[Signature]* ANALYSES: _____
 Hold: _____ Rush: _____ Samplers: **E. NIXON, B. DEYO**

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE	ANALYSES				HOLD	RUSH	REMARKS
						EPA 601	EPA 624	SOILS	EXTRACTS			
1 PHF-1	6-13-88			1	Soil		X			X		
2 PHF-2	6-13-88											
2 PHF-3	6-13-88						X			X		Regular TAT
3 PHF-4	6-13-88									X		
3 PHF-5	6-13-88						X			X		
4 PHF-6	6-13-88									X		
4 PHF-7	6-13-88						X			X		Analyse for Diesel-Waste Oil
5 PHF-8	6-13-88									X		
6 PHF-9	6-14-88									X		
5 PHF-10	6-14-88						X			X		Note: Homogeneous Samples before analysis
7 PHF-11	6-15-88									X		
6 PHF-12	6-15-88						X			X		
18 PHF-13	6-13-88 6-15-88									X		
7 PHF-14	6-15-88						X			X		
19 PHF-15	6-15-88									X		
8 PHF-16	6-15-88						X					

RELINQUISHED BY: <i>[Signature]</i>	DATE: 6/17/88	TIME: _____	RECEIVED BY: <i>[Signature]</i>	DATE: _____	TIME: _____
RELINQUISHED BY: <i>[Signature]</i>	DATE: _____	TIME: _____	RECEIVED BY: <i>[Signature]</i>	DATE: 6/17	TIME: 6:10
RELINQUISHED BY: _____	DATE: _____	TIME: _____	RECEIVED BY: _____	DATE: _____	TIME: _____
METHOD OF SHIPMENT: _____	DATE: _____	TIME: _____	LAB COMMENTS: _____		

SAMPLE COLLECTOR: LEVINE-FRICKE LEVINE-FRICKE
 (check one) **700 Powell** 4019 Westerly Place, Suite 103
 629 Oakland Avenue Newport Beach, CA 92660
 Emeryville Oakland, CA 94611-4567 (714) 955-1390
 (415) 652-4500

Analytical Laboratory: **Brown & Caldwell**
 Attn: **Larry Emeryville**

LABORATORY ANALYSIS REPORT

LEVINE-FRICKE CONSULTING
1900 POWELL STREET
EMERYVILLE, CA 94611-4567

ATTN: ELIZABETH NIXON

CLIENT PROJECT NO: 1245

ANALYSIS OF: EIGHT SOIL SAMPLES FOR TOTAL PETROLEUM
HYDROCARBONS

METHOD: EPA 8020, 8015 (PURGE & TRAP AND EXTRACTION)

REPORT DATE: 08/12/88

DATE SAMPLED: 06/21-24/88

DATE RECEIVED: 06/24/88

DATE ANALYZED: 07/08-11/88


MED-TOX JOB NO: 8806172

Sample Identification Client Id.	Lab No.	Total Petroleum Hydrocarbons* As Diesel (mg/kg)
PHF-25	06A	ND
PHF-27	08A	1400
PHF-37	10A	ND
PHF-38	11A	ND
PHF-40	13A	ND
PHF-42	15A	ND
PHF-44	17A	ND
PHF-45	18A	60

Detection Limit 50
ND = Not Detected

* Note: TPH fraction found in samples was quantitated as Diesel, although it consists of predominately heavier hydrocarbons.

This is a revision of report originally done 07/13/88.


Michael J. Jaeger, Manager
Organic Laboratory

Results FAXed to Elizabeth Nixon 07/12/88

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

8806172 p. 2

Project No.: 1245	Field Logbook No.:	Date: 6/24/88	Serial No.:
Project Name: Atamela Marina Village	Project Location: Atamela	No 3214	

SAMPLER (Signature):					ANALYSES					SAMPLERS:	
SAMPLES					EPA 601	EPA 624	805-EXX	HOLD	RUSH	REMARKS	
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE						
PAF-25	6/21		8806172-6A	1	Soil			X			
PAF-26	↓		7A	↓	↓					X	per E. Nixon instruction see attachment 2-wk TAT
PAF-27	↓		8A	↓	↓			X			
PAF-30	↓		9A	↓	↓					X	
PAF-37	↓		10A	↓	↓			X			
PAF-38	6/22		11A	↓	↓			X			
PAF-39	↓		12A	↓	↓					X	
PAF-40	↓		13A	↓	↓			X			HOMOGENIZE SAMPLES PRIOR TO ANALYSIS
PAF-41	↓		14A	↓	↓					X	
PAF-42	↓		15A	↓	↓			X			
PAF-43	↓		16A	↓	↓					X	
PAF-44	6/23		17A	↓	↓			X			
PAF-45	↓		18A	↓	↓			X			
PAF-46	↓		19A	↓	↓					X	

RELINQUISHED BY: (Signature) <i>Robert Nixon</i>	DATE: 6/24/88	TIME:	RECEIVED BY: (Signature) <i>Robert Nixon</i>	DATE: 6/24	TIME: 1415
RELINQUISHED BY: (Signature) <i>Robert Nixon</i>	DATE: 6/24	TIME: 1700	RECEIVED BY: (Signature) <i>Robert Nixon</i>	DATE: 6/24	TIME: 17:00
RELINQUISHED BY: (Signature)	DATE:	TIME:	RECEIVED BY: (Signature)	DATE:	TIME:

METHOD OF SHIPMENT:	DATE:	TIME:	LAB COMMENTS:
---------------------	-------	-------	---------------

SAMPLE COLLECTOR: (check one)	<input checked="" type="checkbox"/> LEVINE-FRICKE 629 Oakland Avenue Oakland, CA 94611-4567 (415) 652-4500	<input type="checkbox"/> LEVINE-FRICKE 4019 Westerly Place, Suite 103 Newport Beach, CA 92660 (714) 955-1390	Analytical Laboratory: MED-TOX PLEASANT HILL
-------------------------------	---	---	---

6-20-88



BROWN AND CALDWELL LABORATORIES

ANALYTICAL REPORT

1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

LOG NO: E88-07-214

Received: 05 JUL 88

Reported: 29 JUL 88

Dr. Akali Igbene
Levine - Fricke
1900 Powell Street 12th Floor
Emeryville, California 94608

CC: Elizabeth Nixon

Project: 1245

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED		
07-214-1	PHF-11 (8806503-18)	16 JUN 88		
07-214-2	PHF-13 (8806503-19)	16 JUN 88		
07-214-3	PHF-14 (8806503-07)	15 JUN 88		
PARAMETER		07-214-1	07-214-2	07-214-3
Total Fuel Hydrocarbons				
Date Analyzed		07.27.88	07.27.88	07.27.88
Fuel Characterization, mg/kg		---	---	OIL
Total Fuel Hydrocarbons, mg/kg		<10	<10	873

These results were given verbally to Elizabeth Nixon on 7/28/88 by L.Penfold.

Sim D. Lessley, Ph.D., Laboratory Director



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Formerly: ANATEC Labs, Inc.

Elizabeth Nixon
Levine-Fricke
1900 Powell St., 12th Floor
Emeryville, CA 94608

06-29-88
NET Pacific Log No: 3518 (1-8)
Series No: 430/031
Client Ref: Project # 1245

Subject: Analytical Results for Three Soil Samples and One Water Sample
Received (06-21-88.)

Dear Ms. Nixon:

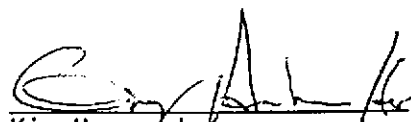
Analysis of the samples referenced above has been completed. This report is written in confirmation of results transmitted verbally on June 24, 1988. Results are presented on the following pages.

Please feel welcome to contact us should you have questions regarding procedures or results.

Submitted by:

Approved by:


Larry Thurston
Project Chemist


Kim Hansard
Project Manager

/ad
Enc: Sample Custody Document

received
JUL - 5 1988



Parameter	Descriptor, Lab No. and Results (mg/Kg) ^a				
	MDL ^b (mg/Kg)	Composite PHF 31, 32 (-11685)	Composite PHF 35, 36 (-11686)	PHF-33 06-21-88 (-11687)	Product 06-21-88 (-11688)
PETROLEUM HYDROCARBONS					
Extractable,					
as Motor Oil	10	ND ^c	94	ND	NR ^d
as Diesel Fuel	10	ND	ND	ND	NR
FINGERPRINT EXTRACTABLE					
		NR	NR	ND	Diesel

^amg/Kg—Data are expressed in units of milligrams analyte per kilogram sample, as-received basis.

^bMDL—Method detection limit.

^cND—Not detected at the listed method detection limit.

^dNR—Not requested.

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

3518

Project No.: 1245 Field Logbook No.: Date: 6/21/88 Serial No.:
 Project Name: Alameda Marina Project Location: Alameda No: 3212

SAMPLER (Signature): E. Nixon					ANALYSES					SAMPLERS: E. NIXON		
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE	ANALYSES					REMARKS	
						EPA 601	EPA 624	9015-EXT	HOLD	RUSH		
PHF-31	6/21				SOIL		X				X	Composite 31 & 32 - DO 1 analysis
PHF-32					↓		X				X	
PHF-33					↓		X				X	
PHF-35					↓		X				X	Composite 35 & 36 - DO 1 analysis
PHF-36					↓						X	
Product				1	liquid						X	FUEL FINGERPRINT
											Please homogenize sample before compositing or analysis.	
											<u>24 hr. TAT</u>	

RELINQUISHED BY: (Signature) <i>E. Nixon</i>	DATE 6-21-88	TIME 1735	RECEIVED BY: (Signature) <i>Greg Slow</i>	DATE 6-21-88	TIME 1735
RELINQUISHED BY: (Signature) <i>Greg Slow</i>	DATE 6-21-88	TIME 1930	RECEIVED BY: (Signature) <i>Greg Slow</i>	DATE 6/21/88	TIME 1930
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT:	DATE	TIME	LAB COMMENTS:		
SAMPLE COLLECTOR: (check one) <input checked="" type="checkbox"/> LEVINE-FRICKE 1900 9th Street Emeryville, CA 94611-4567 (415) 652-4500 <input type="checkbox"/> LEVINE-FRICKE 4019 Westerly Place, Suite 103 Newport Beach, CA 92660 (714) 955-1390	Analytical Laboratory: ANATEC Santa Rosa				

Stacked Soils

MED-TOX

ASSOCIATES, INC.

ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES
3440 Vincent Road • Pleasant Hill, CA 94523 • (415) 930-9090

LABORATORY ANALYSIS REPORT

LEVINE-FRICKE CONSULTING
1900 POWELL ST., 12TH FL.
EMERYVILLE, CA 94608

ATTN: ELIZABETH NIXON

CLIENT ID: 1245

REPORT DATE: 07/06/88

DATE SAMPLED: 06/23-24/88

DATE RECEIVED: 06/24/88

DATE ANALYZED: 06/27/88

MED-TOX JOB NO: 8806173

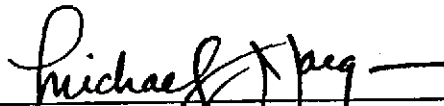
ANALYSIS OF: THIRTEEN SOIL COMPOSITES AND ONE SOIL SAMPLE FOR
TOTAL PETROLEUM HYDROCARBONS

METHOD: EPA 8015 (EXTRACTION)

Sample Identification Client	Lab No.	Total Petroleum Hydrocarbons As Diesel (mg/kg)
PHFSP-1,2 composite	01A	170
PHFSP-3,4 composite	02A	230
PHFSP-5	03A	85
PHFSP-6,7 composite	04A	320
PHFSP-8,9 composite	05A	300
PHFSP-10,11 composite	06A	170
PHFSP-12,13 composite	07A	87
Detection Limit		50

received
JUL 10 1988

Sample Identification Client	Lab No.	Total Petroleum Hydrocarbons As Diesel (mg/kg)
PHFSP-14,15 composite	08A	150
PHFSP-16,17 composite	09A	98
PHFSP-18,19 composite	10A	280
PHFSP-20,21 composite	11A	190
PHFSP-22,23 composite	12A	160
PHFSP-24,25 composite	13A	150
PHFSP-26,27 composite	14A	370
Detection Limit		50


Michael J. Jaeger, Manager
Organic Laboratory

Results FAXed to Elizabeth Nixon 07/05/88.

Ref. 4 Sulf H 8806173 p.1

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 1245 Field Logbook No.: Date: 6/24/88 Serial No.: No 3215

Project Name: Atameda Maina Village Project Location: Atameda

SAMPLER (Signature):					ANALYSES										SAMPLERS: E. NIXON	
SAMPLES					EPA 601	EPA 624	905-6M-				HOLD	RUSH	REMARKS			
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE											
PHFSP-1	6/23		8806173	1	soil			X					X		Composite 1+2 01A	
PHFSP-2													X		Composite 3+4 02A 03A ↓	
PHFSP-3								X					X			
PHFSP-4																
PHFSP-5								X								
PHFSP-6	6/24			1	soil			X							6+7 04A	
PHFSP-7															8+9 05A NOC: Hermitage	
PHFSP-8								X					X			
PHFSP-9															10+11 06A samples prior # analysis	
PHFSP-10								X								
PHFSP-11															12+13 07A	
PHFSP-12								X								
PHFSP-13															14+15 08A	
PHFSP-14								X					X			
PHFSP-15																

RELINQUISHED BY: (Signature) <i>E. Nixon</i>	DATE: 6/24/88	TIME:	RECEIVED BY: (Signature) <i>Salon St John</i>	DATE: 6/24/88	TIME: 14:15
RELINQUISHED BY: (Signature) <i>Salon St John</i>	DATE: 6/24/88	TIME: 17:00	RECEIVED BY: (Signature) <i>Robert Byars</i>	DATE: 6/24/88	TIME: 17:00
RELINQUISHED BY: (Signature)	DATE:	TIME:	RECEIVED BY: (Signature)	DATE:	TIME:
METHOD OF SHIPMENT:	DATE:	TIME:	LAB COMMENTS:		

SAMPLE COLLECTOR: LEVINE-FRICKE 1910 POWELL 629 Oakland Avenue Emeryville, CA 94611-4567 (415) 652-4500

LEVINE-FRICKE 4019 Westerly Place, Suite 103 Newport Beach, CA 92660 (714) 955-1390

Analytical Laboratory: MED-TOX

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: **1245** Field Logbook No.: _____ Date: **6/24/88** Serial No.: **Nº 3477**
 Project Name: **Alameda Marina Village** Project Location: **Alameda**

Sampler (Signature): **E. Nixon** ANALYSES
 Hold RUSH Samplers: **E. NIXON**

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE	ANALYSES						REMARKS	
						EPA 601	EPA 624	SOILS - EXTRACT					
PHFSP-16	6/24	880	6173-	50 ml	SOIL		X						16+17 09A
PHFSP-17							X						18+19 10A * 1 wk
PHFSP-18							X						Rush
PHFSP-19							X						20+21 11A
PHFSP-20							X						22+23 12A
PHFSP-21							X						24+25 13A
PHFSP-22							X						26+27 14A
PHFSP-23							X						
PHFSP-24							X						
PHFSP-25							X						
PHFSP-26							X						
PHFSP-27							X						
PHFSP-28													
PHFSP-29													
PHFSP-30													

RELINQUISHED BY: (Signature) **E. Nixon** DATE **6/24/88** TIME **9:15** RECEIVED BY: (Signature) **Salmon St John** DATE **6/24** TIME **1415**

RELINQUISHED BY: (Signature) **St John** DATE **6/24** TIME **1700** RECEIVED BY: (Signature) **Robert Bryan** DATE **6/24** TIME **1700**

RELINQUISHED BY: (Signature) _____ DATE _____ TIME _____ RECEIVED BY: (Signature) _____ DATE _____ TIME _____

METHOD OF SHIPMENT: _____ DATE _____ TIME _____ LAB COMMENTS: **Analytical Laboratory: MED-TOX Pleasant Hill**

SAMPLE COLLECTOR: LEVINE-FRICKE 629 Oakland Avenue Oakland, CA 94611-4567 (415) 652-4500 LEVINE-FRICKE 4019 Westerly Place, Suite 103 Newport Beach, CA 92660 (714) 955-1390

ENVIRONMENTAL & OCCUPATIONAL HEALTH SERVICES

3440 Vincent Road • Pleasant Hill, CA 94523 • (415) 930-9090

LABORATORY ANALYSIS REPORT

Levine-Fricke Consulting
Engineers and Hydrogeologists
1900 Powell Street, 12th FL.
Emeryville, CA 94608
ATTN: Elizabeth Nixon

REPORT DATE: 07/15/88

DATE RECEIVED: 07/08/88

DATE SAMPLED: 06/24/88

CLIENT PROJECT ID: 1245

MED-TOX JOB NO: 8807042

ANALYSIS OF: FOUR SOIL SAMPLES FOR BENZENE, TOLUENE,
ETHYLBENZENE, AND XYLENES

See attached for results.

Linnea M. Nowak for MJJ
Michael J. Jaeger, Manager
Organic Laboratory

Results FAXed to Elizabeth Nixon 07/15/88

received
JUL 18 1988

Levine-Fricke Consulting

CLIENT ID: PHFSP-10
CLIENT JOB NO: 1245MED-TOX LAB NO: 8807042-01A
MED-TOX JOB NO: 8807042DATE SAMPLED: 06/24/88
DATE RECEIVED: 07/08/88DATE ANALYZED: 07/09/88
REPORT DATE: 07/15/88EPA METHOD 8020
PURGEABLE AROMATICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	14	5
Xylenes, Total	-----	ND	15

ND = Not Detected

Levine-Fricke Consulting

CLIENT ID: PHFSP-11
CLIENT JOB NO: 1245MED-TOX LAB NO: 8807042-02A
MED-TOX JOB NO: 8807042DATE SAMPLED: 06/24/88
DATE RECEIVED: 07/08/88DATE ANALYZED: 07/09/88
REPORT DATE: 07/15/88EPA METHOD 8020
PURGEABLE AROMATICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	18	5
Xylenes, Total	-----	ND	15

ND = Not Detected

Levine-Fricke Consulting

CLIENT ID: PHFSP-26
CLIENT JOB NO: 1245MED-TOX LAB NO: 8807042-03A
MED-TOX JOB NO: 8807042DATE SAMPLED: 06/24/88
DATE RECEIVED: 07/08/88DATE ANALYZED: 07/09/88
REPORT DATE: 07/15/88

EPA METHOD 8020

PURGEABLE AROMATICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	13	5
Xylenes, Total	-----	ND	15

ND = Not Detected

Levine-Fricke Consulting

CLIENT ID: PHFSP-27
CLIENT JOB NO: 1245MED-TOX LAB NO: 8807042-04A
MED-TOX JOB NO: 8807042DATE SAMPLED: 06/24/88
DATE RECEIVED: 07/08/88DATE ANALYZED: 07/09/88
REPORT DATE: 07/15/88

EPA METHOD 8020

PURGEABLE AROMATICS

COMPOUND	CAS #	CONCENTRATION (ug/kg)	DETECTION LIMIT (ug/kg)
Benzene	71-43-2	ND	5
Chlorobenzene	108-90-7	ND	5
1,2-Dichlorobenzene	95-50-1	ND	5
1,3-Dichlorobenzene	541-73-1	ND	5
1,4-Dichlorobenzene	106-46-7	ND	5
Ethylbenzene	100-41-4	ND	5
Toluene	108-88-3	14	5
Xylenes, Total	-----	ND	15

ND = Not Detected

1245
LFW

FARR, FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James K. Farr, Ph.D.
Andrew John Friedman
James E. Bruya, Ph.D.

3008 B - 16th West
Seattle, WA 98119
(206) 285-8282

July 5, 1988

Elizabeth Nixon, Project Leader
Levine-Fricke, Inc.
1900 Powell, 12th Floor
Emeryville, CA 94608

Dear Ms Nixon:

Enclosed are the results of the analyses of samples submitted on June 28, 1988 from your Alameda Marine Village project.

I have compared these chromatograms with those we ran for samples SB11-2-2 and SB9-1-2 in April of this year. Those soil samples contained a product similar in boiling range to a #6 diesel. The product in the sample labelled "soil product" submitted on June 28 was a material with a substantially higher boiling range. This is indicated by the fact that the abundance maximum for the "soil product" sample was at ca $n-C_{22}$ as opposed to ca $n-C_{17}$ as was found in the previous samples. I'm not sure what to say about this, except that the material previously submitted appeared to be a heavy diesel oil, and that the "soil product" appears to be a heavier material yet.

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this material, or if you just want to discuss any aspect of your projects, please do not hesitate to contact me.

Sincerely,



Andrew John Friedman, Chemist

AJF/cag

Enclosures

SEARCHED
JUL 11 1988

FARR, FRIEDMAN & BRUYA, INC.

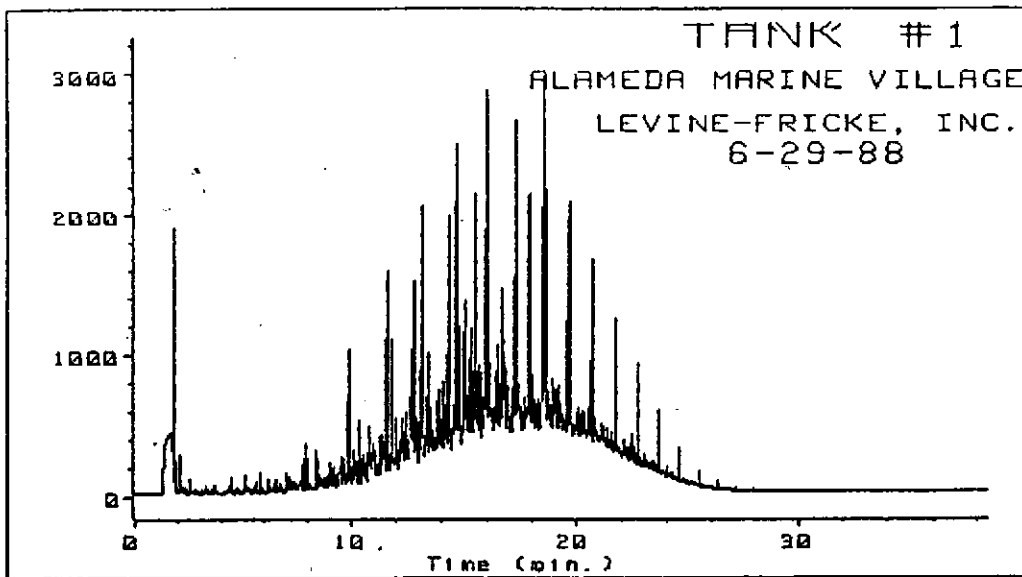
ENVIRONMENTAL CHEMISTS

Date of Report: July 5, 1988
Date Submitted: June 28, 1988
Project: Alameda Marine Village

FINGERPRINT CHARACTERIZATION
BY CAPILLARY GAS CHROMATOGRAPHY

<u>Sample #</u>	<u>GC Characterization</u>
Tank 1 Product	The gas chromatographic trace was indicative of a #2 Diesel fuel. This characterization is based upon the even distribution of <i>n</i> -alkanes extending from <i>n</i> -C ₁₀ to <i>n</i> -C ₂₅ (maximum at <i>n</i> -C ₁₇) and the characteristic abundances of pristane and phytane..
Tank 2 Product	The gas chromatographic trace was indicative of a #2 Diesel fuel. This characterization is based upon the even distribution of <i>n</i> -alkanes extending from <i>n</i> -C ₁₀ to <i>n</i> -C ₂₅ (maximum at <i>n</i> -C ₁₇) and the characteristic abundances of pristane and phytane. Although quite similar to the product in tank #1, the two products are not identical.
Soil Product	The gas chromatographic trace was indicative of a heavy residual product such as a Bunker C fuel. This characterization is based on the low abundances of the <i>n</i> -alkanes and the abundance maximum of the unresolved chromatographic mixture being quite high (ca <i>n</i> -C ₂₅). The product does not contain the aromatic predominance seen in gasification wastes or other asphalt production processes, and this supports the hypothesis that it is a heavy residual fuel.

received
JUL 11 1988

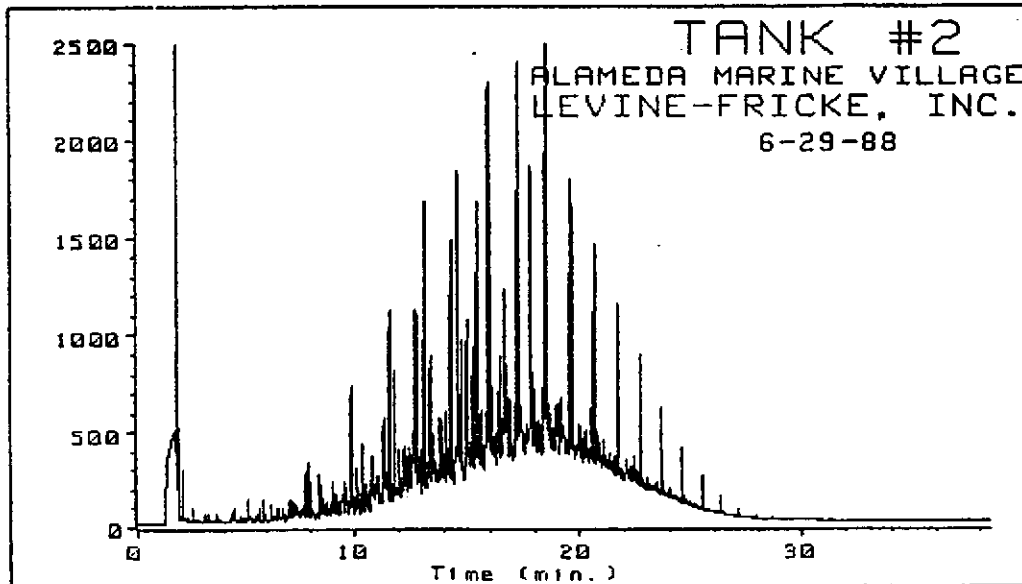


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[GR1]

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Plot Scale Scale Window 4

Zoom Zoom MORE
In Out KEYS EXIT

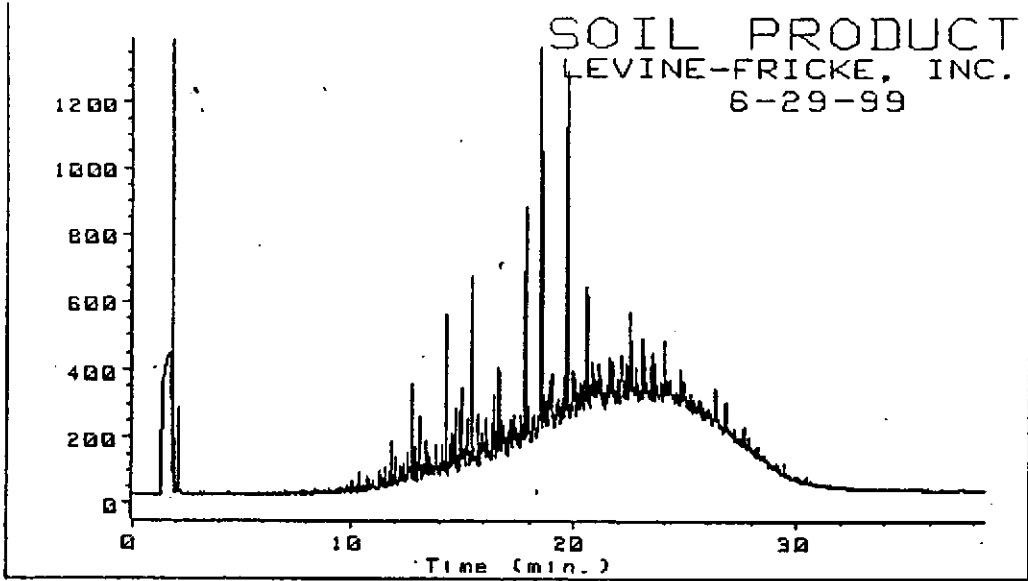


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[GR1]

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Plot Scale Scale Window 4

Zoom Zoom MORE
In Out KEYS EXIT



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[DE]

New Data
File

CHROMAT
KEYS

GRAPHICS
KEYS

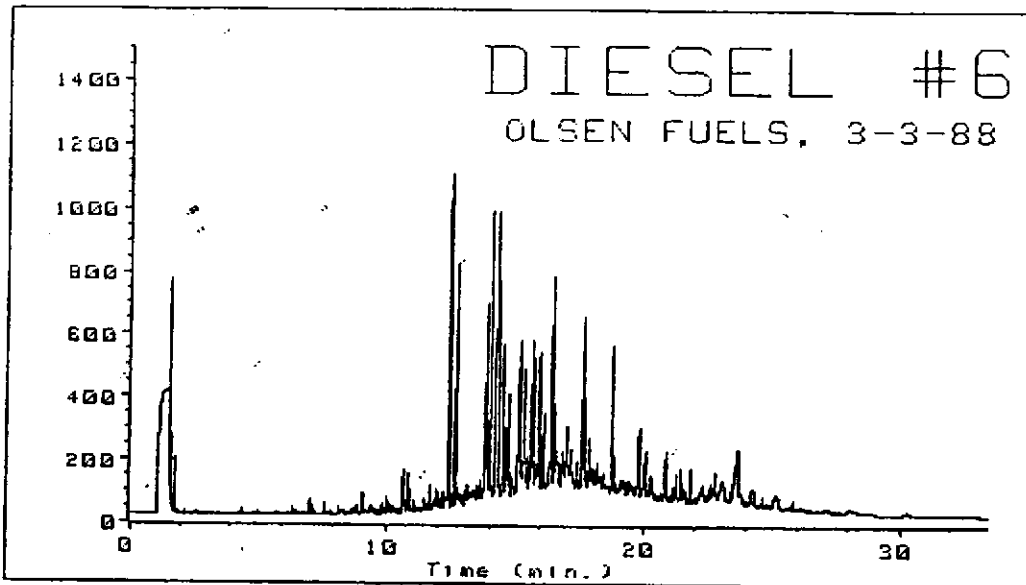
MATH &
LIST

Zoom
In

Zoom
Out

HELP

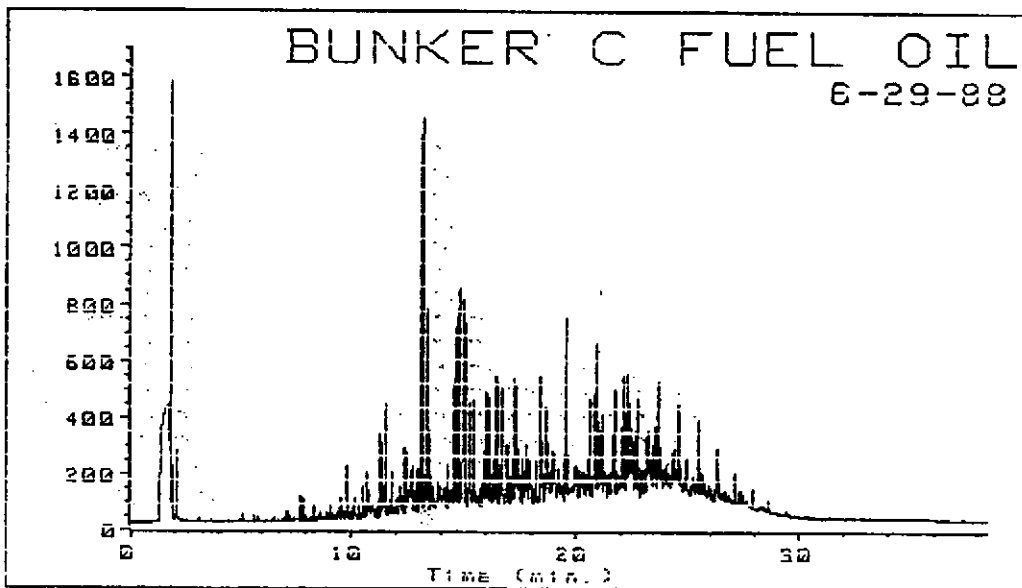
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[GR1]

Print/Plot	Horizontal Scale	Vertical Scale	Zoom to Window 4	Zoom In	Zoom Out	MORE KEYS	EXIT
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CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 1245		Field Logbook No.:		Date: 6/27/74		Serial No.: No. 3199						
Project Name: Donner Lake Indian Village		Project Location: Donner Lake, CA										
Sampler (Signature): <i>Elizabeth Fricke</i>		ANALYSES				Samplers: E. WILSON						
SAMPLES												
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	FUEL FINE	CELESTINE	HOLD	RUSH	REMARKS
Tank Product	6/23			2	Product		X					Product from Tank
Tank Product	6/13			2	Product		X					" " "
Soil Product	6/14			1	Product		X					Product water from tank
Tank Water	6/21			1						X		Tank water
Tank Water	6/21			1						X		" "
Please Finger print Fuels - (First 3 liters) Hold												

RELINQUISHED BY: (Signature) <i>Sergio M. ...</i>	DATE 6/27	TIME 4:55	RECEIVED BY: (Signature) <i>[Signature]</i>	DATE 6/27	TIME 4:55	
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME	
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature) <i>Andrew J. Friedman</i>	DATE 6/28	TIME 11:45	
METHOD OF SHIPMENT:	DATE	TIME	LAB COMMENTS: <i>COC nearly illegible due to water</i>			
SAMPLE COLLECTOR: (check one)	<input checked="" type="checkbox"/> LEVINE-FRICKE <i>629 Powell Avenue, Oakland, CA 94611-4567 (415) 652-4500</i>		<input type="checkbox"/> LEVINE-FRICKE <i>4019 Westerly Place, Suite 103, Newport Beach, CA 92660 (714) 955-1390</i>		Analytical Laboratory: <i>FARL, FRIEDMAN & BRUSH Environmental CHEMISTS 3008B - 16th W. ST. SEATTLE, WASH. 98111</i>	



BROWN AND CALDWELL LABORATORIES

1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E88-07-501

Received: 27 JUL 88

Reported: 09 AUG 88

Dr. Akali Igbene
Levine - Fricke
1900 Powell Street 12th Floor
Emeryville, California 94608

Project: 1245

REPORT OF ANALYTICAL RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED			
07-501-1	Tank 1-W1	26 JUL 88			
07-501-2	Tank 1-E1	26 JUL 88			
07-501-3	Tank 2-W1	26 JUL 88			
07-501-4	Tank 2-E1	26 JUL 88			
PARAMETER		07-501-1	07-501-2	07-501-3	07-501-4
Total Fuel Hydrocarbons					
Date Analyzed		08.03.88	08.03.88	08.03.88	08.03.88
Fuel Characterization		---	---	---	DIESEL
Total Fuel Hydrocarbons, mg/kg		<10	<10	<10	33

received
AUG 15 1988



LOG NO: E88-07-501

Received: 27 JUL 88

Reported: 09 AUG 88

Dr. Akali Igbene
Levine - Fricke
1900 Powell Street 12th Floor
Emeryville, California 94608

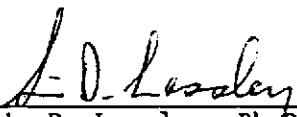
Project: 1245

REPORT OF ANALYTICAL RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
07-501-5	Tank 1	26 JUL 88
PARAMETER		07-501-5
Total Fuel Hydrocarbons		
Date Analyzed		08.03.88
Total Fuel Hydrocarbons, mg/L		<1.0
Other Total Fuel Hydrocarbons		---
EPA Method 602		
Date Extracted		08.03.88
1,2-Dichlorobenzene, ug/L		<0.5
1,3-Dichlorobenzene, ug/L		32
1,4-Dichlorobenzene, ug/L		23
Benzene, ug/L		<0.5
Chlorobenzene, ug/L		2.3
Ethylbenzene, ug/L		<0.5
Toluene, ug/L		0.5
Total Xylene Isomers, ug/L		1.1

These results were reported verbally to E.Nixon on 8/5/88 by L.Penfold.



Sim D. Lessley, Ph.D., Laboratory Director

FARR, FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James K. Farr, Ph.D.
Andrew John Friedman
James E. Bruya, Ph.D.

3008 B - 16th West
Seattle, WA 98119
(206) 285-8282

September 12, 1988

Elizabeth Nixon, Project Leader
Levine-Fricke, Inc.
1900 Powell, 12th Floor
Emeryville, CA 94608

Dear Ms Nixon:

Enclosed are the results of the analyses of samples
submitted on July 27, 1988 from Project 1245.

We appreciate this opportunity to be of service to you on
this project. If you have any questions regarding this
material, or if you just want to discuss any aspect of your
projects, please do not hesitate to contact me.

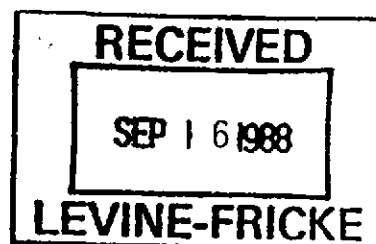
Sincerely,

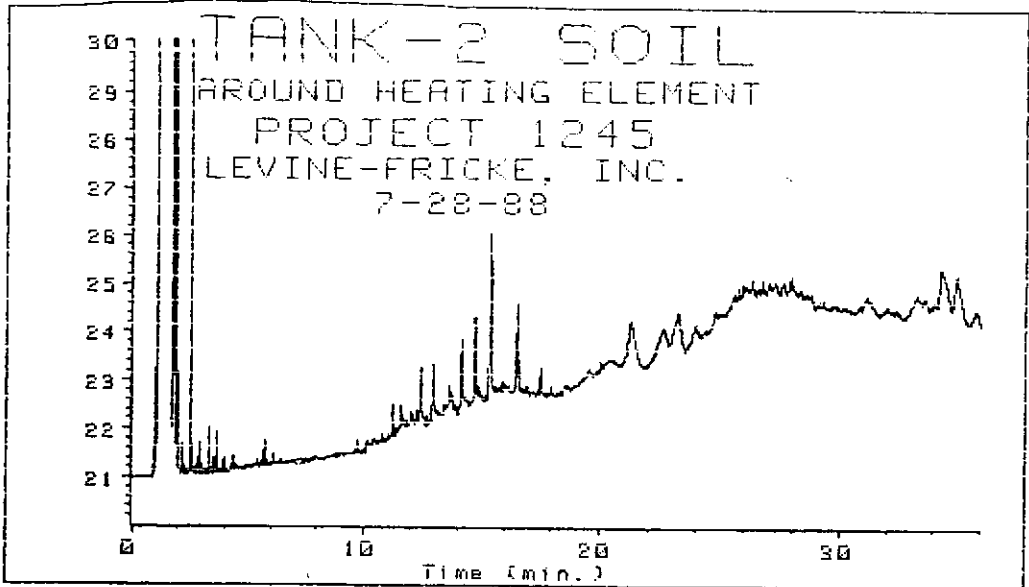


Andrew John Friedman, Chemist

AJF

Enclosures

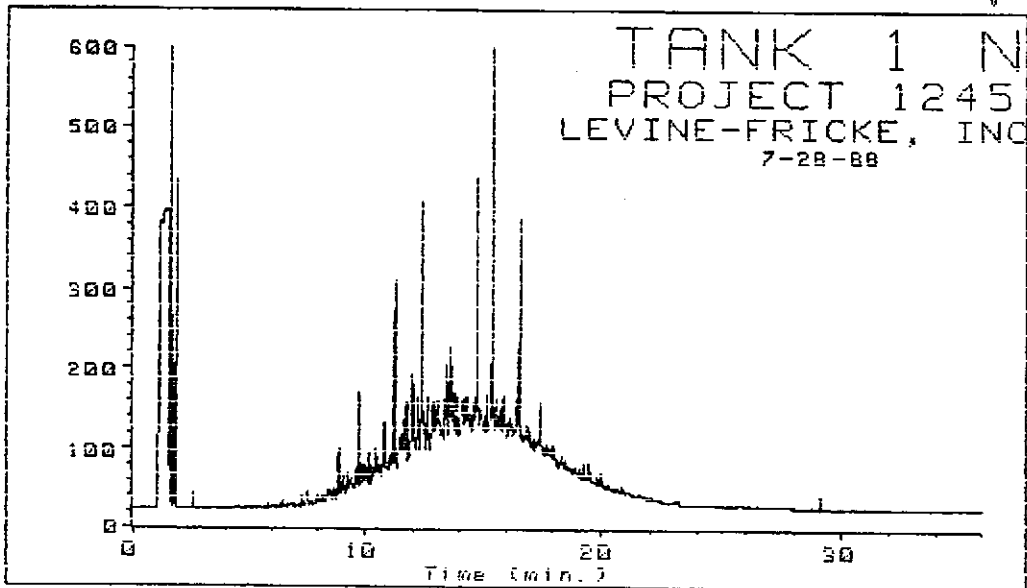




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[DE]

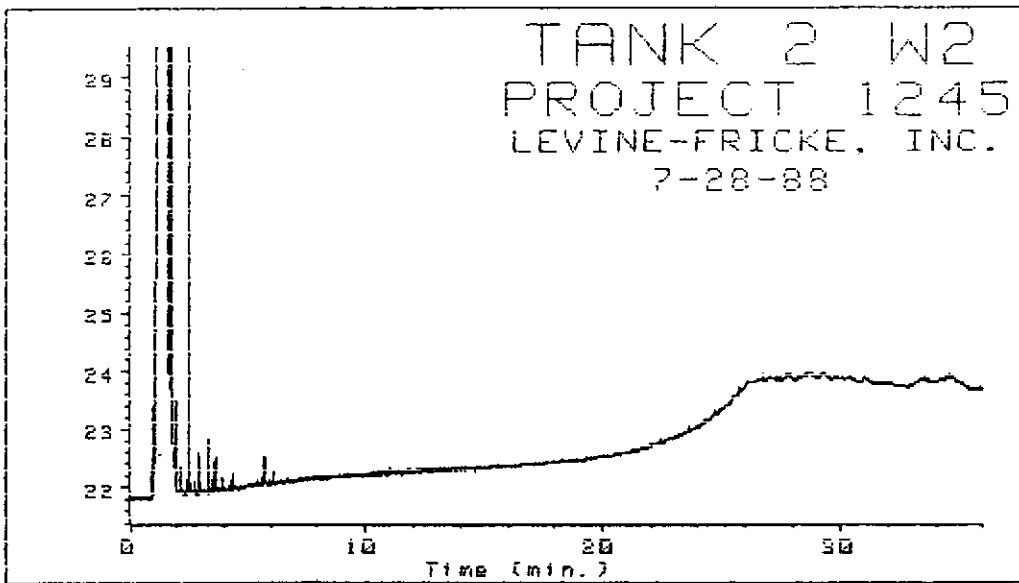
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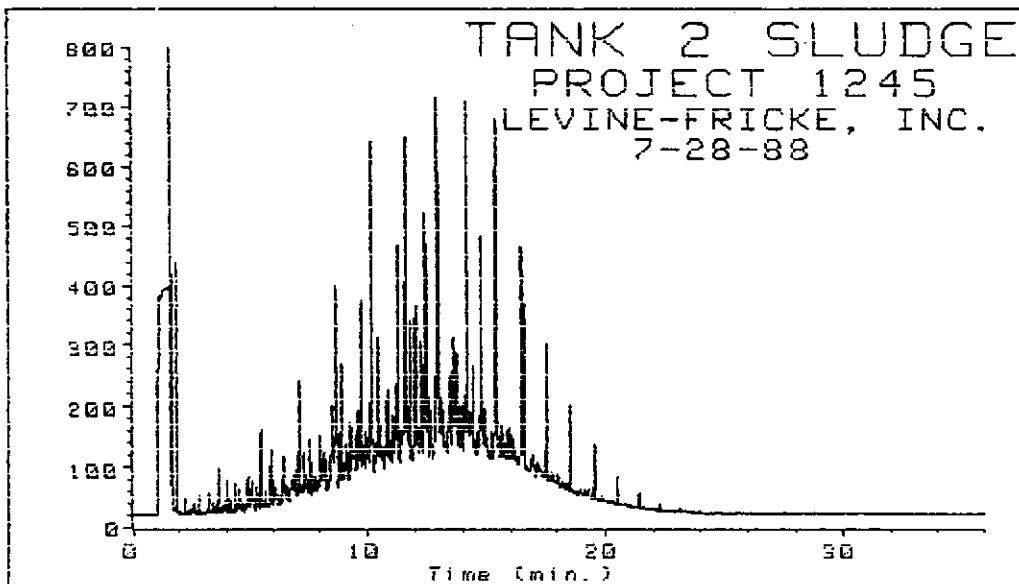
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File	KEYS	KEYS	LIST	In	Out	HELP	QUIT



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[DE]

New Data	CHROMAT	GRAPHICS	MATH &	Zoom	Zoom		
File	KEYS	KEYS	LIST	In	Out	HELP	QUIT



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[GR1]

Print/	Horizontal	Vertical	Zoom to	Zoom	Zoom	MORE	
Plot	Scale	Scale	Window	In	Out	KEYS	EXIT

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: <u>1245</u>	Field Logbook No.:	Date: <u>7/21/88</u>	Serial No.: No 3480
Project Name: <u>Alameda Marina V. Inc</u>	Project Location: <u>Alameda</u>		

Sampler (Signature): [Signature] ANALYSES
 Holders: E. NIYON

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE	ANALYSES						REMARKS
						EPA 601	EPA 624	FUEL I.D.	HOLD	RUSH		
Tank 2-3	7/24/88			2	soil			X				I.D. Fuel Oil - (soil heating)
Tank 1-N	7/24/88			1	soil			X				soil at north end of Tank 1
Tank 2-W	7/24/88			1	soil			X				west end of Tank 2
Tank 2-shd	7/24/88			1	sludge			X				material from inside Tank 2
Tank 1-wtr	7/26			1	water					X		
Tank 2-wtr	↓			1	water					X		
NOTE: FUEL I.D. → Compare to other fuel I.D. from other samples collected at site												
Please hold onto samples after analyses.												

RELINQUISHED BY: (Signature) <u>Matthew Cloud</u>	DATE <u>7/27/88</u>	TIME <u>12:47</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	DATE <u>7/27/88</u>	TIME <u>12:47</u>
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT:	DATE	TIME	LAB COMMENTS:		

SAMPLE COLLECTOR: (check one) <input checked="" type="checkbox"/> LEVINE-FRICKE 629 Oakland Avenue Oakland, CA 94611-4567 (415) 652-4500	<input type="checkbox"/> LEVINE-FRICKE 4019 Westerly Place, Suite 103 Newport Beach, CA 92660 (714) 955-1390	Analytical Laboratory: Farr, Friedman & Brunja Environmental Chemists 3008B -16th WEST SEATTLE, WASHINGTON 98119 Attn: Andrew Friedman
--	---	---

FARR, FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James K. Farr, Ph.D.
Andrew John Friedman
James E. Bruya, Ph.D.

3008 B - 16th West
Seattle, WA 98119
(206) 285-8282

September 12, 1988

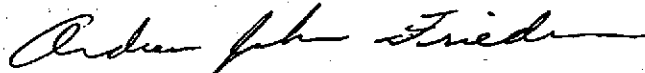
Elizabeth Nixon, Project Leader
Levine-Fricke, Inc.
1900 Powell, 12th Floor
Emeryville, CA 94608

Dear Ms Nixon:

Enclosed are the results of the analyses of samples submitted on July 20, 1988 from Project 1245.

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this material, or if you just want to discuss any aspect of your projects, please do not hesitate to contact me.

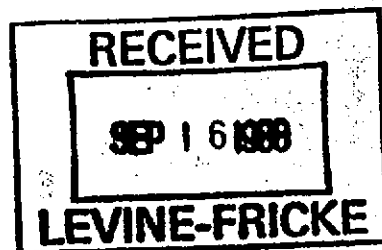
Sincerely,



Andrew John Friedman, Chemist

AJF

Enclosures



FARR, FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: September 12, 1988

Date Submitted: July 20, 1988

Project: 1245

FINGERPRINT CHARACTERIZATION
BY CAPILLARY GAS CHROMATOGRAPHY

Sample #

GC Characterization

PHF-27

The gas chromatographic trace was indicative of a weathered diesel fuel with a boiling range from n -C₁₀ to n -C₂₂, indicating it was probably a #2 diesel fuel. The loss of the smooth alkane distribution is indicative of substantial biological degradation.

PHF-45

The gas chromatographic trace showed only a small amount of a late eluting pattern of n -alkanes, indicating the possible presence of a small amount of a heavy residual petroleum distillate.

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 1245	Field Logbook No.:	Date: 6/24/84	Serial No.: Nº 3199
Project Name: Diameda Marina Village		Project Location: Diameda, CA	

Sampler (Signature): *Chabeth Thxh* ANALYSES Samplers: **E. NIXON**

SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CON-TAINERS	SAMPLE TYPE	ANALYSES							REMARKS
						EPA 601	EPA 624	FUEL FINGERPRINTS	HOLD	RUSH			
Tank 1 - Product	6/23			2	Product		X						Product from Tank 1
Tank 2 - product	6/23			2	Product		X						" " 2
Soil Product	6/14			1	Product		X						Product leaky from soil
Tank Water	6/21			1						X			Tank 1 water under float
Tank 1 - Water + product	6/21			1						X			" "
												Please Fingerprint Fuels (first 3 listed)	

RELINQUISHED BY: <i>Sergio Marc</i>	DATE: 6/27	TIME: 1:15	RECEIVED BY: <i>[Signature]</i>	DATE: 6/27	TIME: 4:55
RELINQUISHED BY: <i>[Signature]</i>	DATE:	TIME:	RECEIVED BY: <i>[Signature]</i>	DATE:	TIME:
RELINQUISHED BY: <i>[Signature]</i>	DATE:	TIME:	RECEIVED BY: <i>[Signature]</i>	DATE:	TIME:
METHOD OF SHIPMENT:	DATE:	TIME:	LAB COMMENTS:		

SAMPLE COLLECTOR: <input checked="" type="checkbox"/> LEVINE-FRICKE <i>625 Oakland Avenue Emeryville</i> (415) 652-4500	<input type="checkbox"/> LEVINE-FRICKE 4019 Westerly Place, Suite 103 Newport Beach, CA 92660 (714) 955-1390	Analytical Laboratory: FARL, FRIEDMAN & BRUHA Environmental CHEMISTS 3008 - 16th West SEATTLE, WASH. 98119
---	--	---

FARR, FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James K. Farr, Ph.D.
Andrew John Friedman
James E. Bruya, Ph.D.

3008 B - 16th West
Seattle, WA 98119
(206) 285-8282

September 12, 1988

Elizabeth Nixon, Project Leader
Levine-Fricke, Inc.
1900 Powell, 12th Floor
Emeryville, CA 94608

Dear Ms Nixon:

Enclosed are the results of the analyses of samples submitted on July 27, 1988 from Project 1245.

I am sorry but we don't seem to have been much help in trying to determine the origins of the material found in this sample. As you will see in the results, we found more questions than answers. I would greatly appreciate it if, as the project continues and you get more information, you could let us know what this material turns out to be. We are always looking to add new things to our repertoire.

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this material, or if you just want to discuss any aspect of your projects, please do not hesitate to contact me.

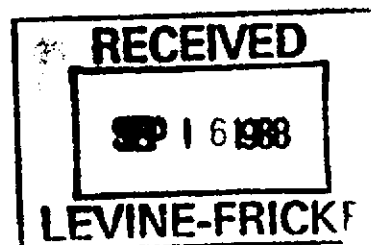
Sincerely,



Andrew John Friedman, Chemist

AJF

Enclosures



FARR, FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: September 12, 1988
Date Submitted: July 27, 1988
Project: 1245

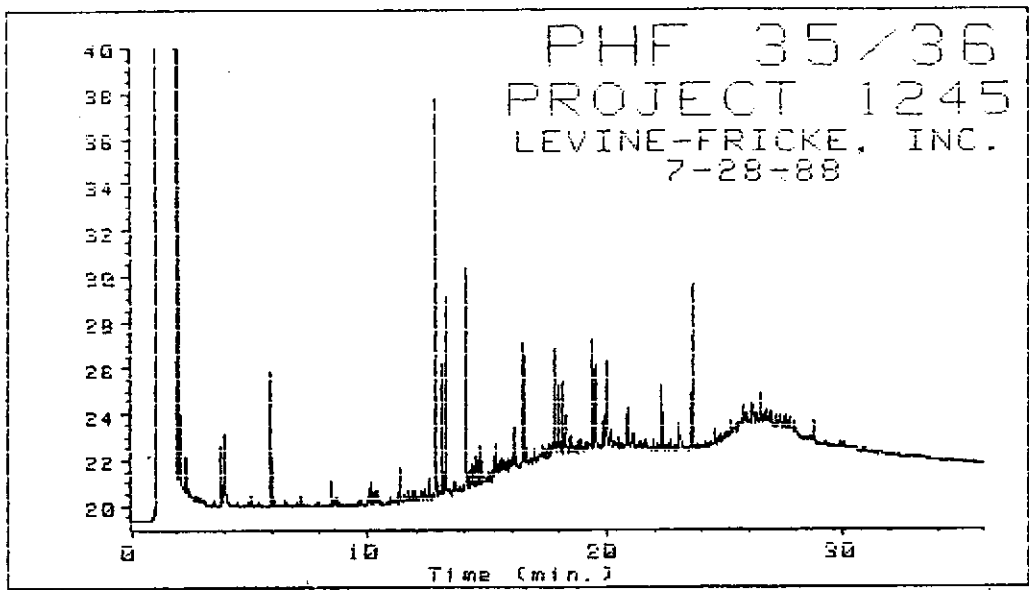
FINGERPRINT CHARACTERIZATION
BY CAPILLARY GAS CHROMATOGRAPHY

Sample #

PHF-35/36

GC Characterization

The gas chromatographic trace was indicative of a heavy diesel fuel (possibly a #6) or a mixture of compounds of a nature unknown to us. The chromatogram has a similar pattern to a diesel #6, but not the expected unresolved mass of hydrocarbons. The pattern is also similar to that given by mixtures of PNAs found in coal-gasification residues, but a tlc analysis did not find the high PNA level expected in such a case.



T: null.
Z: null.
Y: null.

X: Sig. 2 of V3:LF7_A63R.D

[GR1]

Print/ Plot	Horizontal Scale	Vertical Scale	Zoom to Window 4
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Zoom In	Zoom Out	NDRE KEYS	EXIT
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APPENDIX B
HAZARDOUS WASTE MANIFESTS

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CA D 0 0 9 1 1 3 4 7 3 8		Manifest Document No. 111111117		2. Page 1 of		Information in the shaded areas is not required by Federal law.		
3. Generator's Name and Mailing Address MAYFAIR VILLAGE 1150 MAYFAIR PARKWAY ALHAMBRA, CALIF 91801						A. State Manifest Document Number 87898008				
4. Generator's Phone 415-521-9555						B. State Generator's ID				
5. Transporter 1 Company Name H H SHI SERVICE CO			6. US EPA ID Number CA D 0 0 9 1 1 3 4 7 3 8			C. State Transporter's ID 702448		D. Transporter's Phone 415-593-4835		
7. Transporter 2 Company Name						8. US EPA ID Number		E. State Transporter's ID		
9. Designated Facility Name and Site Address H H SHI SERVICE CO 600 CHINA BASIN 26 F. A. W. CO						10. US EPA ID Number CA D 0 0 9 1 1 3 4 7 3 8		G. State Facility's ID 381-0101-781		
						H. Facility's Phone 415-543-0906				
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)					12. Containers		13. Total Quantity		14. Unit Wt/Vol	
a. Waste material with NOS. NA 1113					No. Type				I. Waste No.	
									State 512	
									EPA/Other	
									State	
									EPA/Other	
									State	
									EPA/Other	
									State	
									EPA/Other	
15. Special Handling Instructions and Additional Information Glove					16. Handling Code for Wastes Listed Above					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.										
Printed/Typed Name STEPHEN C. GETTY				Signature <i>[Signature]</i>		Month Day Year PPR 15 89				
17. Transporter 1 Acknowledgement of Receipt of Materials										
Printed/Typed Name Martin Castell				Signature <i>[Signature]</i>		Month Day Year 072688				
18. Transporter 2 Acknowledgement of Receipt of Materials										
Printed/Typed Name				Signature		Month Day Year				
19. Discrepancy Indication Space										
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.										
Printed/Typed Name				Signature		Month Day Year				

GENERATOR

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UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CA D09091134738		Manifest Document No. 11111111		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.									
3. Generator's Name and Mailing Address M... .. 115... .. Alameda, CA 94501						A. State Manifest Document Number 87893008											
4. Generator's Phone (415) 521-9555						B. State Generator's ID											
5. Transporter 1 Company Name H & H SHIP SERVICE CO			6. US EPA ID Number CA D09091771168			C. State Transporter's ID 702448		D. Transporter's Phone 415-543-4835									
7. Transporter 2 Company Name						E. State Transporter's ID		F. Transporter's Phone									
9. Designated Facility Name and Site Address H & H SHIP SERVICE CO 20... .. Alameda, CA						10. US EPA ID Number CA D09091771168		G. State Facility's ID 38-1091778									
						H. Facility's Phone 415 543-0906											
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) a. Waste... .. b. c. d.						12. Containers		13. Total Quantity		14. Unit Wt/Vol		1. Waste No.					
						No.		Type						State		512	
														EPA/Other			
														State			
														EPA/Other			
12. Additional Descriptions for Materials Listed Above						13. Handling Codes for Wastes Listed Above											
15. Special Handling Instructions and Additional Information G... ..																	
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.																	
Printed/Typed Name STEPHEN C. GETTY				Signature <i>[Signature]</i>		Month		Day		Year							
17. Transporter 1 Acknowledgement of Receipt of Materials				Printed/Typed Name Martin Castello		Signature <i>[Signature]</i>		Month		Day		Year					
18. Transporter 2 Acknowledgement of Receipt of Materials				Printed/Typed Name		Signature		Month		Day		Year					
19. Discrepancy Indication Space																	
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.																	
Printed/Typed Name				Signature		Month		Day		Year							

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA CALL 1-800-852-7350

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Please print or type. (Form designed for use on elite (12-pitch typewriter).)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CA1001091131443R	Manifest Document No. 5111172	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address Marina Village 1150 Marina Village Parkway Berkeley, CA 94501 (415) 521-9555				A. State Manifest Document Number 87851172	
4. Generator's Phone				B. State Generator's ID	
5. Transporter 1 Company Name HEH Ship Service Co		6. US EPA ID Number CA10010911417111618		C. State Transporter's ID 902450	
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone 415-543-4135	
9. Designated Facility Name and Site Address HEH Ship Service Co. 220 China Basin St. San Francisco, Ca. 94107		10. US EPA ID Number CA10010911417111618		E. State Transporter's ID	
				F. Transporter's Phone	
				G. State Facility's ID 138-10101-1781-1	
				H. Facility's Phone 415-543-0906	
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers		13. Total Quantity	14. Unit
a. WASTE HAZARDOUS Liquid NOS. 1HA 9189 ORM-E		No. Type		Quantity	Wt/Vol
		1 211 TT		14510	KG
b.					
c.					
d.					
15. Special Handling Instructions and Additional Information Gloves					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name Dwaine Pierzina		Signature <i>[Signature]</i>		Month Day Year 01/21/88	
17. Transporter 1 Acknowledgement of Receipt of Materials					
Printed/Typed Name EDWARD E MILANO		Signature <i>[Signature]</i>		Month Day Year 01/21/88	
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed/Typed Name Dura		Signature		Month Day Year	
19. Discrepancy Indication Space					
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.					
Printed/Typed Name		Signature		Month Day Year	

GENERATOR

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Please print or type. (Form designed for use on elite (12-pitch typewriter).)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CA 0009134438		Manifest document No. 980116		2. Page of 1		Information in the shaded areas is not required by Federal law.			
3. Generator's Name and Mailing Address Marina Village 150 Marina Village Parkway Alameda						A. State Manifest Document Number 87838016					
4. Generator's Phone 521-4555						B. State Generator's ID					
5. Transporter 1 Company Name HH Ship Service			6. US EPA ID Number 15190104771168			C. State Transporter's ID 902345		D. Transporter's Phone 415439885			
7. Transporter 2 Company Name						E. State Transporter's ID					
9. Designated Facility Name and Site/Address HH Ship Service 220 China Bowl SAN FRANCISCO						10. US EPA ID Number 15190104771168					
G. State Facility's ID 3809178						H. Facility's Phone 4155930906					
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers		13. Total Quantity		14. Unit	
Hazardous liquid waste						No. Type		Quantity		Wt/Vol	
1993						2101111		1101206		6	
b.										State Waste No.	
c.										EPA/Other	
d.										State	
Additional Descriptions of Material Listed Above						Handling Codes for Waste Listed Above					
0.26 water											
15. Special Handling Instructions and Additional Information none											
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.											
Printed/Typed Name Dwan J Pierzina				Signature 				Month Day Year 07/2/88			
17. Transporter 1 Acknowledgement of Receipt of Materials											
Printed/Typed Name Martin Costello				Signature 				Month Day Year 07/2/88			
18. Transporter 2 Acknowledgement of Receipt of Materials											
Printed/Typed Name				Signature				Month Day Year			
19. Discrepancy Indication Space											
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.											
Printed/Typed Name				Signature				Month Day Year			

GENERATOR

TRANSPORTER

FACILITY

Please print or type. (Form designed for use on elite (12-pitch typewriter).)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CA1D109V B3414781980109		Manifest Document No.		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address Marina Village 420 Tynan Alameda 1150 Marina Village Parkway 94501						A. State Manifest Document Number 87898009			
4. Generator's Phone (415) 512 9555						B. State Generator's ID			
5. Transporter 1 Company Name H&H Ship Service			6. US EPA ID Number EA00014171711188			C. State Transporter's ID 402448		D. Transporter's Phone 415-5434835	
7. Transporter 2 Company Name						E. State Transporter's ID		F. Transporter's Phone	
9. Designated Facility Name and Site Address H&H Ship Service 220 China Basin 94107 San Francisco CA						10. US EPA ID Number		G. State Facility's ID B18100111281	
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers No. Type		13. Total Quantity	
a. Waste Empty Diesel Engine Combustible NA 1270						0101 TP		150 gal	
b. Boiler Oil Tank Combustible Waste Empty NA 1270						0101 TP		200 gal	
c.									
d.									
14. Additional Descriptions for Materials Listed Above						15. Handling Codes for Wastes Listed Above		16. Waste No.	
E. Engine Oil and Diesel Fuel								State 512 EPA/Other N/A	
Waste Empty Diesel Engine Combustible								State 117 EPA/Other N/A	
15. Special Handling Instructions and Additional Information						none			
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.									
Printed/Typed Name Dwain J Pierzina						Signature <i>[Signature]</i>		Month Day Year 10 22 88	
17. Transporter 1 Acknowledgement of Receipt of Materials						Signature <i>[Signature]</i>		Month Day Year 11 17 88	
18. Transporter 2 Acknowledgement of Receipt of Materials						Signature		Month Day Year	
19. Discrepancy Indication Space									
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.									
Printed/Typed Name						Signature		Month Day Year	

GENERATOR OR FACILITY