SEP 17301994 INA VILLAGE PARKWAY SUITE 200

ALAMEDA, CALIFORNIA 94501 TEL: (510) 769-0100 FAX: (510) 769-9244

13 September 1991 Ref: NC290.05

Mr. Eddy So Regional Water Quality Control Board 2101 Webster Street, Suite 500 Oakland, California 94612

Subject: Corrections to Soil and Groundwater Investigation Report for the Lake Merritt Towers, Tower 2

Project

this is a correction + supplementary document for the above

Dear Mr. So:

In response to your request in our telephone conversation on 12 September 1991 the following corrections to the April 1991 Soil and Groundwater Investigation report for Lake Merritt Towers Project have been prepared:

- On Figure 1.2 the parcel designations are incorrect. 1) Parcel A should read parcel B and parcel B should read parcel A (This error also was included on Figure 2 of the June 1991 Groundwater Monitoring Event report). This figure will be corrected in future reports.
- On page 6-1, second paragraph, line 4, the word 2) southern should be eastern and on line 8 the word sout should be east.

Your review and comments of reports for the Lake Merritt Towers Project are appreciated. Please call if you have additional questions.

Very Truly Yours,

John Brideburgh John Bridenbaugh, PE, REA

Project Manager

Mr. Dennis Byrne, Alameda County Health Agency

Mr. Richard Makdisi, Enginrrging-Science_

HARKOM STREET
WARRAGE
1452 WARR

ES ENGINEERING-SCIENCE
1301 Marina Village Parkway, Suite 200

LETTER (OF TRA	ANSMITTA
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то	Alameda, California 9450 Tel: (510) 769-0100 Fax		DATE 12 September 91 JOB NO. NC290.07 ATTENTION. Eddy So						
	gional Water Quali	ty Control Board	RE:						
	01 Webster Street,	10,0014 1999 1							
0ak	land, California	94612	_						
GENTL	EMEN:								
	WE ARE SENDING YOU THE FOLLOWING ITEM Shop drawings Copy of Letter Dated 9/12	S: Attached Under separ	rate cover via the following item Plans						
COPIES	DATE NO.		DESCRIPTION						
1	11/6/87	Environmental Assessmen	nt of Harrison Street-Lakefront Properties						
		in Oakland, California							
THESE A	RE TRANSMITTED as checked	below:							
	For approval	For checking	Resubmit copies for approval						
	For your use	☐ Approved as submitted	Design only, not for construction						
Ž	As requested	☐ Approved as noted	Return corrected prints						
	For review and commen	Returned for corrections	;						
	For Your Action								
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John R. Bridenbaugh, Project Manager If enclosures are not as noted, please notify us at once.

RECEIVED NOV 0 5 1990

600 BANCROFT WAY BERKELEY, CALIFORNIA 947 (415) 548-7970

Ans'd

6 November 1987 Ref: NC073.02

Ahmanson Commercial Development Company 11111 Santa Monica Boulevard Suite 2127 Los Angeles, California 90025

Attention: Mr. Kenne Reizes

Environmental Assessment of Harrison Street-Lakefront

Properties in Oakland, California

INTRODUCTION

Subject:

This report describes the Phase II investigation of possible hazardous waste contamination on the 21st and Harrison Streets property, as recommended in the Phase I letter report submitted by Engineering-Science (ES) 25 November 1986 and proposed in a letter proposal dated 9 October 1987 to Ahmanson Commercial Development Company.

The purpose of this work is to further characterize the vertical and lateral extent of subsurface waste oil contamination identified in the Phase I study, and to the the extent possible, determine if the underground storage tank responsible for the contamination still exists underground. The Phase I study is contained in Appendix A.

SITE BACKGROUND

The property under study in this report is one of two parcels that was investigated and identified as Parcel B in the Phase I study. The parcel is bounded by Harrison Street on the east, 21st Street on the south, the Ordway Building on the west, and 22nd Street on the north. The northern portion of the parcel is presently used as a parking lot; the southern portion of the parcel is landscaped, with grass covering much of the ground, shrubbery along the northern and western borders, and sidewalks on the south and east sides adjacent to 21st and Harrison Streets, respectively. This investigation focused on the southern portion of the parcel, particularly with respect to the area in the vicinity of the underground waste oil storage tank (see Figures 1 and 2).

Mr. Kenne Reizes 6 November 1987 Page 2

Most of the near surface soils, which consists of clays, silts and sand fill materials, have been profoundly affected by development since the turn of the century, including construction of the nearby Ordway Building and grading associated with landscaping, so that it can be assumed that the soils no longer constitute native soils. In the western half of the parcel, the near surface soils are underlain by Holocene alluvial soils of the Temescal formation, which consists primarily of stiff sandy clays with discontinuous layers of sand and gravel. In the eastern half of the parcel, the fill materials are underlain by up to 15 feet of lake and tidal flat sediments consisting of soft clays and silts. The Temescal Formation is underlain by approximately 40 feet of San Antonio formation which generally consists of very stiff to hard sandy to silty clays with occasional dense gravel layers. This is underlain by approximately 400 feet of dense Alameda Clay which overlies Franciscan Bedrock.

By the early 1900's, much of the tidal flats and marshes surrounding the northwest portion of Lake Merritt had been filled, and commercial development was taking place. In 1928 the Murphy Buick Dealership was built on the parcel, which for the next four decades would operate as an auto dealership. A 1,500-gallon waste oil storage tank buried beneath the sidewalk was associated with the dealership. The site of the Ordway Building was in part occupied by a car wash, which included a gasoline pumping island and associated underground storage tanks. Sometime between 1964 and 1972, the Murphy Buick Dealership changed hands (to become known as the Herrera Buick dealership) and the Ordway Building highrise was built to the west. By 1973 records indicate that Herrera Buick had been demolished, the 1,500-gallon waste oil tank beneath the sidewalk had been removed and the area landscaped with grass and shrubbery. The history of the site is described in greater detail in the Phase I report (see Appendix A).

SITE CHARACTERIZATION

To obtain accurate geologic logs and collect samples of the subsurface soils, a hand-held, gas-driven borehole sampler was employed. This sampling device operates by driving 1-1/4-inch steel pipes lined with clean brass tubes into the ground which enables the discrete sampling of soil samples at desired locations.

Mr. Kenne Reizes 6 November 1987 Page 3

A total of eighteen (18) boreholes were bored. Eleven (11) boreholes hit refusal at a depth of between 1-1/2 feet and 2-1/2 feet. This fact as well as similar results in the Phase I study indicates that there is some solid material, possibly a concrete slab, beneath this section of the parcel.

Seven (7) boreholes were bored to a depth of nine feet or more. all of these boreholes were bored immediately north of the sidewalk adjacent to 21st Street and downgradient of the underground storage tank. The location of the underground storage tank was obtained from old blueprints of the property. In the Phase I study, two boreholes, WK-1A and WK-7, detected waste oil-contaminated soil downgradient of the underground storage tank at depths between 6 and 8 feet. The boreholes in this study were placed both upgradient and downgradient of WK-1A and WK-7 to more precisely characterize the vertical and lateral extent of contamination. Figure 2 shows the locations of the boreholes from both the Phase I study and this study.

No boreholes could be placed over the underground storage tank to determine if the tank still exists underground due to the location of a utility control box approximately one and one-half feet north of the center of the tank. California state regulations prevent drilling within ten feet of buried electrical lines, so it was not possible to place any exploratory boreholes immediately over the tank.

Three boreholes were placed within 12 feet of the underground storage tank and upgradient of WK-1A. These were: AK-7, AK-10 and AK-12. Borehole AK-7 was bored to a depth of 12 feet; the other two, 9 feet. No hydrocarbon odors were detected in any of these boreholes. In all three, a dark brown clay was encountered in the upper 2 to 3 feet. In boreholes AK-7 and AK-10 a light brown sand and gravel fill mixture was observed below 3 feet to the bottom of the boreholes, while in AK-12 a gravel, a brown silty clay and a brown clay were observed below 3 feet.

Four boreholes were bored downgradient of WK-7 (which had the highest concentration of waste oil detected in the Phase I study). These were, from upgradient to downgradient: AK-18, AK-14, AK-6 and AK-17. All four boreholes were bored to 9 feet and had hydrocarbon odor detected to some degree between 6 and 9 feet; however, borehole AK-18, which was the closest

Mr. Kenne Reizes 6 November 1987 Page 4

to WK-7, had the strongest hydrocarbon odor. Borehole AK-17, the farthest and most downgradient from the underground storage tank, had the least noticeable hydrocarbon odor. Complete borehole logs are contained in Appendix B.

ANALYTICAL RESULTS

Soil samples were collected in clean brass tubes, one inch in diameter and six inches in length. The tubes were sealed at both ends with aluminum foil and capped with inert plastic caps. The samplers were placed in a refrigerated cooler until delivery to the Berkeley ES Laboratory. This sampling protocol is in accordance with standards established by the Department of Health Services (DOHS) and the Regional Water Quality Control Board (RWQCB).

A total of five samples from five boreholes were collected and analyzed for total petroleum hydrocarbons at depths which had the greatest evidence of hydrocarbon contamination based on smell and appearance in the field. The samples were from boreholes AK-6 (a composite of three samples taken between 6 and 9 feet), AK-8 (samples collected at 2 feet, immediately overlying the concrete slab), AK-14 (8 feet), AK-17 (7.5 feet) and AK-18 (7.5 feet). The samples were analyzed by the Gas Chromatography/Flame Ionization Detection (GC/FID) method, which identifies and quantifies compounds by comparing the retentive time ranges of the analysis with standards of known composition. For all the samples collected, total petroleum hydrocarbons were below the detection limit of 10 ppm (see Table 1). Chain of custody records and analytical results are contained in Appendix C.

TABLE 1

Sample Identification	Type of Sample	Depth (ft)	Total Petroleum Hydrocarbon (ppm)
AK6-6.5,7.5,8.5	composite	6.5-8.5	<10
AK8-2.0	discrete	2.0	<10
AK14-8.0	discrete	. 8.0	<10
AK17-7.5	discrete	. 7.5	<10
AK18-7.5	discrete	7.5	<10

ENGINEERING-SCIENCE, INC.
Mr. Kenne Reizes

6 November 1987 Page 5

CONCLUSIONS

These conclusions are based on data and interpretations developed in the body of this report. The data analyzed were collected by Engineering-Science on 18 November 1986 and 28 November 1987. These conclusions will address the primary concerns of this study, that is: whether the underground storage tank is still present underground, and to what extent there has been waste oil contamination on the 21st and Harrison Streets property.

A total of eighteen boreholes were bored. The geology and hydrogeologic conditions encountered during boring operations were consistent with what was found in the Phase I report: the project site is underlain by generally medium stiff to stiff silts and clay fill materials; the water level was approximately 6 feet in the boreholes at the time of drilling. Eleven boreholes hit a concrete slab at a depth of 2 feet suggesting that a concrete slab underlies much of the parcel.

Measurements taken from old blueprints indicate that the underground storage tank would have a surface-projected dimension of 4 feet by 9 feet and the center would be located one (1) foot into 21st Street, 81 feet west of the Ordway property line. The blueprints show the tank parallel with and underlying the sidewalk on the blueprints; however, according to verbal communication with long-time residents, 21st Street was widened in the early 1970's, which would account for the tank partially underlying the street at this time.

Samples collected from boreholes located both upgradient and down-gradient of the underground storage tank indicate that relatively minor concentrations of hydrocarbon contamination exists in an area confined to between 10 to 60 feet downgradient of the tank and between 6 and 9 feet in depth. All samples analyzed, which were selected from locations with the greatest evidence of hydrocarbon contamination, had concentrations below detection limits for total petroleum hydrocarbons.

Data collected suggests that the underground storage tank was probably removed. The sandy fill noted in boreholes AK-7 and AK-10 are the type of fill common to a backfilled excavation. No hydrocarbon odors were noted in these fill materials as would be expected given that the tank was still in '

Mr. Kenne Reizes 6 November 1987 Page 6

also, the location of the underground utility control box immediately overlying the tank, coupled with evidence of road widening which took place indicate the tank would have most likely been removed at that time.

RECOMMENDATIONS

- Soils contaminated with hydrocarbon concentration above 100 ppm should be excavated and treated and/or disposed of to a Class I hazardous waste landfill by a State of California certified hazardous waste hauler. This would be accomplished during the initial construction phase. During this phase it should be verified that the underground storage tank has been removed.
- ES recommends installation of one groundwater well to monitor This could be installed at the complefor fuel hydrocarbons. tion of the project construction phase. The Regional Water Quality Control Board recommends the installation of a groundwater well in areas where soil concentration exceeds 100 ppm 350 ppm waste oil was indicated in sample total hydrocarbons. WK-7.

It has been a pleasure to provide Ahmanson Commercial Development Company with the requested technical services. If you have any questions regarding this submittal, please call.

Very truly yours,

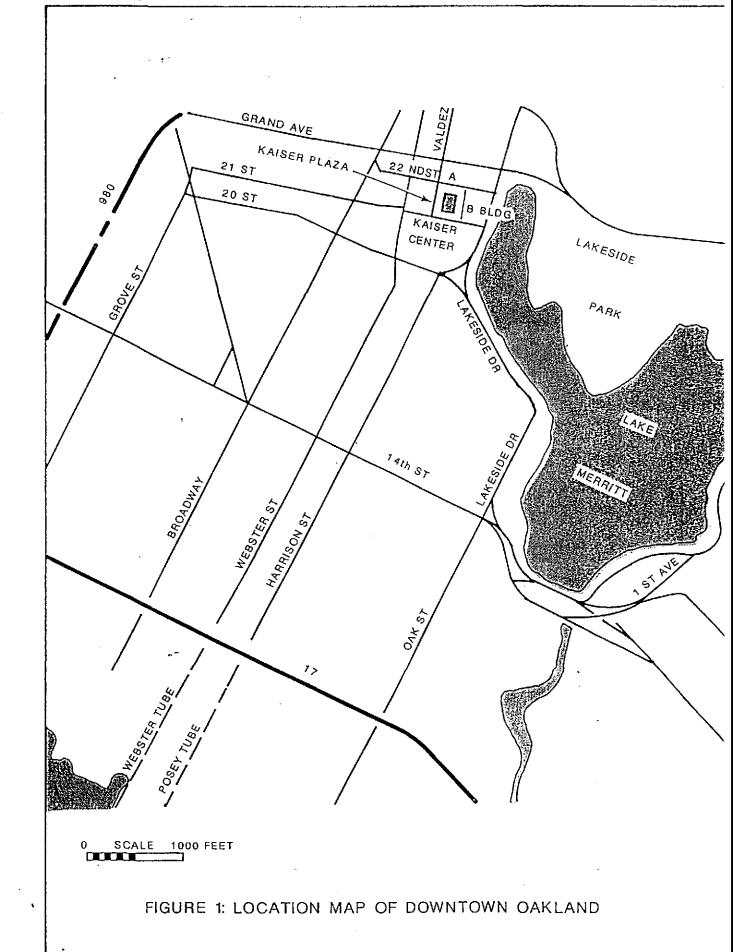
Wayne Hauck

Project Manager

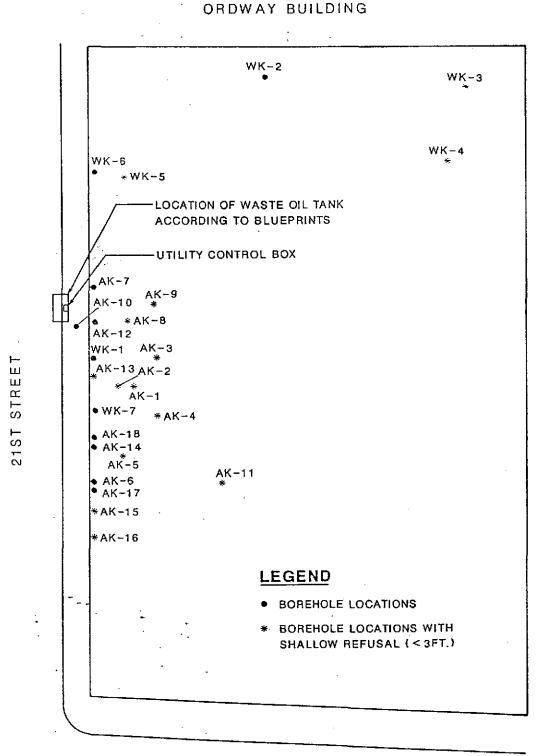
D. B. McCullar, R.G.

Dan McCull

Senior Hydrogeologist



ENGINEERING-SCIENC



HARRISON STREET

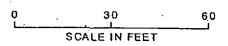




FIGURE 2: MAP OF BOREHOLE LOCATIONS

-ES ENGINEERING-SCIENCE-TEST HOLE NUMBER AK-6 CLIENT Ahmanson Development 21st & Harrison Streets Handdriven Sampling LOCATION Oakland, California DRILLER__ DRILLING METHOD Hand Held Driver DATE _____28 October 1987 1.25" HOLE DIAMETER_____ GEOLOGIST W. Hauck DESCRIPTION LITHOLOGY WELL CONSTRUCTION DARK BROWN CLAY(CL), medium stiff, moist, abundant (FEET) gravel fragments, no odor 2 SURFACE BROWN SILTY CLAY(CL), medium stiff, moist. GROUND DARK BROWN CLAYEY SAND (SC), medium stiff, very moist. DARK BROWN CLAYEY SAND (SC), very wet, hydrocarbon odd BELOW @ 7.01. GREEN CLAY(CL), stiff, mois abundant angular gravel _fragments @ 8'.__ Bottom of Borehole

EXPLANATION

Y Water level during drilling

Contact (dashed where approximate)

-ES ENGINEERING-SCIENCE-TEST HOLE NUMBER _____AK-7_ CLIENT Ahmanson Development 21st & Harrison Streets DRILLER Handdriven Sampling LOCATION Oakland, California DRILLING METHOD Hand Held Driver 28 October 1987 HOLE DIAMETER ________1.25" GEOLOGIST W. Hauck DESCRIPTION LITHOLOGY WELL CONSTRUCTION DARK BROWN CLAY(CL), stiff, moist, some gravel fragme: (FEET) no odor. BROWN CLAY(CL), medium stiff SURFACE occasional rock fragments up to 3/4", no odor. GROUND BROWN SAND (SC), very stiff clay, sand and gravel mi: BELOW ture, brick fragments indicate fill material, very wet @ 6.5'. BROWN SAND (SC), very stiff

10

EXPLANATION

▼ Water level during drilling ...

--- Contact (dashed where approximate)

Bottom of Borehole

moist, some angular rock fragments, moist, no odc

CLIENT Ahmanson Development TEST HOLE NUMBER AK-10

21st & Harrison Streets

LOCATION Oakland, California DRILLER Handdriven Sampling

DATE 28 October 1987 DRILLING METHOD Hand Held Driver

GEOLOGIST W. Hanck Hole DIAMETER 1.25"

DESCRIPTION LITHOLOGY WELL CONSTRUCTION CONCRETE DARK BROWN ORGANIC CLAY (OL) , soft, moist, occasional re fragments including brick. 2 SURFACE LIGHT BROWN SILTY CLAY (CL), stiff, moist, no odor. GROUND LIGHT BROWN SILTY CLAY (CL), VE BELOW stiff, moist, well sorted 'except for occasional rock fragments. Bottom of Borehole 10 -

EXPLANATION

Y Water level during drilling

Contact (dashed where approximate)

📕 - Location of sample

CLIENT Ahr	manson Developme	nt	TEST HO	LE NUMBER _	AK-12
	st and Harrison kland, Californi		DRILLER	Handdriven	Sampling
	October 1987				nd Held Driver
GEOLOGIST _W				AMETER	
WELL C	ONSTRUCTION		LITHOLOGY	DES	NC:T¶IEDE
W266 0	ONS MOONON	о _Т		<u> </u>	IC SOIL(PT), tops
		7 (FEET)		BLACK CLAY(limonite	CL), stiff, moist mottles, some ar gravel fragments
		SURFACE			EL(CL), gravel for to 3/4" in a clo
,		GROUND			COVERY CLAY(CL), stiff gray, no odor.
				NO REC	COVERY
		RH BELOW		occasion no odor	(CL), stiff, mois hal rock fragment except possible Hydrocarbon odor
⁻		10 —		Bottom of 1	Borehole .
•					•
		-			
					·

Location of sample

X Water level during drilling

-ES ENGINEERING-SCIENCE-TEST HOLE NUMBER ____ AK-14_ Ahmanson Development CLIENT 21st & Harrison Streets LOCATION Oakland, California DRILLER Handdriven Sampling DRILLING METHOD Hand Held Driver 28 October 1987 HOLE DIAMETER _______1.25" GEOLOGIST W. Hauck LITHOLOGY DESCRIPTION WELL CONSTRUCTION NO RECOVERY DARK BROWN CLAY (CL), stiff, moist, some rock fragments 2 no odor. SURFACE DARK GRAY SILTY CLAY(CL), ver moist, medium stiff, sligh hydrocarbon odor @ 6', occasional rock fragments. GROUND DARK GRAY SILTY CLAY(CL), sti BELOW moist, soil turns lighter gray @ 8.5', strong hydrocarbon odor, especially € 8' - 9'. DEPTH Bottom of Borehole: 10 EXPLANATION Contact (dashed where approximate) Y Water level during drilling Location of sample

- ES ENGINEERING-SCIENCE CLIENT __Ahmanson Development TEST HOLE NUMBER ___AK-17 21st & Harrison Streets LOCATION Oakland, California Handdriven Sampling DRILLER__ DRILLING METHOD Hand Held Driver 28 October 1987 DATE ___ GEOLOGIST ___W. Hauck HOLE DIAMETER ______1.25" LITHOLOGY DESCRIPTION WELL CONSTRUCTION 0 DARK BROWN-BROWN SILTY CLAY(CI medium stiff-stiff, moist. 2 SURFACE NO RECOVERY DARK GRAY CLAY(CL), medium sti GROUND moist-very moist, brown mottles upper 1'. 6 GRAY SILTY CLAY(CL), moist, sc medium stiff, Hydrocarbon BELOW odor @ 7.5' - 3.0'. 8 Becomes Green-Gray @ 8.5'. Bottom of Ecrehole 10 **EXPLANATION** Contact (dashed where approximate) Y Water level during drilling .Location of sample ...

-ES ENGINEERING-SCIENCE-Ahmanson Development TEST HOLE NUMBER _ CLIENT 21st & Harrison Streets LOCATION Oakland, California Handdriven Sampling DRILLER___ DRILLING METHOD Hand Held Driver 28 October 1987 DATE .. HOLE DIAMETER _____ 1.25" GEOLOGIST W. Hauck DESCRIPTION LITHOLOGY WELL CONSTRUCTION BROWN SAND (SC), stiff, contain gravel fragments (possibly fill material), no odor. 2 NO RECOVERY DARK BROWN CLAYEY SILT (CL), medium stiff, moist, crumbl GROUND no odor. 6 NO RECOVERY BELOW DARK GRAY SILT(CL), soft, ve: moist, occasional small roc fragments, strong Hydrocarl GRAY GREEN CLAY (CL), medium DEPTH stiff, strong Hydrocarbon : Bottom of Borehole 10 EXPLANATION Contact (dashed where approximate) Water level during drilling 異

ES ENGINEERING-SCIENCE TEST HOLE NUMBER WK-1 CLIENT _____ DRILLER____ LOCATION _____ DRILLING METHOD DATE _____ HOLE DIAMETER GEOLOGIST_____ DESCRIPTION LITHOLOGY BORING LOCATION YELLOW TO GREEN-BROWN SILTY CLAY (CH) medium firm, (FEET) moist, minor fine sand with scattered black clasts. YELLOW BRN SILTY CLAY (CH) stiff, moist, minor fine sar SURFACE NO ODOR. ORANGE-BROWN CLAY (CH) stiff, moist, minor fine bla GROUND LIGHT GREEN-BROWN CLAY (CH), stiff, less moisture, minor fine sand, no odor. 10 B.O.B. EXPLANATION Contact (dashed where approximate) Water level during drilling Location of sample

---- ES ENGINEERING SCIENCE -WK-2 TEST HOLE NUMBER _ CLIENT WIP LOCATION 21st/Harrison, Oakland DRILLER Handriven DRILLING METHOD_____ DATE 11/19/86 HOLE DIAMETER 1" GEOLOGIST___ BORING LOCATION DESCRIPTION LITHOLOGY 0 DK BROWN ORGANIC SOIL (Pt) Stiff, Dry, loamy soil, minor (FEET) angular gravel DK BROWN ORGANIC SILT and $\Pi \Pi \Pi$ SILTY CLAY (OL), medium stiff 1 slightly moist, scattered limonite SURFACE DK BROWN SILTY CLAY (CL) med. stiff, moist, lensed w/mi pockets of fine lt. brn.sam: ST. 2 minor angular gravel and debris (brick) WK-2 st GROUND ŭ SILTY (YELLOW-BROWN) GRAVEL BELOW (GRAY) (GM), loose, moist, HARRISON angular, probably constructi fill or "lift" YELLOW-BROWN to GREEN-GRAY DEPTH CLAY (CH), mottled, med stiff moist, minor fine black clas no odor. BROWN-GREEN SILTY CLAY (CH), med. stiff, moist, ra: angular gravel, (engineered fill?) 6 YELLOW-BROWN SILTY-CLAY (CH) medium stiff, moist, minor scattered limonite and fine black clasts. EXPLANATION Contact (dashed where approximate) Water level during drilling Location of sample

CLIENT								
LOCATION	<u></u>	 .	DRILLER					
DATE			DRILLING	METHOD				
GEOLOGIST			HOLE DIA	METER				
BORING LOCATION	_	Ll.	THOLOGY	DESCRIPTION				
	7	(FEET)		YELLOW-TO-GREEN-BROWN SILTY CLAY (CL),stiff, versilty becoming sandier 7.5 8 feet, minor scattered limonite (no odors)				
	8	SURFACE		YELLOW-BROWN SANDY SILT (ML),soft, moist, unconsolodated, fine sand; (no odors)				
	9	GROUND		YELLON-BROWN SILTY SAND (SM), fine sand ≈75%, clear odors.				
	10		B.O.B.	•				
		DELOW	-					
			·					
		OEP TH		·				
		DEF		<u>.</u>				
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---ES ENGINEERING-SCIENCE -CLIENT WIP TEST HOLE NUMBER __WK-3 21st/Harrison, oakland Handriven DRILLER LOCATION 11/18/86 DRILLING METHOD DATE_ HOLE DIAMETER ______ GEOLOGIST · DBM BORING LOCATION DESCRIPTION LITHOLOGY DK BROWN ORGANIC SOIL (Pt) stiff, dry, loamy soil, min angular gravel DK BROWN ORGANIC SILT AND SILTY CLAY (OL), medium sti 1 slightly moist, scattered limonite DK BROWN SILTY CLAY (CL) med. stiff, moist, lensed w ST. minor pockets of fine light WK-3 1 brown sand, minor angular **21st** gravel GROUND LIGHT ORANGE SILTY GRAVEL (GM), loose, moist, B.O.B. angular. 3 ABSOLUTE RESISTANCE BELOW AT 2.5 feet HARRISON (no concrete on tip, r metal sounds, entir€ area vibrated when hammered) 5 6 EXPLANATION ▼ Water level during drilling Contact (dashed where approximate) Location of sample

----- ES ENGINEERING-SCIENCE TEST HOLE NUMBER WK-4 CLIENT_ Handriven DRILLER_ LOCATION 21st/Harrison, Oakland DRILLING METHOD_____ DATE __11/18/86 HOLE DIAMETER _____1" GEOLOGIST DBM BORING LOCATION DESCRIPTION LITHOLOGY 0 BLACK ORGANIC SOIL (Pt), med. stiff, dry, topsoil (FEET) DK BROWN SILTY CLAY (CL) stiff, slightly moist, consistent 1 ST. 2 **21st** GROUND GREEN-GRAY SILTY CLAY WK-4 (CL), med stiff, moist, abundant inclusions (≈25%) angular gravel, brick. 3 BELOW ABSOLUTE RESISTANCE HARRISON at 3.5 feet B.O.B. OEPTH 5 EXPLANATION Water level during drilling Contact Gashed where approximate) Location of sample

CLIENT WIP			LE NUMBER WK-5
LOCATION 21st/Harrison,Oakland			Handriven
DATE	· . · · · · · · · · · · · · · · · · · ·		METHOD
GEOLOGIST DBM		HOLE DI	AMETER 1"
BORING LOCATION	I	LITHOLOGY	DESCRIPTION
HARRISON	O CEPTH BELOW GROUND SURFACE (FEET)	B.O.B.	BLACK ORGANIC SOIL (PT), med stiff, dry, topsoil DK BROWN-BLACK ORGANIC SILTAND SILTY CLAY (OL) med. slightly moist, minor and gravel. LIGHT BROWN SILTY CLAY (CL med. stiff, moist, minor angular sand and gravel (≈ 10% combined) GRAY SILTY (LT BRE GRAVEL (GM) loose, moist, angulated and occasional de (brick, plaster, morter) NO RECOVERY (probably due to gravel falling in hole)
	7 _	·	
EXPLANATION			•

ES	ENGINEERING-SCIENCE
CLIENT WIP	TEST HOLE NUMBER WK-6
LOCATION 2lst/Harrison, Oaklan	nd DRILLER Handriven
DATE 11/18/86	
GEOLOGIST DBM	HOLE DIAMETER
BORING LOCATION	LITHOLOGY DESCRIPTION
Suspected tank site HARRISON	•
	NO RECOVERY YELLOW BROWN SILTY, SANDY GRAVEL (GM) loose, moist YELLOW-BROWN SILTY CLAY (CL) med. stiff, moist, no odors
	NO RECOVERY
	6 YELLOW-BROWN SANDY GRAVEL (GP) loose, moist, no odors 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0
EXPLANATION	7
▼ Water level during drilling	Contact (dashed where approximate) Location of sample

ES ENGINEERING-SCIENCE TEST HOLE NUMBER WK-6 CLIENT DRILLER LOCATION _____ DRILLING METHOD_____ DATE ______ HOLE DIAMETER GEOLOGIST_____ DESCRIPTION LITHOLOGY 7 (Rubble and fall-back) (FEET) YELLOW-BROWN SILTY CLAY (CL) med. stiff, moist, no odors YELLOW-BROWN SILTY SAND 8 (SM), moderately compacted, moist, occasional angular gravel and clayey intervals no odors 9 GROUND (very moist towards bottom boring, no odor) 10 в.о.в. BELOW EXPLANATION Water level during drilling Contact (dashed where approximate) Location of sample

- ES ENGINEERING-SCIENCE -CLIENT TEST HOLE NUMBER WK-7 LOCATION _____ DRILLER____ DRILLING METHOD_____ DATE _____ HOLE DIAMETER _____ GEOLOGIST_____ DESCRIPTION LITHOLOGY GREEN-BROWN CLAY (CL) w/mottled brown staining, med stiff, very moist, STRONG HYDROCARBON ODOR GREEN-BROWN CLAY (CL) med stiff, moist, slight HC ODO: SURFACE GREEN-BROWN CLAY (CL) med. stiff, moist, NO ODOR B.O.B. GROUND BELOW EXPLANATION Contact (dashed where approximate) Water level during drilling

CLIENTWIP	TEST HOLE NUMBER WK-8
LOCATION 22nd/VALDEZ, OAKLAND	DRILLER HANDRIVEN
DATE11/18/86	DRILLING METHOD
GEOLOGISTDBM_	HÔLE DIAMETER 1"
BORING LOCATION VALDEZ LS puzz WK-8 HARRISON	LITHOLOGY DESCRIPTION ASPHALT PAVEMENT AGGREGATE BASE YELLOW-BROWN SANDY SILT (ML), med. stiff, slightly moist, n 20% fine sand LIGHT BROWN SILTY CLAY (CL) stiff, moist, minor limonit and scattered fine black cl AGGREGATE BASE YELLOW-BROWN SANDY SILT (ML), n 20% fine sand LIGHT BROWN CLAYEY SILT (ML), friable, dry, minor r (tree nearby), minor scatte fine black clasts LIGHT BROWN CLAYEY SILT (ML) friable to soft, slightly m increasing clay content LIGHT BROWN SILT, (ML) loose, d very clean. LIGHT BROWN CLAYEY SILT (ML) med. stiff, moist, scattered limonite, very clean
	£IGHT BROWN CLAYEY SILT (ML) friable, moist, rare scatte limonite and qtz sand, very clean, no odors
EXPLANATION	7

-----ES ENGINEERING SCIENCE -TEST HOLE NUMBER WK-8 CLIENT ___ LOCATION _____ DRILLER___ DRILLING METHOD_____ DATE _____ HOLE DIAMETER_____ GEOLOGIST_____ DESCRIPTION LITHOLOGY 7 LIGHT BROWN CLAYEY SILT (HL), stiff, moist, rare scattered (FEET) limonite and fine sand. LIGHT BROWN SILTY CLAY (CL) stiff, moist, rare scattered limonite and fine sand 8 LIGHT BROWN SANDY CLAYEY SILT (ML), stiff, moist, abundant SURFACE limonite, scattered course s LIGHT ORANGE-BROWN SANDY silt (ML), stiff, moist, abundant scattered limonite, 9 coarse sand and gravel. GROUND LIGHT ORANGE-BROWN CLAYEY silt (ML) stiff, moist, abundant scattered limonite, fine black clasts. 10 LIGHT BROWN CLAYEY, SANDY silt (ML) friable, moist, B.O.5. abundant scattered limonite BELOW and course sand. EXPLANATION Contact (dashed where approximate) w Water level during drilling

ENGINEERING-SCIENCE INC. 11/02/87

ANALYSIS REPORT

WORK ORDER NUMBER:

JOB NUMBER : ZB000000378

Lab Sups^svisor

REPORT DATA:

WORK ORDER DATE : 10/29/87

CLIENT DATA:

ES BERKELEY/AHMANSON (

600 BANCROFT WAY BERKELEY, CA 94710

ES BERKELEY/AHMANSON

400 BANCROFT WAY BERKELEY, CA 94710

WAYNE HAUCK

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CONTRACT / FO #

: 56449.08

CONTACT

: WAYNE HAUCK

(415)-548-7970

TASK: 4, UNITE: ac/KG, GROUP SCFID

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TEST COMPOUND	87103879	87103880	87103881	8?103862	87103583
GC PETROLEUM HYDROCARBONS	(10	<10	(10	(10	⟨10

APPENDIX B

ANALYTICAL RESULTS

(From 1986 REPORT)

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ENVIRONMENTAL RESEARCH GROUP, INC. 1400 53rd STREET EMERYVILLE, CA 94608

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TMAIERG

1400 West 53rd Street

Suite 460

Emeryville, CA 94608-2946

(415) 652-2300

Engineering Science 600 Bancroft Way Berkeley, CA 94710 November 21, 1986 Report #9714

Attention: Dan McCullar

Site Location: Wip Kaiser

RE: Three (3) soil samples submitted on November 18, 1986 for rush total hydrocarbon response analysis; also three (3) samples for waste oil analysis.

Procedure: The samples are analyzed for total hydrocarbon response by following the method described in Attachment 2, Analytical Procedures for Fuel Leak Investigations. The samples are concentrated on a Tekmar LSC-2 automatic sample concentrator prior to injection into a gas chromatograph fitted with a flame ionization detector. Quantitation is performed, as total hydrocarbon response, against known concentrations of heptane-isocctane (55/45). The limit of detection for this method of analysis is one part per million (mg/kg).

The samples are analyzed for waste oil by following a modified EPA Method 3510 extraction procedure. The samples are extracted three (3) times with hexane. The solvent is removed from the combined extracts and carbon disulfide is added. The solution is injected into a gas chromatograph fitted with a flame ionization detector. Quantitation is performed, as total hydrocarbon response, against a solution made from a known concentration of light machine oil. The limit of detection for this method of analysis is seventeen parts per million (mg/kg).

The results are summarized in the table below:

		Concentrat	tion (mg/kg) /
TMA/ERG #	CLIENT ID	WASTE OIL	TOTAL HYDROCARBON
. 9714-1	WK-la, 6	79	3.5
9714-2	WK-7, 7	ND(17)	1.4
9714-3	WK, 7, 7.5	350	ND(1)

ND = None detected. The limit of detection is in ().

Submitted by:

Tholwas Flag

Robert B. Flay Manager, Organics Department