BASELINE

ENVIRONMENTAL CONSULTING

9 March 1987
S-593A

KAISER ENGINEERS
AC Transit Project Office
508 16th Street
Oakland, CA 94621

Attn: Mr. Steve Whitehead

Subject: Reporting on Monitoring Well Installations at AC Transit Facility, 1100 Seminary Drive

Dear Steve:

BASELINE ENVIRONMENTAL CONSULTING is pleased to submit this report delineating the methods, procedures, and results of installation of three monitoring wells at the 1100 Seminary AC Transit Facility in Oakland.

Should you have any questions, please do not hesitate to contact us at your convenience.

Sincerely,

Yane Nordhav
Principal
Reg. Geologist No. 4009

YN/ae
Enclosure

6/5/87 LTR CRW QB
ATTACHMENT #3

315 Washington Street • Oakland, CA 94607 • (415) 763-7037

BASELINE

REPORT ON MONITORING WELL INSTALLATIONS
AC TRANSIT FACILITY, 1100 SEMINARY
OAKLAND

MARCH 1987

INTRODUCTION

At the AC Transit facility at 1100 Seminary Avenue in Oakland, BASELINE ENVIRONMENTAL CONSULTING installed three monitoring wells in January 1987. The wells were installed in response to known hydrocarbon soil contamination from underground fuel storage tanks. Five underground fuel storage tanks were located on the site. These tanks were removed in January 1987, and soils containing in excess of 1,000 mg/kg of total fuel hydrocarbons were removed and disposed of.

Soil contamination under and adjacent to the tanks was identified by BASELINE prior to tank removal through the collection of soil samples in 1986. Letters containing the soil sampling activities and the results have previously been submitted to Kaiser Engineers (these letters are included as Attachment A).

FIELD WORK

In response to the hydrocabon soil contamination identified at the site, three monitoring wells were installled to ascertain in the groundwater was affected by releases from the underground fuel storage tanks, previously located on the site. The locations of the wells are shown on the attached figure.

The wells were installed in accordance with the requirements contained in the Guidelines For Addressing Fuel Leaks, September 1985, by the Regional Water Quality Control Board, San Francisco Bay Region. Attachment B to this letter

contains well completion details, well logs, and a copy of the well logs submitted to the California Department of Water Resources and Alameda County Flood Control and Water Conservation District.

During monitoring well installations, groundwater was encountered at depths ranging from 9 to 13.5 feet below ground surface, and after well development, the static water levels were measured at depths ranging from 4.2 to 5.6 feet below the top of casings. Groundwater contours and the groundwater flow direction (at the time of water level measurements) are shown schematically on the attached figure.

During well installations, two soil samples were collected from the unsaturated zone from each monitoring well location for analysis of total fuel hydrocarbons. The sample collection methodology is described in Attachment C.

Following well installations, water samples were collected from the well (sampling methodology is described in Attachment C). The samples were analyzed for total hydrocarbons and BTX. Prior to groundwater sampling, the wells were checked for floating product; no floating product in excess of 1/4-inch was identified in any of the wells; at MW-2, floating product, was less than 1/8-inch.

ANALYTICAL RESULTS

The laboratory reports for the soil samples and chain-of-custody forms are included in Attachment D, and the laboratory reports for the water samples are contained in Attachment E. The results are summarized in Table 1.

The results indicate that the hydrocarbon concentration in soils range from non-detected to 2,000 mg/kg. The highest concentration of hydrocarbons was found at the MW-2 location at a depth of 8 to 8.5 feet. Fuel hydrocarbons in the groundwater ranged from 20 to 50 mg/L; BTX was identified in all the groundwater samples, with the highest benzene level in MW-2.

CONCLUSIONS AND RECOMMENDATIONS

The sampling completed in connection with monitoring well installation indicate that the groundwater underlying the former tank locations has been affected by releases from the underground fuel storage tanks. The major source of groundwater contamination has been removed from the site in conjunction with tank removal and contaminated soils removal.

TABLE 1

ANALYTICAL RESULTS
SOIL AND GROUNDWATER SAMPLING
AC TRANSIT FACILITY, 1100 SEMINARY AVENUE, OAKLAND
MARCH 1987

Location	Depth (feet)	THC	BTX
Soil Samples		(mg/kg)	(mg/kg)
MW-1	6-6.5	<10	NA
	8-8.5	<10	NA
MW-2	8-8.5	2200	NA
	13.5-14	100	NA
MW-3	9-9.5	13	NA
	11.5-12	110	NA
Water Samples		(mg/L)	(mg/L)
			B T X
MW-1		32	1.5/4.0/6.4
MW-2		50	13/6.0/2.9
MW-3		29	5.3/6.8/5.4

Notes: NA indicates not analyzed for BTX
Full laboratory reports are contained in Attachments D and E

However, it is unknown to which extent the groundwater has been affected; it is therefore recommended that the following actions be undertaken:

1. Define the extent of groundwater contamination around the former underground tank locations, by installation of additional groundwater monitoring wells, to be identified in a work plan to be submitted to the Regional Water Quality Control Board, San Francisco Bay Region and Alameda County for review and comments. Collect groundwater samples and analyze for total fuel hydrocarbons and BTX.

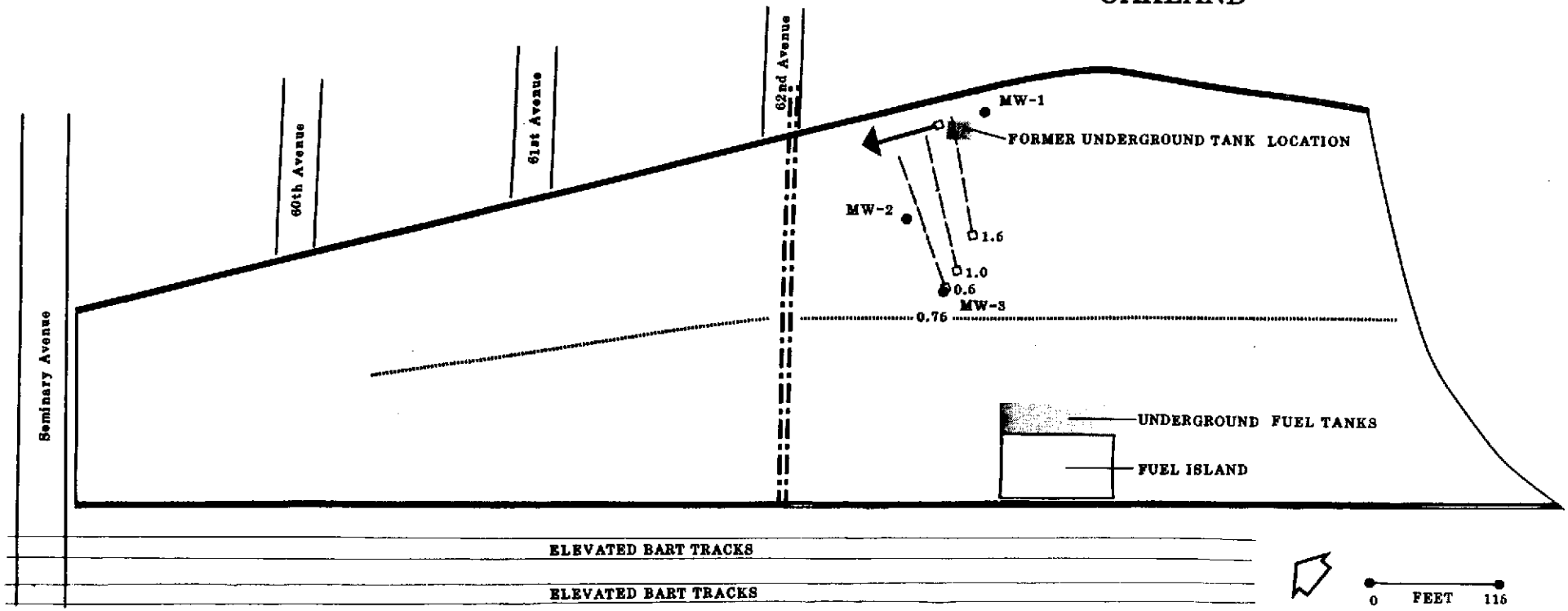
2. Identify public and private water supply wells within 1/2-mile of the site. Obtain well construction details of the wells, if possible, and assess the risk to those wells from the groundwater contamination from the site.

3. Report to the regulatory agencies the findings on the extent of groundwater contamination and recommend remedial actions, as appropriate.

Respectfully submitted,

Yane Nordhav
Reg. Geologist No. 4009

AC TRANSIT FACILITY
1100 SEMINARY
OAKLAND



WATER LEVEL CONTOURS(MSL)
Measurements of 2/3/87 A.M.

GROUNDWATER FLOW DIRECTION
On 2/3/87 A.M.

SURFACE DRAINAGE TRENCH

SEWER EASEMENT

SOUND WALL

MONITORING WELL LOCATIONS

BASELINE

BASELINE

ATTACHMENT A

BASELINE Letter, dated 1 October 1986

BASELINE

ENVIRONMENTAL CONSULTING

1 October 1986
S-593A

KAISER ENGINEERS
c/o AC Transit
1100 Seminary Avenue
Oakland, CA 945

Attn: Mr. Steve Whitehead

Subject: Results of Soil Sampling Activities Near Underground Fuel Storage Tanks, 1100 Seminary Avenue, Oakland

Dear Steve:

At your request, BASELINE ENVIRONMENTAL CONSULTING collected soil samples adjacent to underground fuel storage tanks at the 1100 Seminary Avenue AC Transit facility. The purpose of the soil sampling activities was to identify potential subsurface releases of hydrocarbons from the tanks.

Site Location

The site is located in Oakland on 1100 Seminary Avenue at an AC Transit bus terminal facility. Five underground fuel tanks are located underground, supposedly in a vault. No drawings are available to identify the exact location of the tanks or the construction details of the vault. There is no verification that a vault exists, althoufg a raised perimeter outline of a "vault" is apparent at the ground surface. Four of the tanks contain diesel, and one tank previously contained gasoline but is no longer in use. The attached figure shows the regional location of the site.

Field Work

During the field work on 17 and 18 September 1986, soil samples were collected from two locations outside the "vault" containing the tanks, and one location within the "vault", as shown on the attached figure.

The samples outside the "vault" were collected on the north and south side of the "vault". Along the west side of the underground "vault" is a shack and a wash rack, making access difficult; the west side is likely the downgradient direction. The samples were collected from a hollow-stem auger rig equipped with a California Modified Sampler containing brass tubes. The samples were collected with the sampler and contained in the brass tubes (Sampling Information Forms are attached). After sample retrieval, the brass tubes were sealed with aluminium foil, plastic caps, taped, placed in zip-lock bags, and stored on ice prior to transport to the laboratory. The augers used for drilling had been steam-cleaned prior to being brought on-site, and all sampling equipment was decontaminated using TSP and deionized water.

A total of seven samples were analyzed for total hydrocarbons. The depth of samples and the analytical results are shown in Table 1, below; the laboratory report is attached. The sampling locations are shown in the attached figure.

TABLE 1

ANALYTICAL RESULTS
SOIL SAMPLES, 1100 SEMINARY AVENUE, OAKLND
SEPTEMBER 1986

Sample I.D.	Depth (feet)	Material	Total Hydrocarbon (mg/kg or ppm)
B-1	1.5	fill	ND< 81
B-1	3.5	clay	140
B-1	10.5	sandy gravel	3,100
B-2	1.5	clayey sand	ND< 65
B-2	3.5	clay	ND<100
B-2	10.5	sandy gravel	3,700
B-1A*	4.8	fill	13,000

* Sample from within the "vault"

The sample collected within the "vault" was obtained by hand excavating through concrete and using a post-hole digger in between the tanks to reach the maximum depth without the hole caving in. The sample was then collected with a stainless steel soil corer containing a 6-inch brass sleeve. The brass sleeve was handled similarly to the samples collected with the drill rig.

Conclusions

On the basis of the data collected, it appears that the underground tanks, supposedly located in a concrete vault, have leaked in the past, and that the vault may not have been impermeable to provide for containment of leaked material.

The level of hydrocarbons identified in the soil adjacent to the underground storage tanks at the ten-foot level is above the action limits of the California Department of Health Services for hydrocarbons in soils. At concentrations above 1,000 ppm, such soil is considered hazardous.

Recommendations

1. Notify the Alameda County Department of Environmental Health, The California Department of Health Services, and the Regional Water Quality Control Board, San Francisco Bay Region of an unauthorized fuel leak.

2. Investigate the lateral and vertical extent of soil contamination adjacent to the underground fuel tanks.

3. Abandon the underground fuel storage tanks in accordance with the requirements of Alameda County and the Regional Water Quality Control Board.

4. Install a groundwater monitoring well downgradient of the underground fuel storage tank area. Sample the groundwater, inspect for floating product, and analyze the water for total hydrocarbons and BTX.

5. On the basis of the results obtained from the additional soil investigation and groundwater sampling, develop a remedial action plan to conform with applicable regulations.

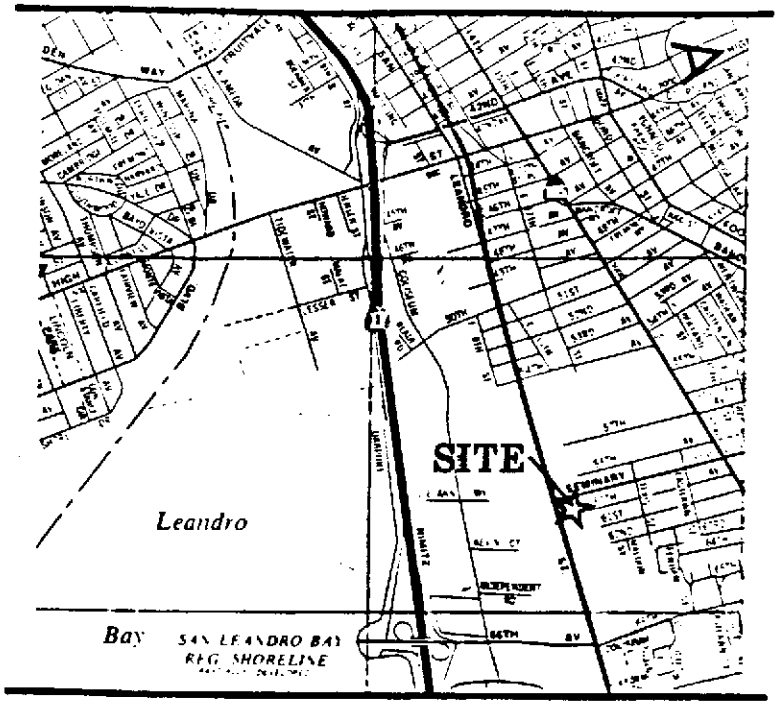
We recommend that the actions described above be implemented at as early a time as possible, and that the regulatory agencies be notified immediately.

Should you have any questions regarding this letter please do not hesitate to contact us. It has been a pleasure to be of service to Kaiser Engineers.

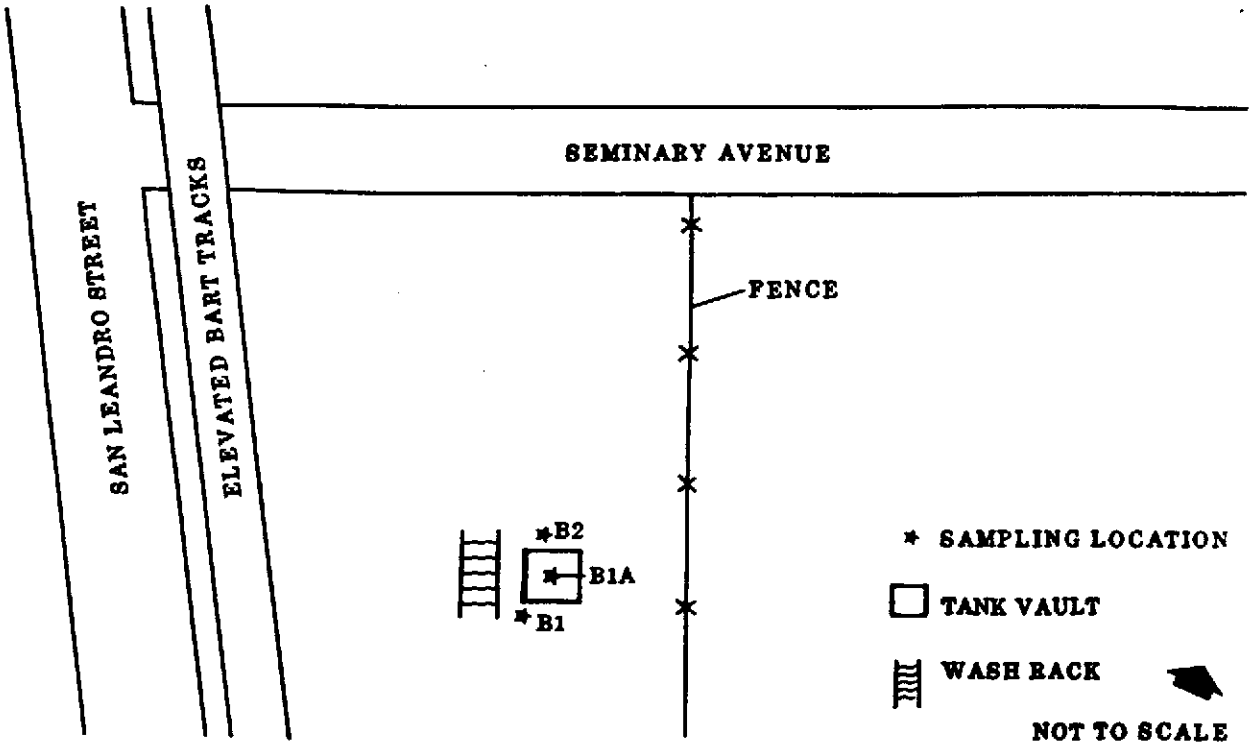
Sincerely,

Yane Nordhav
Principal
Reg. Geologist No. 4009

YN/ae
Attachments



REGIONAL LOCATION



SAMPLING LOCATIONS
1100 SEMINARY AVENUE
OAKLAND, CALIFORNIA

BASELINE

TMA
Thermo Analytical Inc.

TMA/ERG
1400 West 53rd Street
Suite 460
Emeryville, CA 94608-2946
(415) 652-2300

September 30, 1986

Baseline
315 Washington St.
Oakland, CA 94607

Attention: Yane Nordhav

Report #9327

baseline Project: S-593 - Kaiser Engineers.

Samples Submitted: Received on September 17, 1986 and September 18, 1986: sixteen (16) soils for Total Hydrocarbon Response.

Methodology: Samples were extracted with Carbon Disulfide and analyzed by direct injection gas chromatograpy. Quantitation is performed as total hydrocarbon response against solutions made from a known concentration of heptane-isooctane (50/50).

Results: Please see Table I.

Should you have any questions, please call me at (415) 652-2300

Submitted by:

Hugh McLean
Project Chemist

HM:sm

TABLE I

Results are in mg/kg (ppm)

TMA/ERG ID	CLIENT ID	TOTAL HYDROCARBON
9327-1	B1-1.5'	ND(81)
9327-2	B1-3.5'	140
9327-3	B1-5.5'	HOLD
9327-4	B1-7.5'	HOLD
9327-5	B1-10.5'	3100
9327-6	B2-1.5'	ND(65)
9327-7	B2-3.5'	ND(100)
9327-8	B2-10.5'	3700
9327-9	B3-1.5'	ND(130)
9327-10	B3-3.5'	ND(58)
9327-11	B3-7.5'	ND(34)
9327-12	B4-1.5'	ND(130)
9327-13	B4-3.5'	82,000
9327-14	B4-7.5'	81,000
9327-15	B1A	13,000
9327-16	B3A	71,000

REPORTED PER FROM THIS SENT 652 8/19/87

ND = None detected. Detection limits are in ( ).

Soil Sampling
Underground Tanks

Date: 9-17-86; 9-18-86

Location: Oakland
1100 Seminary

Sampled by: WKS

Sample I.D.	Depth	Material	Odor	Moisture	Comments
B1-1.5'	1.5'	fill	none	moist	raining
B1-3.5'	3.5'	blue-gray clay	petr.	damp	
B1-5.5'	5.5'	blue-gray mottled cly	petr.	damp	
B1 7.5'	7.5'	blue-gray mottled cly	petr.	damp	
B1-10.5'	10.5'	green-gray blue-gray cly sand gravel	petr.	damp	
B1A-4.8'	4.8'	blue- gray cly gravel	petr.	wet	
B2-1.5'	1.5'	tan blue-gray cly gravel	petr.	damp	
B2-3.5'	3.5'	blue-gray cly gravel	petr.	damp	
B2-10.5'	10.5'	tan sand blue-brn gravel	petr.	wet	

Floating Material: none Groundwater: >7 ft.

Sampling Method: Stainless steel corer with 6-inch brass tube.

Analyze For: Total hydrocarbons

ATTACHMENT B

Well Logs
Well Construction Details
DWR Submittals
ACFCWCD Submittals

BASELINE ENVIRONMENTAL CONSULTING
315 Washington Street
Oakland, CA 94607
(415) 763-7037

Boring No. MW1
Date 1/26/87
Datum

DRILLING LOG

Location A/C Transit, Seminary
Driller Exceltec
Method Hollow-stem, cont. flight

Bore Size 8 inch
Casing Size 2 inch
Logger WKS

DEPTH	GRAPHIC	LITHOLOGY	NOTES
1 ft	QM	Dark reddish brown, clayey,sandy, GRAVEL, moist-wet, cobble size clasts.	
	OH	Very dark gray, silty,CLAY,moist.	4-7-10
3		Olive, silty, CLAY, moist, granular size clasts.	
	CL		
5		Olive, silty, CLAY, damp, slightly sandy.	6-12-14
7	GW	Olive, sandy, GRAVEL, moist.	Slight petroleum odor. 18-22-26 rig chatter.
9	SP	Olive, SAND, wet, coarse-grained.	9-9-11
11	SW	Olive/reddish brown, mottled, clayey, SAND, wet.	9-18-21
13	GW	Olive,sandy GRAVEL, wet.	Slight petroleum odor.
	CL	Dark reddish brown, gravelly, sandy CLAY, wet.	9-18-21
15	CL	Light olive brown, sandy CLAY, wet, black sand grains.	9-11-9 Slight petroleum odor.
17			4-6-7
19	CL	Light olive brown, sandy CLAY, very wet, sand <2%, a 1-inch thick sand lense at 18 ft. Clay bed becomes less sandy at depth.	Strong petroleum odor. 3-5-7
21			6-6-8

BASELINE ENVIRONMENTAL CONSULTING
315 Washington Street
Oakland, CA 94607
(415) 763-7037

Boring No. MW2
Date 1/26/87
Datum

DRILLING LOG

Location A/C Transit, Seminary
Driller Exceltec
Method Hollow-stem, cont. flight

Bore Size 8-inch
Casing Size 2-inch
Logger WKS

DEPTH	GRAPHIC	LITHOLOGY	NOTES
1 ft	GM	Dark reddish brown, clayey, sandy GRAVEL, moist-wet, cobble-sized clasts.	
	OH	Very dark gray, gravelly, CLAY, moist.	
3	SW	Olive, clayey, SAND, moist.	Slight petroleum odor.
		Olive brown, clayey, SAND, moist.	11-11-20
5	SP	Olive brown, clayey, SAND, moist some black sand grains <1%.	
7			9-11-20
9	GW	Olive brown, sandy, GRAVEL, moist.	13-22-30 Slight petroleum odor.
11	CL	Olive brown, sandy, gravelly, CLAY, moist, a 2-inch thick, med-coarse-grained sand lense at 11.5 ft.	7-10-16 Slight petroleum odor.
13			7-8-10
15	CL	Olive brown/olive, mottled, silty CLAY, wet, <1% black organic pieces.	4-5-5
17			
19	GW	Olive brown, sandy, GRAVEL, wet-moist.	4-5-7
	SM	Olive gray, clayey, silty, SAND, wet, fine grained.	5-5-8
21		Olive, silty, CLAY, moist some black organic pieces.	7-9-10
23	CL	Olive, silty, CLAY, moist, some black, organic pieces, <2%	8-9-15
			9-13-16
25			

BASELINE ENVIRONMENTAL CONSULTING
315 Washington Street
Oakland, CA 94607
(415) 763-7037

Boring No. MW-3
Date 1/27/87
Datum

DRILLING LOG

Location A/C Transit, seminary
Driller Exceltec
Method Hollow-stem, cont. flight

Bore Size 8-inch
Casing Size 2-inch
Logger WKS

DEPTH	GRAPHIC	LITHOLOGY	NOTES
1 ft	GM	Dark reddish brown, clayey, sandy GRAVEL, wet, cobble size clasts	
	OH	Very dark gray, sandy, CLAY, moist.	
3		Olive Gray, silty, CLAY, moist some granular size gravel grains.	
5	CL	Very dark grayish brown, sandy CLAY, moist.	
7			
9	CL	Brown, sandy, CLAY, moist, some black grains of sand and organic pieces, a few coarse sand lenses.	6-7-10 Slight petroleum odor.
11			7-8-11 Slight petroleum odor.
13	GW	Dark reddish brown, clayey, sandy GRAVEL, wet.	Petroleum odor 7-9-8
15	OL	Olive, silty, CLAY, wet, some black organic pieces, with some sand grains.	
17			
19		T.D. 17.5'; standard pin to 19'	
21			

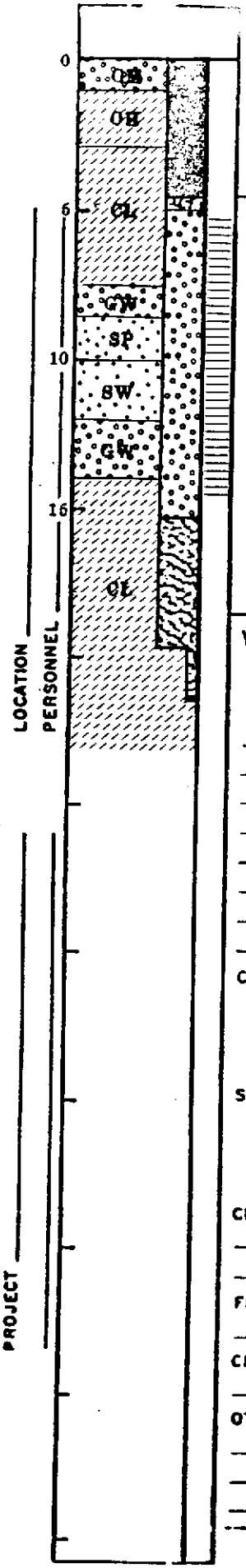
WELL MW-1

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: A/C Transit, Seminary

ELEVATION: GROUND LEVEL 6.25' msl

TOP OF CASING



LOCATION

PERSONNEL

PROJECT

DRILLING SUMMARY:

TOTAL DEPTH 19'

BOREHOLE DIAMETER 8"

DRILLER Exceltec

RIG Mobile B-53

BIT(S) Hollow-stem, cont. flight

DRILLING FLUID None

SURFACE CASING None

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG

CASING STRING(S): C=CASING S=SCREEN

0'	6'	C	6'	14.5'	S

CASING: C1 2" PVC, sch 40

C2

C3

C4

SCREEN: S1 2" PVC, sch 40, 20 slots

S2

S3

S4

CENTRALIZERS None

FILTER MATERIAL Aquarium #4, Monterey 16'-5'

CEMENT Neat cement 4'-1'

OTHER Bentonite 19'-16', 5'-4'

CONSTRUCTION TIME LOG:

TASK	START DATE	START TIME	FINISH DATE	FINISH TIME
DRILLING: 0-19'	1/26	9:20	1/26	11:0
GEOPHYS LOGGING:				
CASING. 0-14.5'	1/26	11:25	1/26	11:3
FILTER PLACEMENT	1/26	11:30	1/26	12:4
CEMENTING:	1/26	12:52	1/26	13:1
DEVELOPMENT:	2/2	11:30	2/2	12:4
OTHER:				

WELL DEVELOPMENT

Well Wizard

COMMENTS:

Water levels

During drilling 9'

1/26	11:10	9.7'
2/2	10:11	5.5'
2/3	10:05	4.2'

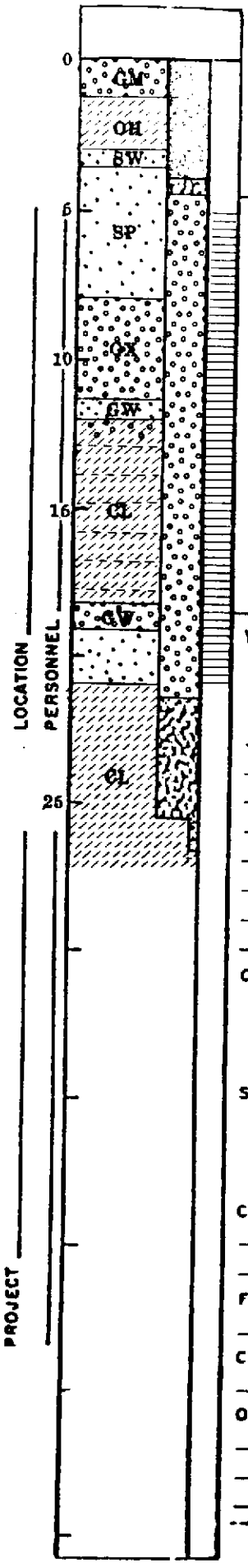
WELL MW-2

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: A/C Transit, Seminary

ELEVATION: GROUND LEVEL 5.80' msl

TOP OF CASING



DRILLING SUMMARY:

TOTAL DEPTH 25'

BOREHOLE DIAMETER 8"

DRILLER Exceltec

RIG Mobile B-53

BIT(S) Hollow-stem, cont. flight

DRILLING FLUID None

SURFACE CASING None

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG

CASING STRING(S): C=CASING S=SCREEN

5'	-	21.5'	S		-		
0'	-	5'	C		-		
	-				-		
	-				-		
	-				-		
	-				-		
	-				-		
	-				-		

CASING: C1 2" PVC sch 40

C2

C3

C4

SCREEN: S1 2" PVC sch 40, 20 slots

S2

S3

S4

CENTRALIZERS None

FILTER MATERIAL Monterey Sand 2-12

CEMENT Neat cement

OTHER Bentonite 3.5'-4.5'; 20.5'-20.5'

CONSTRUCTION TIME LOG:

TASK	START DATE	START TIME	FINISH DATE	FINISH TIME
DRILLING: 0'-25'	1/26	13:40	1/26	15:20
GEOPHYS LOGGING:				
CASING: 0'-21.5'	1/26	15:22	1/26	15:24
FILTER PLACEMENT	1/26	15:30	1/26	16:21
CEMENTING:	1/26	16:30	1/26	16:45
DEVELOPMENT:	2/2	17:30	2/2	17:55
OTHER:				

WELL DEVELOPMENT

Well Wizard

COMMENTS:

Water level

During drilling		13.5'
1/26	16:45	13.2'
2/2	11:08	5.5'
2/3	10:10	5.6'

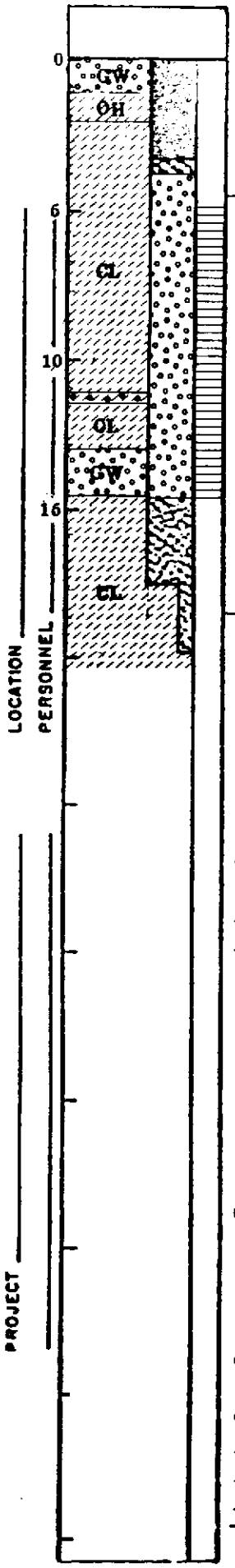
WELL MW-3

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: A/C Transit, Seminary

ELEVATION: GROUND LEVEL 4.97' msl

TOP OF CASING



DRILLING SUMMARY:

TOTAL DEPTH 17.5'

BOREHOLE DIAMETER 8"

DRILLER Exceltec

RIG Mobile B-53

BIT(S) Hollow-stem, cont. flight

DRILLING FLUID None

SURFACE CASING None

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG

CASING STRING(S): C=CASING S=SCREEN

5'	14.5'	S			
0'	5'	C			

CASING: C1 2" PVC sch 40

C2

C3

C4

SCREEN: S1 2" PVC sch 40, 20 slots

S2

S3

S4

CENTRALIZERS None

FILTER MATERIAL Monterey Sand 2-12
14.5'-4'

CEMENT Neat cement 3.5'-1'

OTHER Bentonite 17.5'-14.5'
4'-3.5'

CONSTRUCTION TIME LOG:

TASK	START DATE	START TIME	FINISH DATE	FINISH TIME
DRILLING:				
0-17.5'	1/27	8:30	1/27	9:53
SEOPHYS LOGGING:				
CASING.				
0'-14.5'	1/27	10:02	1/27	11:09
FILTER PLACEMENT:	1/27	9:59	1/27	10:05
CEMENTING:	1/27	10:30	1/27	11:08
DEVELOPMENT:	2/2	10:20	2/2	11:20
OTHER:				

WELL DEVELOPMENT

Well Wizard

COMMENTS:

Water level

During drilling		11.5'
1/27	11:11	5.3'
2/2	10:05	4.2'
2/3	12:09	4.2'

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

BASELINE

ENVIRONMENTAL CONSULTING

9 March 1987
S-573A

ALAMEDA COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
5997 Parkside Drive
Pleasanton, Ca 94566

Attn: Mr. Craig Mayfield

Subject: Ground Water Protection Ordinance Permit 87010

Dear Mr. Mayfield:

Enclosed please find copies of well logs and well construction details for our work at 1100 Seminary, AC Transit Facility.

Sincerely,

Yane Nordhav
Principal
Reg. Geologist # 7009

YN/ae
Enclosure

315 Washington Street • Oakland, CA 94607 • (415) 763-7037

ATTACHMENT C

Soil and Groundwater Sampling Procedures

SAMPLING PROCEDURES

SOILS, TOTAL HYDROCARBONS

Two soil sampling procedures are used for collection of soil samples during underground tank investigations. One method is used without the use of a drill rig (Method 1, below) and the second method is used when a drill rig is on site for either soil sample collection and/or monitoring well installation (Method 2, below).

(1) In-place soil samples are collected with a stainless steel corer, fitted with a 6-inch brass liner. The corer is driven into the ground by a slide hammer. The brass liner is removed from the steel corer, capped with aluminum foil and a plastic cap, taped, placed in a zip-lock bag, and iced prior to being brought to the laboratory for analysis.

All sampling equipment is decontaminated with trisodium-phosphate (TSP) and deionized water between each sample collection.

(2) Soil samples are collected with a California Modified Sampler from a hollow-stem auger rig. The Sampler is fitted with brass tubes. The sampler is pounded into the ground by a weight falling onto the sampler. When the sampler is retrieved, the sample is contained within the brass tube closest to the shoe of the Sampler. The brass tube is sealed with aluminum foil, a plastic cap, and tape. The sample is then placed in a zip-lock bag, iced, and brought to the laboratory for analysis.

All sampling equipment is decontaminated with TSP and deionized water between each sample collection.

GROUNDWATER, TOTAL HYDROCARBONS

The well is checked for floating product with a bottom-valve, teflon bailer. A water level measurement is then made with an electrical probe, calibrated to the nearest 1/100th of a foot.

The well is then evacuated of five well volumes of water prior to sampling. The evacuation and the sampling is accomplished by bottom-valve, teflon bailer. The sample is transferred directly into glass vials, iced, and brought to the laboratory.

All sampling equipment is decontaminated with TSP and deionized water prior to each sampling event. All samples are collected using proper chain-of-custody procedures.

BASELINE

ATTACHMENT D

Soil Sampling 26 and 27 January 1987:
Laboratory Reports
Chain-of-Custody Forms

BROWN AND CALDWELL
ANALYTICAL LABORATORIES

LOG NO: E87-01-473

Received: 26 JAN 87
Reported: 05 FEB 87

Yane Nordhav
Baseline
315 Washington St.
Oakland, CA 94607

Purchase Order: S-593A

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
01-473-1	MW-1 6.0-6.5'	26 JAN 87
01-473-2	MW-1 8.0-8.5'	26 JAN 87
01-473-3	MW-2 8.0-8.5'	26 JAN 87
01-473-4	MW-2 13.5-14.0'	26 JAN 87

PARAMETER	01-473-1	01-473-2	01-473-3	01-473-4
Total Fuel Hydrocarbons, mg/kg	<10	<10	2200	100

D. A. McLean, Laboratory Director

BROWN AND CALDWELL LABORATORIES

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

ANALYTICAL REPORT

LOG NO: E87-01-486

Received: 27 JAN 87
Reported: 11 FEB 87

Yane Nordhav
Baseline
315 Washington St.
Oakland, CA 94607

Project: S-593A

REPORT OF ANALYTICAL RESULTS

)G NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
l-486-1	MW-3 9.0-9.5'	27 JAN 87
l-486-2	MW-3 11.5-12.0'	27 JAN 87

ARAMETER	01-486-1	01-486-2
otal Fuel Hydrocarbons, mg/kg	13	110

. A. McLean, Laboratory Director

BASELINE

ATTACHMENT E

Groundwater Sampling 3 February 1987: Analytical Results
Chain-of-Custody Forms

BROWN AND CALDWELL LABORATORIES
1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E87-02-474

Received: 23 FEB 87
Reported: 24 FEB 87

Yane Nordhav
Baseline
315 Washington St.
Oakland, CA 94607

Purchase Order: AC Transit

REPORT OF ANALYTICAL RESULTS

OG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
2-474-1	MW1	03 FEB 87
2-474-2	MW2	03 FEB 87
2-474-3	MW3	03 FEB 87

ARAMETER	02-474-1	02-474-2	02-474-3
enzene,Toluene,Xylene Isomers			
Benzene, mg/L	1.5	13	5.3
Toluene, mg/L	4.0	6.0	6.8
Total Xylene Isomers, mg/L	6.4	2.9	5.4

Linda Brack for
. A. McLean, Laboratory Director

BROWN AND CALDWELL LABORATORIES
1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E87-02-037

Received: 03 FEB 87
Reported: 18 FEB 87

Yane Nordhav
Baseline
315 Washington St.
Oakland, CA 94607

Project: AC Transit

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
02-037-1	MW1	03 FEB 87
02-037-2	MW2	03 FEB 87
02-037-3	MW3	03 FEB 87

PARAMETER	02-037-1	02-037-2	02-037-3
Total Fuel Hydrocarbons, mg/L	32	50	29

D. A. McLean, Laboratory Director

2-37-1-3 BASELINE

CHAIN OF CUSTODY RECORD

NO.

PROJECT NAME: A/C Transit

SAMPLERS: (Signature) William K Scott

NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	diesel	gas					REMARKS
	2/3/87	11:14		X	MW1	2 VOAs	X	X					
	2/3/87	10:10		X	MW2	2 VOAs	X	X					
	2/3/87	12:09		X	MW3	2 VOAs	X	X					
	~~2/3/87~~			X	~~MW1E~~	2 VOAs	X	X					

Relinquished by (Signature)	Date / Time	Received by (Signature)	Relinquished by (Signature)	Date / Time	Received by (Signature)
William K Scott	2/3/87 1330				
Relinquished by: (Signature)	Date / Time	Received by (Signature)	Relinquished by: (Signature)	Date / Time	Received by (Signature)
Relinquished by (Signature)	Date / Time	Received for Laboratory by			

1-473-1-4

BASELINE

CHAIN OF CUSTODY RECORD

NO. | PROJECT NAME: S-593A, AC Transit

RS: (Signature) William K Scott

.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Gasoline	Diesel					REMARKS
	1/26/87	9:45		X	MW-1 / 6'-6.5'	1	X	X					6" - brass liner
	1/26/87	10:00		X	MW-1 / 8'-8.5'	1	X	X					6" - brass liner
	1/26/87	13:49		X	MW-2 / 8'-8.5'	1	X	X					6" - brass liner
	1/26/87	14:04		X	MW-2 / 13.5'-14'	1	X	X					6" - brass liner

lished by: (Signature) William K Scott	Date / Time 1/26/87 16:15	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
lished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
lished by: (Signature)	Date / Time	Received for Laboratory by:	Date / Time	Remarks	

BASELINE

CHAIN OF CUSTODY RECORD

NO.

PROJECT NAME: 5-5931 AC Transit

PROJECT MANAGER: (Signature) William K Scott

DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Diesel/Gas - Fuel Hydroc	REMARKS
1/27/87	9:01		X	MW-3 / 9'-9.5'	1	X	
1/27/87	9:16		X	MW-3 / 11.5 - 12'	1	X	

Relinquished by (Signature)	Date / Time	Received by (Signature)	Relinquished by (Signature)	Date / Time	Received by (Signature)
William K Scott	1/27/87 11:59			1/28	Cynthia Johnson
Relinquished by: (Signature)	Date / Time	Received by (Signature)	Relinquished by: (Signature)	Date / Time	Received by (Signature)
Relinquished by (Signature)	Date / Time	Received for Laboratory by:			

BASELINE

ATTACHMENT E

Groundwater Sampling 3 February 1987: Analytical Results
Chain-of-Custody Forms

BROWN AND CALDWELL LABORATORIES
1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E87-02-037

Received: 03 FEB 87
Reported: 18 FEB 87

Yane Nordhav
Baseline
315 Washington St.
Oakland, CA 94607

Project: AC Transit

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
02-037-1	MW1	03 FEB 87
02-037-2	MW2	03 FEB 87
02-037-3	MW3	03 FEB 87

PARAMETER	02-037-1	02-037-2	02-037-3
Total Fuel Hydrocarbons, mg/L	32	50	29

D. A. McLean, Laboratory Director

BROWN AND CALDWELL LABORATORIES

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

ANALYTICAL REPORT

LOG NO: E87-02-474

Received: 23 FEB 87
Reported: 24 FEB 87

Yane Nordhav
Baseline
315 Washington St.
Oakland, CA 94607

Purchase Order: AC Transit

REPORT OF ANALYTICAL RESULTS

OG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
2-474-1	MW1	03 FEB 87
2-474-2	MW2	03 FEB 87
2-474-3	MW3	03 FEB 87

ARAMETER	02-474-1	02-474-2	02-474-3
enzene,Toluene,Xylene Isomers			
Benzene, mg/L	1.5	13	5.3
Toluene, mg/L	4.0	6.0	6.8
Total Xylene Isomers, mg/L	6.4	2.9	5.4

Linda Brack For
. A. McLean, Laboratory Director

2-37-1-3 BASELINE

CHAIN OF CUSTODY RECORD

NO. | PROJECT NAME: A/C Transit

NS: (Signature) William K Scott

DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	diesel	gas					REMARKS
9/3/87	11:14		X	MW1	2 VOA	X	X					
9/3/87	10:10		X	MW2	2 VOAs	X	X					
9/3/87	12:09		X	MW3	2 VOAs	X	X					
~~9/3/87~~			X	~~MW1E~~	2 VOAs	X	X					

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
William K Scott	9/3/87 1330				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by:			

1-473-1-4

BASELINE

CHAIN OF CUSTODY RECORD

NO.

PROJECT NAME
S-593A, AC Transit

NS: (Signature)
William E Scott

.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Gasoline	Diesel					REMARKS
	1/26/87	9:45		X	MW-1/6'-6.5'	1	X	X					6" - brass liner
	1/26/87	10:00		X	MW-1/8'-8.5'	1	X	X					6" - brass liner
	1/26/87	13:49		X	MW-2/8'-8.5'	1	X	X					6" - brass liner
	1/26/87	14:04		X	MW-2/13.5'-14'	1	X	X					6" - brass liner

...ished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
William E Scott	1/26/87 16:15				
...ished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
...ished by: (Signature)	Date / Time	Received for Laboratory by:			

BASELINE

CHAIN OF CUSTODY RECORD

NO.

PROJECT NAME
S-5931 AC Transit

PROJECT MANAGER: (Signature)
William K Seat

DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TPH diesel 8015 - Fuel Hydrocarbons	REMARKS
1/27/87	9:01		X	MW-3 / 9'-9.5'	1	X	
1/27/87	9:16		X	MW-3 / 11.5-12'	1	X	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
William K Seat	1/27/87 11:59			1/28/87	Cynthia Johnson
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by:			