BP OIL

BP Oil Company
Aetna Bldg., Suite 360
2868 Prospect Park Drive
Rancho Cordova, California 95670-6020
(916) 631-0733

May 25, 1990

Scott Hugenberger
Regional Water Quality Control Board
1111 Jackson St., Room 6000
Oakland, CA 94607

RE: INTERIM REPORTS
BP OIL FACILITY #11132
3201 35TH AVE.
OAKLAND, CA

BP OIL FACILITY #11133
2220 98TH AVE.
OAKLAND, CA 94603

Dear Scott:

Please find enclosed interim reports on BP Oil Company's Phase II assessments at the subject facilities. The levels of BETX and TPH encountered in groundwater are of concern to us. We have instructed our consultant, Alton Geoscience, Inc., to complete aquifer testing, installation of recovery wells, and offsite compliance wells as quickly as possible. We have experienced some delay in obtaining easements to drill in the City of Oakland streets, but now believe this to be resolved.

We welcome your input on this report and our short term plans outlined above. Please feel free to contact me directly should you have any questions.

Sincerely,

W.J. Hollis
Environmental Coordinator

WJH:dj

Enclosure

cc: D. Noe: Mobil Oil Corporation (w/attach)
J.R. Rocco: BP Oil Company (w/o attache)
S. Seery: Alameda County (w/attach)

ALTON GEOSCIENCE, INC.

May 11, 1990

Mr. William J. Hollis
BP Oil Company
2868 Prospect Park Drive, Suite 360
Rancho Cordova, California 95670-6020

30-080

Subject: Interim Report - Preliminary Results of
Qualitative Water Survey, Sampling, and Monitoring
BP Service Station No. 11133
2220 98th Avenue
Oakland, California

Dear Mr. Hollis:

This interim report presents the results of the investigative work completed to date at BP Oil Service Station No. 11133, located at 2220 98th Avenue, Oakland, California. All activities were performed in accordance with the regulations and guidelines of the San Francisco Bay Regional Water Quality Control Board (RWQCB) and the Alameda County Department of Environmental Health (ACDEH).

SCOPE OF WORK

The scope of work performed to date by Alton Geoscience included the following tasks:

- Survey, monitoring, and sampling of three existing onsite monitoring wells.
- Installation, sampling, and destruction of eight temporary wells for qualitative survey.
- Analysis of 11 water samples by a state-certified analytical laboratory.
- Preparation of this letter report.

SITE DESCRIPTION AND HISTORY

The site is currently an operating BP Oil service station located on the northwestern corner of the intersection of Bancroft Avenue and 98th Avenue, Oakland, California. The site elevation is approximately 40 feet above mean sea level

where regional topography slopes to the west. The nearest surface water drainage is San Leandro Creek, approximately 1-1/4 miles to the south, which drains into San Leandro Bay.

In June 1987, three underground gasoline storage tanks were removed from the site. Soil samples were collected from the soil below the tank excavation. Analysis of the soil samples indicated total petroleum hydrocarbon (TPH) contamination at levels ranging from 12 parts per million (ppm) to 420 ppm. In May 1988, a consultant was retained by Mobil Oil Corporation to install three monitoring wells to assess ground water quality. The most recent round of sample collection and analysis indicated the presence of free product in at least one monitoring well, MW-1.

FIELD METHODS

The procedures and methods used during field activities were in accordance with regulatory requirements of the RWQCB and ACDEH.

Wellhead Survey

On December 12, 1989, the wells were surveyed to an arbitrary datum (MW-1) with an assumed elevation of 40 feet above mean sea level. The wells were also monitored as to depth to water, free-floating product, and sheen. During this survey and monitoring, approximately 0.2 foot of free product was observed in MW-1. Table 1 presents the well survey data.

Qualitative Ground Water Sampling

On January 24 and 25, 1990, eight soil borings were completed to various depths, ranging from 16 to 35 feet below grade, depending on subsurface conditions, at the locations shown in Figure 1, Site Plan. The borings were advanced 3 to 4 feet beyond the depth at which ground water was encountered. Following drilling, the borings were converted into temporary wells (TW-1 through TW-8) by inserting clean, 2-inch-diameter, Schedule 40, PVC casing with .020-inch slots. The ground water level was allowed to stabilize in the wells. Depth to water measurements (as measured from the ground surface) in the temporary wells varied by as much as 22 feet across the site.

Prior to sampling, each temporary well was purged of 2 to 3 gallons of ground water. During sampling, ground water was inspected for the presence of free-floating product or sheen,

and then decanted into sterile volatile organic analysis (VOA) containers for transport to a state-certified analytical laboratory for analysis under chain of custody documentation.

Following sample collection, the temporary casing was removed from the boring and steam cleaned. Soil borings were then backfilled with grout slurry and capped with asphalt.

Well Monitoring and Sampling

On January 24, 1990, Monitoring Wells MW-1, MW-2, and MW-3 were inspected for depth to water and the presence of sheen or free-floating product. Depth to water and product thickness were measured using an electronic sounder.

Ground water samples were collected from the three existing monitoring wells, following RWQCB guidelines and procedures for well purging and sampling.

ANALYTICAL METHODS AND RESULTS

Nine of the ground water samples were submitted to a state-certified laboratory for analysis. Two samples were not analyzed because of the presence of 0.2 foot of free-floating product in MW-1 and product sheen in TW-4. All laboratory analysis of ground water samples was performed using standard test methods of the U.S. EPA and the California Department of Health Services (DHS).

Analytical methods used were EPA Method 8015 for total petroleum hydrocarbons as gasoline (TPH) and EPA Method 602 for benzene, toluene, ethylbenzene, and total xylenes (BTEX). Table 2 presents the laboratory results, while the official laboratory report is included as Attachment A.

DISCUSSION OF RESULTS

The depth to water measurements in the three monitoring wells varied by 7 feet within a short distance, indicating that the wells may intersect different water-bearing zones. The difference in water depths in the temporary wells may be due to the difference in surface elevations and to the fact that the temporary wells were not developed or allowed to equilibrate properly. The temporary wells probably intersected different water-bearing zones.

Samples from Monitoring Well MW-1 and Temporary Well TW-2 had 0.2 foot of free product and sheen. Samples from the other monitoring and temporary wells contained levels of dissolved TPH as gasoline and hydrocarbon constituents (BTEX) ranging from nondetectable (ND) to 470,000 parts per billion (ppb). The high levels of dissolved-phase TPH may be due to emulsification of product during drilling of the temporary well borings. Figure 2, Site Plan, shows the isoconcentration map for TPH. It appears that the contaminant plume in the ground water has migrated offsite towards the east and offsite of the property.

RECOMMENDATIONS

Based on the results of this qualitative ground water survey, and in accordance with our agreement, we recommend the following:

1. Install three confirmation/monitoring wells offsite.

2. Install a large-diameter recovery well and an automatic recovery system (ARS) onsite to control the migration of the contaminant plume and remove the free-floating product from the ground water.

3. Perform aquifer tests to determine hydrogeologic properties of the aquifer below the site as well as an interim remedial measure.

If you have any questions, please contact either of the undersigned at (415) 682-1582.

Sincerely,

ALTON GEOSCIENCE, Inc.

Matthew J. Hopwood
Project Geologist

Al Sevilla
Division General Manager

TABLE 1

MONITORING AND SURVEY DATA

Well	Depth to Water (Feet)	Product Thickness (Feet)	TOC Elevation (Feet)	Ground Water Elevation (Feet)
		January 24, 1990		
MW-1	18.07	0.2	40.00	21.93
MW-2	25.65	---	39.96	14.31
MW-3	24.16	---	38.97	14.81

TOC = Top of Casing

*A 0.8 conversion factor is used to determine water table depression due to the presence of free-floating product interpreted from Levorson, 1967.

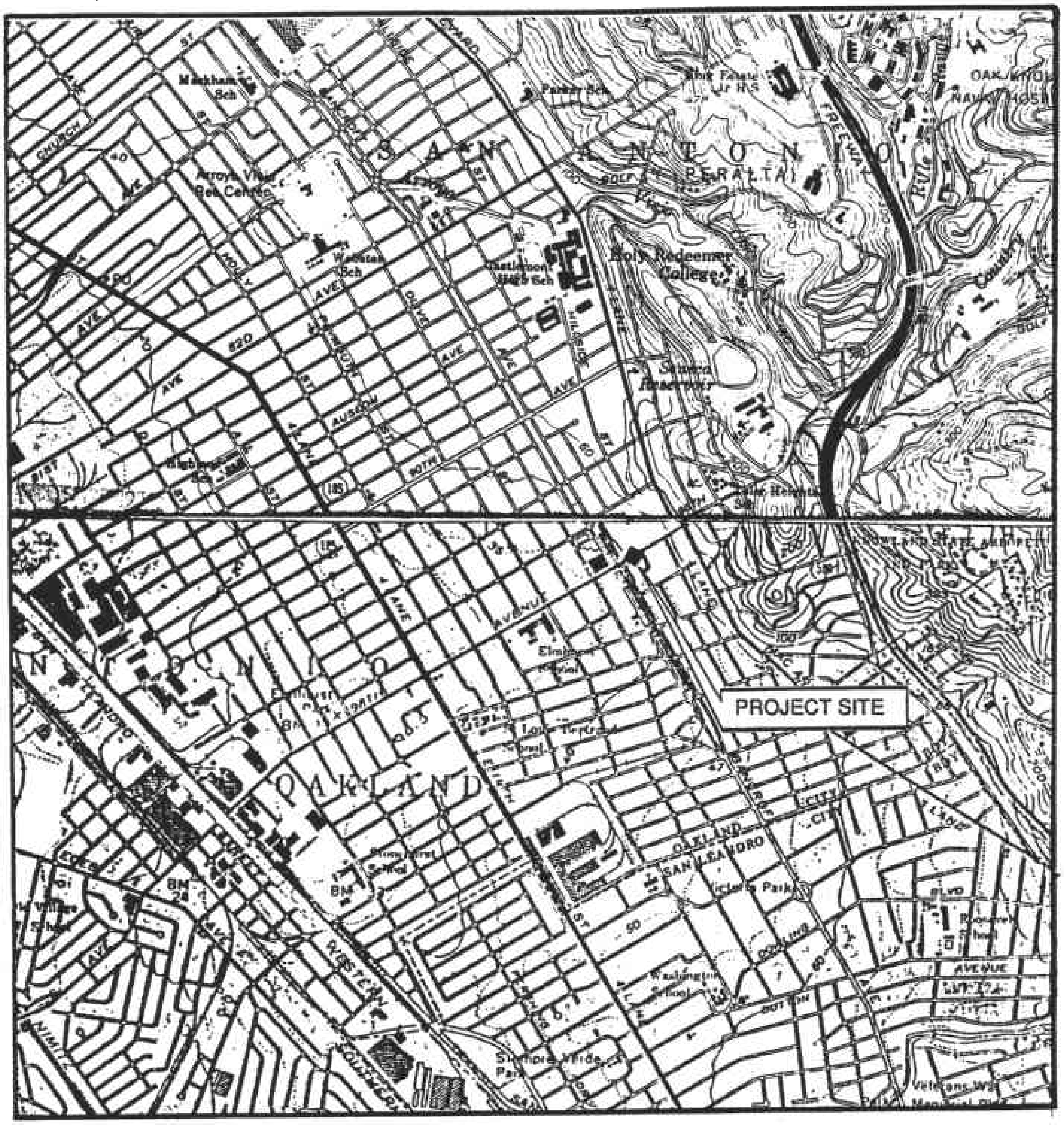
TABLE 2

RESULTS OF ANALYSIS
GROUND WATER SAMPLES

Well	TPH (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)
MW-1	FP	---	---	---	---
MW-2	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5
MW-3	ND <50	ND <0.5	ND <0.5	ND <0.5	ND <0.5
TW-1	77,000	6,600	5,500	2,900	1,500
TW-2	ND <50	1.4	1.4	0.6	5.0
TW-3	72,000	0.80	2.3	1.4	11
TW-4	FP	---	---	---	---
TW-5	66,000	19,000	15,000	1,800	8,600
TW-6	170,000	32,000	41,000	4,500	24,000
TW-7	470,000	11,000	29,000	9,700	48,000
TW-8	720,000	4,200	38,000	12,000	71,000

ND = Nondetectable
FP = Free Product
ppb = parts per billion
MW = Monitoring Well
TW = Temporary Well

Source: U.S.G.S. Map, San Leandro, California
Quadrangle 7.5 minute Series.



N

0 1000 2000

SCALE IN FEET

FIGURE 1

SITE VICINITY MAP

B P SERVICE STATION NO. 11133
2220 98TH AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. 30 - 080

ALTON GEOSCIENCE
1000 Burnett Ave., Ste 140
Concord, CA 94520

VACANT LOT
(PREVIOUS UNOCAL)

RESIDENTIAL

98 TH AVENUE

ND

PROPERTY LINE

PLANTER

100

PLANTER

MW-2
(ND) 14.3

TW-7
(470)

PUMP ISLANDS

TW-8
(720)

PROPERTY LINE

TW-3
(0.072)
72ppm

21.9

MW-1
(FP)

STRUCTURE

TW-6
(170)

PLANTER

TW-2
(ND)

PUMP ISLAND

UNDERGROUND
STORAGE
TANKS

TW-1
(73)

TW-4
(FP)

14.8

MW-3
(ND)

100

PLANTER

PROPERTY LINE

TW-5
(66)

ND

PLANTER

PROPERTY LINE

SCHOOL

BANCROFT AVENUE

RESIDENTIAL

SPRINGFIELD

RESIDENTIAL

Source: B P Oil Company

0 15 30
SCALE IN FEET

LEGEND:

- MONITORING WELLS
- PROPOSED MONITORING WELLS
- TEMPORARY WELLS
- PROPOSED RECOVERY WELL
- ND — TPH ISOCONCENTRATION CONTOUR LINE (ppm)
- (FP) FREE PRODUCT
- (ND) NONDETECTABLE

FIGURE 2 SITE PLAN

B P SERVICE STATION NO. 11133
2220 98TH AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. 30 - 080

ATTACHMENT A

LABORATORY REPORTS AND
CHAIN OF CUSTODY FORMS

MOBILE CHEM LABS INC.

1678 Rellez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Alton Geoscience
1170 Burnett Ave. Suite S
Concord, CA. 94520
Attn: Matthew Hopwood

Date Sampled:01-25-90
Date Received:01-25-90
Date Reported:01-25-90

Sample Number	Sample Description
B010176	Project # 30-080 98th Ave. BP MW-2 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Xylenes	0.5	0.9
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Rellez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Alton Geoscience
1170 Burnett Ave. Suite S
Concord, CA. 94520
Attn: Matthew Hopwood

Date Sampled:01-25-90
Date Received:01-25-90
Date Reported:01-25-90

Sample Number	Sample Description
B010177	Project # 30-080 98th Ave. BP MW-3 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	0.6
Toluene	0.5	<0.5
Xylenes	0.5	1.1
Ethylbenzene	0.5	<0.5

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Rellez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Alton Geoscience
1170 Burnett Ave. Suite S
Concord, CA. 94520
Attn: Matthew Hopwood

Date Sampled:01-25-90
Date Received:01-25-90
Date Reported:01-25-90

Sample Number	Sample Description
B010178	Project # 30-080 98th Ave. BP TW-1 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	77,000
Benzene	0.5	6,600
Toluene	0.5	5,500
Xylenes	0.5	15,000
Ethylbenzene	0.5	2,900

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Reliez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Alton Geoscience
1170 Burnett Ave. Suite S
Concord, CA. 94520
Attn: Matthew Hopwood
Project Manager

Date Sampled:01-25-90
Date Received:01-25-90
Date Reported:01-25-90

Sample Number	Sample Description
B010179	Project # 30-080 98th Ave. - Oakland TW-2 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	<50
Benzene	0.5	1.4
Toluene	0.5	1.4
Xylenes	0.5	5.0
Ethylbenzene	0.5	0.6

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

MOBILE CHEM LABS INC.

1678 Rellez Valley Road
Lafayette, CA 94549 • (415) 945-1266

Alton Geoscience
1170 Burnett Ave. Suite S
Concord, CA. 94520
Attn: Matthew Hopwood
Project Manager

Date Sampled:01-25-90
Date Received:01-25-90
Date Reported:01-25-90

Sample Number	Sample Description
B010180	Project # 30-080 98th Ave. - Oakland TW-3 WATER

ANALYSIS

	Detection Limit	Sample Results
	ppb	ppb
Total Petroleum Hydrocarbons as Gasoline	50	72
Benzene	0.5	0.8
Toluene	0.5	2.3
Xylenes	0.5	11
Ethylbenzene	0.5	1.4

Note: Analysis was performed using EPA methods 5030 and TPH LUFT with method 602 used for BTX distinction.

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1535 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 80497
CLIENT: Alton Geoscience
CLIENT JOB NO.: 30-080

DATE RECEIVED: 01/29/90
DATE REPORTED: 02/05/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (mg/L) Gasoline Range
1	TW-5	66
2	TW-6	170
3	TW-7	470
4	TW-8	720

mg/L - parts per million (ppm)

Method Detection Limit for Gasoline in Soil: 1.0 mg/kg
Method Detection Limit for Gasoline in Water: 0.1 mg/L

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = 10%
MS/MSD Average Recovery = 85%: Duplicate RPD = 5%

Edward R. Morales

Laboratory Manager

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 80497
CLIENT: Alton Geoscience
CLIENT JOB NO.: 30-080

DATE RECEIVED: 01/29/90
DATE REPORTED: 02/05/90

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration(ug/L) Benzene	Toluene	Ethyl Benzene	Xylenes
1	TW-5	19000	15000	1800	8600
2	TW-6	32000	41000	4500	24000
3	TW-7	11000	29000	9700	48000
4	TW-8	4200	38000	12000	71000

ug/L - parts per billion (ppb)
ug/kg - parts per billion (ppb)

Method Detection Limit in Soil: 3 ug/kg
Method Detection Limit in Water: 0.3 ug/L

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 96 %: Duplicate RPD = <2%

Edward R. Morales
Laboratory Manager

ALTON GEOSCIENCE
1170 BURNETT AVE., STE S
CONCORD, CA 94520

CHAIN of CUSTODY RECORD

PAGE 1 of. 1

DATE: 1/25
RESULTS DUE BY: ASAP

PROJECT NUMBER: 30-081
PROJECT NAME AND ADDRESS: [redacted]
PROJECT MANAGER: [redacted]
SAMPLER'S SIGNATURE: [redacted]
LABORATORY: Mobile

REMARKS OR SPECIAL INSTRUCTIONS:

Soil Ruster - Call w/[redacted]

[redacted]

NOTE: PLEASE INDICATE VERBAL REQUESTS FOR ADDITIONAL ANALYSES IN THIS BOX.

SAMPLE NUMBER	SAMPLE DATE/TIME	LOCATION/ DESCRIPTION	SAMPLE MATERIAL	SAMPLE TYPE: GRAB	SAMPLE TYPE: COMP.	NUMBER OF CONTAINERS	SAMPLE PREP. / SOIL ANALYSIS / WATER ANALYSIS: TPH-G w/[redacted]
[redacted]	1/25		[redacted]	X		3	X
[redacted]3	1/25		〃	〃		3	X
[redacted]4			〃	〃		3	X

TOTAL NO. OF CONTAINERS: 9

RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:	METHOD OF SHIPMENT:
[redacted]	[redacted]	[redacted]	1/25 10:55	
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:	SHIPPED BY:
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:	COURIER:

ALTON GEOSCIENCE
1170 BURNETT AVE., STE S
CONCORD, CA 94520

CHAIN of CUSTODY RECORD

PAGE 01

DATE: 1/25

RESULTS DUE BY: ASAP

PROJECT NUMBER: 30.080

PROJECT NAME AND ADDRESS: 98th Ave Oakland

PROJECT MANAGER: Hopwood

SAMPLER'S SIGNATURE:

LABORATORY: Mob. Lab

REMARKS OR SPECIAL INSTRUCTIONS:

Super Rush phone w/Results
Page 975-1449

NOTE: PLEASE INDICATE VERBAL REQUESTS FOR ADDITIONAL ANALYSES IN THIS BOX.

SAMPLE NUMBER	SAMPLE DATE/TIME	LOCATION/ DESCRIPTION	SAMPLE MATERIAL	SAMPLE TYPE: GRAB	SAMPLE TYPE: COMP.	NUMBER OF CONTAINERS	SAMPLE PREP.	SOIL ANALYSIS	WATER ANALYSIS: TPH-G w/BTEX
TW-2	1/25		Water	X		3			X
TW-3	1/25		"	X		3			X

TOTAL NO. OF CONTAINERS: 6

RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:	METHOD OF SHIPMENT:
	1/25	Carol R Harris	1/25 11:00	
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:	SHIPPED BY:
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:	COURIER:

ALTON GEOSCIENCE
1170 BURNETT AVE., STE. S
CONCORD, CA. 94520 (415) 682-1582

CHAIN of CUSTODY RECORD

PAGE 1 of 1

DATE: 1/29/90 DUE BY: 2/6/90
LABORATORY: Superior

PROJECT NUMBER / MANAGER: 30-080 M. Hopwood
SAMPLERS SIGNATURE: William G. Shipp
PROJECT NAME / ADDRESS: BP 98th Ave. Oakland
REMARKS OR SPECIAL INSTRUCTIONS:

SAMPLE NUMBER	SAMPLE DATE/TIME	LOCATION/ DESCRIPTION	SAMPLE MATRIX	SAMPLE TYPE: GRAB	SAMPLE TYPE: COMP.	TYPE & NUMBER OF CONTAINERS	~~SOIL~~ ANALYSIS			WATER ANALYSIS:	TPH as Gas/BTEX		
TW-5	1/26/90	TW-5	Water	X		3 x 40ml					X		
TW-6	1/25/90	TW-6	|	X		3 x 40ml					X		
TW-7	1/26/90	TW-7	|	X		3 x 40ml					X		
TW-8	1/26/90	TW-8	|	X		3 x 40ml					X		

CHAIN OF CUSTODY

SIGNATURE	INCLUSIVE DATES/TIMES		SIGNATURE	INCLUSIVE DATES/TIMES	
1. William G. Shipp	1/29/90	3:30 pm	4.		
2. [signature]	1/29/90	3:30 p	5.		
3.			6.		