EXXON COMPANY, U.S.A.

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91 MAY 28 AM 8:40

ENVIRONMENTAL ENGINEERING

G. D. GIBSON
SENIOR ENVIRONMENTAL ENGINEER

May 23, 1991

Exxon RAS 7-3006
720 High Street
Oakland, California

Mr. Larry Seto
Alameda County Health Agency
Division of Hazardous Materials
Department of Environmental Health
80 Swan Way, Suite 200
Oakland, California 94621

Dear Mr. Seto:

Attached for your review is the Letter Report on Results of Soil Sampling for the New Underground Storage Tank Pit at the above referenced Exxon Company, U.S.A. facility in the City of Oakland. The results of the analyses of these samples will be incorporated into our overall site remediation plans.

One sample indicated a level of TPHg of 53 ppm, the other samples were either N.D. or below 20 ppm. Should you have any comments or concerns please contact me at (415) 246-8768. Thank you.

Sincerely,

Gary D. Gibson

GDG:hs
0486E
Attachments

c - w/attachment:
Mr. V. Chu
Mr. L. Feldman - San Francisco Bay Region Water Quality Control Board

w/o attachment:
Mr. D. J. Bertoch
Mr. P. J. Brininstool
Ms. J. E. Folger
Mr. J. R. Hastings
Mr. D. R. Little
Mr. R. C. Witham - Applied GeoSystems

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

• FREMONT • IRVINE • HOUSTON • BOSTON • SACRAMENTO • CULVER CITY • SAN JOSE

LETTER REPORT
RESULTS OF SOIL SAMPLING
FOR
NEW UNDERGROUND STORAGE TANK PIT
at
Exxon Station No. 7-3006
720 High Street
Oakland, California

AGS Job 87042-9A

Applied GeoSystems
43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906
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May 13, 1991
AGS 87042-9A

Mr. Gary D. Gibson
Exxon Company U.S.A.
P.O. Box 4032
2300 Clayton Road
Concord, California 94520

Subject: Letter report on results of soil sampling for the new underground storage tank pit at Exxon Station No. 7-3006, 720 High Street, Oakland, California.

Mr. Gibson:

This letter report summarizes the results of soil sampling at the new gasoline underground storage tank (UST) pit at Exxon Station No. 7-3006. The sampling was performed by Applied GeoSystems (AGS) as authorized by Exxon. The soil sampling was requested by Mr. Lawrence Seto of the Alameda County Health Agency to evaluate the existing concentrations of gasoline and diesel in the excavation prior to installation of the new USTs. The site is located at 720 High Street, Oakland, California, as shown on the Site Vicinity Map (Plate P-1). Excavation of the new tank pit was performed by the property owner's contractor, E & G Construction of San Jose, California, between January 8 and 15, 1991.

Field Activities

Field activities performed by AGS personnel were conducted according to the AGS Work Plan (AGS No. 87042-8W, June 26, 1990), Site Safety Plan (AGS No. 87042-6S, July 8, 1989), and field procedures (Attachment I). A geologist from AGS was on site on January 15, 1991, to observe the excavation of the tank pit by E & G Construction and collect soil samples from the pit. The excavation was located in the northwestern corner of the site and was 26 feet wide, 31 feet long, and 15 feet deep (Plate P-2). One sample was collected per 200 square feet (a total of 14 samples). Six soil samples were taken from the east and west walls at various depths (Plate P-3), four soil samples were taken from the north and south walls at various depths (Plate P-4), and four soil samples were taken from the excavation floor (Plate P-5).

An estimated 500 cubic yards of excavated soil was stockpiled on the east side of the property (Plate P-2). On January 22, 1991, AGS personnel collected 40 samples (one sample for each 50 cubic yards) from the stockpile. Sample locations are shown on Plate P-6.

Laboratory Analyses

Soil samples from the tank pit were analyzed for total petroleum hydrocarbons as gasoline (TPHg) and total petroleum hydrocarbon as diesel (TPHd) by Environmental Protection Agency (EPA) Modified Method 8015, and for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 602. Each set of four samples from the stockpile was composited in the laboratory and analyzed for TPHg, BTEX, TPHd, and total oil and grease (TOG) by EPA Method 5520 E/F, and total lead by EPA extraction method 3010 and EPA analytical method 6010. Three composite samples were also analyzed for organic lead by the method described in the Leaking Underground Fuel Tank (LUFT) Manual (State of California, 1987).

The analyses were conducted at the state-certified Applied Analytical laboratory (Hazardous Waste Certificate No. 1211) in Fremont, California. The organic lead analyses were performed by Mobile Chem Labs, Inc., of Martinez, California (Hazardous Waste Testing Certificate No. 358). Copies of the Chain-of-Custody Records and laboratory analysis reports are included in Attachment II.

Results

Three distinct sedimentary layers were observed in the excavation: an upper 5 to 8 feet of clay, 3 to 8 feet of sandy gravel, and 3 feet of clay. The profile is typical of that seen in previous borings and excavations at the site. No water accumulated in the pit.

No TPHd was detected in soil samples from the excavation. Levels of TPHg in samples from the walls and floor ranged from nondetectable to 53 parts per million (ppm). No benzene was detected in the samples with the exception of one floor sample, which contained 0.007 ppm. Levels of toluene, ethylbenzene and total xylenes within the sidewall and floor ranged from nondetectable to 0.15 ppm, 0.48 ppm, and 0.86 ppm, respectively. The results of analyses of soil samples from the excavation are shown in Table 1.

The composite samples taken from the stockpile contained levels of TPHg ranging from nondetectable to 40 ppm. Levels of TPHd and TOG were nondetectable. Levels of total lead ranged from 150 ppm to 200 ppm. However, no organic lead was detected in the three samples analyzed, which suggests that the total lead detected is not from a fuel release. The

total lead concentrations probably represent background levels. The results of analyses of the soil samples from the stockpiled soil are in Table 2.

The excavated soil is currently being aerated onsite. The treated soil will be removed from the site and transported to a Class III facility.

We suggest that copies of this report be sent to

- Mr. Larry Seto, Alameda County Health Care Services Agency, Department of Environmental Health, 80 Swan Way, Room 200, Oakland, California 94621.

- Mr. Lester Feldman, California Regional Water Quality Control Board, San Francisco Bay Region, 2101 Webster Street, Suite 500, Oakland, California 94612.

Please call if you have any questions.

Sincerely,
Applied GeoSystems

William T. DeLon
Staff Geologist

Joan E. Tiernan
Registered Civil Engineer
No. 044600

Enclosures:
Table 1, Results of Analyses of Soil Samples from Excavation
Table 2, Results of Analyses of Soil Samples from Stockpile
Plate P-1, Site Vicinity Map
Plate P-2, Generalized Site Plan
Plate P-3, Soil Sample Locations, East and West Wall
Plate P-4, Soil Sample Locations, North and South Wall
Plate P-5, Soil Sample Locations, Floor
Plate P-6, Soil Sample Locations, Stockpiled Soil
Attachment I, Field Procedures
Attachment II, Chain of Custody and Laboratory Analysis

TABLE 1
RESULTS OF ANALYSES OF SOIL SAMPLES FROM EXCAVATION

Sample No.	Benzene ppm	Toluene ppm	Ethyl-benzene ppm	Xylenes ppm	TPHg ppm	TPHd ppm
S-12-TPW1	<0.005	0.010	0.18	0.31	6.2	<10
S-8-TPW2	<0.005	<0.005	0.25	0.41	6.5	<10
S-12-TPW4	<0.005	<0.005	<0.005	<0.005	<1.0	<10
S-8-TPW5	<0.005	<0.005	<0.005	<0.005	<1.0	<10
S-4-TPW6	<0.005	<0.005	<0.005	<0.005	<1.0	<10
S-8-TPW8	<0.005	0.053	0.48	0.70	53	<10
S-4-TPW9	<0.005	<0.005	<0.005	0.010	<1.0	<10
S-12-TPW10	<0.005	0.15	0.25	0.86	19	<10
S-8-PTW11	<0.005	0.017	0.13	0.36	8.8	<10
S-4-TPW12	<0.005	<0.005	<0.005	0.012	<1.0	<10
S-15-TPF1	<0.005	<0.005	0.016	0.078	1.1	<10
S-15-TPF2	<0.005	0.15	0.13	0.44	12	<10
S-15-TPF3	0.007	0.014	0.023	0.097	1.3	<10
S-15-TPF4	<0.005	<0.005	<0.005	<0.005	<1.0	<10

ppm = parts per million
TPHg = total petroleum hydrocarbons as gasoline
TPHd = total petroleum hydrocarbons as diesel
< = less than detection limit shown

Sample Designation: S-12-TPW1

- S = soil sample
- 12 = sample depth
- TPW = tank pit wall
- TPF = tank pit floor

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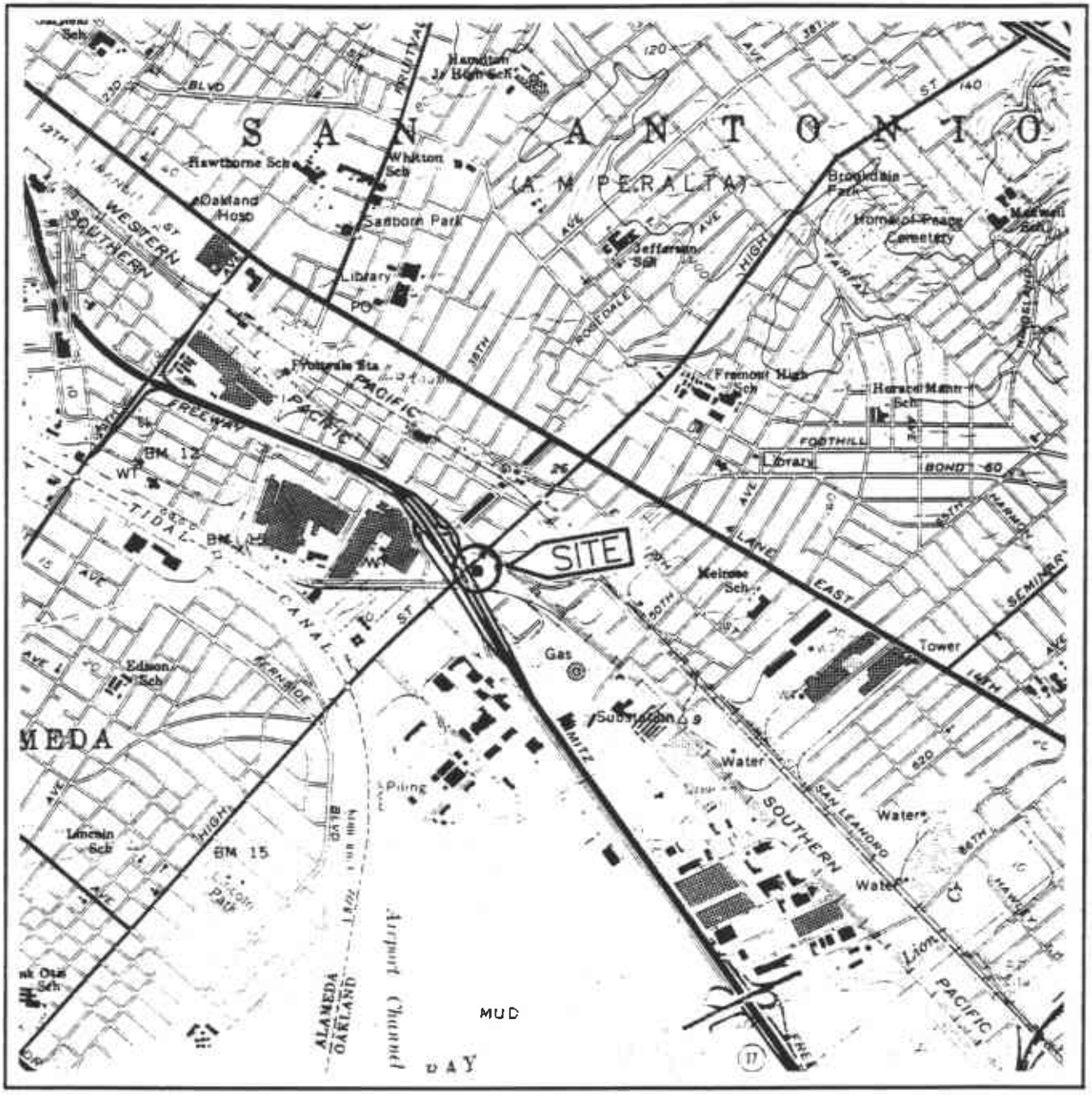
TABLE 2
RESULTS OF ANALYSES OF SOIL SAMPLES FROM STOCKPILE

Sample No.	Benzene ppm	Toluene ppm	Ethyl-benzene ppm	Xylenes ppm	TPHg ppm	TPHd ppm	TOG ppm	Total Lead ppm	Organic Lead ppm
S-12291-SP1A-D	<0.005	<0.005	<0.005	0.007	<1.0	<10	<50	150	--
S-12291-SP2A-D	<0.005	<0.005	<0.005	0.006	<1.0	<10	<50	160	--
S-12291-SP3A-D	<0.005	<0.005	<0.005	0.010	<1.0	<10	<50	150	--
S-12291-SP4A-D	0.16	0.34	0.097	1.1	23	<10	<50	180	<0.5
S-12291-SP5A-D	0.079	0.50	0.35	3.7	40	<10	<50	200	<0.5
S-12291-SP6A-D	<0.005	0.061	0.10	0.15	5.8	<10	<50	170	--
S-12291-SP7A-D	<0.005	0.026	0.054	0.28	4.8	<10	<50	180	<0.5
S-12291-SP8A-D	<0.005	0.010	0.006	0.039	1.5	<10	<50	160	--
S-12291-SP9A-D	<0.005	0.11	0.085	0.43	6.8	<10	<50	150	--
S-12291-SP10A-D	<0.005	0.030	0.021	0.22	6.0	<10	<50	170	--

ppm = parts per million
TPHg = total petroleum hydrocarbons as gasoline
TPHd = total petroleum hydrocarbons as diesel
< = less than detection limit shown
Sample Designation: S-12291-SP10A-D

- S-12291-SP10A-D
  - Composite of samples A through D
  - SP10 = stock pile area 10
  - Date (January 22, 1991)
  - Soil sample



Source: U.S. Geological Survey
7.5–Minute Quadrangle
Oakland East, California

N

Approximate Scale

2000 1000 0 2000 4000

feet

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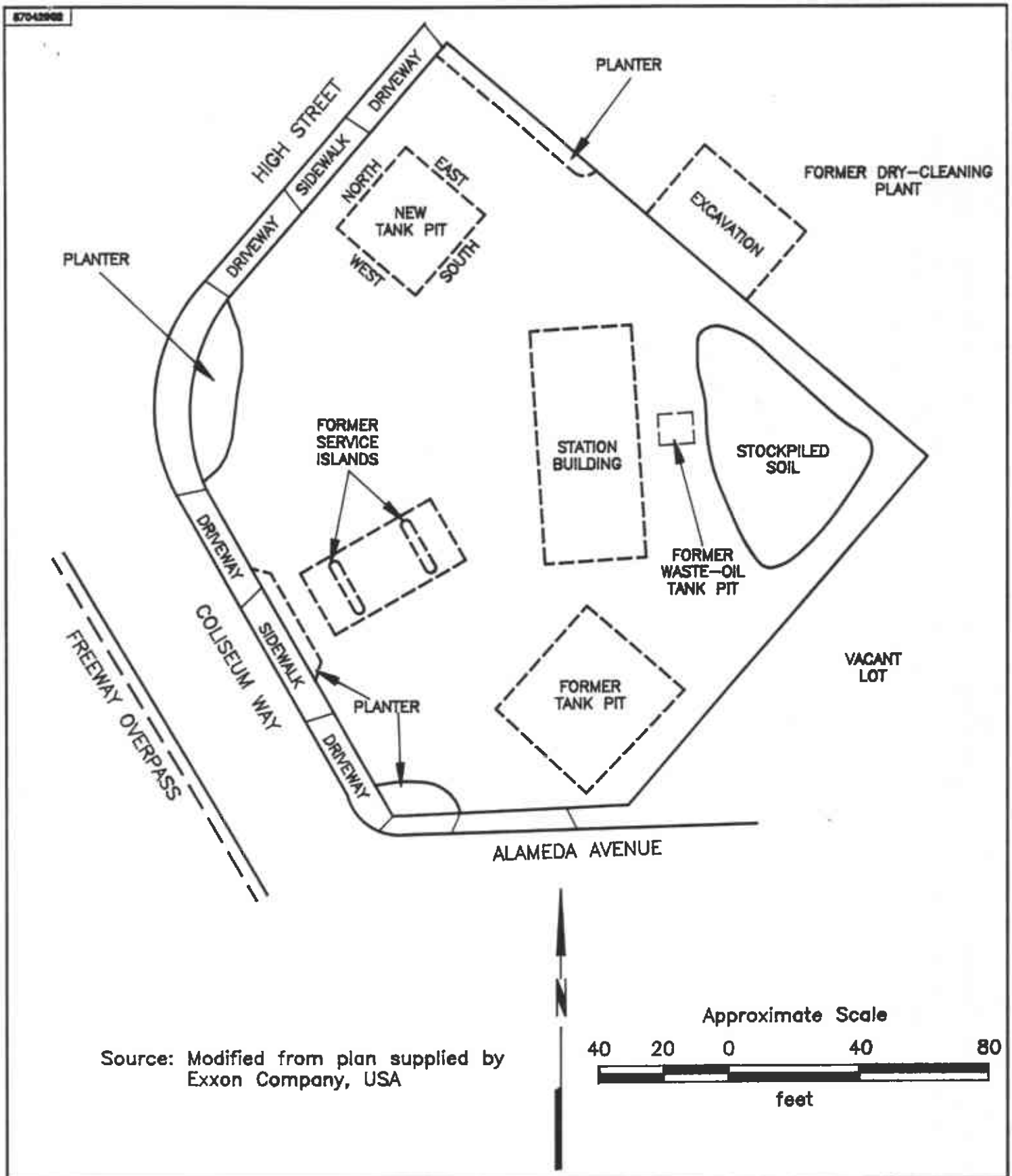
PROJECT NO. 87042-9

SITE VICINITY MAP
Exxon Station No. 7-3006
720 High Street
Oakland, California

PLATE
P - 1



Source: Modified from plan supplied by Exxon Company, USA

Applied GeoSystems

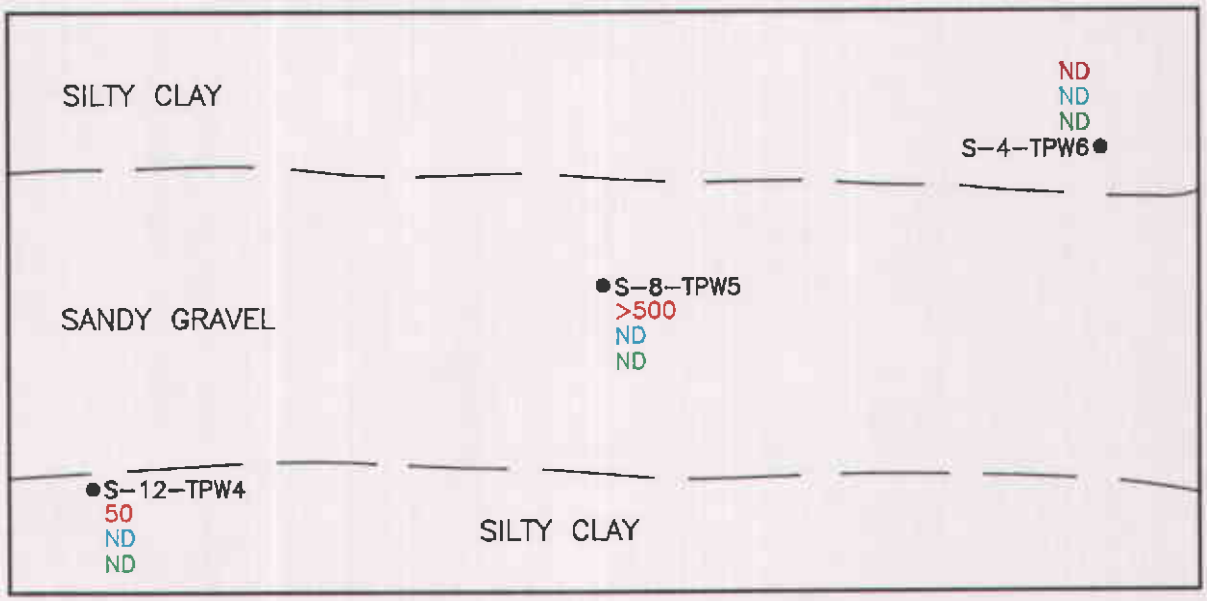
PROJECT NO. 87042-9

GENERALIZED SITE PLAN
Exxon Station No. 7-3006
720 High Street
Oakland, California

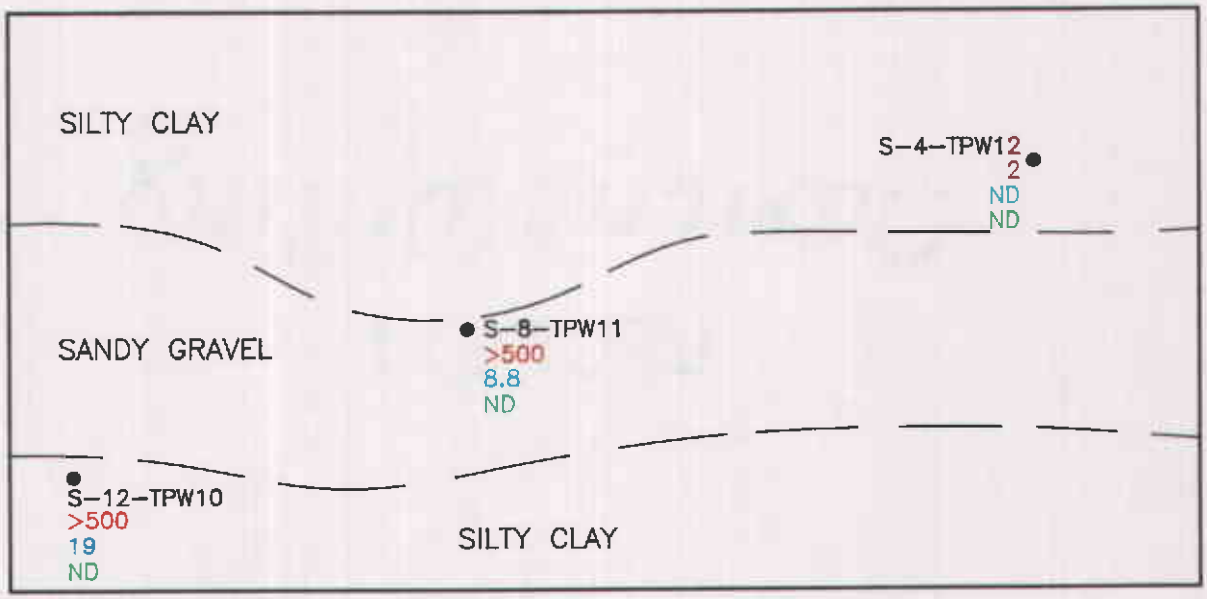
PLATE
P - 2

87042SE

EAST WALL



WEST WALL



50 = OVM reading in ppm

19 = TPHg concentration in ppm

ND = TPHd concentration in ppm

ND = Nondetectable

= Approximate line of contact between soil units

Approximate Scale

5 2.5 0 5 10

feet

Applied GeoSystems

PROJECT NO. 87042-9

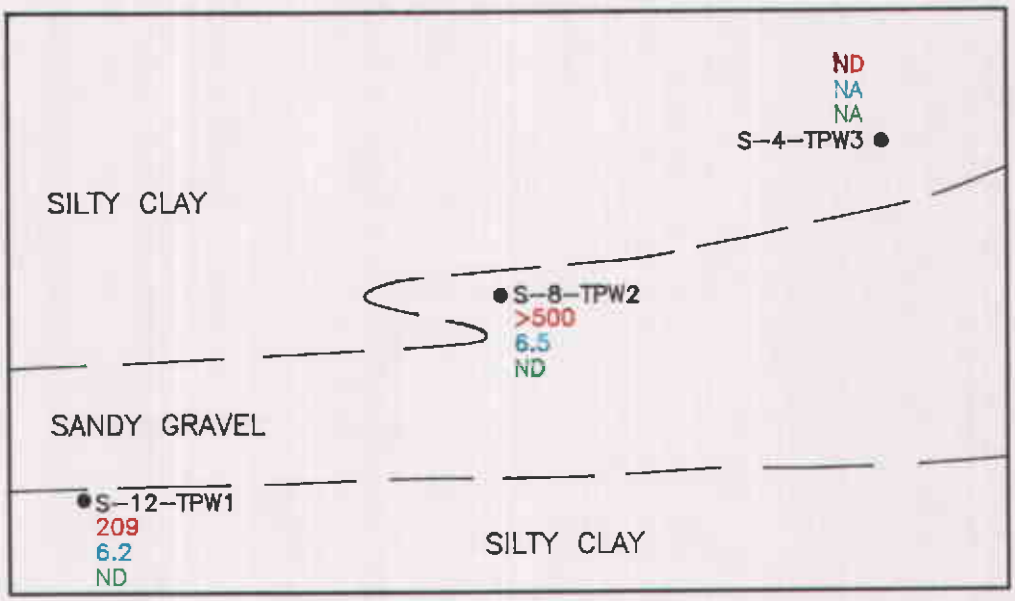
SOIL SAMPLE LOCATIONS
East and West Walls
Exxon Station No. 7-3006
720 High Street
Oakland, California

PLATE

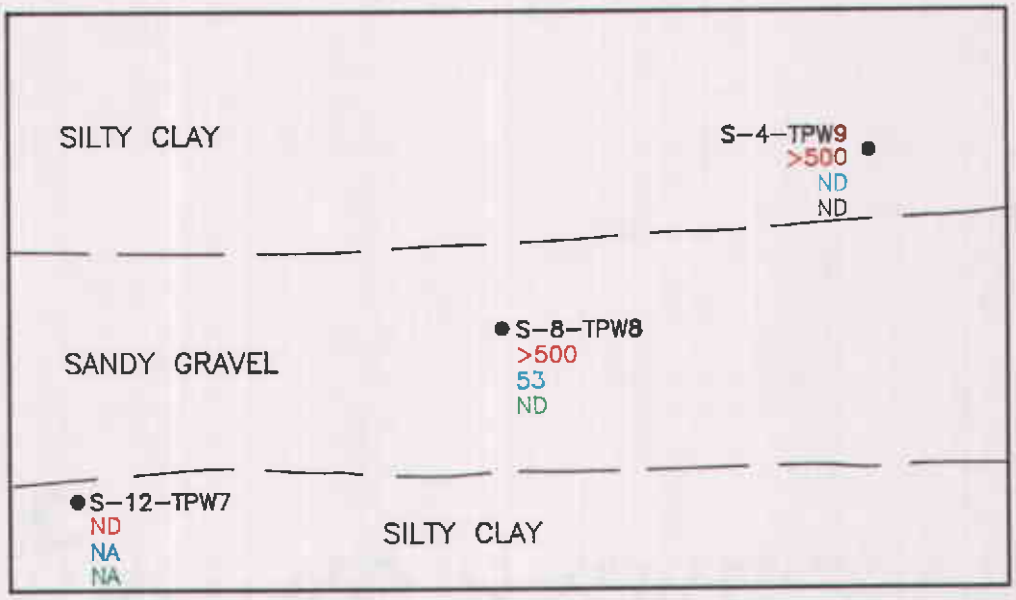
P - 3

87042SH

NORTH WALL



SOUTH WALL



209 = OVM reading in ppm

53 = TPHg concentration in ppm

ND = TPHd concentration in ppm

NA = Not analyzed

ND = Nondetectable

= Approximate line of contact between soil units

Approximate Scale

5 2.5 0 5 10

feet

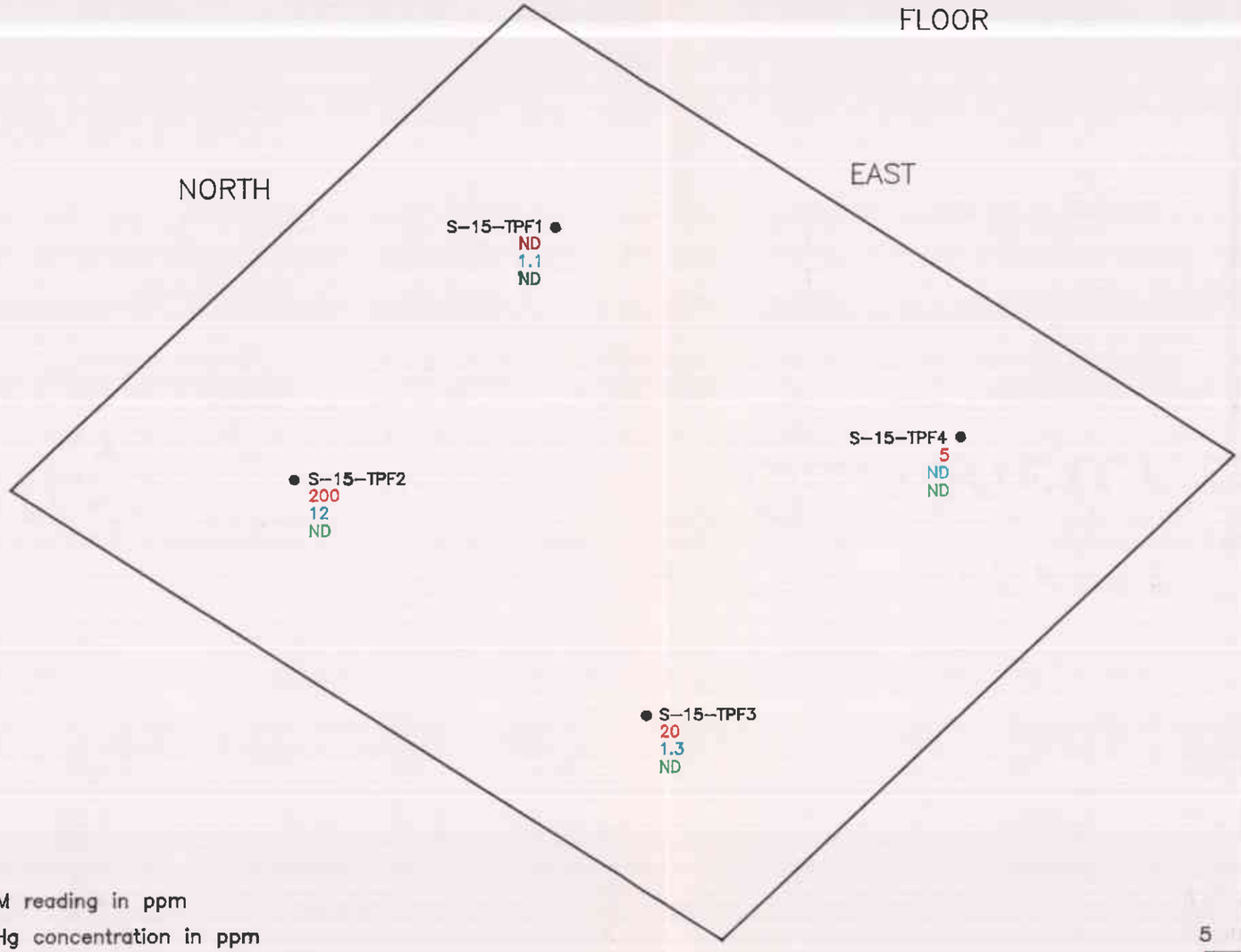
Applied GeoSystems

PROJECT NO. 87042-9

SOIL SAMPLE LOCATIONS
North and South Walls
Exxon Station No. 7-3006
720 High Street
Oakland, California

PLATE

P - 4



50 = OVM reading in ppm
19 = TPHg concentration in ppm
ND = TPHd concentration in ppm
ND = Nondetectable

Approximate Scale
5 2.5 0 5 10
feet

Applied GeoSystems

PROJECT NO. 87042-9

SOIL SAMPLE LOCATIONS
Floor of Excavation
Exxon Station No. 7-3006
720 High Street
Oakland, California

PLATE
P - 5

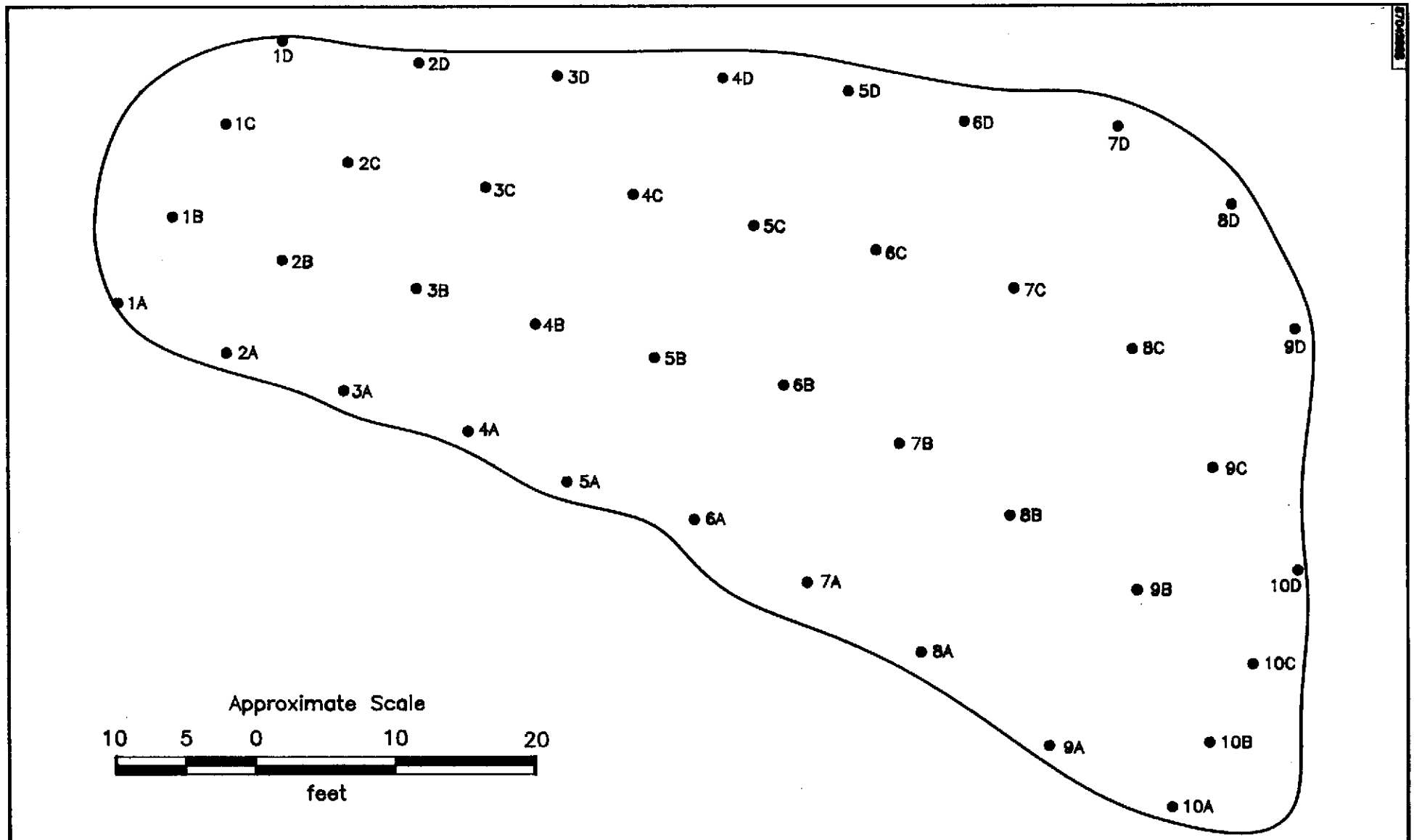


PLATE	SOIL SAMPLE LOCATIONS Stockpiled Soil Exxon Station No. 7-3006 720 High Street Oakland, California	Applied GeoSystems
P - 6		PROJECT NO. 87042-9

Applied GeoSystems
43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906
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ATTACHMENT I

FIELD PROCEDURES

FIELD PROCEDURES

Soil samples from the walls and floor were taken from the excavator's bucket. All soil samples were collected using a hand-held percussion hammer. Prior to collecting the sample, the uppermost 1 foot of soil was removed. The sampler was then quickly driven into the soil to sampled. After recovering the sampler, the soil sample was removed and promptly sealed in its brass sleeve with aluminum foil, plastic caps and duct tape. The sample was then labeled, placed in iced storage and transported to Applied Analytical Laboratory, a state certified hazardous waste testing laboratory located in Fremont, California.

Applied GeoSystems 43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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ATTACHMENT II

CHAIN OF CUSTODY RECORDS AND LABORATORY ANALYSIS REPORTS

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
87042-9	Exxon-Oakland
P.O. NO.	SAMPLERS (Signature)

DATE MM/DD/YY	TIME		No. of Cont-ainers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	Preserved?	REMARKS	LABORATORY I.D. NUMBER
1/15/90		S-12-TPW1	1	X	X	X	ICE		
		S-8-TPW2		X	X	X			
		S-4-TPW3		X	X	X		HOLD JK	No sample receipt 2nd 1-16-91
		S-12-TPW4		X	X	X			
		S-8-TPW5		X	X	X			
		S-4-TPW6		X	X	X			
		S-12-TPW7		X	X	X		HOLD J.K.	No sample receipt. 2nd 1-16-91
		S-8-TPW8		X	X	X			
		S-4-TPW9		X	X	X			
		S-12-TPW10		X	X	X			
		S-8-TPW11		X	X	X			
		S-4-TPW12		X	X	X			
		S-15-TPF1		X	X	X			
		S-15-TPF2		X	X	X			
		S-15-TPF3		X	X	X			
		S-15-TPF4		X	X	X			

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
	1/15 5:00	Jo Ellen Kuszmaul
RELINQUISHED BY (Signature): Jo Ellen Kuszmaul	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature): 1-16-91 1300

Laboratory: AGS

Turn Around: ~~2 weeks~~ 1 week JK

SEND RESULTS TO:
Applied GeoSystems
43255 Mission Boulevard
Fremont, California 95826
(415) 651-1906

Proj. Mgr.: JO ELLEN

APPLIED ANALYTICAL

Environmental Laboratories

42501 Albrae St., Suite 100
Fremont, CA 94538
Bus: (415) 623-0775
Fax: (415) 651-8647

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. JoEllen Kuszmaul	Date Sampled:	01-15-91
	Applied GeoSystems	Date Received:	01-16-91
	42501 Albrae Street	BTEX Analyzed:	01-19-91
	Fremont, CA 94538	TPHg Analyzed:	01-19-91
Project:	AGS 87042-9	TPHd Analyzed:	01-22-91
		Matrix:	Soil

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit:	0.005	0.005	0.005	0.005	1.0	10
SAMPLE Laboratory Identification						
S-12-TPW1 S1101182	ND	0.010	0.18	0.31	6.2	ND
S-8-TPW2 S1101183	ND	ND	0.25	0.41	6.5	ND
S-12-TPW4 S1101185	ND	ND	ND	ND	ND	ND
S-8-TPW5 S1101186	ND	ND	ND	ND	ND	ND
S-4-TPW6 S1101187	ND	ND	ND	ND	ND	ND

ppm = parts per million = mg/kg = milligrams per kilogram.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX– Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

TPHg–Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

TPHd--Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Laboratory Representative

January 22, 1991
Date Reported

APPLIED ANALYTICAL LABORATORY IS CERTIFIED BY THE STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1211)

APPLIED ANALYTICAL

Environmental Laboratories

42501 Albrae St., Suite 100
Fremont, CA 94538
Bus: (415) 623-0775
Fax: (415) 651-8647

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. JoEllen Kuszmaul	Date Sampled:	01-15-91
	Applied GeoSystems	Date Received:	01-16-91
	42501 Albrae Street	BTEX Analyzed:	01-19-91
	Fremont, CA 94538	TPHg Analyzed:	01-19-91
Project:	AGS 87042-9	TPHd Analyzed:	01-22-91
		Matrix:	Soil

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit:	0.005	0.005	0.005	0.005	1.0	10
SAMPLE Laboratory Identification						
S-8-TPW8 S1101189	ND	0.053	0.48	0.70	53	ND
S-4-TPW9 S1101190	ND	ND	ND	0.010	ND	ND
S-12-TPW10 S1101191	ND	0.15	0.25	0.86	19	ND
S-8-TPW11 S1101192	ND	0.017	0.13	0.36	8.8	ND
S-4-TPW12 S1101193	ND	ND	ND	0.012	ND	ND

ppm = parts per million = mg/kg = milligrams per kilogram.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
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ANALYTICAL PROCEDURES

BTEX– Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

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ANALYSIS REPORT

1020lab.frm

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	Applied GeoSystems	Date Received:	01-16-91
	42501 Albrae Street	BTEX Analyzed:	01-19-91
	Fremont, CA 94538	TPHg Analyzed:	01-19-91
Project:	AGS 87042-9	TPHd Analyzed:	01-22-91
		Matrix:	Soil

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit:	0.005	0.005	0.005	0.005	1.0	10
SAMPLE Laboratory Identification						
S-15-TPF1 S1101194	ND	ND	0.016	0.078	1.1	ND
S-15-TPF2 S1101195	ND	0.15	0.13	0.44	12	ND
S-15-TPF3 S1101196	0.007	0.014	0.023	0.097	1.3	ND
S-15-TPF4 S1101197	ND	ND	ND	ND	ND	ND

ppm = parts per million = mg/kg = milligrams per kilogram.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX-- Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

TPHg--Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

TPHd--Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Laboratory Representative

January 22, 1991
Date Reported

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DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1211)

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
87042-2	Exxon Oakland
P.O. NO.	SAMPLERS (Signature)
	Lauk Rwd

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TOG	total lead				Preserved?	REMARKS	LABORATORY I.D. NUMBER
1/22/91		S-12291-SP1A (composite)	1										(total lead to be analyzed on regular turnaround)	
		S-12291-SP1B (composite)	1											
		S-12291-SP1C (composite)	1											
		S-12291-SP1D (composite)	1											

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
Lauk Rwd	1/22 11:00	Jo Ellen Kwapniewski
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
Jo Ellen Kwapniewski	1/24/91	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature): 1-22-91 12:00

Laboratory: Applied Analytical

Turn Around: 24 hrs

SEND RESULTS TO:
Applied GeoSystems
42501 Albrae Street
Fremont, CA 94538
(415) 651-1906

Proj. Mgr.: Jo Ellen Kwapniewski

APPLIED ANALYTICAL

Environmental Laboratories

42501 Albrae St., Suite 100
Fremont, CA 94538
Bus: (415) 623-0775
Fax: (415) 651-8647

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. JoEllen Kuszmaul	Date Sampled:	01-22-91
	Applied GeoSystems	Date Received:	01-22-91
	42501 Albrae Street	BTEX Analyzed:	01-22-91
	Fremont, CA 94538	TPHg Analyzed:	01-22-91
Project:	AGS 87042-9	TPHd Analyzed:	01-22-91
		Matrix:	Soil

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit:	0.005	0.005	0.005	0.005	1.0	10
SAMPLE Laboratory Identification						
S-12291-SP1ABCD S1101327	ND	ND	ND	0.007	ND	ND

ppm = parts per million = mg/kg = milligrams per kilogram.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX– Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

TPHg–Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

TPHd–Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Laboratory Representative

January 22, 1991
Date Reported

APPLIED ANALYTICAL

Environmental Laboratories

42501 Albrae St., Suite 100
Fremont, CA 94538
Bus: (415) 623-0775
Fax: (415) 651-8647

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. JoEllen Kuszmaul	Date Sampled:	01-22-91
	Applied GeoSystems	Date Received:	01-22-91
	42501 Albrae Street	TOG Analyzed:	01-22-91
	Fremont, CA 94538	Matrix:	Soil
Project:	AGS 87042-9	Detection Limit:	50 mg/kg

SAMPLE Laboratory Identification	TOG (mg/kg)
S-12291-SP1ABCD S1101327	ND

µg/L = micrograms per liter = ppb = parts per billion
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.

ANALYTICAL PROCEDURES

TPH as Oil and Grease -- Total Oil and Grease (TOG) of mineral or petroleum origin are measured by extraction and gravimetric analysis according to Standard Method 5520 E/F.

Laboratory Representative

January 22, 1991
Date Reported

APPLIED ANALYTICAL LABORATORY IS CERTIFIED BY THE STATE OF CALIFORNIA DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1211)

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
87042-9	EXXON OAKLAND (HIGH ST)
P.O. NO.	SAMPLERS (Signature)
	LOUIS R WIA

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	TPH as Lead	TOG				Preserved?	REMARKS	LABORATORY I.D. NUMBER
1/22/91												Ice		
	328	S-12291-SP2A-D	4	✓	✓	✓	✓	✓						
		S-12291-SP3A-D	4	✓	✓	✓	✓	✓						
		S-12291-SP4A-D	4	✓	✓	✓	✓	✓						
		S-12291-SP5A-D	4	✓	✓	✓	✓	✓						
		S-12291-SP6A-D	4	✓	✓	✓	✓	✓						
		S-12291-SP7A-D	4	✓	✓	✓	✓	✓						
		S-12291-SP8A-D	4	✓	✓	✓	✓	✓						
		S-12291-SP9A-D	4	✓	✓	✓	✓	✓						
		S-12291-SP10A-D	4	✓	✓	✓	✓	✓				✓		

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
LOUIS R WIA	1/22/91 1535	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):
		1-22-91 1535

Laboratory: Applied Analytical

Turn Around: 1 wk

SEND RESULTS TO:
Applied GeoSystems
42501 Albrae Street
Fremont, CA 94538
(415) 651-1906

Proj. Mgr.: JO ETHER

APPLIED ANALYTICAL

Environmental Laboratories

42501 Albrae St., Suite 100
Fremont, CA 94538
Bus: (415) 623-0775
Fax: (415) 651-8647

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. JoEllen Kuszmaul	Date Sampled:	01-22-91
	Applied GeoSystems	Date Received:	01-22-91
	42501 Albrae Street	BTEX Analyzed:	01-25-91
	Fremont, CA 94538	TPHg Analyzed:	01-25-91
Project:	AGS 87042-9	TPHd Analyzed:	01-28-91
		Matrix:	Soil

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit:	0.005	0.005	0.005	0.005	1.0	10
SAMPLE Laboratory Identification						
S-12291-SP2A-D S1101328	ND	ND	ND	0.006	ND	ND
S-12291-SP3A-D S1101329	ND	ND	ND	0.010	ND	ND
S-12291-SP4A-D S1101330	0.16	0.34	0.097	1.1	23	ND
S-12291-SP5A-D S1101331	0.079	0.50	0.35	3.7	40	ND
S12291-SP6A-D S1101332	ND	0.061	0.10	0.15	5.8	ND

ppm = parts per million = mg/kg = milligrams per kilogram.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX-- Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

TPHg--Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

TPHd--Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Laboratory Representative

January 28, 1991
Date Reported

APPLIED ANALYTICAL LABORATORY IS CERTIFIED BY THE STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1211)

APPLIED ANALYTICAL

Environmental Laboratories

42501 Albrae St., Suite 100
Fremont, CA 94538
Bus: (415) 623-0775
Fax: (415) 651-8647

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. JoEllen Kuszmaul	Date Sampled:	01-22-91
	Applied GeoSystems	Date Received:	01-22-91
	42501 Albrae Street	BTEX Analyzed:	01-25-91
	Fremont, CA 94538	TPHg Analyzed:	01-25-91
Project:	AGS 87042-9	TPHd Analyzed:	01-28-91
		Matrix:	Soil

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit:	0.005	0.005	0.005	0.005	1.0	10
SAMPLE Laboratory Identification						
S-12291-SP7A-D S1101333	ND	0.026	0.054	0.28	4.8	ND
S-12291-SP8A-D S1101334	ND	0.010	0.006	0.039	1.5	ND
S-12291-SP9A-D S1101335	ND	0.11	0.085	0.43	6.8	ND
S-12291-SP10A-D S1101336	ND	0.030	0.021	0.22	6.0	ND

ppm = parts per million = mg/kg = milligrams per kilogram.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

BTEX-- Benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction using EPA Method 5030 followed by analysis using EPA Method 8020/602, which utilizes a gas chromatograph (GC) equipped with a photoionization detector (PID) and a flame-ionization detector (FID) in series.

TPHg–Total petroleum hydrocarbons as gasoline (low-to-medium boiling points) are measured by extraction using EPA Method 5030, followed by analysis using modified EPA Method 8015, which utilizes a GC equipped with an FID.

TPHd--Total petroleum hydrocarbons as diesel (high boiling points) are measured by extraction using EPA Method 3550 for soils and EPA Method 3510 for water, followed by modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Laboratory Representative

January 28, 1991
Date Reported

APPLIED ANALYTICAL

Environmental Laboratories

42501 Albrae St., Suite 100
Fremont, CA 94538
Bus: (415) 623-0775
Fax: (415) 651-8647

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. JoEllen Kuszmaul	Date Sampled:	01-22-91
	Applied GeoSystems	Date Received:	01-22-91
	42501 Albrae Street	TOG Analyzed:	01-24-91
	Fremont, CA 94538	Matrix:	Soil
Project:	AGS 87042-9	Detection Limit:	50 mg/kg

SAMPLE Laboratory Identification	TOG (mg/kg)
S-12291-SP2(A-D) S1101328	ND
S-12291-SP3(A-D) S1101329	ND
S-12291-SP4(A-D) S1101330	ND
S-12291-SP5(A-D) S1101331	ND

mg/kg = milligrams per kilogram = ppm = parts per million.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.

ANALYTICAL PROCEDURES

TPH as Oil and Grease – Total Oil and Grease (TOG) of mineral or petroleum origin are measured by extraction and gravimetric analysis according to Standard Method 5520 E/F.

Laboratory Representative

January 29, 1991
Date Reported

APPLIED ANALYTICAL LABORATORY IS CERTIFIED BY THE STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1211)

APPLIED ANALYTICAL

Environmental Laboratories

42501 Albrae St., Suite 100
Fremont, CA 94538
Bus: (415) 623-0775
Fax: (415) 651-8647

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. JoEllen Kuszmaul	Date Sampled:	01-22-91
	Applied GeoSystems	Date Received:	01-22-91
	42501 Albrae Street	TOG Analyzed:	01-28-91
	Fremont, CA 94538	Matrix:	Soil
Project:	AGS 87042-9	Detection Limit:	50 mg/kg

SAMPLE Laboratory Identification	TOG (mg/kg)
S-12291-SP6(A-D) S1101332	ND
S-12291-SP7(A-D) S1101333	ND
S-12291-SP8(A-D) S1101334	ND
S-12291-SP9(A-D) S1101335	ND
S-12291-SP10(A-D) S1101336	ND

mg/kg = milligrams per kilogram = ppm = parts per million.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.

ANALYTICAL PROCEDURES

TPH as Oil and Grease -- Total Oil and Grease (TOG) of mineral or petroleum origin are measured by extraction and gravimetric analysis according to Standard Method 5520 E/F.

Laboratory Representative

January 29, 1991
Date Reported

APPLIED ANALYTICAL LABORATORY IS CERTIFIED BY THE STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1211)

APPLIED ANALYTICAL

Environmental Laboratories

42501 Albrae St., Suite 100
Fremont, CA 94538
Bus: (415) 623-0775
Fax: (415) 651-8647

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. JoEllen Kuszmaul	Date Sampled:	01-22-91
	Applied GeoSystems	Date Received:	01-22-91
	42501 Albrae Street	Date Extracted:	01-28-91
	Fremont, CA 94538	Date Analyzed:	01-30-91
Project:	AGS 87042-9	Matrix:	Soil

	Lead mg/kg
Detection Limit:	50
SAMPLE Laboratory Identification	
S-12291-SP1(A-D) S1101327	150
S-12291-SP2(A-D) S1101328	160
S-12291-SP3(A-D) S1101329	150
S-12291-SP4(A-D) S1101330	180
S-12291-SP5(A-D) S1101331	200

ppm = parts per million = mg/kg = milligrams per kilogram.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

All metals are extracted according to EPA method 3010 and analyzed according to EPA 6010.

Laboratory Representative

January 30, 1991
Date Reported

APPLIED ANALYTICAL

Environmental Laboratories

42501 Albrae St., Suite 100
Fremont, CA 94538
Bus: (415) 623-0775
Fax: (415) 651-8647

ANALYSIS REPORT

1020lab.frm

Attention:	Ms. JoEllen Kuszmaul	Date Sampled:	01-22-91
	Applied GeoSystems	Date Received:	01-22-91
	42501 Albrae Street	Date Extracted:	01-28-91
	Fremont, CA 94538	Date Analyzed:	01-30-91
Project:	AGS 87042-9	Matrix:	Soil

	Lead mg/kg
Detection Limit:	50
SAMPLE Laboratory Identification	
S-12291-SP6(A-D) S1101332	170
S-12291-SP7(A-D) S1101333	180
S-12291-SP8(A-D) S1101334	160
S-12291-SP9(A-D) S1101335	150
S-12291-SP10(A-D) S1101336	170

ppm = parts per million = mg/kg = milligrams per kilogram.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

All metals are extracted according to EPA method 3010 and analyzed according to EPA 6010.

Laboratory Representative

January 30, 1991
Date Reported

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
87042-9	Exxon Oakland
P.O. NO.	SAMPLERS (Signature)

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	organic lead					Preserved?	REMARKS	LABORATORY I.D. NUMBER
				ANALYSIS										
1/22/91		S-12291-SP4 (A-D)	4				X							
↓		S-12291-SP5 (A-D)	4				X							
↓		S-12291-SP7 (A-D)	4				X							

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
Jo Ellen Kuszmaul	1/31	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature): 1-31-91 1500

Laboratory: Applied Analytical

Turn Around: 2 week

SEND RESULTS TO:
Applied GeoSystems
42501 Albrae Street
Fremont, CA 94538
(415) 651-1906

Proj. Mgr.: Jo Ellen

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
87042-9	Exxon Oakland
P.O. NO.	SAMPLERS (Signature)

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	organic lead					Preserved?	REMARKS	LABORATORY I.D. NUMBER
				ANALYSIS										
1-22-91		S-12291-SP4 (A-D)	4				X							
		S-12291-SP5 (A-D)	4				X							
		S-12291-SP7 (A-D)	4				X							

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
[signature]	2/6 9:20 AM	[signature]
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):

Laboratory: Mobile Chem

Turn Around: 1 week.

SEND RESULTS TO:
Applied Analytical
42501 Albrae Street
Fremont, California

(415) 623-0775

Proj. Mgr.: Laura Kuck.

MOBILE CHEM LABS INC.

5021 Blum Road, Suite 3 • Martinez, CA 94553
Phone (415) 372-3700 • Fax (415) 372-6955

87042-9/011651

Applied GeoSystems, Inc.
42501 Albrae Street, Suite 100
Fremont, CA 94639
ATTN: Laura Kuck
Project Manager

Date Sampled: 01-22-91
Date Received: 02-06-91
Date Reported: 02-08-91

ORGANIC LEAD

Sample Number	Sample Description	Detection Limit ppm	SOIL RESULTS ppm
	Project No.: 87042-9 EXXON - Oakland		
V021005	S-1229-SP4(A-D)	0.5	<0.5
V021006	S-1229-SP5(A-D)	0.5	<0.5
V021007	S-1229-SP7(A-D)	0.5	<0.5

QA/QC: Sample blank is none detected
Spike Recovery on V021005 is 88%
Duplicate Deviation on V021005 is 0.6%

Note: California LUFT 12/87
(ppm) = (mg/kg)

MOBILE CHEM LABS

Ronald G. Evans
Lab Director