BP OIL

ENVIRONMENTAL PROTECTION
96 NOV 26 AM 9:1

BP Oil Company
Environmental Resources Management
Building 13, Suite N
295 SW 41st Street
Renton, Washington 98055-4931
(206) 251-0667
Fax No: (206) 251-0736

November 21, 1996

Alameda County Health Care Services Agency
Attention Mr. Scott Seery
1131 Harbor Bay Parkway, Room 250
Alameda, CA 94502-6577

RE: Former BP Oil Site No. 11105
Castro Valley & Redwood
Castro Valley, CA

Dear Mr. Seery:

Enclosed find the 1 August 1996 Soil Investigation Report and 17 September 1996 Groundwater Monitoring and Sampling Report for the above captioned site.

You will recall that the soil investigation was performed to investigate a potential on-site source of hydrocarbons - a former pump island located along the west side of the former BP site. Upon review of the results, you will note that hydrocarbon concentrations increased with increasing depth, and that the highest concentrations were detected at a depth corresponding to the cappillary fringe. The consultant concluded that the results are consistent with a dissolved phase plume that has migrated from an upgradient source.

The groundwater monitoring and sampling report shows that petroleum hydrocarbons were detected in samples obtained from all of the wells save MW-6.

Please give me a call if you have any questions, comments or concerns regarding this matter. I can be reached at (206) 251-0689.

Sincerely,

Scott Hooton
Environmental Remediation Management

attachments (2)

Supplemental

SOIL INVESTIGATION REPORT

BP Oil Company Service Station No. 11105
3519 Castro Valley Boulevard
Castro Valley, California

Project No. 10-138-07-001

Prepared for:

BP Oil Company
295 S.W. 41st Street
Building 13, Suite N
Renton, Washington

Prepared by:

Alisto Engineering Group
1575 Treat Boulevard, Suite 201
Walnut Creek, California

August 1, 1996

Brady Nagle
Project Manager

Al Sevilla, P.E.
Principal

REGISTERED PROFESSIONAL ENGINEER
ALBERTO SANCHEZ SEVILLA
26392
Exp. Date 3/31/00
CIVIL
STATE OF CALIFORNIA

SOIL INVESTIGATION REPORT

BP Oil Company Service Station No. 11105
3519 Castro Valley Boulevard
Castro Valley, California

Project No. 10-138-07-001

1.0 INTRODUCTION

Alisto Engineering Group was retained by BP Oil Company to perform soil sampling at BP Oil Service Station No. 11105, 3519 Castro Valley Boulevard, Castro Valley, California. A site vicinity map is shown on Figure 1 and a site plan is shown on Figure 2.

This work was performed to assess the extent of petroleum hydrocarbons in the subsurface soil in the immediate vicinity of a former dispenser island location. The scope of work for this investigation included the following:

- Drilled two exploratory soil borings, SB-3 and SB-4, and collected soil samples.
- Analyzed the soil samples for specific hydrocarbon constituents.
- Evaluated the data and analytical results and prepared this report.

The above tasks and related field and sampling activities were performed in response to a request from the Alameda County Health Care Services Agency (ACHCSA) to assess the potential for petroleum hydrocarbons, if any, in the vicinity of the former pump island location to migrate into the groundwater.

2.0 FIELD METHODS

and abandoned piping trench leading to it.

On March 8, 1996, two soil borings were drilled using a hand auger to depths of 8.5 and 5.5 feet in the vicinity of a former dispenser island. Soil samples were collected using a hand sampler. The drilling and soil sampling procedures are presented in Appendix A. The samples were labeled and transported in an iced cooler to a state-certified laboratory following chain of custody procedures. The locations of the borings are shown on Figure 2.

The boreholes were then backfilled with neat cement and finished with asphalt or concrete to surface grade. Boring logs were prepared using the Unified Soils Classification System, including a description of soil characteristics such as color, moisture, consistency, and grain size. The boring logs from this and previous investigations are presented in Appendix B.

3.0 ANALYTICAL METHODS

The soil samples were analyzed by SPL, Houston, Texas, a state-certified laboratory, using standard test methods of the U.S. Environmental Protection Agency (EPA). The samples were analyzed for total petroleum hydrocarbons as gasoline (TPH-G); benzene, toluene, ethylbenzene, and total xylenes; and methyl tert butyl ether (MTBE) using EPA Methods 8015 and 8020.

The laboratory results are summarized in Table 1. The field procedures for chain of custody documentation and the laboratory reports and chain of custody records are presented in Appendix C.

4.0 RESULTS

The following are the results of the soil investigation based on field observations and laboratory analysis:

- Purgeable petroleum hydrocarbons were detected at concentrations ranging from 0.16 to 2.9 milligrams per kilogram (mg/kg) TPH-G in samples collected from both borings.
- Analysis of soil samples collected from SB-3 detected benzene and toluene at concentrations of up to 0.15 and 0.28 mg/kg. Ethylbenzene and total xylenes were not detected in the soil samples collected from SB-3.
- Analysis of the soil samples collected from SB-4 detected toluene at a concentration of 0.003 mg/kg.
- MTBE was detected in the soil samples collected from SB-3 at concentrations ranging from 0.002 to 0.059 mg/kg.

5.0 FINDINGS

The following findings are based on the results of the soil investigation:

- The concentrations of BTEX detected in the soil samples collected from the vicinity of the former dispenser island are indicative of weathered petroleum hydrocarbons.
- The concentrations of petroleum hydrocarbons in the soil samples collected in the vicinity of the former dispenser island increase with depth, with the highest concentrations detected at a depth interval that corresponds with the capillary fringe of the shallow saturated zone. As such, the petroleum hydrocarbons detected in the vicinity of the former dispenser island may be attributed to dissolved-phase plume that migrated from an upgradient source.

or, from the on-site source that is well documented!

TABLE 1 - SUMMARY OF RESULTS OF SOIL SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11105
3519 CASTRO VALLEY BOULEVARD, CASTRO VALLEY, CALIFORNIA

ALISTO PROJECT NO. 10-138

SOIL SAMPLE ID	SAMPLE DEPTH (feet)	DATE OF SAMPLING	TPH-G (mg/kg)	TPH-D (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TOG (mg/kg)	HVOC (mg/kg)	LAB
ESE-1	15.0	09/29/92	70	ND	0.87	2	1.2	5.7	---	ND	ND	PACE
ESE-1	20.0	09/29/92	ND	ND	ND	ND	ND	ND	---	ND	ND	PACE
ESE-2	10.5	09/28/92	ND	---	ND	ND	ND	ND	---	---	---	PACE
ESE-2	20.0	09/28/92	ND	---	ND	ND	ND	ND	---	---	---	PACE
ESE-3	10.5	09/29/95	220	---	1.4	8.2	3.3	18	---	---	---	PACE
ESE-3	20.0	09/29/95	ND	---	ND	ND	ND	ND	---	---	---	PACE
ESE-4	6.5	09/28/92	ND	---	ND	ND	ND	ND	---	---	---	PACE
ESE-4	10.0	09/28/92	24	---	0.15	0.17	0.23	0.82	---	---	---	PACE
ESE-5	10.0	09/28/92	51	---	0.25	0.24	0.30	0.17	---	---	---	PACE
ESE-5	14.0	09/28/92	ND	---	ND	ND	ND	ND	---	---	---	PACE
MW-6	6.0-6.5	07/18/95	ND<2.5	---	ND<0.025	ND<0.025	ND<0.025	ND<0.050	---	---	---	ATI
MW-6	11.0-11.5	07/18/95	ND<2.5	---	ND<0.025	ND<0.025	ND<0.025	ND<0.050	---	---	---	ATI
MW-7	6.0-6.5	07/18/95	ND<2.5	---	ND<0.025	ND<0.025	ND<0.025	ND<0.050	---	---	---	ATI
MW-7	11.0-11.5	07/18/95	ND<2.5	---	ND<0.025	ND<0.025	ND<0.025	ND<0.050	---	---	---	ATI
MW-8	3.5-4.5	07/19/95	ND<2.5	---	ND<0.025	ND<0.025	ND<0.025	ND<0.050	---	---	---	ATI
MW-8	7.5-8.0	07/19/95	8.8	---	ND<0.025	ND<0.025	0.046	0.11	---	---	---	ATI
SB-1	1.5-2.0	07/19/95	140	---	ND<0.10	ND<0.10	1.4	4.1	---	---	---	ATI
SB-1	3.5-4.0	07/19/95	190	---	ND<0.25	0.33	4.5	18	---	---	---	ATI
SB-1	7.0-7.5	07/19/95	310	---	0.88	0.88 (a)	0.41	2.0	---	---	---	ATI

TABLE 1 - SUMMARY OF RESULTS OF SOIL SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11105
3519 CASTRO VALLEY BOULEVARD, CASTRO VALLEY, CALIFORNIA

ALISTO PROJECT NO. 10-138

SOIL SAMPLE ID	SAMPLE DEPTH (feet)	DATE OF SAMPLING	TPH-G (mg/kg)	TPH-D (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TOG (mg/kg)	HVOC (mg/kg)	LAB
SB-2	1.5-2.0	07/19/95	ND<2.5	---	ND<0.025	ND<0.025	ND<0.025	ND<0.050	---	---	---	ATI
SB-2	3.5-4.0	07/19/95	20	---	ND<0.025	ND<0.025	0.93	0.12	---	---	---	ATI
SB-2	5.5-6.0	07/19/95	140	---	ND<0.025	ND<0.025	1.2	1.4	---	---	---	ATI
SB-2	7.5-8.0	07/19/95	230	---	ND<0.025	ND<0.025	3.9	5.1	---	---	---	ATI
SB-3	3.0-3.5	03/08/96	0.17	---	0.004	0.011	ND<0.002	ND<0.002	0.002	---	---	SPL
SB-3	5.0-5.5	03/08/96	2.9	---	0.005	0.012	ND<0.002	ND<0.002	0.003	---	---	SPL
SB-3	8.0-8.5	03/08/96	1.2	---	0.15	0.28	ND<0.020	ND<0.020	0.059	---	---	SPL
SB-4	2.5-3.0	03/08/96	0.16	---	ND<0.001	0.003	ND<0.002	ND<0.002	ND<0.001	---	---	SPL
SB-4	5.0-5.5	03/08/96	ND<0.1	---	ND<0.001	0.003	ND<0.002	ND<0.002	ND<0.001	---	---	SPL

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
TPH-D	Total petroleum hydrocarbons as diesel
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
MTBE	Methly tert butyl ether
TOG	Total oil and grease
HVOC	Halogenated volatile organic compounds
mg/kg	Milligrams per kilogram
ND	Not detected above reported detection limit
---	Not analyzed
PACE	Pace, Inc.
ATI	Analytical Technologies, Inc.
SPL	SPL, Inc.

NOTES:

(a) Sample result may be falsely represented due to matrix interference.

E:\0\10-138\138SSI-S.WQ2

SOURCE:
USGS MAP, HAYWARD QUADRANGLE,
CALIFORNIA. 7.5 MINUTE SERIES. 1959.
PHOTOREVISED 1980.

N

0 1000' 2000'

FIGURE 1

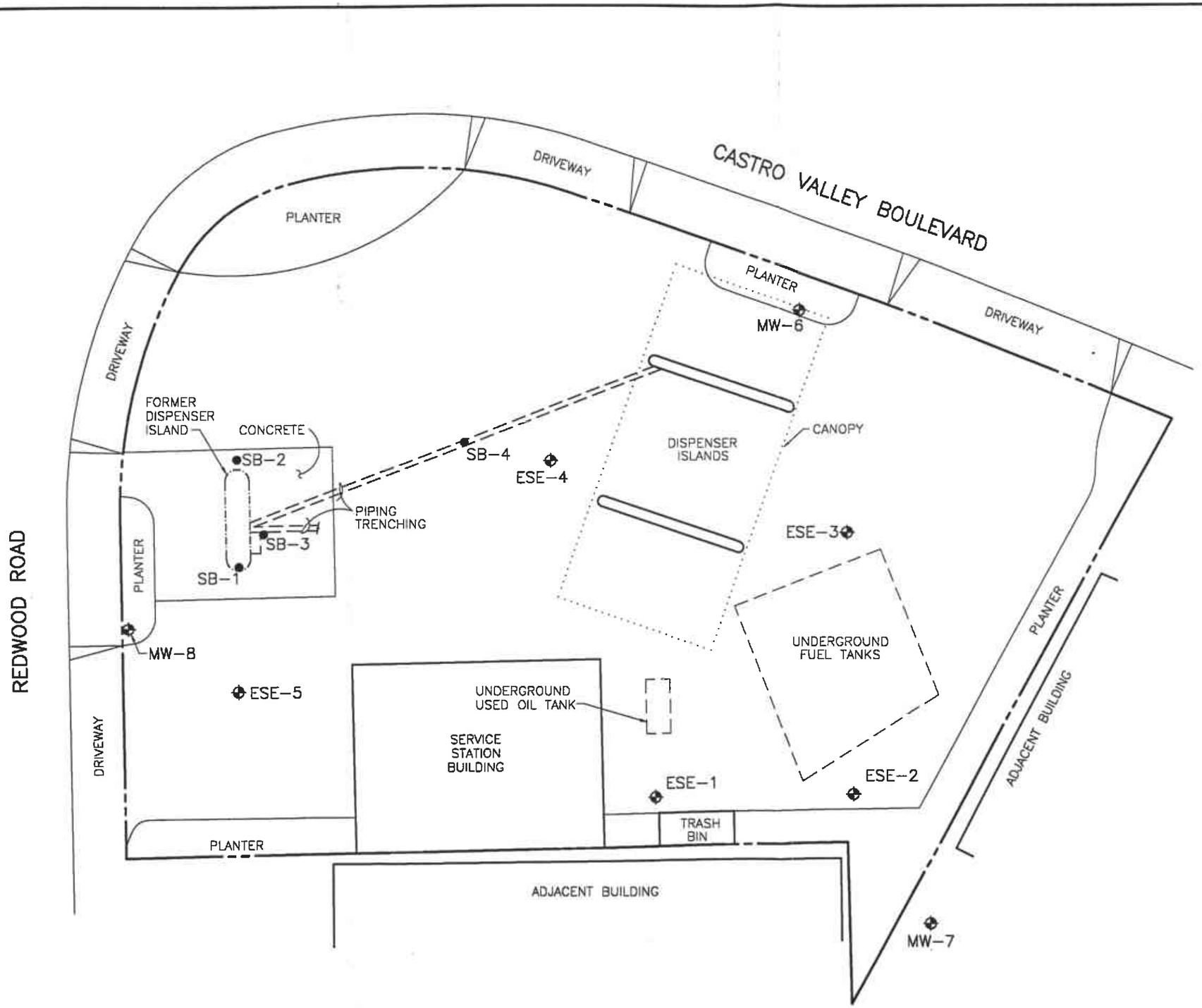
SITE VICINITY MAP

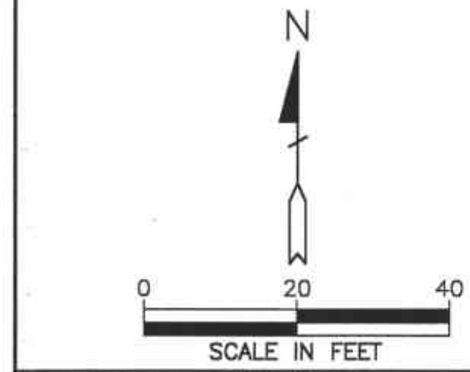
BP OIL SERVICE STATION NO. 11105
3519 CASTRO VALLEY BOULEVARD
CASTRO VALLEY, CALIFORNIA

PROJECT NO. 10-138

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10138B — DWG 10-12-93 MAP 1=1





LEGEND

- GROUNDWATER MONITORING WELL
- SOIL BORING

FIGURE 2

SITE PLAN

BP OIL SERVICE STATION NO. 11105
3519 CASTRO VALLEY BOULEVARD
CASTRO VALLEY, CALIFORNIA

PROJECT NO. 10-138

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10138CD--DWG 4-16-98 RKW 1=20

APPENDIX A

FIELD PROCEDURES FOR DRILLING AND SOIL SAMPLING

FIELD PROCEDURES
FOR
DRILLING AND SOIL SAMPLING

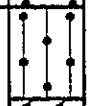
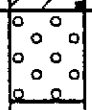
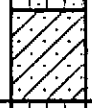
Drilling and Soil Sampling

Drilling was accomplished using a 4-inch-diameter hand auger, and soil samples were collected using a hand sampler. Soil samples were collected from each boring at 4 or 5 feet below grade. Before and after each use, the hand auger and sampler were washed using a phosphate-free detergent followed by tap water and deionized water rinses. The hand sampler was lined with stainless steel tubes, and a slide hammer was used to advance the sampler 6 inches into undisturbed soil.

The soil samples were retained within the stainless steel tubes, and both ends were immediately covered with Teflon sheeting and polyurethane caps. The caps were sealed with tape and labeled with the following information: Alisto's project number, boring number, sample depth interval, sampler's initials, and date of collection. The soil sample was immediately placed in a waterproof plastic bag and stored in a cooler containing blue ice. Possession of the soil samples was documented from the field to a state-certified analytical laboratory by using a chain of custody form.

Soil samples and, when representative, drill cuttings were described by Alisto personnel using the Unified Soils Classification System, and field estimates of soil type, color, moisture, density, and consistency were noted on the boring logs. The logs were reviewed by a civil engineer registered in the state of California.

GEOLOGIC LEGEND

COARSE-GRAINED SOILS	GRAVELS more than 1/2 of coarse fraction > No. 4 Sieve	LITTLE OR NO FINES		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
				GP	Poorly-graded gravels, gravel-sand mixtures
		APPRECIABLE NO FINES		GM	Silty gravels, gravel-sand-silt mixtures
				GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS more than 1/2 of coarse fraction < No. 4 Sieve	LITTLE OR NO FINES		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
		APPRECIABLE NO FINES		SM	Silty sands, sand-silt mixtures
				SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS	SILTS AND CLAYS Liquid limit < 50			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
				OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit > 50			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS				Pt	Peat and other highly organic soils

SYMBOL LEGEND:

- Cement
- Sand
- Bentonite
- Driven Interval of Soil Sample
- Sample preserved for possible analysis
- No sample recovered
- Stabilized water level
- Groundwater level encountered during drilling

LEGEND TO BORING LOGS

BP OIL SERVICE STATION NO. 11105
3519 CASTRO VALLEY BOULEVARD
CASTRO VALLEY, CALIFORNIA

PROJECT NO. 10-138

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10207.--DWG 8-5-95 WP 1-1

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

LOG OF BORING SB-3

SEE SITE PLAN

ALISTO PROJECT NO: *10-138-07* DATE DRILLED: *03/08/96*

CLIENT: *BP Oil Company*

LOCATION: *3519 Castro Valley Boulevard, Castro Valley, CA.*

DRILLING METHOD: *Hand auger (3"); 2" slide hammer sampler*

DRILLING COMPANY: *N/A* CASING ELEVATION: *N/A*

LOGGED BY: *B.N.* *APPROVED BY: Al Sevilla*

BLOWS/6 IN.	PID VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
							5" Concrete
							3" Baserock
	22	Neat Cement				CL	silty CLAY: dark brown, moist.
	16		5				Same: at 5.5 feet, encountered water.
	28						Same: at 7 feet, color change to mottled light brown/blue gray, moist.
			10				Soil boring terminated at 8.5 feet.
			15				
			20				
			25				
			30				

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

LOG OF BORING SB-4

SEE SITE PLAN

ALISTO PROJECT NO: *10-138-07* DATE DRILLED: *03/08/96*

CLIENT: *BP Oil Company*

LOCATION: *3519 Castro Valley Boulevard, Castro Valley, CA.*

DRILLING METHOD: *Hand auger (3"); 2" slide hammer sampler*

DRILLING COMPANY: *N/A* CASING ELEVATION: *N/A*

LOGGED BY: *B.N.* *APPROVED BY: Al Sevilla*

BLOWS/6 IN.	PID VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		Neat Cement					4" Asphalt
						SP	SAND (fill): light brown, damp; 2"-diameter fiberglass pipe at 2 feet.
	18			■		CL	silty CLAY: dark brown, moist.
	12		5	■			Same: at 4.5 feet, color change to mottled light brown/blue gray, moist; minor sand.
							Soil boring terminated at 5.5 feet.
			10				
			15				
			20				
			25				
			30				

APPENDIX C

FIELD PROCEDURES FOR CHAIN OF CUSTODY DOCUMENTATION, LABORATORY REPORT, AND CHAIN OF CUSTODY RECORD

FIELD PROCEDURES
FOR
CHAIN OF CUSTODY DOCUMENTATION

Samples were handled in accordance with the California Department of Health Services guidelines. Each sample was labeled in the field and immediately stored in a cooler and preserved with blue ice for transport to a state-certified laboratory for analysis.

A chain of custody record accompanied the samples and included the site and sample identification, date of collection, analysis requested, and the name and signature of the sampling technician. When transferring possession of the samples, the transferee signed and dated the chain of custody record.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: 96 - 03 - 510

Approved for release by:

M. Scott Sample Date: 3/20/96

M. Scott Sample, Laboratory Director

Ed Fry Date: 3/19/96

Ed Fry, Project Manager

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9603510-01

Alisto Engineering
1575 Treat Blvd.
Walnut Creek, CA 94598
ATTN: Brady Nagle

CORRECTED COPY

DATE: 04/01/96

PROJECT: BP Oil #11105
SITE: Castro Valley, CA
SAMPLED BY: Alisto Engineering Group
SAMPLE ID: SB-3 3-3.5

PROJECT NO: 10-138-03-002
MATRIX: SOIL
DATE SAMPLED: 03/08/96
DATE RECEIVED: 03/12/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	2	1 P	µg/Kg
Benzene	4	1 P	µg/Kg
Toluene	11	2 P	µg/Kg
Ethylbenzene	ND	2 P	µg/Kg
Total Xylene	ND	2 P	µg/Kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	94		
4-Bromofluorobenzene	CI		
METHOD 8020***			
Analyzed by: SB			
Date: 03/14/96			
Petroleum Hydrocarbons - Gasoline	0.17	0.1 P	mg/Kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	81		
4-Bromofluorobenzene	130		
Modified 8015 - Gasoline			
Analyzed by: SB			
Date: 03/15/96			

(P) - Practical Quantitation Limit ND - Not detected.
CI - Coeluting interference.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License # 1903

SPL, Inc., - Project Manager

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9603510-02

Alisto Engineering
1575 Treat Blvd.
Walnut Creek, CA 94598
ATTN: Brady Nagle

CORRECTED COPY

DATE: 04/01/96

PROJECT: BP Oil #11105
SITE: Castro Valley, CA
SAMPLED BY: Alisto Engineering Group
SAMPLE ID: SB-3 5-5.5

PROJECT NO: 10-138-05-002
MATRIX: SOIL
DATE SAMPLED: 03/08/96
DATE RECEIVED: 03/12/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	3	1 P	µg/Kg
Benzene	5	1 P	µg/Kg
Toluene	12	2 P	µg/Kg
Ethylbenzene	ND	2 P	µg/Kg
Total Xylene	ND	2 P	µg/Kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	99		
4-Bromofluorobenzene	CI		
METHOD 8020***			
Analyzed by: SB			
Date: 03/14/96			
Petroleum Hydrocarbons - Gasoline	2.9	0.1 P	mg/Kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	82		
4-Bromofluorobenzene	214 «		
Modified 8015 - Gasoline			
Analyzed by: SB			
Date: 03/15/96			

(P) - Practical Quantitation Limit
CI - Coeluting interference.
ND - Not detected.
« - Recovery beyond control limits.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License # 1903

SPL, Inc., - Project Manager

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9603510-03

Alisto Engineering
1575 Treat Blvd.
Walnut Creek, CA 94598
ATTN: Brady Nagle

CORRECTED COPY

DATE: 04/01/96

PROJECT: BP Oil #11105
SITE: Castro Valley, CA
SAMPLED BY: Alisto Engineering Group
SAMPLE ID: SB-3 8-8.5

PROJECT NO: 10-138-05-002
MATRIX: SOIL
DATE SAMPLED: 03/08/96
DATE RECEIVED: 03/12/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	59	10 P	µg/Kg
Benzene	150	10 P	µg/Kg
Toluene	280	20 P	µg/Kg
Ethylbenzene	ND	20 P	µg/Kg
Total Xylene	ND	20 P	µg/Kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	104		
4-Bromofluorobenzene	CI		
METHOD 8020***			
Analyzed by: SB			
Date: 03/14/96			
Petroleum Hydrocarbons - Gasoline	1.2	0.1 P	mg/Kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	62		
4-Bromofluorobenzene	91		
Modified 8015 - Gasoline			
Analyzed by: SB			
Date: 03/15/96			

(P) - Practical Quantitation Limit ND - Not detected.
CI - Coeluting interference.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License # 1903

SPL, Inc., - Project Manager

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9603510-04

Alisto Engineering
1575 Treat Blvd.
Walnut Creek, CA 94598
ATTN: Brady Nagle

CORRECTED COPY

DATE: 04/01/96

PROJECT: BP Oil #11105
SITE: Castro Valley, CA
SAMPLED BY: Alisto Engineering Group
SAMPLE ID: SB-4 2.5-3

PROJECT NO: 10-138-05-007
MATRIX: SOIL
DATE SAMPLED: 03/08/96
DATE RECEIVED: 03/12/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	1 P	µg/Kg
Benzene	ND	1 P	µg/Kg
Toluene	3	2 P	µg/Kg
Ethylbenzene	ND	2 P	µg/Kg
Total Xylene	ND	2 P	µg/Kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	101		
4-Bromofluorobenzene	83		
METHOD 8020***			
Analyzed by: SB			
Date: 03/14/96			
Petroleum Hydrocarbons - Gasoline	0.16	0.1 P	mg/Kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	85		
4-Bromofluorobenzene	76		
Modified 8015 - Gasoline			
Analyzed by: SB			
Date: 03/15/96			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License # 1903

SPL, Inc., - Project Manager

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9603510-05

Alisto Engineering
1575 Treat Blvd.
Walnut Creek, CA 94598
ATTN: Brady Nagle

CORRECTED COPY

DATE: 04/01/96

PROJECT: BP Oil #11105
SITE: Castro Valley, CA
SAMPLED BY: Alisto Engineering Group
SAMPLE ID: SB-4 5-5.5

PROJECT NO: 10-138-07-007
MATRIX: SOIL
DATE SAMPLED: 03/08/96
DATE RECEIVED: 03/12/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	1 P	µg/Kg
Benzene	ND	1 P	µg/Kg
Toluene	3	2 P	µg/Kg
Ethylbenzene	ND	2 P	µg/Kg
Total Xylene	ND	2 P	µg/Kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	102		
4-Bromofluorobenzene	111		
METHOD 8020***			
Analyzed by: SB			
Date: 03/14/96			
Petroleum Hydrocarbons - Gasoline	ND	0.1 P	mg/Kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	88		
4-Bromofluorobenzene	128		
Modified 8015 - Gasoline			
Analyzed by: SB			
Date: 03/15/96			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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SPL California License # 1903

SPL, Inc., - Project Manager

QUALITY CONTROL

DOCUMENTATION

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
BTEX & MTBE - Soil

Matrix: Soil
Units: µg/Kg

Batch Id: HP_0960313084600

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50	47	94.0	22 - 110
Benzene	ND	50	51	102	66 - 123
Toluene	ND	50	53	106	74 - 125
EthylBenzene	ND	50	55	110	84 - 125
O Xylene	ND	50	54	108	76 - 137
M & P Xylene	ND	100	110	110	81 - 131

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	ND	20	22	110	24	120	8.70	22	27 - 196
BENZENE	ND	20	23	115	25	125	8.33	33	47 - 143
TOLUENE	ND	20	23	115	25	125	8.33	35	46 - 148
ETHYLBENZENE	ND	20	22	110	24	120	8.70	40	32 - 151
O XYLENE	ND	20	21	105	22	110	4.65	24	35 - 143
M & P XYLENE	ND	40	46	115	49	122	5.91	38	25 - 139

Analyst: SB
Sequence Date: 03/13/96
SPL ID of sample spiked: 9603547-10A
Sample File ID: OO__565.TX0
Method Blank File ID:
Blank Spike File ID: OO__560.TX0
Matrix Spike File ID: OO__563.TX0
Matrix Spike Duplicate File ID: OO__564.TX0

* = Values Outside QC Range
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data (4th Q '95)
(***) = Source: SPL-Houston Historical Data (4th Q '95)

SAMPLES IN BATCH(SPL ID):

9603511-12A 9603511-11A 9603511-08A 9603511-13A
9603511-07A 9603511-14A 9603511-17A 9603510-01A
9603510-02A 9603510-03A 9603510-04A 9603510-05A
9603351-06A 9603511-01A 9603511-02A 9603511-03A
9603511-06A 9603547-10A 9603511-09A 9603511-10A

QC Officer

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
Modified 8015 - Gasoline

PAGE

Matrix: Soil
Units: mg/Kg

Batch Id: HP_O960314080400

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Gasoline Petr. Hydrocarbon	ND	0.9	0.83	92.2	47 - 147

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
GASOLINE PETR. HYDROCARBON	0.39	0.9	0.98	65.6	1.1	78.9	19.4 *	16	34 - 150

Analyst: SB
Sequence Date: 03/14/96
SPL ID of sample spiked: 9603547-13A
Sample File ID: O___623.TX0
Method Blank File ID:
Blank Spike File ID: O___591.TX0
Matrix Spike File ID: O___594.TX0
Matrix Spike Duplicate File ID: O___622.TX0

* = Values Outside QC Range
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data (2nd Q '95)
(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID):

9603351-09A 9603351-10A 9603547-09A 9603547-10A
9603547-11A 9603547-12A 9603547-13A 9603547-14A
9603547-15A 9603547-16A 9603510-01A 9603510-02A
9603510-03A 9603510-04A 9603510-05A 9603547-13A
9603351-05A 9603351-06A 9603351-07A 9603351-08A

QC Officer

CHAIN OF CUSTODY

AND

SAMPLE RECEIPT CHECKLIST

ALISTO ENGINEERING GROUP

CHAIN OF CUSTODY

9603510

R 3/16/96

Consultant's Name: Alisto Engineering Group

Address: 1575 Treat Blvd #201, Walnut Creek CA 94598

Project Contact: Brady Nagle

Consultant Project #: 10-138

Phone #: 510-295-1650 Fax #: 295-1823

Sampled by (print): Brady Nagle

Sampler's Signature:

Site Location #: 11105

Site Location: Castro Valley

Shipment Method:

TAT: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☒ Standard (10 day)

ANALYSIS REQUIRED

Sample Condition as Received
Temperature ° C: ____
Cooler #: ____
Inbound Seal Yes No
Outbound Seal Yes No

Sample Description	Collection Date/Time	Matrix Soil/Water	Prsv	# of Cont	Sample #	TPH/GAS/BTEX EPA 8015/8020	TPH/Diesel EPA 8015	Oil & Grease SM 5520	HVOC 8010	MTBE							
SB-3 3-3.5	3/8/96	Soil	—	1													
SB-3 5-5.5	3/8/96																
SB-3 8-8.5	3/8/96																
SB-4 2.5-3	3/8/96																
SB-4 5-5.5	3/8/96																

COMMENTS
Fed Ex
9360 7163 9

Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time
	3/11/96	0800	Patricia Yelton	3/11/96	0800
Patricia Yelton	3/11/96		S. West	3/12/96	0930

Additional Comments: 3°C INTACT

SPL Houston Environmental Laboratory

Sample Login Checklist

Date:	Time:
3/12/96	0930

SPL Sample ID: 9603510

			Yes	No
1	Chain-of-Custody (COC) form is present.		✓	
2	COC is properly completed.		✓	
3	If no, Non-Conformance Worksheet has been completed.			
4	Custody seals are present on the shipping container.		✓	
5	If yes, custody seals are intact.		✓	
6	All samples are tagged or labeled.		✓	
7	If no, Non-Conformance Worksheet has been completed.			
8	Sample containers arrived intact		✓	
9	Temperature of samples upon arrival:		3° C	
10	Method of sample delivery to SPL:	SPL Delivery		
		Client Delivery		
		FedEx Delivery (airbill #) 9[illegible]0716396		
		Other:		
11	Method of sample disposal:	SPL Disposal	✓	
		HOLD		
		Return to Client		

Name:	Date:
Dayna Bocan	3/12/96