BP OIL

BP Oil Marketing Co.
Bldg. B, Suite 100
33305 First Way South
Federal Way, Washington 98003-6529
(206) 838-2121

September 15, 1992

Dave Baker
Mobil Oil Corporation
3225 Gallows Road
Fairfax, VA 22037

RE: BP OIL FACILITY #11117
7210 Bancroft Ave
Oakland, CA

Dear Mr. Baker:

Attached please find RESULTS OF PHASE 1 INVESTIGATION for the above referenced facility.

Please call me at (206) 394-5243 with questions regarding this submission.

Respectfully,

Peter J. DeSantis
Environmental Resources Management
PJD:vlm COVERLTR

cc: Site file
Ms. Penny Silzer, Regional Water Quality Control Board, San Francisco, CA
Mr. Ron Owcarz, Alameda County Dept of Environmanetl Health, Oakland, CA
Hydro Environmental Technologies, Inc., Alameda Ca

HYDRO
ENVIRONMENTAL
TECHNOLOGIES, INC.

PHASE 1 SUBSURFACE INVESTIGATION

BP Oil Facility No. 11117
7210 Bancroft Avenue
Oakland, California

Prepared for:

BP OIL COMPANY
Northwest Division
Southcenter Place Building
16400 Southcenter Parkway - Suite 301
Tukwila, Washington 98188

Prepared by:

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.
2363 Mariner Square Drive, Suite 243
Alameda, California 94501
HETI Job No. 9-029

August 25, 1992

HYDRO
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TECHNOLOGIES, INC.

CERTIFICATION

This report was prepared under the supervision of a registered professional engineer. All statements, conclusions and recommendations are based solely upon field observations and analytical test results related to the work performed by Hydro-Environmental Technologies, Inc.

Site conditions are subject to change with time; therefore, our conclusions result only from the interpretation of present conditions and available site information. This report was prepared in accordance with accepted professional standards and technical procedures as certified below.

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

Prepared by:

Tony Ramirez
Staff Geologist

Reviewed by:

Frederick G. Moss, P.E., No. 35162
Senior Engineer

Reviewed by:

Craig Hartman
Project Manager

HYDRO
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1.0 INTRODUCTION

1.1 Purpose

The purpose of this report is to present the results of Hydro-Environmental Technologies, Inc.'s (HETI's) investigative work performed at BP Oil (BP) Facility No. 11117, located at 7210 Bancroft Avenue in Oakland, California (the site). A Site Location Map is attached as Figure 1.

This report describes the results of on-site and off-site soil borings, monitoring well installation, and collection and analysis of soil and ground water samples to evaluate the presence of hydrocarbons in the surface. A description of field activities and results are presented in chronological order.

1.2 Background

The subject facility is located on the northern corner of the intersection of 73rd. Avenue and Bancroft Avenue in Oakland, California (Figure 1). Fuel stored and dispensed at the BP site includes leaded gasoline, unleaded gasoline and diesel fuel. The site was previously operated by Mobil Oil Corporation as a service station.

The site occupies an out-parcel of the Eastmont shopping mall, with stores located approximately 150 feet behind the BP property. Mr. Steve Gardner, of Topa Savings Bank retained Hunter Environmental Services (Hunter) to conduct a Phase II Environmental Audit of the Eastmont Mall property. The results of this investigation were presented in the Hunter report dated December 20, 1989.

Hunter activities relevant to the BP site included the installation of a monitoring well on mall property, designated as MW-3, adjacent to the west corner of the BP station property. Water samples from this well collected on December 11, 1989 contained detectable concentrations TPH and BTEX compounds.

BP subsequently retained Hydro-Environmental Technologies, Inc. (HETI) to conduct a Phase I Environmental Investigation. On December 27, 1991 HETI installed two 2-inch diameter monitoring wells onsite designated as MW-1 and MW-2. On January 10, 1992 HETI collected water samples from on-site monitoring well MW-1 and mall well MW-3. On this date, well MW-2 was dry and no sample was collected.

On June 5, 1992 HETI conducted a quarterly sampling event and collected ground water samples from MW-1, MW-2, and MW-3. On July 22 and 23, 1992 HETI drilled three soil borings, and installed two 2-inch diameter monitoring wells, one on-site and one off-site. On July 24, 1992 HETI collected ground water samples from wells MW-4 and MW-6. This report presents the results of the HETI subsurface investigation.

2.0 FIELD ACTIVITIES

2.1 Soil Borehole Drilling and Soil Sampling

HETI conducted a safety briefing on site with Bayland Drilling personnel, prior to the start of drilling on December 27, 1991, and July 22 and 23, 1992. At the end of the briefing, all personnel reviewed the Health and Safety Plan prepared for this site; a copy is attached in Appendix B. All drilling and soil sampling was performed according to standard HETI protocol consistent with Alameda County Department of Health Services (ACDHS) and San Francisco Bay Regional Water Quality Control Board (RWQCB) recommended guidelines and procedures. Copies of Alameda County Zone 7 Water Agency well installation permits are included in Appendix B.

On December 27, 1991, Bayland Drilling of Menlo Park, California, used a CME 75 hollow-stem auger drill rig to drill two soil borings, designated MW-1 and MW-2. Borings MW-1 and MW-2 were advanced to a total depth of 40 feet below grade. First water was encountered at a depth of approximately 30 feet below grade. A California-modified split-spoon sampler, lined with brass tubes, was used to collect soil samples for laboratory analysis at depths of 5, 10, 15, 20, and 25 feet below grade in borings MW-1 and MW-2. The soil samples were covered with teflon tape and plastic end caps. The soil samples were labeled, documented on a chain of custody form and placed in a chilled cooler for transport to Sequoia Analytical, a state DHS-certified laboratory, located in Redwood City, California.

On July 22 and 23, 1992, Bayland Drilling used CME 55 and CME 75 hollow-stem auger drill rigs to drill three soil borings, designated MW-4, B-5, and MW-6. Borings MW-4 and MW-6 were advanced to a total depth of 40 feet below grade. Boring B-5 was advanced to a total depth of 50 feet below grade. Ground water was encountered at a depth of 30 feet below grade in borings MW-4 and MW-6. No free water was encountered in boring B-5. A California-modified split-spoon sampler, lined with brass tubes, was used to collect soil samples for laboratory analysis at depths of 5, 10, 15, 20, 25, and 30 feet below grade in borings MW-4, B-5, and MW-6. In addition, soil samples were also collected at depths of 35, 40, 45, and 50 feet below grade in boring B-5. The soil samples were covered with teflon tape and plastic end caps. The soil

samples were labeled, documented on a chain of custody form and placed in a chilled cooler for transport to Pace Inc., a state DHS-certified laboratory, located in Novato, California.

Portions of each split spoon soil sample were retained for visual lithologic description using the United Soil Classification System by a HETI geologist and for volatile headspace analysis using an Organic Vapor Meter 580B (OVM). Readings from samples collected for OVM headspace analysis ranged from 0.0 ppm to 691 ppm. OVM readings for specific soil samples, along with complete sample descriptions, are presented on the Boring Logs in Appendix A. Organic vapor readings displayed by the OVM are not a quantitative determination of true hydrocarbon concentrations in the soil samples, but they are useful for determining the relative magnitude of hydrocarbon concentrations. Soil cuttings generated during drilling were stored on-site, in 55 gallon drums, and later transported for off-site disposal by a licensed waste hauler.

All soil samples submitted for laboratory analysis were analyzed for total low to medium boiling point petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Methods 8015 (DHS-modified) and 8020. Soil sample analysis was performed by Sequoia Analytical, a state DHS-certified laboratory, for samples collected on December 27, 1992, and by Pace Inc., a state DHS-certified laboratory, for samples collected on July 22 and 23, 1992. Copies of the chains-of-custody are attached in Appendix C.

2.2 Monitoring Well Installation, Development and Survey

HETI installed monitoring wells in borings MW-1 and MW-2 on December 27, 1991. The monitoring wells were designated MW-1 and MW-2, respectively. Well MW-1 was installed down gradient of the dispenser islands, and well MW-2 was installed near the former underground storage tanks. HETI installed monitoring wells in borings MW-4 and MW-6 on July 22 and 23, 1992, and designated them MW-4 and MW-6, respectively. Well MW-4 was installed up gradient of the dispenser islands, and well MW-6 was installed further down gradient of the dispenser islands to further define the extent of the hydrocarbon plume. Well locations are shown on Figure 2.

Monitoring wells MW-1, MW-2, MW-4, and MW-6 were all constructed similarly with two-inch inner diameter PVC well materials, to a depth of 40 feet below grade. Machine slotted 0.020-inch schedule 40 PVC well screen was installed from the bottom of each boring, to a depth of 20 feet below grade. Solid well casing was threaded to the screen at a depth of 20 feet below grade and extends to the surface. The annulus around the well screen was filled with clean #2/12 sand to two feet

above the top of the screened interval. A one foot thick seal of bentonite pellets was placed above the sand pack and hydrated with steam-distilled water. The remainder of each borehole was grouted to the surface, and traffic-rated road boxes were concreted in place, flush with the ground surface. All monitoring wells were constructed in a manner consistent with all Alameda County Zone 7 Water Agency, ACDHS, and RWQCB guidelines. Copies of the well installation permits are included in Appendix B.

The mall well MW-3, installed by Hunter, was constructed with two-inch diameter schedule 40 PVC well materials with 0.020 screen from 45 feet below grade to 30 feet below grade. The annulus around the well screen was filled with #3 sand to five feet above the top of the screened interval. A twenty-two foot thick seal of bentonite pellets was placed above the sand pack and hydrated with steam-distilled water. The remainder of each borehole was grouted to the surface, and traffic-rated road boxes were concreted in place, flush with the ground surface.

After installation, each well was developed by a combination of surging and bailing of at least ten well volumes, until pH, temperature and conductivity stabilized, or until dry. Following development, the location and elevation of top-of-casing of each well was surveyed relative to an existing benchmark, corrected to an arbitrary datum. Survey data is presented in Appendix B.

2.3 Ground Water Gauging, Sampling and Analysis

HETI gauged monitoring wells for depth to water and thickness of any seperate-phase petroleum with an interface probe. Monitoring wells MW-1 and MW-3 were gauged on January 10, 1992, monitoring wells MW-1, MW-2 and MW-3 were gauged on June 5, 1992, and monitoring wells MW-1, MW-2, MW-3, MW-4, and MW-6, were gauged on July 24, 1992. No seperate-phase was detected in any of the wells. Prior to sampling, each well was purged of a minimum of three well volumes, until pH, temperature and conductivity stabilized, or until dry. Purge water was stored on site in 55 gallon drums. Well purging information is presented on Field Data Sheets in Appendix B.

Following recovery of water levels to at least 80% of their original levels, a ground water sample was collected from each well, using a dedicated teflon bailer. Samples were then labeled, documented on chain-of-custody forms, and stored in a chilled cooler for transport to the analytical laboratory. All sampling was conducted in accordance to HETI standard operating procedures and using methods consistent with ACDHS and RWQCB guidelines.

Ground water samples collected from all wells were analyzed for TPHg and BTEX using EPA Method 8015 (DHS-modified) and 8020. Ground water samples collected on January 10, 1992, were also analyzed for high boiling point petroleum hydrocarbons as diesel (TPHd) by EPA Method 3510, and for organic lead (O-Pb) using methods described in the Luft Manual (revised 12/87).

Ground water samples collected on January 10, 1992 were analyzed by Sequoia Analytical, a state DHS-certified laboratory. Ground water samples collected on June 5 and July 24, 1992, were analyzed by Pace Inc, a state DHS-certified laboratory. Copies of the laboratory reports and chains-of-custody are attached in Appendix C.

3.0 RESULTS OF INVESTIGATION

3.1 Site Stratigraphy

Sediments encountered during drilling of borings MW-1 and MW-2, consisted primarily of silty clay and sandy clay to a depth of 23 feet below grade, and gravelly clay from 23 feet to 40 feet below grade. Both borings also contained thin layers of gravelly sand.

Sediments encountered by Hunter during drilling of boring MW-3 reportedly consisted primarily of clay and sandy clay to a depth of 12 feet, silty sand to a depth of 23 feet, and sand to 45 feet below grade.

Sediments encountered during drilling of borings MW-4 and MW-6 consisted primarily of clay, silty clay and sandy clay to a depth of 40 feet below grade. Boring MW-4 contained thin layers of clayey sand and silty sand. Boring MW-6 contained thin layers of sandy gravel, silty sand, and gravelly clay.

Sediments encountered during drilling of boring B-5 consisted primarily of clay, silty clay, and sandy clay to a depth of 50 feet below grade, with thin layers of clayey gravel, gravelly clay, and clayey sand

Ground water was initially encountered at a depth of approximately 28 feet to 32.5 feet below grade in all borings at the site, except boring B-5. Ground water was not encountered in boring B-5, even though it contained potential water bearing layers, and was advanced to a depth of 50 feet below grade. Well logs generated during drilling are presented in Appendix

3.2 Results of Soil Sample Analysis

TPHg and BTEX compounds were identified in concentrations exceeding the method detection limits in the soil samples collected from boring MW-4. TPHg concentrations ranged from 240 ppm identified in the soil sample collected from a depth of 15 feet to 6,000 ppm identified in the soil sample collected from a depth of 20 feet. Benzene concentrations ranged from 1.6 ppm identified in the soil sample collected from 25 feet to 34 ppm indentified in the soil sample collected from a depth of 20 feet. TPHg and BTEX compounds were not identified in concentrations exceeding the method detection limits in the soil samples collected from borings MW-1, MW-2, B-5, and MW-6.

A summary of analytical results for samples collected from soil borings is presented in Table 1. Copies of the laboratory reports and chains of custody are attached in Appendix C.

3.3 Ground Water Gradient

On July 24, 1992, depth to ground water in each of the wells ranged from approximately 29.5 to 30.5 feet below grade. The depth to water measurements, collected and wellhead elevation data were used to calculate ground water elevation contours. These contours are shown on Figure 3, the Ground Water Contour Map. Figure 3 shows ground water flow to be to the west at a gradient of 0.005 ft/ft (0.5%).

3.4 Results of Ground Water Sample Analysis

TPHg and BTEX compounds were identified in concentrations exceeding the method detection limits in the ground water samples collected from monitoring wells MW-1 through MW-4. Low concentrations of benzene were the only compound detected in MW-6.

A summary of analytical results for water samples collected on June 5 and July 24, 1992 is presented in Table 2, and are represented graphically on the TPHg (Figure 4) and Benzene (Figure 5) Isoconcentration Maps. Cumulative ground water sample analytical data is presented in Table 3.

4.0 SUMMARY

A summary of field activities and results from this phase of investigation is presented below:

1. Two soil borings, MW-1 and MW-2, were drilled and two monitoring wells, MW-1 and MW-2, were installed on December 27, 1991. Sediments encountered during drilling consisted primarily of silty clay and sandy clay, with an occasional thin gravelly sand layer. TPHg and BTEX compounds were not identified in concentrations exceeding the method detection limits in soil samples collected from borings MW-1 and MW-2.

2. Ground water samples were collected from monitoring wells MW-1 and MW-3 on January 10, 1992. TPHg and BTEX were identified in ground water samples collected, in concentrations above the method detection limits. During that sampling event, monitoring well MW-1 was developed. Monitoring well MW-2 was dry and therefore was not developed or sampled.

3. Ground water samples were collected from monitoring wells MW-1, MW-2, and MW-3 on June 5, 1992. TPHg and BTEX were identified in ground water samples collected, in concentrations above the method detection limits. Monitoring well MW-2 was developed during the June 5, 1992 sampling event. Ground water flow was determined to be to the north-west.

4. Three soil borings, MW-4, B-5 and MW-6, were drilled and two monitoring wells, MW-4 and MW-6, were installed on July 22 and 23, 1992. Sediments encountered during drilling consisted primarily of clay, silty clay and sandy clay, with an occasional thin layer of clayey sand, silty sand, or sandy gravel. TPHg and BTEX compounds were identified in concentrations exceeding the method detection limits in soil samples collected from boring MW-4. TPHg and BTEX compounds were not identified in concentrations exceeding the method detection limits in soil samples collected from borings B-5 and MW-6.

5. Ground water samples were collected from monitoring wells MW-4 and MW-6 on July 24, 1992. TPHg and BTEX were identified in ground water samples collected, in concentrations exceeding the method detection limits, except for MW-6, which only contained benzene at a concentration above the method detection limit. Monitoring wells MW-4 and MW-6 were developed during the July 24, 1992 sampling event. The ground water flow was determined to be to the west at a gradient of 0.005 ft/ft (0.5%).

6. The location and the elevation of each top-of-casing (TOC) for the wells was surveyed relative to an existing benchmark, on July 27, 1992.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Hydrocarbons were identified in shallow subsurface soils adjacent to the dispenser islands, in monitoring well MW-4. The soil sample from MW-4 at a depth of 20 feet contained 6,000 ppm of TPHg, with lower concentrations identified above and below. Based upon results of soil samples collected from MW-1, MW-2 and MW-6, the extent of hydrocarbons in the soil has been determined to the north and east of the site.

Dissolved hydrocarbons were identified in the ground water beneath the site. The dissolved hydrocarbon plume is centered in the vicinity of monitoring wells MW-1 and MW-4. The extent of the dissolved hydrocarbon plume has not yet been determined.

HETI recommends that further investigation be conducted at the site. A monitoring well should be installed southeast of the site, across 73rd Avenue, or in the street divider to further define the upgradient extent of the dissolved hydrocarbon plume. Another monitoring well should be installed to the southwest of the site, across Bancroft Avenue, or in the street divider to further define the lateral extent of the dissolved hydrocarbon plume in that direction. An additional monitoring well should also be installed onsite, along the northeast edge of the property.

TABLES

Table 1

SOIL SAMPLES
SUMMARY OF ANALYTICAL RESULTS

BP Oil Facility No. 11117
7210 Bancroft Avenue
Oakland, California

Sample Description	Date	TPHg (ppm)	B (ppm)	T (ppm)	E (ppm)	X (ppm)
MW-1 @ 5'	12/27/92	ND	ND	ND	ND	ND
MW-1 @ 15'	12/27/92	ND	ND	ND	ND	ND
MW-1 @ 25'	12/27/92	ND	ND	ND	ND	ND
MW-2 @ 5'	12/27/92	ND	ND	ND	ND	ND
MW-2 @ 15'	12/27/92	ND	ND	ND	ND	ND
MW-2 @ 25'	12/27/92	ND	ND	ND	ND	ND
MW-4 @ 15'	7/22/92	240	ND	6.6	5.7	27
MW-4 @ 20'	7/22/92	6,000	34	450	190	780
MW-4 @ 25'	7/22/92	1,100	1.6	36	27	140
B-5 @ 30'	7/22/92	ND	ND	ND	ND	ND
MW-6 @ 30'	7/23/92	ND	ND	ND	ND	ND

TPHg = Total petroleum hydrocarbons as gasoline

B = Benzene
T = Toluene
E = Ethylbenzene
X = Total Xylenes

ND = Not detected above the laboratory method detection limit

TPHg and BTEX analyses EPA 8015/8020 (DHS modified)

Table 2

WATER SAMPLES
SUMMARY OF ANALYTICAL RESULTS

BP Oil Facility No. 11117
7210 Bancroft Avenue
Oakland, California

Sample date: June 5, 1992

MW No.	TPHg (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)
MW-1	31,000	2,800	2,100	800	2,300
MW-2	11,000	2,000	180	490	1,900
MW-3 (Mall Well)	2,000	130	5.3	93	20

Sample date: July 24, 1992

MW No.	TPHg (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)
MW-4	42,000	3,200	3,600	1,400	4,100
MW-6	ND	1.6	ND	ND	ND

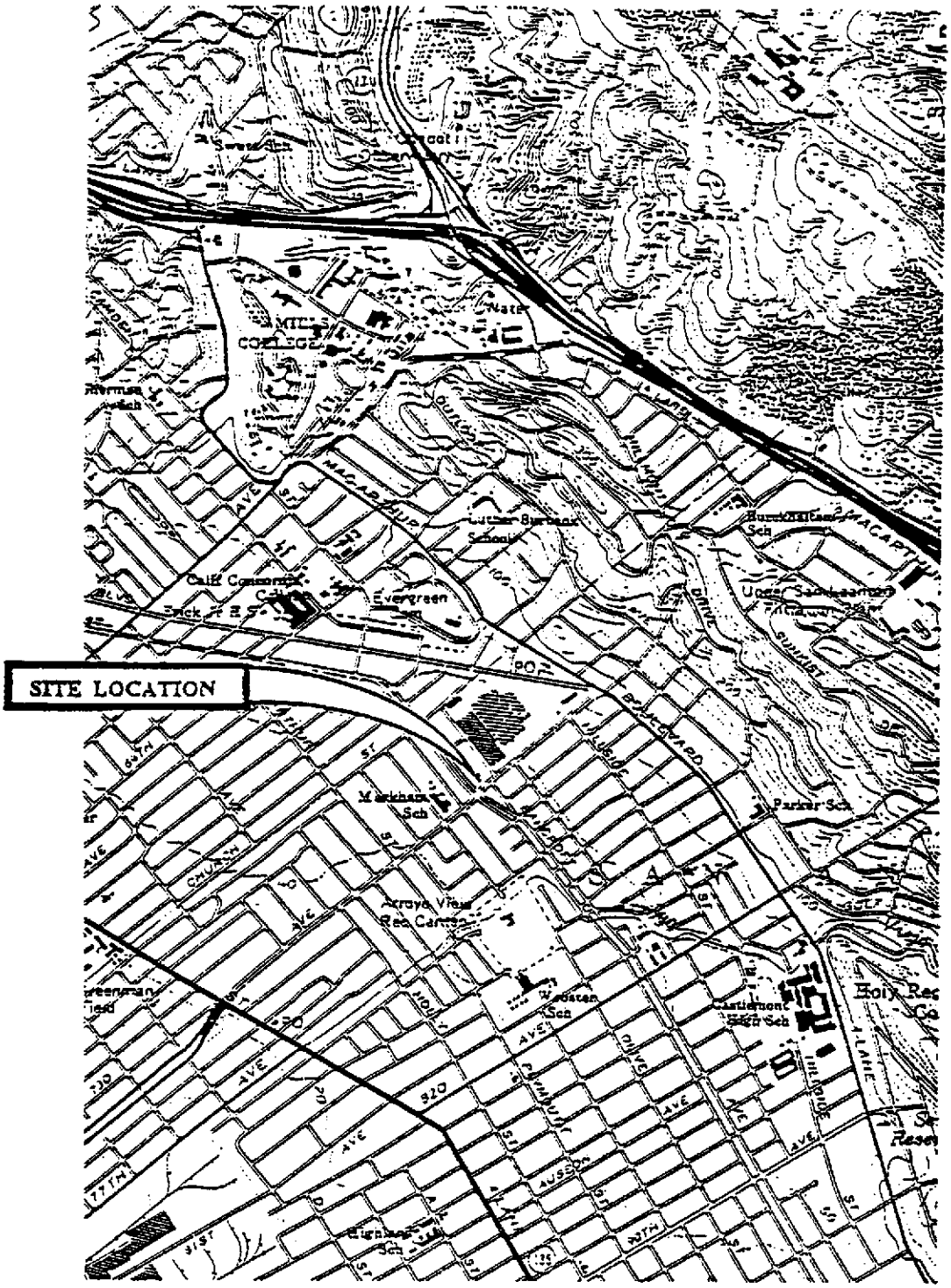
TPHg = Total petroleum hydrocarbons as gasoline

B = Benzene
T = Toluene
E = Ethylbenzene
X = Total Xylenes

ND = Not detected above the laboratory method detection limit

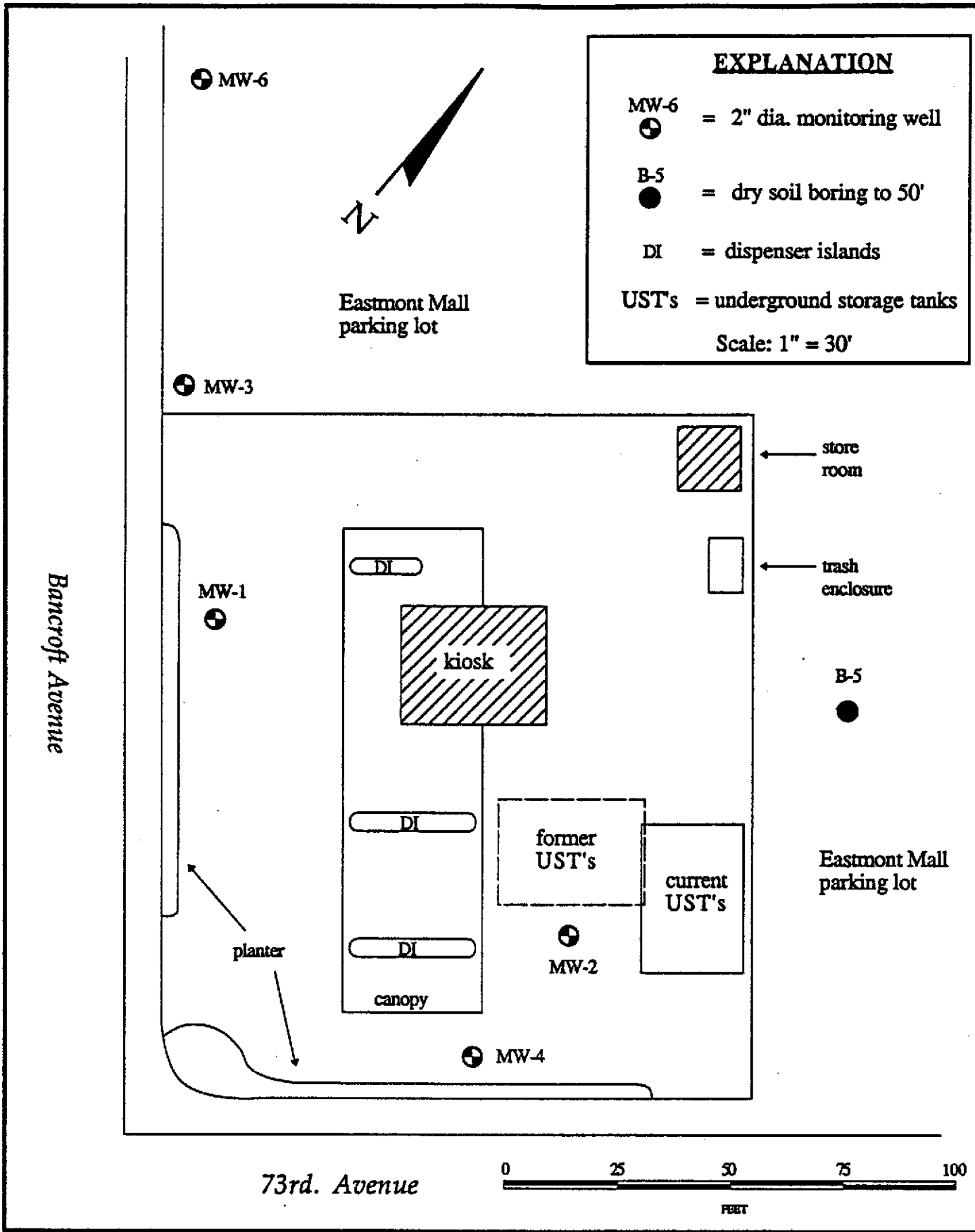
TPHg and BTEX analyses EPA 8015/8020 (DHS modified)

FIGURES

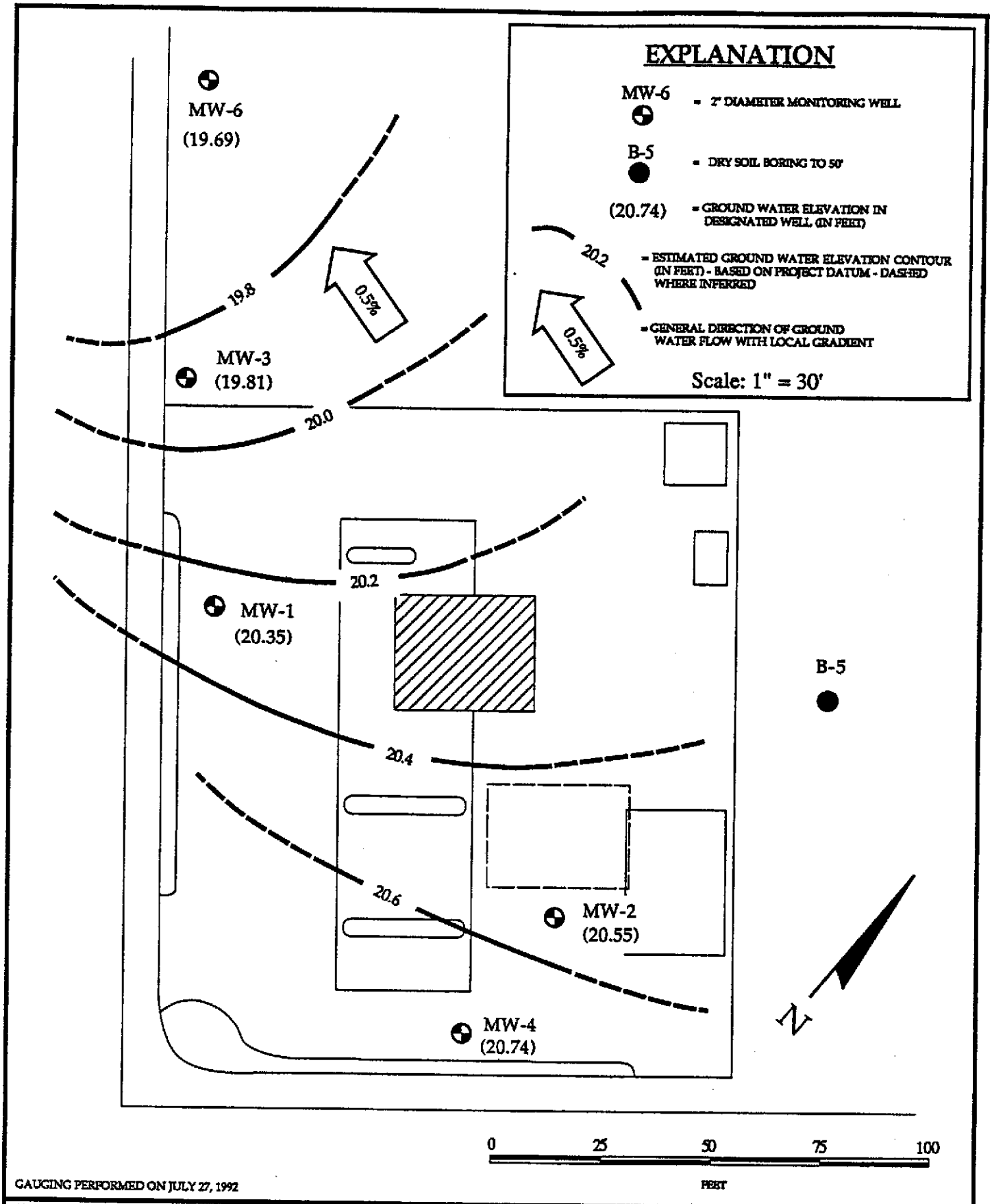


Source: U.S.Geological Survey
7.5 Minute Topographic Map of the
"Oakland East, California" Quadrangle
1959 - Photorevised 1980

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.	SITE LOCATION MAP BP OIL COMPANY SERVICE STATION Nº 11117 7210 BANCROFT AVENUE OAKLAND, CALIFORNIA	Job No. 9-029 Figure 1

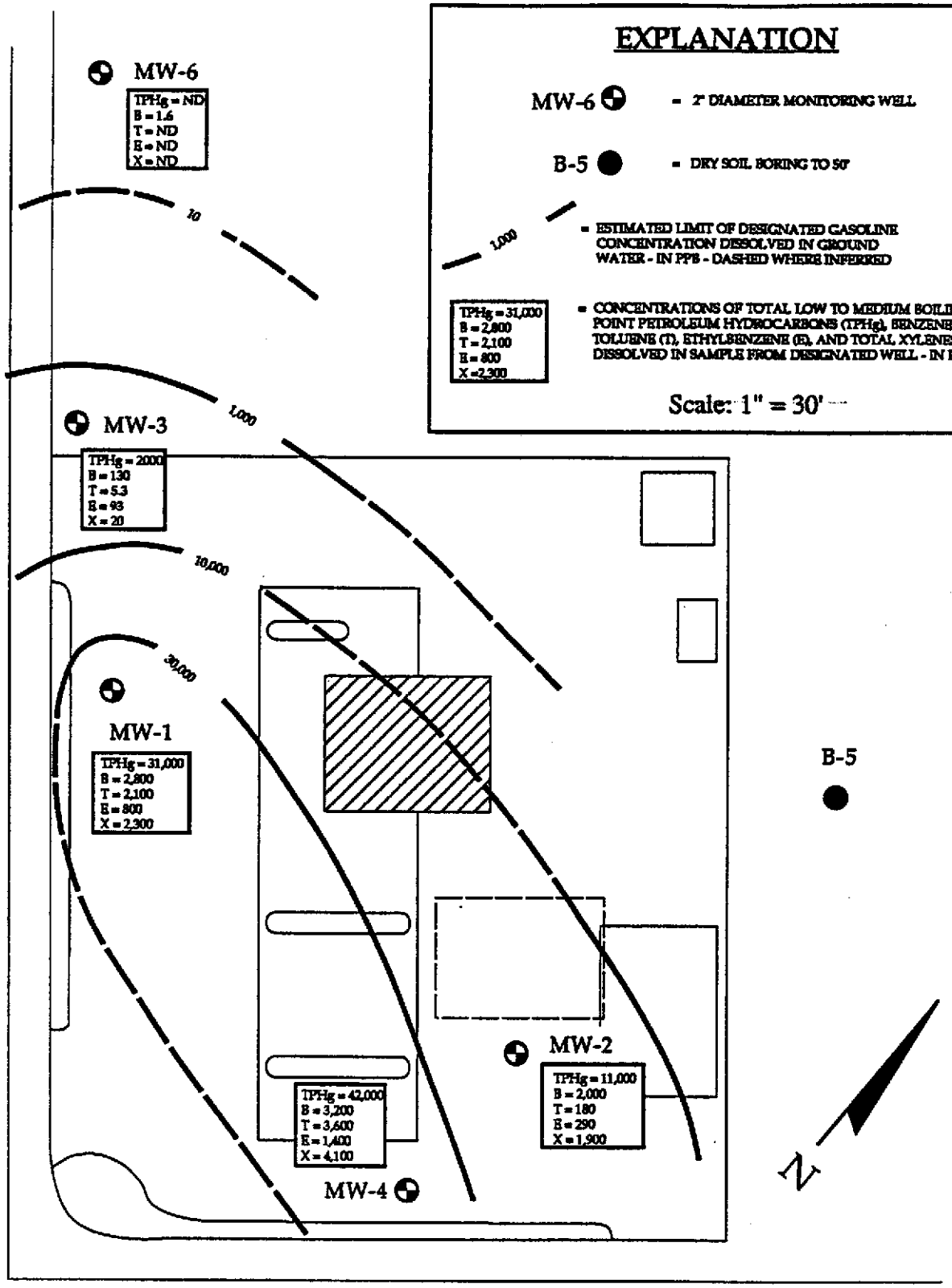


HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.	**SITE PLAN** BP Service Station No. 11117 7210 Bancroft Avenue Oakland, California	Job No. 9-029 Figure 2



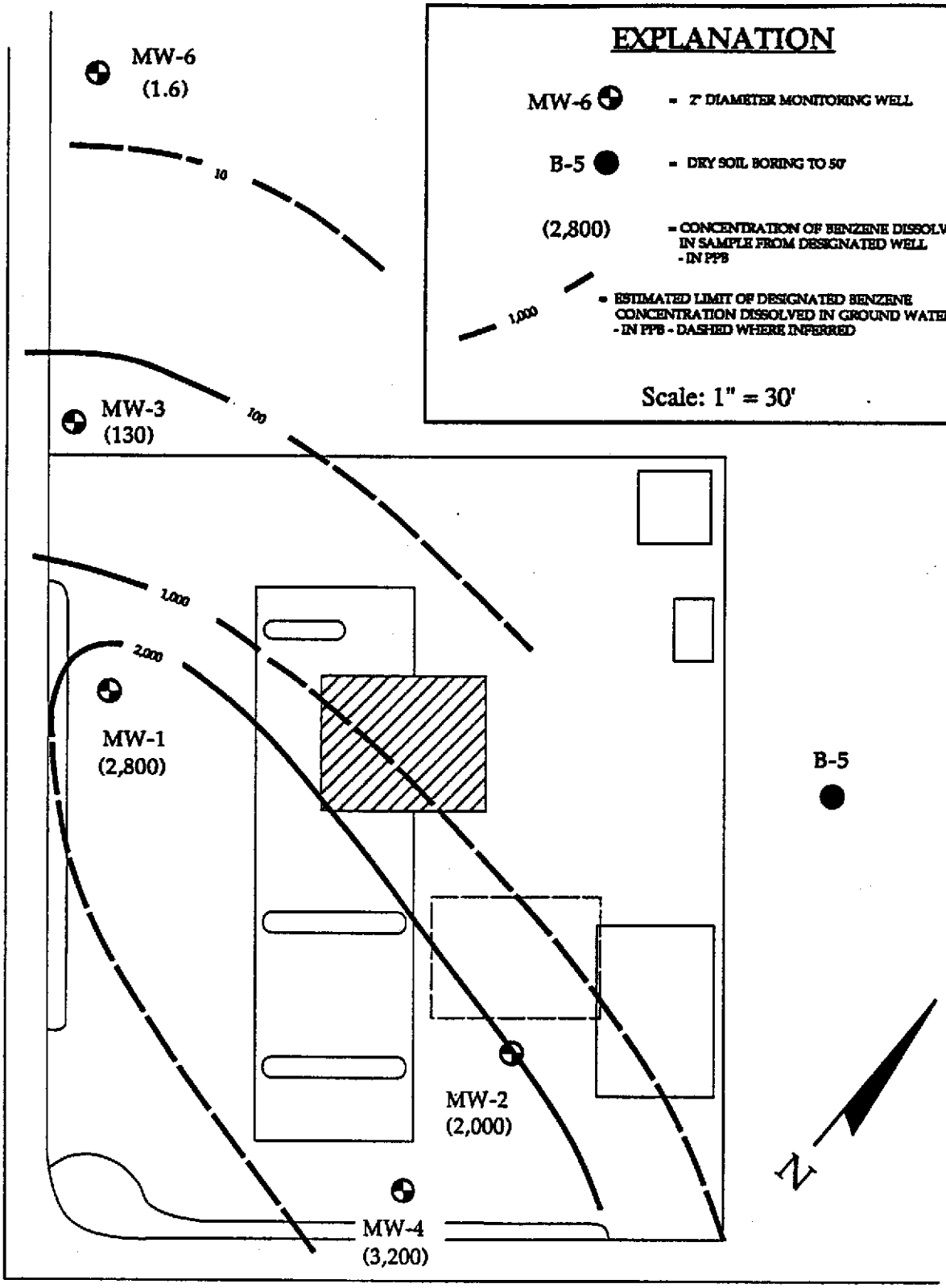
GAUGING PERFORMED ON JULY 27, 1992

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.	GROUND WATER CONTOUR MAP BP Service Station No. 11117 7210 Bancroft Avenue Oakland, California	Job No. 9-029 Figure 3



SAMPLING PERFORMED ON JUNE 5 AND JULY 24, 1992

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.	TPHg ISOCONCENTRATION MAP BP Service Station No. 11117 7210 Bancroft Avenue Oakland, California	Job No. 9-029 Figure 4



SAMPLING PERFORMED ON JUNE 5 AND JULY 24, 1992

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.	BENZENE ISOCONCENTRATION MAP BP Service Station No. 11117 7210 Bancroft Avenue Oakland, California	Job No. 9-029 Figure 5

APPENDIX A

UNIFIED SOIL CLASSIFICATION SYSTEM

(ASTM D-1586)

MAJOR DIVISIONS		LTR	DESCRIPTION
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-graded gravels or gravel-sand mixtures, little or no fines.
		GP	Poorly-graded gravels or gravel sand mixture, little or no fines.
		GM	Silty gravels, gravel-sand-clay mixtures.
		GC	Clayey gravels, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS	SW	Well-graded sands or gravelly sands, little or no fines.
		SP	Poorly-graded sands or gravelly sands, little or no fines.
		SM	Silty sands, sand-silt mixtures.
		SC	Clayey sands, sand-clay mixtures.

MAJOR DIVISIONS		LTR	DESCRIPTION
FINE GRAINED SOILS	SILTS AND CLAYS LL<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 silt-clays of low plasticity.
	SILTS AND CLAYS LL>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.
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils.

Retained for Analysis { } Sample Interval

SANDS & GRAVELS	BLOWS/FT*
VERY LOOSE	0 - 4
LOOSE	4 - 10
MED. DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

SILTS & CLAYS	BLOWS/FT*
SOFT	0 - 4
FIRM	4 - 8
STIFF	8 - 16
VERY STIFF	16 - 32
HARD	OVER 32

Approximate stabalized water level

Approximate first encountered water level

NOTE: Blow count represents the number of blows of a 140-lb hammer falling 30 inches per blow required to drive a sampler through the last 12 inches of an 18-inch penetration.

* Blows per foot using a standard penetrometer

NR = No Recovery
NT = Not Tested
NFWE = No Free Water Encountered
PHO = Petroleum Hydrocarbon Odor

No warranty is provided as to the continuity of soil strata between borings. Logs represent the soil section observed at the boring location on the date of drilling only.

S = Sampler sank into medium under the weight of the hammer (no blow count)
P = Sampler was pushed into medium by drilling rig (no blow count)

HYDRO ENVIRONMENTAL TECHNOLOGIES, INC

BORING LOG LEGEND

APPENDIX A

PLATE A-1

SITE/LOCATION	BEGUN	BORING DIAMETER	ANGLE/BEARING	BORING NO
7210 Bancroft Avenue, Oakland, CA	12/27/91	8 Inches	90 Degrees	MW-1
DRILLING CONTRACTOR	**COMPLETED**	**FIRST ENCOUNTERED WATER DEPTH**		
Bayland Drilling	12/27/91	28 Feet		
OPERATOR	**LOGGED BY**	**STATIC WATER DEPTH/DATE**		
Tom Schmidt	T. Lane	29 Feet		
DRILL MAKE & MODEL	**SAMPLING METHOD**			**BOTTOM OF BORING**
CME 75	California modified split spoon			40 Feet
WELL MATERIAL	**SLOT SIZE**	**FILTER PACK**	**WELL SEAL**	**WELL NO.**
2" SCH 40 PVC	0.020"	#2/16	Neat cement over bentonite	MW-1

FIELD HEADSPACE *	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
	1					ASPHALT
	2					BASEROCK
	3					Silty CLAY (CL) dark brown, low plasticity, 20-25% silt, trace fine to coarse sand, trace pebble gravel, dry.
	4					
0.0	5					Sandy CLAY (CL) yellow-brown, low plasticity, 30-35% fine sand, trace pebble gravel, trace rootlets, moist.
	6					
	7					Gravelly SAND (SW) med. brown, well graded, medium to coarse grained, 15% sub-rounded pebble gravel, moist.
	8					
	9					Silty CLAY (CL) medium brown, low plasticity, 15-20% silt, trace medium sand, damp.
0.0	10					
	11					
	12					
	13					Sandy CLAY (CL) medium brown, low plasticity, 35-40% fine sand, trace rounded pebble gravel, wet.
	14					
0.0	15					Silty CLAY (CL) medium yellow-brown, low plasticity, 15-20% silt, trace angular pebble gravel, trace charcoal fragments, wet.
	16					
	17					
	18					
	19					
0.0	20					
	21					
	22					
	23					
	24					
0.0	25					Gravelly CLAY (CL) medium brown, low plasticity, 10-15% pebble gravel, damp.
	26					
	27					
	28		▽			
*PID	29		▼			
(ppm)	30					

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

DATE:

APPROVED BY: Frederick G. Moss, PE No. 35162

SOIL BORING LOG MW-1 AND WELL CONSTRUCTION MW-1

BP Oil Station No. 11117
7210 Bancroft Avenue
Oakland, CA

PLATE
A-2

JOB NO.
9-029

SITE/LOCATION	BEGUN	BORING DIAMETER	ANGLE/BEARING	BORING NO
7210 Bancroft Avenue, Oakland, CA	12/27/91	8 Inches	90 Degrees	MW-1
DRILLING CONTRACTOR	COMPLETED	FIRST ENCOUNTERED WATER DEPTH		
Bayland Drilling	12/27/91	28 Feet		
OPERATOR	LOGGED BY	STATIC WATER DEPTH/DATE		
Tom Schmidt	T. Lane	29 Feet		
DRILL MAKE & MODEL	SAMPLING METHOD			BOTTOM OF BORING
CME 75	California modified split spoon			40 Feet
WELL MATERIAL	SLOT SIZE / FILTER PACK	WELL SEAL		WELL NO.
2" SCH 40 PVC	0.020" / #2/16	Neat cement over bentonite		MW-1

FIELD HEADSPACE *	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
	31–40					Gravelly CLAY (CL) medium brown, low plasticity, 20-30% sub-rounded coarse gravel, wet.
	41–60					

*PID (ppm)

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

DATE:

APPROVED BY: Frederick G. Moss, PE No. 35162

SOIL BORING LOG MW-1
AND
WELL CONSTRUCTION MW-1

BP Oil Station No. 11117
7210 Bancroft Avenue
Oakland, CA

PLATE
A-3

JOB NO.
9-029

SITE/LOCATION	BEGUN	BORING DIAMETER	ANGLE/BEARING	BORING NO
7210 Bancroft Avenue, Oakland, CA	12/27/91	8 Inches	90 Degrees	MW-2
DRILLING CONTRACTOR	**COMPLETED**	**FIRST ENCOUNTERED WATER DEPTH**		
Bayland Drilling	12/27/91	30 Feet		
OPERATOR	**LOGGED BY**	**STATIC WATER DEPTH/DATE**		
Tom Schmidt	T. Lane	30 Feet		
DRILL MAKE & MODEL	**SAMPLING METHOD**			**BOTTOM OF BORING**
CME 75	California modified split spoon			40 Feet
WELL MATERIAL	**SLOT SIZE**	**FILTER PACK**	**WELL SEAL**	**WELL NO.**
2" SCH 40 PVC	0.020"	#2/16	Neat cement over bentonite	MW-2

FIELD HEADSPACE *	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
	1					ASPHALT
	2					BASEROCK
	3					Silty CLAY (CL) dark brown, low plasticity, 20-25% silt, trace fine to coarse sand, trace pebble gravel, dry.
	4					
0.0	5					Sandy CLAY (CL) yellow-brown, low plasticity, 30-35% fine sand, trace pebble gravel, trace rootlets, moist.
	6					
	7					Gravelly SAND (SW) med. brown, well graded, medium to coarse grained, 15% sub-rounded pebble gravel, moist.
	8					
	9					Silty CLAY (CL) medium brown, low plasticity, 15-20% silt, trace medium sand, damp.
0.0	10					
	11					
	12					
	13					Sandy CLAY (CL) medium brown, low plasticity, 35-40% fine sand, trace rounded pebble gravel, wet.
	14					
0.0	15					
	16					Silty CLAY (CL) medium yellow-brown, low plasticity, 15-20% silt, trace angular pebble gravel, trace charcoal fragments, wet.
	17					
	18					
	19					
0.0	20					
	21					Gravelly SAND (SW) medium brown, well graded coarse sand, 10-15% well rounded pebble gravel, wet.
	22					
	23					
	24					Gravelly CLAY (CL) medium brown, low plasticity, 10-15% pebble gravel, damp.
0.0	25					
	26					
	27					
	28		▽			
*PID (ppm)	29		▼			
	30					

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

DATE:

APPROVED BY: Frederick G. Moss, PE No. 35162

SOIL BORING LOG MW-2 AND WELL CONSTRUCTION MW-2

BP Oil Station No. 11117
7210 Bancroft Avenue
Oakland, CA

PLATE
A-4

JOB NO.
9-029

SITE/LOCATION	BEGUN	BORING DIAMETER	ANGLE/BEARING	BORING NO
7210 Bancroft Avenue, Oakland, CA	12/27/91	8 Inches	90 Degrees	MW-2
DRILLING CONTRACTOR	**COMPLETED**	**FIRST ENCOUNTERED WATER DEPTH**		
Bayland Drilling	12/27/91	30 Feet		
OPERATOR	**LOGGED BY**	**STATIC WATER DEPTH/DATE**		
Tom Schmidt	T. Lane	30 Feet		
DRILL MAKE & MODEL	**SAMPLING METHOD**			**BOTTOM OF BORING**
CME 75	California modified split spoon			40 Feet
WELL MATERIAL	**SLOT SIZE**	**FILTER PACK**	**WELL SEAL**	**WELL NO.**
2" SCH 40 PVC	0.020"	#2/16	Neat cement over bentonite	MW-2

FIELD HEADSPACE *	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
	31					Gravelly CLAY (CL) medium brown, low plasticity, 20-30% sub-rounded coarse gravel, wet.
	32					
	33					
	34					
	35					
	36					
	37					
	38					
	39					
	40					
	41					
	42					
	43					
	44					
	45					
	46					
	47					
	48					
	49					
	50					
	51					
	52					
	53					
	54					
	55					
	56					
	57					
	58					
*PID (ppm)	59					
	60					

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

DATE:

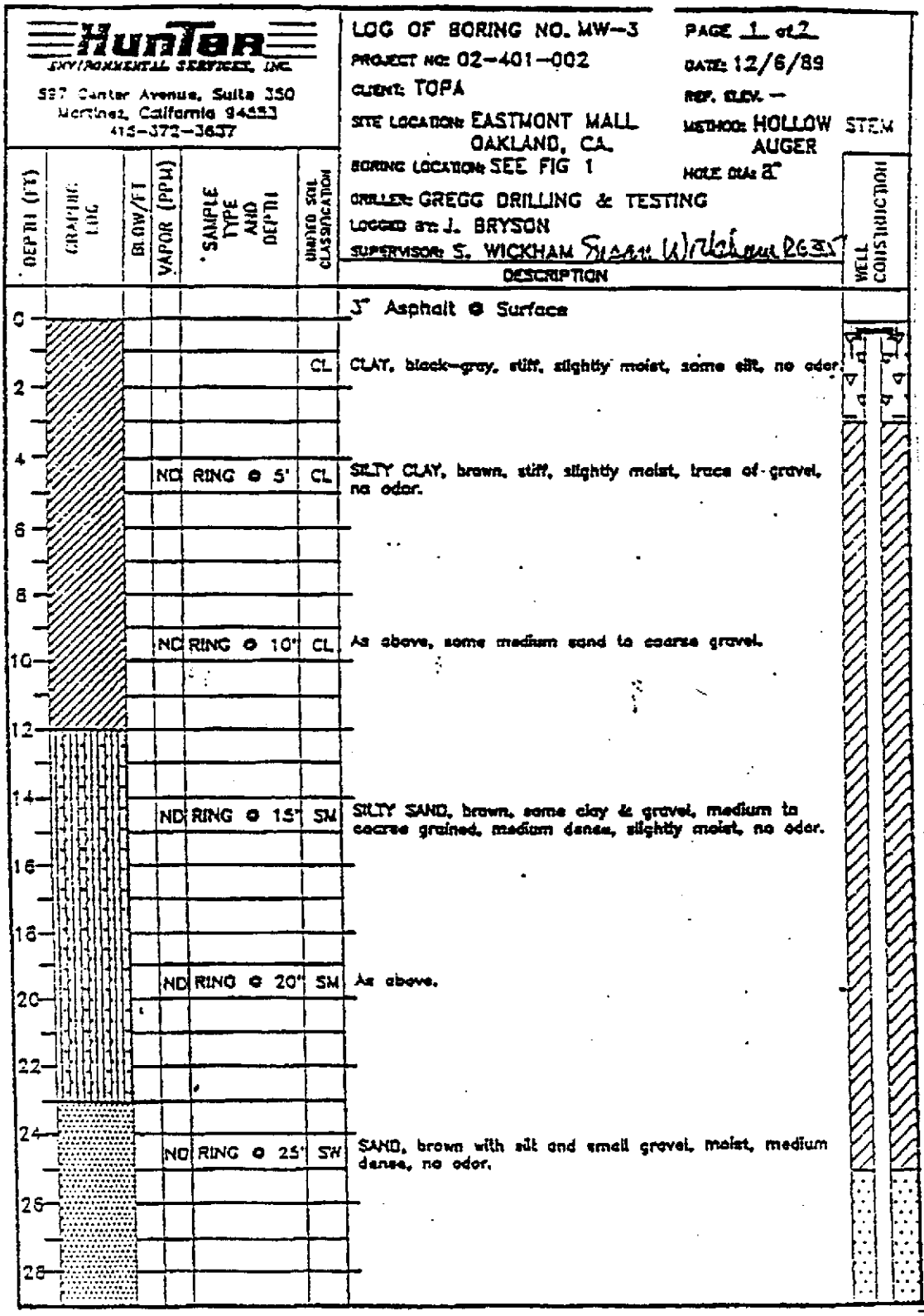
APPROVED BY: Frederick G. Moss, PE No. 35162

SOIL BORING LOG MW-2
AND
WELL CONSTRUCTION MW-2

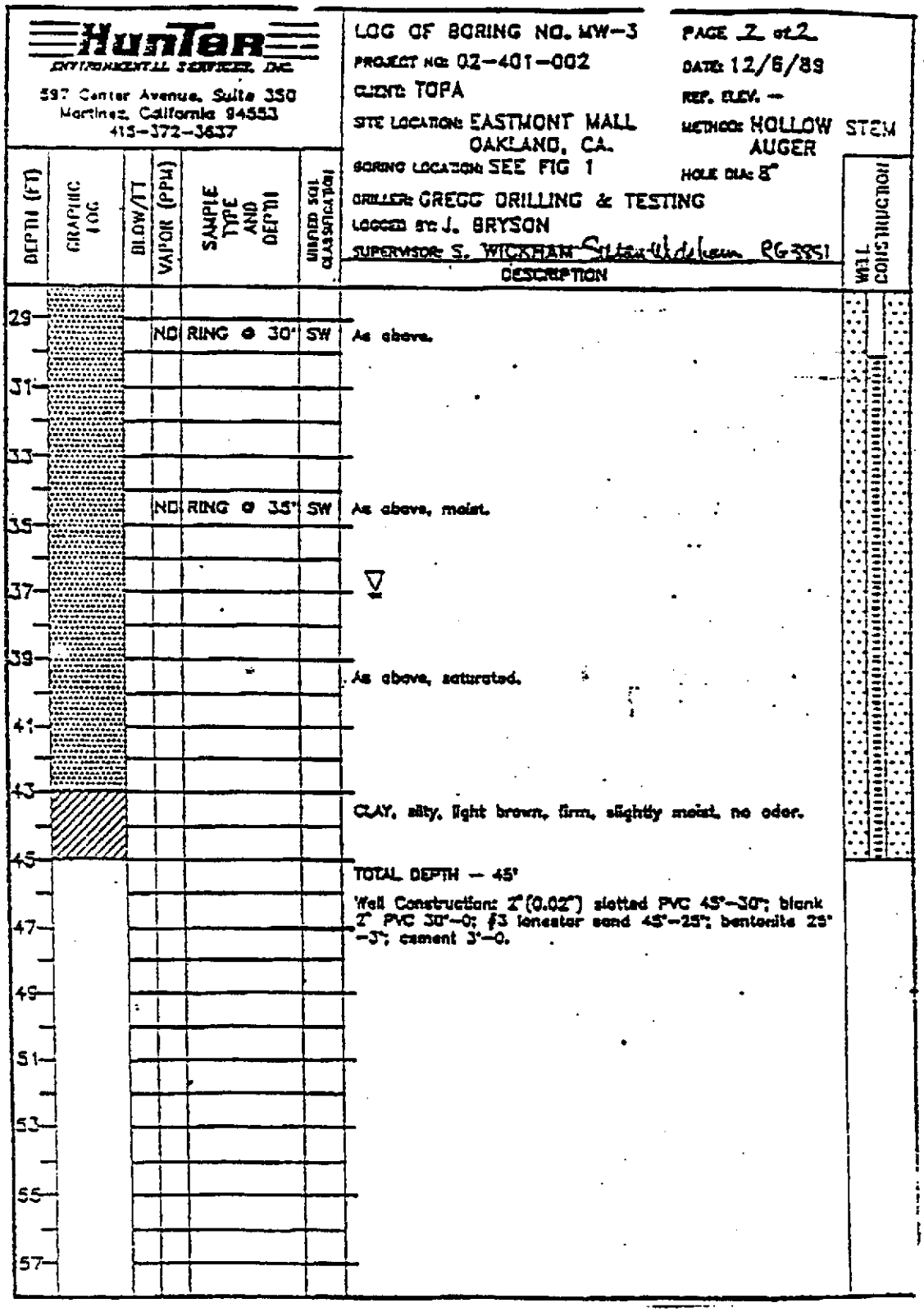
BP Oil Station No. 11117
7210 Bancroft Avenue
Oakland, CA

PLATE
A-5

JOB NO.
9-029



Completed By: HUNTER ENVIRONMENTAL SERVICES, INC. December 6, 1989	SOIL BORING LOG MW-3 AND WELL CONSTRUCTION MW-3 BP Oil Station No. 11117 7210 Bancroft Avenue Oakland, CA	PLATE A-6 JOB NO. 9-029



Completed By: HUNTER ENVIRONMENTAL SERVICES, INC. December 6, 1989	SOIL BORING LOG MW-3 AND WELL CONSTRUCTION MW-3 BP Oil Station No. 11117 7210 Bancroft Avenue Oakland, CA	PLATE A-7 JOB NO. 9-029

SITE/LOCATION	BEGUN	BORING DIAMETER	ANGLE/BEARING	BORING NO
7210 Bancroft Avenue, Oakland, CA	7/22/92	8 Inches	90 Degrees	MW-4
DRILLING CONTRACTOR	**COMPLETED**	**FIRST ENCOUNTERED WATER DEPTH**		
Bayland Drilling	7/22/92	31 Feet		
OPERATOR	**LOGGED BY**	**STATIC WATER DEPTH/DATE**		
Frank Bartolovich	T. Ramirez	32.5 Feet		
DRILL MAKE & MODEL	**SAMPLING METHOD**			**BOTTOM OF BORING**
CME 55	California modified split spoon			40 Feet
WELL MATERIAL	**SLOT SIZE**	**FILTER PACK**	**WELL SEAL**	**WELL NO.**
2" SCH 40 PVC	0.020"	#2/12	Neat cement with 5% bentonite over hydrated pellets	MW-4

BLOWS/FOOT	FIELD HEAD-SPACE *	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
		1					ASPHALT
		2					BASEROCK
		3					CLAY (CL) medium brown, moderate plasticity, 5-10% medium to coarse sand, dry.
7		4					
24	462	5					Sandy CLAY (CL) light brown, low plasticity, 40% fine to medium angular sand, dry.
24		6	■				
		7					Sandy CLAY (CL) greenish-brown, moderate plasticity, 30% fine sub-angular to sub-rounded sand, 5-10% silt content, dry.
		8					
		9					
4		10					
12	106	11	■				
23		12					Sandy CLAY (CL) medium brown, low plasticity, 25-30% fine to coarse angular to sub-rounded sand, occasional gravel clast up to 5cm, dry.
		13					
		14					
13		15					
14	464	16	■				
22		17					
		18					
		19					
6		20					Sandy CLAY (CL) interbedded light brown and dark brown layers. Dark brown sandy clay is 30% fine to medium sand, with moderate plasticity. Light brown sandy clay is 20% fine sand, 10% silt content, with low plasticity. Both are damp, with increasing moisture, clay content and plasticity with depth.
10	442	21	■				
13		22					
		23					
		24					
3		25					
13	673	26	■				
21		27					Clayey SAND (SC) medium brown, fine to medium sub-rounded to rounded sand, 5% gravel with clasts up to 3cm, 15% clay content, moist.
		28					
	*PID	29					
	(ppm)	30					

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

DATE:

APPROVED BY: Frederick G. Moss, PE No. 35162

SOIL BORING LOG MW-4 AND WELL CONSTRUCTION MW-4

BP Oil Station No. 11117
7210 Bancroft Avenue
Oakland, CA

PLATE
A-8

JOB NO.
9-029

SITE/LOCATION	BEGUN	BORING DIAMETER	ANGLE/BEARING	BORING NO
7210 Bancroft Avenue, Oakland, CA	7/22/92	8 Inches	90 Degrees	MW-4
DRILLING CONTRACTOR	**COMPLETED**	**FIRST ENCOUNTERED WATER DEPTH**		
Bayland Drilling	7/22/92	31 Feet		
OPERATOR	**LOGGED BY**	**STATIC WATER DEPTH/DATE**		
Frank Bartolovich	T. Ramirez	32.5 Feet		
DRILL MAKE & MODEL	**SAMPLING METHOD**			**BOTTOM OF BORING**
CME 55	California modified split spoon			40 Feet
WELL MATERIAL	**SLOT SIZE**	**FILTER PACK**	**WELL SEAL**	**WELL NO.**
2" SCH 40 PVC	0.020"	#2/12	Neat cement with 5% bentonite over hydrated pellets	MW-4

BLOWS/FOOT	FIELD HEAD-SPACE *	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
13 50/6	691	31		▽			Sandy CLAY (CL) medium brown, low plasticity, 30% fine to coarse, sub-angular to rounded sand, occasional gravel clast up to 2cm, moist to wet.
		32					
		33		▼			
6		34					CLAY (CL) dark brown, high plasticity, wet.
8		35					
9		36					Silty SAND (SM) grey to light brown, fine to medium sand, 10% gravel up to 5cm, sub-rounded to rounded clasts, 20% silt content, saturated.
		37					
		38					
3		39					CLAY (CL) med. brown, moderate plasticity, approx. 5% rounded medium sand, wet.
6		40					
8		41					
		42					
		43					
		44					
		45					
		46					
		47					
		48					
		49					
		50					
		51					
		52					
		53					
		54					
		55					
		56					
		57					
		58					
	*PID (ppm)	59					
		60					

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

DATE:

APPROVED BY: Frederick G. Moss, PE No. 35162

SOIL BORING LOG MW-4 AND WELL CONSTRUCTION MW-4

BP Oil Station No. 11117
7210 Bancroft Avenue
Oakland, CA

PLATE
A-9

JOB NO.
9-029

SITE/LOCATION	BEGUN	BORING DIAMETER	ANGLE/BEARING	BORING NO
7210 Bancroft Avenue, Oakland, CA	7/22/92	8 Inches	90 Degrees	B-5
DRILLING CONTRACTOR	**COMPLETED**	**FIRST ENCOUNTERED WATER DEPTH**		
Bayland Drilling	7/23/92	No free water encountered		
OPERATOR	**LOGGED BY**	**STATIC WATER DEPTH/DATE**		
Frank Bartolovich	T. Ramirez	No free water encountered		
DRILL MAKE & MODEL	**SAMPLING METHOD**			**BOTTOM OF BORING**
CME 55	California modified split spoon			50 Feet
WELL MATERIAL	**SLOT SIZE**	**FILTER PACK**	**BORING SEAL**	**WELL NO.**
N/A	N/A	N/A	Neat cement	N/A

BLOWS/FOOT	FIELD HEAD-SPACE *	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
		1					ASPHALT
		2					CLAY (CL) dk. brown, 15% sand, 5% gravel up to 7cm.
		3					Clayey GRAVEL (GC) clasts are greenish-white, up to 10cm, 10% brown clay, dry.
7		4					
14	5.0	5					Sandy CLAY (CL) dark to light brown, low plasticity,
35		6	■				15% fine to medium sub-angular to sub-rounded sand,
		7					increasing clay content with depth, dry.
		8					
		9					Gravelly CLAY (CL) light brown, 30% sub-rounded to
12							rounded gravel clasts up to 7cm, dry.
16	0.2	10					
8		11	■				CLAY (CL) light brown, moderate plasticity, approx.
		12					5% fine sand, dry.
		13					
		14					Sandy CLAY (CL) medium brown, moderate plasticity,
11							25% sub-angular to sub-rounded fine to coarse sand, dry.
17	0.8	15					
14		16	■				Clayey SAND (SC) medium brown, fine to medium
		17					sand with occasional coarse sand clasts, sub-angular to
		18					rounded, increase clay content with depth, dry.
		19					Sandy CLAY (CL) med. brown, 20% fine to coarse sand,
11							occasional gravel clasts up to 6cm, dry.
17	0.8	20					
23		21	■				Clayey SAND (SC) medium brown, sub-angular to
		22					rounded medium to coarse sand, 40% clay content, dry.
		23					CLAY (CL) medium brown, moderate plasticity,
		24					10% fine to medium sand, moist.
11							
17	0.2	25					
22		26	■				Sandy CLAY (CL) dark brown, low plasticity, 40%
		27					angular to sub-rounded fine to medium sand,
		28					occasional gravel clasts up to 6cm, increase in
	*PID	29					clay content with depth, dry.
	(ppm)	30					

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

DATE:

APPROVED BY: Frederick G. Moss, PE No. 35162

SOIL BORING LOG B-5

BP Oil Station No. 11117
7210 Bancroft Avenue
Oakland, CA

PLATE
A-10

JOB NO.
9-029

SITE/LOCATION	BEGUN	BORING DIAMETER	ANGLE/BEARING	BORING NO
7210 Bancroft Avenue, Oakland, CA	7/22/92	8 Inches	90 Degrees	B-5
DRILLING CONTRACTOR	**COMPLETED**	**FIRST ENCOUNTERED WATER DEPTH**		
Bayland Drilling	7/23/92	No free water encountered		
OPERATOR	**LOGGED BY**	**STATIC WATER DEPTH/DATE**		
Frank Bartolovich	T. Ramirez	No free water encountered		
DRILL MAKE & MODEL	**SAMPLING METHOD**			**BOTTOM OF BORING**
CME 55	California modified split spoon			50 Feet
WELL MATERIAL	**SLOT SIZE**	**FILTER PACK**	**WELL SEAL**	**WELL NO.**
N/A	N/A	N/A	Neat cement	N/A

BLOWS/FOOT	FIELD HEAD-SPACE *	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
5 10 16	0.8	31 32 33	■				CLAY (CL) light brown, high plasticity, moist.
2 7 11	0.0	34 35 36	■				Gravelly CLAY (CL) dark brown, 15% sub-rounded to rounded clasts from 3cm to 7cm, moist.
2 11 11	0.0	37 38 39 40	■				Silty CLAY (CL) light brown, high plasticity, 25% silt content, approximately 10% fine to medium sand, moist
4 9 14	0.0	41 42 43 44 45	■				CLAY (CL) dark brown, high plasticity, contains a 7cm thick lens of light brown silty clay with a 30% silt content, moist.
8 13 25	0.0	46 47 48 49 50	■				Silty CLAY (CL) light brown, high plasticity, 20% silt content, 10% fine sand, moist.
	*PID (ppm)	51 52 53 54 55 56 57 58 59 60					

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

DATE:

APPROVED BY: Frederick G. Moss, PE No. 35162

SOIL BORING LOG B-5

BP Oil Station No. 11117
7210 Bancroft Avenue
Oakland, CA

PLATE
A-11

JOB NO.
9-029

SITE/LOCATION	BEGUN	BORING DIAMETER	ANGLE/BEARING	BORING NO
7210 Bancroft Avenue, Oakland, CA	7/23/92	8 Inches	90 Degrees	MW-6
DRILLING CONTRACTOR	**COMPLETED**	**FIRST ENCOUNTERED WATER DEPTH**		
Bayland Drilling	7/23/92	31.5 Feet		
OPERATOR	**LOGGED BY**	**STATIC WATER DEPTH/DATE**		
Kurt Voss	T. Ramirez	31.5 Feet		
DRILL MAKE & MODEL	**SAMPLING METHOD**			**BOTTOM OF BORING**
CME 75	California modified split spoon			40 Feet
WELL MATERIAL	**SLOT SIZE**	**FILTER PACK**	**WELL SEAL**	**WELL NO.**
2" SCH 40 PVC	0.020"	#2/12	Neat cement with 5% bentonite over hydrated pellets	MW-6

BLOWS/FOOT	FIELD HEADSPACE *	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
	*PID (ppm)	1					ASPHALT
		2					CLAY (CL) dark brown, high plasticity, 10% sub-angular to sub-rounded fine to medium sand, moist.
4		3					
6		4					Sandy CLAY (CL) dark brown, high plasticity, 25% fine to coarse sand with occasional gravel clasts up to 3cm, dry.
9	0.0	5					
		6					CLAY (CL) light brown, moderate plasticity, 5-10% fine sand, dry.
		7					
		8					
6		9					
9							
15	0.0	10					Sandy CLAY (SC) dark brown, high plasticity, 20% fine to coarse angular to sub-rounded sand, occasional gravel clasts up to 4cm, dry.
		11					
		12					
		13					
5		14					Sandy CLAY (CL) yellow brown, moderate plasticity, 20% fine to medium sand, 10% silt content, occasional gravel clasts up to 8cm, dry.
12							
16	0.0	15					
		16					
		17					
		18					
8		19					Sandy CLAY (CL) light brown, moderate plasticity, 40% fine to coarse sand, occasional angular to sub-rounded gravel clasts up to 10 cm, moist.
12							
15	0.0	20					
		21					
		22					
		23					Sandy CLAY (CL) same as above except only 25% sand content.
10		24					
13							
16	0.0	25					
		26					
		27					Gravelly CLAY (CL) medium brown, 25% angular to sub-rounded gravel clasts up to 5cm, 20% fine to coarse sand, decrease gravel and sand content with depth, moist.
		28					
9		29					
16							
20	0.0	30					

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

DATE:

APPROVED BY: Frederick G. Moss, PE No. 35162

SOIL BORING LOG MW-6 AND WELL CONSTRUCTION MW-6

BP Oil Station No. 11117
7210 Bancroft Avenue
Oakland, CA

PLATE
A-12

JOB NO.
9-029

SITE/LOCATION	BEGUN	BORING DIAMETER	ANGLE/BEARING	BORING NO
7210 Bancroft Avenue, Oakland, CA	7/23/92	8 Inches	90 Degrees	MW-6
DRILLING CONTRACTOR	**COMPLETED**	**FIRST ENCOUNTERED WATER DEPTH**		
Bayland Drilling	7/23/92	31.5 Feet		
OPERATOR	**LOGGED BY**	**STATIC WATER DEPTH/DATE**		
Kurt Voss	T. Ramirez	31.5 Feet		
DRILL MAKE & MODEL	**SAMPLING METHOD**			**BOTTOM OF BORING**
CME 75	California modified split spoon			40 Feet
WELL MATERIAL	**SLOT SIZE**	**FILTER PACK**	**WELL SEAL**	**WELL NO.**
2" SCH 40 PVC	0.020"	#2/12	Neat cement with 5% bentonite over hydrated pellets	MW-6

BLOWS/FOOT	FIELD HEAD-SPACE *	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
		31					
		32		▼			Silty CLAY (CL) yellow-brown, 30% silt content, 10% sub-angular to sub-rounded gravel clasts up to 10cm, approx. 5% medium to coarse sand, increase sand content with depth, wet.
4		33					
12		34					
20		35					
		36					
		37					Sandy GRAVEL (GP) light brown, gravel clasts up to 7cm, 30% fine to coarse sand, 10% silt content, saturated.
		38					
5		39					Silty SAND (SM) light grey, fine to medium sand with <5% coarse sand, 35% silt content, saturated.
9		40					
15		41					
		42					
		43					
		44					
		45					
		46					
		47					
		48					
		49					
		50					
		51					
		52					
		53					
		54					
		55					
		56					
		57					
		58					
	*PID (ppm)	59					
		60					

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

DATE:

APPROVED BY: Frederick G. Moss, PE No. 35162

SOIL BORING LOG MW-6
AND
WELL CONSTRUCTION MW-6

BP Oil Station No. 11117
7210 Bancroft Avenue
Oakland, CA

PLATE
A-13

JOB NO.
9-029

APPENDIX B

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94588 ♦ (415) 484-2600

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 73 & Bancroft
Oakland, Ca

CLIENT
Name BP Oil Company
Address 2868 Prospect Park Phone
City Rancho Cordova Zip 95670

APPLICANT
Name Hydro-Environmental, Inc
Address 2363 Mariner Square Drive Phone 521-2684
City Alameda Zip 94501

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	___	General	___
Water Supply	___	Contamination	___
Monitoring	X	Well Destruction	___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other X
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. C-57 374152

WELL PROJECTS
Drill Hole Diameter 10 In. Maximum
Casing Diameter 4 In. Depth 40 ft.
Surface Seal Depth 25 ft. Number 2

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ In. Depth ___ ft.

ESTIMATED STARTING DATE 12-16-91
ESTIMATED COMPLETION DATE 12-16-91

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Jim J. Lee Date 12-9-91

FOR OFFICE USE

PERMIT NUMBER 91677
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 5 Dec 91
Wyman Hong

51991

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 7210 BANCROFT AVENUE
OAKLAND, CALIFORNIA
94605

CLIENT
Name BP OIL COMPANY
Address 2868 PROSPECT PARK Phone
City RANCHO CORDOVA Zip 95670

APPLICANT
Name HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.
Address 2363 MARINER SQUARE DRIVE Phone 521-2684
City ALAMEDA Zip 94501

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection		General	
Water Supply		Contamination	
Monitoring	X	Well Destruction	

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other X
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. C-57 374152

WELL PROJECTS

Drill Hole Diameter	10	in.	Maximum		
Casing Diameter	4	in.	Depth	40	ft.
Surface Seal Depth	25	ft.	Number	3	

GEOTECHNICAL PROJECTS

Number of Borings			Maximum		
Hole Diameter		in.	Depth		ft.

ESTIMATED STARTING DATE 7-13-92
ESTIMATED COMPLETION DATE 7-14-92

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Craig Hart Date 6/29/92

FOR OFFICE USE

PERMIT NUMBER 92326
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 6 Jul 92
Wyman Hong

31992

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

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

HEALTH AND SAFETY PLAN
FOR
DRILLING ACTIVITIES

BP SERVICE STATION 11117
7210 BANCROFT AVENUE
OAKLAND, CALIFORNIA

PREPARED BY

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.
2363 MARINER SQUARE DRIVE
ALAMEDA, CALIFORNIA

DECEMBER 1991
JULY 1992

1.0 IMPORTANT LOCATIONS AND TELEPHONE NUMBERS

- HUMANA HOSPITAL
  13855 East 14TH Street
  San Leandro, California
  Telephone (510) 357-6500

  Go southwest (towards the bay) on hegenburger rd., turn left on East 14 th, proceed 4 miles, hospital is on the right.

- Police Department - 911
  Fire Department - 911

2.0 SITE DESCRIPTION

Company Name: BP OIL COMPANY, INC.

Site Location: 7210 Bancroft Avenue
Oakland, CA.
(Figure 1)

Property Owner: Mr. Jim Givens
One Eastmont Mall
Oakland, California 94505

Contact Person: Mr. Tony Ramirez (510) 521-2684
Hydro-Environmental Technologies, Inc. (HETI)

Hazards: Traffic, noise, hydrocarbon exposure and utilities (obstruction) during the drilling and monitoring well installation.

3.0 SCOPE OF SERVICES

- Work planned at this site includes drilling three soil borings to 40 feet, installing three four inch PVC monitoring wells, surveying the wells, and developing the wells.

4.0 ONSITE ORGANIZATION

Site Safety Officer and Geologist:	Mr. Tony Ramirez
Contractor Representative:	Ed Green Bayland Drilling
	Menlo Park, CA License # C57374152

5.0 ON-SITE CONTROL

Mr. Ramirez (site geologist) will monitor all drilling activities and supervise monitoring well installation. A work zone has been established for drilling activities immediately around the drill rig. Monitoring of breathing zone air will be conducted by Mr. Ramirez. Traffic safety devices will be utilized as needed.

6.0 HAZARD EVALUATION

6.1 Chemical Hazard

According to laboratory analysis of soil samples from this drill site, the possible contaminants to be encountered during drilling are petroleum hydrocarbons as gasoline and benzene, toluene, ethylbenzene, and xylene.

Inhalation and skin absorption present the main exposure hazards. Based on laboratory analysis of the soil, we do not anticipate the potential levels of exposure will exceed permissible exposure limits (PEL) or threshold limit value (TLV) limits set by the Occupational Safety and Health Administration (OSHA).

Following are short descriptions of each contaminant suspected of being present on-site:

- *Gasoline*

  Gasoline is a clear, aromatic, volatile liquid. It is a mixture of aliphatic hydrocarbons and has:

  - Flash point = 50°F
  - Lower exposure limit = =1.3%
  - TLV in the air = 300 ppm
  - OSHA 8-hour time weighted average (TWA) PEL = 300 ppm
  - OSHA short-term exposure limit (STEL) 15 minute = 500 ppm

- *Benzene*

This is a carcinogenic (cancer causing) substance. Benzene is a common constituent of gasoline and other petroleum product materials. It is a clear, colorless liquid and has:

- Flash point = 12°F
- TLV = 1 ppm
- OSHA PEL = 1 ppm
- STEL (15 minute) = 5 ppm

- ***Ethylbenzene***

  - Flash point = 59°F
  - OSHA 8-hour TWA = 100 ppm
  - OSHA STEL = 125 ppm

- ***Toluene***

  This material is a flammable, colorless liquid and has:

  - Flash point = 40°F
  - TLV in the air = 100 ppm
  - STEL = 150 ppm
  - OSHA PEL (8-hour TWA) = 100 ppm
  - OSHA STEL = 150 ppm

- ***Xylene***

  This clear liquid has:

  - Flash point = 100°F
  - TLV in the air = 100 ppm
  - OSHA PEL (8-hour TWA) = 100 ppm
  - OSHA STEL = 150 ppm

It is not anticipated that vapors of this type will be encountered during construction activities.

6.2 Physical Hazards

Because the anticipated work is to be performed as a "normal" working day, all aspects of safety concerning drilling will be adhered to; Safety requirements such as but not limited to:

Driller will examine all wires/cables daily
Drilling equipment will be maintained in safe operating condition
Drilling equipment will meet state safety requirements
Driller will block/chock rig as required
All personnel and visitors in the work area will have completed 40 hours of OSHA training or have current 8 hours of a refresher course

The main physical hazards during construction are:

- **Dust**
- **Noise**
- **Vehicular traffic**
- **Bodily injury due to equiptment operation**
- **Strain: lifting, slipping, tripping, falling, or moving equipment**
- **Underground utility lines**

All personnel in the work area will know the location of:
-first aid kit
-fire extinguisher
-telephone

7.0 REQUIRED PROTECTION

At a minimum, Level D of protection will be applied to the work zone. That is, field personnel and visitors are required to wear the following clothing and equipment:

- **Hard hat (ANSI Z89.1)**
- **Safety glasses (ANSI Z87.0)**
- **Safety shoes (steel toe) (ANSI Z41.0)**
- **Gloves (nitrile)**
- **Hearing protection**

8.0 AIR MONITORING

An organic vapor meter (OVM) will monitor the air space within a 2 foot radius of the auger bit and at a height of 5 feet every hour . If hydrocarbon odors within this area become detectable with the OVM at a concentration of 10 parts per million (ppm) of total organic compounds, the personnel assigned to the project will upgrade their personal protection with half face respirators with organic vapor cartridges.

No hand to mouth transfer is to occur within the work zone. Workers are required to wash hands and face with soap thoroughly after work or before meals.

This report prepared by _____
Craig Hartman
Project Manager

I have read and understand this document and will abide by the provisions herein:

_____ 7/22/92
Field Geologist — Date

_____ _____
Bayland Drilling (Operator) — (Helper)

22 July 92 — 22 July 92
Date — Date

_____ _____
Bayland Drilling Operator — Bayland Drilling Helper

7-23-92 _____
Date — Date

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

SITE SURVEY DATA SHEET - 1/10/92

Location: 7210 Bancroft Avenue, Oakland, California

Client: BP Oil Company **Job No.** 9-029

Station No.	Backshot	Height of Instrument	Foreshot	Well No	Elevation of Top of Casing	Description of Backshot
BM	5.71					
MW-1			5.90	MW-1	49.81	
MW-2			4.65	MW-2	51.06	
MW-3			5.71	MW-3	50.00	
BM	5.71					

TOC = Top of PVC Casing – North Edge

All measurements in feet

TBM (Temporary Benchmark)
50.0 ft. Arbitrary Datum
LOCATION & DESCRIPTION:
Pre-existing benchmark by others
at NE corner of 73rd & Bancroft

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

SITE SURVEY DATA SHEET - 7/27/92

Location: 7210 Bancroft Avenue, Oakland, California

Client: BP Oil Company **Job No.** 9-029

Station No.	Backshot	Height of Instrument	Foreshot	Well No	Elevation of Top of Casing	Description of Backshot
BM	5.88					
MW-1			6.08	MW-1	49.80	
MW-2			4.81	MW-2	51.07	
MW-3			5.93	MW-3	49.95	
MW-4			5.12	MW-4	50.76	
MW-6			5.56	MW-6	50.32	
BM	5.88					

TOC = Top of PVC Casing -- North Edge

All measurements in feet

TBM (Temporary Benchmark)
50.0 ft. Arbitrary Datum
LOCATION & DESCRIPTION:
Pre-existing benchmark by others
at NE corner of 73rd & Bancroft

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

WATER TABLE ELEVATION DATA

Location: 7210 Bancroft Avenue, Oakland, California

Client: BP Oil Company **Job No.** 9-029

MW No.	Elev. T.C.*	D T W	Date Measured	Elev. Water	Remarks/Observations
MW-1	49.81	33.16	1/10/92	16.65	Brown color, mod. recharge, light turbidity
MW-2	51.06	DRY	1/10/92	DRY	No free water encountered
MW-3	50.00	33.74	1/10/92	16.26	Brown color, mod. recharge, moderate turbidity
					Survey based on pre-existing benchmark by others at NE corner of 73rd & Bancroft 50.0 ft. arbitrary datum

T. C.* = Top of PVC Casing – North Edge
All measurements in feet

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

WATER TABLE ELEVATION DATA

Location: 7210 Bancroft Avenue, Oakland, California

Client: BP Oil Company **Job No.** 9-029

MW No.	Elev. T.C.*	D T W	Date Measured	Elev. Water	Remarks/Observations
MW-1	49.80	29.45	7/27/92	20.35	Brown color, mod. recharge, light turbidity
MW-2	51.07	30.52	7/27/92	20.55	Brown color, mod. recharge, moderate turbidity
MW-3	49.95	30.14	7/27/92	19.81	Brown color, mod. recharge, moderate turbidity
MW-4	50.76	30.02	7/27/92	20.74	Brown color, mod. recharge, moderate turbidity
MW-6	50.32	30.63	7/27/92	19.69	Brown color, mod. recharge, moderate turbidity
					Survey based on pre-existing benchmark by others at NE corner of 73rd & Bancroft 50.0 ft. arbitrary datum

T. C.* = Top of PVC Casing – North Edge
All measurements in feet

PURGED/SAMPLED BY: FM, BC DATE: 1/10/92

GAUGING DATA:

Depth to bottom: 39.05 ft.

Depth to water: 33.16 ft.

Saturated Thickness: 5.73 ft.

Conversion	
diam.	gals/ft.
2 in.	x 0.16
4 in.	x 0.65
6 in.	x 1.44

Well casing volume 0.91 gallons

volumes to purge x 10 vols.

*Total volume to purge = 9.10 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

Purge method: PVC bailer/ Submersible pump/ Suction lift pump/ * _____
(circle one)

	Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
	1225	0			
"dry" →	1300	5			
Sample at					
After sampling					

Color: Medium brown Turbidity: Moderate

Recharge: Poor Petroleum hydrocarbon odor: Moderate or SPP 0 ft.

SAMPLING DATA:

Sampling method: Dedicated bailer / _____

Sample for: (circle)

TPHg/BTEX	METALS	TOG	8010
TPHd	6-Pb	TEL	8020
TPH mo	Total Pb	EDB	8240
601	602	Nitrates	8260 8270

Other: _____

HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-1

LOCATION BP/E. OAKLAND

JOB NO. 9029

PURGED/SAMPLED BY: MB G DATE: 1/10/92

GAUGING DATA:

Depth to bottom: 3[illegible] ft.

Depth to water: 2[illegible] ft.

Saturated Thickness: ø ft.

Conversion	
diam.	gals/ft.
2 in.	x 0.16
4 in.	x 0.65
6 in.	x 1.44

Well casing volume ø gallons

volumes to purge x 10 vols.

*Total volume to purge = ø gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

Purge method: PVC bailer / Submersible pump/ Suction lift pump/ _____ (circle one)

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
Sample at				
After sampling				

Color: _____ Turbidity: _____

Recharge: _____ Petroleum hydrocarbon odor: _____ or SPP _____ ft.

SAMPLING DATA:

Sampling method: Dedicated bailer / _____

Sample for: (circle)

TPHg/BTEX	METALS	TOG	8010
TPHd	O-Pb	TEL	8020
TPH mo	Total Pb	EDB	8240
601	602	Nitrates	8260 8270

Other: _____

HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-2

LOCATION BP/ EDAYLAND

JOB NO. 9-029

PURGED/SAMPLED BY: FM, BG DATE: 1/10/92

GAUGING DATA:

Depth to bottom: 43.40 ft.

Depth to water: 33.74 ft.

Saturated Thickness: 9.66 ft.

Conversion	
diam.	gals/ft.
2 in.	x 0.16
4 in.	x 0.65
6 in.	x 1.44

Well casing volume 1.55 gallons

volumes to purge x 3 vols.

*Total volume to purge = 4.65 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

Purge method: PVC bailer / Submersible pump/ Suction lift pump/ _____ (circle one)

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
1215	0			
1235	2.5			
1300	5.5			
Sample at				
After sampling				

Color: LT OLIVE BROWN Turbidity: MODERATE

Recharge: GOOD Petroleum hydrocarbon odor: STRONG or SPP 0 ft.

SAMPLING DATA:

Sampling method: Dedicated bailer / _____

Sample for: (circle)

TPH g/BTEX	METALS	TOC	8010	
TPH d	O-Pb	TEL	8020	
TPH mo	Total Pb	EDB	8240	
601	602	Nitrates	8260	8270

Other: _____

HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-3 (MILL WELL)

LOCATION 8TH E. OAKLAND

JOB NO. 90

PURGED/SAMPLED BY: HH DATE: 6-5-92

GAUGING DATA:

Depth to bottom: 39.52 ft.

Depth to water: 29.01 ft.

Saturated Thickness: 10.51 ft.

Conversion	
diam.	gals/ft.
2 in.	x 0.16
4 in.	x 0.65
6 in.	x 1.44

Well casing volume 1.68 gallons

volumes to purge x 3 vols.

*Total volume to purge = 5 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

Purge method: PVC bailer / Submersible pump / Suction lift pump / _____ (circle one)

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
12:30	0	—	—	—
	2	71.0	1.15	7.48
↓	4	70.6	1.17	7.25
12:45	6	70.7	1.17	7.17
Sample at				
After sampling				

Color: tan Turbidity: high sheen on bail water

Recharge: poor Petroleum hydrocarbon odor: _____ or SPP 0 ft.

SAMPLING DATA:

Sampling method: Dedicated bailer / _____

Sample for: (circle)

(TPHg/BTEX)	METALS	TOC	8010
TPHd	O-Pb	TEL	8021
TPH ext	Total Pb	EDB	8240
601	602	Nitrates	8260 8270

Other: _____

HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-1

LOCATION 73rd & Barcroft

JOB NO. 9-029

PURGED/SAMPLED BY: HH DATE: 6-5-92

GAUGING DATA:

Depth to bottom: 39.5 ft.

Depth to water: 30.05 ft.

Saturated Thickness: 9.5 ft.

Conversion	
diam.	gals/ft.
2 in.	x 0.16
4 in.	x 0.65
6 in.	x 1.44

Well casing volume 1.52 gallons

volumes to purge x 10 vols.

*Total volume to purge = 15.2 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

Purge method: PVC bailer/ Submersible pump/ Suction lift pump/ _____ (circle one)

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
11:45	0	—	—	—
	2	74.4	1.06	7.49
	4	73.5	1.06	7.21
	6	72.8	1.20	7.13
dry →	8	72.8	1.19	7.20
	10	72.5	1.16	7.24
↓	12	72.2	1.15	7.06
dry →	12:22 — 14	72.3	1.17	7.11
	16	72.0	1.13	7.10
Sample at				
After sampling				

Color: olive-tan Turbidity: moderate

Recharge: fair Petroleum hydrocarbon odor: — or SPP 0 ft.

SAMPLING DATA:

Sampling method: Dedicated bailer / _____

Sample for: (circle)

(TPHg/BTEX)	METALS	TOC	8010
TPHd	Cr-Pb	TEL	8020
TPH mo	Total Pb	EDB	8240
601	602	Nitrates	8260 8270

Other: _____

HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-2

LOCATION 7th & Bancroft

JOB NO. 9-029

PURGED/SAMPLED BY: HH DATE: 6-5-92

GAUGING DATA:

Depth to bottom: 43.36 ft.

Depth to water: 29.65 ft.

Saturated Thickness: 13.71 ft.

Conversion	
diam.	gals/ft.
2 in.	x 0.16
4 in.	x 0.65
6 in.	x 1.44

Well casing volume 2.2 gallons

volumes to purge x 3 vols.

*Total volume to purge = 6.6 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

Purge method: PVC bailer / Submersible pump/ Suction lift pump/ _____ (circle one)

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
11:15	0	—	—	—
	2	73.2	0.88	7.87
	4	71.3	0.94	7.67
	6	70.7	0.94	7.69
11:27	7	71.4	0.83	7.69
Sample at				
After sampling				

Color: tan Turbidity: moderate

Recharge: good Petroleum hydrocarbon odor: — or SPP 0 ft.

SAMPLING DATA:

Sampling method: Dedicated bailer / _____

Sample for: (circle)

TPHg/BTEX	METALS	TOC	8010	
TPHd	O-Pb	TEL	8021	
TPH mo	Total Pb	EDB	8240	
601	602	Nitrates	8260	8270

Other: _____

HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-3

LOCATION 73-d & Bancroft

JOB NO. 9-029

PURGED/SAMPLED BY: TR/HH DATE: 7/24/90

GAUGING DATA:

Depth to bottom: 40.00 ft.

Depth to water: 29.95 ft.

Saturated Thickness: 10.05 ft.

Conversion	
diam.	gals/ft.
2 in.	x 0.16
4 in.	x 0.65
6 in.	x 1.44

Well casing volume 1.608 gallons

volumes to purge x 10 vols.

*Total volume to purge = 16.08 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

Purge method: PVC bailer/ Submersible pump/ Suction lift pump/ _____
(circle one)

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
5:00	0			
	5			
	10			
	15			
5:30	20			

Color: brown Turbidity: high

Recharge: good SPP — ft.

SAMPLING DATA:

Sampling method: Dedicated bailer / _____

Sample for: (circle)

TPHg/BTEX	METALS	TOG	8010	
TPHd	O-Pb	TEL	8020	
TPH mo	Total Pb	EDB	8240	
601	602	Nitrates	8260	8270

Other: _____

HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-4

LOCATION 7210 73rd, Oakland

JOB NO. 9029

PURGED/SAMPLED BY: TR/HH DATE: 7/24/92

GAUGING DATA:

Depth to bottom: 40.00 ft.

Depth to water: ~30.00 ft.

Saturated Thickness: 10.00 ft.

Conversion	
diam.	gals/ft.
2 in.	x 0.16
4 in.	x 0.65
6 in.	x 1.44

Well casing volume 1.600 gallons

volumes to purge x 10 vols.

*Total volume to purge = 16.00 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

Purge method: PVC bailer/ Submersible pump/ Suction lift pump/ _____
(circle one)

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
3:30pm	0			
	5			
	10			
	15			
4:00pm	20			

Color: brown Turbidity: high

Recharge: good SPP _____ ft.

SAMPLING DATA:

Sampling method: Dedicated bailer / _____

Sample for: (circle)

TPHg/BTE	METALS	TOG	8010	
TPHd	O-Pb	TEL	8020	
TPH mo	Total Pb	EDB	8240	
601	602	Nitrates	8260	8270

Other: _____

HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-6

LOCATION 7210 73rd Oakland

JOB NO. 9-029

APPENDIX C

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Hydro Environmental	Client Project ID:	#9-029	Sampled:	Dec 27, 1991
2363 Mariner Square Dr., Bldg. 3, Ste 243	Matrix Descript:	Soil	Received:	Dec 31, 1991
Alameda, CA 94501	Analysis Method:	EPA 5030/8015/8020	Analyzed:	1/3-6/92
Attention: Tim Lane	First Sample #:	112-5165	Reported:	Jan 13, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
112-5165	MW-1 @ 5	N.D.	N.D.	N.D.	N.D.	N.D.
112-5166	MW-1 @ 15	N.D.	N.D.	N.D.	N.D.	N.D.
112-5167	MW-1 @ 25	N.D.	N.D.	N.D.	N.D.	N.D.
112-5168	MW-2 @ 5	N.D.	N.D.	N.D.	N.D.	N.D.
112-5169	MW-2 @ 15	N.D.	N.D.	N.D.	N.D.	N.D.
112-5170	MW-2 @ 25	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Maile A. Springer
Project Manager

1125165.HEN <1>

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Hydro Environmental
2363 Mariner Square Dr., Bldg. 3, Ste 243
Alameda, CA 94501
Attention: Tim Lane

Client Project ID: #9-029
QC Sample Group: 1125165 - 67

Reported: Jan 13, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	A.Maralit	A.Maralit	A.Maralit	A.Maralit
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Jan 3, 1992	Jan 3, 1992	Jan 3, 1992	Jan 3, 1992
QC Sample #:	GBLK010392	GBLK010392	GBLK010392	GBLK010392
Sample Conc.:	0.0070	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.21	0.21	0.21	0.62
Matrix Spike % Recovery:	102	105	105	103
Conc. Matrix Spike Dup.:	0.22	0.22	0.23	0.66
Matrix Spike Duplicate % Recovery:	106	110	115	110
Relative % Difference:	4.7	4.7	9.1	6.2

SEQUOIA ANALYTICAL

Maile A. Springer
Project Manager

$$\%\ \text{Recovery:} = \frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} = \frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}} \times 100$$

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Hydro Environmental
2363 Mariner Square Dr., Bldg. 3, Ste 243
Alameda, CA 94501
Attention: Tim Lane

Client Project ID: #9-029
QC Sample Group: 1125168 - 70

Reported: Jan 13, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	M.Laikhtman	M.Laikhtman	M.Laikhtman	M.Laikhtman
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Jan 6, 1992	Jan 6, 1992	Jan 6, 1992	Jan 6, 1992
QC Sample #:	BLK010392	BLK010392	BLK010392	BLK010392
Sample Conc.:	0.0070	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.25	0.25	0.19	0.61
Matrix Spike % Recovery:	125	125	95	102
Conc. Matrix Spike Dup.:	0.26	0.25	0.19	0.61
Matrix Spike Duplicate % Recovery:	130	125	95	102
Relative % Difference:	3.9	0.0	0.0	0.0

SEQUOIA ANALYTICAL

Maile A. Springer
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

CHAIN OF CUSTODY RECORD

COPY

SAMPLER
PRINTED NAME: Timothy Lane

Signature: [signature]

DELIVER TO:
Sequoia Analytical
680 Chesapeake Drive
Redwood City California 94063

ATTENTION: Mark Spencer

SEND RESULTS TO:
HYDRO-ENVIRONMENTAL
TECHNOLOGIES, INC.
2363 MARINER SQUARE DR., SUITE 243
ALAMEDA, CA 94501

ATTENTION: Timothy Lane

Relenquished by: (Signature)	Received by: (Signature)	Date	Time
[signature] 12/30/91	[signature]	12-30-91	230pm
Relenquished by: [signature]	Received by:	12-31-91	1100am
Relenquished by:	Received by:		
Relenquished by:	Received by: LABORATORY		

HETICAL JOB No.-- 9-029

PAGE 1 OF

Sample Number	DATE & TIME	No. & Type Container	TPHg-BTEX (DHS mod)	TPHd (DHS mod)	Tot. O & G (503)	8010 or 8240	Organic Lead			Lab Remarks
MW-1e5	12/27 1100	1 Brass/Soil	/							1125165
MW-1e15	1115	1	/							66
MW-1e25	1130	1	/							67
MW-2e5	1300	1	/							68
MW-2e15	1315	1	/							69
MW-2e25	1330	1	/							70

Special Instructions: use 9-029 when you report the results.

Turnaround:
- [x] STANDARD
- [ ] 72 HOURS
- [ ] 5 DAY
- [ ] 24 HOURS

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Hydro Environmental	Client Project ID:	#9-029	Sampled: Jan 10, 1992
2363 Mariner Square Dr., Bldg. 3, Ste 243	Matrix Descript:	Water	Received: Jan 13, 1992
Alameda, CA 94501	Analysis Method:	EPA 5030/8015/8020	Analyzed: 1/14-15/92
Attention: Tim Lane	First Sample #:	201-1571	Reported: Jan 21, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)
201-1571	MW-1	57,000	2,400	1,000	1,100	3,100
201-1572	MW-3	7,400	790	23	210	40
201-1573	QC-1	63,000	2,700	1,200	1,200	3,500
201-1574	QC-2	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**30**	**0.30**	**0.30**	**0.30**	**0.30**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Maile A. Springer
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Hydro Environmental	Client Project ID:	#9-029	Sampled:	Jan 10, 1992
2363 Mariner Square Dr., Bldg. 3, Ste 243	Matrix Descript:	Water	Received:	Jan 13, 1992
Alameda, CA 94501	Analysis Method:	EPA 3510/8015	Extracted:	Jan 14, 1992
Attention: Tim Lane	First Sample #:	201-1571	Analyzed:	Jan 14, 1992
			Reported:	Jan 21, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons µg/L (ppb)
201-1571	MW-1	50,000

Detection Limits:	**2,500**

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Maile A. Springer
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Hydro Environmental	Client Project ID:	#9-029	Sampled:	Jan 10, 1992
2363 Mariner Square Dr., Bldg. 3, Ste 243	Matrix Descript:	Water	Received:	Jan 13, 1992
Alameda, CA 94501	Analysis Method:	EPA 3510/8015	Extracted:	Jan 14, 1992
Attention: Tim Lane	First Sample #:	201-1572	Analyzed:	Jan 14, 1992
			Reported:	Jan 21, 1992

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons µg/L (ppb)
201-1572	MW-3	4,000

Detection Limits:	50

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Maile A. Springer
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Hydro Environmental	Client Project ID:	#9-029	Sampled:	Jan 10, 1992
2363 Mariner Square Dr., Bldg. 3, Ste 243	Sample Descript:	[redacted] water	Received:	Jan 13, 1992
Alameda, CA 94501	Analysis Method:	California LUFT Manual, 12/87		
Attention: Tim Lane	First Sample #:	201-1571	Analyzed:	Jan 16, 1992
			Reported:	Jan 21, 1992

ORGANIC LEAD

Sample Number	Sample Description	Sample Results mg/kg (ppm)
201-1571	MW-1	N.D.
201-1572	MW-3	N.D.

Detection Limits:	0.050

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Maile A. Springer
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Hydro Environmental
2363 Mariner Square Dr., Bldg. 3, Ste 243
Alameda, CA 94501
Attention: Tim Lane

Client Project ID: #9-029
QC Sample Group: 2011571, 73 - 744

Reported: Jan 21, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	M.Nipp	M.Nipp	M.Nipp	M.Nipp
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Jan 14, 1992	Jan 14, 1992	Jan 14, 1992	Jan 14, 1992
QC Sample #:	GBLK011492	GBLK011492	GBLK011492	GBLK011492
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	10	10	10	30
Conc. Matrix Spike:	10	9.9	9.9	30
Matrix Spike % Recovery:	100	99	99	100
Conc. Matrix Spike Dup.:	9.5	9.5	9.3	28
Matrix Spike Duplicate % Recovery:	95	95	93	93
Relative % Difference:	5.1	4.1	6.3	6.9

SEQUOIA ANALYTICAL

Maile A. Springer
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Hydro Environmental
2363 Mariner Square Dr., Bldg. 3, Ste 243
Alameda, CA 94501
Attention: Tim Lane

Client Project ID: #9-029
QC Sample Group: 201-1572

Reported: Jan 21, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	M.Nipp	M.Nipp	M.Nipp	M.Nipp
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Jan 15, 1992	Jan 15, 1992	Jan 15, 1992	Jan 15, 1992
QC Sample #:	GBLK011592	GBLK011592	GBLK011592	GBLK011592
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	10	10	10	30
Conc. Matrix Spike:	9.8	9.8	9.8	29
Matrix Spike % Recovery:	98	98	98	97
Conc. Matrix Spike Dup.:	10	10	10	32
Matrix Spike Duplicate % Recovery:	100	100	100	107
Relative % Difference:	2.0	2.0	2.0	9.8

SEQUOIA ANALYTICAL

Maile A. Springer
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Hydro Environmental
2363 Mariner Square Dr., Bldg. 3, Ste 243
Alameda, CA 94501
Attention: Tim Lane

Client Project ID: #9-029

QC Sample Group: 2011571 - 72

Reported: Jan 21, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Diesel	Organic Lead
Method:	EPA 8015	LUFT
Analyst:	R.L.	M.M.
Reporting Units:	µg/L	mg/L
Date Analyzed:	Jan 10, 1992	Jan 16, 1992
QC Sample #:	DBLK011092	201-1509
Sample Conc.:	N.D.	N.D.
Spike Conc. Added:	300	0.020
Conc. Matrix Spike:	210	0.020
Matrix Spike % Recovery:	70	100
Conc. Matrix Spike Dup.:	220	0.020
Matrix Spike Duplicate % Recovery:	73	100
Relative % Difference:	4.7	0.0

SEQUOIA ANALYTICAL

Maile A. Springer
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}}$	x 100
Relative % Difference:	$\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}}$	x 100

CHAIN OF CUSTODY RECORD

COPY

SAMPLER
PRINTED NAME: J.M. BG

Signature: FRANCES MARONI

DELIVER TO: SEQUOIA LAB.
MIKE SPRINGER

ATTENTION:

SEND RESULTS TO:
HYDRO-ENVIRONMENTAL
TECHNOLOGIES, INC.
2363 MARINER SQUARE DR., SUITE 243
ALAMEDA, CA 94501

ATTENTION: TIM LANE

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
FRANCES MARONI		1-13-92	11:45 AM
Relinquished by:	Received by:	1-13-92	12:40 PM
Relinquished by:	Received by:		
Relinquished by:	Received by: LABORATORY	1-13	2:40

HETICAL JOB No.– 9-029

PAGE 1 OF 1

Sample Number	DATE & TIME	No. & Type Container	Analysis Requested: TPH g (BTEX) (DHS mod)	TPH M (DHS mod)	Tot. O & G (503)	8010 or 8240	Organic Lead			Lab Remarks
MW-1	1/10/92 1:38	x4 40ml VOA x1 500ml AMBER	X	X			X			201571
MW-3		x4 40ml VOA x1 500ml AMBER	X	X			X			72
QC-1		x2 40ml VOA	X							73
QC-2		x2 40ml VOA	X							74

Special Instructions: _____

Turnaround:
☒ STANDARD ☐ 72 HOURS
☐ 5 DAY ☐ 24 HOURS

9-029

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Hydro-Environmental Tech., Inc.	Client Project ID:	9-029	Date Received:	June 8, 1992
2363 Mariner Square Dr., Ste. 243	Matrix Description:	Water		
Alameda, CA 94501	Analysis Method:	Mod. EPA 8015/8020	Date Reported:	June 15, 1992
Attention: Mr. Craig Hartman	PACE Project #:	420608.517		

TOTAL PETROLEUM FUEL HYDROCARBONS-GASOLINE/BTEX

Sample Number	Sample Description	Purgeable Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)	Date Sampled	Date Analyzed
70 0159504	MW-1	31000	2800	2100	800	2300	06/05/92	06/11/92
Detection Limits:		2500	25	25	25	25		
70 0159512	MW-2	11000	2000	180	490	1900	06/05/92	06/11/92
Detection Limits:		1200	12	12	12	12		
70 0159520	MW-3	2000	130	5.3	93	20	06/05/92	06/11/92
Detection Limits:		50	0.5	0.5	0.5	0.5		

These data have been reviewed and are approved for release.

Darrell Cain for

Mark A. Valentini, Ph.D.
Regional Director

11 Digital Drive
Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

REPORT OF LABORATORY ANALYSIS

Mr. Craig Hartman
Page 2

QUALITY CONTROL DATA

June 15, 1992
PACE Project Number: 420608517

Client Reference: 73rd/Bancroft/9-029

TPH GASOLINE/BTEX
Batch: 70 13076
Samples: 70 0159504, 70 0159512, 70 0159520

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	337	108%	104%	3%
Benzene	ug/L	0.5	40.0	98%	96%	2%
Toluene	ug/L	0.5	40.0	104%	99%	4%
Ethylbenzene	ug/L	0.5	40.0	103%	99%	3%
Xylenes, Total	ug/L	0.5	80.0	106%	102%	3%

MDL Method Detection Limit
RPD Relative Percent Difference

CHAIN OF CUSTODY RECORD

SAMPLER
Printed Name: Henry Huckmans
Signature:
DELIVER TO: PACE
ATTENTION: Caren Gontas

SEND RESULTS TO:
HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.
2363 MARINER SQUARE DR., SUITE 243
ALAMEDA, CA 94501
(510) 521-2684, (FAX) 521-5078
ATTENTION:
SEND INVOICE TO: Craig Hartman of above

HETICAL JOB No.: 9-029

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
	Pace	6/8/92	1615
Relinquished by: Pace VIA COURIER	Received by: PACE	6/8	1843
Relinquished by:	Received by: LABORATORY		

PROJECT NAME: 73rd & Bancroft BP

PAGE 1 OF 1

Sample Number	DATE & TIME	No. & Type Container	Analysis Requested: TPHg+BTEX (DHS mod)	TPHd (DHS mod)	Organic Lead					Lab Remarks
MW-1	6-5-92	3VOA's HCl	X							15950.4
MW-2	"	"	"							51.2
MW-3	"	"	"							52.0
9/3										

Special Instructions:

Turnaround:
- [X] 5 DAY
- [X] 10 DAY
- [ ] 72 HOURS
- [ ] 24 HOURS

4206.5.11

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Hydro Environmental Tech., Inc.	Client Project ID:	9-029	Date Received:	July 27, 1992
2363 Mariner Square Dr., Ste. 243	Matrix Description:	Soil	Date Reported:	July 31, 1992
Alameda, CA 94501	Analysis Method:	EPA 8015/8020	Date Revised:	August 12, 1992
Attention: Mr. Craig Hartman	PACE Project #:	Revised 420727.504		

TOTAL PETROLEUM FUEL HYDROCARBONS-GASOLINE/BTEX

Sample Number	Sample Description	Purgeable Hydrocarbons µg/kg (ppb)	Benzene µg/kg (ppb)	Toluene µg/kg (ppb)	Ethyl Benzene µg/kg (ppb)	Xylenes µg/kg (ppb)	Date Sampled	Date Analyzed
70 0186064	MW4@15'	240000	ND	6600	5700	27000	07/22/92	07/28/92
Detection Limits:		50000	250	250	250	250		
70 0186145	MW6@30'	ND	ND	ND	ND	ND	07/23/92	07/28/92
70 0186200	B-5@30'	ND	ND	ND	ND	ND	07/22/92	07/28/92
Detection Limits:		1000	5.0	5.0	5.0	5.0		
70 0186072	MW4@25'	1100000	1600	36000	27000	140000	07/22/92	07/28/92
70 0186277	MW4@20'	6000000	34000	450000	190000	780000	07/22/92	07/28/92
Detection Limits:		200000	1000	1000	1000	1000		

These data have been reviewed and are approved for release.

Mark A. Valentini, Ph.D.
Group Vice President

11 Digital Drive
Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

Mr. Craig Hartman
Page 3

QUALITY CONTROL DATA

August 12, 1992
PACE Project Number: 420727504

Client Reference: 9-029

PURGEABLE FUELS AND AROMATICS
Batch: 70 14384
Samples: 70 0186064, 70 0186072, 70 0186145, 70 0186200, 70 0186277

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015)	ug/kg wet	200	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-
Benzene	ug/kg wet	1.0	ND
Toluene	ug/kg wet	1.0	ND
Ethylbenzene	ug/kg wet	1.0	ND
Xylenes, Total	ug/kg wet	1.0	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015)	ug/kg wet	200	294	105%	106%	0%
Benzene	ug/kg wet	1.0	40.0	105%	103%	1%
Toluene	ug/kg wet	1.0	40.0	102%	100%	1%
Ethylbenzene	ug/kg wet	1.0	40.0	105%	102%	2%
Xylenes, Total	ug/kg wet	1.0	80.0	102%	100%	1%

MDL Method Detection Limit
RPD Relative Percent Difference

CHAIN OF CUSTODY RECORD

14: 3

SAMPLER
Printed Name: Tony Ramirez
Signature:

DELIVER TO: PACE
ATTENTION: Caron Santaa

SEND RESULTS TO:
HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.
2363 MARINER SQUARE DR., SUITE 243
ALAMEDA, CA 94501
(510) 521-2684, (FAX) 521-5078
ATTENTION: Craig Hartman

SEND INVOICE TO: HETI

HETICAL JOB No.: 9-029

Craig Hart 7/24/92

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
Craig Hart	Ed Hatty Pace	7/27/92	1330
Ed Hatty - Pace	Kim Cap / Pace	7/27	1450
Relinquished by:	Received by: LABORATORY		

PROJECT NAME: BP / 73 @ Bancroft

PAGE 1 OF 2

Sample Number	DATE & TIME	No. & Type Container	Analysis Requested: TPH (gas + BTEX (DHS mod))	TPH (DHS mod)	Organic Lead	HOLD	Lab Remarks
MW 4 @ 5'	7/22/92 @ 8:13	1 brass tube				X preserves 7/28 SAH	18604.6
MW 4 @ 10'	8:20					X	18604.8 5.6
MW 4 @ 15'	8:30		X				5.6 6.4
MW 4 @ 20'	8:40		X				6.4 18627.7
MW 4 @ 25'	8:50		X				7.7 18607.2
MW 4 @ 30'	9:15					X	8.0
[redacted]							
MW 6 @ 5'	7/23/92 @ 8:21						9.9
MW 6 @ 10'	@ 8:30						10.2
MW 6 @ 15'	@ 8:36						11.0
MW 6 @ 20'	@ 8:45						12.9
MW 6 @ 25'	@ 8:55						13.7
MW 6 @ 30'	@ 9:05		X				18614.5

Special Instructions:

Turnaround:
- [x] 5 DAY
- [ ] 10 DAY
- [ ] 72 HOURS
- [ ] 24 HOURS

F/3
10/1

CHAIN OF CUSTODY RECORD

2/3

SAMPLER

Printed Name: Tony Ramirez

Signature: [signature]

DELIVER TO: PACE

ATTENTION: Green Santa

SEND RESULTS TO:

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.
2363 MARINER SQUARE DR., SUITE 243
ALAMEDA, CA 94501
(510) 521-2684, (FAX) 521-5078
ATTENTION: Craig Hartman

SEND INVOICE TO: HETI

HETICAL JOB No.: 9-029

Craig H[signature] 7/27/92

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
[signature]	[signature] - Pace	7/27/92	1300
Relinquished by: [signature] - Pace	Received by: [signature] / Pace	7/27	1450
Relinquished by:	Received by: LABORATORY		

PROJECT NAME: BP / 73rd + Bancroft

PAGE 1 OF 2

Sample Number	DATE & TIME	No. & Type Container	TPHg+BTEX (DHS mod)	TPHd (DHS mod)	Organic Lead	HOLD				Lab Remarks
MW5@5'	7/22/92 @ 12:41p	1 brass tube				X per CES 7/23				18615.3
MW5@10'	@ 12:53p					X				~~18615.3~~ 6.1
@ 15'	@ 1:00p									7.0
@ 20'	@ 1:15p									8.8
@ 25'	@ 1:30p					↓				9.6
* @ 30'	@ 1:55p		X							10.0
@ 35'	@ 2:20p					X				21.8
@ 40'	@ 2:40p									22.6
@ 45'	7/23/92 @ 12:04p									23.4
@ 50'	@ 12:15p	↓				↓				24.2

Special Instructions:

* change to B-5@30' per Tony.

F/3 10/1

Turnaround:

- [x] 5 DAY
- [ ] 10 DAY
- [ ] 72 HOURS
- [ ] 24 HOURS

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Hydro Environmental Tech., Inc.	Client Project ID:	9-029	Date Received:	July 27, 1992
2363 Mariner Square Dr., Ste. 243	Matrix Description:	Water	Date Reported:	July 31, 1992
Alameda, CA 94501	Analysis Method:	EPA 8015/8020	Date Revised:	August 12, 1992
Attention: Mr. Craig Hartman	PACE Project #:	Revised 420727.504		

TOTAL PETROLEUM FUEL HYDROCARBONS-GASOLINE/BTEX

Sample Number	Sample Description	Purgeable Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)	Date Sampled	Date Analyzed
70 0186250	MW-4	42000	3200	3600	1400	4100	07/24/92	07/28/92
Detection Limits:		2500	25	25	25	25		
70 0186269	MW-6	ND	1.6	ND	ND	ND	07/24/92	07/29/92
Detection Limits:		50	0.5	0.5	0.5	0.5		

These data have been reviewed and are approved for release.

Mark A. Valentini, Ph.D.
Group Vice President

11 Digital Drive
Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

Mr. Craig Hartman
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QUALITY CONTROL DATA

August 12, 1992
PACE Project Number: 420727504

Client Reference: 9-029

TPH GASOLINE/BTEX
Batch: 70 14346
Samples: 70 0186250, 70 0186269

METHOD BLANK:

Parameter	Units	MDL	Method Blank
TOTAL FUEL HYDROCARBONS, (LIGHT):			-
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	ND
PURGEABLE AROMATICS (BTXE BY EPA 8020):			-
Benzene	ug/L	0.5	ND
Toluene	ug/L	0.5	ND
Ethylbenzene	ug/L	0.5	ND
Xylenes, Total	ug/L	0.5	ND

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Purgeable Fuels, as Gasoline (EPA 8015)	ug/L	50	343	100%	100%	0%
Benzene	ug/L	0.5	40.0	90%	89%	1%
Toluene	ug/L	0.5	40.0	97%	95%	2%
Ethylbenzene	ug/L	0.5	40.0	95%	94%	1%
Xylenes, Total	ug/L	0.5	80.0	93%	92%	1%

MDL Method Detection Limit
RPD Relative Percent Difference

CHAIN OF CUSTODY RECORD

SAMPLER

Printed Name: Tony Ramirez

Signature: [signature]

DELIVER TO: PACE

ATTENTION: Caron Sontag

SEND RESULTS TO:

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.
2363 MARINER SQUARE DR., SUITE 243
ALAMEDA, CA 94501
(510) 521-2684, (FAX) 521-5078

ATTENTION: Craig Hartman

SEND INVOICE TO: HETI Craig Hartman

HETICAL JOB No.: 9-029

Relenquished by: (Signature)	Received by: (Signature)	Date	Time
[signature]	[signature] - Pace	7/27/92	1310
Relenquished by: [signature] Pace	Received by: [signature] / Pace	7/27	1450
Relenquished by:	Received by: LABORATORY		

PROJECT NAME: BP / 73rd + Bancroft

PAGE 1 OF

Sample Number	DATE & TIME	No. & Type Container	TPHg + BTEX (DHS mod)	TPHd (DHS mod)	Organic Lead				Lab Remarks
MW-4	7/24/92@5pm	3 VOA	x			186	25.	0	
MW-5	↓ @6pm	↓	x				26.9		→ Air bubbles in 2 VOAs
↓									
change to									
MW-5 per C. Hartman									
change to									
MW-6 per Tony									

Special Instructions:

Turnaround:

- [ ] 5 DAY
- [x] 10 DAY
- [ ] 72 HOURS
- [ ] 24 HOURS

E/3 10/4