

CAMBRIA Environmental Technology, Inc.

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FAX TRANSMITTAL

TO: Tom Peacock

FROM: N. Scott MacLeod

COMPANY: ACDEH

DATE: May 16, 1996

FAX NUMBER: 510-337-9335

PROJECT NUMBER: 54-188

SUBJECT: 1432-1434 Harrison Street

PAGES TO FOLLOW: 1

HARD COPY TO FOLLOW:

COMMENTS:

Please find enclosed the Investigation Workplan for the site referenced above. A hard copy of the report is in todays mail. Thank you.

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May 16, 1996

ENVIRONMENTAL
PROTECTION
96 MAY 20 PM 1:15

Thomas Peacock
Alameda County Department
of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Re: **Investigation Workplan**
1432 Harrison Street
Oakland, California

Dear Mr. Peacock:

Cambria Environmental Technology, Inc. (Cambria), on behalf of Barbara Jean Borsuk and Alvin H. Bacharach, is submitting this workplan for a subsurface investigation at the site referenced above. The investigation objective is to assess the horizontal and vertical extent of hydrocarbon contamination in areas that were not fully defined during our July 7, 1995 investigation. In addition, Cambria recommends performing a feasibility study to assess whether soil vapor extraction will be effective in removing hydrocarbons from the source area. Pertinent site background information and the proposed additional investigation and remedial feasibility study are discussed below.

SITE BACKGROUND

November and December 1993 Tank Removal: In November and December 1993, Levine-Fricke of Emeryville, California removed four underground storage tanks (USTs) from the site (Figure 1). Two 1,000-gallon, single-walled steel, gasoline USTs were located under the sidewalk on Harrison Street (Figures 2 and 3). Gasoline dispensers were located about 20 ft east of the USTs. Two additional single-walled steel, waste oil USTs, each approximately 1,000-gallons in capacity, were located in the basement of the garage near Alice Street. In addition, three hydraulic lifts, one vault, one sump, and associated piping were excavated and removed from the site. Approximately 240 cubic yards of hydrocarbon-impacted soils were removed from the three areas.

August 1994 Subsurface Investigation: In August 1994, Levine Fricke investigated the extent of hydrocarbons in soil and groundwater. The investigation results indicated that soil and ground water were not significantly impacted by hydrocarbons near the Alice Street side of the site. No petroleum hydrocarbons

were detected in the soil sample collected from MW-3. However, the ground water sample from MW-3 contained 300 parts per billion (ppb) total petroleum hydrocarbons as oil (TPHo). TPHg and BTEX were detected in ground water samples collected from the monitoring wells MW-1 and MW-2 near the former gasoline UST locations.

Quarterly Ground Water Monitoring: Ground water samples have been collected from monitoring wells MW-1, MW-2 and MW-3 quarterly since January 1994. Since the 4th quarter 1994, ground water has fluctuated from 17.86 to 20.24 ft depth. Although the ground water flow direction is generally towards the north, the narrow triangulation of the three monitoring wells prevents accurate groundwater flow determination. However, data from the Chevron site located on the corner of 14th Street and Harrison Street confirms a northward ground water flow direction. In an April 26, 1995 letter, the Alameda County Department of Environmental Health (ACDEH) gave permission to cease collecting ground water samples from MW-3 because no hydrocarbons had ever been detected in ground water samples from this well.

paying
going
on.

August 1995 Subsurface Investigation: In August 1995 Cambria conducted a subsurface investigation to assess the extent of hydrocarbons in soil and ground water. Up to 84,000 ppb TPHg and 9,600 ppb benzene were detected in borings SB-G and SB-K, respectively (Figure 2). The highest hydrocarbon concentrations were detected in the ground water samples collected from the borings located in the vicinity of the former gasoline USTs along Harrison Street. In addition, elevated hydrocarbon concentrations were detected in ground water samples collected up, cross and down gradient of the USTs. Both TPHg and benzene were detected in all of the grab ground water samples collected and analyzed. TPHg and benzene were detected in soil from boring SB-H at 350 parts per million (ppm) TPHg and 4 ppm, respectively. In general, stained and odorous soils were first encountered at about 10 ft depth in all the borings drilled in and near Harrison Street.

Adjacent Potential Hydrocarbon Sources: A Site Assessment Report, prepared by VISTA Information Solutions, Inc., followed by a file review at the Alameda County Environmental Protection Agency revealed few sources of hydrocarbon contamination in the immediate area. One possible source is the upgradient Chevron station at 301 14th Street that is operating a ground water remediation system after the removal of gasoline USTs in February, 1991. Ground water samples from Chevron monitoring well C-8, which is indicated on Figure 2, have contained up to 12,000 ppb TPHg and 70 ppb benzene since May 1991. 390 ppb methyl tert-butyl ether (MTBE) was also detected in well C-8 in December 1995. No sources of MTBE have been identified upgradient of the Chevron station so it is likely to be the source of the MTBE contamination. No TPHg or benzene have been detected in well C-9 since May 1991.

No MTBE was detected in the ground water samples collected from the subject site wells during first quarter 1996. Therefore, at this time it ~~appears unlikely that the Chevron service station is the current source of the hydrocarbons detected beneath the site.~~

Other possible hydrocarbon contamination sources are located either down gradient or too distant to impact the subject site. Therefore, it appears that the hydrocarbons detected during the Cambria July 1995 Subsurface Investigation ~~were released from the former gasoline tanks or fuel pumps on the property or from the up gradient underground storage tanks that were closed in place at 1424 Harrison St.~~

PROPOSED ADDITIONAL INVESTIGATION

As noted above, hydrocarbons were ~~detected in all borings drilled during the 1995 Subsurface Investigation.~~ Cambria proposes defining the horizontal extent of hydrocarbons by ~~drilling additional borings further from the hydrocarbon source areas.~~ Since this sector of Oakland is heavily developed, any additional soil borings will need to be drilled in either Harrison Street or 15th Street. We propose ~~drilling four additional soil borings in Harrison Street down and up gradient (north and south) of the previous soil borings.~~ Because of adjacent buildings, no borings can be drilled cross gradient of the site. If no hydrocarbons are detected using field hydrocarbon indications, we ~~will construct monitoring wells in selected borings.~~ If hydrocarbons are detected, we will grout the boring and ~~drill an additional boring further from the source.~~ In addition, Cambria recommends ~~drilling two angle borings beneath the former USTs closed in place at 1424 Harrison Street to further characterize this potential continuing source of contamination.~~ Proposed soil boring locations are indicated on Figure 2. After we install the monitoring wells, we ~~propose conducting quarterly sampling of the monitoring wells.~~ We will follow the field procedures used in our previous investigation.

PROPOSED REMEDIAL FEASIBILITY STUDY

Based on the high hydrocarbon concentrations detected in ground water (Table 1), there may be hydrocarbons in the soil adjacent to monitoring wells MW-1 and MW-2. Since the site is primarily underlain by moderately permeable silty sands, it may be possible to remediate this potential hydrocarbon source area using soil vapor extraction (SVE). Wells MW-1 and MW-2 appear to have sufficient well screen and, therefore Cambria recommends conducting an SVE feasibility study on wells MW-1 and MW-2. We have included boring/well construction logs for wells MW-1 and MW-2 as Attachment A. Because the wells are not in a secured area, we recommend ~~performing short term SVE tests on these wells.~~

Our specific scope of work for the test includes the following main tasks.

Task 1) Mobilization and Permitting

We will notify the Bay Area Air Quality Management District (BAAQMD) of our proposed vapor test and will secure any permits required to perform the tests in the street on wells MW-1 and MW-2.

Task 2) Conduct Field Testing

The field testing will be conducted in two main stages as follows:

Background Parameter Measurement: We will measure background soil gas conditions prior to initiating the feasibility tests. Parameters to be measured include water levels and oxygen, carbon dioxide, and hydrocarbon concentrations in soil vapor inside the two wells. These data will establish background water elevation data prior to applying the SVE vacuum and will help us assess whether or not biological activity is consuming oxygen in the vadose zone. Comparing oxygen and carbon dioxide concentrations in cleaner wells with high concentration source area wells will allow us to evaluate the amount of natural biological activity occurring in soil.

Soil Vapor Extraction Testing: We will initiate SVE in each well individually and measure the vadose zone vacuum in the other well to estimate SVE radius of vacuum influence. Once we have determined the radius of vacuum influence, we will begin SVE in both wells and continue SVE for about 6 hours. We will collect soil gas samples at the beginning, middle and end of the test to track hydrocarbon concentrations over time. We will also monitor water levels to ensure that the applied vacuum does not cause the water table to rise and flood the well screen.

Task 3) Data Compilation and Reporting

We will summarize the results of the field testing and prepare our recommendations for site remediation in the Subsurface Investigation Report. The report will include tabulated analytic and SVE data generated during the SVE test and will present our test interpretation. Cambria may recommend conducting a Risk Based Corrective Action analysis using the data generated during the additional investigation and the feasibility study.

Mr. Thomas Peacock
May 16, 1996

CAMBRIA

CLOSING

Please call David Elias at (510) 420-9176 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

David Elias

David Elias
Project Geologist

[Handwritten signature]

N. Scott MacLeod, R.G.
Principal Geologist

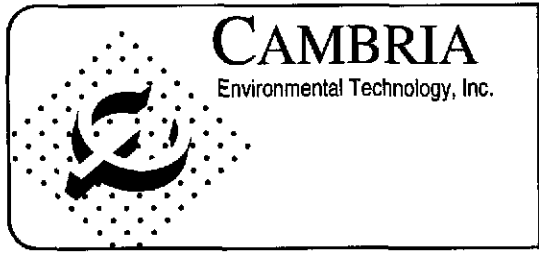
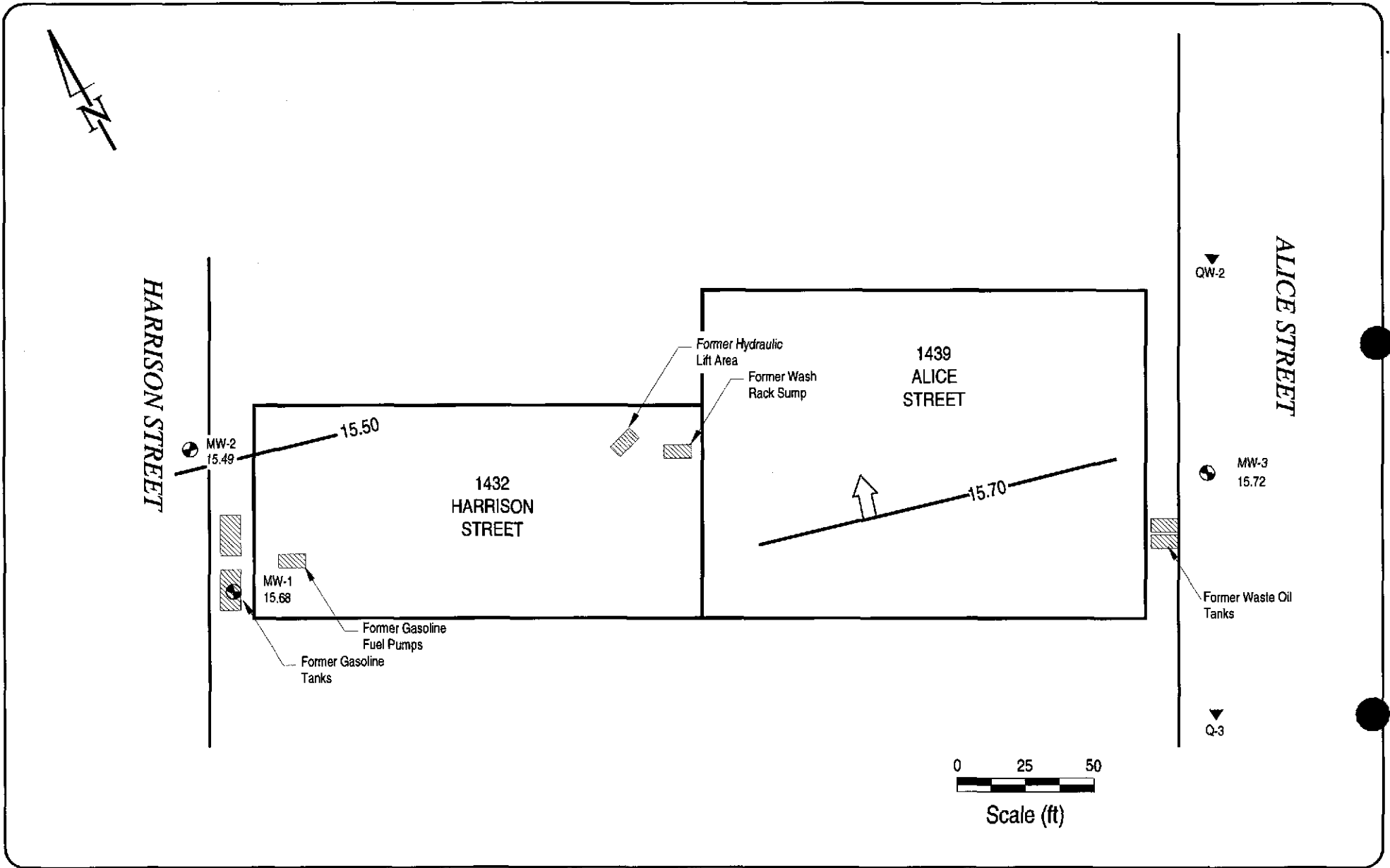


cc: Gil Jensen, Alameda County District Attorney's Office, 7677 Oakport Street, Suite 400, Oakland CA, 94621-1934
Bernie Rose, Randick & O'dea, 1800 Harrison Street, Suite 2350, Oakland, CA 94612
Mark Borsuk, 1626 Vallejo Street, San Francisco, CA 94123-5116
Dave Deaner, SWRCB Clean-Up Fund, 2014 "T" Street, Sacramento, CA 94244-2120

Attachments: A - Boring Logs/Well Construction for Wells MW-1 and MW-2

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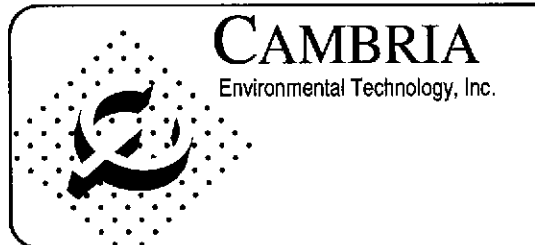
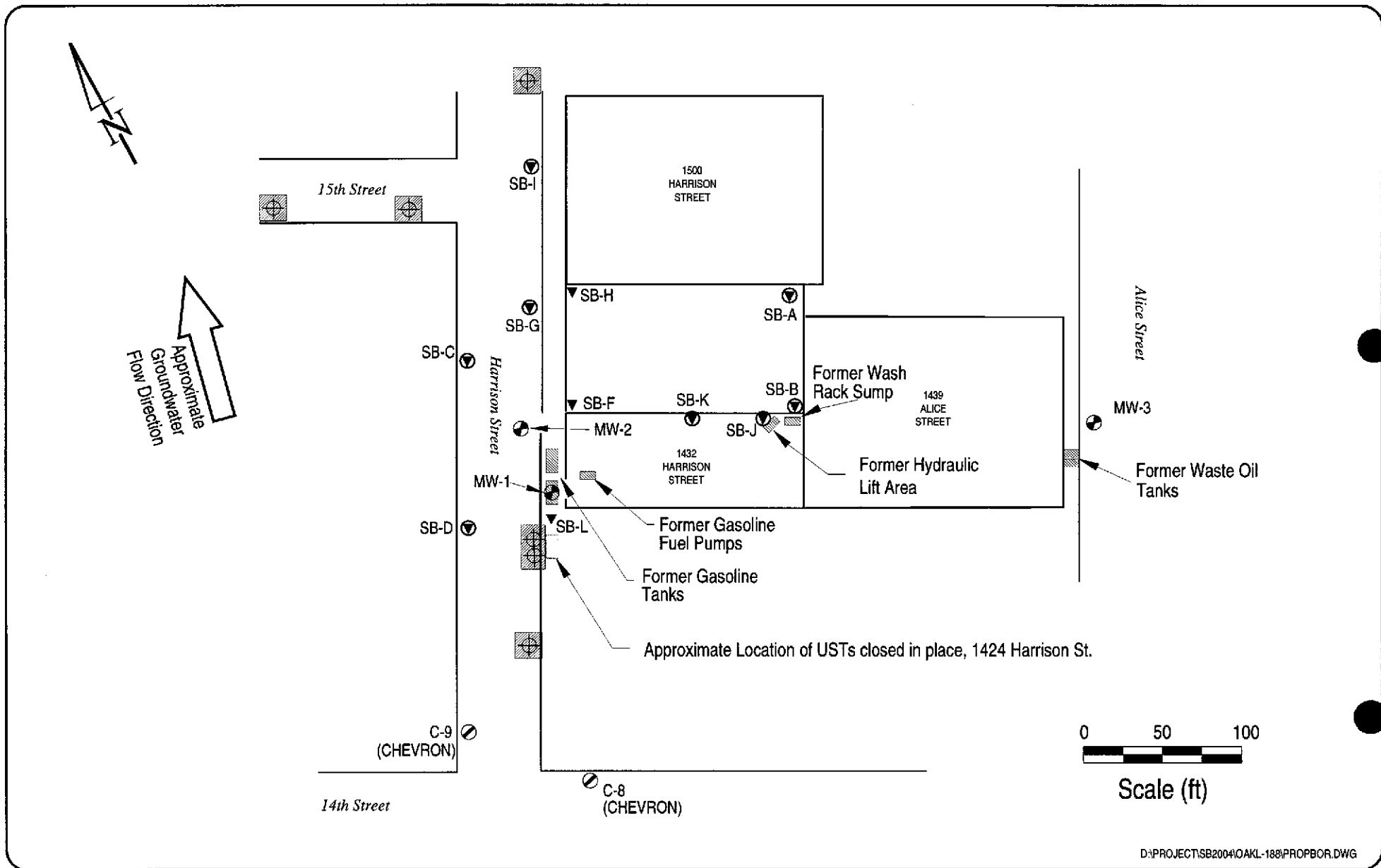


EXPLANATION	
	Ground Water Monitoring Well
	Former Ground Water Sample Location
	Ground Water Flow Direction

Ground Water Elevations
March 26, 1996

1432 Harrison Street
Oakland, California

FIGURE
1



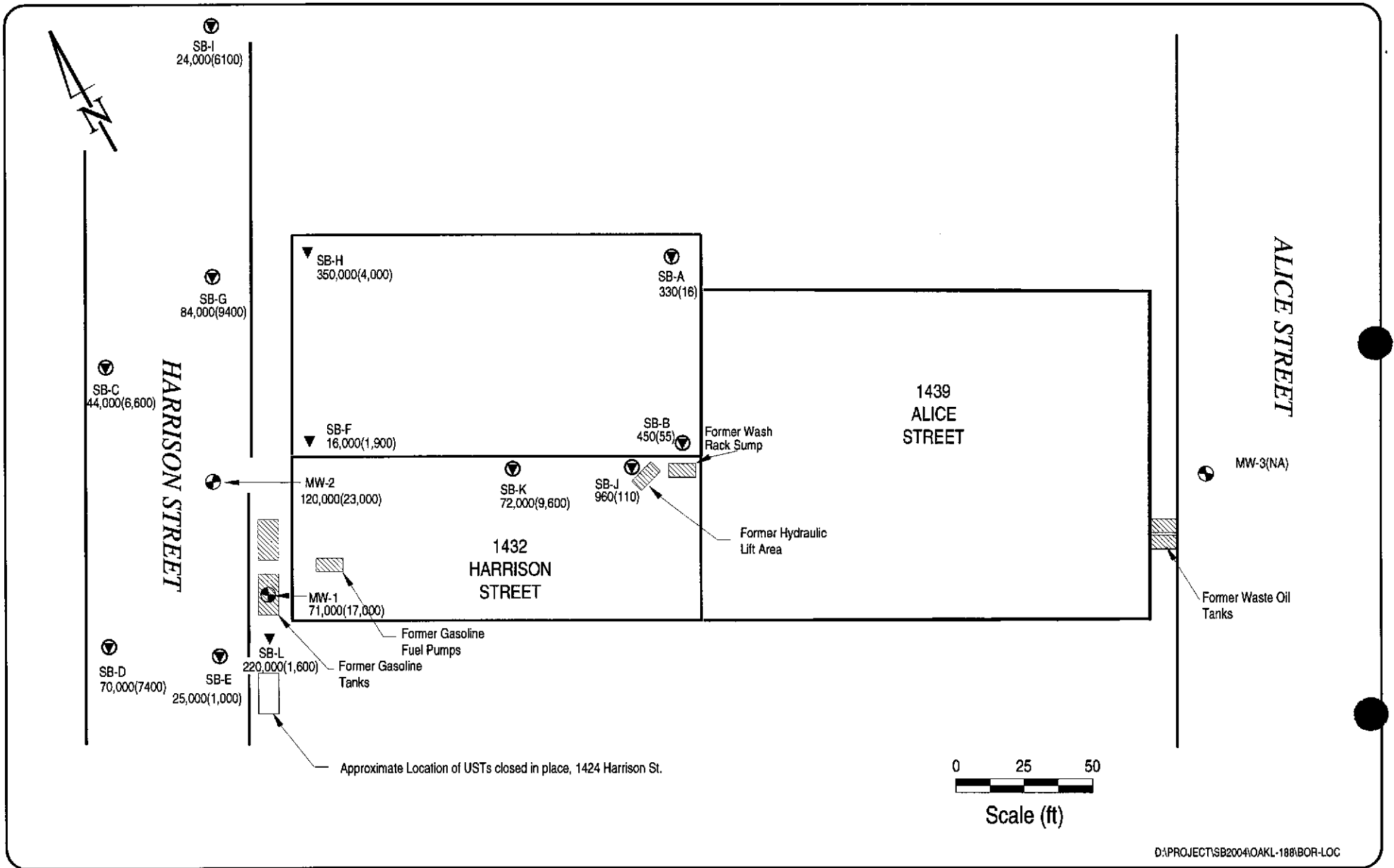
EXPLANATION	
	Previously Installed Ground Water Monitoring Well
	Chevron Ground Water Monitoring Well
	Soil Sample Location (7/95)
	Grab Ground Water Sample Location (7/95)
	Proposed Soil Boring Location

Proposed Soil Boring and Monitoring Well Locations

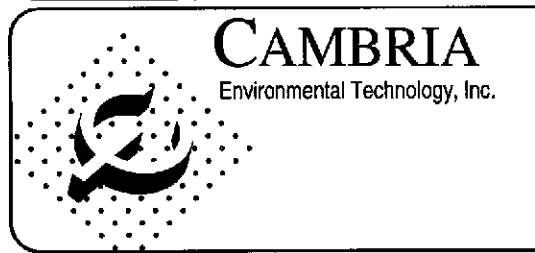
1432 Harrison Street
Oakland, California

FIGURE

2



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EXPLANATION	
▼	Grab/Well Ground Water Sample Location showing TPHg,(Benzene) concentrations-ppb (7/95)
●	Ground Water Monitoring Well
▼	Soil Sample Location (7/95)

TPHg and Benzene Concentrations
in Ground Water and Soil (7/95)

1432 Harrison Street
Oakland, California

FIGURE
3

Table 1. Ground Water Elevation and Analytic Data - 1432 Harrison St., Oakland, CA.

Well ID	Date	Top of Casing	Depth to	Ground Water	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
		Elevation (ft)	Ground Water (ft)	Elevation (ft)							
(Concentrations in ppb)											
MW-1	08/01/94	--	--	--	170,000	35,000	51,000	2,400	13,000	--	
	12/21/94	34.95	19.53	15.42	180 ↓	41,000 ↗	64,000	3,100	100,000	--	
	03/13/95	34.95	18.66 ↗	16.29	150 ↓	31,000 ↓	45,000	2,500	17,000	--	
	07/07/95	34.95	18.35 ↗	16.60	71,000 ↗	17,000 ↓	18,000	1,600	7,700	--	
	09/28/95	34.95	18.70 ↓	16.25	110,000 ↗	27,000 ↗	34,000	1,700	14,000	--	
	12/20/95	34.95	19.96 ↓	14.99	120,000 ↗	33,000 ↗	43,000	2,300	15,000	--	
	03/26/96	34.95	19.27 ↗	15.68	140,000 ↗	29,000 ↓	36,000	1,900	13,000	<200	a
MW-2	08/01/94	--	--	--	130,000	28,000	35,000	3,000	12,000	--	
	12/21/94	35.18	19.91	15.27	200 ↓	140,000 ↗	200,000	3,500	22,000	--	
	03/13/95	35.18	19.15 ↗	16.03	500 ↗	9200 ↓	23,000	7,000	36,000	--	
	07/07/95	35.18	18.80 ↗	16.38	120,000 ↗	23,000 ↗	30,000	2,700	13,000	--	
	09/28/95	35.18	19.30 ↓	15.88	110,000 ↓	23,000 --	29,000	2,500	11,000	--	
	12/20/95	35.18	20.24 ↓	14.94	83,000 ↓	980 ↓	1,800	2,200	10,000	--	
	03/26/96	35.18	19.69 ↗	15.49	150,000 ↗	23,000	32,000	2,800	12,000	<200	a
MW-3	08/01/94	--	--	--	<50	<0.5	<0.5	<0.5	<2.0	--	
	12/21/94	33.97	18.82	15.15	<50	<0.5	<0.5	<0.5	<0.5	--	b
	03/13/95	33.97	17.86	16.11	<50	<0.5	<0.5	<0.5	<0.5	--	c,d
	07/07/95	33.97	18.25	15.72	--	--	--	--	--	--	c
	09/28/95	33.97	18.00	15.97	--	--	--	--	--	--	
	12/20/95	33.97	18.74	15.23	--	--	--	--	--	--	
	03/26/96	33.97	18.25	15.72	--	--	--	--	--	--	

Abbreviations

TPHg = Total petroleum hydrocarbons as gasoline by EPA method Modified 8015.
 Benzene, toluene, ethylbenzene, xylenes by EPA method 8020.
 -- = Not Sampled/Not Analyzed
 <x = Not detected in sample above x ppb
 ppb = parts per billion
 VOC = Volatile Organic Compound
 MTBE = Methyl tert-butyl ether by modified EPA method 8020

Notes

a = MTBE result confirmed by secondary column or GC/MS analysis.
 b = Sample analyzed for purgeable hydrocarbons by EPA method 8010.
 No purgeable halocarbons were detected.
 c = Sample analyzed for VOCs by EPA method 8240. No non-BTEX compounds were detected.
 d = Sample analyzed for Total Petroleum Hydrocarbons as motor oil (TPHmo) by EPA method Modified 8015. No TPHmo was detected.
 e = Analytic sampling discontinued. Approved by Alameda County Department of Environmental Health.

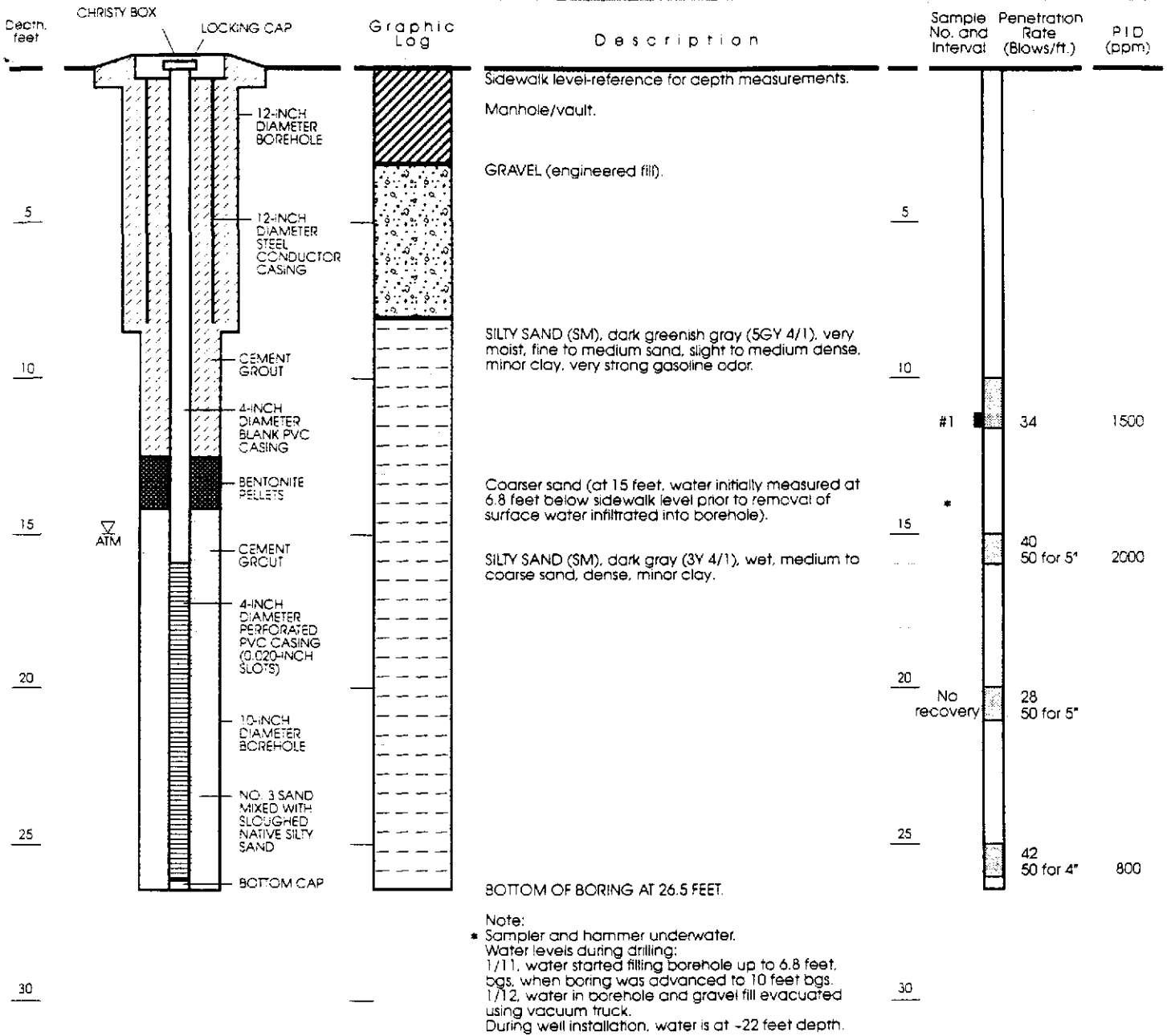
ATTACHMENT A

Boring Logs/Well Construction for Wells MW-1 and MW-2

WELL CONSTRUCTION

LITHOLOGY

SAMPLE DATA



Date well drilled: January 11-12, 1994
 Drilling company: West Hazmat Drilling Corp.
 Driller: Ranay
 LF Geologist: Thomas Zakaria

- Clay
- Silt
- Sand
- Gravel
- 2-inch Modified California Sampler
- Sample retained for chemical analysis
- PID Microtip (Photoionization detector) reading in parts per million
- ATD First water encountered in borehole at time of drilling
- bgs below ground surface

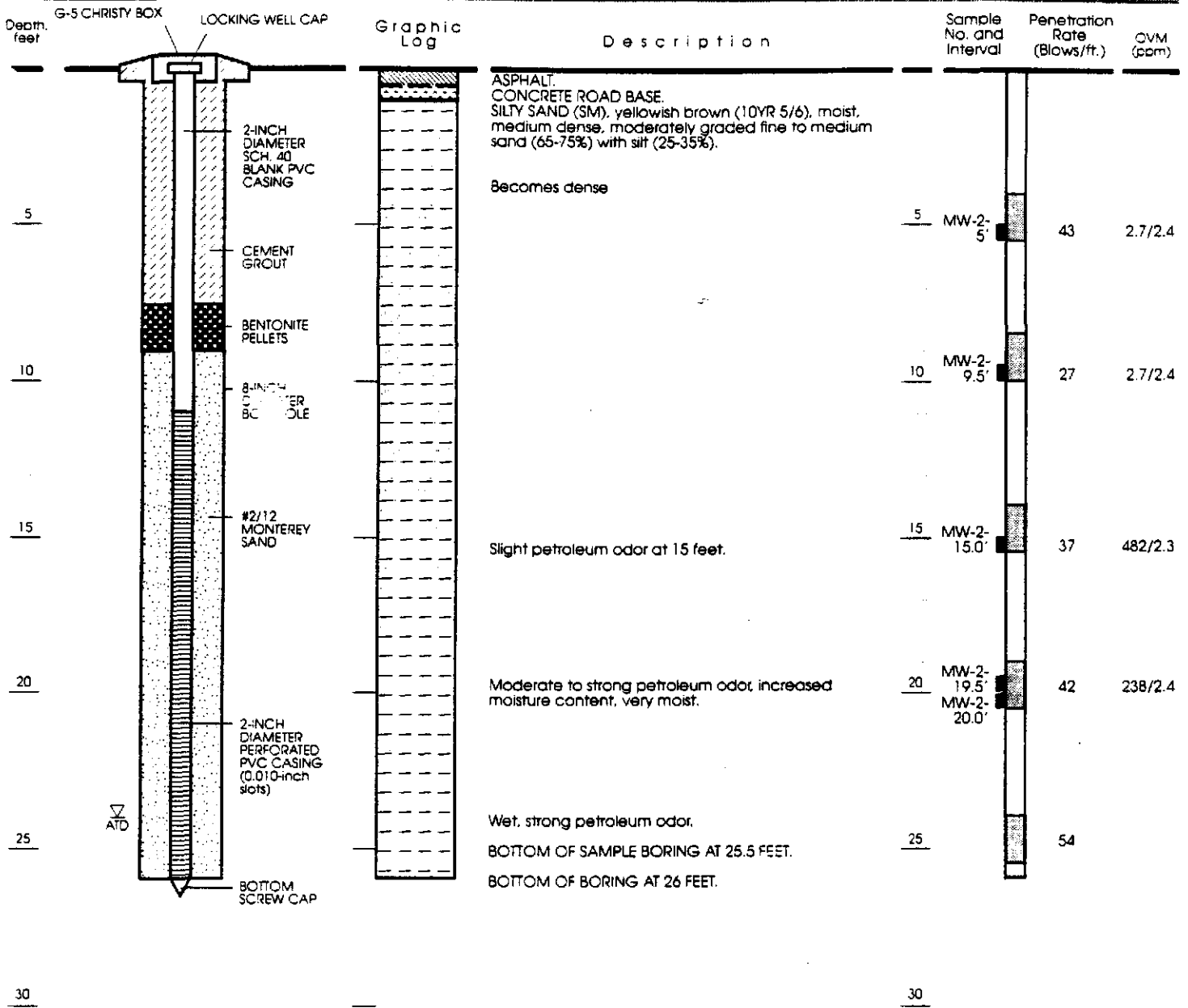
Approved by: *J. Howard R65714*

Figure A4 : WELL CONSTRUCTION AND LITHOLOGY FOR WELL MW-1 (page 1 of 1)

WELL CONSTRUCTION

LITHOLOGY

SAMPLE DATA



Date well drilled: July 30, 1994
 Drilling company: Spectrum
 Driller: John
 Drilling Method: Hollow-Stem Auger
 Hammer weight: 140 lbs.
 LF Geologist: Tim Limbers

EXPLANATION

- Clay
- Silt
- Sand
- Gravel

- Modified California Sampler
- Sample retained for possible chemical analysis
- OVM (ppm) Organic vapor meter reading in parts per million
- First water encountered in borehole at time of drilling

Approved by: *John Sturmer* R6 5714

Figure A5 : WELL CONSTRUCTION AND LITHOLOGY FOR WELL MW-2 (page 1 of 1)