HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

3/13/96

BIANNUAL MONITORING AND SAMPLING REPORT

Tharco Corporation
2222 Grant Avenue
San Lorenzo, California

Sampling Date: August 9, 1995

Prepared for:

THARCO CORPORATION
2222 Grant Avenue
San Lorenzo, California 94850-8600

Prepared by:

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.
2363 Mariner Square Drive, Suite 243
Alameda, California 94501
HETI Job No. 7-282

September 28, 1995

THARCO®

DEPENDABILITY • QUALITY • SERVICE

September 29, 1995

Ms. Amy Leech
Alameda County Department of
Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

RE: Monitoring Report

Dear Ms. Leech:

Please find enclosed the report from H.E.T.I.. If you have any questions please call me at 510/276-3000 Ext. 409.

We look forward to a successful closure.

Sincerely,

Jim Burress
Facilities Manager

JB:py

Enc.

cc: Tom A.

2222 GRANT AVENUE • SAN LORENZO, CA 94580-1892 • (510) 276-8600 • FAX (510) 276-4862

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HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

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1.0 INTRODUCTION

This report presents the results of biannual ground water sampling conducted by Hydro-Environmental Technologies, Inc. (HETI) at the Tharco facility in San Lorenzo (Figure 1). Sampling was performed on August 9, 1995.

2.0 BACKGROUND

An underground diesel fuel storage tank was excavated and removed from the site in July, 1993. Ground water in the tank excavation was observed to stabilize at approximately seven to eight feet below ground surface. Laboratory analysis was performed on soil and ground water samples collected from the excavation during tank removal activities. Low to medium boiling point hydrocarbons, and benzene, toluene, ethylbenzene and total xylenes (BTEX) were detected in these samples.

HETI was retained by Tharco in early 1994 to conduct a preliminary subsurface investigation. HETI installed three ground water monitoring wells at the site in March, 1994 (Figure 2). Petroleum hydrocarbons were detected in soil samples collected during the drilling of two of the three wells. Petroleum hydrocarbons were detected in water samples collected from all three wells. The depth to ground water was measured to be five feet below grade. The ground water flow direction was estimated to be to the south. Results of the investigation were presented in HETI's *Subsurface Investigation Report* dated July 7, 1994.

Pursuant to the recommendations presented in HETI's letter dated May 10, 1995 and the subsequent response from the Alameda County Department of Environmental Health (ACDEH) dated July 25, 1995, a revised sampling program (semi-annual) is currently being implemented.

3.0 FIELD ACTIVITIES

On August 9, 1995, the depth to first encountered ground water in each of the wells was gauged to the nearest hundredth of a foot using an electronic water sounder. Gauging data is included in Table 1. Following gauging, the wells were purged of three well casing volumes, while recording field readings of pH, temperature and electrical conductivity. Purging and sampling data is included in Appendix A.

After purging and recovery of the water level in the wells, ground water samples were collected with dedicated polyethylene bailers. The samples were transferred to appropriate sample containers provided by the laboratory. Sample containers were documented, labeled and placed in a cooler. A chain of custody was prepared and accompanied the samples to the laboratory; a copy is included in Appendix B.

All sampling was performed according to HETI standard protocol, using methods which are consistent with guidelines established by the lead regulatory agencies. A copy of HETI's Drilling, Well Construction and Sampling Protocols was previously included in HETI's *Subsurface Investigation Report* dated July 7, 1994. The samples were analyzed for total petroleum hydrocarbons as diesel (TPHd) by EPA Method 8015 (modified) and total petroleum hydrocarbons as gasoline (TPHg) and BTEX using the California Leaking Underground Fuel Tank (LUFT) Manual protocols. Additionally, on August 18, 1995 ground water samples were collected from all the wells and analyzed for total dissolved solids (TDS) by EPA Method 160.1. Ground water sample analysis was performed by PACE Incorporated, a state DHS-certified laboratory located in Petaluma, California.

4.0 RESULTS

4.1 Ground Water Data

The depth to ground water in the wells was measured to be from 5.00 to 5.83 feet below grade. No separate-phase petroleum was observed on the purge water from any of the wells. The depth to water measurements were combined with wellhead elevation data previously collected by HETI to calculate ground water elevations. The ground water elevations are shown on Figure 3, the Ground Water Contour Map.

Currently, the ground water flow direction is calculated to be towards the southeast at a gradient of 2%. The ground water flow direction at the site during the last sampling event in December 1994 was to the northwest. Previously, the ground water flow direction has ranged from southeast to southwest. The change in flow direction is not unusual as the ground water gradient is quite flat and may be tidally influenced or affected by variations in recharge as the site is located within a three quarter mile radius of marshland and tidal channels.

4.2 Laboratory Analytical Results

TPHd was detected in the ground water samples collected from all the monitoring wells at concentrations of 140 micrograms per liter (µg/l) (MW-1), 1,700 µg/l (MW-2) and 300 µg/l (MW-3). Neither TPHg nor BTEX compounds were detected in concentrations exceeding the indicated laboratory method detection limit in the ground water samples collected from any of the wells. TDS detected in the water samples collected from the wells ranged from 1,240 milligrams per liter (mg/l) to 5,910 mg/l.

Cumulative analytical results are presented in Table 1, and are graphically illustrated on Figure 4, the Hydrocarbon Concentration Map. Copies of the laboratory reports are attached as Appendix B.

5.0 CONCLUSIONS/RECOMMENDATIONS

The evaluation of the tank excavation and removal indicates that any remaining hydrocarbons in the soil which may have come from UST operations were removed and that further impact to ground water at the site is not anticipated. Previous ground water monitoring results did not indicate a threat of off-site migration or other potential risks.

Currently, ground water sample analytical results do not indicate TPHg and BTEX concentrations above laboratory method detection limits in any of the wells. Also, the TDS results indicate brackish (>1,000 mg/l) ground water is found on-site and therefore is of limited beneficial use and low water quality.

However, TPHd concentrations have been detected in all wells on-site. An EPA Suggested-No-Adverse-Response-Level (SNARL) for diesel is 100 µg/L for exposure of ten days or less. According to Regional Water Quality Control Board Water Quality Goals, September 1991, there are no established Maximum Contaminant Levels (MCLs) for diesel.

Therefore, based upon the cumulative sample analytical results (Table 1), HETI recommends discontinuation of ground water monitoring and sampling. HETI, on behalf of Tharco, requests case closure at the site and will coordinate with the ACDEH and the Regional Water Quality Control Board (RWQCB) for closure activites.

A Workplan to destroy the wells will be sent to the ACDEH and the RWQCB. After approval of the request for closure, permit applications for well destruction will be submitted to Zone 7 Water Agency. Once the permit applications are approved, all existing monitoring wells on site will be destroyed. A final report will be prepared documenting well destruction.

6.0 CERTIFICATION

This report was prepared under the supervision of a registered geologist. All statements, conclusions and recommendations are based solely upon field observations and analytical analyses performed by a state-certified laboratory related to the work performed by Hydro-Environmental Technologies, Inc.

It is possible that variations in the soil or groundwater conditions exist beyond the points explored in this investigation. Also, site conditions are subject to change at some time in the future due to variations in rainfall, temperature, regional water usage, or other factors.

The service performed by Hydro-Environmental Technologies, Inc. has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area of the site. No other warranty, expressed or implied, is made.

Hydro-Environmental Technologies, Inc. includes in this report chemical analytical data from a state-certified laboratory. These analyses are performed according to procedures suggested by the U.S. EPA and the State of California. Hydro-Environmental Technologies, Inc. is not responsible for laboratory errors in procedure or result reporting.

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

Prepared by:

Frances Maroni
Project Manager

Reviewed by:

REGISTERED PROFESSIONAL ENGINEER
THOMAS E. LINDEMUTH
No. 3510
Exp. 9/30/98
CHEMICAL
CALIFORNIA

Thomas E. Lindemuth, P.E.
Regional Manager

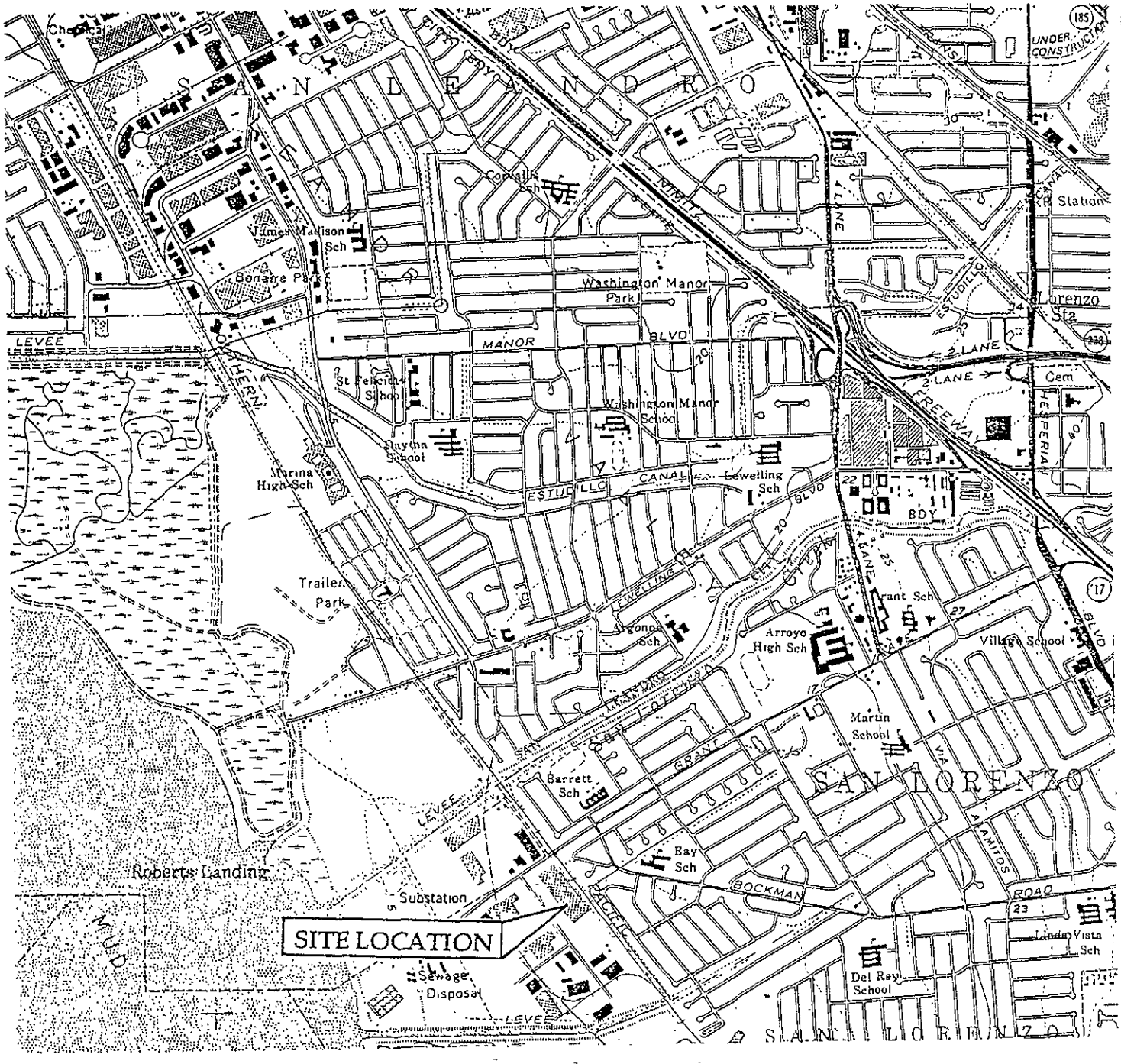
Table 1
GROUND WATER ELEVATIONS AND SAMPLE ANALYTICAL RESULTS
Tharco
2222 Grant Avenue
San Lorenzo, CA

Sample I.D. #	Sampling Date	TOC (feet)	DTW (feet)	GWE (feet)	TPHd (µg/L)	TPHg (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	TDS (µg/L)
MW-1	3/29/94	109.93	5.41	104.52	50	ND<50	2.4	ND<0.5	ND<0.5	0.6	NS
	7/8/94	109.93	5.93	104.00	100	120	37	ND<0.5	ND<0.5	0.6	NS
	9/29/94	109.93	6.46	103.47	100	180	1.2	0.7	1.4	0.5	NS
	12/29/94	109.93	5.02	104.91	1,100	71	9.3	ND<0.5	ND<0.5	ND<1.0	NS
	8/9/95	109.93	5.83	104.10	140 (3)	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	5,910 (5)
MW-2	3/29/94 (1)	109.68	4.81	104.87	1,000 (2)	460	8.4	0.6	3.4	1.6	NS
	7/8/94	109.68	5.28	104.40	670	110	1.1	ND<0.5	ND<0.5	ND<0.5	NS
	9/29/94	109.68	6.06	103.62	950	ND<50	1.2	ND<0.5	ND<0.5	2.3	NS
	12/29/94	109.68	4.97	104.71	ND<50	ND<50	1.2	ND<0.5	ND<0.5	ND<1.0	NS
	8/9/95	109.68	5.00	104.68	1,700 (4)	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	1,240 (5)
MW-3	3/29/94	109.88	5.34	104.54	80	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NS
	7/8/94	109.88	5.74	104.14	270 (3)	ND<50	0.8	ND<0.5	ND<0.5	ND<0.5	NS
	9/29/94	109.88	6.24	103.64	420	ND<50	0.6	0.5	ND<0.5	3.6	NS
	12/29/94	109.88	5.13	104.75	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	NS
	8/9/95	109.88	5.36	104.52	300	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	4,690 (5)

Table 1
GROUND WATER ELEVATIONS AND SAMPLE ANALYTICAL RESULTS
Tharco
2222 Grant Avenue
San Lorenzo, CA

Notes:

TOC:	Top of casing elevation based upon arbitrary datum of 100 feet.
DTW:	Depth to water.
GWE:	Ground water elevation.
TPHd:	Total petroleum hydrocarbons as diesel by EPA Method 3510/8015 (DHS-modified).
TPHg:	Total petroleum hydrocarbons as gasoline by EPA Method 8015 (DHS-modified) or by CA LUFT Manual protocol.
BTEX:	Benzene, toluene, ethylbenzene and total xylenes by EPA Method 8020 (DHS-modified) or by CA LUFT Manual protocol.
TDS :	Total dissolved solids by EPA Method 160.1.
µg/L:	Micrograms per liter.
(1):	MW-2 resampled for TPHd on 4/12/94: original 3/29/94 sample lost by laboratory.
(2):	High boiling point hydrocarbons beyond range of diesel standard were present in sample.
(3):	Hydrocarbons present do not match the standard diesel pattern.
(4):	The sample pattern elutes later than diesel pattern, but overlaps in the diesel pattern range.
(5):	Sample collected on 8/18/95.



SCALE 1:24000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET

CALIF

QUADRANGLE LOCATION

SOURCE: USGS 7.5 MINUTE SERIES TOPOGRAPHIC MAP
ENTITLED: SAN LEANDRO, CALIF. QUADRANGLE
PHOTOREVISED: 1979

NORTH

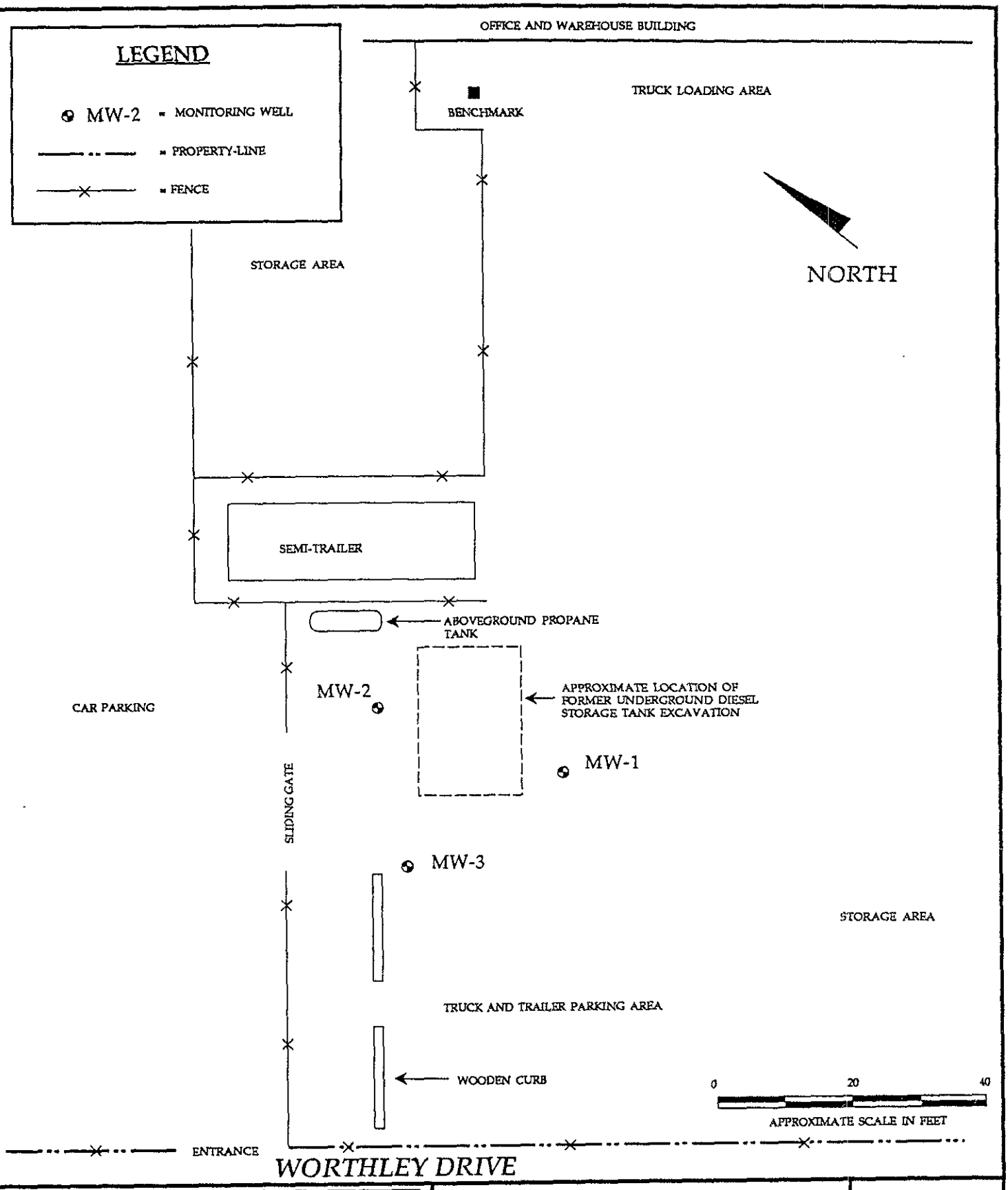
HYDRO-
ENVIRONMENTAL
TECHNOLOGIES, INC.

SITE LOCATION MAP

Tharco
2222 Grant Avenue
San Lorenzo, California

Figure
1

7-282 3/94



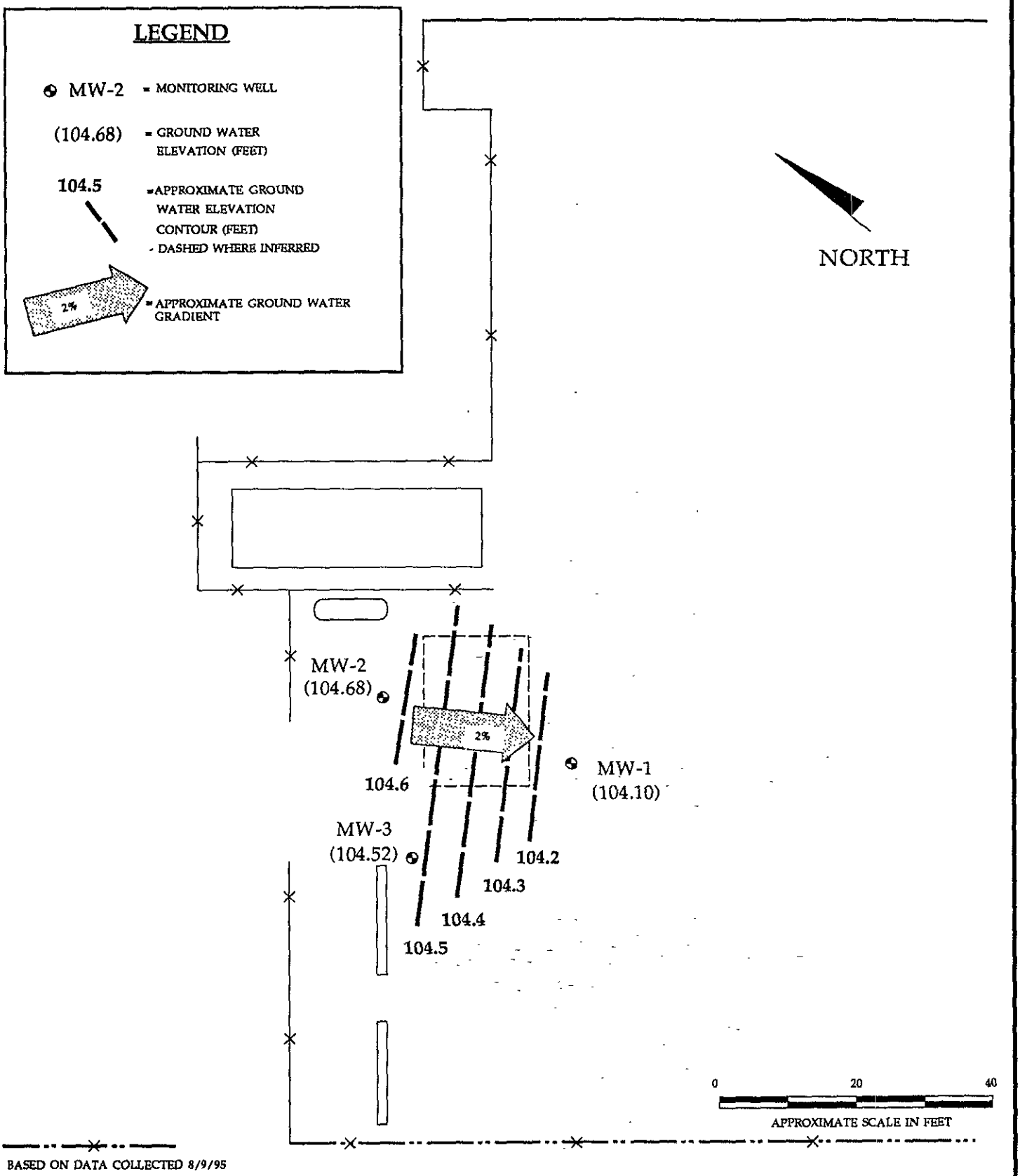
HYDR - ENVIR NMENTAL TECHN LOGIES, INC.

SITE PLAN

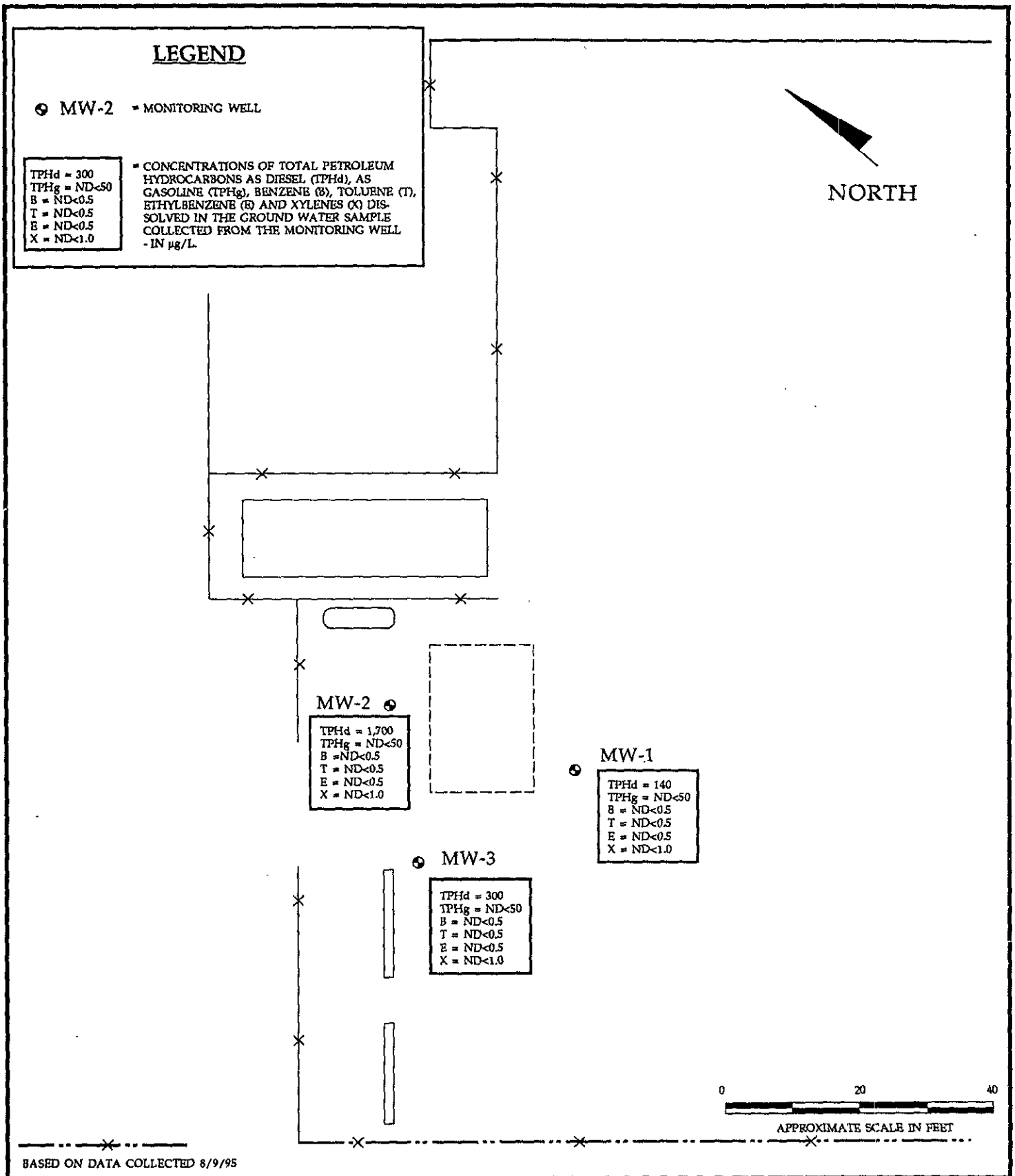
Tharco Corporation
2222 Grant Avenue
San Lorenzo, California

Figure 2

7-282 1/95



HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.	GROUND WATER CONTOUR MAP Tharco Corporation 2222 Grant Avenue San Lorenzo, California	Figure 3 7-282 8/95



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ENVIR◆NMENTAL
TECHN◆LOGIES, INC.

HYDROCARBON CONCENTRATION MAP

Tharco Corporation
2222 Grant Avenue
San Lorenzo, California

Figure
4

7-282 8/95

PURGED/SAMPLED BY: FM DATE: 8.9.95

GAUGING DATA:

Depth to bottom: 18.08 ft.

Depth to water: 5.83 ft.

Saturated Thickness: 12.25 ft.

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

Well casing volume 1.96 gallons

volumes to purge x 3 vols.

*Total volume to purge = 5.88 gallons

* unless chemical parameters do not stabilize

PURGING DATA:

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

Temp/Conductivity/pH Instrument: HYDACELL

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
12:40	0	—	—	—
12:42	2	76.4	12.06	7.11
12:44	4	75.0	10.94	7.13
12:47	6	71.0	11.93	7.07

Color: LT. BROWN Turbidity: SL-MODERATE

Recharge: GOOD SPP — ft. Sheen —

SAMPLING DATA:

Sampling method: Dedicated bailer /Disposable bailer

Sample for: (circle)

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

Other: _____

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

PURGE/SAMPLE DATA SHEET

WELL # MW-1

LOCATION: 3222 WALNUT AVE

Job No. 72

SHEET 1 of 1

PURGED/SAMPLED BY: FM DATE: 2.9.95

GAUGING DATA:

Depth to bottom: 15.43 ft.

Depth to water: 5.00 ft.

Saturated Thickness: 10.43 ft.

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

Well casing volume 1.67 gallons

volumes to purge x 3 vols.

*Total volume to purge = 5.01 gallons

* unless chemical parameters do not stabilize

PURGING DATA:

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

Temp/Conductivity/pH Instrument: HORIBA

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
12:15	0	—	—	—
12:18	2.5	74.5	2.26	6.75
12:22	5.10	75.1	2.01	6.77

Color: TAN Turbidity: slight

Recharge: GOOD SPP ____ ft. Sheen ____

SAMPLING DATA:

Sampling method: Dedicated bailer / Disposable bailer

Sample for: (circle)

(TPHg/BTEX) METALS TOG 8010

(TPHd) O-Pb TEL 8020

TPH-mo Total Pb EDB 8240

601 602 Nitrates 8250

Other: _____

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

PURGE/SAMPLE DATA SHEET

WELL # MW-2

LOCATION: 2225 GRANT AVE

Job No. 728

SHEET 1 of

PURGED/SAMPLED BY: FM DATE: ____

GAUGING DATA:

Depth to bottom: 17.12 ft.

Depth to water: 5.36 ft.

Saturated Thickness: 11.76 ft.

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

Well casing volume 1.88 gallons

volumes to purge x 3 vols.

*Total volume to purge = 5.65 gallons

* unless chemical parameters do not stabilize

PURGING DATA:

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

Temp/Conductivity/pH Instrument: ____

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
11:50	0	—	—	—
11:52	3.0	76.2	7.59	6.73
11:55	6.0	74.4	9.48	6.80

Color: GRAY-TAN Turbidity: SLIGHT

Recharge: GOOD SPP ____ ft. Sheen ____

SAMPLING DATA:

Sampling method: Dedicated bailer (circled) / Disposable bailer

Sample for: (circle)

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

Other: ____

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

PURGE/SAMPLE DATA SHEET

WELL # MW-3

LOCATION: 2222 GRANT

Job No. 9-282

SHEET 1 of 1

pace INCORPORATED
ENVIRONMENTAL LABORATORIES

RECEIVED AUG 2 9 1995

REPORT OF LABORATORY ANALYSIS

August 25, 1995

Ms. Frances Maroni
Hydro Environmental
2363 Mariner Square Drive
Suite 243
Alameda, CA 94501

RE: PACE Project Number: 702715
Client Project ID: 7-282,THARCO

Dear Ms. Maroni:

Enclosed are the results of analyses for samples received on August 10, 1995. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ron Chew
Project Manager

Enclosures

1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954
TEL: 707-792-1865
FAX: 707-792-0342

pace INCORPORATED
ENVIRONMENTAL LABORATORIES

REPORT OF LABORATORY ANALYSIS

DATE: 08/25/95
PAGE: 1

Hydro Environmental
2363 Mariner Square Drive
Suite 243
Alameda, CA 94501

Attn: Ms. Frances Maroni
Phone: (510)521-2684

PACE Project Number: 702715
Client Project ID: 7-282,THARCO

PACE Sample No: 70231170
Client Sample ID: MW-1

Date Collected: 08/09/95
Date Received: 08/10/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
GAS/BTEX by CA LUFT, Water								
Gasoline	ND	ug/L	50	08/17/95	CA LUFT	ADS		
Benzene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	71-43-2	
Toluene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	ND	ug/L	1	08/17/95	CA LUFT	ADS	1330-20-7	
a,a,a-Trifluorotoluene (S)	90	%		08/17/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	88	%		08/17/95	CA LUFT	ADS	460-00-4	
GC								
TPH in Water by 8015 Modified								
Diesel Fuel	0.14	mg/L	0.048	08/23/95	TPH by EPA 8015M	DLA		1
n-Pentacosane (S)	67	%		08/23/95	TPH by EPA 8015M	DLA	629-99-2	
Date Extracted				08/22/95				

PACE INCORPORATED
ENVIRONMENTAL LABORATORIES

REPORT OF LABORATORY ANALYSIS

PACE Project Number: 702715
Client Project ID: 7-282,THARCO

PACE Sample No: 70231188
Client Sample ID: MW-2

Date Collected: 08/09/95
Date Received: 08/10/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
GAS/BTEX by CA LUFT, Water								
Gasoline	ND	ug/L	50	08/17/95	CA LUFT	ADS		
Benzene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	71-43-2	
Toluene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	ND	ug/L	1	08/17/95	CA LUFT	ADS	1330-20-7	
a,a,a-Trifluorotoluene (S)	88	%		08/17/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	88	%		08/17/95	CA LUFT	ADS	460-00-4	
GC								
TPH in Water by 8015 Modified								
Diesel Fuel	1.7	mg/L	0.048	08/23/95	TPH by EPA 8015M	DLA		2
n-Pentacosane (S)	86	%		08/23/95	TPH by EPA 8015M	DLA	629-99-2	
Date Extracted				08/22/95				

1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954
TEL: 707-792-1865
FAX: 707-792-0342

PACE INCORPORATED
ENVIRONMENTAL LABORATORIES

REPORT OF LABORATORY ANALYSIS

PACE Project Number: 702715
Client Project ID: 7-282,THARCO

PACE Sample No: 70231196
Client Sample ID: MW-3
Date Collected: 08/09/95
Date Received: 08/10/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
GAS/BTEX by CA LUFT, Water								
Gasoline	ND	ug/L	50	08/17/95	CA LUFT	ADS		
Benzene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	71-43-2	
Toluene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	ND	ug/L	1	08/17/95	CA LUFT	ADS	1330-20-7	
a,a,a-Trifluorotoluene (S)	88	%		08/17/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	88	%		08/17/95	CA LUFT	ADS	460-00-4	
GC								
TPH in Water by 8015 Modified								
Diesel Fuel	0.3	mg/L	0.048	08/23/95	TPH by EPA 8015M	DLA		
n-Pentacosane (S)	73	%		08/23/95	TPH by EPA 8015M	DLA	629-99-2	
Date Extracted				08/22/95				

1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954
TEL: 707-792-1865
FAX: 707-792-0342

PACE Project Number: 702715
Client Project ID: 7-282,THARCO

PARAMETER FOOTNOTES

ND	Not Detected
NC	Not Calculable
PRL	PACE Reporting Limit
(S)	Surrogate
[1]	Sample pattern does not match the Diesel Standard pattern.
[2]	The sample pattern elutes later than diesel pattern, but overlaps in the diesel pattern range.

1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954
TEL: 707-792-1865
FAX: 707-792-0342

Hydro Environmental
2363 Mariner Square Drive
Suite 243
Alameda, CA 94501

PACE Project Number: 702715
Client Project ID: 7-282,THARCO

Attn: Ms. Frances Maroni
Phone: (510)521-2684

QC Batch ID: 6161
QC Batch Method: CA LUFT
Date of Batch: 08/15/95
Associated PACE Samples: 70231170

METHOD BLANK: 70235403
Associated PACE Samples: 70231170

Parameter	Units	Method Blank Result	PRL	Footnotes
Gasoline	ug/L	ND	50	
Benzene	ug/L	ND	0.5	
Toluene	ug/L	ND	0.5	
Ethyl Benzene	ug/L	ND	0.5	
Xylene (Total)	ug/L	ND	1	
a,a,a-Trifluorotoluene (S)	%	90		
4-Bromofluorobenzene (S)	%	85		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70236005 70236013

Parameter	Units	70223078	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Benzene	ug/L	72	100	160	85	160	85	0	
Toluene	ug/L	1.8	100	87	85	86	84	1	
Ethyl Benzene	ug/L	12	100	95	83	94	83	0	
Xylene (Total)	ug/L	23	300	270	83	270	82	1	
a,a,a-Trifluorotoluene (S)					87		86		
4-Bromofluorobenzene (S)					91		90		

LABORATORY CONTROL SAMPLE & LCSD: 70234612 70234620

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Benzene	ug/L	100	100	102	98	98	4	

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

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PACE Project Number: 702715
Client Project ID: 7-282,THARCO

LABORATORY CONTROL SAMPLE & LCSD: 70234612 70234620

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Toluene	ug/L	100	94	95	92	92	3	
Ethyl Benzene	ug/L	100	94	94	91	91	3	
Xylene (Total)	ug/L	300	280	93	270	91	2	
a,a,a-Trifluorotoluene (S)				89		89		
4-Bromofluorobenzene (S)				88		90		

1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954
TEL: 707-792-1865
FAX 707-792-0342

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 08/25/95
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Hydro Environmental
2363 Mariner Square Drive
Suite 243
Alameda, CA 94501

Attn: Ms. Frances Maroni
Phone: (510)521-2684

PACE Project Number: 702715
Client Project ID: 7-282,THARCO

QC Batch ID: 6242
QC Batch Method: CA LUFT
Date of Batch: 08/17/95
Associated PACE Samples: 70231188 70231196

METHOD BLANK: 70238837
Associated PACE Samples: 70231188 70231196

Parameter	Units	Method Blank Result	PRL	Footnotes
Gasoline	ug/L	ND	50	
Benzene	ug/L	ND	0.5	
Toluene	ug/L	ND	0.5	
Ethyl Benzene	ug/L	ND	0.5	
Xylene (Total)	ug/L	ND	1	
a,a,a-Trifluorotoluene (S)	%	90		
4-Bromofluorobenzene (S)	%	85		

LABORATORY CONTROL SAMPLE & LCSD: 70238845 70238852

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Gasoline	ug/L	1000	970	97	900	90	7	

QUALITY CONTROL DATA

DATE: 08/25/95
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Hydro Environmental
2363 Mariner Square Drive
Suite 243
Alameda, CA 94501

Attn: Ms. Frances Maroni
Phone: (510)521-2684

PACE Project Number: 702715
Client Project ID: 7-282,THARCO

QC Batch ID: 6503
QC Batch Method: EPA 3520
Date of Batch: 08/22/95
Associated PACE Samples: 70231170 70231188 70231196

METHOD BLANK: 70249651
Associated PACE Samples: 70231170 70231188 70231196

Parameter	Units	Method Blank Result	PRL	Footnotes
Diesel Fuel	mg/L	ND	0.05	
n-Pentacosane (S)	%	77		

LABORATORY CONTROL SAMPLE & LCSD: 70249669 70249677

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Diesel Fuel	mg/L	1	0.74	74	0.8	80	8	
n-Pentacosane (S)				85		89		

REPORT OF LABORATORY ANALYSIS

PACE Project Number: 702715
Client Project ID: 7-282,THARCO

QUALITY CONTROL DATA PARAMETER FOOTNOTES

The Quality Control Sample Final Results listed above have been rounded to reflect an appropriate number of significant figures. Consistent with EPA guidelines unrounded concentrations have been used to calculate % Rec and RPD values.

ND	Not Detected
NC	Not Calculable
PRL	PACE Reporting Limit
RPD	Relative Percent Difference
(S)	Surrogate

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Petaluma, CA 94954
TEL: 707-792-1865
FAX: 707-792-0342

193130

pace INCORPORATED
THE ASSURANCE OF QUALITY

CHAIN-OF-CUSTODY RECORD
Analytical Request

ent HYDRO ENVIRONMENTAL TECH
ddress 2363 MARINER SQ DR
ALAMEDA, CA 94501
hone (510) 521-2684

Report To: FRANCES MARONI
Bill To: HYDRO ENVIRONMENTAL
P.O. # / Billing Reference
Project Name / No 7-282, THARCO

Pace Client No.
Pace Project Manager
Pace Project No. 2715
*Requested Due Date:

ampled By (PRINT): FRANCES MARONI 8 9 95
ampler Signature Date Sampled
FRANCES MARONI

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	UNPRESERVED	H_2SO_4	HNO_3	VOA			ANALYSES REQUEST: TPH/BTEX	TPH/D								REMARKS
1	MW-1	1pm	H2O	231170	4	1			3			X	X								
2	MW-2	1230	H2O	231188	4	1			3			X	X								
3	MW-3	12p	H2O	231196	4	1			3			X	X								
4																					
5																					
6																					
7																					
8																					

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	RETURNED / DATE	ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
					FRANCES MARONI/HETI	Jeffrey C. Marr 303	8/10/95	1030
					Jeffrey C. Marr 303	432 Prince	8/10/95	1204
					Prince 432	Heather Peters	8/10/95	1250

Additional Comments

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REPORT OF LABORATORY ANALYSIS

August 28, 1995

Ms. Frances Maroni
Hydro Environmental
2363 Mariner Square Drive
Suite 243
Alameda, CA 94501

RE: PACE Project Number: 702865
Client Project ID: 7-282

Dear Ms. Maroni:

Enclosed are the results of analyses for samples received on August 21, 1995. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ron Chew
Project Manager

Enclosures

1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954
TEL: 707-792-1865
FAX: 707-792-0342

PACE INCORPORATED
ENVIRONMENTAL LABORATORIES

REPORT OF LABORATORY ANALYSIS

DATE: 08/28/95
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Hydro Environmental
2363 Mariner Square Drive
Suite 243
Alameda, CA 94501

Attn: Ms. Frances Maroni
Phone: (510)521-2684

PACE Project Number: 702865
Client Project ID: 7-282

PACE Sample No: 70249628
Client Sample ID: MW-1

Date Collected: 08/18/95
Date Received: 08/21/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Wet Chemistry								
Total Dissolved Solids								
Total Dissolved Solids	5910	mg/L	5	08/24/95	EPA 160.1	LDA		

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TEL: 707-792-1865
FAX: 707-792-0342

PACE INCORPORATED
ENVIRONMENTAL LABORATORIES

REPORT OF LABORATORY ANALYSIS

PACE Project Number: 702865
Client Project ID: 7-282

PACE Sample No: 70249636
Client Sample ID: MW-2

Date Collected: 08/18/95
Date Received: 08/21/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Wet Chemistry								
Total Dissolved Solids								
Total Dissolved Solids	1240	mg/L	5	08/24/95	EPA 160.1	LDA		

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FAX: 707-792-0342

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ENVIRONMENTAL LABORATORIES

REPORT OF LABORATORY ANALYSIS

PACE Project Number: 702865
Client Project ID: 7-282

PACE Sample No: 70249644
Client Sample ID: MW-3

Date Collected: 08/18/95
Date Received: 08/21/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Wet Chemistry								
Total Dissolved Solids								
Total Dissolved Solids	4690	mg/L	5	08/24/95	EPA 160.1	LDA		

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TEL: 707-792-1865
FAX: 707-792-0342

REPORT OF LABORATORY ANALYSIS

PACE Project Number: 702865
Client Project ID: 7-282

PARAMETER FOOTNOTES

ND	Not Detected
NC	Not Calculable
PRL	PACE Reporting Limit

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TEL: 707-792-1865
FAX: 707-792-0342

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 08/28/95
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Hydro Environmental
2363 Mariner Square Drive
Suite 243
Alameda, CA 94501

PACE Project Number: 702865
Client Project ID: 7-282

Attn: Ms. Frances Maroni
Phone: (510)521-2684

QC Batch ID: 6633
QC Batch Method: EPA 160.1
Date of Batch: 08/25/95
Associated PACE Samples: 70249628 70249636 70249644

METHOD BLANK: 70255583
Associated PACE Samples: 70249628 70249636 70249644

Parameter	Units	Method Blank Result	PRL	Footnotes
Total Dissolved Solids	mg/L	ND	5	

SAMPLE DUPLICATE: 70255591

Parameter	Units	70249628	Dup. Result	RPD	Footnotes
Total Dissolved Solids	mg/L	5910	5770	2	

REPORT OF LABORATORY ANALYSIS

PACE Project Number: 702865
Client Project ID: 7-282

QUALITY CONTROL DATA PARAMETER FOOTNOTES

The Quality Control Sample Final Results listed above have been rounded to reflect an appropriate number of significant figures. Consistent with EPA guidelines unrounded concentrations have been used to calculate % Rec and RPD values.

ND	Not Detected
NC	Not Calculable
PRL	PACE Reporting Limit
RPD	Relative Percent Difference

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Petaluma, CA 94954
TEL: 707-792-1865
FAX: 707-792-0342

193108

ATED
OF QUALITY

CHAIN-OF-CUSTODY RECORD
Analytical Request

...ent: HYDRO ENVIRONMENTAL TECH
Address: 2363 MARINER SQUARE
ALAMEDA, CA 94501
Phone: (510) 521-2637

Report To: FRANCES MACKEY
Bill To: HYDRO ENVIRONMENTAL
P.O. # / Billing Reference: THARCO
Project Name / No.: T-28

Pace Client No.
Pace Project Manager
Pace Project No.: 2865
*Requested Due Date:

Sampled By (PRINT): FRANCES MACKEY ~~EA~~ 8/18/95
Sampler Signature — Date Sampled
FRANCES MACKEY

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	UNPRESERVED	H_2SO_4	HNO_3	VOA	ANALYSES REQUEST	REMARKS
						PRESERVATIVES					
1	MW-1	1145	H2O	246928	1	1				X	
2	MW-2	↓	↓	249636	1	1				X	
3	MW-3	↓	↓	249644	1	1				X	
4											
5											
6											
7											
8											

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	SHIPMENT METHOD RETURNED / DATE	ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
					~~FRANCES MACKEY/HETC~~			
							8/21/95	2:28
							8/21/95	17:00

Additional Comments