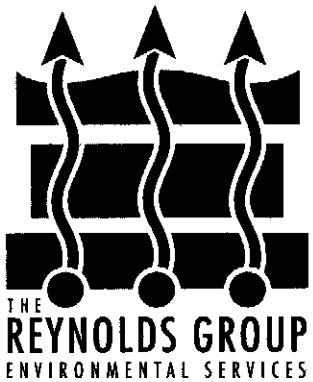

GROUNDWATER MONITORING REPORT

MALIBU PARK SCHOOL
30215 MORNING VIEW DRIVE
MALIBU, CALIFORNIA

J U L Y , 1 9 9 6

FOR SUBMITTAL TO:

California Regional Water Quality Control Board
Leaking Underground Tank Division
101 Centre Plaza Drive
Monterey Park, CA 91754-2156
LOP File No. I-13216

ON BEHALF OF:

Santa Monica-Malibu School District
1651 Sixteenth Street
Santa Monica, California 90404

TRG Project Number 4786-SMMS

250 El Camino Real, Suite 214, Tustin, California 92680
Phone 714 730 5288 Fax 714 730 6476

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MALIBU PARK SCHOOL
30215 MORNING VIEW DRIVE
MALIBU, CALIFORNIA

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GROUNDWATER MONITORING REPORT

MALIBU PARK SCHOOL
30215 MORNING VIEW DRIVE
MALIBU, CALIFORNIA

1.0 INTRODUCTION AND DESCRIPTION OF WORK PERFORMED

This report presents the results of the groundwater monitoring conducted at Malibu Park School located at 30215 Morning View Drive in Malibu, California (Figure 1) on July 18, 1996. The Reynolds Group (TRG) was retained by Vector Three Environmental, Inc., to perform the work. Figure 2 shows the location of the wells.

Two PVC bailers were used for well purging and new disposable samplers were used for sample collection. Purged water was stored in one labeled 55-gallon DOT-approved barrel and stored on-site pending laboratory analysis. Field notes are attached in Appendix B.

Concentrations of benzene, toluene, ethylbenzene, and total xylenes were detected in monitoring well MW3. Samples collected from monitoring wells MW1, MW2, and MW4 were "non-detect" for all constituents analyzed.

2.0 MONITORING/SAMPLING RESULTS

2.1 Groundwater Gradient

Prior to purging and sampling, the depth-to-water in each well was measured using an electronic sounder. The groundwater flow direction and slope were then calculated by determining the elevations of groundwater in each well relative to surveyed top-of-casing elevations. These data are summarized in Table 1 below. The depth to groundwater has increased between eight and nine feet in each well since May 1995. The groundwater flow direction and gradient were calculated to be approximately towards the south-southwest at a rate of 0.030 feet per foot. The groundwater flow direction with gradient contours is shown in Figure 3.

TABLE 1
SUMMARY OF GROUNDWATER ELEVATION DATA

WELL	DATE	ELEVATION OF TOP OF CASING*	DEPTH TO GROUNDWATER	ELEVATION OF GROUNDWATER SURFACE
MW1	5/5/95	98.83	27.69	71.14
	1/16/96		31.85	66.98
	4/4/96		31.58	67.25
	7/18/96		36.78	62.05
MW2	5/5/95	99.72	28.78	70.94
	1/16/96		32.92	66.80
	4/4/96		32.66	67.06
	7/18/96		37.86	61.86
MW3	5/5/95	98.55	29.22	69.33
	1/16/96		32.83	65.72
	4/4/96		32.53	66.02
	7/18/96		37.65	60.90
MW4	5/5/95	99.29	30.22	69.07
	1/16/96		34.23	65.06
	4/4/96		34.65	64.64
	7/18/96		38.65	60.64

* Elevations are relative to a benchmark of 100.00 feet previously established by Eagle Eye Mapping.

2.2 SAMPLING PROCEDURES

Two PVC bailers were used for purging the four wells. Approximately three casing volumes of water were purged from each well. During purging, the electrical conductivity pH, and temperature of the well water was measured with a Hydac Conductivity, pH, and Temperature Meter to determine when equalization (confirmation that pH and conductivity values of purged water are consistent within 5%) was achieved. A Lamot Turbidity Meter was used to measure the turbidity during purging. The field notes are included in Appendix B. Purged water was stored in labeled 55-gallon DOT-approved barrels and stored on-site.

Once equalization was achieved or three casing volumes had been removed, the wells were allowed to recharge. Groundwater samples were then collected from the surface of the aquifer using a new disposable sampler for each well. The sampler was slowly lowered into the monitoring well, to reduce agitation of the groundwater. Upon removal from the

well, water from the filled sampler was extracted to containers using a bottom-emptying device.

Each water sample was emptied into two pre-cleaned 40 milliliter (mL) VOA sample vials and a one liter glass amber jar. The sample containers were first rinsed with well water, and then overfilled to avoid headspace. One additional vial was filled for turbidity analysis. The sample turbidity was measured and recorded on the field notes The filled sample containers were labeled, placed in an ice-cooled chest, and transported to Chemical and Environmental Laboratories, a California Department of Health Services certified laboratory #1597, following chain-of-custody procedures.

2.3 Analytical Results

The samples were analyzed for total petroleum hydrocarbons (TPH) according to Method 8015 modified for diesel and for benzene, toluene, ethylbenzene and xylenes (BTEX) according to EPA Method 8020. Samples were analyzed by Chemical and Environmental Laboratories, Inc. of Santa Fe Springs, California, a State-certified hazardous waste laboratory #1597. Results from the current and previous monitoring rounds are summarized in Table 2 below. The laboratory report and chain-of-custody documentation are included in Appendix C.

Detectable concentrations of benzene and ethylbenzene were identified in the sample collected from monitoring well MW3. No TPH as diesel, toluene, or xylene was detected in any monitoring well during this groundwater monitoring round. No free product was observed during the field work.

TABLE 2
SUMMARY OF LABORATORY ANALYSIS RESULTS
(RESULTS IN PPB[1])

WELL	SAMPLING DATE	TPH AS DIESEL[2]	BENZENE[3]	TOLUENE[3]	ETHYL BENZENE[3]	XYLENE[3]
MW1	5/3/95	ND	ND	ND	ND	ND
	1/16/96	ND	ND	ND	ND	ND
	4/4/96	ND	ND	ND	ND	ND
	7/18/96	ND	ND	ND	ND	ND
MW2	5/3/95	ND	ND	ND	ND	ND
	1/16/96	ND	ND	ND	ND	ND
	4/4/96	ND	ND	ND	ND	ND
	7/18/96	ND	ND	ND	ND	ND
MW3	5/3/95	1,200	42.9	16.3	6.9	41.5
	1/16/96	ND	57.3	ND	80.1	1.6
	4/4/96	ND	21.3	1.3	31.3	2.3
	7/18/96	ND	33.4	ND	34.7	ND
MW4	5/3/95	800	3.4	2.5	3.8	16.5
	1/16/96	ND	128.7	ND	69.5	ND
	4/4/96	ND	119.7	1.5	9.6	1.9
	7/18/96	ND	ND	ND	ND	ND
Detection Limit		500	0.3	0.3	0.3	0.5

1) PPB = parts per billion or micrograms per liter.
2) TPH as diesel according to EPA Method 8015 modified for diesel
3) Benzene, toluene, ethylbenzene, and xylenes (BTEX) analyzed according to EPA Method 8020.
4) ND = compound not detected above specified detection limit.
5) Blank sample was "non-detect" for all constituents.

3.0 CONCLUSIONS

Based on data gathered, we have drawn the following conclusions:

- The depth to groundwater has increased between eight and nine feet since May, 1995.
- The groundwater flow direction was found to be towards the south-southwest.

- Low concentrations of dissolved benzene, and ethylbenzene were detected in downgradient well MW3.

4.0 LIMITATIONS

This report is based on the information gathered during the course of the work as described in the text. Its validity is based on the available facts, circumstances, and data as of the date of the report and TRG takes no responsibility for any subsequent changes in those facts, circumstances, and data.

If you have any questions regarding the contents of this report, please call Ed Reynolds or Angel Cardoza directly at (714) 730-5397.

Thank you for this opportunity to work for you.

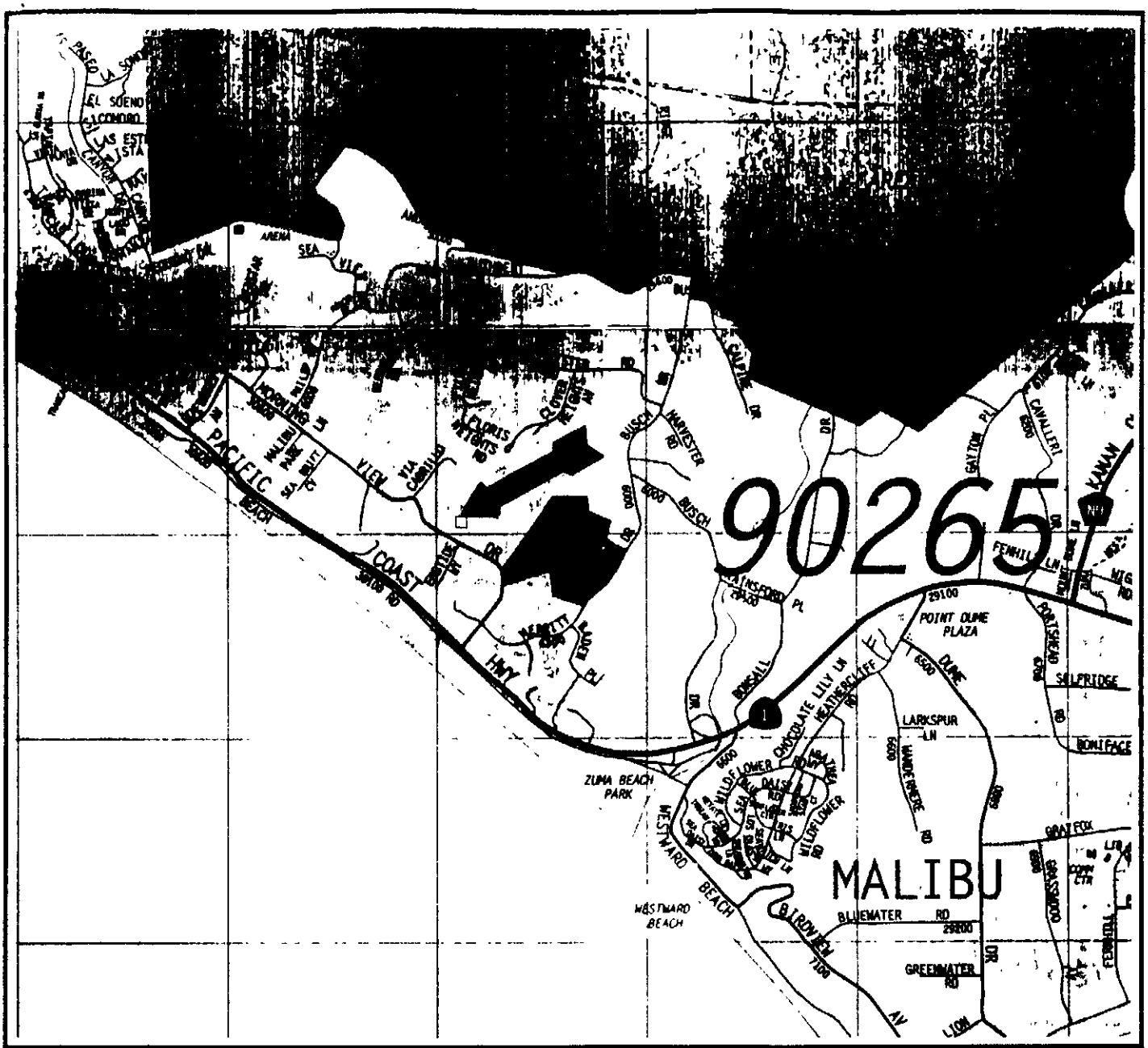
Prepared by:
THE REYNOLDS GROUP
A California Corporation by:

F. Edward Reynolds, Jr., P.E.
California RCE #38677

Angel Cardoza, Jr.
Environmental Engineer

FIGURE 1

SITE LOCATION MAP



ADAPTED FROM 1993 LA/ORANGE COUNTY THOMAS BROTHERS GUIDE, PAGES 627 & 667.

0 2000 4000

FEET

APPROXIMATE SCALE

THE REYNOLDS GROUP

FIGURE 1
SITE LOCATION MAP

30215 MORNING VIEW DRIVE
MALIBU, CALIFORNIA

JULY 1996

FIGURE 2

PLOT PLAN WITH ANALYTICAL RESULTS

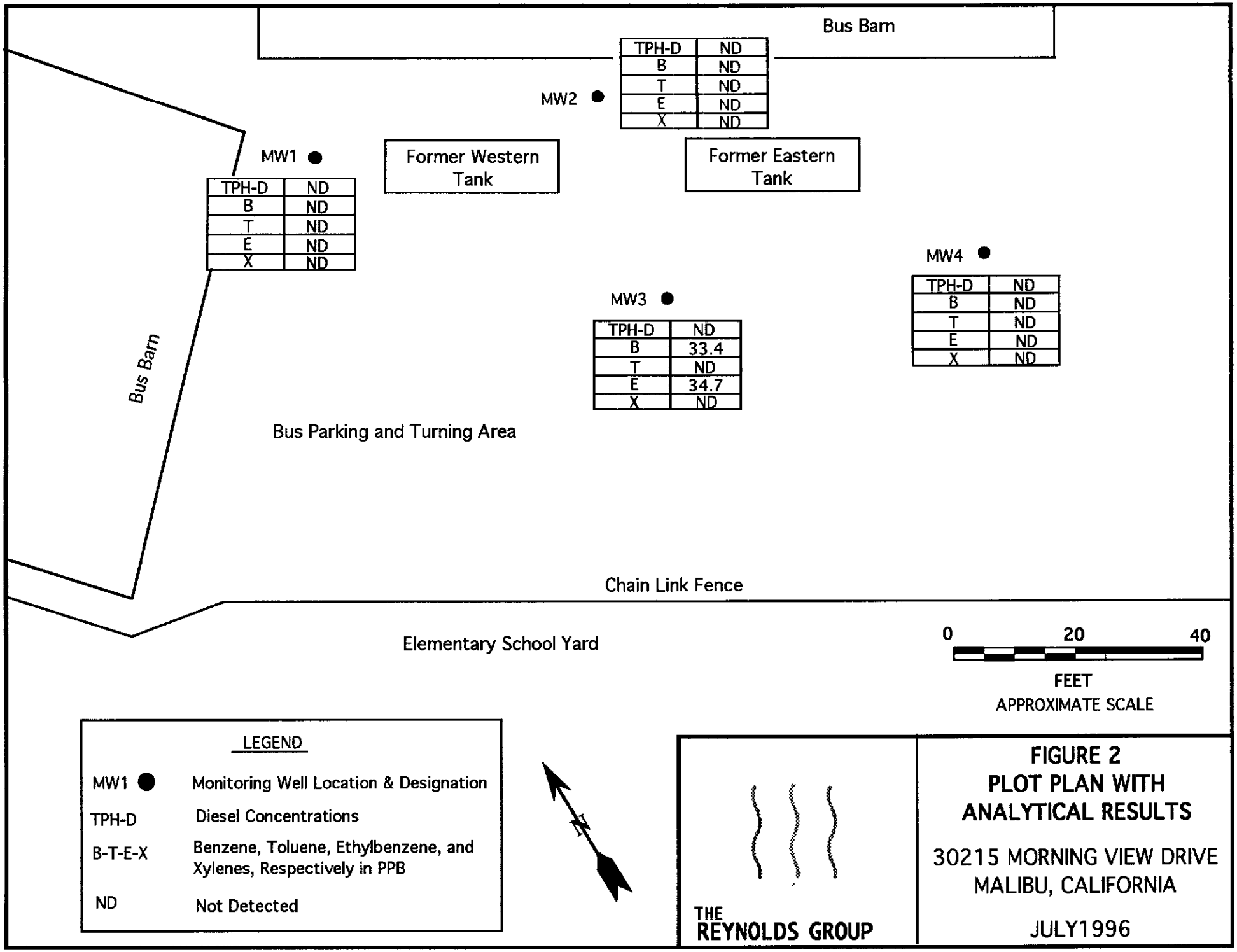


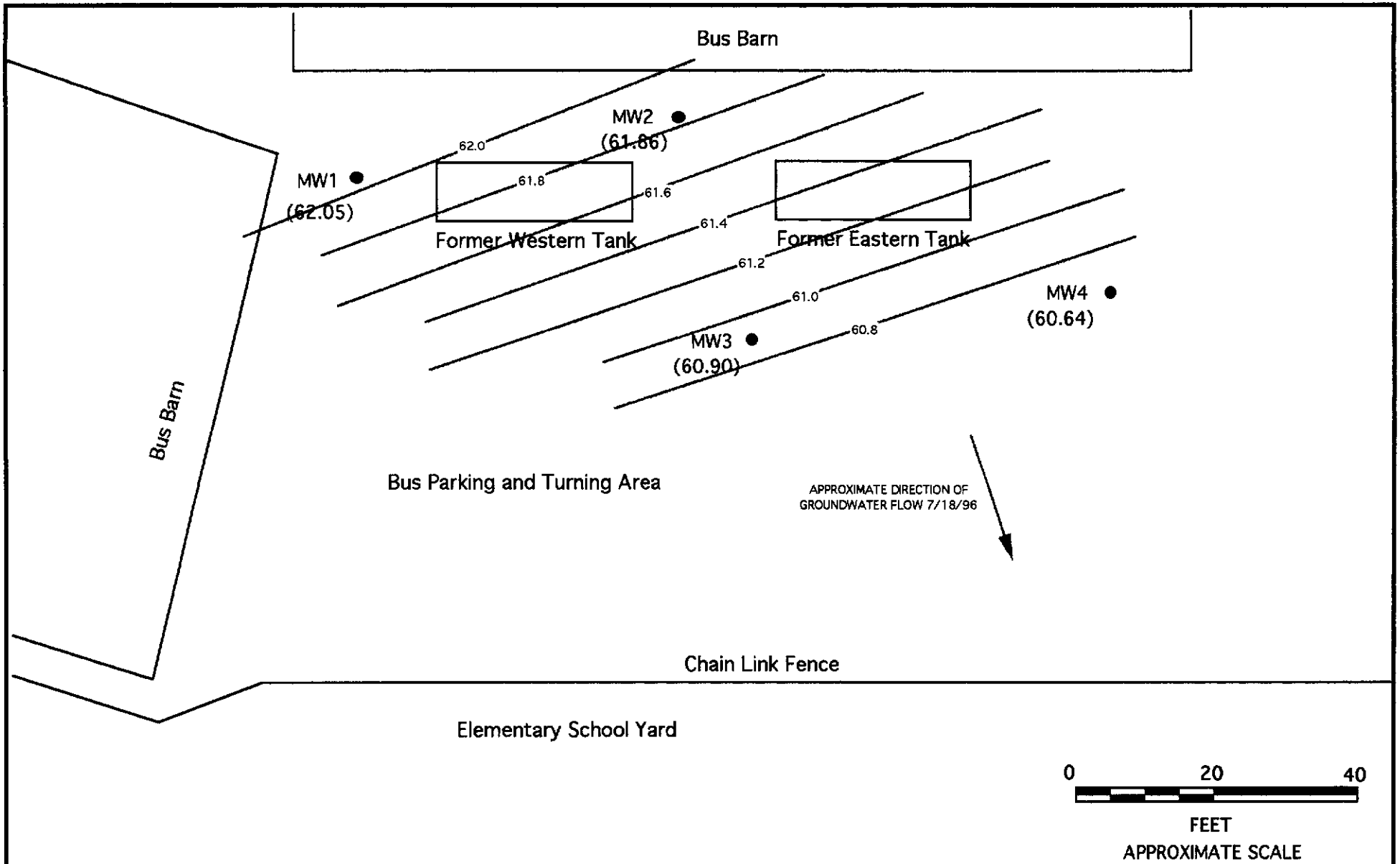
FIGURE 2
PLOT PLAN WITH ANALYTICAL RESULTS

30215 MORNING VIEW DRIVE
MALIBU, CALIFORNIA

JULY1996

FIGURE 3

PLOT PLAN WITH GROUNDWATER CONTOURS AND FLOW DIRECTION



LEGEND

MW1 ● MONITORING WELL LOCATION AND DESIGNATION

(66.02) CALCULATED RELATIVE ELEVATION OF GROUNDWATER SURFACE

THE REYNOLDS GROUP

FIGURE 3
PLOT PLAN WITH
GROUNDWATER CONTOURS
AND FLOW DIRECTION

30215 MORNING VIEW DRIVE
MALIBU, CALIFORNIA

JULY, 1996

APPENDIX A

FIELD NOTES

REYNOLDS GROUP

WATER SAMPLING LOG

Project No. 3mms Date 7/18/96

Site Location Malibu School Dist

Well No. MW1 Sampling Personnel Angel Cardoza

Weather Overcast Time of Sampling

EVACUATION DATA

Total Sounded Depth of Well Below MP 48.12 Water-Level Elevation

Depth to Water Below MP 36.78 / 36.82

Water Column in Well 11.34 Diameter of Casing 4"

Gallons per Foot .65

Gallons in Well 7.37 Gallons Pumped/Bailed Prior to Sampling 22 gal

Evacuation Method Quickie Bailer

Controller Readout (Hz) N/A

Sampling Method and Material Disposable Bailer

Constituents Sampled	Container Description From Lab ✓ or	Preservative
	4 oml VOA Vials, 1L Glass Amber Tar	Blue Ice

Time	Cum. Vol. Purged	Ph	Temp.	Cond.	Comments
	2	7.82	73	3170	
	10	7.68	70	2930	
	20	7.64	69.8	2832	

Remarks Turbidity > 200 NTU

WELL CASING VOLUMES

GAL/FT				
	1¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1½" = 0.10	2½" = 0.24	3½" = 0.50	6" = 1.46

REYNOLDS GROUP

WATER SAMPLING LOG

Project No. SMMS Date 7/18/96

Site Location Malibu

Well No. MW2 Sampling Personnel Angel Cardoza

Weather Overcast Time of Sampling

EVACUATION DATA

Total Sounded Depth of Well Below MP 50.20 Water-Level Elevation

Depth to Water Below MP 37.86

Water Column in Well 12.34 Diameter of Casing 4"

Gallons per Foot .65

Gallons in Well 8.02 Gallons Pumped/Bailed Prior to Sampling 25 gal

Evacuation Method Quickie Bailer

Controller Readout (Hz) NA

Sampling Method and Material Disposable Bailer

Constituents Sampled	Container Description From Lab ✓ or	Preservative
	2x 40mL VOA Vials, Glass Amber Jar	Blue Ice

Time	Cum. Vol. Purged	Ph	Temp.	Cond.	Comments
	5	7.66	74	3320	
	10	7.66	72.2	3200	
	20	7.84	71.3	3140	
	25	7.42	69.2	3110	

Remarks Turbidity 7 200 NTU

WELL CASING VOLUMES

GAL/FT				
	1¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1½" = 0.10	2½" = 0.24	3½" = 0.50	6" = 1.46

THE REYNOLDS GROUP

WATER SAMPLING LOG

Project No. SMMS Date 7/18/96

Site Location Malibu

Well No. MW3 Sampling Personnel Angel Cardoza

Weather Overcast Time of Sampling

EVACUATION DATA

Total Sounded Depth of Well Below MP 48.60 Water-Level Elevation

Depth to Water Below MP 37.65

Water Column in Well 10.95 Diameter of Casing 4"

Gallons per Foot .65

Gallons in Well 7.11 Gallons Pumped/Bailed Prior to Sampling 21.3

Evacuation Method Quickie Bailer

Controller Readout (Hz) NA

Sampling Method and Material Disposable Bailer

Constituents Sampled	Container Description From Lab ✓ or ____	Preservative
	40mL VOAs, Glass Amber	Blue Ice

Time	Cum. Vol. Purged	Ph	Temp.	Cond.	Comments
	2gal	8.24	76	3540	
	10	7.86	74	3490	
	15	7.82	71	3300	
	20	7.64	70.2	3240	

Remarks Turbidity = 30.4 NTU

WELL CASING VOLUMES

GAL/FT				
	1¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1½" = 0.10	2½" = 0.24	3½" = 0.50	6" = 1.46

THE REYNOLDS GROUP

WATER SAMPLING LOG

Project No. Shims Date 7/18/96

Site Location Malibu

Well No. MW3 MW4 Sampling Personnel Angel Carlson

Weather Overcast Time of Sampling

EVACUATION DATA

Total Sounded Depth of Well Below MP 39.84 Water-Level Elevation

Depth to Water Below MP 38.65

Water Column in Well 1.19 Diameter of Casing 4"

Gallons per Foot .65

Gallons in Well 0.77 Gallons Pumped/Bailed Prior to Sampling 2.32 gal

Evacuation Method Quickie Bailer

Controller Readout (Hz) NA

Sampling Method and Material Disposable Sampler

Constituents Sampled	Container Description From Lab ✓ or	Preservative
	2x40mL VOA, 1L Glass Amber Jar	Blue Ice

Time	Cum. Vol. Purged	Ph	Temp.	Cond.	Comments
	2 gal	7.15	75.1	4700	Dry Well —

Remarks T = 165 NTU

WELL CASING VOLUMES

GAL/FT				
	1¼" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1½" = 0.10	2½" = 0.24	3½" = 0.50	6" = 1.46

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY DOCUMENTATION

CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

July 23, 1996

Mr. Donald Hollenbeck
Vector Three Environmental Inc.
11605 So. East End Ave.
Chino, CA 91710

Dear Mr. Hollenbeck,

Enclosed please find the analytical report for the samples received on 7/18/96. The samples were received in a chilled state and analyzed as indicated on the chain-of-custody attached. In the report, the analytical results are summarized in total of two pages.

Chemical & Environmental Laboratory is a DHS certified Laboratory (certificate number: 1597). If you have any questions concerning these results and our service, please call me.

Sincerely,

Larry Zhang, Ph.D.
Laboratory Director

14148 E. Firestone Blvd., Santa Fe Springs, CA 90670 Tel: 310 921-8123, Fax: 310 921-7974

CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

---M8015(D)/BTEX---

Client Name: Vector III
Project Manager: Don Hollenbeck
Project Name: Malibu School District

Date Sampled: 07/18/96
Date Analyzed: 07/18-19/96
Date Reported: 07/22/96

Sample Identification		Result (mg/L or ppm)				
C&E ID	Sample ID	Diesel	Benzene	Toluene	Ethylbenzene	Xylenes
60718B-1	MW-1	ND	ND	ND	ND	ND
60718B-2	MW-2	ND	ND	ND	ND	ND
60718B-3	MW-3	ND	0.0334	ND	0.0347	ND
60718B-4	MW-4	ND	ND	ND	ND	ND
Detection Limit:		0.5	0.0003	0.0003	0.0003	0.0005

ND = Not detected at the indicated detection limit.

14148 E. Firestone Blvd., Santa Fe Springs, CA 90670 Tel: 310 921-8123, Fax: 310 921-7974

CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

60718B

CHAIN OF CUSTODY RECORD

№ 33025

Client: Vector Three	Site Address: 30215 Morning View Drive
Project No/Name: SMMS	Malibu, CA
Project Manager: Don Hollenbeck	Sampled By: Angel Cardoza, Jr.
Tel: Fax:	Date 7/18/96 Page 1 of 1

SAMPLE ID	DATE	TIME	TYPE	CONTAINER TYPE	ANALYSES REQUIRED
MW1	7/18/96	1319	Water	2 x 40mL VOA, 1L Glass Amber	8015 diesel / 8020 BTEX
MW2	↓	1335	↓	↓	↓
MW3		1348			
MW4	↓	1351	↓	↓	↓

Remarks:

Relinquished By:	Date	Time	Received By:	Date	Time
[signature]	7/18/96	4:18pm	[signature]	7/18/96	4:18 pm
Relinquished By:	Date	Time	Received By:	Date	Time

14148 E. Firestone Blvd., Santa Fe Springs, CA 90670 Tel: 310 921-8123, Fax: 310 921-7974

CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

QA/QC REPORT

--- M8015(D)/M602 --

I. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)

Date Performed: 07/18-19/96
Batch #: 1542
Lab Sample I.D.: 60718B

Unit: mg/L

ANALYTE	SPK CONC	MS (mg/L)	MS %	MSD (mg/L)	MSD %	RPD	ACP %MS	ACP RPD
Benzene	0.0200	0.0178	89	0.0168	84	5.8	80-120	20
Toluene	0.0200	0.0173	87	0.0171	86	1.2	80-120	20
Ethylbenzene	0.0200	0.0173	87	0.0183	92	5.6	80-120	20
Xylenes	0.0200	0.0171	86	0.0182	91	6.2	80-120	20
Diesel	500	462	92	455	91	1.5	70-120	20

II. Laboratory Quality Control Check Sample

ANALYTE	SPK CONC	RESULT	%RECOVERY	ACP %
Benzene	0.0200	0.0167	84	80-120
Toluene	0.0200	0.0165	83	80-120
Ethylbenzene	0.0200	0.0164	82	80-120
Xylenes	0.0200	0.0165	83	80-120
Diesel	500	471	94	80-120

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