



ALCO
HAZMAT

94 DEC 23 PM 1:40

may change sampling frequency as:
mw-1 and mw-3 - ~~stop~~ discontinued
mw 2, 4, 5, 6 - 4X/yr
if mw 2 centerwest show elevated
benzene levels

**SEPTEMBER 1994 QUARTERLY GROUNDWATER
MONITORING REPORT FOR THE
FORMER ALAMEDA
SERVICE STATION A-528
TARGET DUBLIN
7608 AMADOR VALLEY BOULEVARD
DUBLIN, CALIFORNIA**

December 21, 1994

Prepared For:
Target Stores
33 South Sixth Street
Minneapolis, Minnesota 55440-1342

Prepared By:
McLaren/Hart Environmental Engineering
1135 Atlantic Avenue
Alameda, California 94501
(510) 521-5200

Project No: 04.0122632.000

The Information Contained Herein Is Submitted in Partial Fulfillment of Contract No. 465 For the Sole and Exclusive Use of Target Stores and Shall Not Be Disclosed or Furnished to Any Other Entity, Corporation, or Third Party, For Purposes Outside the Specific Scope and Intent of This Contract Without the Express Written Consent of McLaren/Hart.

Reviewed By

Written By



December 21, 1994

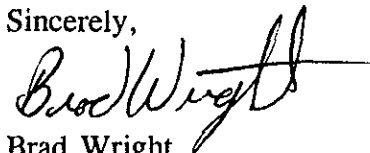
Ms. Eva Chu
Alameda County Health Agency
80 Swan Way, Room 200
Oakland, California 94621

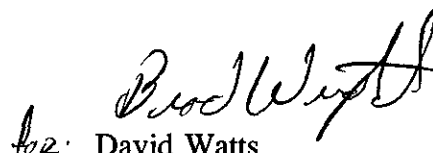
Dear Ms. Chu:

**SUBJECT: SEPTEMBER 1994 QUARTERLY GROUNDWATER MONITORING REPORT
FOR THE FORMER ALAMEDA SERVICE STATION A-528, 7608 AMADOR
VALLEY BOULEVARD, DUBLIN, CALIFORNIA**

Enclosed please find the above-captioned report, and a copy of a Bill of Lading for the disposal of groundwater generated during purging of the monitoring wells. If you should have any questions, please do not hesitate to call Brad Wright at (510) 748-5697.

Sincerely,


Brad Wright
Senior Geoscientist
Project Manager


for: David Watts
Environmental Scientist

Enclosures

INTRODUCTION

This report presents the September 1994 quarterly ground water monitoring results for the former Alameda Service Station A-528, located at 7608 Amador Valley Boulevard in Dublin, California ("the site"). This report was prepared in accordance with McLaren/Hart's quarterly groundwater sampling and interim remediation measure plan (McLaren/Hart, 1993a) and followed previously-presented recommendations (McLaren/Hart, 1994). Interim remediation from well MW-2 and sampling from wells MW-1 and MW-3 have been discontinued, as recommended by Ms. Eva Chu of the Alameda County Health Care Services Agency, Department of Environmental Health, Hazardous Materials Division in letter StID 3746, dated July 21, 1994. Ms. Chu also recommended in this letter that one of the site wells be sampled for total dissolved solids during the September sampling event.

OBJECTIVES AND SCOPE OF WORK

A site location map is presented as Figure 1 and a site map showing monitoring well locations is included as Figure 2. Quarterly monitoring of site wells is being conducted to monitor lateral extent of petroleum hydrocarbons in shallow groundwater beneath the site.

The work associated with the September 1994 quarterly monitoring event included: sampling monitoring wells MW-2, MW-4, MW-5, and MW-6 for the presence of gasoline-related constituents; collecting water elevations from six monitoring wells (MW-1 through MW-6); sampling MW-2 for total dissolved solids (TDS).

Groundwater Elevations and Flow Directions

Groundwater surface elevations were measured on September 30, 1994, prior to sampling (Table 1). These data were used to construct the September 1994 groundwater contour map (Figure 2). The inferred groundwater flow direction is generally toward the east, and is apparently influenced by the presence of more permeable materials in the excavation area causing a small groundwater mound to form. This flow direction is generally consistent with historic groundwater flow directions. Based on the observed contour pattern, MW-2 and MW-5 appear to be downgradient while MW-4 is down- to cross-gradient of the former excavation area.

The static depth to groundwater ranges from 5.32 to 6.92 feet below ground surface or 334.38 to 335.55 feet above mean sea level. The average hydraulic gradient is approximately 0.010 feet/foot. The September water level measurements indicate that groundwater levels have decreased in all wells since June 1994, ranging from 0.30 to 0.48 feet. The average decrease was .37 feet. Historic groundwater elevation data are presented in Table 2.

Groundwater Sampling Activities

Groundwater samples were collected from MW-2, MW-4, MW-5 and MW-6 on September 30, 1994. Prior to sampling each well, four casing volumes were purged with a peristaltic pump. Temperature, pH, electric conductivity, and turbidity were measured after each casing volume was removed. After all parameters had stabilized, with the turbidity at or below 3.5 Nephelometric Turbidity Units (NTU), sampling was performed using a disposable bailer. Sampling Event Data Sheets are enclosed as Appendix I.

Groundwater samples were stored in a container filled with ice and delivered to MBT Environmental Laboratories, a state-certified laboratory located in Rancho Cordova, California.

A chain-of-custody record was completed during sampling and accompanied each sample shipment to the laboratory. The samples were submitted for analysis by EPA Method 5030 (LUFT) for total petroleum hydrocarbons as gasoline (TPH/G) and for benzene, toluene, ethyl benzene, and xylenes (BTEX) analyses by EPA Method 8020. A trip blank was included in the shipments to the laboratory to be analyzed for TPH/G and BTEX. A sample from MW-2 was also submitted to be analyzed for total dissolved solids.

Groundwater Analytical Results

Table 3 and Figure 3 present the September 1994 sampling event analytical results.

Benzene (42 ppb), ethylbenzene (2.4 ppb), and TPH/G (130 ppb) were detected in the sample collected from MW-2. The benzene and TPH/G results represent an increase from the June 1994 sampling event. Ethylbenzene concentrations decreased in MW-2. Toluene at or above the reporting limits was not detected in the sample collected from MW-2. A slight petroleum odor was noted during sampling of this well.

No chemicals at or above the reporting limits were detected in MW-4 or MW-5.

Ethylbenzene (.47 ppb) and total xylenes (.43 ppb) were detected in the sample collected from MW-6. These levels are lower than recent analytical results.

Analytical results for total dissolved solids in MW-2 were 790 ppm.

The trip blank sample did not contain any contaminants above the reporting limits. The Analytical Data Sheets and Chain-of-Custody Records for the groundwater samples are included as Appendix II.

The DHS Maximum Contaminant Levels (MCLs) for BTEX compounds in drinking water include: 1 ppb benzene; 680 ppb ethyl benzene; and 1,750 ppb total xylenes. The Federal MCL for toluene is 1,000 ppb. There is no state action level for TPH/G. Benzene was detected in groundwater from monitoring well MW-2 at concentrations in excess of the MCL. However, groundwater beneath the site is reportedly not used for drinking water or other beneficial uses, and the MCL concentrations are presented only for purposes of comparison.

CONCLUSIONS

The following conclusions are based on data collected to date:

- Free-floating petroleum product was not observed in any of the wells.
- Concentrations of gasoline-related constituents detected in well MW-6 decreased from those detected in the June 1994 quarterly.
- Concentrations of TPH/G and benzene detected in well MW-2 increased from those detected during June 1994, and represent the highest concentrations of these chemical detected in this well since December 1992 and since monitoring began, respectively. Ethylbenzene concentrations in well MW-2 were slightly lower than June 1994 results.
- Concentrations of gasoline-related constituents were not detected in wells MW-4 or MW-5.
- Benzene concentrations at MW-6 were less than the reporting level of 0.3 ppb, the third consecutive quarter such concentrations have been less than the MCL (1 ppb), demonstrating the effectiveness of the interim remediation previously conducted at this well.
- As shown on Figure 2, the apparent groundwater flow direction at the site is generally to the east, consistent with historic flow directions.
- Groundwater elevations decreased an average of 0.37 feet since June 1994.

Future work at the site consists of:

- Groundwater sampling as scheduled in December 1994;

REFERENCES

- Alameda County Health Care Service Agency, 1992, "Revision of Quarterly Monitoring Program at the former Alameda Service Station A-558, 7608 Amador Valley Boulevard, Dublin", December 18, 1993
- McLaren/Hart, 1993a, "Proposal to Conduct Quarterly Groundwater Sampling and Interim Remediation at the Target Store T-328 Dublin, California", September 13, 1993
- McLaren/Hart, 1994, "June 1994 Quarterly Groundwater Monitoring and Interim Remediation Report for the Former Alameda Service Station A-528", September 6, 1994.
- Alameda County Health Care Service Agency, 1994, "QMR at Former Alameda Service Station A-527, 7608 Amador Valley Blvd., Dublin 94568". letter St ID 3746 to McLaren/Hart, July 21, 1994.

TABLE 1

WELL CONSTRUCTION DETAILS AND GROUNDWATER SURFACE ELEVATIONS
 FORMER ALAMEDA SERVICE STATION, A-578
 DUBLIN, CALIFORNIA

WELL DESIGNATION	SCREENED INTERVAL (feet below grade)	GROUND SURFACE ELEVATION (MSL)*	SCREENED INTERVAL (MSL)	TOP OF CASING ELEVATION (MSL)	STATIC WATER LEVEL 09/30/94 (feet below TOC)	GROUND WATER ELEVATION 09/30/94 (MSL)
MW-1	5-20	340.30	335.30 - 320.30	340.20	5.32	334.88
MW-2	5-20	340.52	335.52 - 320.52	340.27	5.89	334.38
MW-3	5-20	341.67	336.67 - 321.67	341.00	5.45	335.55
MW-4	5-20	342.31	337.31 - 322.31	342.11	6.92	335.19
MW-5	5-20	340.52	335.52 - 320.52	340.09	5.49	334.60
MW-6	4.5 - 14.5	341.13	336.63 - 326.63	340.81	5.41	335.40

*Feet above mean sea level

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION DATA
FORMER ALAMEDA SERVICE STATION A-578
DUBLIN, CALIFORNIA

WELL I.D.	TOP OF CASING ELEVATION (MSL)*	DATE MEASURED	DEPTH TO WATER (ft)	WATER ELEVATIONS (MSL)	CHANGE SINCE LAST READING (ft)
MW-1	340.20	02/28/91	5.00	335.20	
		06/14/91	5.53	334.67	-0.59
		09/26/91	5.97	334.23	-0.38
		12/30/91	5.50	334.70	0.47
		03/26/92	4.65	335.55	0.85
		06/23/92	4.92	335.28	-0.27
		09/24/92	5.10	335.10	-0.18
		12/29/92	4.89	335.31	0.21
		03/24/93	3.57	336.63	1.32
		06/28/93	3.79	336.41	-0.22
		09/28/93	4.24	335.96	-0.45
		12/16/93	4.72	335.48	-0.48
		03/28/94	4.90	335.30	-0.18
		06/16/94	4.93	335.27	-0.03
		09/30/94	5.32	334.88	-0.39
MW-2	340.27	02/28/91	5.46	334.81	
		06/14/91	5.90	334.37	-0.44
		09/26/91	6.54	333.73	-0.64
		12/30/91	5.83	334.44	0.71
		03/27/92	5.35	334.92	0.48
		06/23/92	5.69	334.58	-0.34
		09/24/92	5.70	334.57	-0.01
		12/29/92	5.52	334.75	0.18
		03/24/93	4.48	335.79	1.04
		06/28/93	4.67	335.60	-0.19
		09/28/93	5.01	335.26	-0.34
		12/16/93	5.40	334.87	-0.39
		03/28/94	5.58	334.69	-0.18
		06/16/94	5.59	334.68	-0.01
		09/30/94	5.89	334.38	-0.30
MW-3	341.00	02/28/91	5.61	335.39	
		06/14/91	5.40	335.60	0.21
		09/26/91	6.29	334.71	-0.89
		12/30/91	5.75	335.25	0.54
		03/26/92	4.58	336.42	1.17
		06/23/92	5.27	335.73	-0.69
		09/24/92	5.47	335.53	-0.20
		12/29/92	5.08	335.92	0.39
		03/24/93	3.83	337.17	1.25
		06/28/93	4.02	336.98	-0.19
		09/28/93	4.42	336.58	-0.40
		12/16/93	4.97	336.03	-0.55
		03/28/94	4.99	336.01	-0.02
		06/16/94	5.06	335.94	-0.07
		09/30/94	5.45	335.55	-0.39

TABLE 2
SUMMARY OF GROUNDWATER ELEVATION DATA
FORMER ALAMEDA SERVICE STATION A-578
DUBLIN, CALIFORNIA
(continued)

WELL I.D.	TOP OF CASING ELEVATION (MSL)*	DATE MEASURED	DEPTH TO WATER (ft)	WATER ELEVATIONS (MSL)	CHANGE SINCE LAST READING (ft)
MW-4	342.11	02/28/91	7.01	335.10	
		06/14/91	7.01	335.10	0.00
		09/26/91	7.81	334.30	-0.80
		12/30/91	7.17	334.94	0.64
		03/27/92	6.44	335.67	0.73
		06/23/92	6.70	335.41	-0.26
		09/24/92	6.84	335.27	-0.14
		12/29/92	6.59	335.52	0.25
		03/24/93	5.38	336.73	1.21
		06/28/93	5.52	336.59	-0.14
		09/28/93	5.89	336.22	-0.37
		12/16/93	6.51	335.60	-0.62
		03/28/94	6.54	335.57	-0.03
		06/16/94	6.58	335.53	-0.04
09/30/94	6.92	335.19	-0.34		
MW-5	340.09	06/14/91	5.81	334.28	
		09/26/91	5.92	334.17	-0.11
		12/30/91	5.52	334.57	0.40
		03/26/92	4.80	335.29	0.72
		06/23/92	5.23	334.86	-0.43
		09/24/92	5.07	335.02	0.16
		12/29/92	5.04	335.05	0.03
		03/24/93	3.99	336.10	1.05
		06/28/93	4.11	335.98	-0.12
		09/28/93	4.50	335.59	-0.39
		12/16/93	4.99	335.10	-0.49
		03/28/94	5.15	334.94	-0.16
		06/16/94	5.15	334.94	0.00
		09/30/94	5.49	334.60	-0.34
MW-6	340.81	09/26/91	6.45	334.36	
		12/30/91	5.71	335.10	0.74
		03/27/92	5.03	335.78	0.68
		06/23/92	5.38	335.43	-0.35
		09/24/92	5.57	335.24	-0.19
		12/29/92	5.22	335.59	0.35
		03/24/93	3.86	336.95	1.36
		06/28/93	3.95	336.86	-0.09
		09/28/93	4.30	336.51	-0.35
		12/16/93	5.05	335.76	-0.75
		03/28/94	4.82	335.99	0.23
		06/16/94	4.93	335.88	-0.11
		09/30/94	5.41	333.40	-0.48

* MSL = Mean Sea Level

TABLE 3
ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ppb)
FORMER ALAMEDA SERVICE STATION, A-578
DUBLIN, CALIFORNIA

<u>WELL DESIGNATION</u>	<u>DATE</u>	<u>TPH/G</u>	<u>TPH/D</u>	<u>BENZENE</u>	<u>TOLUENE</u>	<u>ETHYL BENZENE</u>	<u>TOTAL XYLENES</u>
MW-1	2/91	<50	<500	<0.5	<0.5	<0.5	<0.5
	6/91	<50	---	<0.5	<0.5	<0.5	<0.5
	9/91	<50	---	<0.5	<0.5	<0.5	<0.5
	12/91	<50	---	<0.5	<0.5	<0.5	<0.5
	3/92	<50	---	<0.3	<0.3	<0.3	<0.3
	6/92	<50	---	<0.3	<0.3	<0.3	<0.3
	9/92	<50	---	<0.3	<0.3	<0.3	<0.3
	3/94	<50	---	<0.3	<0.3	<0.3	<0.3
	MW-2	2/91	50	<500	2.0	0.8	1.1
6/91		51	---	6.6	<0.5	1.1	1.33
9/91		<50	---	5.0	<0.5	0.64	<0.5
12/91		<50	---	6.1	<0.5	<0.5	<0.5
3/92		<50	---	3.6	<0.5	<0.5	<0.5
6/92		<50	---	9.5	<0.3	<0.3	<0.3
9/92		<50	---	1.3	<0.3	<0.3	<0.3
12/92		150	---	35 ^b	0.81	4.0	3.2
3/93		<50	---	3.2	<0.3	<0.3	0.86
6/93		<50	---	17.0 ^b	<0.3	0.93	0.41
9/93		81	---	5.0 ^b	<0.3	3.8	4.06
12/93		<50	---	0.53	<0.3	<0.3	<0.3
3/94		67	---	9.2	0.47	2.5	4.40
6/94		95	---	14.0	<0.5	4.1	4.90
9/94		130	---	42.0 ^b	<0.3	2.4	<0.3
MW-3	2/91	<50	<500	<0.5	<0.5	<0.5	<0.5
	6/91	<50	---	<0.5	<0.5	<0.5	<0.5
	9/91	<50	---	<0.5	<0.5	<0.5	<0.5
	12/91	<50	---	<0.5	<0.5	<0.5	<0.5
	3/92	<50	---	<0.3	<0.3	<0.3	<0.3
	6/92	<50	---	<0.3	<0.3	<0.3	<0.3
	9/92	<50	---	<0.3	<0.3	<0.3	<0.3
	6/94	<50	---	<0.5	<0.5	<0.5	<0.5

annual

4+

annual

TABLE 3
 ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ppb)
 FORMER ALAMEDA SERVICE STATION, A-578
 DUBLIN, CALIFORNIA
 (continued)

<u>WELL DESIGNATION</u>	<u>DATE</u>	<u>TPH/G</u>	<u>TPH/D</u>	<u>BENZENE</u>	<u>TOLUENE</u>	<u>ETHYL BENZENE</u>	<u>TOTAL XYLENES</u>
MW-4	2/91	6,000	<500	680	<20	160	250
	6/91	6,100	---	680	<25	150	<25
	9/91	<50	---	100	<0.5	45	8.1
	12/91	180	---	6.4	<1.0	16	25.8
	3/92	560	---	120	6.0	5.0	<0.5
	6/92	<50	---	<0.3	<0.3	<0.3	<0.3
	9/92	<50	---	<0.3	<0.3	<0.3	<0.3
	12/92	<50	---	0.92	<0.3	<0.3	<0.3
	3/93	<50	---	4.3	<0.3	0.98	<0.3
	6/93	<50	---	2.1	<0.3	<0.3	0.31
	9/93	<50	---	2.8	<0.3	<0.3	<0.3
	12/93	<50	---	1.0	<0.3	<0.3	<0.3
	3/94	460 ^b	---	3.2 ^b	<3.0	45 ^b	19 ^b
	6/94	<500 ^c	---	<5 ^c	<5 ^c	<5 ^c	<5 ^c
	9/94	<500 ^c	---	<3 ^c	<3 ^c	<3 ^c	<3 ^c
	MW-5	6/91	<50	---	<0.5	<0.5	<0.5
9/91		<50	---	<0.5	<0.5	<0.5	<0.5
12/91		<50	---	<0.5	<0.5	<0.5	<0.5
3/92		<50	---	<0.3	<0.3	<0.3	<0.3
6/92		<50	---	<0.3	<0.3	<0.3	<0.3
9/92		<50	---	<0.3	<0.3	<0.3	<0.3
12/92		<50	---	<0.3	<0.3	<0.3	<0.3
3/93		<50	---	<0.3	<0.3	<0.3	<0.3
6/93		<50	---	<0.3	<0.3	<0.3	<0.3
9/93		<50	---	<0.3	<0.3	<0.3	<0.3
12/93		<50	---	<0.3	<0.3	<0.3	<0.3
3/94		<50	---	<0.3	<0.3	<0.3	<0.3
6/94		<50	---	1.5	<0.5	<0.5	<0.5
9/94		<50	---	<0.3	<0.3	<0.3	<0.3

4x

TABLE 3
 ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ppb)
 FORMER ALAMEDA SERVICE STATION, A-578
 DUBLIN, CALIFORNIA
 (continued)

<u>WELL DESIGNATION</u>	<u>DATE</u>	<u>TPH/G</u>	<u>TPH/D</u>	<u>BENZENE</u>	<u>TOLUENE</u>	<u>ETHYL BENZENE</u>	<u>TOTAL XYLENES</u>
MW-6	9/91	2,300	--	760	11	360	236
	10/91	1,900	--	230	<5	140	12.1
	12/91	2,500	<500	360	<50 ^a	260	<50 ^a
	3/92	2,600	<500	400	<50 ^a	280	<50 ^a
	6/92	1,500	--	220	<3 ^b	190	<3 ^b
	9/92	<480 ^b	--	28	<3 ^b	120	<3 ^b
	12/92	250	--	16 ^b	<0.3	33 ^b	16.4
	3/93	<50	<500	<0.3	<0.3	0.37	0.88
	6/93	<50	--	<0.3	<0.3	0.72	1.48
	9/93	230	--	0.46	<0.3	6.4	12.6
	12/93	<50	--	2.5	<0.3	2.6	3.5
	3/94	45	--	0.34	<0.3	2.2	2.2
	6/94	120	--	0.79	<0.5	5.9	8.7
	9/94	<50	--	<0.3	<0.3	0.47	0.43

4x

- a = The analysis was run at a 1:100 dilution to bring target analytes within linear working range of the GC.
- b = The analysis was run at a 1:10 dilution to bring target analytes within linear working range of the GC.
- c = The analysis was run at a 1:10 dilution due to the presence of non-target analyte interferences.
- = Not analyzed.

TABLE 4

CHANGE IN GROUNDWATER ELEVATION AT MONITORING WELLS
DURING INTERIM REMEDIATION AT MW-2
FORMER ALAMEDA SERVICE STATION A-578
DUBLIN, CALIFORNIA

DATE	TIME	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6	
		Depth	Change*	Depth	Change*	Depth	Change*	Depth	Change*	Depth	Change*	Depth	Change*
09-28-93	0959	4.24	---	5.01	---	4.42	---	5.89	---	4.50	---	4.30	---
	1809	4.37	-0.13	12.85	-7.84	4.55	-0.13	6.09	-0.20	4.79	-0.29	4.42	-0.12
09-29-93	0809	4.30	-0.06	5.09	-0.08	4.48	-0.06	5.97	-0.08	4.61	-0.11	4.35	-0.05
	1321	4.40	-0.16	19.51	-14.50	4.57	-0.15	6.14	-0.25	4.86	-0.36	4.47	-0.17
12-16-93	0826	4.72	---	5.40	---	4.97	---	6.51	---	4.99	---	5.05	---
	1605	4.88	-0.16	16.90	-11.5	5.11	-0.14	6.71	-0.20	5.27	-0.28	5.22	-0.17
12-17-93	0750	4.86	-0.14	5.52	-0.12	5.10	-0.13	6.65	-0.14	5.11	-0.12	5.18	-0.13
	1326	4.94	-0.22	17.03	-11.63	5.18	-0.21	6.78	-0.27	5.34	-0.35	5.30	-0.25
03-28-94	0910	4.90	---	5.58	---	4.99	---	6.54	---	5.15	---	4.82	---
	1500	5.00	-0.10	14.44	-8.86	5.11	-0.12	6.71	-0.17	5.41	-0.26	4.99	-0.17
03-29-94	0756	4.93	-0.03	5.63	-0.05	5.02	-0.03	6.57	-0.03	5.17	-0.02	4.86	-0.04
	1502	5.01	-0.11	18.18	-12.60	5.12	-0.13	6.71	-0.17	5.42	-0.27	5.03	-0.21
06/16/94	1014	4.93	---	5.59	---	5.06	---	6.58	---	5.15	---	4.93	---
	1835	5.09	-0.16	19.62	-14.03	5.25	-0.19	6.83	-0.25	5.49	-0.34	5.24	-0.31
06/17/94	0829	5.01	-0.08	5.67	-0.08	5.15	-0.09	6.68	-0.10	5.26	-0.11	5.05	-0.12
	1316	5.08	-0.15	19.65	-14.06	5.20	-0.14	6.79	-0.21	5.47	-0.32	5.17	-0.24

*NOTE: Changes in water elevation are measured from the initial depth to groundwater on 9/28/93, 12/16/93, 3/28/94 and 6/16/94. Groundwater was pumped from MW-2 at approximately 1.5 gpm during June 1994.

TABLE 5

CHANGE IN GROUNDWATER ELEVATION AT MONITORING WELLS
DURING INTERIM REMEDIATION AT MW-6
FORMER ALAMEDA SERVICE STATION A-578
DUBLIN, CALIFORNIA
(continued)

DATE	TIME	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6	
		Depth	Change	Depth	Change	Depth	Change	Depth	Change	Depth	Change	Depth	Change
10-17-91	1000	6.19	--	6.74	--	6.40	--	7.96	--	6.28	--	6.65	--
	1600	6.24	-0.05	6.80	-0.06	6.59	-0.19	8.10	-0.14	6.45	-0.17	11.26	-4.61
10-18-91	0900	6.24	-0.05	6.82	-0.08	6.55	-0.15	8.04	-0.08	6.40	-0.12	6.72	-0.07
	1600	6.28	-0.09	6.84	-0.10	6.64	-0.24	8.13	-0.17	6.48	-0.20	12.80	-6.15
12-30-91	0800	5.50	--	5.83	--	5.75	--	7.17	--	5.52	--	5.72	--
12-31-91	1500	5.69	-0.19	6.00	-0.17	5.83	-0.08	7.29	-0.12	5.68	-0.16	7.36	-1.65
3/26/92	1000	4.65	--	5.35	--	4.58	--	6.44	--	4.80	--	5.03	--
	1500	4.82	-0.17	5.43	-0.08	5.01	-0.43	6.70	-0.26	5.15	-0.35	12.72	-7.69
3/27/92	0845	4.74	-0.09	5.41	-0.06	4.95	-0.37	6.52	-0.08	5.01	-0.21	5.10	-0.07
	1400	4.80	-0.15	5.48	-0.13	5.04	-0.46	6.72	-0.28	6.11	-1.31	13.12	-8.07
6/23/92	0930	4.92	--	5.69	--	5.27	--	6.70	--	5.23	--	5.38	--
	1830	5.04	-0.12	5.82	-0.13	5.38	-0.11	6.95	-0.25	5.39	-0.16	13.70	-8.32
6/24/92	0900	5.04	-0.12	5.76	-0.07	5.33	-0.06	6.84	-0.14	5.34	-0.11	5.48	-0.10
	1130	5.09	-0.17	5.79	-0.10	5.38	-0.11	6.95	-0.25	5.39	-0.16	9.77	-4.39
9/24/92	0845	5.10	--	5.70	--	5.47	--	6.84	--	5.07	--	5.57	--
	1530	5.33	-0.23	5.91	-0.21	5.68	-0.21	7.16	-0.32	5.50	-0.43	13.50	-7.93

TABLE 5

CHANGE IN GROUNDWATER ELEVATION AT MONITORING WELLS
DURING INTERIM REMEDIATION AT MW-6
FORMER ALAMEDA SERVICE STATION A-578
DUBLIN, CALIFORNIA
(continued)

DATE	TIME	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6	
		Depth	Change	Depth	Change	Depth	Change	Depth	Change	Depth	Change	Depth	Change
9/25/92	0705	5.35	-0.25	5.98	-0.28	5.69	-0.22	7.14	-0.30	5.53	-0.46	5.79	-0.22
	1005	5.42	-0.32	6.07	-0.37	5.76	-0.29	7.64	-0.80	5.66	-0.59	13.50	-7.93
10/29/92	1030	5.95	---	6.77	---	6.46	---	8.00	---	6.34	---	6.65	---
	1556	6.03	-0.08	6.64	0.13	6.47	-0.01	7.94	-0.06	6.21	0.13	13.16	-6.51
11/20/92	0820	6.06	---	6.85	---	6.47	---	8.04	---	6.42	---	6.73	---
	1325	6.22	-0.16	6.88	-0.03	6.67	-0.20	8.12	-0.08	6.48	-0.06	13.85	-7.12
12/29/92	1150	4.89	---	5.52	---	5.08	---	6.59	---	5.04	---	5.22	---
	1605	4.89	0.00	5.57	-0.05	5.08	0.00	6.71	-0.12	5.09	-0.05	12.25	-7.03
12/30/92	0935	4.66	0.23	5.26	0.26	4.82	0.26	6.33	0.26	4.83	0.21	4.81	0.41
	1420	4.72	0.17	5.31	0.21	4.92	0.16	6.54	0.05	4.93	0.11	13.90	-8.68
3/24/93	0912	3.57	---	4.48	---	3.83	---	5.38	---	3.99	---	3.86	---
	1340	3.64	-0.07	4.63	-0.15	3.97	-0.14	5.63	-0.25	4.13	-0.14	9.98	-6.12
3/25/93	0918	3.53	0.04	4.46	0.02	3.77	0.06	5.35	0.03	3.97	0.02	3.79	0.07
	1130	3.62	-0.05	4.53	-0.05	3.93	-0.10	5.60	-0.22	4.10	-0.11	10.36	-6.50

TABLE 5

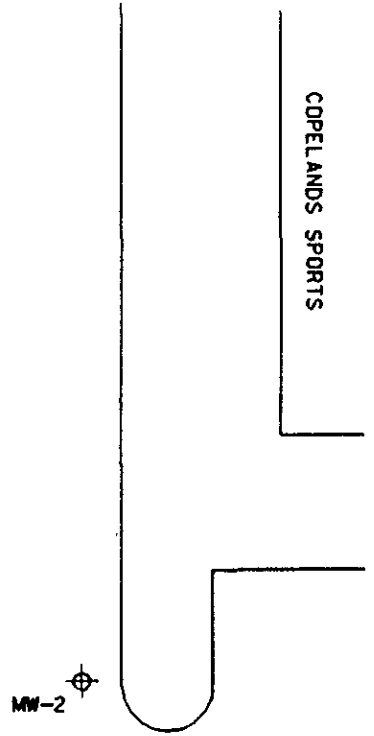
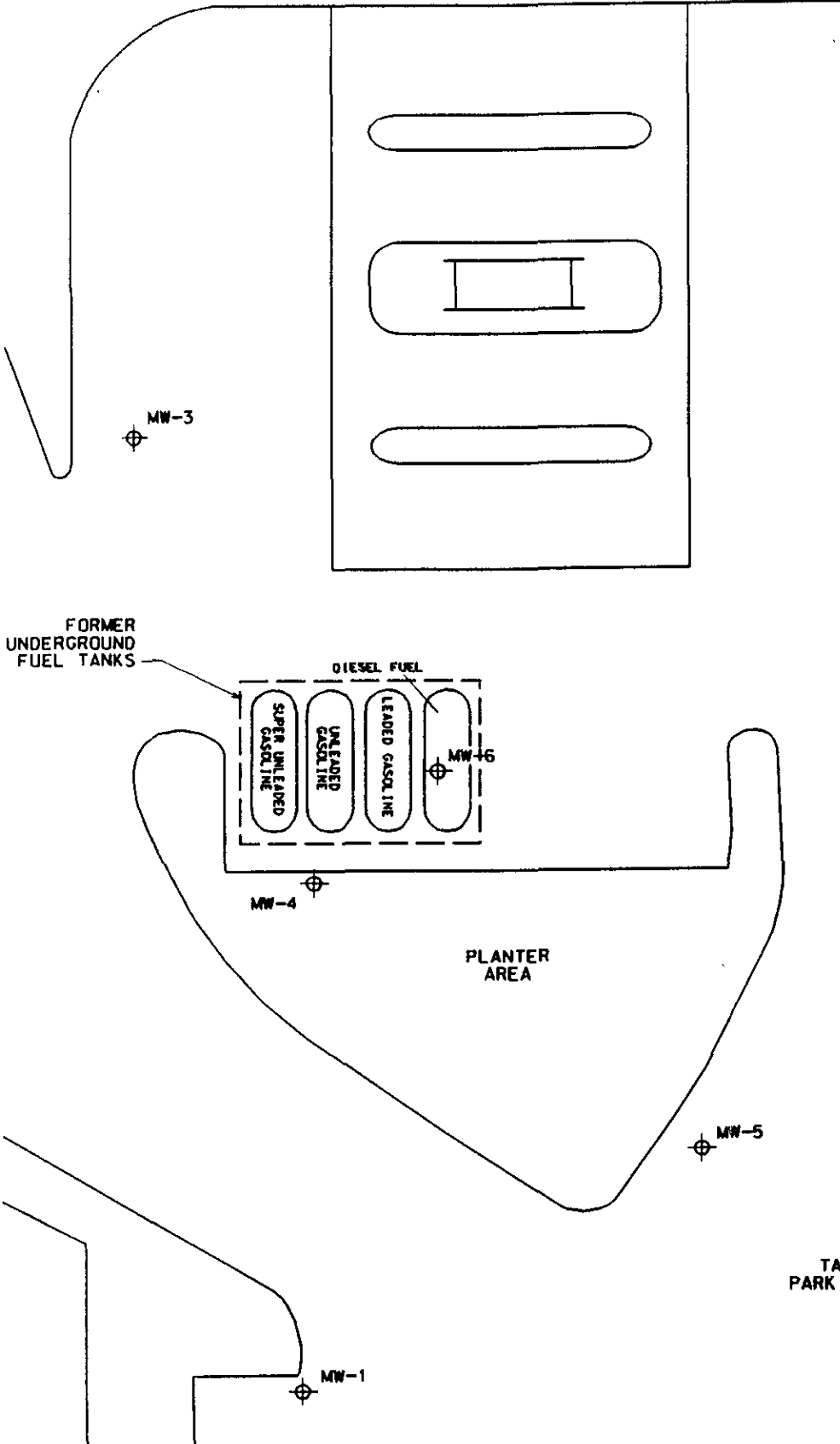
CHANGE IN GROUNDWATER ELEVATION AT MONITORING WELLS
DURING INTERIM REMEDIATION AT MW-6
FORMER ALAMEDA SERVICE STATION A-578
DUBLIN, CALIFORNIA
(continued)

DATE	TIME	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6	
		Depth	Change	Depth	Change	Depth	Change	Depth	Change	Depth	Change	Depth	Change
06-28-93	1120	3.79	--	4.67	--	4.02	--	5.52	--	4.11	--	3.95	--
	1541	3.90	-0.11	4.82	-0.15	4.18	-0.16	5.77	-0.25	4.29	-0.18	8.05	-4.10
06-29-93	1032	3.77	0.02	4.59	0.08	3.99	0.03	5.50	0.02	4.04	0.07	3.87	0.08
	1347	3.85	-0.06	4.70	-0.03	4.14	-0.12	5.76	-0.24	4.19	-0.08	11.26	-7.31

*NOTE: Changes in water elevation are measured from the initial depth to groundwater on 10/17/91, 12/30/91, 3/26/92, 6/23/92, 9/24/92, 10/29/92, 11/20/92, 12/29/92, 3/24/93 and 6/28/93.
Groundwater was pumped from MW-6 at approximately 0.96 gpm during June 1993.

PLANTER AREA

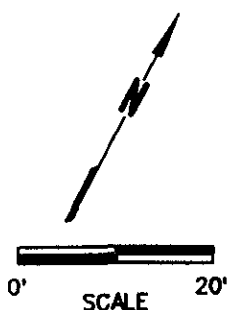
FIGURE 1
FORMER ALAMEDA
SERVICE A-578
AMADOR VALLEY BOULEVARD




MW-2

COPELANDS SPORTS

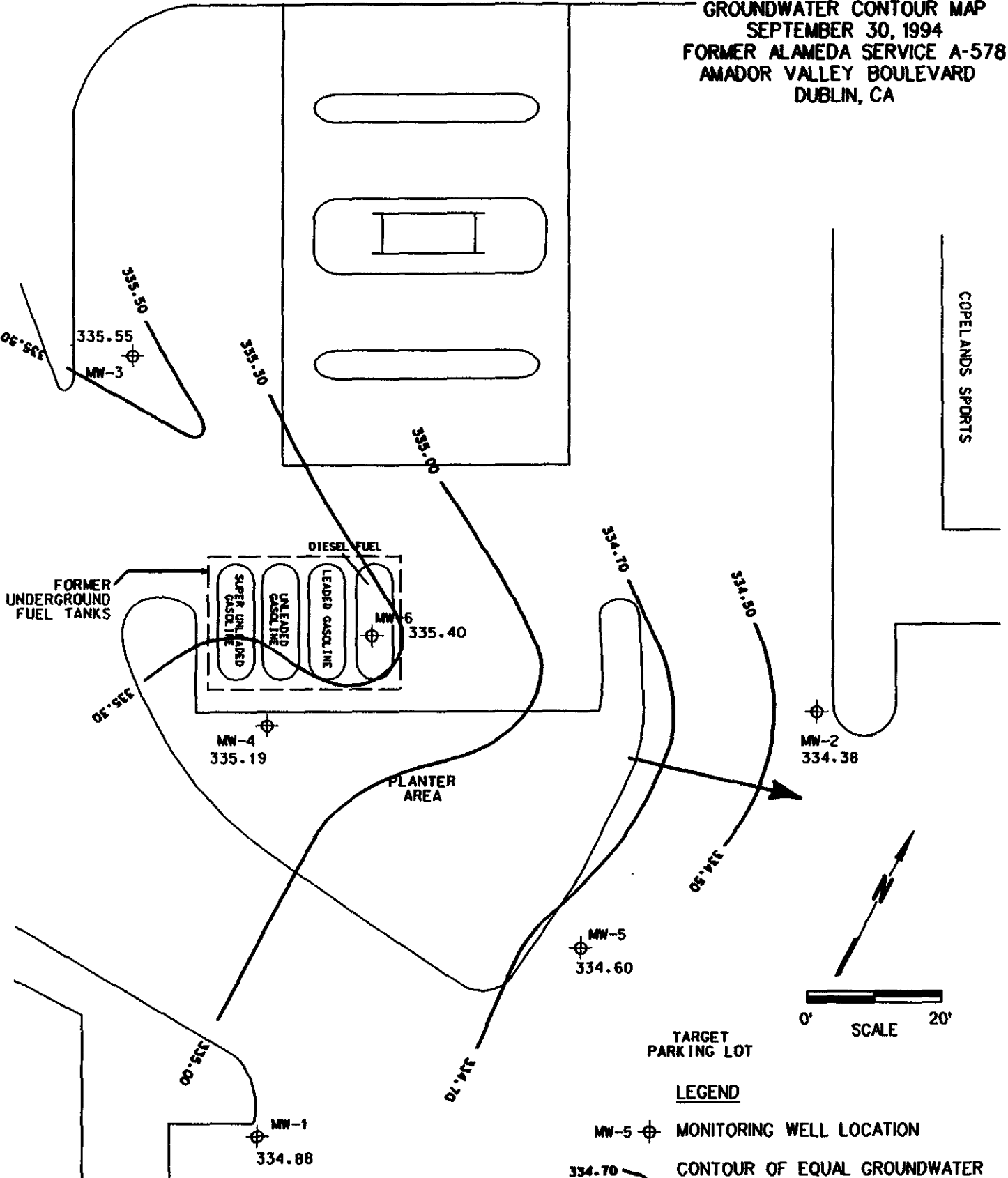
TARGET PARKING LOT



LEGEND
 MONITORING WELL LOCATION

PLANTER AREA

FIGURE 2
GROUNDWATER CONTOUR MAP
SEPTEMBER 30, 1994
FORMER ALAMEDA SERVICE A-578
AMADOR VALLEY BOULEVARD
DUBLIN, CA



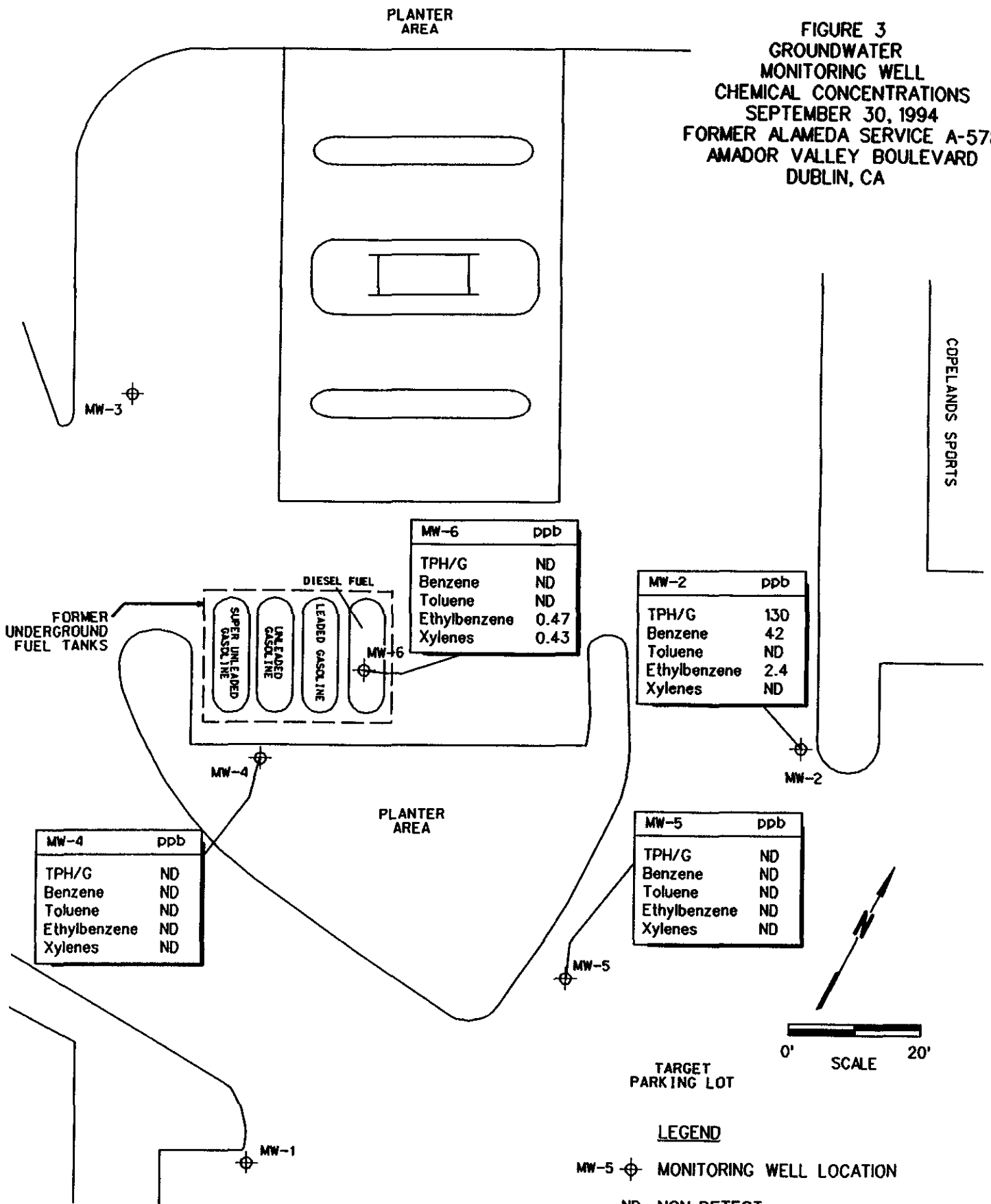
TARGET
PARKING LOT

LEGEND

- MW-5 ⊕ MONITORING WELL LOCATION
- 334.70 — CONTOUR OF EQUAL GROUNDWATER SURFACE ELEVATION (FT, MSL)
- 334.60 GROUNDWATER SURFACE ELEVATION
- ← INFERRED GROUNDWATER FLOW DIRECTION



FIGURE 3
GROUNDWATER
MONITORING WELL
CHEMICAL CONCENTRATIONS
SEPTEMBER 30, 1994
FORMER ALAMEDA SERVICE A-578
AMADOR VALLEY BOULEVARD
DUBLIN, CA



MW-6	ppb
TPH/G	ND
Benzene	ND
Toluene	ND
Ethylbenzene	0.47
Xylenes	0.43

MW-2	ppb
TPH/G	130
Benzene	42
Toluene	ND
Ethylbenzene	2.4
Xylenes	ND

MW-4	ppb
TPH/G	ND
Benzene	ND
Toluene	ND
Ethylbenzene	ND
Xylenes	ND

MW-5	ppb
TPH/G	ND
Benzene	ND
Toluene	ND
Ethylbenzene	ND
Xylenes	ND



- LEGEND**
- MW-5 ⊕ MONITORING WELL LOCATION
 - ND NON-DETECT
 - ppb PARTS PER BILLION
 - TPH/G TOTAL PETROLEUM HYDROCARBONS AS GASOLINE

APPENDIX I
SAMPLING EVENT DATA SHEETS



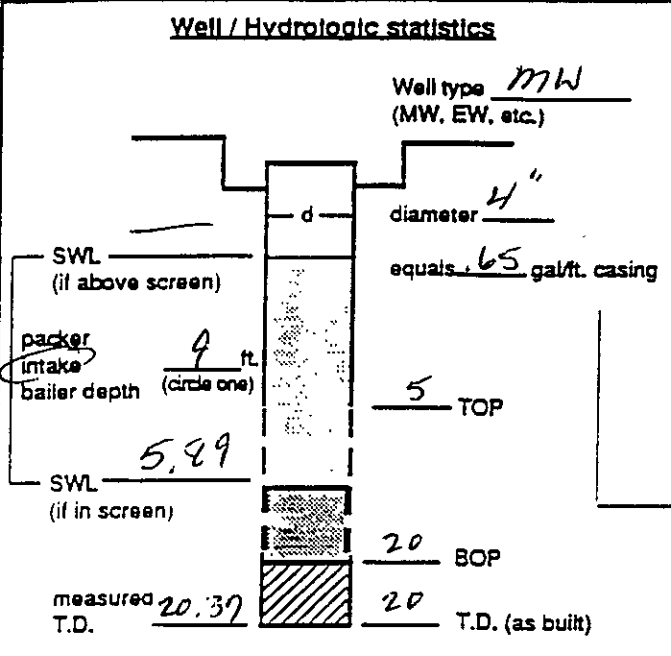
McLaren

SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-2

PROJECT TARGET/PUBBUN EVENT Quarterly SAMPLER D. WATTS DATE 9/30/94



Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	0833	1 GPM	
	0843		7.47
	0853		7.66
	0903		7.90
	0911		8.08
Stop	0913	↓	8.08
Sampled	0920		
(Final IWL)	0932		6.03

Purge calculation
.65 gal/ft. * 14.48 ft. = 9.5 gals x $\frac{3}{4}$ = 38 gals.
 SWL to BOP or packer to BOP one volume purge volume - 3 casings

Head purge calculation (Airlift only)
 gal/ft. * ft. = gals.
 packer to SWL

Equipment Used / Sampling Method / Description of Event:
AC Peristaltic pump used to Purge.
DISPOSABLE BAIER used to SAMPLE.
GROUNDWATER HAS SLIGHT PETROLEUM ODDR.

PID READINGS TAKEN AT SOURCE.

Additional comments:
USED UNMEASURED T.D. FOR Purge Calculation.

50% RECOVERY: 13.13
80% RECOVERY: 8.98 SAMPLE TURBIDITY: 2.59

Actual gallons purged	<u>40</u>
Actual volumes purged	<u>4+</u>
Well yield (see below)	<u>HY</u>
COC #	<u>6756</u>
Sample I.D.	<u>260881-84</u>
Analysis	<u>SPM6 (LUFF) BTEX (9000)</u>
Lab	<u>MBT</u>
	<u>260885</u>
	<u>TDS</u>
	<u>↓</u>

Gallons purged *	TEMP °C/F (circle one)	EC (us/cm)	PH	TURBIDITY (NTU)	PID (PPM)
1. <u>10</u>	<u>64.9</u>	<u>1700</u>	<u>7.21</u>	<u>3.34</u>	<u>5.3 (init.)</u>
2. <u>20</u>	<u>65.8</u>	<u>1780</u>	<u>7.23</u>	<u>2.11</u>	<u>2.9</u>
3. <u>30</u>	<u>66.8</u>	<u>1770</u>	<u>7.25</u>	<u>0.98</u>	
4. <u>38</u>	<u>66.3</u>	<u>1790</u>	<u>7.14</u>	<u>0.80</u>	<u>22.9 (0920)</u>
5.					

* Take measurement at approximately each casing volume purged.

⊕ HY - Minimal W.L. drop MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump.

LY - Able to purge 3 volumes by returning later or next day. VL - Minimal recharge - unable to purge 3 volumes.



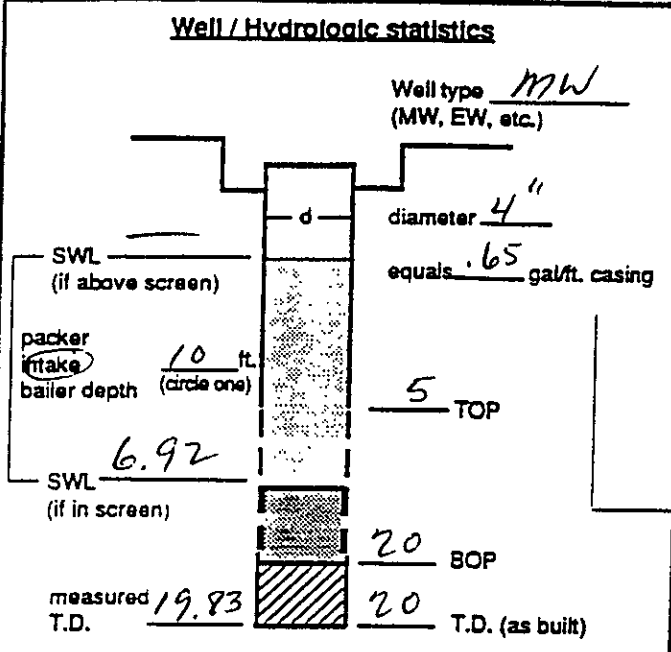
McLaren

SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-4

PROJECT TARGET/DUBLIN EVENT Quarterly SAMPLER D. WATTS DATE 9/30/94



Action	Time	Pump rate	IWL (low yield)
Start pump / Begin	1011	16 gpm	
	1020	↓	9.46
	1029	6 gpm	9.74
	1042		9.60
	1055		9.62
Stop	1056	↓	9.62
Sampled	1100		8.85
(Final IWL)	1104		7.55

Purge calculation
.65 gal/ft. * 13.08 ft. = 8.5 gals * 4 = 34 gals.
 SWL to BOP or packer to BOP one volume purge volume- 3 casings

Head purge calculation (Airlift only)
 gal/ft. * ft. = gals.
 packer to SWL

Equipment Used / Sampling Method / Description of Event:
AC Peristaltic Pump used to surge.
DISPOSABLE BAILER USED TO SAMPLE.

PID READINGS TAKEN AT SOURCE.

Actual gallons purged	<u>35</u>
Actual volumes purged	<u>4+</u>
Well yield (see below)	<u>MY</u>
COC #	<u>6756</u>
Sample I.D.	<u>260886-89</u>
Analysis	<u>TAMC (LNT) BTEX (10cc)</u>
Lab	<u>MBT</u>

Additional comments:
USED DESIGN T.D. FOR PURGE CALCULATION.

50% RECOVERY: 13.46

80% RECOVERY: 9.53 SAMPLE TURBIDITY: 1.88

Gallons purged *	TEMP °C (°F) (circle one)	EC (µs / cm)	PH	TURBIDITY (NTU)	PID (PPM)
1. <u>9</u>	<u>67.4</u>	<u>1620</u>	<u>7.41</u>	<u>2.53</u>	<u>0.0 (INIT.)</u>
2. <u>18</u>	<u>68.5</u>	<u>1510</u>	<u>7.30</u>	<u>3.12</u>	<u>0.0</u>
3. <u>26</u>	<u>69.2</u>	<u>1420</u>	<u>7.60</u>	<u>2.04</u>	
4. <u>34</u>	<u>70.0</u>	<u>1350</u>	<u>7.47</u>	<u>3.50</u>	<u>0.0 (1103)</u>
5.					

* Take measurement at approximately each casing volume purged.

⊕ HY - Minimal W.L. drop MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump. LY - Able to purge 3 volumes by returning later or next day. VLY - Minimal recharge - unable to purge 3 volumes.

SAMPLING EVENT DATA SHEET

(fill out completely)



WELL OR LOCATION MW-5

PROJECT TARGET/DUBLIN EVENT Quarterly SAMPLER D. Watts DATE 9/30/94

Well / Hydrologic statistics		Action	Time	Pump rate	IWL (flow vial)
Well type <u>MW</u> (MW, EW, etc.)		Start pump / Begin	<u>0709</u>	<u>1 GPM</u>	
			<u>0719</u>		<u>7.51</u>
			<u>0729</u>		<u>7.50</u>
			<u>0739</u>		<u>7.53</u>
			<u>0747</u>		<u>7.54</u>
		Stop	<u>0748</u>		<u>7.54</u>
diameter <u>4"</u>		Sampled	<u>0752</u>		
equals <u>.65</u> gal/ft. casing		(Final IWL)	<u>0757</u>		<u>5.79</u>
packer intake <u>8</u> ft.		Purge calculation			
bailer depth (circle one)		<u>.65</u> gal/ft. * <u>14.5</u> ft. = <u>9.5</u> gals x $\frac{3}{4}$ = <u>38</u> gals.			
SWL (if above screen) <u>5.49</u>		SWL to BOP or packer to BOP <u>one</u> volume			
SWL (if in screen) <u>19.45</u>		purge volume - <u>3</u> casings			
measured T.D. <u>19.45</u>		Head purge calculation (Airlift only)			
T.D. (as built) <u>20</u>		gal/ft. <u> </u> ft. <u> </u> gals. <u> </u>			
T.D. (as built) <u>20</u>		packer to SWL <u> </u>			

Equipment Used / Sampling Method / Description of Event:
AC Peristaltic Pump used to Purge, Disposable Bailer used to Sample.

Actual gallons purged 39
 Actual volumes purged 4+
 Well yield (see below) \oplus HY

PID Readings taken at source.

COC # <u>6756</u>		
Sample I.D.	Analysis	Lab
<u>260873-76 (Bak)</u>	<u>TPH/L5 (unf7)</u> <u>ATEX (9022)</u>	<u>MPT</u>
<u>260877-80</u>	↓	↓

Additional comments:
USED DESIGN T.D. FOR PURGE CALCULATION.

50% RECOVERY: 12.75
66% RECOVERY: 8.39 SAMPLE TURBIDITY: 3.35

Gallons purged *	TEMP °C (°F) (circle one)	EC (µs/cm)	PH	TURBIDITY (NTU)	PID (PPM)
<u>10</u>	<u>63.9</u>	<u>1490</u>	<u>7.53</u>	<u>5.16</u>	<u>1.4 (unit)</u>
<u>20</u>	<u>65.2</u>	<u>1470</u>	<u>7.28</u>	<u>1.63</u>	<u>0.0</u>
<u>30</u>	<u>64.0</u>	<u>1460</u>	<u>7.31</u>	<u>1.24</u>	
<u>38</u>	<u>63.7</u>	<u>1430</u>	<u>7.40</u>	<u>1.07</u>	<u>0.0 (0757)</u>
<u>5</u>					

* Take measurement at approximately each casing volume purged.

\oplus HY - Minimal W.L. drop MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump. LY - Able to purge 3 volumes by returning later or next day. VLY - Minimal recharge - unable to purge 3 volumes.



McLaren

SAMPLING EVENT DATA SHEET

(fill out completely)

WELL OR LOCATION MW-6

PROJECT TARGET/DUBLIN EVENT Quarterly SAMPLER D. WATTS DATE 9/30/94

Well / Hydrologic statistics		Action	Time	Pump rate	IWL (low yield)
Well type <u>MW</u> (MW, EW, etc.)		Start pump / Begin	1120	.6 Gpm	
diameter <u>4"</u>			1130	.75 Gpm	10.73
equals <u>.65</u> gal/ft. casing			1138		11.55
SWL (if above screen)			1146		12.10
packer intake <u>13</u> ft. (circle one)			1154		12.61
bailer depth <u>4.5</u> TOP		Stop	1154		12.61
SWL <u>5.41</u> (if in screen)		Sampled	1216		7.20
measured T.D. <u>13.95</u>		(Final IWL)	1235		5.81
14.5 BOP		Purge calculation <u>.65</u> gal/ft. * <u>9.09</u> ft. = <u>6</u> gals * <u>4</u> = <u>24</u> gals. SWL to BOP or packer to BOP one volume 4 purge volume- 3 casings			
14.5 T.D. (as built)		Head purge calculation (Airlift only) gal/ft. * ft. = gals. packer to SWL			

Equipment Used / Sampling Method / Description of Event:
AC PERISTALTIC PUMP USED TO PURGE, DISPOSABLE BAILER USED TO SAMPLE.

GROUNDWATER HAS MODERATE PETROLEUM ODOR.

PID READINGS TAKEN AT SOURCE.

Additional comments:
USED DESIGN T.D. FOR PURGE CALCULATION.

50% RECOVERY: 9.95

80% RECOVERY: 7.22 SAMPLE TURBIDITY: 3.44

Actual gallons purged 24

Actual volumes purged 4

Well yield (see below) MY ⊕

COC #	<u>6756</u>	
Sample I.D.	Analysis	Lab
<u>260890-93</u>	<u>SP116 (LUPP) PTER (8016)</u>	<u>MBT</u>

Gallons purged *	TEMP °C (°F) (circle one)	EC (us/cm)	PH	TURBIDITY (NTU)	PID (ppm)
1. <u>6</u>	<u>76.6</u>	<u>1040</u>	<u>7.78</u>	<u>8.83</u>	<u>42.6 (INIT.)</u>
2. <u>12</u>	<u>75.0</u>	<u>1030</u>	<u>7.82</u>	<u>4.45</u>	<u>8.2</u>
3. <u>18</u>	<u>75.6</u>	<u>1060</u>	<u>7.83</u>	<u>2.78</u>	
4. <u>24</u>	<u>76.0</u>	<u>1100</u>	<u>7.80</u>	<u>2.79</u>	<u>6.5 (1235)</u>
5.					

* Take measurement at approximately each casing volume purged.

⊕ HY - Minimal W.L. drop MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump. LY - Able to purge 3 volumes by returning later or next day. VLY - Minimal recharge - unable to purge 3 volumes.

APPENDIX II
ANALYTICAL DATA SHEETS
AND
CHAIN-OF-CUSTODY RECORDS

**MBT Environmental
Laboratories**

3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292



Date: October 11, 1994
LP #: 10242

Bradley Wright
McLaren/Hart Environmental Engineering
1135 Atlantic Avenue
Alameda, CA 94501

Dear Mr. Wright:

Enclosed are the laboratory results for the five samples submitted to MBT Environmental Laboratories on October 1, 1994, for the project Target, Dublin.

The analyses requested are:

TDS (1 - Water)
EPA 8020 (BTEX) & TPH/G (5 - Water)

The report consists of the following sections:

1. Cover Page
2. Copy of Chain-of-Custody
3. Quality Control Report
4. Analytical Results

Unless otherwise instructed by you, samples will be disposed of two weeks from the date of this letter.

Thank you for choosing MBT Environmental Laboratories. We are looking forward to serving you in the future. Should you have any questions concerning this analytical report or the analytical methods employed, please do not hesitate to call.

Sincerely,

Shakoora Azimi for:

Shakoora Azimi
Laboratory Director, Principal Scientist



ANALYTICAL REPORT
LABORATORY PROJECT (LP) NUMBER 10242

TARGET, DUBLIN

This report complies with the requirements under the following certification/approval:

- | | | | |
|----------------|---|-------------|--|
| ✓ CALIFORNIA: | Hazardous Waste, #1417
Waste Water, # 1417
Drinking Water, #1417 | OKLAHOMA: | Hazardous Waste, #9318
Waste Water, #9318 |
| CONNECTICUT: | Waste Water, #PH0799 | TENNESSEE: | Underground Storage Tank |
| FLORIDA: | Environmental Water,
#E87298 | UTAH: | Hazardous Waste, #E-165
Waste Water, #E-165
Drinking Water, #E-165 |
| KANSAS: | Hazardous Waste, #E-1167
Waste Water, #E-192
Drinking Water, #E-192 | WASHINGTON: | Hazardous Waste, #C048 |
| NEW HAMPSHIRE: | Waste Water, #253193-A | WISCONSIN: | Hazardous Waste, #999940920
Waste Water, #999940920 |
| NEW JERSEY: | Waste Water, #44818 | USACOE: | Hazardous Waste
Waste Water |
| NEW YORK: | Hazardous Waste, #11241
Waste Water, #11241
CLP, #11241 | AFCEE | |

(CN10242)





MBT Environmental
Laboratories ..

3083 Gold Canal Drive
Rancho Cordova
CA 95670
Phone 916/852-6600
Fax 916/852-7292

CHAIN OF CUSTODY RECORD

SEE SIDE 2 FOR
COMPLETE
INSTRUCTIONS

Ship To: MBT
Address: 3083 Gold Canal Dr.
Rancho Cordova, CA 95670

Project Name: TARGET, DUBLIN
Project Number: 04 0122629 E00
Project Location: (State) CA

FOR LABORATORY USE ONLY
Laboratory Project #: 10242
Storage Refrigerator ID: 4-28, I
Storage Freezer ID: _____

Sampler Name <u>D. WRIGHT</u>	Signature <u>[Signature]</u>	PPE Worn in Field <u>D</u>
Relinquished By: <u>[Signature]</u>	Date/Time <u>9/30/94 1300</u>	Received By or Method of Shipment/Shipment I.D. <u>EXPRESS - IT</u>
Relinquished By: <u>EXPRESS 201</u>	Date/Time _____	Received By or Method of Shipment/Shipment I.D. <u>[Signature]</u>
Relinquished By: _____	Date/Time _____	Received By or Method of Shipment/Shipment I.D. <u>10-1-94 0945</u>

- Common Analytical Methods
- 413.1
 - 413.2 Long Method
 - 413.2 Short Method
 - 418.1 Long Method
 - 418.1 Short Method
 - 420.1
 - 502.2
 - 503E
 - 503.1
 - 524.2
 - 601
 - 602
 - 604
 - 608
 - 610
 - 624
 - 625
 - 8010
 - 8015
 - 8015 Mod.
 - 8020
 - 8021
 - 8040
 - 8080
 - 8100
 - 8150
 - 8240
 - 8270
 - 8310
 - Acidity
 - Alkalinity
 - BTEX
 - Chloride
 - CLP (see Side 2)
 - COD
 - Color
 - Conductivity
 - Corrosivity
 - Cyanide
 - Flashpoint
 - Fluoride
 - General Mineral
 - Hex. Chromium
 - Ion Balance
 - Metals (write specific metal & method #)
 - Metals 6010*
 - Metals PP*
 - Metals Title 22:
 - TTLIC Level
 - STLC Level (see Side 2)
 - Nitrate
 - Nitrite
 - Odor
 - Org. Lead
 - Org. Mercury
 - Percent Moisture
 - Percent Solid
 - Perchlorate
 - pH
 - Phosphates
 - Phosphorus
 - Sulfate
 - Sulfides
 - TCLP:
 - VOA
 - Semivolatile Metals
 - Pesticide
 - TDS
 - Total Hardness
 - Total Solids
 - TPHD
 - TPHG
 - TSS
 - Turbidity

Sample Disposal (check one)

Laboratory Standard
 Other

Level of QC (see Side 2)

1 2 3 4 5 6A 6B
 6C 6D 6E 6F 7 8

Write in Analysis Method →

FOR LABORATORY USE ONLY Lab ID	Sample ID Number	Date	Time	Description		Container(s)		Matrix Type	Pres. Type	TAT	ANALYSES REQUESTED		
				Locator	Depth	#	Type				TPH/G (L&T)	BTEX (L&T)	TDS
1	10242-1	9/30/94	0720	TRIP BANK	NA	4	V	H ₂ O	HCl	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	-2		0752	MW-5							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	-3		0920	MW-2							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	-3					1	O		NP		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	-4		1100	MW-4		4	V		HCl		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	-5		1216	MW-6		4	V				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7													
8													
9													
10													

Special Instructions/Comments:

(PLEASE RETURN ALL ALAMEDA Coolers ASAP)

FOR LABORATORY USE ONLY Sample Condition Upon Receipt: Temp good, samples intact (20) 260875 contains air bubbles

Container Types: A=1 Liter Amber B=Brass Tube G=Glass Jar O=Other Small poly

C=Cassette P=Polyethylene V=Vial

TAT (Analytical Turn Around Time)
1 = 24 hours 2 = 48 hours
3 = 1 week 4 = 2 weeks
0 = Other _____

SEND DOCUMENTATION AND RESULTS TO (Check one):

Project Manager/Office: B. WRIGHT / ALAMEDA

Client Name: _____

Company: _____

Address: _____

Phone: 510-748-5697 FAX: _____

QUALITY CONTROL REPORT

METHOD BLANK

Method: Mod. EPA 8020 (BTEX) & TPH/G
Units: ug/L (ppb)

Date Analyzed: 10/05/94

<u>Analyte</u>	<u>Reporting Limit</u>	<u>Concentration</u>
Benzene	0.30	BRL
Toluene	0.30	BRL
Ethylbenzene	0.30	BRL
1,2-Xylene	0.30	BRL
1,3-Xylene	0.30	BRL
1,4-Xylene	0.30	BRL
Total Petroleum Hydrocarbons - Gasoline	50	BRL
<u>Surrogate</u>	<u>% Recovery</u>	<u>Acceptance Limits</u>
a,a,a-Trifluorotoluene (PID)	110	63 - 134
a,a,a-Trifluorotoluene (FID)	112	63 - 134

(CN10242)

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Laboratories



QUALITY CONTROL REPORT

METHOD BLANK

Method: Mod. EPA 8020 (BTEX) & TPH/G
Units: ug/L (ppb)

Date Analyzed: 10/06/94

<u>Analyte</u>	<u>Reporting Limit</u>	<u>Concentration</u>
Benzene	0.30	BRL
Toluene	0.30	BRL
Ethylbenzene	0.30	BRL
1,2-Xylene	0.30	BRL
1,3-Xylene	0.30	BRL
1,4-Xylene	0.30	BRL
Total Petroleum Hydrocarbons - Gasoline	50	BRL
<u>Surrogate</u>	<u>% Recovery</u>	<u>Acceptance Limits</u>
a,a,a-Trifluorotoluene (PID)	84	63 - 134
a,a,a-Trifluorotoluene (FID)	85	63 - 134

(CN10242)

MBT Environmental
Laboratories



QUALITY CONTROL REPORT

METHOD BLANK

Method: Mod. EPA 8020 (BTEX) & TPH/G
Units: ug/L (ppb)

Date Analyzed: 10/06/94

<u>Analyte</u>	<u>Reporting Limit</u>	<u>Concentration</u>
Benzene	0.30	BRL
Toluene	0.30	BRL
Ethylbenzene	0.30	BRL
1,2-Xylene	0.30	BRL
1,3-Xylene	0.30	BRL
1,4-Xylene	0.30	BRL
Total Petroleum Hydrocarbons - Gasoline	50	BRL
<u>Surrogate</u>	<u>% Recovery</u>	<u>Acceptance Limits</u>
a,a,a-Trifluorotoluene (PID)	94	63 - 134
a,a,a-Trifluorotoluene (FID)	97	63 - 134

(CN10242)

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Laboratories



10000 Lakeside Blvd., Suite 1000, Dallas, TX 75243



QUALITY CONTROL REPORT

**Laboratory Control Sample
Total Petroleum Hydrocarbons/TPH-Gasoline**

LP#: 10242

Date of Analysis: 10/05/94

Column: DB624

Instrument #: 6

Spike Sample ID: 1005-LCSW

Spike ID Code: W-1-987

Surrogate ID Code: W-1-981

Matrix: Water Units: ug/L

COMPOUNDS	(a)	(b)	(c)	(d)	(e)	(f)	(g)	ACCEPTANCE LIMITS	
	SAMPLE CONC.	SPIKE CONC.	SAMPLE + SPIKE CONC.	SPIKE REC. %	SAMPLE DUP. + SPIKE CONC.	SPIKE DUP. REC. %	RPD %	% REC.	RPD
Gasoline	0	100	110	110	110	110	0	100 - 127	≤20

$$\text{Spike Recovery} = d = ((c-a)/b) \times 100$$

$$\text{Spike Duplicate Recovery} = f = ((e-a)/b) \times 100$$

$$\text{Relative Percent Difference} = g = (|c-e|)/((c+e) \times .5) \times 100$$

SURROGATE COMPOUNDS	(h)	(i)	(j)	(k)	(l)	ACCEPTANCE LIMITS % REC.
	SUR. SPIKE CONC.	SAMPLE + SUR. SPIKE CONC.	SUR. REC. %	SAMPLE DUP. + SUR. SPIKE CONC.	SUR. DUP. RECOVERY %	
a,a,a-Trifluorotoluene	4.00	4.28	107	4.08	102	63 - 134

$$\text{Surrogate \% Recovery} = j = (i/h) \times 100$$

$$\text{Surrogate Dup \% Recovery} = l = (k/h) \times 100$$



**Laboratory Control Sample/Laboratory Control Sample Duplicate
Method 8020**

LP#: 10242

Spike Sample ID: 1005-LCSW

Date Of Analysis: 10/05/94

Spike ID Code: W-1-937

Column: DBWax

Surrogate ID Code: W-1-981

Instrument #: 6

Matrix: Water Units: ug/L

EPA METHOD	COMPOUNDS	(a)	(b)	(c)	(d)	(e)	(f)	(g)	ACCEPTANCE LIMITS	
		SAMPLE CONC.	SPIKE CONC.	SAMPLE + SPIKE CONC.	SPIKE REC.%	SAMPLE DUP. + SPIKE CONC.	SPIKE DUP. REC. %	RPD%	% REC.	RPD
8020	Chlorobenzene	0	4.00	4.18	104	4.24	106	1	69 - 131	≤20
8020	Benzene	0	4.00	4.38	110	4.37	109	0	72 - 134	≤20
8020	Ethyl Benzene	0	4.00	4.03	101	4.06	102	1	72 - 128	≤20

$$\text{Spike Recovery} = d = ((c-a)/b) \times 100$$

$$\text{Spike Duplicate Recovery} = f = ((e-a)/b) \times 100$$

$$\text{Relative Percent Difference} = g = (|c-e|)/((c+e) \times .5) \times 100$$

EPA METHOD	SURROGATE COMPOUNDS	DET.	(h)	(i)	(j)	(k)	(l)	ACCEPTANCE LIMITS
			SUR. SPIKE CONC.	SAMPLE + SUR. SPIKE CONC.	SUR. REC. %	SAMPLE DUP. + SUR. SPIKE CONC.	SUR. DUP. RECOVERY %	% REC.
8020	a,a,a-Trifluorotoluene	PID	4.00	4.12	103	4.16	104	63 - 134

$$\text{Surrogate \% Recovery} = j = (i/h) \times 100$$

$$\text{Surrogate Dup \% Recovery} = l = (k/h) \times 100$$



ABBREVIATIONS USED IN THIS REPORT

BRL	Below Reporting Limit
MB	Method Blank
MS	Matrix Spike
MSD	Matrix Spike Duplicate
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
RPD	Relative Percent Difference
NS	Not Specified
NA	Not Applicable

COMMENTS

Test methods may include minor modifications of published EPA methods (e.g., reporting limits or parameter lists). Reporting limits are adjusted to reflect dilution of the sample when appropriate. Solids and waste are analyzed with no correction made for moisture content.

The reporting limits for BTEX meet those specified in the California LUFT Manual.

(CN10242)

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VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and
Total Petroleum Hydrocarbons Gasoline by LUFT
Preparation Method: EPA 5030

Project Name: *Target, Dublin*

Project Number: 040122629000

Sample Description: *Trip Blank*

Lab Project-ID Number: 10242-1

Sample Number: 260873

Date Sampled: 09/30/94

Date Received: 10/01/94

Date Analyzed: 10/05/94

Analyte	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Benzene	BRL	0.30
Toluene	BRL	0.30
Ethylbenzene	BRL	0.30
1,2-Xylene	BRL	0.30
1,3-Xylene	BRL	0.30
1,4-Xylene	BRL	0.30
Total Petroleum Hydrocarbons - Gasoline	BRL	50

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	107	63 - 134
a,a,a-Trifluorotoluene (FID)	106	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

Approved by: _____



Date: _____

10/11/94



VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and
Total Petroleum Hydrocarbons Gasoline by LUFT
Preparation Method: EPA 5030

Project Name: Target, Dublin

Project Number: 040122629000

Sample Description: MW-2

Lab Project-ID Number: 10242-3

Sample Number: 260883

Date Sampled: 09/30/94

Date Received: 10/01/94

Date Analyzed: 10/05/94

Analyte	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Benzene	{a} 42	3.0
Toluene	BRL	0.30
Ethylbenzene	2.4	0.30
1,2-Xylene	BRL	0.30
1,3-Xylene	BRL	0.30
1,4-Xylene	BRL	0.30
Total Petroleum Hydrocarbons - Gasoline	130	50

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	103	63 - 134
a,a,a-Trifluorotoluene (FID)	106	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

{a} The data is reported from a different analytical run on 10/06/94 at a 10 fold dilution to obtain a result within linear range.

Approved by: 

Date: 10/11/94



VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and
Total Petroleum Hydrocarbons Gasoline by LUFT
Preparation Method: EPA 5030

Project Name: *Target, Dublin*

Project Number: 040122629000

Sample Description: *MW-4*

Lab Project-ID Number: 10242-4

Sample Number: 260887

Date Sampled: 09/30/94

Date Received: 10/01/94

Date Analyzed: 10/05/94

Analyte	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Benzene	BRL	3.0
Toluene	BRL	3.0
Ethylbenzene	BRL	3.0
1,2-Xylene	BRL	3.0
1,3-Xylene	BRL	3.0
1,4-Xylene	BRL	3.0
Total Petroleum Hydrocarbons - Gasoline	BRL	500

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	104	63 - 134
a,a,a-Trifluorotoluene (FID)	123	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

The sample was diluted 10 fold due to the presence of non-target analyte interferences.

Approved by: _____

Date: _____

063

Page 1

MBT Environmental
Laboratories



VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and
Total Petroleum Hydrocarbons Gasoline by LUFT
Preparation Method: EPA 5030

Project Name: *Target, Dublin*

Project Number: *040122629000*

Sample Description: *MW-5*

Lab Project-ID Number: *10242-2*

Sample Number: *260877*

Date Sampled: *09/30/94*

Date Received: *10/01/94*

Date Analyzed: *10/05/94*

Analyte	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Benzene	BRL	0.30
Toluene	BRL	0.30
Ethylbenzene	BRL	0.30
1,2-Xylene	BRL	0.30
1,3-Xylene	BRL	0.30
1,4-Xylene	BRL	0.30
Total Petroleum Hydrocarbons - Gasoline	BRL	50

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	106	63 - 134
a,a,a-Trifluorotoluene (FID)	106	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

Approved by: *JK*

Date: *10/11/94*



VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and
Total Petroleum Hydrocarbons Gasoline by LUFT
Preparation Method: EPA 5030

Project Name: *Target, Dublin*

Project Number: 040122629000

Sample Description: *MW-6*

Lab Project-ID Number: 10242-5

Sample Number: 260890

Date Sampled: 09/30/94

Date Received: 10/01/94

Date Analyzed: 10/06/94

Analyte	Concentration ug/L (ppb)	Reporting Limit ug/L (ppb)
Benzene	BRL	0.30
Toluene	BRL	0.30
Ethylbenzene	0.47	0.30
1,2-Xylene	BRL	0.30
1,3-Xylene	{a} {b}	0.30
1,4-Xylene	{a} 0.43	0.30
Total Petroleum Hydrocarbons - Gasoline	BRL	50
Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	100	63 - 134
a,a,a-Trifluorotoluene (FID)	105	63 - 134

Comments

The cover letter and enclosures are integral parts of this report.

{a} The data was reported from a different analytical run on 10/06/94 for which the associated standard was within daily calibration criteria.

{b} Coelutes with 1,4-Xylene.

Approved by: _____

Date: 10/11/94



INORGANICS

Analysis: *Total Dissolved Solids (TDS)*

Method: *EPA 160.1*

Project Name: *Target, Dublin*

Project Number: *040122629000*

Date Sampled: *09/30/94*

Date Received: *10/01/94*

Date Analyzed: *10/03/94*

Lab Project ID Number	Sample Number	Sample Description	Concentration mg/L (ppm)	Reporting Limit mg/L (ppm)
10242 -3	280885	MW-2	790	10

The cover letter and enclosures are integral parts of this report.

Approved by: _____



Date: _____

10/11/94

