

May 24, 1993
SCI 537.004

000000 000000

STIP 4266

Mr. Ignacio Dayrit
City of Emeryville
2200 Powell Street, 12th Floor
Emeryville, California 94608

Groundwater Monitoring Event 4
April 1993
4300 San Pablo Avenue
Emeryville, California

Dear Mr. Dayrit:

This letter records the results of the fourth groundwater sampling event conducted by Subsurface Consultants, Inc. (SCI) at the referenced site. For this sampling event wells MW-1, MW-4, MW-5 and MW-6 were sampled. Prior to sampling, the depth to groundwater in each of the 6 on-site wells was measured with a well sounder. A summary of groundwater depths and elevations is presented on Table 1. The approximate groundwater contours for the current readings are shown on the Site Plan, Plate 1.

After measuring the groundwater depths, Wells MW-1, MW-4, MW-5 and MW-6 were purged by removing at least four well volumes of water using pre-cleaned bailers. The purged water was placed in drums and left on site for later disposal. Groundwater samples were obtained from each of the three wells after purging. The samples were retained in appropriate pre-cleaned containers, put in an iced cooler, and refrigerated until delivery to the analytical laboratory. The samples were accompanied by Chain-of-Custody Records, copies of which are attached.

Analytical testing was performed by Curtis and Tompkins, Ltd., a California Department of Health Services (DHS) certified analytical laboratory for the tests performed. The analytical tests included:

1. Total Volatile Hydrocarbons TVH (as gasoline) - sample preparation and analysis using EPA Methods 5030 (purge and trap) and 8015 modified (gas chromatograph coupled to a flame ionization detector),

■ Subsurface Consultants, Inc.

Mr. Ignacio Dayrit
City of Emeryville
SCI 537.004
May 24, 1993
Page 2

■ Subsurface Consultants, Inc.

2. Benzene, toluene, xylenes and ethylbenzene (BTXE) - sample preparation and analysis using EPA Methods 5030 and 8020 (gas chromatograph coupled to a photo-ionization detector), and
3. Total Extractable Hydrocarbons TEH (as gasoline and diesel) - sample preparation and analysis using EPA Methods 3550 (sonication extraction) and 8015 modified.

Copies of the analytical test reports are attached. The results of all analytical testing events are presented in Table 2.

Conclusions

Groundwater Depth and Gradient

Based on the data presented in Table 1, it appears that groundwater levels have fallen 0.41 to 1.95 feet since the January 1993 event. The groundwater flow direction is towards the northwest under a gradient of about 1.5 percent.

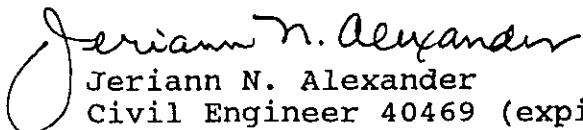
Groundwater Quality

In general, the analytical test data generated to date indicates that groundwater has been impacted by previous releases of gasoline and diesel. It appears that the dissolved product plumes have impacted areas on and downgradient of the previous tank areas.

If you have questions regarding the analytical test results, please call.

Yours very truly,

Subsurface Consultants, Inc.


Jeriann N. Alexander

Civil Engineer 40469 (expires 3/31/95)

JTW:JNA:RWR:egh

2 copies submitted

Mr. Ignacio Dayrit
City of Emeryville
SCI 537.004
May 24, 1993
Page 3

Attachments: Tables 1 and 2
Site Plan
Chain-of-Custody Records
Analytical Test Report

cc: ✓ Ms. Susan L. Hugo
Alameda County Health Care Services Agency
80 Swan Way, Room 200
Oakland, California 94621

Mr. Rich Heitt
California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612

Table 1. Summary of Groundwater Data

<u>Well</u>	<u>Date</u>	<u>TOC Elevation¹ (ft)</u>	<u>Groundwater Depth (ft)</u>	<u>Groundwater Elevation² (ft)</u>	
MW-1	06/06/90	101.13	5.33	95.80	
	06/11/90		5.52	95.61	
	06/18/90		5.50	95.63	
	06/22/90		6.18	94.95	
	06/29/90		6.50	92.63	
	10/30/90		9.10	92.03	
	12/11/90		7.18	93.95	
	12/26/90		7.90	93.23	
	01/02/91		8.27	92.86	
	07/10/91		8.00	93.13	
	09/13/91		9.16	91.17	
	12/24/91		7.29	93.84	
	01/27/93		3.60	97.53	
	04/30/93			5.14	95.99
	MW-2	06/06/90	101.49	7.15	94.34
06/11/90			6.98	94.51	
06/18/90			7.04	94.45	
06/22/90			7.60	93.89	
06/29/90			9.96	91.53	
10/30/90			10.66	90.83	
12/11/90			9.88	91.61	
12/26/90			9.19	92.30	
01/02/91			9.65	91.84	
07/10/91			9.40	92.09	
09/13/91			--	--	
12/24/91			9.19	92.30	
01/27/93			4.84	96.65	
04/30/93				6.74	94.75
MW-3		06/06/90	100.20	6.22	93.98
	06/11/90		6.50	93.70	
	06/18/90		6.49	93.71	
	06/22/90		7.11	93.09	
	06/29/90		9.34	90.86	
	10/30/90		10.11	90.09	
	12/11/90		9.36	90.84	
	12/26/90		9.00	91.20	
	01/02/91		9.28	90.92	
	07/10/91		8.94	91.26	
	09/13/91		9.93	90.27	
	12/24/91		9.02	91.18	
	01/27/93		3.90	96.30	
	04/30/93			5.85	94.35

TABLE 1 (Continued)

<u>Well</u>	<u>Date</u>	<u>TOC Elevation¹ (ft)</u>	<u>Groundwater Depth (ft)</u>	<u>Groundwater Elevation² (ft)</u>
MW-4	12/26/90	100.25	6.93	93.32
	01/02/91		7.31	92.94
	07/10/91		7.12	93.13
	09/13/91		8.53	91.72
	12/24/91		6.70	93.55
	01/27/93		3.29	96.96
	04/30/93		4.74	45.48
	MW-5		12/26/90	99.54
01/02/91		7.95	91.59	
07/10/91		6.48	93.06	
09/16/91		7.07	92.47	
12/24/91		9.65	89.89	
01/27/93		4.80	94.74	
04/30/93		5.21	94.33	
MW-6		12/26/90	99.26	
	01/02/91	9.40		89.86
	07/10/91	8.66		90.60
	09/13/91	9.95		89.31
	12/24/91	9.61		89.65
	01/27/93	5.17		94.09
	04/30/93	5.92		93.34

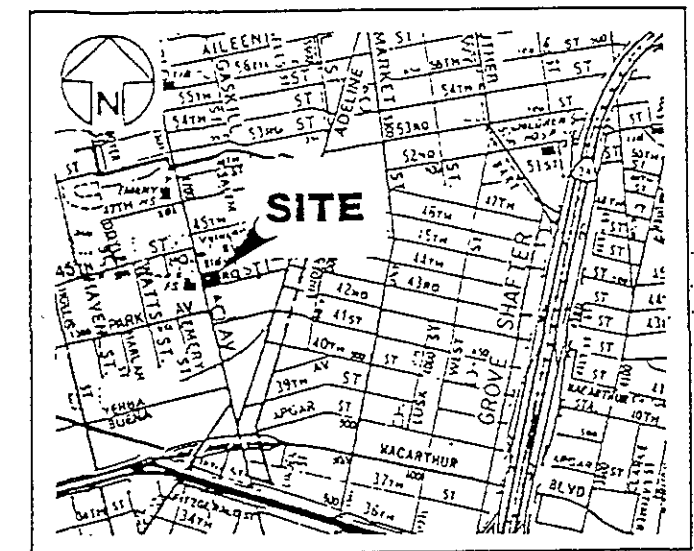
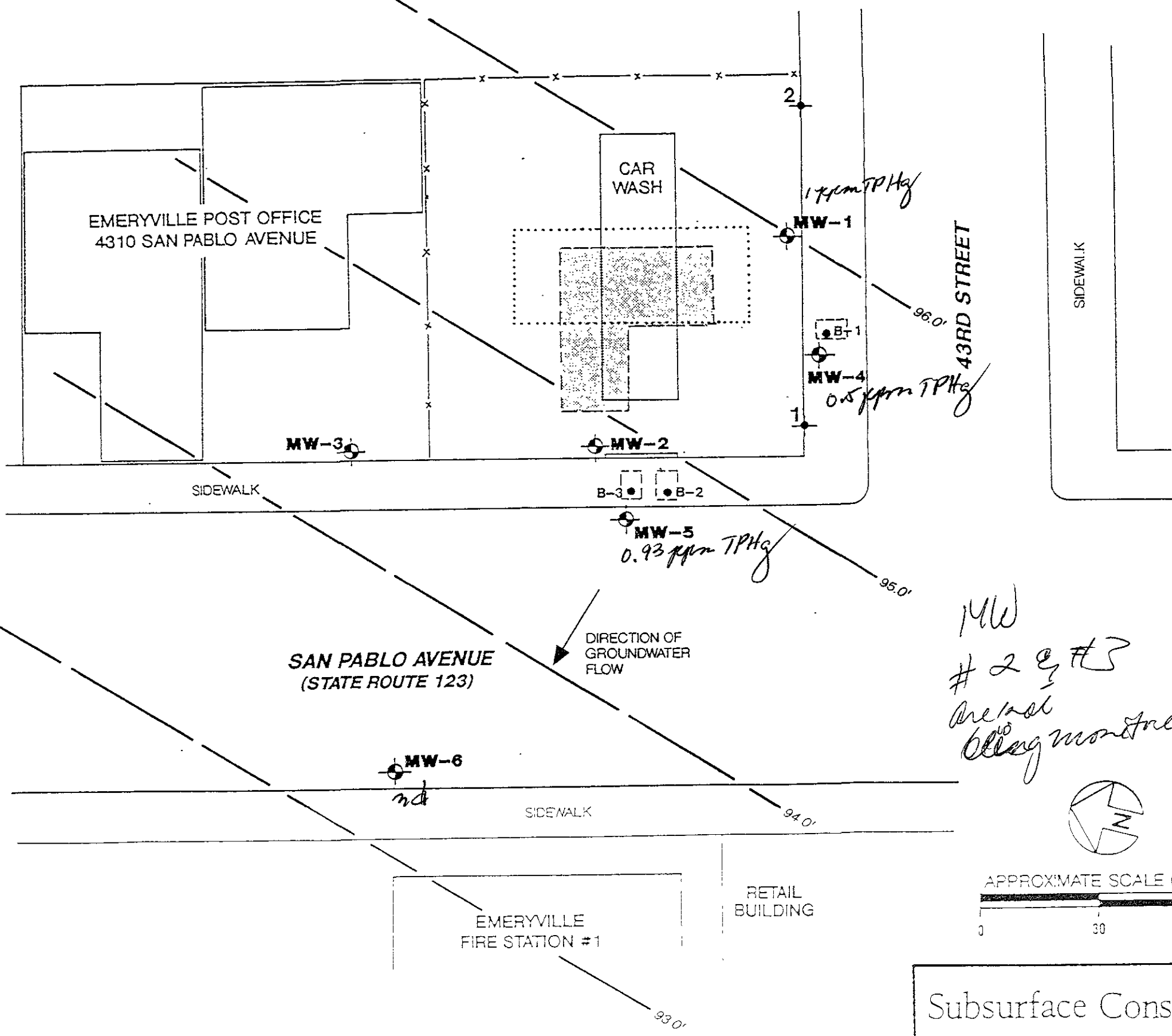
¹ Elevation reference: Top of curb at fire hydrant on 43rd Street (see Site Plan) assumed at elevation 100.00 feet

² Measured below top of casing (TOC)

**Table 2. Analytical Test Results
in Groundwater**

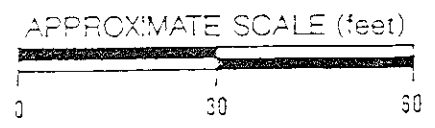
Sample	Sample Date	TVH ³ (mg/L)	TEH (mg/L)	Purgeable Aromatics ²			
				B (ug/L)	T (ug/L)	X (ug/L)	E (ug/L)
MW-1	06/11/90	0.94	1.90	5.3	1.8	1.9	1.8
MW-1	12/11/90	0.26	--	0.5	0.8	0.7	<0.5 ⁵
MW-1	09/13/91	0.33	0.38	<0.5	1.8	2.2	0.5
MW-1	12/24/91	0.15	0.41	<0.5	<0.5	<0.5	<0.5
MW-1	01/27/93	0.94	0.40	3.0	3.9	6.9	2.1
MW-1	04/30/93	1.00	0.32	1.9	0.5	4.4	1.9
MW-2	06/11/90	1.80	2.80	<0.5	<0.5	<0.5	0.5
MW-2	12/11/90	1.60	--	3.0	2.5	3.8	2.1
MW-3	06/11/90	<0.05	<0.5	<0.5	<0.5	<0.5	0.5
MW-3	12/11/90	<0.05	--	<0.5	<0.5	<0.5	<0.5
MW-4	12/10/90	0.30		<0.5	1.1	1.3	0.6
MW-4	09/13/90	<0.05	0.18	<0.5	<0.5	<0.5	<0.5
MW-4	12/24/91	<0.05	0.065	<0.5	<0.5	<0.5	<0.5
MW-4	04/30/93	0.5	0.35	1.0	<0.5	3.5	2.1
MW-5	12/10/90	0.420	--	<0.5	<0.5	2.8	1.5
MW-5	09/16/91	1.20	0.20	0.6	3.3	5.1	2.3
MW-5	12/24/91	0.66	0.82	<0.5	1.0	3.2	1.5
MW-5	01/27/93	0.77	0.49	1.2	1.8	6.5	3.2
MW-5	04/30/93	0.93	0.45	<0.5	<0.5	2.0	2.0
MW-6	12/11/90	<0.05	--	<0.5	<0.5	<0.5	<0.5
MW-6	09/13/91	<0.05	0.11	<0.5	<0.5	<0.5	<0.5
MW-6	12/24/91	<0.05	<0.05	<0.5	<0.5	<0.5	<0.5
MW-6	01/27/93	<0.05	0.06	0.7	1.9	3.1	0.7
MW-6	04/30/93	<0.05	0.05	<0.5	<0.5	<0.5	<0.5

1 Total Extractable Hydrocarbons as Diesel (EPA 8015 modified)
 2 Benzene, toluene, total xylenes and ethylbenzene (EPA 8020)
 3 Total Volatile Hydrocarbons as Gasoline (EPA 8015 modified)
 4 Test not requested
 5 Less than detection limit shown



- MONITORING WELL
- GROUNDWATER CONTOUR ELEVATION (feet)
- TEST BORING
- APPROXIMATE FORMER TANK LOCATION
- FORMER FUEL STATION PRIOR TO 1950 (APPROXIMATE LOCATION)
- FORMER FUEL STATION AFTER 1959 (APPROXIMATE LOCATION)

MW # 2 & # 3 are not being monitored



ESTIMATED GROUNDWATER CONTOURS (4/30/93)		
EMERYVILLE SENIOR HOUSING		PLATE 1
JOB NUMBER 537 004	DATE 5/19/93	APPROVED

Subsurface Consultants



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

DATE RECEIVED: 05/03/93

DATE REPORTED: 05/06/93

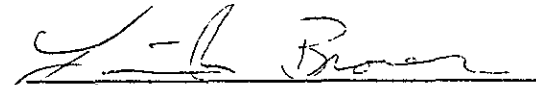
LABORATORY NUMBER: 110774


CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 537.004

LOCATION: 43RD & SAN PABLO

RESULTS: SEE ATTACHED


Reviewed by


Reviewed by

This report may be reproduced only in its entirety.



LABORATORY NUMBER: 110774
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.004
 LOCATION: 43RD & SAN PABLO

DATE SAMPLED: 04/30,05/01/93
 DATE RECEIVED: 05/03/93
 DATE ANALYZED: 05/02/93
 DATE REPORTED: 05/06/93

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions
 TVH by California DOHS Method/LUFT Manual October 1989
 BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
110774-1	MW-1	1,000	1.9	ND(0.5)	1.9	4.4
110774-2	MW-4	500	1.0	ND(0.5)	2.1	3.8
110774-3	MW-5	930	ND(0.5)	ND(0.5)	2.0	2.0
110774-4	MW-6	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not detected at or above reporting limit; Reporting limit indicated in parentheses.

QA/QC SUMMARY

=====
 RPD, % 5
 RECOVERY, % 99
 =====

LABORATORY NUMBER: 110774
 CLIENT: SUBSURFACE CONSULTANTS
 PROJECT ID: 537.004
 LOCATION: 43RD & SAN PABLO

DATE SAMPLED: 04/30,05/01/93
 DATE RECEIVED: 05/03/93
 DATE EXTRACTED: 05/04/93
 DATE ANALYZED: 05/05/93
 DATE REPORTED: 05/06/93

Extractable Petroleum Hydrocarbons in Aqueous Solutions
 California DOHS Method
 LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (ug/L)	DIESEL RANGE (ug/L)	REPORTING LIMIT* (ug/L)
110774-1	MW-1	**	320	50
110774-2	MW-4	**	350	50
110774-3	MW-5	**	450	50
110774-4	MW-6	ND	50	50

ND = Not detected at or above reporting limit.

* Reporting limit applies to all analytes.

QA/QC SUMMARY

RPD, %	6
RECOVERY, %	94

CHAIN OF CUSTODY FORM

PROJECT NAME: 43rd + San Pablo
 JOB NUMBER: 537.004 LAB: Curtis + Tompkins
 PROJECT CONTACT: John Wolfe TURNAROUND: Normal
 SAMPLED BY: Dennis Alexander REQUESTED BY: John Wolfe

ANALYSIS REQUESTED											
TEH	TVH	BTXE									

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX				CONTAINERS				METHOD PRESERVED					SAMPLING DATE				NOTES	
		WATER	SOIL	WASTE	AIR	VOA	LITER	PINT	TUBE	HCL	H ₂ SO ₄	HNO ₃	ICE	NONE	MONTH	DAY	YEAR	TIME		
110774-1	MW-1	X				3	1			X			X		04	30	93	1415	X	X
-2	MW-4	X				3	1			X			X		05	01	93	0745	X	X
-3	MW-5	X				3	1			X			X		05	01	93	0815	X	X
-4	MW-6	X				3	1			X			X		04	30	93	1145	X	X

CHAIN OF CUSTODY RECORD			
RELEASED BY: (Signature) <i>Dennis Alexander</i>	DATE / TIME 5/3/93 11:05 a.m.	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME 5/3/93 11:05

COMMENTS & NOTES:

Subsurface Consultants, Inc.
 171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607
 (510) 268-0461 • FAX: 510-268-0137