



TANK PROTECT ENGINEERING  
of Northern California, Inc.

ENVIRONMENTAL  
PROTECTION

97 AUG 29 PM 3:06

August 12, 1997

Messrs. Aaron and Stanley Wong  
2200 E. 12th Street  
Oakland, CA 94606

# 2116  
~~2116~~

Re: Second Quarter Report, 1997, Credit World Auto Sales, 2345 E. 14th Street,  
Oakland, CA 94601

Dear Messrs. Wong:

Tank Protect Engineering of Northern California, Inc. (TPE) is pleased to submit this quarterly letter report of environmental services conducted at the subject site. Previous work conducted prior to January 1, 1997 is summarized in TPE's January 10, 1997 Fourth Quarter Report, 1996, Credit World Auto Sales, 2345 E. 14th Street, Oakland, CA 94601. Work conducted during the subject quarter is presented in detail below.

#### WORK PERFORMED BY TPE DURING SECOND QUARTER, 1997

- April 7, 1997 - Submitted a First Quarter Report, 1997, Credit World Auto Sales, 2345 E. 14th Street, Oakland, CA 94601 to Messrs. Wong for their approval and delivery to the Alameda County Health Care Services Agency (ACHCSA).
- June 27 and 28, 1997 - Measured depth-to-groundwater and free product thickness in wells MW-1 through TMW-4 for evaluation of groundwater flow direction and gradient and collected groundwater samples from wells MW-1 through TMW-4 for analysis for TPHG and MBTEX.

Work performed by TPE during First Quarter, 1997

- . January 10, 1997 - Submitted a Fourth Quarter Report, 1996, Credit World Auto Sales, 2345 E. 14th Street, Oakland, CA 94601 to Messrs. Wong for their approval and delivery to the Alameda County Health Care Services Agency (ACHCSA).
- . February 2, 1997 - Submitted an Addendum to August 4, 1995, Credit World Auto Sales, 2345 E. 14th Street, Oakland, CA 94601 to Messrs. Wong for their approval and delivery to ACHCSA.
- . February 10, 1997 - ACHCSA approves the addendum to the workplan.
- . March 6, 1997 - Supervised the removal of 400 gallons of hydrocarbon contaminated groundwater stored in drums.
- . March 7 and 10, 1997 - Measured depth-to-groundwater and free product thickness in wells MW-1 through TMW-5 for evaluation of groundwater flow direction and gradient and collected groundwater samples from wells MW-1 through TMW-5 for analysis for TPHG and MBTEX. Additionally, a trip blank was analyzed for TPHG and MBTEX.

Details of work conducted during the second quarter are presented below.

Groundwater Gradient

On June 26, 1997 a TPE representative loosened well caps on all wells to allow groundwater levels to stabilize to atmospheric pressure within the wells prior to making depth-to-groundwater measurements for evaluation of groundwater flow direction and gradient.

On June 27 and June 28, 1997 depth-to-groundwater was measured from the top of casing (TOC) in all wells to the nearest 0.01 foot using an electronic Keck

Instrument, Inc., KIR-89 interface probe. A minimum of 3 repetitive measurements were made for each level determination to ensure accuracy. Depth-to-groundwater was subtracted from the TOC elevation, measured relative to mean sea level, to calculate the elevation of the groundwater level in each well (see attached Table 1). When floating product was present, the groundwater elevation was corrected by multiplying the floating product thickness by a density of .75 and adding the resultant value to the groundwater elevation.

Attached Figure 1 is a groundwater gradient map constructed from the data collected on June 27, 1997. Groundwater flow direction was to the east with a gradient about 0.018 feet per foot, respectively. Average groundwater elevations, changes in average groundwater elevations, groundwater gradients, and groundwater flow directions are tabulated in attached Table 2.

#### Groundwater Sampling and Analytical Results

On June 27 and 28, 1997 groundwater samples were collected from groundwater monitoring wells MW-1 through TMW-4. Monitoring well TMW-5 was obstructed by debris. Before sampling, the wells were purged of about 35 to 42 liters of water with dedicated polyethylene bailers and until the temperature, conductivity, and pH of the water in the wells had stabilized (see attached Records of Water Sampling). Since dedicated bailers were used for each well sampled, no decontamination was necessary between sampling events. The water samples were collected in laboratory provided, sterilized, 40-milliliter glass vials having Teflon-lined screw caps; measured for turbidity and labeled with project name, date, time collected, sample number, and sampler name. The samples were immediately stored in an iced-cooler for transport to California State Department of Health Services (DHS) certified Entech Analytical Labs, Inc., located in Sunnyvale, California accompanied by chain-of-custody documentation.

All groundwater samples, were analyzed for TPHG by the United States Environmental Protection Agency (EPA) Method 8015M and for MBTEX by the Modified EPA Method 8020.

Floating product was observed in all of the monitoring wells during this quarterly period. Attached Table 3 summarizes the thickness of floating product measured in each well. Hydrocarbon odor and/or sheen were observed in all wells.

Purge water was stored on site in 55-gallon drums labeled to show material stored, known or suspected chemical contaminant, date filled, expected removal date, company name, contact person, and telephone number.

See attached protocols for TPE's sample handling, groundwater monitoring well sampling, and quality assurance and quality control procedures.

Chemical analyses detected TPHG and some or all MBTEX chemicals in all wells. TPHG was detected in wells MW-1, MW-2, and MW-3, at concentrations of 54,000 parts per billion (ppb), 12,000 ppb, and 15,000 ppb, respectively. Well TMW-4 was nondetectable for TPHG and MBTEX.

All analytical results are summarized in attached Table 4 and documented in an attached certified analytical report and a chain-of-custody.

## RECOMMENDATIONS

TPE recommends that quarterly groundwater sampling of all 5 groundwater monitoring wells be continued to evaluate gradient, to monitor contaminant concentrations and to continue removal of free product from the wells. During the subject quarter, free product reappeared in all wells and was over 4 feet thick in well MW-1. Concentrations of TPHG and MBTEX remained consistent in all wells.

The next sampling event is due on about September 19, 1997.

An additional copy of this report has been included for your delivery to:

Mr. Barney Chan  
Alameda County Health Care Services Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway  
Alameda, CA 94502-6577

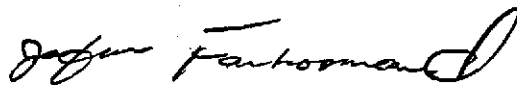
TPE recommends that this quarterly report be submitted with a signed cover letter from Messrs. Aaron and Stanley Wong.

If you have any questions, please call TPE at (510) 429-8088.

Sincerely,

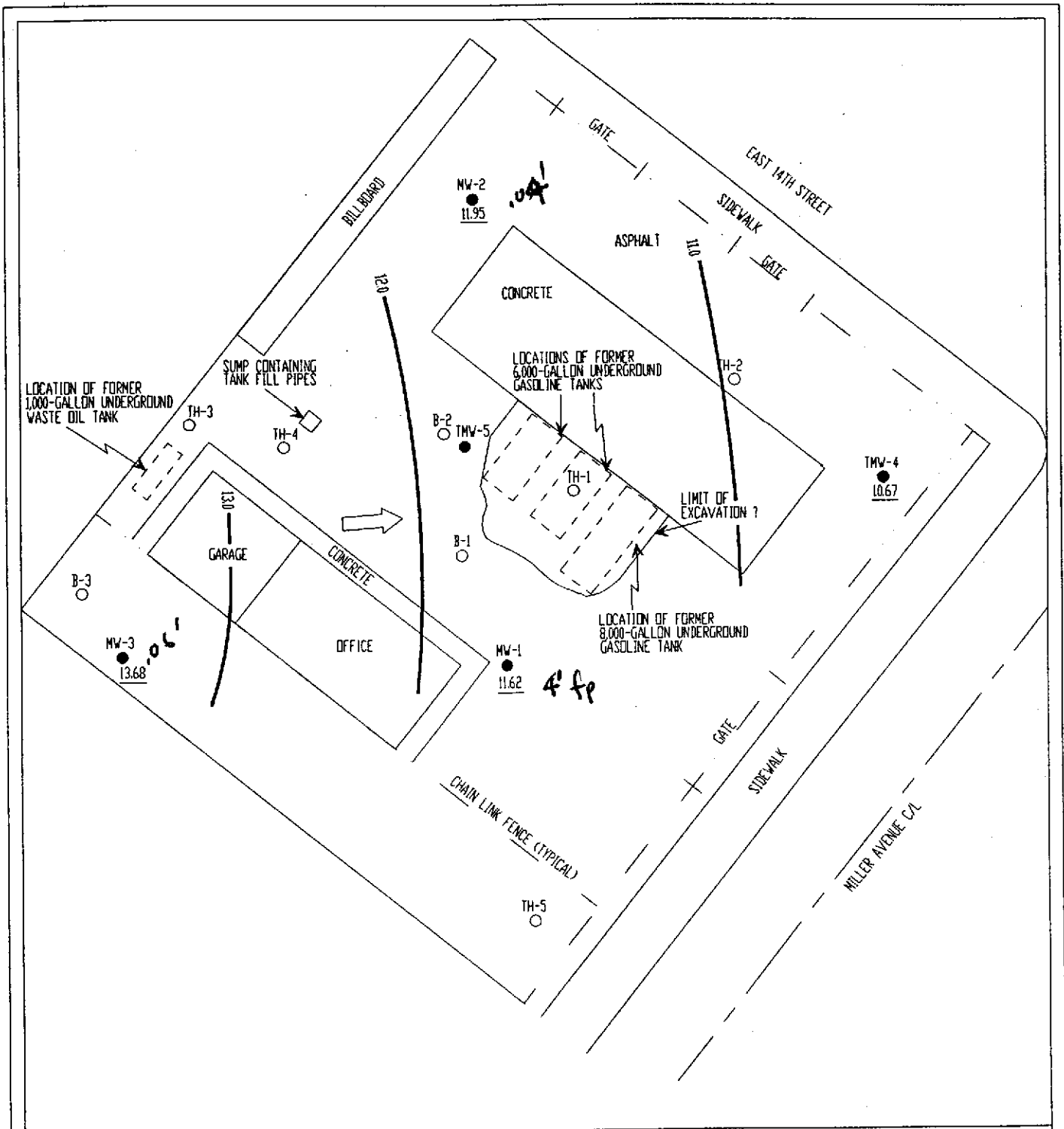


Frederick G. Moss, P.E.  
Registered Engineer



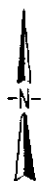
Jeff Farhoomand, M.S.  
Principal Engineer





LEGEND

- TMW-4 ● NAME AND LOCATION OF MONITORING WELL INSTALLED BY TPE
- MW-1 ● NAME AND LOCATION OF MONITORING WELL INSTALLED BY OTHERS
- B-1 ○ NAME AND APPROXIMATE LOCATION OF SOIL BORING DRILLED BY OTHERS
- 11.62 POTENTIOMETRIC ELEVATION
- 11.0 POTENTIOMETRIC CONTOUR
- GROUNDWATER FLOW DIRECTION



TANK PROTECT ENGINEERING

SITE PLAN:  
GROUNDWATER GRADIENT MAP (06/27/97)

CREDIT WORLD AUTO SALES  
2345 E. 14TH STREET  
OAKLAND, CA 94601

DATE	8/8/97
FIGURE	1
FILE #	267-2-N
DRAWN BY	VK
CHECKED BY	FGM

TABLE 1  
GROUNDWATER ELEVATION

Well Name	Date	TOC <sup>1</sup> Elevation (Feet MSL <sup>4</sup> )	Depth-to-Water From TOC (Feet)	Depth to Product From TOC (Feet)	Corrected <sup>3</sup> Groundwater Elevation (Feet MSL)
MW-1	08/23/91 <sup>5</sup>	100.00 <sup>2</sup>	15.42	NA <sup>9</sup>	84.58
	04/16/92 <sup>6</sup>	27.33 <sup>7</sup>	16.66	11.54	14.51 <sup>8</sup>
	06/11/93		12.61	12.60	14.73
	08/17/93		14.40	13.63	13.50 <sup>7</sup>
	03/31/94		12.64	ND	14.69
	06/27/94		14.32	13.16	13.88
	09/16/94		15.86	13.64	13.14
	03/31/95		11.82	9.48	17.27
	06/28/95		13.50	12.60	14.51
	09/28/95		14.27	13.96	13.29
	12/26/95		11.77	11.62	15.67
	03/22/96		10.52	10.44	16.87
	06/20/96		13.38	12.49	14.63
	09/24/96		14.60	13.40	13.63
	12/27/96		9.17	9.08	18.23
	03/06/97		12.35	ND	14.98
	06/28/97		14.67	10.60	11.62
MW-2	08/23/91 <sup>5</sup>	98.585 <sup>2</sup>	13.77	NA	84.815
	04/16/92 <sup>6</sup>	25.92 <sup>7</sup>	15.38	12.57	12.65 <sup>8</sup>
	06/11/93		13.185	ND <sup>10</sup>	12.74
	08/17/93		14.04	14.03	11.89
	03/31/94		13.61	13.07	12.72 <sup>8</sup>
	06/27/94		14.24	13.44	12.28
	09/16/94		17.82	13.36	11.45
	03/31/95		16.72	9.28	14.78
	06/28/95		13.50	12.77	12.97
	09/28/95		14.63	14.09	11.70
	12/26/95		12.58	11.68	14.01

TABLE 1  
GROUNDWATER ELEVATION

Well Name	Date	TOC <sup>1</sup> Elevation (Feet MSL <sup>4</sup> )	Depth-to-Water From TOC (Feet)	Depth to Product From TOC (Feet)	Corrected <sup>3</sup> Groundwater Elevation (Feet MSL)
MW-2	03/22/96	98.585 <sup>2</sup>	11.46	11.31	14.57
	06/20/96	25.92 <sup>7</sup>	13.08	12.71	13.12
	09/30/96		16.67	12.92	12.06
	12/27/96		15.74	8.17	15.86
	03/06/97		12.55	ND	13.37
	06/28/97		11.98	11.94	11.95
MW-3	08/23/91 <sup>5</sup>	99.25 <sup>2</sup>	15.07	NA	84.18
	04/16/92 <sup>6</sup>	27.57 <sup>7</sup>	14.14	13.98	13.55 <sup>8</sup>
	06/11/93		14.275	ND	13.30
	08/17/93		15.77	ND	11.80
	03/31/94		14.35	ND	13.22
	06/27/94		14.77	ND	12.80
	09/16/94		15.42	15.37	12.19
	03/31/95		12.98	12.52	14.94
	06/28/95		14.20	14.15	13.41
	09/28/95		15.17	ND	12.40
	12/26/95		13.33	13.27	14.28
	03/22/96		12.81	12.77	14.79
	06/20/96		13.95	13.88	13.67
	09/24/96		14.86	14.82	12.74
	12/27/96		11.04	10.98	16.58
	03/07/97		13.80	ND	13.77
	06/28/97		13.72	13.66	13.68
TMW-4	08/17/93	26.50 <sup>7</sup>	13.26	ND	13.24
	03/31/94		12.40	ND	14.10
	06/27/94		12.84	ND	13.66
	09/16/94		13.58	ND	12.92
	03/31/95		10.23	ND	16.27



TABLE 1  
GROUNDWATER ELEVATION

Well Name	Date	TOC <sup>1</sup> Elevation (Feet MSL <sup>4</sup> )	Depth-to-Water From TOC (Feet)	Depth to Product From TOC (Feet)	Corrected <sup>3</sup> Groundwater Elevation (Feet MSL)
TMW-4	06/28/95	26.50 <sup>7</sup>	12.21	ND	14.29
	09/28/95		13.38	ND	13.12
	12/26/95		11.32	ND	15.18
	03/22/96		10.54	ND	15.96
	06/20/96		12.14	ND	14.36
	09/24/96		13.01	ND	13.49
	12/27/96		9.51	ND	16.99
	03/07/97		11.92	ND	14.58
	06/28/97		10.70	10.65	10.67
TMW-5	08/17/93	26.51 <sup>7</sup>	12.98	12.95	13.55
	03/31/94		11.39	ND	15.12
	06/27/94		12.24	ND	14.27
	09/16/94		13.02	12.97	13.53
	03/31/95		7.38	ND	19.13
	06/28/95		11.31	11.25	15.25
	09/28/95		14.42	ND	12.09
	12/26/95		10.16	10.11	16.38
	03/22/96		7.59	7.54	18.96
	06/26/96 <sup>11</sup>		7.12	ND	NA
	09/30/96 <sup>11</sup>		7.42	ND <sup>10</sup>	NA <sup>9</sup>
12/27/96 <sup>11</sup>		6.38	ND	NA	
03/07/97 <sup>11</sup>		11.12	ND	NA	
06/28/97 <sup>12</sup>		NM <sup>12</sup>	NM <sup>12</sup>	---	

<sup>1</sup> TOP-OF-CASING.

<sup>2</sup> RELATIVE TO SITE DATUM ESTABLISHED BY ESE.

<sup>3</sup> ELEVATION CORRECTED FOR FLOATING PRODUCT USING 0.75 DENSITY FOR GASOLINE.

<sup>4</sup> MEAN SEA LEVEL.

<sup>5</sup> WATER LEVEL MEASUREMENTS BY ESE.

<sup>6</sup> WATER LEVEL MEASUREMENTS BY NKJ.

- 7 TOC SURVEYED 8/10/93 BY PROFESSIONAL ENGINEER.
- 8 CORRECTED GROUNDWATER ELEVATION BY TANK PROTECT ENGINEERING
- 8 CORRECTED GROUNDWATER ELEVATION BY TANK PROTECT ENGINEERING.
- 9 NOT AVAILABLE.
- 10 NOT DETECTED.
- 11 WELL TOP DESTROYED DURING REMEDIATION
- 12 NOT MEASURED - WELL OBSTRUCTED

TABLE 2  
GROUNDWATER GRADIENTS, FLOW DIRECTIONS,  
AND ELEVATION DATA

Date	Average Groundwater Elevation (Feet-MSL <sup>1</sup> )	Change in Average Groundwater Elevation (Feet)	Groundwater Gradient	Groundwater Flow Direction
04/16/92	13.57	---	.021	NW
06/11/93	13.59	0.02	.026	NW
08/17/93	12.80	-0.79	.029	RADIAL
03/31/94	13.97	+1.17	.050	RADIAL
06/27/94	13.38	-0.59	.020	RADIAL
09/16/94	12.65	-0.73	.0179-.0411	RADIAL
03/31/95	16.48	+3.83	.075	RADIAL
06/28/95	14.09	-2.39	.025-.053	RADIAL
09/28/95	12.52	-1.57	.025	NW
12/26/95	15.09	+2.57	.048	RADIAL
03/22/96	16.23	+1.14	.034-.132	RADIAL
06/20/96 <sup>2</sup>	13.95	-2.28	.016	NW
09/30/96 <sup>2</sup>	12.98	-0.97	.019	NW
12/27/96 <sup>2</sup>	16.41	+3.43	.024-.029	N-NW
03/07/97 <sup>2</sup>	14.18	-2.23	.020-.035	N-NW
06/28/97 <sup>2</sup>	11.98	-2.20	0.018	(E) <del>⊗</del>

<sup>1</sup> MEAN SEA LEVEL.

<sup>2</sup> DOES NOT INCLUDE DATA FOR TMW-5; WELL TOP DESTROYED DURING REMEDIATION ACTIVITIES.

*⊗ This gradient is suspect.*

TABLE 3  
SUMMARY OF FLOATING PRODUCT THICKNESS

Well Name	Date	Depth-to-Water From TOC <sup>1</sup> (Feet)	Depth-to-Product From TOC (Feet)	Product Thickness (Feet)
MW-1	04/16/92 <sup>2</sup>	16.66	11.54	5.12
	06/11/93	12.61	12.60	0.01
	08/17/93	14.40	13.63	0.77
	03/31/94	12.64	ND	---
	06/27/94	14.32	13.16	1.16
	09/16/94	15.86	13.64	2.22
	03/31/95	11.82	9.48	2.34
	06/28/95	13.50	12.60	0.90
	09/28/95	14.27	13.96	0.31
	12/26/95	11.77	11.62	0.15
	03/22/96	10.52	10.44	0.08
	06/20/96	13.38	12.49	0.089
	09/24/96	14.60	13.40	1.20
	12/27/96	9.17	9.08	0.09
	03/06/97	12.35	ND	---
	06/28/97	14.67	10.60	4.07
MW-2	04/16/92 <sup>2</sup>	15.38	12.57	2.81
	06/11/93	13.185	ND <sup>3</sup>	---
	08/17/93	14.04	14.03	0.01
	03/31/94	13.61	13.07	0.54
	06/27/94	14.24	13.44	0.80
	09/16/94	17.82	13.36	4.46
	03/31/95	16.72	9.28	7.44
	06/28/95	13.50	12.77	0.73
	09/28/95	14.63	14.09	0.54
	12/26/95	12.58	11.68	0.90
	03/22/96	11.46	11.31	0.15
	06/20/96	13.08	12.71	0.37

TABLE 3  
SUMMARY OF FLOATING PRODUCT THICKNESS

Well Name	Date	Depth-to-Water From TOC <sup>1</sup> (Feet)	Depth-to-Product From TOC (Feet)	Product Thickness (Feet)
MW-2	09/30/96	16.67	12.92	3.75
	12/27/96	15.74	8.17	7.57
	03/06/97	12.55	ND	---
	06/28/97	11.98	11.94	0.04
MW-3	04/16/92 <sup>2</sup>	14.14	13.98	0.16
	06/11/93	14.275	ND	---
	08/17/93	15.77	ND	---
	03/31/94	14.35	ND	---
	06/27/94	14.77	ND	
	09/16/94	15.42	15.37	
	03/31/95	12.98	12.52	0.46
	06/28/95	14.20	14.15	0.05
	09/28/95	15.7	ND	--
	12/26/95	13.33	13.27	0.06
	03/22/96	12.81	12.77	0.04
	06/20/96	13.95	13.88	0.07
	09/24/96	14.86	14.82	0.04
	12/27/96	11.04	10.98	0.06
	03/07/97	13.80	ND	---
	06/28/97	13.72	13.66	0.06
TMW-4	08/17/93	13.26	ND	---
	03/31/94	12.40	ND	---
	06/27/94	12.84	ND	---
	09/16/94	13.58	ND	---
	03/31/95	10.23	ND	---
	06/28/95	12.21	ND	---
	09/28/95	13.38	ND	---
	12/26/95	11.32	ND	---

TABLE 3  
SUMMARY OF FLOATING PRODUCT THICKNESS

Well Name	Date	Depth-to-Water From TOC <sup>1</sup> (Feet)	Depth-to-Product From TOC (Feet)	Product Thickness (Feet)
	03/22/96	10.54	ND	---
	06/20/96	12.14	ND	---
TMW-4	09/24/96	13.01	ND	---
	12/27/96	9.51	ND	---
	03/07/97	11.92	ND	---
	06/28/97	10.70	10.65	0.05
TMW-5	08/17/93	12.98	12.95	0.03
	03/31/94	11.39	ND	---
	06/27/94	12.24	ND	---
	09/16/94	13.02	12.97	0.05
	03/31/95	7.38	ND	---
	06/28/95	11.31	11.25	0.06
	09/28/95	14.42	ND	---
	12/26/95	10.16	10.11	0.05
	03/22/96	7.59	7.54	0.05
	06/20/96 <sup>11</sup>	7.12	ND	---
	09/30/96 <sup>11</sup>	7.42	ND	---
	12/27/96 <sup>11</sup>	6.38	ND	---
	03/07/97 <sup>11</sup>	11.12	ND	---
	06/28/97 <sup>12</sup>	NM <sup>12</sup>	NM <sup>12</sup>	---

<sup>1</sup> TOP-OF-CASING.

<sup>2</sup> RELATIVE TO SITE DATUM ESTABLISHED BY ESE.

<sup>3</sup> ELEVATION CORRECTED FOR FLOATING PRODUCT USING 0.75 DENSITY FOR GASOLINE.

<sup>4</sup> MEAN SEA LEVEL

<sup>5</sup> WATER LEVEL MEASUREMENTS BY ESE.

<sup>6</sup> WATER LEVEL MEASUREMENTS BY NKJ.

<sup>7</sup> TOC SURVEYED 8/10/93 BY PROFESSIONAL ENGINEER.

<sup>8</sup> CORRECTED GROUNDWATER ELEVATION BY TANK PROTECT ENGINEERING.

<sup>9</sup> NOT AVAILABLE.

<sup>10</sup> NOT DETECTED.

TABLE 4  
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS  
(ppb<sup>1</sup>)

Sample ID Name	Date	TPHG	Methyl t-Butyl Ether	Benzene	Toluene	Ethyl-benzene	Xylenes
MW-1	08/17/93	110,000	NA <sup>2</sup>	270	690	730	3,100
	03/28/94	34,000	NA	4,900	1,800	1,200	4,000
	06/27/94	21,000	NA	12,000	810	760	2,500
	09/16/94	37,000	NA	7,900	2,400	1,300	3,300
	03/31/95	43,000	NA	8,100	1,900	1,000	4,200
	06/28/95	80,000	NA	7,900	3,200	1,800	7,300
	09/28/95	24,000	<1,200	4,900	470	470	1,700
	12/26/95	61,000	<1,200	12,000	4,200	1,500	5,500
	03/22/96	19,000	<2,500	6,000	47	260	<750
	06/20/96	15,000	910	2,900	100	240	98
	09/24/96	20,000	340	4,800	220	300	770
	12/27/96	24,000	<5.0	5,900	440	310	740
	03/07/97	30,000	<5.0	5,700	370	290	780
	06/28/97	54,000	<5.0	5,200	1,300	1,000	4,900
MW-2	08/17/93	49,000	NA	94	240	250	980
	03/28/94	14,000	NA	4,200	<250	910	1,400
	06/27/94	24,000	NA	4,400	72	1,100	1,700
	09/16/94	40,000	NA	2,300	250	2,000	4,100
	03/31/95	28,000	NA	4,000	<120	1,100	1,400
	06/28/95	40,000	NA	2,700	130	1,700	2,900
	09/28/95	7,500	<62	420	14	250	190
	12/26/95	22,000	<250	1,300	88	950	1,800
	03/22/96	9,800	<1,200	2,200	<120	400	<380
	06/20/96	35,000	550	770	<0.50	240	<0.50
	09/30/96	58,000	<5.0	1,600	230	2,200	4,000
	12/27/96	29,000	<5.0	2,100	<0.50	1,200	1,800
Sept 18 1997	03/07/97	13,000	<5.0	1,300	37	290	180
	6/28/97	12,000	<5.0	840	ND	640	360

TABLE 4  
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS  
(ppb<sup>1</sup>)

Sample ID Name	Date	TPHG	Methyl t-butyl ether	Benzene	Toluene	Ethyl-benzene	Xylenes
MW-3	08/17/93	9,600	NA	4.1	17	28	54
	03/28/94	8,400	NA	2,400	56	67	200
	06/27/94	9,900	NA	3,300	<22	<25	73
	09/16/94	16,000	NA	2,300	80	620	240
	03/31/95	16,000	NA	2,800	70	<25	920
	06/28/95	11,000	NA	2,300	32	81	240
	09/28/95	6,300	<420	1,900	<42	200	<120
	12/26/95	25,000	<250	3,800	97	94	1,600
	03/22/96	16,000	250	3,100	75	69	350
	06/20/96	8,500	220	1,400	28	140	15
	09/24/96	12,000	<5.0	2,400	87	340	110
	12/27/96	5,800	240	1,700	28	<0.50	42
	03/10/97	9,000	<5.0	1,700	<0.5	110	<0.5
	06/28/97	15,000	<5.0	2,200	<0.50	160	190
TMW-4	08/17/93	150	NA	<0.50	0.8	1.4	3.7
	03/28/94	<50	NA	<0.50	<0.50	<0.50	<1.5
	06/27/94	<50	NA	<0.50	<0.50	<0.50	<1.5
	09/16/94	<50	NA	<0.50	<0.50	<0.50	<1.5
	03/31/95	<50	NA	<0.50	<0.50	<0.50	<1.5
	06/28/95	<50	NA	<0.50	<0.50	<0.50	<1.5
	09/28/95	<50	<5.0	<0.50	<0.50	<0.50	<1.5
	12/26/95	<50	<5.0	<0.50	<0.50	<0.50	<1.5
	03/22/96	<50	<5.0	<0.50	<0.50	<0.50	<1.5
	06/20/96	<50	<5.0	<0.50	<0.50	<0.50	<0.50
	09/24/96	<50	<5.0	<0.50	<0.50	<0.50	<0.50
	12/27/96	<50	<5.0	<0.50	<0.50	<0.50	<0.50
	03/10/97	<50	<5.0	<0.50	<0.50	<0.50	<0.50
	06/27/97	<50	<5.0	<0.50	<0.50	<0.50	<0.50
TMW-5	08/17/93	120,000	NA	340	730	790	3,600
	03/28/94	70,000	NA	23,000	1,500	4,100	15,000



TABLE 4  
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS  
(ppb<sup>1</sup>)

Sample ID Name	Date	TPHG	Methyl t-butyl ether	Benzene	Toluene	Ethyl-benzene	Xylenes
TMW-5	06/28/94	56,000	NA	26,000	940	5,500	26,000
	09/16/94	96,000	NA	17,000	720	3,500	12,000
	03/31/95	64,000	NA	13,000	470	3,500	6,100
	06/28/95	65,000	NA	9,000	240	2,600	5,300
	09/28/95	79,000	<1,200	17,000	1,800	2,700	7,000
	12/26/95	110,000	<1,200	11,000	800	2,300	4,500
	06/26/96	30,000	830	4,000	180	1,500	2,500
	09/30/96	6,900	<5.0	1,600	79	130	370
	12/27/96	78,000	<5.0	12,000	1,900	2,900	9,700
	03/10/97	84,000	<5.0	9,900	1,100	2,600	8,800
	06/28/97	NA	NA	NA	NA	NA	NA

<sup>1</sup> PARTS PER BILLION.

<sup>2</sup> NOT ANALYZED.

*Probably need to repair MW-5 to incorporate  
in spring + gradient data.*

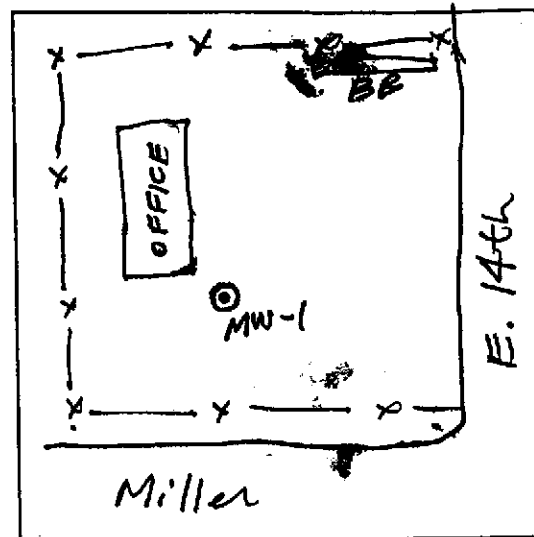
**RECORD OF WATER SAMPLING**

PROJECT NO.: 267 DATE: 6/28/97  
 PROJECT NAME: CWAS  
 PROJECT LOCATION: 2345 E. 14th  
 SAMPLER: Fred Moss  
 ANALYSES: TPHG & BTEX

WELL NO.: MW-1  
 WELL DIAMETER: 2"  
 TOC ELEV: \_\_\_\_\_  
 LOCK NO.: 605

WELL DEPTH (from construction detail): \_\_\_\_\_  
 WELL DEPTH (measured): 34.04 SOFT BOTTOM?: yes  
 DEPTH TO WATER: 14.67 ~~10.70~~ TIME: 1420  
 PRESSURE (circle one): YES OR NO DTP 10.60  
 IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?

WATER VOLUME IN WELL: 3.10  
 [2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]  
 [6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78 L]



LOCATION MAP

CALCULATED PURGE VOL. (GAL): 9.30 (L): 35 ACTUAL PURGE VOL. (GAL): \_\_\_\_\_ (L): 35  
 PURGE METHOD: Poly SAMPLE METHOD: Poly

**FIELD MEASUREMENTS**

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC	Clarity	Turbidity (NTU)	Remarks
1400		1		5.82	1000		cloudy	strong odor
1420		28		5.88	990		"	1" - 2" product
1425		30		5.91	1000		"	in packet
1430		33		5.94	1050		"	"
1435		35		5.93	1090		"	"
1450	Well Sampled							

SIGNATURE: Fred Moss

WATER VOL. IN DRUM: 85% Full  
 NEED NEW DRUM?: No

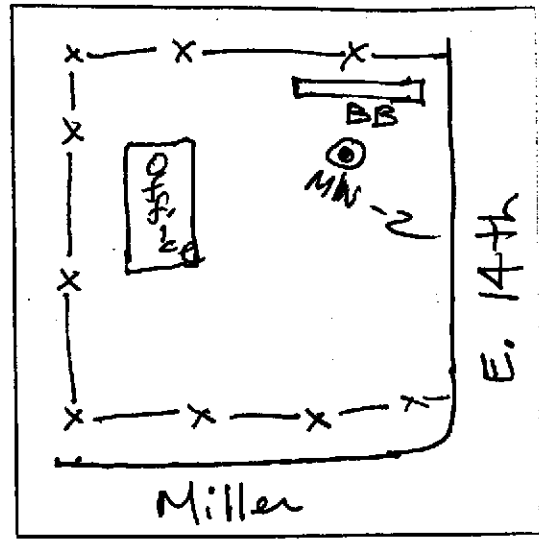
**RECORD OF WATER SAMPLING**

PROJECT NO.: 207 DATE: 6/29/97  
 PROJECT NAME: CWAS  
 PROJECT LOCATION: 2345 E. 14th / Oakland  
 SAMPLER: Fred Moss  
 ANALYSES: TPHG & BTEX

WELL NO.: MW-2  
 WELL DIAMETER: 2"  
 TOC ELEV: \_\_\_\_\_  
 LOCK NO.: 605

WELL DEPTH (from construction detail): \_\_\_\_\_  
 WELL DEPTH (measured): 33.04 SOFT BOTTOM?: YES  
 DEPTH TO WATER: 11.98 TIME: \_\_\_\_\_  
 PRESSURE (circle one?): YES OR NO  
 IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?  
Depth to Product 11.94  
 WATER VOLUME IN WELL: 3.37

[2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]  
 [6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78 L]



LOCATION MAP

CALCULATED PURGE VOL. (GAL): 10.1 (L): 38 ACTUAL PURGE VOL. (GAL): \_\_\_\_\_ (L): 38  
 PURGE METHOD: Polym SAMPLE METHOD: Polym

**FIELD MEASUREMENTS**

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC	Clarity	Turbidity (NTU)	Remarks
1300		1		6.30	850		clear	odor
1305		12		6.24	890		u	u
1330		34		6.04	920		u	u
1340		36		6.35	880		u	u
1345		38		6.40	900		u	u
1445	Well Sampled							

SIGNATURE: Fred Moss

WATER VOL. IN DRUM: 80% Full  
 NEED NEW DRUM?: No

**RECORD OF WATER SAMPLING**

PROJECT NO.: 267 DATE: 6/28/97  
 PROJECT NAME: CWAS  
 PROJECT LOCATION: 2345 E. 14th St/Oakland  
 SAMPLER: Fred Moss  
 ANALYSES: TPHG & BTEX

WELL NO.: MW-3  
 WELL DIAMETER: 2"  
 TOC ELEV: \_\_\_\_\_  
 LOCK NO.: 605

WELL DEPTH (from construction detail): \_\_\_\_\_  
 WELL DEPTH (measured): 34.82 SOFT BOTTOM?: yes  
 DEPTH TO WATER: 13.72 TIME: \_\_\_\_\_  
 PRESSURE (circle one): YES OR (NO)

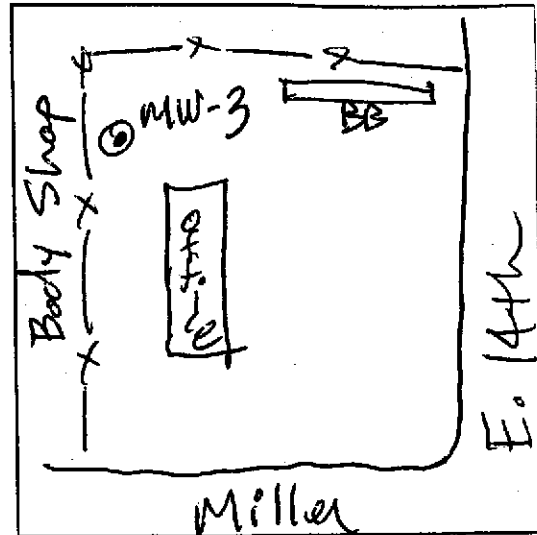
IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?

DTP 13.66

WATER VOLUME IN WELL: 3.38

[2-INCH CASING = 0.16 GAL/FT]      [4-INCH CASING = 0.65 GAL/FT]

[6-INCH CASING = 1.47 GAL/FT]      [1 GAL = 3.78 L]



LOCATION MAP

CALCULATED PURGE VOL. (GAL): 10.1 (L): 38 ACTUAL PURGE VOL. (GAL): \_\_\_\_\_ (L): 38

PURGE METHOD: Poly SAMPLE METHOD: Poly

**FIELD MEASUREMENTS**

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC	Clarity	Turbidity (NTU)	Remarks
1515		1		7.30	1010		cloudy	odor - orange
1530		21		7.27	1000		u	u brown
1533		32		7.72	900		u	u tint
1540		35		7.72	990		u	u
1546		38		7.74	880		u	u
1550	Well Sampled							

SIGNATURE: Fred Moss

WATER VOL. IN DRUM: Full  
 NEED NEW DRUM?: Yes

RECORD OF WATER SAMPLING

PROJECT NO.: 267 DATE: 6/27/97

WELL NO.: MW-4

PROJECT NAME: CWAS

WELL DIAMETER: 2"

PROJECT LOCATION: 2345 E. 14th/Oakland

TOC ELEV: \_\_\_\_\_

SAMPLER: FGM

LOCK NO.: 605

ANALYSES: TPHG & BTEX

WELL DEPTH (from construction detail): \_\_\_\_\_

WELL DEPTH (measured): 33.98 SOFT BOTTOM?: yes

DEPTH TO WATER: 10.70 TIME: 1425

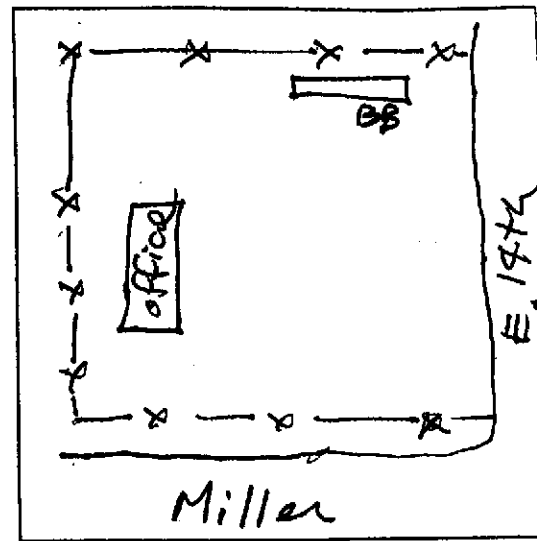
PRESSURE (circle one): YES OR NO DTP 10.65

IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?

WATER VOLUME IN WELL: 3.72

[2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]

[6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78 L]



LOCATION MAP

CALCULATED PURGE VOL. (GAL): 11.16 (L): 42 ACTUAL PURGE VOL. (GAL): \_\_\_\_\_ (L): 42

PURGE METHOD: Poly SAMPLE METHOD: Poly

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC	Clarity	Turbidity (NTU)	Remarks
1430		1		7.60	900		clear	odor
1455		35		6.88	880		"	"
1510		40		6.33	830		"	"
1512		41		6.27	840		"	"
1515		42		6.23	850		"	"
1520	Well Sampled							

WATER VOL. IN DRUM: 60% Full  
NEED NEW DRUM?: NO

SIGNATURE: Fred Moss

## SAMPLE HANDLING PROCEDURES

Soil and groundwater samples will be packaged carefully to avoid breakage or contamination and will be delivered to the laboratory in an iced-cooler. The following sample packaging requirements will be followed.

- . Sample bottle/sleeve lids will not be mixed. All sample lids will stay with the original containers and have custody seals affixed to them.
- . Samples will be secured in coolers to maintain custody, control temperature and prevent breakage during transportation to the laboratory.
- . A chain-of-custody form will be completed for all samples and accompany the sample cooler to the laboratory.
- . Ice, blue ice or dry ice (dry ice will be used for preserving soil samples collected for the Alameda County Water District) will be used to cool samples during transport to the laboratory.
- . Water samples will be cooled with crushed ice. In the Alameda County Water District, water samples will be buried in the crushed ice with a thermometer, and the laboratory will be requested to record thermometer temperature at the time of receipt.
- . Each sample will be identified by affixing a pressure sensitive, gummed label or standardized tag on the container(s). This label will contain the site identification, sample identification number, date and time of sample collection and the collector's initials.
- . Soil samples collected in brass tubes will be preserved by covering the ends with Teflon tape and capping with plastic end-caps. The tubes will

## QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The overall objectives of the field sampling program include generation of reliable data that will support development of a remedial action plan. Sample quality will be checked by the use of proper sampling, handling and testing methods. Additional sample quality control methods may include the use of background samples, equipment rinsate samples and trip and field blanks. Chain-of-custody forms, use of a qualified laboratory, acceptable detection limits and proper sample preservation and holding times also provide assurance of accurate analytical data.

TPE will follow a quality assurance and quality control (QA/QC) program in the field to ensure that all samples collected and field measurements taken are representative of actual field and environmental conditions and that data obtained are accurate and reproducible. These activities and laboratory QA/QC procedures are described below.

Field Samples: Additional samples may be taken in the field to evaluate both sampling and analytical methods. Three basic categories of QA/QC samples that may be collected are trip blanks, field blanks and duplicate samples.

Trip blanks are a check for cross-contamination during sample collection, shipment, and laboratory analysis. They are water samples that remain with the collected samples during transportation and are analyzed along with the field samples to check for residual contamination. Analytically confirmed organic-free water will be used for organic parameters and deionized water for metal parameters. Blanks will be prepared by the laboratory supplying the sample containers. The blanks will be numbered, packaged and sealed in the same manner as the other samples. One trip blank will be used for each sample set of less than 20 samples. At least 5% blanks will be used for sets greater than 20 samples. The trip blank is not to be opened by either the sample collectors or the handlers.

The field blank is a water sample that is taken into the field and is opened and exposed at the sampling point to detect contamination from air exposure. The water

sample is poured into appropriate containers to simulate actual sampling conditions. Contamination due to air exposure can vary considerably from site to site.

The laboratory will not be informed about the presence of trip and field blanks, and false identifying numbers will be put on the labels. Full documentation of these collection and decoy procedures will be made in the site log book.

Duplicate samples are identical sample pairs (collected in the same place and at the same time), placed in identical containers. For soils, adjacent sample liners will be analyzed. For the purpose of data reporting, one is arbitrarily designated the sample, and the other is designated as a duplicate sample. Both sets of results are reported to give an indication of the precision of sampling and analytical methods.

The laboratory's precision will be assessed without the laboratory's knowledge by labeling one of the duplicates with false identifying information. Data quality will be evaluated on the basis of the duplicate results.

Laboratory QA/QC: Execution of a strict QA/QC program is an essential ingredient in high-quality analytical results. By using accredited laboratory techniques and analytical procedures, estimates of the experimental values can be very close to the actual value of the environmental sample. The experimental value is monitored for its precision and accuracy by performing QC tests designed to measure the amount of random and systematic errors and to signal when correction of these errors is needed.

The QA/QC program describes methods for performing QC tests. These methods involve analyzing method blanks, calibration standards, check standards (both independent and the United States Environmental Protection Agency-certified standards), duplicates, replicates and sample spikes. Internal QC also requires adherence to written methods, procedural documentation and the observance of good laboratory practices.



CERTIFIED ANALYTICAL REPORTS AND  
CHAIN-OF-CUSTODY DOCUMENTATION

# Entech Analytical Labs, Inc.

CA ELAP# 2224

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Tank Protect Engineering  
2821 Whipple Road  
Union City, CA 94587  
Attn: Lee Huckins

Date:	7/16/97
Date Received:	7/1/97
Date Analyzed:	7/11/97
Project #:	267
P.O. #:	1416
Sampled By:	Client

## Certified Analytical Report

### Water Sample Analysis:

Test	MW-1	MW-2	MW-3	MW-4	Units	PQL	EPA Method #
Sample Matrix	Water	Water	Water	Water			
Sample Date	6/28/97	6/28/97	6/28/97	6/27/97			
Sample Time	1450	1445	1550	1520			
Lab #	D10600	D10601	D10602	D10603			
DF-Gas/BTEX	400	80	200	1			
TPH-Gas	54,000	12,000	15,000	ND	µg/liter	50.0 µg/l	8015M
MTBE	ND	ND	ND	ND	µg/liter	5.0 µg/l	8020
Benzene	5,200	840	2,200	ND	µg/liter	0.5 µg/l	8020
Toluene	1,300	ND	ND	ND	µg/liter	0.5 µg/l	8020
Ethyl Benzene	1,000	640	160	ND	µg/liter	0.5 µg/l	8020
Xylenes	4,900	360	190	ND	µg/liter	0.5 µg/l	8020

1. DLR=DF x PQL
2. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #2224)

  
Michael N. Golden, Lab Director

DF=Dilution Factor  
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit  
ND=None Detected at or above DLR

Environmental Analysis Since 1983



TANK PROTECT ENGINEERING  
of Northern California, Inc.  
2821 Whipple Rd., Union City, CA 94587-1233

(510) 429 8088 • (800) 523 8088 • Fax (510) 429 8089

LAB: Entech  
TURNAROUND: 15 day  
P.O. #: 1416

PAGE 1 OF 1

### CHAIN OF CUSTODY

PROJECT NO. <u>267</u>		SITE NAME & ADDRESS <u>Credit World (CWAS) Oakland</u>				(1) TYPE OF CON- TAINER	ANALYTES REQUESTED TOTAL LEAD EC AROMATIC EC TOTAL EC (ATE) OIL & GREASE EC PCB EC OTHER (24'0)	REMARKS	
SAMPLE NAME ADDRESS AND TELEPHONE NUMBER <u>Fred Moss 2821 WHIPPLE ROAD, UNION CITY, CA 94587 (415) 429-8088</u>									
ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION				
MW-1	6/29	1450		X	Mon. Well	VA	D10600		
MW-2	6/28	1445		X	" "	(2)	D10601		
MW-3	6/28	1550		X	" "	"	D10602		
MW-4	6/27	1520		X	" "	"	D10603		
Relinquished by: (Signature) <u>Fred Moss</u>		Date / Time <u>6/30/97 1500</u>		Received by: (Signature) <u>Diandra...</u>		Relinquished by: (Signature)		Date / Time	Received by: (Signature)
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time	Received by: (Signature)
Relinquished by: (Signature)		Date / Time		Received by Laboratory by: (Signature)		Date / Time		Remarks	

DATE: 6/30/97