CLEARWATER
GROUP, INC.
Environmental Services

GROUNDWATER MONITORING REPORT
SECOND QUARTER 2001

Former E-Z Serve #100877
525 West A Street
Hayward, California

AUG 22 2001

BACKGROUND

A total of 15 monitoring wells have been installed; seven on-site (MW-1, 1A, 2, 3, 4, 5, and 6) and seven off-site (MW-7, 8, 9, 10, 11, 12, 13, 14). MW-10 has been destroyed. MW-8, MW-9, MW-10 and MW-11 can not be located and appear to have been paved over.

GROUNDWATER MONITORING FIELD ACTIVITIES

Date of Field Activities:	June 13 and June 14, 2001
Wells Gauged:	MW-1A, MW-1 through MW-7, MW-12 through MW-14
Wells Sampled:	MW-1A, MW-1 through MW-7, MW-12 and MW-14
Analytes Tested:	TPHg, BTEX, and MTBE
Analytical Methods:	EPA Methods 8260
Laboratory:	KIFF Analytical LLC

Remarks: All samples collected since the second quarter of 1997 have utilized the "no-purge" sampling method.

GROUNDWATER MONITORING RESULTS

Depth to Water:	14.51 to 16.63 feet below grade
Flow Direction/Gradient	Southwest at 0.005 ft/ft
SPH - wells/thickness:	None
TPH-G concentration range:	ND (MW-12) to 27000 ug/l (MW-1A)
Benzene concentration range:	ND (MW-12,MW-14) to 860 ug/l (MW-2)
MTBE concentration range:	ND (all wells sampled)

Remarks: Groundwater flow and direction are consistent with previous measurements. Groundwater table has dropped approximately five feet since previous sampling in June 1998.

PROJECT STATUS

Quarterly monitoring will continue at the site. Clearwater will apply for drilling permits in accordance with Clearwater's approved *Workplan for Additional Site Assessment* dated June 29, 1999 which specifies a discrete soil and groundwater sampling program, well installation work and the completion of an RNA assessment.

520 Third Street, Suite 104 ◆ Oakland, California 94607 ◆ Telephone 510-893-5160 ◆ Fax 510-893-5947

CLEARWATER
GROUP
Environmental Services

ATTACHMENTS

- Figure 1 - Site Location Map
- Figure 2 - Site Vicinity Map
- Figure 3 - Groundwater Elevation Contour Map
- Figure 4 - Hydrocarbon Concentration in Groundwater Map
- Table 1 - Groundwater Elevations and Analytical Results
- Appendix A - Well Gauging Data Sheet
- Appendix B - Laboratory Report and Chain of Custody
- Appendix C - Clearwater Sampling Procedures

CERTIFICATION

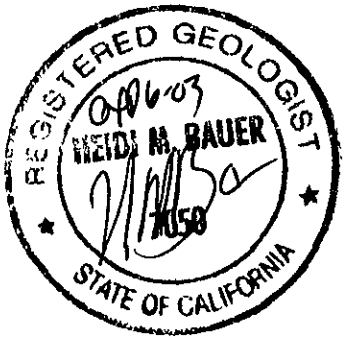
This report was prepared under the supervision of a California professional registered geologist at Clearwater Group, Inc. All statements, conclusions, and recommendations are based solely upon field observations by Clearwater Group, Inc. and analyses performed by a state-certified laboratory related to the work performed by Clearwater Group, Inc.

Information and interpretation presented herein are for the sole use of the client and regulating agency. The information and interpretation contained in this document should not be relied upon by a third party.

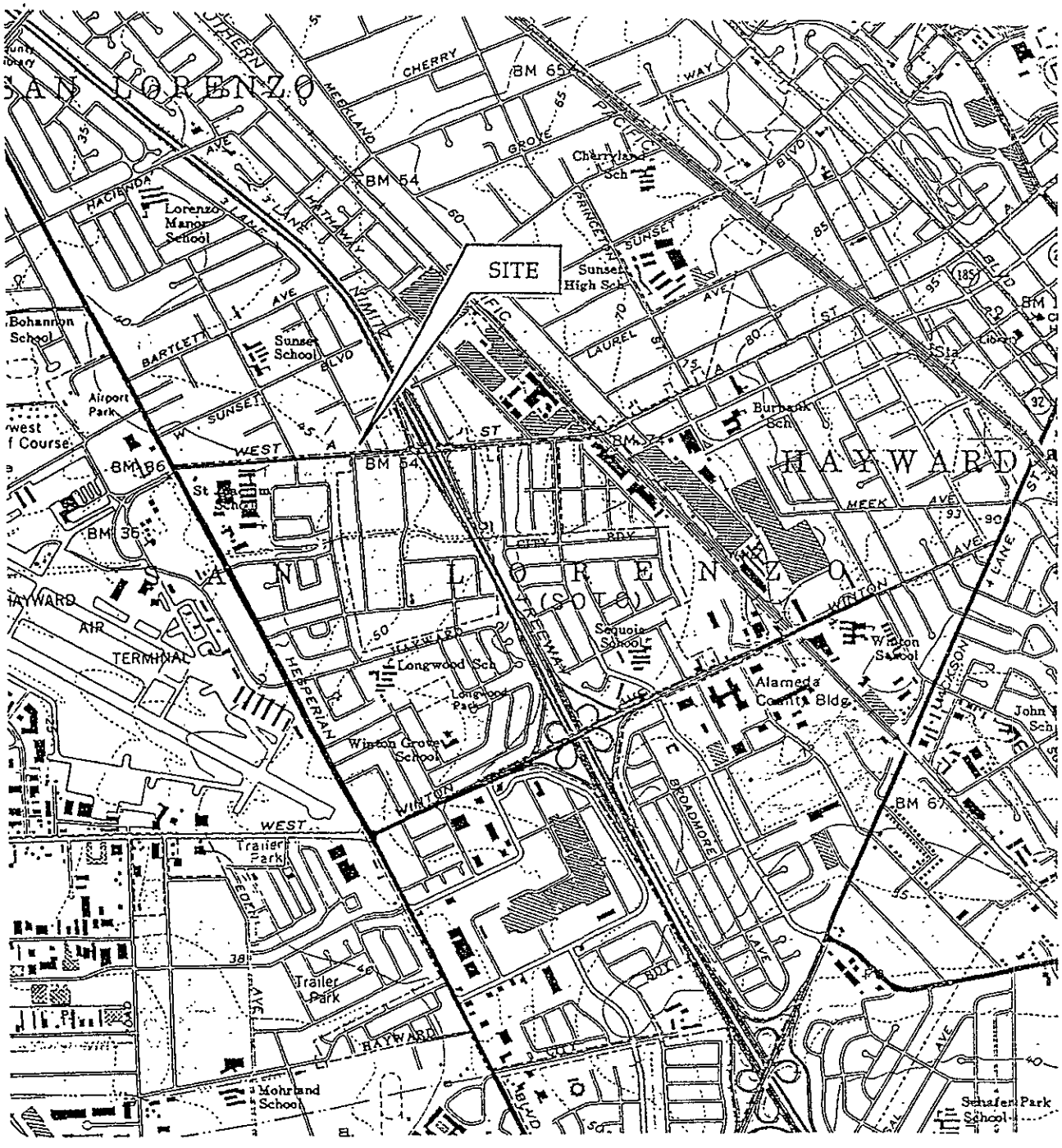
The service performed by Clearwater Group, Inc. has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area of the site. No other warranty, expressed or implied, is made.

Sincerely,

CLEARWATER GROUP, INC.



Heidi M. Bauer, RG
Senior Geologist



SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

SOURCE: USGS 7.5 MINUTE QUADRANGLE MAP
TITLED- HAYWARD, DATED- 1959, PHOTOREVISED- 1980

QUADRANGLE LOCATION

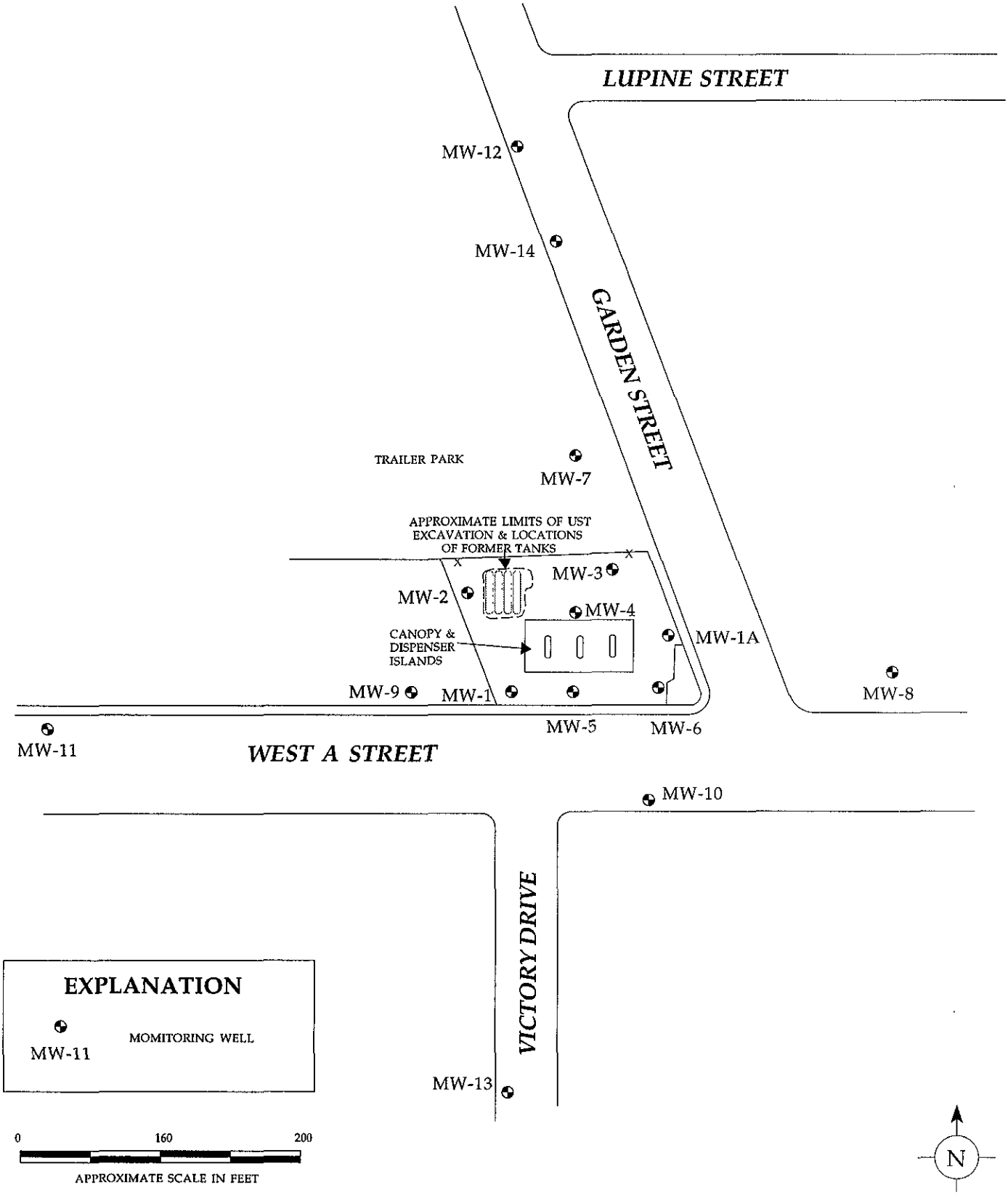
N

SITE LOCATION MAP

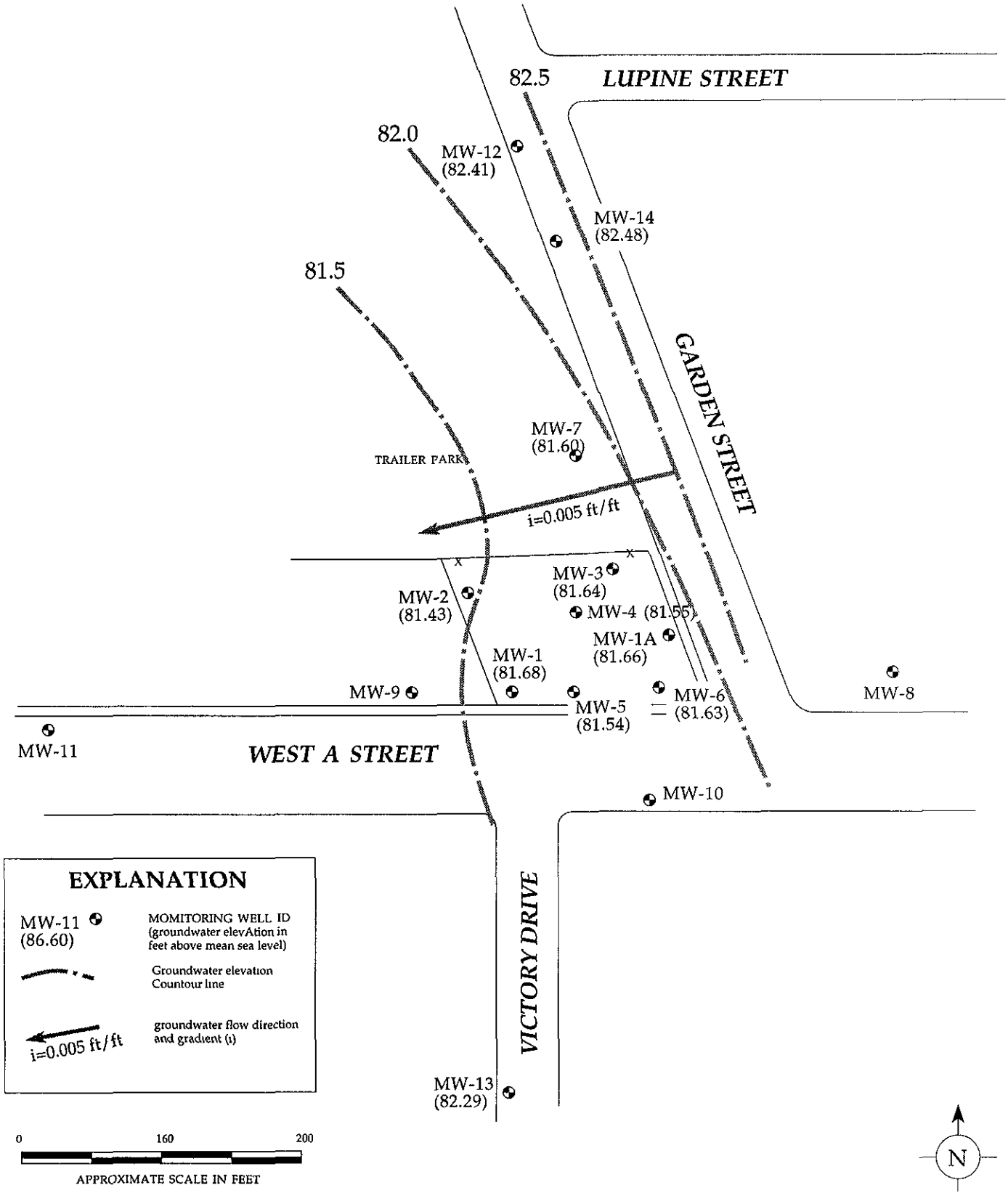
E-Z Serve #100877
525 West A Street
Hayward, California

CLEARWATER GROUP, INC.

Project No	Figure Date	Figure No.
100877	8/98	1



SITE VICINITY MAP E-Z Serve No. 100877 525 West A Street Hayward, California	CLEARWATER GROUP, INC.		
	Project No. **EZ 100877**	Figure Date **8/01**	Figure **2**

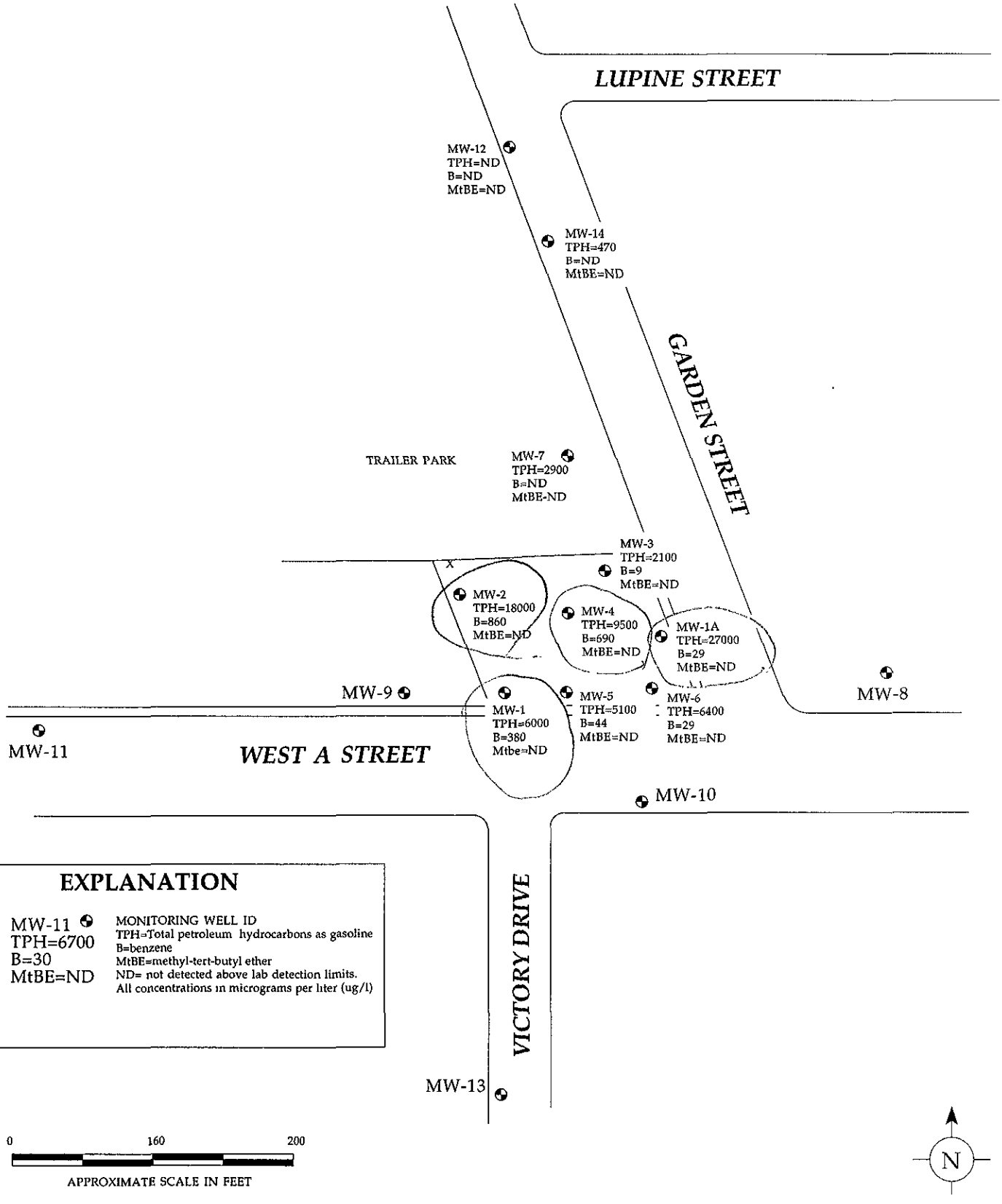


GROUNDWATER GRADIENT MAP

E-Z Serve No. 100877
525 West A Street
Hayward, California

CLEARWATER GROUP, INC.

Project No.	Figure Date	Figure
EZ 100877	**8/01**	**3**



Hydrocarbon Concentration in Groundwater Map
E-Z Serve No. 100877
525 West A Street, Hayward, California

CLEARWATER GROUP, INC.

Project No.	Figure Date	Figure
EZ 100877	**8/01**	**4**

Table 1
GROUNDWATER ELEVATIONS AND ANALYTICAL RESULTS
Former E-Z Serve Station #100877
525 West A Street
Hayward, California

Well I.D.	Sampling Date (a)	TOC (feet)	DTW (feet)	GWE (feet)	SPH (feet)	TPHg (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
MW-1	11/25/97	96.73	15.99	80.74	0.00	16000.00	2100.00	23.00	76.00	240.00	ND
	6/30/97	96.73	14.68	82.05	0.00	10000.00	2100.00	ND	ND	320.00	ND
	4/8/97	96.73	13.25	83.48	0.00	2100.00	430.00	15.00	52.00	85.00	100.00
	12/4/96	96.73	15.61	81.12	0.00	17000.00	3100.00	64.00	610.00	1200.00	280.00
	9/23/96	96.73	14.92	81.81	0.00	20000.00	5200.00	860.00	700.00	1100.00	270.00
	6/1/98	96.73	9.98	86.75	0.00	19000.00	6100.00	430.00	1100.00	2300.00	420.00
	6/14/01	96.73	15.05	81.68	0.00	6000.00	380.00	8.40	260.00	180.00	<25
MW-1A	11/25/97	97.59	16.91	80.68	0.00	19000.00	110.00	37.00	290.00	910.00	ND
	6/30/97	97.59	15.57	82.02	0.00	17000.00	180.00	ND	140.00	1100.00	ND
	4/8/97	97.59	14.15	83.44	sheen	---	---	---	---	---	---
	12/4/96	97.59	16.55	81.04	0.00	52000.00	420.00	140.00	1000.00	3500.00	130.00
	9/23/96	97.59	16.00	81.59	0.01	---	---	---	---	---	---
	6/1/98	97.59	10.78	86.81	0.00	18000.00	200.00	17.00	230.00	820.00	91.00
	6/14/01	97.59	15.93	81.66	0.01	27000.00	29.00	<5.0	620.00	520.00	<50
MW-2											
	11/25/97	98.06	17.56	80.50	0.00	51000.00	2900.00	140.00	1800.00	7000.00	1200.00
	6/30/97	98.06	16.28	81.78	0.00	41000.00	2700.00	130.00	1200.00	4000.00	890.00
	4/8/97	98.06	14.86	83.20	0.00	20000.00	2500.00	80.00	1300.00	3400.00	880.00
	12/4/96	98.06	17.19	80.87	0.00	31000.00	3800.00	140.00	2000.00	5100.00	690.00
	9/23/96	98.06	16.61	81.45	0.00	29000.00	3700.00	150.00	1000.00	4300.00	860.00
	6/1/98	98.06	11.58	86.48	0.00	33000.00	2700.00	130.00	1800.00	5700.00	610.00
	6/14/01	98.06	16.63	81.43	0.00	18000.00	860.00	14.00	1100.00	2200.00	<100

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Well I.D.	Sampling Date (a)	TOC (feet)	DTW (feet)	GWE (feet)	SPH (feet)	TPHg (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
MW-3	11/25/97	97.66	16.99	80.67	0.00	6800.00	230.00	ND	370.00	290.00	130.00
	6/30/97	97.66	15.70	81.96	0.00	3500.00	280.00	ND	32.00	180.00	ND
	4/8/97	97.66	14.25	83.41	0.00	3800.00	210.00	4.60	270.00	280.00	56.00
	12/4/96	97.66	16.63	81.03	0.00	13000.00	1100.00	25.00	1000.00	1100.00	67.00
	9/23/96	97.66	16.11	81.55	0.00	10000.00	950.00	20.00	700.00	780.00	80.00
	6/14/01	97.66	16.02	81.64	0.00	2100.00	9.00	<0.5	78.00	43.00	<5.0
MW-4	11/25/97	97.10	16.49	80.61	0.00	30000.00	4300.00	61.00	810.00	1500.00	880.00
	6/30/97	97.10	15.19	81.91	0.00	63000.00	7000.00	430.00	1400.00	4400.00	1700.00
	4/8/97	97.10	13.73	83.37	0.00	16000.00	3900.00	680.00	850.00	2300.00	980.00
	12/4/96	97.10	16.11	80.99	0.00	23000.00	7800.00	140.00	1200.00	1200.00	1900.00
	9/23/96	97.10	15.56	81.54	0.00	32000.00	7400.00	540.00	1500.00	2800.00	2100.00
	6/1/98	97.10	10.42	86.68	0.00	33000.00	5700.00	710.00	1700.00	2900.00	720.00
	6/14/01	97.10	15.55	81.55	0.00	9500.00	690.00	45.00	560.00	600.00	<50
MW-5	11/25/97	96.73	16.14	80.59	0.00	8200.00	1300.00	14.00	310.00	220.00	ND
	6/30/97	96.73	14.83	81.90	0.00	3800.00	500.00	ND	75.00	84.00	ND
	4/8/97	96.73	13.39	83.34	0.00	11000.00	1300.00	15.00	450.00	720.00	180.00
	12/4/96	96.73	15.78	80.95	0.00	10000.00	2200.00	9.00	550.00	430.00	70.00
	9/23/96	96.73	15.19	81.54	0.00	9800.00	1800.00	11.00	470.00	510.00	100.00
	6/1/98	96.73	10.10	86.63	0.00	3600.00	290.00	12.00	52.00	52.00	81.00
	6/14/01	96.73	15.19	81.54	0.00	5100.00	44.00	0.71	110.00	23.00	<5.0

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MW-6	11/25/97	97.09	16.40	80.69	0.00	9100.00	130.00	26.00	500.00	150.00	310.00
	6/30/97	97.09	15.08	82.01	0.00	11000.00	270.00	37.00	590.00	450.00	ND
	4/8/97	97.09	13.64	83.45	0.00	17000.00	700.00	92.00	1400.00	900.00	2700.00
	12/4/96	97.09	16.06	81.03	0.00	11000.00	390.00	25.00	680.00	170.00	130.00
	9/23/96	97.09	15.50	81.59	0.00	12000.00	520.00	55.00	930.00	350.00	51.00
	6/1/98	97.09	10.31	86.78	0.00	14000.00	190.00	50.00	680.00	400.00	160.00
	6/14/01	97.09	15.46	81.63	0.00	6400.00	29.00	6.30	200.00	55.00	<20
MW-7	11/25/97	97.44	16.80	80.64	0.00	2400.00	23.00	5.40	ND	54.00	120.00
	6/30/97	97.44	15.51	81.93	0.00	5500.00	ND	79.00	ND	44.00	280.00
	4/8/97	97.44	14.10	83.34	0.00	5600.00	42.00	ND	240.00	96.00	ND
	12/4/96	97.44	16.43	81.01	0.00	7800.00	67.00	ND	600.00	350.00	22.00
	9/23/96	97.44	15.94	81.50	0.00	6300.00	76.00	ND	420.00	270.00	15.00
	6/1/98	97.44	10.76	86.68	0.00	8200.00	43.00	9.70	35.00	100.00	82.00
	6/14/01	97.44	15.84	81.60	0.00	2900.00	<2.5	<0.5	54.00	10.00	<5.0
MW-8	9/23/96	97.61	15.83	81.78	0.00	ND	ND	ND	ND	ND	ND
MW-9	---	95.41	---	---	---	---	---	---	---	---	---
MW-10	12/4/96	97.11	16.15	80.96	0.00	4600.00	1.60	7.70	260.00	150.00	20.00
	9/23/96		15.59	81.52	0.00	3800.00	4.00	2.90	220.00	170.00	397.00
MW-11	4/8/97	92.68	10.51	82.17	0.00	24000.00	280.00	130.00	3000.00	3700.00	ND

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Well I.D.	Sampling Date (a)	TOC (feet)	DTW (feet)	GWE (feet)	SPH (feet)	TPHg (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
MW-11 cont	9/23/96		12.29	80.39	0.00	27000.00	55.00	81.00	3000.00	3500.00	40.00
MW-12	11/25/97	99.03	17.61	81.42	0.00	---	---	---	---	---	---
	6/30/97	99.03	16.33	82.70	0.00	---	---	---	---	---	---
	4/8/97	99.03	14.88	84.15	0.00	ND	ND	ND	ND	ND	ND
	12/4/96	99.03	17.16	81.87	0.00	ND	3.20	ND	1.90	3.40	ND
	9/23/96	99.03	16.67	82.36	0.00	ND	ND	1.60	ND	ND	ND
	6/1/98	99.03	11.58	87.45	0.00	---	---	---	---	---	---
	6/14/01	99.03	16.62	82.41	0.00	ND	ND	ND	ND	ND	ND
MW-13	11/25/97	96.8	15.48	81.32	0.00	---	---	---	---	---	---
	6/30/97	96.8	14.13	82.67	0.00	---	---	---	---	---	---
	4/8/97	96.8	12.75	84.05	0.00	ND	ND	ND	ND	ND	ND
	9/23/96	96.8	14.60	82.20	0.00	ND	ND	0.80	1.00	ND	ND
	6/1/98	96.8	9.58	87.22	0.00	---	---	---	---	---	---
	6/14/01	96.8	14.51	82.29	0.00	ND	ND	ND	ND	ND	ND
MW-14	11/25/97	99.01	17.52	81.49	0.00	ND	ND	ND	ND	ND	ND
	6/30/97	99.01	16.22	82.79	0.00	74.00	1.30	ND	0.51	0.68	ND
	4/8/97	99.01	14.77	84.24	0.00	2900.00	ND	2.70	220.00	21.00	ND
	12/4/96	99.01	17.06	81.95	0.00	9500.00	6.30	ND	1100.00	400.00	30.00
	9/23/96	99.01	16.67	82.34	0.00	6400.00	2.80	ND	690.00	96.00	9.60
	6/1/98	99.01	11.46	87.55	0.00	<50	<0.5	<0.5	<0.5	<0.5	<5
	6/14/01	99.01	16.53	82.48	0.00	470.00	<0.5	<0.5	2.80	1.00	<5

Table 1

GROUNDWATER ELEVATIONS AND ANALYTICAL RESULTS

Former E-Z Serve Station #100877

525 West A Street

Hayward, California

Well I.D.	Sampling Date (a)	TOC (feet)	DTW (feet)	GWE (feet)	SPH (feet)	TPHg (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)

Notes:

TOC	Elevation of survey mark at the top of the well casing referenced to 100 foot arbitrary site elevation datum
DTW	Depth to water
GWE	Groundwater elevation
SPH	Separate Phase Hydrocarbons present, sheen indicates SPH thickness < 0.01-foot
TPHg	Total petroleum hydrocarbons as gasoline using EPA Method 8015 (modified)
BTEX	Benzene, Toluene, Ethylbenzene and total Xylenes using EPA Method 8020 (modified)
MTBE	Methyl tert-butyl ether using EPA Method 8020 (modified)
µg/L	Micrograms per liter
---	Not analyzed, not measured
ND	Not detected
<#.#	Not detected exceeding indicated detection reporting limit (#.#)
(a)	Well monitoring results prior to 9/23/96 attached as Appendix C

CLEARWATER GROUP, INC.
520 3rd Street, Suite 104 Oakland CA, 94607
Phone: (510)893-5160 Fax: (510) 893-5947

WELL GAUGING/PURGING CALCULATIONS DATA SHEET

Date	Job No.	Location
5/13/01	28877C	Hayward, Ca.

Tech(s): SR

Drums on Site @TOA — Soil: 0 Water: 0

Drums on Site @ TOD — Soil: 0 Water: 4 1 empty

Well No	Diameter (in)	DTB (ft)	DTW (ft)	ST (ft)	CV (gal)	PV (gal)	SPL (ft)	Notes
MW-1A	2	29.06	15.93	13.13				
MW-1	4	29.91	15.05	14.86	9.65	28.9		
MW-2	4	30.05	16.63	13.42	8.72	26.16		
MW-3	4	29.84	16.02	13.82	8.98	26.9		
MW-4	4	29.95	15.55	14.4	9.36	28.08		
MW-5	4	30.44	15.19	15.25	9.91	29.7		
MW-6	4	30	15.46	14.54	9.45	28.3		
MW-7	2	28.7	15.84	12.86	2.05	6.17		
MW-12	2	29.85	16.62	13.23	2.11	6.35		
MW-13	2	30	14.51	15.49	2.47	7.43		
MW-14	2	30.25	16.53	13.72	2.19	6.58		

Explanation:
DTB = Depth to Bottom
DTW = Depth to Water
ST = Saturated Thickness (DTB-DTW)
CV = Casing Volume (ST x cf)
PV = Purge Volume (standard 3 x CV, well development 10 x CV)
SPL = Thickness of Separate Phase Liquid

Conversion Factors (cf)
2-inch diameter well cf=0.16 gal/ft
4-inch diameter well cf=0.65 gal/ft
6-inch diameter well cf=1.44 gal/ft

WELL PURGING DATA

SHEET 1 OF 4

Job No.: 28877C Location: Hayward Date: 6/13/01 Tech: SR

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
MW-13		2	93.2	1.23	5.78
Calc. purge		4	89.4	1.06	5.7
volume		6	84.9	.99	5.6
7.43	1332	7.43	82.6	.95	5.49

Sample time: 1340
Sample for: (circle)
(TPHg) TPHd TPHmo
(BTEX) (MTBE) 8010
Other:

Sampling Method:
Dedicated / (Disposable bailer)

Purging Method:
(PVC bailer) / Pump

COMMENTS: color, turbidity, recharge, etc.
brown, high, good

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
MW-12		2	95.1	.96	5.41
Calc. purge		4	87.3	.82	5.32
volume	1446	6.35	83.2	.8	5.35
6.35					

Sample time: 1455
Sample for: (circle)
(TPHg) TPHd TPHmo
(BTEX) (MTBE) 8010
Other:

Sampling Method:
Dedicated / (Disposable bailer)

Purging Method:
(PVC bailer) / Pump

COMMENTS: color, turbidity, recharge, etc.
brown, high, good

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
MW-14		2	85.4	.9	5.36
Calc. purge		4	82.9	.88	5.40
volume	1510	6.58	78.9	.88	5.42
6.58					

Sample time: 1515
Sample for: (circle)
(TPHg) TPHd TPHmo
(BTEX) (MTBE) 8010
Other:

Sampling Method:
Dedicated / (Disposable bailer)

Purging Method:
(PVC bailer) / Pump

COMMENTS: color, turbidity, recharge, etc.
brown, high, good

CLEARWATER GROUP INC., 520 Third St., Ste. 104, Oakland, California 94607
Phone: (510) 893-5160 Fax: (510) 893-5947

WELL PURGING DATA

SHEET 2 OF 4

Job No.: 288776 Location: Hayward Date: 6/13/01 Tech: SR

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
MW-7	1540	2	86.1	1.09	5.68
Calc. purge	1543	4	81.4	1.06	5.67
volume	1547	6.17	78.8	1.07	5.63
6.17					

Sample time: 1555
Sample for: (circle)
(TPHg) TPHd TPHmo
(BTEX) (MTBE) 8010
Other:

Sampling Method:
Dedicated / (Disposable bailer)

Purging Method:
(PVC bailer) / Pump

COMMENTS: color, turbidity, recharge, etc.
gray, high, good

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
MW-3	1637	7	76.8	1.09	7.51
Calc. purge	1640	14	74.1	1.02	5.32
volume	1645	21	73	1.08	2.51
26.9	1649	26.9	71.4	1.06	7.51

Sample time: 1655
Sample for: (circle)
(TPHg) TPHd TPHmo
(BTEX) (MTBE) 8010
Other:

Sampling Method:
Dedicated / (Disposable bailer)

Purging Method:
(PVC bailer) / Pump

COMMENTS: color, turbidity, recharge, etc.
gray, high, good

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
MW-5	850	10	68.8	1.19	7.51
Calc. purge	858	20	69.7	1.12	5.45
volume	906	29.7	72.7	1.08	5.21
29.7					

Sample time: 915
Sample for: (circle)
(TPHg) TPHd TPHmo
(BTEX) (MTBE) 8010
Other:

Sampling Method:
Dedicated / (Disposable bailer)

Purging Method:
(PVC bailer) / Pump

COMMENTS: color, turbidity, recharge, etc:
gray, highly odor, odor

CLEARWATER GROUP INC., 520 Third St., Ste. 104, Oakland, California 94607
Phone: (510) 893-5160 Fax: (510) 893-5947

WELL PURGING DATA

SHEET 3 OF 4

Job No.: 7185877C Location: Hayward Date: 6/13/01 Tech: SR

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
MW-6	920	10	78.9	1.07	5.19
Calc. purge	930	20	76.8	1.01	5.32
volume	940	28.3	76.7	1.01	5.32
@ 8.3					

Sample time: 945

Sample for: (circle)

TPHg TPHd TPHmo

BTEX MTBE 8010

Other:

Sampling Method:

Dedicated / Disposable bailer

Purging Method:

PVC bailer Pump

COMMENTS: color, turbidity, recharge, etc.

sheen gray, high, good

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
MW-1A	1002	2	82.9	1.02	5.2
Calc. purge	1006	4	80.1	1	5.39
volume:	1009	6.3	78.3	1.09	54
6.3					

Sample time: 1015

Sample for: (circle)

TPHg TPHd TPHmo

BTEX MTBE 8010

Other:

Sampling Method:

Dedicated / Disposable bailer

Purging Method:

PVC bailer Pump

COMMENTS: color, turbidity, recharge, etc.

faint gray, high, good

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
MW-1	1038	14	82.6	1.07	5.19
Calc. purge	1048	24	84.3	1.03	5.25
volume	1055	28.9	81.3	1.02	5.3
28.9					

Sample time: 1100

Sample for: (circle)

TPHg TPHd TPHmo

BTEX MTBE 8010

Other:

Sampling Method:

Dedicated / Disposable bailer

Purging Method:

PVC bailer / Pump

COMMENTS: color, turbidity, recharge, etc:

gray, high, good

CLEARWATER GROUP INC., 520 Third St., Ste. 104, Oakland, California 94607

Phone: (510) 893-5160 Fax: (510) 893-5947

WELL PURGING DATA

Job No.: 283770 Location: Hayward Date: 6/14/01 Tech: SR

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
MW-4		10	90.9	1.04	5.19
Calc. purge		20	85.2	.99	5.27
volume	1127	28	82.2	.91	5.27
28					

Sample time: 1130
Sample for: (circle)
TPHg TPHd TPHmo
BTEX MTBE 8010
Other:

Sampling Method:
Dedicated / Disposable bailer

Purging Method:
PVC bailer / Pump

COMMENTS: color, turbidity, recharge, etc.
dark gray, high, o[illegible]

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
MW-2		6.5	95.4	1.03	5.33
Calc. purge		13	84	1.03	5.15
volume		19.5	80.7	1	5.23
26.16	1157	26.16	79.1	.94	5.29

Sample time: 1200
Sample for: (circle)
TPHg TPHd TPHmo
BTEX MTBE 8010
Other:

Sampling Method:
Dedicated / Disposable bailer

Purging Method:
PVC bailer / Pump

COMMENTS: color, turbidity, recharge, etc.
gray, high, good

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
Calc. purge					
volume					

Sample time:
Sample for: (circle)
TPHg TPHd TPHmo
BTEX MTBE 8010
Other:

Sampling Method:
Dedicated / Disposable bailer

Purging Method:
PVC bailer / Pump

COMMENTS: color, turbidity, recharge, etc.

CLEARWATER GROUP INC., 520 Third St., Ste. 104, Oakland, California 94607
Phone: (510) 893-5160 Fax: (510) 893-5947

KIFF ANALYTICAL LLC

Report Number : 20792
Date : 6/28/2001

Heidi Bauer
Clearwater Group Inc.
520 3rd Street, Suite 104
Oakland, CA 94607

Subject : 11 Water Samples
Project Name : EZ SERVE HAYWARD
Project Number : ZB877C

Dear Ms. Bauer,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Joel Kiff

Joel Kiff

KIFF ANALYTICAL LLC

Report Number : 20792
Date : 6/28/2001

Project Name : **EZ SERVE HAYWARD**
Project Number : **ZB877C**

Sample : **MW-1A** Matrix : Water Lab Number : 20792-01
Sample Date :6/14/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**29**	5.0	ug/L	EPA 8260B	6/25/2001
Toluene	**< 5.0**	5.0	ug/L	EPA 8260B	6/25/2001
Ethylbenzene	**620**	5.0	ug/L	EPA 8260B	6/25/2001
Total Xylenes	**520**	5.0	ug/L	EPA 8260B	6/25/2001
Methyl-t-butyl ether (MTBE)	**< 50**	50	ug/L	EPA 8260B	6/25/2001
TPH as Gasoline	**27000**	500	ug/L	EPA 8260B	6/25/2001
Toluene - d8 (Surr)	98.2		% Recovery	EPA 8260B	6/25/2001
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	6/25/2001

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 20792
Date : 6/28/2001

Project Name : **EZ SERVE HAYWARD**
Project Number : **ZB877C**

Sample : **MW-1** Matrix : Water Lab Number : 20792-02

Sample Date :6/14/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**380**	2.5	ug/L	EPA 8260B	6/26/2001
Toluene	**8.4**	2.5	ug/L	EPA 8260B	6/26/2001
Ethylbenzene	**260**	2.5	ug/L	EPA 8260B	6/26/2001
Total Xylenes	**180**	2.5	ug/L	EPA 8260B	6/26/2001
Methyl-t-butyl ether (MTBE)	**< 25**	25	ug/L	EPA 8260B	6/26/2001
TPH as Gasoline	**6000**	250	ug/L	EPA 8260B	6/26/2001
Toluene - d8 (Surr)	99.2		% Recovery	EPA 8260B	6/26/2001
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	6/26/2001

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 20792
Date : 6/28/2001

Project Name : **EZ SERVE HAYWARD**
Project Number : **ZB877C**

Sample : **MW-2** Matrix : Water Lab Number : 20792-03
Sample Date :6/14/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**860**	10	ug/L	EPA 8260B	6/25/2001
Toluene	**14**	10	ug/L	EPA 8260B	6/25/2001
Ethylbenzene	**1100**	10	ug/L	EPA 8260B	6/25/2001
Total Xylenes	**2200**	10	ug/L	EPA 8260B	6/25/2001
Methyl-t-butyl ether (MTBE)	**< 100**	100	ug/L	EPA 8260B	6/25/2001
TPH as Gasoline	**18000**	1000	ug/L	EPA 8260B	6/25/2001
Toluene - d8 (Surr)	99.6		% Recovery	EPA 8260B	6/25/2001
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	6/25/2001

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 20792
Date : 6/28/2001

Project Name : **EZ SERVE HAYWARD**
Project Number : **ZB877C**

Sample : **MW-3** Matrix : Water Lab Number : 20792-04
Sample Date :6/13/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**9.0**	0.50	ug/L	EPA 8260B	6/25/2001
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	6/25/2001
Ethylbenzene	**78**	0.50	ug/L	EPA 8260B	6/25/2001
Total Xylenes	**43**	0.50	ug/L	EPA 8260B	6/25/2001
Methyl-t-butyl ether (MTBE)	**< 5.0**	5.0	ug/L	EPA 8260B	6/25/2001
TPH as Gasoline	**2100**	50	ug/L	EPA 8260B	6/25/2001
Toluene - d8 (Surr)	95.9		% Recovery	EPA 8260B	6/25/2001
4-Bromofluorobenzene (Surr)	109		% Recovery	EPA 8260B	6/25/2001

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 20792
Date : 6/28/2001

Project Name : **EZ SERVE HAYWARD**
Project Number : **ZB877C**

Sample : **MW-4** Matrix : Water Lab Number : 20792-05

Sample Date :6/14/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**690**	5.0	ug/L	EPA 8260B	6/25/2001
Toluene	**45**	5.0	ug/L	EPA 8260B	6/25/2001
Ethylbenzene	**560**	5.0	ug/L	EPA 8260B	6/25/2001
Total Xylenes	**600**	5.0	ug/L	EPA 8260B	6/25/2001
Methyl-t-butyl ether (MTBE)	**< 50**	50	ug/L	EPA 8260B	6/25/2001
TPH as Gasoline	**9500**	500	ug/L	EPA 8260B	6/25/2001
Toluene - d8 (Surr)	99.6		% Recovery	EPA 8260B	6/25/2001
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	6/25/2001

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 20792
Date : 6/28/2001

Project Name : **EZ SERVE HAYWARD**
Project Number : **ZB877C**

Sample : **MW-5** Matrix : Water Lab Number : 20792-06
Sample Date :6/14/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**44**	0.50	ug/L	EPA 8260B	6/27/2001
Toluene	**0.71**	0.50	ug/L	EPA 8260B	6/27/2001
Ethylbenzene	**110**	0.50	ug/L	EPA 8260B	6/27/2001
Total Xylenes	**23**	0.50	ug/L	EPA 8260B	6/27/2001
Methyl-t-butyl ether (MTBE)	**< 5.0**	5.0	ug/L	EPA 8260B	6/27/2001
TPH as Gasoline	**5100**	100	ug/L	EPA 8260B	6/26/2001
Toluene - d8 (Surr)	93.4		% Recovery	EPA 8260B	6/27/2001
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	6/27/2001

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 20792
Date : 6/28/2001

Project Name : **EZ SERVE HAYWARD**
Project Number : **ZB877C**

Sample : **MW-6** Matrix : Water Lab Number : 20792-07

Sample Date :6/14/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**29**	2.0	ug/L	EPA 8260B	6/26/2001
Toluene	**6.3**	2.0	ug/L	EPA 8260B	6/26/2001
Ethylbenzene	**200**	2.0	ug/L	EPA 8260B	6/26/2001
Total Xylenes	**55**	2.0	ug/L	EPA 8260B	6/26/2001
Methyl-t-butyl ether (MTBE)	**< 20**	20	ug/L	EPA 8260B	6/26/2001
TPH as Gasoline	**6400**	200	ug/L	EPA 8260B	6/26/2001
Toluene - d8 (Surr)	98.0		% Recovery	EPA 8260B	6/26/2001
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	6/26/2001

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 20792
Date : 6/28/2001

Project Name : **EZ SERVE HAYWARD**
Project Number : **ZB877C**

Sample : **MW-7** Matrix : Water Lab Number : 20792-08
Sample Date :6/13/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 2.5**	2.5	ug/L	EPA 8260B	6/27/2001
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	6/25/2001
Ethylbenzene	**54**	0.50	ug/L	EPA 8260B	6/25/2001
Total Xylenes	**10**	0.50	ug/L	EPA 8260B	6/25/2001
Methyl-t-butyl ether (MTBE)	**< 5.0**	5.0	ug/L	EPA 8260B	6/25/2001
TPH as Gasoline	**2900**	250	ug/L	EPA 8260B	6/27/2001
Toluene - d8 (Surr)	95.7		% Recovery	EPA 8260B	6/25/2001
4-Bromofluorobenzene (Surr)	109		% Recovery	EPA 8260B	6/25/2001

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 20792
Date : 6/28/2001

Project Name : **EZ SERVE HAYWARD**
Project Number : **ZB877C**

Sample : **MW-12** Matrix : Water Lab Number : 20792-09

Sample Date :6/13/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	6/25/2001
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	6/25/2001
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	6/25/2001
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	6/25/2001
Methyl-t-butyl ether (MTBE)	**< 5.0**	5.0	ug/L	EPA 8260B	6/25/2001
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	6/25/2001
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	6/25/2001
4-Bromofluorobenzene (Surr)	100		% Recovery	EPA 8260B	6/25/2001

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 20792
Date : 6/28/2001

Project Name : **EZ SERVE HAYWARD**
Project Number : **ZB877C**

Sample : **MW-13** Matrix : Water Lab Number : 20792-10
Sample Date :6/13/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	6/25/2001
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	6/25/2001
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	6/25/2001
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	6/25/2001
Methyl-t-butyl ether (MTBE)	**< 5.0**	5.0	ug/L	EPA 8260B	6/25/2001
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	6/25/2001
Toluene - d8 (Surr)	99.6		% Recovery	EPA 8260B	6/25/2001
4-Bromofluorobenzene (Surr)	120		% Recovery	EPA 8260B	6/25/2001

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 20792
Date : 6/28/2001

Project Name : **EZ SERVE HAYWARD**
Project Number : **ZB877C**

Sample : **MW-14** Matrix : Water Lab Number : 20792-11
Sample Date :6/13/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	6/25/2001
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	6/25/2001
Ethylbenzene	**2.8**	0.50	ug/L	EPA 8260B	6/25/2001
Total Xylenes	**1.0**	0.50	ug/L	EPA 8260B	6/25/2001
Methyl-t-butyl ether (MTBE)	**< 5.0**	5.0	ug/L	EPA 8260B	6/25/2001
TPH as Gasoline	**470**	50	ug/L	EPA 8260B	6/25/2001
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	6/25/2001
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	6/25/2001

Joel Kiff

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

720 Olive Drive, Suite D
Davis, CA 95616
Lab: 530.297.4800
Fax: 530.297.4803

Lab No. 20792 Page 1 of 2

Chain-of-Custody Record and Analysis Request

Project Manager: Heidi Bauer
Phone No.: (510) 893-5160
Company/Address: Clearwater Group
FAX No.: (510) 893-5947
Project Number: ZB877C
P.O. No.:
Email Address:
☐.pdf ☐.xls ☐.doc ☐other
Project Name/Location: EZ SERVE HAYWARD
Sampler Signature: Scott Robertson

Sample Designation	Sampling Date	Sampling Time	Container (Type/Amount) 40 ml VOA	SLEEVE	Method Preserved HCl	HNO_3	ICE	NONE	Matrix WATER	SOIL	Analysis Request: BTEX (8021B)	BTEX/TPH Gas/MTBE (8021B/M8015)	TPH as Diesel (M8015)	TPH as Motor Oil (M8015)	TPH Gas/BTEX/MTBE (8260B)	5 Oxygenates/TPH Gas/BTEX (8260B)	7 Oxygenates/TPH Gas/BTEX (8260B)	5 Oxygenates (8260B)	7 Oxygenates (8260B)	Lead Scav. (1,2 DCA & 1,2 EDB - 8260B)	EPA 8260B (Full List)	Volatile Halocarbons (EPA 8260B)	Lead (7421/239.2) TOTAL (X) W.E.T. (X)	TPHg (8015)	BTEX/MTBE (8020)	TAT 12 hr/24 hr/48 hr/72 hr/1 wk	For Lab Use Only
MW-1A	6-14-01	1015	X		X				X																		-01
MW-1	6-14-01	1100																									-02
MW-2	6-14-01	1200																									-03
MW-3	6-13-01	1655																									-04
MW-4	6-14-01	1130																									-05
MW-5	6-14-01	0915																									-06
MW-6	6-14-01	0945																									-07
MW-7	6-13-01	1555																									-08
MW-12	6-13-01	1455																									-09
MW-13	6-13-01	1340	↓		↓				↓																		-10

Relinquished by:	Date	Time	Received by:
Scott Robertson			
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
	6/14/01	1655	Oksana Aboolan

Remarks:

Bill to:

Distribution: White - Lab, Yellow - File, Pink - Originator

COC.fh8 (5/00)

KIFF ANALYTICAL LLC

720 Olive Drive, Suite D
Davis, CA 95616
Lab: 530.297.4800
Fax: 530.297.4803

Lab No. 20792 Page 2 of 2

Chain-of-Custody Record and Analysis Request

Project Manager: Heidi Bauer
Phone No.: (510) 893-5160
Company/Address: Clearwater Group
FAX No.: (510) 893-5947
Project Number: ZB877C
P.O. No.:
Email Address:
☐.pdf ☐.xls ☐.doc ☐other
Project Name/Location: EZ SERVE HAYWARD
Sampler Signature: Scott Robertson

Sample Designation	Sampling Date	Sampling Time	Container (Type/Amount) 40 ml VOA	SLEEVE	Method Preserved HCl	HNO_3	ICE	NONE	Matrix WATER/SOIL	BTEX (8021B)	BTEX/TPH Gas/MTBE (8021B/M8015)	TPH as Diesel (M8015)	TPH as Motor Oil (M8015)	TPH Gas/BTEX/MTBE (8260B)	5 Oxygenates/TPH Gas/BTEX (8260B)	7 Oxygenates/TPH Gas/BTEX (8260B)	5 Oxygenates (8260B)	7 Oxygenates (8260B)	Lead Scav. (1,2 DCA & 1,2 EDB - 8260B)	EPA 8260B (Full List)	Volatile Halocarbons (EPA 8260B)	Lead (7421/239.2) TOTAL (X) W.E.T (X)	TPHg (8015)	BTEX/MTBE (8020)	TAT 12 hr/24 hr/48 hr/72 hr/1 wk	For Lab Use Only
MW-14	6-13-01	1515	X		X				X														X	X		-11

TAT: 12 hr = Results by 9 a.m. of the next bus. day; 24 hr = Results by 5 p.m. of the next bus. day; 48 hr = Results by 5 p.m. of the 2nd bus day; 72 hr = Results by 5 p.m. of the 3rd bus. day; 1 wk = Results by 5 p.m. of the 5th bus day

Relinquished by:	Date	Time	Received by:
Scott Robertson			
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
	061401	1655	Osama Abdelaziz / Kiff Analytical

Remarks:

Bill to:

Distribution: White - Lab, Yellow - File, Pink - Originator

COC.fh8 (5/00)

KIFF ANALYTICAL LLC
720 Olive Drive, Suite D
Davis, CA 95616
Lab: 530.297.4800
Fax: 530.297.4803

Lab No. 20792 Page 1 of 2

Chain-of-Custody Record and Analysis Request

Project Manager: Heidi Bauer
Phone No.: (510) 893-5160
Company/Address: Clearwater Group
FAX No.: (510) 893-5947
Project Number: ZB877C
P.O. No.:
Email Address:
☐.pdf ☐.xls ☐.doc ☐other
Project Name/Location: EZ SERVE HAYWARD
Sampler Signature: Scott Robertson

Sample Designation	Sampling Date	Sampling Time	Container (Type/Amount): 40 ml VOA	SLEEVE	Method Preserved: HCl	HNO_3	ICE	NONE	Matrix: WATER	SOIL	BTEX (8021B)	BTEX/TPH Gas/MTBE (8021B/M8015)	TPH as Diesel (M8015)	TPH as Motor Oil (M8015)	TPH Gas/BTEX/MTBE (8260B)	5 Oxygenates/TPH Gas/BTEX (8260B)	7 Oxygenates/TPH Gas/BTEX (8260B)	5 Oxygenates (8260B)	7 Oxygenates (8260B)	Lead Scav. (1,2 DCA & 1,2 EDB - 8260B)	EPA 8260B (Full List)	Volatile Halocarbons (EPA 8260B)	Lead (7421/239.2)	TOTAL (X) W.E.T. (X)	TPH (Gas)	BTEX / MTBE (8260)	TAT: 12 hr/24 hr/48 hr/72 hr/1 wk	For Lab Use Only
MW-1A	6-14-01	1015	X			X			X			X																-01
MW-1	6-14-01	1100																										-02
MW-2	6-14-01	1200																										-03
MW-3	6 13 01	1655																										-04
MW-4	6-14-01	1130																										-05
MW-5	6-14-01	0915																										-06
MW-6	6-14-01	0945																										-07
MW-7	6 13 01	1555																										-08
MW-12	6 13 01	1455																										-09
MW-13	6-13-01	1340	↓			↓			↓			↓																-10

	Date	Time		Remarks:
Relinquished by: Scott Robertson			Received by:	
Relinquished by:			Received by:	
Relinquished by:	Date: 06/14/01	Time: 1655	Received by Laboratory: Osama Abdalla	Bill to:

Distribution: White - Lab, Yellow - File, Pink - Originator

COC.fh8 (5/00)

KIFF ANALYTICAL LLC

720 Olive Drive, Suite D
Davis, CA 95616
Lab: 530.297.4800
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Lab No. 20792 Page 2 of 2

Chain-of-Custody Record and Analysis Request

Project Manager: Heidi Bauer	Phone No.: (510) 893-5160
Company/Address: Clearwater Group	FAX No.: (510) 893-5947
Project Number: ZB8-7C / P.O. No.:	Email Address: ☐ .pdf ☐ .xls ☐ .doc ☐ other
Project Name/Location: EZ SERVE HAYWARD	Sampler Signature: Scott Robertson

Analysis Request

Sample Designation	Sampling Date	Sampling Time	Container: 40 ml VOA	Container: SLEEVE	Method Preserved: HCl	HNO$_3$	ICE	NONE	Matrix: WATER (circled)	SOIL	BTEX (8021B)	BTEX/TPH Gas/MTBE (8021B/M8015) (circled)	TPH as Diesel (M8015)	TPH as Motor Oil (M8015)	TPH Gas/BTEX/MTBE (8260B)	5 Oxygenates/TPH Gas/BTEX (8260B)	7 Oxygenates/TPH Gas/BTEX (8260B)	5 Oxygenates (8260B)	7 Oxygenates (8260B)	Lead Scav. (1,2 DCA & 1,2 EDB - 8260B)	EPA 8260B (Full List)	Volatile Halocarbons (EPA 8260B)	Lead (7421/239.2) TOTAL (X) W.E.T. (X)	TPHMo (8015)	MTBE (8020)		TAT: 12 hr/24 hr/48 hr/72 hr/1 wk	For Lab Use Only
MW-14	6-13-01	1515	X		X				X			X												X	X			-11

For Lab Use Only: 12 hr = Results by 9 a.m. of the next bus. day; 24 hr = Results by 5 p.m. of the next bus. day; 48 hr = Results by 5 p.m. of the 2nd bus. day; 72 hr = Results by 5 p.m. of the 3rd bus. day; 1 wk = Results by 5 p.m. of the 5th bus. day

Relinquished by:	Date	Time	Received by:
Scott Robertson			
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
	061401	1655	Osoma Albalam / Kiff Analytical

Remarks:

Bill to:

Distribution: White - Lab, Yellow - File, Pink - Originator

COC.fh8 (5/00)

CLEARWATER GROUP, INC.

Groundwater Monitoring and Sampling Field Procedures

Groundwater Monitoring

Prior to beginning, a decontamination area is established. Decontamination procedures consist of scrubbing downhole equipment in an Alconox® solution wash (wash solution is pumped through any purging pumps used), and rinsing in a first rinse of potable water and a second rinse of potable water or deionized water if the latter is required. Any non-dedicated down hole equipment is decontaminated prior to use. When using a peristaltic pump, new or dedicated silicon head tube and polyethylene tubing is used.

Prior to purging and sampling a well, the static water level is measured to the nearest 0.01 feet with an electronic water sounder. Depth to bottom is typically measured once per year, at the request of the project manager, and during Clearwater's first visit to a site. If historical analytical data are not available, with which to establish a reliable order of increasing well contamination, the water sounder and tape will be decontaminated between each well. If floating separate-phase hydrocarbons (SPH) are suspected or observed, SPH is collected using a clear, open-ended product bailer, and the thickness is measured to the nearest 0.01 feet in the bailer. SPH may alternatively be measured with an electronic interface probe. Any monitoring well containing a measurable thickness of SPH before or during purging is not additionally purged and no sample is collected from that well. Wells containing a hydrocarbon sheen are sampled unless otherwise specified by the project manager. Field observations such as well integrity as well as water level measurements and floating product thicknesses are noted on the Gauging Data/Purge Calculations form.

Well Purging

Each monitoring well to be sampled is purged using either a PVC bailer, submersible pump or a peristaltic pump. Physical parameters (pH, temperature and conductivity) of the purge water are monitored during purging activities to assess if the water sample collected is representative of the aquifer. If required, parameters such as dissolved oxygen, turbidity, salinity etc. are also measured. Samples are considered representative if parameter stability is achieved. Stability is defined as a change of less than 0.25 pH units, less than 10% change in conductivity in micro mhos, and less than 1.0 degree centigrade (1.8 degrees Fahrenheit) change in temperature. Parameters are measured in a discreet sample decanted from the bailer separately from the rest of the purge water or in a in-line flowthrough cell. Parameters are measured at least four times during purging; initially, and at volume intervals of one well volume. Purging continues until three well casing volumes have been removed or until the well completely dewaters. Wells which dewater or demonstrate a slow recharge, may be sampled after fewer than three well volumes have been removed. Well purging information is recorded on the Purge Data sheet. All meters used to measure parameters are calibrated daily. Purge water is sealed, labeled, and stored on site in D.O.T.-approved 55-gallon drums. After being chemically profiled, the water is removed to an appropriate disposal facility by a licensed waste hauler.

Groundwater Sample Collection

Groundwater samples are collected immediately after purging or, if purging rate exceeds well recharge rate, when the well has recharged to at least 80% of its static water level. If recharge is extremely slow, the well is allowed to recharge for at least two hours, if practicable, or until sufficient volume has accumulated for sampling. The well is sampled within 24 hours of purging or repurged. Samples are collected using polyethylene bailers, either disposable or dedicated to the well. Samples may also be collected from the peristaltic pump tubing. Samples being analyzed for compounds most sensitive to volatilization are collected first. Water samples are placed in appropriate laboratory-supplied containers, labeled, documented on a chain of custody form and placed on ice in a cooler for transport to a state-certified analytical laboratory. Analytical detection limits match or surpass standards required by relevant local or regional guidelines.

Quality Assurance Procedures

To prevent contamination of the samples, CGI personnel adhere to the following procedures in the field:

- A new, clean pair of latex gloves are put on prior to sampling each well.
- Wells are gauged, purged and groundwater samples are collected in the expected order of increasing degree of contamination based on historical analytical results.
- All purging equipment will be thoroughly decontaminated between each well, using the procedures previously described at the beginning of this section.
- During sample collection for volatile organic analysis, the amount of air passing through the sample is minimized. This helps prevent the air from stripping the volatiles from the water. Sample bottles are filled by slowly running the sample down the side of the bottle until there is a convex meniscus over the mouth of the bottle. The lid is carefully screwed onto the bottle such that no air bubbles are present within the bottle. If a bubble is present, the cap is removed

and additional water is added to the sample container. After resealing the sample container, if bubbles still are present inside, the sample container is discarded and the procedure is repeated with a new container.

Laboratory and field handling procedures may be monitored, if required by the client or regulators, by including quality control (QC) samples for analysis with the groundwater samples. Examples of different types of QC samples are as follows:

- Trip blanks are prepared at the analytical laboratory by laboratory personnel to check field handling procedures. Trip blanks are transported to the project site in the same manner as the laboratory-supplied sample containers to be filled. They are not opened, and are returned to the laboratory with the samples collected. Trip blanks are analyzed for purgable organic compounds.

- Equipment blanks are prepared in the field to determine if decontamination of field sampling equipment has been effective. The sampling equipment used to collect the groundwater samples is rinsed with distilled water which is then decanted into laboratory-supplied containers. The equipment blanks are transported to the laboratory, and are analyzed for the same chemical constituents as the samples collected at the site.

- Duplicates are collected at the same time that the standard groundwater samples are being collected and are analyzed for the same compounds in order to check the reproducibility of laboratory data. They are typically only collected from one well per sampling event. The duplicate is assigned an identification number that will not associate it with the source well.

Generally, trip blanks and field blanks check field handling and transportation procedures. Duplicates check laboratory procedures. The configuration of QC samples is determined by CGI depending on site conditions and regulatory requirements.