

R0480



GROUNDWATER TECHNOLOGY, INC.

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May 12, 1995

Mr. Tom Peacock
Alameda County
1137 Harbor Bay Parkway
Alameda, CA. 94502

SUBJECT: Quarterly Groundwater Monitoring and Sampling Report
Former Sears Store 1058
2633 Telegraph Avenue, Oakland, California
GTI Project 020200094

ENVIRONMENTAL
PROTECTION
MAY 15 1995

Dear Mr. Peacock:

On behalf of Sears, Roebuck and Co., Groundwater Technology presents the monthly groundwater monitoring data collected on January 4 and February 1, 1995, and the quarterly monitoring and sampling data collected on March 8, 1995, from the site referenced above. The eight groundwater monitoring wells were gauged to determine depth to groundwater and to check for the presence of separate-phase petroleum hydrocarbons. Separate-phase hydrocarbons were detected in monitoring well MW-3. A potentiometric surface map is presented in attachment 1. A summary of groundwater monitoring data is presented in attachment 2.

After measuring depth to water, the monitoring wells, except MW-3, were purged and sampled. Groundwater monitoring and sample collection protocol and field data sheets are presented in attachment 3. The groundwater samples were analyzed for TPH-as motor oil by Modified EPA methods 3510/8015. Additionally, groundwater samples from monitoring well MW-1 were analyzed for dissolved benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA method 8020. Groundwater samples from monitoring wells MW-2, MW-4, MW-5, MW-6, MW-7 and MW-8 were analyzed for BTEX and for TPH-as-gasoline by EPA methods 8020 and 8015. Groundwater samples from monitoring wells MW-2, MW-5, MW-6, MW-7 and MW-8 were analyzed for dissolved cadmium, chromium, lead, nickel and zinc by EPA methods 6010 and 7421. Groundwater samples from monitoring well MW-4 were analyzed for lead by EPA method 7421. A distribution map for benzene, TPH as gasoline and TPH as motor oil is presented in attachment 1. Laboratory reports and chain-of-custody records are included in attachment 4.

If you have any comments or questions, please contact me at (510) 671-2387.

Sincerely,
Groundwater Technology, Inc.

Michael J. Wray
Project Manager
Attachments

cc: Bernadine Palka, PE

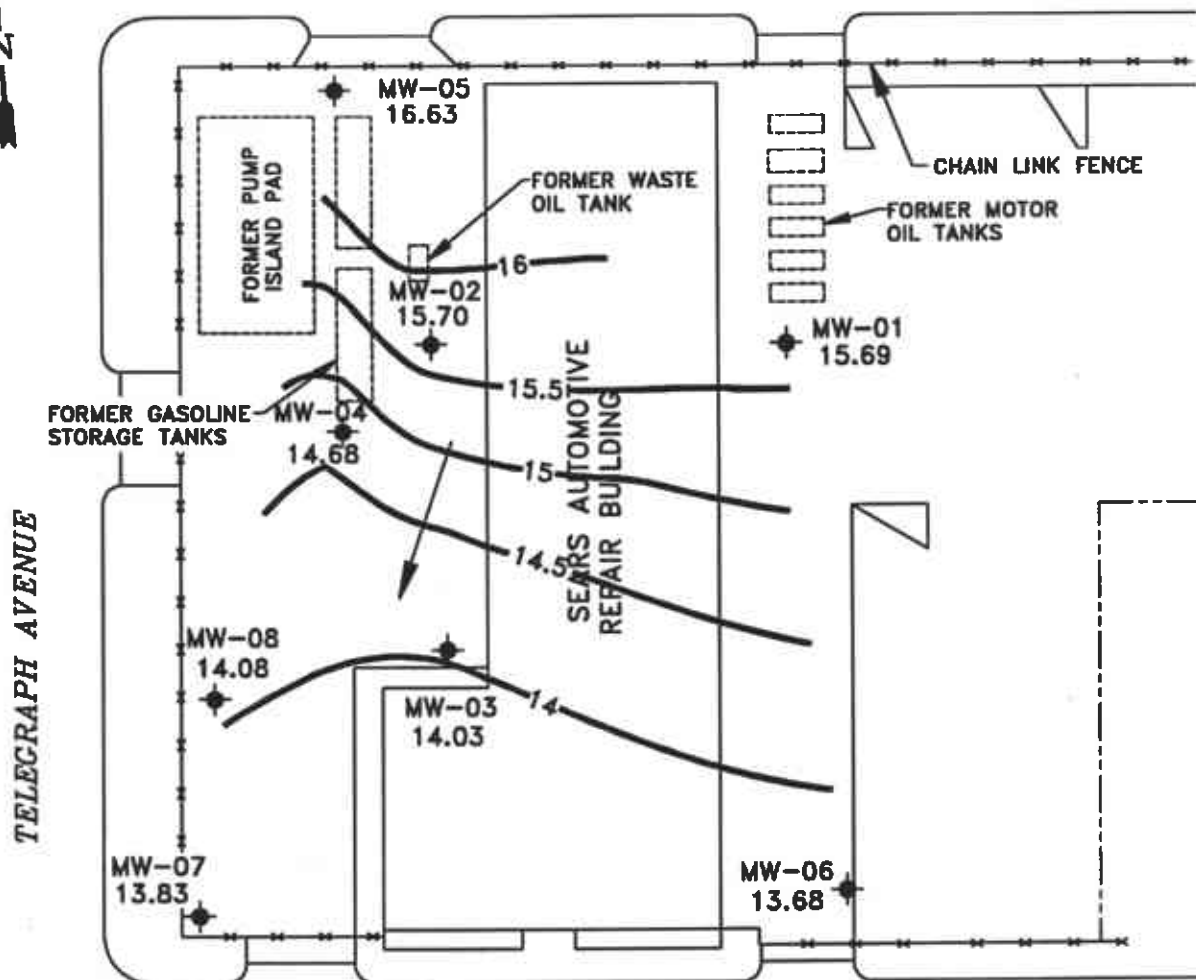
ATTACHMENT 1

Figures

1. Potentiometric Surface Map (03/08/95)
2. Concentrations of Benzene and TPH as Gasoline in Groundwater (03/08/95)



27th STREET



26th STREET

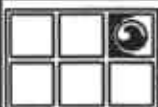


LEGEND

- ◆ MONITORING WELL
- NA NOT AVAILABLE
- X.XX POTENTIOMETRIC SURFACE ELEVATION (FT)
- POTENTIOMETRIC SURFACE CONTOUR
- ← GROUNDWATER FLOW DIRECTION

NOTE:

1. CONTOURS REPRESENT APPROXIMATE ELEVATIONS ABOVE MEAN SEA LEVEL.



GROUNDWATER TECHNOLOGY

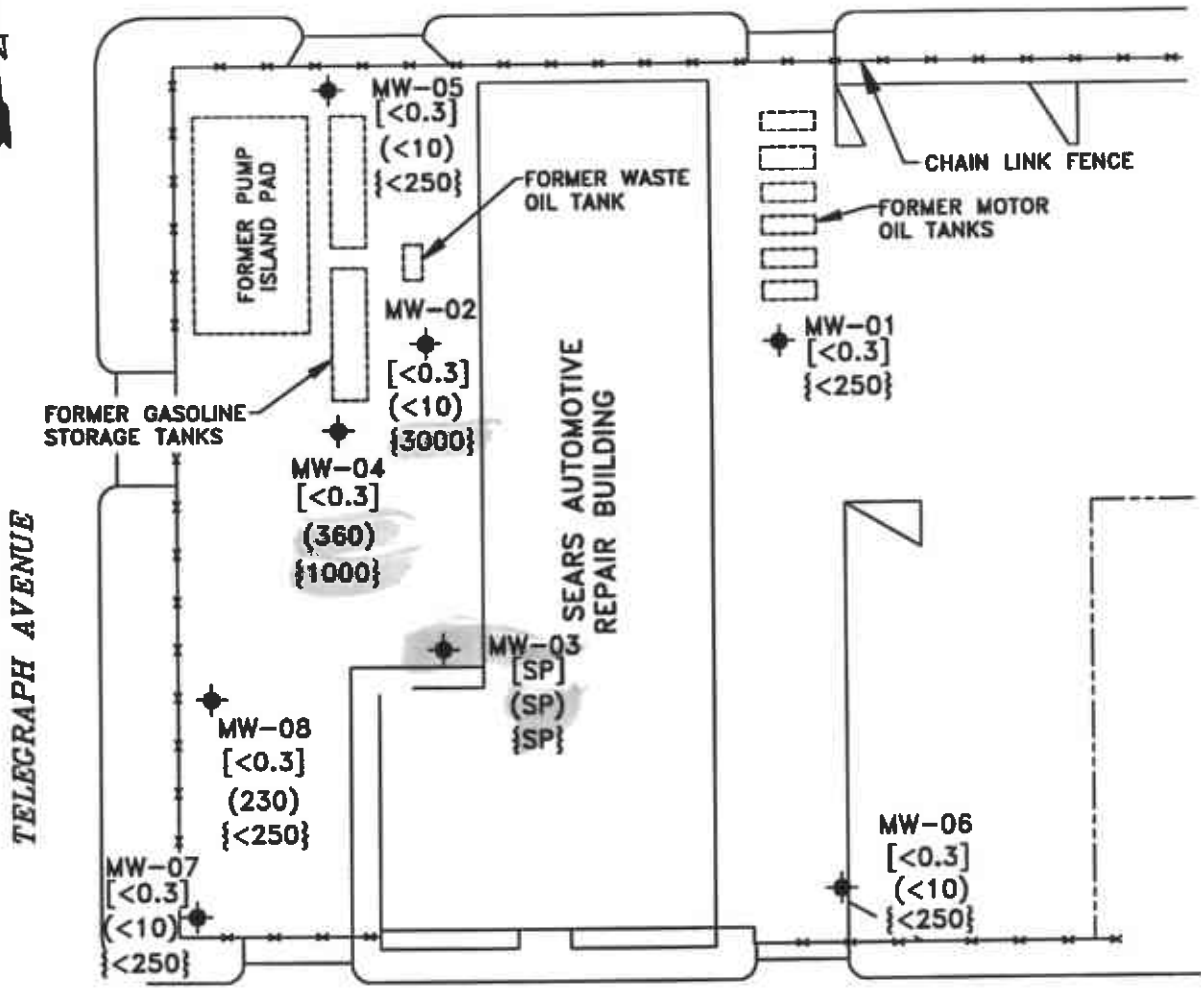


POTENTIOMETRIC SURFACE MAP (03/01/95)

CLIENT: SEARS, ROEBUCK AND CO. SITE NO. 1058	FILE: S0094P	PROJECT NO.: 020200094	PM <i>myj</i>	PE/RG <i>201/4/ukc</i>
	LOCATION: 2633 TELEGRAPH AVENUE OAKLAND, CALIFORNIA	REV.	FIGURE: 1	
	DES. KM	DET. KM	DATE: 03/30/95	



27th STREET



26th STREET

LEGEND

- ◆ MONITORING WELL
- SP SEPERTE PHASE HYDROCARBONS
- X.XX POTENTIOMETRIC SURFACE ELEVATION (FT)
- { } TPH-AS-MOTOR OIL
- [] BENZENE CONTRATIONS [ug/l]
- () TPH-AS-GASOLINE (ug/l)



				CONCENTRATIONS OF BENZENE & TPH-AS-GASOLINE IN GROUNDWATER (03/01/95)				
CLIENT: SEARS, ROEBUCK AND CO. SITE NO. 1058			FILE: S0094BT		PROJECT NO.: 02020094		PM <i>mmw</i>	PE/RG <i>EdS</i>
LOCATION: 2633 TELEGRAPH AVENUE OAKLAND, CALIFORNIA			REV.		DES. KM DET. KM DATE: 03/30/95		FIGURE: 2	

ATTACHMENT 2

Tables

1. Summary of Historical Groundwater Monitoring Data
2. Summary of Historical Groundwater Analyses

TABLE 1
Summary of Historical Groundwater Monitoring Data
 (All measurements are in feet; all elevations are in feet above mean sea level)

Sears Store 1058
 2633 Telegraph Avenue, Oakland, California

Well ID	Casing Elev.	Date	Depth to Water	Depth to Product	Product Thickness	Groundwater Elev.
MW-1	26.20	12/30/92	10.60	--	--	15.60
		02/26/93	10.14	--	--	16.06
		03/24/93	10.48	--	--	15.72
		04/27/93	11.30	--	--	14.90
		05/28/93	11.43	--	--	14.77
		06/21/93	11.71	--	--	14.49
		07/22/93	11.87	--	--	14.33
		08/13/93	11.94	--	--	14.26
		09/16/93	12.05	--	--	14.15
		10/22/93	12.00	--	--	14.20
		11/03/93	12.10	--	--	14.10
		11/24/93	11.97	--	--	14.23
		12/01/93	11.46	--	--	14.74
		12/27/93	11.58	--	--	14.62
		01/05/94	11.69	--	--	14.51
		02/08/94	11.87	--	--	14.33
		03/09/94	11.08	--	--	15.12
		04/01/94	11.47	--	--	14.73
		05/10/94	10.77	--	--	15.43
		06/30/94	11.82	--	--	14.38
		07/28/94	11.90	--	--	14.30
		08/31/94	11.94	--	--	14.26
		09/27/94	12.04	--	--	14.16
10/28/94	12.06	--	--	14.14		
11/15/94	10.02	--	--	16.18		
12/01/94	10.61	--	--	15.59		
01/04/95	9.93	--	--	16.27		
02/01/95	9.56	--	--	16.64		
03/08/95	10.51	--	--	15.69		

TABLE 1
Summary of Historical Groundwater Monitoring Data
 (All measurements are in feet; all elevations are in feet above mean sea level)

Sears Store 1058
 2633 Telegraph Avenue, Oakland, California

Well ID	Casing Elev.	Date	Depth to Water	Depth to Product	Product Thickness	Groundwater Elev.
MW-2	26.50	12/30/92	10.65	--	--	15.85
		02/26/93	10.56	--	--	15.94
		03/24/93	10.52	--	--	15.98
		04/27/93	11.17	--	--	15.33
		05/28/93	11.12	--	--	15.38
		06/21/93	11.41	--	--	15.09
		07/22/93	11.50	--	--	15.00
		08/13/93	11.54	--	--	14.96
		09/16/93	11.62	--	--	14.88
		10/22/93	11.57	--	--	14.93
		11/03/93	11.65	--	--	14.85
		11/24/93	11.52	--	--	14.98
		12/01/93	11.08	--	--	15.42
		12/27/93	11.27	--	--	15.23
		01/05/94	11.39	--	--	15.11
		02/08/94	11.49	--	--	15.01
		03/09/94	11.06	--	--	15.44
		04/01/94	11.25	--	--	15.25
		05/10/94	10.83	--	--	15.67
		06/30/94	11.44	--	--	15.06
		07/28/94	11.48	--	--	15.02
		08/31/94	11.56	--	--	14.94
		09/27/94	11.61	--	--	14.89
		10/28/94	11.65	--	--	14.85
		11/15/94	9.65	--	--	16.85
		12/01/94	10.71	--	--	15.79
01/04/95	10.11	--	--	16.39		
02/01/95	10.38	--	--	16.12		
03/08/95	10.80	--	--	15.70		

TABLE 1
Summary of Historical Groundwater Monitoring Data
 (All measurements are in feet; all elevations are in feet above mean sea level)

Sears Store 1058
 2633 Telegraph Avenue, Oakland, California

Well ID	Casing Elev.	Date	Depth to Water	Depth to Product	Product Thickness	Groundwater Elev.
MW-3	26.34	12/30/92	12.43	--	--	13.91
		02/26/93	12.21	--	--	14.13
		03/24/93	12.36	--	--	13.98
		04/27/93	12.70	--	--	13.64
		05/28/93	12.72	--	--	13.62
		06/21/93	12.87	--	--	13.47
		07/22/93	12.92	--	--	13.42
		08/13/93	12.96	--	--	13.38
		09/16/93	13.01	12.97	0.04	13.36
		10/22/93	NM	12.96	NM	NM
		11/03/93	13.13	13.02	0.11	13.30
		11/24/93	12.94	12.92	0.02	13.42
		12/01/93	12.71	12.69	0.02	13.65
		12/27/93	12.77	12.73	0.04	13.60
		01/05/94	12.85	12.83	0.02	13.51
		02/08/94	12.37	--	--	13.97
		03/09/94	12.53	--	--	13.81
		04/01/94	12.64	--	--	13.70
		05/10/94	12.32	--	--	14.02
		06/30/94	12.84	12.82	0.02	13.51
		07/28/94	12.93	12.89	0.04	13.44
		08/31/94	13.04	13.01	0.03	13.32
		09/27/94	13.13	13.02	0.11	13.30
		10/28/94	13.30	13.08	0.22	13.22
		11/15/94	11.05	11.02	0.03	15.31
		12/01/94	11.90	11.88	0.02	14.46
01/04/95	11.80	11.76	0.01	14.55		
02/01/95	12.00	11.98	0.02	14.36		
03/08/95	12.35	12.30	0.05	14.03		

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Summary of Historical Groundwater Monitoring Data
 (All measurements are in feet; all elevations are in feet above mean sea level)

Sears Store 1058
 2633 Telegraph Avenue, Oakland, California

Well ID	Casing Elev.	Date	Depth to Water	Depth to Product	Product Thickness	Groundwater Elev.
MW-4	26.17	12/30/92	11.53	--	Sheen	14.64
		02/26/93	11.35	--	--	14.82
		03/24/93	11.46	--	--	14.71
		04/27/93	11.74	--	--	14.43
		05/28/93	11.77	--	--	14.40
		06/21/93	11.92	--	--	14.25
		07/22/93	11.95	--	--	14.22
		08/13/93	12.01	--	--	14.16
		09/16/93	12.08	--	--	14.09
		10/22/93	12.03	--	--	14.14
		11/03/93	12.10	--	--	14.07
		11/24/93	12.02	--	--	14.15
		12/01/93	11.78	--	--	14.99
		12/27/93	11.80	--	--	14.97
		01/05/94	11.91	--	--	14.26
		02/08/94	11.85	--	--	14.32
		03/09/94	11.61	--	--	14.56
		04/01/94	11.73	--	--	14.44
		05/10/94	11.49	--	--	14.68
		06/30/94	11.90	--	--	14.20
		07/28/94	11.97	--	--	14.27
		08/31/94	12.06	--	--	14.11
		09/27/94	12.11	--	--	14.06
		10/28/94	12.18	--	--	13.99
		11/15/94	10.72	--	--	15.45
12/01/94	11.37	--	--	14.80		
01/04/95	11.20	--	--	14.97		
02/01/95	11.16	--	--	15.01		
03/08/95	11.49	--	--	14.68		

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 (All measurements are in feet; all elevations are in feet above mean sea level)

Sears Store 1058
 2633 Telegraph Avenue, Oakland, California

Well ID	Casing Elev.	Date	Depth to Water	Depth to Product	Product Thickness	Groundwater Elev.
MW-5	26.98	12/30/92	10.50	--	--	16.48
		02/26/93	10.12	--	--	16.86
		03/24/93	10.31	--	--	16.67
		04/27/93	10.75	--	--	16.23
		05/28/93	10.80	--	--	16.18
		06/21/93	10.94	--	--	16.04
		07/22/93	11.01	--	--	15.97
		08/13/93	11.07	--	--	15.91
		09/16/93	11.18	--	--	15.60
		10/22/93	11.19	--	--	15.79
		11/03/93	11.23	--	--	15.75
		11/24/93	12.00	--	--	14.98
		12/01/93	10.84	--	--	16.14
		12/27/93	10.81	--	--	16.17
		01/05/94	10.96	--	--	16.02
		02/08/94	10.94	--	--	16.04
		03/09/94	10.54	--	--	16.44
		04/01/94	10.77	--	--	16.21
		05/10/94	10.44	--	--	16.54
		06/30/94	10.88	--	--	16.10
		07/28/94	10.98	--	--	16.00
		08/31/94	11.07	--	--	15.91
		09/27/94	11.12	--	--	15.86
		10/28/94	11.21	--	--	15.77
11/15/94	10.05	--	--	16.93		
12/01/94	10.39	--	--	16.59		
01/04/95	10.18	--	--	16.80		
02/01/95	9.93	--	--	17.05		
03/08/95	10.35	--	--	16.63		
MW-6	24.32	12/27/93	11.24	--	--	13.08
		01/05/94	11.39	--	--	12.93
		02/08/94	11.15	--	--	13.17
		03/09/94	10.97	--	--	13.35
		04/01/94	11.25	--	--	13.07
		05/10/94	10.78	--	--	13.54
		06/30/94	11.49	--	--	12.83
		07/28/94	11.59	--	--	12.73
		08/31/94	11.56	--	--	12.76
		09/27/94	11.65	--	--	12.67
		10/28/94	11.59	--	--	12.73
		11/15/94	10.24	--	--	14.08
		12/01/94	10.30	--	--	14.02
		01/04/95	9.81	--	--	14.51
		02/01/95	10.01	--	--	14.31
03/08/95	10.64	--	--	13.68		

TABLE 1
Summary of Historical Groundwater Monitoring Data
 (All measurements are in feet; all elevations are in feet above mean sea level)

Sears Store 1058
 2633 Telegraph Avenue, Oakland, California

Well ID	Casing Elev.	Date	Depth to Water	Depth to Product	Product Thickness	Groundwater Elev.
MW-7	24.88	12/27/93	11.80	--	--	13.08
		01/05/94	11.53	--	--	13.35
		02/08/94	11.90	--	--	12.98
		03/09/94	11.23	--	--	13.65
		04/01/94	11.34	--	--	13.54
		05/10/94	11.02	--	--	13.86
		06/30/94	11.49	--	--	13.39
		07/28/94	11.58	--	--	13.30
		08/31/94	11.69	--	--	13.19
		09/27/94	11.73	--	--	13.15
		10/28/94	11.77	--	--	13.11
		11/15/94	10.29	--	--	14.59
		12/01/94	10.89	--	--	13.99
		01/04/95	10.77	--	--	14.11
		02/01/95	10.70	--	--	14.18
03/08/95	11.05	--	--	13.83		
MW-8	26.12	12/27/93	12.45	--	--	13.67
		01/05/94	12.57	--	--	13.55
		02/08/94	12.02	--	--	14.10
		03/09/94	12.22	--	--	13.90
		04/01/94	12.33	--	--	13.79
		05/10/94	12.00	--	--	14.12
		06/30/94	12.52	--	--	13.60
		07/28/94	12.61	--	--	13.51
		08/31/94	12.72	--	--	13.40
		09/27/94	12.80	--	--	13.32
		10/28/94	12.84	--	--	13.28
		11/15/94	11.72	--	--	14.40
		12/01/94	11.87	--	--	14.25
		01/04/95	11.75	--	--	14.37
		02/01/95	11.64	--	--	14.48
03/08/95	12.04	--	--	14.08		

Notes: "--" indicates no datum for the cell, including "product not detected"
 NM = Not monitored



TABLE 2
Summary of Historical Groundwater Sample Analyses
 (All results expressed in parts per billion)

Sears Store 1058
 2633 Telegraph Avenue, Oakland, California

Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH as Gasoline	TPH as Motor Oil	TPH (mg/l)	Dissolved Metals
MW-1	12/30/92	1	1	2	2	--	--	1	--
	03/24/93	0.4	1	0.3	10	--	--	1	--
	06/21/93	<0.3	1	2	6	--	**<100	--	--
	09/16/93	<0.3	0.7	<0.3	7	--	**<100	--	--
	12/01/93	0.4	1	2	7	--	--	--	--
	12/30/93	--	--	--	--	--	<100	--	--
	03/09/94	<0.3	<0.3	1	4.2	--	<100	--	--
	06/30/94	0.6	0.7	2.4	15	--	<100	--	--
	09/27/94	0.9	0.5	1.4	10	--	*<250	--	--
	12/01/94	0.4	0.4	<0.3	6.6	--	*<250	--	--
	03/08/95	<0.3	0.6	<0.3	2.7	--	*<250	--	--
MW-2	12/30/92	0.7	<0.3	<0.3	3	190	--	1	*ND
	03/24/93	0.6	<0.3	<0.3	2	120	--	<1	*ND
	06/21/93	0.3	<0.3	<0.3	0.7	82	**<100	--	*ND
	09/16/93	<0.3	<0.3	<0.3	<0.5	28	**<100	--	*ND
	12/01/93	<0.3	<0.3	<0.3	1	68	--	--	*ND
	12/30/93	--	--	--	--	--	310	--	--
	03/09/94	<0.3	<0.3	<0.3	<0.5	47	<100	--	ND
	06/30/94	<0.3	<0.3	<0.3	<0.5	<10	100	--	ND
	09/27/94	<0.3	<0.3	<0.3	<0.5	<10	*<250	--	^d 15
	12/01/94	<0.3	<0.3	<0.3	<0.5	54	^f 1,300	--	^g 6
	03/08/95	<0.3	<0.3	<0.3	<0.5	<10	3,000	--	ND
MW-3	12/30/92	11	0.9	<0.3	2	910	--	20	*ND
	03/24/93	28	0.7	1	8	3,300	--	28	**15
	06/21/93	21	5	2	19	**2,600	32,000	26	^h 5
	09/16/93	--	--	--	--	--	--	--	--
	12/01/93	--	--	--	--	--	--	--	--
	03/09/94	2	1.4	4.5	13	2,000	**5,700	**63	*ND
	06/30/94	--	--	--	--	--	--	--	--
	09/27/94	--	--	--	--	--	--	--	--
	12/01/94	--	--	--	--	--	--	--	--
	03/08/95	--	--	--	--	--	--	--	--
	MW-4	12/30/92	2	<0.3	1	<0.5	1,200	--	<1
03/24/93		<0.3	<0.3	<0.3	<0.5	750	--	2	^a 7
06/21/93		<0.3	2	<0.3	0.5	660	19,000	--	*ND
09/16/93		0.3	<0.3	2	3	410	2,500	--	*ND
12/01/93		<0.3	<0.3	<0.3	<0.5	150	390	--	*ND
03/09/94		0.7	0.8	2	3.6	1,500	780	--	*ND
06/30/94		<0.3	1.7	0.5	1.0	450	130	--	ND
09/27/94		0.5	<0.3	<0.3	<0.5	110	1,100	--	ND
12/01/94		0.6	0.5	0.3	0.8	290	580	--	^o <5
03/08/95		<0.3	<0.3	<0.3	<0.5	360	1,000	--	^a <5
MW-5		12/30/92	<0.3	<0.3	<0.3	<0.5	37	--	<1
	03/24/93	<0.3	<0.3	<0.3	0.5	19	--	2	^c 341
	06/21/93	<0.3	<0.3	<0.3	<0.5	<10	<100	--	*ND
	09/16/93	0.3	<0.3	<0.3	1	<10	<100	--	*ND
	12/01/93	<0.3	<0.3	<0.3	1	17	--	--	*ND
	12/30/93	--	--	--	--	--	<100	--	--
	03/09/94	<0.3	<0.3	<0.3	<0.5	22	<100	--	*ND
	06/30/94	<0.3	<0.3	<0.3	<0.5	<10	<100	--	ND
	09/27/94	0.5	0.4	<0.3	<0.5	<10	560	--	ND
	12/01/94	<0.3	<0.3	<0.3	<0.5	<10	<250	--	ND
	03/08/95	<0.3	<0.3	<0.3	<0.5	<10	<250	--	ND



TABLE 2
Summary of Historical Groundwater Sample Analyses
 (All results expressed in parts per billion)

Sears Store 1058
 2633 Telegraph Avenue, Oakland, California

Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH as Gasoline	TPH as Motor Oil	TPH (mg/l)	Dissolved Metals
MW-6	12/27/93	<0.3	<0.3	<0.3	<0.5	<10	<100	<1	*70
	03/09/94	<0.3	<0.3	<0.3	<0.5	15	<100	--	*ND
	06/30/94	<0.3	<0.3	<0.3	<0.5	<10	<100	--	ND
	09/27/94	<0.3	<0.3	<0.3	<0.5	<10	<250	--	^d 8
	12/01/94	<0.3	<0.3	<0.3	<0.5	<10	<250	--	*92
	03/08/95	<0.3	<0.3	<0.3	<0.5	<10	<250	--	ND
MW-7	12/27/93	<0.3	<0.3	1	2	140	<100	<1	*40
	03/09/94	<0.3	<1.0	1.5	4.1	620	<100	--	*ND
	06/30/94	<0.3	<0.3	<0.3	<0.5	33	<100	--	ND
	09/27/94	<0.3	<0.3	0.4	0.7	52	*<250	--	ND
	12/01/94	<0.3	<0.3	<0.3	1.1	<10	*<250	--	*28
	03/08/95	<0.3	<0.3	<0.3	<0.5	<10	*<250	--	ND
MW-8	12/27/93	0.4	4	0.4	1	390	<100	<1	*18
	03/09/94	0.6	0.8	0.5	1.5	420	<100	--	*ND
	06/30/94	0.9	<0.3	<0.3	1.1	250	<100	--	ND
	09/27/94	<0.3	<0.3	<0.3	<0.5	210	*<250	--	^g 9
	12/01/94	5.4	<0.3	0.7	1.3	230	*<250	--	*ND
	03/08/95	<0.3	<0.3	<0.3	<0.5	230	*<250	--	ND

Source: GTEL Environmental Laboratories

Notes: "--" indicates no datum for the cell, including "not analyzed for this constituent". Values beginning with "<" indicate the compound was not detected above the laboratory reporting limits.

mg/l = Milligrams per liter

TPH = Total petroleum hydrocarbons

ND = Non-detectable (detection limits for each metal is listed in laboratory reports, included in attachment 4)

* = Water samples were not filtered, analytical results represent total metals present, not dissolved concentrations.

** = Uncategorized hydrocarbon compound not included in this hydrocarbon concentration.

^a = Dissolved lead

^b = Dissolved lead only analyte detected

^c = Dissolved lead, cadmium, total chromium, nickel, and zinc.

^d = Cadmium only analyte detected.

^e = Hydrocarbon pattern not characteristic of motor oil.

^f = Uncategorized compounds included in concentration

^g = Zinc only analyte detected

ATTACHMENT 3
Groundwater Monitoring and Sample Collection Protocol
and
Field Data Sheets

GROUNDWATER TECHNOLOGY GROUNDWATER MONITORING AND SAMPLE COLLECTION PROTOCOL

Groundwater Monitoring

Groundwater monitoring is accomplished using a INTERFACE PROBE™ Well Monitoring System. The INTERFACE PROBE™ Well Monitoring System is a hand held, battery operated device for measuring the depth to separate-phase hydrocarbons and depth to water. The INTERFACE PROBE™ Well Monitoring System consists of a dual-sensing probe which utilizes an optical liquid sensor and electrical conductivity to distinguish between water and petroleum products.

Monitoring is accomplished by measuring from the surveyed top of well casing or grade to groundwater and separate-phase hydrocarbons if present. The static water elevation is then calculated for each well and a potentiometric surface map is constructed. If separate-phase hydrocarbons are detected the water elevation is adjusted by the following calculation:

$$(\text{Product thickness}) \times (0.8) + (\text{Water elevation}) = \text{Corrected water elevation}$$

Groundwater monitoring wells are monitored in order of wells with lowest concentrations of volatile organic compounds to wells with the highest concentrations, based upon historical concentrations. If separate-phase hydrocarbons are encountered in a well, the product is visually inspected to confirm and note color, amount, and viscosity. Monitoring equipment is washed with laboratory grade detergent and rinsed with distilled or deionized water before monitoring each well.

Groundwater Sampling

Before groundwater samples are collected, sufficient water is purged from each well to ensure representative formation water is entering the well. Wells are purged and sampled in the same order as monitoring, from wells with the lowest concentrations of volatile organic compounds to wells with the highest concentrations. Wells are purged using either a polyvinyl chloride (PVC) bailer fitted with a check valve or with a stainless steel submersible Grundfos pump. The purge equipment is decontaminated before use in each well by washing with laboratory grade detergent and triple rinsing with deionized or distilled water. A minimum of 3 well-casing volumes of water are removed from each well while pH, electrical conductivity, and temperature are recorded to verify that "fresh" formation water is being sampled and the parameters have stabilized. If the well is low yielding, it may be purged dry and sampled before 3 casing volumes are purged. The wells are then allowed to recharge to approximately 80 percent of the initial water level before a sample is collected.

Groundwater samples are collected from each well using a new, prepackaged disposable bailer and string. The water sample is decanted from the bailer into laboratory-provided containers (appropriate for the analyses required) so that there is no headspace in the containers. Samples collected for benzene, toluene, ethylbenzene, xylene, and total petroleum hydrocarbons (TPH)-as-gasoline analyses are collected in 40-milliliter vials fitted with Teflon® septum lids. Samples are preserved with hydrochloric acid (HCL) to a pH of less than 2. Dissolved metals samples are filtered through a 0.45-micron paper filter in the field and preserved as required before submitting to the laboratory for analyses. All samples are labeled immediately upon collection and logged on the chain-of-custody record. Sample label and chain-of-custody recorded information includes the project name and number, sample identification, date and time of collection, analyses requested, and the sampler's name. Sample bottles are placed in plastic bags (to protect the bottles and labels) and on ice (frozen water) in an insulated cooler and are shipped under chain-of-custody protocol to the laboratory.

The chain-of-custody record documents who has possession of the samples until the analyses is performed. Other pertinent information is also noted for the laboratory use on the chain-of-custody record.

Trip blanks (TBLBs) are used for each project as a quality assurance/quality control measure. The TBLBs are prepared by the laboratory and are placed in the insulated cooler and accompany the field samples throughout the sampling event.

Project Name: Sears - Telegraph
 Site Address: 2633 Telegraph Ave., Oakland
 Project Number: 020204554.030504

Date: 3/8/95
 Page 1 of 8
 Project Manager: Mike Wray

Well ID: MW-5
 Well Diameter: 2

DTW Measurements:
 Initial: 10.35 Calc Well Volume: _____ gal
 Recharge: 10.00 Well Volume: X3 7 gal

Purge Method _____ Pump Depth _____ ft.
 Peristaltic _____ Hand Bailed _____
 Gear Drive _____ Air Lift _____
 Submersible X Other _____

Instruments Used
 YSI: X _____ Other: _____
 Hydac: _____
 Omega: _____

Time	Temp		Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
	<u>X</u> C	F					
9:22	16.1		0.33	6.81	2	cloudy	
9:23	16.1		0.58	6.81	3	↓	
9:24	16.3		0.62	6.80	4		
9:25	17.2		0.63	6.81	5		
9:26	17.7		0.62	6.83	6		DRY @ 6 Gallons
9:27					7		

Project Name: Sears - Telegraph

Date: 3/8/95

Site Address: 2633 Telegraph Ave., Oakland

Page 3 of 8

Project Number: 020204554.030504

Project Manager: Mike Wray

Well ID: MW-6

DTW Measurements:

Well Diameter: 2

Initial: 10.64

Calc Well Volume: _____ gal

Recharge: 10.56

Well Volume $\times 3$ 5 gal

Purge Method Pump Depth _____ ft.

Peristaltic _____ Hand Bailed _____

Gear Drive _____ Air Lift _____

Submersible Other _____

Instruments Used

YSI: _____ Other: _____

Hydac: _____

Omega: _____

Time	Temp	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
	<input checked="" type="checkbox"/> C _____ F					
9:54	18.7	0.48	6.50	1	cloudy	
9:55	19.0	0.49	6.46	2	↓	
9:56	19.5	0.49	6.40	3	↓	
9:57	19.5	0.51	6.38	4	↓	
9:58	19.8	0.48	6.35	5	↓	

Project Name: Sears - Telegraph
 Site Address: 2633 Telegraph Ave., Oakland
 Project Number: 020204554.030504

Date: 3/8/95
 Page 4 of 8
 Project Manager: Mike Wray

Well ID: MW-7
 Well Diameter: 2

DTW Measurements:
 Initial: 11.05 Calc Well Volume: _____ gal
 Recharge: 16.00 Well Volume: X3 5 gal

Purge Method _____ Pump Depth _____ ft.
 Peristaltic _____ Hand Bailed _____
 Gear Drive _____ Air Lift _____
 Submersible X Other _____

Instruments Used
 YSI: X _____ Other: _____
 Hydac: _____
 Omega: _____

Time	Temp <u>X</u> C E	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
10:10	19.4	0.47	6.38	1	cloudy	
10:11	19.4	0.51	6.37	2	↓	
10:12	19.5	0.53	6.41	3		
10:13	19.5	0.55	6.37	4		
10:14	19.6	0.54	6.36	5		

Project Name: Sears - Telegraph

Date: 3/8/95

Site Address: 2633 Telegraph Ave., Oakland

Page 6 of 8

Project Number: 020204554.030504

Project Manager: Mike Wray

Well ID: NW-2

DTW Measurements:

Well Diameter: 2

Initial: 10.80

Calc Well Volume: _____ gal

Recharge: 10.65

Well Volume: x3 5 gal

Purge Method _____ Pump Depth _____ ft.

Peristaltic _____ Hand Bailed _____

Gear Drive _____ Air Lift _____

Submersible ✓ Other _____

Instruments Used

YSI: ✓ _____ Other: _____

Hydac: _____

Omega: _____

Time	Temp <u>✓</u> C F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
10:54	19.7	0.50	6.40	1	cloudy	
10:55	19.5	0.50	6.43	2	↓	
10:56	19.6	0.49	6.37	3		
10:57	19.9	0.50	6.38	4		
10:58	19.5	0.49	6.37	5		

Project Name: Sears - Telegraph

Date: 3/8/95

Site Address: 2633 Telegraph Ave., Oakland

Page 7 of 8

Project Number: 020204554.030504

Project Manager: Mike Wray

Well ID: MW-4

DTW Measurements:

Well Diameter: 2

Initial: 11.49

Calc Well Volume: _____ gal

Recharge: 10.99

Well Volume: X 5 gal

Purge Method _____ Pump Depth _____ ft.
 Peristaltic _____ Hand Bailed _____
 Gear Drive _____ Air Lift _____
 Submersible X Other _____

Instruments Used

YSI: X _____

Other: _____

Hydac: _____

Omega: _____

Time	Temp <u>20</u> C F	Conductivity	pH	Purge Volume Gallons	Turbidity	Comments
11:05	19.2	0.58	6.41	1	cloudy	
11:06	19.3	0.59	6.43	2		
11:07	19.5	0.60	6.41	3		
11:08	19.8	0.59	6.40	4		
11:09	20.1	0.61	6.41	5	↓	

ATTACHMENT 4

**Laboratory Reports
and Chain-of-Custody Record**



GTEL

ENVIRONMENTAL
LABORATORIES, INC.

Northwest Region

4080-C Pike Lane
Concord, CA 94520
(510) 685-7852
(800) 544-3422 from inside California
(800) 423-7143 from outside California
(510) 825-0720 (FAX)

March 23, 1995

Mike Wray
Groundwater Technology, Inc.
4057 Port Chicago Highway
Concord, CA 94520

RE: GTEL Client ID: 020204554
Login Number: C5030134
Project ID (number): 020204554
Project ID (name): Sears/2633 Telegraph Ave., Oakland, CA

Dear Mike Wray:

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 03/10/95 under Chain-of-Custody Number(s) 36653.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

GTEL is certified by the Department of Health Service under Certification Number E1075.

If you have any questions regarding this analysis, or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,
GTEL Environmental Laboratories, Inc.

Rashmi Shah
Laboratory Director

GTEL Client ID: 020204554
 Login Number: C5030134
 Project ID (number): 020204554
 Project ID (name): Sears/2633 Telegraph Ave., Oakland, CA

ANALYTICAL RESULTS

Volatile Organics
 Method: EPA 8020
 Matrix: Aqueous

GTEL Sample Number	C5030134-07	C5030134-08
Client ID	MM-2	MM-4
Date Sampled	03/08/95	03/08/95
Date Analyzed	03/13/95	03/13/95
Dilution Factor	1.00	1.00

Analyte	Reporting		Concentration:			
	Limit	Units				
Benzene	0.3	ug/L	< 0.3	< 0.3	--	--
Toluene	0.3	ug/L	< 0.3	< 0.3	--	--
Ethylbenzene	0.3	ug/L	< 0.3	< 0.3	--	--
Xylenes (total)	0.5	ug/L	< 0.5	< 0.5	--	--
TPH as GAS	10	ug/L	< 10	360	--	--
BFB (Surrogate)	--	%	85.1	86.6	--	--

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8020:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition including promulgated Update 1. Acceptability limits for recovery in the Bromofluorobenzene (BFB) surrogate is 62-129%. Gasoline Range Hydrocarbons (TPH) quantitated by GC/FID with purge and trap.

GTEL Concord, CA
 C5030134:2



GTEL Client ID: 020204554
 Login Number: C5030134
 Project ID (number): 020204554
 Project ID (name): Sears/2633 Telegraph Ave., Oakland, CA

ANALYTICAL RESULTS

Volatile Organics
 Method: EPA 8020
 Matrix: Aqueous

GTEL Sample Number	C5030134-03	C5030134-09	
Client ID	MM-1	MM-4	
Date Sampled	03/08/95	03/08/95	
Date Analyzed	03/13/95	03/14/95	
Dilution Factor	1.00	1.00	

Analyte	Reporting		Concentration:			
	Limit	Units				
Benzene	0.3	ug/L	< 0.3	< 0.3	--	--
Toluene	0.3	ug/L	0.6	< 0.3	--	--
Ethylbenzene	0.3	ug/L	< 0.3	< 0.3	--	--
Xylenes (total)	0.5	ug/L	2.7	< 0.5	--	--
BFB (Surrogate)	--	%	90.3	83.7	--	--

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8020:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition including promulgated Update 1. Acceptability limits for recovery in the Bromofluorobenzene (BFB) surrogate is 62-129%.

GTEL Concord, CA
 C5030134:1



GTEL Client ID: 020204554 QUALITY CONTROL RESULTS
Login Number: C5030134
Project ID (number): 020204554
Project ID (name): Sears/2633 Telegraph Ave., Oakland, CA

Volatile Organics
Method: EPA 8020
Matrix: Aqueous

Method Blank Results

QC Batch No: Q031395-5
Date Analyzed: 13-MAR-95

Analyte	Method: EPA 8020	Concentration: ug/L
Benzene	< 0.30	
Toluene	< 0.30	
Ethylbenzene	< 0.30	
Xylenes (Total)	< 0.50	
TPH as Gasoline	< 10.0	

Notes:

ANALYTICAL RESULTS
TPH as Motor Oil in Water
Method: GC-FID^a

GTEL Sample Number		02	03 ^b	04	05 ^b
Client Identification		MW-5	MW-1	MW-6	MW-7
Date Sampled		03/08/95	03/08/95	03/08/95	03/08/95
Date Extracted		03/13/95	03/13/95	03/13/95	03/13/95
Date Analyzed		03/19/95	03/18/95	03/18/95	03/18/95
Analyte	Detection Limit, ug/L	Concentration, ug/L			
TPH as motor oil	250	<250	<250	<250	<250
Detection Limit Multiplier		1	1	1	1
O-Terphenyl Surrogate, % recovery		131	120	120	136

GTEL Sample Number		06 ^b	07	08	GCJ 031795
Client Identification		MW-8	MW-2	MW-4	METHOD BLANK
Date Sampled		03/08/95	03/08/95	03/08/95	--
Date Extracted		03/13/95	03/13/95	03/13/95	03/13/95
Date Analyzed		03/21/95	03/19/95	03/18/95	03/18/95
Analyte	Detection Limit, ug/L	Concentration, ug/L			
TPH as motor oil	250	<250	3000	1000	<250
Detection Limit Multiplier		1	1	1	1
O-Terphenyl Surrogate, % recovery		110	205 ^c	137	75.8

- a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, USEPA, November, 1986.
- b. Hydrocarbon pattern present in sample is not characteristic of motor oil fuel.
- c. Surrogate recovery > UCL due to target compound interference.

Client Number: 020204554
 Project ID: 030804
 Sears/Telegraph
 Work Order Number: C5-03-0134

ANALYTICAL RESULTS

Metals in Water

GTEL Sample Number			02	04	05	06
Client Identification			MW-5	MW-6	MW-7	MW-8
Date Sampled			03/08/95	03/08/95	03/08/95	03/08/95
Date Prepared (Method 3005 ^b)			03/10/95	03/10/95	03/10/95	03/10/95
Date Analyzed (Method 6010a)			03/13/95	03/13/95	03/13/95	03/13/95
Date Analyzed (Method 7421)			03/13/95	03/13/95	03/13/95	03/13/95
Analyte	EPA Method ^a	Detection Limit, ug/L	Concentration, ug/L			
Cadmium	EPA 6010A	5	<5	<5	<5	<5
Chromium, total	EPA 6010A	10	<10	<10	<10	<10
Lead	EPA 7421	5	<5	<5	<5	<5
Nickel	EPA 6010A	20	<20	<20	<20	<20
Zinc	EPA 6010A	20	<20	<20	<20	<20
Detection Limit Multiplier			1	1	1	1

- a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, including Update 1, US EPA July 1992.
 b. Unpreserved water sample was passed through a 0.45 micron filter and analyzed as a dissolved metal.

Client Number: 020204554
 Project ID: 030804
 Sears/Telegraph
 Work Order Number: C5-03-0134

ANALYTICAL RESULTS

Metals in Water

GTEL Sample Number			07	08	031095 MET	
Client Identification			MW-2	MW-4	METHOD BLANK	
Date Sampled			03/08/95	03/08/95	—	
Date Prepared (Method 3005 ^b)			03/10/95	03/10/95	03/10/95	
Date Analyzed (Method 6010a)			03/13/95	03/13/95	03/13/95	
Date Analyzed (Method 7421)			03/13/95	03/13/95	03/13/95	
Analyte	EPA Method ^a	Detection Limit, ug/L	Concentration, ug/L			
Cadmium	EPA 6010A	5	<5	NR	<5	
Chromium, total	EPA 6010A	10	<10	NR	<10	
Lead	EPA 7421	5	<5	<5	<5	
Nickel	EPA 6010A	20	<20	NR	<20	
Zinc	EPA 6010A	20	<20	NR	<20	
Detection Limit Multiplier			1	1	1	

- a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Including Update 1, US EPA July 1992.
 b. Unpreserved water sample was passed through a 0.45 micron filter and analyzed as a dissolved metal.
 NR = Not Requested.

