FIRST QUARTER 2000
GROUNDWATER SAMPLING

2415 Mariner Square Drive
Alameda, California

APRIL 2000

Prepared for

Alameda County Health Care Services Agency
Environmental Protection Division
1131 Harbor Bay Parkway, Room 250
Alameda, California 94502-6577

Prepared by

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Alameda County Health Care Services Agency
Environmental Protection Division
1131 Harbor Bay Parkway, Room 250
Alameda, California 94502-6577

Attention: Mr. Larry Seto, Senior Hazardous Materials Specialist

Subject: 2415 Mariner Square Drive
Alameda, California
FIRST QUARTER 2000 GROUNDWATER SAMPLING

Dear Mr. Seto:

Earth Systems Consultants Northern California (ESCNC) is submitting this report which describes the first quarter 2000 groundwater sampling and analysis at the subject site (Figure 1).

Groundwater Sampling

On March 15, 2000, Blaine Tech Services measured the depth to groundwater in monitoring wells MW-1 through MW-5, MW-6A, and MW-7 through MW-10. Blaine Tech Services personnel then purged and sampled all wells, except MW-1, MW-7 and MW-8 since they have been removed from the sampling schedule by ACHCSA. The wells were purged of at least three well casing volumes of water and allowed to recharge to at least 80% prior to collecting samples. During purging, it was noted that wells MW-5, MW-6A and MW-10 contained sheen. Samples were collected with new disposable bailers. Purge water was stored in labeled 55-gallon drums and stored at the subject site. Well monitoring forms are included in Attachment A.

Groundwater elevations across the site ranged from 7.93 to 11.85 feet above mean sea level with an average elevation of 10.56 feet. The average groundwater elevation during the first quarter 2000 is 1.52 feet higher than during the fourth quarter 1999. The groundwater flow direction was toward the southeast with a gradient ranging from 0.004 to 0.013 ft/ft (21 to 69 ft/mile). Groundwater elevations are summarized in Table 1. The groundwater gradient map is shown on Figure 2.

The groundwater samples were delivered under chain of custody protocol to Entech Analytical Labs, Inc. (ELAP #2346). The samples from wells MW-2 through MW-5, MW-6A, MW-9, and MW-10 were analyzed for total petroleum hydrocarbons as gasoline, diesel, and motor oil (TPHg, TPHd, and TPHmo, respectively) using EPA methods 3510/3630/8015; and benzene,

Results

The analytical results of groundwater samples collected from wells MW-2 through MW-5, MW-6A, MW-9, and MW-10 indicated the following:

1. TPHg was detected in samples from wells MW-2 through MW-5, MW-6A, and MW-10 at concentrations ranging from 82 parts per billion (ppb) (MW-4) to 4,400 ppb (MW-6A).

2. TPHd was detected in samples from wells MW-2 through MW-5 at concentrations ranging from 110 ppb (MW-2) to 6,600 ppb (MW-5). The laboratory notes on these samples indicates that the results are within the TPHd quantitation range, however, the chromatographic pattern is not typical of diesel. The sample from MW-6A contained 6,700 ppb TPHd.

3. TPHmo was detected in samples from wells MW-3, MW-4, and MW-9 at concentrations of 440 ppb, 390 ppb, and 900 ppb, respectively. The laboratory notes on these samples indicates that the results are within the TPHmo quantitation range, however, the chromatographic pattern is not typical of motor oil. TPHmo was also detected in samples from wells MW-5, MW-6A, and MW-10 at concentrations of 4,200 ppb, 8,100 ppb, and 14,000 ppb, respectively.

4. BTEX concentrations were nondetectable or near detection limits in samples collected from wells MW-2 through MW-4, MW-6A, and MW-9. However, the detection limits for the sample from MW-6A were raised as a result of required sample dilution.

5. BTEX concentrations in wells MW-5, MW-7, and MW-10 were similar to historical levels.

6. MTBE was detected at a concentration of 6.7 ppb in the sample collected from well MW-4. The detection limits for MTBE in the samples collected from wells MW-6A and MW-10 were raised as a result of necessary sample dilution.

Conclusions

The average groundwater elevation has increased an average of 1.52 feet since the last sampling round on November 24, 1999. However, the groundwater flow direction is consistent toward the southeast.

As approved by ACHCSA, wells MW-1, MW-7, and MW-8 were not sampled. TPHg and BTEX concentrations were similar to or less than historical levels. The only detectable TPHd results that did not have the laboratory note stating that the chromatographic pattern was not typical of diesel were for wells MW-6A and MW-10. Therefore, the detectable TPHd in the remaining wells may or may not be diesel related. TPHmo was detected for the first time in MW-3, for the second consecutive time in well MW-5, and for the second time in well MW-9. However, the results for TPHmo in wells MW-3 and MW-9 have the note stating that the chromatographic pattern was not typical of motor oil. The only detectable MTBE was in well MW-4, and the concentration was the lowest historically.

typical of diesel were for wells MW-6A and MW-10. Therefore, the detectable TPHd in the remaining wells may or may not be diesel related. TPHmo was detected for the first time in MW-3, for the second consecutive time in well MW-5, and for the second time in well MW-9. However, the results for TPHmo in wells MW-3 and MW-9 have the note stating that the chromatographic pattern was not typical of motor oil. The only detectable MTBE was in well MW-4, and the concentration was the lowest historically.

Recommendations

After completing four additional quarters of groundwater sampling with no significant increases in petroleum hydrocarbon concentrations, ESCNC recommends that the entire site be considered for closure. A closure request has been submitted for the residential parcel at the site. The residential parcel has received conditional closure.

If you have any questions regarding this report, please call the undersigned at your earliest convenience.

Very truly yours,

EARTH SYSTEMS CONSULTANTS
Northern California

Jeanne Buckthal
Staff Geologist

Gary Pischke, CEG 1501
Senior Geologist

JB/GP:sp Disk 001.3

Distribution: 1 to addressee
1 to Mr. John Beery

TABLE 1
Historical Groundwater Elevations
Mariner Square, Alameda, California

Well	Date	Top of Casing (feet above msl)	Depth to Water (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet above msl)
MW-1	07/30/92	5.08	6.41	-	-1.33
	07/31/92	5.08	6.41	-	-1.33
	08/03/92	5.08	6.50	-	-1.42
	08/05/92	5.08	6.50	-	-1.42
	11/20/92	5.08	6.23	-	-1.15
	06/13/94	11.99	5.69	-	6.30
	09/27/94	11.99	5.64	-	6.35
	10/25/94	11.99	5.86	-	6.13
	06/28/96	11.99	5.34	-	6.65
	10/31/96	11.99	5.38	-	6.61
	09/30/97	11.99	5.08	-	6.91
	12/12/97	11.99	4.16	-	7.83
	02/18/98	11.99	2.97	-	9.02
	05/08/98	11.99	4.55	-	7.44
	06/24/99	11.99	4.75	-	7.24
	08/10/99	11.99	4.82	-	7.17
	09/09/99	11.99	4.94	-	7.05
	11/24/99	11.99	5.20	-	6.79
	03/15/00	11.99	3.92	-	8.07
MW-2	07/30/92	8.30	5.98	-	2.32
	07/31/92	8.30	6.07	-	2.23
	08/03/92	8.30	6.11	-	2.19
	08/05/92	8.30	6.18	-	2.12
	11/20/92	8.30	6.42	-	1.88
	06/13/94	15.21	5.92	-	9.29
	09/26/94	15.21	6.51	-	8.70
	10/25/94	15.21	6.67	-	8.54
	06/28/96	15.21	5.68	-	9.53
	10/31/96	15.21	6.37	-	8.84
	09/30/97	15.21	6.17	-	9.04
	12/12/97	15.21	5.18	-	10.03
	02/18/98	15.21	3.96	-	11.25
	05/08/98	15.21	4.82	-	10.39
	06/24/99	15.21	4.69	-	10.52
	08/10/99	15.21	4.72	-	10.49
	09/09/99	15.21	5.31	-	9.90
	11/24/99	15.21	5.83	-	9.38
	03/15/00	15.21	4.00	-	11.21

TABLE 1
Historical Groundwater Elevations
Mariner Square, Alameda, California

Well	Date	Top of Casing (feet above msl)	Depth to Water (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet above msl)
MW-3	07/30/92	7.28	4.97	-	2.31
	07/31/92	7.28	5.05	-	2.23
	08/03/92	7.28	4.43	-	2.85
	08/05/92	7.28	5.06	-	2.22
	11/20/92	7.28	5.27	-	2.01
	06/13/94	14.19	4.91	-	9.28
	09/27/94	14.19	5.29	-	8.90
	10/25/94	14.19	5.42	-	8.77
	06/28/96	14.19	4.69	-	9.50
	10/31/96	14.19	5.24	-	8.95
	09/30/97	14.19	5.04	-	9.15
	12/12/97	14.19	4.32	-	9.87
	02/18/98	14.19	2.97	-	11.22
	05/08/98	14.19	3.85	-	10.34
	06/24/99	14.19	2.95	-	11.24
	08/10/99	14.19	3.01	-	11.18
	09/09/99	14.19	4.10	-	10.09
	11/24/99	14.19	4.60	-	9.59
	03/15/00	14.19	3.00	-	11.19
MW-4	07/30/92	7.05	4.81	-	2.24
	07/31/92	7.05	4.88	-	2.17
	08/05/92	7.05	4.96	-	2.09
	11/20/92	7.05	5.13	-	1.92
	06/13/94	13.95	4.50	-	9.45
	09/27/94	13.95	5.39	-	8.56
	10/25/94	13.95	5.55	-	8.40
	06/28/96	13.95	4.25	-	9.70
	10/31/96	13.95	5.05	-	8.90
	09/30/97	13.95	4.73	-	9.22
	12/12/97	13.95	3.65	-	10.30
	02/18/98	13.95	2.38	-	11.57
	05/08/98	13.95	3.47	-	10.48
	08/10/99	13.95	4.90	-	9.05
	09/09/99	13.95	3.99	-	9.96
	11/24/99	13.95	4.25	-	9.70
	03/15/00	13.95	2.50	-	11.45

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Mariner Square, Alameda, California

Well	Date	Top of Casing (feet above msl)	Depth to Water (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet above msl)
MW-5	07/30/92	7.68	5.30	-	2.38
	07/31/92	7.68	5.42	-	2.26
	08/03/92	7.68	5.40	-	2.28
	08/05/92	7.68	5.47	-	2.21
	11/20/92	7.68	5.74	-	1.94
	06/13/94	14.60	5.30	-	9.30
	09/26/94	14.60	5.82	-	8.78
	10/25/94	14.60	5.95	-	8.65
	06/28/96	14.60	5.04	-	9.56
	10/31/96	14.60	5.73	-	8.87
	09/30/97	14.60	5.45	-	9.15
	12/12/97	14.60	4.71	-	9.89
	02/18/98	14.60	3.10	-	11.50
	05/08/98	14.60	4.13	-	10.47
	06/24/99	14.60	3.65	-	10.95
	08/10/99	14.60	3.71	-	10.89
	09/09/99	14.60	4.51	-	10.09
	11/24/99	14.60	4.91	Sheen	9.69
	03/15/00	14.60	3.03	Sheen	11.57
MW-6	06/13/94	14.81	5.96	0.02	8.85
	09/27/94	14.81	5.90	0.03	8.91
	10/07/94	14.81	5.82	Sheen	8.99
	10/14/94	14.81	5.89	Sheen	8.92
	10/21/94	14.81	5.90	Sheen	8.91
	10/25/94	14.81	5.99	Sheen	8.82
	06/28/96	14.81	5.33	0.16	9.48
	10/31/96	14.81	5.17	0.02	9.64
	09/30/97	14.81	5.58	Sheen	9.23
	12/12/97	14.81	4.84	0.39	9.97
	02/18/98	14.81	3.70	0.55	11.11
	04/28/98	Well Destroyed			
MW-6A	08/10/99	15.22	4.96	Sheen	10.26
	09/09/99	15.22	4.35	Sheen	10.87
	11/24/99	15.22	4.90	Sheen	10.32
	03/15/00	15.22	3.61	Sheen	11.61

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Well	Date	Top of Casing (feet above msl)	Depth to Water (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet above msl)
MW-7	09/27/94	13.61	5.95	-	7.66
	10/25/94	13.61	6.09	-	7.52
	06/28/96	13.61	5.42	-	8.19
	10/31/96	13.61	5.90	-	7.71
	09/30/97	13.61	5.71	-	7.90
	12/12/97	13.61	4.58	-	9.03
	02/18/98	13.61	3.21	-	10.40
	05/08/98	13.61	4.49	-	9.12
	06/24/99	13.61	4.78	-	8.83
	08/10/99	13.61	4.76	-	8.85
	09/09/99	13.61	5.14	-	8.47
	11/24/99	13.61	5.29	-	8.32
	03/15/00	13.61	3.65	-	9.96
MW-8	09/27/94	12.64	6.06	-	6.58
	10/25/94	12.64	6.26	-	6.38
	06/28/96	12.64	6.00	-	6.64
	10/31/96	12.64	5.85	-	6.79
	09/30/97	12.64	5.60	-	7.04
	12/12/97	12.64	4.87	-	7.77
	02/18/98	12.64	3.80	-	8.84
	05/08/98	12.64	5.30	-	7.34
	06/24/99	12.64	5.42	-	7.22
	08/10/99	12.64	5.48	-	7.16
	09/09/99	12.64	5.50	-	7.14
	11/24/99	12.64	5.89	-	6.75
	03/15/00	12.64	4.71	-	7.93
MW-9	09/26/94	14.92	5.88	-	9.04
	10/25/94	14.92	6.04	-	8.88
	06/28/96	14.92	5.14	-	9.78
	10/31/96	14.92	6.37	-	8.55
	09/30/97	14.92	5.59	-	9.33
	12/12/97	14.92	4.53	-	10.39
	02/18/98	14.92	3.12	-	11.80
	05/08/98	14.92	4.20	-	10.72
	06/24/99	14.92	3.45	-	11.47

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Well	Date	Top of Casing (feet above msl)	Depth to Water (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet above msl)
MW-9 continued	08/10/99	14.92	3.56	-	11.36
	09/09/99	14.92	4.59	-	10.33
	11/24/99	14.92	4.72	-	10.20
	03/15/00	14.92	3.07	-	11.85
MW-10	08/10/99	14.91	4.55	Sheen	10.36
	09/09/99	14.91	5.08	Sheen	9.83
	11/24/99	14.91	5.30	Sheen	9.61
	03/15/00	14.91	4.12	Sheen	10.79

msl Mean Sea Level
- None measured

TABLE 2
Groundwater Analytical Results -- Organics
Mariner Square, Alameda, California

Well	Date	TRPH	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	VOCs	Vinyl Chloride
MW-1	08/03/92	-	-	580	<5,000	<0.5	<0.5	<0.5	<0.5	-	-	-
	11/20/92	-	<50	600	<5,000	<0.5	<0.5	<0.5	<0.5	-	-	<2
	09/27/94	-	<50	530	<50	<0.3	<0.3	<0.3	<0.3	-	-	-
	06/28/96	-	<100	<50	<200	<0.5	<1.0	<1.0	<2.0	-	-	<0.5
	10/31/96	-	<100	93	<200	<0.5	<1.0	<1.0	<2.0	<10	-	<1.0
	09/30/97	-	120	<50	<200	4.7	<1.0	3.7	21	<10	-	<0.8
	12/12/97	-	<50	<50	<200	<0.5	<0.5	<0.5	<2.0	<5	-	<2
	02/18/98	-	<50	<50	<200	1.5	0.6	1.8	8	<5	-	<2
	05/08/98	-	<50	<50	<200	1.0	<0.5	0.7	5	<5	-	<2
	06/24/99	-	<50	<50	110	<0.50	<0.50	<0.50	<1.5	<5.0	-	<0.50
	09/09/99	Not Sampled										
	11/24/99	-	-	-	<250	-	-	-	-	-	-	-
	03/15/00	Not Sampled										
MW-2	08/03/92	-	-	2,200	<5,000	<0.5	6.5	3.2	5.3	-	-	-
	11/20/92	-	340	2,100	<5,000	<0.5	<0.5	<0.5	2.4	-	-	<2
	09/26/94	-	320	<50	240	<3.0	<3.0	<3.0	<3.0	-	-	-
	06/28/96 (1)	-	980	100 (2,3)	<200	0.5	<1.0	2.3	3.1	-	-	<0.5
	10/31/96	-	220	180	<200	<0.5	<1.0	<1.0	<2.0	<10	-	<1.0
	09/30/97	-	900	150 (2)	<200	0.8	<1.0	2	6.2	<10	-	<0.8
	12/12/97	-	360	<50	<200	1.1	<0.5	2.2	3	<5	-	<2
	02/18/98	-	90	<50	<200	<0.5	<0.5	1.1	2	<5	-	<2
	05/08/98	-	170	<50	<200	<0.5	<0.5	1.7	3	<5	-	<2
	06/24/99	-	<50	<50	<100	<0.50	0.66	<0.50	<1.5	<5.0	-	<0.50
	09/09/99	-	120	130	<100	<0.50	<0.50	<0.50	<0.50	<5.0	-	-
	11/24/99	-	770	260 (4)	<250	0.92	<0.50	2.7	3.4	<5.0	-	-
	03/15/00	-	91	110 (4)	<250	<0.5	<0.5	<0.5	<0.5	<5	-	-

TABLE 2
Groundwater Analytical Results -- Organics
Mariner Square, Alameda, California

Well	Date	TRPH	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	VOCs	Vinyl Chloride
MW-3	08/03/92	-	-	1,000	<5,000	<0.5	1	<0.5	2.4	-	-	-
	11/20/92	-	98	2,000	<5,000	<0.5	<0.5	0.9	1	-	-	<2
	09/27/94	-	<50	720	<50	<3.0	<0.3	<0.3	<0.3	-	-	-
	06/28/96	-	<100	120 (2)	<200	<0.5	<1.0	<1.0	<2.0	-	-	<0.5
	10/31/96	-	<100	160	<200	<0.5	<1.0	<1.0	<2.0	<10	-	<1.0
	09/30/97	-	<100	70	<200	0.8	<1.0	<1.0	3.3	<10	-	<0.8
	12/12/97	-	80	<50	<200	0.7	<0.5	0.7	4	9	-	<2
	02/18/98	-	60	<50	<200	<0.5	<0.5	<0.5	4	7	-	<2
	05/08/98	-	<50	<50	<200	0.5	<0.5	0.5	4	<5	-	<2
	06/24/99	-	<50	<50	<100	<0.50	1.1	<0.50	2.6	5.0	-	<0.50
	09/09/99	-	64	100	<100	<0.50	<0.50	<0.50	0.65	<5.0	-	-
	11/24/99	-	95	140 (4)	<250	<0.50	<0.50	<0.50	<0.50	<5.0	-	-
	03/15/00	-	88	350 (4)	440 (4)	<0.5	<0.5	<0.5	<0.5	<5.0	-	-
MW-4	08/05/92	-	-	1,300	<5,000	16	2.6	0.6	2.7	-	-	9.0
	11/20/92	-	330	2,400	<5,000	31	5.2	0.7	2	-	-	13
	09/27/94	-	<50	890	<50	12	0.43	<0.3	<0.3	-	-	8.0
	06/28/96	-	180	170 (2,3)	<200	4	<1.0	<1.0	<2.0	-	-	2.5
	10/31/96	-	110	330	<200	6.2	<1.0	<1.0	<2.0	<10	-	4.3
	09/30/97	-	650	170 (2)	<200	3.9	<1.0	<1.0	<2.0	460	-	3.1
	12/12/97	-	260	<50	<200	4.9	0.9	<0.5	<2.0	320	-	3
	02/18/98	-	240	<50	<200	1.0	1.0	2.1	10	290	-	2
	05/08/98	-	90	<50	<200	0.5	0.5	0.8	5	30	-	<2
	08/10/99	-	93	270 (4)	320	0.59	1.4	<0.5	4.2	11	-	<0.5
	09/09/99	-	72	250	<100	<0.50	<0.50	<0.50	<0.50	25	-	-
	11/24/99	-	200	280 (4)	330 (4)	4.7	<0.50	0.68	<0.50	26	-	-
	03/15/00	-	82	300 (4)	390 (4)	1.2	<0.5	<0.5	<0.5	6.7	-	-

TABLE 2
Groundwater Analytical Results -- Organics
Mariner Square, Alameda, California

Well	Date	TRPH	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	VOCs	Vinyl Chloride
MW-5	08/03/92	-	-	2,200	<5,000	9	6	49	11	-	-	-
	11/20/92	-	4,800	1,500	<5,000	7.6	12	5.8	26	-	-	<2
	09/26/94	-	3,100	780	<500	7.9	11	8.7	14	-	-	-
	06/28/96	-	5,000	610 (2,3)	790	1.2	6.8	21	14	-	-	<0.5
	10/31/96	-	6,800	4,900	860	20	5.9	15	19	<10	-	<1.0
	09/30/97	-	9,000	4,100 (2)	520	35	5.3	36	32	12	-	<0.8
	12/12/97	-	3,400	90	<200	26	4.6	5.9	13	11	-	<2
	02/18/98	-	3,200	<50	<200	7.9	1.4	14	12	<5	-	<2
	05/08/98	-	3,900	<50	<200	8.0	22	19	10	<5	-	<2
	06/24/99	-	290	60	<100	48	8.8	8.6	33	<5.0	-	<0.50
	09/09/99	-	5,000	8,800	<100	32	16	20	14	12	-	-
	11/24/99	-	3,200	3,400 (4)	1,700	25	<2.5	15	10	<25	-	-
	03/15/00	-	1,400	6,600 (4)	4,200	4.7	6.9	3.5	2.4	<5.0	-	-
MW-6	05/25/93	-	460	2,700,000	-	<5.0	<5.0	<5.0	<5.0	-	-	<10
	9/27/94	-	1,100	9,900	3,200	<3.0	<3.0	<3.0	<3.0	-	-	<1.0
	06/28/96	Not Sampled--Sheen Present										
	09/30/97	Not Sampled--Sheen Present										
	12/12/97	-	21,000	1,900,000	43,000	5	<0.5	8	19	<50	-	<2
	02/18/98	-	70,000	<50	<200	20	20	20	70	<100	-	<2
	04/28/98	-	800	920	<200	<0.5	<0.5	<0.5	<2	<5	-	<2
	04/28/98	Well Destroyed										
MW-6A	08/10/99	-	770	5,400 (4)	3,900 (4)	1.7	<0.5	<0.5	1.9	<5.0	-	<0.5
	09/09/99	-	670	180,000	<5,000	<0.50	0.61	0.66	<0.50	<5.0	-	-
	11/24/99	-	29,000	7,900	11,000	<25	<25	<25	<25	<250	-	-
	03/15/00	-	4,400	6,700	8,100	1.4	<1.0	<1.0	<1.0	<10	-	-

TABLE 2
Groundwater Analytical Results -- Organics
Mariner Square, Alameda, California

Well	Date	TRPH	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	VOCs	Vinyl Chloride
MW-7	09/27/94	-	<250	1,800	<250	<0.3	<0.3	<0.3	<0.3	-	-	<1.0
	06/28/96	-	560	490 (2,3)	<200	0.6	<1.0	<1.0	2.7	-	-	<0.5
	10/31/96	-	200	420	<200	1.1	<1.0	<1.0	<2.0	<10	-	<1.0
	09/30/97	-	750	190 (2)	<200	8.1	5.3	<1.0	6.9	<10	-	<0.8
	12/12/97	-	420	<50	<200	7.9	<0.5	<0.5	5	<5	-	<2
	02/18/98	-	650	<50	<200	9.5	0.6	<0.5	6	16	-	<2
	05/08/98	-	710	<50	<200	3.4	4.8	0.8	7	34	0.9 (5)	<2
	06/24/99	-	620	<250	<100	89	16	16	64	<5.0	-	<0.50
	09/09/99	-	420	400	<100	1.1	0.85	1.1	3.4	<5.0	-	-
	11/24/99	Sampling discontinued										
MW-8	09/27/94	-	<50	320	<50	<0.3	<0.3	<0.3	<0.3	-	-	-
	06/28/96	-	<100	58 (2)	<200	<0.5	<1.0	<1.0	<2.0	-	-	<0.5
	10/31/96	-	<100	120	<200	<0.5	<1.0	<1.0	<2.0	<10	-	<1.0
	09/30/97	-	110	70 (2)	<200	4.2	<1.0	3.4	16	<10	-	<0.8
	12/12/97	-	<50	<50	<200	<0.5	<0.5	<0.5	<2.0	15	-	<2
	02/18/98	-	<50	<50	<200	0.9	<0.5	0.8	3	<5	-	<2
	05/08/98	-	<50	<50	<200	<0.5	<0.5	<0.5	<2.0	<5	-	<2
	06/24/99	-	350	<50	<100	64	11	12	45	<5.0	-	<0.50
	09/09/99	-	56	120	130	<0.50	<0.50	<0.50	<0.50	<5.0	-	-
	11/24/99	-	-	-	<250	-	-	-	-	-	-	-
	03/15/00	Not Sampled										
MW-9	09/26/94	-	<500	2,200	<500	<0.3	<0.3	<0.3	<0.3	-	-	<1.0
	06/28/96	-	390	550 (2,3)	<200	5.2	<1.0	<1.0	<2.0	-	-	<0.5
	10/31/96	-	300	590	720	5.9	<1.0	<1.0	<2.0	<10	-	<1.0
	09/30/97	-	150	460 (2)	<200	0.6	<1.0	<1.0	2.7	<10	-	<0.8
	12/12/97	-	180	<50	<200	<0.5	<0.5	<0.5	<2.0	<5	-	<2

TABLE 2
Groundwater Analytical Results -- Organics
Mariner Square, Alameda, California

Well	Date	TRPH	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	VOCs	Vinyl Chloride
MW-9	02/18/98	-	100	<50	<200	<0.5	0.5	<0.5	<2.0	6	-	<2
continued	05/08/98	-	70	130	<200	<0.5	<0.5	<0.5	<2.0	16	-	<2
	06/24/99	-	380	140	<100	51	10	11	39	<5.0	-	<0.50
	09/09/99	-	140	340	<100	<0.50	<0.50	<0.50	1.0	<5.0	-	-
	11/24/99						Not Sampled					
	03/15/00	-	<50	650 (4)	900 (4)	<0.5	<0.5	<0.5	<0.5	<5.0	-	-
MW-10	08/10/99	-	1,300	3,000 (4)	8,200 (4)	9.2	1.9	12	46	<5.0	-	NA
	09/09/99	-	890	8,600	210,000	5.2	<0.50	13	37	<5.0	-	-
	11/24/1999	-	1,700	<500	17,000	6.7	0.67	9.5	28	<5.0	-	-
	03/15/00	-	1,200	<500	14,000	3.5	<1.0	2.2	18	<10	-	-

All results reported in parts per billion

TRPH	Total Recoverable Petroleum Hydrocarbons	<	Analyte not detected at or above stated detection limit
TPHg	Total Petroleum Hydrocarbons as gasoline	TPHmo	Total Petroleum Hydrocarbons as motor oil
THPd	Total Petroleum Hydrocarbons as diesel	VOCs	Volatile Organic Compounds
		MTBE	Methyl Tert-Butyl Ether

(1) Water sample also analyzed for Freon 113 by EPA Method 8010A. Results were below the detection limit of 1.0 ppb.

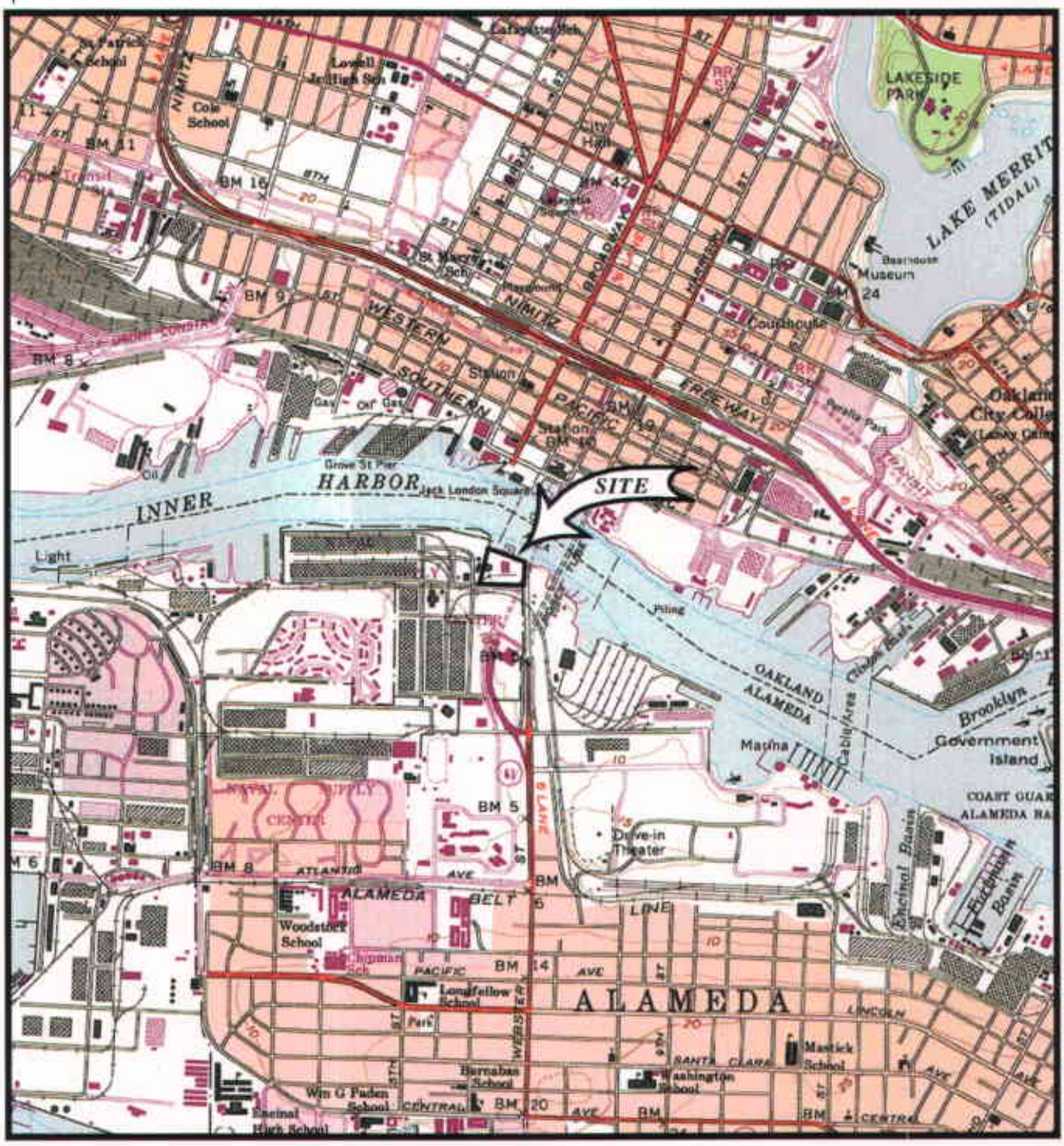
(2) Qualitative identification is uncertain because the material present does not match laboratory standards.

(3) Quantitation uncertain due to matrix interferences

(4) Results within quantitation range; chromatographic pattern not typical of fuel

(5) Tetrochloroethene reported by lab on vinyl chloride sample unedited run.

File No. NFE-4392-01
April 2000



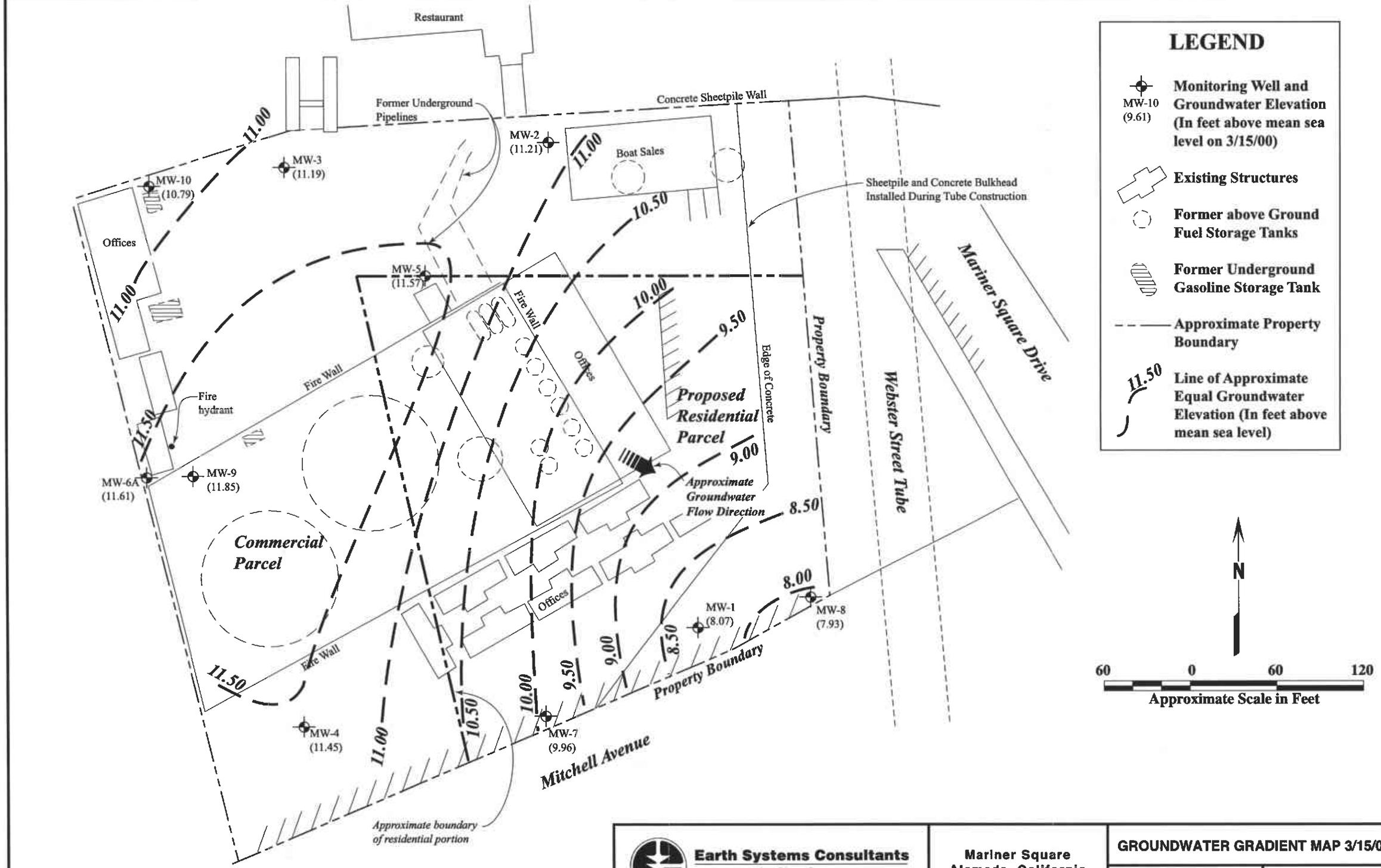
Approximate Scale 1: 24,000

1 0 1 Mile

1 0 1 Kilometer

Base: U.S.G.S. 7.5 minute Oakland West Quadrangle (1980)
Printed from TOPO!™ ©1997 Wildflower Productions (415) 558-8700, www.topo.com

Earth Systems Consultants **NorthernCalifornia**	Mariner Square Alameda, California	**SITE LOCATION** **Figure 1**



Earth Systems Consultants Northern California	Mariner Square Alameda, California	GROUNDWATER GRADIENT MAP 3/15/00
		Date: April 2000
		File No: NFE-4392-01
		Figure 2

ATTACHMENT A

Well Monitoring Forms

BLAINE
TECH SERVICES INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112
(408) 573-7771 FAX
(408) 573-0555 PHONE

WELLHEAD INSPECTION CHECKLIST

Client EARTH SYSTEMS

Site Address MARINA Square Alameda, CA

Technician Jeff

Date 3/15/00

1. Lid on box?	6. Casing secure?	12. Water standing in wellbox?	15. Well cap functional?
2. Lid broken?	7. Casing cut level?	12a. Standing above the top of casing?	16. Can cap be pulled loose?
3. Lid bolts missing?	8. Debris in wellbox?	12b. Standing below the top of casing?	17. Can cap seal out water?
4. Lid bolts stripped?	9. Wellbox is too far above grade?	12c. Water even with the top of casing?	18. Padlock present?
5. Lid seal intact?	10. Wellbox is too far below grade?	13. Well cap present?	19. Padlock functional?
	11. Wellbox is crushed/damaged?	14. Well cap found secure?	

☐ Check box if no deficiencies were found. Note below deficiencies you were able to correct.

Well I.D.	Deficiency	Corrective Action Taken

Note below all deficiencies that could not be corrected and still need to be corrected.

Well I.D.	Persisting Deficiency	BTS Office assigns or defers Correction to:	Date assigned	Date corrected
MW9	well box busted & Lid broke			
MW4	lid missing; well box 1 bolt hole broke = 10" lid whole			
MW1	lid Missing			

WELL MONITORING DATA SHEET

Project #: 000315C1	Client: EARTH SYSTEMS
Sampler: Jeff	Start Date: 3/15/00
Well I.D.: MW3	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth: 9.95	Depth to Water: 3.00
Before: After:	Before: After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH

Purge Method:

Bailer
Disposable Bailer (circled)
Middleburg
Electric Submersible
Waterra
Peristaltic
Extraction Pump
Other_____

Sampling Method:

Bailer
Disposable Bailer (circled)
Extraction Port
Dedicated Tubing
Other: _____

1.1 (Gals.) X 3 = 3.3 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1140	64.0	6.3	2305	>200	1.1	
1145	62.1	6.6	2332	"	2.2	
1150	62.0	6.7	2350	"	3.3	
				DTW=	3.05	

Did well dewater? Yes (No)
Gallons actually evacuated: 3.5

Sampling Time: 1150
Sampling Date: 3/15/00

Sample I.D.: MW3
Laboratory: ENTECH

Analyzed for: ~~TPH-G BTEX MTBE~~ TPH-D (circled)
Other: DEG MTBE

Equipment Blank I.D.: @ Time
Duplicate I.D.:

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

ↄ ✓

WELL MONITORING DATA SHEET

Project #: 000315C1	Client: EARTH SYSTEMS
Sampler: Jeff	Start Date: 3/15/00
Well I.D.: MW4	Well Diameter: 2 3 4 6 8 ____
Total Well Depth: 11.66	Depth to Water: 2.50
Before: After:	Before: After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH

Purge Method: Bailer, (Disposable) Bailer, Middleburg, Electric Submersible, Waterra, Peristaltic, Extraction Pump, Other ____

Sampling Method: Bailer, (Disposable) Bailer, Extraction Port, Dedicated Tubing, Other: ____

1.5 (Gals.) X 3 = 4.4 Gals.
1 Case Volume — Specified Volumes — Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1240	60.1	6.7	719	7200	1.5	
1245	59.7	6.8	765	7200	3.0	
1250	59.7	6.8	853	7200	4.5	
1255	59.6	6.8	818	7200	5.3	
					DTW = 2.63	

Did well dewater? Yes No ← Gallons actually evacuated: 5.0

Sampling Time: ~~1250~~ 1255 Sampling Date: 3/15/00

Sample I.D.: MW4 Laboratory: ENTECH

Analyzed for: (TPH-G BTEX MTBE TPH-D) Other: Motor oil

Equipment Blank I.D.: @ Time Duplicate I.D.:

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

D.O. (if req'd): Pre-purge: mg/L Post-purge: mg/L

ORP (if req'd): Pre-purge: mV Post-purge: mV

7

WELL MONITORING DATA SHEET

Project #: 000315C1	Client: EARTH SYSTEMS
Sampler: Jeff	Start Date: 3/15/00
Well I.D.: MW5	Well Diameter: (2) 3 ~~4~~ 6 8 ___
Total Well Depth: 11.75	Depth to Water: 3.03
Before: After:	Before: After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH

Purge Method:

Bailer
(Disposable Bailer)
Middleburg
Electric Submersible
Waterra
Peristaltic
Extraction Pump
Other _____

Sampling Method: Bailer
(Disposable Bailer)
Extraction Port
Dedicated Tubing
Other: _____

1.4 (Gals.) X 3 = 4.2 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1430	60.9	6.8	977	>200	1.5	
1435	59.3	6.7	1020	11	3.0	
1440	58.5	6.8	1048	>200	4.5	

Did well dewater? Yes (No) Gallons actually evacuated: 4.5

Sampling Time: 1445 Sampling Date: 3/15/00

Sample I.D.: MW5 Laboratory: ENTECH

Analyzed for: ~~TPH-G~~ BTEX MTBE TPH-D Other: MOTOR OIL

Equipment Blank I.D.: @ Time Duplicate I.D.:

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

6

WELL MONITORING DATA SHEET

Project #: 000315C1	Client: EARTH SYSTEMS
Sampler: Jeff	Start Date: 3/15/00
Well I.D.: MW6A	Well Diameter: ~~2~~ 3 4 6 8 1
Total Well Depth: 10.19	Depth to Water: 3.61
Before: After:	Before: After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH

Purge Method:

- Bailer
- ~~Disposable~~ Bailer
- Middleburg
- Electric Submersible
- Waterra
- Peristaltic
- Extraction Pump
- Other Tephlon Tube

Sampling Method:

- Bailer
- Disposable Bailer
- Extraction Port
- Dedicated Tubing
- Other: Tephlon Tube

1.26 (Gals.) X	3	= .8 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1410	63.4	7.2	420	7800	.3	
1415	67.3	7.0	487	7200	.6	
1420	63.1	7.0	413	7200	1.0	

Did well dewater? Yes (No)	Gallons actually evacuated: 1.5
Sampling Time: 1420	Sampling Date: 3/15/00
Sample I.D.: MW6A	Laboratory: ENTECH
Analyzed for: (TPH-G) BTEX MTBE (TPH-D)	Other: Motor Oil
Equipment Blank I.D.: @ Time	Duplicate I.D.:
Analyzed for: TPH-G BTEX MTBE TPH-D	Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

4

WELL MONITORING DATA SHEET

Project #: 000315C1	Client: EARTH SYSTEMS
Sampler: Jeff	Start Date: 3/15/00
Well I.D.: MW9	Well Diameter: 2 3 (4) 6 8 ___
Total Well Depth: 13.23	Depth to Water: 3.07
Before: After:	Before: After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH

Purge Method:

- Bailer
- (Disposable Bailer)
- Middleburg
- Electric Submersible
- Waterra
- Peristaltic
- Extraction Pump
- Other _____

Sampling Method:

- Bailer
- (Disposable Bailer)
- Extraction Port
- Dedicated Tubing
- Other: _____

1 Case Volume	Specified Volumes	Calculated Volume
0.6 (Gals.) X	3	19.8 / 1.8 = 4.4 Gals.

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.17
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1310	61.3	6.8	725	7200 / 4.5	6	
1315	60.4	6.7	~~7882~~	~~3.0~~	12	
1320	60.5	6.8	781	~~5.0~~	20	
					DTW = 3.26	

Did well dewater? Yes (No) Gallons actually evacuated: 5.0

Sampling Time: 1330 Sampling Date: 3/15/00

Sample I.D.: MW9 Laboratory: Entech

Analyzed for: ~~TPH-G BTEX MTBE TPH-D~~ Other: MOTOR OIL

Equipment Blank I.D.: @ Time Duplicate I.D.:

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

D.O. (if req'd):	Pre-purge:	mg/l	Post-purge:	mg/l
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

5

WELL MONITORING DATA SHEET

Project #: 000315C1	Client: EARTH SYSTEMS
Sampler: Jeff	Start Date: 3/15/00
Well I.D.: MW10	Well Diameter: 2 3 4 6 8 ___
Total Well Depth: 10.13	Depth to Water: 4.12
Before: After:	Before: After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH

Purge Method:

Bailer
Disposable Bailer
Middleburg
Electric Submersible
Waterra
Peristaltic
Extraction Pump
(Other) Teflon tube

Sampling Method:

Bailer
Disposable Bailer
Extraction Port
Dedicated Tubing
(Other) Teflon tube

.24 (Gals.) X	3	= .7 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1350	67.1	6.8	1099	7200	.25	
1355	65.5	6.8	1157	7200	.50	
1400	65.5	6.8	1134	7200	.75	
				DTW=	4.33	

Did well dewater? Yes (No) Gallons actually evacuated: 1.2

Sampling Time: 1410 Sampling Date: 3/15/00

Sample I.D.: MW 10 Laboratory: ENTECH

Analyzed for: (TPH-G) BTEX MTBE (TPH-D) Other: Motor Oil

Equipment Blank I.D.: @ Time Duplicate I.D.:

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

D.O. (if req'd):	Pre-purge:	mg/l	Post-purge:	mg/l
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

ATTACHMENT B

Laboratory Analytical Reports

Entech Analytical Labs, Inc.

REC'D MAR 30 2000

CA ELAP# 2346

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

March 24, 2000

Gary Pischke
Earth Systems Consultants
47853 Warm Springs Blvd.
Fremont, CA 94539-7400

Order: 19640 **Date Collected:** 3/15/00
Project Name: BTS#000315C1 **Date Received:** 3/16/00
Project Number: **P.O. Number:**
Project Notes:

On March 16, 2000, samples were received under documentented chain of custody. Results for the following analyses are attached:

Matrix	Test	Method
Liquid	BTEX+MTBE	EPA 8020
	TPH as Diesel	EPA 8015 MOD. (Extractable)
	TPH as Gasoline	EPA 8015 MOD. (Purgeable)
	TPH as Motor Oil	EPA 8015 MOD. (Extractable)

Chemical analysis of these samples has been completed. Summaries of the data are contained on the following pages. USEPA protocols for sample storage and preservation were followed.

Entech Analytical Labs, Inc. is certified by the State of California (#2346). If you have any questions regarding procedures or results, please call me at 408-735-1550.

Sincerely,

Michelle L. Anderson
Lab Director

Entech Analytical Labs, Inc.

CA ELAP# 2346

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

Earth Systems Consultants
47853 Warm Springs Blvd.
Fremont, CA 94539-7400
Attn: Gary Pischke

Date: 3/24/00
Date Received: 3/16/00
Project Name: BTS#000315C1
Project Number:
P.O. Number:
Sampled By: Blaine Tech

Certified Analytical Report

Order ID: 19640 **Lab Sample ID:** 19640-001 **Client Sample ID:** MW-2

Sample Time: 12:20 PM **Sample Date:** 3/15/00 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	110	x	1	50	50	µg/L	3/21/00	3/21/00	DW000315	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
Hexacosane	115	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	250	250	µg/L	3/21/00	3/21/00	DW000315	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
Hexacosane	115	65 - 135

Order ID: 19640 **Lab Sample ID:** 19640-002 **Client Sample ID:** MW-3

Sample Time: 11:50 AM **Sample Date:** 3/15/00 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	350	x	1	50	50	µg/L	3/21/00	3/22/00	DW000315	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
Hexacosane	114	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	440	x	1	250	250	µg/L	3/21/00	3/22/00	DW000315	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
Hexacosane	114	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

CA ELAP# 2346

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Earth Systems Consultants
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Fremont, CA 94539-7400
Attn: Gary Pischke

Date: 3/24/00
Date Received: 3/16/00
Project Name: BTS#000315C1
Project Number:
P.O. Number:
Sampled By: Blaine Tech

Certified Analytical Report

Order ID: 19640 **Lab Sample ID:** 19640-003 **Client Sample ID:** MW-4

Sample Time: 12:55 PM **Sample Date:** 3/15/00 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	300	x	1	50	50	µg/L	3/21/00	3/22/00	DW000315	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
Hexacosane	121	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	390	x	1	250	250	µg/L	3/21/00	3/22/00	DW000315	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
Hexacosane	121	65 - 135

Order ID: 19640 **Lab Sample ID:** 19640-004 **Client Sample ID:** MW-5

Sample Time: 2:45 PM **Sample Date:** 3/15/00 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	6600	x	5	50	250	µg/L	3/21/00	3/22/00	DW000315	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
Hexacosane	120	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	4200		5	250	1250	µg/L	3/21/00	3/22/00	DW000315	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
Hexacosane	120	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

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Date Received: 3/16/00
Project Name: BTS#000315C1
Project Number:
P.O. Number:
Sampled By: Blaine Tech

Certified Analytical Report

Order ID: 19640 **Lab Sample ID:** 19640-005 **Client Sample ID:** MW-6A

Sample Time: 2:20 PM **Sample Date:** 3/15/00 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	6700		5	50	250	µg/L	3/21/00	3/22/00	DW000315	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
Hexacosane	107	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	8100		5	250	1250	µg/L	3/21/00	3/22/00	DW000315	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
Hexacosane	107	65 - 135

Order ID: 19640 **Lab Sample ID:** 19640-006 **Client Sample ID:** MW-9

Sample Time: 1:30 PM **Sample Date:** 3/15/00 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	650	x	1	50	50	µg/L	3/21/00	3/22/00	DW000315	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
Hexacosane	105	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	900	x	1	250	250	µg/L	3/21/00	3/22/00	DW000315	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
Hexacosane	105	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

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Project Name: BTS#000315C1
Project Number:
P.O. Number:
Sampled By: Blaine Tech

Certified Analytical Report

Order ID: 19640 **Lab Sample ID:** 19640-007 **Client Sample ID:** MW-10

Sample Time: 2:00 PM **Sample Date:** 3/15/00 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		10	50	500	µg/L	3/21/00	3/22/00	DW000315	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
Hexacosane	115	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	14000		10	250	2500	µg/L	3/21/00	3/22/00	DW000315	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
Hexacosane	115	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

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Date: 3/24/00
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Project Name: BTS#000315C1
Project Number:
P.O. Number:
Sampled By: Blaine Tech

Certified Analytical Report

Order ID: 19640 **Lab Sample ID:** 19640-001 **Client Sample ID:** MW-2

Sample Time: 12:20 PM **Sample Date:** 3/15/00 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
MTBE	ND		1	5	5	µg/L		3/20/00	WGC4000320	EPA 8020
Benzene	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020
Toluene	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020
Ethyl Benzene	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020
Xylenes, Total	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	100	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	91		1	50	50	µg/L		3/20/00	WGC4000320	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	102	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

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Project Name: BTS#000315C1
Project Number:
P.O. Number:
Sampled By: Blaine Tech

Certified Analytical Report

Order ID: 19640 **Lab Sample ID:** 19640-002 **Client Sample ID:** MW-3

Sample Time: 11:50 AM **Sample Date:** 3/15/00 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
MTBE	ND		1	5	5	µg/L		3/20/00	WGC4000320	EPA 8020
Benzene	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020
Toluene	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020
Ethyl Benzene	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020
Xylenes, Total	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	105	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	88		1	50	50	µg/L		3/20/00	WGC4000320	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	114	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

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Project Name: BTS#000315C1
Project Number:
P.O. Number:
Sampled By: Blaine Tech

Certified Analytical Report

Order ID: 19640 **Lab Sample ID:** 19640-003 **Client Sample ID:** MW-4

Sample Time: 12:55 PM **Sample Date:** 3/15/00 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
MTBE	6.7		1	5	5	µg/L		3/20/00	WGC4000320	EPA 8020
Benzene	1.2		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020
Toluene	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020
Ethyl Benzene	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020
Xylenes, Total	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	93	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	82		1	50	50	µg/L		3/20/00	WGC4000320	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	95	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

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Project Name: BTS#000315C1
Project Number:
P.O. Number:
Sampled By: Blaine Tech

Certified Analytical Report

Order ID: 19640 **Lab Sample ID:** 19640-004 **Client Sample ID:** MW-5

Sample Time: 2:45 PM **Sample Date:** 3/15/00 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
MTBE	ND		1	5	5	µg/L		3/21/00	WGC4000321	EPA 8020
Benzene	4.7		1	0.5	0.5	µg/L		3/21/00	WGC4000321	EPA 8020
Toluene	6.9		1	0.5	0.5	µg/L		3/21/00	WGC4000321	EPA 8020
Ethyl Benzene	3.5		1	0.5	0.5	µg/L		3/21/00	WGC4000321	EPA 8020
Xylenes, Total	2.4		1	0.5	0.5	µg/L		3/21/00	WGC4000321	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	66	65 - 135

Comment:

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	1400		1	50	50	µg/L		3/21/00	WGC4000321	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	27	65 - 135

Comment: Surrogate recovery out of control limits due to matrix interference

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

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Date Received: 3/16/00
Project Name: BTS#000315C1
Project Number:
P.O. Number:
Sampled By: Blaine Tech

Certified Analytical Report

Order ID: 19640 **Lab Sample ID:** 19640-005 **Client Sample ID:** MW-6A

Sample Time: 2:20 PM **Sample Date:** 3/15/00 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
MTBE	ND		2	5	10	µg/L		3/21/00	WGC4000321	EPA 8020
Benzene	1.4		2	0.5	1	µg/L		3/21/00	WGC4000321	EPA 8020
Toluene	ND		2	0.5	1	µg/L		3/21/00	WGC4000321	EPA 8020
Ethyl Benzene	ND		2	0.5	1	µg/L		3/21/00	WGC4000321	EPA 8020
Xylenes, Total	ND		2	0.5	1	µg/L		3/21/00	WGC4000321	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	114	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	4400	x	2	50	100	µg/L		3/21/00	WGC4000321	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	87	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

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Project Number:
P.O. Number:
Sampled By: Blaine Tech

Certified Analytical Report

Order ID: 19640 **Lab Sample ID:** 19640-006 **Client Sample ID:** MW-9

Sample Time: 1:30 PM **Sample Date:** 3/15/00 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
MTBE	ND		1	5	5	µg/L		3/20/00	WGC4000320	EPA 8020
Benzene	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020
Toluene	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020
Ethyl Benzene	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020
Xylenes, Total	ND		1	0.5	0.5	µg/L		3/20/00	WGC4000320	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	106	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	ND		1	50	50	µg/L		3/20/00	WGC4000320	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	111	65 - 135

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Project Name: BTS#000315C1
Project Number:
P.O. Number:
Sampled By: Blaine Tech

Certified Analytical Report

Order ID: 19640 **Lab Sample ID:** 19640-007 **Client Sample ID:** MW-10

Sample Time: 2:00 PM **Sample Date:** 3/15/00 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
MTBE	ND		2	5	10	µg/L		3/21/00	WGC4000321	EPA 8020
Benzene	3.5		2	0.5	1	µg/L		3/21/00	WGC4000321	EPA 8020
Toluene	ND		2	0.5	1	µg/L		3/21/00	WGC4000321	EPA 8020
Ethyl Benzene	2.2		2	0.5	1	µg/L		3/21/00	WGC4000321	EPA 8020
Xylenes, Total	18		2	0.5	1	µg/L		3/21/00	WGC4000321	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	112	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	1200		2	50	100	µg/L		3/21/00	WGC4000321	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	116	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

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QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography
Laboratory Control Spikes

QC Batch #: DW000315
Matrix: Liquid
Units: µg/L

Date analyzed: 03/21/00
Date extracted: 03/21/00
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB µg/L	SA µg/L	SR µg/L	SP µg/L	**SP %R**	SPD µg/L	**SPD %R**	RPD	QC LIMITS RPD	QC LIMITS %R
Diesel	8015M	<50.0	1000	ND	935	**94**	924	**92**	1.2	25	58-121
Hexocosane(S.S.)				100%	108%		103%				65-135

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R) Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R) Spike Duplicate % Recovery
- NC: Not Calculated

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QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography
Laboratory Control Sample

QC Batch #: WGC4000320
Matrix: Liquid
Units: µg/Liter

Date Analyzed: 03/20/00
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB µg/Liter	SA µg/Liter	SR µg/Liter	SP µg/Liter	SP % R	SPD µg/Liter	SPD %R	% RPD	QC LIMITS RPD	QC LIMITS %R
Benzene	8020	<0.50	4.7	ND	4.5	**97**	4.3	**92**	4.8	25	70-130
Toluene	8020	<0.50	29	ND	29	**100**	28	**96**	4.4	25	70-130
Ethyl Benzene	8020	<0.50	5.5	ND	5.6	**102**	5.3	**96**	6.1	25	70-130
Xylenes	8020	<0.50	32	ND	32	**102**	31	**99**	3.4	25	70-130
Gasoline	8015	<50.0	467	ND	456	**98**	450	**96**	1.3	25	70-130
aaa-TFT(S.S.)-FID	8020			118%	121%		123%				65-135
aaa-TFT(S.S.)-PID	8015			106%	103%		102%				65-135

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike % Recovery
- nc: Not Calculated

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QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography
Laboratory Control Sample

QC Batch #: WGC4000321
Matrix: Liquid
Units: µg/Liter

Date Analyzed: 03/21/00
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB µg/Liter	SA µg/Liter	SR µg/Liter	SP µg/Liter	**SP % R**	SPD µg/Liter	**SPD %R**	% RPD	QC LIMITS RPD	QC LIMITS %R
Benzene	8020	<0.50	4.7	ND	5.0	**107**	5.0	**105**	1.1	25	70-130
Toluene	8020	<0.50	29	ND	32	**109**	30	**102**	6.8	25	70-130
Ethyl Benzene	8020	<0.50	5.5	ND	6.1	**110**	5.7	**103**	6.6	25	70-130
Xylenes	8020	<0.50	32	ND	35	**111**	33	**105**	5.9	25	70-130
Gasoline	8015	<50.0	467	ND	460	**99**	467	**100**	1.4	25	70-130
aaa-TFT(S.S.)-FID	8020			120%	108%		118%				65-135
aaa-TFT(S.S.)-PID	8015			109%	106%		108%				65-135

Definition of Terms:

na: Not Analyzed in QC batch
MB: Method Blank
SA: Spike Added
SR: Sample Result
RPD(%): Duplicate Analysis - Relative Percent Difference
SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
SPD (%R): Spike % Recovery
nc: Not Calculated

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CHAIN OF CUSTODY BTS # 000315C1

CLIENT: EARTH SYSTEMS

SITE: Mariner Square
Alameda, CA

LAB: Entech | DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND
- ☐ EPA
- ☐ LIA
- ☐ OTHER
- ☐ RWQCB REGION

SPECIAL INSTRUCTIONS

Invoice and Report to : Earth Systems

Attn: Gary Pischke

19640

SAMPLE I.D.	DATE	TIME	MATRIX (S=SOIL W=H_2O)	CONTAINERS TOTAL	C = COMPOSITE ALL CONTAINERS	TPH - Gas, BTEX, MTBE	TPH-DIESEL	MOTOR OIL	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW2	3/15/00	1224	W	5		X	X	X		001		
MW3		1150				X	X	X		002		
MW4		1255				X	X	X		003		
MW5		1445				X	X	X		004		
MW6A		1420				X	X	X		005		
MW9		1330				X	X	X		006		
MW10		1400		5		X	X	X		007		
~~TB~~	3/15/00			2					TS 3/15/00			

SAMPLING COMPLETED	DATE	TIME	SAMPLING PERFORMED BY
	3/15/00	1500	Jeff Smyly

RESULTS NEEDED NO LATER THAN: Per Client

		DATE	TIME		DATE
RELEASED BY		3/16/00	1:15	RECEIVED BY T. Oi	3/16/00
RELEASED BY T. Oi		3/16/00	15:30	RECEIVED BY T. Oi	3/16/00
RELEASED BY				RECEIVED BY	

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #	