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**MAY 1991 QUARTERLY  
GROUNDWATER MONITORING  
REPORT**

**FOR**

**FORMER SHELL STATION  
7194 AMADOR VALLEY BOULEVARD  
DUBLIN, CALIFORNIA**

**Project No. 3-31000-F  
August 1991**



A RESNA Company

**RESNA**  
Environmental Solutions  
Through Applied Science,  
Engineering & Construction

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August 8, 1991

Shell Oil Company  
1390 Willow Pass Road  
Suite 900  
Concord, CA 94520

Attention: Mr. Jack Brastad

Subject: May 1991 Quarterly Groundwater Monitoring Report  
Former Shell Station, 7194 Amador Valley Boulevard, Dublin, California  
Project No. 3-31000-F

Dear Mr. Brastad:

This quarterly monitoring report summarizes the groundwater sampling and analyses performed during May 1991 for the subject site in the City of Dublin, Alameda County, California (Figure 1). Included are all current and past analytical data acquired during this ongoing investigation.

### **Groundwater Sampling**

Exceltech collected groundwater samples from 11 groundwater monitoring wells on and adjacent to the site (Figure 2) in accordance with Exceltech's groundwater sampling protocol.<sup>1</sup> Because monitoring well RW-1 is within 5 feet of MW-1, RW-1 was not sampled. Monitoring well MW-13, installed as a replacement for MW-10, was sampled for the first time during this quarter. The groundwater purged from the wells and equipment rinse water was placed in drums approved by the Department of Transportation. The drums were left on-site pending removal by a licensed hauler to the Shell refinery for recycling.

### **Laboratory Analyses**

The groundwater samples were transported to NET Pacific, Inc. (NET) located in Santa Rosa, California for analysis. NET, which is a state-certified laboratory, analyzed the samples for the presence of total petroleum hydrocarbons as gasoline (TPHG) and benzene, toluene, ethyl benzene, and total xylenes (BTEX).

<sup>1</sup> For Exceltech's groundwater sampling protocol refer to Appendix A in "November Quarterly Groundwater Sampling and Analysis for Former Shell Station 7194 Amador Valley Boulevard, Dublin, California, December 20, 1991."

## **Summary of Laboratory Results**

The results of the groundwater sampling and analyses are summarized in Table 1. The analytical report from NET and chain-of-custody document are attached in Appendix A. Hydrocarbon constituents were detected in groundwater samples from six of the 12 monitoring wells (MW-1, MW-2, MW-3, MW-4, MW-6, and MW-13).

## **Discussion**

A groundwater elevation contour map (Figure 2) has been generated from measurements obtained during the May 1991 sampling. The groundwater gradient was calculated to be 0.009, in a southeasterly direction. A benzene concentration contour map is presented as Figure 3. The highest concentration of benzene occurs around MW-13, which is located off-site on the property directly west of the site. Figures 4 through 9 are graphs representing groundwater analyses data for monitoring wells MW-1 through MW-6. The graphs display data collected during the first quarterly sampling up to the current quarter. Groundwater from well MW-13 contains hydrocarbon constituents, however, a graph was not generated for this well as it was sampled for the first time this quarter. In general, hydrocarbon levels in the current groundwater samples remained relatively constant when compared to last quarter's analytical results.

## **Reporting Requirements**

A copy of this report will be forwarded to the following agencies:

Zone 7-Alameda County Flood Control and  
Water Conservation District  
5997 Parkside Drive  
Pleasanton, California 94566  
Attention: Mr. Craig Mayfield, Water Resources Engineer

California Regional Water Quality Control Board  
San Francisco Bay Region  
1800 Harrison Street, Suite 700  
Oakland, California 94612-3429  
Attention: Mr. Donald Dalke

Alameda County Health Care Services  
Department of Environmental Health  
Hazardous Materials Division  
80 Swan Way, Suite 200  
Oakland, California 94621  
Attention: Mr. Gil Wistar, Hazardous Materials Specialist

## **Disclaimer**

This report has been prepared solely for the use of Shell and any reliance on this report by third parties shall be as such party's sole risk.

## Limitations

The discussion and recommendations presented in this report are based on the following:

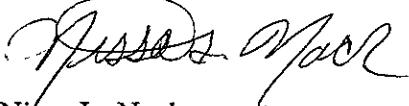
1. Observations by field personnel.
2. Results of laboratory analyses performed by a state-certified laboratory.
3. Our understanding of the regulations of the State of California, Alameda County, and the City of Dublin.

It is possible that variations in the soil or groundwater conditions could exist beyond the points explored in this investigation. Also, changes in the groundwater conditions could occur at some time in the future because of variations in rainfall, temperature, regional water usage, or other factors.

The service performed by Exceltech 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 Dublin area. Please note that contamination of soil and groundwater must be reported to the appropriate agencies in a timely manner. No other warranty, expressed or implied, is made.

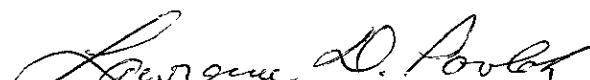
Exceltech includes in this report chemical analytical data from a state-certified laboratory. The analytical tests are performed according to procedures suggested by the U.S. EPA and State of California. Exceltech is not responsible for laboratory errors in procedure or result reporting.

Sincerely,  
Exceltech, Inc.



Nissa L. Nack  
Staff Geologist

NLN/LDP/sw  
Enclosures



Lawrence D. Pavlak, C.E.G. 1187  
Senior Program Geologist

Exceltech, Inc.  
Project No. 3-31000-F  
July 16, 1991

Shell Oil Company  
7194 Amador Valley Boulevard  
Dublin, California

TABLE 1  
GROUNDWATER ANALYSES DATA

Well	Date	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Xylenes (ppm)	Depth To Water (ft.)	Well Elevation (ft.)
MW-1	05/09/88	0.44	0.12	0.05	N R	0.12	8.72	334.83
	08/26/88	200	4.4	0.26	0.30	0.45	9.15	
	10/05/88	17	6.7	0.36	0.21	0.73	8.54	
	11/22/88	8	3.9	0.83	0.25	0.34	9.31	
	12/09/88	11	0.79	0.036	0.0073	0.068	9.33	
	01/13/89	8.8	3.8	0.11	0.33	0.09	N A	
	02/10/89	18	4.7	0.4	0.66	0.19	8.51	
	03/02/89	14	6.1	0.77	0.32	0.44	8.71	
	04/04/89	11	4.8	0.77	0.27	0.78	7.93	
	05/01/89	11	2.8	0.88	0.41	0.78	8.43	
	06/01/89	N D	N D	N D	N D	N D	8.56	
	06/29/89	4.7	0.31	0.16	0.075	0.26	8.60	
	08/09/89	12	1.3	0.62	0.83	0.68	8.43	
	09/11/89	N D	N D	N D	N D	0.0022	8.65	
	10/10/89	8.7	1.1	0.31	0.18	0.59	8.52	
	10/25/89	7.5	0.66	0.25	0.46	0.48	8.56	
	12/20/89	6.2	0.27	0.11	0.26	0.22	8.80	
	01/17/90	7.4	0.20	0.17	0.16	0.26	8.47	
	02/23/90	1.5	0.130	0.013	0.030	0.024	8.25	
	06/04/90	0.83	0.088	0.010	0.0026	0.028	8.62	
	11/20/90	NA	NA	NA	NA	NA	9.50	
	02/12/91	1.5	0.180	0.039	0.0820	0.110	9.51	
	05/06/91	0.51	0.041	0.011	0.025	0.035	8.34	

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Well	Date	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Xylenes (ppm)	Depth To Water (ft.)	Well Elevation (ft.)
MW-2	05/09/88	N D	N D	N D	N R	N D	10.85	336.96
	08/26/88	1.7	0.23	0.016	0.087	0.12	11.29	
	10/05/88	0.2	0.02	0.0023	0.0083	0.012	10.83	
	11/22/88	0.8	0.093	0.0016	0.0043	0.06	11.42	
	12/09/88	0.27	0.045	0.0036	0.0072	0.014	11.45	
	01/13/89	0.18	0.026	0.0023	0.017	0.007	N A	
	02/10/89	0.32	0.043	0.0017	0.034	0.015	10.74	
	03/02/89	0.23	0.024	0.0009	0.0092	0.018	10.91	
	04/04/89	0.23	0.053	0.0023	0.0071	0.02	10.06	
	05/01/89	N D	0.0027	N D	N D	N D	10.58	
	05/31/89	0.12	0.014	N D	0.0039	0.0076	10.73	
	06/28/89	N D	0.0041	N D	N D	N D	10.90	
	08/08/89	0.088	0.0039	N D	N D	N D	10.78	
	09/08/89	N D	0.0032	N D	N D	N D	10.97	
	10/09/89	0.11	0.0067	N D	N D	N D	10.88	
	10/24/89	N D	0.0025	N D	N D	0.0019	11.00	
	12/21/89	<0.05	0.0071	<0.0005	0.005	0.0098	11.06	
	01/17/90	<0.05	0.0044	<0.0005	0.0016	0.0014	10.78	
	02/23/90	0.07	0.0063	<0.0005	0.0027	0.0025	10.35	
	06/04/90	0.06	0.0024	<0.0005	0.0008	<0.0005	10.72	
	11/20/90	0.06	0.0056	<0.0005	<0.0005	<0.0005	11.35	
	02/12/91	0.13	0.014	<0.0005	0.0009	0.0005	11.64	
	05/06/91	0.06	0.0015	<0.0005	0.005	<0.0005	10.05	

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Well	Date	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Xylenes (ppm)	Depth To Water (ft.)	Well Elevation (ft.)
MW-3	05/09/88	0.076	0.01	0.0044	N R	0.015	10.59	336.96
	08/26/88	5.2	0.17	0.006	0.032	0.054	11.10	
	10/05/88	0.26	0.1	0.0027	0.0058	0.007	10.43	
	11/22/88	0.18	0.075	0.0014	0.0081	0.004	11.16	
	12/09/88	0.16	0.005	0.0059	N D	N D	11.24	
	01/13/89	0.16	0.036	0.0012	0.003	0.002	N A	
	02/10/89	0.3	0.083	N D	0.0086	0.008	10.43	
	03/02/89	0.57	0.16	0.001	0.017	0.009	10.59	
	04/04/89	0.15	0.064	0.0008	0.0027	0.006	9.45	
	05/01/89	0.13	0.048	0.0012	0.0034	0.002	10.20	
	06/01/89	N D	N D	N D	N D	N D	10.40	
	06/28/89	0.09	0.068	0.0007	N D	0.0051	10.60	
	08/09/89	0.15	0.023	0.0053	0.0026	N D	10.64	
	09/11/89	N D	N D	N D	N D	N D	10.83	
	10/10/89	0.08	0.0064	0.00072	N D	N D	10.95	
	10/26/89	0.15	0.011	N D	0.0016	N D	10.86	
	12/21/89	<0.05	0.0068	<0.0005	<0.0005	<0.0005	11.09	
	01/17/90	<0.05	0.004	<0.0005	0.0068	<0.0005	10.90	
	02/23/90	0.05	0.010	<0.0005	0.0012	0.0009	10.52	
	06/04/90	0.08	0.010	<0.0005	0.0014	<0.0005	10.52	
	11/20/90	0.10	0.026	0.0007	0.0012	0.0019	12.65	
	02/12/91	0.13	0.027	<0.0005	<0.0005	<0.0005	11.16	
	05/06/91	0.12	0.031	0.0008	0.0021	0.0008	9.85	336.93

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Well	Date	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Xylenes (ppm)	Depth To Water (ft.)	Well Elevation (ft.)
MW-4	05/09/88	0.29	0.076	0.033	N R	0.15	10.88	337.14
	08/26/88	0.21	0.64	0.041	0.11	0.16	11.34	
	10/05/88	0.45	0.11	0.0063	0.016	0.02	10.87	
	11/22/88	0.5	0.11	0.004	0.02	0.027	11.41	
	12/09/88	0.26	0.92	0.0075	0.0059	0.011	11.46	
	01/13/89	0.99	0.2	0.0065	0.046	0.014	N A	
	02/10/89	0.29	0.09	0.0036	0.0088	0.009	10.78	
	03/02/89	0.63	0.21	0.0062	0.034	0.007	10.92	
	04/04/89	0.64	0.34	0.013	0.025	0.04	10.04	
	05/01/89	0.1	0.065	0.002	0.003	0.004	10.52	
	05/31/89	0.06	N D	N D	N D	N D	10.62	
	06/28/89	0.11	0.062	0.0013	N D	0.0048	11.00	
	08/09/89	0.16	0.11	0.002	0.0064	N D	10.92	
	09/08/89	0.094	0.045	0.0005	0.0038	N D	11.05	
	10/10/89	0.09	0.03	0.001	0.0019	N D	10.97	
	10/26/89	N D	0.0034	N D	N D	N D	11.35	
	12/21/89	<0.05	0.035	0.0011	0.0036	0.0016	11.07	
	01/17/90	<0.05	0.004	<0.0005	0.0068	<0.0005	11.08	
	02/23/90	<0.05	0.008	<0.0005	0.0011	0.0007	10.90	
	06/04/90	0.16	0.085	0.0011	0.0019	<0.0005	10.74	
	11/20/90	0.14	0.052	0.001	0.0008	0.0009	11.45	
	02/12/91	0.13	0.048	<0.0005	0.0015	<0.0005	11.50	
	05/06/91	0.14	0.049	0.0013	0.0041	0.0017	10.04	

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Well	Date	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Xylenes (ppm)	Depth To Water (ft.)	Well Elevation (ft.)
MW-5	08/26/88	0.21	0.006	0.044	0.009	0.019	9.10	334.96
	10/05/88	7.5	2.7	N D	0.11	0.59	9.95	
	11/22/88	0.15	0.021	0.026	0.003	0.002	8.93	
	12/09/88	0.24	0.037	0.0022	0.0067	0.0077	10.48	
	01/13/89	0.08	0.0016	N D	0.0077	0.002	N A	
	02/10/89	0.06	N D	N D	N D	N D	10.35	
	03/02/89	N D	N D	N D	N D	N D	8.50	
	04/05/89	N D	N D	N D	N D	N D	7.72	
	05/01/89	N D	0.0013	N D	N D	N D	8.21	
	06/01/89	N D	N D	N D	N D	N D	8.40	
	06/29/89	N D	N D	N D	N D	N D	8.65	
	08/09/89	0.089	0.0085	0.0018	0.0015	0.0022	8.76	
	09/11/89	1.1	0.0078	0.0014	N D	0.0063	8.80	
	10/10/89	N D	N D	N D	N D	N D	11.92	
	10/25/89	N D	0.0014	N D	N D	0.0016	9.03	
	12/20/89	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	11.26	
	01/18/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	9.95	
	02/23/90	<0.05	<0.0005	<0.0005	0.0006	<0.0005	8.30	
	06/04/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.57	
	11/20/90	<0.05	<0.0005	<0.0005	<0.0005	0.001	9.45	
	02/11/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	9.27	
	05/06/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	7.90	

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Well	Date	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Xylenes (ppm)	Depth To Water (ft.)	Well Elevation (ft.)
MW-6	08/26/88	15	0.39	0.39	0.67	1.7	9.69	335.42
	10/05/88	2.7	0.13	0.038	0.96	0.22	9.27	
	11/22/88	N A	N A	N A	N A	N A	9.77	
	12/09/88	0.54	0.062	0.003	0.026	0.005	9.85	
	01/13/89	0.98	0.16	0.022	0.12	0.029	N A	
	02/10/89	1.9	0.29	0.024	0.093	0.048	9.10	
	03/02/89	1.4	0.16	0.02	0.13	0.033	9.29	
	04/04/89	1.2	0.22	0.027	0.074	0.069	8.48	
	05/01/89	0.79	0.12	0.011	0.025	0.017	8.90	
	06/01/89	1.2	0.049	0.049	0.069	0.03	9.16	
	06/29/89	0.94	0.13	0.015	0.069	0.035	9.30	
	08/09/89	1.4	0.28	0.039	0.17	0.064	9.30	
	09/11/89	N D	N D	N D	N D	N D	9.31	
	10/10/89	1.0	0.085	0.011	0.012	0.016	9.32	
	10/24/89	1.5	0.067	0.02	0.05	0.039	9.30	
	12/20/89	<0.05	0.0049	0.0051	<0.0005	<0.0005	9.58	
	01/18/90	<0.05	0.067	0.012	0.048	0.018	9.46	
	02/23/90	0.0010	0.150	0.016	0.047	0.030	8.94	
	06/04/90	0.19	<0.0005	<0.0005	<0.0005	0.0006	9.22	
	11/20/90	0.73	0.120	0.012	0.039	0.0210	9.65	
	02/12/91	0.55	0.065	0.010	0.033	0.0160	9.85	
	05/06/91	0.55	0.072	0.011	0.038	0.023	9.12	

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Well	Date	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Xylenes (ppm)	Depth To Water (ft.)	Well Elevation (ft.)
MW-7	08/26/88	N D	0.0008	N D	N D	N D	7.94	333.23
	10/05/88	N D	N D	N D	N D	N D	7.54	
	11/22/88	0.7	0.041	0.009	0.001	0.02	N A	
	12/09/88	N D	N D	N D	N D	0.0006	7.53	
	01/13/89	N D	N D	N D	N D	N D	N A	
	02/10/89	N D	N D	N D	N D	N D	6.62	
	03/02/89	N D	N D	N D	N D	N D	7.03	
	04/05/89	N D	N D	N D	N D	N D	6.80	
	05/01/89	N D	N D	N D	N D	N D	6.53	
	05/31/89	N D	N D	N D	N D	N D	6.93	
	06/28/89	N D	N D	N D	N D	N D	6.85	
	08/09/89	N D	N D	N D	N D	N D	6.67	
	09/07/89	N D	N D	N D	N D	N D	6.90	
	10/10/89	N D	N D	N D	N D	N D	6.90	
	10/24/89	N D	N D	N D	N D	N D	7.29	
	12/20/89	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	7.47	
	01/18/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	7.49	
	02/23/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	6.92	
	06/04/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	6.95	
	11/20/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.10	
	02/11/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.04	
	05/06/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	6.37	

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Well	Date	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Xylenes (ppm)	Depth To Water (ft.)	Well Elevation (ft.)
MW-8	03/01/89	ND	ND	ND	ND	ND	8.28	335.80
	04/04/89	ND	ND	ND	ND	ND	7.31	
	05/01/89	ND	ND	ND	ND	ND	8.97	
	05/31/89	ND	ND	ND	ND	ND	9.17	
	06/28/89	ND	ND	ND	ND	ND	9.40	
	08/08/89	ND	ND	ND	ND	ND	9.42	
	09/07/89	ND	ND	ND	ND	ND	8.50	
	10/10/89	ND	ND	ND	ND	ND	9.46	
	10/26/89	ND	ND	ND	ND	ND	9.56	
	12/21/89	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	9.57	
	01/18/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	9.29	
	02/26/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.50	
	06/04/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	9.04	
	11/20/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	10.70	
	02/11/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	9.40	
	05/06/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.70	
MW-9	03/01/89	ND	ND	ND	ND	ND	8.48	334.57
	04/04/89	ND	ND	ND	ND	ND	7.69	
	05/01/89	ND	ND	ND	ND	ND	8.20	
	05/31/89	ND	ND	ND	ND	ND	8.72	
	06/28/89	ND	ND	ND	ND	ND	9.00	
	08/08/89	ND	ND	ND	ND	ND	8.53	
	09/07/89	ND	ND	ND	ND	ND	8.99	

Exceltech, Inc.  
Project No. 3-31000-F  
July 16, 1991

Shell Oil Company  
7194 Amador Valley Boulevard  
Dublin, California

**TABLE 1**  
**GROUNDWATER ANALYSES DATA**

Well	Date	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Xylenes (ppm)	Depth To Water (ft.)	Well Elevation (ft.)
MW-9 (Con't)	10/09/89	N D	N D	N D	N D	N D	8.89	
	10/23/89	N D	N D	N D	N D	N D	9.02	
	12/21/89	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	9.48	
	01/18/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.73	
	02/26/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	9.06	
	06/04/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.64	
	11/20/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	9.95	
	02/11/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	9.85	
MW-10	05/06/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	10.05	
	03/02/89	1	0.14	0.036	N D	0.077	8.95	335.37
	04/04/89	3.3	0.76	0.24	0.046	0.63	7.89	
	05/01/89	0.68	0.099	0.024	0.0081	0.032	9.07	
	06/01/89	1.4	0.12	0.039	N D	0.045	8.86	
	06/29/89	1.3	0.051	0.0014	0.0061	0.091	9.05	
	08/09/89	0.86	0.31	0.026	0.045	0.082	9.70	
	09/07/89	0.39	0.055	0.0029	0.0040	0.018	8.14	
	10/10/89	0.46	0.085	0.0076	0.010	0.045	9.21	
	10/26/89	0.27	0.02	0.0014	0.0035	0.0093	9.60	
	12/20/89	<0.05	0.0057	<0.0005	<0.0005	<0.0005	9.42	
	01/18/90	N A	N A	N A	N A	N A	N A	
	06/04/90	N A	N A	N A	N A	N A	N A	
	11/20/1990 (a)	N A	N A	N A	N A	N A	N A	Destroyed

Exceltech, Inc.  
Project No. 3-31000-F  
July 16, 1991

Shell Oil Company  
7194 Amador Valley Boulevard  
Dublin, California

**TABLE 1**  
**GROUNDWATER ANALYSES DATA**

Well	Date	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Xylenes (ppm)	Depth To Water (ft.)	Well Elevation (ft.)
MW-11	03/02/89	N D	N D	N D	N D	N D	8.30	334.20
	04/04/89	N D	N D	N D	N D	N D	7.52	
	05/01/89	N D	N D	N D	N D	N D	7.97	
	11/20/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
	05/31/89	N D	N D	N D	N D	N D	8.13	
	06/28/89	N D	N D	N D	N D	N D	8.30	
	08/08/89	N D	N D	N D	N D	N D	8.22	
	09/07/89	N D	N D	N D	N D	N D	8.32	
	10/09/89	N D	N D	N D	N D	N D	8.28	
	10/24/89	N D	N D	N D	N D	N D	8.38	
	12/20/89	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.48	
	01/18/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.20	
	02/26/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	7.86	
	06/04/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.13	
	11/20/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.83	
MW-12	02/11/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.95	
	05/06/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	7.71	
	03/02/89	N D	N D	N D	N D	N D	6.94	332.53
	04/04/89	N D	N D	N D	N D	N D	6.33	
	05/01/89	N D	N D	N D	N D	N D	6.62	
	06/01/89	N D	N D	N D	N D	N D	6.82	
	06/29/89	N D	N D	N D	N D	N D	7.00	

Exceltech, Inc.  
Project No. 3-31000-F  
July 16, 1991

Shell Oil Company  
7194 Amador Valley Boulevard  
Dublin, California

**TABLE 1**  
**GROUNDWATER ANALYSES DATA**

Well	Date	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Xylenes (ppm)	Depth To Water (ft.)	Well Elevation (ft.)
MW-12 (Con't)	08/09/89	N D	N D	N D	N D	N D	6.76	
	09/07/89	N D	N D	N D	N D	N D	6.81	
	10/09/89	N D	N D	N D	N D	N D	7.11	
	10/24/89	N D	N D	N D	N D	N D	7.60	
	12/20/89	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.25	
	01/18/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.23	
	02/26/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	7.54	
	06/04/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	7.96	
	11/20/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.80	
	02/12/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	7.85	
MW-13	05/06/91	1.1	0.43	0.03	0.041	0.13	8.37	335.64
RW-1	12/09/89	6.8	0.74	0.005	0.011	0.037	10.73	336.19
	01/13/89	10	3.2	0.027	0.06	N D	N A	
	02/10/89	6	2.8	N D	N D	N D	10.91	
	03/02/89	3.9	2.4	N D	N D	N D	10.15	
	04/05/89	1.7	1	N D	0.009	N D	9.34	
	05/01/89	0.9	0.39	0.005	0.01	N D	9.85	
	06/01/89	1.1	0.0014	0.0033	N D	0.013	9.96	
	06/30/89	1.4	N D	N D	N D	N D	9.90	
	08/09/89	7.5	1.7	0.21	0.28	0.30	9.80	
	09/11/89	0.097	0.0017	0.0021	0.0023	0.014	10.02	
	10/10/89	1.4	0.048	0.0045	N D	0.003	9.88	

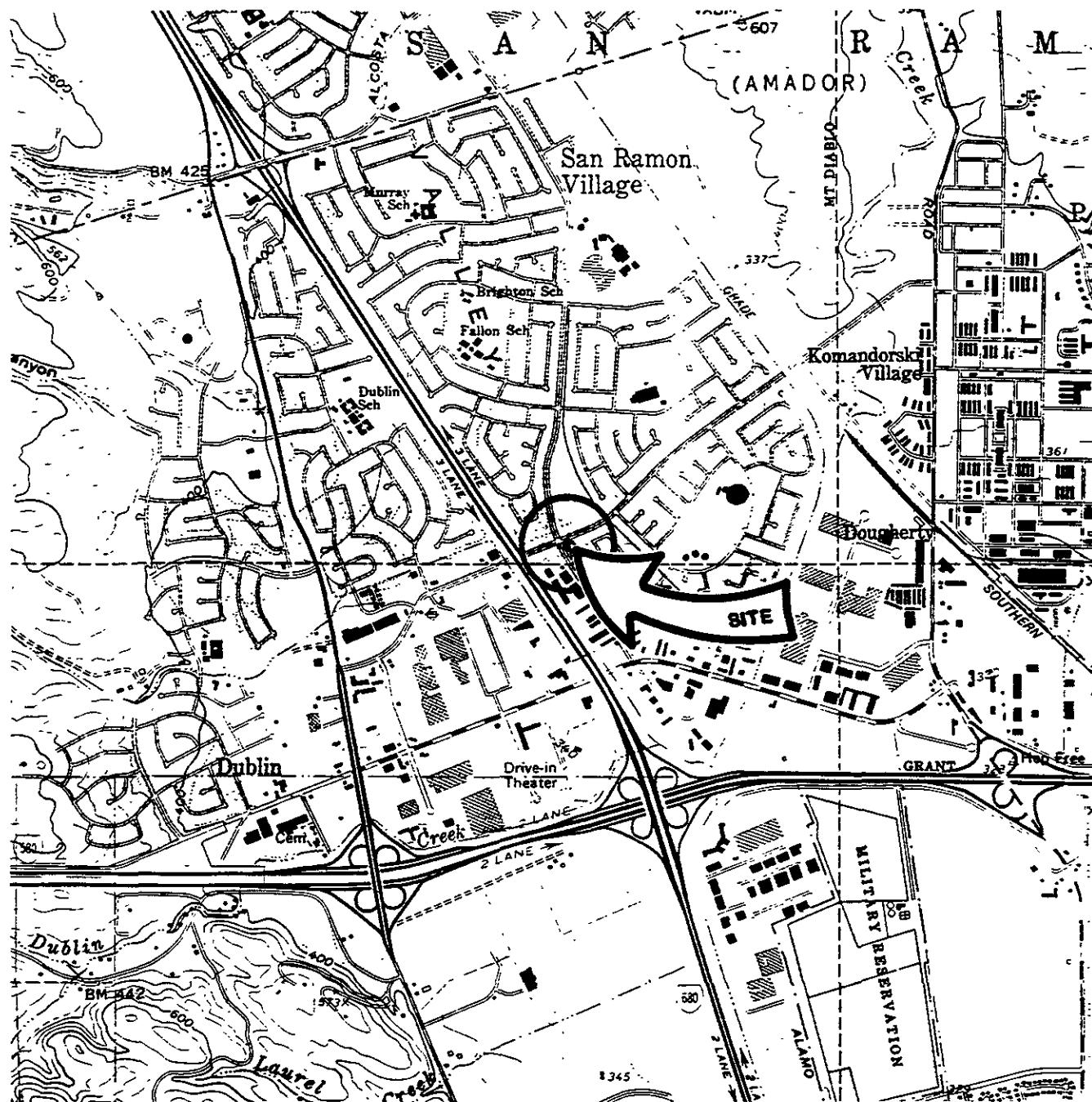
Exceltech, Inc.  
Project No. 3-31000-F  
July 16, 1991

Shell Oil Company  
7194 Amador Valley Boulevard  
Dublin, California

TABLE 1  
GROUNDWATER ANALYSES DATA

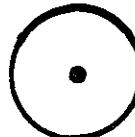
Well	Date	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Xylenes (ppm)	Depth To Water (ft.)	Well Elevation (ft.)
RW-1 (Con't)	10/25/89	0.82	0.051	0.0012	0.025	0.003	9.80	
	12/21/89	0.49	0.016	0.001	0.0085	0.019	10.25	
	01/17/90	N D	0.027	0.0017	0.014	0.0016	9.80	
	02/23/90	0.42	0.042	0.0018	0.013	0.0027	9.60	
	06/04/90	0.18	0.023	0.0007	0.0053	0.0012	9.97	
	11/20/90	1.9	0.17	0.052	0.029	0.038	10.50	
	02/11/91	NA	NA	NA	NA	NA	10.87	

- (a) Groundwater monitoring well MW-10 destroyed on June 13, 1990  
ppm Parts per million (mg/kg)  
TPHG Total petroleum hydrocarbons as gasoline  
N A Data not available  
N R Analysis not requested  
N D Not detected at or above laboratory listed detection limit  
<0.05 Not detected at or above the indicated detection limit  
Note: For unlisted detection limits, refer to laboratory reports



SOURCE: USGS 7.5' MAP, DUBLIN QUADRANGLE

LEGEND



SITE LOCATION

0 1  
SCALE IN MILES



**SITE LOCATION MAP**

FORMER SHELL STATION

7194 AMADOR VALLEY BLVD

DUBLIN, CALIFORNIA

REVIEWED BY

J.P.J.

APPROVED BY

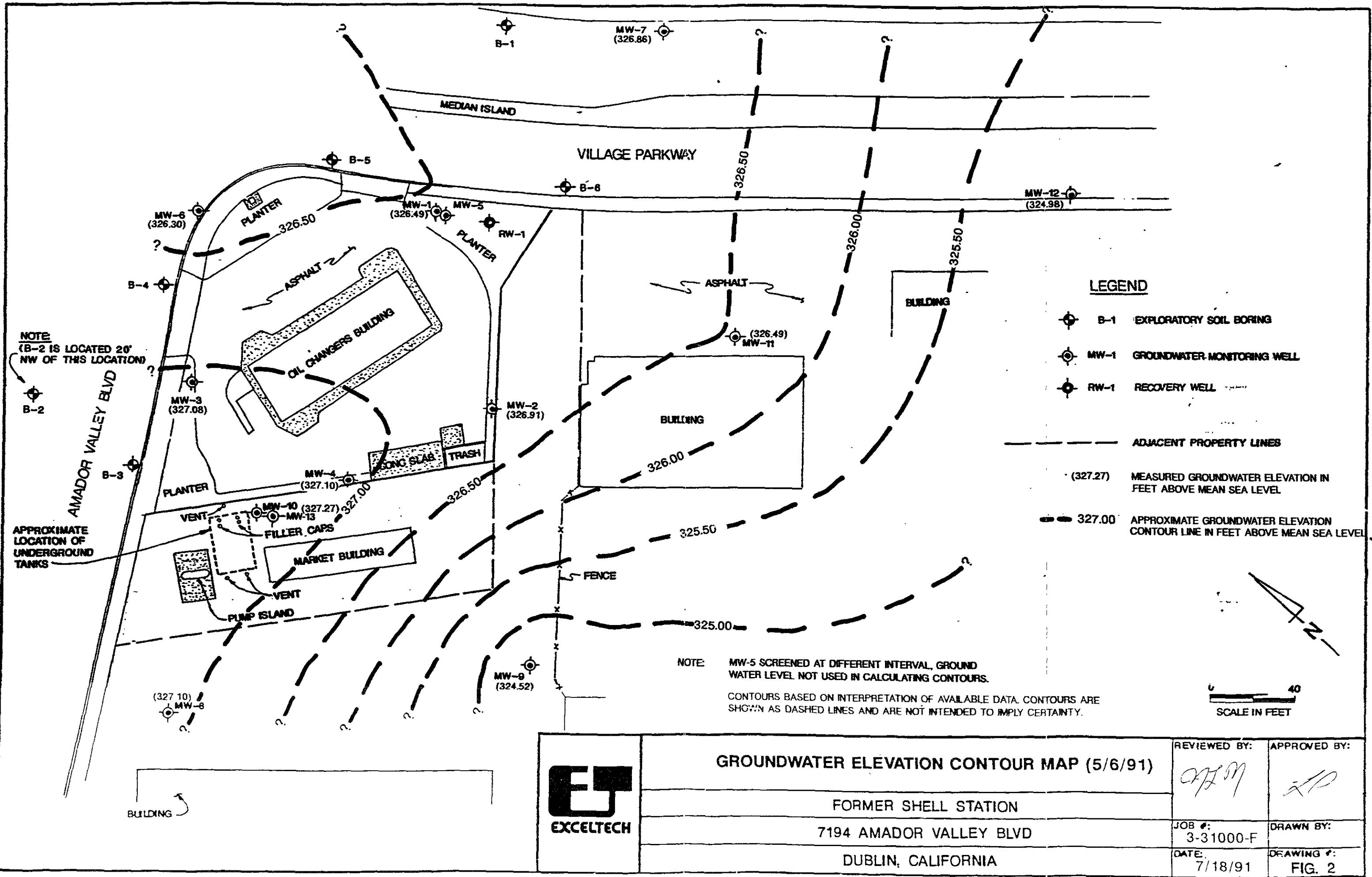
J.C.

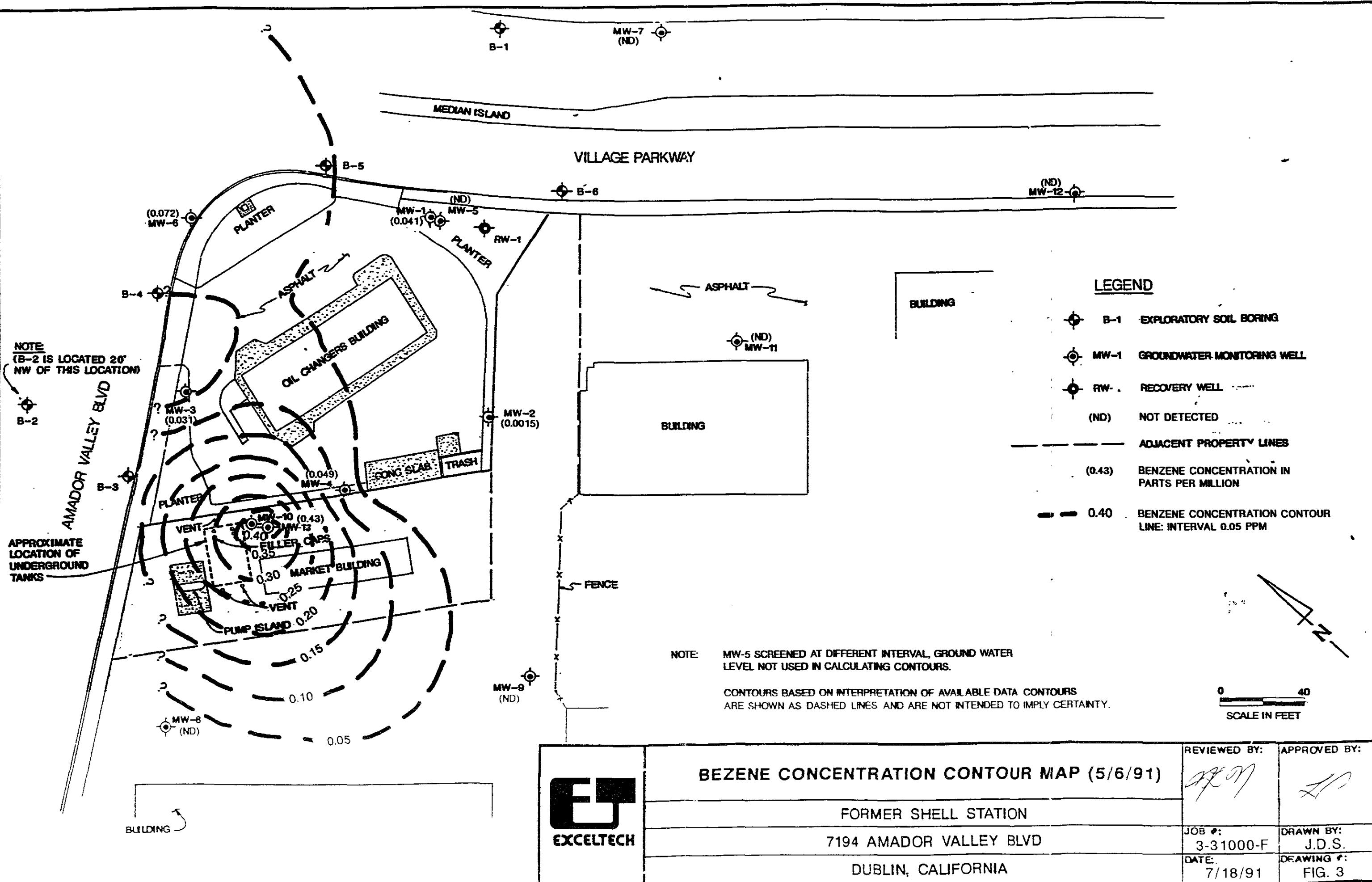
JOB #  
3-31000-F

DRAWN BY  
J.C.

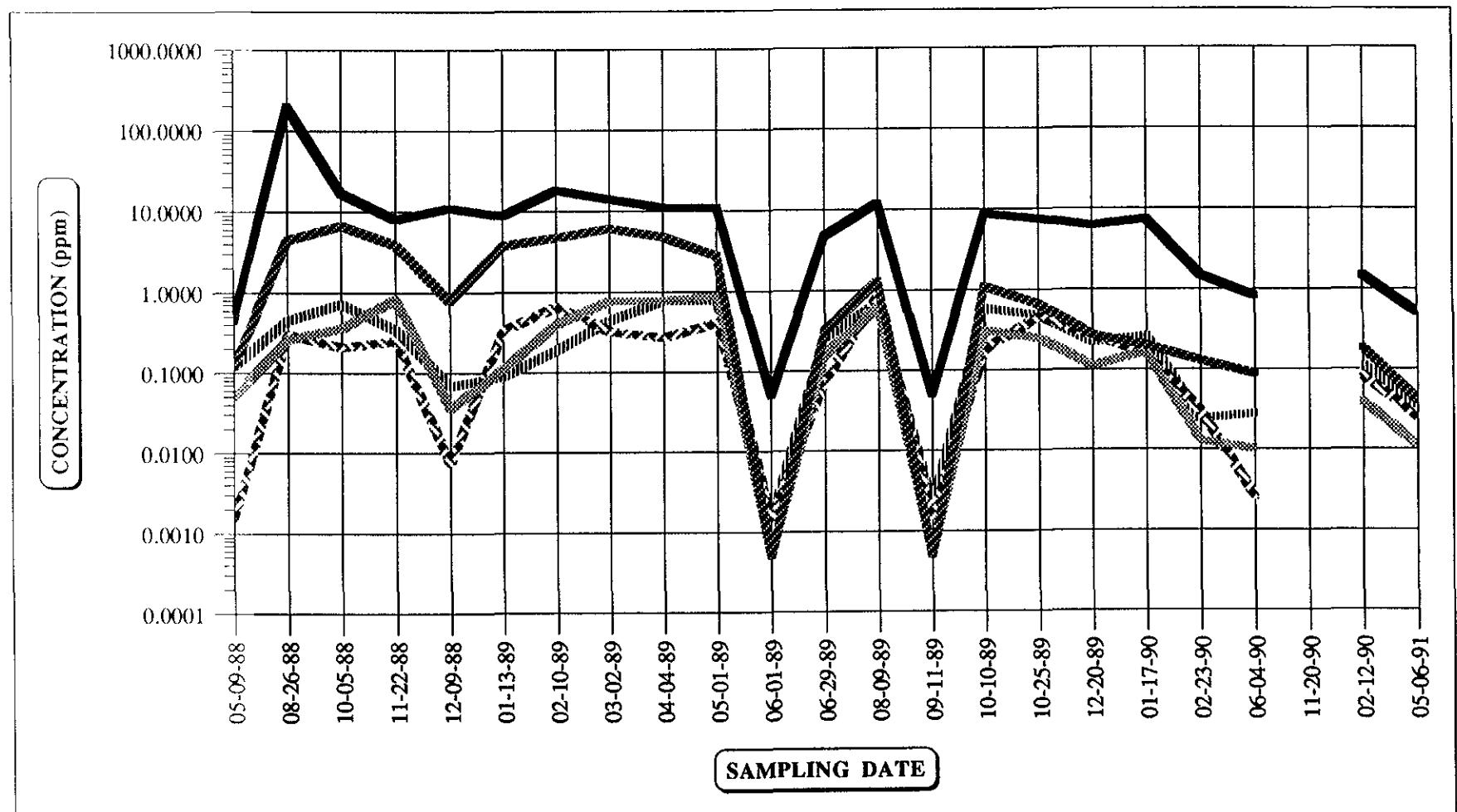
DATE  
7/18/91

DRAWING #  
FIG. 1





## MW-1 GROUNDWATER ANALYSES DATA



— TPHG

··· BENZENE

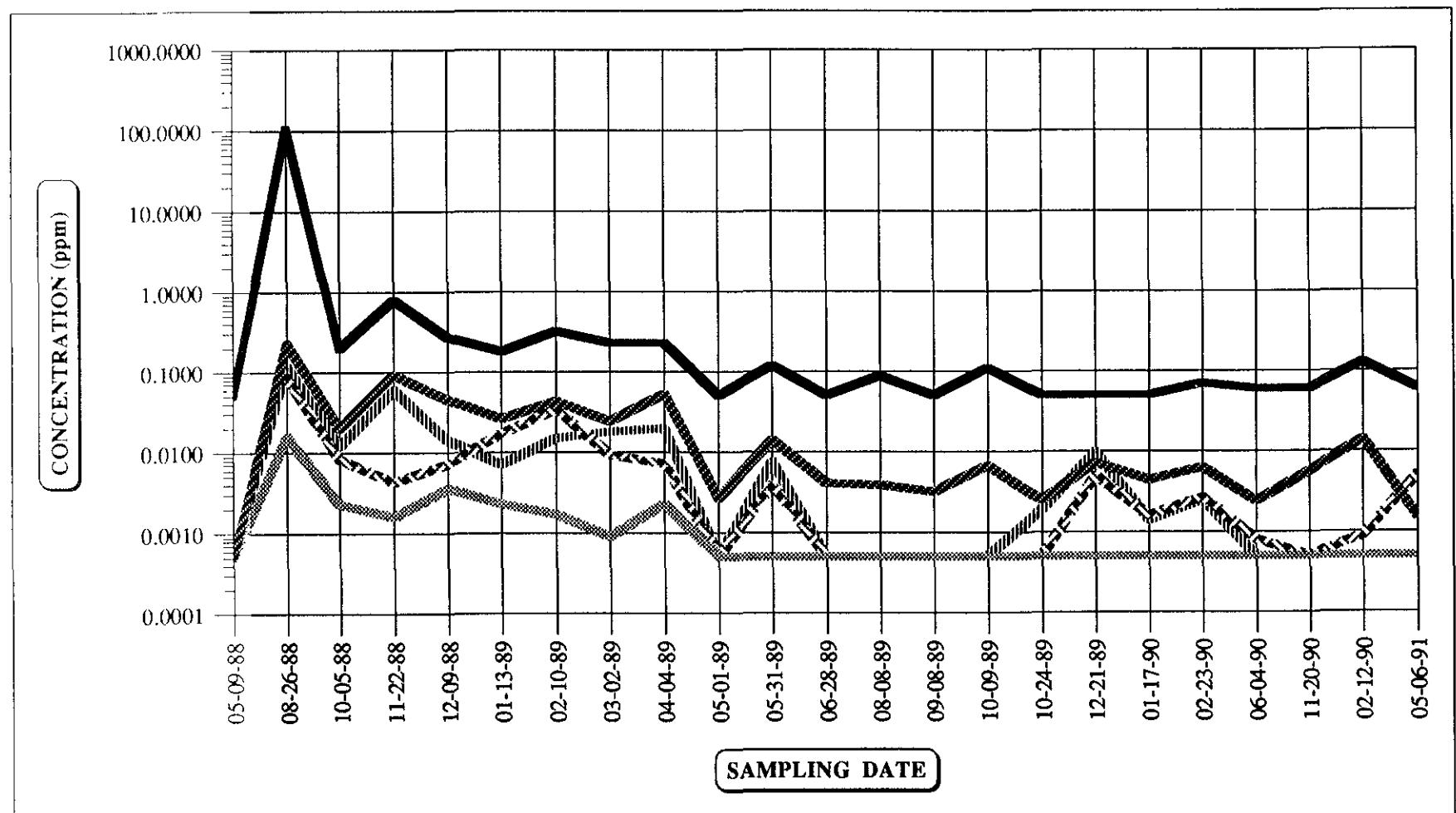
···· TOLUENE

···· ETHYL BENZENE

····· XYLEMES

NOTE: For analytical results, refer to appended laboratory reports. Gaps on graph represent dates where no sample was collected.

## MW-2 GROUNDWATER ANALYSES DATA



— TPHG

● BENZENE

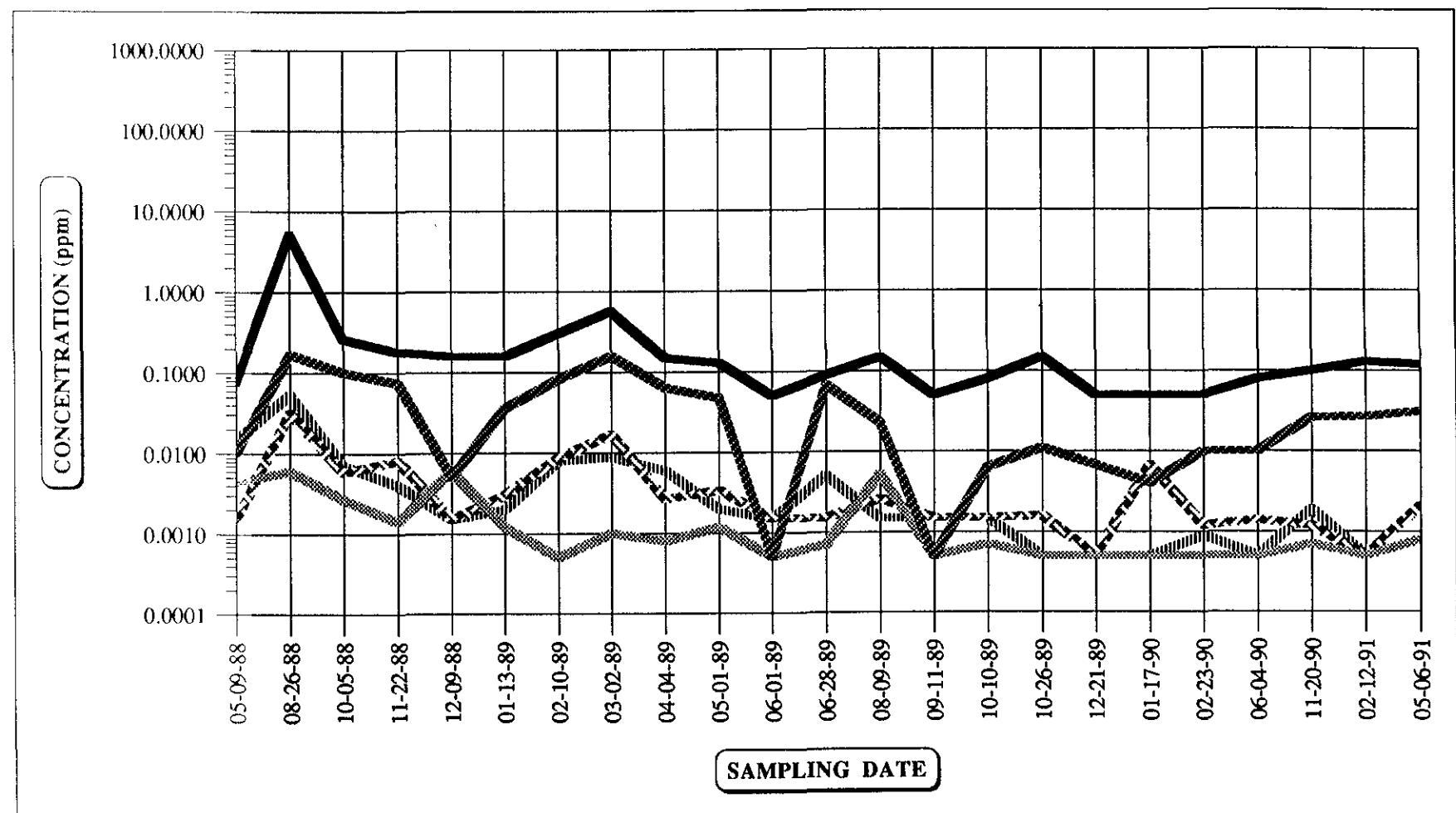
■ TOLUENE

▲ ETHYL BENZENE

◆ XYLENES

NOTE: Minimum value plotted is laboratory detection limit. For analytical results, refer to appended laboratory reports.

## MW-3 GROUNDWATER ANALYSES DATA



— TPHG

■ BENZENE

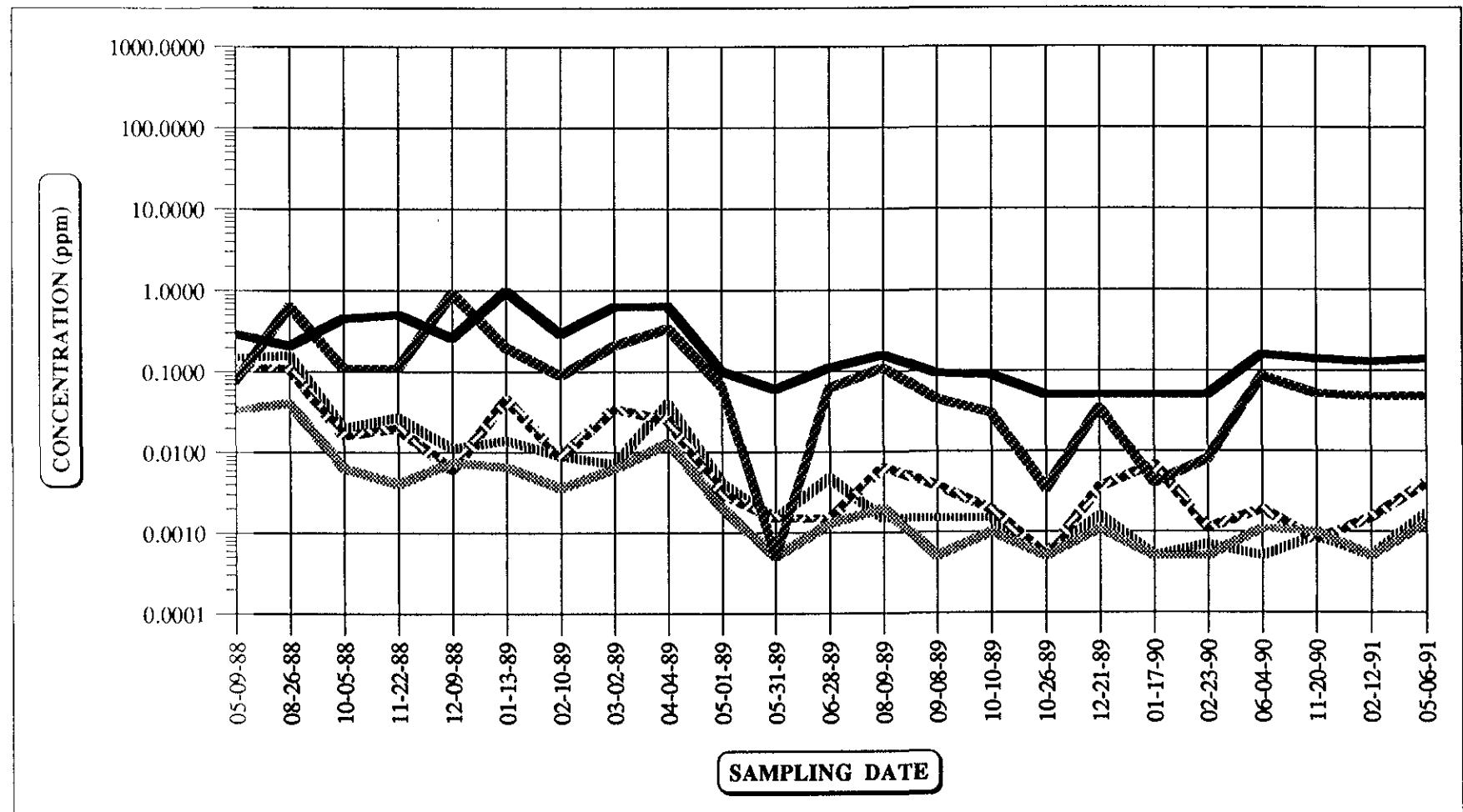
■ TOLUENE

△ ETHYL BENZENE

□ XYLENES

NOTE: Minimum value plotted is the laboratory detection limit. For analytical results, refer to appended laboratory reports.

## MW-4 GROUNDWATER ANALYSES DATA



— TPHG

··· BENZENE

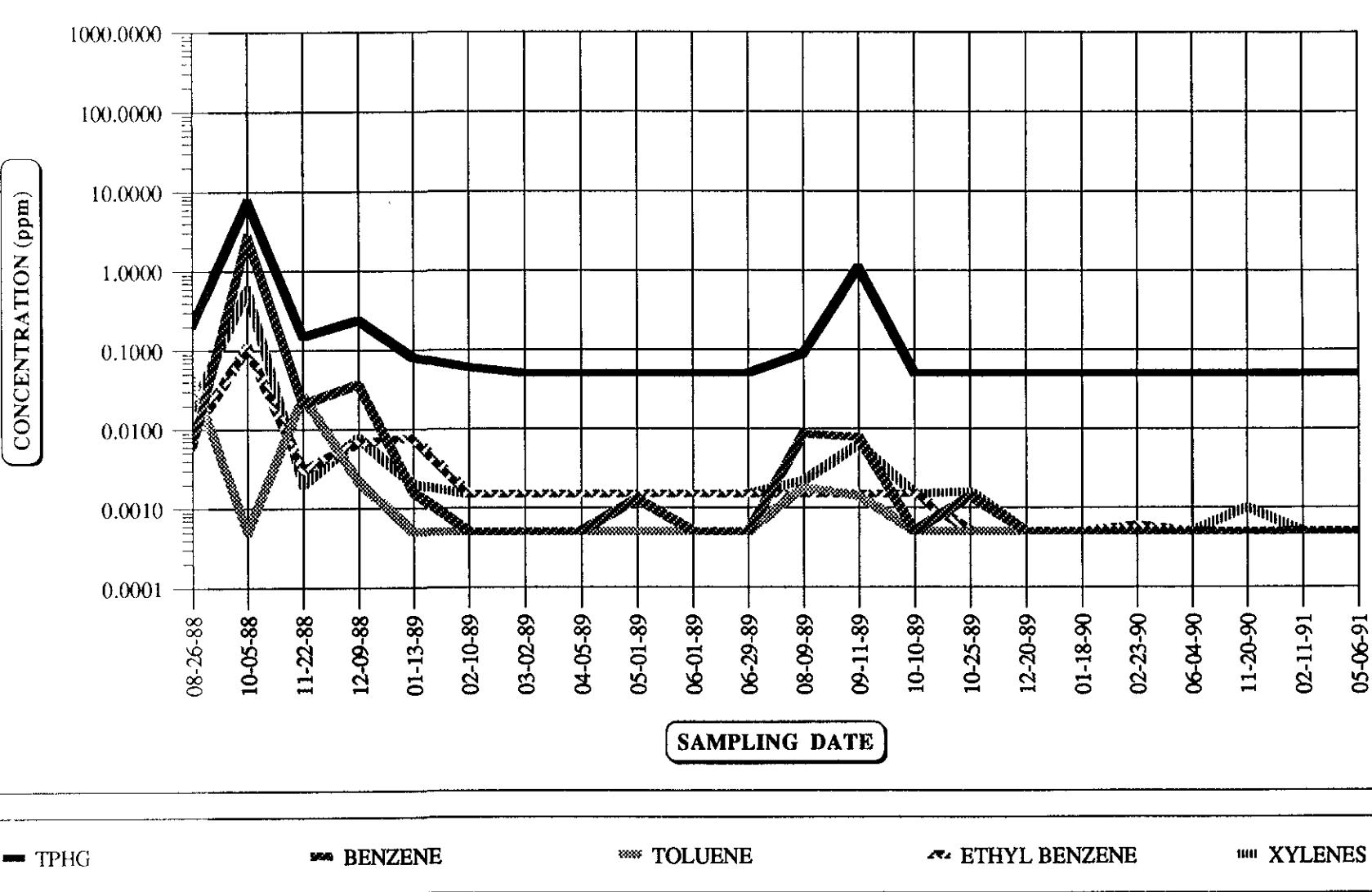
···· TOLUENE

···· ETHYL BENZENE

····· XYLEMES

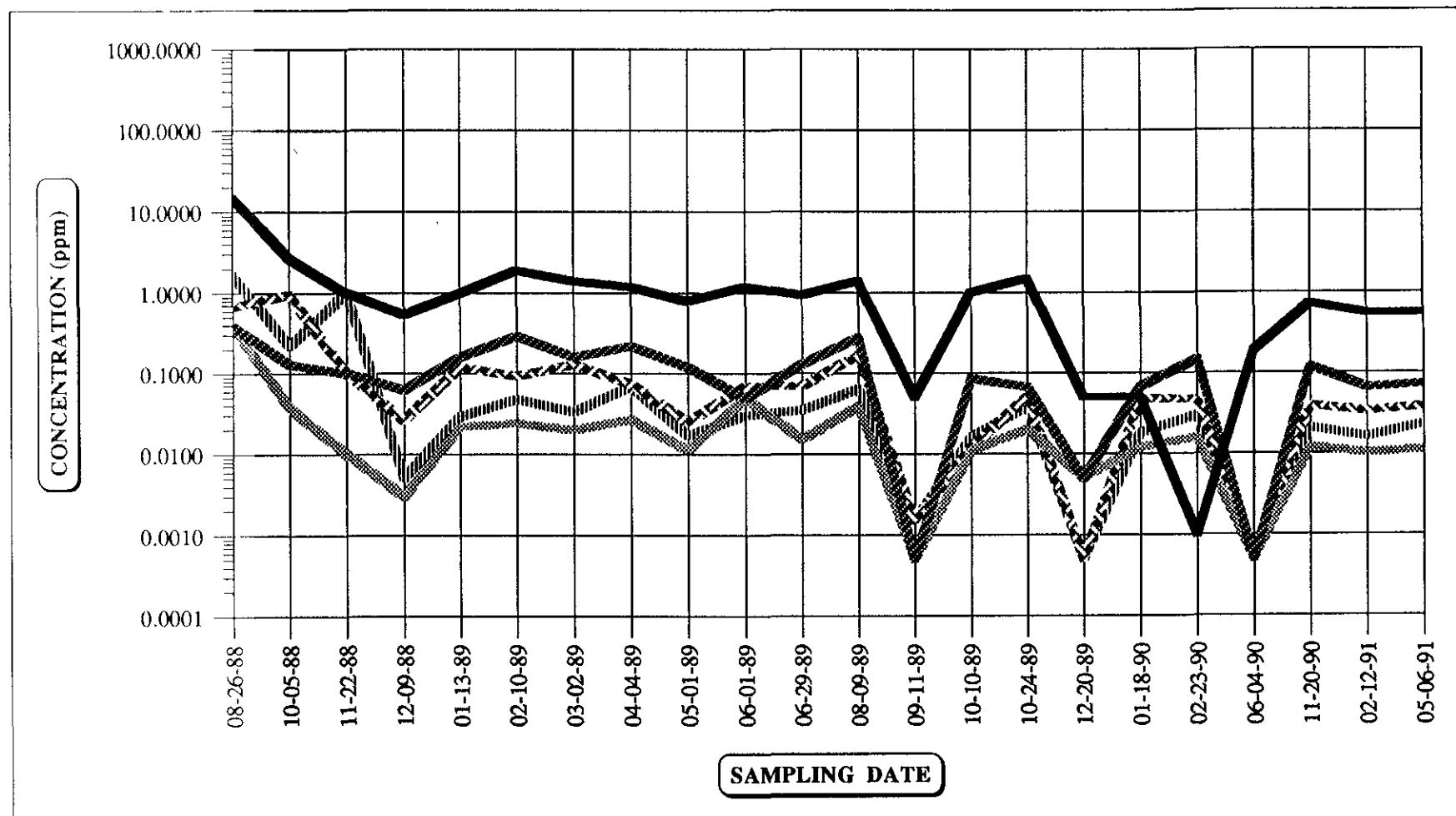
NOTE: Minimum value plotted is the laboratory detection limit. For analytical results, refer to appended laboratory reports.

## MW-5 GROUNDWATER ANALYSES DATA



NOTE: Minimum value plotted is the laboratory detection limit. For analytical results, refer to appended laboratory reports.

## MW-6 GROUNDWATER ANALYSES DATA



— TPHG

● BENZENE

■ TOLUENE

▲ ETHYL BENZENE

◆ XYLEMES

NOTE: Minimum value plotted is the laboratory detection limit. For analytical results, refer to appended laboratory reports.

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**APPENDIX A**

**LABORATORY ANALYTICAL REPORTS,  
CHAIN-OF-CUSTODY DOCUMENTS  
AND  
SURVEY DATA**

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**NET**

NET Pacific, Inc.

Client No: 18.06  
Client Name: Exceltech  
NET Log No: 7424

Date: 05-15-91

Page: 8

Ref: SHELL-Dublin, Project: 1826 WATER

**Descriptor, Lab No. and Results**

Parameter	Method	Reporting Limit	Units
PETROLEUM HYDROCARBONS		--	
VOLATILE (WATER)		--	
DILUTION FACTOR *		1	
DATE ANALYZED		5-11-91	
METHOD GC FID/5030		--	
as Gasoline	0.05	1.1	mg/L
METHOD 602		--	
DILUTION FACTOR *		1	
DATE ANALYZED		5-11-91	
Benzene	0.0005	0.43	mg/L
Ethylbenzene	0.0005	0.041	mg/L
Toluene	0.0005	0.030	mg/L
Xylenes, total	0.0005	0.13	mg/L

**NET**Client Acct: 18.06  
©Client Name: Exceltech  
NET Pacific, Inc. NET Log No: 7424Date: 05-15-91  
Page: 9

Ref: SHELL-Dublin, Project: 1826 WATER

## QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Gasoline	0.05	mg/L	84	ND	88	84	5.6
Benzene	0.0005	mg/L	82	ND	99	100	1.5
Toluene	0.0005	mg/L	85	ND	103	101	2.0
Gasoline	0.05	mg/L	91	ND	86	92	5.4
Benzene	0.0005	mg/L	76	ND	96	104	7.5
Toluene	0.0005	mg/L	79	ND	102	103	1.3

COMMENT: Blank Results were ND on other analytes tested.

- < : Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
- \* : Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated Reporting Limits by the dilution factor (but do not multiply reported values).
- ICVS : Initial Calibration Verification Standard (External Standard).
- mean : Average; sum of measurements divided by number of measurements.
- mg/Kg (ppm) : Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
- mg/L : Concentration in units of milligrams of analyte per liter of sample.
- mL/L/hr : Milliliters per liter per hour.
- MPN/100 mL : Most probable number of bacteria per one hundred milliliters of sample.
- N/A : Not applicable.
- NA : Not analyzed.
- ND : Not detected; the analyte concentration is less than applicable listed reporting limit.
- NTU : Nephelometric turbidity units.
- RPD : Relative percent difference,  $100 \frac{[Value\ 1 - Value\ 2]}{mean\ value}$ .
- SNA : Standard not available.
- ug/Kg (ppb) : Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
- ug/L : Concentration in units of micrograms of analyte per liter of sample.
- umhos/cm : Micromhos per centimeter.

#### Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

SM: see "Standard Methods for the Examination of Water & Wastewater, 16th Edition, APHA, 1985.

## CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME			TEST REQUESTED			P.O. # <i>WIC# 704 2217-7105</i> APG#
1826	SHELL - DUBLIN			TESTS/BOTTLES			LAB <i>NET</i>
SAMPLERS (Signature) <i>DENNIS MENTEL</i>							
NO.	DATE	TIME	SAMPLE DESCRIPTION	TOTAL			REMARKS
BB 1	5-8-91	12:25	PEPS VODA	(3)	X		
MW 5	"	1:00	PREPS VODA	(3)	X		
MW 7	"	2:00	PREPS VODA	(3)	X		
MW 12	"	2:55	PREPS VODA	(3)	X		
MW 11	"	3:45	PREPS VODA	(3)	X		
MW 9	"	4:30	PREPS VODA	(3)	X		
MW 8	5-9-91	8:20	PREPS VODA	(3)	X		
MW 2	"	9:20	PREPS VODA	(3)	X		
MW 3	"	10:30	PREPS VODA	(3)	X		
MW 4	"	11:30	PREPS VODA	(3)	X		
MW 6	"	12:30	PREPS VODA	(3)	X		
MW 1	"	2:00	PREPS VODA	(3)	X		
MW 13	"	3:00	PREPS VODA	(3)	X		
<i>CUSTODY SEALED 5/8/91</i>							
@		19:00					
RELINQUISHED BY:	DATE: 5-8-91	TIME: 1:46	RECEIVED BY: <i>Jamie M. Menter</i>	RELINQUISHED BY: <i>Mark E. Strom</i>	DATE: 5/8/91	TIME: 3:35PM	RECEIVED BY: <i>Jeffard W. Clark</i>
RELINQUISHED BY: <i>Jeffard W. Clark</i>	DATE: 5/8/91	TIME: 19:00	RECEIVED BY:	RELINQUISHED BY: <i>Lynn M. Stroh</i>	DATE: 5/9/91	TIME: 0800	RECEIVED BY: <i>Jeffard W. Clark</i>
REMARKS:				(415) 659-0404			
REPORT TO: Cindy Virostko				41674 Christy Street Fremont, C.A. 94538-3114			
				Fax (415) 651-4677 Contr. Lic. No. 550205			

FORM DATED 3-27-90



**NET**NATIONAL  
ENVIRONMENTAL  
TESTING, INC.  
®NET Pacific, Inc.  
435 Tesconi Circle  
Santa Rosa, CA 95401  
Tel: (707) 526-7200  
Fax: (707) 526-9623

Cindy Virostko  
Exceltech  
41674 Christy St.  
Fremont, CA 94538

Date: 05-15-91  
NET Client Acct No: 18.06  
NET Pacific Log No: 7424  
Received: 05-09-91 0800

**Client Reference Information****SHELL-Dublin, Project: 1826 WATER**

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

**Approved by:**

Jules Skamarack  
Laboratory Manager

JS:rct  
Enclosure(s)

**NET**Client No: 18.06  
Client Name: Exceltech  
NET Pacific, Inc.  
NET Log No: 7424

Date: 05-15-91

Page: 2

Ref: SHELL-Dublin, Project: 1826 WATER

## Descriptor, Lab No. and Results

Parameter	Method	Reporting Limit	BB1	MW5	Units
			05-06-91	05-06-91	
PETROLEUM HYDROCARBONS			--	--	
VOLATILE (WATER)			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			05-11-91	5-11-91	
METHOD GC FID/5030			--	--	
as Gasoline	0.05	ND	ND	ND	mg/L
METHOD 602		--	--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			05-11-91	5-11-91	
Benzene	0.0005	ND	ND	ND	mg/L
Ethylbenzene	0.0005	ND	ND	ND	mg/L
Toluene	0.0005	ND	ND	ND	mg/L
Xylenes, total	0.0005	ND	ND	ND	mg/L



NET Pacific, Inc.

Client No: 18.06  
Client Name: Exceltech  
NET Log No: 7424

Date: 05-15-91

Page: 3

Ref: SHELL-Dublin, Project: 1826 WATER

## Descriptor, Lab No. and Results

Parameter	Method	Reporting Limit	MW7	MW12	Units
			05-06-91	05-06-91	
PETROLEUM HYDROCARBONS			--	--	
VOLATILE (WATER)			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			5-11-91	5-11-91	
METHOD GC FID/5030			--	--	
as Gasoline		0.05	ND	ND	mg/L
METHOD 602			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			5-11-91	5-11-91	
Benzene		0.0005	ND	ND	mg/L
Ethylbenzene		0.0005	ND	ND	mg/L
Toluene		0.0005	ND	ND	mg/L
Xylenes, total		0.0005	ND	ND	mg/L

**NET**

NET Pacific, Inc.

Client No: 18.06  
Client Name: Exceltech  
NET Log No: 7424

Date: 05-15-91

Page: 4

Ref: SHELL-Dublin, Project: 1826 WATER

**Descriptor, Lab No. and Results**

Parameter	Method	Reporting Limit	MW11	MW9	Units
			05-06-91	05-06-91	
PETROLEUM HYDROCARBONS			--	--	
VOLATILE (WATER)			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			5-11-91	5-11-91	
METHOD GC FID/5030			--	--	
as Gasoline	0.05	ND	ND	ND	mg/L
METHOD 602		--	--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			5-11-91	5-11-91	
Benzene	0.0005	ND	ND	ND	mg/L
Ethylbenzene	0.0005	ND	ND	ND	mg/L
Toluene	0.0005	ND	ND	ND	mg/L
Xylenes, total	0.0005	ND	ND	ND	mg/L

**NET**Client No: 18.06  
® Client Name: Exceltech  
NET Pacific, Inc. NET Log No: 7424

Date: 05-15-91

Page: 5

Ref: SHELL-Dublin, Project: 1826 WATER

## Descriptor, Lab No. and Results

Parameter	Method	Reporting Limit	MW8	MW2	Units
			05-07-91	05-07-91	
PETROLEUM HYDROCARBONS			--	--	
VOLATILE (WATER)			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			05-12-91	5-11-91	
METHOD GC FID/5030			--	--	
as Gasoline		0.05	ND	0.06	mg/L
METHOD 602			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			05-12-91	5-11-91	
Benzene		0.0005	ND	0.0015	mg/L
Ethylbenzene		0.0005	ND	0.0005	mg/L
Toluene		0.0005	ND	ND	mg/L
Xylenes, total		0.0005	ND	ND	mg/L

**NET**Client No: 18.06  
© Client Name: Exceltech  
NET Pacific, Inc. NET Log No: 7424

Date: 05-15-91

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Ref: SHELL-Dublin, Project: 1826 WATER

## Descriptor, Lab No. and Results

Parameter	Method	Reporting Limit	MW3	MW4	Units
			05-07-91	05-07-91	
PETROLEUM HYDROCARBONS			--	--	
VOLATILE (WATER)			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			5-11-91	5-11-91	
METHOD GC FID/5030			--	--	
as Gasoline	0.05	0.12	0.14		mg/L
METHOD 602		--	--		
DILUTION FACTOR *			1	1	
DATE ANALYZED			5-11-91	5-11-91	
Benzene	0.0005	0.031	0.049		mg/L
Ethylbenzene	0.0005	0.0021	0.0041		mg/L
Toluene	0.0005	0.0008	0.0013		mg/L
Xylenes, total	0.0005	0.0008	0.0017		mg/L



NET Pacific, Inc.

Client No: 18.06  
© Client Name: Exceltech  
NET Log No: 7424

Date: 05-15-91

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## Descriptor, Lab No. and Results

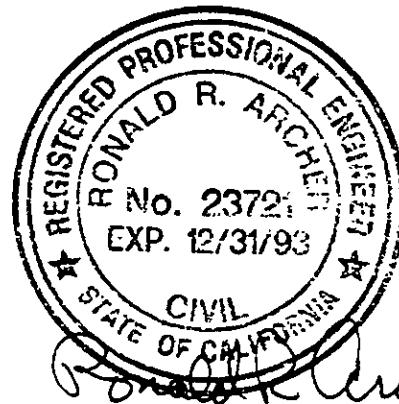
Parameter	Method	Reporting Limit	MW6	MW1	Units
			05-07-91	05-07-91	
PETROLEUM HYDROCARBONS			--	--	
VOLATILE (WATER)			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			5-11-91	5-11-91	
METHOD GC FID/5030			--	--	
as Gasoline		0.05	0.55	0.51	mg/L
METHOD 602			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			5-11-91	5-11-91	
Benzene		0.0005	0.072	0.041	mg/L
Ethylbenzene		0.0005	0.038	0.025	mg/L
Toluene		0.0005	0.011	0.011	mg/L
Xylenes, total		0.0005	0.023	0.035	mg/L

# RON ARCHER

CIVIL ENGINEER, INC.

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(415) 462-9372



AUGUST 30, 1988  
REVISED: MARCH 6, 1989  
\* REVISED: APRIL 16, 1991

JOB NO. 1457

ELEVATIONS OF EXISTING MONITOR WELLS AT AND IN THE VICINITY OF THE "OIL CHANGERS" FACILITY, (FORMER SHELL SERVICE STATION) LOCATED AT, 7194 AMADOR VALLEY BOULEVARD AT VILLAGE PARKWAY, CITY OF DUBLIN, ALAMEDA COUNTY, CALIFORNIA.

FOR: EXCELTECH  
PROJECT NO. 1826-G

BENCHMARK: A FOUND BRASS DISC SET IN CONCRETE IN WESTERLY CENTER ISLAND OF AMADOR VALLEY BLVD. AT VILLAGE PARKWAY, 15' FROM NOSE AND Ø 8' FROM NORTHERLY CURB. STAMPED "VL-PK-AM-VY 1977". ELEVATION TAKEN AS 337.402 M.S.L.

#### MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEVATION	DESCRIPTION
MW1	334.83	TOP OF PVC CASING
	335.30	TOP LOCKING COVER
MW2	336.96	TOP OF PVC CASING
	337.24	TOP LOCKING COVER
MW3	336.93	TOP OF PVC CASING
	337.66	TOP LOCKING COVER
MW4	337.14	TOP OF PVC CASING
	337.48	TOP LOCKING COVER
MW5	334.96	TOP OF PVC CASING
	335.07	TOP LOCKING COVER
MW6	335.42	TOP OF PVC CASING
	336.03	TOP OF BOX
MW7	333.23	TOP OF PVC CASING
	333.72	TOP OF BOX

MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEVATION	DESCRIPTION
MW8	335.80 336.09	TOP OF PVC CASING TOP OF BOX
MW9	334.57 335.07	TOP OF PVC CASING TOP OF BOX
* MW10 (DESTROYED)	-----	
MW11	334.20 334.87	TOP OF PVC CASING TOP OF BOX
MW12	332.53 332.89	TOP OF PVC CASING TOP OF BOX
* MW13	335.64 336.03	TOP OF PVC CASING TOP OF BOX
RW1 (RECOVERY WELL)	336.19	TOP OF PVC CASING