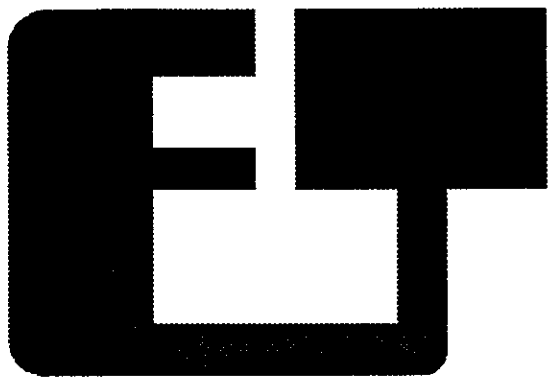


EXCELTECH

SEPTEMBER QUARTERLY GROUNDWATER SAMPLING AND ANALYSIS

FOR

FORMER SHELL STATION
7194 AMADOR VALLEY BOULEVARD
DUBLIN, CALIFORNIA

Project No. 1826G
October 1990

Northern California Regional Office 41674 Christy Street, Fremont, CA 94538-3114 (415) 659-0404 Fax: (415) 651-4677 Lic. # 596545

EXCELTECH

October 3, 1990

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

Attention: Ms. Diane Lundquist

Subject: September Quarterly
Groundwater Sampling and Analysis
Former Shell Station
7194 Amador Valley Boulevard, Dublin, California
Project No. 1826G

Dear Ms. Lundquist:

This letter report presents the results of the September Quarterly groundwater sampling and analyses for the subject site in the City of Dublin, Alameda County, California (Figure 1). It includes all current and past analytical data acquired during this ongoing investigation.

Background

Exceltech, at the request at Shell Oil Company (Shell) completed a preliminary soil and groundwater investigation of this site in May 1988. This investigation included the installation of four groundwater monitoring wells, associated logging, soil and groundwater sampling, and chemical analyses of selected samples. The field operations were performed on April 28, and April 29, 1988. Laboratory analyses of soil and groundwater samples revealed the presence of contamination beneath the site. This was followed by a supplemental soil and groundwater investigation which was completed in November 1988. It included a soil gas survey, the drilling of eight off-site exploratory borings, two of which were converted to a groundwater monitoring wells, and the installation of an on-site groundwater monitoring well and an on-site groundwater recovery well. Selected soil and groundwater samples were submitted for laboratory analysis. The field operations were performed between July 19, 1988 and August 15, 1988 and the results of the investigation revealed that the soil and groundwater contamination extended beyond the site boundaries. In February 1989, Exceltech installed five off-site groundwater monitoring wells with associated logging, soil and groundwater sampling, and chemical analyses of selected samples. A detailed analysis of all data collected on the site was presented in a Final Assessment Report in June of 1989 which evaluated the extent of off-site contamination emanating from the site. The source of the contamination detected in one of the off-site monitoring wells, MW-10, was identified as unused subsurface tanks located on an adjacent property. Petroleum hydrocarbons from these tanks have apparently impacted the groundwater under the former Shell site. The adjacent property owner has hired a consultant to investigate the problem and remediation of the Shell site is awaiting the receipt of their report. In March 1989, a monthly monitoring, sampling, analyses and quarterly reporting program was initiated. Because the concentrations of hydrocarbon contaminants detected in the groundwater samples appeared to stabilize, the sampling program was changed from monthly to quarterly in March 1990.

Groundwater Sampling

Groundwater samples were collected from 11 monitoring wells and one recovery well on and adjacent to the site in accordance with Exceltech's groundwater sampling protocol (Appendix A). The groundwater purged from the wells and equipment rinse water was placed in Department of Transportation-approved drums and left on-site pending removal by a licensed hauler to the Shell refinery for recycling.

Laboratory Analyses

The groundwater samples were transported to National Environmental Testing, Inc. (NET) for analysis. This state-certified laboratory is located in Santa Rosa, California. They analyzed the samples for the presence of total petroleum hydrocarbons as gasoline; and benzene, toluene, ethyl benzene, and total xylenes.

Summary of Laboratory Results

The results of the groundwater sampling and analyses are summarized in Table 1. The analytical reports from NET and chain-of-custody documents are attached in Appendix B. Hydrocarbon-related contamination was detected in five of the 12 monitoring wells and in the recovery well (MW-1, MW-2, MW-3, MW-4, MW-6, and RW-1).

Discussion

Twelve groundwater monitoring wells and one recovery well were originally installed on or around this site. The groundwater recovered from the original four wells, MW-1, MW-2, MW-3, and MW-4, continues to contain detectable concentrations of petroleum hydrocarbon contamination. Samples from MW-5, installed to monitor a deeper portion of the aquifer, have had sporadic occurrences of these contaminants. No hydrocarbon related contaminants have been detected in this well since December 1989, with the exception of the August 1990 sampling in which benzene was detected at a concentration of 0.0006 ppm. The recovery well, RW-1, which is located near MW-1 and MW-5, also continues to have detectable concentrations of petroleum hydrocarbon contaminants. Contaminants detected in MW-6 may be due in part to a reported release from a Union 76 station located across Amador Valley Boulevard from the former Shell station. The release from the Union 76 station is being monitored by Kaprelian Engineers. No petroleum hydrocarbons have been detected in the groundwater from MW-7 since January 1989. Petroleum based hydrocarbon contaminants have not been detected in groundwater samples from monitoring wells MW-8, MW-9, MW-11, and MW-12 since their installation in March 1989. MW-10 was installed adjacent to some unused subsurface gasoline storage tanks at a site adjacent to the former Shell station. Petroleum based hydrocarbon contaminants were detected in the groundwater samples recovered from this well. This release is being investigated by Aqua Terra Technologies. During the Aqua Terra Technologies' investigation of the site, it was necessary to destroy MW-10. The degree to which this release has impacted the Shell site is uncertain but in view of its proximity, within 5 feet of the Shell property line, it is generally agreed by Shell, Aqua Terra Technologies, the Alameda County Department of Environmental Health, and Exceltech that some impact has occurred. Groundwater elevations obtained from depth to groundwater measurements obtained prior to sampling were used to generate the groundwater elevation contour map included as Figure 2.

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. The observations by field personnel.
2. The 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 due to 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.

Richard A. Garlow, R.E.A. 1365
Project Geologist

Lawrence D. Pavlak, C.E.G. 1187
Corporate C.E.G.

RAG/LDP/sw
Enclosures

Exceltech, Inc.
Project No. 1826G
September 25, 1990

Shell Oil Company
7194 Amador Valley Blvd. Dublin
Dublin, CA

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	NR	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	NA	
	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	ND	ND	ND	ND	ND	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	ND	ND	ND	ND	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	
	08/21/90	5.1	0.58	0.14	0.25	0.46	9.40	
MW-2	05/09/88	ND	ND	ND	NR	ND	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	NA	
	02/10/89	0.32	0.043	0.0017	0.034	0.015	10.74	

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-2 (CONT.)	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	
	08/21/90	0.09	0.015	<0.0005	0.001	<0.0005	11.37	
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	

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-3	10/10/89	0.08	0.0064	0.00072	N D	N D	10.95	
(CONT.)	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	
	01/23/90	<0.05	0.004	<0.0005	0.00068	<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	<0.005	10.52	
	08/21/90	0.12	0.036	<0.0005	0.0028	0.0007	11.14	
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	0.00068	<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	<0.005	10.74	
	08/21/90	0.09	0.036	0.0005	0.0016	0.0007	11.42	

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-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	
	08/21/90	<0.05	0.0006	<0.0005	<0.0005	<0.0005	9.20	
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	

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-6	05/01/89	0.79	0.12	0.011	0.025	0.017	8.90	
(CONT.)	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	0.00051	<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	
	08/21/90	0.64	0.079	0.008	0.038	0.012	9.84	
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	

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-7 (CONT.)	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	<0.0007	6.92	
	06/04/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	6.95	
	08/21/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	7.13	
MW-8	03/01/89	N D	N D	N D	N D	N D	8.28	335.80
	04/04/89	N D	N D	N D	N D	N D	7.31	
	05/01/89	N D	N D	N D	N D	N D	8.97	
	05/31/89	N D	N D	N D	N D	N D	9.17	
	06/28/89	N D	N D	N D	N D	N D	9.40	
	08/08/89	N D	N D	N D	N D	N D	9.42	
	09/07/89	N D	N D	N D	N D	N D	8.50	
	10/10/89	N D	N D	N D	N D	N D	9.46	
	10/26/89	N D	N D	N D	N D	N D	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	
	08/20/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	9.78	
MW-9	03/01/89	N D	N D	N D	N D	N D	8.48	334.57
	04/04/89	N D	N D	N D	N D	N D	7.69	
	05/01/89	N D	N D	N D	N D	N D	8.20	
	05/31/89	N D	N D	N D	N D	N D	8.72	
	06/28/89	N D	N D	N D	N D	N D	9.00	
	08/08/89	N D	N D	N D	N D	N D	8.53	
	09/07/89	N D	N D	N D	N D	N D	8.99	
	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	

Exceltech, Inc.
Project No. 1826G
September 25, 1990

Shell Oil Company
7194 Amador Valley Blvd. Dublin
Dublin, CA

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 (CONT.)	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	
	08/20/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	9.77	
MW-10	03/02/89	1	0.14	0.036	ND	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	ND	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	NA	NA	NA	NA	NA	NA	
	06/04/90	NA	NA	NA	NA	NA	NA	
	Destroyed							
MW-11	03/02/89	ND	ND	ND	ND	ND	8.30	334.20
	04/04/89	ND	ND	ND	ND	ND	7.52	
	05/01/89	ND	ND	ND	ND	ND	7.97	
	05/31/89	ND	ND	ND	ND	ND	8.13	
	06/28/89	ND	ND	ND	ND	ND	8.30	
	08/08/89	ND	ND	ND	ND	ND	8.22	
	09/07/89	ND	ND	ND	ND	ND	8.32	
	10/09/89	ND	ND	ND	ND	ND	8.28	
	10/24/89	ND	ND	ND	ND	ND	8.38	

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	12/20/89	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.48	
(CONT.)	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	
	08/20/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	8.75	
MW-12	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	
	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	
	08/20/90	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	7.65	
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	

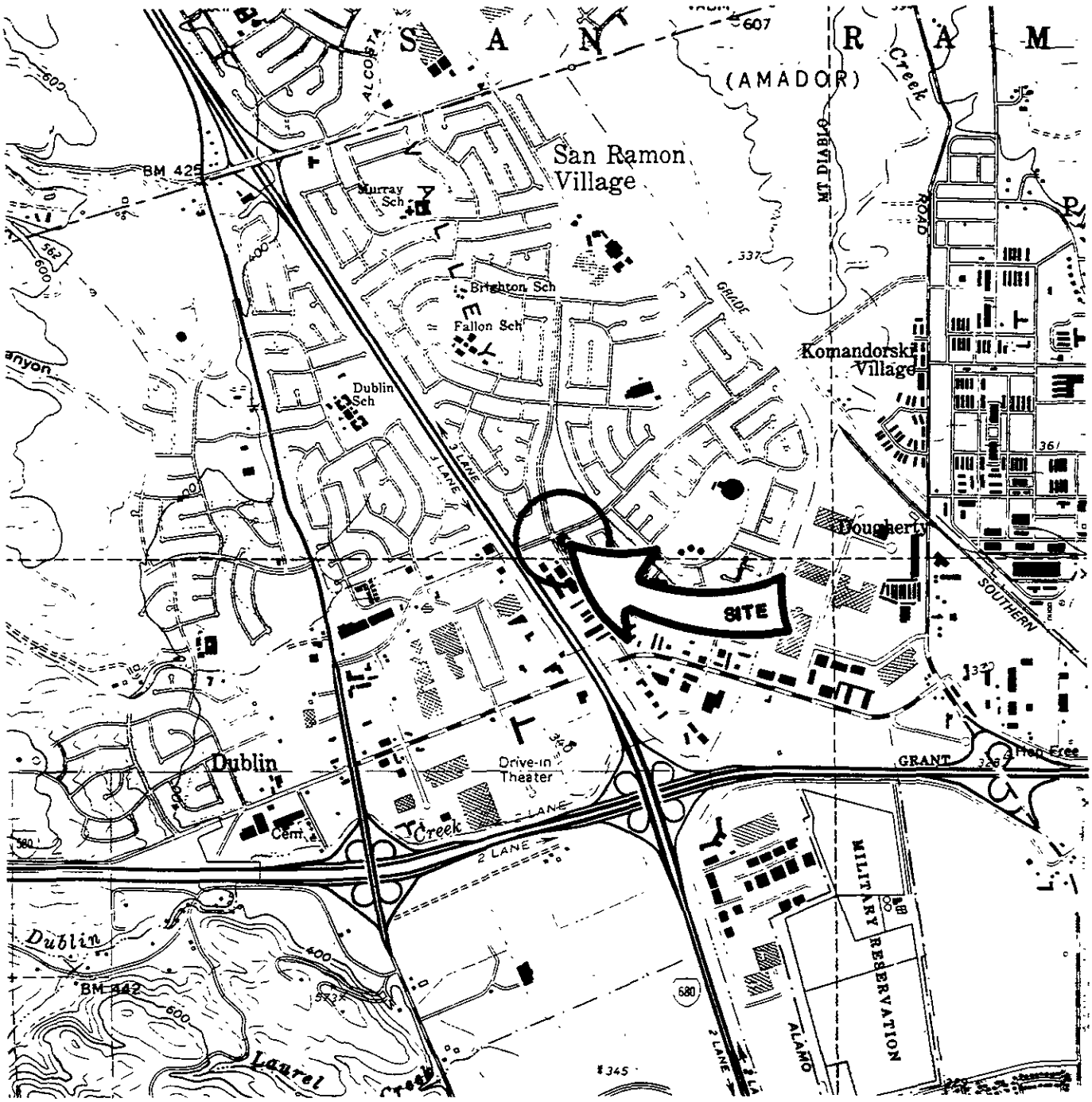
Exceltech, Inc.
Project No. 1826G
September 25, 1990

Shell Oil Company
7194 Amador Valley Blvd. Dublin
Dublin, CA

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	08/09/89	7.5	1.7	0.21	0.28	0.30	9.80	
(CONT.)	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	
	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	
	08/20/90	0.26	0.029	0.012	0.0012	0.0036	10.60	

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

N

EXCELTECH

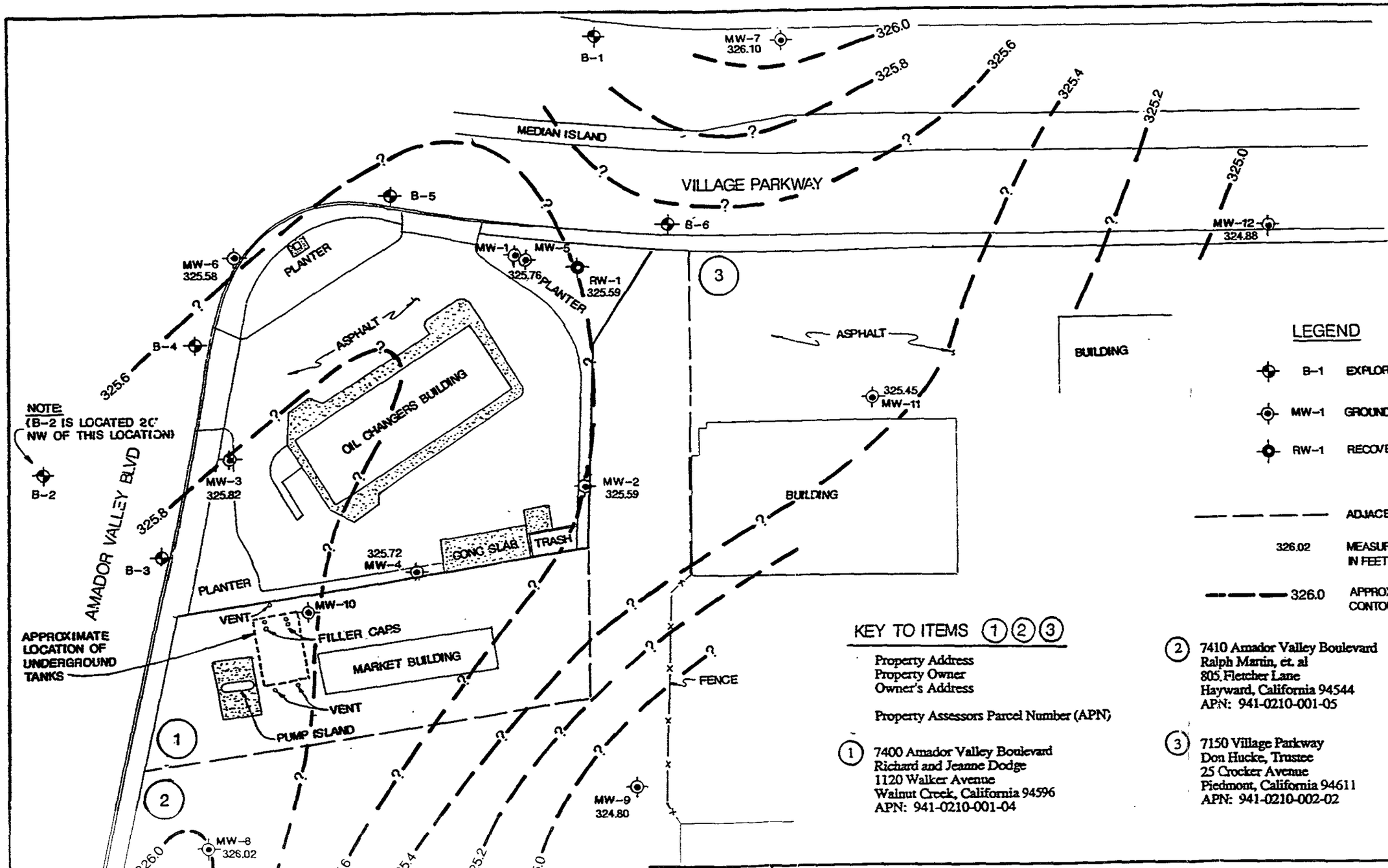
SITE LOCATION MAP

FORMER SHELL STATION

7194 AMADOR VALLEY BLVD

DUBLIN, CALIFORNIA

REVIEWED BY	APPROVED BY
JOB # 1826G	DRAWN BY J.C.
DATE 4-5-89	DRAWING # FIG. 1



LEGEND

- B-1 EXPLORATORY SOIL BORING
- MW-1 GROUNDWATER MONITORING WELL
- RW-1 RECOVERY WELL
- ADJACENT PROPERTY LINES
- 326.02 MEASURED GROUNDWATER ELEVATION IN FEET (DATUM M.S.L.)
- 326.0 APPROXIMATE GROUNDWATER ELEVATION CONTOUR LINE IN FEET (DATUM M.S.L.)

KEY TO ITEMS (1)(2)(3)

Property Address
Property Owner
Owner's Address

Property Assessors Parcel Number (APN)

(1) 7400 Amador Valley Boulevard
Richard and Jeanne Dodge
1120 Walker Avenue
Walnut Creek, California 94596
APN: 941-0210-001-04

(2) 7410 Amador Valley Boulevard
Ralph Marin, et. al
805 Fletcher Lane
Hayward, California 94544
APN: 941-0210-001-05

(3) 7150 Village Parkway
Don Hucke, Trustee
25 Crocker Avenue
Piedmont, California 94611
APN: 941-0210-002-02

N

0 40
SCALE IN FEET

EXCELTECH

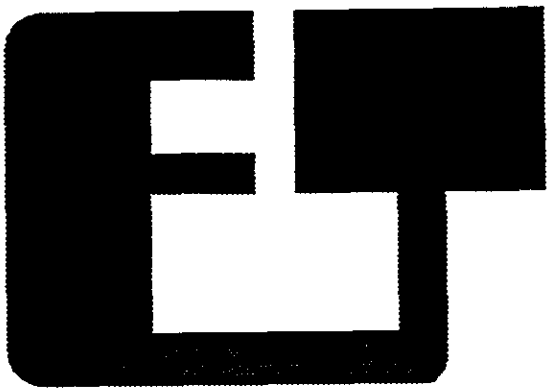
GROUNDWATER ELEVATION CONTOUR MAP (8/20/90)

FORMER SHELL STATION
7194 AMADOR VALLEY BLVD
DUBLIN, CALIFORNIA

REVIEWED BY:	APPROVED BY:
JOB #: 1826G	DRAWN BY:
DATE: 9/25/90	DRAWING #: FIG. 2

APPENDIX A

GROUNDWATER SAMPLING PROTOCOL



EXCELTECH

Groundwater Sampling Protocol

GROUNDWATER SAMPLING PROTOCOL

Sampling of groundwater is performed by Exceltech, Inc. sampling technicians. Summarized field sampling procedures are as follows:

1. Measurements of liquid surface in the well and depth of monitoring well.

2. Field check for presence of floating product.

3. Purge well prior to collecting samples.

4. Monitor groundwater for temperature, pH, and specific conductance during purging.

5. Collect samples using Environmental Protection Agency (EPA) approved sample collection devices, i.e., teflon or stainless steel bailers or pumps.

6. Transfer samples into laboratory-supplied EPA-approved containers.

7. Label samples and log onto chain-of-custody form.

8. Store samples in a chilled ice chest for shipment to a state-certified analytical laboratory.

GROUNDWATER SAMPLING PROCEDURES

Equipment Cleaning

All water samples are placed in precleaned laboratory-supplied bottles. Sample bottles and caps remain sealed until actual usage at the site. All equipment which comes in contact with the well or groundwater is thoroughly cleaned with a trisodium phosphate (TSP) solution and rinsed with deionized or distilled water before use at the site. This cleaning procedure is followed between each well sampled. Wells are sampled in approximate order of increasing contamination. If a teflon cord is used, the cord is cleaned. If a nylon or cotton cord is used, a new cord is used in each well All equipment blanks are collected prior to sampling. The blanks are analyzed periodically to ensure proper cleaning.

Water Level Measurements

Depth to groundwater is measured in each well using a sealed sampling tape or scaled electric sounder prior to purging or sampling. If the well is known or suspected of containing free-phase petroleum hydrocarbons, an optical interface probe is used to measure the hydrocarbon thickness and groundwater level. Measurements are collected and recorded to the nearest 0.01 foot.

Bailer Sheen Check

If no measurable free-phase petroleum hydrocarbons are detected, a clear acrylic bailer is used to determine the presence of a sheen. Any observed film as well as odor and color of the water is recorded.

Groundwater Sampling

Prior to groundwater sampling, each well is purged of "standing" groundwater. Either a bailer, hand pump, or submersible pump is used to purge the well. The amount of purging is dependent on the well yield. In a high yield formation, samples will be collected when normal field measurement, including temperature, pH, and specific conductance stabilize. provided a minimum of three well-casing volumes of water have been removed. Field measurements will be taken after purging each well volume. In low yield formations, the well is purged such that the "standing" water is removed and the well is allowed to recharge. (Normal field measurements will be periodically recorded during the purging process.) In

situations where recovery to 80% of static water level is estimated, or observed to exceed a two hour duration, a sample will be collected when sufficient volume is available for a sample for each parameter. At no time will the well be purged dry so that the recharge rate causes the formation water to cascade into the well.

In wells where free-phase hydrocarbons are detected, the free-phase portion will be bailed from the well and the volume removed recorded. A groundwater sample will be collected if bailing reduces the amount of free-phase hydrocarbons to the point where they are not present in the well. Well sampling will be conducted using one of the aforementioned methods depending on the formation yield. However, if free-phase hydrocarbons persist throughout bailing, then a groundwater samples will not be collected.

Groundwater sample containers are labeled with a unique sample number, location, product name and number, and date of collection. All samples are logged into a chain-of-custody form and placed in a chilled ice chest for shipment to a laboratory certified by the State of California Department of Health Services.

APPENDIX B

CERTIFIED LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTS

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Richard Garlow
Exceltech
41674 Christy St.
Fremont, CA 94538

Date: 08-30-90
NET Client Acct No: 18.06
NET Pacific Log No: 3486
Received: 08-23-90 0800

Client Reference Information

SHELL, 7194 Amador Valley Blvd., Dublin; Project: 1826G

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)

Client No: 18.06
Client Name: Exceltech
NET Log No: 3486

Date: 08-30-90

Page: 2

Ref: SHELL, 7194 Amador Valley Blvd., Dublin; Project: 1826G

Parameter	Method	Reporting Limit	Descriptor, Lab No. and Results BB-1 08-20-90 1251 61135	 MW-12 08-20-90 1304 61136	Units
PETROLEUM HYDROCARBONS			--	--	
VOLATILE (WATER)			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			08-29-90	08-29-90	
METHOD GC FID/5030			--	--	
as Gasoline		0.05	ND	ND	ppm
METHOD 602			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			08-29-90	08-29-90	
Benzene		0.0005	ND	ND	ppm
Ethylbenzene		0.0005	ND	ND	ppm
Toluene		0.0005	ND	ND	ppm
Xylenes, total		0.0005	ND	ND	ppm

Client No: 18.06
Client Name: Exceltech
NET Log No: 3486

Date: 08-30-90

Ref: SHELL, 7194 Amador Valley Blvd., Dublin; Project: 1826G

Parameter	Method	Reporting Limit	Descriptor, Lab No. and Results MW-11 08-20-90 1337 61137	 MW-8 08-20-90 1405 61138	Units
PETROLEUM HYDROCARBONS			--	--	
VOLATILE (WATER)			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			08-29-90	08-29-90	
METHOD GC FID/5030			--	--	
as Gasoline		0.05	ND	ND	ppm
METHOD 602			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			08-29-90	08-29-90	
Benzene		0.0005	ND	ND	ppm
Ethylbenzene		0.0005	ND	ND	ppm
Toluene		0.0005	ND	ND	ppm
Xylenes, total		0.0005	ND	ND	ppm

Client No: 18.06
Client Name: Exceltech
NET Log No: 3486

Date: 08-30-90

Page: 4

Ref: SHELL, 7194 Amador Valley Blvd., Dublin; Project: 1826G

Parameter	Method	Reporting Limit	Descriptor, Lab No. and Results MW-9 08-20-90 1425 61139	Units
PETROLEUM HYDROCARBONS			--	
VOLATILE (WATER)			--	
DILUTION FACTOR *			1	
DATE ANALYZED			08-29-90	
METHOD GC FID/5030			--	
as Gasoline		0.05	ND	ppm
METHOD 602			--	
DILUTION FACTOR *			1	
DATE ANALYZED			08-29-90	
Benzene		0.0005	ND	ppm
Ethylbenzene		0.0005	ND	ppm
Toluene		0.0005	ND	ppm
Xylenes, total		0.0005	ND	ppm

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in results column indicates analyte not detected at the value following, which supercedes the listed reporting limit.
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 [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 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.

* 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.

3400

CHAIN OF CUSTODY RECORD

WIC # 204-2277 0105

PROJECT NO.	PROJECT NAME	
1826G	Shell	7194 Amador Valley Blvd. Dublin, Ca.

SAMPLERS (Signature)

NO.	DATE	TIME	SAMPLE DESCRIPTION	TPHG/BTXE
BB-1	8-20-90	12:51	2 Pres. VOAs (HCl)	X
MW12	"	1:04	" "	X
MW11	"	1:37	" "	X
MW-8	"	2:05	" "	X
MW9	"	2:25	" "	X

TEST REQUESTED

AFE # 986639

LAB NET Pacific

TURN AROUND TIME Normal

REMARKS

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	8/20/90	3:25 pm	[signature]
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	8/22/90	6:30 p	

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	8/22/90	3:25 p	[signature]
RELINQUISHED BY: (VIA NCS)	DATE:	TIME:	RECEIVED BY:
	8/23/90	0800	[signature]

REMARKS:

REPORT TO: Rich Garlow

EXCELTECH
41674 Christy Street
Fremont, C.A. 94538-3114
(415) 659-0404
Fax (415) 651-4677
Contr. Lic. No. 550205

FORM DATED 3-27-90

* Custody Seal Applied 8/22/90 6:30p custody seal intact as of 8/23

NET NATIONAL ENVIRONMENTAL TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Richard Garlow
Exceltech
41674 Christy St.
Fremont, CA 94538

Date: 09-05-90
NET Client Acct No: 18.06
NET Pacific Log No: 3485
Received: 08-23-90 0800

Client Reference Information

SHELL, 7194 Amador Valley Blvd., Dublin; Project: 1826G

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)

Client No: 18.06
Client Name: Exceltech
NET Log No: 3485

Date: 09-05-90

Ref: SHELL, 7194 Amador Valley Blvd., Dublin; Project: 1826G

Parameter	Method	Reporting Limit	Descriptor, Lab No. and Results MW-7 08-21-90 1000 61127	 MW-5 08-21-90 1028 61128	Units
PETROLEUM HYDROCARBONS			--	--	
VOLATILE (WATER)			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			08-28-90	08-28-90	
METHOD GC FID/5030			--	--	
as Gasoline		0.05	ND	ND	ppm
METHOD 602			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			08-28-90	08-28-90	
Benzene		0.0005	ND	0.0006	ppm
Ethylbenzene		0.0005	ND	ND	ppm
Toluene		0.0005	ND	ND	ppm
Xylenes, total		0.0005	ND	ND	ppm

Client No: 18.06
Client Name: Exceltech
NET Log No: 3485

Date: 09-05-90

Ref: SHELL, 7194 Amador Valley Blvd., Dublin; Project: 1826G

Parameter	Method	Reporting Limit	Descriptor, Lab No. and Results MW-3 08-21-90 1059 61129	 MW-2 08-21-90 1130 61130	Units
PETROLEUM HYDROCARBONS			--	--	
VOLATILE (WATER)			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			08-28-90	08-29-90	
METHOD GC FID/5030			--	--	
as Gasoline		0.05	0.12	0.09	ppm
METHOD 602			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			08-28-90	08-29-90	
Benzene		0.0005	0.036	0.015	ppm
Ethylbenzene		0.0005	0.0028	0.001	ppm
Toluene		0.0005	ND	ND	ppm
Xylenes, total		0.0005	0.0007	ND	ppm

Client No: 18.06
Client Name: Exceltech
NET Log No: 3485

Date: 09-05-90

Page: 4

Ref: SHELL, 7194 Amador Valley Blvd., Dublin; Project: 1826G

Parameter	Method	Reporting Limit	Descriptor, Lab No. and Results MW-4 08-21-90 1200 61131	MW-6 08-21-90 1305 61132	Units
PETROLEUM HYDROCARBONS			--	--	
VOLATILE (WATER)			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			08-28-90	08-28-90	
METHOD GC FID/5030			--	--	
as Gasoline		0.05	0.09	0.64	ppm
METHOD 602			--	--	
DILUTION FACTOR *			1	1	
DATE ANALYZED			08-28-90	08-29-90	
Benzene		0.0005	0.036	0.079	ppm
Ethylbenzene		0.0005	0.0016	0.038	ppm
Toluene		0.0005	0.0005	0.008	ppm
Xylenes, total		0.0005	0.0007	0.012	ppm

Client No: 18.06
Client Name: Exceltech
NET Log No: 3485

Date: 09-05-90

Ref: SHELL, 7194 Amador Valley Blvd., Dublin; Project: 1826G

Parameter	Method	Reporting Limit	Descriptor, Lab No. and Results MW-1 08-21-90 1339 61133	 RW-1 08-21-90 1437 61134	Units
PETROLEUM HYDROCARBONS			--	--	
VOLATILE (WATER)			--	--	
DILUTION FACTOR *			10	1	
DATE ANALYZED			08-28-90	08-30-90	
METHOD GC FID/5030			--	--	
as Gasoline		0.05	5.1	0.26	ppm
METHOD 602			--	--	
DILUTION FACTOR *			10	1	
DATE ANALYZED			08-28-90	08-30-90	
Benzene		0.0005	0.58	0.029	ppm
Ethylbenzene		0.0005	0.25	0.012	ppm
Toluene		0.0005	0.14	0.0012	ppm
Xylenes, total		0.0005	0.46	0.0036	ppm

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in results column indicates analyte not detected at the value following, which supercedes the listed reporting limit.
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 [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 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.

* 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.

(3485)

CHAIN OF CUSTODY RECORD

WIC # 204-2277-0105

PROJECT NO.	PROJECT NAME	TEST REQUESTED	[redacted] AFE. # 986639
1826G	Shell — 7194 Amador Valley Blvd. Dublin, Ca.		LAB: NET Pacific
SAMPLERS (Signature)	[signatures]		TURN AROUND TIME: Normal

NO.	DATE	TIME	SAMPLE DESCRIPTION	TPHG/BTXE							REMARKS
MW-7	8/21/90	10:00	2 pres. VOAs (HCl)	✓							
MW-5	"	10:28	" "	✓							
MW-3	"	10:59	" "	✓							
MW-2	"	11:30	" "	✓							
MW-4	"	12:00	" "	✓							
MW 6	"	1:05	" "	✓							
MW-1	"	1:39	" "	✓							
RW-1	"	2:37	" "	✓							

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
[signature]	8/21/90	3:35pm	[signature]	[signature]	8/22/90	[illegible]	[signature]
RELINQUISHED BY: [signature]	8/22/90	6:30 p	RECEIVED BY:	RELINQUISHED BY: (via NCS)	8/23/90	0800	RECEIVED BY: [signature]

REMARKS:

REPORT TO: Rich Garlow

EXCELTECH
41674 Christy Street
Fremont, C.A. 94538-3114
(415) 659-0404
Fax (415) 651-4677
Contr. Lic. No. 550205

FORM DATED 3-27-90

* Custody seal applied 8/22/90 6:30pm custody seal intact 8/23