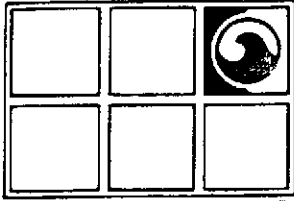


* 5607

File



**GROUNDWATER
TECHNOLOGY, INC.**
OIL RECOVERY SYSTEMS

4080 Pike Lane, Suite D, Concord, CA 94520-1227 (415) 671-2387



Mr. Mark Nelson
Chevron USA
2 Annabel Lane
San Ramon, CA 94583

Dear Mr. Nelson,

This letter report presents an update of Groundwater Technology, Inc.'s activities, observations, and status of the product recovery operations at the Chevron service station located at the corner of Crow Canyon Road and Waterford Place in Castro Valley, California. This quarterly report provides an update from June 1986 through the month of September 1986.

Alameda

Groundwater monitoring of the nine monitoring wells and one recovery well located at the site has been performed bi-weekly (once every two weeks). Monthly water samples have been collected from both the influent and effluent pipes of the carbon absorption system for laboratory analysis of benzene, toluene, xylene and total hydrocarbon concentrations.

not from the wells!

A groundwater gradient map (Figure 1) has been prepared using the September 25, 1986 data. The map indicates that the groundwater gradient is to the southwest with a northeast-southwest elongation due to the recovery well pumping activity. The piezometric surface elevations monitored during this quarter show an overall decrease which is expected due to the seasonal variations in groundwater recharge. (See Table 1).

The recovery well water table depression pump has been set and bi-weekly adjustments have been made to maintain a pumping rate of between one and three gallons per minute. The theoretical capture zones for these pumping rates are depicted on Figure 2.

The bi-monthly monitoring has found small and intermittent accumulations of product across the site. Groundwater Technology, Inc. personnel have hand bailed approximately 3 gallons of free floating product from the recovery well and monitoring wells during this quarter. The total volume of free product removed since October 1985 is now approximately 23 gallons.

Mr. Mark Nelson
November 24, 1986
Page 2

At the initiation of the project an agreement with the California Regional Water Quality Control Board (CRWQCB) was reached to temporarily discharge treated water below 100 parts per billion (ppb) total hydrocarbons to the storm sewer system. To achieve the less than 100 ppb total hydrocarbon in the effluent discharge a liquid phase carbon absorption system was installed. Monthly effluent samples are being taken for hydrocarbon analysis to verify concentrations and monitor the effectiveness of the carbon absorption system. The temporary discharge permit was to last until the CRWQCB began reviewing National Pollution Discharge Elimination System (NPDES) applications and issuing permits. Now that the CRWQCB is reviewing NPDES permit applications, it is Groundwater Technology Inc.'s recommendation that an NPDES application be filed. *ever filed??*

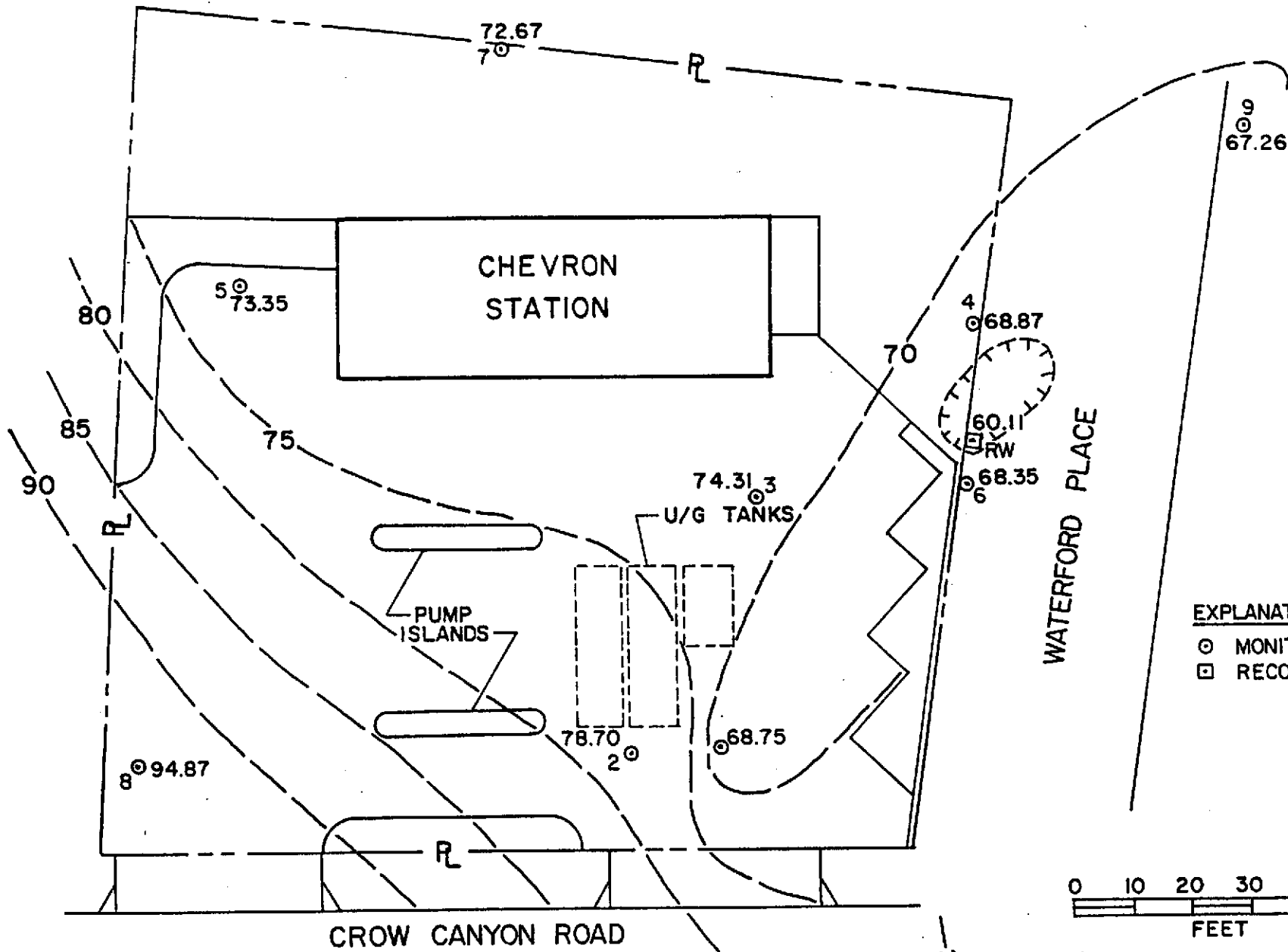
The total hydrocarbon concentration for the August 27 sample was higher than CRWQCB requirements for discharge, indicating either a laboratory error or a problem with the Carbon Absorption System. A manual stirring of the carbon in the tank was performed prior to sampling to increase the long term efficiency of the carbon absorption system. This stirring is believed to have caused the elevated total hydrocarbon concentration as the July and September readings are well within acceptable levels. (See Table II and Laboratory Results).

It is Groundwater Technology, Inc.'s opinion that the present system of bi-weekly monitoring, monthly water samples and quarterly letter/reports is currently the best method to keep Chevron updated on the status of this project.

If you have any questions or comments, please feel free to contact us at our Concord office.

Sincerely,
GROUNDWATER TECHNOLOGY, INC.
Joyce M. Miley
Joyce M. Miley
Staff Geologist
Bill Channell
Bill Channell
Project Geologist
Gary B. Taggart
Gary B. Taggart
District Manager
Certified Engineering
Geologist No. 1061

Enclosure: Laboratory Results
BC/tb



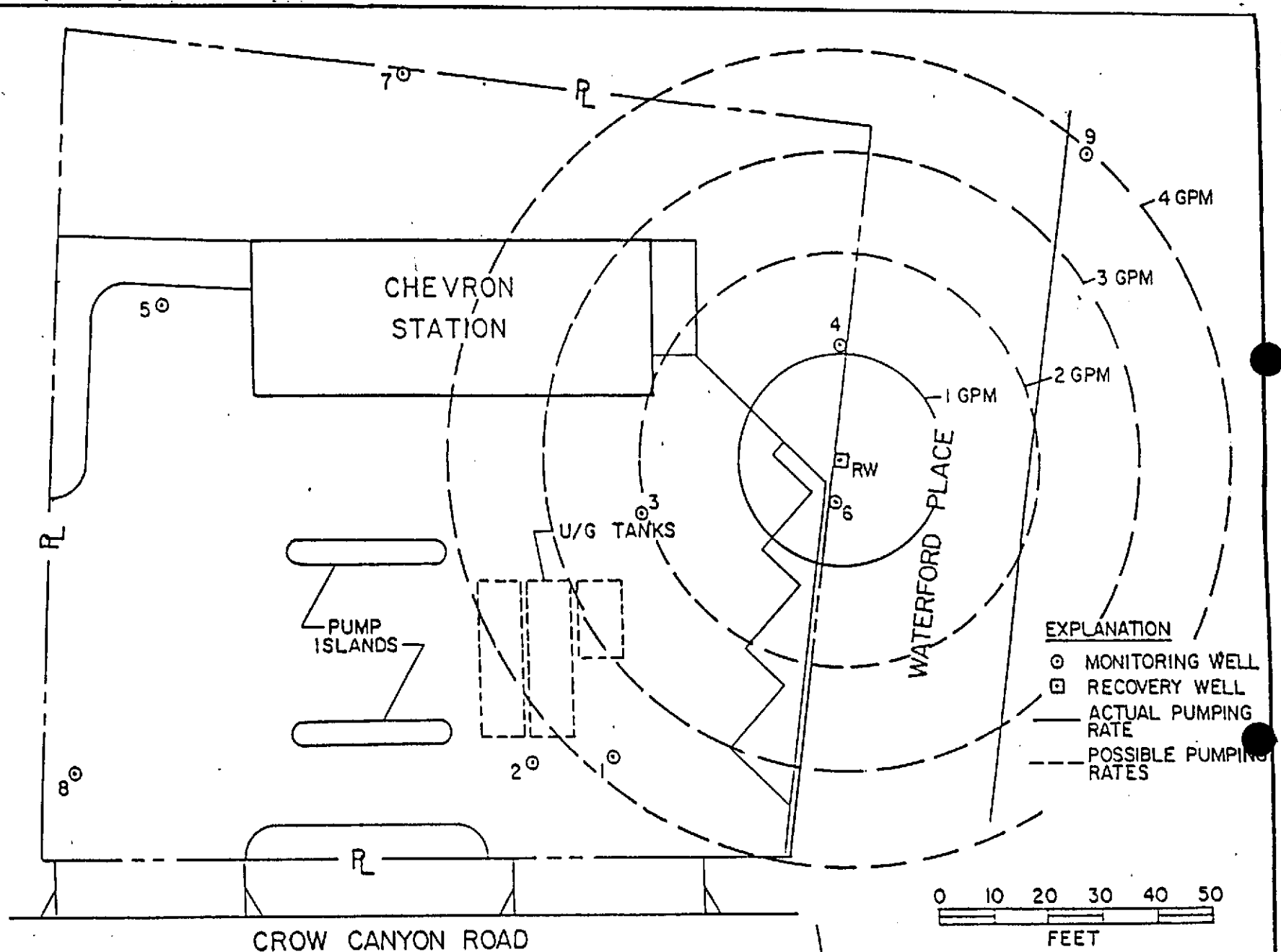
EXPLANATION
 ○ MONITORING WELL
 □ RECOVERY WELL




GROUNDWATER TECHNOLOGY, INC.
 CONSULTING GROUNDWATER GEOLOGISTS

CHEVRON SERVICE STATION
CASTRO VALLEY, CALIFORNIA

FIGURE 1
GROUNDWATER GRADIENT MAP
25 SEPTEMBER 1986



CHEVRON SERVICE STATION
CASTRO VALLEY, CALIFORNIA

FIGURE 2
THEORETICAL CAPTURE ZONE
FOR ACTUAL AND POSSIBLE PUMPING
RATES


GROUNDWATER
TECHNOLOGY, INC.
CONSULTING GROUNDWATER GEOLOGISTS

SAMPLE ANALYSES SUMMARY SHEET

PROJECT: Chevron 20-3231 LOCATION: Castro Valley YEAR: 1986/1987



		July 3	August 27	Sept 25	Oct. 12													
Carbon Tank-Influent	Benzene	9620	6400	8500														
	Toluene	2870	4100	4410														
	Ethyl Benzene	380	810	860														
	Total Xylenes	9380	3500	4600														
	Aliphatic Hydro.	11200	1200	7700														
	Misc. Aromatics	7000	4400	3500														
	Total Hydro.	40400	21000	29000														
Carbon Tank-Effluent	Benzene	ND	ND	ND														
	Toluene	ND	ND	ND														
	Ethyl Benzene	ND	ND	ND														
	Total Xylenes	ND	ND	ND														
	Aliphatic Hydro.	11	ND	1.8														
	Misc. Aromatics	ND	1000	ND														
	Total Hydro.	11	1000	1.8														
Well #9	Benzene																	
	Toluene																	
	Ethyl Benzene																	
	Total Xylenes	-	-	-														
	Aliphatic Hydro.																	
	Misc. Aromatics																	
	Total Hydro.																	
	Benzene																	
	Toluene																	
	Ethyl Benzene																	
	Total Xylenes																	
	Aliphatic Hydro.																	
	Misc. Aromatics																	
	Total Hydro.																	

GTL: Groundwater Technology Ltd Analysis in ppb
 - : NOT SAMPLED

PROJECT: CHEVRON CASTRO VALLEY
 JOB NUMBER:
 DATE: OCTOBER 1986

		WELL 1	WELL 2	WELL 3	WELL 4	WELL 5	WELL 6	WELL 7	WELL 8	WELL 9	RW 1
DATE	ELEV. (ft.)	96.55	98.43	98.98	86.65	101.60	89.06	84.74	101.60	82.14	
7-3-86	DTW	23.58	19.69	26.04	15.37	26.59	17.46	10.74	8.18	13.89	17.07
	DTP	-	-	-	-	-	-	-	-	-	-
	PT	0	0	0	0	0	0	0	0	0	0
7-16-86	DTW	24.38	20.10	27.19	17.27	27.12	20.20	11.38	7.42	14.45	27.98
	DTP	24.37	-	27.16	-	-	-	-	-	-	-
	PT	0.03	0	0.64	0	0	0	0	0	0	0.02
7-30-86	DTW	24.88	20.65	27.71	17.32	27.52	20.36	11.57	8.65	14.59	27.86
	DTP	24.85	-	27.64	-	-	-	-	-	-	27.82
	PT	0.03	0	0.67	0	0	0	0	0	0	0.04
8-13-86	DTW	25.94	20.56	27.72	17.58	27.74	20.54	11.84	9.12	14.76	27.93
	DTP	25.91	-	27.64	-	-	-	-	-	-	27.85
	PT	0.03	0	0.08	0	0	0	0	0	0	0.08
8-27-86	DTW	28.06	20.84	25.21	17.81	28.08	20.77	12.15	9.33	14.99	28.55
	DTP	27.94	-	25.16	-	-	-	-	-	-	28.44
	PT	0.12	0	0.05	0	0	0	0	0	0	0.11

DTW = Depth To Water
 DTP = Depth To Product
 PT = Product Thickness

PROJECT: CHEVRON CASTRO VALLEY
 JOB NUMBER:
 DATE: OCTOBER 1986

		WELL 1	WELL 2	WELL 3	WELL 4	WELL 5	WELL 6	WELL 7	WELL 8	WELL 9	RW 1
DATE	ELEV. (ft.)	96.55	98.43	98.98	86.65	101.60	89.06	84.74	101.60	82.14	
9-8-86	DTW	28.01	20.99	25.27	17.67	28.13	20.74	12.15	8.74	14.91	28.57
	DTP	27.95	-	25.25	-	-	-	-	-	-	28.44
	PT	0.06	-	0.02	0	0	0	0	0	0	0.13
9-25-86	DTW	27.84	19.73	24.69	17.78	28.07	20.72	12.07	6.73	14.88	28.66
	DTP	27.79	-	24.67	-	-	20.71	-	-	-	28.38
	PT	0.05	0	0.02	0	0	0.01	0	0	0	0.28
10-8-86	DTW	27.40	24.04	18.34	20.57	27.73	17.83	11.98	7.92	15.15	28.51
	DTP	27.38	T	-	T	-	-	-	-	-	28.34
	PT	0.02		0		0	0	0	0	0	0.17
10-22-86	DTW	28.23	24.97	19.70	18.38	28.62	21.03	12.74	9.81	15.76	28.41
	DTP	28.12	24.95	-	-	-	T	-	-	-	28.12
	PT	0.11	0.02	0	0	0		0	0	0	0.29
11-4-86	DTW	19.03	24.80	28.38	18.62	29.17	21.11	13.25	10.34	16.02	28.69
	DTP	-	24.79	28.28	-	-	21.10	-	-	-	28.10
	PT	0	0.01	0.10	0	0	0.01	13.25	10.34	16.02	0.59
	DTW										
	DTP										
	PT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

DTW = Depth To Water
 DTP = Depth To Product
 PT = Product Thickness



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