September 13, 1989

Mr. Rick Mueller
City of Pleasanton
Fire Department
P.O. Box 520
Pleasanton, CA 94566

Re: Former Chevron Facility #9-0917
5280 Hopyard Road
Pleasanton, CA

Dear Mr. Mueller:

In January of this year during a routine facility inspection, our Maintenance Mechanic discovered a sheen of hydrocarbon in the existing tank backfill wells. An inspection of the underground tank and piping systems showed no indication of a leak

To further investigate, Ground Water Technology (GTI) was retained to conduct a site assessment. Enclosed is a copy of their report dated August 1989. As indicated in the report, minor hydrocarbon contamination was discovered beneath the site.

As recommended by GTI, Chevron will begin quarterly groundwater monitoring of this site. If you have any questions or comments, please contact John Randall at (415) 842-9625.

I declare under penalty of perjury that the information contained in the attached report is true and correct, and that any recommended actions are appropriate under the circumstances, to the best of my knowledge.

Sincerely,

C.G. TRIMBACH

By _____
John Randall, Engineer

JMR/mlc:V4-041
Enclosure

cc: Regional Water Quality Control Board
1111 Jackson Street, Room 6040
Oakland, California 94607

Alameda County Environmental Health
Attn: Rafat Shahid
80 Swan Way, Room 200
Oakland, CA 94621

SITE ASSESSMENT REPORT
CHEVRON SERVICE STATION NO. 9-0917
5280 HOPYARD ROAD
PLEASANTON, CALIFORNIA

AUGUST 1989

GROUNDWATER TECHNOLOGY, INC.
CONCORD, CALIFORNIA

GROUNDWATER TECHNOLOGY, INC.

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

SITE ASSESSMENT REPORT
CHEVRON SERVICE STATION NO. 9-0917
5280 HOPYARD ROAD
PLEASANTON, CALIFORNIA
AUGUST 1989

Prepared for:

Mr. John Randall
Chevron U.S.A. Inc.
2410 Camino Ramon
Bishop Ranch #6
San Ramon, CA 94583

Prepared by:

GROUNDWATER TECHNOLOGY, INC.
4080 Pike Lane, Suite D
Concord, CA 94520

Glen L. Mitchell
Project Geologist

Lynn E. Pera
Registered Civil Engineer
No. 33431

R203 175 3284A

REGISTERED PROFESSIONAL ENGINEER
LYNN E. PERA
No. 33431
CIVIL
STATE OF CALIFORNIA

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CHEVRON SERVICE STATION NO. 9-0917
5280 HOPYARD ROAD
PLEASANTON, CALIFORNIA
AUGUST 1989

INTRODUCTION

This report presents the results and findings of Groundwater Technology, Inc.'s (GTI) site assessment activities performed at the Chevron Service Station No. 9-0917 located at 5280 Hopyard Road in Pleasanton, California. This assessment was performed in accordance with a work request issued by Mr. John Randall of Chevron U.S.A. Inc. (Chevron) on May 8, 1989 under release number 180-4130. This assessment project was specifically intended to investigate the possible presence of floating separate-phase hydrocarbons adjacent to the underground fuel-storage tank pit. This assessment included the installation of three, on-site, groundwater monitoring wells around the fuel tank pit, the collection and analyses of soil and groundwater samples, and the issuance of this report.

BACKGROUND

SITE HISTORY

The underground fuel-storage tanks at Chevron Service Station No. 9-0917 were replaced in 1981. The previous underground fuel-storage tanks were replaced with single walled, fiber glass tanks. At the same time, two monitoring wells were installed in the tank backfill. Recent routine monitoring of

these wells indicated the presence of separate-phase hydrocarbon layers. As such, GTI was retained by Chevron to assess whether such a layer extended from the tank pit backfill into the adjacent subsurface materials.

SITE SETTING

Chevron Service Station No. 9-0917 is located on the south corner of the intersection of Hopyard Road and Johnson Industrial Drive in Pleasanton, California (Figure 1). The land around the site is completely developed; primarily with hotels, restaurants and other service stations. The only significant surface water body within one-half mile of the site is the Chabot Canal. Flood-control waterway which is located approximately 1,000-feet east of the site.

The site is located approximately one-and-one-half miles east of Dublin Canyon, in the Amador Valley. The surface elevation at the site is approximately 325-feet above mean sea level. The area is nearly flat with no natural significant topographic highs or lows within an area of one mile.

SITE HYDROGEOLOGY

Sediments underlying the site primarily consist of dark-gray to brown silts and clays with scattered occurrences of fine sand. Groundwater is present beneath the site at approximately 11-feet below grade and appears to be unconfined. The primary water-bearing zone is apparently a dark-gray, clayey silt encountered between 4- and 8-feet below grade in all boreholes.

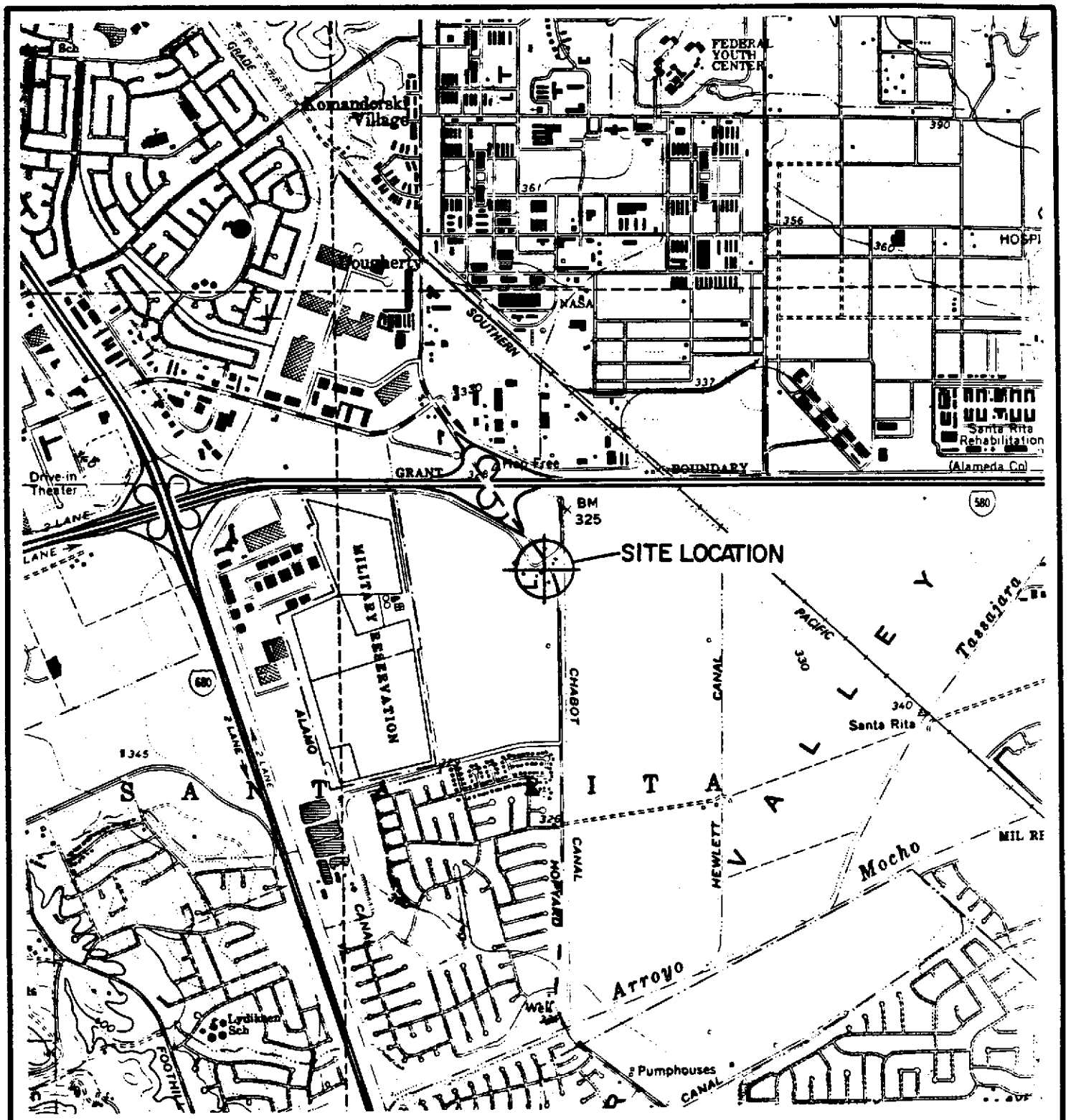

Figure 1. Site Location Map

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PLEASANTON, CALIFORNIA

ML 8/89

SCOPE OF WORK

Subsurface soil and water conditions at the Chevron site were investigated to assess the presence and extent of subsurface hydrocarbon contamination. The following is a summary of the work performed for this investigation:

- Obtained a well permit from the Alameda County Flood Control and Water Conservation District to install three groundwater monitoring wells at this site. A copy of this permit is included in Appendix A.

- Examined subsurface soil and groundwater conditions by drilling and logging three, on-site soil borings. Boring locations were selected to assess possible hydrocarbons emanating from the tank pit.

- Installed three, 4-inch-diameter, polyvinyl chloride (PVC), groundwater monitoring wells in the soil borings. After installation, the wells were surveyed by a professional surveyor to establish location and wellhead elevation.

- Prepared this summary report which includes the results and findings of the investigation.

MONITORING WELL INSTALLATION

Well Borings. Three borings for installation of monitoring wells were drilled on site on July 13, 1989. The location of the borings (MW-1, MW-2, and MW-3) are shown on the Site Plan (Figure 2). The boring locations were selected to assess the possible

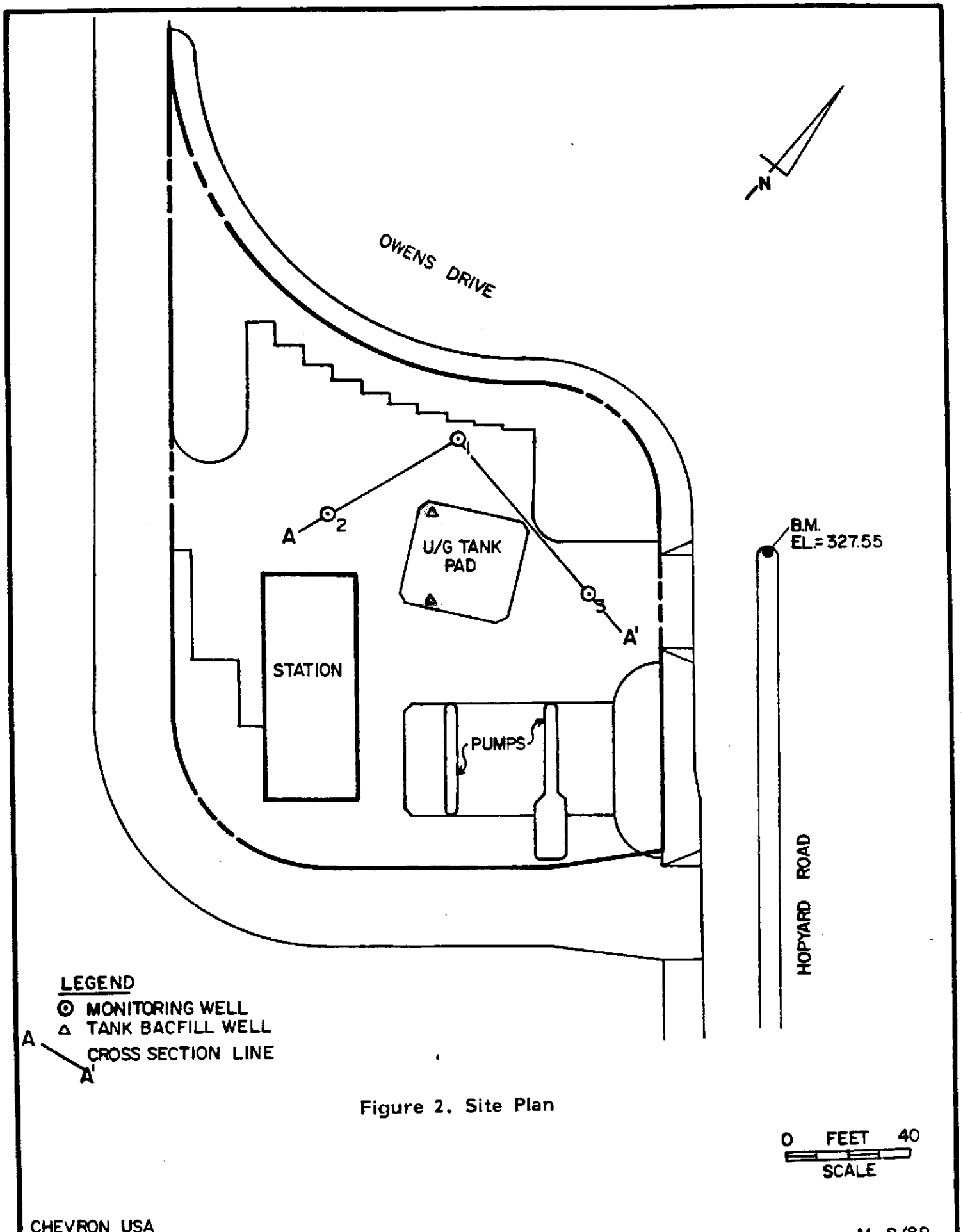


Figure 2. Site Plan

spread of floating separate-phase hydrocarbons emanating from the tank pit. Each boring was drilled by a truck-mounted rotary drill rig using 10.5-inch, outside-diameter (O.D.), hollow-stem augers. Drilling was supervised by a GTI field geologist who maintained continuous logs of the materials encountered in accordance with the Uniform Soil Classification System, and selected samples for possible laboratory analyses. Copies of the boring logs are included in Appendix B.

The borings were continuously cored to allow more accurate logging of the subsurface soils. Soil samples from the total core were taken for possible analyses at approximately 5-foot intervals below surface grade. These samples were collected in 2-inch-diameter by 6-inch-long brass tubes. The tubes were sealed with aluminum foil, capped, and sealed with plastic tape. Copies of all applicable GTI Standard Operating Procedures (SOPs) are included in Appendix C.

Soil samples were screened in the field for volatile hydrocarbon vapors using a photo-ionization detector (PID). PID readings are listed on the boring logs in Appendix B. Samples from the boreholes were selected for laboratory analyses based on PID readings, field observations, and the criteria listed in "Scope of Work for Environmental Site Assessment, Sampling and Remediation" document issued by Chevron on June 13, 1989. Retained samples were labeled, stored on ice in an insulated cooler, and transported under Chain-of-Custody Manifest to the GTEL Environmental Laboratories, Inc. (GTEL), a California state-certified laboratory in Concord, California. Samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), and

total petroleum hydrocarbons (TPH)-as-gasoline using modified U.S. Environmental Protection Agency (EPA) modified Methods 5030/8020/8015. Samples were also analyzed for organic lead per the California Department of Health Services (DHS) Method. Copies of the laboratory reports and Chain-of-Custody Manifest documents are included in Appendix D.

Monitoring Well Construction. Monitoring wells were installed in all three of the boreholes. The wells were constructed of 4-inch-diameter, 0.020-inch, machine-slotted, Schedule 40 PVC well screen and blank casing. A well filter pack consisting of Lapis Luster No. 2 sand was placed in the annular space of each well from the bottom of the well bore up to 2-feet above the top of the well screen. A one-foot-thick layer of hydrated bentonite pellets was placed above each sand filter pack and a cement surface seal was set to grade level above the bentonite. The wellheads were sealed with locking plugs and protected by traffic-rated utility boxes. All three wells were completed to a depth of 21-feet. Well construction details are presented with the drill logs in Appendix B.

Well Development. Standard GTI well development procedures require new wells be developed using a combination of bailing, surging, and pumping, as needed. GTI employed a truck-mounted surge block and bailer system to develop the three new wells. The wells yielded approximately 20-gallons of water before going dry. The wells also showed very turbid water during development.

GROUNDWATER MONITORING AND SAMPLING

The three wells were professionally surveyed to a common datum to determine locations and wellhead elevations. The wells were monitored on July 17, 1989, prior to development and sampling, using an ORS Environmental Equipment Interface Probe^{R} to establish depth to groundwater and check for separate-phase hydrocarbons. No separate-phase hydrocarbons were detected. The wells were also monitored on August 2, 1989, and these data were used to determine groundwater elevations. A summary of the survey and monitoring data is presented in Table 1, and Appendix E presents the monitoring data on the appropriate record sheet.

TABLE 1

WELL SURVEY AND MONITORING DATA FOR AUGUST 2, 1989

WELL NO.	WELLHEAD ELEVATIONS (mean sea level datum)	DEPTH-TO-WATER	HYDROSTATIC ELEVATIONS
MW-1	326.48	8.10	318.38
MW-2	327.53	9.05	318.48
MW-3	326.47	8.15	318.32

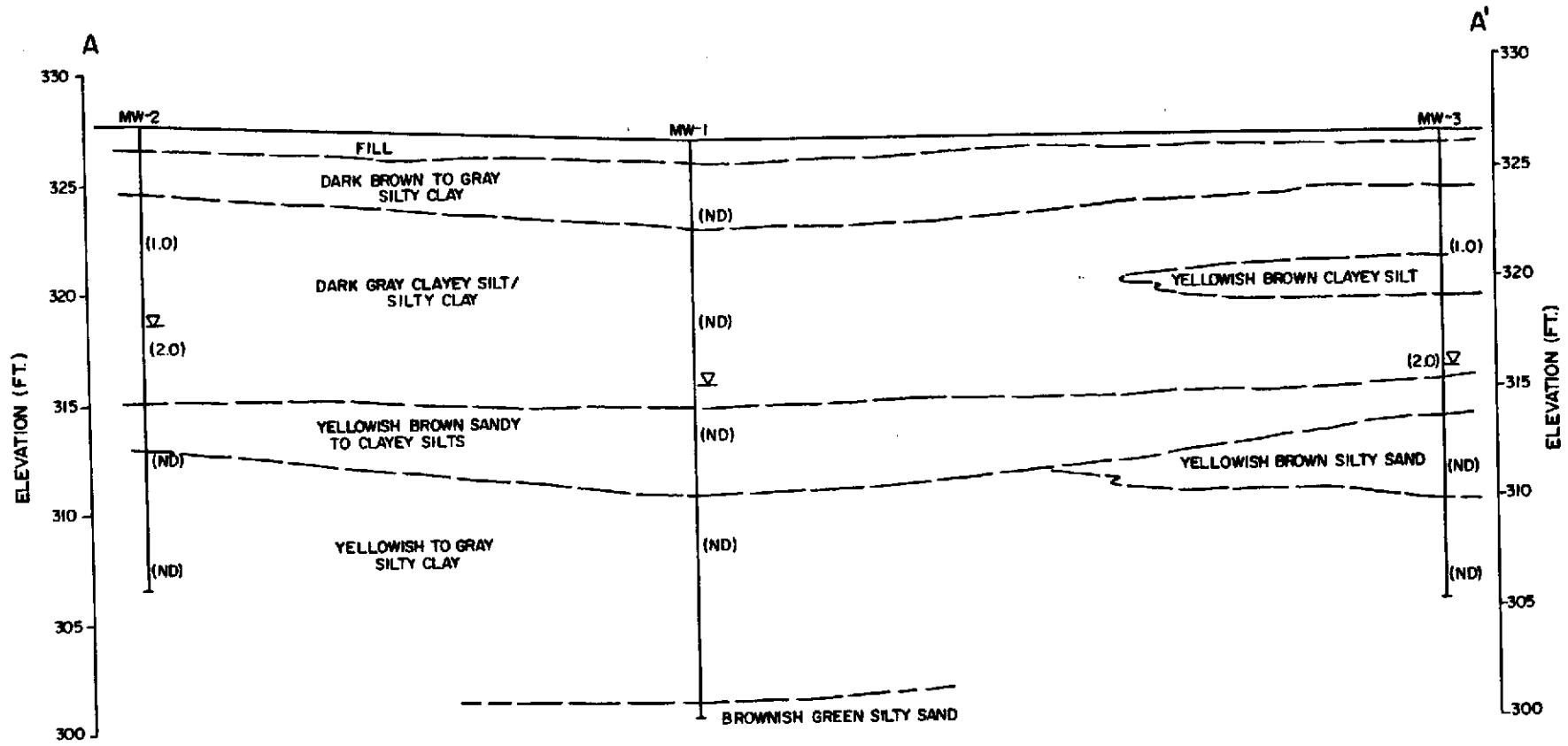
Groundwater samples were collected on July 17, 1989 after well development. The wells were purged dry, then given time to recover to at least 80 percent of the original water volume. This procedure allows for the collection of representative groundwater samples. All three wells bailed dry after yielding approximately 20-gallons of water. The purged water was collected in two, 55-gallon steel drums and stored on site pending proper disposal.

After the wells had adequately recharged, groundwater samples were collected with an EPA-approved Teflon^{R} sampler. Groundwater samples for BTEX, TPH-as-gasoline and ethyldibromide (EDB) were placed in 40-milliliter (ml) glass vials, acidified to ensure a pH below 2.0, then sealed with Teflon^{R} septa caps. The samples for organic lead were placed in 500 ml plastic bottles and not acidified. All samples were labeled, placed on ice in an insulated cooler and transported under Chain-of-Custody Manifest to the GTEL facility in Concord, California. The water samples were analyzed for BTEX and TPH-as-gasoline using modified EPA Methods 5030/8020/8015, EDB using Method 504.1, and organic lead using California DHS procedures.

SUBSURFACE CONDITIONS

SOILS

The subsurface materials encountered during this investigation consisted primarily of silts and clays. A dark gray, silty clay/clayey silt encountered below 4- and 6-1/2-feet below grade appears to be the primary water-bearing zone. In the first boring, MW-1, a sequence of stiff-to-hard, yellowish, silty clay were encountered at approximately 21-feet below grade. A saturated silty sand was encountered below the clays at a depth of approximately 25-1/2-feet. Since the clays are not saturated, it appears these clays serve as an aquitard separating two water-bearing zones. To prevent the possibility of any migration of contaminants from the upper zone to the lower, MW-1 was back-filled with bentonite to a depth of 21 feet, and MW-2 and MW-3 were both terminated at 21-feet below grade. Figure 3 presents a generalized southwest-to-northeast cross section for this site.



LEGEND

( ) P.I.D. READING (ppm)

Figure 3. Geologic Cross Section

SCALE: FEET

0 5 10

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PLEASANTON, CALIF.

GROUNDWATER TECHNOLOGY, INC.

Soil samples from the upper 10 feet of MW-2 and MW-3 indicated detectable levels of volatile hydrocarbon vapors upon field headspace analysis with a PID. None of the samples from MW-1 showed detectable concentrations of hydrocarbon vapors. In both MW-2 and MW-3, the sample from 5-feet below grade showed 1 part per million (ppm) hydrocarbon vapors while the sample from 10 feet showed 2 ppm. Additionally, the 15-foot deep sample from MW-3 showed a hydrocarbon-vapor concentration below 1 ppm but above the instrument detection limit. PID readings are listed on the cross section (Figure 3), and in the boring logs (Appendix B).

Based on field observations, soil samples from each borehole, and the guidelines presented in Chevron's publication titled "Scope of Work for Environmental Site Assessments, Sampling and Remediation" dated June 13, 1989, two samples from each boring were selected for laboratory analyses.

None of the six analyzed samples showed any detectable concentrations of BTEX components or organic lead. The only TPH-as-gasoline detected was 1 ppm in the 10-foot deep sample from MW-1. Copies of the laboratory analyses are presented in Appendix D.

GROUNDWATER

During this investigation, groundwater was encountered in all three boreholes. Free water was encountered at 11-feet below grade in MW-1 and 9-feet below grade in MW-2 and MW-3. The monitoring data collected on August 2, 1989 were combined with the surveyed wellhead elevation data to produce the groundwater-gradient map presented on Figure 4. The map shows the generally

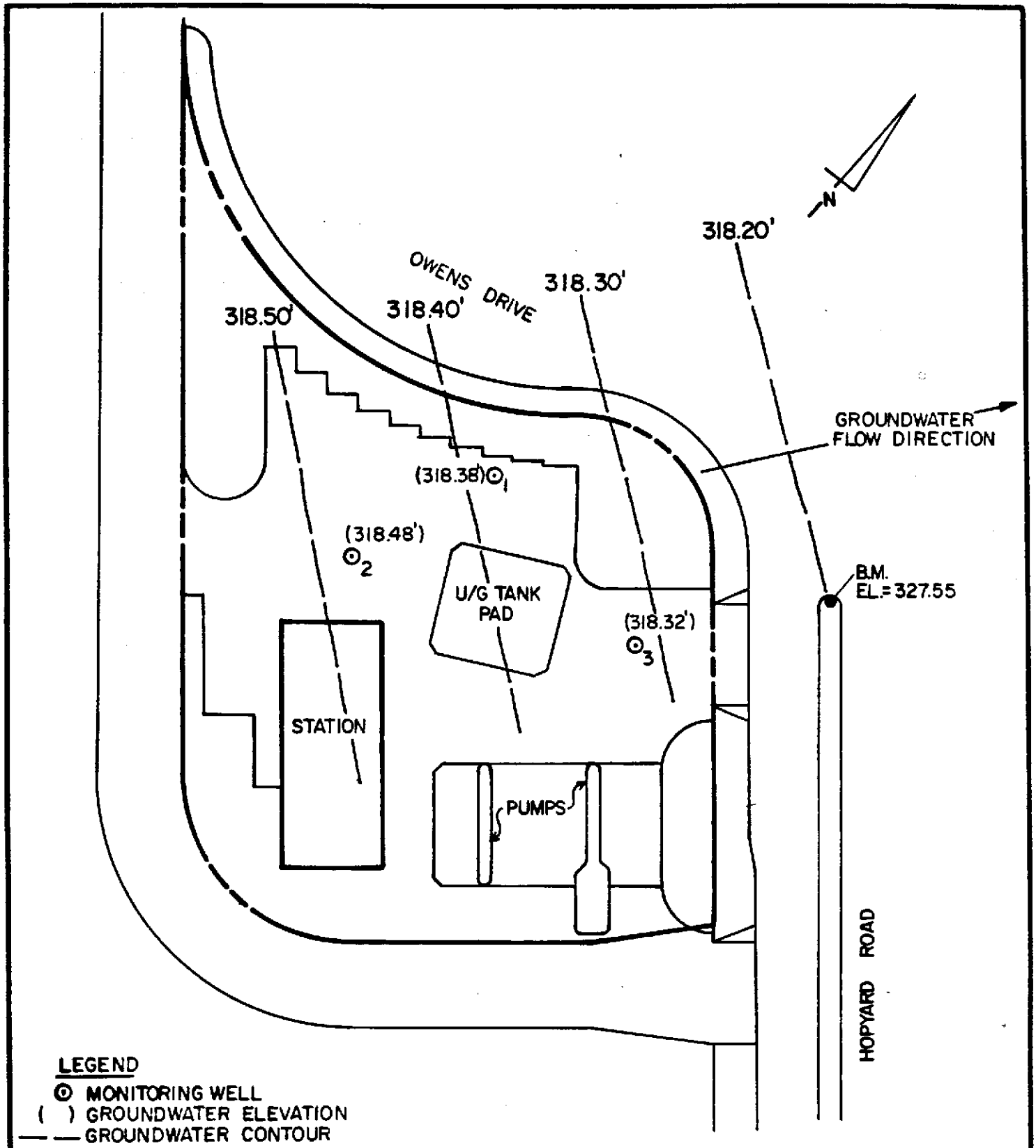


Figure 4. Groundwater Gradient Map
(8/2/89)

0 FEET 40
SCALE

CHEVRON USA
PLEASONTON, CALIFORNIA

M. 8/89

northeast sloping groundwater gradient of approximately .002-feet per foot. This is a very shallow gradient indicating that the groundwater potentiometric surface is nearly horizontal.

Since all the wells bailed dry during purging, it can be inferred that the water-bearing zone likely has a relatively low transmissivity. This suggests that there may be little possibility for hydrologic communication with the deeper subsurface.

The results of the laboratory analyses performed on the groundwater samples obtained from the site on July 17, 1989 indicate a measurable concentration of BTEX and TPH-as-gasoline in only the water sample taken from MW-1. No EDB was found in any of the water samples, but all three showed the same level, 0.02 ppm of organic lead. The BTEX and TPH-as-gasoline analyses are presented in Table 2. Figure 5 shows the TPH-as-gasoline concentrations in each well.

TABLE 2

GROUNDWATER ANALYSES RESULTS
Parts Per Billion (ppb)

WELL	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TPH-AS-GASOLINE
MW-1	ND	ND	6	ND	100
MW-2	ND	ND	ND	ND	ND
MW-3	ND	ND	ND	ND	ND

ND = Not detectable at laboratory Method Detection Limit

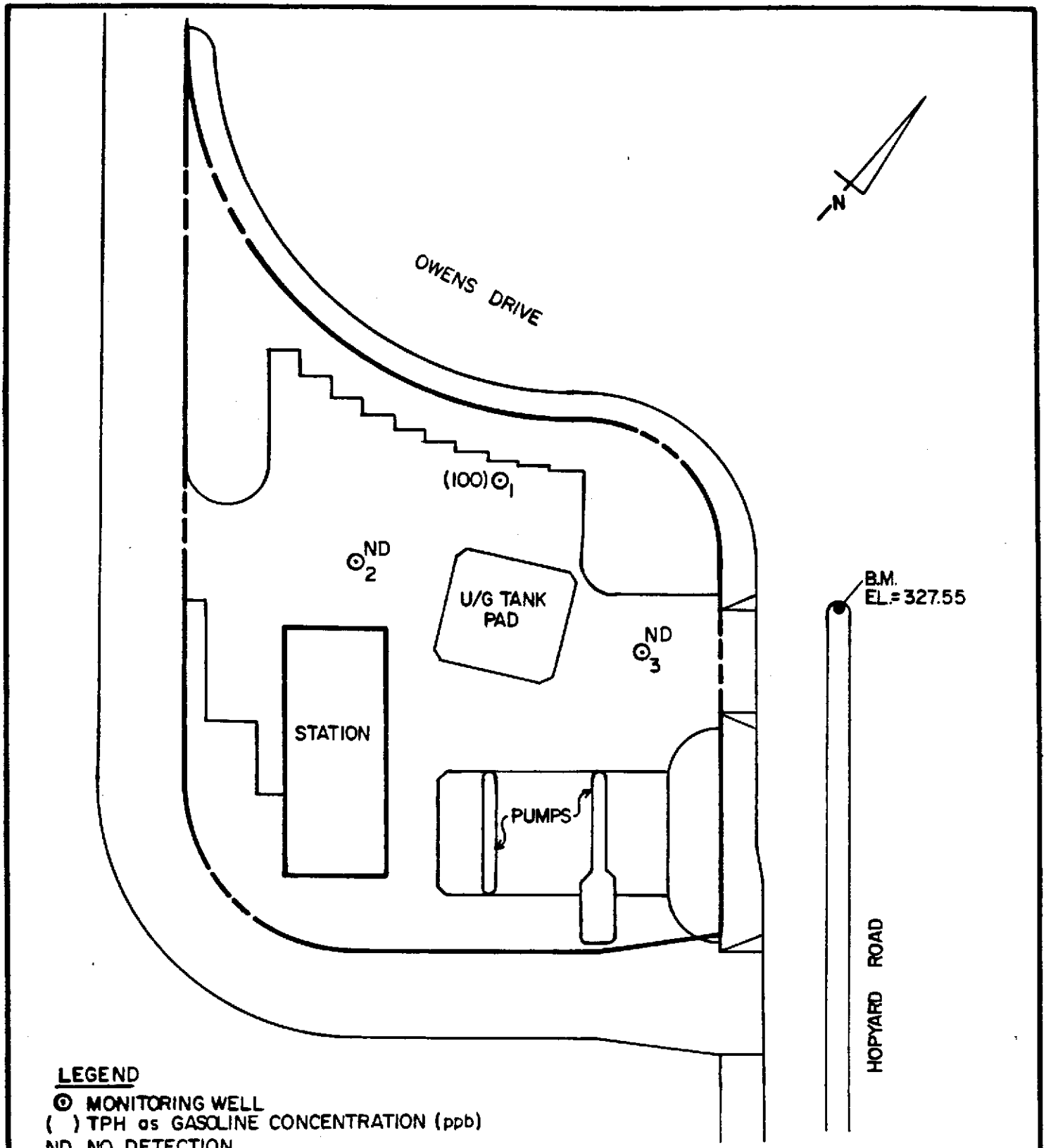


Figure 5. Dissolved TPH-as-Gasoline Concentrations (7/17/89)

0 FEET 40
SCALE

CHEVRON USA
PLEASONTON, CALIFORNIA

M. 8/89

SUMMARY AND CONCLUSIONS

Data collected from Chevron Service Station No. 9-0917 indicate that the underlying alluvial sediments consist primarily of silty clays and clayey silts with minor occurrences of sandy materials. A sequence of clayey layers at approximately 21-feet below grade separates an upper water-bearing zone of dark gray, clayey silt from a possible deeper zone of brownish, silty sand.

Soil and groundwater beneath this site show evidence of minor hydrocarbon contamination. The one soil sample that displayed a measurable hydrocarbon concentration came from below the water table, therefore, it is likely that the 1 ppm observed in this sample was derived from dissolved hydrocarbons rather than adsorbed hydrocarbons. The very low level of BTEX compounds with respect to TPH-as-gasoline observed in the water sample from MW-1 indicate that the fuel hydrocarbons have degraded significantly since introduction to the subsurface.

There is no indication of a floating, separate-phase hydrocarbon layer extending from the tank pit as far as the monitoring wells in any direction.

CLOSURE

Groundwater Technology, Inc. is pleased to provide Chevron U.S.A. Inc. with this report. If you have any questions on the content, require more information or wish to discuss possible additional work steps, please contact our Concord office at (415) 671-2387.

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94566 ♦ (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

(1) LOCATION OF PROJECT 5280 Hopyard Rd
Pleasanton, CA
Chevron Station No. 9-0917

(2) CLIENT
Name Chevron U.S.A. Inc.
Address 2410 Camino Ramon Phone (415) 842-9625
City San Ramon Zip 94583

(3) APPLICANT
Name Groundwater Technology
Address 4080 Pike Lane, Suite D Phone (415) 671-2337
City Concord Zip 94520

(4) DESCRIPTION OF PROJECT
Water Well Construction ✓ Geotechnical ___
Cathodic Protection ___ Well Destruction ___

(5) PROPOSED WATER WELL USE
Domestic ___ Industrial ___ Irrigation ___
Municipal ___ Monitoring ✓ Other ___

(6) PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger ✓
Cable ___ Other ___

WELL PROJECTS
Drill Hole Diameter 11 in. Depth(s) 35 ft.
Casing Diameter 3 in. Number
Surface Seal Depth 18 ft. of Wells 5
Driller's License No. 434343

GEOTECHNICAL PROJECTS
Number ___
Diameter ___ in. Maximum Depth ___ ft.

(7) ESTIMATED STARTING DATE 5/14/89
ESTIMATED COMPLETION DATE 5/23/89

(8) I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Glenn C. Miller Date 5/26/89

FOR OFFICE USE

PERMIT NUMBER 89309
LOCATION NUMBER

Approved Wyman Hong Date 26 May 89
Wyman Hong

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Notify this office (484-2600) at least one day prior to starting work on permitted work and before placing well seals.
3. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or bore hole logs and location sketch for geotechnical projects. Permitted work is completed when the last surface seal is placed or the last boring is completed.
4. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie, or equivalent.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic, irrigation, and monitoring wells unless a lesser depth is specially approved.

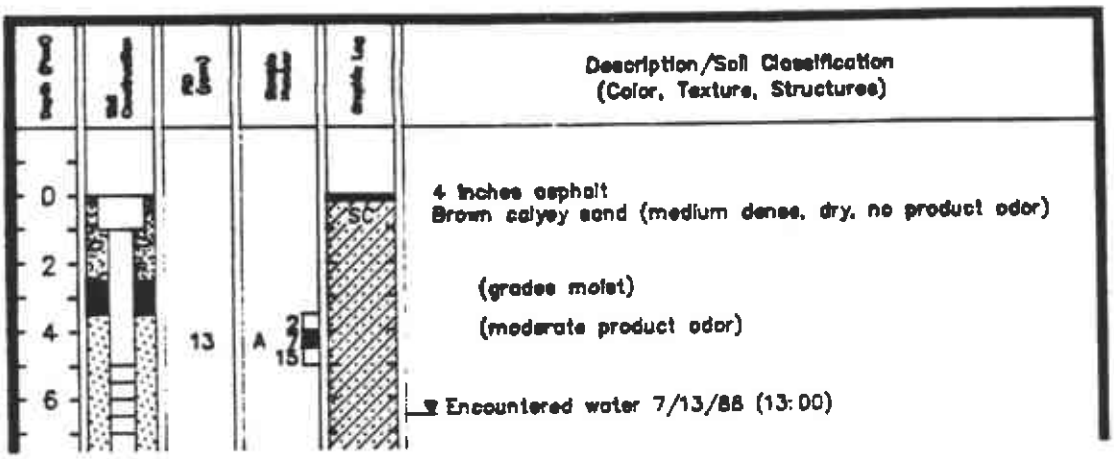
C. GEOTECHNICAL. Backfill bore hole with ~~compacted cuttings~~ tremied cement grout or heavy bentonite and upper two feet with compacted material.

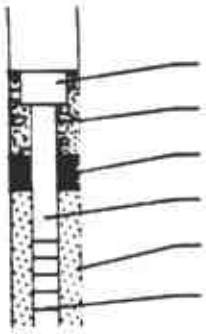
D. CATHODIC. Fill hole above anode zone with concrete placed by tremie, or equivalent.

E. WELL DESTRUCTION. See attached.

91987

KEY TO BORING LOG





STREET BOX
CEMENT GROUT SEAL
BENTONITE SEAL
WELL CASING
SAND/GRAVEL PACK
WELL SCREEN

13 — ORGANIC VAPOR CONCENTRATION DETERMINED BY PHOTO IONIZATION DETECTOR (P.I.D.) IN PARTS PER MILLION (ppm) FROM SOIL SAMPLES

A — SAMPLE IDENTIFICATION

2/7/15 — BLOW COUNTS TO DRIVE A SPLIT BARREL SAMPLER USING A 140 lb. HAMMER FALLING 30 INCHES. COUNTS ARE FOR EACH 6 INCH INCREMENT THE SAMPLER IS DRIVEN

ITERVAL SAMPLED

SAMPLE INCREMENT RETAINED FOR LABORATORY ANALYSES

SOIL CLASSIFICATION GRAPHIC/SYMBOL
(SEE UNIFIED SOIL CLASSIFICATION SYSTEM)

DEPTH TO WATER, DATE, TIME

GROUNDWATER TECHNOLOGY, INC.

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISION		SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS OVER 50% > NUMBER 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > No. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty-gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS MORE THAN 1/2 OF COARSE FRACTION < No. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines
		SP	Poorly graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS OVER 50% < NUMBER 200 SIEVE SIZE	SILTS & CLAYS LL<50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays low plasticity
	SILTS & CLAYS LL>50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils

CLASSIFICATION CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size In Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.76
COARSE	3" to 3/4"	76.2 to 4.76
FINE	3/4" to No. 4	19.1 to 4.76
SAND	No. 4 to No. 200	4.76 to 0.074
COARSE	No. 4 ro No. 10	4.76 to 2.00
FINE	No. 10 to No. 40	2.00 to 0.420
MEDIUM	No. 40 to No. 200	0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

GRAIN SIZE CHART

GROUNDWATER TECHNOLOGY, INC.

OCTOBER 13th, 1988 - REV. F

GROUNDWATER TECHNOLOGY, INC.

Monitoring Well 1 — Drilling Log

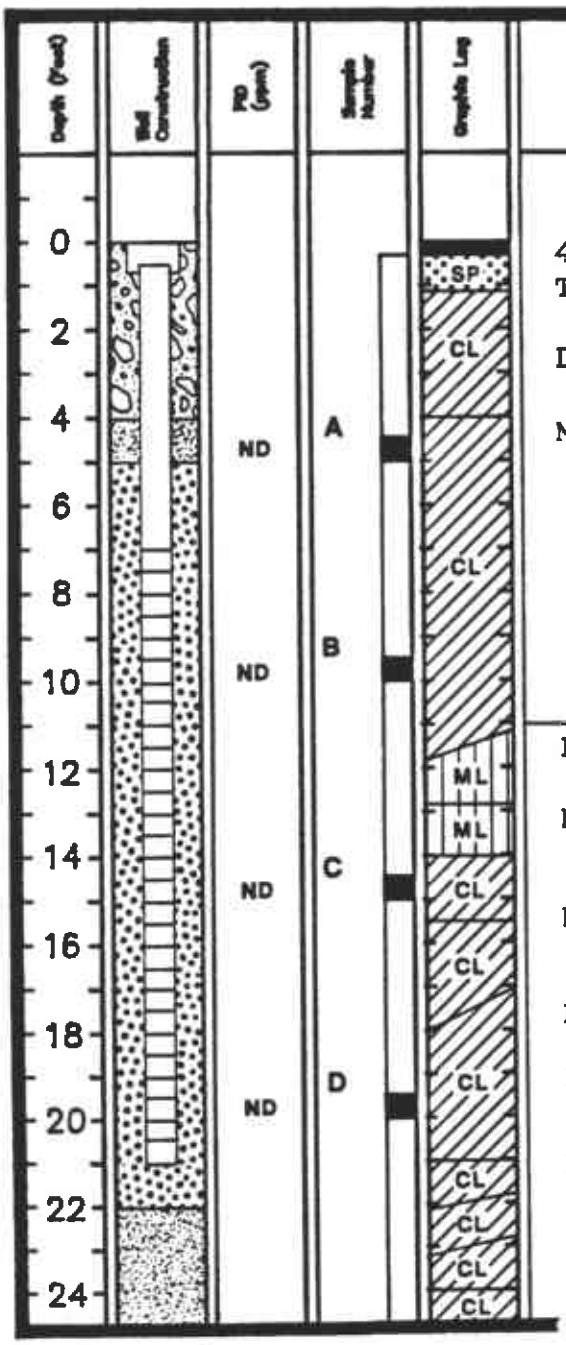
Project Chevron/Hopyard — Owner Chevron U.S.A. Inc.
Location Pleasanton, Ca. — Project Number 203/175-3284
Date Drilled 7/13/89 — Total Depth of Hole 26 ft. — Diameter 10.5 in.
Surface Elevation — Water Level Initial 11 ft. — 24-hour
Screen: Dia. 4 in. — Length 14 ft. — Slot Size .020 in.
Casing: Dia. 4 in. — Length 7 ft. — Type PVC
Drilling Company Sierra Pacific — Drilling Method Hollow stem Auger
Driller A. Schonberger — Log by C. Robertson
Geologist / Engineer — License No.

Sketch Map

SEE SITE PLAN

ND-non detectable

Notes: Boring was continuous core sampled



Description/Soil Classification (Color, Texture, Structures)

4 inches asphalt
Tan-brown, medium to coarse gravelly sand (loose, damp, strong product odor)
Dark brown-gray, silty clay (medium stiff, moist, strong product odor)
Medium dark gray, silty clay (medium stiff, moist, strong product odor)

▼ Encountered water 7/13/89 (1020 hours)
Dark yellowish brown, fine sandy silt with clay (soft, saturated, strong product odor)
Moderate olive gray, clayey silt with fine sands and angular gravel (medium dense, saturated, strong product odor)
Mottled moderate brown and medium light gray, clayey silt (medium stiff, saturated, moderate product odor)
Medium gray, silty clay (hard, saturated, slight product odor)
Dark yellowish brown, silty clay (hard, wet, no product odor)

Medium brownish gray, silty clay (medium stiff, moist no product odor)
Olive gray, silty clay (stiff, moist, no product odor
Olive gray, silty clay (hard, moist, no product odor)
Dark greenish gray clay with clay with silt (hard, damp, no product odor)

GROUNDWATER TECHNOLOGY, INC.

Monitoring Well 1

Drilling Log

Depth (ft)	Sample Interval	PID (ppm)	Well Diagram	Graphic Log	Description/Soil Classification (Color, Texture, Structures)
26		ND	E	CL SM	Grayish olive-green clay with silt (hard, moist, no product odor) Moderate olive-brown, silty, medium to fine sand (loose, saturated, no product odor) End of boring at 26'. Backfilled with bentonite to 22'. Added 1' of sand for base, set well at 21'
28					
30					
32					
34					
36					
38					
40					
42					
44					
46					
48					
50					
52					
54					
56					
58					

GROUNDWATER TECHNOLOGY, INC.

Monitoring Well 2

Drilling Log

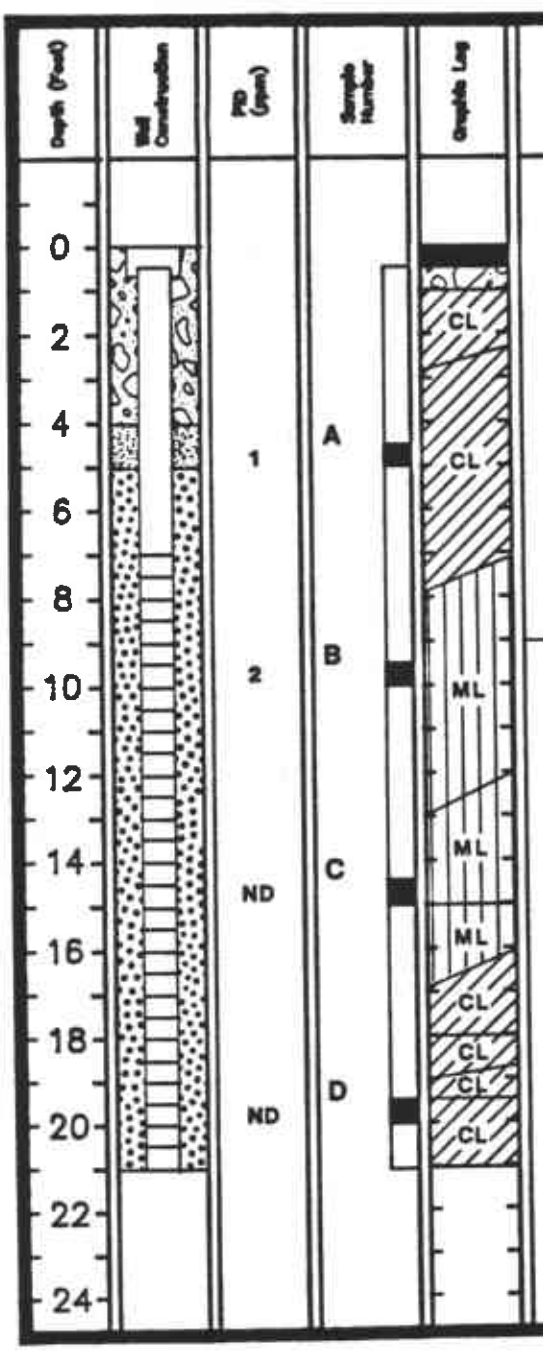
Project Chevron/Hopyard Owner Chevron U.S.A. Inc.
Location Pleasanton, Ca. Project Number 203/175-3284
Date Drilled 7/13/89 Total Depth of Hole 21 ft. Diameter 10.5 in.
Surface Elevation Water Level Initial 9 ft. 24-hour
Screen: Dia. 4 in. Length 14 ft. Slot Size .020 in.
Casing: Dia. 4 in. Length 7 ft. Type PVC
Drilling Company Sierra Pacific Drilling Method Hollow stem Auger
Driller A. Schonberger Log by C. Robertson
Geologist / Engineer License No.

Sketch Map

- SEE SITE PLAN

ND-non detectable

Notes: Boring was continuous core sampled



Description/Soil Classification (Color, Texture, Structures)

6 inches asphalt over 6 inches aggregate base
Brownish black, silty clay (hard, damp, slight product odor)
Dark gray, silty clay (hard, moist, moderate product odor)

Medium dark gray, clayey silt (stiff, wet, slight product odor)
▼ Encountered water 7/13/89 (1438 hours)

Dark yellowish brown, clayey silt (medium stiff, saturated, no product odor)

Moderately dark yellowish brown, fine sandy silt with clay (stiff, saturated, no product odor)
Dark brownish gray, silty clay (hard, wet, no product odor)
Olive gray, silty clay (hard, wet, no product odor)
Moderate brown, silty clay (very stiff, moist, no product odor)
Dark yellowish brown, silty clay (very stiff, moist, no product odor)
End of boring at 21', installed monitoring well

6/88 REV. C

GROUNDWATER TECHNOLOGY, INC.

Monitoring Well 3

Drilling Log

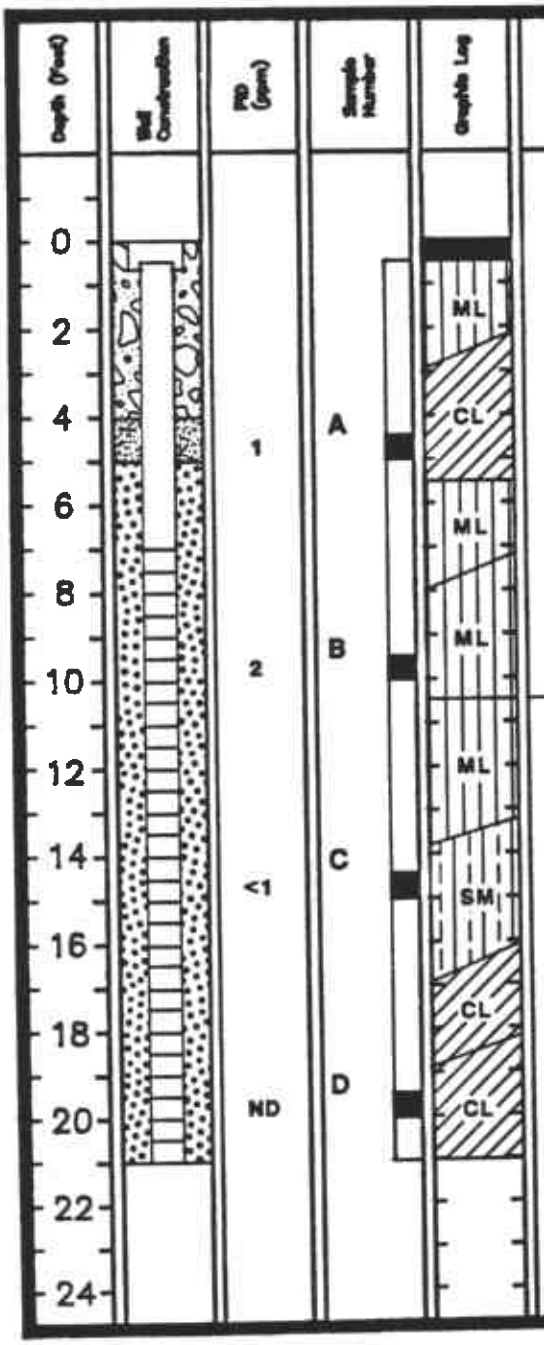
Project Chevron/Hopyard Owner Chevron U.S.A. Inc.
Location Pleasanton, Ca. Project Number 203/175-3284
Date Drilled 7/13/89 Total Depth of Hole 21 ft. Diameter 10.5 in.
Surface Elevation ____ Water Level Initial 10.5 ft. 24-hour ____
Screen: Dia. 4 in. Length 14 ft. Slot Size .020 in.
Casing: Dia. 4 in. Length 7 ft. Type PVC
Drilling Company Sierra Pacific Drilling Method Hollow stem Auger
Driller A. Schonberger Log by C. Robertson
Geologist / Engineer ____ License No. ____

Sketch Map

SEE SITE PLAN

ND-non detectable

Notes: Boring was continuous core sampled



Description/Soil Classification (Color, Texture, Structures)

6 inches asphalt
Dark bluish gray, clayey silt (very stiff, damp, slight product odor)
Dark gray, silty clay (very stiff, damp, no product odor)

Dark yellowish brown, clayey silt with fine sand (medium stiff, damp, no product odor)
Grayish black, clayey silt (stiff, moist, no product odor)

▼ Encountered water 7/13/89 (1620 hours)
Dark yellowish brown, fine sandy silt with clay (medium stiff, saturated, no product odor)

Dark yellowish brown, fine silty sand with clay (medium dense, saturated, no product odor)

Dark yellowish brown, silty clay (medium stiff, wet, no product odor)

Dark yellowish brown, silty clay (soft, wet, no product odor)

End of boring at 21', installed monitoring well

6/88 REV. C

APPENDIX C
STANDARD OPERATING PROCEDURES

GROUNDWATER TECHNOLOGY
STANDARD OPERATING PROCEDURE
CONCERNING GROUNDWATER MONITORING
SOP 8

Groundwater monitoring of wells at the site shall be conducted using an ORS Interface Probe and Surface Sampler. The Interface Probe is a hand held, battery operated device for measuring depth to petroleum product and depth to water as measured from an established datum (i.e., top of the well casing which has been surveyed). Product thickness is then calculated by subtracting the depth to product from the depth to water. In addition, water elevations are adjusted for the presence of fuel with the following calculation:

(Product Thickness)(.8)+(Water Elevation)
= Corrected Water Elevation

Note: The factor of 0.8 accounts for the density difference between water and petroleum hydrocarbons.

The Interface Probe consists of a dual sensing probe utilizing an optical liquid sensor and electrical conductivity to distinguish between water and petroleum products. A coated steel measuring tape transmits the sensor's signals to the reel assembly, where an audible alarm sounds a continuous tone when the sensor is immersed in petroleum product and an oscillating tone when immersed in water. The Interface Probe is accurate to 1/16-inch.

A Surface Sampler shall be used for visual inspection of the groundwater to note sheens (difficult to detect with the Interface Probe), odors, microbial action, etc.

The Surface Sampler used consists of a 12-inch long cast acrylic tube with a Delrin ball which closes onto a conical surface creating a seal as the sampler is pulled up. The sampler is calibrated in inches and centimeters for visual inspection of product thickness.

To reduce the potential for cross contamination between wells the monitorings shall take place in order from the least to most contaminated wells. Wells containing free product should be monitored last. Between each monitoring the equipment shall be washed with laboratory grade detergent and double rinsed with distilled water.

GROUNDWATER TECHNOLOGY
STANDARD OPERATING PROCEDURE
CONCERNING WATER SAMPLING METHODOLOGY
SOP 9

Prior to water sampling, each well shall be purged by pumping a minimum of four well volumes or until the discharge water indicates stabilization of temperature, conductivity,and pH. If the well is evacuated before four well volumes are removed or stabilization is achieved, the sample should be taken when the water level in the well recovers to 80% of its initial level.

Retrieval of the water sample, sample handling and sample preservation shall be conducted in accordance with Groundwater Technology Laboratory Standard Operating Procedure (GTL SOP 10) concerning Sampling For Volatiles in Water". The sampling equipment used shall consist of a teflon and/or stainless steel samplers, which meets EPA regulations. Glass vials with teflon lids should be used to store the collected samples.

To insure sample integrity, each vial shall be filled with the sampled water such that the water stands above the lip of the vial. The cap should then be quickly placed on the vial and tightened securely. The vial should then be checked to ensure that air bubbles are not present prior to labeling of the sample. Label information should include a sample identification number, job identification, date, time, type of analysis requested and the sampler's name. Chain-of-Custody forms shall be completed as per Groundwater Technology Laboratory Standard Operating Procedure (SOP 11) concerning Chain of Custody.

The vials should be immediately placed in high quality coolers for shipment to the laboratory. The coolers should be packed with sufficient ice or freezer packs to ensure that the samples are kept below 4C. Samples which are received at the Groundwater Technology Laboratory above 10 C. will be considered substandard. To minimize sample degradation the prescribed analysis shall take place within seven days of sample collection unless specially prepared acidified vials are used.

To minimize the potential for cross contamination between wells, all the well development and water sampling equipment which contacts the groundwater shall be cleaned between each well sampling. As a second precautionary measure, the wells shall be sampled in order of increasing contaminant concentrations as established by previous analysis.

GT ENVIRONMENTAL LABORATORY (GTEL)
STANDARD OPERATING PROCEDURE
CONCERNING SAMPLING FOR VOLATILES IN WATER (DISSOLVED GASOLINE, SOLVENTS, ETC.).
SOP 10

1. Use only vials properly washed and baked, available from GTEL or I-Chem.

2. Use clean sampling equipment. Scrub with Alconox or equivalent laboratory detergent and water followed by a thorough water rinse. Complete with a distilled water rinse.

   Sampling equipment which has come into contact with liquid hydrocarbons (free product) should be regarded with suspicion. Such equipment should have tubing and cables replaced and all resilient parts washed with laboratory detergent solution, as above. Visible deposits may have to be removed with hexane. Solvent washing should be followed be detergent washing as above.

   This procedure is valid for volatile organics analysis only. For extractable organics (for example, pesticides, or base neutrals for EPA method 625) a final rinse with pesticide grade isopropyl alcohol, followed by overnight or oven drying, will be necessary.

3. Take duplicate samples for GTEL. Mark on forms as a single sample with two containers to avoid duplication of analysis.

4. Take a site blank using distilled water or known uncontaminated source. This sample will be run at the discretion of the project manager.

5. Fill out labels and forms as much as possible ahead of time. Use an indelible marker.

6. Preservatives are required for some types of samples. Use specially prepared vials from GTEL, marked as indicated below, or use the appropriate field procedure (SOP 12 for acidification). Make note on forms that samples were preserved. Always have extra vials in case of problems. Samples for volatile analysis should be acidified below pH 2 with hydocloric acid. Use vials with care and keep them upright. Eye protection, foot protection, and disposable vinyl gloves are required for handling. Samples designated for expedited service and analyzed within seven (7) days of sampling will be acceptable without preservation.

   Acid causes burns. Glasses or goggles (not contact lenses) are necessary for protection of the eyes. Flush eyes with water for 15 minutes if contact occurs and seek medical attention. Rinse off hands frequently with water during handling.

   For sampling chlorinated drinking water supplies for chlorinated volatiles, samples shall be preserved with sodium thiosulfate. Use vials labeled "CONTAINS THIOSULFATE". No particular cautions are necessary.

7. Fill vial to overflowing with water, avoiding turbulence and bubbling as much as possible. Water should stand above lip of vial.

8. Carefully but quickly slip cap onto vial. Avoid dropping the teflon septum from cap by not inverting cap until in contact with vial. Disc should have teflon face toward the water. Also avoid touching white teflon face with dirty fingers.

9. Tighten cap securely, invert vial and tap against hand to see that there are no bubbles inside.

10. Label vial using indelible ink as follows:

    a) Sample I.D. No.
    b) Job I.D. No.
    c) Date and Time.
    d) Type of analysis requested.
    e) Your name.

11. Unless the fabric type label is used, place scotch tape over the label to preserve its integrity.

12. For Chain of Custody reasons, sample vial should be wrapped end-for-end with scotch tape or evidence tape and signed with indelible ink where the end of the tape seals on itself. The septum needs to be covered.

13. Chill samples immediately. Samples to be stored should be kept at 4°C (39°F). Samples received at the laboratory above 10°C (as measured at glass surface by a thermocouple probe), after overnight shipping will be considered substandard, so use a high quality cooler with sufficient ice or freezer packs. (Coolers are available from GTEL).

14. Fill out Chain of Custody and Analysis Request form. (See Chain of Custody Procedures SOP 11).

GT ENVIRONMENTAL LABORATORY (GTEL)
STANDARD OPERATING PROCEDURE
CONCERNING CHAIN OF CUSTODY
SOP 11

1. Samples must be maintained under custody until shipped or delivered to the laboratory. The laboratory will then maintain custody. A sample is under custody if:

    a) It is in your possession
    b) It is in your view after being in your possession
    c) You locked it up after being in your possession
    d) It is in a designated secure area

2. Custody of samples may be transferred from one person to the next. Each transferee and recipient must date, sign and note the time on the chain-of-custody form.

3. In shipping, the container must be sealed with tape, bearing the sender's signature across the area of bonding at the ends of the tape in order to prevent undetected tampering. Each sampling jar should be taped and signed as well. Scotch tape works well.

4. Write "sealed by" and sign in the "Remarks" box at the bottom of the form before sealing up the box. Place form in a plastic bag and seal it inside the box.

5. The "REMARKS" section in the upper right part of the form is for documenting details such as:

    a) Correlation of sample numbers if samples are split between labs.
    b) QC numbers when lab is logging in the samples.
    c) Sample temperature and condition when received by lab.
    d) Preservation notation.
    e) pH of samples when opened for analysis (if acidified).
    f) Sampling observation or sampling problem

6. The chain-of-custody form should be included inside the shipping container. A copy should be sent to the project manager.

7. When the samples are received by the lab, the chain-of-custody form will be dated, signed, and a note of the time made by a laboratory representative. The form along with shipping bills and receipts will be retained in the laboratory files.

8. At the time of receipt of samples by the laboratory, the shipping container will be inspected and the sealing signature will be checked, the samples will be inspected for condition and bubbles and the temperature of a representative sample container will be measured externally by a thermocouple probe (held tightly between two samples) and recorded. The laboratory QC numbers will be placed on the labels, in the accession log, and on the chain-of-custody form. If samples are acidified their pH will be measured by narrow range pH paper at the time of opening for analysis. All comments concerning procedures requiring handling of the samples will be dated and initialed on the form by the laboratory person performing the procedure. A copy of the completed chain-of-custody form with the comments on sample integrity will be returned to the sampler.

GT ENVIRONMENTAL LABORATORY (GTEL)
STANDARD OPERATING PROCEDURE
CONCERNING FIELD PRESERVATION OF BTX SAMPLES
BY ACIDIFICATION
SOP 12

If specially prepared acidified vials are not available, apply the following Field Procedures, using the field acidification kit. The kit contains:

a) 500 cc glass measuring cup or breaker.
b) dropping bottle of 50% hydrocloric acid or nitric acid.
c) narrow range pH paper, 1.0-2.5 pH range.
d) glass stirring rod.

1. Collect approximately 300cc of water in beaker. Try to minimize turbulence, bubbling, and time of exposure to the air.

2. For inorganic analysis: use 50% nitric acid
For volatile organic analysis: use 50% hydrocloric acid
Add 30 drops of 50% acid to measuring cup. Hold dropper completely vertically.

3. Gently mix with glass bar.

4. Remove bar and touch wetted tip to the pH paper and check color code to assure it is below pH 2. As more acid is added the pH goes lower. Discard used pH strip.

5. Add more acid if necessary. Too much acid is not a problem, just record how much was added (this will be helpful next time). Don't waste time trying to get it right - just add plenty of acid to get it below pH 2. Ideally, once you know how much acid needs to be added at one well, that amount will be sufficient for the rest. However, test the pH each time.

6. Pour the water into the vials prepared for that well and cap off with no bubbles inside. Again turbulence and bubbling are to be minimized. Also note that it is important that all of the vials for a given well be poured and sealed one right after another. Make sure the 300cc collected is enough to fill all of the vials with some to spare at the end. The volume collected can be increased but remember to proportionally increase the amount of acid added.

7. Acidification does not replace chilling. Always chill samples and ship via air for next day delivery.

8. Acid causes burns. Glasses or goggles (not contacts) are necessary for protection of the eyes. Wash eyes with fresh water for 15 minutes if contact occurs and seek medical attention. Rinse off hands frequently with water during sampling.

GROUNDWATER TECHNOLOGY
STANDARD OPERATING PROCEDURE
CONCERNING MONITORING WELL INSTALLATION
SOP 13

The boreholes for the monitoring wells shall be drilled using a truck mounted hollow stem auger drill rig. The outside diameter (O.D.) of the auger should be a minimum of eight inches when installing 4-inch well screen. The hollow stem auger provides minimal interuption of drilling while permitting soil sampling at specific intervals. Soil samples can be taken at desired depths by hammering a conventional split barrel sampler containing precleaned 2 inch brass sample tubes.

The construction details of the monitoring wells to be drilled at the site are graphically depicted in the attached figure titled "Typical Detail of Monitoring Well Construction" (See Figure 1). The wells should be constructed of 4 inch PVC, .020 inch machine slotted screen and blank casing. The screened portion of the well will extend 5 feet above and 10 feet below the present water table. An appropriate sand pack as determined by grain size analysis shall be placed in the annular space between the casing and drilled hole to inhibit silt buildup around the well. An annular seal installed above the sand pack should consist of bentonite pellets overlain by neat cement or cement grout to the surface. The wellhead shall be protected below grade within a traffic rated street box. Each well shall have a permanently attached identification plate containing the following information (1) Well Number, (2) Wellhead Elevation, (3) Depth of Well, (4) Screened Interval.

Subsequent to installation the wells shall be developed to remove silts and improve well performance. The well development shall be conducted by air lifting the water within the well until groundwater pumped from the wells is silt free.

To assure that cross contamination does not occur between the drilling and development of successive wells all equipment contacting subsurface soils or ground water shall be steam cleaned. The steam cleaned equipment should include but not limited to the following (1) Drilling Augers, (2) Split Barrel Sampler, (3) Groundwater Monitoring and Sampling Equipment, (4) Well Development Piping and Sparging Equipment.

GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING SOIL SAMPLING METHODOLOGY
SOP 14

Soil samples should be collected and preserved in accordance with Groundwater Technology Laboratory's Standard Operating Procedure (GTL SOP 15) concerning Soil Sample Collection and Handling when Sampling for Volatile Organics. A hollow-stem soil auger should be used to drill to the desired sampling depth. A standard 2-inch-diameter, split-spoon sampler, 18-inches in length shall be used to collect the samples. The samples are contained in 2-inch-diameter by 6-inch-long thin-walled, brass tube liners fitted into the split-spoon sampler (three per sampler).

The split-spoon sampler should be driven the full depth of the spoon into the soil using a 140-pound hammer. The spoon shall then be extracted from the borehole and the brass tube liners containing the soil sample removed from the sampler. The ends of the liner tubes should be immediately covered with aluminum foil, sealed with a Teflon^{R} or plastic cap, and then taped with duct tape. After being properly identified with sample data entered on a standard chain-of-custody form, the samples shall be placed on dry ice (maintained below 4°celsius) and transported to the laboratory within 24 hours.

One of the three soil samples retrieved at each sample depth shall be analyzed in the field using a photo-ionization detector and/or explosimeter. The purpose of the field analysis is to provide a means to choose samples to be laboratory analyzed for hydrocarbon concentrations and to enable comparisons between the field and laboratory analyses. The soil sample shall be sealed in a plastic bag and placed in the sun to accelerate the vaporization of volatile hydrocarbons from the soil. One of the two field vapor instruments shall be used to quantify the amount of hydrocarbons released into the air from the soils. The data, shall be recorded on the drill logs at the depth corresponding to the sample point.

SOP 40

Procedure for sampling of soil/water for metallic parameters:

1. Containers

A. For all metals except silver and mercury, in which normal storage is predicted, white translucent linear polyethylene bottles and caps, with a volume of approximately 250 ml, which have been approved and precleaned by G.T.Enviornmental Laboratories shall be used for sampling of water matrices. B. For samples that are to be analyzed for mercury, where the holding time (Lapsed time between date sampled and date analyzed) may exceed 14 days, 250 ml amber glass bottles fitted with TEFLON lined caps, that have been precleaned and supplied by G.T. Enviornmental Laboratories shall be used. C. For samples to be analyzed for silver, dark brown linear polyethylene, 250 ml bottles that have been precleaned and supplied by G.T.Enviornmental Laboratories, are prefered. However, 250 ml amber glass bottles or translucent linear polyethylene bottles, which have been properly precleaned and and supplied by G.T.Enviornmental Laboratories, may be used, provided each bottle is wrapped in two layers of aluminium foil, after the samples have been taken and labels applied. D. Soil samples may be taken using any of the containers and parameter dependent conditions as applied to water samples, with the difference that they should be of a wide-mouth type. Upon special request, samplers can be provided with plastic bags for soil samples taken in large numbers or remote locations, provided G.T.Enviornmental Laboratories in given 30 days notice of the intent to sample.

2. Sampling A. General- All matrices, soil/water, should be sampled in duplicate. B. Water- Total metallic parameters a. Sampling by Submerging Container- The sample container is inverted and totally submerged underwater, the container is turned upright and moved to create a current to displace the contents of the bottle and then capped while underwater. b. Sampling by Pouring- The sample container is filled to approximately 75% of capacity, with sample, capped, shaken and the sample discarded. The bottle is then refilled with sample to 80% of capacity (Around 200 ml for a 250 ml container) and capped. C. Water- Suspended metallic parameters After water samples have been obtained as for "Total metallic parameters", but before any preservation method has been applied, the sample should be filtered thru a 0.42 uM filter membrane retained in a disposable plastic filtration assemble, assisted by a vacume. The filtrate (The liquid which passes thru the filter) is discarded (Unless "Dissolved metallic parameters" are required, then it shall be retained, as in "D."). The entire filter apparatus is placted in a "zip-lok" plastic bag and sent to G.T.Enviornmental Laboratories for analysis for "Suspended Metals" of the desired metallic parameters. D. Water- Dissolved metallic parameters After water samples are

obtained as for "Total metallic parameters", but before any preservation method is applied, the sample is filtered, with application of vacume, thru a 0.42 uM membrane, retained in a disposable plastic assembly, and the filtrate (The liquid which passes thru the filter) transfered to an unused sample container. The apparatus is discarded, unless "Suspended metallic parameters", as in "C." above are required. E. Soil- Containers are filled to 80% of capacity using a clean nonmetallic instrument (Wood, plastic, etc.) and capped.

3. Preservation A. Water- Most metals a. Sample volume is adjusted to 80% of container volume (200 ml for a 250 ml bottle). b. A solution of 1:1/Water:Nitric Acid is added to the sample such that the pH of the sample is brought down to less that 2, as measured using a nonbleeding pH paper. (This will require about 3 ml of the 1:1/Water:Nitric Acid solution per 1 liter of sample or 0.6 ml/12 Drops of the 1:1/Water:Nitric Acid solution for the 200 ml sample volume used). B. Water- Hexavalent Chromium Samples for hexavalent chromium determination are preserved by cooling to 4 degrees C, and shipping below 10 degrees C for analysis within 24 hours of sampling. Due to the complexity of this determination and need to fast analysis it is recommended that arrangements for analysis be made with G.T.Enviornmental Laboratories at least 14 days prior to sampling. C. Silver- All matrices Samples should be preserved as for "Water- Most metals", but in addition should be protected from exposure to light either by using a dark brown linear polyethylene bottle or by wrapping the bottle in two layers of aluminum foil. D. Soils- No special preservation is required for soils, however if the samples are to be analyzed for mercury, tin or lead the samples would benefit from storage at 4 degrees C and shipping at less thab 10 degrees C. In addition soils that are to be analyzed for silver should be protected from exposure to light either by use of an opaque container or two layers of aluminum foil.

APPENDIX D
LABORATORY REPORTS

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northwest Region
4080 Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

07/19/89 MH

WORK ORD#: C907285
CLIENT: PAUL HORTON
GROUNDWATER TECHNOLOGY, INC.
4080-D PIKE LANE
CONCORD, CA 94520
PROJECT#: 203-175-3284-1
LOCATION: PLEASANTON, CA

SAMPLED: 07/13/89 BY: C. ROBERTSON
RECEIVED: 07/14/89
ANALYZED: 07/18/89 BY: K. PATTON

MATRIX: Soil
UNITS: mg/Kg (ppm)

PARAMETER	MDL	SAMPLE # I.D.	01 MW1A	02 MW1B	03 MW2A	04 MW2B	05 MW3A
Benzene	0.5		<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	0.5		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5		<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes	0.5		<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	0.5		<0.5	<0.5	<0.5	<0.5	<0.5
Misc. Hydrocarbons (C4-C12)	1		<1	1	<1	<1	<1
Total Petroleum Hydrocarbons as Gasoline	1		<1	1	<1	<1	<1

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.

METHOD: Modified EPA 5030/8020/8015

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northwest Region
4080 Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

WORK ORD#: C907285

CLIENT: PAUL HORTON
PROJECT#: 203-175-3284-1
LOCATION: PLEASANTON, CA

MATRIX: Soil
UNITS: mg/Kg (ppm)

PARAMETER	MDL	SAMPLE # I.D.	06 MW3B				
Benzene	0.5		<0.5				
Toluene	0.5		<0.5				
Ethylbenzene	0.5		<0.5				
Xylenes	0.5		<0.5				
Total BTEX	0.5		<0.5				
Misc. Hydrocarbons (C4-C12)	1		<1				
Total Petroleum Hydrocarbons as Gasoline	1		<1				

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.

METHOD: Modified EPA 5030/8020/8015

Emma P. Popek | Pams 19
EMMA P. POPEK, Laboratory Director

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northwest Region
4080 Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

07/20/89 jp

WORK ORD#: C907286
CLIENT: PAUL HORTON
GROUNDWATER TECHNOLOGY, INC.
4080-D PIKE LANE
CONCORD, CA 94520
PROJECT#: 203-175-3284-2
LOCATION: PLEASANTON

SAMPLED: 07/13/89 BY: C. ROBERT
RECEIVED: 07/14/89
ANALYZED: 07/18/89 BY: J. THOMAS

MATRIX: Soil
UNITS: mg/Kg (ppm)

PARAMETER	MDL	SAMPLE # I.D.	01 MW1A	02 MW1B	03 MW2A	04 MW2B	05 MW3A
Lead (organic)	0.25		<0.25	<0.25	<0.25	<0.25	<0.25

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.

METHOD: per California DHS

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northwest Region
4080 Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

WORK ORD#: C907286

CLIENT: PAUL HORTON
PROJECT#: 203-175-3284-2
LOCATION: PLEASANTON

MATRIX: Soil
UNITS: mg/Kg (ppm)

PARAMETER	MDL	SAMPLE # I.D.	06 MW3B
Lead (organic)	0.25		<0.25

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.

METHOD: per California DHS

Emma P. Popek
EMMA P. POPEK, Laboratory Director

GTEL ENVIRONMENTAL LABORATORIES, INC.

4080-C Pike Lane
Concord, CA 94520
415-685-7852

800-544-3422 (In CA)
800-423-7143 (Outside CA)

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

prog. C90 + 285

Project Manager: Paul Horton

Phone #:

Address:

FAX #:

Project Number: 03175 3284 - 1

Project Name: Chevron Hayward #90917

Project Location: Pleasanton

Sampler Signature:

Sample ID	Lab # (Lab use only)	# CONTAINERS	Volume/Amount	Matrix: WATER	SOIL	AIR	SLUDGE	OTHER	Method Preserved: HCl	HNO3	ICE	NONE	OTHER	Sampling: DATE	TIME
MW1A	01				X						X			7/13/89	10:15
MW1B	02				X						X			7/13/89	10:20
MW1C					X						X			7/13/89	10:40
MW1D					X						X			7/13/89	10:55
MW1E					X						X			7/13/89	11:05
~~MW1F~~															
~~MW1G~~															
~~MW1H~~															
MW1J															

ANALYSIS REQUEST	OTHER	SPECIAL HANDLING
BTEX (602/8020)		PRIORITY ONE SERVICE (24 hr)
BTEX/TPH as Gasoline (602/8020/8015)		EXPEDITED SERVICE (2-4 days)
TPH as Diesel (8015 or 8270)		VERBALS/FAX
TPH as Jetfuel (8015 or 8270)		SPECIAL DETECTION LIMITS (SPECIFY)
Total Oil & Grease (413.1)		SPECIAL REPORTING REQUIREMENTS
Total Oil & Grease (413.2)		
Total Petroleum Hydrocarbons (418.1)		
EPA 601/8010		
EPA 602/8020		
EPA 608/8080		
EPA 608/8080-PCBs Only		
EPA 624/8240		
EPA 625/8270		
CAM - 17 Metals		
EPTOX - 8 Metals		
EPA - Priority Pollutant Metals		
LEAD(7420/7421/239.2)		
ORGANIC LEAD	Hold	

	Date	Time	
Relinquished by:	7/14/89	14:54	Received by:
Relinquished by			Received by:
Relinquished by	7-11-89	2:00	Received by Laboratory: Kathy Biava

Remarks: page 1 of 2

7-18-89

GTEL ENVIRONMENTAL LABORATORIES, INC.

4080-C Pike Lane
Concord, CA 94520
415-685-7852

800-544-3422 (In CA)
800-423-7143 (Outside CA)

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Paul Horton
Phone #:
Address:
FAX #:
Project Number: 203175 3284 - 1
Project Name: Chevron Hopyard
Project Location: Pleasanton
Sampler Signature: Cay Horton

Sample ID	Lab # (Lab use only)	# CONTAINERS	Volume/Amount	Matrix: WATER	SOIL	AIR	SLUDGE	OTHER	Method Preserved: HCl	HNO3	ICE	NONE	OTHER	Sampling: DATE	TIME
MW2A	03				X						X			7/13/89	14:35
MW2B	04				X						X			7/13/89	14:40
MW2C					X						X			"	14:50
MW2D					X						X			"	15:00
MW3A	05				X						X			"	16:10
MW3B	06				X						X			"	16:15
MW3C					X						X			"	16:25
MW3D					X						X			"	16:40

ANALYSIS REQUEST

BTEX (602/8020)	BTEX/TPH as Gasoline (602/8020/8015)	TPH as Diesel (8015 or 8270)	TPH as Jetfuel (8015 or 8270)	Total Oil & Grease (413.1)	Total Oil & Grease (413.2)	Total Petroleum Hydrocarbons (418.1)	EPA 601/8010	EPA 602/8020	EPA 608/8080	EPA 608/8080-PCBs Only	EPA 624/8240	EPA 625/8270	CAM - 17 Metals	EPTOX - 8 Metals	EPA - Priority Pollutant Metals	LEAD(7420/7421/239.2)	ORGANIC LEAD	Hold				
	X																X	X				
	X																X	X				
																		X				
																		X				
X																	X					
X																	X					
																		X				
																		X				

OTHER

SPECIAL HANDLING

PRIORITY ONE SERVICE (24 hr)
EXPEDITED SERVICE (2-4 days)
VERBALS/FAX
SPECIAL DETECTION LIMITS (SPECIFY)
SPECIAL REPORTING REQUIREMENTS

Relinquished by:	Date	Time	Received by:
Cay Horton	7/14/89	14:54	
Relinquished by	Date	Time	Received by:
Relinquished by	Date	Time	Received by Laboratory:
	7-14-89	3:00	Kathy Biava

Remarks: 2 of 2

7-18-89

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northwest Region
4080 Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

07/25/89 LS

WORK ORD#: C907312
CLIENT: GLEN MITCHEL
GROUNDWATER TECHNOLOGY, INC.
4080-D PIKE LANE
CONCORD, CA 94520
PROJECT#: 203-175-3284-4
LOCATION: PLEASANTON, CA

SAMPLED: 07/17/89 BY: S. KRANYAK
RECEIVED: 07/18/89
ANALYZED: 07/20/89 BY: R. CONDIT

MATRIX: Water
UNITS: ug/L (ppb)

PARAMETER	MDL	SAMPLE # I.D.	01 MW 1B	02 MW 1	03 MW 2	04 MW 3	
Benzene	0.5		<0.5	<0.5	<0.5	<0.5	
Toluene	0.5		<0.5	<0.5	<0.5	<0.5	
Ethylbenzene	0.5		<0.5	6	<0.5	<0.5	
Xylenes	0.5		<0.5	<0.5	<0.5	<0.5	
Total BTEX	0.5		<0.5	6	<0.5	<0.5	
Misc. Hydrocarbons (C4-C12)	1		<1	94	<1	<1	
Total Petroleum Hydrocarbons as Gasoline	1		<1	100	<1	<1	

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.

METHOD: Modified EPA 5030/8020/8015

Emma P. Popek

EMMA P. POPEK, Laboratory Director

GTEL ENVIRONMENTAL LABORATORIES, INC.

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Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

07/27/89 LS Page 1 of 1

WORK ORD#:C907313
CLIENT: GLEN MITCHEL
GROUNDWATER TECHNOLOGY, INC.
4080-D PIKE LANE
CONCORD, CA 94520
PROJECT#: 203-175-3284-5
LOCATION: PLEASANTON, CA

SAMPLED: 07/17/89 BY: S. KRANYAK
RECEIVED: 07/18/89
ANALYZED: 07/28/89 BY: G. GUIRGUIS

MATRIX: Water
UNITS: mg/L (ppm)

PARAMETER	MDL	SAMPLE # I.D.	01 MW 1	02 MW 2	03 MW 3		
Lead (total)	0.005		0.02	0.02	0.02		

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.

METHOD: EPA 239.2

Emma P. Popek

EMMA P. POPEK, Laboratory Director

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

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4080 Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

07/24/89 jp Page 1 of 1

WORK ORD#: C907314
CLIENT: GLEN MITCHEL
GROUNDWATER TECHNOLOGY, INC.
4080-D PIKE LANE
CONCORD, CA 94520
PROJECT#: 203-175-3284-6
LOCATION: PLEASANTON, CA

SAMPLED: 07/17/89 BY: S. KRANYAK
RECEIVED: 07/18/89
ANALYZED: 07/19/89 BY: K. PATTON

MATRIX: Water
UNITS: ug/L (ppb)

PARAMETER	MDL	SAMPLE # I.D.	01 MW 1	02 MW 2	03 MW 3		
1,2-Dibromoethane	0.02		<0.02	<0.02	<0.02		

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.

METHOD: EPA 504.1

Emma P. Popek
EMMA P. POPEK, Laboratory Director

GTEL Environmental Laboratories

4080-C Pike Lane
Concord, CA 94520
415-685-7852

800-544-3422 (In CA)
800-423-7143 (Outside CA)

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Glenn Mitchel
Phone #:
Address: Concord
FAX #:
Project Number: 203 175 3284-4
Project Name: Chevron/Hayward
Project Location: Pleaston
Sampler Signature:

Sample ID	Lab # (Lab use only)	# CONTAINERS	Volume/Amount	Matrix: WATER	SOIL	AIR	SLUDGE	OTHER	Method Preserved: HCl	HNO3	ICE	NONE	OTHER	Sampling: DATE	TIME
mw 1B		1		X					X		X			7/7	1:20
1		5													1:31
2B		1													2:00
2		5													2:01
3B		1													3:00
3		5													3:01

ANALYSIS REQUEST

BTEX (602/8020)	BTEX/TPH as Gasoline (602/8020/8015)	TPH as Diesel (8015 or 8270)	TPH as Jetfuel (8015 or 8270)	Total Oil & Grease (413.1)	Total Oil & Grease (413.2)	Total Petroleum Hydrocarbons (418.1)	EPA 601/8010	EPA 602/8020	EPA 608/8080	EPA 608/8080-PCBs Only	EPA 624/8240	EPA 625/8270	CAM - 17 Metals	EPTOX - 8 Metals	EPA - Priority Pollutant Metals	LEAD(7420/7421/239.2)	ORGANIC LEAD
	X															X	X
	X																
																X	X
	X																
																X	X

OTHER: EDB

SPECIAL HANDLING: PRIORITY ONE SERVICE (24 hr) / EXPEDITED SERVICE

Relinquished by:	Date	Time	Received by:
Steve Granger	7/7/92		
Relinquished by	Date	Time	Received by:
Relinquished by	Date	Time	Received by Laboratory:
	7/7/92		

Remarks: Didn't Acidify EDB samples

APPENDIX E
WELL MONITORING DATA

WATER/PRODUCT LEVEL DATA

Project Location 5280 Hopyard Road, Pleasanton, CA **Fluid Measurement Technique** Interface Probe

Recorded by Craig Robertson **Date** 8/2/89

Well No.	Time	(A) Casing Rim Elevation (feet)	(B) Tape Reading At Rim	(C) Tape Reading At Product	(D) Tape Reading At Water	(B)-(D) Depth to Water (feet)	(A)-(B-D) Water Surface Elevation (feet)	(C)-(D) Product Thickness (feet)	See Note * Potentiometric Surface Elevation (feet)	Comments
MW-1	8:15	326.48	NA	NA	8.10	8.10	318.38	NA	318.38	
MW-2	8:20	327.53	NA	NA	9.05	9.05	318.48	NA	318.48	
MW-3	8:25	326.47	NA	NA	8.15	8.15	318.32	NA	318.32	

Specific gravity of product (S.G.) NA

* c: Potentiometric Surface Elevation = (A) - ((B)-(D)) + S.G. ((C)-(D))