GROUNDWATER TECHNOLOGY, INC.

4057 Port Chicago Highway, Concord, CA 94520 (415) 671-2387
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ADDITIONAL ENVIRONMENTAL ASSESSMENT REPORT
FORMER CHEVRON SERVICE STATION NO. 9-1153
3126 FERNSIDE BOULEVARD
ALAMEDA, CALIFORNIA

Jan 1994

020204604

January 31, 1994

Prepared for:
Mr. Mark Miller
Chevron U.S.A. Products Company
2410 Camino Ramon
San Ramon, California 94583-0804

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4064R013.020

Chevron

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2410 Camino Ramon
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San Ramon, CA 94583-0804

Marketing Department
Phone 510 842 9500

April 20, 1994

Ms. Juliet Shin
Alameda County Health Care Services
Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

Re: Former Chevron Service Station #9-1153
3126 Fernside Boulevard, Alameda, CA

Dear Ms. Shin:

Enclosed is the Additional Environmental Assessment Report dated January 31, 1994, prepared by our consultant Groundwater Technology, Inc. for the above referenced site. Two soil borings were advanced with one being completed as a permanent well (MW-7) and the other completed as a temporary well (TMW-1). This work was performed to further characterize upgradient and downgradient soil and ground water conditions.

Soil samples collected from the drill cuttings were submitted to Superior Precision Analytical for analysis. Laboratory results indicate low concentrations of TPH-G and BTEX were detected in a sample collected from MW-7.

Ground water samples collected were also sent to Superior for analysis. Benzene was detected in monitor well MW-7 at a concentration of 110 ppb. This is lower than concentrations observed on the former Chevron site and indicates that the majority of the dissolved hydrocarbon plume is located upgradient of this well. Depth to ground water was measured at approximately 5.3 feet below grade in MW-7 and the historic ground water flow direction is to the east.

Based on the above data and all quarterly monitoring data gathered to date, we feel that the extent of the dissolved hydrocarbon plume has been sufficiently defined. It is not feasible to install an additional well downgradeint of MW-7 as this is where a former Phillips 66 service station is located. It is not known whether ground water contamination is present from their past operation as no ground water investigation work has been performed to date.

We will continue to monitor and sample all wells at this site on a quarterly basis in conjunction with operating the ground water extraction system. The system has removed and treated over 84,000 gallons of hydrocarbon impacted ground water to date.

If you have any questions or comments, please do not hesitate to contact me at (510) 842-8134.

Sincerely,
CHEVRON U.S.A. PRODUCTS COMPANY

Mark A. Miller
Site Assessment and Remediation Engineer

Enclosure

cc: Mr. Eddy So, RWQCB - Bay Area
Mr. Mike Cooke - Weiss Associates
Ms. B.C. Owen

Mr. Larry Bolten
State Farm Insurance
2509 Santa Clara Avenue
Alameda, CA 94501

File: 9-1153 SA1

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(continued)

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ADDITIONAL ENVIRONMENTAL ASSESSMENT REPORT
FORMER CHEVRON SERVICE STATION NO. 9-1153
3126 FERNSIDE BOULEVARD
ALAMEDA, CALIFORNIA

January 31, 1994

1.0 INTRODUCTION

This report summarizes the additional environmental assessment work conducted by Groundwater Technology, Inc. at Chevron U.S.A. Products Company (Chevron) Former Service Station No. 9-5286 located at 3126 Fernside Boulevard in Alameda, California (Figure 1). A *Work Plan for Additional Site Assessment* (Groundwater Technology, June 16, 1993) presented the scope of the work performed. The *Work Plan* was modified during a meeting between Ms. Juliet Shin of Alameda County Health Care Services with Mr. Mark Miller of Chevron on September 22, 1993. The discussion is summarized in a letter to Ms. Juliet Shin dated September 23, 1993, from Mr. Mark Miller of Chevron (Chevron, September 23, 1993). The objective of this work was to evaluate the lateral extent of petroleum hydrocarbons in the soil and groundwater at the site. The assessment was performed during November and December 1993 and included installing one 2-inch-diameter groundwater monitoring well and one temporary monitoring well, sampling soil and groundwater, analyzing the collected samples, evaluating the data, and preparing this report.

2.0 BACKGROUND

The site is located in Alameda in Alameda County, California, on the west corner of the intersection of Fernside Boulevard and Gibbons Drive (Figure 2). Residential buildings are located west and south of the site. The site is currently an occupied single family residential building. The surface elevation at the site is approximately 8 feet above mean sea level. The

Brooklyn Basin Tidal Canal is approximately 0.1 miles northeast of the site. San Leandro Bay is approximately 0.5 mile south of the site.

The site is located on the Bay Plain in West Alameda County, which is separated from the bedrock of the East Bay hills by the Hayward Fault. The older undivided bedrock units of the East Bay hills above the city of Alameda are Pliocene-Pleistocene to late Pleistocene in age. The sediments of the Bay Plain are derived from the East Bay hills. Groundwater in these sediments can be either confined or unconfined. The Bay Plain is the major groundwater-producing area in the East Bay region of Alameda County. Regional groundwater flow is generally west toward San Francisco Bay (Alameda County Flood Control and Water Conservation District, June 1988).

The following history is from the work plan submitted to Chevron from Pacific Environmental Group dated January 8, 1992, (Pacific Environmental Group, Inc., January 8, 1992). The underground storage tanks (USTs) at the site were in use for approximately 30 years. The Chevron service station was demolished and the USTs were removed on June 4, 1986. Emcon Associates, Inc. supervised the installation of three groundwater monitoring wells C-1, C-2, and C-3 on August 18, 1986. Analytical results of water samples collected from monitoring well C-1 reported hydrocarbon concentrations of 15,000 parts per billion (ppb). During June 1989, EA Engineering drilled and sampled eight soil borings (SB-1 through SB-8). Also, soil vapor and groundwater on and off site were sampled (EA Engineering, October 1989). The maximum petroleum hydrocarbon concentrations in the soil vapor, soil and groundwater were located in the areas around and downgradient of the former storage tanks and pump islands. Low levels of hydrocarbons were detected in off-site samples. Monitoring well C-2 was apparently destroyed or abandoned during construction activities prior to May 1989. On December 6 and 7, 1990, EA Engineering installed one groundwater extraction well at the site (RW-1).

On May 15, 1992, Groundwater Technology supervised the installation of three groundwater monitoring wells: MW-4, MW-5, and MW-6. Analytical results of soil samples collected during the installation of monitoring wells MW-4, MW-5, and MW-6 reported concentrations of benzene, toluene, ethylbenzene, xylenes (BTEX), and total petroleum hydrocarbons-as-gasoline (TPH-G) below the method detection limits (MDLs). Analytical results of groundwater samples

collected from monitoring wells C-1, MW-4, MW-5, and MW-6 reported detectable concentrations of benzene.

Analytical results of groundwater samples collected from monitoring wells C-1, MW-5, and MW-6 reported concentrations of TPH-G at 34,000 ppb, 560 ppb and 210 ppb, respectively (Groundwater Technology, July 16, 1992).

During March 1993, Weiss Associates conducted off-site groundwater sampling by installing 2-inch-diameter soil borings. Groundwater samples were collected from the soil borings and the soil borings were backfilled with bentonite. Analytical results reported concentrations of TPH-G and benzene at 190,000 ppb and 3,200 ppb in the water samples collected from soil boring BH-C (Weiss Associates, April 1, 1993).

The groundwater monitoring wells at the site have been gauged and sampled regularly since August 1986. Analytical results from the monitoring and sampling event on October 19, 1993, reported concentrations of TPH-G in monitoring wells C-1, C-3, MW-5, and MW-6 at 40,000 ppb, 66 ppb, 1,900 ppb, and 320 ppb, respectively. Analytical results reported benzene concentrations in the samples collected from monitoring wells C-1, C-3, MW-5, and MW-6 at 12,000 ppb, 12 ppb, 190 ppb, and 150 ppb, respectively (Groundwater Technology, November 22, 1993).

3.0 WORK SCOPE

3.1 Site-Specific *Health and Safety Plan* and Permits

Groundwater Technology previously prepared a site-specific *Health and Safety Plan* required by the Occupational Health and Safety Administration Standard Hazardous Waste Operations and Emergency Response guidelines (29 CFR 1910.120). The site-specific *Health and Safety Plan* was prepared after a review of site conditions and existing available site-specific health and safety plans for the site. The *Health and Safety Plan* was reviewed and signed by Groundwater Technology personnel and subcontractors before beginning work at the site.

Groundwater Technology personnel reviewed site history and information with Chevron representatives before beginning work at the site. A drilling permit to install three groundwater monitoring wells was approved by Alameda County Zone 7 Water Agency. A copy of the permit is included in Appendix A.

3.2 Soil Borings

On November 11, 1993, Groundwater Technology supervised the drilling of two soil borings and the construction of one temporary monitoring well (TMW-1) and one permanent monitoring well (MW-7) in the soil borings (Figure 2). A Groundwater Technology field geologist, under the supervision of a California registered geologist, logged the materials encountered during drilling of the soil borings using the Unified Soil Classification System. Drilling was completed on November 11, 1993, and the monitoring wells were installed to depths of approximately 15 feet below grade.

The steam cleaning water, generated during the steam cleaning of the augers between drilling of temporary monitoring well TMW-1 and monitoring well MW-7, was stored in labeled 55-gallon drums pending disposal. The soil cuttings generated during the drilling of temporary monitoring well TMW-1 and MW-7 were placed into 55-gallon drums at the request of the property owner. Soil cuttings were then characterized, profiled, and transported to the City of Mountain View Public Landfill in Mountain View, California on December 8, 1993. Water generated from steam cleaning, purging, and sampling activities was removed and transported to the Chevron Terminal in Richmond on November 30, 1993, for recycling.

3.3 Soil Sampling

During drilling, soil samples were collected from the soil borings for temporary monitoring well TMW-1 and monitoring well MW-7 at 5-foot intervals from approximately 5 to 15 feet below grade. Soil samples were collected using a 2-inch-diameter split-spoon sampler lined with three 2-inch-diameter by 6-inch-long brass sample tubes. At each sample point, the sampler was advanced 18 inches ahead of the hollow-stem augers into undisturbed soil. One soil sample from each 5-foot interval was collected, sealed with aluminum foil, capped, taped, labeled, placed on ice in an insulated container, and delivered to a California-certified laboratory. Soil

sampling was performed according to Groundwater Technology Standard Operating Procedures (SOPs), which are included in Appendix B.

Soil samples collected at 5 feet below grade from temporary monitoring well TMW-1 and monitoring well MW-7 were submitted to a California-certified laboratory for analyses of BTEX and TPH-G using Environmental Protection Agency (EPA) Methods 5030/8020 and modified EPA Method 8015.

3.4 Monitoring Well Installation

Temporary monitoring well TMW-1 was constructed using 17 feet of 2-inch-diameter, Schedule 40 polyvinyl chloride (PVC) 0.02-inch-slot well screen. After water samples were collected from temporary monitoring well TMW-1, the PVC casing was removed and the soil boring was backfilled with concrete using a tremie pipe.

Monitoring well MW-7 was constructed using 3 feet of 2-inch-diameter, Schedule 40 PVC casing with flush threads, and approximately 12 feet of 0.020-inch-slot well screen. A sand filter pack was placed around the well screen in the monitoring well to approximately 0.5 foot above the slotted well screen. The monitoring well was completed with 0.5 feet of hydrated bentonite and a neat-cement seal to grade. The wellhead was protected by a locking compression cap and traffic-rated street box with a watertight bolted lid. Well construction details are included with the drill logs (Appendix C). Using a City of Alameda bench mark, a licensed professional surveyor surveyed the top-of-elevation of monitoring well MW-7 relative to mean sea level on January 5, 1994. The bench mark (102), stamped Fern and High, is located in the sidewalk at the southwest corner of the intersection of Fernside Boulevard and High Street.

3.5 Monitoring Well Development

On November 23, 1993, monitoring well MW-7 was developed by surging groundwater using a PVC bailer and a pump. Well development promotes a uniform sand filter pack, removes fine-grain sediments from the well screen and filter pack, and improves the hydraulic communication between the well and aquifer. The groundwater from the wells was bailed until the fine-grain

sediments were removed. Approximately 10 well volumes of water were removed from each monitoring well during development activities.

3.6 Groundwater Monitoring

On November 30, 1993, monitoring wells C-1, C-3, MW-4, MW-5, MW-6, and MW-7 were monitored to measure the depth to groundwater and the thickness of separate-phase hydrocarbons, if present. The water levels were measured using an ORS Environmental Equipment INTERFACE PROBE™ Well Monitoring System, which consists of a dual optical sensor and electrical conductivity probe that distinguishes between water and petroleum products. **Separate-phase hydrocarbons were not detected in the monitoring wells.**

3.7 Groundwater Sampling

On November 11, 1993, temporary monitoring well TMW-1 was purged using a PVC bailer. Approximately 10 well volumes of water were removed before groundwater samples were collected. On November 30, 1993, groundwater monitoring well MW-7 was purged and groundwater samples were collected. Approximately 3 to 4 well-casing volumes of water were purged from the well before groundwater samples were collected.

Immediately before each water sample was collected, a distilled-water rinsate blank was collected from the Teflon™ sampler as a quality control check on the cleanliness of the sampler. A trip/laboratory blank was also prepared for quality control. Each sample was acidified, labeled, placed on ice in an insulated container, and delivered to a California-certified laboratory. The samples were accompanied by a chain-of-custody record during transport. The samples were analyzed for BTEX and TPH-G using EPA Methods 5030/8020 and modified EPA Method 8015. Water generated during the purging and sampling process was transported for recycling to the Chevron Refinery in Richmond, California.

4.0 SITE CONDITIONS

4.1 Analytical Results of Soil Samples

Laboratory analytical results of soil samples collected from temporary monitoring wells TMW-1 and monitoring well MW-7 at 5 feet below grade reported TPH-G concentrations below MDLs and 63 parts per million (ppm), respectively. Analytical results of soil samples collected from temporary monitoring well TMW-1 and monitoring well MW-7 at 5 below grade reported benzene concentrations below the MDL and 1.3 ppm, respectively. The results of the soil analyses are summarized in Table 1 and laboratory reports are included in Appendix D.

4.2 Analytical Results of Groundwater Samples

Analytical results of groundwater samples collected from temporary monitoring well TMW-1 and monitoring well MW-7 on November 11 and 30, 1993, reported TPH-G concentrations below the MDL and 480 ppb, respectively. Analytical results of samples collected from temporary monitoring well TMW-1 and monitoring well MW-7 reported concentrations of benzene below the MDL and 110 ppb, respectively. A summary of groundwater sample analytical results is presented in Table 2. Copies of the laboratory reports are included in Appendix D. Figures 3 and 4 present dissolved TPH-G and benzene concentrations maps.

4.3 Hydrogeology

The materials encountered during drilling consisted of clay, clayey sand, sand, and sandy clay. Figure 5 shows the location of cross sections A-A' and B-B'. Figures 6 and 7 are cross sections shown on Figure 5. Groundwater levels measured on November 30, 1993, ranged from 4.01 feet below grade in monitoring well MW-4 to 5.33 feet below grade in monitoring well MW-7. A potentiometric surface map (Figure 8) was prepared using the water level data collected on November 30, 1993, and survey data from January 5, 1994. Figure 8 indicates a easterly groundwater flow direction with a gradient of 0.007 foot per foot (ft/ft). Groundwater elevation data are presented in Table 2.

5.0 SUMMARY

- On November 11, 1993, Groundwater Technology supervised the drilling of two groundwater monitoring wells using a mobile CME 55 drilling rig.

- Analytical results of the soil samples collected at 5 feet below grade during drilling activities for the installation of temporary monitoring well TMW-1 and monitoring well MW-7 reported TPH-G concentrations below the MDL and 63 ppm, respectively. Analytical results of soil samples collected from temporary monitoring TMW-1 and monitoring well MW-7 at 5 feet below grade reported benzene concentrations below the MDL and 1.3 ppm, respectively.

- Analytical results of groundwater samples collected from temporary monitoring well TMW-1 and MW-7 on November 11 and 30, 1993, reported TPH-G concentrations below the MDL and 480 ppb, respectively. Analytical results of samples collected from temporary monitoring well TMW-1 and monitoring well MW-7 reported benzene concentrations of below the MDL and 110 ppb, respectively.

- On November 30, 1993, groundwater levels were measured in each of the monitoring wells at the site. The depth to water ranged from 4.01 to 5.33 feet below grade. Analysis of the monitoring and survey data indicated a groundwater flow direction toward the east with a gradient of 0.007 ft/ft.

6.0 REFERENCES

Alameda County Flood Control and Water Conservation District; June 1988; *Geohydrology and Groundwater--Quality Overview, East Bay Plain Area, Alameda County, California, 205(J) Report.*

Chevron; September 23, 1993; Correspondence from Mr. Mark Miller to Ms. Juliet Shin of the Alameda County Health Care Services, Department of Environmental Health.

EA Engineering; October 20, 1989; *Report of Soil and Groundwater Investigation*, Former Chevron Service Station No. 9-1153, 3126 Fernside Boulevard, Alameda, California.

Groundwater Technology, Inc.; June 16, 1993; *Work Plan for Additional Site Assessment*, Chevron Service Station No. 9-1153, 3126 Fernside Boulevard, Alameda, California.

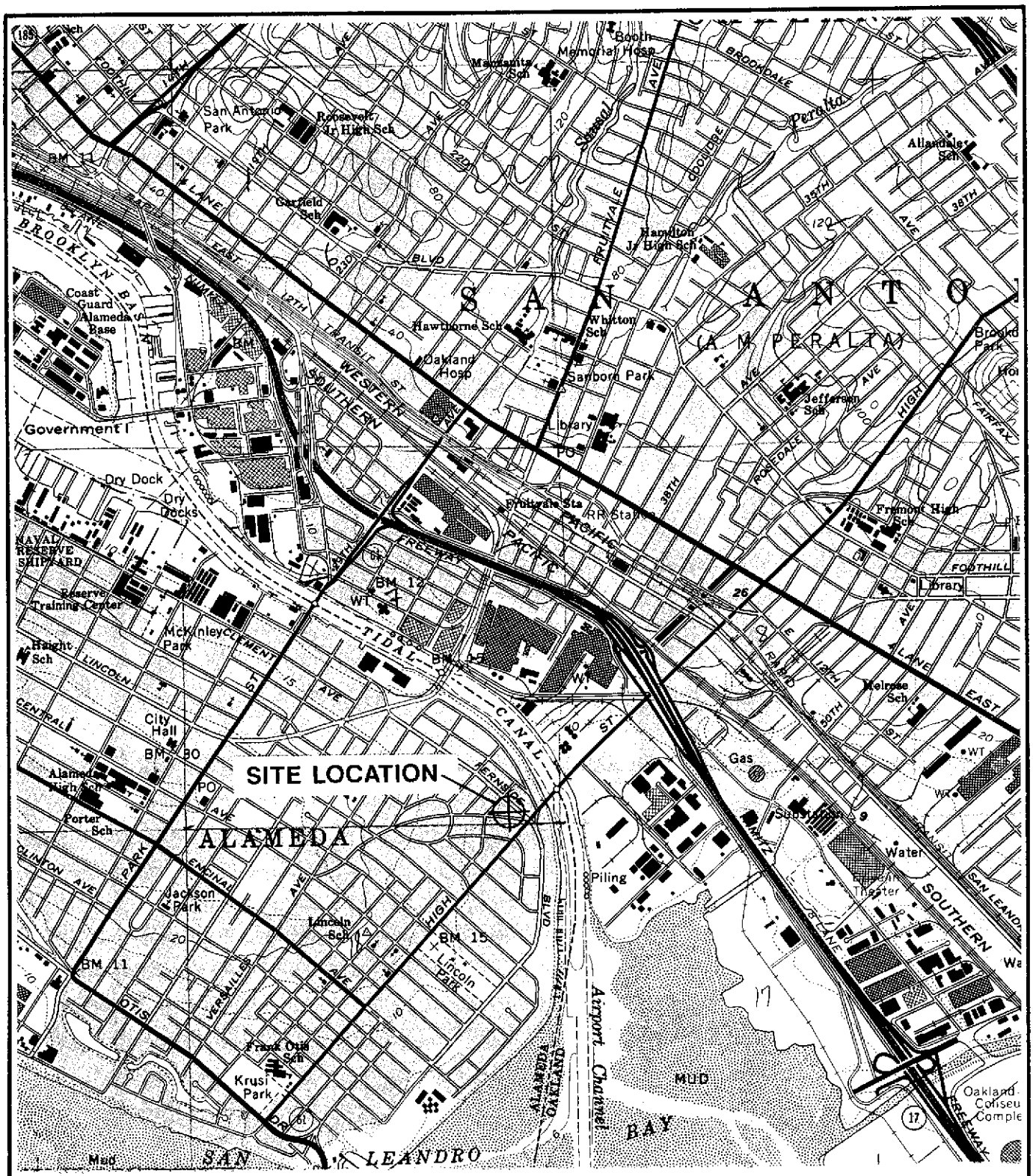
Groundwater Technology, Inc.; November 22, 1993; Groundwater Monitoring and Sampling Activities, Chevron Service Station No. 9-1153, 3126 Fernside Boulevard, Alameda, California.

Groundwater Technology, Inc.; July 16, 1992; Environmental Assessment Report, Chevron Service Station No. 9-1153, 3126 Fernside Boulevard, Alameda, California.

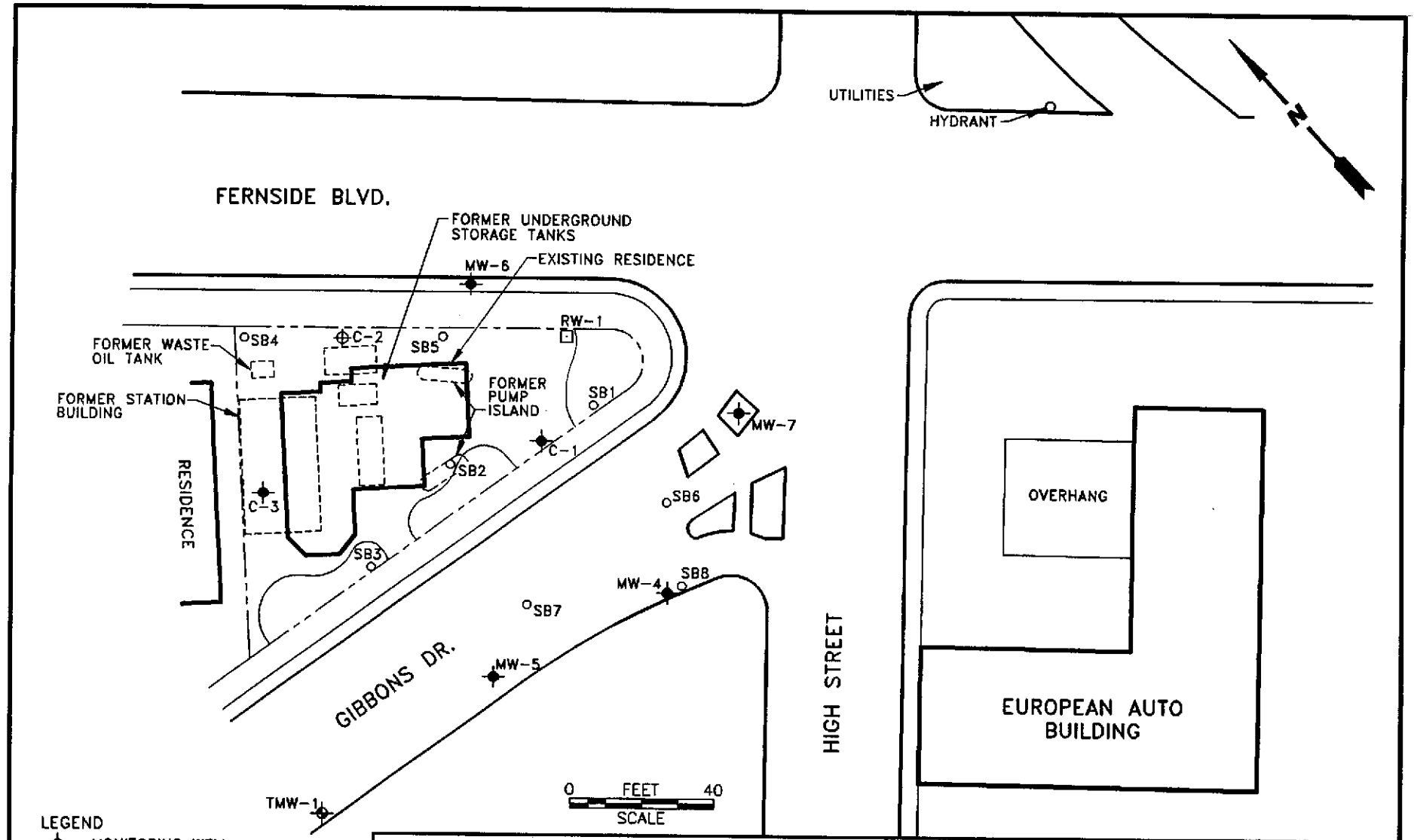
Pacific Environmental Group, Inc.; January 8, 1992; Letter to Ms. Nancy Vukelich of Chevron re: Work Plan for Chevron Service Station No. 9-1153.

Weiss Associates; April 1, 1993; *Offsite Ground Water Sampling*, Former Chevron Service Station 9-1153, 3126 Fernside Drive, Alameda, California.

FIGURES



GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387	N	SCALE: 0 FEET 2000	**SITE LOCATION MAP**
		CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No, 9-1153	DATE: 7/14/92
		LOCATION: 3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA	FIGURE: 1



GROUNDWATER TECHNOLOGY
4057 PORT CHICAGO HWY
CONCORD, CA 94520
(510) 671-2387

SITE PLAN

CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153	3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA	0	1/7/94

PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:
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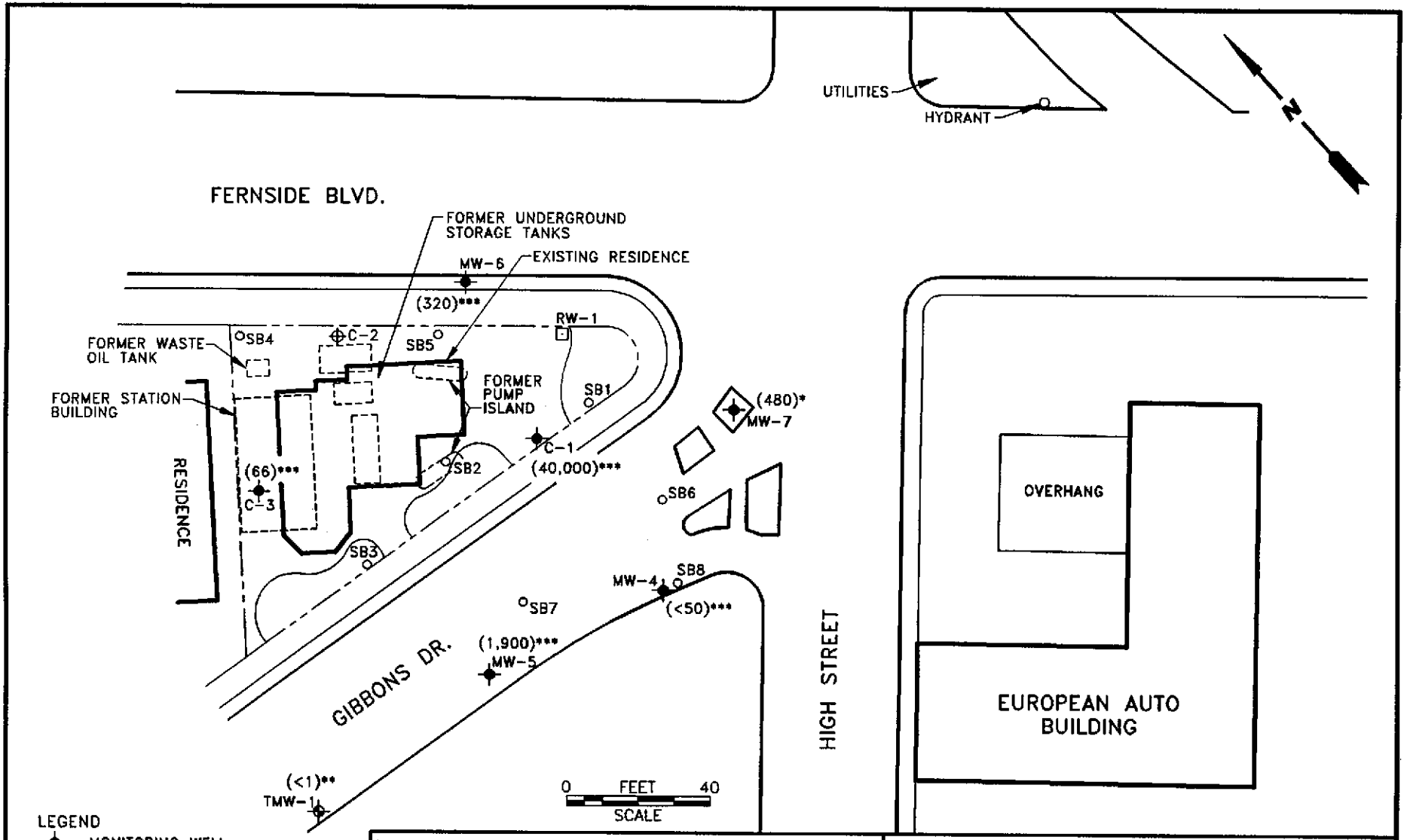

GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387

DISSOLVED TPH-AS-GASOLINE CONCENTRATION MAP

CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153	3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA	0	1/27/94

PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:
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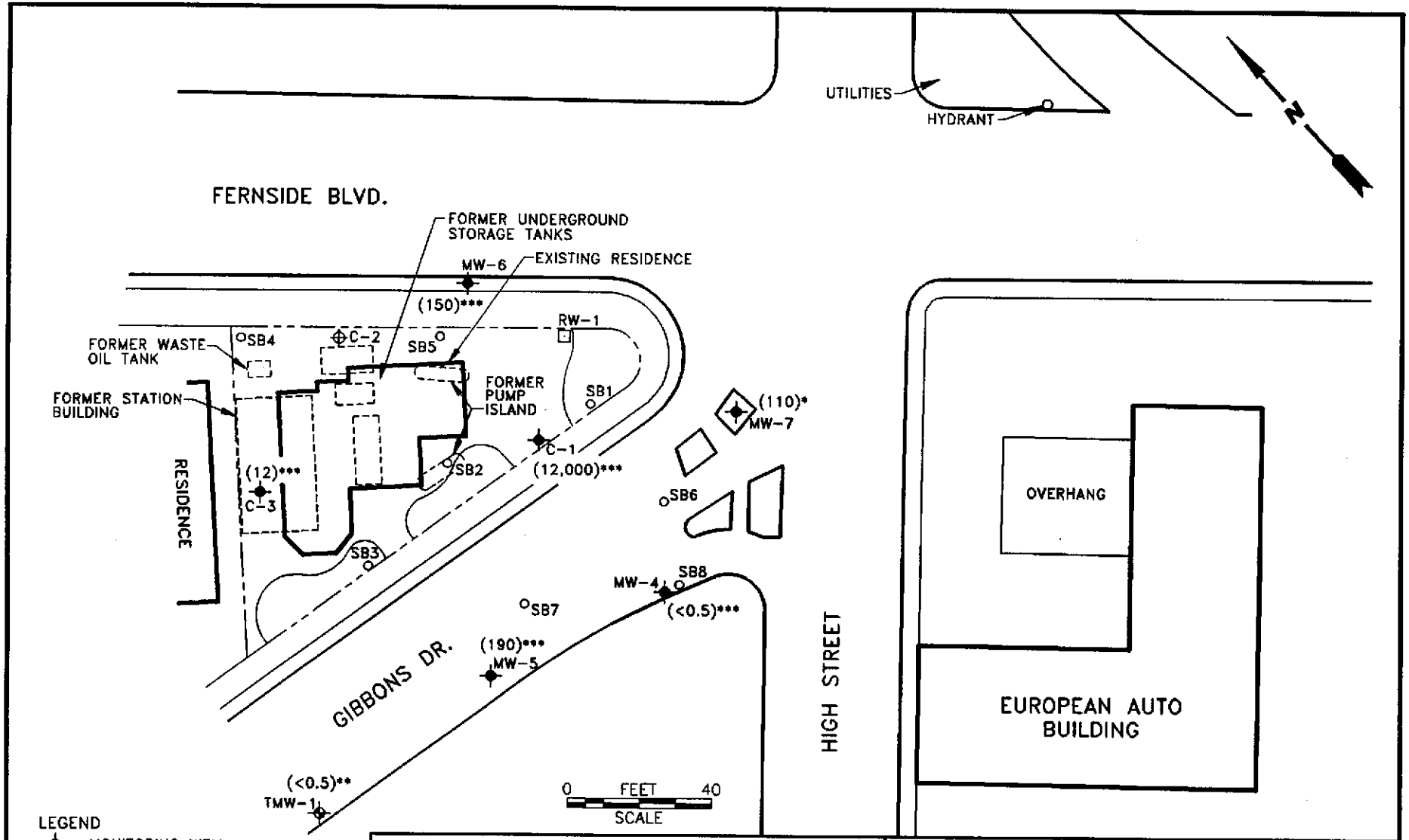

GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387

DISSOLVED BENZENE CONCENTRATION MAP

CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153	3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA	0	1/27/94

PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:
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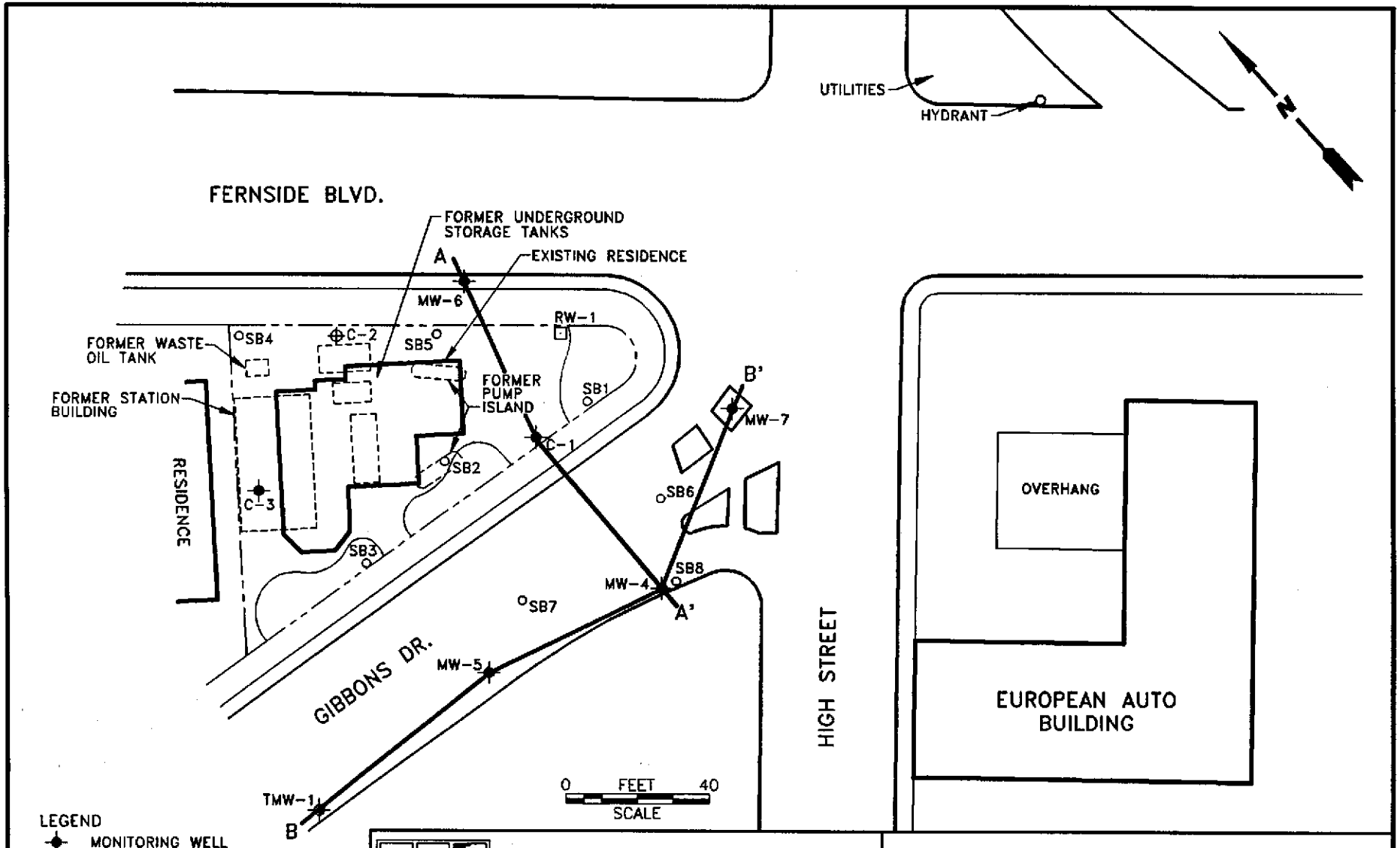

GROUNDWATER TECHNOLOGY
4057 PORT CHICAGO HWY
CONCORD, CA 94520
(510) 671-2387

CROSS SECTION LOCATION MAP

CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153	3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA	0	1/27/94

PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:
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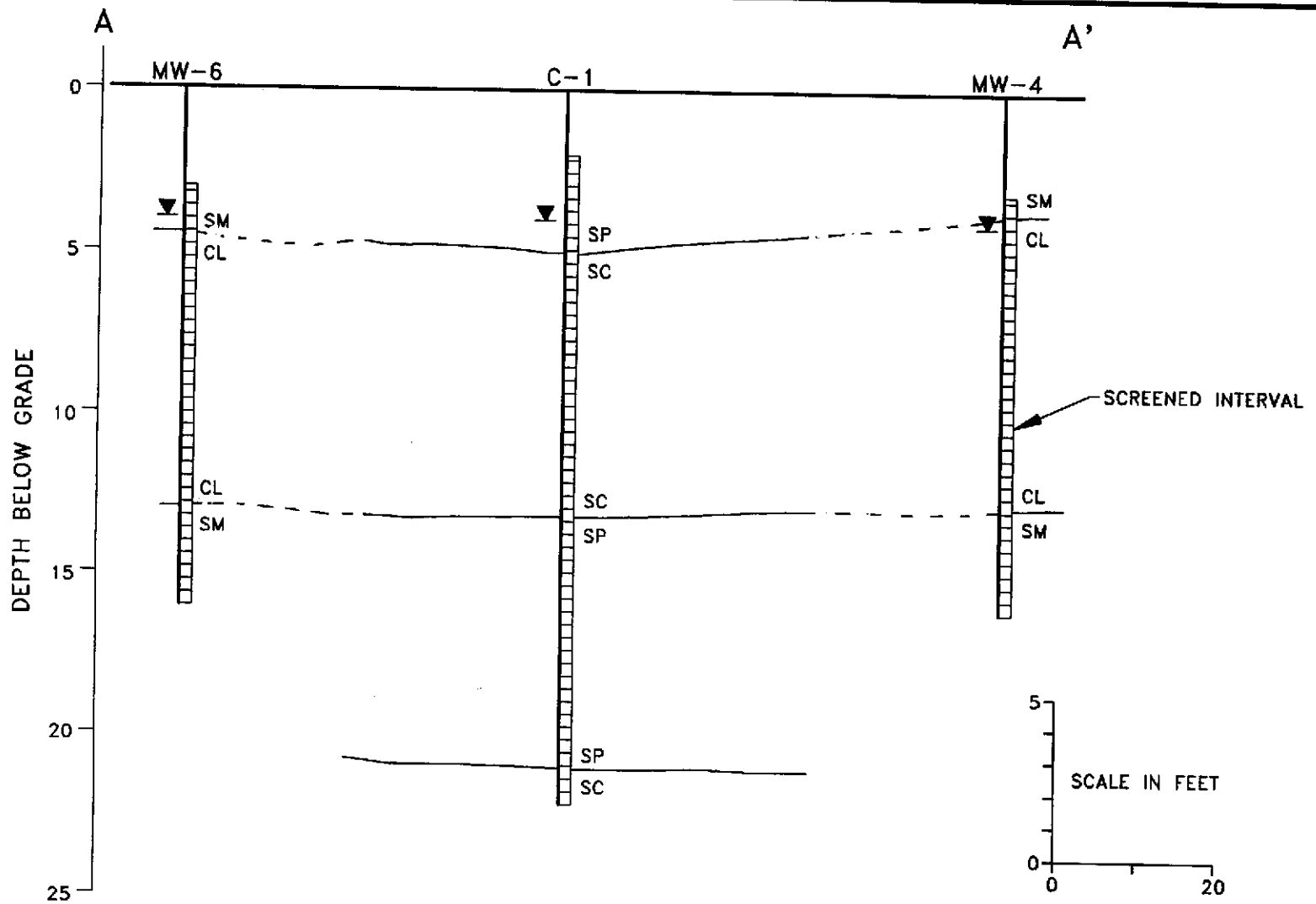

LEGEND

▼ WATER TABLE ELEVATION

GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387

CROSS SECTION A-A'

CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153	3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA	0	1/27/94

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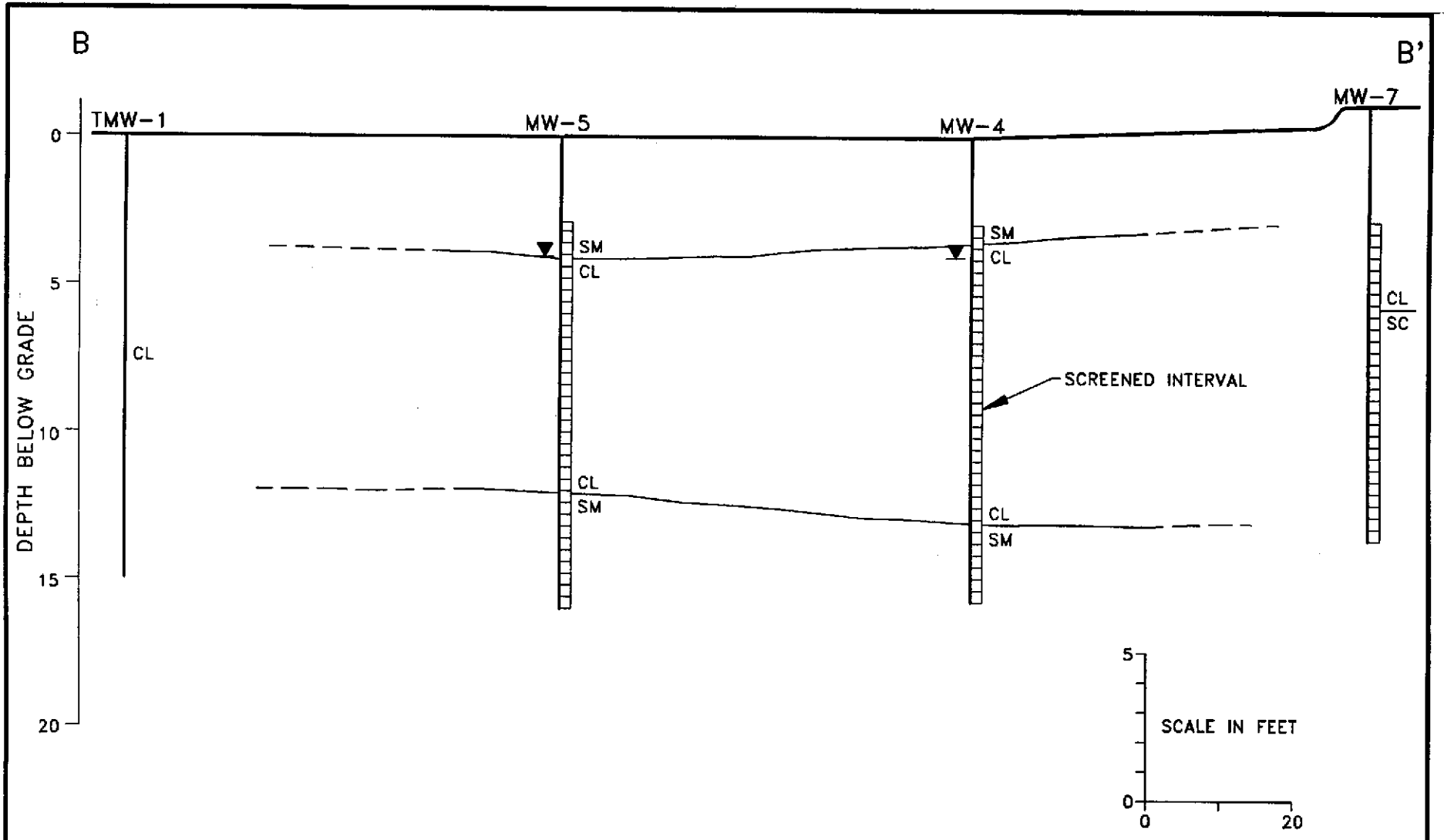

LEGEND

▼ WATER TABLE ELEVATION

GROUNDWATER TECHNOLOGY
4057 PORT CHICAGO HWY
CONCORD, CA 94520
(510) 671-2387

CROSS SECTION B-B'

CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153	3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA	0	1/27/94

PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:
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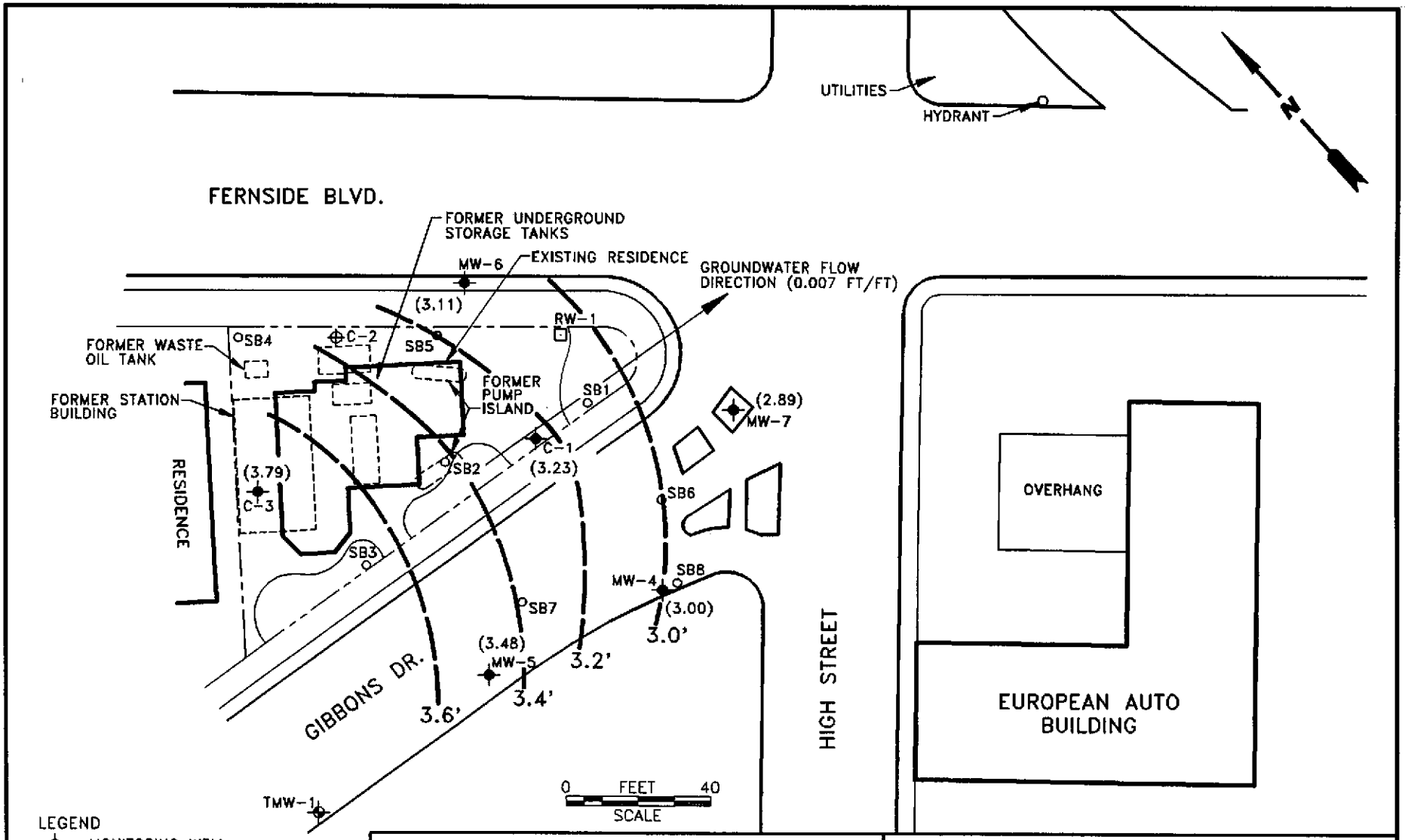


GROUNDWATER TECHNOLOGY
4057 PORT CHICAGO HWY
CONCORD, CA 94520
(510) 671-2387

POTENTIOMETRIC SURFACE MAP (11/30/93)

CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153	3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA	0	1/27/94

PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:
		JM	ML	PSMN3093/SP194	020204100	8

TABLES

TABLE 1
ANALYTICAL RESULTS OF SOIL SAMPLES
Chevron Service Station No. 9-1153
3126 Fernside Boulevard, Alameda, California
(Results in parts per million)

Date	Sample ID	Sample Depth (ft)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-G
11/11/93	TMW-1	5	<0.005	<0.005	<0.005	<0.017	<1
	MW-7	5	1.3	0.67	1.6	4.6	63

TPH-G = Total petroleum hydrocarbons-as-gasoline

TABLE 2
MONITORING DATA AND ANALYTICAL RESULTS OF GROUNDWATER SAMPLES
Chevron Service Station No. 9-1153
3126 Fernside Boulevard, Alameda, California
(Concentrations in parts per billion)

Well ID	Date	TOC Elevation (msl)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-G	DTW (ft)	SPT (ft)	GWE (ft)
C-1	11/30/93	7.50	---	---	---	---	---	4.27	0.00	3.23
C-3	11/30/93	7.83	---	---	---	---	---	4.04	0.00	3.79
MW-4	11/30/93	7.01	---	---	---	---	---	4.01	0.00	3.00
MW-5	11/30/93	7.04	---	---	---	---	---	3.56	0.00	3.48
MW-6	11/30/93	7.27	---	---	---	---	---	4.16	0.00	3.11
MW-7	11/30/93*	8.22	110	41	4.4	38	480	5.33	0.00	2.89
TMW-1	11/11/93**	--	<0.5	<0.5	<0.5	<0.5	<1	---	0.00	---

TOC = Top of casing
TPH-G = Total petroleum hydrocarbons-as-gasoline
DTW = Depth to water
SPT = Separate phase hydrocarbon thickness
GWE = Groundwater elevation in feet above mean sea level per City of San Leandro Bench Mark
msl = Mean sea level
ft = Feet
--- = Not sampled, not measured, not analyzed
* = Monitoring data and samples were collected on 11/30/93
** = Monitoring data and samples were collected on 11/11/93

APPENDIX A

Well Installation Permits

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 3126 Fernside Boulevard
Alameda, California

CLIENT
Name Chevron U.S.A. Products Company
Address P.O. Box 5004 Voice 842-8154
City San Ramon Zip 94583-0804

APPLICANT
Name Tim Watchers Groundwater Tech, Inc Fax 685-9148
Address 4057 Port Chicago Hwy Voice 671-3387 ext 255
City Concord Zip 94520

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	___	General	___
Water Supply	___	Contamination	___
Monitoring	1	Well Destruction	___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. C-57 582696

WELL PROJECTS

Drill Hole Diameter	___	in.	Maximum		
Casing Diameter	___	in.	Depth	___	ft.
Surface Seal Depth	___	ft.	Number	___	

GEOTECHNICAL PROJECTS

Number of Borings	2		Maximum		
Hole Diameter	8	in.	Depth	20	ft.

ESTIMATED STARTING DATE Oct 18, 1993
ESTIMATED COMPLETION DATE Nov 18, 1993

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

APPLICANT'S SIGNATURE [signature] Date Oct 8, 1993

FOR OFFICE USE

PERMIT NUMBER 93565
LOCATION NUMBER ___

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. 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 drilling logs and location sketch for geotechnical projects.
(3.) 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.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

(C.) GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

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

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 12 Oct 93
Wyman Hong

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

APPENDIX B

Groundwater Technology's Standard Operating Procedures (SOPs)

GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING GROUNDWATER MONITORING
SOP 8

Groundwater monitoring of wells at the site shall be conducted using an ORS Environmental Equipment (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). Separate-phase hydrocarbon (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) (0.8) + (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 which utilizes 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 0.01 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 case 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 the most contaminated wells. Wells containing separate-phase hydrocarbons (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, INC.
STANDARD OPERATING PROCEDURE
CONCERNING WATER SAMPLING METHODOLOGY
SOP 9

Before 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 percent of its initial level.

Retrieval of the water sample, sample handling and sample preservation shall be conducted according to Standard Operating Procedure 10 concerning "Sampling for Volatiles in Water." The sampling equipment used shall consist of a Teflon® and/or stainless steel samplers which meet U.S. Environmental Protection Agency (EPA) regulations. Glass vials with Teflon® lids should be used to store the collected samples.

To ensure sample integrity, each vial shall be filled with the sampled water in such a way 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 sampler's name. Chain-of-custody records shall be completed according to 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 4° Celsius (C). 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 sampling. As a second precautionary measure, the wells shall be sampled in order of increasing contaminant concentrations (the least contaminated well first, the most contaminated well last) as established by previous analysis.

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

1. Use only vials properly washed and oven dried.

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 indicated above. Visible deposits may have to be removed with hexane. Solvent washing should be followed by detergent washing, as indicated above.

   This procedure is valid for volatile organic analysis only. For extractable organics (for example, pesticides, or base neutrals for U.S. Environmental Protection Agency [EPA] Method 625 a final rinse with pesticide-grade isopropyl alcohol), followed by overnight or oven drying will be necessary.

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

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 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 analyses should be acidified below pH 2. 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. 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 it is in contact with the 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 there are not 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 required
    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° Celsius (C) (39.2° Fahrenheit [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.

14. Fill out Chain-of-Custody Manifest and Analysis Request Form (see Chain of Custody Procedures, SOP 11).

GROUNDWATER TECHNOLOGY, INC.
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 it was in your possession
    d) It is in a designated secure area

2. Custody of samples may be transferred from one person to another. Each transferrer 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, and bear the sender's signature across the area of bonding at the ends of the tape 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 the box. Place form in a plastic bag and seal it inside the box.

5. The "REMARKS" section 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 the time noted by a laboratory representative. The form will be retained in the laboratory files along with shipping bills and receipts .

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.

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

1. Soil samples should be collected and preserved in accordance with Groundwater Technology Standard Operating Procedure (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).

2. The split spoon sampler should be driven the full depth of the spoon into the soil by 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 or plastic cap, and 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~C) and transported to the laboratory within 24 hours.

3. One of the three soil samples retrieved at each sample depth shall be analyzed in the field using a photoionization 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 allowed to equilibrate with the air surrounding the soil for approximately 10 minutes. One of the two field vapor instruments shall be used to quantify the amount of hydrocarbon released to the air from the soils. The data shall be recorded on the drill logs at the depth corresponding to the sample point.

GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING SOIL SAMPLE COLLECTION AND
HANDLING WHEN SAMPLING FOR VOLATILE ORGANICS
SOP 15

1. Use a sampling means which maintains the physical integrity of the samples. The project sampling protocol will designate a preferred sampling tool. A split spoon sampler with liners, or similar tube sampler which can be sealed, is best.

2. The samples should be sealed in the liner, with teflon plugs (The "California Sampler") or plastic caps.

3. For sending whole-core samples (above):

   A. Seal ends of liner with teflon plugs or plastic caps, leaving no free air space inside.

   B. Tape with duct tape.

   C. Label the sample with the following information: sample identification, depth, date and time, project number and required analyses.

   D. Place in plastic bag labeled with indelible marker. Use Well #, depth, date, and job #.

   E. Place inside a second bag and place a labelling tag inside outer bag.

   F. Enclose samples in a cooler with sufficient ice or dry ice to maintain samples at 4 degrees C during shipment.

   G. Seal cooler with a lock, or tape with samplers signature so tampering can be detected.

   H. Package cooler in a box with insulating material. Chain of custody forms can be placed in a plastic bag in this outer box.

   I. If dry ice is used, a maximum of 5 pounds is allowed by Federal Express without special documents(documents are easy to obtain but are not necessary for under 5 pounds). Write "ORM-A dry ice", "____ pounds, for research" on outside packaging and on regular airbill under classification. UPS does not accept dry ice.

   J. Soil cores kept a 4 degrees C are only viable for up to 7 days when aromatic hydrocarbons are involved. The lab should prepare the samples in methanol once in the lab.

4. Good sampling practice would include preparing 1 out of 5 samples to be prepared in duplicates for analysis. These 4 out of 20 samples will be used for the following purposes:

   A. One in every 20 samples should be analyzed as a field replicate to evaluate the precision of the sampling technique. A minimum of 1 sample per data set is suggested.

B. An additional 1 in 20 samples should be selected by sampler to be prepared in duplicate as alternative to Step (A). Choose a different soil type if available.

C. The remaining 2 in 20 samples should be used by lab for spiking with reference materials for internal QC.

Other QC procedures can be specified at the project manager's discretion. See Table 3-2 (reference 2) attached.

5. Decontamination of equipment in the field requires a detergent wash, with a distilled water rinse.

REFERENCES

1. Soil Sampling Quality Assurance Users Guide, U.S. EPA Environmental Monitoring Systems Laboratory, Las Vegas, NV, EPA 600/4-84-043, May 1984.

2. Preparation of Soil Sampling Protocol. Techniques and Strategies, U.S. EPA, Environmental Monitoring Systems Laboratory, Las Vegas, NV, EPA 600/4-83-020, August 1983 (PB83-206979).

3. Test Methods for Evaluating Solid Waste, U.S. EPA, Office of Solid Waste and Emergency Response, Washington, D.C., SW 846, July 1982.

GROUNDWATER TECHNOLOGY, INC.
STANDARD OPERATING PROCEDURE
CONCERNING OPERATION/CALIBRATION OF
PHOTOIONIZATION ANALYZER
SOP 19

1. The Thermo Environmental Instruments Inc. Model 580B OVM Photoionization Analyzer shall be used, using photoionization, to measure the concentration of trace gases over a range of less than 1 ppm to 2,000 ppm. The specific instrument used for investigations related to hydrocarbon contamination should be calibrated for direct readings in parts per million (ppm) volume/volume of isobutylene. Specifics of the detection principle/theory and functions of various components can be found in the manufactures instruction manual.

2. To assure optimum performance, the photoionization analyzer should be calibrated with a standard gas mixture of known concentration from a pressurized container. A daily procedure for calibration involves bringing the probe and readout close to the calibration gas, cracking the valve on the tank and checking the instrument reading. This provides a useful spot check for the instrument.

3. A procedure conducted weekly for more accurate calibration of the instrument from a pressurized container is to connect one side of a "T" to the pressurized container of calibration gas, another side of the "T" to a rotameter and the third side of the "T" directly to the 8" extension to the photoionization probe (see Figure 2). Crack the valve of the pressurized container until a slight flow is indicated on the rotameter. The instrument draws in the volume of sample required for detection, and the flow in the rotameter indicates an excess of sample. Now adjust the span pot so that the instrument reads the exact value of the calibration gas. (If the instrument span setting is changed, the instrument should be turned back to the standby position and the electronic zero should be readjusted, if necessary).

APPENDIX C

Drill Logs and Well Construction Specifications

Drilling Log

GROUNDWATER TECHNOLOGY

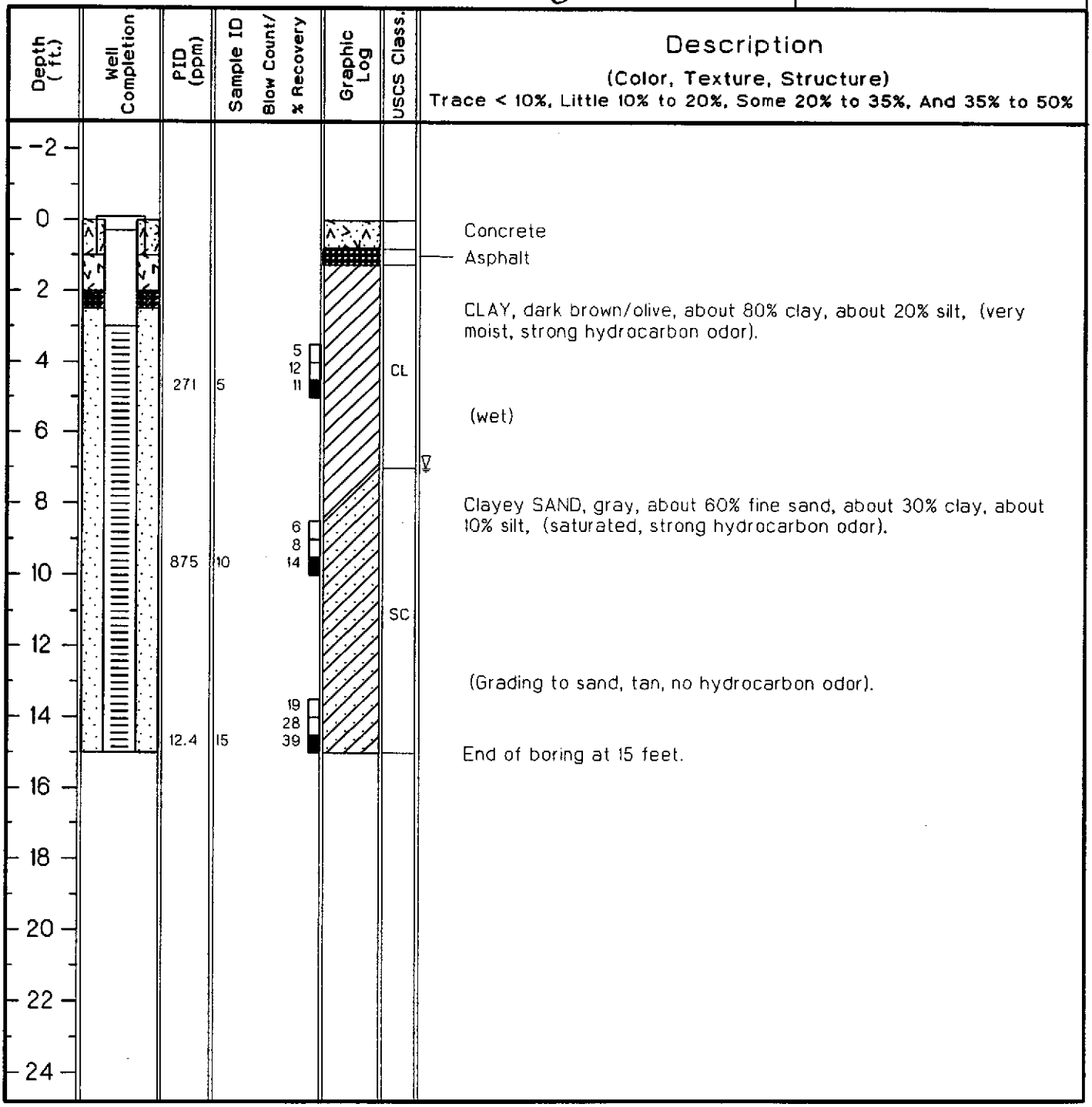
Monitoring Well **MW-7**

Project 3126 Fernside Blvd. Owner Chevron U.S.A., Inc.
Location Alameda, CA Proj. No. 020204604
Surface Elev. N/A ft. Total Hole Depth 15 ft. Diameter 8 in.
Top of Casing N/A ft. Water Level Initial 7 ft. Static N/A ft.
Screen: Dia 2 in. Length 12 ft. Type/Size 0.020 in.
Casing: Dia 2 in. Length 3 ft. Type PVC sch 40
Fill Material #3 sand Rig/Core Limited Access/Split Spoon
Drill Co. SES, Inc. Method Hollow Stem Auger
Driller D. Paxinos Log By S.C. Hurley Date 11/11/93 Permit # N/A
Checked By David Kleesattel License No. RG# 5136 (1) -9 K Lawler

See Site Map For Boring Location

COMMENTS:

The screen was set at approximately 15 feet below grade. The decon water and the soil cuttings were stored in 55-gallon drums and left on site until the contents could be analyzed for proper disposal. Depth to water was approximately 7.0 feet on 11-11-93.



Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **TMW-1**

Project *3126 Fernside Blvd.* Owner *Chevron U.S.A., Inc.*
Location *Alameda, CA* Proj. No. *020204604*
Surface Elev. *N/A ft.* Total Hole Depth *15 ft.* Diameter *8 in.*
Top of Casing *N/A ft.* Water Level Initial *6.5 ft.* Static *N/A ft.*
Screen: Dia *N/A in.* Length *N/A ft.* Type/Size *N/A in.*
Casing: Dia *N/A in.* Length *N/A ft.* Type *N/A*
Fill Material *N/A* Rig/Core *Limited Access/Split Spoon*
Drill Co. *SES, Inc.* Method *Hollow Stem Auger*
Driller *D. Paxinos* Log By *S.C. Hurley* Date *11/11/93* Permit # *N/A*
Checked By *David Kleesattel* License No. *RG# 5136* David Kleesattel

See Site Map For Boring Location

COMMENTS:

The decon water and soil cuttings were stored 55-gallon drums and left on site until the contents could be analyzed for proper disposal. Depth to water was approximately 6.5 feet on 11-11-93.

Depth (ft.)	PID (ppm)	Sample ID	Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						Asphalt
2						SAND, gray, about 100% fine sand, (about 50% quartz, about 50% mafic minerals).
4	5.6	5	6 9 10			Sandy CLAY, brown, about 80% clay, about 20% fine sand, (moist, no hydrocarbon odor).
6						(wet)
8			8 11		CL	
10	5.6	10	12			(saturated)
12						
14		15	19 29 28			(No recovery. End of boring at 15 feet.)
16						
18						
20						
22						
24						

APPENDIX D

Laboratory Reports
and
Chain-of-Custody Records

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

GROUNDWATER TECHNOLOGY, INC.
Attn: TIM WATCHERS

Project 9-1153
Reported 11/22/93

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
30054- 1	TMW-1	11/11/93	11/18/93	Water
30054- 2	TB-LB	11/11/93	11/18/93	Water
30054- 3	TMW-1(5)	11/11/93	11/18/93	Soil
30054- 5	MW-7(5)	11/11/93	11/17/93	Soil

RESULTS OF ANALYSIS

Laboratory Number:	30054- 1	30054- 2	30054- 3	30054- 5
Gasoline:	ND<50	ND<50	ND<1	63
Benzene:	ND<0.5	ND<0.5	ND<.005	1.3
Toluene:	ND<0.5	ND<0.5	ND<.005	0.67
Ethyl Benzene:	ND<0.5	ND<0.5	ND<.005	1.6
Total Xylenes:	ND<0.5	ND<0.5	0.017	4.6
Concentration:	ug/L	ug/L	mg/kg	mg/kg

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 30054

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
mg/kg = parts per million (ppm)

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg
Water: 50ug/L

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Soil: 0.005mg/kg
Water: 0.5ug/L

ANALYTE	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	83/90	8	70-130
Benzene:	104/112	7	70-130
Toluene:	102/109	7	70-130
Ethyl Benzene:	96/104	8	70-130
Total Xylenes:	103/110	7	70-130

11/23/93
Senior Chemist

[redacted] c[redacted] of[redacted]b [redacted]or[redacted]nd [redacted]C [redacted] Chevron [redacted]ontact: ☐ Yes ☐ No [redacted] Chain-of-Custody-Record

Chevron U.S.A. Inc.
P.O. BOX 5004
San Ramon, CA 94583
FAX (415)842-9591

Chevron Facility Number 9-1153
Facility Address 3126 Fernside Blvd.
Consultant Project Number 020204604
Consultant Name Groundwater Technology, Inc.
Address 4057 Port Chicago Hwy
Project Contact (Name) Tim Watchers
(Phone) (510) 671-2387 (Fax Number) 685-9148

Chevron Contact (Name) Mark Miller
(Phone) 842-8134
Laboratory Name Superior
Laboratory Release Number 5901420
Samples Collected by (Name) S.C. Henley
Collection Date 11-11-93
Signature S.C. Henley

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	hold	~~H~~				Remarks
TMW-1	1	4	W	G	11:40	HCl	yes	X													
TB	2	1	~~S~~W	↓	~~10:05~~			X									~~X~~				
TMW-1(5)	3	1	S		10:05			X													
TMW-1(10)	4				~~PE~~ 10:20											X					
~~TMW-~~																					
MW-7(5)	5				12:15			X													
MW-7(10)	6				12:25											X					
MW-7(15)	7	↓	↓	↓	1:05		↓									X					

Please ...
Samples ...
Appropriate containers
Sample preserved
VOA's without headspace
Comments

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
S.C. Henley	GTI	11/11/93	[signature]	G.T.I.	11/12/93
[signature]	G.T.I.	11/10/93	Eric Carlson	AERO	11/12/93 1:30
Eric Carlson	AERO	11/12/93 2:10pm	Received For Laboratory By (Signature): [signature]		11/12/93 1440

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted (circled)

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

GROUNDWATER TECHNOLOGY, INC.
Attn: TIM WATCHERS

Project 9-1153
Reported 12/07/93

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
30090- 1	TB-LB	11/30/93	12/04/93	Water
30090- 2	RBMW7	11/30/93	12/04/93	Water
30090- 3	MW7	11/30/93	12/04/93	Water

RESULTS OF ANALYSIS

Laboratory Number:	30090- 1	30090- 2	30090- 3
Gasoline:	ND<50	ND<50	480
Benzene:	ND<0.5	ND<0.5	110
Toluene:	ND<0.5	ND<0.5	41
Ethyl Benzene:	ND<0.5	ND<0.5	4.4
Total Xylenes:	ND<0.5	ND<0.5	38
Concentration:	ug/L	ug/L	ug/L

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 30090

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
ug/L = parts per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Water: 5000ug/L

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 50ug/L

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 50ug/L

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Water: 0.5ug/L

ANALYTE	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	87/103	17%	70-130
Benzene:	94/89	5%	70-130
Toluene:	100/97	3%	70-130
Ethyl Benzene:	92/87	6%	70-130
Total Xylenes:	103/99	4%	70-130

12/9/93

Senior Chemist

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☐ No

Chain-of-Custody-Record

Chevron U.S.A. Inc.
P.O. BOX 5004
San Ramon, CA 94583
FAX (415)842-9591

Chevron Facility Number: 9-1153 (Project # also)
Facility Address: 3126 Fernside Blvd.
Consultant Project Number: 020204604
Consultant Name: Groundwater Tech Inc.
Address: 4057 Port Chicago Hwy, Concord, Ca.
Project Contact (Name): Tim Watchers
(Phone) 510-671-2387 (Fax Number) 685-9148

Chevron Contact (Name): Mark Miller
(Phone) 842-8134
Laboratory Name: Superior Precision Analytical
Laboratory Release Number: 5901420
Samples Collected by (Name): Randy Ray Phillips
Collection Date: 11/30/93
Signature: [signature]

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)						Remarks
TBLB		2v	W	G	10:30	HCl	Yes	X													Do not Bill TBLBs
RBMW7		1v	↓	↓	↓	↓	↓	↓													
MW7		3v	↓	↓	↓	↓	↓	↓													

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
[signature]	G.T.I.	11/30/93 1:40	[signature]	S-PRECISION	11/30/93 1:40
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
			[signature] S-PRECISION		11/30/93 11:40

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
(As Contracted)

COC-3.DWG/03 91/HCH