Chevron

Chevron U.S.A. Products Company
2410 Camino Ramon, San Ramon, California • Phone (510) 842-9500
Mail Address: P.O. Box 5004, San Ramon, CA 94583-0804

Marketing Department

July 29, 1992

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 #9-2384
15526 Hesperian Blvd., San Lorenzo

Dear Ms. Shin:

Enclosed we are forwarding the Environmental Assessment Report dated July 16, 1992, prepared by our consultant Groundwater Technology, Inc. for the above referenced site. As indicated in the report, three (3) borings were advanced and completed into ground water monitor wells designated MW-1 through MW-3. This work was performed to assess whether the ground water beneath the site had been impacted. Soil samples collected from the drill cuttings were analyzed for total petroleum hydrocarbons as gasoline (TPH-G) and BTEX. All results reported concentrations below the method detection limits for these constituents with the exception of the sample collected from MW3C at 14 feet below grade which reported a concentration of TPH-G at 400 ppm. Samples collected from MW-1 and MW-2 were analyzed for total organic lead and reported non-detectable concentrations. Ground water samples were collected and analyzed for the same constituents. Laboratory analysis reported benzene concentrations in MW-2 and MW-3 of 910 parts per billion and 12 ppb, respectively. Depth to groundwater was located at approximately 13.0 ft. below grade with a flow gradient to the west of approximately 0.003 ft./ft.

Chevron will collect depth to groundwater measurements each month for the first three (3) months, then quarterly thereafter. Ground water direction should be established during this first quarter. After completion of the first quarter of water level measurements, a routine quarterly monitoring program will continue. At that time Chevron will instruct its consultant to permit and install additional ground water monitor wells to delineate the extent of the hydrocarbon contamination in the subsurface and ground water. A work plan will be prepared proposing the additional assessment work and forwarded to your office for your review and formal concurrence.

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

Very truly yours,
CHEVRON U.S.A. PRODUCTS COMPANY

Mark A. Miller
Site Assessment and Remediation Engineer

Enclosures

cc: Mr. Eddy So, RWQCB-Bay Area
Ms. B.C. Owen
File (9-2384A1)

Mr. Gary Allen
Century 21 Korpi & Associates
15200 Hesperian Blvd.
San Leandro, CA 94570

GROUNDWATER TECHNOLOGY, INC.

4057 Port Chicago Highway, Concord, CA 94520 (415) 671-2387
FAX: (415) 685-9148

ENVIRONMENTAL ASSESSMENT REPORT
CHEVRON SERVICE STATION NO. 9-2384
15526 HESPERIAN BOULEVARD
SAN LORENZO, CALIFORNIA

020202746

JULY 16, 1992

Prepared for:
Ms. Nancy Vukelich
Chevron U.S.A. Products Company
2410 Camino Ramon
San Ramon, California 94583-0804

Groundwater Technology, Inc.
Written/Submitted by

Gregory A. Mischel
Project Geologist

Sandra L. Lindsey
Project Manager

Groundwater Technology, Inc.
Reviewed/Approved by

David R. Kleesattel
Registered Geologist
No. 5136

For:
John Gaines
Regional Manager

REGISTERED GEOLOGIST
DAVID R. KLEESATTEL
NO. 5136
STATE OF CALIFORNIA

R2746A1.GM
(030522)

CONTENTS

FIGURES

CONTENTS, continued

TABLES

APPENDICES

ENVIRONMENTAL ASSESSMENT REPORT
CHEVRON SERVICE STATION NO. 9-2384
15526 HESPERIAN BOULEVARD
SAN LORENZO, CALIFORNIA

JULY 16, 1992

1.0 INTRODUCTION

This report summarizes the environmental assessment work conducted by Groundwater Technology, Inc. at the Chevron Service Station No. 9-2384 located at 15526 Hesperian Boulevard, San Lorenzo, California (Figure 1). The objective of this work was to determine if the soil and groundwater beneath the site had been impacted by gasoline hydrocarbons. The assessment work completed during May and June 1992 included drilling four soil borings, installing monitoring wells in three of the borings, soil and groundwater sampling, analyzing the collected samples, and preparing this report.

2.0 BACKGROUND

The following site history and background information was taken from a work plan prepared by Pacific Environmental Group, Inc., dated November 4, 1991. The site property was once developed as a Bubble Machine car wash and Chevron service station (Figure 2). Former Chevron Service Station No. 9-2384 is currently a vacant lot. The site lies within a mixed commercial and residential area.

Gasoline at the site was stored below grade in two 10,000-gallon and one 6,000-gallon single-wall fiberglass tanks. These tanks were installed in 1972. On December 10, 1981, the supreme unleaded and regular unleaded tanks failed integrity tests. The tanks were subsequently uncovered

to isolate the product piping, retested, and found to be tight. On October 18, 1990, the regular leaded tank failed an integrity test. The regular leaded tank was uncovered on November 2, 1990, retested, and tested tight.

On March 31, 1991, the product dispensers were removed and the site was abandoned. On May 30, 1991, the underground storage tanks and piping were excavated and removed from the site. A Tank Closure Report, dated October 28, 1991, was prepared by Blaine Tech Services. Before backfilling the tank excavation, additional soil was excavated for remediation. The soil excavation and remediation is documented in a report prepared by Blaine Tech Services dated December 13, 1991.

3.0 WORK SCOPE

3.1 Site-Specific Health and Safety Plan/Permitting

Groundwater Technology prepared a site-specific health and safety plan required by the Occupational Health and Safety Administration (OSHA) Standard "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120). The site-specific health and safety plan was prepared by Groundwater Technology following a review of site conditions and any existing Site-Specific Health and Safety Plans for the site. The health and safety plan was reviewed and signed by all of Groundwater Technology's personnel and subcontractors before performing work at the site.

Groundwater Technology reviewed the site history and information with Chevron representatives before beginning work at the site. Drilling permits to install the monitoring wells were obtained from the Alameda County Flood Control and Water Conservation District (Appendix A).

3.2 Soil Borings

On May 14, 1992, Groundwater Technology supervised the drilling of three on-site soil borings (MW-1, MW-2, and MW-3) utilizing a truck-mounted drill rig equipped with 8-inch-diameter, hollow-stem augers. The soil borings were drilled to 25 feet below grade. Monitoring wells were installed in each of the borings. Because monitoring well MW-3 was initially installed in the wrong location, the well

was abandoned and replaced with a well to the east of the original location on May 20, 1992. The former monitoring well MW-3 was destroyed by removing the casing and well screen, drilling out the surface seal and filter pack, and filling the borehole with neat cement. A field geologist, under the supervision of a California Registered Geologist, logged the materials encountered during drilling using the Unified Soil Classification System (Appendix B).

The hollow-stem augers were steam cleaned between each boring. The steam cleaning water was stored in a labeled 55-gallon drum pending disposal. The soil from the borings was placed on and covered by polyethylene plastic pending characterization and disposal.

3.3 Soil Sampling

During drilling, soil samples were collected at 5-foot intervals, from approximately 5 feet below grade to the bottom of the boring. Samples were collected using a 2.5-inch outside diameter (O.D.) split-spoon sampler, lined with three 2-inch-diameter by 6-inch-long brass sample tubes. The sampler was driven 18 inches ahead of the augers at each sample point. Soil samples were field screened using a photo-ionization detector (PID). One sample from every 5-foot interval was sealed with aluminum foil, capped, taped, labeled, placed on ice in an insulated container and delivered to a California-certified laboratory. All sampling was performed according to Groundwater Technology standard operating procedures (SOPs) (Appendix C).

At least one soil sample from each soil boring was selected for analysis. Each sample was analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), and TPH-as-gasoline by Environmental Protection Agency (EPA) Methods 5030/8020/8015. One soil sample from boring MW-1 and from boring MW-3 were also analyzed for total organic lead using the Department of Health Services (DHS) method referenced in the Leaking Underground Fuel Tank (LUFT) Field Manual.

3.4 Monitoring Well Installation

Monitoring wells MW-1, MW-2, and MW-3 were constructed of 2-inch-diameter, Schedule 40 polyvinyl chloride (PVC) casing with flush threads, and 15 feet of 0.020-inch-slot well screen. The well screen of each monitoring well was installed from 10 feet to 25 feet below grade. A sand filter was placed around each well screen to a height of approximately 1 foot above the top of the screen. The wells were completed with 1 foot of bentonite and a neat-cement seal to grade. The wellhead was

protected by a locking cap and a traffic-rated street box with a water-tight bolted lid. Well construction details are presented on the drill logs (Appendix B). The top of casing elevation of each monitoring well was surveyed to mean sea level by a professional licensed surveyor.

3.5 Monitoring Well Development

On June 4, 1992, the monitoring wells were developed by surging and bailing groundwater from each well using a PVC bailer. This technique promotes an even sand filter pack, removes fine-grained sediments from the well screen and filter pack, and improves the hydraulic communication between the well and aquifer. The groundwater from each well was bailed until visibly clear. Approximately five well casing volumes were extracted from each well before sample collection.

3.6 Groundwater Monitoring

On June 4, 1992, each monitoring well was monitored to determine the depth to groundwater and the thickness of any separate-phase hydrocarbons. The water levels were measured using an ORS Environmental Equipment INTERFACE PROBE™ Well Monitoring System, consisting of a dual optical sensor and electrical conductivity probe, that distinguishes between water and petroleum products. No separate-phase hydrocarbons were detected.

3.7 Groundwater Sampling

On June 4, 1992, each of the site monitoring wells were purged and groundwater samples were collected from wells MW-1, MW-2, and MW-3 using a Teflon sampler. Immediately before collecting each water sample, a distilled water rinsate blank was collected from the Teflon sampler as a quality control check on the cleanliness of the sampler. A trip/lab blank was also collected 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. Each sample was analyzed for BTEX and TPH-as-gasoline using EPA Methods 5030/8020/8015. Water generated during the purging and development process was stored in a Department of Transportation (DOT)-approved water trailer and transported to the Chevron refinery in Richmond, California for recycling.

4.0 SITE CONDITIONS

4.1 Hydrogeology

Topographically, the site is situated on the east side of the San Francisco Bay Plain. The right-lateral strike-slip Hayward Fault and the Oakland Hills are located approximately one mile east of the site. The surface elevation at the site is approximately 36 feet above mean sea level. The local land surface slopes gently to the west. The site is approximately 1,500 feet north of the San Lorenzo Creek, which flows to the west into the San Francisco Bay.

The materials encountered during drilling consisted of interbedded silty fine sand, silty clay, and sandy and clayey silt. On June 4, 1992, the groundwater levels at the site ranged between 13.12 feet below grade at wells MW-1 and MW-3 to 13.48 feet below grade at well MW-2. A potentiometric surface map (Figure 3) was prepared using the water level data collected on June 4, 1992. Figure 3 shows a westerly groundwater flow with a gradient of approximately 0.003 foot per foot. The groundwater level data are presented in Table 1.

4.2 Analytical Results for Soil

Analytical results showed a TPH-as-gasoline concentration (400 parts per million (ppm)) only in the soil sample MW3C collected at 14 feet below surface grade from the boring for former monitoring well MW-3 (Figure 2). The analytical results reported detectable benzene concentrations in samples MW2B and MW3C of 0.12 ppm and 0.34 ppm, respectively. Samples MW2B and MW3C were collected at 10.5 feet and 14 feet below grade on May 14, 1992. Results of all soil sample analyses are summarized in Table 2 and the laboratory reports are enclosed in Appendix D. An incorrect sample date (May 15, 1992) was recorded on the chain-of-custody record, and, therefore, on the laboratory report.

4.3 Analytical Results for Groundwater

Analytical results for groundwater samples collected on June 4, 1992 reported detectable benzene concentrations in the samples collected from wells MW-2 and MW-3. Benzene concentrations were

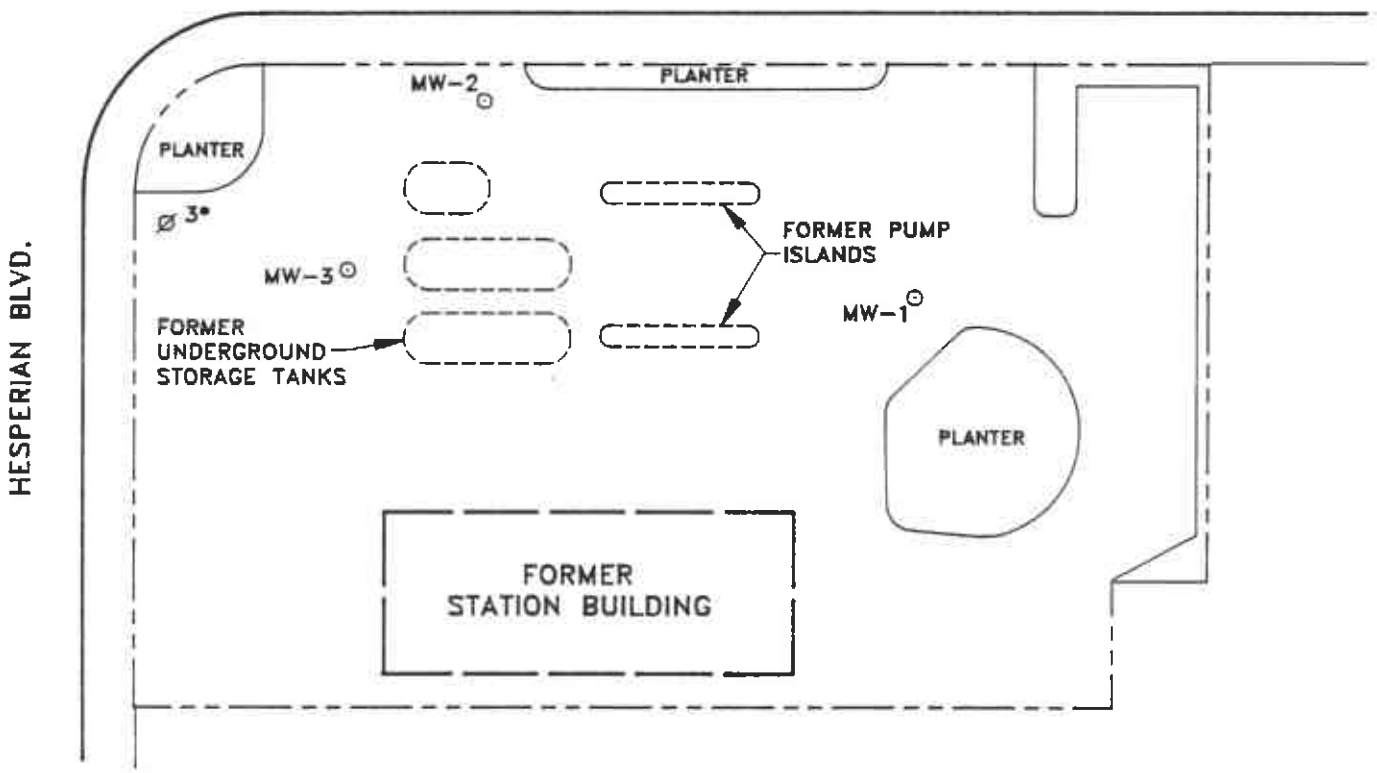
reported at 910 parts per billion (ppb) and 12 ppb, respectively. No BTEX or TPH-as-gasoline concentrations were reported above the method detection limits (MDL) in the sample collected from well MW-1. Results of all water sample analyses are summarized in Table 1, and the laboratory reports are enclosed in Appendix D.

5.0 REFERENCES

Pacific Environmental Group, Inc., 1991, Work Plan, Former Chevron USA Station 9-2384, 15526 Hesperian Boulevard, San Lorenzo, California (unpublished).

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. 9-2384	DATE: 5/13/92
		LOCATION: 15526 HESPERIAN BLVD. SAN LORENZO, CALIFORNIA	FIGURE: 1



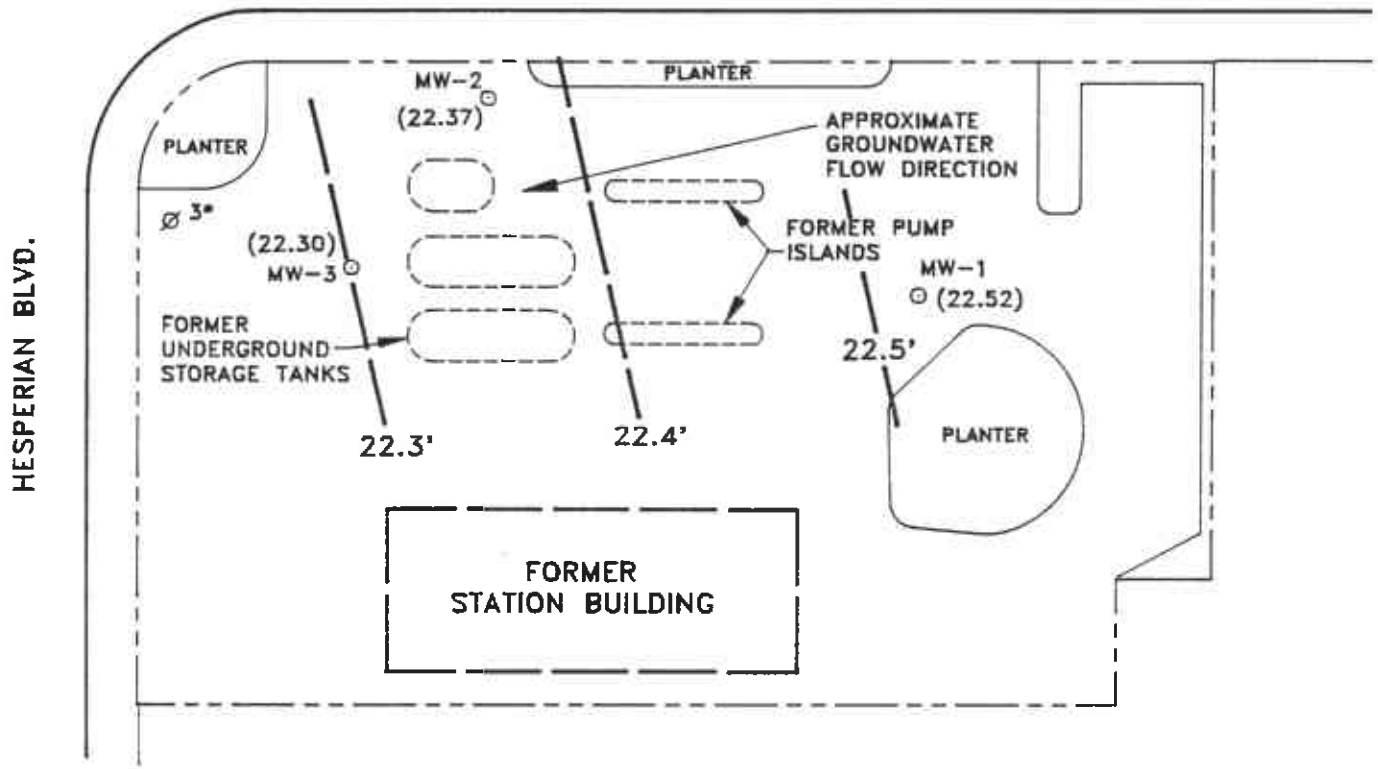
LEGEND

⊙ MONITORING WELL

Ø3" ABANDONED MONITORING WELL (FORMER LOCATION OF MW-3)

0 FEET 30
SCALE

GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387				SITE PLAN		
CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-2384				LOCATION: 15526 HESPERIAN BLVD. SAN LORENZO, CALIFORNIA	REV. NO.: 0	DATE: 6/26/92
PM GAM	PE/RG DRK	DESIGNED	DETAILED ML	ACAD FILE: SP692	PROJECT NO.: 020202746	FIGURE: 2



LEGEND

- ⊙ MONITORING WELL
- Ø3" ABANDONED MONITORING WELL (FORMER LOCATION OF MW-3)
- ( ) POTENTIOMETRIC SURFACE ELEVATION
- —— POTENTIOMETRIC SURFACE CONTOUR

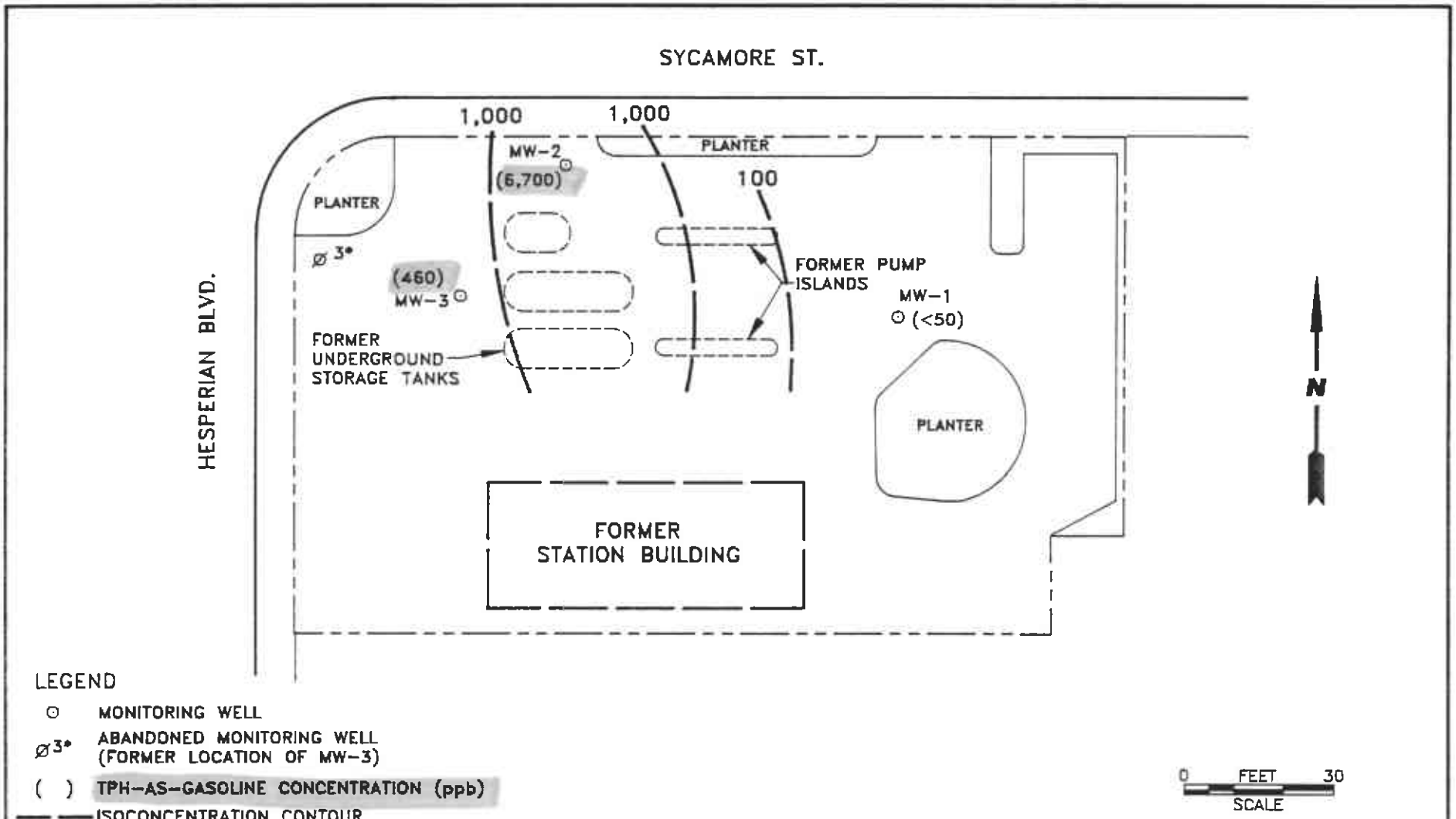
0 FEET 30
SCALE

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

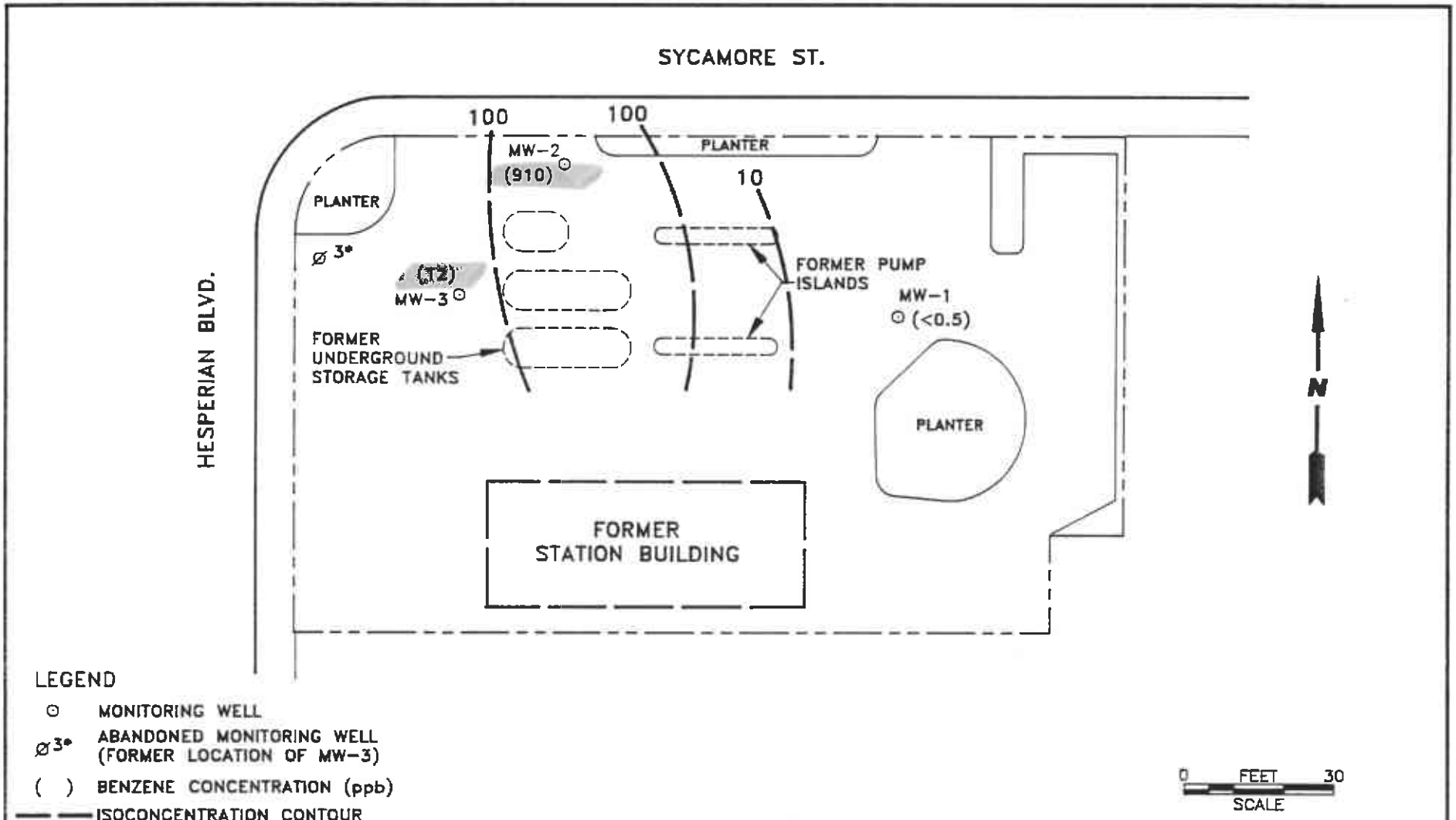
POTENTIOMETRIC SURFACE MAP (6/4/92)

CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-2384	15526 HESPERIAN BLVD. SAN LORENZO, CALIFORNIA	0	7/14/92

PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:
GAM	DKF	GM	ML	PSM6492/SP692	020202746	3



GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387				**DISSOLVED TPH-AS-GASOLINE CONCENTRATION MAP (6/4/92)**		
CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-2384				LOCATION: 15526 HESPERIAN BLVD. SAN LORENZO, CALIFORNIA	REV. NO.: 0	DATE: 7/14/92
PM: GM	PE/RG: DRK	DESIGNED: GM	DETAILED: ML	ACAD FILE: TPH6492/SP692	PROJECT NO.: 020202746	FIGURE: 4



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

DISSOLVED BENZENE CONCENTRATION MAP (6/4/92)

CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-2384	15526 HESPERIAN BLVD. SAN LORENZO, CALIFORNIA	0	7/14/92

PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:
GAM	DRK	GM	ML	BNZ6492/SP692	020202746	5

TABLES

TABLE 1
GROUNDWATER ANALYTICAL RESULTS AND MONITORING DATA
COLLECTED ON JUNE 4, 1992
(Concentrations in parts per billion)

SAMPLE ID/ ELEV.	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TPH-AS-GASOLINE	DTW (ft)	SPT (ft)	GWE (ft)
MW-1/35.64	<0.5	<0.5	<0.5	<0.5	<50	13.12	0.00	22.52
MW-2/35.85	910	17	210	30	6,700	13.48	0.00	22.37
MW-3/35.42	12	0.8	5.8	14	460	13.12	0.00	22.30
Trip Blank	<0.5	<0.5	<0.5	<0.5	<50	---	---	---

$\overline{\text{TPH}}$ = Total petroleum hydrocarbons
DTW = Depth to groundwater
SPT = Separate-phase hydrocarbon thickness
GWE = Groundwater elevation in feet above mean sea level
--- = Not applicable,not analyzed, not measured

GROUNDWATER TECHNOLOGY

TABLE 2
ANALYTICAL RESULTS FOR SOIL SAMPLES
COLLECTED ON MAY 14, 1992
(Concentration in parts per million)

BORING	SAMPLE ID	SAMPLE DEPTH	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TPH-AS-GASOLINE	TOTAL ORGANIC LEAD
MW-1	MW1B	5.5	<0.005	0.018	<0.005	<0.005	<1	<2
MW-2	MW2A	5.5	<0.005	0.13	<0.005	<0.005	<1	NA
MW-2	MW2B	10.5	0.012	0.008	0.006	<0.005	<1	NA
MW-3	MW3C	14	0.34	1.1	6.2	4.7	400	NA
MW-3*	MW3B	10.5	<0.005	<0.005	<0.005	<0.005	<1	<2

$\overline{\text{TPH}}$ = Total petroleum hydrocarbons
* = Soil sample collected from replacement boring drilled on May 20, 1992.
NA = Not analyzed

APPENDIX A

WELL INSTALLATION PERMITS

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (510) 484-2600

27 May 1992

Groundwater Technology
4057 Port Chicago Highway
Concord, CA 94520

Gentlemen:

Enclosed is drilling permit 92258 for the destruction of well 3S/2W 7F80 at 15526 Hesperian Boulevard in San Lorenzo for Chevron USA.

Please note that permit condition A-2 requires that a well destruction report be submitted after completion of the work. The report should include a description of methods and materials used to destroy the well, location sketch, date of destruction, and permit number.

If you have any questions, please contact Wyman Hong or me at 484-2600.

Very truly yours,

Craig A. Mayfield

Craig A. Mayfield
Water Resources Engineer

WH:mm

27 May 1992

ZONE 7
WATER RESOURCES ENGINEERING
DRILLING ORDINANCE

CHEVRON USA
15526 HESPERIAN BOULEVARD
SAN LORENZO
WELL 3S/2W 7F80
PERMIT 92258

Destruction Requirements:

1 Drill out the well so that the casing, seal, and gravel pack are removed to the bottom of the well.

2. Using a tremie pipe, fill the hole to 2 feet below the lower of finished grade or original ground with neat cement.

3. After seal has set, backfill the remaining hole with compacted material.

These destruction requirements as proposed by David Kleesattel of Groundwater Technology meet or exceed the Zone 7 minimum requirements.

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 15526 Hesperian Blvd.
San Lorenzo, California
Chevron Station # 9-2384

(2) CLIENT
Name Chevron U.S.A. Products Company
Address P. O. Box 5004 Phone 842-9581
City San Ramon Zip 94583

(3) APPLICANT
Name Groundwater Technology, Inc.
Address 4057 Port Chicago Phone (510) 671-2387
City Concord Zip 94520

(4) DESCRIPTION OF PROJECT
Water Well Construction ___ Geotechnical Investigation
Cathodic Protection ___ General ___
Well Destruction X Contamination ___

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

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

DRILLER'S LICENSE NO. ___

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

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ in. Depth ___ ft.

(7) ESTIMATED STARTING DATE 05/20/92
ESTIMATED COMPLETION DATE 05/20/92

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

APPLICANT'S SIGNATURE David Kleaveland Date 5-19-92

FOR OFFICE USE

PERMIT NUMBER 92258
LOCATION NUMBER 3S/2W 7F80

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as t arrive at the Zone 7 office five days prior t proposed starting date.
2. Submit to Zone 7 within 60 days after completio of permitted work the original Department o Water Resources Water Well Drillers Report o equivalent for well projects, or drilling log and location sketch for geotechnical projects.
3. Permit is void if project not begun within 9 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches c cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal ar industrial wells or 20 feet for domestic, irriga tion, and monitoring wells unless a lesser dep is specially approved.

C. GEOTECHNICAL. Backfill bore hole with compacted cut tings or heavy bentonite and upper two feet with com pacted material. In areas of known or suspecte contamination, tremied cement grout shall be used i place of compacted cuttings.

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

(E.) WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 26 May 92
Wyman Hong

2198

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94588 ♦ (510) 484-2600

12 May 1992

Groundwater Technology
4057 Port Chicago Highway
Concord, CA 94520

Gentlemen:

Enclosed is drilling permit 92233 for a monitoring well construction project at 15526 Hesperian Boulevard in San Lorenzo for Chevron USA.

Please note that permit condition A-2 requires that a well construction report be submitted after completion of the work. The report should include drilling and completion logs, location sketch, and permit number.

If you have any questions, please contact Wyman Hong or me at 484-2600.

Very truly yours,

Craig A. Mayfield

Craig A. Mayfield
Water Resources Engineer

WH:mm
Enc.

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (510) 484-2600

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 15526 Hesperian Blvd.
San Lorenzo, California
Chevron Site No. 9-2384

CLIENT
Name Chevron USA Products Company
Address P.O. Box 5004 Phone 842-9581
City San Ramon Zip 94583

APPLICANT
Name Groundwater Technology, Inc.
Address 4057 Port Chicago Phone 671-2387
City Concord Zip 94520

TYPE OF PROJECT

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

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other None
Municipal ___ Irrigation ___

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

DRILLER'S LICENSE NO. 482390

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 30 ft.
Surface Seal Depth 8 ft. Number 3

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ in. Depth ___ ft.

ESTIMATED STARTING DATE May 15 1992
ESTIMATED COMPLETION DATE May 18, 1992

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

APPLICANT'S SIGNATURE Gregg A. Michel Date 5-7-92

FOR OFFICE USE

PERMIT NUMBER 92233
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as arrive at the Zone 7 office five days prior proposed starting date.
2. Submit to Zone 7 within 60 days after completi of permitted work the original Department Water Resources Water Well Drillers Report equivalent for well projects, or drilling lc and location sketch for geotechnical projects.
3. Permit is void if project not begun within days of approval date.

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

C. GEOTECHNICAL. Backfill bore hole with compacted cu tings or heavy bentonite and upper two feet with cc pacted material. In areas of known or suspect contamination, tremied cement grout shall be used place of compacted cuttings.

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

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 11 May 92
Wyman Hong

519

APPENDIX B

DRILL LOGS AND WELL CONSTRUCTION SPECIFICATIONS

Drilling Log

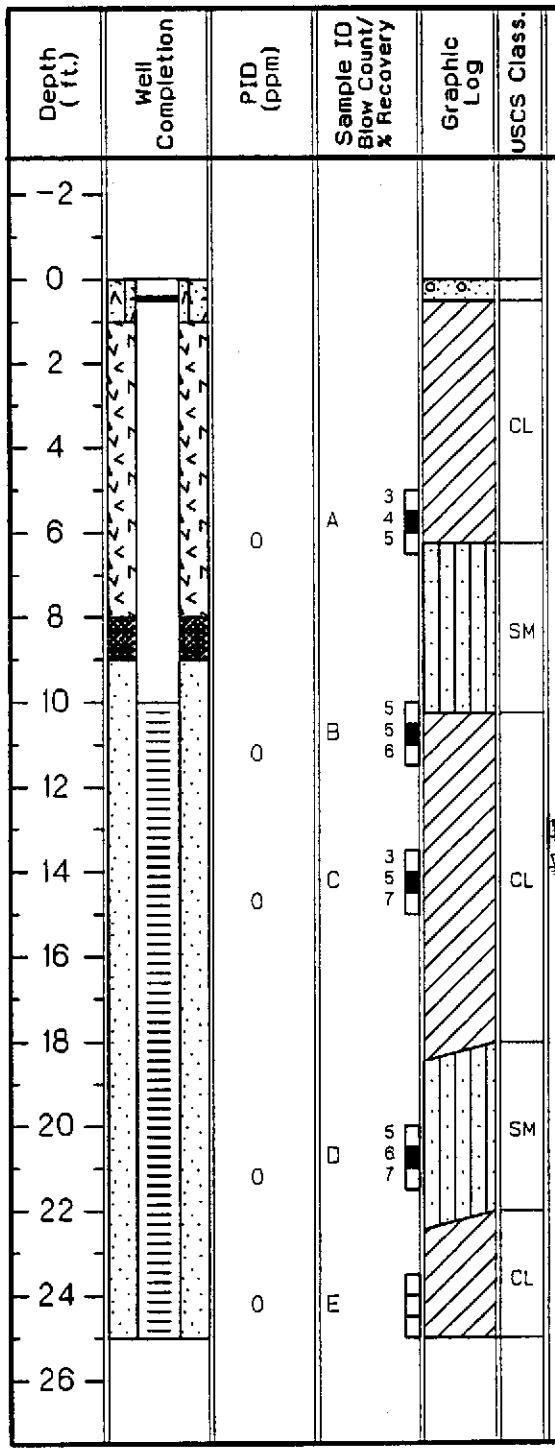
GROUNDWATER TECHNOLOGY

Monitoring Well **MW-1**

Project CHEVRON HESPERIAN Owner CHEVRON U.S.A. INC.
Location 15526 Hesperian Blvd. Project No. 020202746 Date drilled 05/14/92
Surface Elev. ____ Total Hole Depth 25.0 ft. Diameter 8 inches
Top of Casing 35.64 ft. Water Level Initial 14.0 ft. Static 13.2 ft.
Screen: Dia 2 in. Length 15 ft. Type/Size 0.020 in.
Casing: Dia 2 in. Length 10.0 ft. Type Sched. 40 PVC
Filter Pack Material Lapis Lustre No. 2/12 Rig/Core Type Mobile B-53/split spoon
Drilling Company Kvilhaug Drilling Method Hollow stem auger Permit # ____
Driller Mike Crocker Log By Steve Kranyak
Checked By David R. Kleesattel License No. 5136 David Kleesattel

See Site Map For Boring Location

COMMENTS:



Description

(Color, Texture, Structure)
Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%

Fill material

Brown silty CLAY (soft, moist, no hydrocarbon odor)

Brown silty fine SAND (loose, moist, no hydrocarbon odor)

Brown silty CLAY (soft, moist, no hydrocarbon odor)

Water level on 06/04/92

Encountered water at 14.0 feet below grade on 5/14/92.

Brown silty fine SAND (loose, wet, no hydrocarbon odor)

Brown silty CLAY (soft, very moist, no hydrocarbon odor)
End of boring at 25.0 below grade. Installed monitoring well.

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well **MW-2**

Project CHEVRON 15526 HESPERIAN Owner CHEVRON U.S.A. INC.
Location 15526 HESPERIAN BLVD. Project No. 020202746 Date drilled 05/14/92
Surface Elev. ____ Total Hole Depth 25.0 ft. Diameter 8 inches ft.
Top of Casing 35.85 ft. Water Level Initial 14.0 ft. Static 13.48 ft.
Screen: Dia 2 in. Length 15 ft. Type/Size 0.020 in.
Casing: Dia 2 in. Length 10 ft. Type Sched. 40 PVC
Filter Pack Material Lapis Lustre No. 2/12 Rig/Core Type Mobile B-53/split spoon
Drilling Company Kvilhaug Drilling Method Hollow stem auger Permit # ____
Driller Mike Crocker Log By Steve Kranyak
Checked By David R. Kleesattel License No. 5136 David Kleesattel

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	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						Fill material
2						
4					ML	Brown clayey SILT with some fine sand (soft, moist, no hydrocarbon odor)
6		0	A 4 4 5			
8						
10			B 3 3 3			
12		7.4			CL	Dark gray silty CLAY (soft, moist, hydrocarbon odor) (gray and brown mottling)
14			C 3 6 8			Water elevation on 06/04/92 *Encountered water at 14.0 feet below grade on 5/14/92.*
16		4.1				
18						
20			D 7 11 15		ML	Brown clayey SILT with some fine sand (stiff, wet, no hydrocarbon odor)
22		0				Dark brown silty CLAY (stiff, wet, no hydrocarbon odor)
24		0	E 15 12 17		CL	End of boring at 25.0 below grade. Installed monitoring well.
26						

Drilling Log

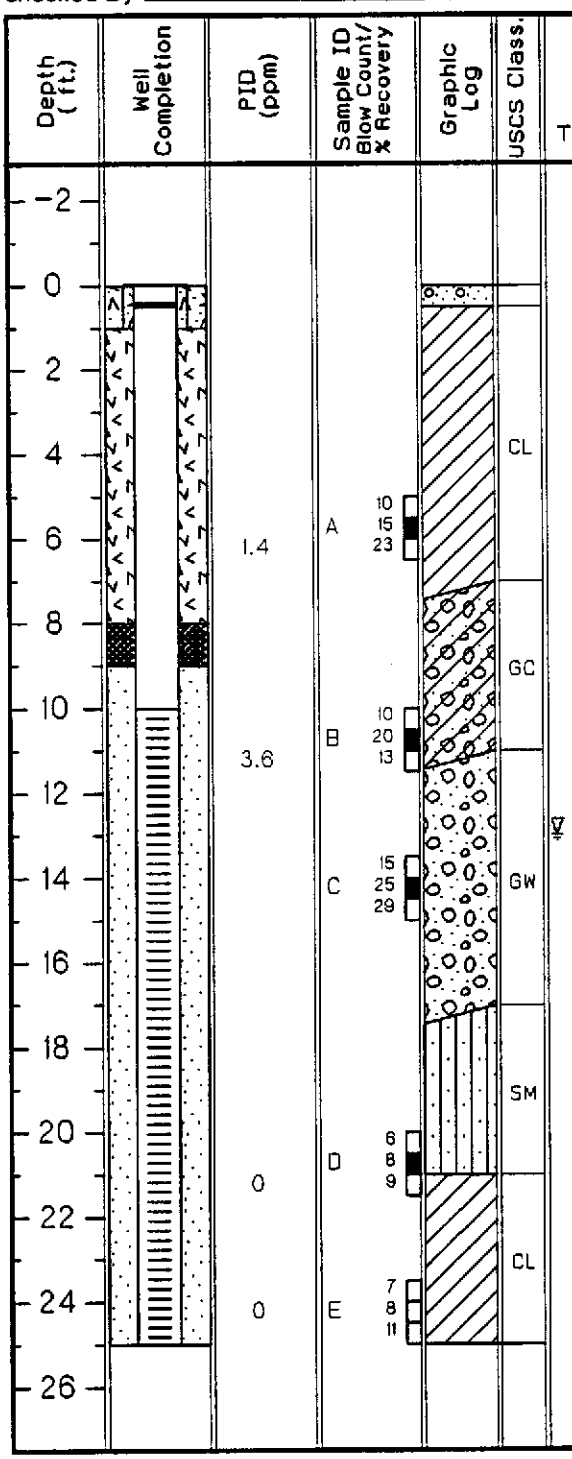
GROUNDWATER TECHNOLOGY

Monitoring Well **MW-3**

Project CHEVRON 15526 HESPERIAN Owner CHEVRON U.S.A. INC.
Location 15526 HESPERIAN BLVD. Project No. 020202746 Date drilled 05/20/92
Surface Elev. _____ Total Hole Depth 25.0 ft. Diameter 8 inches
Top of Casing 35.42 ft. Water Level Initial 13.0 ft. Static _____
Screen: Dia 2 in. Length 15 ft. Type/Size 0.020 in.
Casing: Dia 2 in. Length 10 ft. Type Sched. 40 PVC
Filter Pack Material Lapis Lustre No. 2/12 Rig/Core Type Mobile B-53/split spoon
Drilling Company Kvilhaug Drilling Method Hollow stem auger Permit # _____
Driller Mike Crocker Log By Steve Kranyak
Checked By David R. Kleesattel License No. 5136

See Site Map For Boring Location

COMMENTS:



Description

(Color, Texture, Structure)
Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%

Fill material

Dark brown silty CLAY with some gravel (stiff, moist, no hydrocarbon odor, fill)
(increased gravel content)

Sandy GRAVEL with silt and clay (medium dense, moist, no hydrocarbon odor, fill)

Encountered water at 13.0 feet below grade on 5/20/92.

Gravel and crushed rock (fill)

Gray silty fine SAND (loose, wet, no hydrocarbon odor)

Brown silty CLAY (medium stiff, wet, no hydrocarbon odor)

End of boring at 25.0 below grade. Installed monitoring well.

APPENDIX C

GROUNDWATER TECHNOLOGY 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 ben 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 1/16th 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 baked.

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 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-causing 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 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) (30° 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 transferer 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.

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 TECHNOLOGIES INC.
Attn: GREG MISCHEL

Project 020202746
Reported 05/20/92

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
85732- 2	MW1B	05/15/92	05/18/92	Soil
85732- 5	MW2A	05/15/92	05/18/92	Soil
85732- 6	MW2B	05/15/92	05/18/92	Soil
85732-11	MW3C	05/15/92	05/18/92	Soil

RESULTS OF ANALYSIS

Laboratory Number:	85732- 2	85732- 5	85732- 6	85732-11
Gasoline:	ND<1	ND<1	ND<1	400
Benzene:	ND<.005	ND<.005	0.12	0.34
Toluene:	0.018	0.13	0.008	1.1
Ethyl Benzene:	ND<.005	ND<.005	0.006	6.2
Xylenes:	ND<.005	ND<.005	ND<.005	4.7
Concentration:	mg/kg	mg/kg	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: 85732

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

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Soil: 50mg/kg

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 1mg/kg

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

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

ANALYTE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	200 ng	96/96	0	70-130
Benzene:	200 ng	107/107	0	70-130
Toluene:	200 ng	103/103	0	70-130
Ethyl Benzene:	200 ng	103/103	0	70-130
Xylenes:	200 ng	101/102	1	70-130

Richard Srna, Ph.D.
Laboratory Director

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

LABORATORY NO.: 85732
CLIENT: GROUNDWATER TECHNOLOGIES INC.
CLIENT JOB NO.: 020202746

DATE RECEIVED: 05/18/92
DATE REPORTED: 05/20/92
DATE SAMPLED : 05/15/92

ANALYSIS FOR TOTAL ORGANIC LEAD
by DHS METHOD (LUFT MANUAL)

LAB #	Sample Identification	Concentration (mg/kg)
2	MW1B	ND< 2

Method Detection Limit for Organic Lead in Soil: 2 mg/kg

QAQC Summary: MS/MSD Average Recovery : 96 %
Duplicate RPD : 16

Richard Srna, Ph.D.

Laboratory Director

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: 9-2384
Facility Address: 15526 Hesperian, San Lorenzo
Consultant Project Number: 020302
Consultant Name: Groundwater Technology, Inc.
Address: 4057 Port Chicago Hwy, Concord, CA
Project Contact (Name): Sandra Lindsey
(Phone) 671-2387 (Fax Number) 685-9148

Chevron Contact (Name): Nancy Vukelich
(Phone) 842-9581
Laboratory Name: Superior Analytical
Laboratory Release Number: 5832660
Samples Collected by (Name): Steve Kamayak
Collection Date: 5/15/92
Signature:

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air 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	Organic lead				Remarks
MW1A		1	S	G			yes									X					
B								X									X				
C																X					
D																X					
MW2A																					
B								X													
C																					
D																					
MW3A																					
B																X					
C								X									X				

Please Initial:
Samples Stored in Ice:
Appropriate containers: X
Samples preserved: X
VOA's without headspace: X
Comments:

Turned over to Lab

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	GTI	5/15/92		EXPRESS-IT	5-15-92 12:10
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	EXPRESS-IT	5/15/92 12:3			
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
					12:31pm 5/14/92

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

COC-3.DWG/03 91/MCH

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

LABORATORY NO.: 85790
CLIENT: GROUNDWATER TECHNOLOGIES INC.
CLIENT JOB NO.: 020202746.030503

DATE RECEIVED: 05/22/92
DATE REPORTED: 06/02/92
DATE SAMPLED : 05/20/92

ANALYSIS FOR TOTAL ORGANIC LEAD
by DHS METHOD (LUFT MANUAL)

LAB #	Sample Identification	Concentration (mg/kg)
2	MW3B	ND<2

Method Detection Limit for Organic Lead in Soil: 2 mg/kg

QAQC Summary: MS/MSD Average Recovery : 108%
Duplicate RPD : 15

Richard Srna, Ph.D.

Laboratory Director

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

GROUNDWATER TECHNOLOGIES INC.
Attn: Sandra Lindsey

Project 020202746.030503
Reported 06/02/92

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
85790- 2	MW3B	05/20/92	05/26/92	Soil

RESULTS OF ANALYSIS

Laboratory Number: 85790- 2

Gasoline:	ND<1
Benzene:	ND<.005
Toluene:	ND<.005
Ethyl Benzene:	ND<.005
Xylenes:	ND<.005
Concentration:	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: 85790

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

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Soil: 50mg/kg

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 1mg/kg

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

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

ANALYTE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	200 ng	100/97	3	70-130
Benzene:	200 ng	85/96	12	70-130
Toluene:	200 ng	100/113	12	70-130
Ethyl Benzene:	200 ng	112/126	11	70-130
Xylenes:	200 ng	102/115	11	70-130

Richard Srna, Ph.D.
Laboratory Director

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☐ No 85790

Chain-of-Custody-Record

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

Chevron Facility Number: 9-2.337
Facility Address: 1526 Hesperian, San Lorenzo
Consultant Project Number: 02022746.030503
Consultant Name: Groundwater Technology
Address: 4057 Port Chicago Hwy
Project Contact (Name): Sandra Lindsey
(Phone) 671 2332 (Fax Number) 685-9148

Chevron Contact (Name): Nancy Victorine
(Phone) 842-9581
Laboratory Name: Superior Analytical
Laboratory Release Number: 5837-600
Samples Collected by (Name): Steve Kramyt
Collection Date: 5/20/92
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)	Organic Lead	HOLD				Remarks
MW3A	1	1	S	G	11:15		yes										X				
MW3B	2	1	S	G	11:30		yes	X								X					

Please initial
Samples Stored in Ice
Appropriate containers
Samples preserved
VOA's without headspace
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	GTI	5/20/92	Nicole Merchant	GTI	5/22/92 1:30p
Relinquished By (Signature) Nicole Merchant	Organization GTI	Date/Time 5/22/92 2:30	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization EX-T	Date/Time 5/22/92 2:45	Received For Laboratory By (Signature)		Date/Time 5/22/92 14:4

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

COC-3.DWG/03 91/HCH

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

Groundwater Technology Inc.
Attn: Sandra Lindsey

Project 020202746
Reported 06/10/92

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
13160- 1	TB-LB	06/04/92	06/08/92	Water
13160- 2	RBMW1	06/04/92	06/08/92	Water
13160- 3	MW1	06/04/92	06/08/92	Water
13160- 5	MW2	06/04/92	06/08/92	Water
13160- 7	MW3	06/04/92	06/08/92	Water

RESULTS OF ANALYSIS

Laboratory Number:	13160- 1	13160- 2	13160- 3	13160- 5	13160- 7
Gasoline:	ND<50	ND<50	ND<50	6700	460
Benzene:	ND<0.5	ND<0.5	ND<0.5	910	12
Toluene:	ND<0.5	ND<0.5	ND<0.5	17	0.8
Ethyl Benzene:	ND<0.5	ND<0.5	ND<0.5	210	5.8
Xylenes:	ND<0.5	ND<0.5	ND<0.5	30	14
Concentration:	ug/L	ug/L	ug/L	ug/L	ug/L

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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: 13160

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	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	200 ng	96/92	4%	76-111
Benzene:	200 ng	97/87	11%	78-110
Toluene:	200 ng	94/84	11%	78-111
Ethyl Benzene:	200 ng	99/88	12%	78-118
Xylenes:	600 ng	95/84	12%	73-113

Richard Srna, Ph.D.
Laboratory Director

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 9-2384
Facility Address 15526 Hesperian Blvd., San Lorenzo, CA
Consultant Project Number 020202746
Consultant Name Groundwater Technology, Inc.
Address 4057 Port Chicago Hwy, Concord, CA
Project Contact (Name) Sandra Lindsey
(Phone) 671-2587 (Fax Number) 685-4148

Chevron Contact (Name) Nancy Vukelich
(Phone) 842-9581
Laboratory Name Superior Analytical
Laboratory Release Number 5832660
Samples Collected by (Name) HECTOR MEDINO
Collection Date 4-1-92
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)	Analyses To Be Performed: 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)	TTLC				Remarks
TB-LB		1	W	G		H-1	Y	X												
RB-MW1		1						X								X				
MW-11		3						X												
RB-MW2		1														X				
MW-12		3						X												
RB-MW3		1														X				
MW-13		3	X	X		X	Y	X												

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	671	4/1/92			
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
					4/1/92 5:00PM

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

COC-3.DWG/03 91/MCH