Delta
Environmental
Consultants, Inc.

3164 Gold Camp Drive
Suite 200
Rancho Cordova, CA 95760-6021
U.S.A.
(916) 638-2085
FAX: (916) 638-8385

August 1, 2000

Mr. Barney Chan
Alameda County Health Care Services
1131 Harbor Bay Parkway
Alameda, Ca 94502-6577

#541

00 JUL 23 PM 1:03

Subject: *Interim Corrective Action Plan*
Chevron Service Station No. 9-1851
451 Hegenberger Road
Oakland, California
Delta Project No. DG91-851

Dear Mr. Chan:

Please find enclosed an *Interim Corrective Action Plan* for the subject site prepared at the request of Chevron USA Product Company. This report presents a summary of assessment activities and proposes additional assessment and interim remediation activities at the site.

If you have questions or comments regarding this report, please contact Jim Brownell at (916) 638-2765.

Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.

Steven W. Meeks
Project Manager

BIH (Lrp001.1851.doc)
Enclosures

cc: Mr. Tom Bauhs – Chevron U.S.A. Product Company

Delta
Environmental
Consultants, Inc.

3164 Gold Camp Drive
Suite 200
Rancho Cordova, CA 95760-6021
U.S.A.
(916) 638-2085
FAX: (916) 638-8385

INTERIM CORRECTIVE ACTION PLAN

Chevron Facility No. 9-1851
451 Hegenberger Road
Oakland, California
Delta Project No. DG91-851

August 1, 2000

Prepared For:

Mr. Tom Bauhs
Chevron U.S.A. Products Company
P.O. Box 6004
San Ramon, CA 94583

Prepared By:

DELTA ENVIRONMENTAL CONSULTANTS, INC.
3164 Gold Camp Drive, Suite 200
Rancho Cordova, CA 95670
(916) 638-2085

Benjamin I. Heningburg
Project Geologist

Steven W. Meeks, P.E.
California Registered Civil Engineer No. C057461

REGISTERED PROFESSIONAL ENGINEER
STEVEN WHITTEN MEEKS
C 057461
Exp. 12-31-01
CIVIL
STATE OF CALIFORNIA

TABLE OF CONTENTS

TABLE OF CONTENTS-Continued

Figures

Appendices

INTERIM CORRECTIVE ACTION PLAN

CHEVRON SERVICE STATION NO. 9-1851
451 HEGENBERGER ROAD
OAKLAND, CALIFORNIA
DELTA PROJECT NO. DG91-851

1.0 INTRODUCTION

1.1 Purpose

Delta Environmental Consultants, Inc. (Delta) has been authorized by Chevron U.S.A. Product Company (Chevron) to review investigative work conducted at former Chevron Service Station No. 9-1851, located at 451 Hegenberger Road, Oakland, Alameda County, California (Figure 1) and to prepare an Interim Corrective Action Plan (ICAP). The ICAP objective is to delineate the extent of residual concentrations of petroleum hydrocarbons in the subsurface and propose necessary remedial actions. The ICAP was prepared in response to a letter issued by Alameda County Health Care Services (ACHCS), dated February 10, 2000, requesting the installation of additional wells to delineate the extent of methyl tertiary butyl ether (MTBE) and initiation of remediation to address the source(s) of MTBE. A copy of the ACHCS letter is included in Appendix A.

2.0 BACKGROUND INFORMATION

2.1 Site Description

The site is located at the northwest corner of the intersection of Hegenberger Road and Edgewater Drive at 451 Hegenberger Road, Oakland, California. The site is at an approximate elevation of three feet above mean sea level with the surrounding topography sloping towards the southwest. Surrounding the site are predominately commercial and industrial businesses. A USGS topographic map with the site centered on the map is presented in Figure 1 and a map illustrating the site vicinity is shown in Figure 2.

The site is currently operated as a retail gasoline service station with one building, two fuel dispenser islands, and three 10,000-gallon underground gasoline storage tanks (USTs). A 10,000-gallon methanol UST owned by the California Environmental Commission is located east of the station building. The methanol tank is not currently in use. During the fourth quarter of 1999, a 1,000-gallon used oil UST was removed from the site by Geo-logic, Inc. The locations of the USTs and site features are illustrated in Figure 3.

2.2 Site History

Petroleum hydrocarbon contaminants related to the operation of product storage and dispensing systems at the site were first reported in October 1995 during a baseline environmental investigation

conducted by Gettler-Ryan as part of a leasing agreement between Chevron and the current site owner Ben Schimek. In October 1995, G-R observed Bay Area Exploration Services, Inc., of Cordelia, California, advance soil borings (SB-1 and MW-1 through MW-4) on-site. Boring SB-1 was hand augered to 6.5-feet below surface grade (bsg). Boring MW-1 was drilled to 15.5-feet bsg and borings MW-2 through MW-4 were drilled to 16.5-feet bsg. Soil borings MW-1 through MW-4 were converted to groundwater monitoring wells. The soil boring analytical results indicated that petroleum hydrocarbon constituents were present in the subsurface. On November 22, 1995, wells MW-1 through MW-4 were surveyed to mean sea level by Virgil Chavez, licensed land surveyor (#6323) of Vallejo, California.

During June and July of 1997, Pacific Environmental Group (Pacific) reviewed files for five sites that had reported fuel leaks and are located near the subject site. Pacific identified the Unocal Service station located at 449 Hegenberger Road, Oakland, California to be a potential contributor to a commingled off-site MTBE plume. Pacific reviewed Department of Water Resources well records and prepared a ½ mile radius well survey. Additionally, Pacific performed a survey of existing underground utilities in the vicinity of the subject site and prepared a sensitive receptor survey. The results of these activities were reported to ACHCSA in Pacific's report, dated September 3, 1997.

During April 1998, Pacific advanced four hand auger soil borings (GW-2 through GW-5) within off-site utility trenches to approximately 4 to 5 feet bsg. Laboratory analyses of groundwater "grab" samples collected within the utility trenches did not detect petroleum hydrocarbon constituents. During the fourth quarter of 1999 the 1,000-gallon used oil UST was removed from the site by Geo-logic, Inc. Apparently, a tank removal report has not been filed with ACHCSA. Locations of the soil borings and monitoring wells are illustrated on Figure 2.

A quarterly groundwater monitoring program has been initiated at the site. Quarterly groundwater monitoring and sampling has been performed at the site since the installation of the monitoring wells in October 1995.

2.3 Regional Geology and Hydrogeology

The subject site is located within the California Coast Ranges. The Coat ranges have a Franciscan basement composed of graywacke, limestone, shale, and radiolarian chert [1]. Locally, the near-surface soils generally consist of silts and clays. The nearest surface water is San Leandro Creek, located approximately ¼ mile west of the site. San Leandro Bay is located approximately one

[1] Norris, Robert M. And Webb, Robert W., Geology of California, John Wiley and Sons, 537 Pages

mile northwest of the site. The direction of groundwater flow in the vicinity of the site is inferred to be toward the west, based on the local topography and drainage pattern.

2.4 Site Geology

The surface of the site consists of a three to six-inch asphalt/concrete surface underlain by a six to eight-inch thick aggregate base material. Based on review of boring logs the subsurface materials encountered at the site primarily consist of silty clay and sand with gravel. Clay is the dominant soil type beneath the site and contains varying amounts of fine sand and organic silt. A silty clay layer extends from approximately two to four feet below grade and is underlain by sand with gravel extending to approximately 7 feet, which is underlain by organic clay extending 7 to 11 feet bsg. Beneath the organic clay layer is silty clay extending to the total depth explored of approximately 16 feet bsg. Boring logs for each boring advanced at the site are included in Appendix B. Geologic cross-sections have been prepared using the soil boring logs to illustrate the subsurface soil. A site vicinity location map showing the trace of cross-sections A-A' and B-B' is included as Figure 2. Geologic cross-sections A-A' and B-B' are illustrated in Figures 4 and Figure 5, respectively.

2.5 Site Hydrogeology

Depth to groundwater data have been collected quarterly since October 1995 and measurements indicate a range from as shallow as 1.83 feet ~~bsg~~ bgs in MW-1 to as deep as 5.68 feet ~~beg~~ bgs in MW-4. The average depth to water over the last four quarterly events has been approximately 4-feet bsg. The water-bearing unit beneath the site consists of predominately sand with gravel. A groundwater elevation contour map was constructed from the measured depth to water and surveyed casing elevations and is included as Figure 6. The water elevation contours indicate an inferred groundwater flow direction towards the southwest with a hydraulic gradient of approximately 0.02. Historical data indicates previous groundwater flow to be towards the southwest.

3.0 SITE INVESTIGATIVE RESULTS

3.1 Distribution of Petroleum Hydrocarbons in Soil

During October 1995, five soil borings were advanced onsite. Laboratory analyses did not detect concentrations of benzene in any of the soil boring samples. Total petroleum hydrocarbons as gasoline were reported in the sample collected from 5½ feet in the boring for MW-2 at a concentrations of 8.4 milligrams per kilogram (mg/kg). Concentrations of TPH as diesel, TOG and HVOC's were reported in this soil sample at concentrations of 2,100, 77, and 9.2 mg/kg, respectively.

Concentrations of MTBE were not reported in samples from soil borings SB-1 and MW-1 through MW-4. Soil boring logs for SB-1 and MW-1 through MW-4 are included Appendix C.

During April 1998, hand auger soil borings GW-2 through GW-5 were advanced off-site within adjacent utility trenches. Soil samples were not submitted for analysis during this sampling event. Based on review of soil analytical results to date, ethyl benzene, xylenes, TPH as gasoline and TPH as diesel, TOG, and HVOC's impacts to soil at the site appear to be limited to the vicinity of the used oil tank basin. Impacted soil appears to be confined to just above the groundwater table capillary fringe.

3.2 Soil Sampling

Soil samples were collected at the groundwater interface from the borings for MW-1 through MW-4. Samples selected for chemical analyses were based on stratigraphic location. Soil samples were analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX) by EPA Method 8020 and total petroleum hydrocarbons (TPH) as gasoline by EPA Method 8015 Modified. The soil sample collected at a depth of 5½ feet bsg from boring MW-2 was additionally analyzed for TPH as diesel by EPA Method 3550, total oil and grease (TOG) by Standard Method 5520E&F and halogenated volatile organic compounds (HVOC's) by EPA Method 8010. The soil sample collected at a depth of 5-feet bsg from boring MW-3 was additionally analyzed for volatile organic compounds (VOC's) by EPA Method 8240, and methanol and methyl ethyl ketone by EPA Method 8015 Modified. Stockpiled soil was analyzed for waste characterization purposes and taken to a disposal facility. Cumulative soil sample analytical results are summarized in Appendix B.

3.3 Monitoring Well Construction

Currently, four groundwater monitoring wells are associated with the site. Monitoring wells MW-1 through MW-4 are located onsite. Each well is constructed of 2-inch diameter schedule 40 PVC casing installed to approximately 16 feet bsg. The wells are screened over the interval from 2 feet to 16 feet bsg with 0.020-inch machine slotted casing. The annular space of each well is filled with Lonestar (type) No. 3 sand that extends from the base of the screen section to one foot above the top of screen; a one-foot bentonite seal overlies the filter pack. The remaining annulus is filled with a neat cement grout to within six inches of the surface. The surface of each well is completed with a traffic-rated well box set in concrete. Well completion diagrams are included in Appendix C.

3.4 Groundwater Sampling

Groundwater samples collected from monitoring wells MW-1 through MW-4 have been analyzed for BTEX, and MTBE by EPA Method 8020 and TPH as gasoline by EPA Method 8015 Modified. Also, groundwater samples collected from monitoring wells MW-1 through MW-4 have been analyzed for ethanol, t-butanol, MTBE, di-isopropyl ether, ethyl-butyl ether, and t-amyl methyl ether on selected monitoring events. Additionally, samples from monitoring well MW-2 have been analyzed for TPH as diesel by EPA Method 8015 Modified, benzene and xylenes by EPA Method 8240, Cis-1,2-Dichloroethene, Carbon Disulfide and Vinyl Chloride by EPA Method 8010 on selected monitoring events. Cumulative groundwater analytical results and groundwater elevation data are summarized in Appendix D.

3.5 Distribution of Petroleum Hydrocarbons in Groundwater

Quarterly groundwater monitoring and analysis has identified concentrations of benzene in samples from MW-1 through MW-4 ranging from 0.575 µg/L (MW-2) to 715 µg/L (MW-2). TPH as gasoline concentrations have been reported in groundwater samples collected from MW-1 through MW-4 ranging from 54.0 µg/L (MW-2) to 1,400 µg/L (MW-1). Detectable concentrations of MTBE have been reported in groundwater samples collected from MW-1 through MW-4 at concentrations ranging from 9.5 µg/L (MW-1) to 16,100 µg/l (MW-4). In April 1998, laboratory analyses on groundwater "grab" samples collected within the utility trenches did not detect petroleum hydrocarbon constituents. Locations of the groundwater monitoring wells and groundwater geoprobe "grab" sample locations are illustrated on Figure 2. Based on historical groundwater sample analytical results, it appears that the highest concentrations of dissolved petroleum hydrocarbons (mostly MTBE) beneath the site extend primarily cross gradient to the west of the gasoline UST basin. The historical presence of MTBE in monitoring wells MW-1 through MW-3 suggest that there may be an upgradient off-site source. A concentration map of the dissolved MTBE in groundwater as of December 8, 1999 is shown in Figure 7. Historical graphs of groundwater elevations, and benzene, TPH as gasoline, and MTBE concentrations versus time are included in Appendix E.

4.0 PROPOSED REMEDIAL OPTIONS AND ADDITIONAL INVESTIGATION

4.1 Proposed Soil Borings and Well Installations

Based on review of soil and groundwater analytical results at the site to date, additional hydrogeologic assessment activities are needed. To further characterize groundwater conditions at the site the site, Delta proposes the installation of three groundwater monitoring wells. Two proposed wells are to assess the possible presence of MTBE down-gradient of product storage dispensing systems at the

how about at least 5' below lowest historical GWE

site. The proposed wells will be installed to a total depth of 10 feet bsg and constructed of 2-inch diameter flush threaded SCH 40 PVC casing. The screen interval of each proposed will well consist of 0.020-inch machine slotted casing beginning at approximately 3 feet bsg and extending to the base of the boring at approximately 10 feet. The annular space of each well will be backfilled with Lonestar No. 3 sand extending 1/2 foot beyond the screen interval. A one foot thick bentonite seal will be emplaced above the filter pack, and the remaining annulus will be filled with neat cement to within six inches of surface. Each proposed well will be completed at the surface with a traffic rated well box set in concrete. A typical well diagram is illustrated in Appendix F.

?

The proposed soil borings and monitoring wells will be advanced using a truck mounted hollow-stem auger drill rig. Each boring location will be sampled at a minimum of five-foot vertical intervals to the base of the boring. Soil samples collected in the field will be screened for the presence of organic vapors using a photoionization detector (PID) or similar device. Soil borings will be logged according to Unified Soil Classification System (USCS) visual manual method to the total depth drilled. Boring logs containing PID readings, USCS descriptions, and other pertinent information will recorded on the boring logs.

4.2 Proposed Over Purging

To reduce the MTBE concentrations in the vicinity of monitoring well MW-4, Delta proposes to over-purge the well periodically. The over-purging will control offsite migration of impacted groundwater and locally attenuate impacted groundwater. Monitoring well MW-4 is located near the UST basin which is suspected to be a source of MTBE in soil and groundwater. Any tank backfill wells ?

5.0 CONCLUSIONS/RECOMMENDATIONS

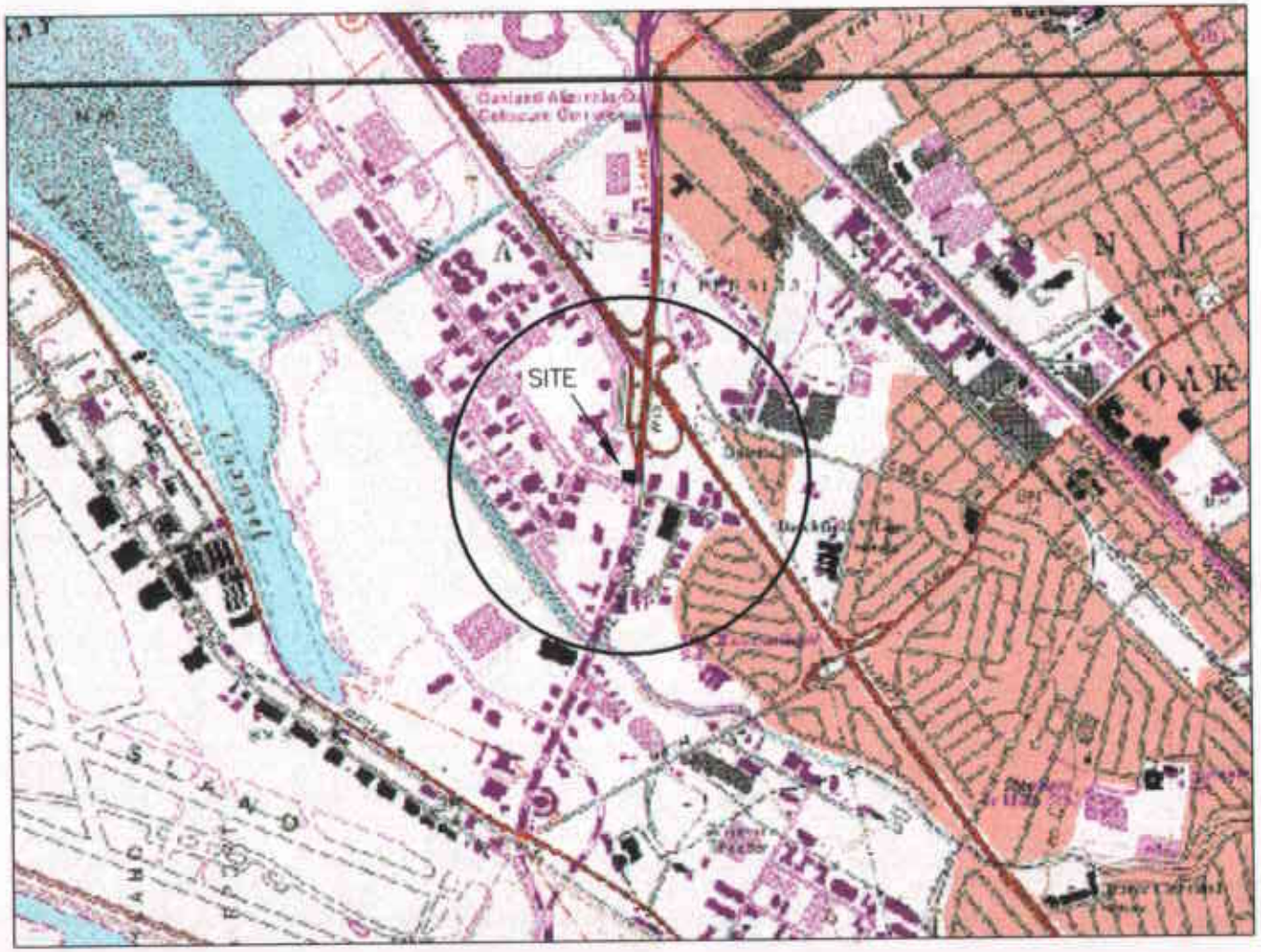
Based on the information available to Delta to date, the following conclusions are presented:

- An on site source of MTBE appears to be the UST basin based on the data collected from MW-4.
- An off site source of MTBE may be present based on data collected from MW-1 through MW-3.
- Two wells are proposed to be installed on site south southwest of the gasoline UST basin to further assess the lateral extent of MTBE in groundwater.
- A third groundwater monitoring well is proposed upgradient to MW-3. This proposed well will be installed to identify possible off site source(s) for MTBE.
- Impacted soil is limited to the capillary fringe.
- Groundwater flow direction is towards the southwest and west.

- Groundwater sample analytical results for monitoring wells MW-4 and groundwater flow direction to the southwest indicate that there is a potential for off site migration of dissolved MTBE.
- To reduce petroleum hydrocarbon constituents downgradient of the gasoline UST basin, MW-4 and the two proposed down gradient wells are proposed to be over-purged periodically.

6.0 LIMITATIONS AND SIGNATURES

The interpretations contained in this report represent our professional opinions, and are based, in part, on information supplied by the client. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.



GENERAL NOTES:
BASE MAP FROM U.S.G.S.
OAKLAND EAST & SAN LEANDRO, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1980

QUADRANGLE LOCATION

North

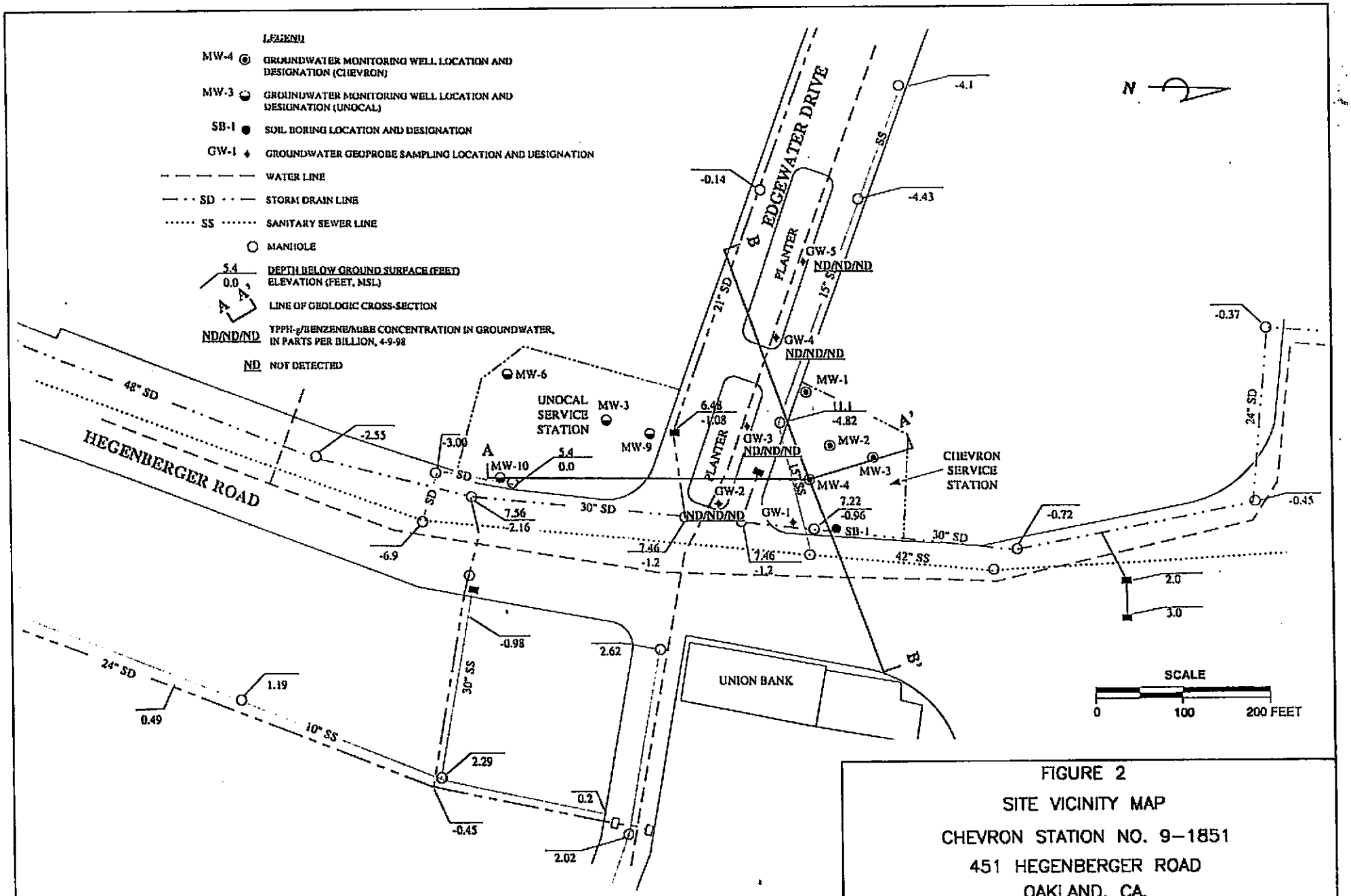
0 2000 FT

SCALE 1:24,000

FIGURE 1
SITE TOPOGRAPHIC MAP
CHEVRON STATION NO. 9-1851
451 HEGENBERGER ROAD
OAKLAND, CA.

PROJECT NO. DG91-851	DRAWN BY M.L. 7/12/00
FILE NO. DG91851A	PREPARED BY BIH
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



NOTE: THIS FIGURE TAKEN FROM PACIFIC ENVIRONMENTAL GROUP, INC. DRAWING TITLED "SITE ELEVATION FOR POTENTIAL MTBE IMPACTS" DATED OCTOBER 2, 1997.

FIGURE 2

SITE VICINITY MAP

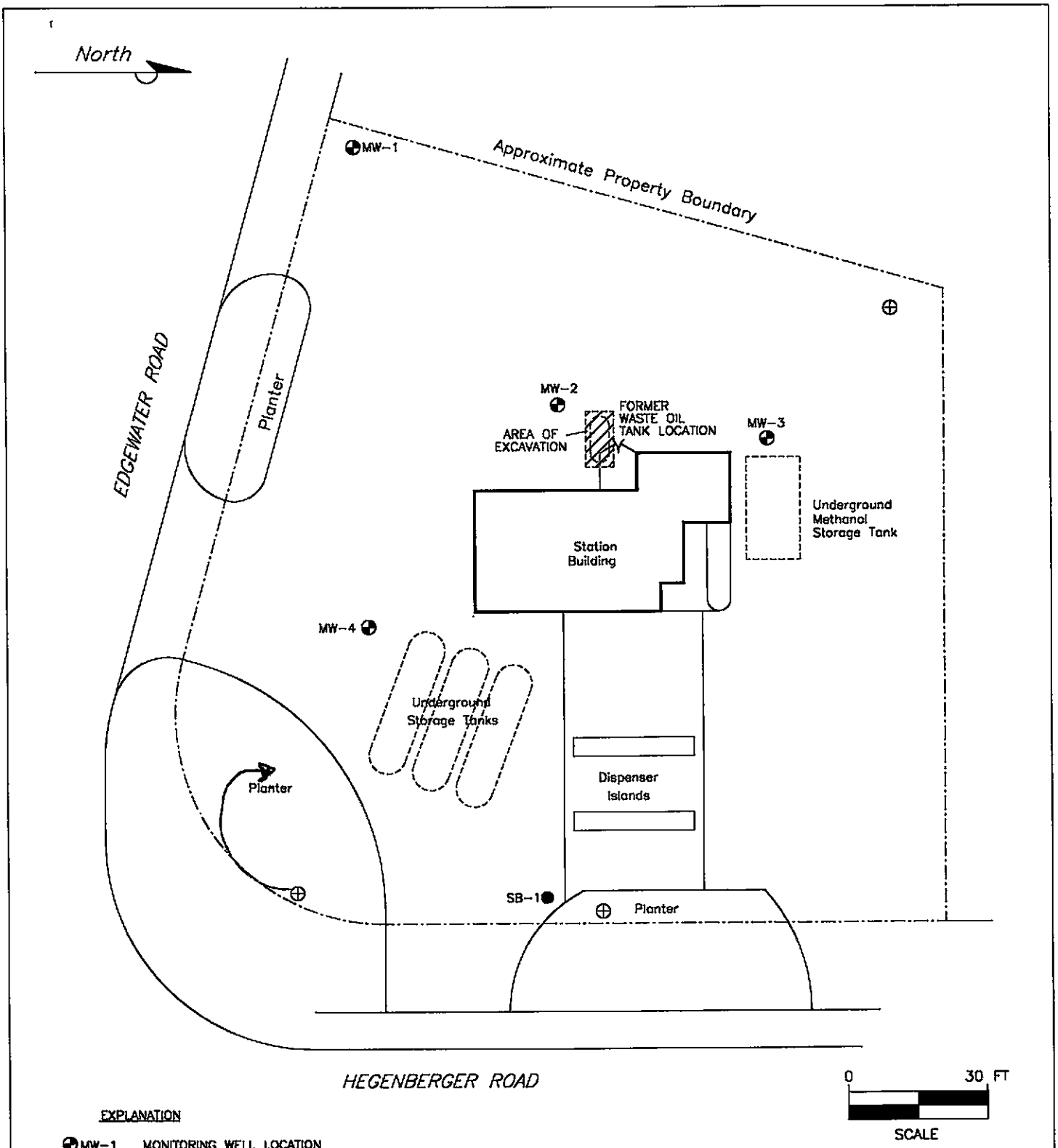
CHEVRON STATION NO. 9-1851

451 HEGENBERGER ROAD

OAKLAND, CA.

PROJECT NO. DG91-851	DRAWN BY M.L. 7/13/00
FILE NO. DG918512	PREPARED BY BIH
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



EXPLANATION

- MW-1 MONITORING WELL LOCATION
- SB-1 SOIL BORING LOCATION
- ⊕ PROPOSED MONITORING WELL LOCATION

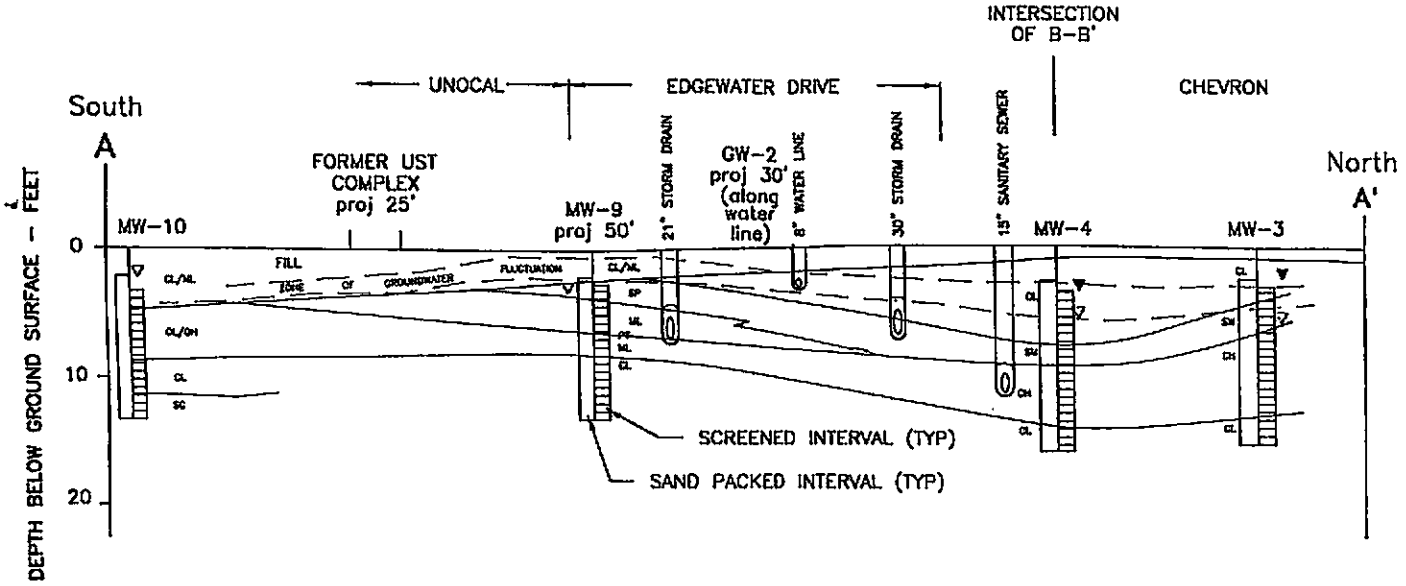
FIGURE 3

SITE MAP

CHEVRON STATION NO. 9-1851
451 HEGENBERGER ROAD
OAKLAND, CA.

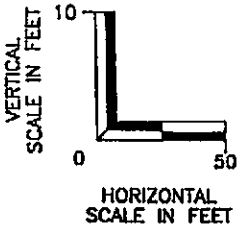
PROJECT NO. DG94-1851	DRAWN BY M.L. 7/12/00
FILE NO. DG9418511	PREPARED BY BIH
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



LEGEND

ML, CL, OL, CH, OH, Pt	PRIMARILY FINE GRAINED DEPOSITS
SW, SP, SC	PRIMARILY COARSE GRAINED DEPOSITS
MW-10	GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
GW-1	BORING LOCATION AND DESIGNATION (FOR GRAB GROUNDWATER SAMPLING)
▽	FIRST ENCOUNTERED WATER LEVEL
▼	STATIC WATER LEVEL, 2-19-98
proj	PROJECTED ONTO LINE OF SECTION IN FEET



NOTE: THIS FIGURE TAKEN FROM PACIFIC ENVIRONMENTAL GROUP, INC. DRAWING TITLED "GEOLOGIC CROSS SECTION MAP A-A'" DATED OCTOBER 2, 1997.

FIGURE 4

GEOLOGIC CROSS SECTION MAP A-A'

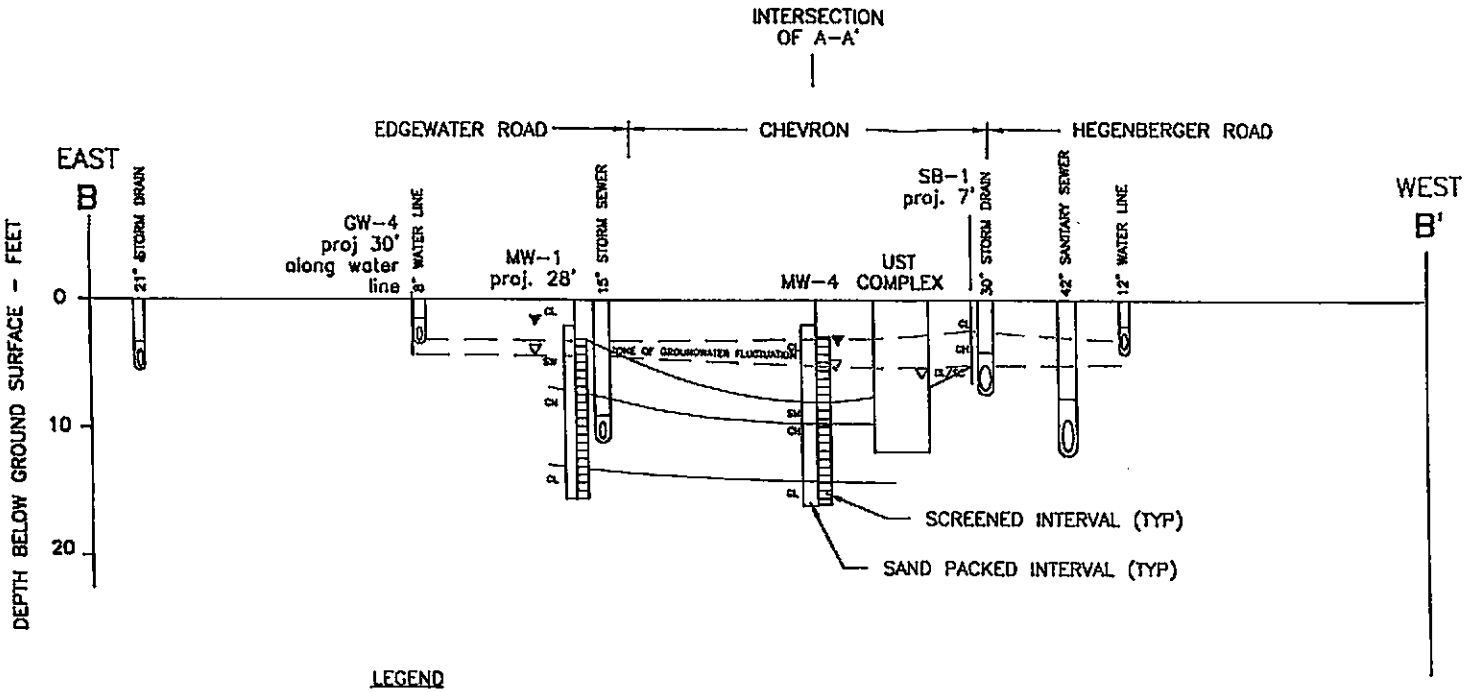
CHEVRON STATION NO. 9-1851

451 HEGENBERGER ROAD

OAKLAND, CA.

PROJECT NO. DG91-851	DRAWN BY M.L. 7/13/00
FILE NO. DG918513	PREPARED BY BIH
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



LEGEND

CL, CH, ML	PRIMARILY FINE GRAINED DEPOSITS
SW, SM, SC	PRIMARILY COARSE GRAINED DEPOSITS
MW-1	GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
SB-1	SOIL BORING LOCATION AND DESIGNATION
GW-4	BORING LOCATION AND DESIGNATION (FOR GRAB GROUNDWATER SAMPLING)
▽	FIRST ENCOUNTERED WATER LEVEL
▼	STATIC WATER LEVEL, 2-19-98
proj	PROJECTED ONTO LINE OF SECTION IN FEET

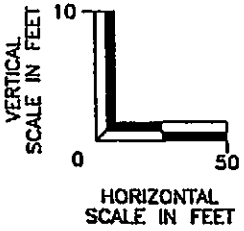


FIGURE 5

GEOLOGIC CROSS SECTION MAP B-B'

CHEVRON STATION NO. 9-1851

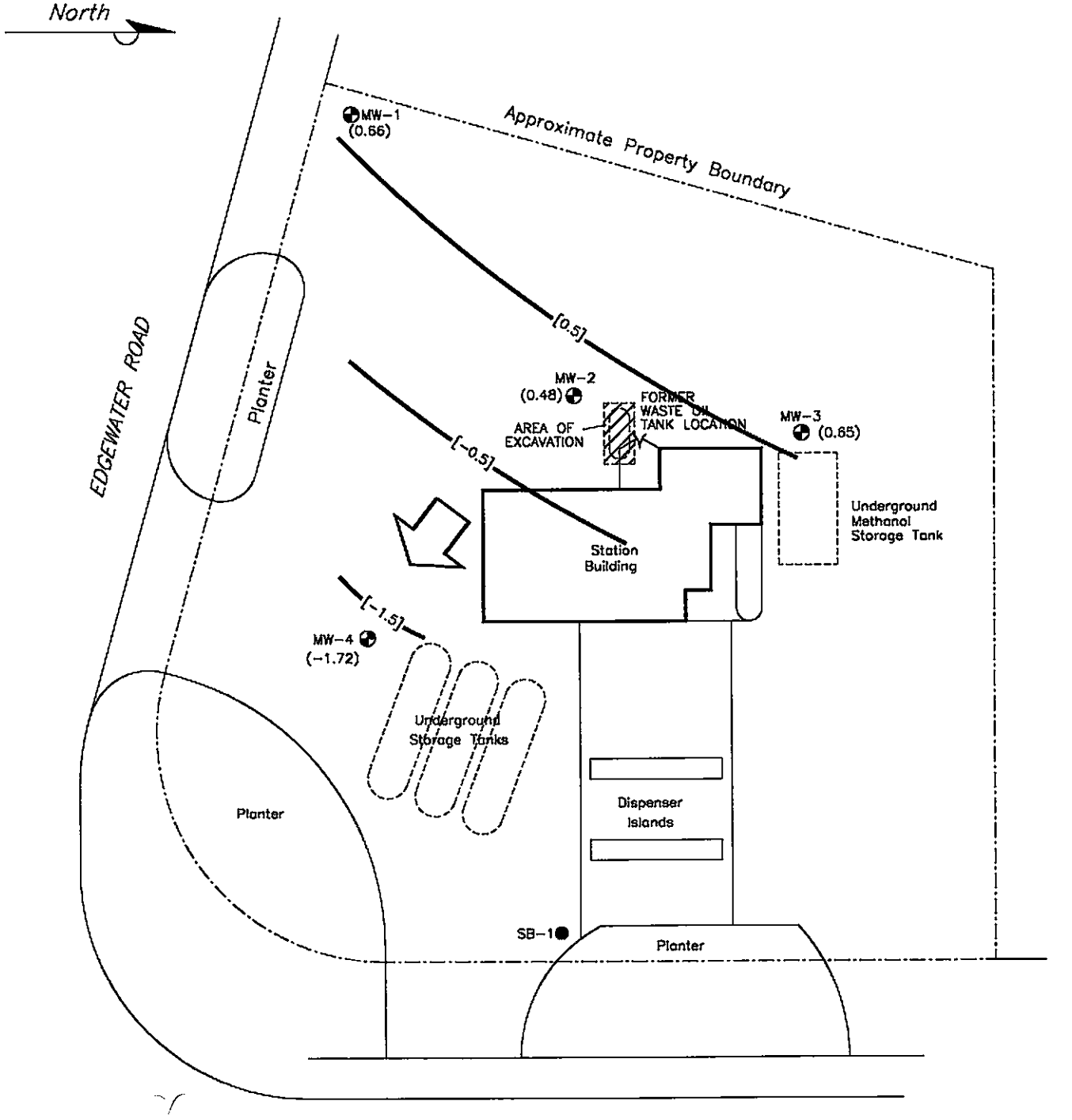
451 HEGENBERGER ROAD

OAKLAND, CA.

PROJECT NO. DG91-851	DRAWN BY M.L. 7/13/00
FILE NO. DG918513	PREPARED BY BH
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.

NOTE: THIS FIGURE TAKEN FROM PACIFIC ENVIRONMENTAL GROUP, INC. DRAWING TITLED "GEOLOGIC CROSS SECTION MAP B-B'" DATED OCTOBER 2, 1997.



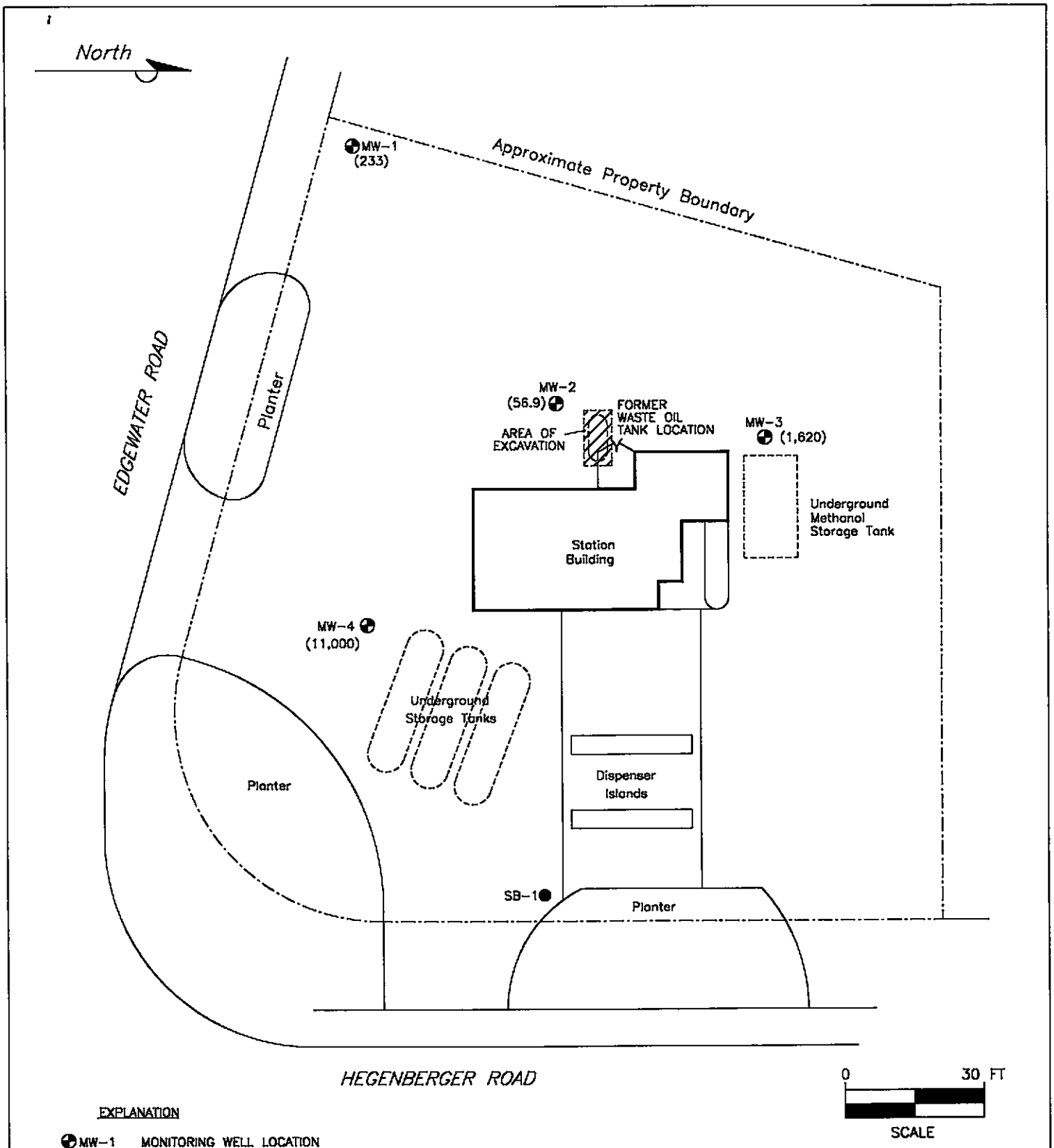
EXPLANATION

- MW-1 MONITORING WELL LOCATION
- SB-1 SOIL BORING LOCATION
- (0.48) GROUNDWATER ELEVATION (FT. MSL)
- -[-1.5]- GROUNDWATER ELEVATION CONTOUR (FT. MSL)
- APPROXIMATE GROUNDWATER FLOW DIRECTION; APPROXIMATE GRADIENT = 0.02

FIGURE 6
GROUND WATER ELEVATION CONTOUR MAP
3/1/00
CHEVRON STATION NO. 9-1851
451 HEGENBERGER ROAD
OAKLAND, CA.

PROJECT NO. DG94-1851	DRAWN BY M.L. 7/12/00
FILE NO. DG9418511	PREPARED BY BIH
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



EXPLANATION

- MW-1 MONITORING WELL LOCATION
- SB-1 SOIL BORING LOCATION
- (56.9) DISSOLVED MTBE CONCENTRATION IN MICROGRAMS PER LITER (ug/L)

FIGURE 7
DISSOLVED MTBE IN GROUNDWATER
12/8/99
CHEVRON STATION NO. 9-1851
451 HEGENBERGER ROAD
OAKLAND, CA.

PROJECT NO. DG94-1851	DRAWN BY M.L. 8/1/00
FILE NO. DG9418511	PREPARED BY BIH
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.

APPENDIX A

Alameda County Health Care Services Letter Dated 02/10/00

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway
Alameda, CA 94502-6577
(510) 567-6700
(510) 337-9432

February 10, 2000
StID # 541

Mr. Brett Hunter
Chevron USA Products Co.
P.O. Box 6004
San Ramon, CA 94583-0904

Re: Chevron Service Station #9-1851, 451 Hegenberger Rd., Oakland CA 94621

Dear Mr. Hunter:

It appears that the items noted in my August 25, 1999 letter to Mr. Phil Briggs have not yet been addressed by Chevron. I have enclosed a copy of this letter for your reference. **Please respond to these items in writing within 45 days or no later than March 28, 2000.**

Upon review of the recent 4th Quarter 1999 monitoring report, it appears that conditions remain consistent with previous results. A site-wide MTBE problem exists, with exceedingly high concentrations being found in MW-4. Although the Regional Water Quality Control Board has not issued their recommendations as yet, it is believed that theirs will be similar to that of the SWRCB. Nevertheless, it is safe to assume that site characterization will be required and that high concentrations of MTBE will require remediation. Therefore, our office requests the installation of additional well(s) to delineate the extent of the MTBE plume. As you may be aware, a May 1998 utility investigation did not identify any utilities acting as preferential pathways. Your off-site wells can be used to distinguish MTBE releases from the multiple sources existing in this area. Our office also requests the initiating remediation to treat the source(s) of MTBE. This should include an evaluation of viable remedial alternatives based upon cost and effectiveness. **Please include your work plan and remediation proposal along with the above requested items.**

You may contact me at (510) 567-6765 if you have any questions.

Sincerely,

Barney M. Chan

Barney M. Chan
Hazardous Materials Specialist

Enclosure

C: B. Chan, files

Wpreq451HegRd

Table 1. Soil Analytical Results - Chevron Service Station #9-1851, 451 Hegenberger Road, Oakland, California

Sample ID	Depth (ft)	Date	Analytic Method	TPHg	B	T	E	X	O&G	TPHd	HVOCs	VOCs	Methanol	MEK
				<----------ppm---------->										
SB1-5.5	5.5	10/12/95	8015/8020	<1	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---	---	---
MW1-4	4.0	10/12/95	0815/8020	<1	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---	---	---
MW2-5.5	5.5	10/12/95	8015/8020/ 8010/5520E&F	8.4	<0.005	<0.0050	0.0097	0.025	2,100	77	9.2*	---	---	---
MW3-5	5.0	10/12/95	8015/8020 8240	<1	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	ND	<1.0	<0.20
MW4-5	5.0	10/12/95	8015/8020	<1	<0.0050	<0.0050	<0.0050	<0.0050	---	---	---	---	---	---
SP-(A-D)comp	---	10/12/95	8015/8020	<1	0.044	0.064	0.015	0.058	---	---	---	---	---	---

EXPLANATION:

TPHg = Total Petroleum Hydrocarbons as gasoline
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
O&G = Oil and Grease
TPHd = Total Petroleum Hydrocarbons as diesel
HVOCs = Halogenated Volatile Organic Compounds
VOCs = Volatile Organic Compounds
MEK = Methyl ethyl ketone
ppm = Parts per million
--- = Not analyzed/not applicable
' = Sequoia indicates the chromatograph pattern is unidentified in the C9-C24 range.
* = Chloroform (other HVOCs were not detected)
ND = 38 compounds analyzed not detected

ANALYTICAL METHODS:

8015 = EPA Method 8015Mod for TPHg, TPHd, methanol and MEK.
8020 = EPA Method 8020 for BTEX
5520E&F = Standard Method 5520E&F for O&G
8010 = EPA Method for HVOCs
8240 = EPA Method for VOCs

ANALYTICAL LABORATORY:

Sequoia Analytical of Redwood City, California.

Sample Identification: MW1-4
- MW1-4: Soil sample from boring
- MW1-4: Boring number
- MW1-4: Sample depth

Table 2. Water Level Data and Groundwater Analytical Results - Chevron Service Station #9-1851, 451 Hegenberger Road, Oakland, California

Well ID/ TOC (ft)	Date	DTW (ft)	GWE (msl)	Product Thickness*	Analytic Method	TPHg	B	T	E	X	O&G	TPHd	HVOCs	VOCs	Methanol	MEK
						<----------ppb---------->										
MW-1/ 2.61	10/17/95	4.12	-1.51	0	8015/8020	<50	<0.50	<0.50	<0.50	<0.50	---	---	---	---	---	---
MW-2/ 3.51	10/17/95	5.33	-1.81	0	8015/8020/ 8010/5520B&F	170	3.5	<0.50	1.0	6.1	<5,000	1,600[1]	1.7* 11**	---	---	---
MW-3/ 3.08	10/17/95	4.42	-1.34	0	8015/8020 8240	<50	<0.50	<0.50	<0.50	<0.50	---	---	---	ND	<1000	<200
MW-4/ 3.48	10/17/95	5.08	-1.60	0	8015/8020	<125	<1.2	<1.2	<1.2	<1.2	---	---	---	---	---	---
TB	10/17/95	---	---	---	8015/8020	<50	<0.50	<0.50	<0.50	<0.50	---	---	---	---	---	---

EXPLANATION:

DTW = Depth to water
TOC = Top of casing elevation
GWE = Groundwater elevation
msl = Measurements referenced relative to mean sea level
TPHg = Total Petroleum Hydrocarbons as gasoline
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
O&G = Oil and Grease
TPHd = Total Petroleum Hydrocarbons as diesel
HVOCs = Halogenated Volatile Organic Compounds
VOCs = Volatile Organic Compounds
MEK = Methyl ethyl ketone
ppb = Parts per billion
--- = Not analyzed/not applicable
* = 1,1-Dichloroethane
**= cis-1,2-Dichloroethene
ND = 38 compounds analyzed not detected
[1] = Sequoia notes the chromatograph pattern is unidentified in the range of C9-C24.

ANALYTICAL METHODS:

8015 = EPA Method 8015Mod for TPHg, TPHd, methanol and MEK.
8020 = EPA Method 8020 for BTEX
5520B&F = Standard Method 5520B&F for O&G
8010 = EPA Method for HVOCs
8240 = EPA Method for VOCs

NOTES:

Top of casing elevations were surveyed by Virgil Chavez, PLS #6323, on November 22, 1995.

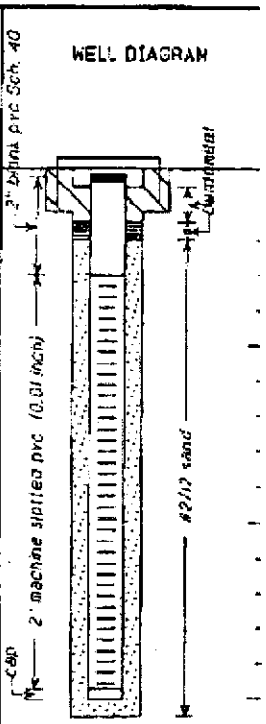
APPENDIX C

Soil Boring Logs and Well Construction Diagrams

Gettler-Ryan, Inc.	Log of Boring MW-1
PROJECT: *Chevron SS# 9-1851*	LOCATION: *451 Hegenberger Road, Oakland, CA*
G-R PROJECT NO.: *5145.01*	SURFACE ELEVATION: *2.61 feet MSL*
DATE STARTED: *10/11/95*	WL (ft. bgs): *4.3* DATE: *10/11/95* TIME: *14:50*
DATE FINISHED: *10/12/95*	WL (ft. bgs): *4.3* DATE: *10/12/95* TIME: *10:40*
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *15.5 Feet*
DRILLING COMPANY: *Bay Area Exploration, Inc.*	GEOLOGIST: *B. Sieminski*

DEPTH (feet)	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
							PAVEMENT – 3 inches asphalt over baserock.
						CL	SILTY CLAY (CL) – dark greenish gray (5GY 4/1), damp, stiff, medium plasticity; 100% fines.
5	0	2	MW1-4			SW	SAND WITH GRAVEL (SW) – olive brown (2.5Y 4/4), moist, medium dense; 55% fine to coarse sand, 45% fine gravel. Saturated at 4.3 feet.
10	0	5	MW1-11			CH	CLAY (CH) – very dark gray (N3 3/0), saturated, medium stiff, high plasticity; 100% clay; roots.
15	0	10	MW1-15			CL	SILTY CLAY (CL) – light yellowish brown (10YR 6/4) mottled gray (N5/0), moist, stiff, medium plasticity; 95% fines, 5% fine sand.
							Bottom of boring at 15.5 feet, 10/12/95.
20							(* = converted to equivalent standard penetration blows/ft.)
25							
30							
35							

WELL DIAGRAM



JOB NUMBER: *5145.01*

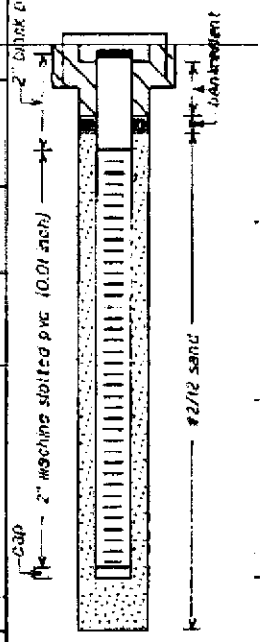
Gettler-Ryan, Inc.

Log of Boring MW-2

PROJECT: *Chevron SS# 9-1851*	LOCATION: *451 Hegenberger Road, Oakland, CA*
G-R PROJECT NO.: *5145.01*	SURFACE ELEVATION: *3.52 feet MSL*
DATE STARTED: *10/11/95*	WL (ft. bgs): *6.0* DATE: *10/11/95* TIME: *11:55*
DATE FINISHED: *10/12/95*	WL (ft. bgs): *6.8* DATE: *10/12/95* TIME: *11:30*
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *18.5 Feet*
DRILLING COMPANY: *Bay Area Exploration, Inc.*	GEOLOGIST: *B. Sieminski*

DEPTH feet	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						ML	PAVEMENT – 3 inches asphalt over baserock. CLAYEY SILT WITH GRAVEL (ML) – brown (10YR 5/3), damp, stiff, low plasticity; 80% fines, 20% fine gravel.
5	41	2	MW2-5.5			SW	SAND WITH GRAVEL (SW) – dark gray (5Y 4/1), moist, dense; 50% fine to coarse sand, 45–50% subrounded to well rounded gravel up to 1 inch in diameter, 0–5% fines; hydrocarbon odor. Gravel decreases to 35% at 5 feet. Saturated at 6 feet.
						CL	
10	0	5	MW2-11			CH	CLAY (CL) – olive (5Y 5/3), saturated, soft, medium plasticity; 100% clay; hydrocarbon odor. CLAY (CH) – black (5Y 2.5/1), saturated, medium stiff, high plasticity ; 100% clay; roots.
15	0	5	MW2-16			CL	SILTY CLAY (CL) – dark greenish gray (5G 4/1) mottled dark gray (N 4/1), moist, medium stiff, medium plasticity; 100% fines.
							Bottom of boring at 18.5 feet, 10/11/95.
20							(* = converted to equivalent standard penetration blows/ft.)
25							
30							
35							

WELL DIAGRAM

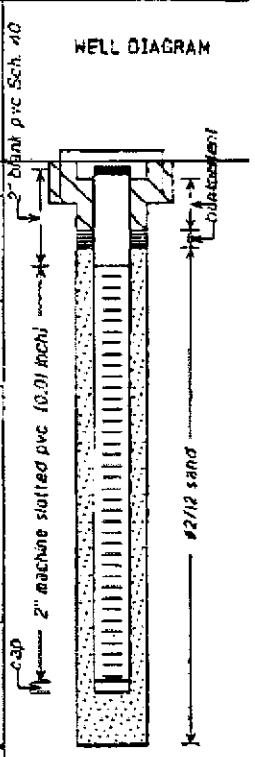


JOB NUMBER: *5145.01*

Gettler-Ryan, Inc.	Log of Boring MW-3
PROJECT: *Chevron SS# 9-1851*	LOCATION: *451 Hegenberger Road, Oakland, CA*
G-R PROJECT NO.: *5145.01*	SURFACE ELEVATION: *3.06 feet MSL*
DATE STARTED: *10/11/95*	WL (ft. bgs): *5.5* DATE: *10/11/95* TIME: *10:45*
DATE FINISHED: *10/11/95*	WL (ft. bgs): *5.1* DATE: *10/11/95* TIME: *11:25*
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *16.5 Feet*
DRILLING COMPANY: *Bay Area Exploration, Inc.*	GEOLOGIST: *B. Sieminski*

DEPTH feet	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
							PAVEMENT – 3 inches asphalt over baserock.
						CL	CLAY (CL) – olive (5Y 4/3) mottled yellowish brown (10YR 5/8), moist, medium stiff, medium plasticity; 100% clay.
5	0	2	MW3-5			SW	SAND WITH GRAVEL (SW) – olive gray (5Y 4/2), moist, very loose; 70% fine to coarse sand, 30% subrounded to well rounded gravel up to 1 inch in diameter.
						CH	Saturated at 5.5 feet.
10	0	2	MW3-11				CLAY (CH) – dark gray (5Y 4/2), saturated, soft, high plasticity; 100% clay; roots.
						CL	SILTY CLAY (CL) – olive (5G 5/3) mottled gray (5Y 5/1), moist to saturated, stiff, medium plasticity; 100% fines; rootholes.
15	0	9	MW3-16				
							Bottom of boring at 16.5 feet, 10/11/95.
20							(* = converted to equivalent standard penetration blows/ft.)
25							
30							
35							

WELL DIAGRAM

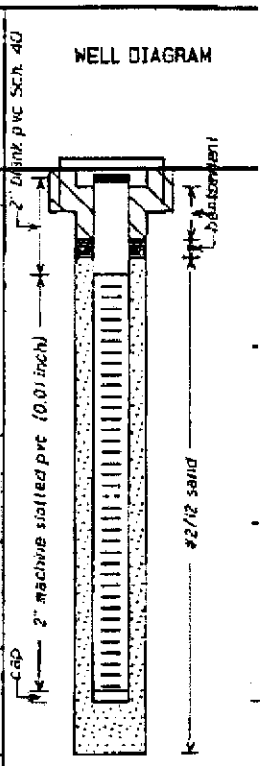


JOB NUMBER: *5145.01*

Gettler-Ryan, Inc.	Log of Boring MW-4
PROJECT: *Chevron SS# 9-1851*	LOCATION: *451 Hegenberger Road, Oakland, CA*
G-R PROJECT NO.: *5145.01*	SURFACE ELEVATION: *3.48 feet MSL*
DATE STARTED: *10/11/95*	WL (ft. bgs): *5.5* DATE: *10/11/95* TIME: *14:15*
DATE FINISHED: *10/11/95*	WL (ft. bgs): *5.5* DATE: *10/12/95* TIME: *10:15*
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *16.5 Feet*
DRILLING COMPANY: *Bay Area Exploration, Inc.*	GEOLOGIST: *B. Sieminski*

DEPTH feet	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
							PAVEMENT – 3 inches asphalt over baserock.
						CL	SILTY CLAY (CL) – very dark gray (5y 3/1), moist, soft, medium plasticity; 100% fines.
5	0	2	MW4-5				▼ Saturated at 5.5 feet.
						SM	SILTY SAND (SM) – dark gray (2.5Y 4/1), saturated, very loose; 85% fine sand, 15% silt.
10	0	2	MW4-11			CH	CLAY (OH) – black (5Y 2.5/1), saturated, soft, high plasticity; 100% clay; roots.
						CL	SILTY CLAY (CL) – greenish gray (5G 5/1) mottled dark gray (N4/1), moist to saturated, medium stiff, medium plasticity; 100% fines.
15	0	7	MW4-16				
							Bottom of boring at 16.5 feet, 10/11/95.
20							(* = converted to equivalent standard penetration blows/ft.)
25							
30							
35							

WELL DIAGRAM



JOB NUMBER: *5145.01*

Gettler-Ryan, Inc.

Log of Boring SB-1

PROJECT: *Chevron SS# 9-1851*	LOCATION: *451 Hegenberger Road, Oakland, CA*
G-R PROJECT NO.: *5145.01*	SURFACE ELEVATION: *MSL*
DATE STARTED: *10/12/95*	WL (ft. bgs): *6.0* DATE: *10/12/95* TIME: *12:00*
DATE FINISHED: *10/12/95*	WL (ft. bgs): DATE: TIME:
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *6.5 Feet*
DRILLING COMPANY: *Bay Area Exploration, Inc.*	GEOLOGIST: *B. Sieminski*

DEPTH (feet)	PID (ppm)	BLOWS/FT. #	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	REMARKS
							PAVEMENT - 4 inches of asphalt over baserock	
						CL	CLAY (CL) - olive (5Y 4/3), moist, stiff, medium plasticity; 100% clay; roots.	Boring backfilled with neat cement with 5% bentonite
						CH	CLAY (CH) - black (5Y 2.5/1), moist, soft, high plasticity; 100% clay; roots.	
5	0	N/A	SB-5.5			CL/SC	SILTY CLAY WITH LENSES OF CLAYEY SAND (CL/SC) - dark greenish gray (5 G 1/1), moist, soft, low plasticity; 80% clay, 20% fine sand.	
							Saturated at 6.2 feet.	
							Bottom of boring at 6.5 feet, 10/12/95.	
10								
15								
20								
25								
30								
35								

JOB NUMBER: *5145.01*

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	TOG	TPH-Diesel	Benzene by (EPA 8240)	Xylene by (EPA 8240)	C-1,2-DCE	Carbon Disulfide	Vinyl Chloride	MTBE
MW-1																	
10/17/95	2.61	-1.51	4.12	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--
3/29/96	2.61	-0.72	3.33	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	9.5
6/26/96	2.61	-1.23	3.84	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	46
9/25/96	2.61	-1.41	4.02	--	<250	<2.5	<2.5	<2.5	<2.5	--	--	--	--	--	--	--	940
12/17/96	2.61	-0.96	3.57	--	<50	0.86	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	260
3/20/97	2.61	-1.54	4.15	--	<50	<2.0	<2.0	<2.0	<2.0	--	--	--	--	--	--	--	76
6/20/97	2.61	-1.72	4.33	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	64
9/9/97	2.61	-1.74	4.35	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	110
12/12/97	2.61	-0.39	3.00	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	27
2/19/98	2.61	0.78	1.83	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	14
6/23/98	2.61	-0.73	3.34	*	210	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	3400
8/31/98	2.61	-0.88	3.49	*	1400	630	<5.0	<5.0	<5.0	--	--	--	--	--	--	--	16,000
12/29/98	2.61	-1.22	3.83	--	<500	<5.0	<5.0	<5.0	<5.0	--	--	--	--	--	--	--	1090
3/11/99	2.61	-0.43	3.04	*	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	33.9
6/24/99	2.61	-0.77	3.38	*	<500	65.7	<5.0	<5.0	<5.0	--	--	--	--	--	--	--	1160
9/29/99	2.61	-1.01	3.62	--	81.7	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	1130
12/8/99	2.61	-1.46	4.07	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	233

* See Table of Additional Analyses

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	TOG	TPH-Diesel	Benzene by (EPA 8240)	Xylene by (EPA 8240)	C-1,2-DCE	Carbon Disulfide	Vinyl Chloride	MTBE
MW-2																	
10/17/95	3.51	-1.82	5.33	*	170	3.5	<0.5	1.0	6.1	<5000	1600**	--	--	11	--	--	--
3/29/96	3.51	-0.44	3.95	--	89	4.7	<0.5	0.64	0.74	--	3000**	11	2.5	17	--	5.4	21
6/26/96	3.51	-1.09	4.60	--	80	8.7	<0.5	1.2	1.3	--	2000**	11	<2.0	15	--	12	31
9/25/96	3.51	--	--	Inaccessible	--	--	--	--	--	--	--	--	--	--	--	--	--
12/17/96	3.51	-0.41	3.92	--	110	<0.5	<0.5	0.75	2.1	--	2400**	10	<2.0	2.3	--	5.5	27
3/20/97	3.51	-1.32	4.83	--	140	8.2	<2.0	<2.0	<2.0	--	3400**	--	--	<2.0	--	3.2	58
6/20/97	3.51	-1.53	5.04	--	62	7.7	<0.5	<0.5	<0.5	--	1600**	7.2	<2.0	4.6	2.2	5.2	38
9/9/97	3.51	-1.47	4.98	--	190	9.4	<0.5	<0.5	0.86	--	82**	11	<2.0	<2.0	<2.0	<2.0	48
12/12/97	3.51	-0.40	3.91	--	180	1.8	<0.5	<0.5	3.2	--	8500**	<2.0	<2.0	<2.0	<2.0	<2.0	34
2/19/98	3.51	0.55	2.96	--	<100	1.8	<1.0	<1.0	<1.0	--	3800**	<3.3	<3.3	<3.3	<3.3	<3.3	230
6/23/98	3.51	-0.54	4.05	***	60	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	55
8/31/98	3.51	-0.80	4.31	--	61	2.2	<0.5	<0.5	1.1	--	--	--	--	--	--	--	53
12/29/98	3.51	-1.12	4.63	--	54	1.32	<0.5	<0.5	0.752	--	--	--	--	--	--	--	38.1
3/11/99	3.51	-0.01	3.52	***	648	2.88	<2.0	<2.0	<2.0	--	--	--	--	--	--	--	73.2
6/24/99	3.51	-0.49	4.00	***	264	0.575	<0.5	1.01	<0.5	--	--	--	--	--	--	--	44.1
9/29/99	3.51	-0.93	4.44	--	54.3	0.662	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	35.7
12/8/99	3.51	-1.38	4.89	--	<50	1.27	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	56.9

* Results of EPA 8010 test indicates that the detection of 1,1-Dichloroethane is 1.7 ppb.
** Chromatogram pattern indicates an unidentified hydrocarbon.
*** See Table of Additional Analyses.

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	TOG	TPH-Diesel	Benzene (EPA 8240)	Xylene (EPA 8240)	C-1,2-DCE	Carbon Disulfide	Vinyl Chloride	MTBE
MW-3																	
10/17/95	3.08	-1.34	4.42	***	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--
3/29/96	3.08	0.08	3.00	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	26
6/26/96	3.08	-0.52	3.60	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	47
9/25/96	3.08	-1.06	4.14	--	<125	<1.2	<1.2	<1.2	<1.2	--	--	--	--	--	--	--	570
12/17/96	3.08	-0.12	3.20	--	<500	<5.0	<5.0	<5.0	<5.0	--	--	--	--	--	--	--	680
3/20/97	3.08	-0.22	3.30	--	<50	<5.7	<5.7	<5.7	<5.7	--	--	--	--	--	--	--	430
6/20/97	3.08	-0.78	3.86	--	<500	<5.0	<5.0	<5.0	<5.0	--	--	--	--	--	--	--	1400
9/9/97	3.08	-1.11	4.19	--	76**	22	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	920
12/12/97	3.08	0.12	2.96	--	52	15	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	710
2/19/98	3.08	0.86	2.22	--	<50	6.6	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	380
6/23/98	3.08	-0.17	3.25	*	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	390
8/31/98	3.08	-0.78	3.86	--	<50	19	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	830
12/29/98	3.08	-0.45	3.53	--	<250	<2.5	<2.5	<2.5	<2.5	--	--	--	--	--	--	--	416
3/11/99	3.08	-0.27	3.35	*	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	262
6/24/99	3.08	-0.53	3.61	*	<50	12.8	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	620
9/29/99	3.08	-0.87	3.95	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	2840
12/8/99	3.08	-0.46	3.54	--	73.4	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	1620

* See Table of Additional Analyses
** Chromatogram pattern indicates an unidentified hydrocarbon.
*** Results of EPA 8015 test indicates that levels of Methanol and Methyl ethyl ketone are respectively <1000 and <200 ppb.

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	TOG	TPH-Diesel	Benzene (EPA 8240)	Xylene (EPA 8240)	C-1,2-DCE	Carbon Disulfide	Vinyl Chloride	MTBE
MW-4																	
10/17/95	3.48	-1.60	5.08	--	<125	<1.2	<1.2	<1.2	<1.2	--	--	--	--	--	--	--	--
3/29/96	3.48	-1.13	4.61	--	<1000	<10	<10	<10	<10	--	--	--	--	--	--	--	6700
6/26/96	3.48	-0.82	4.30	--	<2000	<20	<20	<20	<20	--	--	--	--	--	--	--	7200
9/25/96	3.48	-1.85	5.33	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<2.5
12/17/96	3.48	0.67	2.81	--	<2000	120	<20	<20	<20	--	--	--	--	--	--	--	11,000
3/20/97	3.48	-1.02	4.50	--	250**	<2.0	<2.0	<2.0	<2.0	--	--	--	--	--	--	--	10,000
3/20/97	3.48	-1.02	4.50	Conf. run	--	--	--	--	--	--	--	--	--	--	--	--	8600
6/20/97	3.48	-2.20	5.68	--	<2500	<25	<25	<25	<25	--	--	--	--	--	--	--	9300
9/9/97	3.48	-2.02	5.50	--	460**	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	6600
12/12/97	3.48	-1.55	5.03	--	430**	120	<2.5	<2.5	<2.5	--	--	--	--	--	--	--	7800
2/19/98	3.48	0.13	3.35	--	510**	130	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	6600
6/23/98	3.48	-1.50	4.98	*	550**	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	6800
8/31/98	3.48	-1.94	5.42	--	<500	450	<5.0	<5.0	<5.0	--	--	--	--	--	--	--	14,000
12/29/98	3.48	-1.58	5.06	--	<5000	<50	<50	<50	<50	--	--	--	--	--	--	--	16,100
3/11/99	3.48	-0.30	3.78	*	979	<5.0	<5.0	<5.0	<5.0	--	--	--	--	--	--	--	15,100
6/24/99	3.48	-0.83	4.31	*	<2500	715	<25	<25	<25	--	--	--	--	--	--	--	12,400
9/29/99	3.48	-2.10	5.58	--	1380	<5.0	<5.0	<5.0	<5.0	--	--	--	--	--	--	--	11,700
12/8/99	3.48	-1.85	5.33	--	318	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	11,100

* See Table of Additional Analyses
** Chromatogram pattern indicates an unidentified hydrocarbon.

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	TOG	TPH-Diesel	Benzene (EPA 8240)	Xylene (EPA 8240)	C-1,2-DCE	Carbon Disulfide	Vinyl Chloride	MTBE
TRIP BLANK																	
10/17/95																	
3/29/96	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--
6/26/96	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<2.5
9/25/96	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<2.5
12/17/96	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<2.5
3/20/97	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<2.5
6/20/97	--	--	--	--	<50	<2.0	<2.0	<2.0	<2.0	--	--	--	--	--	--	--	--
9/9/97	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<2.5
12/12/97	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<2.5
2/19/98	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<2.5
6/23/98	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<2.5
8/31/98	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<2.5
12/29/98	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<2.0
3/11/99	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<5.0
6/24/99	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<5.0
9/29/99	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<2.5
12/8/99	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	<5.0

ADDITIONAL ANALYSES

Analytical values are in parts per billion (ppb)

DATE	Notes	Ethanol	t-Butanol	MTBE	DIPE	ETBE	TAME
MW-1							
6/23/98	--	<50,000	<10,000	4500	<200	<200	<200
8/31/98	--	--	--	17,000	--	--	--
3/11/99	--	--	--	54.1	--	--	--
6/24/99	--	<10,000	<2000	1800	<20	<20	258
MW-2							
6/23/98	--	<500	<100	56	<2.0	<2.0	<2.0
3/11/99	--	--	--	101	--	--	--
6/24/99	--	<1000	<200	52.5	<2.0	<2.0	<2.0
MW-3							
6/23/98	--	<5000	<1000	420	<20	<20	26
3/11/99	--	--	--	580	--	--	--
6/24/99	--	<6670	<1330	900	<13.3	<13.3	<13.3
MW-4							
6/23/98	--	<50,000	<10,000	11,000	<200	<200	860
3/11/99	--	--	--	17,600	--	--	--
6/24/99	--	<125,000	<25,000	17,000	<250	<250	2600
TRIP BLANK		dl too high					
3/11/99	--	--	--	<2.0	--	--	--

Note: Blaine Tech Services, Inc. began routine monitoring of the groundwater wells at this site on March 29, 1996. Earlier field data and analytical results are drawn from the December 29, 1995 Gettler-Ryan, Inc. report.

ABBREVIATIONS:
TPH = Total Petroleum Hydrocarbons
ND = Not detected at or above the minimum quantitation limit. See laboratory reports for minimum quantitation limits.
TOG = Total Oil Grease
MTBE = Methyl t-butyl Ether
DIPE = Di-Isopropl Ether
ETBE = Ethyl t-Butyl Ether
TAME = t-Amyl Methyl Ether
C-1,2 DCE = Cis-1,2-Dichloroethylene
Conf. run = Confirmation run

Table 1
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, and MtBE)

Chevron Service Station 9-1851
451 Hegenberger Road at Edgewater Road
Oakland, California

Well Number	Date Sampled	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	MtBE (ppb)
GW-2	04/09/98	ND	ND	ND	ND	ND	ND
GW-3	04/09/98	ND	ND	ND	ND	ND	ND
GW-4	04/09/98	ND	ND	ND	ND	ND	ND
GW-5	04/09/98	ND	ND	ND	ND	ND	ND

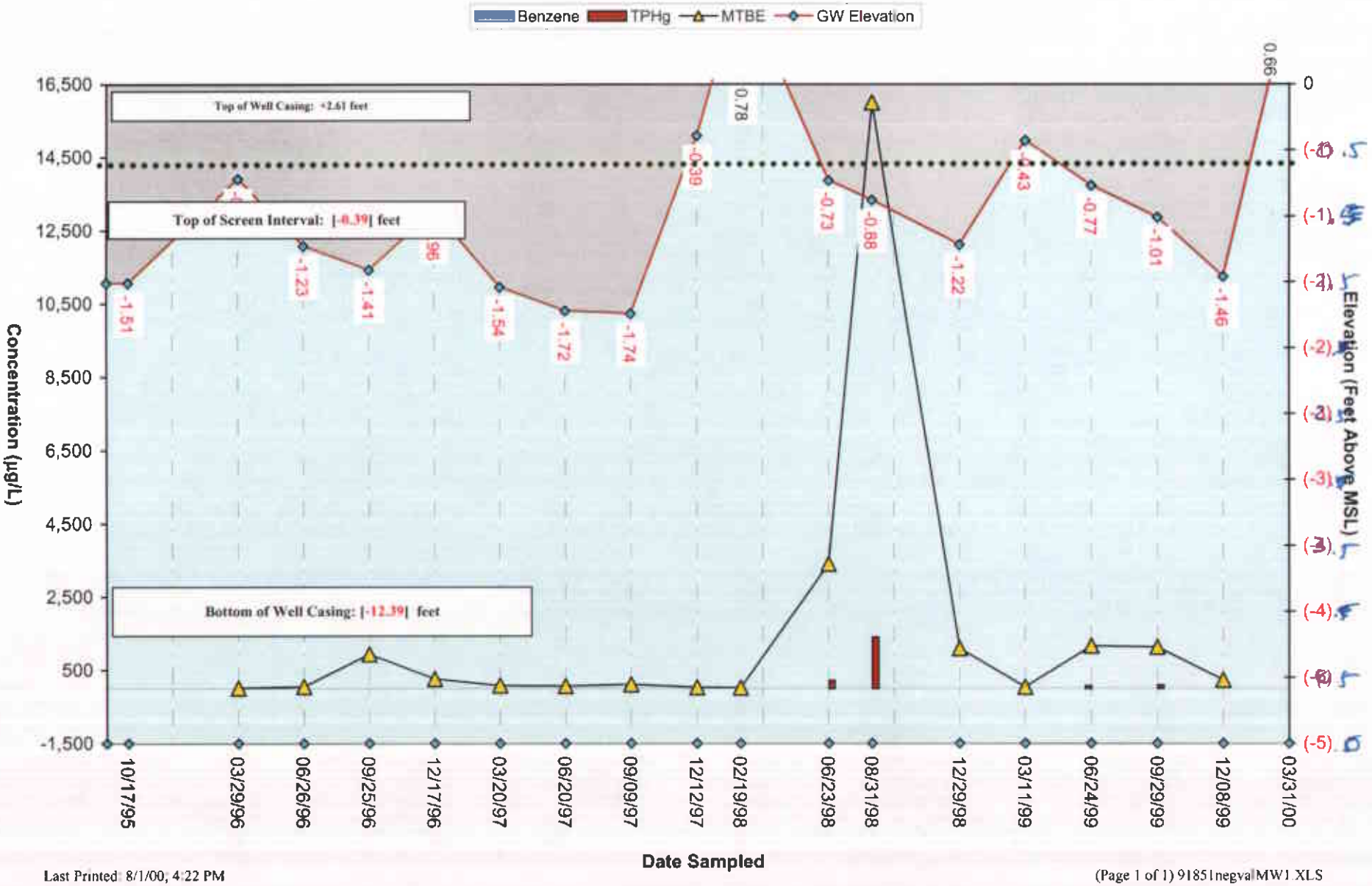
TPPH = Total purgeable petroleum hydrocarbons
MtBE = Methyl tert-butyl ether
ppb = Parts per billion
ND = Not detected
See certified analytical reports for detection limits.

APPENDIX E

Graphs of Groundwater Elevations, TPH as Gasoline, Benzene, and MTBE Concentrations versus Time

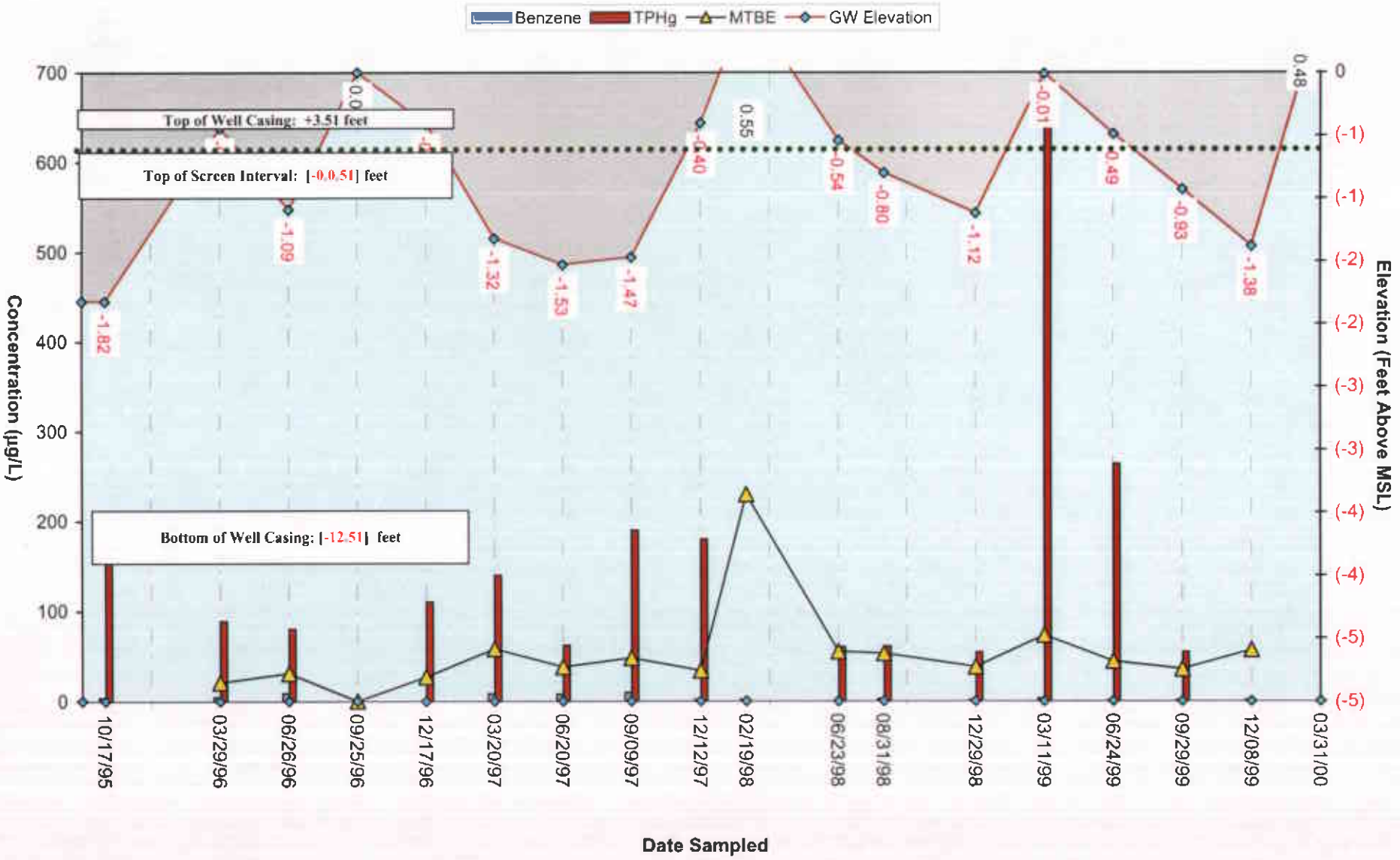
Chevron Station 9-1851
451 Hegenberger Road
Oakland, California

MW-1



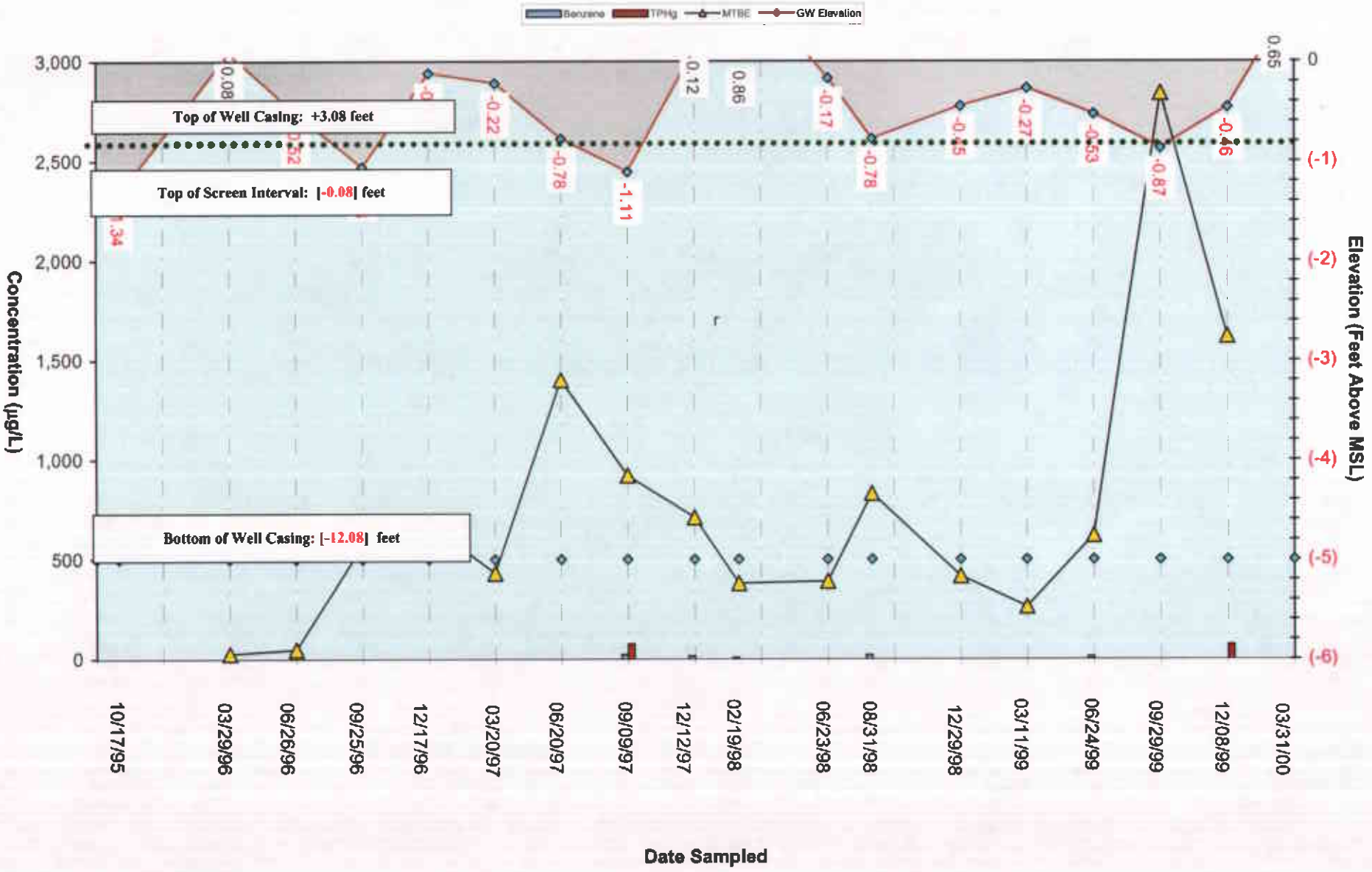
Cheveron Station 9-1851
451 Hegenberger Road
Oakland, California

MW-2



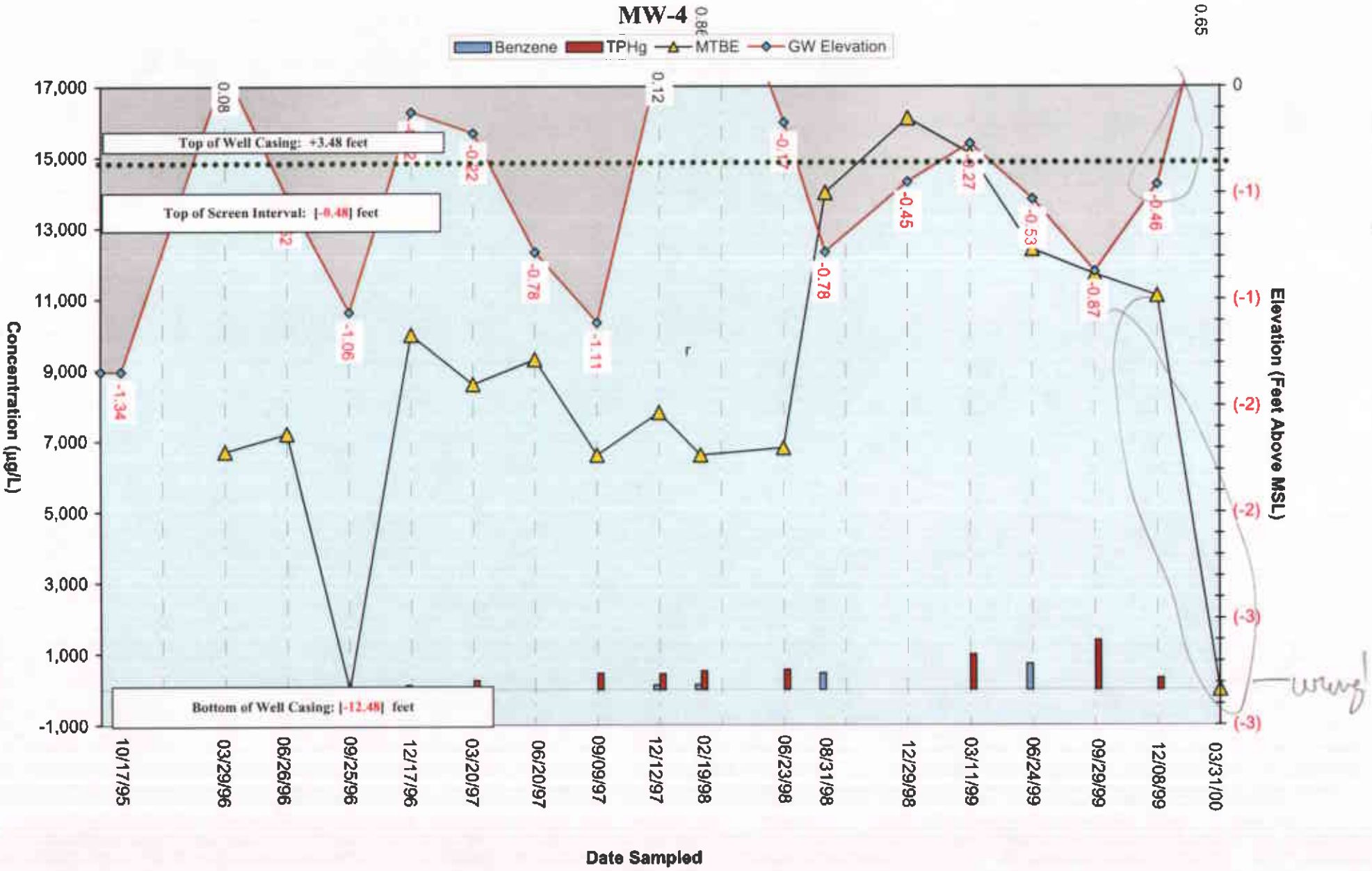
Cheveron Station 9-1851
451 Hegenberger Road
Oakland, California

MW-3

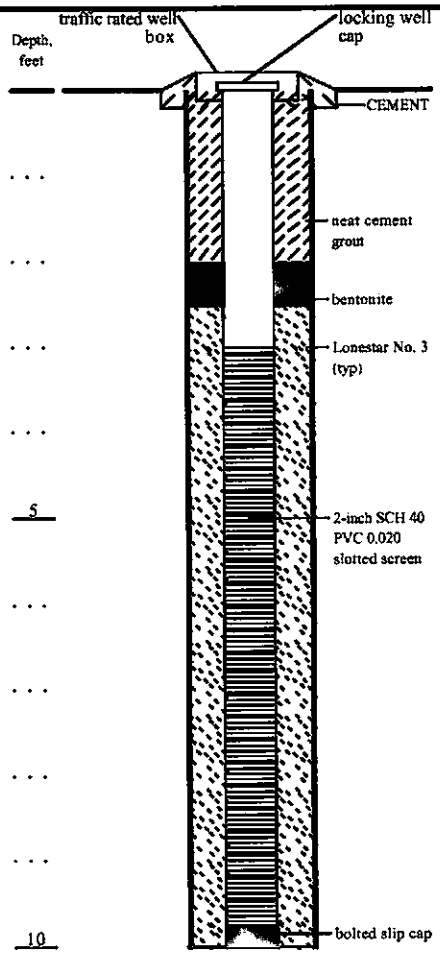


Cheveron Station 9-1851
451 Hegenberger Road
Oakland, California

MW-4



Delta Environmental Consultants, Inc.	Street Address **451 Hegenberger**	Project ID **Chevron Station No. 9-1851**	
	City & State **Oakland California**	Surface Elev.	Well / Boring ID **PMW**
	Delta Project # **DG91-851**	Casing Elev.	Total Depth **10'**



PROPOSED WELL CONSTRUCTION

PROPOSED WELL CONSTRUCTION

Dates and Times	Logger **Delta/Gettler-Ryan**	Sampling Method & Diameter **2" ID split spoon**	Permitting Agency **Alameda County EHS**
Start	Drilling Company & Driller **TBA,**	Bore Hole Diameter **8.25-inch**	Permit #
Total Depth	Drillers C-57# **TBA**	Diameter, Type & Slot Size of Casing **2-inch SCH 40 PVC 0.020**	
Completion or backfill	Drilling Equipment and method **TBA, hollow stem auger**		

PROPOSED DG91-851.GPJ 8/1/00