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June 30, 2000

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

Subject: *Interim Corrective Action Plan*
Former Chevron Service Station No. 9-9708
5910 MacArthur Boulevard
Oakland, California
Delta Project No. DG99-708

Dear Mr. Hwang:

Please find enclosed the Delta *Interim Corrective Action Plan* for the subject site. This report presents a summary of investigative activities and proposes additional assessment activities at the site.

If you have questions or comments regarding this report, please contact me at (916) 638-2765 or Tom Bauhs of Chevron at (925) 842-8898.

Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.

James R Brownell

James R. Brownell
Project Manager

JWS (Lrp001.9708.doc)
Enclosures

cc: Tom Bauhs – Chevron U.S.A. Product Company
Saidian Zektser – Station Owner

INTERIM CORRECTIVE ACTION PLAN
for
Former Chevron Service Station No. 9-9708
5910 MacAurthur Boulevard
Oakland, California

Prepared for:

Mr. Thomas Bauhs
Chevron Products Company
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Prepared by:

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June 30, 2000

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INTERIM CORRECTIVE ACTION PLAN

FORMER CHEVRON SERVICE STATION NO. 9-9708
5910 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA
DELTA PROJECT NO. DG99-708

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. 9-9708, located at 5910 MacArthur Boulevard, Oakland, Alameda County, California (Figure 1) and to prepare an Interim Corrective Action Plan (ICAP). The ICAP objective is to evaluate if residual concentrations of petroleum hydrocarbons in the subsurface are present at levels which would be considered detrimental to human health, and propose necessary remedial actions. The ICAP was prepared in response to a letter issued by Alameda County Health Care Services (ACHCS) letter dated December 17, 1999, requesting a corrective action plan, and Gettler-Ryan Inc. (GR) extension request letter dated April 25, 2000, copies of each are included in Appendix A.

2.0 BACKGROUND INFORMATION

2.1 Site Description

The site is located at the northeast corner of the intersection of MacAurthur Boulevard and Seminary Avenue at 5910 MacArthur Boulevard, Oakland, California. The site is at an approximate elevation of 100 feet above mean sea level with the surrounding topography sloping towards the southwest. Surrounding the site are predominately residential homes and commercial retail 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, four multi-pump fuel dispenser islands, and three 10,000-gallon underground storage tanks (USTs) originally installed in 1983. The USTs contain regular unleaded gasoline, plus unleaded gasoline, and supreme unleaded fuel. A former used oil tank was located east of the station building. No information regarding the size or sampling associated with the removal of the used oil tank are available at this time. 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 was first reported in June 1997 during an baseline environmental investigation conducted by GR as part of a prepurchase agreement between Chevron and the current site owner Saidian Zektser, LLC. In May 1997, GR advanced three soil borings (MW-1 through MW-3) on-site each to a depth of 41.5 feet below surface grade (bsg) as part of the real-estate transaction which closed in March 1999. Each boring was converted to a groundwater monitoring well. The borings indicated that petroleum hydrocarbon constituents were present in the subsurface. During April 1999 GR advanced one soil borings off-site to a depth of 20 feet bsg for the installation of monitoring well MW-4. The boring indicated that petroleum hydrocarbon constituents were not present in soil. Analytical results for soil samples collected during drilling events are summarized in Table 1 and the locations of the monitoring wells are illustrated on Figure 3.

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 May 1997.

2.3 Regional Geology and Hydrogeology

The subject site is located on the eastern margin of the East Bay Plain at the western edge of the Berkeley Hills, approximately 2 miles northeast of San Leandro Bay. As mapped by Helley and others (1979), soil in the site vicinity consists of late Pleistocene alluvium consisting of weakly consolidated slightly weathered poorly sorted irregular interbedded clay, silt, sand, and gravel (GR 1997). The nearest surface water body is Lake Aliso located approximately 2,700 feet northeast of the site on the Mills College campus.

2.4 Site Geology

The surface of the site consist of a two inch 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 clay, sandy clay, sandy clay with gravel, and silty sand. Clay the dominant soil component beneath the site contains varying amounts of fine to coarse-grained sand with silt. From approximately two feet below grade is a sandy clay layer extending to approximately five feet which is underlain by clayey gravel with sand extending to approximately 16 feet, which is underlain by lean clay lens extending to 27 to 36 feet bsg. Beneath the lean clay layer are lens of sandy silt to silty sand with

gravel extending to the total depth explored of approximately 41.5 feet bsg. Boring logs for each boring advanced at the site are included in Appendix B. Geologic cross-sections have been prepared to illustrate the subsurface soil using the soil boring logs. A cross-section location map showing the trace of cross-sections A-A' and B-B' is included as Figure 4. Geologic cross-sections A-A' and B-B' are illustrated in Figures 5 and Figure 6, respectively.

2.5 Site Hydrogeology

Depth to groundwater data has been collected quarterly since May 1997 and measurements indicate a range from 10 feet bsg to as deep as 14 feet bsg. The average depth to water over the last four quarterly events has been approximately 12.20 feet bsg. The water-bearing unit at the site consist of predominately clayey gravel with sand. Cumulative depth to water measurements for the site are presented in Table 2.

2.5.1 Monitoring Well Construction

Currently four groundwater monitoring wells are associated with the site. Monitoring wells MW-1 through MW-3 were installed on-site and MW-4 was installed off-site. Each well is constructed of 2-inch diameter schedule 40 PVC casing installed to approximately 20-feet bsg. The wells are screened over the lower most 10-feet with 0.020-inch machine slotted casing. The wells annular space is filled with a Lonestar (type) No. 3 sand that extends from the base of the screen section to one foot above the top of screen with a one to two foot bentonite seal overlaying 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 B.

3.0 SITE INVESTIGATIVE RESULTS

3.1 Soil Sampling

Soil samples were collected from the boring for MW-1 through MW-4 at approximate five-foot vertical intervals. Samples selected for chemical analyses were based on soil type and stratagraphic location. Soil samples were analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8020, total petroleum hydrocarbons (TPH) as gasoline by EPA Method 8015 Modified. The soil sample collected at a depth of 11-feet bsg from the boring for MW-3 was additionally analyzed for TPH as diesel by EPA Method 3550, total oil and grease (TOG) by Standard Method 5520F, volatile organic compounds (VOC's) by EPA Method 8240B, semi-volatile organic compounds (SVOC's) by EPA Method 8270B, and the following metals: cadmium, chromium, nickel, lead,

and zinc using various EPA Methods. Also, the soil sample collected at 16-feet bsg from boring MW-3 was additionally analyzed for TOG. Cumulative soil sample analytical results are summarized in Table 1.

3.2 Distribution of Petroleum Hydrocarbons in Soil

Concentrations of BTEX and MTBE were not detected at or above the laboratory reporting limits in the samples collected from MW-3 or MW-4. Benzene was reported by laboratory analysis in samples collected from the boring for MW-1 at 11 and 15.5-feet bsg at concentrations of 0.0062 milligrams per kilogram (mg/kg) and 0.027 mg/kg, respectively. Concentrations of MTBE were reported in soil samples from MW-1 and MW-2 at concentrations ranging from 0.015 mg/kg to 1.5 mg/kg. Concentrations of TPH as gasoline were reported by laboratory analysis in the soil samples collected from borings MW-1 and MW-2 at concentrations ranging from 1.6 mg/kg to 140 mg/kg. Concentrations of TOG were reported in the soil samples collected from MW-3 ranging from 170 mg/kg to 1,000 mg/kg. A detected concentration of methylene chloride was reported in the soil sample identified as MW-3-11 at 0.011 mg/kg. However, due to the fact that methylene chloride is a common laboratory contaminant, it is believed that the reported concentration is an anomaly.

Based on the review of soil analytical results to date the BTEX, MTBE, and TPH as gasoline impacted soil at the site appears to be limited to the vicinity of the UST basin and northern pump island. Also, the area in the vicinity of the former used oil tank appears to be impacted with TOG. Impacted soil areas are confined to just above the capillary fringe and extending to a depth of approximately 16-feet bsg. The distribution of petroleum hydrocarbons in soil at the site are illustrated in geologic cross sections included as Figures 5 and 6.

3.3 Groundwater Sampling

Groundwater samples collected from monitoring wells MW-1 through MW-4 have been analyzed for BTEX and MTBE by EPA Method 8020, TPH as gasoline by EPA Method 8015 Modified. Samples from monitoring well MW-2 have been analyzed for MTBE by EPA Method 8260 on selected monitoring events. samples collected from monitoring well MW-3 have been additionally analyzed for TPH as diesel, halogenated volatile organic compounds, 1,2 dichloroethene and 1,2 dichlorobenzene. Cumulative groundwater analytical results are summarized in Table 2.

3.4 Groundwater Flow Direction and Hydraulic Graident

Depth to groundwater at the site has ranged from 9.43 to 14.29 feet below the tops of the well casings. The top of the well casings were surveyed to a bench mark with an elevation of 95.88 above mean sea level. During the most recent groundwater monitoring event conducted on March 1, 2000, depth to groundwater was measured in MW-1 through MW-4. A groundwater elevation contour map was constructed from the measured depth to water and surveyed casing elevations and is included as Figure 7. The groundwater elevation contours indicate an inferred groundwater flow direction towards the west northwest with a hydraulic gradient of 0.009. Historical data indicates previous groundwater flows to range from the southwest to northwest.

During each groundwater sampling event conducted at the site, the possible presence of separate phase hydrocarbons (SPH) and hydrocarbon sheens are examined. The presence of SPH or a hydrocarbon sheen have not been detected in any of the wells to date.

3.5 Distribution of Petroleum Hydrocarbons in Groundwater

Laboratory analyses on groundwater samples collected from monitoring wells MW-3 have not reported detectable concentrations of BTEX or MTBE for all sampling events with the exception of total xylenes. Total xylenes were reported once during the sampling event conducted on December 29, 1998 at 0.669 micro grams per liter (µg/L). Laboratory analysis has reported detectable concentrations of benzene in samples from MW-1, MW-2, and MW-4 ranging from 0.589 µg/L (MW-4) to 651 µg/L (MW-2). TPH as gasoline concentrations have been reported in groundwater samples collected from MW-1, MW-2, and MW-4 ranging from 64.3 µg/L (MW-4) to 7,100 µg/L (MW-2). Detectable concentrations of MTBE have been reported in groundwater sampled collected from MW-1 and MW-2 at concentrations ranging from 28 µg/L (MW-1) to 12,000 µg/l (MW-2). A detectable concentration of MTBE was reported in the groundwater sample collected from MW-4 at 86 µg/L on December 8, 1999, with the most recent sampling event reporting concentrations below the laboratory's limits of detection (<2.5 µg/L).

Detectable concentrations of TPH as diesel and 1,2 DCB and 1,2 DCA have been reported in the groundwater samples collected from MW-3. TPH as diesel concentrations have ranged from 850 µg/l to 2,700 µg/L. Concentrations of 1,2 DCB and 1,2 DCA have been detected slightly above the laboratory's reporting limits at 1.04 µg/L and 0.984 µg/L, respectively. A concentration of TPH as gasoline was reported once during the December 29, 1998 sampling event at 185 µg/l. Based on groundwater sample

analytical results, it appears that concentrations of dissolved petroleum hydrocarbons beneath the site are primarily down gradient (west) of the UST basin. Graphs illustrating concentrations of benzene, TPH as gasoline, and MTBE versus time are illustrated in Appendix C.

4.0 PROPOSED REMEDIAL OPTIONS AND ADDITIONAL INVESTIGATION

4.1 Proposed Monitoring Well Installations

To further characterize groundwater conditions to the west of the site, Delta propose the installation of two groundwater monitoring wells. These proposed wells are to assess the possible presence of petroleum hydrocarbon constituents down-gradient of monitoring well MW-1. The proposed wells will be installed to a total depth of 20-feet bsg and constructed of 2-inch diameter flush threaded SCH 40 PVC casing. The screen interval of each proposed well will consist of 0.020-inch machine slotted casing begining at approximately 10-feet bsg and extending to the base of the boring. The annular space of each well will be backfilled with Lonestar No. 3 sand extending to one foot beyond the screen interval. A two-foot thick bentonite seal will be placed above the filter pack, and the remaining annulus will be filled with neat cement to within six inches of the surface. Each proposed will be completed at the surface with a traffic rated well box set in concrete. Proposed well diagrams are illustrated in Appendix D.

The proposed monitoring wells will be advanced using a truck mounted 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 and manual method to the total depth drilled. Boring logs containing PID readings, USCS descriptions, and other pertinent drilling information will be recorded on the boring logs.

4.2 Proposed Sensitive Receptor Survey

Delta proposes that a sensitive receptor survey be conducted at the site to identify possible receptors in the vicinity that may be adversely affected. The survey will included a subsurface utility search to locate buried water lines, gas lines, storm drains, and sanitary sewer lines on Seminary Avenue and MacArthur Boulevard. Utilities may be buried at a depth that could allow the utility trench to act as preferential pathway for impacted groundwater migration. Also, the survey will include a water well search to identify known municipal, domestic, irrigation, industrial, and groundwater monitoring wells within a 2,000 foot

radius. The well search will include a review of California Department of Water Resources (DWR) records and a site visit. Additionally, properties within a 500-foot radius will be visited to identify basement, tunnels, or subways.

4.3 Proposed Over-Purging

To reduce the petroleum hydrocarbon concentrations in monitoring well MW-1 Delta proposes to over-purge the well periodically. The over-purging is expected to help possible off-site migration of impacted groundwater and locally attenuate impacted ground water. Monitoring well MW-1 is located near the UST basin, which is suspected to be the source of soil and groundwater impaction.

5.0 CONCLUSIONS/RECOMMENDATIONS

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

- The source of petroleum hydrocarbons appears to be the UST basin. To confirm the source four-soil borings are recommended on-site in the vicinity of the UST basin.
- Impacted soil is limited to the capillary fringe and extends to 16 feet bsg.
- Groundwater flow direction is towards the northwest and west.
- Groundwater sample analytical results for monitoring well MW-1 and groundwater flow directions ranging from southwest to northwest indicate that the petroleum hydrocarbon plume associated with the UST basin needs to be further assessed off-site.
- Two wells are recommended offsite west of the site to assess the potential presence of petroleum hydrocarbons in ground water.
- A sensitive receptor survey and water well search is recommended to identify potential receptors.
- To reduce petroleum hydrocarbon constituents in the vicinity of MW-1, periodic overpurging of the well is recommended.

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.

REFERENCES

E.J. Helley et al, Flatland Deposits of the San Francisco Bay Region, California: U.S. Geological Survey Professional Paper 943.

Gettler – Ryan, Inc. June 27, 1997, *Subsurface Investigation Report* for Chevron Service Station No. 9-9708, 5910 MacArthur Boulevard, Oakland, California, Job No. 6395.01-01.

TABLE 1
CUMULATIVE SOIL SAMPLE ANALYTICAL RESULTS FROM DRILLING

Chevron Products Company Station No. 9-9708
5910 MacArthur Boulevard
Oakland, California

Sample ID	Date	Sample Depth (ft)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Total Xylene (mg/kg)	MTBE (mg/kg)	TPHg (mg/kg)	TPHd (mg/kg)	TOG (mg/kg)	VOC's (mg/kg)	Semi-VOC's (mg/kg)
MW-1	05/22/97	11.0	0.0062	0.014	<0.011	<0.011	<0.021	7.1	NA	NA	NA	NA
		15.5	0.027	<0.005	0.032	0.074	0.015	1.6	NA	NA	NA	NA
		16.0	<0.005	<0.005	<0.005	<0.005	<0.01	<1.0	NA	NA	NA	NA
		21.0	<0.005	<0.005	<0.005	<0.005	<0.01	<1.0	NA	NA	NA	NA
		31.0	<0.005	<0.005	<0.005	<0.005	<0.01	<1.0	NA	NA	NA	NA
		41.0	<0.005	<0.005	<0.005	<0.005	<0.01	<1.0	NA	NA	NA	NA
MW-2	05/22/97	11.0	<0.05	0.16	0.27	0.58	<1.0	140	NA	NA	NA	NA
		15.5	<0.005	<0.005	<0.005	<0.005	0.680	<1.0	NA	NA	NA	NA
		16.0	<0.014	<0.014	<0.014	<0.014	1.3	<2.8	NA	NA	NA	NA
		21.0	<0.005	<0.005	<0.005	<0.005	<0.01	<1.0	NA	NA	NA	NA
		31.0	<0.005	<0.005	<0.005	<0.005	<0.01	<1.0	NA	NA	NA	NA
		41.0	<0.005	<0.005	<0.005	<0.005	<0.01	<1.0	NA	NA	NA	NA
MW-3	05/22/97	11.0	<0.005	<0.005	<0.005	<0.005	<0.01	<1.0	<10	170	0.011[a]	ND
		16.0	<0.005	<0.005	<0.005	<0.005	<0.01	<1.0	NA	NA	NA	NA
		21.0	<0.005	<0.005	<0.005	<0.005	<0.01	<1.0	NA	NA	NA	NA
		31.0	<0.005	<0.005	<0.005	<0.005	<0.01	<1.0	NA	NA	NA	NA
		41.0	<0.005	<0.005	<0.005	<0.005	<0.01	<1.0	NA	NA	NA	NA
MW-4	05/22/97	11.5	<0.005	<0.005	<0.005	<0.005	<0.05	<1.0	NA	NA	NA	NA

TABLE 1
CUMULATIVE SOIL SAMPLE ANALYTICAL RESULTS FROM DRILLING

Chevron Products Company Station No. 9-9708
5910 MacArthur Boulevard
Oakland, California

Sample ID	Date	Depth (ft)	Cd (mg/kg)	Cr (mg/kg)	Ni (mg/kg)	Pb (mg/kg)	Zn (mg/kg)
MW-3	05/22/97	11.0	<2.0	46	120	11	110

a = All compounds analyzed were non detect except methylene chloride which is a common laboratory contaminant.
mg/kg = milligrams per kilogram.
NA = Not analyzed.
ND = Not detected.
Cd = Cadmium.
Cr = Chromium.
Ni = Nickel.
Pb = Lead.
Zn = Zinc.
MTBE = Methyl tertiary-butyl ether by EPA Method 8020.
TPHg = Total petroleum hydrocarbons as gasoline by EPA Method 8015 Modified.
TPHd = Total petroleum hydrocarbons as diesel by EPA Method 8015 Modified.
TOG = Total oil and grease by Standard Method 5520.
VOC's = Volatile Organic Compounds by EPA Method 8240.
Semi-VOC's = Semi-Volatile Organic Compounds by EPA Method 8270.

TABLE 2
CUMULATIVE TABLE OF WELL DATA AND ANALYTICAL RESULTS

Chevron Products Company Station No. 9-9708
5910 MacArthur Boulevard
Oakland, California

Sample ID	Date	Well Head Elevation	Depth to Water	Ground Water Elevation	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylene (µg/L)	MTBE (µg/L)	TPHg (µg/L)	TPHd (µg/L)	1,2-DCB (µg/L)	1,2-DCA (µg/L)	HVOCs (µg/L)	Comments
MW-1	05/29/97	96.61	12.20	84.41	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Not sampled
	06/04/97		12.21	84.40	58	1.2	5.4	40	85	380	NA	NA	NA	NA	
	09/16/97		12.77	83.84	120	<0.5	19	2.7	28	420	NA	NA	NA	NA	
	12/17/97		11.18	85.43	43	0.61	11	0.61	69	210[a]	NA	NA	NA	NA	
	03/18/98		12.02	84.59	47	<0.5	8.2	<0.5	92	210[a]	NA	NA	NA	NA	
	06/28/98		12.62	83.99	<0.5	<0.5	<0.5	<0.5	66	<50	NA	NA	NA	NA	
	09/07/98		14.29	82.32	6.7	<0.5	<0.5	<0.5	92	<50	NA	NA	NA	NA	
	12/29/98		13.43	83.18	<1.0	<1.0	2.24	1.14	278	<100	NA	NA	NA	NA	
	03/11/99		12.81	83.80	<1.0	<1.0	7.95	<1.0	418	110	NA	NA	NA	NA	
	05/04/99		12.76	83.85	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Not sampled
	06/29/99		12.55	84.06	34.6	<2.5	51	<2.5	780	352	NA	NA	NA	NA	
	09/29/99		13.40	83.21	167	<2.5	58.6	14.8	1,570	647	NA	NA	NA	NA	
	12/08/99		10.91	85.70	121	1.16	17.9	11	3,910	481	NA	NA	NA	NA	
	03/01/00		11.15	85.96	481	6.84	86.6	41.9	5,460	2,580	NA	NA	NA	NA	

TABLE 2
CUMULATIVE TABLE OF WELL DATA AND ANALYTICAL RESULTS

Chevron Products Company Station No. 9-9708
5910 MacArthur Boulevard
Oakland, California

Sample ID	Date	Well Head Elevation	Depth to Water	Ground Water Elevation	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylene (µg/L)	MTBE (µg/L)	TPHg (µg/L)	TPHd (µg/L)	1,2-DCB (µg/L)	1,2-DCA (µg/L)	HVOCs (µg/L)	Comments
MW-2	05/29/97	96.91	13.06	83.85	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Not sampled
	06/04/97		12.95	83.96	120	5.9	32	15	2,100	1,600	NA	NA	NA	NA	
	09/16/97		12.99	83.92	23	3.2	7.0	2.5	1,200	1,100	NA	NA	NA	NA	
	12/17/97		12.18	84.73	650	69	610	69	4,700/2,600[b]	7,100[a]	NA	NA	NA	NA	
	03/18/98		12.70	84.21	250	<50	98	<50	12,000/7,100[b]	5,900[a]	NA	NA	NA	NA	
	06/28/98		12.93	83.98	400	<10	<10	<10	3,000/4,000[b]	4,300	NA	NA	NA	NA	
	09/07/98		12.97	83.94	220	5.1	38	7.6	1,300/1,400[b]	3,700	NA	NA	NA	NA	
	12/29/98		12.92	83.99	573	26.8	131	33.9	2,660	6,500	NA	NA	NA	NA	
	03/11/99		12.87	84.04	651	30.8	60.3	<5.0	2,600	4,970	NA	NA	NA	NA	
	05/04/99		12.86	84.05	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Not sampled
	06/29/99		12.93	83.98	238	11.6	8.98	<5.0	540	2,030	NA	NA	NA	NA	
	09/29/99		12.89	84.02	320	10.4	16.5	20.3	642	2,000	NA	NA	NA	NA	
	12/08/99		10.73	86.18	2.74	<0.5	<0.5	<0.5	<2.5	96.8	NA	NA	NA	NA	
	03/01/00		12.60	84.31	6.92	<0.5	<0.5	<0.5	254	<50	NA	NA	NA	NA	

TABLE 2
CUMULATIVE TABLE OF WELL DATA AND ANALYTICAL RESULTS

Chevron Products Company Station No. 9-9708
5910 MacArthur Boulevard
Oakland, California

Sample ID	Date	Well Head Elevation	Depth to Water	Ground Water Elevation	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylene (µg/L)	MTBE (µg/L)	TPHg (µg/L)	TPHd (µg/L)	1,2-DCB (µg/L)	1,2-DCA (µg/L)	HVOCs (µg/L)	Comments
MW-3	05/29/97	97.86	11.45	86.41	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Not sampled
	06/04/97[c]		11.28	86.58	<0.5	<0.5	<0.5	<0.5	<5.0	<50	1200	ND	1.0	NA	
	09/16/97		12.19	85.67	<0.5	<0.5	<0.5	<0.5	<5.0	<50	2700*	NA	NA	NA	
	12/17/97		10.80	87.06	0.9	0.53	<0.5	<0.5	<2.5	<50	1,200[a]	NA	NA	NA	
	03/18/98		10.88	86.98	<0.5	<0.5	<0.5	<0.5	<2.5	<50	820[a]	NA	NA	NA	
	06/28/98		11.60	86.26	<0.5	<0.5	<0.5	<0.5	<2.5	<50	1,100[a]	0.99	ND	<0.5-<5.0	
	09/07/98		12.22	85.64	<0.5	<0.5	<0.5	<0.5	<2.5	<50	1,100[a]	0.79	0.54	NA	
	12/29/98		11.80	86.06	<0.5	<0.5	<0.5	0.669	<2.0	185	1,760[a]	1.04	0.578	<0.5-<5.0	
	03/11/99		11.03	86.83	<0.5	<0.5	<0.5	<0.5	<2.0	<50	1,440[a]	<1.0	<1.0	<1.0-<20	
	05/04/99		11.43	86.43	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/29/99		12.15	85.71	<0.5	<0.5	<0.5	<0.5	<5.0	<50	690[a]	0.754	<0.5	<0.5-<5.0	
	09/29/99		NM	NC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Inaccessible
	12/08/99		9.43	88.43	<0.5	<0.5	<0.5	<0.5	<2.5	<50	1,000[a]	<0.5	0.66	<0.5-<5.0	
	03/01/00		10.7	87.16	<0.5	<0.5	<0.5	<0.5	<2.5	<50	850[a]	0.821	0.984	<0.5-<5.0	
MW-4	05/04/99	96.25	12.59	83.66	<0.5	0.62	0.67	2.6	<2.5	140	NA	NA	NA	NA	
	06/29/99		12.61	83.64	<0.5	<0.5	1.1	<0.5	<5.0	183	NA	NA	NA	NA	
	09/29/99		12.55	83.70	<0.5	<0.5	<0.5	1.18	<2.5	64.3	NA	NA	NA	NA	
	12/08/99		12.44	83.71	0.589	<0.5	0.52	<0.5	86	91.2	NA	NA	NA	NA	
	03/01/00		11.7	84.55	<0.5	<0.5	<0.5	<0.5	<2.5	<50	NA	NA	NA	NA	

TABLE 2
CUMULATIVE TABLE OF WELL DATA AND ANALYTICAL RESULTS

Chevron Products Company Station No. 9-9708
5910 MacArthur Boulevard
Oakland, California

Sample ID	Date	Well Head Elevation	Depth to Water	Ground Water Elevation	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylene (µg/L)	MTBE (µg/L)	TPHg (µg/L)	TPHd (µg/L)	1,2-DCB (µg/L)	1,2-DCA (µg/L)	HVOCs (µg/L)	Comments
Trip	06/04/97	--	--	--	<0.5	<0.5	<0.5	<0.5	<5.0	<50	NA	NA	NA	NA	
Blank	09/16/97	--	--	--	<0.5	<0.5	<0.5	<0.5	<5.0	<50	NA	NA	NA	NA	
	12/17/97	--	--	--	<0.5	<0.5	<0.5	<0.5	<2.5	<50	NA	NA	NA	NA	
	03/18/98	--	--	--	<0.5	<0.5	<0.5	<0.5	<2.5	<50	NA	NA	NA	NA	
	06/28/98	--	--	--	<0.5	<0.5	<0.5	<0.5	<2.5	<50	NA	NA	NA	NA	
	09/07/98	--	--	--	<0.5	<0.5	<0.5	<0.5	<2.5	<50	NA	NA	NA	NA	
	09/07/98	--	--	--	<0.5	<0.5	<0.5	<0.5	<2.5	<50	NA	NA	NA	NA	
	12/29/98	--	--	--	<0.5	<0.5	<0.5	<0.5	<2.0	<50	NA	NA	NA	NA	
	03/11/99	--	--	--	<0.5	<0.5	<0.5	<0.5	<2.0	<50	NA	NA	NA	NA	
	05/04/99	--	--	--	<0.5	<0.5	<0.5	<0.5	<2.5	<50	NA	NA	NA	NA	
	06/29/99	--	--	--	<0.5	<0.5	<0.5	<0.5	<5.0	<50	NA	NA	NA	NA	
	09/29/99	--	--	--	<0.5	<0.5	<0.5	<0.5	<2.5	<50	NA	NA	NA	NA	
	12/08/99	--	--	--	<0.5	<0.5	<0.5	<0.5	<2.5	<50	NA	NA	NA	NA	

Note: Blaine Tech Services, Inc. began routine monitoring of the groundwater wells at this site on Decmber 29, 1998.

Earlier field data and analytical results were provided by Gettler-Ryan.

MW-1 through MW-3 were surveyed on June 18, 1997, by Virgil Chavez Land Surveying (PLS #6323). Benchmark Elevation =95.88' (msl).

Well MW-4 was surveyed on May 4, 1999 by Virgil Chavez Land Surveying.

Field Data and Analytical Results for the May 4, 1999 event were provided by Gettler-Ryan, Inc.

a = Chromatogram pattern indicates an unidentified hydrocarbon.

b = MTBE by EPA Method 8260.

c = Sample also analyzed for the following: Total Oil & Grease by EPA Method 5520F was ND; Semivolatile Organics by EPA Method 8270B were ND;

TPH = Total Petroleum Hydrocarbons

MTBE = Methyl tertiary-butyl ether by EPA Method 8020 except as noted.

HVOCs= Halogenated Volatile Organic Compounds by EPA Method 8270.

1,2-DCB = 1,2-Dichlorobenzene by EPA Method 8260.

1,2-DCA = 1,2-Dichloroethane by EPA Method 8260.

GENERAL NOTES:
BASE MAP FROM U.S.G.S.
OAKLAND EAST, CA
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1983

North

0 2000 FT

SCALE 1:24,000

QUADRANGLE LOCATION

FIGURE 1

SITE LOCATION MAP

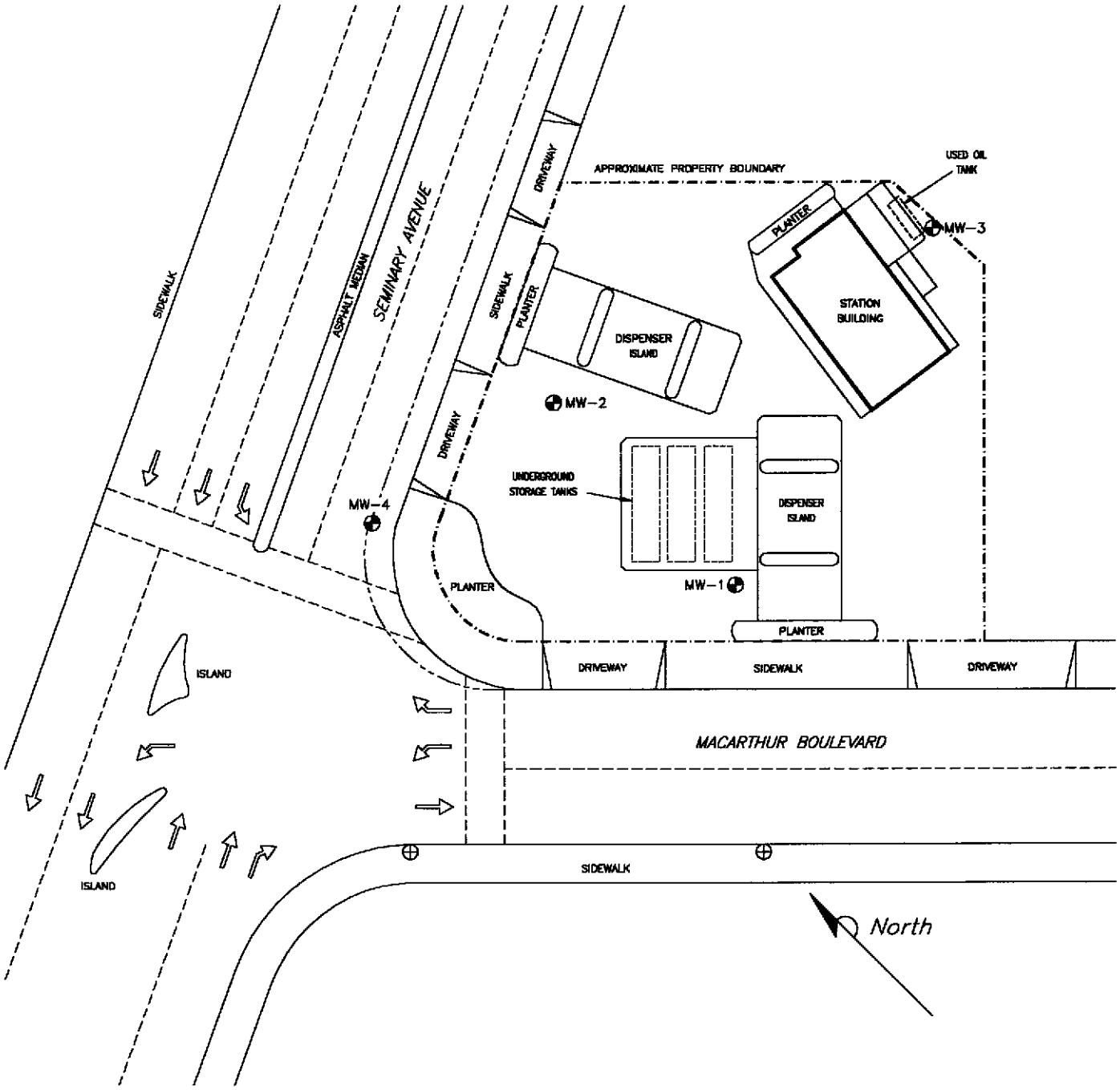
CHEVRON SERVICE STATION NO. 9-9708

5910 MACARTHUR BOULEVARD

OAKLAND, CA

PROJECT NO. DG99-708	DRAWN BY M.L. 6/8/00
FILE NO. DG99708A	PREPARED BY JWS
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



LEGEND:

- MW-1 MONITORING WELL LOCATION
- ⊕ PROPOSED MONITORING WELL LOCATION

FIGURE 2

SITE VICINITY MAP

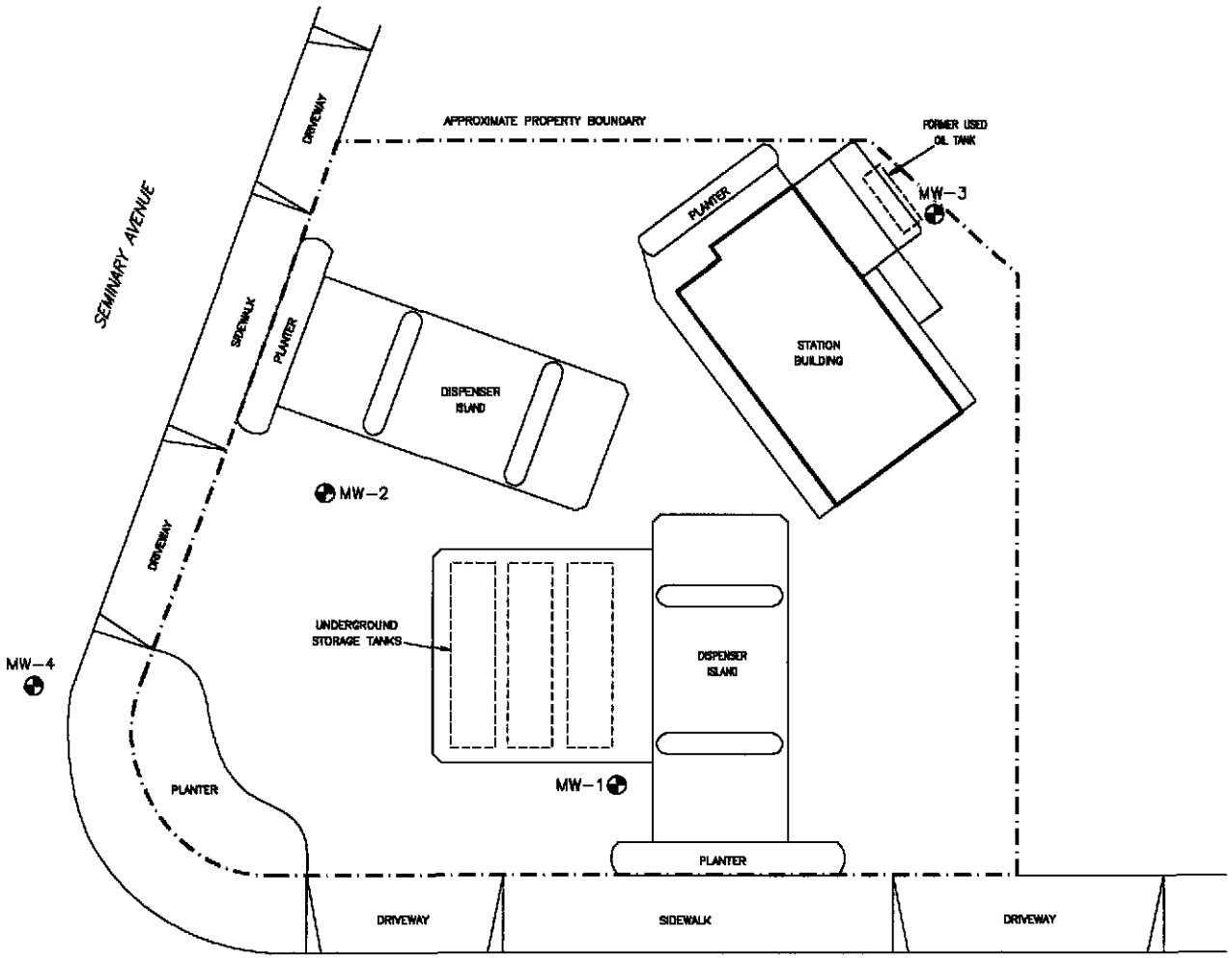
CHEVRON SERVICE STATION NO. 9-9708

5910 MACARTHUR BOULEVARD

OAKLAND, CA.

PROJECT NO. DG99-708	DRAWN BY M.L. 6/29/00
FILE NO. DG99708B	PREPARED BY JWS
REVISION NO. 2	REVIEWED BY

Delta Environmental Consultants, Inc.



North

0 30 FT

SCALE

LEGEND:

MW-1 MONITORING WELL LOCATION

FIGURE 3

SITE MAP

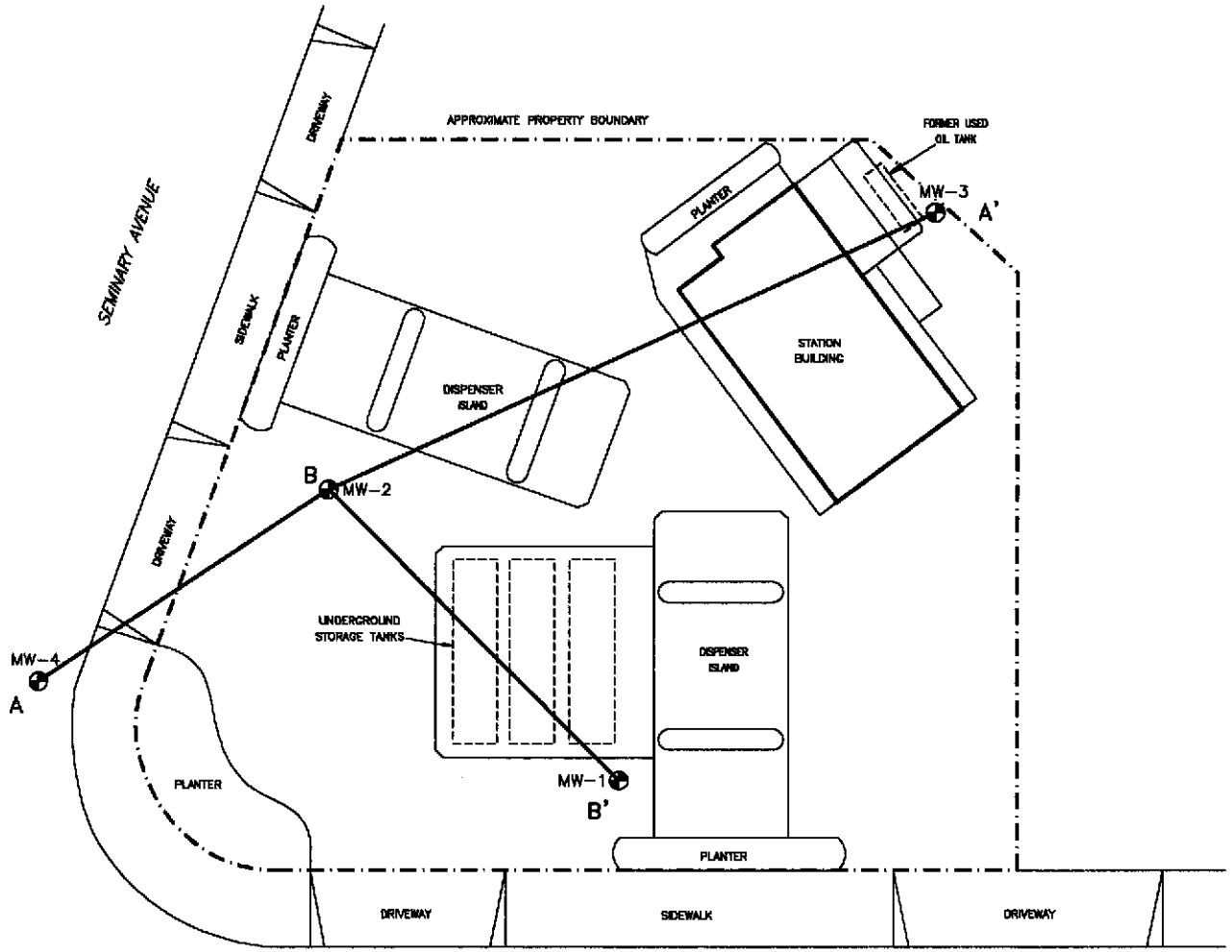
CHEVRON SERVICE STATION NO. 9-9708

5910 MACARTHUR BOULEVARD

OAKLAND, CA.

PROJECT NO. DG99-708	DRAWN BY M.L. 6/29/00
FILE NO. DG99708C	PREPARED BY JWS
REVISION NO. 2	REVIEWED BY

Delta Environmental Consultants, Inc.



North

0 30 FT

SCALE

LEGEND:

MW-1 MONITORING WELL LOCATION

A———A' GEOLOGIC CROSS SECTION TRACE

FIGURE 4

GEOLOGIC CROSS SECTION LOCATION MAP

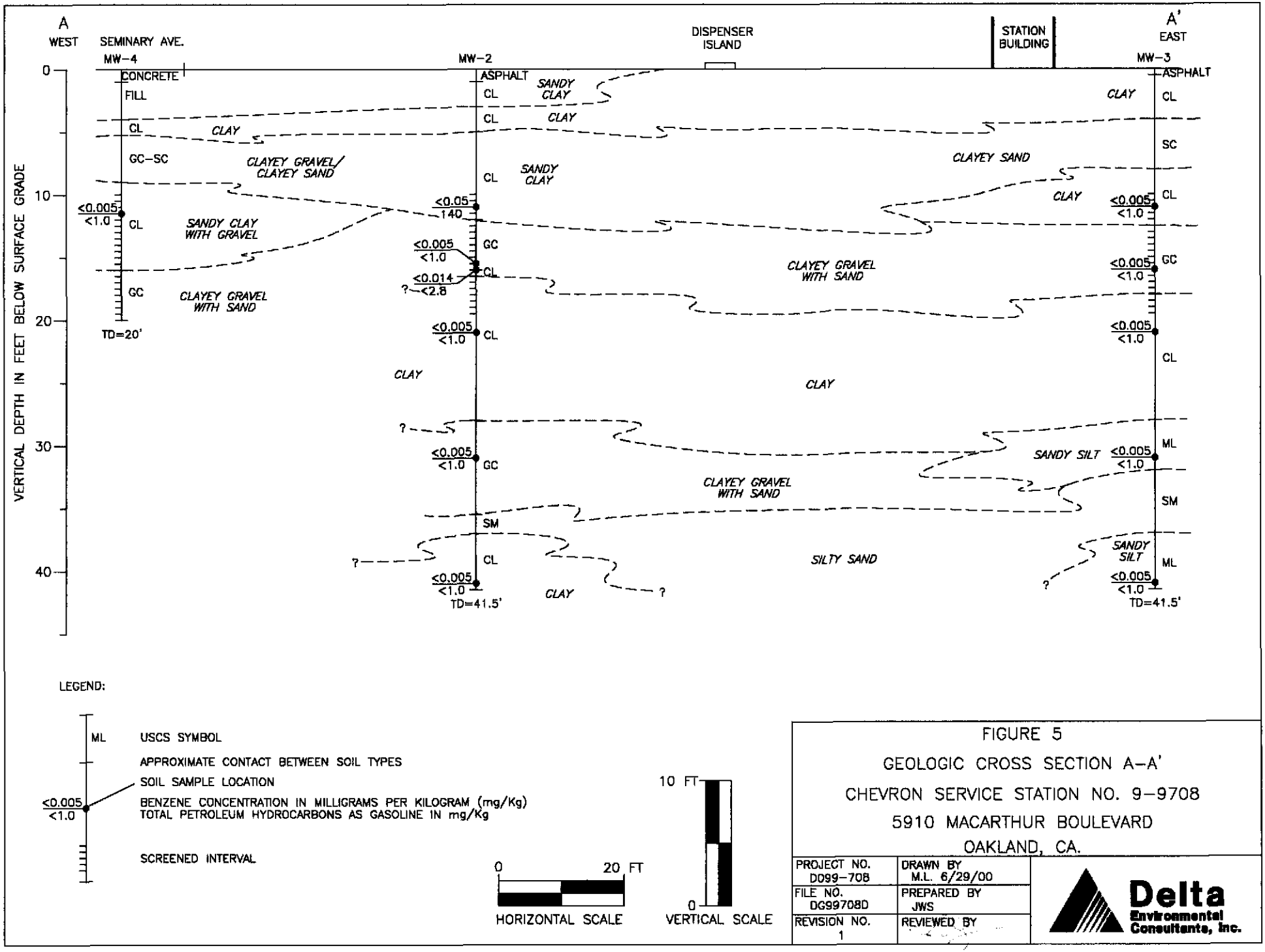
CHEVRON SERVICE STATION NO. 9-9708

5910 MACARTHUR BOULEVARD

OAKLAND, CA.

PROJECT NO. DG99-708	DRAWN BY M.L. 6/29/00
FILE NO. DG99708C	PREPARED BY JWS
REVISION NO. 2	REVIEWED BY

Delta Environmental Consultants, Inc.



LEGEND:

ML — USCS SYMBOL

APPROXIMATE CONTACT BETWEEN SOIL TYPES

SOIL SAMPLE LOCATION

<0.005 / <1.0 — BENZENE CONCENTRATION IN MILLIGRAMS PER KILOGRAM (mg/Kg)
TOTAL PETROLEUM HYDROCARBONS AS GASOLINE IN mg/Kg

SCREENED INTERVAL

0 — 20 FT
HORIZONTAL SCALE

10 FT — 0
VERTICAL SCALE

FIGURE 5

GEOLOGIC CROSS SECTION A–A'

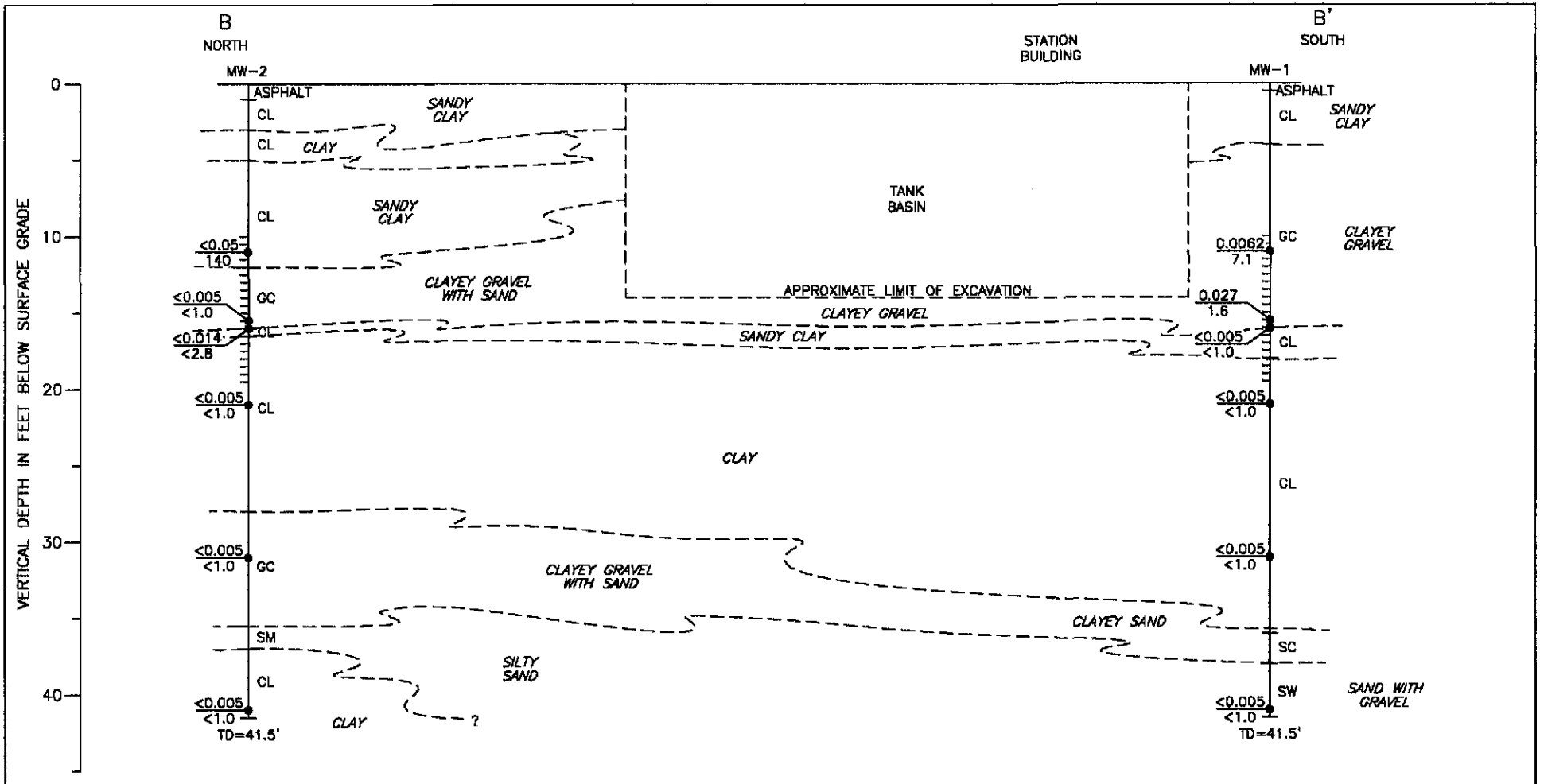
CHEVRON SERVICE STATION NO. 9–9708

5910 MACARTHUR BOULEVARD

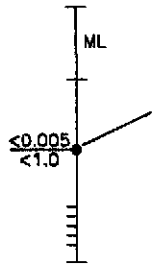
OAKLAND, CA.

PROJECT NO. D099–708	DRAWN BY M.L. 6/29/00
FILE NO. DG99708D	PREPARED BY JWS
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



LEGEND:



USCS SYMBOL

APPROXIMATE CONTACT BETWEEN SOIL TYPES

SOIL SAMPLE LOCATION

BENZENE CONCENTRATION IN MILLIGRAMS PER KILOGRAM (mg/Kg)
TOTAL PETROLEUM HYDROCARBONS AS GASOLINE IN mg/Kg

SCREENED INTERVAL

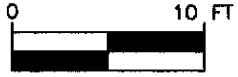


FIGURE 6

GEOLOGIC CROSS SECTION B–B'

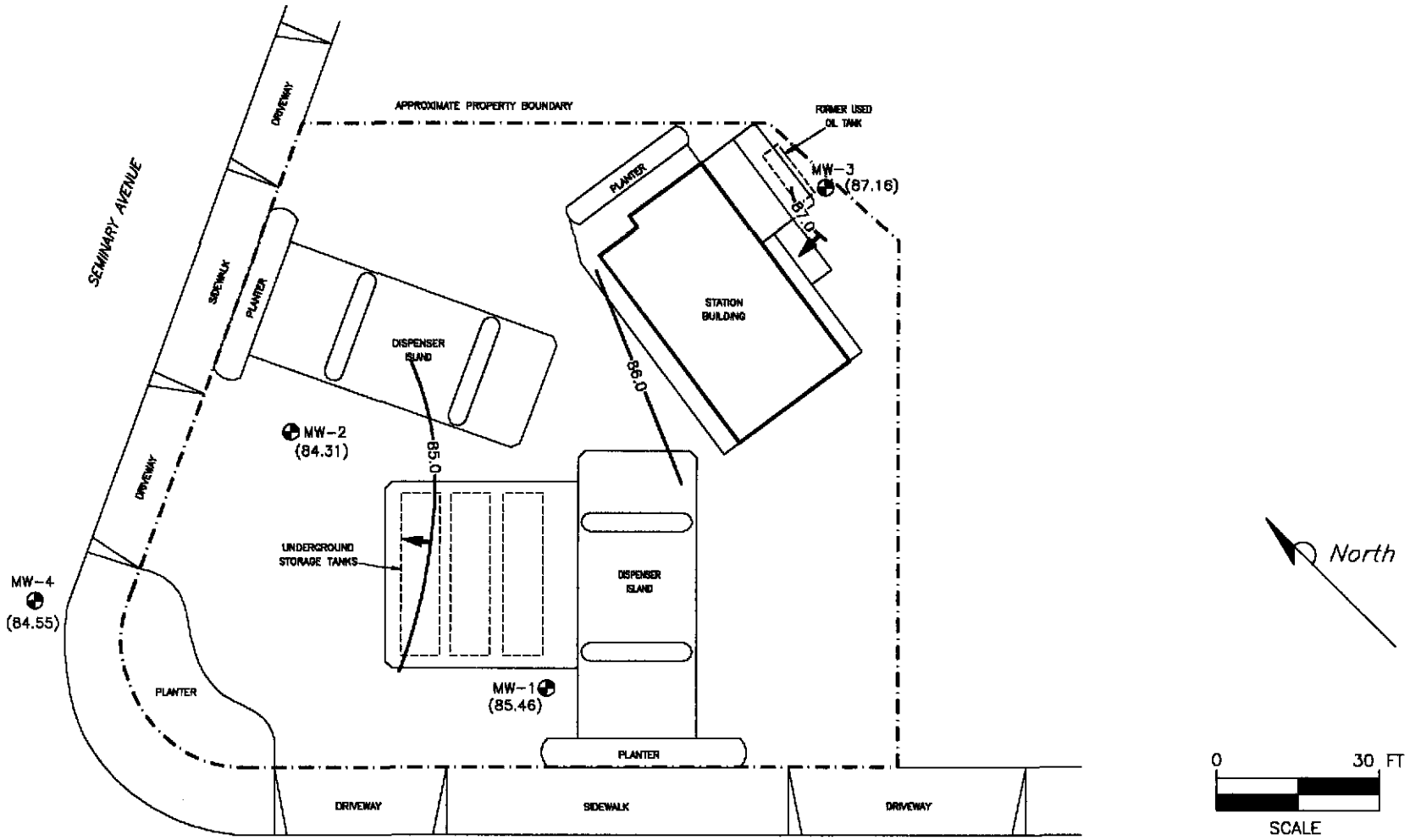
CHEVRON SERVICE STATION NO. 9–9708

5910 MACARTHUR BOULEVARD

OAKLAND, CA.

PROJECT NO. D099–708	DRAWN BY M.L. 6/29/00
FILE NO. DG99708D	PREPARED BY JWS
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



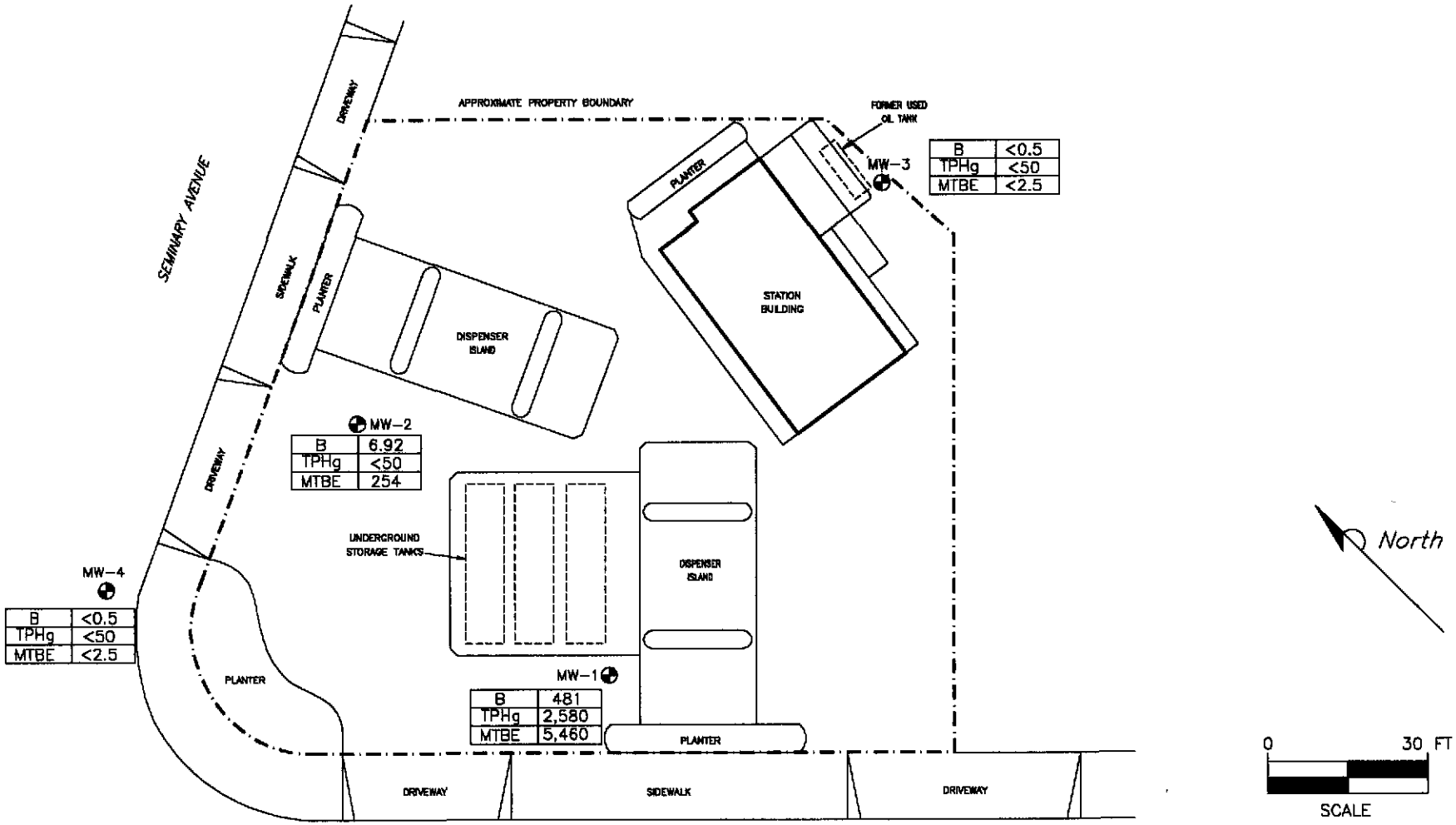
LEGEND:

- MW-1 — MONITORING WELL LOCATION
- (84.55) — GROUND WATER ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- —87.0— WATER TABLE CONTOUR IN FEET RELATIVE TO MEAN SEA LEVEL
- GROUND WATER FLOW DIRECTION

FIGURE 7
GROUND WATER ELEVATION CONTOUR MAP
3/1/00
CHEVRON SERVICE STATION NO. 9-9708
5910 MACARTHUR BOULEVARD
OAKLAND, CA.

PROJECT NO. DG99-708	DRAWN BY TLA 6/26/00
FILE NO. DG99708C	PREPARED BY JWS
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



LEGEND:

MW-1 MONITORING WELL LOCATION

B	<0.5
TPHg	<50
MTBE	<2.5

B — BENZENE CONCENTRATION IN MICROGRAMS PER LITER (ug/L)

TPHg — TOTAL PETROLEUM HYDROCARBONS AS GASOLINE IN ug/L

MTBE — METHYL TERTIARY BUTYL ETHER IN ug/L

MTBE ANALYZED USING EPA METHOD 8020

FIGURE 8
PETROLEUM HYDROCARBON CONSTITUENTS MAP
3/1/00
CHEVRON SERVICE STATION NO. 9-9708
5910 MACARTHUR BOULEVARD
OAKLAND, CA.

PROJECT NO. DG99-708	DRAWN BY M.L. 6/28/00
FILE NO. DG99708C	PREPARED BY JWS
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.

APPENDIX A

Alameda County Health Care Services Letter Dated 12/17/99

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

December 17, 1999

Brett Hunter, Project Manager
Chevron USA, Inc.
Site Assessment & Remediation
6001 Bollinger Canyon Rd., Bldg. L
P.O. Box 6004
San Ramon, CA 94583-0904

Re: Former Chevron Service Station #9-9708, 5910 MacArthur Blvd., Oakland, CA; STID 871

Dear Mr. Hunter:

This office has reviewed the 3rd quarter 1999 groundwater monitoring report dated December 1, 1999 by Blaine Tech Services, Inc., for the above noted facility. The September 29, 1999 sample from MW-1 contained 647 PPB total petroleum hydrocarbons as gasoline (TPH-G), 167 PPB benzene, <2.5 PPB toluene, 58.6 PPB ethyl benzene, 14.8 PPB xylene (BTEX), and 1570 PPB methyl tertiary-butyl ether (MTBE). The September 29, 1999 sample from MW-2 contained 2000 PPB total petroleum hydrocarbons as gasoline (TPH-G), 320 PPB benzene, 10.4 PPB toluene, 16.5 PPB ethyl benzene, 20.3 PPB xylene (BTEX), and 642 PPB MTBE. The results were within the range of previous samples from these wells.

You indicated that you did not plan to use ORC and instead would submit an alternative proposal. A Corrective Action Plan, which includes an assessment of impacts, a feasibility study, and applicable cleanup levels, is required. Submit a Corrective Action Plan, which incorporates your findings within 30 days.

If you have any questions, call me at (510) 567-6746.

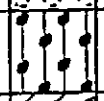
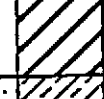
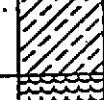
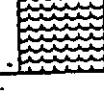
Sincerely,

Don Hwang
Hazardous Materials Specialist

C: file

APPENDIX B

Soil Boring Logs and Well Construction Diagrams

MAJOR DIVISIONS					TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
			GP		POORLY GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
		GRAVELS WITH OVER 15% FINES	GM		SILTY GRAVELS, SILTY GRAVELS WITH SAND
			GC		CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
			SP		POORLY GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
		SANDS WITH OVER 15% FINES	SM		SILTY SANDS WITH OR WITHOUT GRAVEL
			SC		CLAYEY SANDS WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTS WITH SANDS AND GRAVELS
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS
			OL		ORGANIC SILTS OR CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS, FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH		ORGANIC SILTS OR CLAYS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT		PEAT AND OTHER HIGHLY ORGANIC SOILS

LL	- Liquid Limit (%)
PI	- Plastic Index (%)
PID	- Volatile Vapors in ppm
MA	- Particle Size Analysis
2.5 YR 6/2	- Soil Color according to Munsell Soil Color Charts (1975 Edition)
5 GY 5/2	- GSA Rock Color Chart

☒	- No Soil Sample Recovered
■	- "Undisturbed" Sample
⊠	- Bulk or Classification Sample
▽	- First Encountered Ground Water Level
▼	- Piezometric Ground Water Level
Penetration	- Sample drive hammer weight - 140 pounds falling 30 inches. Blows required to drive sampler 1 foot are indicated on the logs

Unified Soil Classification - ASTM D 2488-85 and Key to Test Data

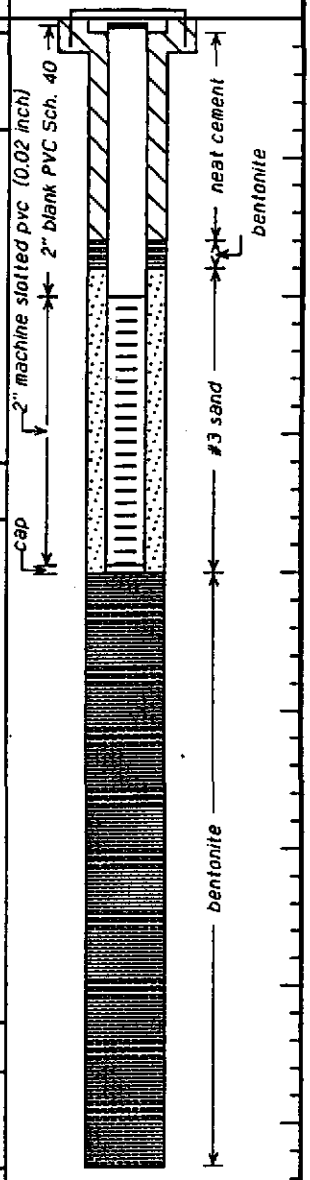
Gettler-Ryan, Inc.

Log of Boring MW-1

PROJECT: *Chevron SS# 9-9708*	LOCATION: *5910 MacArthur Boulevard, Oakland, CA*
G-R PROJECT NO. : *6395.01*	SURFACE ELEVATION: *96.61 feet MSL*
DATE STARTED: *05/22/97*	WL (ft. bgs): DATE: TIME:
DATE FINISHED: *05/23/97*	WL (ft. bgs): *12.21* DATE: *06/04/97* TIME: *13:00*
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *41.5 Feet*
DRILLING COMPANY: *Bay Area Exploration, Inc.*	GEOLOGIST: *Barbara Sieminski*

DEPTH feet	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SOIL CLASS	GEOLOGIC DESCRIPTION
				CL	ASPHALT
				GC	SANDY CLAY (CL) – very dark brown (10YR 2/2), damp, stiff, low plasticity; 70% clay, 30% fine to coarse sand, trace gravel.
5	0	38	MW1-6		CLAYEY GRAVEL (GC) – dark brown (7.5YR 4/2), damp, dense, 80% angular to subrounded gravel, 20% clay.
10	23	34	MW1-11		
15	215	19	MW1-15.5		Color changes to olive gray (5Y 5/2) at 15 feet.
	171	19	MW1-16	CL	SANDY CLAY (CL) – yellowish brown (10YR 5/4), moist, very stiff, low plasticity; 70% clay, 30% fine to coarse sand, trace fine gravel.
20	9	17	MW1-21	CL	CLAY (CL) – pale brown (10YR 6/3), damp, very stiff, medium plasticity ; 100% clay.
25	39	21	MW1-25		
30	7	14	MW1-31		Color changes to brown (10YR 5/3); becomes moist at 30 feet.
35	0	22	MW1-36	SC	CLAYEY SAND (SC) – brown (10YR 5/3), moist, medium dense; 60% fine to coarse sand, 40% clay.
40	12	38	MW1-41	SW	SAND WITH GRAVEL (SW) – brown (10YR 5/3), moist, dense; 60% fine to coarse sand, 30% angular to well rounded fine gravel, 10% clay.
45					(* = converted to equivalent standard penetration blows/ft.)

WELL DIAGRAM



JOB NUMBER: *6395.01*

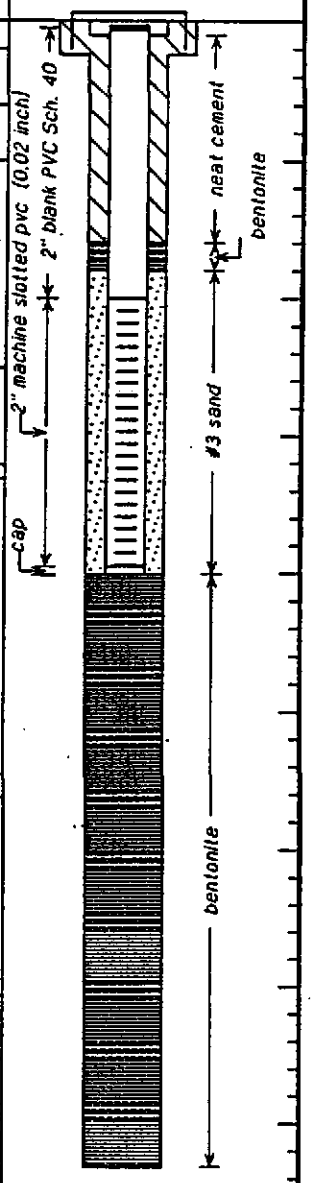
Gettler-Ryan, Inc.

Log of Boring MW-2

PROJECT: *Chevron SS# 9-9708*	LOCATION: *5910 MacArthur Boulevard, Oakland, CA*
G-R PROJECT NO. : *6395.01*	SURFACE ELEVATION: *96.91 feet MSL*
DATE STARTED: *05/22/97*	WL (ft. bgs): DATE: TIME:
DATE FINISHED: *05/23/97*	WL (ft. bgs): *12.95* DATE: *06/04/97* TIME: *13:00*
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *41.5 Feet*
DRILLING COMPANY: *Bay Area Exploration, Inc.*	GEOLOGIST: *Barbara Sieminski*

DEPTH feet	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SOIL CLASS	GEOLOGIC DESCRIPTION
				CL	ASPHALT OVER BASEROCK
				CL	SANDY CLAY (CL) – very dark brown (10YR 2/2), damp, stiff, low plasticity; 70% clay, 30% fine to coarse sand, trace fine gravel.
5	0	3	MW2-6	CL	CLAY (CL) – dark yellowish brown (10YR 4/6), damp, stiff, medium plasticity; 80% clay, 15% fine to coarse sand, 5% subrounded to well rounded fine gravel.
10	12	4	MW2-11		SANDY CLAY (CL) – dark yellowish brown (10YR 4/6), moist, soft, low plasticity; 60% clay, 30% fine to coarse sand, 10% subrounded to well rounded fine to coarse gravel.
				GC	Color changes to very dark brown (10YR 2/2) mottled reddish brown (5YR 4/4); with lenses of clayey sand; with wood pieces.
15	228	29	MW2-15.5		
	68	29	MW2-16	CL	CLAYEY GRAVEL WITH SAND (GC) – dark grayish brown (2.5Y 4/2), moist, medium dense; 40% angular to subrounded fine to coarse grave, 30% fine to coarse sand, 30% clay.
				CL	
20	16	13	MW2-21		SANDY CLAY (CL) – olive yellow (2.5Y 6/4), moist, stiff, low plasticity; 70% clay, 30% fine sand.
					CLAY (CL) – olive yellow (2.5Y 6/4) damp, very stiff, medium plasticity; 100% clay; waited 0.5 hr – no water in the hole.
25	22	22	MW2-26		Color changes to brown (10YR 5/3) mottled strong brown (7.5YR 5/8) at 20 feet.
				GC	With up to 10% fine to coarse sand, trace well rounded fine gravel at 25 feet.
30	67	66	MW2-31		CLAYEY GRAVEL WITH SAND (GC) – yellowish brown (10YR 5/4), damp, very dense; 40% angular to subrounded fone to coarse gravel, 40 % fine to coarse sand, 20% clay.
35	0	51	MW2-36	SM	SILTY SAND (SM) – yellowish brown (10YR 5/4), moist, very dense; 70% fine sand, 30% silt, trace subrounded to well rounded fine gravel.
				CL	
40	0	24	MW2-41		CLAY (CL) – yellowish brown (10YR 5/4), damp, very stiff, low plasticity; 90% clay, 10% fine sand.
45					(* = converted to equivalent standard penetration blows/ft.)

WELL DIAGRAM



JOB NUMBER: *6395.01*

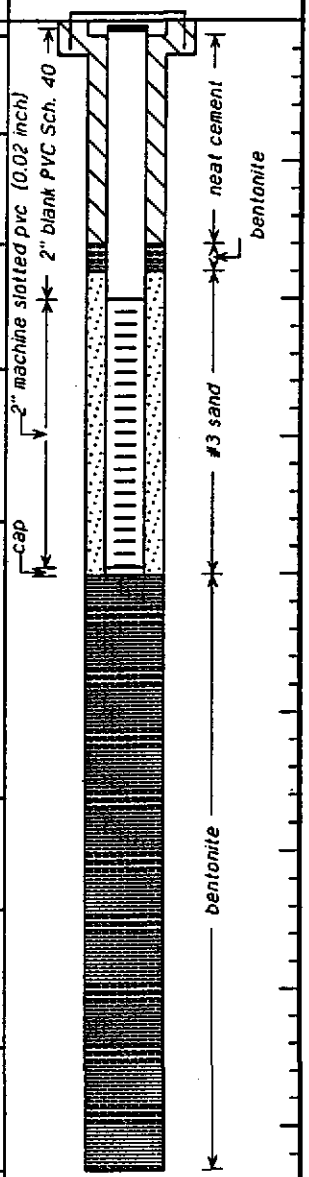
Gettler-Ryan, Inc.

Log of Boring MW-3

PROJECT: *Chevron SS# 9-9708*	LOCATION: *5910 MacArthur Boulevard, Oakland, CA*
G-R PROJECT NO.: *6395.01*	SURFACE ELEVATION: *97.86 feet MSL*
DATE STARTED: *05/22/97*	WL (ft. bgs): DATE: TIME:
DATE FINISHED: *05/23/97*	WL (ft. bgs): *11.28* DATE: *06/04/97* TIME: *13:00*
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *41.5 Feet*
DRILLING COMPANY: *Bay Area Exploration, Inc.*	GEOLOGIST: *Barbara Sieminski*

DEPTH feet	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
						CL	ASPHALT
							CLAY (CL) – very dark brown (10YR 2/2), damp, stiff, low plasticity; 85% clay, 15% fine to coarse sand, trace fine gravel.
5						SC	
	0	4	MW3-6				CLAYEY SAND (SC) – dark brown (10YR 3/3), moist, loose; 50% fine to coarse sand, 45% clay, 5% subrounded to well rounded fine gravel.
						CL	
10	17	27	MW3-11				SANDY CLAY WITH GRAVEL (CL) – dark brown (10YR 3/3), moist, very stiff, low plasticity; 65% clay, 30% fine to coarse sand, 5% subrounded to well rounded fine to coarse gravel.
						GC	
15	35	24	MW3-16				CLAYEY GRAVEL WITH SAND (GC) – dark grayish brown 92.5Y 4/2), moist to saturated (clay matrix), medium dense; 40% angular to subrounded fine to coarse gravel, 30% fine to coarse sand, 30% clay; no water in the hole.
						CL	
20	0	14	MW3-21				CLAY (CL) – brown (10YR 5/3), moist, stiff, medium plasticity; 100% clay.
							Pulled out 5 feet of augers and waited 20 minutes – no water in the hole at 20 feet.
25	0	10	MW3-26				
						ML	
30	27	28	MW3-31				SANDY SILT (ML) – light yellowish brown (10YR 6/4), moist, dense; 55% silt, 40% fine sand, 5% well rounded fine gravel.
						SM	
35	6.7	44	MW3-36				SILTY SAND (SM) – light olive brown (2.5Y 5/6), damp, very dense; 70% fine sand, 30% silt; with lenses (up to 1 inch thick) of fine to coarse sand with subrounded to well rounded fine gravel.
						ML	
40	102	43	MW3-41				SANDY SILT (ML) – light olive brown (2.5Y 5/6), moist, low lasticity, hard; 60% silt, 40% fine sand.
							(* = converted to equivalent standard penetration blows/ft.)
45							

WELL DIAGRAM



JOB NUMBER: *6395.01*

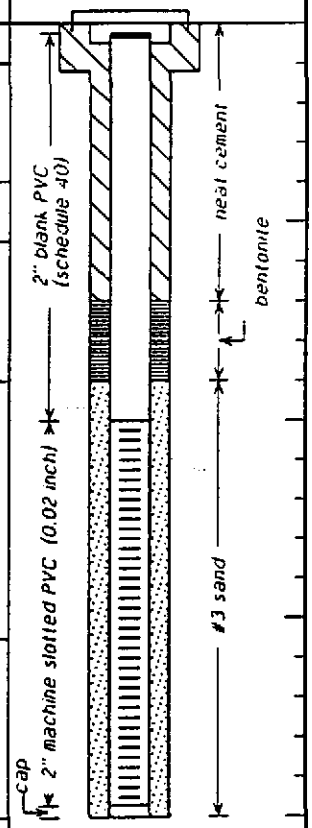
Gettler-Ryan, Inc.

Log of Boring MW-4

PROJECT: *Chevron SS #9-9708*	LOCATION: *5910 MacArthur Boulevard, Oakland, CA.*
GR PROJECT NO. : *346395.02*	SURFACE ELEVATION: *96.25ft. MSL*
DATE STARTED: *04/13/99*	WL (ft. bgs): *12.0* DATE: *04/13/99* TIME: *15:30*
DATE FINISHED: *04/13/99*	WL (ft. bgs): *12.0* DATE: *04/13/99* TIME: *16:25*
DRILLING METHOD: *8 in. Hollow Stem Auger*	TOTAL DEPTH: *20.0 Feet*
DRILLING COMPANY: *Bay Area Exploration Inc.*	GEOLOGIST: *Barbara Sieminski*

DEPTH feet	PID (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
							PAVEMENT - Concrete over baserock
						Fill	SILTY GRAVEL WITH SAND - yellowish brown (10YR 5/4), moist, dense; 50% fine to coarse gravel, 30% fine to coarse sand, 20% silt; fill.
5						CL -	CLAY (CL) - very dark grayish brown (10YR 3/2) mottled pale brown (10 YR 6/3), moist, low plasticity, soft; 70% clay, 30% fine to caorse sand, trace gravel.
	0	3	MW4-6			GC/SC	CLAYEY GRAVEL WITH SAND (GC/SC) - strong brown (7.5YR 5/6), moist, loose; 45% fine to coarse gravel, 30% fine to coarse sand, 25% clay.
10						CL	SANDY CLAY WITH GRAVEL (CL) - very dark gray (10YR 3/1), moist, plasticity, medium stiff; 50% clay, 25% fine to coarse sand, 25 % fine to caorse gravel.
	0	6	MW4-11.5				Becomes saturated at 12 feet bgs.
15							
	0	12	MW4-16			GC	CLAYEY GRAVEL WITH SAND (GC) - brown (10YR 5/3), saturated, medium dense; 45% fine to coarse gravel, 30% fine to coatse sand, 25% clay.
	0	17	MW4-19.5				
20							Bottom of boring at 20.0 feet.
							(* = converted to equivalent standard penetration blows/ft.)
25							
30							
35							

WELL DIAGRAM



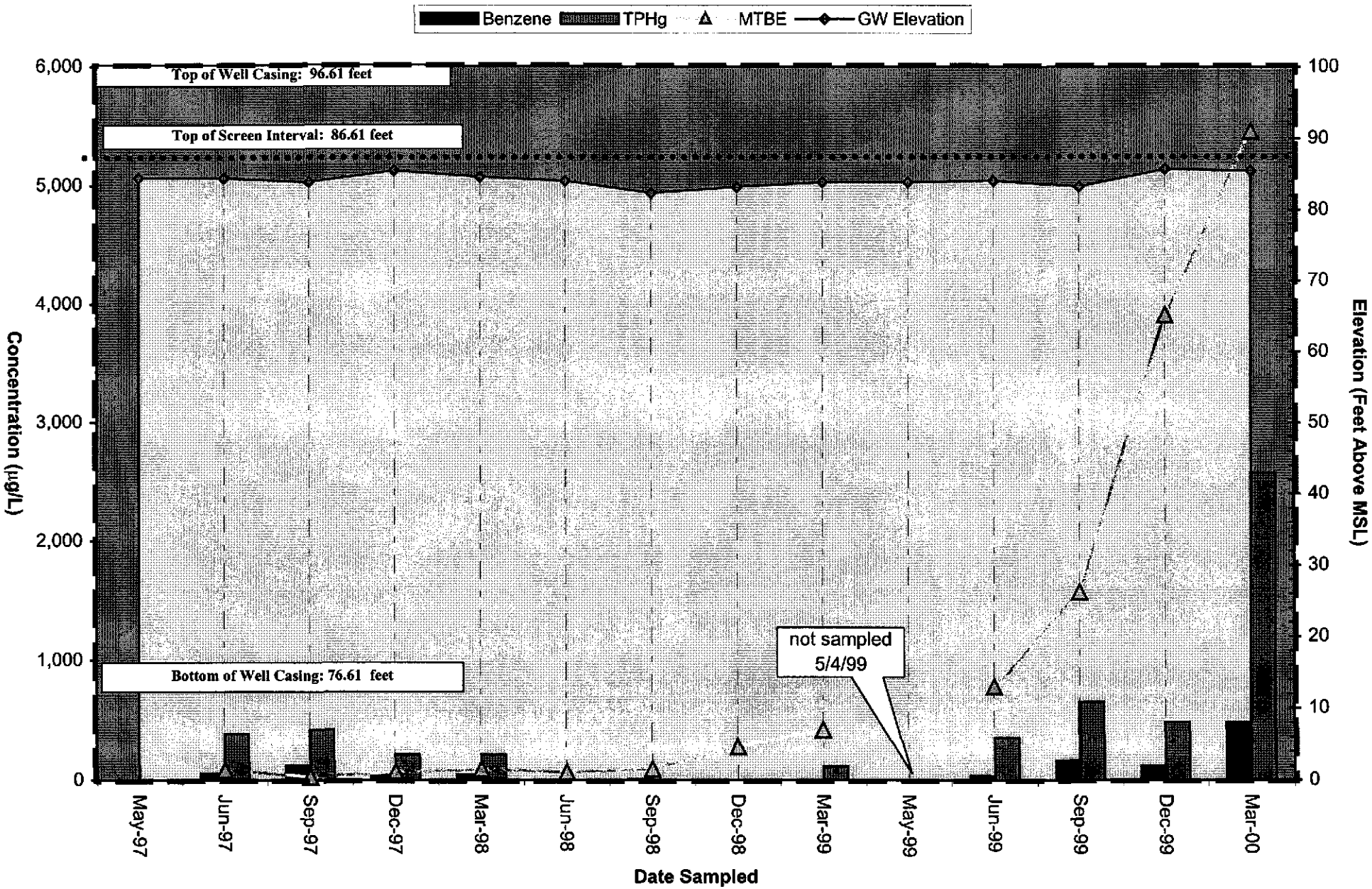
JOB NUMBER: *346395.02*

APPENDIX C

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

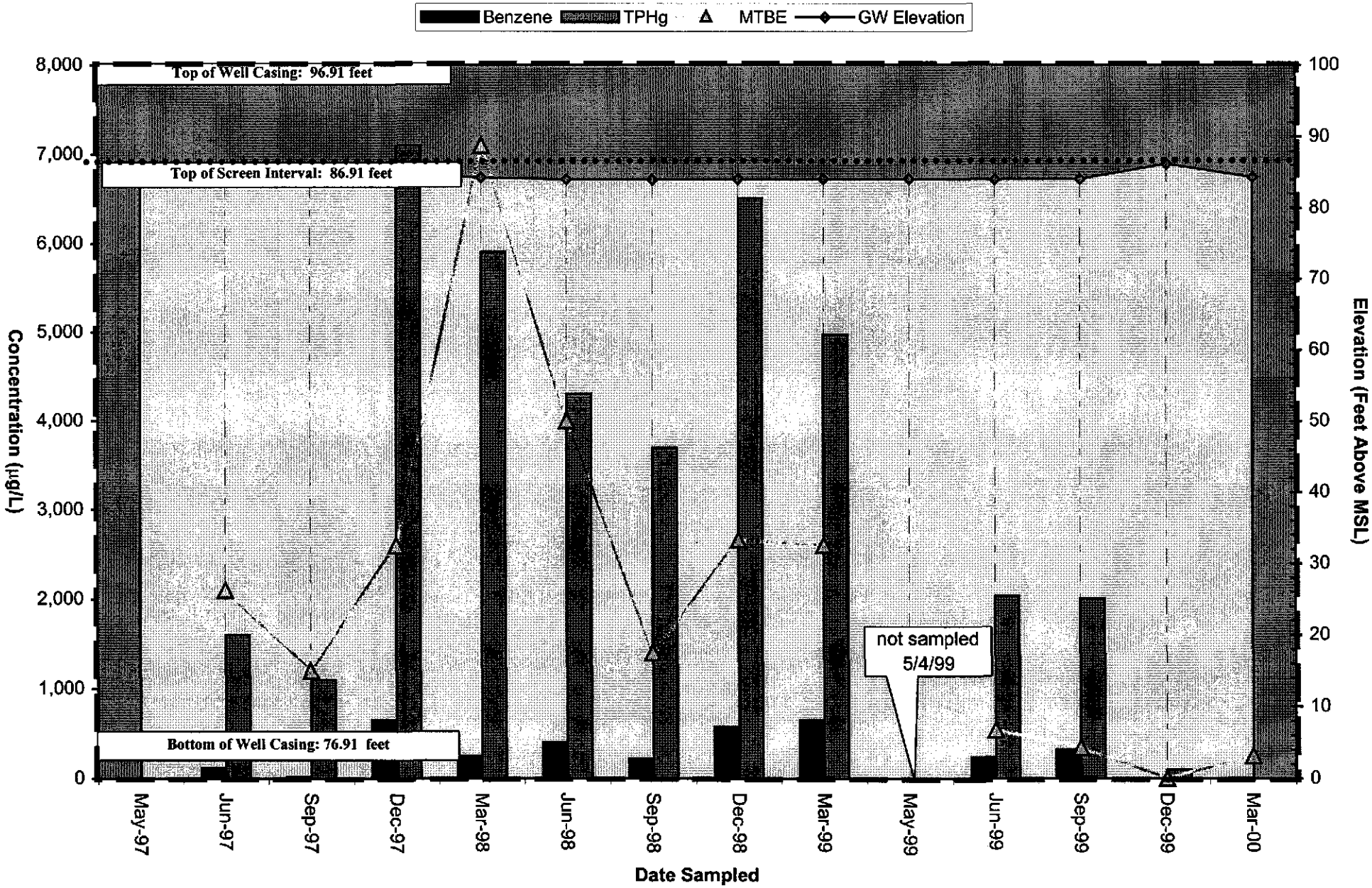
Chevron Station No. 9-9708
5910 MacArthur Boulevard
Oakland, California

MW-1



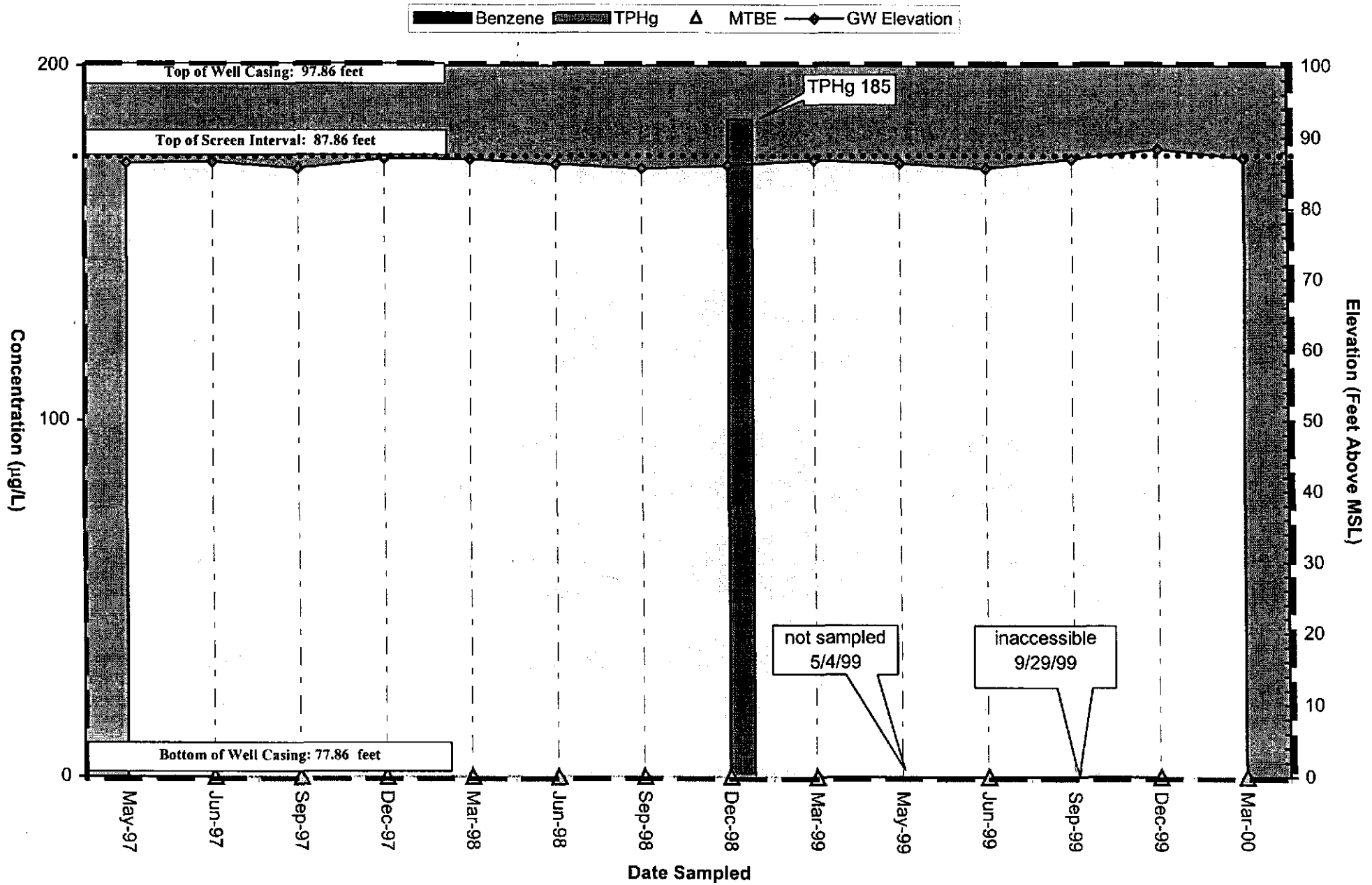
Chevron Station No. 9-9708
5910 MacArthur Boulevard
Oakland, California

MW-2



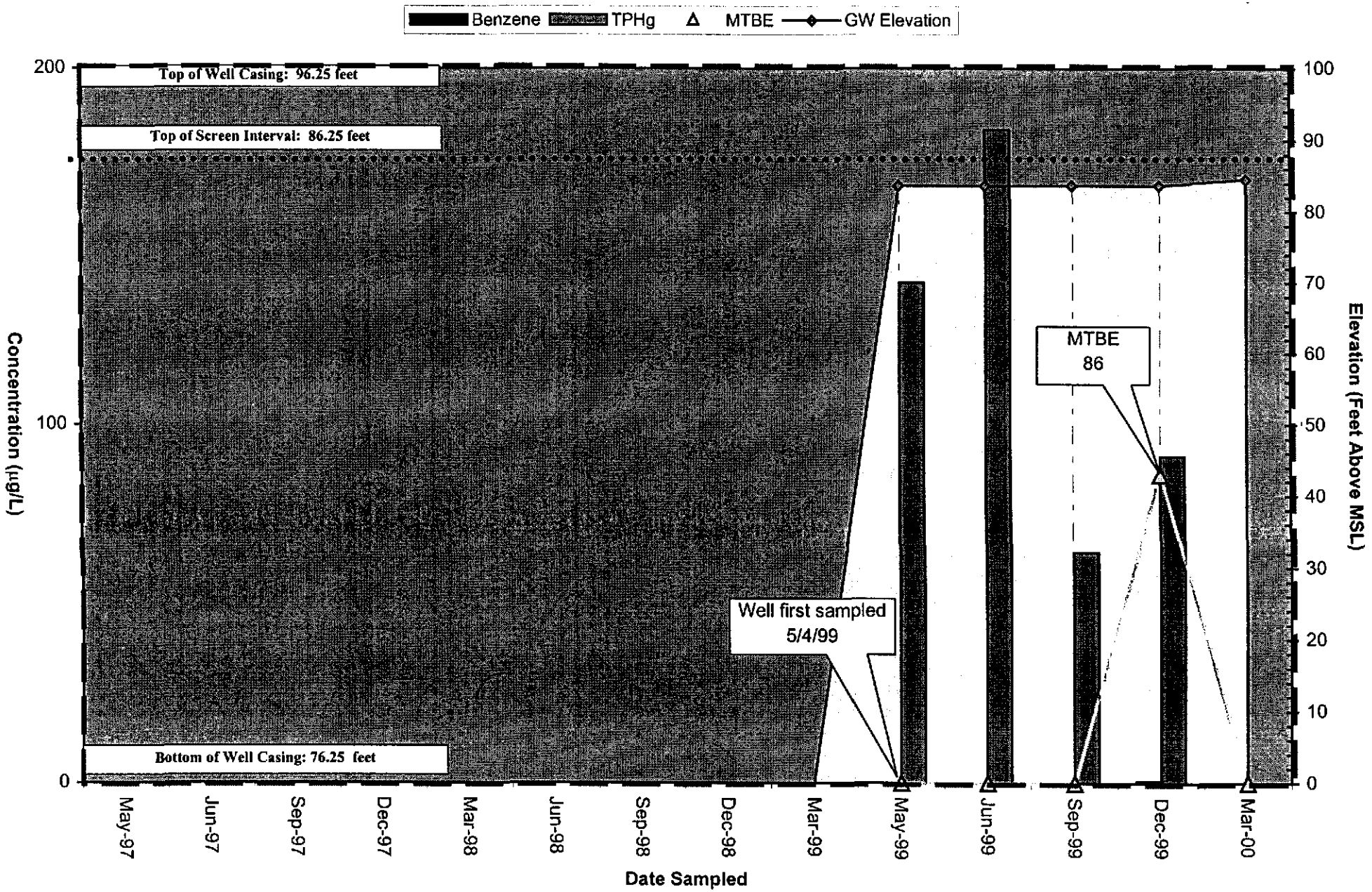
Chevron Station No. 9-9708
5910 MacArthur Boulevard
Oakland, California

MW-3

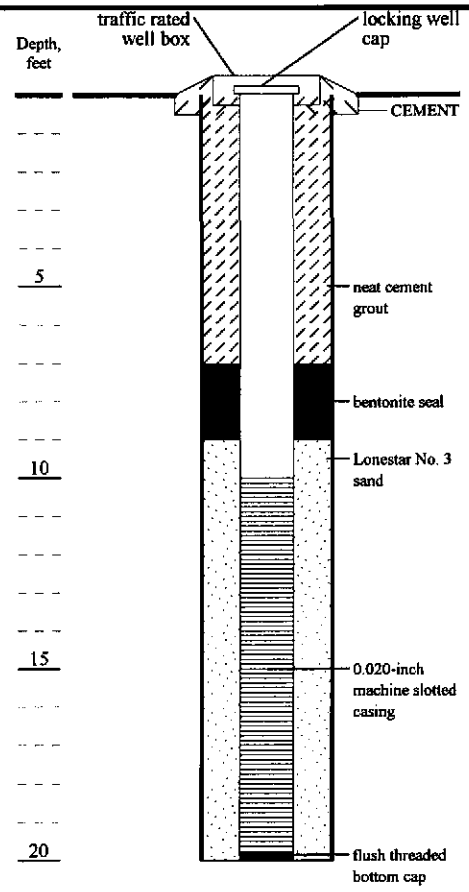


Chevron Station No. 9-9708
5910 MacArthur Boulevard
Oakland, California

MW-4



Delta Environmental Consultants, Inc.	Street Address **5910 MacArthur Boulevard**	Project ID **Chevron Station No. 9-9708**	
	City & State **Oakland, Ca.**	Surface Elev.	Well / Boring ID **PMW**
	Delta Project # **DG99-708**	Casing Elev.	Total Depth **20'**



PROPOSED WELL CONSTRUCTION

PROPOSED WELL CONSTRUCTION

Dates and Times	Logger **Delta Geologist**	Sampling Method & Diameter **2-inch ID split spoon**	Permitting Agency **Alameda County Health Care Srvc.**
Start	Drilling Company & Driller **Cascade Drilling Co.,**	Bore Hole Diameter **8.25-inches**	Permit #
Total Depth	Drillers C-57# **717510**	Diameter, Type & Slot Size of Casing **2-inch SCH 40 PVC 0.020**	
Completion or backfill	Drilling Equipment and method **CME-75, HSA**		**Page 1 of 1**