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May 23, 1990

Mr. Gil Wistar
Alameda County
Department of Environmental Health
80 Swan Way, Rm. 200
Oakland, CA 94621

Re: Former Chevron Station #9-1026
3701 Broadway
Oakland, California

Dear Mr. Wistar:

Chevron is in receipt of your letter dated May 9, 1990 requesting a comprehensive remedial/ monitoring work plan. Enclosed are two documents: A workplan discussing additional wells submitted to Chevron by Weiss Associates, and a groundwater remediation program submitted to Chevron by Chempro Environmental. The Weiss report addresses the possible abandonment of several wells and the installation of additional wells for further site characterization. The Chempro report addresses items 1-3, 5, and 7 of the Alameda County letter.

Item 4 of the Alameda County letter addresses the monitoring well sampling regime during various stages of the remediation program. At this time all wells are sampled on a quarterly basis and checked for floating product on a monthly basis. The current monitoring program will be evaluated after the installation of the treatment system.

Item 6 of the Alameda County letter addresses the division of responsibility between consultants during remediation. Weiss Associates is the consultant responsible for quarterly monitoring of all wells. Chempro will be responsible for all phases of installation and maintenance of the treatment system.

In reference to a previous telephone conversation, the dealer did not allow anyone to dispose of waste by using his waste oil tank.

If you have any questions or require additional information, please call Lisa Marinaro at (415) 842 - 9527.

Very truly yours,
D. Moller

By Lisa Marinaro
Lisa Marinaro
West Central Engineer

cc: Lester Feldman
Regional Water Quality
Control Board
San Francisco Bay Region
1800 Harrison Street
Oakland, CA 94612

WEISS ASSOCIATES
Geologic and Environmental Services
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5500 Shellmound Street, Emeryville, CA 94608

May 22, 1990

Lisa A. Marinaro
Chevron USA
P.O. Box 5004
San Ramon, CA 94583-0804

Re: Former Chevron SS #91026
3701 Broadway
Oakland, California
WA Job #4-418-00

Dear Ms. Marinaro:

This letter presents Weiss Associates' (WA) workplan for additional work at the former Chevron service station referenced above (Figure 1). Since May 1989, WA has monitored ground water from the existing wells at the site on a quarterly basis. In our latest quarterly monitoring report dated March 13, 1990[1], we noted that wells B, B-6 and B-7 are constructed of 6- to 12-inch diameter corrugated steel casing with unknown screened interval. Since the wellheads are not sealable flooding of the well vault and since the well construction is unknown, we recommended abandoning the wells. We also recommended modifying the sampling frequency for specific wells at the site.

The March 13, 1990 quarterly monitoring report was forwarded by Chevron to the Alameda County Department of Environmental Health, Hazardous Materials Division (the Division). The report was reviewed by Mr. Gil Wistar, Hazardous Materials Specialist for the Division. In a letter dated May 9, 1990, Mr. Wistar wrote to Chevron approving abandonment of wells B, B-6 and B-7 (Figure 2) according to local regulatory guidelines. However, the Division requested replacing well B-6, since it defines the northernmost edge of the groundwater monitoring system at the site.

The Division also noted that hydrocarbon concentrations in ground water from upgradient wells A and B-4 are increasing over the past year. Therefore, they require installing at least one additional monitoring well further upgradient of these wells, and at the northern corner of the property, northwest of the former station building. However, WA has learned that 3 underground fuel storage tanks were located about 15 ft northeast of wells A and B-4. These tanks were removed about 3 years ago from the adjacent former Rainbow Car Wash facility now occupied by a new car dealership[2]. We also learned that the tanks were removed by R.J. Miller Co., of Richmond, California. Although no records of the tank removal are on

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1 Weiss Associates, 1990, Quarterly Monitoring letter report for Former Chevron SS# 91026, 3701 Broadway, Oakland, California, consultant's report prepared for Chevron USA, March 13, 1990, 14 pp. and 4 attachments.

2 Personal communication, interview with Mr. Brady, General Manager of Val Strough Honda dealership by WA Project Geologist James Carmody, May 17, 1990.

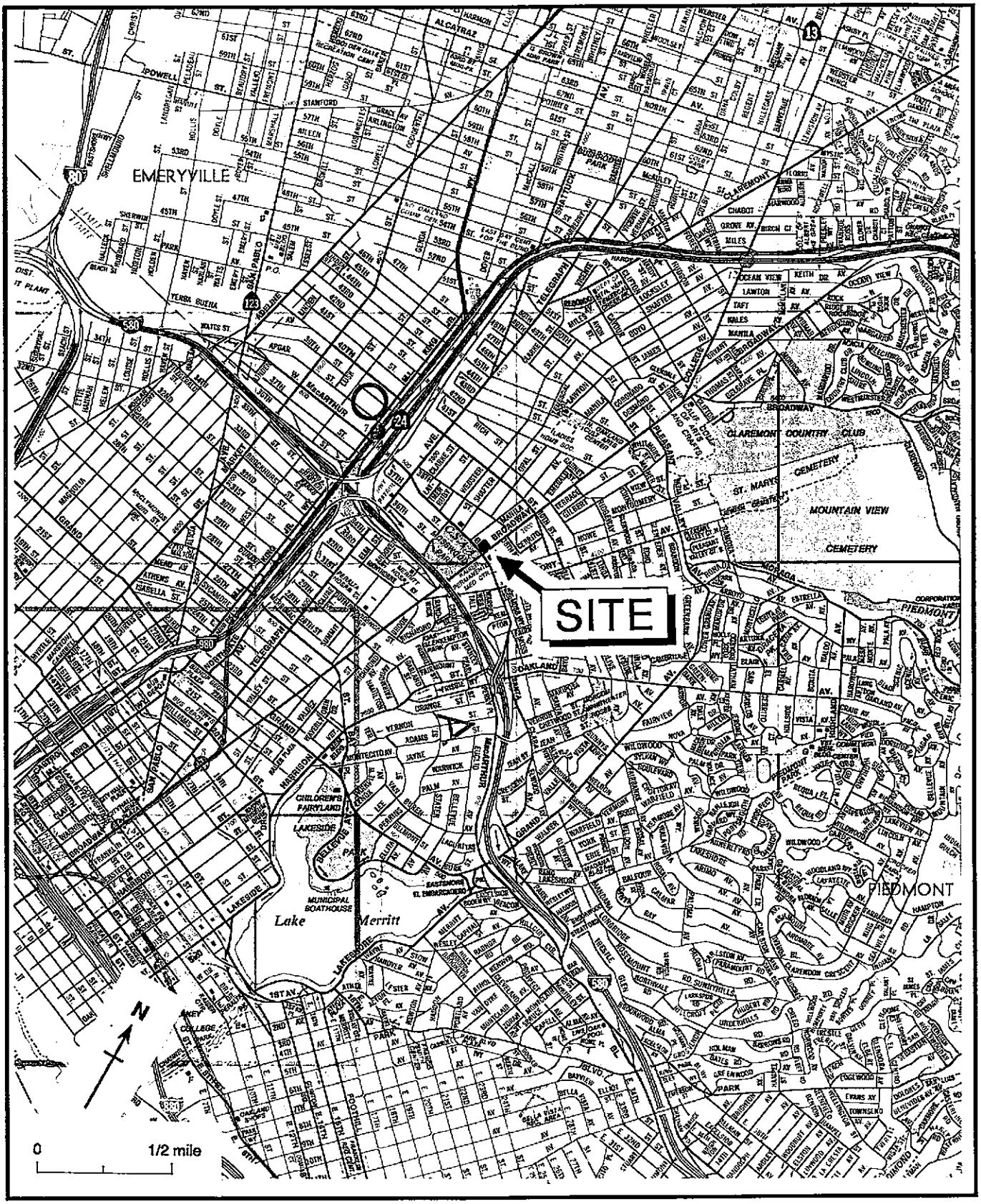

Figure 1. Site Location Map -Former Chevron Service Station #91026, 3701 Broadway, Oakland, California

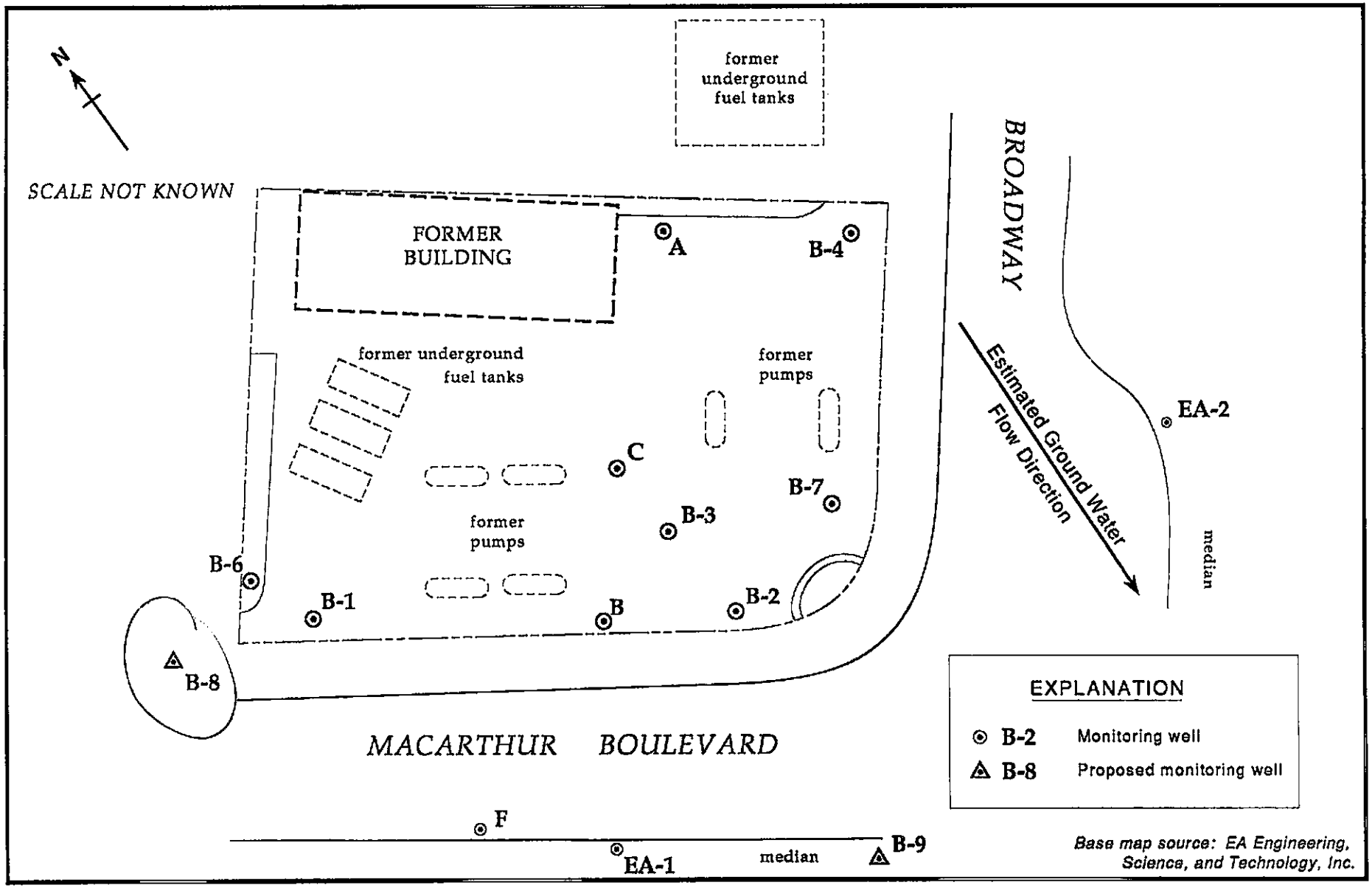

Figure 2. Proposed and Existing Monitoring Well Locations - Former Chevron Service Station #91026, 3701 Broadway, Oakland, California

5/22/90

file with the Oakland Fire Department, Mr. Wistar has indicated that limited soil sampling data is on file with the Division. Public records on file with the Alameda County Assessors Office show that the present owner of the adjacent property is a Bernice H. Campbell of Piedmont, California. Since the former tanks may be the source of the hydrocarbons detected in upgradient wells A and B-4, we understand that Chevron does not plan to install additional wells at these locations until this issue is resolved.

To satisfy the Division's other concerns, WA proposes the following scope of work to prevent surface water from entering the wellheads constructed with corrugated steel, and to further assess the extent of hydrocarbons in subsurface materials cross- and down-gradient of the site.

SCOPE OF WORK

WA will re-evaluate the necessity of abandoning wells B, B-6 and B-7, using video logs and well re-construction. We will also assess the extent of hydrocarbons in ground water downgradient of the site. The specific scope of work for this project is to:

1) Research the site history and prepare a site safety plan.

2) Conduct a site reconnaissance to locate potential subsurface conduits and utility lines.

3) Evaluate the screened interval of at least wells B, B-6 and B-7, to assess if the wells are suitably screened. If the screened interval can not be determined, then the wells will be abandoned. If the screened interval is consistent with other wells on the site, then only one well will be abandoned.

4) Abandon at least one well by pressure grouting.

5) Drill one or two soil borings and collect soil samples for subsurface lithologic and hydrogeologic description and for possible chemical analysis.

6) Complete up to two of the borings as 2-inch diameter ground water monitoring wells.

7) Develop the well(s), collect ground water samples and analyze the samples for total petroleum hydrocarbons as gasoline (TPH-G), and for benzene, ethylbenzene, toluene and xylenes (BETX).

8) Survey the top-of-casing elevations referenced to a City of Oakland benchmark to calculate the ground water elevation, gradient and flow direction.

9) Arrange for disposal of the drill cuttings and well purge water.

10) Report the results.

Each of these tasks is described briefly below.

TASK 1 - RESEARCH SITE HISTORY AND PREPARE A SITE SAFETY PLAN

We will research the results of previous subsurface investigations and prepare a site-specific safety plan. The site safety plan will identify potential site hazards and specify procedures to protect site workers.

TASK 2 - SITE RECONNAISSANCE

WA will contact U.S. Alert, examine as-built drawings from Chevron, and visually inspect the site and adjacent areas to identify potential subsurface conduits. This information will be plotted on a site base map and included in the final report.

TASK 3 - EVALUATE THE SCREENED INTERVAL OF THE WELLS

WA will evaluate the screened interval of at least wells B, B-6 and B-7 using a video camera. A geophysical consulting firm will lower a specially designed camera with a "fish-eye" lens down the well to record the interior of the well casing. A digital indicator recording the camera depth below the ground surface is integrated onto the video tape. The video log will permit an accurate means of assessing the screened interval and the condition of the wells.

If the wells were screened according to generally accepted practices, then we will construct a 2-inch diameter well inside the 8-inch diameter casing of well B-6. We may also replace the concrete vault, the top 1 ft of the sanitary seal and the exposed portion of the corrugated metal casing. If well B is acceptable, then this well will serve as an extraction wells for Chevron's ground water remediation consultant. We will abandon well B-7 by pressure grouting.

TASK 4 - PRESSURE GROUT THE ABANDONED WELLS

WA will obtain necessary permits and abandon the well(s) by pressure grouting. A cement slurry will be pumped to the bottom of the well using tremie pipe. We will fill the entire casing with grout and seal the inside of the concrete vault at the surface.

TASK 5 - SOIL BORING AND CHEMICAL ANALYSIS

WA will drill one or two soil borings in the locations shown on Figure 2 to assess the presence or absence of hydrocarbons in subsurface materials. Actual soil boring location(s) may differ from those shown on Figure 2, based on access and field conditions, such as overhead and underground utilities. Based on existing ground water conditions at the site, we anticipate ground water is less than 20 ft below grade.

We will collect undisturbed soil samples at least every 5 ft for chemical analysis. WA will log each boring in detail and survey representative samples with a photoionization detector (PID). We will store drill cuttings from the boreholes on-site in 55-gallon Department of Transportation (DOT) approved drums pending analytic results. We will seal and label each drum.

WA will submit selected soil samples to a state-certified laboratory for analysis for TPH-G by Modified EPA Method 8015, gas chromatography with flame ionization (GC/FID), and for BETX by EPA Method 8020, gas chromatography with photoionization detection (GC/PID).

TASK 6 - GROUND WATER MONITORING WELLS

WA will install ground water monitoring wells in each boring. We will construct the well(s) with flush-threaded, 2-inch-diameter, 0.02-inch slotted PVC well screen and blank casing. We will place Lone Star #3 Monterey sand into the annular space around the well screen to about 2 ft above the screened interval. Approximately 1 ft of bentonite pellets will separate the sand from the sanitary surface seal. We will tremie grout consisting of cement mixed with 3-5% bentonite powder into the annular space above the bentonite pellets to prevent infiltration of surface water into the wells.

WA will screen the wells to monitor the first water-bearing zone encountered. If a confining layer is encountered, we will confirm the thickness of the confining layer below the first water-bearing zone by sampling. We will seal the sampling hole through the underlying confining layer with bentonite pellets.

TASK 7 - WELL DEVELOPMENT, WATER SAMPLING AND CHEMICAL ANALYSIS

WA will develop the monitoring well(s) using airlift evacuation, bailing and surge block agitation, and we will estimate the flow rate for each well. We will temporarily store ground water removed from the well(s) on-site in 55-gallon DOT approved drums.

WA will collect ground water samples from the well(s) after the well(s) is/are developed. Prior to sampling, we will evacuate at least three wellbore volumes of ground water from each well using steam-cleaned PVC bailers. We will store the evacuated water on-site in 55-gallon drums. We will decant water samples into 40-ml glass vials, labeled and refrigerated for transport under chain-of-custody to the analytic laboratory. We will maintain chain of custody records for all samples. A trip blank will be collected to check for carry-over of VOCs during sample transport. We will analyze ground water samples for TPH-G by Modified EPA Method 8015, GC/FID, and for BETX by EPA Method 8020, GC/PID.

TASK 8 - SURVEY TOP OF CASING ELEVATIONS

A California registered land surveyor will survey the top of casing elevation of the monitoring wells, referenced to a City of Oakland benchmark. We will tabulate water table elevation data and we will prepare a ground water elevation contour map.

TASK 9 - SOIL AND PURGE WATER DISPOSAL

WA will base the disposal method for soil cuttings and purged ground water on the soil boring and ground water analytic results.

TASK 10 - REPORT

WA will prepare a report presenting the results of the investigation. The report will include:

- A summary of the results,
- Site background and history,
- Topographic and geologic setting,
- Site location map,
- Utility location map,
- Rationale for well placement and design, and descriptions of well construction, development and sampling,
- Tabulated soil and ground water analytic results,
- Tabulated ground water elevation data and a water table elevation contour map,
- Conclusions,
- Appendix A: Boring logs,
- Appendix B: Chain of Custody Forms, and
- Appendix C: Laboratory Analytic Reports.

Please call me if you have any questions. We appreciate the opportunity to provide hydrogeologic consulting services to Chevron and trust that this proposed work plan meets your needs.

Sincerely,
Weiss Associates

James W. Carmody
Project Geologist

JWC/dim

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