

August 3, 1993
Project C93013

Ms. JoAnn Stewart, General Manager
Good Chevrolet
1630 Park Street
Alameda, California 94501

Subject: Work Plan for Supplemental Site Characterization
Good Chevrolet, 1630 Park Street, Alameda, CA.

Dear Ms. Stewart:

We are please to submit this Work Plan to perform a Supplemental Site Characterization Investigation for identification/verification of the location/source of hydrocarbon products remaining at the site in accordance with the request from the Alameda County Department of Environmental Health.

BACKGROUND AND SUMMARY OF PREVIOUS WORK

A 300 gallon waste oil storage tank and a 500 gallon underground gasoline storage tank were reportedly removed from the property by Petroleum Engineering, Inc. in October, 1986. Soil samples obtained beneath the gasoline tank (at a depth of 10 feet) contained 2,509 parts per million (ppm) of Total Petroleum Hydrocarbons as gasoline. The excavation was reportedly continued to a depth of 14 feet and re-sampled. The second sample reportedly contained 1,441 ppm Total Petroleum Hydrocarbons as gasoline. A ground water sample was reportedly obtained from the excavation and reportedly contained 240,000 parts per billion (ppb) of Total Petroleum Hydrocarbons as hydrocarbons. The excavated soil was reportedly aerated on-site and re-introduced back into the excavation as backfill material.

A subsurface investigation including installation of three ground water monitoring wells and advancing two exploratory borings (see Figure 1) was performed by Groundwater Technology, Inc. in January, 1987 (Groundwater Technology, Inc. Report Dated April 29, 1987). The soil borings identified low concentrations of Total Petroleum Hydrocarbons as gasoline and Volatile Aromatic Compounds (Benzene, Toluene, Ethyl Benzene, and Xylene) in the immediate vicinity of the former tanks. Intermittent monitoring of the ground water monitoring wells identified variable concentrations of Total Petroleum Hydrocarbons as gasoline and Volatile Aromatic Compounds (Benzene, Toluene, Ethyl Benzene, and Xylene) in the ground water at the site.

The three existing ground water monitoring wells located at the project site have been monitored by Geo Plexus personnel on a quarterly basis from July, 1992 through July, 1993 to evaluate the ground water conditions and to establish the directions of ground water flow at the project site.

Ground water elevations recorded during the past year suggest that ground water has varied from 7 to 11 feet below the ground surface with flow directions varying from northwest to northeast directions throughout the last year (see Figure 2). The quarterly monitoring has also determined that Total Petroleum Hydrocarbons as gasoline and Volatile Aromatic Compounds (Benzene, Toluene, Ethyl Benzene, and Xylene) exist at various concentrations in the ground water across the northern portion of the project site (see Table 1). Correlation of ground water elevations with detectable concentrations of gasoline constituents suggests that a shallow and localized "on-site" source of hydrocarbon contaminated soil remains in the vicinity of the former underground storage tank and/or former dispenser pump. Figure 3 illustrates the correlation between water elevation and concentrations of Total Petroleum Hydrocarbons as gasoline in the monitoring wells.

A recent investigation, which included advancing hydropunch borings in the "up-gradient" direction of the former tank area and collection/analytical testing of ground water samples, did not detect Total Petroleum Hydrocarbons as gasoline and/or Volatile Aromatic Compounds (Benzene, Toluene, Ethyl Benzene, and Xylene) in the ground water. These findings further support the conclusion that the source of the hydrocarbon products is localized to the area of the former tanks.

Based on the findings of the quarterly monitoring throughout the last year, it is concluded that a shallow (less than 10 feet deep) and localized area "source" of petroleum hydrocarbon exists in the immediate vicinity of the former underground gasoline storage tank and/or dispenser pump and that this "source" is responsible for the continued leaching of hydrocarbon products into the ground water. The actual location and aerial extent of the "source" has not been defined at this time; however, it is speculated that the source is located between Monitoring Wells MW-1 and MW-2 and the existing building or isolated beneath the building (located beneath where the former dispenser pump was located).

The area of impacted water, although not completely defined at this time, appears to be limited in extent and it is our opinion that the ground water quality would improve upon removal/remediation of the remaining source material.

SCOPE OF WORK

The scope of work for the current phase of investigation includes advancing a series of shallow soil borings in the immediate vicinity of the former tank locations (includes inside and outside of the showroom/service area) to determine the location and extent of the hydrocarbon contaminated soils which remain in-place which are considered to be the source of continued leaching of hydrocarbon products into the underlying ground water.

Subsurface Exploration Borings

The current scope of work includes advancing 5-8 subsurface exploration borings at the project site to characterize the subsurface soil conditions in the immediate vicinity of the former underground gasoline storage tank/dispensing pump area (see Figure 4) and to obtain soil samples for analytical testing. The borings would be drilled by a State of California C57 Licensed Drilling Contractor. The borings would be logged under the supervision of a State of California Certified Engineering Geologist.

The soil borings would be advanced using small diameter hollow stem auger. Drilling and sampling equipment used for advancing the exploratory borings would be thoroughly steam cleaned before drilling begins and between each boring to prevent the introduction of off-site contamination and cross contamination between borings. Sampling equipment would be cleaned between sample events by steam cleaning or using a phosphate-free detergent bath and double rinsed in hot water baths to prevent cross contamination.

Pre-cleaned stainless steel or brass liners would be placed in the sampler to retain the soil. The drilling and sampling equipment would be steam cleaned subsequent to completion of the field activities. Soil cuttings and rinsate waters derived from the borings/cleaning would be retained in 55-gallon containers and stored on-site during the drilling pending results of the analytical testing.

Continuous coring of the soil would be accomplished to obtain samples throughout the borings through the use of a 1 inch I.D. barrel sampler advanced into the undisturbed soil by a vibratory hammer. Sand catchers would be used as necessary to retain the samples. The drill cuttings and soil samples would be monitored in the field for evidence of hydrocarbon content through the use of a portable photo-ionization detector (PID), organic vapor meter (OVM), or similar device.

The soil borings would be grout filled with a cement slurry upon completion.

The soil samples would be immediately sealed in the liners using aluminum foil and plastic caps and properly labeled including: the date, time, sample location, and project number. The samples would be placed on ice immediately for transport to the laboratory under chain-of-custody documentation.

The soil samples would be submitted to a State of California Certified Analytical Testing Laboratory and analyzed for Total Petroleum Hydrocarbons as gasoline (Method 5030/8015) and Volatile Aromatic Compounds (EPA 602 modified for Benzene, Toluene, Ethyl Benzene, Xylenes distinction).

Report

A report documenting the findings and observations of the investigation and the results of the analytical laboratory testing would be prepared to include: the findings and boring logs for the subsurface investigation; analytical test data, chain-of-custody records, and other pertinent information obtained throughout the investigative process.

The report would also propose remedial action determined appropriate for continued source reduction (e.g., additional excavation, vapor extraction/air sparging, etc.).

SCHEDULE

The subsurface investigation (soil borings) is anticipated to be accomplished in one to two days (dependent on the actual number of borings) and could be accomplished within two weeks following notification to proceed and notice of concurrence from Alameda County Department of Environmental Health.

Standard analytical testing turnaround time of two (2) weeks is anticipated to be used unless directed otherwise. The report would be submitted within three weeks following receipt of all analytical test data.

It has been a pleasure to be of service to you on this project. Should you have questions regarding the scope of work or estimated schedule presented herein, please contact us.

Copies of this Work Plan should be forwarded to:

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

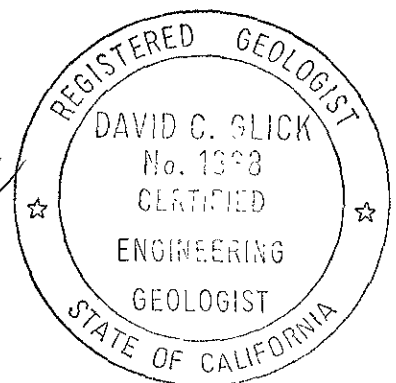
Mr. Richard Hiatt
Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Room 500
Oakland, CA 94612

Respectfully submitted,

Geo Plexus, Incorporated



David C. Glick, CEG 1338
Director, Geological and
Environmental Services



PARK AVENUE

CHEVROLET
DEALERSHIP BLDG.

⊙ MW3

TANK
PIT
AREA

⊙ MW2

⊕ SB4

FENCE

⊙ MW1

⊕ SB5

LEGEND

⊙ MONITORING WELL

⊕ SOIL BORING

FIGURE 2
SITE PLAN



NO SCALE

GOOD CHEVROLET
ALAMEDA, CALIFORNIA



GROUNDWATER
TECHNOLOGY

Source: Ground Water Technologies

GeoPlexus, Inc.

GOOD CHEVROLET		
DATE 7/26/93	SCALE n/a	DRAWN BY dcg
BORING/WELL LOCATION PLAN		
		Figure 1

PARK STREET

SIDEWALK

GOOD CHEVROLET SHOW ROOM

SERVICE AREA

APPROXIMATE LOCATION OF FORMER STORAGE TANKS

MW-3 *200ppm at 10' bgs in '87*

OBSERVED VARIATION IN GROUND WATER FLOW DIRECTION

MW-2 *350ppm at 10' bgs in '87*

MW-1

FENCE

PROPERTY FENCE LINE

GOOD CHEVROLET

DATE 7-20-93

SCALE 1"=10'

DRAWN BY DCG

GROUND WATER FLOW DIRECTION

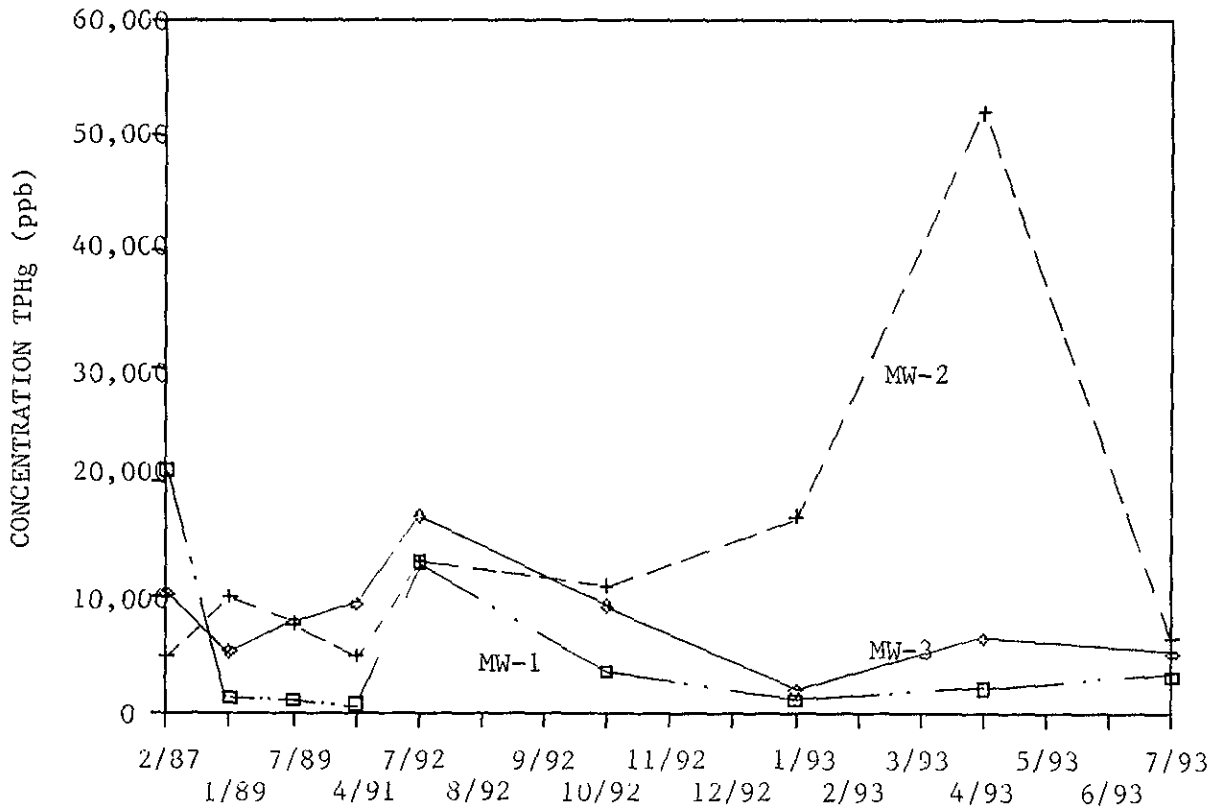
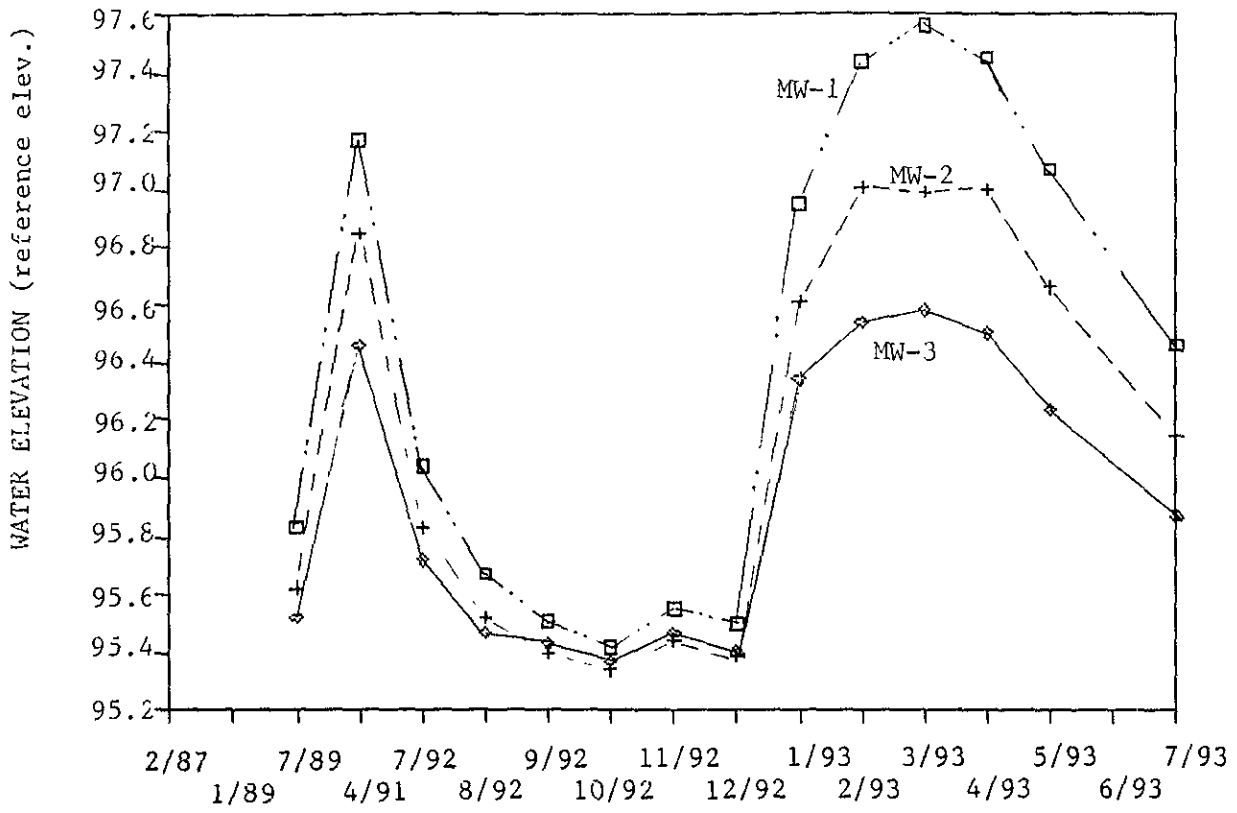
Figure 2

TABLE 1

SUMMARY OF GROUND WATER ANALYTICAL TEST DATA

<u>Date Sampled</u>	<u>Total Petroleum Hydrocarbons</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-Benzene</u>	<u>Total Xylenes</u>
<u>Monitoring Well MW-1</u>					
1-21-87 (1)	21,020	1,148	8,627	1,792	6,012
1-11-89 (1)	1,400	74	10	13	5
7-12-89 (1)	1,200	470	49	45	33
4-09-91 (2)	850	260	10	15	12
7-14-92 (3)	13,000	2,300	1,200	1,200	1,200
10-7-92 (3)	3,600	1,600	80	120	120
1-11-93 (3)	1,200	410	16	23	19
4-23-93 (3)	2,200	720	180	82	150
7-08-93 (3)	3,200	1,200	110	97	100
<u>Monitoring Well MW-2</u>					
1-21-87 (1)	5,018	386	1,981	285	1,432
1-11-89 (1)	10,000	3,000	410	240	190
7-12-89 (1)	7,600	2,700	540	250	320
4-09-91 (2)	4,900	910	210	130	200
7-14-92 (3)	13,000	4,400	1,500	610	1,100
10-7-92 (3)	11,000	5,200	1,500	500	1,200
1-11-93 (3)	17,000	940	1,100	480	930
4-23-93 (3)	52,000	13,000	8,400	1,700	5,300
7-08-93 (3)	6,400	2,500	470	280	530
<u>Monitoring Well MW-3</u>					
1-21-87 (1)	10,287	1,428	3,281	610	2,761
1-11-89 (1)	5,300	1,800	340	150	160
7-12-89 (1)	7,800	3,100	900	300	480
4-09-91 (2)	9,400	1,400	730	200	510
7-14-92 (3)	17,000	3,500	390	390	260
10-7-92 (3)	9,200	4,300	470	390	610
1-11-93 (3)	2,000	740	29	58	28
4-23-93 (3)	6,500	2,600	280	260	190
7-08-93 (3)	5,200	2,100	260	250	180

Note: (1) Concentrations reported by Groundwater Technology, Inc.
 (2) Concentrations reported by Environmental Science & Engineering, Inc.
 (3) Samples obtained and reported by Geo Plexus, Inc.



GOOD CHEVROLET		
DATE 7-20-93	SCALE n/a	DRAWN BY dcg
WATER LEVEL/CONCENTRATION DATA		
		Figure 3

PARK STREET

SIDEWALK

GOOD CHEVROLET SHOW ROOM

SERVICE AREA

APPROXIMATE LOCATION OF FORMER STORAGE TANKS

MW-3

MW-2

MW-1

OBSERVED VARIATION IN GROUND WATER FLOW DIRECTION

PROPOSED BORINGS

FENCE

PROPERTY FENCE LINE

GOOD CHEVROLET

DATE 7-20-93

SCALE 1"=10'

DRAWN BY DCG

PROPOSED BORING LOCATION: PLAN