Chevron U.S.A. Inc.
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Mail Address PO Box 5004, San Ramon, CA 94583-0804

91 DEC -9 AM 11: 28

December 2, 1991

Marketing Department

Ms. Pamela Evans
Alameda County Health Care Services
Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, CA 94621

Re: Chevron Service Station #9-6607
2340 Otis Drive, Alameda

Dear Ms. Evans:

Enclosed we are forwarding the Site Assessment Report dated October, 1991, prepared by our consultant Geraghty & Miller, Inc. for the above referenced site. As indicated in the report, four (4) borings were advanced and completed into ground water monitor wells designated MW-1 through MW-4. Soil samples collected from the drill cuttings were analyzed for total petroleum hydrocarbons as gasoline (TPH-G) and BTEX. One (1) discretionary sample was also analyzed for total organic lead. Soils generated from monitor well MW-4, located adjacent to the waste oil tank, were also analyzed for total petroleum hydrocarbons as Diesel (TPH-D), total oil & grease (TOG) and metals. All samples reported non-detectable concentrations (ND) of TPH-D and TOG. Negligible concentrations of chromium, zinc and total nickel were detected at concentrations ranging from 15 to 22 ppm.

Ground water samples collected from the newly installed wells were analyzed for TPH-G, BTEX, organic lead and TPH-D, TOG and VOC's from monitor well MW-4 only. Benzene was detected in monitor wells MW-2 and MW-4 only at concentrations of 170 and .6 ppb, respectively. All other constituents analyzed for in monitor wells MW-1, MW-3 and MW-4 reported non-detectable concentrations. Monitor well MW-3 is located down-gradient of these wells. Depth to ground water was measured at approximately 7-feet below grade, and the direction of ground water flow is to the southwest. These results indicate no down-gradient migration of the contaminants in the ground water beneath the site.

Based on these findings, Chevron recommends that a quarterly sampling and monitoring program be initiated at this site. At completion of one (1) year of sampling, the data will be evaluated and appropriate next actions recommended. Ground water samples will be analyzed for TPH-G and BTEX during these events. Chevron will proceed with this recommendation under self direction unless otherwise informed by your office.

If you have any questions or comments, please do not hesitate to contact me at (510) 842-9581.

Very truly yours,
CHEVRON U.S.A. INC.

Nancy Vukelich
Environmental Engineer

Enclosure

cc: Mr. Eddy So, RWQCB-Bay Area
Mr. S.A. Willer
File (9-6607A1)

SITE ASSESSMENT REPORT
CHEVRON U.S.A. INC.
SERVICE STATION #9-6607
2340 OTIS DRIVE
ALAMEDA, CALIFORNIA

October 1991

Geraghty & Miller, Inc. appreciates the opportunity to work for Chevron U.S.A. Inc. at the site located at 2340 Otis Drive, Alameda, California. If you have any questions or comments concerning this report, please contact one of the individuals listed below.

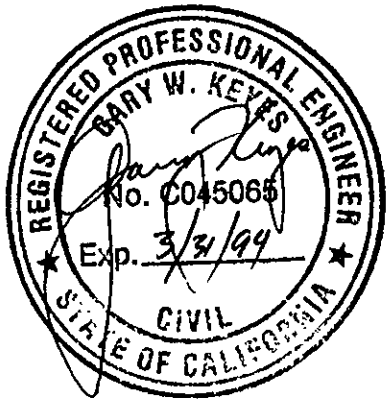
Respectfully submitted,

GERAGHTY & MILLER, INC.

Catherine W. McCutchen
Staff Geologist

Kelly A. Kline
Senior Geologist/Project Manager

Gary W. Keyes
Principal Engineer/Project Officer



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SITE ASSESSMENT REPORT
CHEVRON U.S.A. INC. #9-6607
2340 OTIS DRIVE
ALAMEDA, CALIFORNIA

1.0 INTRODUCTION

This report presents the results of site assessment activities performed by Geraghty & Miller, Inc. (Geraghty & Miller) at Chevron U.S.A. Inc. (Chevron) Service Station #9-6607, located at 2340 Otis Drive, Alameda, California (Figure 1). The scope of work for the assessment activities was presented in a Geraghty & Miller work plan dated June 21, 1991. The objectives of the assessment activities were:

- To select ground-water monitor well locations that provide hydrogeologic data that will be useable for remedial activities, should such remediation be required.
- To define hydrogeologic conditions beneath the site.
- To determine the extent and level at which petroleum hydrocarbons have affected the soil and ground water.

2.0 BACKGROUND

In preparing this background section and the scope of work for the site, Geraghty & Miller reviewed a report by Blaine Tech Services, Inc. (Blaine Tech), identified as Report No. 910409-J-1 dated April 11, 1991, which documents excavation and sampling in association with the removal of three gasoline tanks and one waste oil tank. No information was provided on the results of tank tightness tests for this site. According to Chevron, new tanks were replaced in the original excavations.

On February 14, 1991, the day of the tank removal, a sheen was observed on the surface of the water in both the gasoline tank excavation and the waste oil tank excavation. The depths to water were approximately 6.5 to 7 feet below the ground surface in both excavations. No holes were observed in any of the tanks upon visual inspection. Six soil samples were collected from the gasoline tank excavation at a depth of 6 feet below ground surface by Blaine Tech and analyzed for total petroleum hydrocarbons (TPH) as gasoline by United States Environmental Protection Agency (USEPA) Method 8015, modified and for BTEX by USEPA Method 8020 . Petroleum hydrocarbons were detected in each of the samples at concentrations below 100 milligrams per kilogram (mg/kg).

Two soil samples were collected from the waste oil tank excavation at a depth of 6 feet below ground surface and analyzed for TPH as gasoline USEPA Method 8015, modified), BTEX (USEPA Method 8020), and total oil and grease (Standard Methods Method 503E). Concentrations of BTEX ranging from 0.0072 mg/kg benzene to 0.061 xylenes were detected in the. Total oil and grease was detected in only one of the samples (3,200 mg/kg).

A water sample was also collected from each excavation and analyzed for TPH as gasoline by United States Environmental Protection Agency (USEPA) Method 8015, modified and for BTEX by USEPA Method 8020. TPH as gasoline was detected at concentrations of 3,000 micrograms per liter (µg/L) and 48,000 µg/L respectively. Concentrations of BTEX ranging from 150 µg/L benzene to 690 µg/L xylenes were detected in the one of the water samples and from 8,600 µg/L benzene to 11,000 µg/L xylenes in the other water sample. It is not clear from the Blaine Tech report which water sample was collected from which excavation.

On February 22, 1991, additional soil was excavated from the southeast wall of the waste oil tank excavation. Following the lengthening of this excavation by approximately 2 to 3 feet, another soil sample was collected by Blaine Tech. The laboratory analysis of this sample showed concentrations of total oil and grease at 260 mg/kg. Additional excavation was conducted on February 26, 1991, and a soil sample was collected at approximately 5.5 feet in the southeast wall of the excavation and analyzed for oil and grease which was not detected in this soil sample. Two additional soil samples were collected on March 7, 1991 from a depth of 6 feet in the sidewall of the waste oil tank excavation. The sample from the south wall, adjacent to the station building contained 16,000 mg/kg oil and grease. Oil and grease was not detected in the other sample.

The product lines were excavated on February 28, 1991. Fourteen soil samples were collected from beneath the dispenser islands and from various locations within the piping trenches. Concentrations of BTEX ranged from non-detect (ND) in two samples from the piping trenches to detectable at levels ranging from 0.006 mg/kg toluene to 920 mg/kg xylenes in the other samples. TPH as gasoline ranged from ND in four of the samples to 5,700 mg/kg from one of the samples from beneath the dispenser islands. Additional excavation and soil sampling were performed on March 7, 1991 from the piping trenches and beneath the dispenser islands. The BTEX concentrations in the samples collected on March 7 ranged from ND to detectable at levels ranging from 0.012 mg/kg ethylbenzene to 17 mg/kg xylenes. TPH as gasoline concentrations ranged from ND to 150 mg/kg.

3.0 FIELD ACTIVITIES

3.1 HEALTH AND SAFETY PLAN

A site-specific health and safety plan was prepared by Geraghty & Miller to address potential hazards typical to petroleum hydrocarbon, site assessment, drilling activities. Prior to the commencement of work at the site, a tailgate meeting was held, with all on-site workers reviewing the health and safety plan before the commencement of drilling activities.

3.2 UTILITY LOCATING

Prior to the commencement of soil boring and well installation activities, the underground utilities, storage tanks, and associated piping were located by Subtronics, Inc., of Concord, California. In addition, Underground Service Alert was notified, and the off-site utilities were marked by their respective owners.

3.3 EXPLORATORY DRILLING, SOIL SAMPLING, AND MONITOR WELL INSTALLATION

On August 6 and 7, 1991, four exploratory soil borings (MW-1 through MW-4) were drilled at the locations shown in Figure 2. The exploratory boring logs are presented in Appendix A. A description of exploratory drilling, soil sampling, and monitor well installation procedures is included in Appendix B. Prior to the commencement of drilling activities, well permits were obtained from the Alameda County Flood Control and Water Conservation District. Copies of the well permits are included in Appendix C. The location of each boring was selected based on the anticipated direction of ground-water flow inferred from the site topography, the location of the underground utilities, drill rig access, proximity to the underground storage tank cluster, proximity to the former location of the waste oil tank, and proximity to other proposed well locations. The anticipated direction of ground-water flow was to the southwest towards San Francisco Bay. Based on the expected ground-water flow direction, Boring MW-1 was drilled at a location anticipated to be hydraulically upgradient from the dispenser islands. Borings MW-2 and MW-3 were located in the anticipated hydraulically crossgradient and downgradient to the

underground storage tanks respectively. Boring MW-4 was located near the location of the waste oil tank.

Borings MW-1 through MW-4 were drilled to a total depth of 24.5 feet below ground surface. Ground-water was encountered at a depth of approximately 5 feet below ground surface in MW-1, approximately 6 feet in MW-2 and MW-3, and approximately 7 feet in MW-4. Upon completion, Borings MW-1 through MW-4 were converted into ground-water monitor wells installing 4-inch polyvinyl chloride (PVC) casing. The screened interval extended from the bottom of the boring to approximately 2 to 3 feet above the first encountered ground-water as depicted in the well construction details presented in Appendix A. Upon completion, the well location, top of casing elevation, and ground surface elevation for each monitor well were surveyed relative to mean sea level by Bates & Bailey of Berkeley, California. Northings and eastings were also recorded. Copies of the survey data are included in Appendix D.

The exploratory drilling and well installations were performed by West Hazmat Drilling, in Rancho Cordova, California. Soil samples were collected at approximately 5-foot intervals, starting at 3 feet below the ground surface, and logged by a Geraghty & Miller field geologist in accordance with the Unified Soils Classification System. Selected soil samples were submitted to Superior Precision Analytical, Inc., in San Francisco, California for laboratory analysis. Each submitted soil sample was analyzed for TPH as gasoline by United States Environmental Protection Agency (USEPA) Method 8015, modified, and for BTEX, by USEPA Method 8020. One sample (MW-2-2) was analyzed for total organic lead by the State of California Department of Health Services (DHS) Method (Leaking Underground Fuel Tank (LUFT) Manual). Two samples (MW-4-3 and MW-4-5) were analyzed for TPH as diesel by USEPA Method 8015, modified; for total oil and grease by Standard Methods 503E; and for Metals USEPA Methods 7130 (Cadmium), 7190 (Chromium), 7420 (Lead), 7520 (Nickel), and 7950 (Zinc).

The soil generated during drilling and the water used to steam-clean the drilling equipment were containerized in 55-gallon drums, approved by the United States Department of Transportation (DOT), sealed and stored on site. Chevron was then notified that the water was ready for disposal. Based on the analytical results of the soil samples collected from borings MW-1 through MW-4, the soil was approved for disposal at BFI Vasco Road Landfill, a Class III disposal facility located in Livermore, California. On

August 30, 1991 the soil was transported to Vasco Road Landfill by Dillard Trucking, located in Byron, California.

3.4 MONITOR WELL DEVELOPMENT AND GROUND-WATER SAMPLING

On August 13, 1991, the wells were developed by Geraghty & Miller field personnel using a mechanical pump to remove sediment from the sand pack and well casing. The purged water was containerized in DOT approved, 55-gallon drums, and Chevron was notified that the purge water was ready for disposal. On August 21, 1991, depth to water and total depth measurements were obtained from each well using an oil/water interface probe and each well was checked for the presence of liquid-phase hydrocarbons. Liquid-phase hydrocarbons were not observed in any of the monitor wells (Table 1).

Prior to sampling, Monitor Wells MW-1 and MW-3 were purged of at least three casing volumes of water by mechanical pumping. MW-2 and MW-4 were pumped dry after purging approximately 1 to 1.5 casing volumes. The purged water was monitored for pH, temperature, and conductivity before being containerized in DOT approved, 55-gallon drums for proper disposal by Chevron. Ground-water sampling parameters are presented in Table 2. Ground-water samples were collected using a new disposable polyethylene bailer for each well into appropriate USEPA approved 40-ml volatile organic analysis vials. Samples were preserved with hydrochloric acid, placed on ice, and transported, along with the appropriate chain-of-custody documentation, to Superior Precision Analytical, Inc. in Martinez, California.

The samples were analyzed for TPH as gasoline by USEPA Method 8015, modified, for BTEX by USEPA Method 8020, and for total organic lead by DHS Method (LUFT Manual). Additionally, the sample collected from Monitor Well MW-4 was analyzed for TPH as diesel by USEPA Method 8015, modified, and for volatile organic compounds by USEPA Method 8240. A water sample was collected from Monitor Well MW-4 on November 11, 1991, and analyzed for by oil and grease by Standard Methods 5520F.

4.0 HYDROGEOLOGIC SETTING

The site is located in the Alameda Bay Plain Basin, an area of subsidence bounded to the east by the Oakland Hills. The highlands that include the Berkeley-Oakland Hills are composed of the Franciscan Formation and remnants of the Cenozoic rocks accumulated when the area was a basin, before the area was uplifted. The Franciscan Formation consists of lithified sandstone, chert, and metamorphosed basalt. The Cenozoic rocks are composed of sandstone, shale, conglomerate, and chert, and were tilted and faulted. As the highlands were eroded, the basins were filled with sand, gravel, and clay eroded from the Cenozoic cover (Helley and LaJoie).

The geology of the region surrounding the site consists of miscellaneous bay mud, or sand dredged from the bay; composition varies from place to place and is difficult to distinguish from natural Bay Mud or Merritt sand (United States Geological Survey Miscellaneous Geologic Investigations, Map I-239). Prior to the early 1960's, this portion of Alameda was beneath the San Francisco Bay. It was artificially filled using locally derived dredgings in the 1960's creating this portion of Alameda referred to locally as South Shore.

5.0 ASSESSMENT RESULTS

5.1 SITE HYDROGEOLOGIC CONDITIONS

Based on the soils encountered during assessment activities, the site is underlain by fine to medium-grained sand to a depth of 24.5 feet, the total depth explored. The interpreted stratigraphic conditions beneath the site are depicted in cross-section A-A' shown in Figure 4. The cross-section location is shown in Figure 5.

Depths to water and water calculation data are presented in Table 1. Ground-water elevations as measured on August 21, 1991 are depicted on Figure 3. The depth to water ranged from 6.10 (MW-3) to 7.10 (MW-1) feet below ground surface. The maximum difference in water elevation between the wells was 0.06 feet which indicates that the ground-water surface is relatively flat within the area defined by the ground-water monitor wells. The regional ground-water flow direction is to the west towards the San Francisco Bay.

5.2 SOIL ANALYTICAL RESULTS

A total of eight soil samples were submitted for laboratory analysis. The analytical results are presented in Table 3. Copies of the certified analytical reports are presented in Appendix E. TPH as gasoline and BTEX were not detected in any of the samples. Two samples (MW-4-3 and MW-4-5) were analyzed for TPH as diesel and for total oil and grease. These samples were non-detected for these constituents. These samples were also analyzed for metals. Cadmium and lead were not detected. Chromium, zinc, and total nickel were detected at concentrations ranging from 15 mg/kg of chromium in soil sample MW-4-3 to 22 mg/kg of total nickel in soil sample MW-4-5. One sample (MW-2-2) was analyzed for total organic lead which was not detected. A summary of the results is presented in Table 4.

5.3 GROUND-WATER ANALYTICAL RESULTS

Analytical results for the ground-water samples collected from Monitor Wells MW-1 through MW-4 are presented in Table 5. Copies of the certified analytical reports are presented in Appendix E. The only petroleum hydrocarbon compound detected in the

water samples collected from Monitor Wells MW-1, MW-3, and MW-4, was benzene, which was detected at a concentration of 0.6 µg/L (MW-4). TPH as gasoline (430 µg/L), benzene (170 µg/L), toluene (0.9 µg/L), ethylbenzene (1.0 µg/L), and total xylenes (3.6 µg/L) were detected in the water sample collected from Monitor Well MW-2. Total lead was not detected in ground-water samples from any well. An additional sample from Monitor Well MW-4 analyzed for oil and grease by Standard Methods 5520F was non detect for this constituent.

6.0 DISCUSSION

Petroleum hydrocarbons were not detected in any of the soil samples collected in relation to assessment activities. The area of soil impacted by petroleum hydrocarbons is therefore limited to that originally found and excavated during tank and product line replacement activities in February 1991.

Ground-water flow beneath the site is toward the southwest which is toward the San Francisco Bay with a relatively flat gradient. Monitor Well MW-3 is downgradient of the other Monitor Wells. Petroleum hydrocarbons were detected at low concentrations in water samples collected from Monitor Wells MW-2 and MW-4. Benzene (0.6 µg/L) was detected in the water sample from MW-4, located in the vicinity of the waste oil tank. However, total oil and grease was not detected in the water sample from MW-4. TPH as gasoline (430 µg/L), benzene (170 µg/L), toluene (0.9 µg/L), ethylbenzene (1.0 µg/L), and total xylenes (3.6 µg/L) were detected in the water sample collected from Monitor Well MW-2. No petroleum hydrocarbons were detected in the water samples from MW-1 or MW-3. These water samples indicate no downgradient migration of hydrocarbon-impacted ground water beneath the site.

7.0 REFERENCES

Helley, E.J., LaJoie, K.R., U.S. Geological Survey et al. 1979. Flatland Deposits of the San Francisco Bay Region, California–Their Geology and Engineering Properties, and Their Importance to Comprehensive Planning. U.S. Department of the Interior.

United States Geological Survey, 1957, Areal and Engineering Geology of the Oakland West Quadrangle (Miscellaneous Geologic Investigations, Map I-239), by Dorothy H. Radbruch.

ATTACHMENTS
TABLES AND FIGURES

Table 1: Ground-Water Monitoring Data, Chevron Service Station #9-6607, 2340 Otis Drive, Alameda, California;

Monitor Well	Date	TOC Elevation	DTW	DTB	Water Elevation	LPH Thickness
MW-1	21-Aug-91	7.12	6.10	24.60	1.02	---
MW-2	21-Aug-91	7.43	6.40	24.90	1.03	---
MW-3	21-Aug-91	8.07	7.10	24.95	0.97	---
MW-4	21-Aug-91	7.85	6.85	20.85	1.00	---

Notes:
Measurements are in feet.
TOC: Top of casing above mean sea level.
DTW: Depth to water below top of casing.
DTB: Depth to bottom below top of casing.
LPH: Liquid-phase hydrocarbons.
---: No liquid-phase hydrocarbons observed.

TABLE 2: Ground-Water Sampling Data, Chevron Service Station #9-6607, 2340 Otis Drive, Alameda, California;

Well Number	Date Collected	Casing Diameter (inches)	Calculated Purge Volume (a) (gallons)	Actual Purge Volume (gallons)	Final pH	Final SC (µs/cm)	Final Temperature (°F)
MW-1	21-Aug-91	4	36.07	36.0	9.34	3,130	68.40
MW-2	21-Aug-91	4	36.07	14.0 ?	9.46	1,960	71.00
MW-3	21-Aug-91	4	34.80	35.0	9.18	3,520	65.30
MW-4	21-Aug-91	4	27.30	12.0	9.72	2,930	65.20

Notes:

(a) Based on three casing volumes.
SC Specific conductance.
µs/cm microsiemens per centimeter.

Project No. RC05002

Table 3: Soil Sample Analytical Results for Petroleum Hydrocarbons, Chevron Service Station #9-6607, 2340 Otis Drive, Alameda, California,

Sample ID #	TPH as Gasoline (mg/kg)(a)	Benzene (mg/kg)(b)	Toluene (mg/kg)(b)	Ethylbenzene (mg/kg)(b)	Xylenes (mg/kg)(b)	TPH as Diesel (mg/kg)(c)	Total Oil and Grease (mg/kg)(d)
MW-1-3	ND(<1)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	—	—
MW-1-5	ND(<1)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	—	—
MW-2-2	ND(<1)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	—	—
MW-2-5	ND(<1)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	—	—
MW-3-3	ND(<1)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	—	—
MW-3-5	ND(<1)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	—	—
MW-4-3	ND(<1)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<10)	ND(<50)
MW-4-5	ND(<1)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<10)	ND(<50)

Notes:
(a) Analyzed by USEPA Method 8015, modified.
(b) Analyzed by USEPA Method 8020.
(c) Analyzed by USEPA Method 8015, modified.
(d) Total Oil and Grease analyzed by Standard Methods 503E.
mg/kg: Milligrams per kilogram.
ND(<): Not detected within the method detection limit.
---: Not analyzed.

Soil samples analyzed by Superior Precision Analytical, Inc., San Francisco, California.

Table 4: Soil Sample Analytical Results for Metals, Chevron Service Station #9-6607, 2340 Otis Drive, Alameda, California;

Sample ID #	Total Organic Lead (mg/kg) (a)	Cadmium (mg/kg) (b)	Chromium (mg/kg) (b)	Lead (mg/kg) (b)	Zinc (mg/kg) (b)	Total Nickel (mg/kg) (c)
MW-1-3	---	---	---	---	---	---
MW-1-5	---	---	---	---	---	---
MW-2-2	ND(<2)	---	---	---	---	---
MW-2-5	---	---	---	---	---	---
MW-3-3	---	---	---	---	---	---
MW-3-5	---	---	---	---	---	---
MW-4-3	---	ND (<0.6)	15	ND (<10)	17	21
MW-4-5	---	ND (<0.6)	16	ND (<10)	17	22

Notes:

mg/kg Milligrams per kilogram.
ND(<) Below laboratory method detection limit.
--- Not analyzed.
(a) Samples analyzed by California Department of Health Services Method (Leaking Underground Fuel Tank Manual).
(b) Samples analyzed by USEPA Method SW-846.
(c) Samples analyzed by USEPA Method 7520.

Soil samples analyzed by Superior Precision Analytical, Inc., Martinez, California.

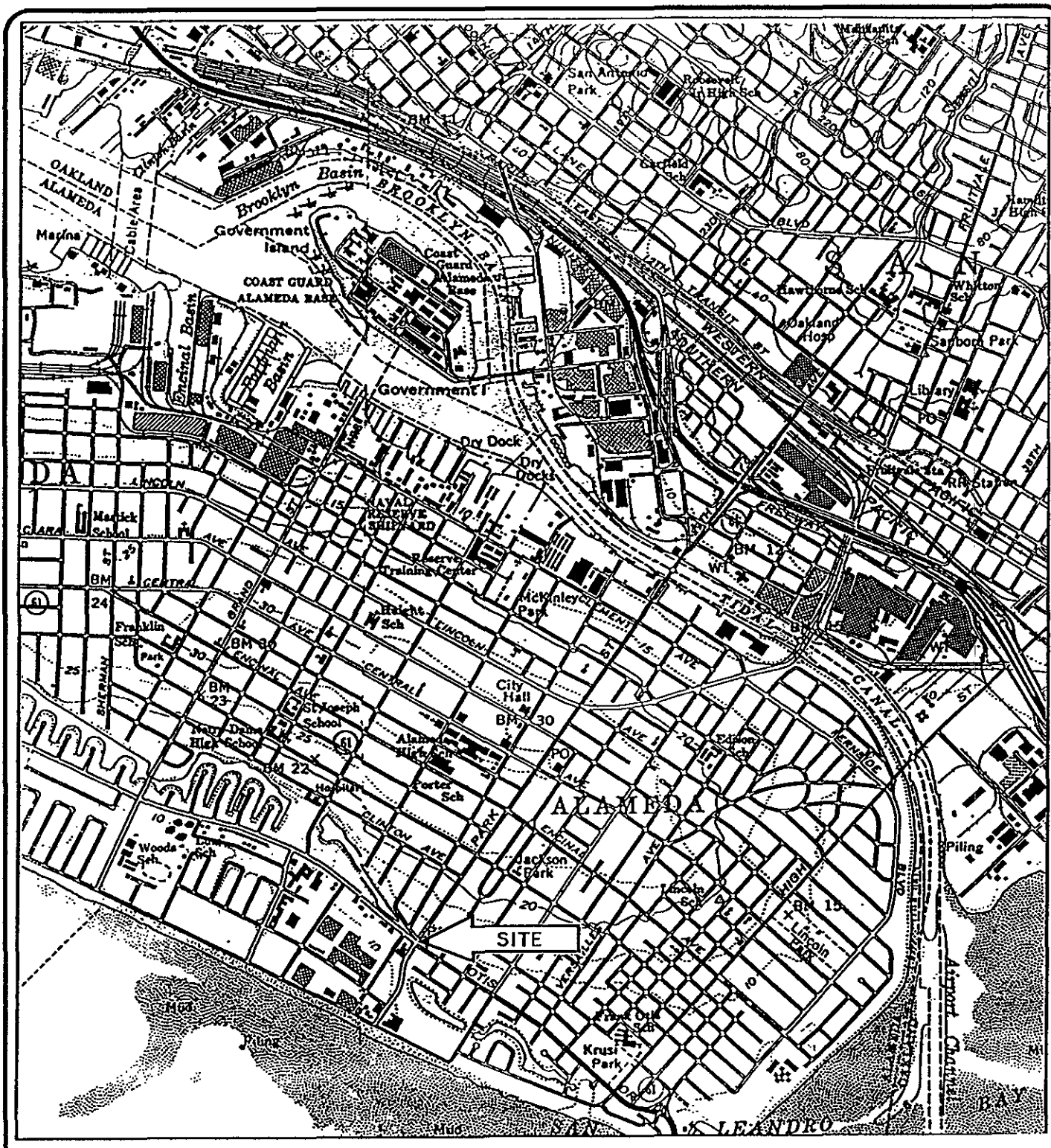
Table 5: **Ground-Water Analytical Results, Chevron Service Station #9-6607, 2340 Otis Drive, Alameda, California;**

Well	Date	TPH as gasoline (µg/L) (a)	Benzene (µg/L) (b)	Toluene (µg/L) (b)	Ethylbenzene (µg/L) (b)	Xylenes (µg/L) (b)	TPH as diesel (µg/L) (c)	Organic Lead (µg/L) (d)	Oil & Grease (µg/L) (e)
MW-1	21-Aug-91	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA	ND(<4000)	NA
MW-2	21-Aug-91	430	170	0.9	1.0	3.6	NA	ND(<4000)	NA
MW-3	21-Aug-91	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA	ND(<4000)	NA
MW-4 *	21-Aug-91	ND(<50)	0.6	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<50)	ND(<4000)	ND(<5000)

Notes:
(a) Analyzed by USEPA Method 8015, modified.
(b) Analyzed by USEPA 8020.
(c) Analyzed by USEPA Method 8015, modified.
(d) Analyzed by California Department of Health Services Method (Leaking Underground Fuel Tank Manual).
(e) Analyzed by USEPA Method 5520F (sampled 11 Nov 91).
µg/L: Micrograms per liter.

ND: Below laboratory method detection limit.
NA: Not analyzed.
* Sample was analyzed for Volatile Organic Compounds by USEPA Method 8240 and was non detect for any constituents.

Water samples analyzed by Superior Precision Analytical, Martinez, California.



Reference: USGS Oakland East and West Quadrangles
Scale: 1: 24,000

GERAGHTY & MILLER, INC.
Environmental Services

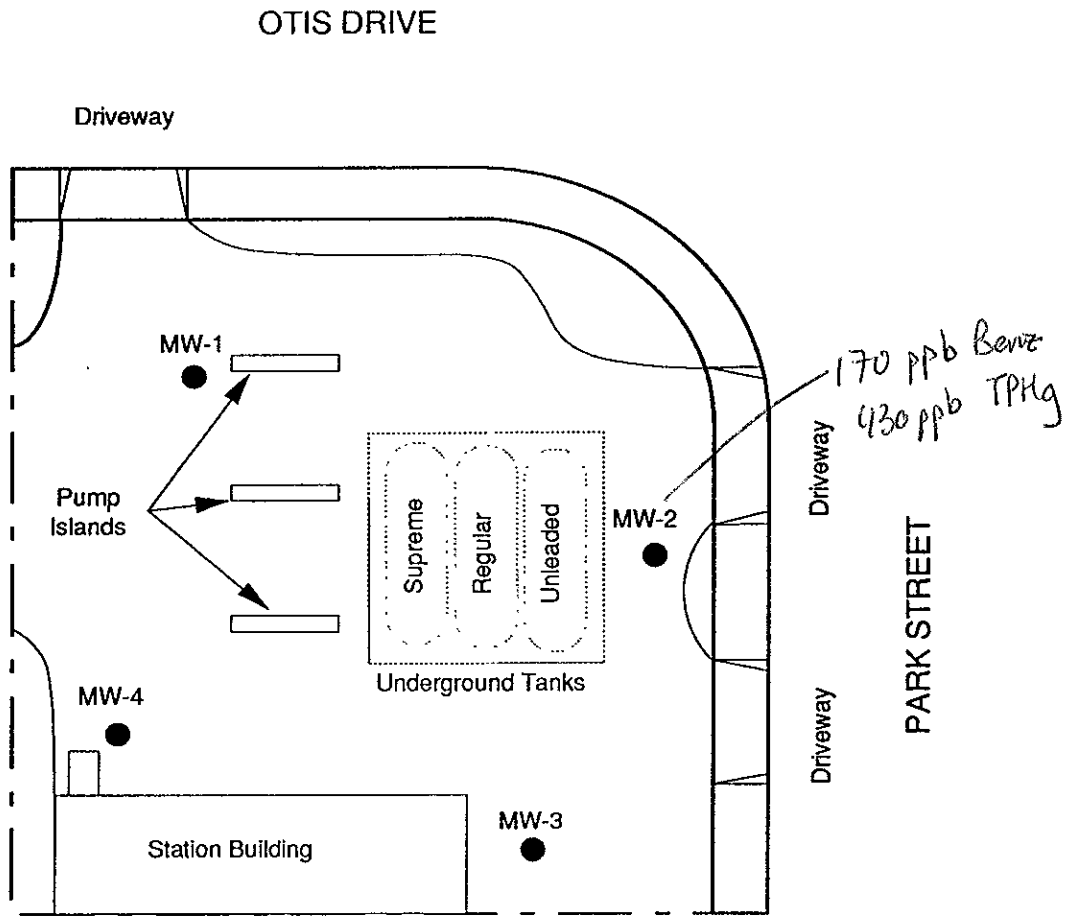
Project No. RC05002

SITE LOCATION MAP

Chevron Service Station #9-6607
2340 Otis Drive
Alameda, California

FIGURE

1



EXPLANATION

MW-4 ● Approximate location of Monitor Well

Property line

N

0 40

Scale feet

Reference: Blaine Tech Services, Inc. Report No. 910409-J-1

GERAGHTY & MILLER, INC. Environmental Services

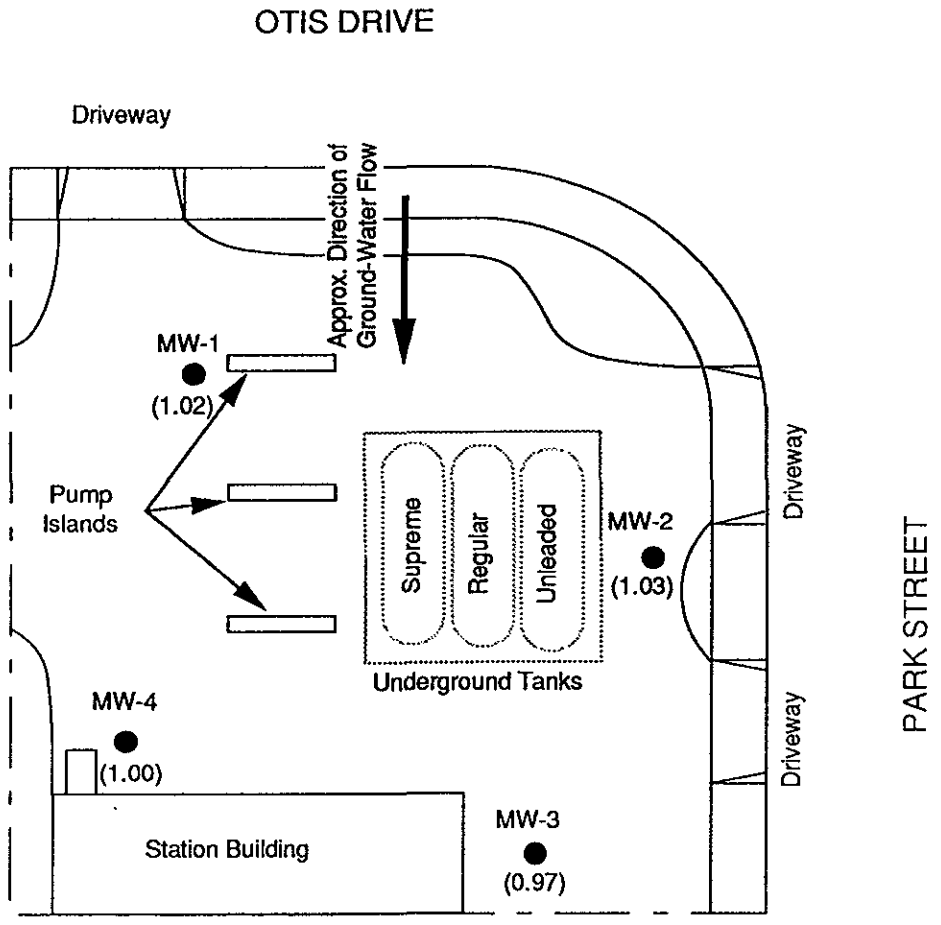
Project No. RC05002

SITE PLAN

Chevron Service Station #9-6607
2340 Otis Drive
Alameda, California

FIGURE

2



EXPLANATION

- Monitor Well
- Property line
- (1.02) Ground-water elevation in feet

N

0 40

Scale feet

Reference: Blaine Tech Services, Inc. Report No. 910409-J-1

GERAGHTY & MILLER, INC. Environmental Services

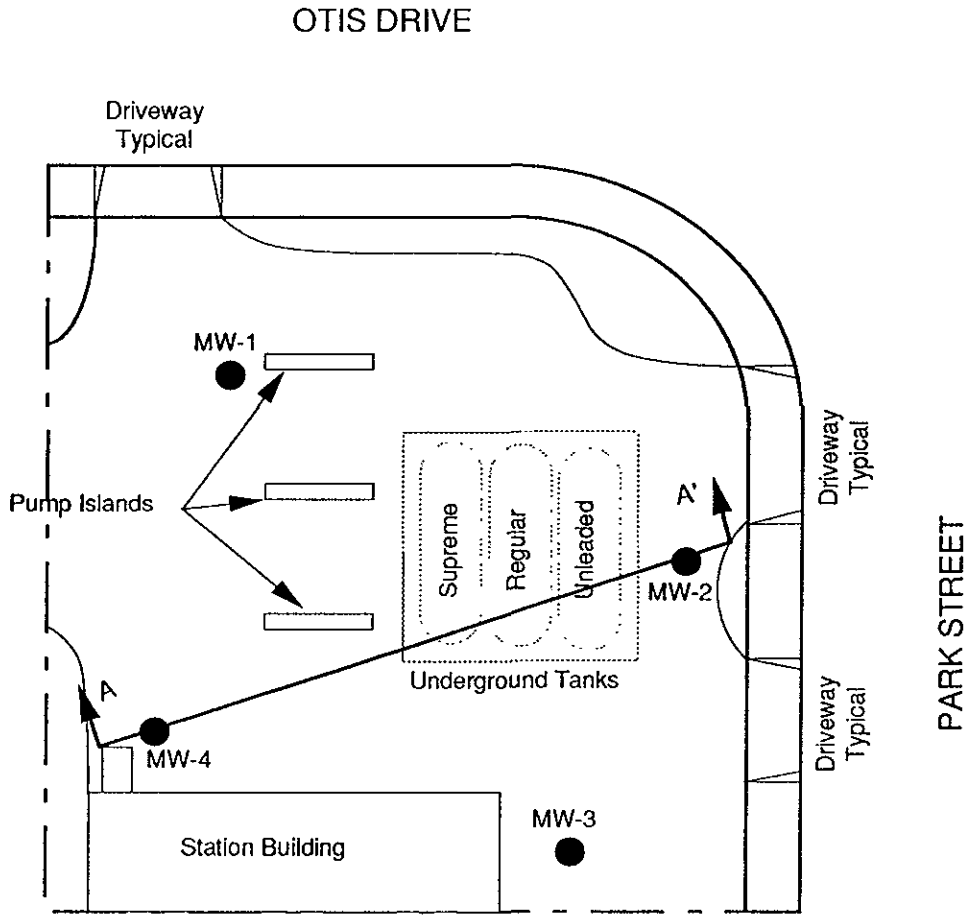
Project No. RC05002

GROUND-WATER ELEVATION MAP

Chevron Service Station #9-6607
2340 Otis Drive
Alameda, California

FIGURE

3



EXPLANATION

Monitor Well

Property line

Line of cross-section

N

0 40

Scale feet

Reference: Blaine Tech Services, Inc. Report No. 910409-J-1

GERAGHTY & MILLER, INC.
Environmental Services

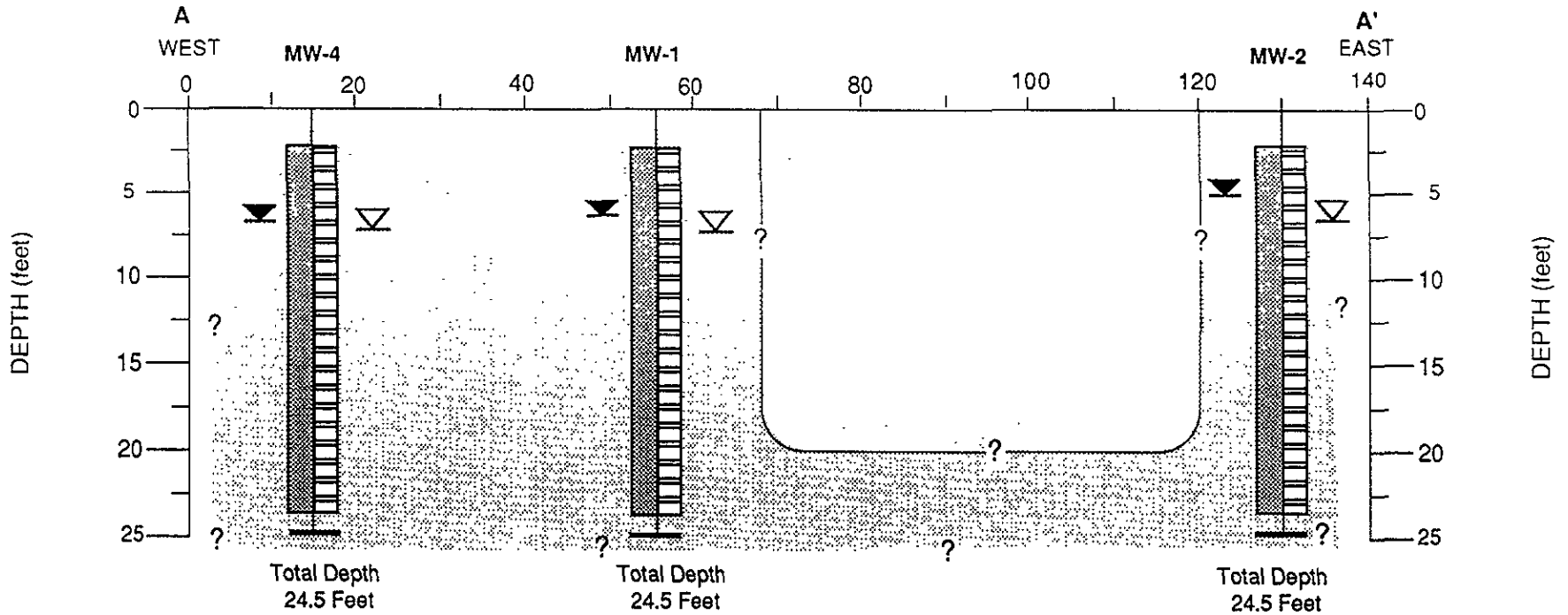
Project No. RC05002

PLAN VIEW OF CROSS SECTION

Chevron Service Station #9-6607
2340 Otis Drive
Alameda, California

FIGURE

5



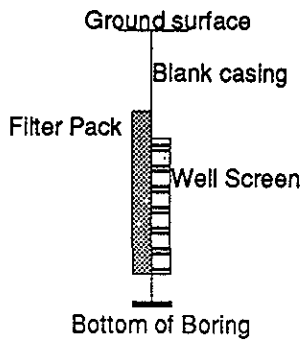
EXPLANATION

SP

Tank Backfill

Potentiometric Surface
Measured 8/21/91

Depth ground-water
encountered during
drilling.



Horizontal Scale 1"= 20'
Vertical Exagertion: 2X

GERAGHTY & MILLER, INC.
Environmental Services

Project No. RC05002

CROSS-SECTION A - A'

Chevron Service Station # 9-6607
2340 Otis Drive
Alameda, California

FIGURE

4

APPENDIX A

EXPLORATORY BORING LOGS
AND
MONITOR WELL CONSTRUCTION
SUMMARY SHEETS

KEY TO BORING LOG SYMBOLS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			SYMBOL/ GRAPHIC		DESCRIPTIONS
COARSE GRAINED SOILS (>50% by weight larger than #200 sieve)	GRAVELS (More than 50% of coarse fraction is larger than the #4 sieve size.)	Clean gravels with little or no fines	GW		Well Graded Gravels, Gravel - Sand Mixtures
			GP		Poorly Graded Gravels, Gravels - Sand Mixtures
		Gravels with over 12% fines	GM		Silty Gravels, Poorly Graded Gravel - Sand - Silt Mixtures
			GC		Clayey Gravels, Poorly Graded Gravel - Sand - Clay Mixtures
	SANDS (More than 50% of coarse fraction is smaller than #4 sieve size.)	Clean sands with little or no fines	SW		Well Graded Sands, Gravelly Sands
			SP		Poorly Graded Sands, Gravelly Sands
		Sands with over 12% fines	SM		Silty Sands, Poorly Graded Sand - Silt Mixtures
			SC		Clayey Sands, Poorly Graded Sand - Clay Mixtures
FINE GRAINED SOILS (>50% smaller than #200 sieve)	SILTS AND CLAYS (liquid limit less than 50)		ML		Inorganic Silts and Very Fine Sands, Silty or Clayey Fine Sands
			CL		Inorganic Clays of Low to Medium Plasticity; Gravelly, Sandy or Silty Clays; Lean Clays
			OL		Organic Clays and Organic Silty 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 Clays of Medium to High Plasticity, Organic Silts
HIGHLY ORGANIC SOILS			Pt		Peat and other Highly Organic Soils

Stabilized water level (date)

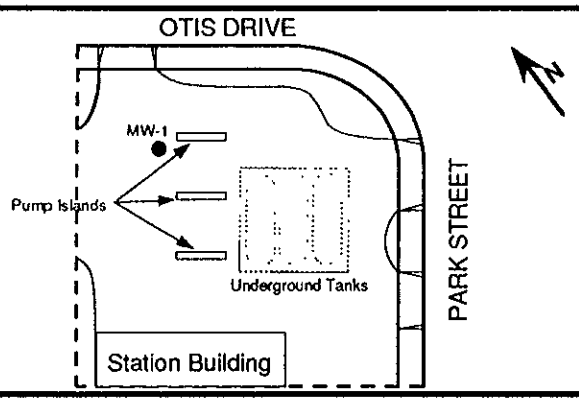
Water level encountered during drilling

Shaded interval represents soil sample. Blackened interval indicates portion of sample prepared for laboratory analysis.

Indicates no recovery of sample

● Monitoring well

	Asphaltic Concrete
	Portland Cement Concrete
	Cement Grout



LOG OF BORING MW-1

Chevron Service Station #9-6607
2340 Otis Drive
Alameda, California

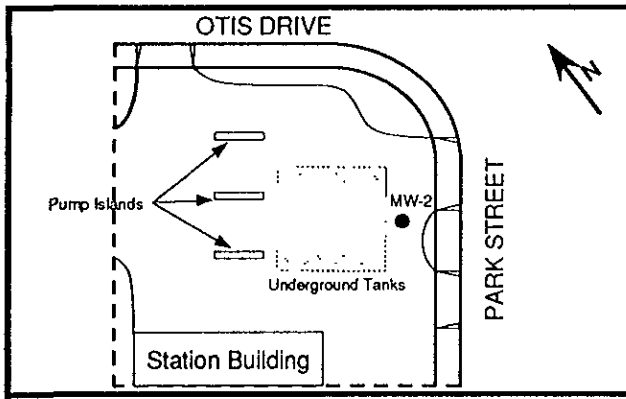
Project No.: RC05002
Logged By: Andy Bunten
Drilling Co.: West Hazmat
Driller: Doug Howard

Date Drilled: August 6, 1991
Drilling Method: 10" Hollow Stem Auger
Sampling Method: 2" Split Spoon
Inclination: Vertical

WELL CONSTRUCTION

10" Boring
Traffic-Rated Utility Box
Locking Water-Tight Cap
Concrete
Cement
Bentonite
4" Sch 40 PVC Blank Casing
2 Lone Star Sand
4" Sch 40 PVC 0.010" Slotted Casing
Bottom of slotted casing at 24.5 feet

Depth (ft.)	Blows/ft.	Samples	Graphic	DESCRIPTION
				Surface Elevation: 7.23 feet
				Casing Elevation: 7.12 feet
0				Asphaltic Concrete
				Fill Material
				SAND (SP), 2.5Y 5/6 light olive brown, well graded, 90-95% fine/medium-grained sand, 5-10% silt, moist
	14			@ 3 feet: moist/wet, medium dense
5				▽ 5 feet: water level visually observed
	4			@ 5 feet: 5Y4/1 dark grey, wet, loose
				▼ 6.10 feet, August 21, 1991
10				
	11			@ 10 feet: 10-15% silt, wet, medium dense
15				
	30			@ 15 feet: wet, medium dense
20				
	47			@ 20 feet: wet, dense
	39			@ 23 feet: wet, dense
25				Bottom of Boring: 24.5 Feet,10:10 AM, 8/6/91



LOG OF BORING MW-2

Chevron Service Station #9-6607
2340 Otis Drive
Alameda, California

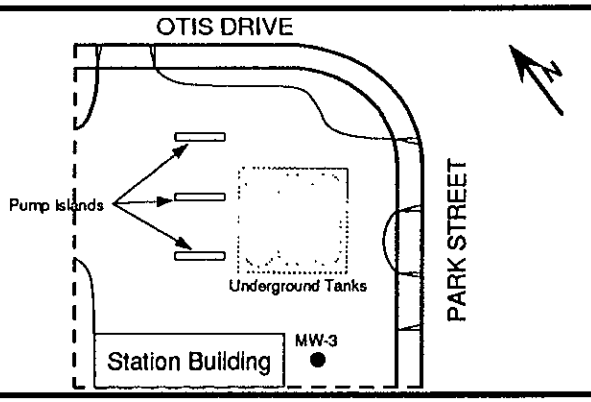
Project No.: RC05002
Logged By: Andy Bunten
Drilling Co.: West Hazmat
Driller: Doug Howard

Date Drilled: August 6, 1991
Drilling Method: 10" Hollow Stem Auger
Sampling Method: 2" Split Spoon
Inclination: Vertical

WELL CONSTRUCTION

10" Boring
Traffic-Rated Utility Box
Locking Water-Tight Cap
Concrete
Cement
Bentonite
4" Sch 40 PVC Blank Casing
2 Lone Star Sand
4" Sch 40 PVC 0.010" Slotted Casing
Bottom of slotted casing at 24.5 feet

Depth (ft.)	Blows/ft.	Samples	Graphic	DESCRIPTION
				Surface Elevation: 7.78 feet
				Casing Elevation: 7.43 feet
0				Asphaltic Concrete
				Fill Material
		Pushed		SAND (SP), 2.5Y 5/6 light olive brown, well graded, 90-95% fine/medium-grained sand, 5-10% silt, moist
				@ 3 feet: moist/wet, medium dense
				@ 3.5 feet: large cobble encountered, 6 inches in diameter
5	12			@ 5 feet: 5Y4/1 dark grey, very moist/wet, medium dense
				▽ 6 feet
				▼ 6.40 feet, August 21, 1991
10	14			@ 10 feet: wet, medium dense
15	31			@ 15 feet: wet, dense
20	42			@ 20 feet: wet, dense
	41			@ 23 feet: wet, dense
25				Bottom of Boring: 24.5 Feet, 12:35 PM, 8/6/91



LOG OF BORING MW-3

Chevron Service Station #9-6607
2340 Otis Drive
Alameda, California

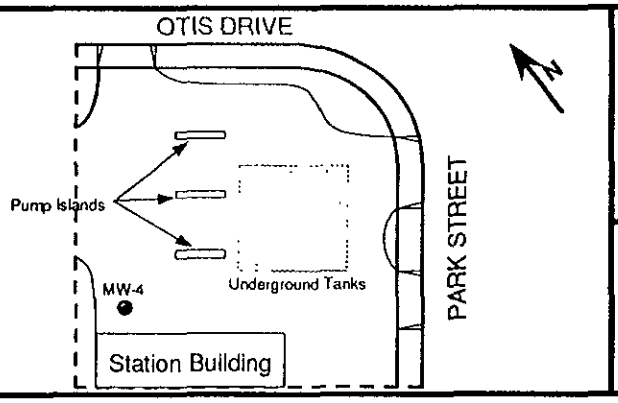
Project No.: RC05002
Logged By: Andy Bunten
Drilling Co.: West Hazmat
Driller: Doug Howard

Date Drilled: August 6, 1991
Drilling Method: 10" Hollow Stem Auger
Sampling Method: 2" Split Spoon
Inclination: Vertical

WELL CONSTRUCTION

10" Boring
Traffic-Rated Utility Box
Locking Water-Tight Cap
Concrete
Cement
Bentonite
4" Sch 40 PVC Blank Casing
2 Lone Star Sand
4" Sch 40 PVC 0.010" Slotted Casing
Bottom of slotted casing at 24.5 feet

Depth (ft.)	Blows/ft.	Samples	Graphic	DESCRIPTION
				Surface Elevation: 8.24 feet
				Casing Elevation: 8.07 feet
0				Asphaltic Concrete
				Fill Material
				SAND (SP), 2.5Y 5/6 light olive brown, well graded, 90-95% fine/medium-grained sand, 5-10% silt, moist
	Pushed			@ 3 feet: moist/wet
5	Pushed			@ 5 feet: 5Y4/1 dark grey, moist/wet
				@ 6 feet
				7.10 feet, August 21, 1991
10	13			@ 10 feet: wet, medium dense
15	26			@ 15 feet: wet, medium dense
20	39			@ 20 feet: wet, dense
	41			@ 23 feet: wet, dense
25				Bottom of Boring: 24.5 Feet, 2:30 PM, 8/6/91

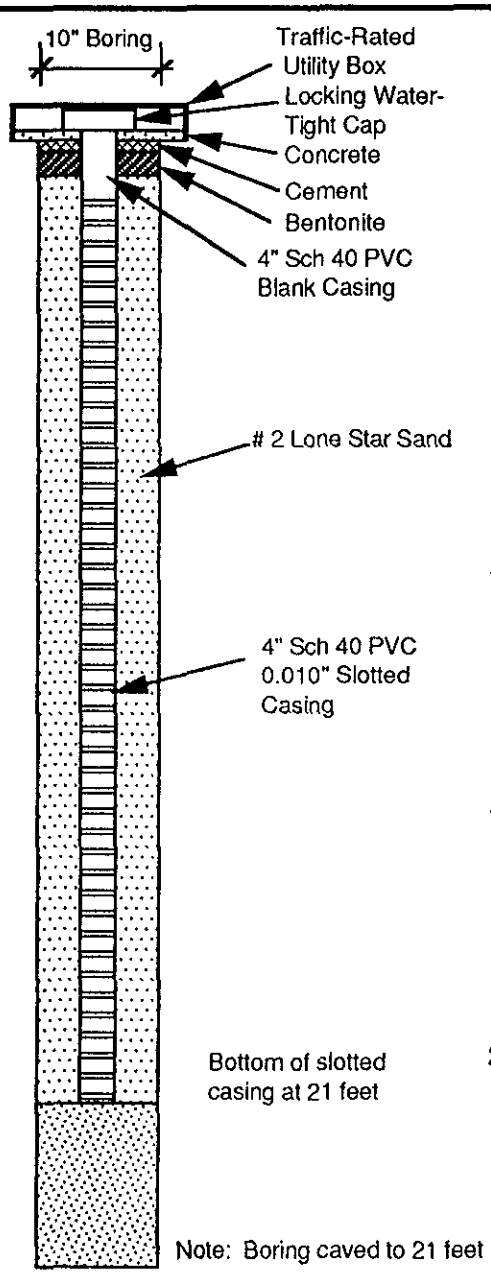


LOG OF BORING MW-4
Chevron Service Station #9-6607
2340 Otis Drive
Alameda, California

Project No.: RC05002
Logged By: Andy Bunten
Drilling Co.: West Hazmat
Driller: Doug Howard

Date Drilled: August 7, 1991
Drilling Method: 10" Hollow Stem Auger
Sampling Method: 2" Split Spoon
Inclination: Vertical

WELL CONSTRUCTION



Depth (ft.)	Blows/ft.	Samples	Graphic	DESCRIPTION
				Surface Elevation: 8.01 feet Casing Elevation: 7.85 feet
0				Asphaltic Concrete
				Fill Material
				SAND (SP), 2.5Y 5/6 light olive brown, well graded, 90-95% fine/medium-grained sand, 5-10% silt, moist
	15			@ 3 feet: moist, medium dense @ 4.5 feet: 5Y4/1 dark grey
5	23			@ 5 feet: moist, medium dense @ 7 feet 6.85 feet, August 21, 1991
10	16			@ 10 feet: wet, medium dense
15	47			@ 15 feet: wet, dense @ 16 feet: 2.5YR 5/6 light olive brown
20	58			@ 20 feet: 5Y4/1 dark grey, wet, very dense
	57			@ 23 feet: wet, very dense
25				Bottom of Boring: 24.5 Feet, 10:15 AM, 8/7/91

APPENDIX B

DRILLING AND SAMPLING PROCEDURES

APPENDIX B
DRILLING AND SOIL SAMPLING PROCEDURES

The exploratory borings were drilled using a Central Mining Equipment 75 auger rig with 10-inch outside diameter hollow stem augers. All drilling equipment which would enter the borehole was steam cleaned prior to drilling each boring. Soil samples were collected at approximately 5-foot depth intervals from 3 feet below the ground surface to the total depth of each boring and logged by a Geraghty & Miller geologist. Each sample was collected by advancing a California split-spoon sampler equipped with brass liners into the undisturbed soil beyond the tip of the augers. Prior to each use, the sampler was washed in a tri-sodium phosphate solution and rinsed with potable water. The soils encountered during drilling were classified and described according to the Unified Soil Classification System (ASTM D-2488).

Soil samples for laboratory analysis, retained in the brass liners, were sealed on each end with Teflon™ tape and plastic end caps, and placed in zip-lock, plastic bags. The soil samples were immediately labeled and placed on ice in preparation for transport to the laboratory. A chain-of-custody form was included with the samples to identify the samples and the analyses requested for each sample.

The middle brass liner from each 18-inch sample was emptied into a zip-lock plastic bag for headspace analysis for volatile organic compounds using a combustible gas detector (Gastech Model 1238). Results of the headspace analysis were used to select samples for laboratory analysis.

Upon completion, borings MW-1 through MW-4 were converted into ground-water monitor wells by installing 4-inch diameter, Schedule 40 polyvinylchloride (PVC) casing, the screened portion of which is composed of 0.010-inch machined slots. The annular space betwen the borehole and screen was filled with # 2 Lone Star sand to provide a filter pack. The screened interval was sealed from the surface by approximately 2-feet of bentonite followed by neat cement poured to one foot below the ground-surface. The wellhead of each well is protected by a traffic-rated utility box set in concrete. The monitor wells were secured with water-tight locking caps and locks.

Upon completion, the well location, top of casing elevation, and ground surface elevation for each monitor well were surveyed relative to mean sea level by Bates & Bailey of Berkeley, California. Northings and Eastings were also recorded.

APPENDIX C

WELL PERMITS

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94588 ♦ (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Chevron Service Station
2340 Otis Drive
Alameda, CA

CLIENT
Name Chevron USA Inc
Address PO Box 5004 Phone
City San Ramon Zip 94583

APPLICANT
Name Geraghty & Miller Inc
attn: Kelly Kline
Address 1050 Marina Way South Phone 415 233-2200
City Richmond Zip 94804

TYPE OF PROJECT

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

PROPOSED WATER SUPPLY WELL USE N/A
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

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

DRILLER'S LICENSE NO. 554979

WELL PROJECTS
Drill Hole Diameter 10 in. Maximum
Casing Diameter 4 in. Depth 25 ft.
Surface Seal Depth 3 ft. Number 4

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

ESTIMATED STARTING DATE 6 Aug 91
ESTIMATED COMPLETION DATE 30 Sep 91

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

APPLICANT'S SIGNATURE Kelly A Kline Date 7/25/91

FOR OFFICE USE

PERMIT NUMBER 91416
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling log and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

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

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

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

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 29 Jul 91
Wyman Hong

121989

APPENDIX D

SURVEY DATA

BATES AND BAILEY
LAND SURVEYORS
15 SHATTUCK SQUARE • BERKELEY, CA 94704
TELEPHONE (415) 843-2007

P.O. BOX 592
BERKELEY, CA 94701-0592

August 19, 1991

Geraghty & Miller, Inc.
1050 Marina Way South
Richmond, CA 94804

Attn: Kate McCutcheon

RE: Your Job No. RC05002

Dear Kate,

Listed below are the monitor well elevations for the property at 2340 Otis Drive, Alameda.

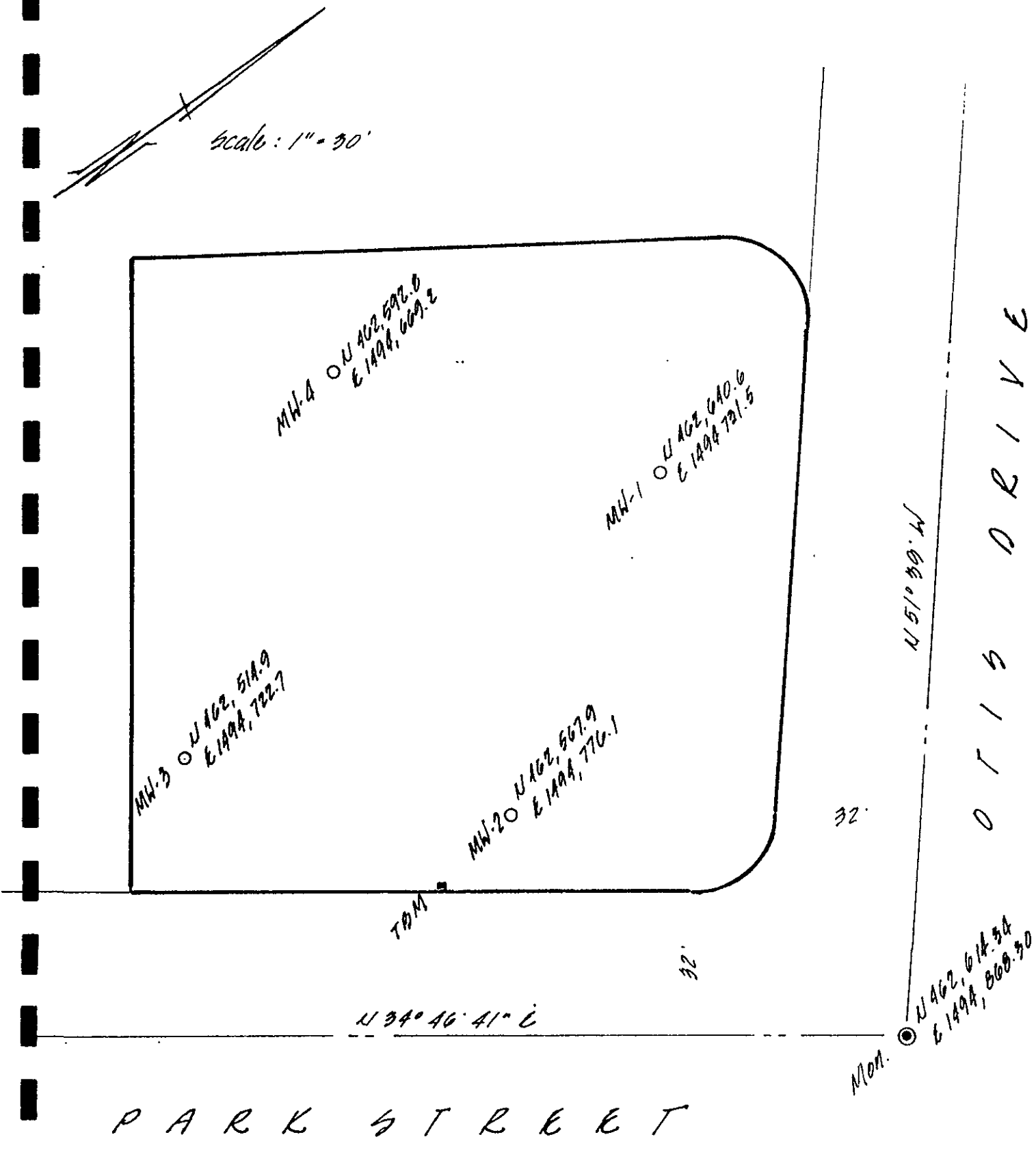
The elevations are based on USC & GS datum. The bench mark is located on the top of the curb at the catch basin on the east side of Park St. north of Otis Drive. The elevation is 8.05 feet. An on site bench mark (TBM) was set on the top of the curb adjacent to the southeast property line as noted on the sketch. That elevation is 7.90 feet.

WELL	CASING ELEVATION	GROUND ELEVATION
MW-1	7.12	7.23
MW-2	7.43	7.78
MW-3	8.07	8.24
MW-4	7.85	8.01

Yours truly,

Robert W. Wilson

RWW/dd


Scale: 1" = 30'
MW-4 ○ N 462,592.6 E 1494,669.2
MW-1 ○ N 462,640.6 E 1494,731.5
MW-3 ○ N 462,514.9 E 1494,722.7
MW-2 ○ N 462,567.9 E 1494,776.1
TBM
32'
32'
N 51° 30' W
N 34° 46' 41" E
Mon.
N 462,614.54 E 1494,868.30
PARK STREET
ORTIS DRIVE

APPENDIX E

COPIES OF CERTIFIED LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

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

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 12189
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RC05002

DATE RECEIVED: 08/08/91
DATE REPORTED: 08/15/91

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
12189- 1	MW-1-3	08/06/91	08/13/91
12189- 2	MW-1-5	08/06/91	08/13/91
12189- 3	MW-2-2	08/06/91	08/13/91
12189- 4	MW-2-5	08/06/91	08/13/91
12189- 5	MW-3-3	08/06/91	08/13/91
12189- 6	MW-3-5	08/06/91	08/13/91
12189- 7	MW-4-3	08/07/91	08/13/91
12189- 8	MW-4-10	08/07/91	/ /

Laboratory Number:	12189 1	12189 2	12189 3	12189 4	12189 5
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	ND<1	ND<1	ND<1	ND<1	ND<1
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	ND<.005	ND<.005	ND<.005	ND<.005	ND<.005
TOLUENE:	ND<.005	ND<.005	ND<.005	ND<.005	ND<.005
ETHYL BENZENE:	ND<.005	ND<.005	ND<.005	ND<.005	ND<.005
XYLENES:	ND<.005	ND<.005	ND<.005	ND<.005	ND<.005

Laboratory Number:	12189 6	12189 7	12189 8
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)		
OIL AND GREASE:	NA	ND<50	NA
TPH/GASOLINE RANGE:	ND<1	ND<1	NA
TPH/DIESEL RANGE:	NA	ND<10	NA
BENZENE:	ND<.005	ND<.005	NA
TOLUENE:	ND<.005	ND<.005	NA
ETHYL BENZENE:	ND<.005	ND<.005	NA
XYLENES:	ND<.005	ND<.005	NA

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

CERTIFICATE OF ANALYSIS

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 12189

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

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:
Minimum Detection Limit in Soil: 50mg/kg

Modified EPA-SW846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 1mg/kg
Standard Reference: 06/25/91

EPA-SW846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg
Standard Reference: 07/23/91

SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Soil: 0.005mg/kg
Standard Reference: 06/13/91

ANALYTE	REFERENCE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Oil & Grease	04/02/91	10mg	72/80	5.3	50-130
Diesel	06/25/91	1000ug	96/111	7.4	75-125
Gasoline	07/23/91	200ng	103/103	0.6	59-121
Benzene	06/13/91	200ng	105/103	1.9	70-125
Toluene	06/13/91	200ng	100/99	1.0	74-116
Ethyl Benzene	06/13/91	200ng	101/99	1.5	75-120
Total Xylene	06/13/91	600ng	103/101	1.8	75-119

Richard Srna, Ph.D.
Cecilia G Jovgun (for)
Laboratory Director

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

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 83698
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC05002

DATE RECEIVED: 08/08/91
DATE REPORTED: 08/15/91

ANALYSIS FOR TOTAL ORGANIC LEAD
by DHS Method (LUFT Manual)

LAB #	Sample Identification	Concentration (mg/Kg)
1	MW-2-2	ND <2.0

mg/Kg - parts per million (ppm)

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

QAQC Summary: MS/MSD Average Recovery : 104%
Duplicate RPD : 2

Richard Srna, Ph.D.
Laboratory Manager

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

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 83698
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC05002

DATE RECEIVED: 08/08/91
DATE REPORTED: 08/15/91

ANALYSIS FOR CADMIUM, CHROMIUM, LEAD & ZINC
by EPA SW-846 Methods 7130, 7190, 7420, 7950 Respectively

LAB #	Sample Identification	Concentration (mg/Kg) Cadmium	Chromium	Lead	Zinc
2	MW-4-3	ND <0.6	15	ND <10	17

mg/Kg - parts per million (ppm)

Method Detection Limit for Cadmium in Soil: 0.6 mg/Kg
Method Detection Limit for Chromium in Soil: 6 mg/Kg
Method Detection Limit for Lead in Soil: 10 mg/Kg
Method Detection Limit for Zinc in Soil: 0.2 mg/Kg

QAQC Summary: MS/MSD Average Recovery : 99%
Duplicate RPD : 1

Richard Srna, Ph.D.
Laboratory Manager

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

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 83698
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC05002

DATE RECEIVED: 08/08/91
DATE REPORTED: 08/15/91

ANALYSIS FOR TOTAL NICKEL
by SW-846 Method 7520

LAB #	Sample Identification	Concentration (mg/Kg) Total Nickel
2	MW-4-3	21

mg/Kg - parts per million (ppm)

Method Detection Limit for Nickel in Soil: 3 mg/Kg

QAQC Summary: MS/MSD Average Recovery :100%
Duplicate RPD : 1%

Richard Srna, Ph.D.
Laboratory Manager

Fax copy of Lab Report and COC to Chevron Contact: ☒ No

Chain-of-Custody-Record

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

Chevron Facility Number: 9-6607
Facility Address: 2340 Otis Drive, Alameda
Consultant Project Number: RC05002
Consultant Name: Geraghty & Miller
Address: 1050 Marina Way South
Project Contact (Name): Andy Bunten
(Phone) (415)233-3200 (Fax Number) 233-3204

Chevron Contact (Name): Nancy Vukelich
(Phone) (415) 842-9581
Laboratory Name: Superior 1555 Burke SF
Laboratory Release Number: 1424780
Samples Collected by (Name): Andy Bunten
Collection Date: 8/7 + 8/7 1991
Signature: Andy Bunten

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease 503 D&F	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	Lead (DHS LUFT method)					Remarks
MW-1-3		1	S	G	9:00	—	YES	X													please note:
MW-1-5		1	S	G	9:30	—	YES	X													Project # on
MW-2-2		1	S	G	11:30	—	YES	X								X					samples labeled
MW-2-5		1	S	G	12:00	—	YES	X													as RC05001, it
MW-3-3		1	S	G	1:46	—	YES	X													should be
MW-3-5		1	S	G	1:58	—	YES	X													RC05002
MW-4-3		1	S	G	9:52	—	YES	X	X	X			X		X						
MW-4-5		1	S	G	9:52	—	YES	X	X	X			X		X						

received MW-4-10 not MW-4-5. Cancel analysis as per Andy Bunten 8/14/91

RECVD 8/8/91 1430 SAL

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Fran Roberts		8-8 12:28	[signature]	Express #	8-8-91 1228
			[signature]	Express-II	8/8/91 1330
[signature]	Express-II	8/8/91	Received For Laboratory By (Signature): [signature] X701	Express II	8-8-91 1430

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

COC-3.DWG/03 91/HCH

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

CERTIFICATE OF ANALYSIS

LABORATORY NO. 12189-7
CLIENT: GERAGHTY & MILLER INC.

DATE RECEIVED: 08/08/91
DATE REPORTED: 08/15/91
JOB NO. RC05002

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-4-3

Compound	ug/kg	Compound	ug/kg
Chloromethane	ND<50	Cis-1,3-Dichloropropene	ND<15
Bromomethane	ND<50	Trichloroethene	ND<15
Vinyl Chloride	ND<50	Dibromochloromethane	ND<15
Chloroethane	ND<50	1,1,2-Trichloroethane	ND<15
Methylene Chloride	ND<50	Benzene	ND<5
Acetone	ND<50	Trans-1,3-Dichloropropene	ND<15
Carbon disulfide	ND<15	2-Chloroethyl vinyl ether	ND<15
Trichlorofluoromethane	ND<15	Bromoform	ND<15
1,1-Dichloroethene	ND<15	4-Methyl-2-Pentanone	ND<50
1,1-Dichloroethane	ND<15	2-Hexanone	ND<50
1,2-Dichloroethene (total)	ND<15	Tetrachloroethene	ND<15
Chloroform	ND<15	1,1,2,2-Tetrachloroethane	ND<15
1,2-Dichloroethane	ND<5	Toluene	ND<15
2-Butanone	ND<100	Chlorobenzene	ND<15
1,1,1-Trichloroethane	ND<15	Ethylbenzene	ND<15
Carbon Tetrachloride	ND<15	Styrene	ND<15
Vinyl Acetate	ND<50	Total Xylenes	ND<15
Bromodichloromethane	ND<15	1,3-Dichlorobenzene	ND<15
1,2-Dichloropropane	ND<15	1,2&1,4-Dichlorobenzenes	ND<15

ug/kg = part per billion (ppb)

QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	98%	76-114	81-117
Toluene-d8.....	102%	88-110	81-140
Bromofluorobenzene.....	94%	86-115	74-121

comments:

Richard Srna, Ph.D.

Cecilia G Joaquin (for)
Laboratory Director

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

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 12100

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

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:
Minimum Detection Limit in Soil: 50mg/kg

Modified EPA-SW846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 1mg/kg
Standard Reference: 06/25/91

EPA-SW846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg
Standard Reference: 07/23/91

SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Soil: 0.005mg/kg
Standard Reference: 06/13/91

ANALYTE	REFERENCE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Oil & Grease	04/02/91	10mg	72/80	5.3	50-130
Diesel	06/25/91	1000ug	96/111	7.4	75-125
Gasoline	07/23/91	200ng	103/103	0.6	59-121
Benzene	06/13/91	200ng	105/103	1.9	70-125
Toluene	06/13/91	200ng	100/99	1.0	74-116
Ethyl Benzene	06/13/91	200ng	101/99	1.5	75-120
Total Xylene	06/13/91	600ng	103/101	1.8	75-119

Richard Scina, Ph.D.
Laboratory Director

(2169)

Fax copy of Lab Report and COC to Chevron Contact: ☒ No

Chain-of-Custody-Record

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

Chevron Facility Number: 9-6607
Facility Address: 2340 Otis Drive, Alameda
Consultant Project Number: RC05002
Consultant Name: Geraghty & Miller
Address: 1050 Marina Way South
Project Contact (Name): Andy Bunten
(Phone) (415)233-3200 (Fax Number) 233-3264

Chevron Contact (Name): Nancy Vukelich
(Phone) (415) 842-9581
Laboratory Name: Superior 1535 Burke S.F.
Laboratory Release Number: 5424780
Samples Collected by (Name): Andy Bunten
Collection Date: 8/6 + 8/7, 1991
Signature: Andy Bunten

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease ~~(5520)~~ 503 D+E	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	Lead (DHS LUFT manual)				Remarks
mw-1-3		1	S	G	9:00	—	YES	X												please note: project # on samples labeled as RC05001, it should be RC05002
mw-1-5		1	S	G	9:30	—	YES	X												
mw-2-2		1	S	G	11:30	—	YES	X								X				
mw-2-5		1	S	G	12:00	—	YES	X												
mw-3-3		1	S	G	1:46	—	YES	X												
mw-3-5		1	S	G	1:58	—	YES	X												
mw-4-3		1	S	G	9:32	—	YES	X	X	X			X		X					
mw-4-5		1	S	G	9:52	—	YES	X	X	X			X		X					

Received MW-4-10, not MW-4-5. Cancel analyses on ~~LAB~~ MW-4-10 as per Andy Bunten 8/14/91 CSR

RECD 8/8/91 1430 SAL

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Joan Roberts		8-8 12:28	Gordon	Express #	8-8-91 1228
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
				Express #	8/8/91 1356
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
	Express #	8/8/91 1417	X701	Express #	8-8-91 1430

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

COC-3.DWG/03 91/HCH

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

CERTIFICATE OF ANALYSIS

LABORATORY NO. 12204-1
CLIENT: Geraghty & Miller

DATE RECEIVED: 06/14/91
DATE REPORTED: 06/21/91
JOB NO. RC05002

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-4-5

Compound	ug/kg	Compound	ug/kg
Chloromethane	ND<50	Cis-1,3-Dichloropropene	ND<15
Bromomethane	ND<50	Trichloroethene	ND<15
Vinyl Chloride	ND<50	Dibromochloromethane	ND<15
Chloroethane	ND<50	1,1,2-Trichloroethane	ND<15
Methylene Chloride	ND<50	Benzene	ND<5
Acetone	ND<50	Trans-1,3-Dichloropropene	ND<15
Carbon disulfide	ND<15	2-Chloroethyl vinyl ether	ND<15
Trichlorofluoromethane	ND<15	Bromoform	ND<15
1,1-Dichloroethene	ND<15	4-Methyl-2-Pentanone	ND<50
1,1-Dichloroethane	ND<15	2-Hexanone	ND<50
1,2-Dichloroethene (total)	ND<15	Tetrachloroethene	ND<15
Chloroform	ND<15	1,1,2,2-Tetrachloroethane	ND<15
1,2-Dichloroethane	ND<5	Toluene	ND<15
2-Butanone	ND<100	Chlorobenzene	ND<15
1,1,1-Trichloroethane	ND<15	Ethylbenzene	ND<15
Carbon Tetrachloride	ND<15	Styrene	ND<15
Vinyl Acetate	ND<50	Total Xylenes	ND<15
Bromodichloromethane	ND<15	1,3-Dichlorobenzene	ND<15
1,2-Dichloropropane	ND<15	1,2&1,4-Dichlorobenzenes	ND<15

ug/kg = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	102%	76-114	81-117
Toluene-d8.....	100%	88-110	91-140
Bromofluorobenzene.....	97%	86-115	74-121

Comments:

Richard Sena, Ph.D.

Cecile Gonzales (for)
Laboratory Director

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

C E R T I F I C A T E O F A N A L Y S I S

[illegible]: 12204
[illegible]: Knights & Miller Inc.
[illegible] JOB NO.: NC05002

DATE RECEIVED: 08/11/91
DATE REPORTED: 08/21/91

[illegible]	Customer Sample Identification	Date Sampled	Date Analyzed
[illegible]	[illegible] 5	08/07/91	08/15/91

[illegible] Number: 12204
1

ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)
[illegible]:	ND<50
[illegible]:	ND<1
[illegible]:	ND<10
[illegible]:	ND<.005
[illegible]:	ND<.005
[illegible]:	ND<.005
[illegible]:	ND<.005

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

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 12204

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
mg/kg = part [illegible] (ppm)

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:
Minimum Detection Limit in Soil: 50mg/kg

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 1mg/kg
Standard Reference: 06/25/01

EPA-SW846 Meth[illegible] 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg
Standard Ref[illegible]: 07/23/01

SW-846 Method [illegible]/BTXE
Minimum Quantitation Limit in Soil: 0.005mg/kg
Standard [illegible]: 06/13/01

ANALYTE	REFERENCE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Oil & Grease	04/02/01	10mg	72/80	5.3	50-130
Diesel	06/25/01	1000ug	82/78	5.0	75-125
Gasoline	07/23/01	200ng	98/102	4.2	59-121
Benzene	06/13/01	200ng	97/104	6.5	70-125
Toluene	06/13/01	200ng	100/106	5.3	74-116
Ethyl Benzene	06/13/01	200ng	101/107	5.8	75-120
Total Xylenes	06/13/01	600ng	102/107	5.1	75-119

Richard Srna, Ph.D.
Cecilia Jouguin (for)
Laboratory Director

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

Chain-of-Custo

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

Chevron Facility Number: 9-6607
Facility Address: 2340 Otis Drive, Alameda
Consultant Project Number: RC05002
Consultant Name: Geraghty + Miller
Address: 1050 Marina Way South
Project Contact (Name): Andy Bunter
(Phone) (415) 233-3200 (Fax Number) 233-3204

Chevron Contact (Name): Nancy Ukelich
(Phone) (415) 842-9581
Laboratory Name: Superior
Laboratory Release Number: 5424780
Samples Collected by (Name): Andy Bunter
Collection Date: 8/7/91
Signature: Andy Bunter

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520) 503 D+E	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	Remarks
mw-4-5		1	S	G	9:52	—	YES	X	X	X			X		X	

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

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Joan Roberts		8/14 10:53		Express-It	8-14-91 1055
	Express-It	8/14 1235		Express-It R519	8/14/91 1202
	Express-It R519	8/14/91 1348	Received For Laboratory By (Signature) SDL		8/14/91 1548

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

COC-3.DWG/03 91/HCH

Superior Precision Analytical, Inc.
825 Arnold Drive, Ste. 114 • Martinez, California 94553 • (415) 229-1512 / fax (415) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 83709
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC05002

DATE RECEIVED: 08/14/91
DATE REPORTED: 08/18/91
DATE SAMPLED : 08/07/91

ANALYSIS FOR CADMIUM, CHROMIUM, LEAD & ZINC
by EPA SW-846 Methods 7130, 7190, 7420, 7950 Respectively

LAB #	Sample Identification	Concentration (mg/Kg) Cadmium	Chromium	Lead	Zinc
1	MW-4-5	ND<0.6	16	ND<10	17

mg/Kg - parts per million (ppm)

Method Detection Limit for Cadmium in Soil: 0.6 mg/Kg
Method Detection Limit for Chromium in Soil: 6 mg/Kg
Method Detection Limit for Lead in Soil: 10 mg/Kg
Method Detection Limit for Zinc in Soil: 0.2 mg/Kg

QAQC Summary: MS/MSD Average Recovery : 96%
Duplicate RPD : 3

Richard Srna, Ph.D.
Laboratory Manager (for)

Superior Precision Analytical, Inc.
825 Arnold Drive, Ste. 114 • Martinez, California 94553 • (415) 229-1512 / fax (415) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 83709
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC05002

DATE RECEIVED:08/14/91
DATE REPORTED:08/20/91
DATE SAMPLED : 08/07/91

ANALYSIS FOR TOTAL NICKEL
by SW-846 METHOD 7520

LAB #	Sample Identification	Concentration(mg/Kg) Total Nickel
1	MW-4-5	22

mg/Kg - parts per million (ppm)

Method Detection Limit for Nickel in Soil: 3 mg/Kg

QAQC Summary: MS/MSD Average Recovery : 86%
Duplicate RPD : 8

Richard Srna, Ph.D.

(for)
Laboratory Manager

Chain of Custody Record

83709

Project No. KC05002
Project Name Geraghty & Miller
Samplers Onyx
P.O. No. 12204

Superior Analytical Laboratory
1555 Burke St. Unit I
San Francisco, CA 94124
(415) 647-2081

Sample Number	Date	Time	Location	Matrix	Number of Containers	Sample Preservation	TPH as Gasoline	BTXE	TPH as Diesel	Oil & Grease	8010	8240	5 metals
12204-1	8/14/91	-	MW-4-5	SOIL	1								X

please initial:
Samples S.[illegible] inside.
Appropr[illegible] containers
Samples preserved
VOA's without [illegible]
Comments

Relinquished By (Signature)	Date/Time	Received By (Signature)	Date/Time
Onyx A Nwogu	8/14/91	Brenda C. Ol	8/15/91 10:00 a.m.

REMARKS:
pls fax results to client
invoice S.F
(Due 8/21/91 wednesday)

Superior Precision Analytical, Inc.
825 Arnold Drive, Ste. 114 • Martinez, California 94553 • (415) 229-1512 / fax (415) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 83749
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC05002

DATE RECEIVED: 08/22/91
DATE REPORTED: 08/26/91

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
83749- 1	TB	08/21/91	/ /
83749- 2	MW-1	08/21/91	08/23/91
83749- 3	MW-2	08/21/91	08/23/91
83749- 4	MW-3	08/21/91	08/23/91
83749- 5	MW-4	08/21/91	08/26/91

Laboratory Number:	83749 1	83749 2	83749 3	83749 4	83749 5
ANALYTE LIST	Amounts/Quantitation Limits (ug/L)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	NA	ND<50	430	ND<50	ND<50
TPH/DIESEL RANGE:	NA	NA	NA	NA	ND<50
BENZENE:	NA	ND<0.5	170	ND<0.5	0.6
TOLUENE:	NA	ND<0.5	0.9	ND<0.5	ND<0.5
ETHYL BENZENE:	NA	ND<0.5	1.0	ND<0.5	ND<0.5
XYLENES:	NA	ND<0.5	3.6	ND<0.5	ND<0.5

Superior Precision Analytical, Inc.
825 Arnold Drive, Ste. 114 • Martinez, California 94553 • (415) 229-1512 / fax (415) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 83749

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
ug/L = part per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Water: 5000ug/L

Modified EPA-SW846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 50ug/L
Standard Reference: 07/20/91

EPA-SW846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 50ug/L
Standard Reference: 06/26/91

SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Water: 0.5ug/L
Standard Reference: 07/08/91

ANALYTE	REFERENCE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Oil & Grease	NA	NA	NA	NA	NA
Diesel	07/20/91	200 ppm	117/102	14	75-125
Gasoline	06/26/91	200 ng	92/77	18	70-130
Benzene	07/08/91	200 ng	96/91	6	70-130
Toluene	07/08/91	200 ng	90/88	3	70-130
Ethyl Benzene	07/08/91	200 ng	94/92	2	70-130
Total Xylene	07/08/91	200 ng	100/98	3	70-130

Richard Srna, Ph.D.
Laboratory Director

Superior Precision Analytical, Inc.
825 Arnold Drive, Ste. 114 • Martinez, California 94553 • (415) 229-1512 / fax (415) 229-1526

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 83749
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC05002

DATE RECEIVED: 08/22/91
DATE REPORTED: 08/26/91
DATE SAMPLED : 08/21/91

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

LAB #	Sample Identification	Concentration (mg/L)
2	MW-1	ND<4
3	MW-2	ND<4
4	MW-3	ND<4
5	MW-4	ND<4

mg/L - parts per million (ppm)

Method Detection Limit for Organic Lead in Water: 4 mg/L

QAQC Summary: MS/MSD Average Recovery : 102/95%
Duplicate RPD : 7

Richard Srna, Ph.D.

Laboratory Director

[redacted]

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☒ No   92249

Chain-of-Custody-Record

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

Chevron Facility Number: 9-6607
Facility Address: 2340 Otis Drive, Alameda
Consultant Project Number: RC05002
Consultant Name: Geraghty & Miller, Inc.
Address: 1050 Marina Way South, Richmond, CA 94804
Project Contact (Name): Kate McCutchen
(Phone): 415/233-3200 (Fax Number): 415/233-3204

Chevron Contact (Name): Nancy Vukelich
(Phone): 415 842 9500
Laboratory Name: Superior
Laboratory Release Number: 5424780
Samples Collected by (Name): Alex Rios
Collection Date: 21 August 91
Signature: Alex Rios [signature]

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	VOC 624	Organic Lead DHS-LUFT				Remarks
TB	1	2	W	G		HCL	✓	✓								[crossed out]	✓				hold
MW-1	2	4	W	G		"	✓	✓								[crossed out]	✓				
MW-2	3	4	W	G		"	✓	✓								[crossed out]	✓				
MW-3	4	4	W	G		"	✓	✓								[crossed out]	✓				
MW-4	5	5	W	G		"	✓	✓	✓							✓	✓				

Please Initial:
Samples Stored in ice. BLO
Appropriate containers BLO
Samples preserved BLO
VOA's without headspace BLO
Comments

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
[signature]	Geraghty & Miller	08-22-91 8:26	[signature]	Express	8-22-91 1340
[signature]	Express	8-22-91 1445			
			Received For Laboratory By (Signature): Brenda L. O[signature]		8/22/91 15:00

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

COC-3.DWG/03 91/HCH

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

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO. 12233-1
CLIENT: Geraghty & Miller

DATE RECEIVED: 08/22/91
DATE REPORTED: 08/26/91
JOB NO. RC05002

EPA SW-846 METHOD 8240 - VOLATILE ORGANICS
by Gas Chromatography/ Mass Spectrometry

SAMPLE: MW-4

Compound	ug/l	Compound	ug/l
Chloromethane	ND<10	Cis-1,3-Dichloropropene	ND<3
Bromomethane	ND<10	Trichloroethene	ND<3
Vinyl Chloride	ND<10	Dibromochloromethane	ND<3
Chloroethane	ND<10	1,1,2-Trichloroethane	ND<3
Methylene Chloride	ND<10	Benzene	ND<1
Acetone	ND<10	Trans-1,3-Dichloropropene	ND<3
Carbon disulfide	ND<3	2-Chloroethyl vinyl ether	ND<3
Trichlorofluoromethane	ND<3	Bromoform	ND<3
1,1-Dichloroethene	ND<3	4-Methyl-2-Pentanone	ND<10
1,1-Dichloroethane	ND<3	2-Hexanone	ND<10
1,2-Dichloroethene (total)	ND<3	Tetrachloroethene	ND<3
Chloroform	ND<3	1,1,2,2-Tetrachloroethane	ND<3
1,2-Dichloroethane	ND<1	Toluene	ND<3
2-Butanone	ND<20	Chlorobenzene	ND<3
1,1,1-Trichloroethane	ND<3	Ethylbenzene	ND<3
Carbon Tetrachloride	ND<3	Styrene	ND<3
Vinyl Acetate	ND<10	Total Xylenes	ND<3
Bromodichloromethane	ND<3	1,3-Dichlorobenzene	ND<3
1,2-Dichloropropane	ND<3	1,2&1,4-Dichlorobenzenes	ND<3

ug/l = part per billion (ppb)
QC DATA:

Surrogate Recoveries		QC Limits water	QC Limits soil
1,2-DCA-d4.....	96%	76-114	81-117
Toluene-d8.....	99%	88-110	81-140
Bromofluorobenzene.....	97%	86-115	74-121

comments:

Richard Srna, Ph.D.
Laboratory Director

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

8/27/91

Chain-of-Custody-Record

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

Chevron Facility Number: 9-6607
Facility Address: 2340 Otis Drive, Alameda
Consultant Project Number: RC05002
Consultant Name: Geraghty & Miller, Inc.
Address: 1050 Marina Way South, Richmond, CA 94804
Project Contact (Name): Kate McCutchen
(Phone): 415/233-3200 (Fax Number): 415/233-3204

Chevron Contact (Name): Nancy Vukelich
(Phone): 415 842 9500
Laboratory Name: Superior
Laboratory Release Number: 4247 80
Samples Collected by (Name): Alex Rios
Collection Date: 21 August 91
Signature: Alex Rios

Sample Number	Lab Sample Number	Number of Containers	Matrix (Soil, Water, Air, Charcoal)	Type (Grab, Composite, Discrete)	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	VOC 624	Organic Lead DHS-LUFT				Remarks
TB	1	2	W	G		HCL	✓	✓								✓	✓				hold
MW-1	2	4	W	G		"	✓	✓								✓	✓				
MW-2	3	4	W	G		"	✓	✓								✓	✓				
MW-3	4	4	W	G		"	✓	✓								✓	✓				
MW-4	5	5	W	G		"	✓	✓	✓							✓	✓				

RUSH

Please Initial:
Samples Stored in ice BLD
Appropriate containers BLD
Samples preserved BLD
VOAs without headspace BLD
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
[signature]	Geraghty & Miller	8-22-91	[signature]	Superior	8-22-91 1340
[signature]	Superior	8-22-91 1445			
			Received For Laboratory By (Signature): Brenda L Oliver		Date/Time: 8/22/91 15:00

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

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

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 84355
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC05002

DATE RECEIVED: 11/12/91
DATE REPORTED: 11/15/91

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
84355- 1	MW-4	11/11/91	11/15/91

Laboratory Number: 84355
1

ANALYTE LIST	Amounts/Quantitation Limits (ug/L)
OIL AND GREASE:	ND<5000
TPH/GASOLINE RANGE:	NA
TPH/DIESEL RANGE:	NA
BENZENE:	NA
TOLUENE:	NA
ETHYL BENZENE:	NA
XYLENES:	NA

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

CERTIFICATE OF ANALYSIS

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 84355

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
ug/L = part per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Water: 5000ug/L

Modified EPA-SW846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 50ug/L
Standard Reference: NA

EPA-SW846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 50ug/L
Standard Reference: NA

SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Water: 0.5ug/L
Standard Reference: NA

ANALYTE	REFERENCE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Oil & Grease	10/23/91	30 ppm	68/80	16	56-106
Diesel	NA	NA	NA	NA	NA
Gasoline	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA
Ethyl Benzene	NA	NA	NA	NA	NA
Total Xylene	NA	NA	NA	NA	NA

Richard Srna, Ph.D.
Laboratory Director

Lab Report and COC to Chevron Contact: ☐ Yes ☐ No 84575

Chain of Custody Record

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

Chevron Facility Number: 9-6607
Facility Address: 2340 Otis Drive, Alameda
Consultant Project Number: RC65002
Consultant Name: Geraghty & Miller, Inc.
Address: 1050 Marina Way South, Richmond, CA 94804
Project Contact (Name): Kate McCutchen
(Phone) 510/233-3200 (Fax Number) 510/233-3204

Chevron Contact (Name): Nancy Vukelich
(Phone)
Laboratory Name: Superior
Laboratory Release Number: 542480
Samples Collected by (Name): ALEX PAOS
Collection Date: 11-11-91
Signature:

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)						Remarks
MW-4	1	2	W	G	1700	—	Y			✓											

Please Initial:
Samples Stored in ice.
Appropriate containers
Samples preserved
VOA's without headspace
Comments

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Michael Pennella	G+M INC	11/12/91 9:47		Express	11/12 0947
	Express	11/12 1055		Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
			Superior		11/12/91 11:00am

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

COC-3.DWG/03 91/HCH