Chevron

July 17, 1996

**Chevron ~~U.S.A.~~ Products Company**
~~2410 Camino Ramon~~
~~San Ramon, CA 94583~~
P.O. Box 5004
San Ramon, CA 94583-0804

**Marketing Department**
Phone 510 842 9500

Ms. Madhulla Logan
Alameda County Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Chevron Service Station # 9-8341**
**3530 Macarthur Blvd.**
**Oakland, California**

Dear Ms. Logan:

Enclosed is a copy of a report prepared be our consultant Touchstone Developments that documents the installation of three ground water monitoring wells at the above noted site. These wells were installed to determine if the ground water had been affected from petroleum hydrocarbon impacted soils that were discovered when the product lines were replaced in 1995.

Three soil borings were drilled to a depth of 30, 35 and 45 feet and they were converted to monitoring wells with a depth of 27, 32, and 32 feet. Ground water was encountered at a depth that varied from 2.8 feet to 3.8 feet below ground surface. Soil samples were analyzed for BTEX and TPH-g and the water samples were analyzed for BTEX, TPH-g and MTBE.

Of the 22 soil samples taken and analyzed for the BTEX and TPH-g constituents, TPH-g was detected in only two soil samples. These were in samples taken at the 5.5 foot level in MW-2 and the 3.5 foot level in MW-3, with concentrations of 9.5ppm and 400ppm respectively. Benzene was not detected in any of the soil samples. No BTEX or TPH-g constituents were detected in any of the water samples. MTBE was detected in MW-2 but not in MW-1 or MW-3.

It appears that the ground water has not been affected from the soil around the pump island, since no BTEX or TPH-g constituents were detected at this site. Chevron will set this site up for quarterly monitoring for a year and if the constituents remain the same or below action levels, we will ask for closure of the wells and the site.

For your information, there has been a recent reorganization within Chevron, and I have taken over the responsibility of this site from Kenneth Kan. If you have any questions or comments call me at (510) 842-9136.

Sincerely
CHEVRON PRODUCTS COMPANY

Philip R. Briggs
Site Assessment and Remediation Project Manager

Enclosure

96 JUL 18 PM 3:42
ENVIRONMENTAL PROTECTION

cc: Ms. Violet Cargill, Chevron

Mr. Richard Hiett
RWQCB- S.F. Bay Region
2101 Webster Street, Suite 500
Oakland, CA 94612

Touchstone Developments
Environmental Management

# Well Installation Report

**Chevron Service Station Number 9-8341**
**3530 MacArthur Boulevard**
**Oakland, California**

prepared for

**Chevron Products Company**
**6001 Bollinger Canyon Road**
**San Ramon, California**

prepared by

**Touchstone Developments**
**Environmental Management**

Timothy J. Walker
Project Manager

Marc W. Seeley- C.E.G. #1014
Technical Review

**July 11, 1996**

P.O. Box 2554 • Santa Rosa, CA 95405 • Office: (707) 538-8818 • Fax: (707) 538-8812 • Mobile/Fax: (707) 484-5112

## EXECUTIVE SUMMARY

On behalf of Chevron Products Company, Touchstone Developments (Touchstone) performed an environmental investigation at Chevron Service Station No. 9-8341 located at 3530 MacArthur Boulevard, Oakland, California. The purpose of this investigation was to assess and document soil and groundwater quality in the vicinity of the Underground Storage Tank (UST) complex, product pump islands, and used-oil tank. Touchstone performed the investigation on March 18, 1996. Description and results are summarized below:

- Three soil borings, MW-1, MW-2, and MW-3 were advanced to total depths of 30, 35, and 45 feet below ground surface (bgs), respectively.
- Soils encountered during drilling consisted primarily of sand, sandy clay, silty sand, silt, and gravel with clay and sand to the total depth explored of 45 feet bgs.
- Three monitoring wells were completed in the soil borings to total depths of 27, 32, and 32 feet bgs, respectively.
- Twenty two soil samples were collected from soil borings and submitted to the laboratory for analyses.
- Depth to groundwater at the site on March 18, 1996 was encountered during drilling activities at approximately 4 feet bgs at the site.
- Total Petroleum Hydrocarbons calculated as gasoline (TPH-Gasoline) was detected in only two soil samples, MW-2-5.5 and MW-3-3.5, at concentrations at 9.5 and 400 parts per million (ppm), respectively.
- Benzene was not detected (ND) in any of the soil samples.

This summary is provided as an introduction to the site investigation report. The information presented should only be used in conjunction with the entire report document. A detailed description of the investigation including site conditions, investigative procedures, findings, and conclusions are presented in the following pages.

## 1.0 INTRODUCTION

### 1.1 Purpose and Scope of Work

This report documents an environmental site assessment conducted by Touchstone Developments (Touchstone) at Chevron Service Station No. 9-8341 located at 3530 MacArthur Boulevard, Oakland, California.

The purpose of this investigation was to assess and document soil and groundwater quality with respect to potential hydrocarbons in the downgradient direction of the UST complex, product pump islands and used-oil tank.

The scope of work for this investigation consisted of the following.

- Prepared a Site Safety Plan.
- Drilled three soil borings to approximately 30, 35, and 45 feet bgs.
- Completed three monitoring wells to 27, 32, and 32 feet bgs.
- Submitted twenty two soil samples to a State-certified laboratory for chemical analysis of TPH-Gasoline and BTEX.
- Documented and preparing report on the findings of this investigation.
- Developed, monitored, and sampled the three monitoring wells.
- Prepared Final Report.

## 2.0 BACKGROUND

### 2.1 Site Description

Chevron Service Station 9-8341 is situated at the northwest corner of the intersection of MacArthur Boulevard and MaGee Avenue in Oakland, California. The location and site layout are shown on Figure 1. The site is bordered primarily by small businesses and residential properties.

## 3.0 METHODS

### 3.1 Soil Borings

Three exploratory soil borings, MW-1, MW-2, and MW-3, were drilled by V&W Drilling, Inc of Rio Vista, California using a truck-mounted drilling rig equipped with 8-inch diameter, hollow-stem auger drilling equipment. The soil borings were drilled to total depths of 30, 35, and 45 feet bgs on March 18, 1996. The locations of the exploratory soil borings are shown on Figure 1. The borings were logged by a Touchstone geologist using a modified Unified Soil Classification System (ASTM-2488). Investigative procedures are presented in Appendix A.

## 3.2 Soil Sampling

At minimum, soil samples were collected at 5-foot intervals and at intervals where soil contamination appeared present. Soil samples retained for chemical analyses were collected in clean, brass tube liners. Upon removal from the sampler, the soil samples were logged and then immediately covered on both ends with aluminum foil and sealed with plastic end caps. The soil samples were labeled, entered on a Chain-of-Custody form, placed in a cooler with ice, and transported to Sequoia Analytical, a state-certified, analytical laboratory located in Redwood City, California.

## 3.3 Well Installation

The three soil borings were completed as a groundwater monitoring wells by installing 2-inch diameter, Schedule 40 PVC casing with 0.020-inch, factory slotted well screen from 7 to 27 feet bgs in MW-1 and 7 to 32 feet bgs in borings MW-2 and MW-3. Blank well casing was placed above the slotted casing in each boring and extended to approximately 1/2 foot below ground surface. The annular space of the wells were packed with a #3 graded sand placed from total depth to approximately one foot above the top of the slotted well screen. One foot of bentonite pellets were placed above the sandpack and then hydrated with potable water. The well construction details are presented with the exploratory boring log in Appendix B.

## 3.4 Monitoring Well Development and Sampling

BLAINE TECH SERVICES, INC. (BLAINE TECH) developed the monitoring wells on April 4, 1996 by pumping and bailing. Well development procedures and records are presented in the BLAINE TECH Well Development and Groundwater Sampling reports presented in Appendix C.

## 3.5 Analytical Program

All soil samples were analyzed by Sequoia Analytical Laboratory. Sample locations are shown on Figure 1 and on the boring logs presented in Appendix B. The results of these analyses are presented in Table A. The laboratory analytical report and chain-of-custody form is presented in Appendix D.

Selected laboratory analyses were performed on all the soil samples collected from exploratory soil borings MW-1, MW-2, and MW-3. The analyses are described below:

- Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline) according to EPA Method 8015 Modified.
- Benzene, Toluene, Ethylbenzene, Xylenes according to EPA Method 8020.

The groundwater samples collected from the newly installed monitoring wells were analyzed for TPH-Gasoline and Benzene, Toluene, Ethylbenzene, and Xylenes with Methyl Tertiary Butyl Ether (MTBE) according to EPA Method 8020.

## 4.0 RESULTS

### 4.1 Subsurface Conditions

Soils encountered during the drilling of Borings MW-1, MW-2, and MW-3 consisted primarily of sand, sandy clay, silty sand, silt, and gravel with clay and sand to the total depth explored of 45 feet bgs. Saturated material was observed in all three borings at approximately 4 feet bgs.

### 4.2 Soil Analytical Results

Twenty two soil samples were collected from the exploratory soil borings and submitted to the laboratory for analyses. Soil analytical results are presented in Table A. Sample locations are shown on the boring logs presented in Appendix B. The certified analytical laboratory report and chain-of-custody documentation is presented in Appendix D.

Only two soil samples, MW-2-5.5 and MW-3-3.5, contained concentrations of TPH-Gasoline at concentrations of 9.5 and 400 ppm, respectively. All the soil samples were reported as ND for Benzene. Toluene was detected in only one soil sample, MW-3-3.5. at a concentration of 0.62 ppm. Ethylbenzene was detected in soil samples MW-2-5.5 and MW-3-3.5 at concentrations of 0.018 and 4.7 ppm, respectively. Total Xylenes were detected in soil samples MW-2-5.5, MW-3-3.5, and MW-3-20.0 at concentrations of 0.024, 32, and 0.0069 ppm, respectively.

### 4.4 Groundwater Analytical Results

Groundwater samples were collected by BLAINE TECH from Wells MW-1, MW-2, and MW-3 on April 4, 1996. TPH-Gasoline and BTEX were not detected (ND) in any of the groundwater samples from the newly installed monitoring wells. Only MTBE was reported in Well MW-2 at a concentration of 6,100 ug/L (parts per billion or ppb). The groundwater monitoring well sampling results are presented in Table C. Laboratory analytical reports and chain-of-custody forms are presented in Appendix D.

## 5.0 CONCLUSIONS

Groundwater was first encountered during the drilling at approximately 4 feet bgs on March 18, 1996. Static groundwater was measured in the wells ranging from 2.81 to 3.88 feet bgs on April 4, 1996. The groundwater flow direction beneath the site is toward the southeast at a calculated hydraulic gradient of 0.033 feet/feet.

Only two soil samples, MW-2-5.5 and MW-3-29.5 contained concentrations of TPH-Gasoline at concentrations of 9.5 and 400 ppm, respectively. Benzene was ND in all of the soil samples. Toluene was detected in soil sample MW-3.3.5 at a concentration of 0.62 ppm. Ethylbenzene was detected in soil samples MW-2-5.5 and MW-3-29.5 at concentrations of 0.018 and 4.7 ppm, respectively. Total Xylenes were detected in soil samples MW-2-5.5, MW-3-3.5, and MW-3-20.0 at concentrations of 0.024, 32, and 0.0069 ppm, respectively.

Groundwater from wells MW-1 and MW-3 were reported as ND for TPH-Gasoline and BTEX with MTBE. MTBE was detected in only groundwater from Well MW-2 at a concentration of 6,100 ppb. Groundwater from Well MW-2 was ND for TPH-Gasoline and BTEX.

The well casings and well boxes were surveyed, referenced to Mean Sea Level, by a State-licensed Well Surveyor. The well survey report is presented in Appendix E.

## PROFESSIONAL CERTIFICATION

Based on site conditions at Chevron Service Station 9-8341 at the time of work was performed, all information is true. Touchstone Developments professional staff has prepared this report under the professional supervision of the Certified Engineering Geologist whose signature appears hereon.

## LIMITATIONS

This work has been performed in accordance with generally accepted environmental investigation practices for similar investigations conducted at this time and this geographic area. No other guarantees or warranties, expressed or implied are provided.

The soil and groundwater sampling and testing program conducted was intended to provide an assessment of groundwater and soil contamination at specific locations and at specific times.

# TABLES

# TABLE A

## EXPLORATORY SOIL BORING SAMPLING SUMMARY

Results in mg/Kg - parts per millon (ppm)
Chevron Service Station No. 9-8341
3530 MacArthur Boulevard
Oakland, California

### EXPLORATORY SOIL BORING RESULTS

| SAMPLE ID | DEPTH (ft.) | LAB | DATE | TPH - Gasoline | Benzene | Toluene | Ethyl-benzene | Xylenes |
|---|---|---|---|---|---|---|---|---|
| MW-1-4.5 | 4.5 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-1-10.0 | 10 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-1-14.5 | 14.5 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-1-19.5 | 19.5 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-1-24.5 | 24.5 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-1-29.5 | 29.5 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-2-5.5 | 5.5 | Sequoia | 18-Mar-96 | 9.5 | ND | ND | 0.018 | 0.024 |
| MW-2-9.5 | 9.5 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-2-15.0 | 15 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-2-20.0 | 20 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-2-25.0 | 25 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-2-30.0 | 30 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-2-35.0 | 35 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-3-3.5 | 3.5 | Sequoia | 18-Mar-96 | 400 | ND | 0.62 | 4.7 | 32 |
| MW-3-9.5 | 9.5 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-3-14.5 | 14.5 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-3-20.0 | 20 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | 0.0069 |
| MW-3-25.0 | 25 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-3-30.0 | 30 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-3-34.5 | 34.5 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-3-40.0 | 40 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |
| MW-3-45.0 | 45 | Sequoia | 18-Mar-96 | ND | ND | ND | ND | ND |

NOTE: Detection limit for TPH-G is 1.0 mg/Kg and BTEX is 0.0050 mg/Kg.

TPH-Gasoline = Total Petroleum Hydrocarbons calculated as Gasoline.

ND = Not Detected at or above the laboratory detection limit.

# TABLE B

## FIELD MONITORING DATA

Chevron Service Station No. 9-8341
3530 MacArthur Boulevard
Oakland, California

| WELL ID | Date | Casing Dia. (in.) | Casing Elev. (ref. to MSL) | DTW (feet) | Water Elev. (ref. to MSL) | Total Depth (feet) | Purged Well Volumes | pH | Conductivity (uMHOS/cm) | Temp. (deg. F) | Color (Visual) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 4-Apr-96 | 2 | 202.47 | 3.82 | 198.65 | 27.14 | 3.0 | 7.0 | 530 | 65.4 | clear |
| MW-2 | 4-Apr-96 | 2 | 198.88 | 2.81 | 196.07 | 33.20 | 3.0 | 7.1 | 820 | 68.4 | lt. turbid |
| MW-3 | 4-Apr-96 | 2 | 199.10 | 3.88 | 195.22 | 32.84 | 3.0 | 7.1 | 680 | 68.0 | lt. turbid |

pH measured in standard pH units.
DTW = Depth to Water
deg. F = Degrees measured in Fahrenheit

# TABLE C

## GROUNDWATER ANALYTICAL SUMMARY

**Results in ug/L - parts per billion (ppb).**

Chevron Service Station No. 9-8341
3530 MacArthur Boulevard
Oakland, California

### GROUNDWATER SAMPLING RESULTS

| SAMPLE ID | LAB | DATE | TPH - Gasoline | MTBE | Benzene | Toluene | Ethyl-benzene | Xylenes |
|---|---|---|---|---|---|---|---|---|
| MW-1 | Sequoia | 4-Apr-96 | ND | ND | ND | ND | ND | ND |
| MW-2 | Sequoia | 4-Apr-96 | ND | 6,100 | ND | ND | ND | ND |
| MW-3 | Sequoia | 4-Apr-96 | ND | ND | ND | ND | ND | ND |

NOTE: Detection limit for TPH-Gasoline is 50 ug/L and BTEX is 0.50 ug/L.

TPH-Gasoline = Total Petroleum Hydrocarbons calculated as Gasoline.

MTBE = Methyl t-Butyl Ether

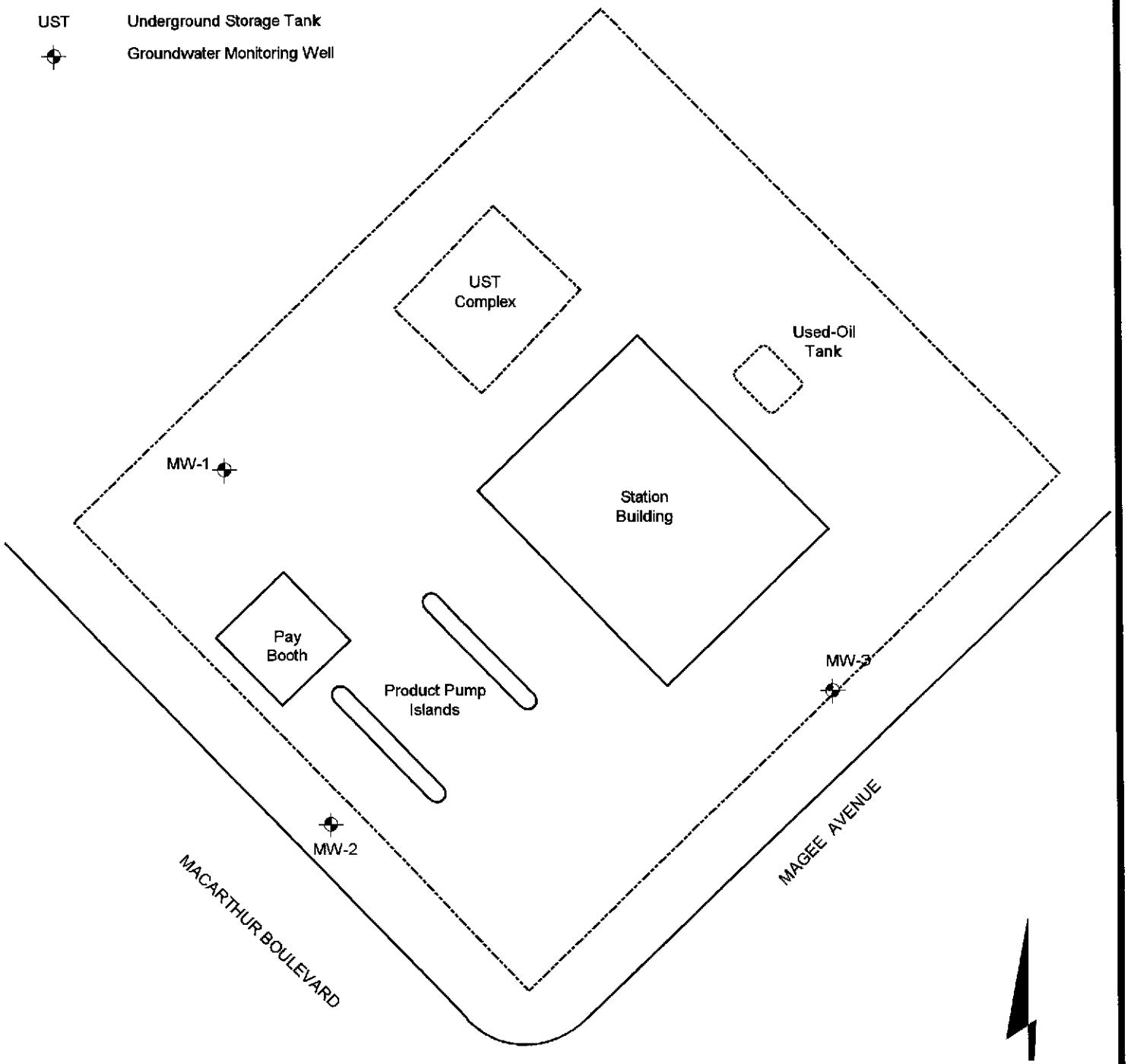
ND = Not Detected at or above the laboratory detection limit.

# FIGURES

## EXPLANATION

UST — Underground Storage Tank

Groundwater Monitoring Well




# SITE PLAN

Chevron Service Station No. 9-8341
3530 MaCarthur Boulevard
Oakland, California

**FIGURE 1**

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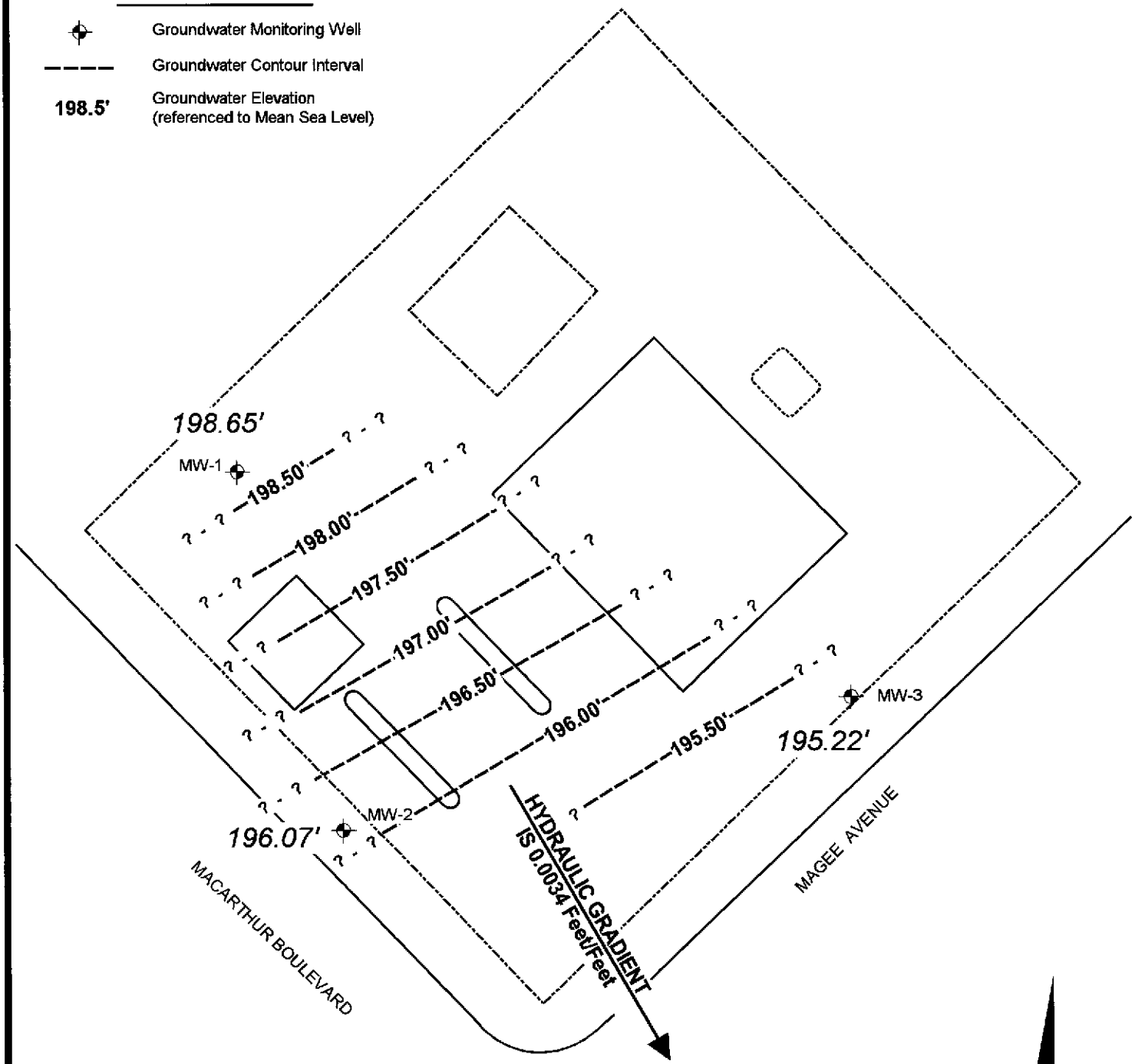
| PROJECT NO. | DATE: | DRAWN BY: | BASE MAP |
|---|---|---|---|
| 9-8341 | 1/96 | WTJ | Fax copy of CanonieEvironmental Site Plan |

## EXPLANATION

- Groundwater Monitoring Well
- Groundwater Contour Interval
- 198.5' Groundwater Elevation (referenced to Mean Sea Level)

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# POTENTIOMETRIC MAP

Chevron Service Station No. 9-8341
3530 MaCarthur Boulevard
Oakland, California

FIGURE
2

| PROJECT NO. | DATE: | DRAWN BY: | BASE MAP |
|---|---|---|---|
| 9-8341 | 5/96 | WTJ | Fax copy of CanonieEvironmental Site Plan |

# APPENDIX A

## Field Methods and Procedures

## FIELD METHODS AND PROCEDURES

### Soil Sampling

Exploratory soil borings are drilled by a State-licensed drilling firm. Borings are usually drilled using 8-inch diameter hollow-stem auger drilling equipment. Sometimes the borings will be drilled with smaller diameter solid flight auger equipment. The borings are logged by a Touchstone Developments geologist using the Unified Soil Classification System and standard geologic techniques. The boring logs are represented in Appendix B. Samples are collected by advancing a 2-inch diameter, split-spoon sampler with brass liners into undisturbed soil beyond the tip of the auger. The sampler is driven a maximum 18 inches using a 140-pound hammer falling from a height of 30 inches. One sample collected at each sampling interval is retained for laboratory analyses. Soil samples retained for chemical analyses are collected in clean brass liners, covered with either teflon tape or aluminum foil, capped with plastic end caps and sealed in plastic zip-lock bags. The samples are then placed in a cooler with either frozen blue ice or ice, logged onto a Chain-of-Custody form and transported to a State-certified analytical laboratory. Each sample is labeled with an indelible-ink marking pen with project identification, boring designation, depth, and date. The split-spoon sampler is cleaned between sample intervals with an Alconox wash and rinsed with clean water, and a final rinse with deionized (distilled) water. All downhole drilling equipment is steam-cleaned between each boring location. Wash water is contained in D.O.T. 55-gallon drums and transferred to a State-approved water reclamation facility.

### Organic Vapor Screening

Soil samples are screened in the field for volatile organic compounds using a Photoionization Detector (PID). The test procedure involved measuring a representative sample from an undisturbed soil sample, placing this subsample in a zip-lock bag. The bag is allowed to warm to ambient temperature for approximately 20-30 minutes, then the bag is pierced and the head-space within the bag is tested for total organic vapors, measured in parts per million, (ppm; volume/volume). The instrument is automatically calibrated internally when powered up using an isobutylene standard (in air) and a sensitivity factor of 0.56, which relates the photo-ionization sensitivity of benzene to the sensitivity of isobutylene. The PID is also calibrated before leaving for the field. The detection limit of the instrument ranges from 0.1 ppm to 2,000 ppm. The results of these tests are recorded on the boring logs presented in Appendix B. It should be noted that the PID measurements are considered semi-quantitative data since the instrument detects all organic compounds with ionization potentials less than 10 eV. Heavy organic compounds such as motor oil or diesel fuel are not detected.

## Well Development

The development procedure for groundwater monitoring wells consists of allowing a bailer to fall freely through the well until striking the surface of the water. The contact of the bailer produces an outward surge of water that is forced from the borehole through the well screen and into the formation. This tends to break up bridging of fines that may have developed within the well screen. The water is then bailed out of the well using a bailer. In addition to development by bailing, purging and surging with a surge block is also used. The surging action created in the borehole causes the particular matter outside the well intake to flow into the well. Continued bailing removes the particulate matter from the well. Groundwater produced during development is contained in 55-gallon D.O.T. steel drums and transported to a State-approved water reclamation facility.

## Groundwater Sampling

The groundwater sampling procedure consists of first measuring the water level and then visually checking for the presence of sheens using a clear disposable polyethylene bailer. Each well is then purged of a minimum of four casing volumes of water (or until dewatered) by pumping using a submersible or centrifugal pump with new disposable polyethylene or PVC hose. Groundwater samples are collected using disposable polyethylene PVC or stainless steel bailers after the wells recover to atleast 80% of the pre-purge static water level. The samples are placed into appropriate EPA-approved sample containers, labeled, logged onto Chain-of-Custody forms, and transported in a cooler with ice to a Stated-certified analytical laboratory. Purge water is contained in 55-Gallon D.O.T. steel drums and transported to a State-approved water reclamation facility. Chain-of-Custody documentation is presented with the Certified analytical laboratory reports.

# APPENDIX B

**Exploratory Boring Log**
**Unified Soil Classification System and**
**Boring Log Key**

## Drilling Method

HSA - Hollow Stem Auger
CFA - Continuous Flight Auger
Air - Reverse air circulation

## Sampling Method

S&H - Modified split-spoon sampler (2-inch diameter) driven a minimum 18 inches by a 140-pound hammer with a drop of 30 inches. "P" designates a push by the drill rig to collect the soil sample.

Distrubed - Sample taken from the drill-return materials as they surfaced.

Shelby - Shelby Tube thin-walled sampler (3-inch diameter), where sampler pushed by the drill rig.

First encountered groundwater

Static groundwater level

Sample recovery interval

Sample retained for for chemical analysis

Nonrecovery sample interval

| Consistency of Cohesive Soils | |
|---|---|
| 0-2 | very soft |
| 2-4 | soft |
| 4-8 | medium stiff |
| 8-16 | stiff |
| 16-32 | very stiff |
| >32 | hard |

| Density of Granular Soils | |
|---|---|
| 0-4 | very loose |
| 4-10 | loose |
| 10-30 | medium dense |
| 30-50 | dense |
| >50 | very dense |

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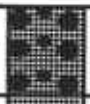
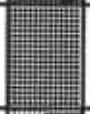
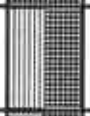
**WELL LOG**
**KEY TO ABBREVIATIONS**

| Primary Divisions | | | Group Symbol and Graphic | | Typical Names |
|---|---|---|---|---|---|
| COARSE GRAINED SOIL<br>more than half is larger than #200 sieve | GRAVELS<br>half of coarse fraction is larger than #4 sieve | CLEAN GRAVELS<br>(less than 5% fines) | GW |  | Well graded gravels, gravel-sand mixtures; little or no fines |
| | | | GP |  | Poorly graded gravels or gravel-sand mixture little or no fines |
| | | GRAVEL with FINES | GM |  | Silty gravel, gravel-sand-silt mixture |
| | | | GC |  | Clayey gravel, gravel-sand-clay mixture |
| | SANDS<br>half of coarse fraction is smaller than #4 sieve | CLEAN SANDS<br>(less than 5% fines) | SW |  | Well graded sand, gravelly sand; little or no fines |
| | | | SP |  | Poorly graded sand, gravelly sand; little or no fines |
| | | SANDS with FINES | SM |  | Silty sand, sand-silt mixture |
| | | | SC |  | Clayey sand, sand-clay mixture |
| FINE GRAINED SOIL<br>more than half is smaller than #200 sieve | SILTS AND CLAYS<br>liquid limit <50% | | ML |  | Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or clayey silt. slight plasticity |
| | | | CL |  | Inorganic clay of low to medium plasticity, gravelly clay, sandy clay, silty clay, lean clay. |
| | | | OL |  | Organic silt and organic silty clay of low plasticity |
| | SILTS AND CLAYS<br>liquid limit >50% | | MH |  | Inorganic silt, micaceous or diatomaceous fine sandy or silty soils, elastic silts. |
| | | | CH |  | Inorganic clay of high plasticity, fat clay |
| | | | OH |  | Organic clay of medium to high plasticity, organic silt |
| HIGHLY ORGANIC SOILS | | | PT |  | Peat and other highly organic soil |

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# UNIFIED SOIL CLASSIFICATION SYSTEM

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# EXPLORATORY BORING LOG

Field Location of Boring:

See Figure 1

| | | | |
|---|---|---|---|
| Project No. 9-8341 | Date: 3.18.96 | Boring No. | MW-1 |
| Client: CHEVRON PRODUCTS CO. | | | |
| Location: 3530 MacArthur Boulevard | | | |
| City: Oakland, CA | | Sheet | 1 |
| Logged By: RCM | Driller: V&W | of | 2 |

Casing Installation data:

Drilling Method: Hollow Stem Auger

Hole Diameter: 8-inch

Top of Box Elevation: 202.47 Datum:

| | | | |
|---|---|---|---|
| Water Level | 4.0 | | |
| Time | 1455 | | |
| Date | 3.18.96 | | |

| PID (ppm) | Blows Pressure (PSI) | Type of Sample | Sample Number | Depth (ft.) | Sample Interval | Well Detail | Soil Group Symbol (USCS) |
|---|---|---|---|---|---|---|---|
| | | | | 1 | | | |
| | | | | 2 | | | |
| | | | | 3 | | | |
| | | | MW-1 | 4 | | | |
| | 5 | S&H | 4.5 | 5 | | | |
| | 7 | | | | | | |
| | 17 | | | 6 | | | |
| | | | | 7 | | | |
| | | | | 8 | | | |
| | 5 | S&H | | 9 | | | |
| | 5 | | MW-1 | | | | |
| | 14 | | 10.0 | 10 | | | |
| | | | | 11 | | | |
| | | | | 12 | | | |
| | | | | 13 | | | |
| | 17 | S&H | MW-1 | 14 | | | |
| | 22 | | 14.5 | | | | |
| | 28 | | | 15 | | | |
| | | | | 16 | | | |
| | | | | 17 | | | |
| | | | | 18 | | | |
| | 15 | S&H | MW-1 | 19 | | | |
| | 19 | | 19.5 | | | | |
| | 20 | | | 20 | | | |

**PAVEMENT SECTION - ASPHALT 3", BASEROCK 9".**

**CLAY (CL) - yellowish brown (10YR 5/4), moist, stiff, 90% clay, 10% fine to medium sand, medium plasticity.**

**SAND (SW) - yellowish brown (10YR 5/4), saturated, medium dense, 95% fine to coarse sand, 5% fines.**

**SANDY CLAY (CL) - yellowish brown (10YR 4/6), very stiff, moist, 65% clay, 35% fine to coarse sand, rootholes, black (10YR 3/1) mottling with minor light olive brown (2.5Y 5/4) discoloration.**

**SILTY SAND (SM) - brown (7.5Y 4/4), very dense, moist, 70% fine to coarse sand, 30% silt.**

**SILT (ML) - reddish brown (5YR 4/4), hard, moist, 80% silt, 20% fine to medium sand.**

Remarks:

Touchstone Developments
Environmental Management

# EXPLORATORY BORING LOG

Field Location of Boring:

See Figure 1

| | | | |
|---|---|---|---|
| Project No. 9-8341 | Date: 3.18.96 | Boring No. | MW-1 |
| Client: CHEVRON PRODUCTS CO. | | | |
| Location: 3530 MacArthur Boulevard | | | |
| City: Oakland, CA | | Sheet | 2 |
| Logged By: RCM | Driller: V&W | of | 2 |

Casing Installation data:

Drilling Method: Hollow Stem Auger

Hole Diameter: 8-inch

Top of Box Elevation: Datum:

| | | | |
|---|---|---|---|
| Water Level | | | |
| Time | | | |
| Date | | | |

| PID (ppm) | Blows Pressure (PSI) | Type of Sample | Sample Number | Depth (ft.) | Sample Interval | Well Detail | Soil Group Symbol (USCS) |
|---|---|---|---|---|---|---|---|
| | | | | 21 | | | |
| | | | | 22 | | | |
| | | | | 23 | | | |
| | 10 | S&H | MW-1 | 24 | | | |
| | 15 | | 24.5 | | | | |
| | 19 | | | 25 | | | |
| | | | | 26 | | | |
| | | | | 27 | | | |
| | | | | 28 | | | |
| | 20 | S&H | NR | 29 | | | |
| | 22 | | | | | | |
| | 25 | | | 30 | | | |
| | | | | 31 | | | |
| | | | | 32 | | | |
| | | | | 33 | | | |
| | | | | 34 | | | |
| | | | | 35 | | | |
| | | | | 36 | | | |
| | | | | 37 | | | |
| | | | | 38 | | | |
| | | | | 39 | | | |
| | | | | 40 | | | |

**SILT (ML) - reddish brown (5YR 4/4), hard, moist, 80% silt, 20% fine to medium sand.**

**INCREASE fine to coarse sand to 30% at 23.5 feet.**

**SILTY SAND (SM) - dark yellowish brown (10YR 4/6), dense, moist, 65% sand, 35% silt.**

Remarks:

BOTTOM OF BORING AT 30.0 FEET

Touchstone Developments
Environmental Management

# EXPLORATORY BORING LOG

Field Location of Boring:

See Figure 1

Project No. 9-8341 | Date: 3.18.96

Client: CHEVRON PRODUCTS CO.

Location: 3530 MacArthur Boulevard

City: Oakland, CA

Logged By: RCM | Driller: V&W

Boring No. **MW-2**

Sheet 1 of 2

Casing Installation data:

Drilling Method: Hollow Stem Auger

Hole Diameter: 8-inch

Top of Box Elevation: 198.88 | Datum:

| | | | |
|---|---|---|---|
| Water Level | 4.0 | | |
| Time | 1340 | | |
| Date | 3.18.96 | | |

| PID (ppm) | Blows Pressure (PSI) | Type of Sample | Sample Number | Depth (ft.) | Sample Interval | Well Detail | Soil Group Symbol (USCS) |
|---|---|---|---|---|---|---|---|
| | 2 | S&H | | 5 | | | |
| | 2 | | MW-2 | | | | |
| | 3 | | 5.5 | | | | |
| | 17 | S&H | MW-2 | 9 | | | |
| | 19 | | 9.5 | | | | |
| | 25 | | | | | | |
| | 12 | S&H | | 14 | | | |
| | 33 | | MW-2 | | | | |
| | 38 | | 15.0 | 15 | | | |
| | 12 | S&H | | 19 | | | |
| | 17 | | MW-2 | | | | |
| | 22 | | 20.0 | | | | |

**PAVEMENT SECTION - 3" asphalt, 9" baserock**

**SANDY CLAY (CL) - greenish gray (5G 5/1), moist, very stiff, 85% clay, 15% fine to medium sand, medium plasticity.**

**CLAY (CL) - black (10YR 2/1), medium stiff, saturated, 90% clay, 10% sand, medium to high plasticity.**

**SILTY SAND (SM) - dark yellowish brown (10YR 4/6), moist, dense 75% fine to medium sand, 15% silt, 10% fine gravel.**

**INCREASE SILT to 25%, CLAY to 10% at 13.5 feet, decrease sand to 65%, very dense**

**DECREASE silt to 15%, clay to 0%.**

Remarks:

Touchstone Developments
Environmental Management

# EXPLORATORY BORING LOG

Field Location of Boring:

See Figure 1

Project No. 9-8341 | Date: 3.18.96

Client: CHEVRON PRODUCTS CO.

Location: 3530 MacArthur Boulevard

City: Oakland, CA

Logged By: RCM | Driller: V&W

Boring No. **MW-2**

Sheet 2 of 2

Casing Installation data:

Drilling Method: Hollow Stem Auger

Hole Diameter: 8-inch

Top of Box Elevation: | Datum:

| | | | |
|---|---|---|---|
| Water Level | | | |
| Time | | | |
| Date | | | |

| PID (ppm) | Blows Pressure (PSI) | Type of Sample | Sample Number | Depth (ft.) | Sample Interval | Well Detail | Soil Group Symbol (USCS) |
|---|---|---|---|---|---|---|---|
| | | | | 21 | | | |
| | | | | 22 | | | |
| | | | | 23 | | | |
| | 20 | S&H | | 24 | | | |
| | 30 | | MW-2 | | | | |
| | 39 | | 25.0 | 25 | | | |
| | | | | 26 | | | |
| | | | | 27 | | | |
| | | | | 28 | | | |
| | 19 | S&H | | 29 | | | |
| | 23 | | MW-2 | | | | |
| | 35 | | 30.0 | 30 | | | |
| | | | | 31 | | | |
| | | | | 32 | | | |
| | | | | 33 | | | |
| | 19 | S&H | | 34 | | | |
| | 22 | | MW-2 | | | | |
| | 28 | | 35.0 | 35 | | | |
| | | | | 36 | | | |
| | | | | 37 | | | |
| | | | | 38 | | | |
| | | | | 39 | | | |
| | | | | 40 | | | |

**SILTY SAND (SM) - dark yellowish brown (10YR 4/6), moist, dense 75% fine to medium sand 15% silt, 10% fine gravel.**

**AS ABOVE**
**very dense at 23.5 feet**

**AS ABOVE**

**SILT (ML) - dark yellowish brown (10YR 4/6), hard, moist, 80% sand, 20% fine sand, medium plasticity.**

Remarks:

BOTTOM OF BORING AT 35.0

Touchstone Developments
Environmental Management

# EXPLORATORY BORING LOG

Field Location of Boring:

See Figure 1

| | | | |
|---|---|---|---|
| Project No. 9-8341 | Date: 3.18.96 | Boring No. | MW-3 |
| Client: CHEVRON PRODUCTS CO. | | | |
| Location: 3630 MacArthur Boulevard | | | |
| City: Oakland, CA | | Sheet | 1 |
| Logged By: RCM | Driller: V&W | of | 3 |

Casing Installation data:

199.2

Drilling Method: Hollow Stem Auger

Hole Diameter: 8-inch

Top of Box Elevation: Datum:

| | | | |
|---|---|---|---|
| Water Level | | | |
| Time | | | |
| Date | | | |

| PID (ppm) | Blows Pressure (PSI) | Type of Sample | Sample Number | Depth (ft.) | Sample Interval | Well Detail | Soil Group Symbol (USCS) |
|---|---|---|---|---|---|---|---|
| | | | | 1 | | | |
| | | | | 2 | | | |
| | | | | 3 | | | |
| | | | | 4 | | | |
| | 6 | S&H | | | | | |
| | 7 | | MW-3 | 5 | | | |
| | 11 | | 5.5 | | | | |
| | | | | 6 | | | |
| | | | | 7 | | | |
| | | | | 8 | | | |
| | 10 | S&H | MW-3 | 9 | | | |
| | 22 | | 9.5 | | | | |
| | 20 | | | 10 | | | |
| | | | | 11 | | | |
| | | | | 12 | | | |
| | | | | 13 | | | |
| | 17 | S&H | MW-3 | 14 | | | |
| | 19 | | 14.5 | | | | |
| | 22 | | | 15 | | | |
| | | | | 16 | | | |
| | | | | 17 | | | |
| | | | | 18 | | | |
| | 31 | S&H | MW-3 | 19 | | | |
| | 33 | | 19.5 | | | | |
| | 39 | | | 20 | | | |

**PAVEMENT SECTION - ASPHALT 3", BASEROCK 9".**

**SANDY CLAY (CL) - olive (5YR 4/3), stiff, damp, 85% clay, 15% fine to coarse sand, medium plasticity.**

**CLAYEY SAND (SC) - dark yellowish brown (10YR 4/6), moist, medium dense, 55% fine to coarse sand, 40% clay, 5% fine gravel, black mottling (10YR 3/1).**

**INCREASE sand to 80% at 8.5 feet.**

**SANDY SILT (ML) - dark yellowish brown (10YR 3/6), moist, hard, 80% silt, 20% fine sand, low plasticity.**

**GRAVEL WITH CLAY AND SAND (GW-GC) - yellowish brown (10YR 5/6), very dense, moist, 65% gravel, 25% sand, 10% clay.**

Remarks:

Touchstone Developments
Environmental Management

# EXPLORATORY BORING LOG

Field Location of Boring:

See Figure 1

| | |
|---|---|
| Project No. 9-8341 | Date: 3.18.96 |
| Client: CHEVRON PRODUCTS CO. | |
| Location: 3530 MacArthur Boulevard | |
| City: Oakland, CA | |
| Logged By: RCM | Driller: V&W |

Boring No. **MW-3**

Sheet 2 of 3

Casing Installation data:

Drilling Method: **Hollow Stem Auger**

Hole Diameter: **8-inch**

Top of Box Elevation: Datum:

| | | | |
|---|---|---|---|
| Water Level | | | |
| Time | | | |
| Date | | | |

| PID (ppm) | Blows Pressure (PSI) | Type of Sample | Sample Number | Depth (ft.) | Sample Interval | Well Detail | Soil Group Symbol (USCS) |
|---|---|---|---|---|---|---|---|
| | | | | 21 | | | |
| | | | | 22 | | | |
| | | | | 23 | | | |
| | 31 | S&H | MW-3 | 24 | | | |
| | 33 | | 25.0 | | | | |
| | 39 | | | 25 | | | |
| | | | | 26 | | | |
| | | | | 27 | | | |
| | | | | 28 | | | |
| | 33 | S&H | | 29 | | | |
| | 35 | | MW-3 | | | | |
| | 40 | | 30.0 | 30 | | | |
| | | | | 31 | | | |
| | | | | 32 | | | |
| | | | | 33 | | | |
| | 10 | S&H | | 34 | | | |
| | 20 | | MW-3 | | | | |
| | 20 | | 35.0 | 35 | | | |
| | | | | 36 | | | |
| | | | | 37 | | | |
| | | | | 38 | | | |
| | 15 | S&H | | 39 | | | |
| | 21 | | MW-3 | | | | |
| | 32 | | 40.0 | 40 | | | |

**GRAVEL WITH CLAY AND SAND (GW-GC) - yellowish brown (10YR 5/6), very dense, moist, 65% gravel, 25% sand, 10% clay.**

**INCREASE sand to 40% at 23.5 feet.**

**SILTY SAND (SM) - dark yellowish brown (10YR 4/6), very dense, moist, 65% fine to coarse sand, 25% silt, 10% fine gravel.**

**CLAY (CL) - dark yellowish brown (10YR 4/6), very hard, moist, 85% clay, 15% fine to medium sand, medium plasticity.**

**INCREASE sand to 40% at 39.5 feet.**

Remarks:

Touchstone Developments
Environmental Management

# EXPLORATORY BORING LOG

Field Location of Boring:

**See Figure 1**

| | | | |
|---|---|---|---|
| Project No. 9-8341 | Date: 3.18.96 | Boring No. | **MW-3** |
| Client: CHEVRON PRODUCTS COMPANY | | | |
| Location: 3530 MacArthur Boulevard | | | |
| City: Oakland, California | | Sheet | 3 |
| Logged By: RCM | Driller: V&W | of | 3 |

Casing Installation data:

Drilling Method: **Hollow Stem Auger**

Hole Diameter: **8-inch**

Top of Box Elevation: Datum:

| | | | |
|---|---|---|---|
| Water Level | | | |
| Time | | | |
| Date | | | |

| PID (ppm) | Blows Pressure (PSI) | Type of Sample | Sample Number | Depth (ft.) | Sample Interval | Well Detail | Soil Group Symbol (USCS) |
|---|---|---|---|---|---|---|---|
| | | | | 41 | | | |
| | | | | 42 | | | |
| | | | | 43 | | | |
| | 14 | S&H | | 44 | | | |
| | 22 | | MW-3 | | | | |
| | 25 | | 45.0 | 45 | | | |
| | | | | 46 | | | |
| | | | | 47 | | | |
| | | | | 48 | | | |
| | | | | 49 | | | |
| | | | | 50 | | | |
| | | | | 51 | | | |
| | | | | 52 | | | |
| | | | | 53 | | | |
| | | | | 54 | | | |
| | | | | 55 | | | |
| | | | | 56 | | | |
| | | | | 57 | | | |
| | | | | 58 | | | |
| | | | | 59 | | | |
| | | | | 60 | | | |

**CLAY (CL) - dark yellowish brown (10YR 4/6), moist, hard, 60% clay, 40% fine to medium sand, medium plasticity.**

**AS ABOVE - decrease sand to 30% fine gravel to 10%, and decrease clay to 60% at 43.5 feet.**

Remarks: **NR = No Recovery.**

**BOTTOM OF BORING AT 45.0 FEET**

# APPENDIX C

**Groundwater Field Monitoring**
**Summary Report**

BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 9513
(408) 995-553
FAX (408) 293-877

April 23, 1996

Touchstone Developments
17170 Keaton Ave.
Sonoma, CA 95476

ATTN: Tim Walker

Site:
Chevron Service Station No. 9-8341
3530 MacArthur Blvd.
Oakland, California

Date:
April 4, 1996

## GROUNDWATER SAMPLING REPORT 960404-Z-1

Blaine Tech Services, Inc. performs specialized environmental sampling and documentation as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc. does not participate in the interpretation of analytical results, or become involved with the marketing or installation of remedial systems.

This report deals with the groundwater well sampling performed by our firm in response to your request. Data collected in the course of our work at the site are presented in the TABLE OF WELL MONITORING DATA. This information was collected during our inspection, well evacuation and sample collection. Measurements include the total depth of the well and the depth to water. Water surfaces were further inspected for the presence of immiscibles. A series of electrical conductivity, pH, and temperature readings were obtained during well evacuation and at the time of sample collection.

## STANDARD PRACTICES

### Evacuation and Sampling Equipment

As shown in the TABLE OF WELL MONITORING DATA, the wells at this site were evacuated according to a protocol requirement for the removal of three case volumes of water, before sampling. The wells were evacuated using Middleburg pumps.

Samples were collected using bailers.

**Bailers:** A bailer, in its simplest form, is a hollow tube which has been fitted with a check valve at the lower end. The device can be lowered into a well by means of a cord. When the bailer enters the water, the check valve opens and liquid flows into the interior of the bailer. The bottom check valve prevents water from escaping when the bailer is drawn up and out of the well.

Two types of bailers are used in groundwater wells at sites where fuel hydrocarbons are of concern. The first type of bailer is made of a clear material such as acrylic plastic and is used to obtain a sample of the surface and the near surface liquids, in order to detect the presence of visible or measurable fuel hydrocarbon floating on the surface. The second type of bailer is made of Teflon or stainless steel, and is used as an evacuation and/or sampling device.

Bailers are inexpensive and relatively easy to clean. Because they are manually operated, variations in operator technique may have a greater influence than would be found with more automated sampling equipment. Also, where fuel hydrocarbons are involved, the bailer may include near surface contaminants that are not representative of water deeper in the well.

**USGS/Middleburg Positive Displacement Sampling Pumps:** USGS/Middleburg positive displacement sampling pumps are EPA approved pumps appropriate for use in wells down to two inches in diameter and depths up to several hundred feet. The pump contains a flexible Teflon bladder which is alternately allowed to fill with well water and then collapsed. Actuation of the pump is accomplished with compressed air supplied by a single hose to one side of the Teflon membrane. Water on the other side of the membrane is squeezed out of the pump and up a Teflon conductor pipe to the surface. Evacuation and sampling are accomplished as a continuum. The rate of water removal is relatively slow and loss of volatiles almost non-existent. There is only positive pressure on the water being sampled and there is no impeller cavitation or suction. The pumps can be placed at any location within the well, can draw water from the very bottom of the well case, and are virtually immune to the erosive effects of silt or lack of water which destroy other types of pumps.

Disadvantages associated with Middleburg pumps include their high cost, low flow rate, temperamental operation, and cleaning requirements which are both elaborate and time consuming.

## Decontamination

All apparatus is brought to the site in clean and serviceable condition. The equipment is decontaminated after each use and before leaving the site.

## Effluent Materials

The evacuation process creates a volume of effluent water which must be contained. Blaine Tech Services, Inc. will place this water in appropriate containers of the client's choice or bring new 55 gallon DOT 17 E drums to the site, which are appropriate for the containment of the effluent materials. The determination of how to properly dispose of the effluent water must usually await the results of laboratory analyses of the sample collected from the groundwater well. If that sample does not establish whether or not the effluent water is contaminated, or if effluent from more than one source has been combined in the same container, it may be necessary to conduct additional analyses on the effluent material.

## Sampling Methodology

Samples were obtained by standardized sampling procedures that follow an evacuation and sample collection protocol. The sampling methodology conforms to both State and Regional Water Quality Control Board standards and specifically adheres to EPA requirements for apparatus, sample containers and sample handling as specified in publication SW 846 and T.E.G.D. which is published separately.

## Sample Containers

Sample containers are supplied by the laboratory performing the analyses.

## Sample Handling Procedures

Following collection, samples are promptly placed in an ice chest containing deionized ice or an inert ice substitute such as Blue Ice or Super Ice. The samples are maintained in either an ice chest or a refrigerator until delivered into the custody of the laboratory.

## Sample Designations

All sample containers are identified with both a sampling event number and a discrete sample identification number. Please note that the sampling event number is the number that appears on our chain of custody. It is roughly equivalent to a job number, but applies only to work done on a particular day of the year rather than spanning several days, as jobs and projects often do.

## Chain of Custody

Samples are continuously maintained in an appropriate cooled container while in our custody and until delivered to the laboratory under our standard chain of custody. If the samples are taken charge of by a different party (such as another person from our office, a courier, etc.) prior to being delivered to the laboratory, appropriate release and acceptance records are made on the chain of custody (time, date and signature of person accepting custody of the samples).

## Hazardous Materials Testing Laboratory

The samples obtained at this site were delivered to Sequoia Analytical in Redwood City, California. Sequoia is certified by the California Department of Health Services as a Hazardous Materials Testing Laboratory, and is listed as DOHS HMTL #1210.

## Personnel

All Blaine Tech Services, Inc. personnel receive 29 CFR 1910.120(e)(2) training as soon after being hired as is practical. In addition, many of our personnel have additional certifications that include specialized training in level B supplied air apparatus and the supervision of employees working on hazardous materials sites. Employees are not sent to a site unless we are confident they can adhere to any site safety provisions in force at the site and unless we know that they can follow the written provisions of an SSP and the verbal directions of an SSO.

In general, employees sent to a site to perform groundwater well sampling will assume an OSHA level D (wet) environment exists unless otherwise informed. The use of gloves and double glove protocols protects both our employees and the integrity of the samples being collected. Additional protective gear and procedures for higher OSHA levels of protection are available.

## Reportage

Submission to the Regional Water Quality Control Board and the local implementing agency should include copies of the sampling report, the chain of custody and the certified analytical report issued by the Hazardous Materials Testing Laboratory.

The following addresses have been listed here for your convenience:

Water Quality Control Board
San Francisco Bay Region
2101 Webster Street
5th Floor
Oakland, CA 94612
ATTN: John West

Oakland Fire Prevention Bureau
One City Hall Plaza
Oakland, CA 94612
ATTN: Stanley Y. Chi

Please call if we can be of any further assistance.

Richard C. Blaine

RCB/mc

attachments: table of well monitoring data
chain of custody
certified analytical report

# TABLE OF WELL MONITORING DATA

| Well I.D. | MW-1 | | | MW-2 | | | MW-3 | | |
|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 4/4/96 | | | 4/4/96 | | | 4/4/96 | | |
| Well Diameter (in.) | 2 | | | 2 | | | 2 | | |
| Total Well Depth (ft.) | 27.14 | | | 33.20 | | | 32.84 | | |
| Depth To Water (ft.) | 3.82 | | | 2.81 | | | 3.88 | | |
| Free Product (in.) | NONE | | | NONE | | | NONE | | |
| Reason If Not Sampled | -- | | | -- | | | -- | | |
| 1 Case Volume (gal.) | 3.7 | | | 4.9 | | | 4.6 | | |
| Did Well Dewater? | NO | | | NO | | | NO | | |
| Gallons Actually Evacuated | 11.25 | | | 15.00 | | | 14.00 | | |
| Purging Device | MIDDLEBURG | | | MIDDLEBURG | | | MIDDLEBURG | | |
| Sampling Device | BAILER | | | BAILER | | | BAILER | | |
| Time | 9:47 | 9:54 | 10:01 | 11:11 | 11:17 | 11:23 | 12:20 | 12:25 | 12:30 |
| Temperature (Fahrenheit) | 65.6 | 65.4 | 65.4 | 68.4 | 68.6 | 68.4 | 68.0 | 68.2 | 68.0 |
| pH | 7.0 | 7.1 | 7.0 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 |
| Conductivity (micromhos/cm) | 530 | 530 | 530 | 820 | 820 | 820 | 690 | 680 | 680 |
| Nephelometric Turbidity Units | -- | -- | -- | >200 | >200 | >200 | >200 | >200 | >200 |
| BTS Chain of Custody | 960404-Z-1 | | | 960404-Z-1 | | | 960404-Z-1 | | |
| BTS Sample I.D. | MW-1 | | | MW-2 | | | MW-3 | | |
| DOHS HMTL Laboratory | SEQUOIA | | | SEQUOIA | | | SEQUOIA | | |
| Analysis | TPH-GAS, BTEX & MTBE | | | TPH-GAS, BTEX & MTBE | | | TPH-GAS, BTEX & MTBE | | |

**S U M M A R Y  O F  C A R  R E S U L T S** in parts per billion unless otherwise noted

| DOHS HMTL Laboratory | SEQUOIA | SEQUOIA | SEQUOIA |
|---|---|---|---|
| Laboratory Sample I.D. | MW-1 | MW-2 | MW-3 |
| TPH Gasoline | ND | ND | ND |
| Benzene | ND | ND | ND |
| Toluene | ND | ND | ND |
| Ethyl Benzene | ND | ND | ND |
| Xylene Isomers | ND | ND | ND |
| Methyl t-Butyl Ether | ND | 6100 | ND |

In the interest of clarity, an addendum has been added to the **TABLE** which lists analytical results in such a way that our field observations are presented together with the analytical results. This addendum is entitled a **SUMMARY OF CAR RESULTS.** As indicated by the title, the source documents for these numbers are the laboratory's certified analytical reports. These **certified analytical reports (CARs)** are generated by the laboratory as the sole official documents in which they issue their findings. Any discrepancy between the CAR and a tabular or text presentation of analytical values must be decided in favor of the CAR on the grounds that the CAR is the authoritative legal document.

BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 9513
(408) 995-553
FAX (408) 293-877

April 22, 1996

Touchstone Developments
17170 Keaton Ave.
Sonoma, CA 95476

Attention: Tim Walker

SITE:
Chevron Service Station No. 9-8341
3530 MacArthur Blvd.
Oakland, California

PROJECT:
Well Development

PROJECT INITIATED ON:
April 4, 1996

**WELL DEVELOPMENT REPORT 960404-Z-1**

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Blaine Tech Services, Inc. performs specialized environmental sampling and documentation as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc. does not participate in the interpretation of analytical results or become involved with the marketing or installation of remedial systems. The interpretation of results should be performed by representatives of the interested regulatory agencies and those certified professionals who are engaged as paid consultants in the business of providing professional opinions along with recommendations and proposals for further investigative or remedial activities.

As an independent third party, Blaine Tech Services, Inc. routinely performs evacuation and sampling of groundwater wells. In addition, we are frequently asked to provide specialized personnel, instruments and equipment for well development work. Similar standards of care and cleanliness are required in all these activities and our personnel are accustomed to the safety measures that must be taken.

### Scope of Requested Services

Blaine Tech Services, Inc. was asked to provide specialized equipment, instruments and personnel for a well development project being overseen by Tim Walker.

### Execution of Recent Work

Our personnel arrived at the site on April 4th, 1996 and developed three wells in accordance with our client's specifications communicated to us by Mr. Tim Walker. A summary of the well development actions is presented in the well development log at the end of this report.

## STANDARD PROCEDURES

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### Overview

Because formations vary in their geologic composition, transmissivity and water production capability, well development cannot be reduced to a set of fixed procedures that will always produce a complete and satisfactory result if just repeated for a predetermined period of time. Instead, well development is accomplished by selecting procedures that (a.) repair that portion of the native formation that was disrupted by the cutting action of the well drilling tool, and (b.) promote the flow of water out of the formation into the newly installed well (through the granular filter pack and well screen). Execution of development actions that are not appropriate to the native formation will be inefficient and in some cases deleterious.

Time constraints usually prevent a precise classification of the saturated zone materials by analysis of soil samples for physical characteristics at a laboratory equipped to do physical testing. Physical tests cannot usually be completed during the brief timespan of a project that combines exploration, design, and well installation into a one day effort. Instead, the subjective judgments of the field geologist are recorded in the boring log and well installation log. The field geologist must quickly evaluate soil types by their appearance and observable characteristics and record his or her estimation of the material in the log according to the categorical judgments provided by the Unified Soil Classification System. These categorical judgments are also the basis for determining the final construction specifications of the well.

The well's total depth, the length of the screened interval, the slot size, and the size of the sand used in the filter pack are all decided on the *appearance* of the soil cuttings and whatever quick tests the field geologist can perform. Because the physical specifications for the well are set at that moment and cannot be corrected later, any misclassification of soil that results in a

mismatching of the well to the native formation will have to be addressed and corrected (to whatever extent is possible) with well development actions, alone.

Well development work can be directed in two ways:

> First, specific well development actions can be called for by the geologist who installed the wells or by another professional reviewing that installation work. Typically, consultants specify the use of certain equipment and techniques.
>
> Second, the consultant or client can define the goal which is being sought and place limits on the amount of effort which should be taken to achieve the goal.

Of the two types of direction, the second is far more common and also more important. Defining the extent of effort which can be expended is vital to controlling costs on a project and scheduling personnel and equipment to complete the work. Moreover, it is possible to undertake and complete work without the added and frequently unnecessary effort of working out very detailed specification which may be impractical or unwarranted. This does not mean that our personnel cannot make use of well installation logs when they are available or are not receptive to very specific directions from the consultant. It does, however, mean that when very detailed directions are given, rapid communication between our personnel and the geologist become very important. This is especially true of sites where multiple wells have been installed, because wells even a short distance apart may demonstrate quite different characteristics which may require a rapid reevaluation of what well development procedures are appropriate in light of the hydrologic condition presented by the native formation at that location on the site.

In most cases, tightly controlled action sequences are less productive than more general directions combined with plain statements of what evaluation criteria should be used for judging the progress and completeness of the well development work. The most common standards are volumetric (removal of set volumes of water), recharge rate, and water clarity (measured as nephelometric turbidity units). Given these goals and limitations, our personnel can proceed with the work without supervision or direction by relying on empirical information obtained directly from the water in the well

## Selection of Development Equipment

Each Blaine Tech Services, Inc. vehicle provided for a well development project will have a wide assortment of development tools including stainless steel surgeblocks and swabs, several types of pumps and complete instrumentation for determining standard parameters. Special equipment which included certain types of winches, jetting heads, and drop surging pumps can be provided.

## General Policy

Truly difficult conditions which can only be resolved by the application of massive force or large volumes of high pressure air should be addressed by a drilling or pump installation contractor. Blaine Tech Services, Inc. is not in the heavy salvage business and has a general policy against the use of tools or techniques which provide enough mechanical advantage to pose a serious risk of damaging a well. The same policy prohibits introducing foreign materials into a well which could carry contaminants into the groundwater. In keeping with this policy, our personnel avoid surging with slugs of effluent water, or jetting with unfiltered air unless these actions are specifically requested by a registered professional who is cognizant of the problems and hazards that accompany the action. In a similar vein, our personnel will, whenever possible, avoid development actions that are likely to seal clay formations or promote bridging, and make every attempt to call obvious indication of such conditions to the attention of the project geologist so that a different regimen can be selected.

## Effluent Materials

Groundwater well sampling protocols call for the evacuation of a sufficient volume of water from the well to insure that the sample is collected from the water that has been newly drawn into the well from the surrounding geologic formation.

Well development routinely generates as much or more effluent water as does routine evacuation prior to monitoring. In some cases very large amounts of water must be removed from the well before a satisfactory level of development has been achieved. The effluent water from these development actions must be contained. Blaine Tech Services, Inc. will place this water in appropriate containers of the client's choice or bring new DOT 17 E drums to the site which are appropriate for the containment of the effluent materials.

## Decontamination

All apparatus is brought to the site in clean and serviceable condition. The equipment will be decontaminated after use in each well and before leaving the site. Decontamination consists of complete disassembly of the device to a point where a jet of stem cleaner water can be directed onto all internal surfaces. Blaine Tech Services, Inc. frequently modifies apparatus to allow complete disassembly and proper cleaning.

**Personnel**

All Blaine Tech Services, Inc. personnel receive 29 CFR 1910.120 training as soon after being hired as practical. In addition, many of our personnel have additional certifications that include specialized training in level B supplied air apparatus and the supervision of employees working on hazardous materials sites. Employees are not sent to a site and unless we know that they can follow the written provisions of an SSP and the verbal directions of an SSO.

In general, employees sent to a site to perform well sampling will assume an OSHA level D (wet) environment exists unless otherwise informed. The use of gloves and double glove protocols protects both our employees and the integrity of the samples being collected. Additional protective gear and procedures for higher OSHA levels of protection are available.

Please call if we can be of any further assistance.

Richard C. Blaine

RCB/mc

attachment: well development log

# MW-1 WELL DEVELOPMENT LOG

| Well Designation | Well Diameter (inches) | Well Depth (feet) | Initial Depth to Water (feet) | Volume of single case (gallons) |
|---|---|---|---|---|
| MW-1 | 2 | 27.14 | 3.82 | 3.7 |

**Equipment Used:** Middleburg/Surge Block

**Data collection during well development:**

| Date | Time | Gallons Removed | Temp. (F) | pH | EC (micromhos) | Turbidity (NTU) | Notes |
|---|---|---|---|---|---|---|---|
| 4/4/96 | 8:55 | 4.0 | 65.2 | 6.9 | 550 | >200 | Dark Brown Color w/PVC Filings |
| 4/4/96 | 8:59 | 8.0 | 64.2 | 6.9 | 540 | >200 | Dark Brown Color |
| 4/4/96 | 9:03 | 12.0 | 65.0 | 7.0 | 550 | >200 | Dark Brown Color, Very Fine Sand |
| 4/4/96 | 9:07 | 16.0 | 65.2 | 7.0 | 550 | >200 | Dark Brown Color, Very Fine Sand |
| 4/4/96 | 9:11 | 20.0 | 64.8 | 7.0 | 540 | >200 | Swabbed 15 times, Dark Brown Color |
| 4/4/96 | 9:15 | 24.0 | 65.0 | 7.0 | 530 | >200 | Begin Dewater, Slowed Down Pump |
| 4/4/96 | 9:21 | '28.0 | 65.4 | 7.0 | 530 | >200 | Clearing Up @ 1', Recharge 1.5 minutes. |
| 4/4/96 | 9:29 | 32.0 | 65.4 | 7.0 | 530 | >200 | Tan Color |
| 4/4/96 | 9:37 | 36.0 | 65.4 | 7.0 | 530 | >200 | Tan Color |
| 4/4/96 | 9:40 | 37.0 | 65.4 | 7.0 | 530 | >200 | Tan Color |

9:40 End Log. Depth to Water @ 3.82'
Depth to Bottom @ 27.22'

## MW-2 WELL DEVELOPMENT LOG

| Well Designation | Well Diameter (inches) | Well Depth (feet) | Initial Depth to Water (feet) | Volume of single case (gallons) |
|---|---|---|---|---|
| MW-2 | 2 | 33.20 | 2.81 | 4.9 |

**Equipment Used:** Middleburg/Surge Block

**Data collection during well development:**

| Date | Time | Gallons Removed | Temp. (F) | pH | EC (micromhos) | Turbidity (NTU) | Notes |
|---|---|---|---|---|---|---|---|
| 4/4/96 | 10:11 | 5.0 | 68.6 | 7.0 | 800 | >200 | Dark Brown Color, Sand |
| 4/4/96 | 10:17 | 10.0 | 68.2 | 7.0 | 820 | >200 | Dark Brown Color, Sand |
| 4/4/96 | 10:23 | 15.0 | 67.6 | 7.1 | 820 | >200 | Dark Brown Color, Sand |
| 4/4/96 | 10:29 | 20.0 | 68.2 | 7.1 | 810 | >200 | Dark Brown Color, Sand |
| 4/4/96 | 10:35 | 25.0 | 68.4 | 7.1 | 820 | >200 | Surged 15 times |
| 4/4/96 | 10:41 | 30.0 | 68.4 | 7.1 | 820 | >200 | Surged 15 times |
| 4/4/96 | 10:47 | 35.0 | 68.4 | 7.1 | 810 | >200 | Surged 15 times |
| 4/4/96 | 10:53 | 40.0 | 68.4 | 7.2 | 820 | >200 | Surged 15 times |
| 4/4/96 | 10:59 | 45.0 | 68.2 | 7.1 | 820 | >200 | Surged 15 times |
| 4/4/96 | 11:05 | 49.0 | 68.4 | 7.1 | 820 | >200 | Surged 15 times |

11:05 End Log. Depth to Water @ 2.81'
Depth to Bottom @ 33.20'

## MS-3 WELL DEVELOPMENT LOG

| Well Designation | Well Diameter (inches) | Well Depth (feet) | Initial Depth to Water (feet) | Volume of single case (gallons) |
|---|---|---|---|---|
| MW-3 | 2 | 32.84 | 3.88 | 4.6 |

**Equipment Used:** Middleburg/Surge Block

**Data collection during well development:**

| Date | Time | Gallons Removed | Temp. (F) | pH | EC (micromhos) | Turbidity (NTU) | Notes |
|---|---|---|---|---|---|---|---|
| 4/4/96 | 11:30 | 4.75 | 68.4 | 7.1 | 720 | >200 | Rust-Dark Brown Color, Sand |
| 4/4/96 | 11:35 | 9.5 | 68.0 | 7.1 | 690 | >200 | Rust-Dark Brown Color, Sand |
| 4/4/96 | 11:40 | 14.25 | 68.0 | 7.1 | 680 | >200 | Rust-Dark Brown Color, Sand |
| 4/4/96 | 11:45 | 19.0 | 68.0 | 7.1 | 680 | >200 | Rust-Dark Brown Color, Sand |
| 4/4/96 | 11:50 | 23.75 | 68.2 | 7.1 | 680 | >200 | Surged 15 times, Sand |
| 4/4/96 | 11:55 | 28.5 | 68.0 | 7.1 | 690 | >200 | Surged 15 times, Sand |
| 4/4/96 | 12:00 | 33.25 | 67.8 | 7.1 | 680 | >200 | Surged 15 times, Sand |
| 4/4/96 | 12:05 | 38.0 | 68.0 | 7.1 | 680 | >200 | Surged 15 times, Sand |
| 4/4/96 | 12:10 | 42.75 | 68.0 | 7.1 | 680 | >200 | Surged 15 times, Sand |
| 4/4/96 | 12:15 | 46.0 | 68.2 | 7.1 | 680 | >200 | Surged 15 times, Sand |

12:15 End Log. Depth to Water @ 3.88'
Depth to Bottom @ 32.85'

# APPENDIX D

**Sequoia Analytical Reports**

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-1-4.5 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/22/96 |
| Attention: Tim Walker | Lab Number: 9603D55-01 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 89 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

Sequoia Analytical

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-1-10.0 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/22/96 |
| Attention: Tim Walker | Lab Number: 9603D55-02 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 88 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-1-14.5 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/22/96 |
| Attention: Tim Walker | Lab Number: 9603D55-03 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 86 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-1-19.5 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/22/96 |
| Attention: Tim Walker | Lab Number: 9603D55-04 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 76 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

Sequoia Analytical

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-1-24.5 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/22/96 |
| Attention: Tim Walker | Lab Number: 9603D55-05 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 85 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

Sequoia Analytical

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-1-29.5 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/22/96 |
| Attention: Tim Walker | Lab Number: 9603D55-06 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 98 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-2-5.5 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/22/96 |
| Attention: Tim Walker | Lab Number: 9603D55-07 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| **TPPH as Gas** | **2.0** | **9.5** |
| Benzene | 0.010 | N.D. |
| Toluene | 0.010 | N.D. |
| **Ethyl Benzene** | **0.010** | **0.018** |
| **Xylenes (Total)** | **0.010** | **0.024** |
| Chromatogram Pattern: | | |
| **Weathered Gas** | | **C6-C12** |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 96 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-2-9.5 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/22/96 |
| Attention: Tim Walker | Lab Number: 9603D55-08 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 100 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-2-15.0 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/22/96 |
| Attention: Tim Walker | Lab Number: 9603D55-09 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 91 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-2-20.0 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/22/96 |
| Attention: Tim Walker | Lab Number: 9603D55-10 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 93 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-2-25.0 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/23/96 |
| Attention: Tim Walker | Lab Number: 9603D55-11 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 89 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-2-30.0 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/23/96 |
| Attention: Tim Walker | Lab Number: 9603D55-12 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 87 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-2-35.0 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/23/96 |
| Attention: Tim Walker | Lab Number: 9603D55-13 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 84 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-3-5.5 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/23/96 |
| Attention: Tim Walker | Lab Number: 9603D55-14 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| **TPPH as Gas** | **100** | **400** |
| Benzene | 0.50 | N.D. |
| **Toluene** | **0.50** | **0.62** |
| **Ethyl Benzene** | **0.50** | **4.7** |
| **Xylenes (Total)** | **0.50** | **32** |
| Chromatogram Pattern: | | |
| **Weathered Gas** | | **C6-C12** |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 85 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-3-9.5 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/23/96 |
| Attention: Tim Walker | Lab Number: 9603D55-15 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 84 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-3-14.5 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/23/96 |
| Attention: Tim Walker | Lab Number: 9603D55-16 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 87 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-3-20.0 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/23/96 |
| Attention: Tim Walker | Lab Number: 9603D55-17 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| **Xylenes (Total)** | **0.0050** | **0.0069** |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 80 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-3-25.0 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/23/96 |
| Attention: Tim Walker | Lab Number: 9603D55-18 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 89 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-3-30.0 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/23/96 |
| Attention: Tim Walker | Lab Number: 9603D55-19 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP01

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 87 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-3-34.5 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/22/96 |
| Attention: Tim Walker | Lab Number: 9603D55-20 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP18

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 94 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-3-40.0 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/22/96 |
| Attention: Tim Walker | Lab Number: 9603D55-21 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXB
Instrument ID: GCHP18

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 97 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Sampled: 03/18/96 |
| 17170 Keaton Ave. | Sample Descript: MW-3-45.0 | Received: 03/20/96 |
| Sonoma, CA 95476 | Matrix: SOLID | Extracted: 03/22/96 |
| | Analysis Method: 8015Mod/8020 | Analyzed: 03/22/96 |
| Attention: Tim Walker | Lab Number: 9603D55-22 | Reported: 03/25/96 |

QC Batch Number: GC032296BTEXEXA
Instrument ID: GCHP18

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

| Analyte | Detection Limit mg/Kg | Sample Results mg/Kg |
|---|---|---|
| TPPH as Gas | 1.0 | N.D. |
| Benzene | 0.0050 | N.D. |
| Toluene | 0.0050 | N.D. |
| Ethyl Benzene | 0.0050 | N.D. |
| Xylenes (Total) | 0.0050 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 93 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Kevin Follett
Project Manager

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| | | |
|---|---|---|
| Touchstone Developments | Client Proj. ID: Chevron 9-8341 / 9-8341 | Received: 03/20/96 |
| 17170 Keaton Ave. | | |
| Sonoma, CA 95476 | Lab Proj. ID: 9603D55 | Reported: 03/25/96 |
| Attention: Tim Walker | | |

## LABORATORY NARRATIVE

TPPH note: sample 9603D55-07 was diluted 2 fold.
sample 9603D55-14 was diluted 100 fold.

**SEQUOIA ANALYTICAL**

Kevin Follett
Project Manager

Sequoia Analytical

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Touchstone Developments
17170 Keaton Ave.
Sonoma, CA 95476
Attention: Tim Walker

Client Project ID: Chevron 9-8341 / 9-8341
Matrix: Solid
Work Order #: 9603D55 01-20

Reported: Mar 26, 1996

## QUALITY CONTROL DATA REPORT

| Analyte: | Benzene | Toluene | Ethyl Benzene | Xylenes |
|---|---|---|---|---|
| QC Batch#: | GC032296BTEXEXA | GC032296BTEXEXA | GC032296BTEXEXA | GC032296BTEXEXA |
| Analy. Method: | EPA 8020 | EPA 8020 | EPA 8020 | EPA 8020 |
| Prep. Method: | EPA 5030 | EPA 5030 | EPA 5030 | EPA 5030 |
| Analyst: | A. Maralit | A. Maralit | A. Maralit | A. Maralit |
| MS/MSD #: | 90603D5501 | 90603D5501 | 90603D5501 | 90603D5501 |
| Sample Conc.: | N.D. | N.D. | N.D. | N.D. |
| Prepared Date: | 3/22/96 | 3/22/96 | 3/22/96 | 3/22/96 |
| Analyzed Date: | 3/22/96 | 3/22/96 | 3/22/96 | 3/22/96 |
| Instrument I.D.#: | GCHP18 | GCHP18 | GCHP18 | GCHP18 |
| Conc. Spiked: | 0.20 mg/Kg | 0.20 mg/Kg | 0.20 mg/Kg | 0.60 mg/Kg |
| Result: | 0.15 | 0.15 | 0.15 | 0.45 |
| MS % Recovery: | 75 | 75 | 75 | 75 |
| Dup. Result: | 0.16 | 0.17 | 0.17 | 0.49 |
| MSD % Recov.: | 80 | 85 | 85 | 82 |
| RPD: | 6.5 | 13 | 13 | 8.5 |
| RPD Limit: | 0-50 | 0-50 | 0-50 | 0-50 |
| LCS #: | BLK032296 | BLK032296 | BLK032296 | BLK032296 |
| Prepared Date: | 3/22/96 | 3/22/96 | 3/22/96 | 3/22/96 |
| Analyzed Date: | 3/22/96 | 3/22/96 | 3/22/96 | 3/22/96 |
| Instrument I.D.#: | GCHP18 | GCHP18 | GCHP18 | GCHP18 |
| Conc. Spiked: | 0.20 mg/Kg | 0.20 mg/Kg | 0.20 mg/Kg | 0.60 mg/Kg |
| LCS Result: | 0.19 | 0.19 | 0.19 | 0.57 |
| LCS % Recov.: | 95 | 95 | 95 | 95 |
| MS/MSD LCS Control Limits | 50-150 | 50-150 | 50-150 | 50-150 |

SEQUOIA ANALYTICAL

Kevin Follett
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

Sequoia Analytical

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Touchstone Developments
17170 Keaton Ave.
Sonoma, CA 95476
Attention: Tim Walker

Client Project ID: Chevron 9-8341 / 9-8341
Matrix: Solid
Work Order #: 9603D55 21-22

Reported: Mar 26, 1996

# QUALITY CONTROL DATA REPORT

| Analyte: | Benzene | Toluene | Ethyl Benzene | Xylenes |
|---|---|---|---|---|
| QC Batch#: | GC032296BTEXEXB | GC032296BTEXEXB | GC032296BTEXEXB | GC032296BTEXEXB |
| Analy. Method: | EPA 8020 | EPA 8020 | EPA 8020 | EPA 8020 |
| Prep. Method: | EPA 5030 | EPA 5030 | EPA 5030 | EPA 5030 |
| Analyst: | E. Cunanan | E. Cunanan | E. Cunanan | E. Cunanan |
| MS/MSD #: | 9603D5509 | 9603D5509 | 9603D5509 | 9603D5509 |
| Sample Conc.: | N.D. | N.D. | N.D. | N.D. |
| Prepared Date: | 3/22/96 | 3/22/96 | 3/22/96 | 3/22/96 |
| Analyzed Date: | 3/22/96 | 3/22/96 | 3/22/96 | 3/22/96 |
| Instrument I.D.#: | GCHP1 | GCHP1 | GCHP1 | GCHP1 |
| Conc. Spiked: | 0.20 mg/Kg | 0.20 mg/Kg | 0.20 mg/Kg | 0.60 mg/Kg |
| Result: | 0.17 | 0.17 | 0.18 | 0.52 |
| MS % Recovery: | 85 | 85 | 90 | 87 |
| Dup. Result: | 0.17 | 0.18 | 0.18 | 0.54 |
| MSD % Recov.: | 85 | 90 | 90 | 90 |
| RPD: | 0.0 | 5.7 | 0.0 | 3.8 |
| RPD Limit: | 0-50 | 0-50 | 0-50 | 0-50 |
| LCS #: | BLK032296 | BLK032296 | BLK032296 | BLK032296 |
| Prepared Date: | 3/22/96 | 3/22/96 | 3/22/96 | 3/22/96 |
| Analyzed Date: | 3/22/96 | 3/22/96 | 3/22/96 | 3/22/96 |
| Instrument I.D.#: | GCHP1 | GCHP1 | GCHP1 | GCHP1 |
| Conc. Spiked: | 0.20 mg/Kg | 0.20 mg/Kg | 0.20 mg/Kg | 0.60 mg/Kg |
| LCS Result: | 0.19 | 0.20 | 0.20 | 0.59 |
| LCS % Recov.: | 95 | 100 | 100 | 98 |
| MS/MSD LCS Control Limits | 50-150 | 50-150 | 50-150 | 50-150 |

SEQUOIA ANALYTICAL

Kevin Follett
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☐ 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 9-8341
Facility Address 3530 MacARTHUR BLVD., OAKLAND, CA.
Consultant Project Number 9-8341
Consultant Name TOUCHSTONE DEVELOPMENTS
Address 17170 KENTON AVE., SONOMA, CA.
Project Contact (Name) TIM WALKER
(Phone) (707) 935 0601 (Fax Number) (707) 935 0601

Chevron Contact (Name) KENNETH KAN
(Phone) (510) 842 8752
Laboratory Name SEQUOIA
Laboratory Release Number WILL CALL IN
Samples Collected by (Name) ROBERT C. MALLORY
Collection Date 3/ /96
Signature Robert C. Mallory

9603D55

| 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) | Purgeable Halocarbons (8010) | Purgeable Aromatics (8020) | Purgeable Organics (8240) | Extractable Organics (8270) | Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA) | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1-4.5 | | 1 | S | D | 16:54 | 1 | Y | X | | | | | | | | | | | | |
| MW-1-10.0 | | 1 | S | D | 16:57 | 2 | Y | X | | | | | | | | | | | | |
| MW-1-14.5 | | 1 | S | D | 17:16 | 3 | Y | X | | | | | | | | | | | | |
| MW-1-19.5 | | 1 | S | D | 17:26 | 4 | Y | X | | | | | | | | | | | | |
| MW-1-24.5 | | 1 | S | D | 17:39 | 5 | Y | X | | | | | | | | | | | | |
| MW-1-29.5 | | 1 | S | D | 17:41 | 6 | Y | X | | | | | | | | | | | | |
| MW-2-5.5 | | 1 | S | D | 13:45 | 7 | Y | X | | | | | | | | | | | | |
| MW-2-9.5 | | 1 | S | D | 13:50 | 8 | Y | X | | | | | | | | | | | | |
| MW-2-15.0 | | 1 | S | D | 13:58 | 9 | Y | X | | | | | | | | | | | | |
| MW-2-20.0 | | 1 | S | D | 14:08 | 10 | Y | X | | | | | | | | | | | | |
| MW-2-25.0 | | 1 | S | D | 14:26 | 11 | Y | X | | | | | | | | | | | | |
| MW-2-30.0 | | 1 | S | D | 14:34 | 12 | Y | X | | | | | | | | | | | | |
| MW-2-35.0 | | 1 | S | D | 15:04 | 13 | Y | X | | | | | | | | | | | | |
| MW-3-5.5 | | 1 | S | D | 10:15 | 14 | Y | X | | | | | | | | | | | | |

| Relinquished By (Signature) | Organization | Date/Time | Received By (Signature) | Organization | Date/Time |
|---|---|---|---|---|---|
| Robert C. Mallory | TD | 3/20/96 10:11 | | | |
| Relinquished By (Signature) | Organization | Date/Time | Received By (Signature) | Organization | Date/Time |
| Relinquished By (Signature) | Organization | Date/Time | Received For Laboratory By (Signature) | | Date/Time |
| | | | Jean Gluss | | 3/20/96 10:11 |

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

COC-3.DWG/03 91/MCH

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☐ 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 9-8341
Facility Address 3330 MACARTHUR BLVD., OAKLAND, CA
Consultant Project Number 9-8341
Consultant Name TOUCHSTONE DEVELOPMENTS
Address 17170 KEPTON AVE., SONOMA, CA.
Project Contact (Name) TIM WALKER
(Phone) (707) 935-0601 (Fax Number) (707) 935-0601

Chevron Contact (Name) KENNETH KAN
(Phone) (510) 842-8752
Laboratory Name SEQUOIA
Laboratory Release Number WILL CALL IN
Samples Collected by (Name) ROBERT C. MALLORY
Collection Date 3/18/96
Signature Robert C. Mallory

9603D55

| 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-3-9.5 | | 1 | S | D | 10:26 | 15 | Y | X | | | | | | | | | | | | |
| MW-3-14.5 | | 1 | S | D | 10:38 | 16 | Y | X | | | | | | | | | | | | |
| MW-3-20.0 | | 1 | S | D | 10:44 | 17 | Y | X | | | | | | | | | | | | |
| MW-3-25.0 | | 1 | S | D | 11:01 | 18 | Y | X | | | | | | | | | | | | |
| MW-3-30.0 | | 1 | S | D | 11:09 | 19 | Y | X | | | | | | | | | | | | |
| MW-3-34.5 | | 1 | S | D | 11:24 | 20 | Y | X | | | | | | | | | | | | |
| MW-3-40.0 | | 1 | S | D | 11:41 | 21 | Y | X | | | | | | | | | | | | |
| MW-3-45.0 | | 1 | S | D | 12:02 | 22 | Y | X | | | | | | | | | | | | |

| Relinquished By (Signature) | Organization | Date/Time | Received By (Signature) | Organization | Date/Time |
|---|---|---|---|---|---|
| Robert C. Mallory | TD | 3/20/96 10:11 | | | |
| Relinquished By (Signature) | Organization | Date/Time | Received By (Signature) | Organization | Date/Time |
| Relinquished By (Signature) | Organization | Date/Time | Received For Laboratory By (Signature) Jenon Galvez | 3/20/96 | Date/Time 10-11 |

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

COC-3.DWG/03 01/HCH

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

| | | |
|---|---|---|
| Blaine Technical Services | Client Proj. ID: Chevron 9-8341/960404-Z1 | Sampled: 04/04/96 |
| 985 Timothy Drive | Sample Descript: MW-1 | Received: 04/05/96 |
| San Jose, CA 95133 | Matrix: LIQUID | |
| | Analysis Method: 8015Mod/8020 | Analyzed: 04/11/96 |
| Attention: Jim Keller | Lab Number: 9604515-01 | Reported: 04/15/96 |

QC Batch Number: GC041196BTEX03A
Instrument ID: GCHP3

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

| Analyte | Detection Limit ug/L | Sample Results ug/L |
|---|---|---|
| TPPH as Gas | 50 | N.D. |
| Methyl t-Butyl Ether | 2.5 | N.D. |
| Benzene | 0.50 | N.D. |
| Toluene | 0.50 | N.D. |
| Ethyl Benzene | 0.50 | N.D. |
| Xylenes (Total) | 0.50 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 90 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

| | | |
|---|---|---|
| Blaine Technical Services | Client Proj. ID: Chevron 9-8341/960404-Z1 | Sampled: 04/04/96 |
| 985 Timothy Drive | Sample Descript: MW-2 | Received: 04/05/96 |
| San Jose, CA 95133 | Matrix: LIQUID | |
| | Analysis Method: 8015Mod/8020 | Analyzed: 04/11/96 |
| Attention: Jim Keller | Lab Number: 9604515-02 | Reported: 04/15/96 |

QC Batch Number: GC041196BTEX03A
Instrument ID: GCHP3

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

| Analyte | Detection Limit ug/L | Sample Results ug/L |
|---|---|---|
| TPPH as Gas | 1000 | N.D. |
| **Methyl t-Butyl Ether** | **50** | **6100** |
| Benzene | 10 | N.D. |
| Toluene | 10 | N.D. |
| Ethyl Benzene | 10 | N.D. |
| Xylenes (Total) | 10 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 88 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

| | | |
|---|---|---|
| Blaine Technical Services | Client Proj. ID: Chevron 9-8341/960404-Z1 | Sampled: 04/04/96 |
| 985 Timothy Drive | Sample Descript: MW-3 | Received: 04/05/96 |
| San Jose, CA 95133 | Matrix: LIQUID | |
| | Analysis Method: 8015Mod/8020 | Analyzed: 04/11/96 |
| Attention: Jim Keller | Lab Number: 9604515-03 | Reported: 04/15/96 |

QC Batch Number: GC041196BTEX02A
Instrument ID: GCHP2

## Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

| Analyte | Detection Limit ug/L | Sample Results ug/L |
|---|---|---|
| TPPH as Gas | 50 | N.D. |
| Methyl t-Butyl Ether | 2.5 | N.D. |
| Benzene | 0.50 | N.D. |
| Toluene | 0.50 | N.D. |
| Ethyl Benzene | 0.50 | N.D. |
| Xylenes (Total) | 0.50 | N.D. |
| Chromatogram Pattern: | | |

| Surrogates | Control Limits % | | % Recovery |
|---|---|---|---|
| Trifluorotoluene | 70 | 130 | 91 |

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL** - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

| | | |
|---|---|---|
| Blaine Technical Services | Client Proj. ID: Chevron 9-8341/960404-Z1 | Received: 04/05/96 |
| 985 Timothy Drive | | |
| San Jose, CA 95133 | Lab Proj. ID: 9604515 | Reported: 04/15/96 |
| Attention: Jim Keller | | |

## LABORATORY NARRATIVE

TPPH Note: Sample 9604515-02 was diluted 20-fold.

**SEQUOIA ANALYTICAL**

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Blaine Tech Services, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Client Project ID: Chevron 9-8341 / 960404-Z1
Matrix: Liquid
Work Order #: 9604515 -01, 03

Reported: Apr 17, 1996

## QUALITY CONTROL DATA REPORT

| Analyte: | Benzene | Toluene | Ethyl Benzene | Xylenes |
|---|---|---|---|---|
| QC Batch#: | GC041196BTEX03A | GC041196BTEX03A | GC041196BTEX03A | GC041196BTEX03A |
| Analy. Method: | EPA 8020 | EPA 8020 | EPA 8020 | EPA 8020 |
| Prep. Method: | EPA 5030 | EPA 5030 | EPA 5030 | EPA 5030 |
| Analyst: | J. Woo | J. Woo | J. Woo | J. Woo |
| MS/MSD #: | 9603J2106 | 9603J2106 | 9603J2106 | 9603J2106 |
| Sample Conc.: | N.D. | N.D. | N.D. | N.D. |
| Prepared Date: | 4/11/96 | 4/11/96 | 4/11/96 | 4/11/96 |
| Analyzed Date: | 4/11/96 | 4/11/96 | 4/11/96 | 4/11/96 |
| Instrument I.D.#: | GCHP3 | GCHP3 | GCHP3 | GCHP3 |
| Conc. Spiked: | 10 µg/L | 10 µg/L | 10 µg/L | 30 µg/L |
| Result: | 10 | 10 | 9.9 | 30 |
| MS % Recovery: | 100 | 100 | 99 | 100 |
| Dup. Result: | 9.8 | 9.2 | 9.1 | 28 |
| MSD % Recov.: | 98 | 92 | 91 | 93 |
| RPD: | 2.0 | 8.3 | 8.4 | 6.9 |
| RPD Limit: | 0-50 | 0-50 | 0-50 | 0-50 |
| LCS #: | BLK041196 | BLK041196 | BLK041196 | BLK041196 |
| Prepared Date: | 4/11/96 | 4/11/96 | 4/11/96 | 4/11/96 |
| Analyzed Date: | 4/11/96 | 4/11/96 | 4/11/96 | 4/11/96 |
| Instrument I.D.#: | GCHP3 | GCHP3 | GCHP3 | GCHP3 |
| Conc. Spiked: | 10 µg/L | 10 µg/L | 10 µg/L | 30 µg/L |
| LCS Result: | 10 | 10 | 10 | 30 |
| LCS % Recov.: | 100 | 100 | 100 | 100 |
| MS/MSD LCS Control Limits | 70-130 | 70-130 | 70-130 | 70-130 |

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Blaine Tech Services, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Client Project ID: Chevron 9-8341 / 960404-Z1
Matrix: Liquid
Work Order #: 9604515-03

Reported: Apr 17, 1996

## QUALITY CONTROL DATA REPORT

| Analyte: | Benzene | Toluene | Ethyl Benzene | Xylenes |
|---|---|---|---|---|
| QC Batch#: | GC041196BTEX02A | GC041196BTEX02A | GC041196BTEX02A | GC041196BTEX02A |
| Analy. Method: | EPA 8020 | EPA 8020 | EPA 8020 | EPA 8020 |
| Prep. Method: | EPA 5030 | EPA 5030 | EPA 5030 | EPA 5030 |
| Analyst: | J. Woo | J. Woo | J. Woo | J. Woo |
| MS/MSD #: | 9603J2106 | 9603J2106 | 9603J2106 | 9603J2106 |
| Sample Conc.: | N.D. | N.D. | N.D. | N.D. |
| Prepared Date: | 4/11/96 | 4/11/96 | 4/11/96 | 4/11/96 |
| Analyzed Date: | 4/11/96 | 4/11/96 | 4/11/96 | 4/11/96 |
| Instrument I.D.#: | GCHP2 | GCHP2 | GCHP2 | GCHP2 |
| Conc. Spiked: | 10 µg/L | 10 µg/L | 10 µg/L | 30 µg/L |
| Result: | 9.9 | 9.8 | 9.8 | 29 |
| MS % Recovery: | 99 | 98 | 98 | 97 |
| Dup. Result: | 10 | 8.4 | 7.6 | 29 |
| MSD % Recov.: | 100 | 84 | 76 | 97 |
| RPD: | 1.0 | 15 | 25 | 0.0 |
| RPD Limit: | 0-50 | 0-50 | 0-50 | 0-50 |

| LCS #: | BLK041196 | BLK041196 | BLK041196 | BLK041196 |
|---|---|---|---|---|
| Prepared Date: | 4/11/96 | 4/11/96 | 4/11/96 | 4/11/96 |
| Analyzed Date: | 4/11/96 | 4/11/96 | 4/11/96 | 4/11/96 |
| Instrument I.D.#: | GCHP2 | GCHP2 | GCHP2 | GCHP2 |
| Conc. Spiked: | 10 µg/L | 10 µg/L | 10 µg/L | 30 µg/L |
| LCS Result: | 10 | 10 | 9.8 | 30 |
| LCS % Recov.: | 100 | 100 | 98 | 100 |
| MS/MSD LCS Control Limits | 70-130 | 70-130 | 70-130 | 70-130 |

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☐ 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: 9-8341
Facility Address: 3530 MacArthur Blvd, Oakland
Consultant Project Number: 960404-Z1
Consultant Name: Blaine Tech Services, Inc.
Address: 985 Timothy Dr., San Jose, CA 95133
Project Contact (Name): Jim Keller
(Phone): (408) 995-5535 (Fax Number): 293-8773

Chevron Contact (Name): Kenneth Kan
(Phone): (510) 842-8752
Laboratory Name: Sequoia
Laboratory Release Number: 606660 1
Samples Collected by (Name): BRETT BLEAN
Collection Date: 4-4-96
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) | MTBE | | | | | DO NOT BILL FOR TB-LB. 960515 Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 1 | 3 | W | | 1005 | HCL | Y | X | | | | | | | | X | | | | | |
| MW-2 | 2 | 3 | W | | 1125 | " | Y | X | | | | | | | | X | | | | | 5 10 50 |
| MW-3 | 3 | 3 | W | | 1235 | " | Y | X | | | | | | | | X | | | | | |

| Relinquished By (Signature) | Organization | Date/Time | Received By (Signature) | Organization | Date/Time |
|---|---|---|---|---|---|
| | BTS | 4/5 950 | | SEQ. | 4/5/96 9:50 |
| By (Signature) | Organization | Date/Time | Received By (Signature) | Organization | Date/Time |
| C. L | SEQ. | 4/5/96 10:45 | | | |
| (Signature) | Organization | Date/Time | Received For Laboratory By (Signature) | | Date/Time |

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

BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 9513
(408) 995-553
FAX (408) 293-877

April 22, 1996

Touchstone Developments
17170 Keaton Ave.
Sonoma, CA 95476

Attention: Tim Walker

SITE:
Chevron Service Station No. 9-8341
3530 MacArthur Blvd.
Oakland, California

PROJECT:
Well Development

PROJECT INITIATED ON:
April 4, 1996

**WELL DEVELOPMENT REPORT 960404-Z-1**

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Blaine Tech Services, Inc. performs specialized environmental sampling and documentation as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc. does not participate in the interpretation of analytical results or become involved with the marketing or installation of remedial systems. The interpretation of results should be performed by representatives of the interested regulatory agencies and those certified professionals who are engaged as paid consultants in the business of providing professional opinions along with recommendations and proposals for further investigative or remedial activities.

As an independent third party, Blaine Tech Services, Inc. routinely performs evacuation and sampling of groundwater wells. In addition, we are frequently asked to provide specialized personnel, instruments and equipment for well development work. Similar standards of care and cleanliness are required in all these activities and our personnel are accustomed to the safety measures that must be taken.

# APPENDIX E

**Well Surveying Report**

***Virgil Chavez Land Surveying***
*312 Georgia Street*
*Vallejo, California 94590*
*(707) 553-2476*

March 20, 1996
Project No. 1249-10

Tim Walker
Touchstone Developments
17170 Keaton Avenue
Sonoma, Ca. 95476

Subject: Monitoring Well Survey
3530 MacArthur Blvd.
Oakland, Ca.

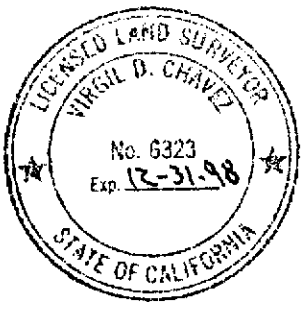
Dear Tim:

This is to confirm that we have proceeded at your request to survey the ground water monitoring wells located at the above referenced location. The survey was performed on March 19, 1996. My findings are shown in the table below, and are based on U.S.G.S. Datum. The benchmark for the survey was a City of Oakland Disk monument stamped "14NE22" at the southeast corner of 35th Ave. & MacArthur Blvd. (Elev.= 208.643).

| Monitoring Well No. | Rim Elevation | Top of Casing Elevation |
|---|---|---|
| MW-1 | 202.72′ | 202.47′ |
| MW-2 | 199.21′ | 198.88′ |
| MW-3 | 199.48′ | 199.10′ |

Measurements taken at approximate north side of top of box, top of casings were marked at location of measurements.

Sincerely,




Virgil D. Chavez, P.L.S. 6323