



Chevron

June 2, 1999

Chevron Products Company
6001 Bollinger Canyon Road
Building L, Room 1080
PO Box 6004
San Ramon, CA 94583-0904

Philip R. Briggs
Project Manager
Site Assessment & Remediation
Phone 925 842-9136
Fax 925 842-8370

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

Re: Chevron Service Station #9-0121
3026 Lakeshore Avenue
Oakland, California

Dear Ms. Chu:

Enclosed is the Monitoring Well Destruction and Installation Report that was prepared by our consultant Gettler-Ryan Inc. for the above noted site. The work performed was to replace three ¾ inch diameter monitoring wells with 2-inch diameter monitoring wells and to evaluate the soil and groundwater condition in the western portion of the site by installing one 2-inch groundwater monitoring well.

Wells MW-2, MW-3 and MW-4 were drilled out to remove the casing material and the borings were backfilled with neat cement to ½ foot below ground surface and finished with concrete to match the existing surface.

Borings MW-2A, MW-3A, MW-4A and MW-9 were drilled to a depth of 18 feet with soil samples collected about every 5 feet. Groundwater was encountered in the borings at depths from 4 feet to 8 feet.

Each boring was converted into a 2-inch diameter groundwater monitoring well and the wells were developed and samples collected. The soil and groundwater samples were analyzed for TPH-g, TPH-d, BTEX and MtBE constituents. Two soil samples (saturated and unsaturated) from well MW-3A were analyzed for fraction organic carbon, bulk density, porosity and moisture content (unsaturated sample only). The sample from well MW-2A was analyzed for bulk density and porosity.

99 JUN -3 PM 3:29
ENVIRONMENTAL PROTECTION

June 2, 1999
Ms. Eva Chu
Chevron Service Station #9-0121
Page 2

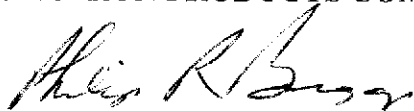
All of the constituents were detected in either one or the other of the two soil samples collected from each boring. All of the constituents were detected in the groundwater samples from wells MW-2A, MW-4A and MW-9 and only MtBE and TPH-d constituents in well MW-3A.

Based on the results of this investigation the soil and groundwater in the western portion of the site has been impacted by petroleum hydrocarbons. Chevron will include wells MW-2A, MW-3A, MW-4A and MW-9 in the existing ground water monitoring program that is being conducted at this site.

With the replacement of the $\frac{3}{4}$ inch diameter wells with 2-inch diameter wells, Chevron requests your concurrence to ^{inject} install Oxygen Releasing Compounds (ORC's) into these wells along with installing ORC's into wells MW-1 and MW-9. This is expected to increase the oxygen levels in the areas surrounding each well and thereby increase natural attenuation.

Now that we have site specific data, it may be advisable to conduct a Risk Based Corrective Action for this site. Please advise with any questions or comments, by calling me at (925) 842-9136.

Sincerely,
CHEVRON PRODUCTS COMPANY



Philip R. Briggs
Site Assessment and Remediation Project Manager

Enclosure

Cc. Mr. Bill Scudder, Chevron



GETTLER-RYAN INC.

MONITORING WELL DESTRUCTION AND INSTALLATION REPORT

for
Chevron Service Station #9-0121
3026 Lakeshore Avenue
Oakland, California

Report No. 346462.01-2

Prepared for:

Mr. Phil Briggs
Chevron Products Company
P.O. Box 6004
San Ramon, California 94583

Prepared by:

Gettler-Ryan Inc.
6747 Sierra Court, Suite G
Dublin, California 94568

Barbara Sieminski

Barbara Sieminski
Project Geologist
R.G. 6676



Stephen J. Carter

Stephen J. Carter
Senior Geologist
R.G. 5577

May 26, 1999

TABLE OF CONTENTS

1.0 INTRODUCTION	1
2.0 SITE DESCRIPTION	1
2.1 General	1
2.2 Geology and Hydrogeology	1
3.0 FIELD WORK	2
3.1 Drilling Activities	2
3.2 Wellhead Survey	3
3.3 Well Development and Sampling	3
3.4 Laboratory Analysis	3
4.0 RESULTS	3
4.1 Subsurface Condition	3
4.2 Soil Analytical Results	4
4.3 Groundwater Analytical Results	4
5.0 CONCLUSIONS	4
6.0 REFERENCES	5

TABLES

Table 1:	Summary of Well Destruction Activities
Table 2:	Water Level Data and Groundwater Analytical Results
Table 3:	Soil Analytical Results

FIGURES

Figure 1.	Vicinity Map
Figure 2.	Potentiometric Map

APPENDICES

Appendix A:	Work Plan Approval Letter and Addendum to Work Plan
Appendix B:	GR Field Methods and Procedures
Appendix C:	Well Installation Permit, Boring Logs and State of California Well Completion Reports
Appendix D:	Wellhead Survey Report
Appendix E:	Well Development and Sampling Field Data Sheets
Appendix F:	Laboratory Analytical Reports and Chain-of-Custody Records



GETTLER-RYAN INC.

MONITORING WELL DESTRUCTION AND INSTALLATION REPORT

for

Chevron Service Station #9-0121
3026 Lakeshore Avenue
Oakland, California

Report No. 346462.01-2

1.0 INTRODUCTION

This report summarizes the results of a well destruction and installation performed at Chevron Station #9-0121, located at 3026 Lakeshore Avenue in Oakland, California. The work was performed by Gettler-Ryan Inc (GR) at the request of Chevron Products Company (Chevron) to replace three ¾-inch diameter on-site monitoring wells with 2-inch diameter groundwater monitoring wells and evaluate soil and groundwater condition in the western portion of the subject site. The scope of work included: obtaining the required well destruction and installation permit; destroying three on-site groundwater monitoring wells (MW-2 through MW-4); installing four on-site groundwater monitoring wells (MW-2A through MW-4A and MW-9); surveying wellhead elevations of the newly installed wells; developing and sampling the newly installed wells; collecting and submitting soil and groundwater samples for chemical analysis; arranging for Chevron's contractor to dispose of the waste materials; and preparing a report documenting the work. This work was proposed in GR Report No. 346462.01-1, *Work Plan for Monitoring Well Destruction and Installation*, dated November 17, 1998, and approved by the Alameda County Health Care Services Agency (ACHCSA) in their letter to Chevron dated February 26, 1999 (Appendix A) and in GR *Addendum to Work Plan*, dated March 8, 1999 (Appendix A), verbally approved by the ACHCSA on March 12, 1999.

2.0 SITE DESCRIPTION

2.1 General

The subject site is an active service station located on the southwestern corner of the intersection of Lakeshore Avenue and MacArthur Boulevard in Oakland, California (Figure 1). Aboveground facilities consist of an island marketer and six dispenser islands. Three gasoline underground storage tanks (USTs) and one diesel UST share a common pit near the northwestern site boundary. To date, three on-site (MW-1 through MW-3) and five off-site (MW-4 through MW-8) groundwater monitoring wells have been installed to monitor groundwater condition beneath the site. Pertinent site features are shown on Figure 2.

2.2 Geology and Hydrogeology

The subject site is located on the East Bay Plane, at the western edge of Piedmont Hills, approximately 800 feet southeast of Lake Merritt and 1.5 mile northeast of Brooklyn Basin Tidal Canal at the eastern shore of San Francisco Bay. The local topography is relatively flat at an elevation of approximately 10 feet

above mean sea level. As mapped by E. J. Helley and others (1979), soil in the site vicinity consists of Holocene-age Bay Mud consisting of unconsolidated water saturated dark plastic carbonaceous clay and silty clay and coarse grained alluvium consisting of unconsolidated moderately sorted permeable sand and silt with coarse sand and gravel more abundant toward fan heads. These materials are underlain by Late Pleistocene-age alluvium consisting of weakly consolidated, slightly weathered, poorly sorted, irregularly interbedded clay, silt, sand and gravel. The nearest surface water is Lake Merrit. Based on the historical monitoring data, the shallow groundwater beneath the site flows to the southwest.

3.0 FIELD WORK

Field work was conducted in accordance with GR's Field Methods and Procedures (Appendix B) and the Site Safety Plan dated March 31, 1999. A well destruction and installation permit (#99WR106) was obtained from the Alameda County Public Works Agency, an underground utility locator was contracted to clear boring locations, and Underground Service Alert was notified prior to drilling at the site. The copies of the permit and the State of California Well Completion Reports are included in Appendix C.

3.1 Drilling Activities

On April 1 and 2, 1999, a GR geologist observed Bay Area Exploration, Inc. (C57 #522125) destroy three on-site groundwater monitoring wells (MW-2 through MW-4) and install four on-site groundwater monitoring wells (MW-2A through MW-4A and MW-9) at the locations shown on Figure 2. Drilling was performed using 8-inch hollow-stem augers driven by a truck-mounted CME-55 drill rig.

Wells MW-2 through MW-4 were drilled out to 1 foot past the installed depth to remove the casing, sand pack and annular seal material. Upon completion of drilling, neat cement was placed in the borings from the total depth to approximately ½ foot below ground surface (bgs). The well boxes were removed and the borings were finished with concrete to match the existing surface. Well destruction activities are summarized in Table 1.

Well borings MW-2A through MW-4A and MW-9 were drilled to 18 feet bgs. Soil samples were collected from the borings approximately every 5 feet. The GR geologist prepared logs of the borings and screened the soil samples in the field for the presence of volatile organic compounds. Screening data are presented on the boring logs (Appendix C).

A groundwater monitoring well was constructed in each of borings MW-2A through MW-4A and MW-9 using 15 feet of two-inch diameter, 0.020-inch machine-slotted Schedule 40 PVC screen. Lonestar #3 graded sand was placed in each well across the entire screen interval and extended approximately ½ foot above the top of the screen. Each well was then sealed with ½ foot of hydrated bentonite chips followed by neat cement. Well construction details are presented on the boring logs in Appendix C.

Drill cuttings were placed on and covered with plastic sheeting and stored on-site pending disposal. After completion of drilling, four samples for disposal characterization were collected from the drill cuttings and

submitted to the laboratory for compositing and analysis as sample SP-(A-D). On April 20, 1999, the drill cuttings were removed from the site and transported to the BFI Landfill in Livermore by Integrated Wastestream Management (IWM).

3.2 Wellhead Survey

On April 12, 1999, wells MW-2A through MW-4A and MW-9 were surveyed relative to mean sea level by Virgil Chavez, a California licensed land surveyor (#6323). Horizontal coordinates were obtained at the same time. A copy of the survey report is included in Appendix D, and the survey data is summarized in Table 2.

3.3 Well Development and Sampling

On April 19, 1999, groundwater monitoring wells MW-2A through MW-4A and MW-9 were developed by GR personnel using a vented surge block and hand-bailing. Depth to water was measured in the wells prior to development. Groundwater samples were collected from the wells upon completion of well development. Water purged during well development and sampling was transported to McKittrick Waste Management by IWM. Groundwater monitoring data are presented in Table 2, and copies of the GR Well Development and Sampling Field Data Sheets are included in Appendix E.

3.4 Laboratory Analysis

Soil and groundwater samples were analyzed by Sequoia Analytical in Walnut Creek, California (ELAP #1271). Two soil samples from each boring and groundwater samples were analyzed for TPHg, benzene, toluene, ethylbenzene and xylenes (BTEX), and methyl tertiary butyl ether (MtBE) by Environmental Protection Agency (EPA) Methods 8015/8020 and for TPHd by EPA Method 8015. Soil samples collected from boring MW-3A at 5.5 feet bgs (unsaturated sample) and at 15 feet bgs (saturated sample) were analyzed for fraction organic carbon by Watley-Black Method and bulk density, porosity and moisture content (unsaturated sample only) by method API RP-40. The sample collected from soil boring MW-2A at 17 feet bgs also was analyzed for bulk density and porosity. The composite sample from the drill cuttings was analyzed for TPHg, BTEX and TPHd. Copies of the laboratory analytical reports and chain-of-custody records are included in Appendix F.

4.0 RESULTS

4.1 Subsurface Conditions

Soil encountered in borings MW-2A through MW-4A and MW-9 consisted predominantly of interbedded clays and silts to the total depth explored of 18 feet bgs. A silty sand layer was encountered beneath clayey and silty materials in borings MW-2A and MW-9 at depths of 12.5 and 15 feet bgs, respectively and extended to the total depth of boring MW-2A and to approximately 17.8 feet bgs in boring MW-9. Groundwater was encountered and stabilized in the borings at depths ranging from 4 to 8 feet bgs. Detailed

descriptions of the subsurface materials encountered during drilling are presented on the boring logs in Appendix C. Based on groundwater monitoring data collected on April 19, 1999, shallow groundwater beneath the site appears to flow to the east at an approximate gradient of 0.006 (Figure 2).

4.2 Soil Analytical Results

TPHg (up to 1,100 parts per million [ppm]) were detected in all soil samples collected and analyzed from borings MW-2A through MW-4A and MW-9. Benzene (up to 5.6 ppm) was detected in six of the eight soil samples analyzed. MtBE (up to 0.18 ppm) was detected only in the soil samples collected from boring MW-9. However, the MtBE method detection limit for the soil samples from other borings was raised to 1 to 10 ppm. Unidentified hydrocarbons reported by the laboratory as TPHd (up to 100 ppm) were detected in all soil samples analyzed, except the sample collected from boring MW-9 at 6 feet bgs. The highest hydrocarbon concentrations were detected in borings MW-4A and MW-2A.

The laboratory analytical results for the unsaturated soil sample collected from boring MW-3A at 5.5 feet bgs indicated dry density of 1.98 gram per cubic centimeter (gm/cc), natural density of 2.25 gm/cc, matrix density of 2.72 gm/cc, porosity of 27.2% and moisture content of 15%. The results for the saturated samples collected from borings MW-2A and MW-3A at 15 and 17 feet bgs, respectively, indicated dry density up to 1.60 gm/cc, natural density up to 2.00 gm/cc, matrix density up to 2.69 gm/cc, and porosity up to 44.9%. Fraction organic carbon for the samples collected from boring MW3A at 5.5 and 15 feet bgs was reported at 0.069 ppm and 0.078 ppm, respectively.

The composite stockpile sample contained TPHg (45 ppm) and benzene (0.15 ppm). TPHd were not detected in this sample. Soil chemical analytical data are summarized in Table 3.

4.3 Groundwater Analytical Results

Groundwater samples collected from wells MW-2A through MW-4A and MW-9 contained diesel-range hydrocarbons reported by the laboratory as TPHd (up to 2,600 ppb) and MtBE (up to 9,200 ppb). The groundwater sample collected from well MW-9 also contained TPHg (3,900 ppb of gasoline and unidentified hydrocarbons >C10) and benzene (14 ppb). TPHg or benzene were not detected in the groundwater samples collected from wells MW-2A through MW-4A, however, the method detection limits for TPHg and MtBE were raised for the samples collected from well MW-2A (to 2,000 ppb and 20 ppb, respectively) and MW-4A (to 500 ppm and 5 ppm, respectively). Groundwater analytical data are summarized in Table 1.

5.0 CONCLUSIONS

Analytical results from soil samples collected and analyzed during this investigation indicate that soil beneath the subject site has been impacted by hydrocarbons. The highest hydrocarbon concentrations (up to 1,100 ppm TPHg, 100 ppm TPHd and 1.7 ppm benzene) are present in soil in the northern portion of

the site (vicinity of wells MW-2A and MW-4A). Soil in the western portion of the site (vicinity of well MW-9) has been slightly impacted by MtBE (up to 0.18 ppm).

Shallow groundwater beneath the subject site has been impacted by diesel-range hydrocarbons and MtBE. Groundwater beneath the western portion of the site (near well MW-9) also has been impacted by gasoline-range hydrocarbons. The highest hydrocarbon concentrations in groundwater are present in the vicinity of well MW-9. The highest MtBE concentrations are present in the vicinity of well MW-2A.

6.0 REFERENCES

E. J. Helley and others, 1979, Flatland Deposits of the San Francisco Bay Region, California: U.S. Geological Survey Professional Paper 943.

Gettler-Ryan Inc., November 17, 1998, Work Plan for Monitoring Well Destruction and Installation at Chevron Service Station #9-0121, 3026 Lakeshore Avenue, Oakland, California, Report No. 346462.01-1.

Gettler-Ryan Inc., March 8, 1999, Addendum to Work Plan for Monitoring Well Destruction and Installation at Chevron Service Station #9-0121, 3026 Lakeshore Avenue, Oakland, California, Report No. 346462.01.

Gettler-Ryan Inc., March 31, 1999, Site Safety Plan for Chevron Service Station #9-0121, 3026 Lakeshore Avenue, Oakland, California, Job No. 346462.01.

Table 1. Summary of Well Destruction Activities - Chevron Service Station #9-0121, 3026 Lakeshore Avenue, Oakland, California.

Well ID	Well Destruction Date	Well Diameter (inches)	Installed Well Depth (feet)	Well Depth on 04/01/99 (feet)	Depth to Water on 04/01/99 (feet)	Drilled-out Depth* (feet)
MW-2	04/01/99	¾	12.0	10.0	3.40	13.0
MW-3	04/01/99	¾	18.0	17.7	4.35	19.0
MW-4	04/01/99	¾	15.0	13.8	7.75	16.0

EXPLANATION:

* = Wells were drilled out with 8-inch diameter hollow stem augers and the borings were backfilled with neat cement.

Table 2. Water Level Data and Groundwater Analytical Results - Chevron Service Station #9-0121, 3026 Lakeshore Avenue, Oakland, California.

Well ID/ TOC (feet)	Date	DTW (feet)	GWE (msl)	Product Thickness (feet)	----- ppb -----						
					TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MtBE	TPHd
MW-2A/ 6.53	04/19/99	4.86	1.67	0	<2,000	<20	<20	<20	<20	9,200	820 ¹
MW-3A/ 8.70	04/19/99	7.70	1.00	0	<50	<0.50	<0.50	<0.50	<0.50	3.1	93 ¹
MW-4A/ 7.69	04/19/99	4.91	2.78	0	<500	<5	<5	<5	<5	1,600	370 ¹
MW-9/ 5.87	04/19/99	3.16	2.71	0	3,900 ²	14	6.9	14	24	140	2,600 ³
TB-LB	04/19/99	—	—	—	<50	<0.50	<0.50	<0.50	<0.50	<2.5	—

EXPLANATION:

- DTW - Depth to water
- TOC - Top of casing elevation
- GWE - Groundwater elevation
- TPHg - Total Petroleum Hydrocarbons as gasoline
- TPHd - Total Petroleum Hydrocarbons as diesel
- MtBE - Methyl t-Butyl Ether
- TB-LB - Trip blank
- msl - Measurements referenced relative to mean sea level
- ppb - Parts per billion
- - Not analyzed/Not applicable
- ¹ - Laboratory report indicates unidentified hydrocarbons C9-C24
- ² - Laboratory report indicates gasoline and unidentified hydrocarbons > C10
- ³ - Laboratory report indicates unidentified hydrocarbons > C9

ANALYTICAL METHODS:

- TPHg, benzene, toluene, ethylbenzene, xylenes, MtBE - EPA Methods 5030/8015Mod/8020
- TPHd - EPA Method 3510/8015 Mod

ANALYTICAL LABORATORY:

Sequoia Analytical (ELAP #1271)

NOTES:

Wells MW-2A through MW-4A and MW-9 were surveyed on April 12, 1999, by Virgil Chavez of Vallejo, California (PLS 6323).

Table 3. Soil Analytical Results - Chevron Service Station #9-0121, 3026 Lakeshore Avenue, Oakland, California.

Sample ID	Depth (ft)	Date	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MtBE	Fraction Organic Carbon %	Bulk Density			Porosity %	Moisture Content %
											Dry gm/cc	Natural gm/cc	Matrix gm/cc		
MW2A-3	3	04/01/99	28 ¹	820	1.7	2.8	13	29	<5.0	—	—	—	—	—	—
MW2A-6	6	04/01/99	100 ¹	430	<1	1.7	5.0	2.6	<10	—	—	—	—	—	—
MW2A-17	17	04/01/99	—	—	—	—	—	—	—	—	1.47	1.92	2.66	44.9	—
MW3A-5.5	5.5	04/01/99	—	—	—	—	—	—	—	0.069	1.98	2.25	2.72	27.2	15
MW3A-6	6	04/01/99	3.8 ²	41	<0.1	<0.1	<0.1	0.28	<1	—	—	—	—	—	—
MW3A-11	11	04/01/99	9.2 ³	180 ⁴	0.57	0.52	<0.50	1.8	<5	—	—	—	—	—	—
MW3A-15	15	04/01/99	—	—	—	—	—	—	—	0.078	1.60	2.00	2.69	40.5	—
MW4A-3	3	04/01/99	94 ³	540 ⁵	0.96	1.6	4.6	1.3	<2.5	—	—	—	—	—	—
MW4A-6	6	04/02/99	72 ³	1,100 ⁶	5.6	13	2.4	18	<10	—	—	—	—	—	—
MW9-3	3	04/01/99	1.2 ⁷	22 ⁵	0.036	0.048	0.028	0.091	0.089	—	—	—	—	—	—
MW9-6	6	04/02/99	<1.0	8.3 ⁶	0.011	0.033	0.010	0.078	0.18	—	—	—	—	—	—
SP-(A-D)	—	04/02/99	<1.0	45	0.15	0.21	0.45	0.79	—	—	—	—	—	—	—

EXPLANATION:

TPHd = Total Petroleum Hydrocarbons as diesel
 TPHg = Total Petroleum Hydrocarbons as gasoline
 MtBE = Methyl t-Butyl Ether
 ft = Feet
 ppm = Parts per million
 gm/cc = gram per cubic centimeter
 — = Not analyzed/not applicable

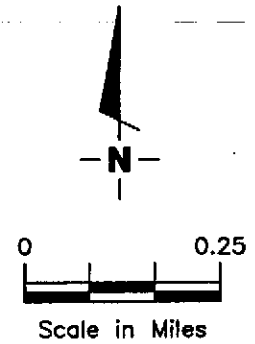
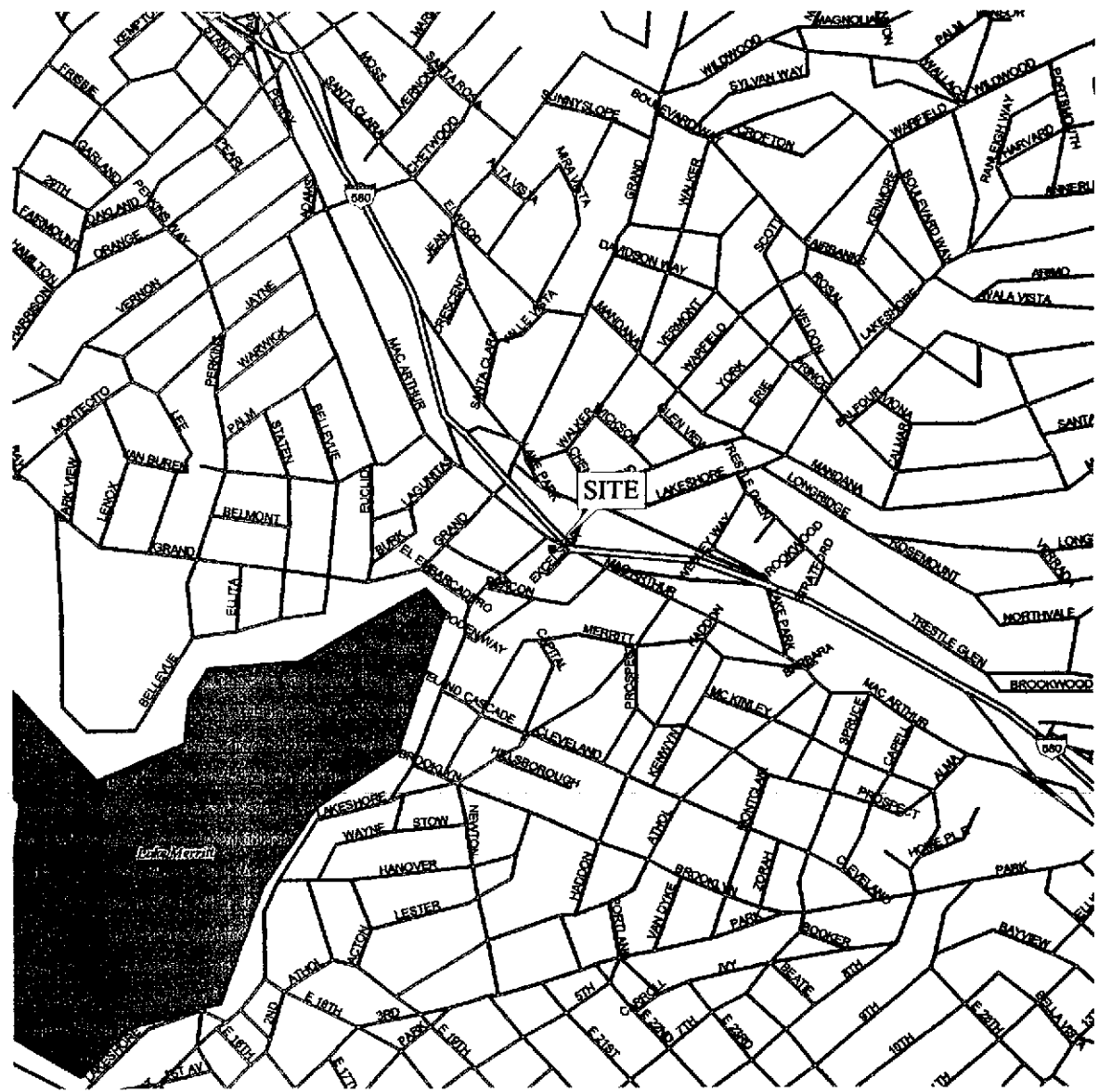
- ¹ = Laboratory report indicates unidentified hydrocarbons >C9
- ² = Laboratory report indicates unidentified hydrocarbons <C14
- ³ = Laboratory report indicates unidentified hydrocarbons C9-C24
- ⁴ = Laboratory report indicates gasoline and unidentified hydrocarbons <C8
- ⁵ = Laboratory report indicates gasoline and unidentified hydrocarbons C6-C12
- ⁶ = Laboratory report indicates gasoline and unidentified hydrocarbons <C7
- ⁷ = Laboratory report indicates unidentified hydrocarbons >C14

ANALYTICAL METHODS:

TPHg, benzene, toluene, ethylbenzene, xylenes, MtBE = EPA Methods 5030/8015Mod/8020
 TPHd = EPA Method 3550/8015Mod
 Porosity, densities = Method API RP-40

ANALYTICAL LABORATORY:

Sequoia Analytical (ELAP #1271)



Source: Street Atlas USA, Delorme (1995).



Gettler - Ryan Inc.

6747 Sierra Ct., Suite J (925) 551-7555
Dublin, CA 94568

VICINITY MAP

Chevron Service Station No. 9-0121
3026 Lakeshore Avenue
Oakland, California

FIGURE

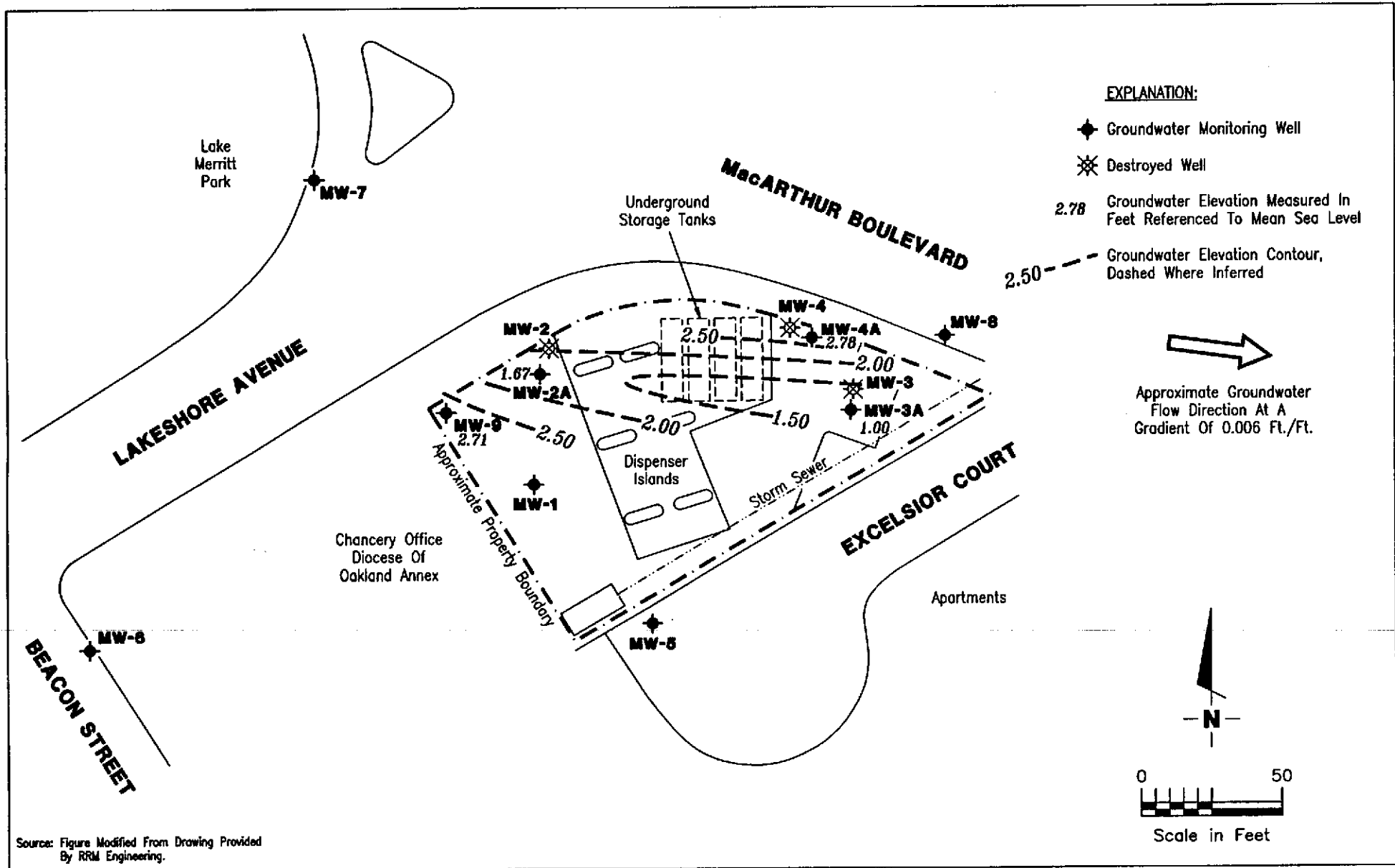
1

JOB NUMBER
346462

REVIEWED BY
[Signature]

DATE
05/99

REVISED DATE



Gettler - Ryan Inc.

6747 Sierra Ct., Suite J (925) 551-7555
 Dublin, CA 94568

POTENTIOMETRIC MAP
 Chevron Service Station No. 9-0121
 3026 Lakeshore Avenue
 Oakland, California

FIGURE

2

JOB NUMBER
 346462

REVIEWED BY

DATE
 April 19, 1999

REVISED DATE

APPENDIX A

**WORK PLAN APPROVAL LETTER
AND ADDENDUM TO WORK PLAN**

ALAMEDA COUNTY
HEALTH CARE SERVICES



AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700

StID 3628

February 26, 1999

Mr. Phil Briggs
Chevron-Building L, Room 1110
P.O. Box 6004
San Ramon, CA 94583-0904

RE: **Monitoring Well Replacement at Chevron Service Station #9-0121
at 3026 Lakeshore Ave, Oakland, CA**

Dear Mr. Briggs:

I have completed review of Blaine Tech Services' February 1999 *4th Quarter 1998 Monitoring at 9-0121* report and Gettler-Ryan Inc's November 1998 *Work Plan for Monitoring Well Destruction and Installation* report prepared for the above referenced site. Groundwater at the site continues to be impacted with elevated petroleum hydrocarbons. There is evidence that some degree of natural biodegradation may be occurring at the site. Gettler-Ryan has proposed to abandon the $\frac{3}{4}$ " diameter wells and replace them with 2" diameter wells. The larger diameter wells will allow the installation of ORC socks to enhance natural biodegradation. That proposal is acceptable with the following change:

- Do not destroy Well MW-2. Rather, install a new 2" diameter monitoring well 40' downgradient of Well MW-2. ORC is more effective when benzene concentrations are not too elevated. And, free product level should continue to be measured in existing Well MW-2.

Field work should commence within 60 days of the date of this letter, or by April 30, 1999. Please provide 72 hours notice prior to the start of field activities. If you have any questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

c: Todd Del Frate
Gettler-Ryan Inc.
3164 Gold Camp Drive, Suite 240
Rancho Cordova, CA 95670

chevron0121-1



GETTLER-RYAN INC.

March 8, 1999

Mr. Phil Briggs
Chevron Products Company
P.O. Box 6004
San Ramon, California 94583

Subject: Addendum to Work Plan For Monitoring Well Destruction And Installation At Chevron Station #9-0121, 3026 Lakeshore Avenue, Oakland, California.

Mr. Briggs:

At the request of Chevron Products Company (Chevron), Gettler-Ryan Inc. (GR) has prepared this addendum to Work Plan For Monitoring Well Destruction and Installation at the above referenced site. As discussed in the work plan dated November 17, 1998, GR proposed to destroy three 3/4-inch diameter groundwater monitoring wells (MW-2 through MW-4) and replace these wells with three 2-inch diameter groundwater monitoring wells. Locations of the proposed wells are shown on Figure 2.

The work plan was sent to Alameda County Health Care Services (ACHCS) for approval. The work plan was approved in a letter issued by ACHCS dated February 26, 1999. ACHCS requested that well MW-2 not be destroyed, and that a new well be installed 40 feet downgradient (southwest) of well MW-2. Location of the proposed well (MW-9) downgradient of well MW-2 is shown on Figure 2. Well MW-9 will be constructed as shown on Figure 3. GR Field Methods and Procedures are attached. Per your conversation with ACHCS on March 3, 1999, ACHCS agreed that well MW-2 will be destroyed and replaced as originally proposed.

If you have any questions, please call our Sacramento office at (916)631-1300.

Sincerely,
Gettler-Ryan Inc.

Todd A. Del Frate
Geologist

Stephen J. Carter
Senior Geologist
R.G. 5577



Attachments: Figure 2. Site Plan
Figure 3. Well Construction Details
GR Field Methods and Procedures

346462.01

APPENDIX B

GR FIELD METHODS AND PROCEDURES

GETTLER - RYAN FIELD METHODS AND PROCEDURES

Site Safety Plan

Field work performed by Gettler-Ryan, Inc. (GR) is conducted in accordance with GR's Health and Safety Plan and the Site Safety Plan. GR personnel and subcontractors who perform work at the site are briefed on the contents of these plans prior to initiating site work. The GR geologist or engineer at the site when the work is performed acts as the Site Safety Officer. GR utilizes a photoionization detector (PID) to monitor ambient conditions as part of the Health and Safety Plan.

Collection of Soil Samples

Exploratory soil borings are drilled by a California-licensed well driller. A GR geologist is present to observe the drilling, collect soil samples for description, physical testing, and chemical analysis, and prepare a log of the exploratory soil boring. Soil samples are collected from the exploratory soil boring with a split-barrel sampler or other appropriate sampling device fitted with clean brass or stainless steel liners. The sampling device is driven approximately 18 inches with a 140-pound hammer falling 30 inches. The number of blows required to advance the sampler each successive 6 inches is recorded on the boring log. The encountered soil is described using the Unified Soil Classification System (ASTM 2488-84) and the Munsell Soil Color Chart.

After removal from the sampling device, soil samples for chemical analysis are covered on both ends with teflon sheeting or aluminum foil, capped, labeled, and placed in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Samples are selected for chemical analysis based on:

- a. depth relative to underground storage tanks and existing ground surface
- b. depth relative to known or suspected groundwater
- c. presence or absence of contaminant migration pathways
- d. presence or absence of discoloration or staining
- e. presence or absence of obvious gasoline hydrocarbon odors
- f. presence or absence of organic vapors detected by headspace analysis

Field Screening of Soil Samples

A PID is used to perform head-space analysis in the field for the presence of organic vapors from the soil sample. This test procedure involves removing some soil from one of the sample tubes not retained for chemical analysis and immediately covering the end of the tube with a plastic cap. The PID probe is inserted into the headspace inside the tube through a hole in the plastic cap. Head-space screening results are recorded on the boring log. Head-space screening procedures are performed and results recorded as reconnaissance data. GR does not consider field screening techniques to be verification of the presence or absence of hydrocarbons.

Stockpile Sampling

Stockpile samples consist of four individual sample liners collected from each 100 cubic yards (yd³) of stockpiled soil material. Four arbitrary points on the stockpiled material are chosen, and discrete soil sample is collected at each of these points. Each discrete stockpile sample is collected by removing the upper 3 to 6 inches of soil, and then driving the stainless steel or brass tube into the stockpiled material with a wooden mallet or hand driven soil sampling device. The sample tubes are then covered on both ends with teflon sheeting or aluminum foil, capped, labeled, placed in the

G-R Field Methods and Procedures

cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Stockpiled soils are covered with plastic sheeting after completion of sampling.

Construction of Monitoring Wells

Monitoring wells are constructed in the exploratory borings with Schedule 40 polyvinyl Chloride (PVC) casing. All joints are thread-joined; no glues, cements, or solvents are used in well construction. The screened interval is constructed of machine-slotted PVC well screen which generally extends from the total well depth to a point above the groundwater. An appropriately-sized sorted sand is placed in the annular space adjacent to the entire screened interval. A bentonite transition seal is placed in the annular space above the sand, and the remaining annular space is sealed with neat cement or cement grout.

Wellheads are protected with water-resistant traffic rated vault boxes placed flush with the ground surface. The top of the well casing is sealed with a locking cap. A lock is placed on the well cap to prevent vandalism and unintentional introduction of materials into the well.

Storing and Sampling of Drill Cuttings

Drill cuttings are stockpiled on plastic sheeting or stored in drums depending on site conditions and regulatory requirements. Stockpile samples are collected and analyzed on the basis of one composite sample per 50 cubic yards of soil. Stockpile samples are composed of four discrete soil samples, each collected from an arbitrary location on the stockpile. The four discrete samples are then composited in the laboratory prior to analysis.

Each discrete stockpile sample is collected by removing the upper 3 to 6 inches of soil, and then driving the stainless or brass sample tube into the stockpiled material with a hand, mallet, or drive sampler. The sample tubes are then covered on both ends with teflon sheeting or aluminum foil, capped, labeled, and placed in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Stockpiled soils are covered with plastic sheeting after completion of sampling.

Wellhead Survey

The top of the newly-installed well casing is surveyed by a California-licensed Land Surveyor to mean sea level (MSL).

Well Development

The purpose of well development is to improve hydraulic communication between the well and surrounding aquifer. Prior to development, each well is monitored for the presence of separate-phase hydrocarbons and the depth-to-water is recorded. Wells are then developed by alternately surging the well with the bailer, then purging the well with a pump to remove accumulated sediments and draw groundwater into the well. Development continues until the groundwater parameters (temperature, pH, and conductivity) have stabilized.

Groundwater Monitoring and Sampling

Decontamination Procedures

All physical parameter measuring and sampling equipment are decontaminated prior to sample collection using Alconox or equivalent detergent followed by steam cleaning with deionized water. During field sampling, equipment placed in a well are decontaminated before purging or sampling the next well by cleaning with Alconox or equivalent detergent followed by steam cleaning with deionized water.

Water-Level Measurements

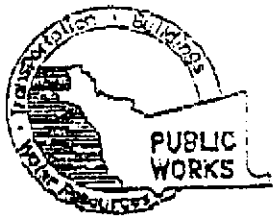
Prior to sampling each well, the static water level is measured using an electric sounder and/or calibrated portable oil-water interface probe. Both static water-level and separate-phase product thickness are measured to the nearest ± 0.01 foot. The presence of separate-phase product is confirmed using a clean, acrylic or polyvinylchloride (PVC) bailer, measured to the nearest ± 0.01 foot with a decimal scale tape. The monofilament line used to lower the bailer is replaced between borings with new line to preclude the possibility of cross-contamination. Field observations (e.g. product color, turbidity, water color, odors, etc.) are noted. Water-levels are measured in wells with known or suspected lowest dissolved chemical concentrations to the highest dissolved concentrations.

Sample Collection and Labeling

A temporary PVC screen is installed in the boring to facilitate a grab groundwater sample collection. Samples of groundwater are collected from the surface of the water in each well or boring using the teflon bailer or a pump. The water samples are then gently poured into laboratory-cleaned containers and sealed with teflon-lined caps, and inspected for air bubbles to check for headspace. The samples are then labeled by an adhesive label, noted in permanent ink, and promptly placed in an ice storage. A Chain-of-Custody Record is initiated and updated throughout handling of the samples, and accompanies the samples to the laboratory certified by the State of California for analyses requested.

APPENDIX C

**WELL INSTALLATION PERMIT,
BORING LOGS AND
STATE OF CALIFORNIA WELL COMPLETION REPORTS**



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
831 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-5261
(510) 670-5248 ALVIN KAN

COPY

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT Chico #9-0121
3026 Lakeshore Avenue
Oakland, California

PERMIT NUMBER 09WR 106
WELL NUMBER _____
APN _____

California Coordinates Source _____ N. Accuracy ± _____ ft.
CCN _____ N. COE _____ ft.
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

CLIENT
Name CHEVRON PRODUCTS COMPANY
Address P.O. Box 6004 Phone (510) 842-9126
City Salt Lake Zip 84119

APPLICANT
Name GITTLE - RYAN Fax (415) 631-1817
Address 7145 Gino Court Dr #240 Phone (415) 631-1300
City River Center Zip 94570

TYPE OF PROJECT
Well Construction Geotechnical Investigation
Cathodic Protection General
Water Supply Contamination
Monitoring Well Destruction

PROPOSED WATER SUPPLY WELL USE
New Domestic Replacement Domestic
Municipal Irrigation
Industrial Other Munitions

DRILLING METHOD:
Mud Rotary Air Rotary Auger
Cable Other

DRILLER'S LICENSE NO. 522125

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 18 ft.
Surface Seal Depth 2.5 ft. Number 4

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

ESTIMATED STARTING DATE 3/24/99
ESTIMATED COMPLETION DATE 3/24/99

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 71-68.

APPLICANT'S SIGNATURE John D. Gittle DATE 3-8-99

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

- B. WATER SUPPLY WELLS**
 - 1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
 - 2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

- C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS**
 - 1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
 - 2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

- D. GEOTECHNICAL**

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

- E. CATHODIC**

Fill hole above anode zone with concrete placed by tremie.

- F. WELL DESTRUCTION**

See attached.

SPECIAL CONDITIONS
Per letter 3/8/99 i.s.

APPROVED Charles Godfrey DATE 3/19/99

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

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

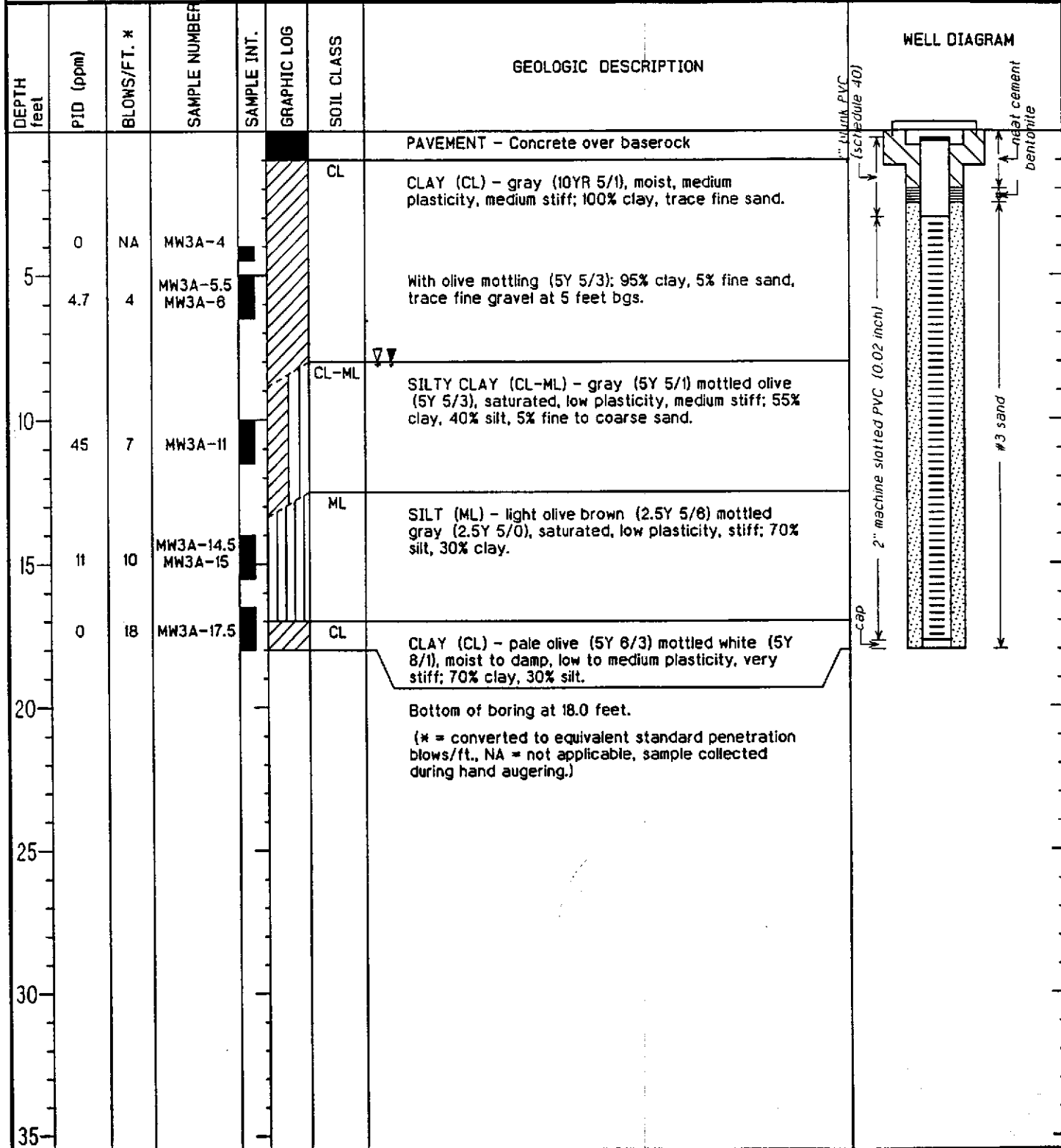
- No Soil Sample Recovered
- "Undisturbed" Sample
- Bulk or Classification Sample
- First Encountered Ground Water Level
- Piezometric Ground Water Level
- Penetration - Sample drive hammer weight - 140 pounds falling 30 inches. Blows required to drive sampler 1 foot are indicated on the logs

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

Gettler-Ryan, Inc.

Log of Boring MW-3A

PROJECT: <i>Chevron SS #9-0121</i>	LOCATION: <i>3026 Lakeshore Avenue, Oakland, CA.</i>
GR PROJECT NO.: <i>346462.01</i>	SURFACE ELEVATION: <i>8.70ft. MSL</i>
DATE STARTED: <i>04/01/99</i>	WL (ft. bgs): <i>8.0</i> DATE: <i>04/01/99</i> TIME: <i>12:20</i>
DATE FINISHED: <i>04/01/99</i>	WL (ft. bgs): <i>8.0</i> DATE: <i>04/02/99</i> TIME: <i>11:00</i>
DRILLING METHOD: <i>8 in. Hollow Stem Auger</i>	TOTAL DEPTH: <i>18.0 Feet</i>
DRILLING COMPANY: <i>Bay Area Exploration Inc.</i>	GEOLOGIST: <i>Barbara Sieminski</i>



Gettler-Ryan, Inc.

Log of Boring MW-2A

PROJECT: *Chevron SS #9-0121*

LOCATION: *3026 Lakeshore Avenue, Oakland, CA.*

GR PROJECT NO.: *346462.01*

SURFACE ELEVATION: *6.53ft. MSL*

DATE STARTED: *04/01/99*

WL (ft. bgs): *5.0* DATE: *04/01/99* TIME: *15:05*

DATE FINISHED: *04/01/99*

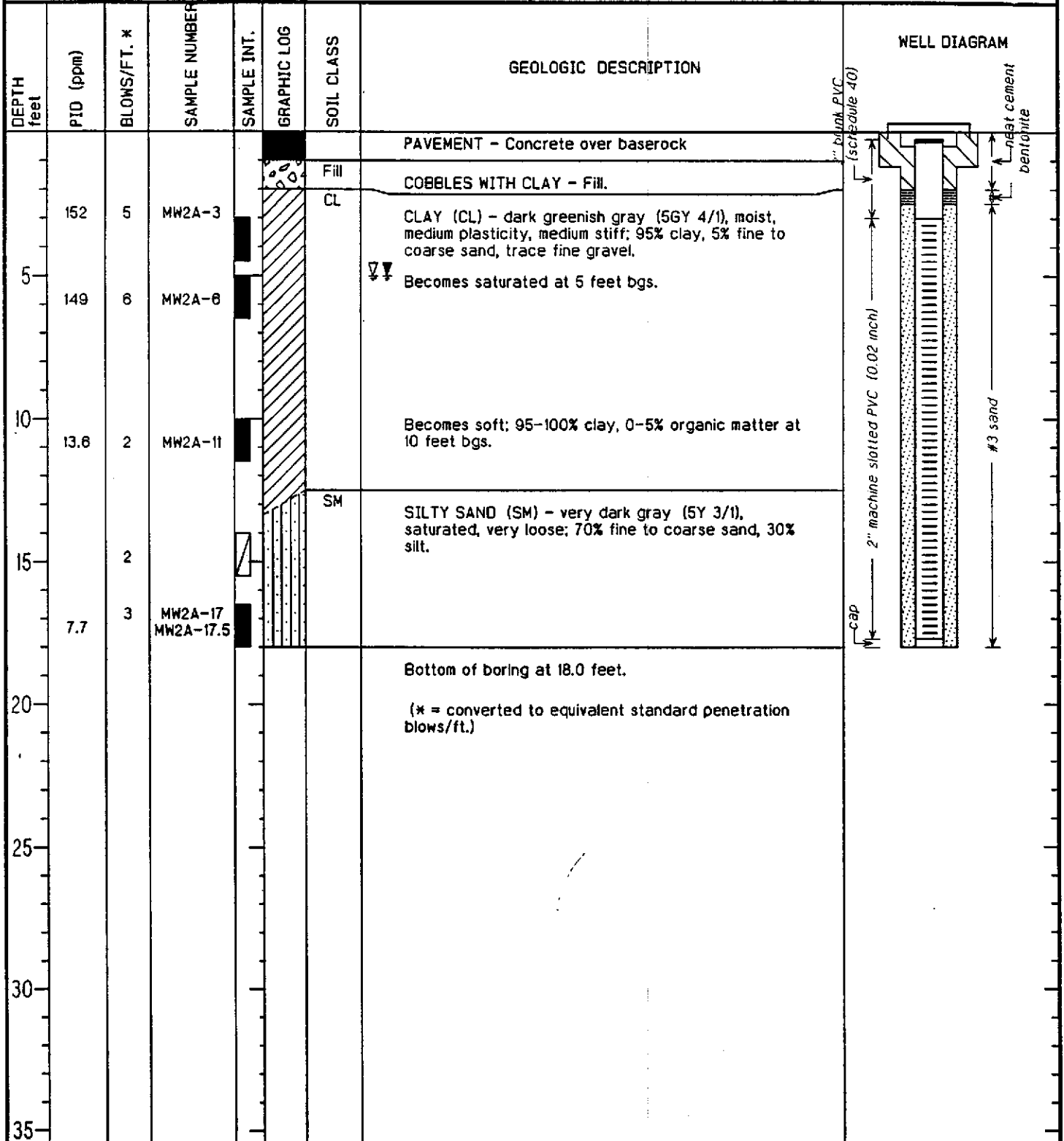
WL (ft. bgs): *5.0* DATE: *04/02/99* TIME: *11:20*

DRILLING METHOD: *8 in. Hollow Stem Auger*

TOTAL DEPTH: *18.0 Feet*

DRILLING COMPANY: *Bay Area Exploration Inc.*

GEOLOGIST: *Barbara Sieminski*



Gettler-Ryan, Inc.

Log of Boring MW-4A

PROJECT: <i>Chevron SS #9-0121</i>	LOCATION: <i>3026 Lakeshore Avenue, Oakland, CA.</i>
GR PROJECT NO. : <i>346462.01</i>	SURFACE ELEVATION: <i>7.89ft. MSL</i>
DATE STARTED: <i>04/01/99</i>	WL (ft. bgs): <i>4.5</i> DATE: <i>04/01/99</i> TIME: <i>13:55</i>
DATE FINISHED: <i>04/02/99</i>	WL (ft. bgs): <i>4.5</i> DATE: <i>04/02/99</i> TIME: <i>9:00</i>
DRILLING METHOD: <i>8 in. Hollow Stem Auger</i>	TOTAL DEPTH: <i>18.5 Feet</i>
DRILLING COMPANY: <i>Bay Area Exploration Inc.</i>	GEOLOGIST: <i>Barbara Sieminski</i>

DEPTH feet	PTD (ppm)	BLOWS/FT. *	SAMPLE NUMBER	SAMPLE INT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
							PAVEMENT - Concrete over pea gravel and baserock.	
0	NA		MW4A-3			CL	CLAY (CL) - dark gray (10YR 4/1) mottled greenish gray (5GY 5/1), moist, low plasticity, medium stiff; 70% clay, 20% silt, 10% fine to coarse sand. Becomes saturated at 4.5 feet bgs.	
5	65	6	MW4A-8			ML	SANDY SILT (ML) - dark gray (2.5Y 4/0), saturated, low plasticity, very soft; 60% silt, 30% fine sand, 10% clay.	
10	1.8	1	MW4A-11			CL-ML	SILTY CLAY (CL) - dark greenish gray (5GY 4/1), saturated, low plasticity, medium stiff; 80% clay, 40% silt.	
15	3.0	4	MW4A-15			CL	CLAY (CL) - olive (5Y 5/3) mottled dark yellowish brown (10YR 4/8), moist, low to medium plasticity, medium stiff; 80% clay, 20% silt.	
20	3.0	6	MW4A-17.5				Bottom of boring at 18.5 feet. (* = converted to equivalent standard penetration blows/ft., NA = not applicable, sample collected during hand augering.)	

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

APPENDIX D

WELLHEAD SURVEY REPORT

Virgil Chavez Land Surveying

312 Georgia Street, Suite 200
Vallejo, California 94590-5907
(707) 553-2476 • Fax (707) 553-8698

RECEIVED

APR 28 1999
April 28, 1999
Project No. 1704-06

GETTLER-
CONSTRUCTION

Barbara Sieminski
Gettler-Ryan, Inc.
6747 Sierra Ct., Suite J
Dublin, Ca. 94568

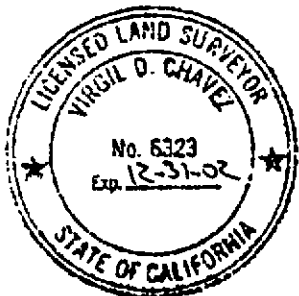
Subject: Monitoring Well Survey
Chevron SS # 9-0121
3026 Lakeshore Ave.
Oakland, Ca.

Dear Barbara:

This is to confirm that we have proceeded at your request to survey the monitoring wells at the above referenced location. Our findings for the are shown in the tables below. The survey was performed on April 12, 1999. Measurements were taken at notches on the top of casing. The benchmark for the survey was a City benchmark, being a cut square in the top of curb, at the northeasterly corner of Walker & Cheney Ave. The second table is for top of casing locations, using the back of sidewalk on Lakeshore as reference line, beginning near the westerly property corner and looking northeasterly. Benchmark Elev. = 9.055 feet, City Datum.

<u>Well No.</u>	<u>Rim Elevation</u>	<u>TOC Elevation</u>
MW - 2A	6.83'	6.53'
MW - 3A	9.01'	8.70'
MW - 4A	7.92'	7.69'
MW - 9	6.21'	5.87'

<u>Well No.</u>	<u>Station</u>	<u>Offset</u>
MW - 2A	0+41.87	11.76(Rt.)
MW - 3A	1+30.15	77.06(Rt.)
MW - 4A	1+30.22	47.78(Rt.)
MW - 9	0+06.82	5.62(Rt.)
BSW W'ly Prop Cor.	0+00.00	0.00
BSW Beg. Curve Lakeshore	0+54.20	0.00



Sincerely,

Virgil D. Chavez
Virgil D. Chavez, PLS 6323

APPENDIX E

**WELL DEVELOPMENT AND SAMPLING
FIELD DATA SHEETS**

FIELD DATA SHEET

Client/Facility: CHEVRON #9-0121 Job#: 346462
 Address: 3026 LAKESHORE AVE. Date: 4/19/1999
 City: OAKLAND, CA Sampler: HAIG KEVORK

Well ID: MW-2A Well Condition: OK
 Well Diameter: 2 in. Hydrocarbon Thickness: Ø Ft. Amount Bailed (product/water): Ø (gal.)
 Total Depth: 18.00 ft.
 Depth to Water: 4.86 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

13.14 x VF 0.17 = 2.23 x 3 (case volume) = Estimated Purge Volume: _____ (gal.)

Purge Equipment: Disposable Bailer Bailer Stack Suction Grundfos Other: _____
 Sampling Equipment: Disposable Bailer Bailer Pressure Bailer Grab Sample Other: _____

Starting Time: 18:00 Weather Conditions: SUNNY
 Sampling Time: 19:50 Water Color: _____ Odor: _____
 Purging Flow Rate: SUCTION 1.8 gpm BAILERS 0.5 gpm Sediment Description: _____
 Did well de-water? NO If yes; Time: _____ Volume: _____ (gal.)
SLOW RECOVERY

Time	Volume (gal.)	pH	Conductivity μ mhos/cm	Temperature °C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
18:00	0	7.04	8150	18.5			
18:02	2	7.11	8000	19.2			
<u>SLOW RECOVERY</u>				<u>3.75</u>	<u>EVERY 9 MINUTES</u>		
18:16	3	7.30	6990	19.6			
18:30	4	7.25	7300	20.4			
18:56	6	7.19	7270	20.9			
19:22	8	7.16	7250	21.2			
19:35	9	7.17	7290	19.9			
19:47	10	7.20	7310	20.3			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-2A	3 VOA	YES	HCL	SEQUOIA	G/BTEX/MTBE
	1 AMBER	↓		↓	TPH-D

COMMENTS: _____

FIELD DATA SHEET

Client/Facility: CHEVRON #9-0121 Job#: 346462
 Address: 3026 LAKESHORE AVE, Date: 4/19/1999
 City: OAKLAND, CA Sampler: HAIG KEVORK

Well ID: MW-3A Well Condition: OK
 Well Diameter: 2 in. Hydrocarbon Thickness: Ø ft. Amount Bailed (product/water): Ø (gal.)
 Total Depth: 18.04 ft.
 Depth to Water: 7.70 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

10.34 x VF 0.17 = 1.76 x 3 (case volume) = Estimated Purge Volume: _____ (gal.)

Purge Equipment: Disposable Bailer
 Bailer
 Stack
 Suction
 Grundfos
 Other: _____

Sampling Equipment: Disposable Bailer
 Bailer
 Pressure Bailer
 Grab Sample
 Other: _____

Starting Time: 13:05 Weather Conditions: SUNNY
 Sampling Time: 16:25 Water Color: _____ Odor: _____
 Purging Flow Rate: SUCTION 1 gpm. Sediment Description: _____
 Did well de-water? NO If yes; Time: _____ Volume: _____ (gal.)
VERY SLOW RECOVERY

Time	Volume (gal.)	pH	Conductivity μ mhos/cm	Temperature $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
13:05	0	7.20	1550	21.1			
13:07	1.5	6.98	1620	18.4			
<u>VERY SLOW RECOVERY (0.75' EVERY 10 MINUTES)</u>							
14:15	3	6.90	1660	18.2			
<u>START MW-4A WHILE WAITING FOR RECOVERY</u>							
15:18	4	6.93	1680	18.6			
16:15	5	6.94	1730	19.0			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-3A	3 VOA	YES	HCL	SEQUOIA	G/BTEX/MTBE
	1 AMBER	↓		↓	TPH-D

COMMENTS: _____

FIELD DATA SHEET

Client/
Facility CHEVRON #9-0121
Address: 3026 LAKESHORE AVE.
City: OAKLAND, CA

Job#: 346462
Date: 4/19/1999
Sampler: HAIG KEVORK

Well ID MW-4A

Well Condition: OK

Well Diameter 2 in.

Hydrocarbon Thickness: Ø Amount Bailed (product/water): Ø (gal.)

Total Depth 18.48 ft.

Depth to Water 4.91 ft.

Volume Factor (VF)	2" = 0.17	3" = 0.38	4" = 0.66
	6" = 1.50	12" = 5.80	

13.57 x VF 0.17 = 2.31 x 3 (case volume) = Estimated Purge Volume: _____ (gal.)

Purge Equipment: Disposable Bailer
 Bailer
 Stack
 Suction
 Grundfos
Other: _____

Sampling Equipment: Disposable Bailer
 Bailer
 Pressure Bailer
 Grab Sample
Other: _____

Starting Time: 14:25

Weather Conditions: SUNNY

Sampling Time: 16:45

Water Color: _____ Odor: _____

Purging Flow Rate: SUCTION 1
BAILER 0.5 gpm.

Sediment Description: _____

Did well de-water? NO
VERY SLOW RECOVERY

If yes; Time: _____ Volume: _____ (gal.)

Time	Volume (gal.)	pH	Conductivity μ hos/cm	Temperature $^{\circ}$ C	D.O. (mg/L)	ORP (mV)	Alkalinity (ppm)
14:25	0	7.50	1720	20.9			
14:28	2.5	7.76	1900	19.5			
<u>VERY SLOW RECOVERY (1.5 / EVERY 9 MINUTES)</u>							
14:55	3.5	7.63	1800	19.3			
15:22	4.5	7.61	1670	19.1			
15:48	5.5	7.56	1590	19.0			
16:19	6.5	7.60	1520	19.1			
16:36	7	7.62	1500	19.2			

LABORATORY INFORMATION

SAMPLE ID	(#) - CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-4A	3 VOA	YES	HCL	SEQUOIA	G/BTEX/MTBE
	1 AMBER	↓		↓	TPH-D

COMMENTS: _____

APPENDIX F

**LABORATORY ANALYTICAL REPORTS
AND CHAIN-OF-CUSTODY RECORDS**



Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

Gettler-Ryan - Dublin
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Chevron #9-0121, Oakland
Sample Matrix: Soil
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 904-0527

Sampled: Apr 1, 1999
Received: Apr 5, 1999
Reported: May 6, 1999

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX / MTBE

Analyte	Reporting Limit mg/Kg	Sample I.D. 904-0527 MW3A-6	Sample I.D. 904-0528 MW3A-11	Sample I.D. 904-0530 MW2A-3	Sample I.D. 904-0531 MW2A-6	Sample I.D. 904-0533 MW9-3	Sample I.D. 904-0534 MW4A-3
Purgeable Hydrocarbons	1.0	41	180	820	430	22	540
Benzene	0.0050	N.D.	0.57	1.7	N.D.	0.036	0.96
Toluene	0.0050	N.D.	0.52	2.8	1.7	0.048	1.6
Ethyl Benzene	0.0050	N.D.	N.D.	13	5.0	0.028	4.6
Total Xylenes	0.0050	0.28	1.8	29	2.6	0.091	1.3
MTBE	0.050	N.D.	N.D.	N.D.	N.D.	0.089	N.D.
Chromatogram Pattern:		Gasoline	Gasoline & Unidentified Hydrocarbons <C8	Gasoline	Gasoline	Gasoline & Unidentified Hydrocarbons C6 - C12	Gasoline & Unidentified Hydrocarbons C6 - C12

Quality Control Data

Report Limit Multiplication Factor:	20	100	100	200	1.0	50
Date Analyzed:	4/13/99	4/13/99	4/13/99	4/13/99	4/14/99	4/13/99
Instrument Identification:	HP-4	HP-4	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 40-140%)	120	*	*	*	69	*

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Julianne Fegley
Project Manager

Please Note:

* Surrogate recovery below detection limit due to dilution.



Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

Gettler-Ryan - Dublin
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Chevron #9-0121, Oakland
Sample Matrix: Soil
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 904-0535

Sampled: Apr 1, 1999
Received: Apr 5, 1999
Reported: May 6, 1999

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX / MTBE

Analyte	Reporting Limit mg/Kg	Sample I.D. 904-0535 MW4A-6	Sample I.D. 904-0536 MW9-6
Purgeable Hydrocarbons	1.0	1,100	8.3
Benzene	0.0050	5.6	0.011
Toluene	0.0050	13	0.033
Ethyl Benzene	0.0050	2.4	0.010
Total Xylenes	0.0050	18	0.076
MTBE	0.050	N.D.	0.18

Chromatogram Pattern:

Gasoline &
Unidentified
Hydrocarbons
<C7

Gasoline &
Unidentified
Hydrocarbons
<C7

Quality Control Data

Report Limit Multiplication Factor:	200	1.0
Date Analyzed:	4/13/99	4/14/99
Instrument Identification:	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 40-140%)	*	63

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

Judianne Fegley
Judianne Fegley
Project Manager

Please Note:

* Surrogate recovery below detection limit due to dilution.



Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

Gettler-Ryan - Dublin
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Chevron #9-0121, Oakland
Sample Matrix: Soil
Analysis Method: EPA 3550/8015 Mod.
First Sample #: 904-0527

Sampled: Apr 1, 1999
Received: Apr 5, 1999
Reported: May 6, 1999

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit mg/kg	Sample I.D. 904-0527 MW3A-6	Sample I.D. 904-0528 MW3A-11	Sample I.D. 904-0530 MW2A-3	Sample I.D. 904-0531 MW2A-6	Sample I.D. 904-0533 MW9-3	Sample I.D. 904-0534 MW4A-3
Extractable Hydrocarbons	1.0	3.8	9.2	28	100	1.2	94

Chromatogram Pattern:	Unidentified Hydrocarbons <C14	Unidentified Hydrocarbons C9 - C24	Unidentified Hydrocarbons >C9	Unidentified Hydrocarbons >C9	Unidentified Hydrocarbons >C14	Unidentified Hydrocarbons C9 - C24
-----------------------	--------------------------------	------------------------------------	-------------------------------	-------------------------------	--------------------------------	------------------------------------

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Extracted:	4/13/99	4/13/99	4/13/99	4/13/99	4/13/99	4/13/99
Date Analyzed:	4/15/99	4/15/99	4/16/99	4/14/99	4/15/99	4/15/99
Instrument Identification:	HP-3B	HP-3B	HP-3A	HP-3A	HP-3B	HP-3B

Extractable Hydrocarbons are quantitated against a fresh diesel standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Julianne Fegley
Project Manager





Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

Gettler-Ryan - Dublin
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Chevron #9-0121, Oakland
Sample Matrix: Soil
Analysis Method: EPA 3550/8015 Mod.
First Sample #: 904-0535

Sampled: Apr 1, 1999
Received: Apr 5, 1999
Reported: May 6, 1999

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit mg/kg	Sample I.D. 904-0535 MW4A-6	Sample I.D. 904-0536 MW9-6
Extractable Hydrocarbons	1.0	72	N.D.
Chromatogram Pattern:		Unidentified Hydrocarbons C9 - C24	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Extracted:	4/13/99	4/13/99
Date Analyzed:	4/15/99	4/15/99
Instrument Identification:	HP-3B	HP-3B

Extractable Hydrocarbons are quantitated against a fresh diesel standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Project Manager





Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

Gettler-Ryan - Dublin
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Chevron #9-0121, Oakland
Sample Descript: Soil
Analysis for: Percent Moisture
First Sample #: 904-0526

Sampled: Apr 1, 1999
Received: Apr 5, 1999
Analyzed: Apr 12, 1999
Reported: May 6, 1999

LABORATORY ANALYSIS FOR: Percent Moisture

Sample Number	Sample Description	Detection Limit %	Sample Result %
904-0526	MW3A-5.5	0.00010	15

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

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Project Manager



Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

Gettler-Ryan - Dublin
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Chevron #9-0121, Oakland
Sample Descript: Soil
Analysis for: Fraction Organic Carbon
First Sample #: 904-0526

Sampled: Apr 1, 1999
Received: Apr 5, 1999
Analyzed: Apr 14, 1999
Reported: May 6, 1999

LABORATORY ANALYSIS FOR: Fraction Organic Carbon

Sample Number	Sample Description	Detection Limit mg/kg	Sample Result mg/kg
904-0526	MW3A-5.5	0.020	0.069
904-0529	MW3A-15	0.020	0.078

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

SEQUOIA ANALYTICAL, #1210

Julianne Fegley
Project Manager





Sequoia Analytical

680 Chesapeake Drive
404 N. Wlget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

Gettler-Ryan - Dublin
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Chevron #9-0121, Oakland
Matrix: Solid

QC Sample Group: 9040526-536

Reported: May 6, 1999

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater

MS/MSD	Benzene	Toluene	Ethyl Benzene	Xylenes
Batch#:	9040912	9040912	9040912	9040912
Date Prepared:	4/13/99	4/13/99	4/13/99	4/13/99
Date Analyzed:	4/13/99	4/13/99	4/13/99	4/13/99
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
Conc. Spiked:	0.80 mg/kg	0.80 mg/kg	0.80 mg/kg	2.4 mg/kg
Matrix Spike % Recovery:	85	74	80	83
Matrix Spike Duplicate % Recovery:	93	79	84	96
Relative % Difference:	8.5	6.6	4.6	14

LCS Batch#:	4LCS041399	4LCS041399	4LCS041399	4LCS041399
Date Prepared:	4/13/99	4/13/99	4/13/99	4/13/99
Date Analyzed:	4/13/99	4/13/99	4/13/99	4/13/99
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
LCS % Recovery:	91	78	81	92

% Recovery Control Limits:	50-150	50-150	50-150	50-150
----------------------------	--------	--------	--------	--------

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.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Julianne Fegley
Project Manager





Sequoia Analytical

680 Chesapeake Drive
404 N. Wiger Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

Gettler-Ryan - Dublin
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Chevron #9-0121, Oakland
Matrix: Solid

QC Sample Group: 9040526-536

Reported: May 6, 1999

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M.
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater	K. Grubb

MS/MSD	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
Batch#:	9040912	9040912	9040912	9040912	9040531
Date Prepared:	4/13/99	4/13/99	4/13/99	4/13/99	4/13/99
Date Analyzed:	4/13/99	4/13/99	4/13/99	4/13/99	4/14/99
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3A
Conc. Spiked:	0.80 mg/kg	0.80 mg/kg	0.80 mg/kg	2.4 mg/kg	15 mg/kg
Matrix Spike % Recovery:	85	74	80	83	400
Matrix Spike Duplicate % Recovery:	93	79	84	96	667
Relative % Difference:	8.5	6.6	4.6	14	22

LCS Batch#:	4LCS041399	4LCS041399	4LCS041399	4LCS041399	LCS041399B
Date Prepared:	4/13/99	4/13/99	4/13/99	4/13/99	4/13/99
Date Analyzed:	4/14/99	4/14/99	4/14/99	4/14/99	4/14/99
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3A
LCS % Recovery:	90	78	84	9.6	80

% Recovery Control Limits:	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
	50-150	50-150	50-150	50-150	60-140

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.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Project Manager





Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

Gettler-Ryan - Dublin
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Chevron #9-0121, Oakland
Matrix: Solid

QC Sample Group: 9040526-536

Reported: May 6, 1999

QUALITY CONTROL DATA REPORT

ANALYTE	Percent Moisture	Fraction Organic Carbon
Method:	EPA 160.3	WALKLEY-BLACK
Analyst:	K. Anderson	R. Garnatero

Date Analyzed: 4/12/99 4/14/99

Instrument I.D.#: Manual Manual

Sample #: 9040438 990430501

Sample Concentration: 52 % 0.078 %

Sample Duplicate Concentration: 52 % 0.080 %

RPD: 0.0 2.5

RPD Control Limits: 0-30 0-20

SEQUOIA ANALYTICAL, #1271
& #1210

Julianne Fegley
Project Manager





**Sequoia Analytical
(Walnut Creek)
Gettler-Ryan, Inc.
Chevron 9-0121-Oakland**

C.L. File: 57111-99071
Work Order : 9904174

Sample No.	SA Client ID	Sample Date	Sample Density			Total Porosity %	Description
			Dry Bulk g/cc	Natural Bulk g/cc	Matrix g/cc		
9040526	MW3A-5.5	1-Apr-99	1.98	2.25	2.72	27.2	Gray silt
9040529	MW3A-15	1-Apr-99	1.60	2.00	2.69	40.5	Gray v clayey silt
9040532	MW2A-17	1-Apr-99	1.47	1.92	2.66	44.9	Gray silty vf-fgr sand w/ clay

Grain and pore volumes were determined using Boyle's Law methods as per API RP-40.
Total porosity, bulk and grain densities were calculated as per API RP-40.

Chevron U.S.A. Inc. P.O. BOX 5004 San Ramon, CA 94583 FAX (415)842-9591	Chevron Facility Number <u>9-0121</u> Facility Address <u>3026 Lakeshore Ave, Oakland</u> Consultant Project Number <u>346462.01</u> Consultant Name <u>Gettler-Ryan Inc.</u> Address <u>6747 Sierra Ct, Ste J, Dublin, CA 94568</u> Project Contact (Name) <u>Barbara Sieminski</u> (Phone) <u>(925)551-7555</u> (Fax Number) <u>(925)551-7888</u>	Chevron Contact (Name) <u>Phil Briggs</u> (Phone) <u>(925)842-9136</u> Laboratory Name <u>Seqoria</u> Laboratory Release Number <u>9144488 9901174</u> Samples Collected by (Name) <u>Barbara Sieminski</u> Collection Date <u>04/01/99</u> Signature <u>Barbara Sieminski</u>
--	---	--

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iod (Yes or No)	Analytes To Be Performed												Remarks	
								BTX + TPH GAS / HT-OC (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (8520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd, Cr, Pb, Zn, Ni (OCAP or AA)	Fraction Organ. Carbon	Moisture Content	Porosity	Bytk. Density		
MW3A-4		1	S	D	12:00		Yes														
MW3A-5.5		1			12:10													X	X	X	X
MW3A-6		1			12:10			X	X												
MW3A-11		1			12:20			X	X												
MW3A-14.5		1			12:25																
MW3A-15		1			12:25													X		X	X
MW3A-18		1			12:30																
MW2A-3		1			13:50			X	X												
MW2A-6		1			14:00			X	X												
MW2A-11		1			14:05																
MW2A-17		1			14:20														X	X	
MW2A-17.5		1			14:20																
MW9-3		1			13:15			X	X												
MW4A-3		1	V	V	13:55		V	X	X												

Relinquished By (Signature) <u>Barbara Sieminski</u>	Organization <u>G-R</u>	Date/Time <u>04/05/99</u>	Received By (Signature) <u>Phil Briggs</u>	Organization <u>W.C. Seq</u>	Date/Time <u>4/5/99</u> <u>1:00</u>	Turn Around Time (Circle Choice) 24 Hrs. 48 Hrs. 5 Days 10 Days <u>As Contracted</u>
Relinquished By (Signature) <u>Phil Briggs</u>	Organization	Date/Time <u>4/5/99 12:45</u>	Received By (Signature)	Organization	Date/Time	
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature) <u>Ronald C. Johnson</u>		Date/Time <u>4/5/99</u> <u>12:45</u>	

33-3336-03 01/99

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

Chevron Facility Number 9-0121
Facility Address 3026 Lakeshore Ave, Oakland
Consultant Project Number 346462.01
Consultant Name Gettler-Ryan Inc.
Address 6747 Sierra Ct, Ste J, Dublin, CA 94568
Project Contact (Name) Barbara Sieminski
(Phone) (925)551-7555 (Fax Number) (925)551-7883

Chevron Contact (Name) Phil Briggs
(Phone) (925)842-9136
Laboratory Name Sequoia 9504174
Laboratory Release Number 9144488
Samples Collected by (Name) Barbara Sieminski
Collection Date 04/02/99
Signature B Sieminski

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type C = Grab D = Composite D = Discrete	Time	Sample Preservation	Lead (Yes or No)	Analyses To Be Performed											Remarks				
								BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Hydrocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd, Cr, Pb, Zn, Ni (ICAP or AA)								
MW4A-6		1	S	D	9:05		Yes	X	X													9040535	
MW4A-11		1			9:10																		
MW4A-15		1			9:20																		
MW4A-175		1			9:25																		
MW9-6		1			10:15			X	X														9040536
MW9-11		1			10:20																		
MW9-15		1			10:30																		
MW9-175		1			10:35																		

Relinquished By (Signature) <u>Barbara Sieminski</u>	Organization <u>G-R</u>	Date/Time <u>04/05/99</u>	Received By (Signature) <u>[Signature]</u>	Organization <u>W.C. Sep</u>	Date/Time <u>4/5/99 1:00</u>	Turn Around Time (Circle Choice) 24 Hrs. 48 Hrs. 5 Days 10 Days <u>As Contracted</u>
Relinquished By (Signature) <u>[Signature]</u>	Organization	Date/Time <u>4/5/99 12:45</u>	Received By (Signature)	Organization	Date/Time	
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature) <u>[Signature]</u>		Date/Time <u>4/5/99 12:45</u>	

COC-1.0/MS/03 11/7/98



Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342

RECEIVED

Gettler-Ryan - Dublin 6747 Sierra Court, Suite J Dublin, CA 94568 Attention: Barbara Sieminski	Client Project ID: Chevron #9-0121, Oakland Sample Matrix: Soil Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 904-0260	Sampled: Apr 2, 1999 Received: Apr 5, 1999 Reported: Apr 7, 1999
---	--	--

GETTLER-RYAN, INC.

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 904-0260 SP-(A-D)
Purgeable Hydrocarbons	1.0	45
Benzene	0.0050	0.15
Toluene	0.0050	0.21
Ethyl Benzene	0.0050	0.45
Total Xylenes	0.0050	0.79
Chromatogram Pattern:		Gasoline

Quality Control Data

Report Limit Multiplication Factor:	10
Date Analyzed:	4/6/99
Instrument Identification:	HP-4
Surrogate Recovery, %: (QC Limits = 40-140%)	119

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Julianne Fegley
Project Manager



Sequoia Analytical

680 Chesapeake Drive
404 N. Wiger Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342

Gettier-Ryan - Dublin	Client Project ID: Chevron #9-0121, Oakland	Sampled: Apr 2, 1999
6747 Sierra Court, Suite J	Sample Matrix: Soil	Received: Apr 5, 1999
Dublin, CA 94568	Analysis Method: EPA 3550/8015 Mod.	Reported: Apr 7, 1999
Attention: Barbara Sieminski	First Sample #: 904-0260	

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit mg/kg	Sample I.D. 904-0260 SP-(A-D)
Extractable Hydrocarbons	1.0	N.D.

Chromatogram Pattern: --

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Extracted:	4/6/99
Date Analyzed:	4/7/99
Instrument Identification:	HP-3A

Extractable Hydrocarbons are quantitated against a fresh diesel standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Project Manager



Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954

(650) 364-9600 FAX (650) 364-9233
(925) 988-9600 FAX (925) 988-9673
(916) 921-9600 FAX (916) 921-0100
(707) 792-1865 FAX (707) 792-0342

Gettler-Ryan - Dublin
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Chevron #9-0121, Oakland
Matrix: Solid

QC Sample Group: 904-0260

Reported: Apr 7, 1999

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015 M.
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater	N. VanSlambrook

MS/MSD	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
Batch#:	9040280	9040280	9040280	9040280	9040260
Date Prepared:	4/6/99	4/6/99	4/6/99	4/6/99	4/6/99
Date Analyzed:	4/6/99	4/6/99	4/6/99	4/6/99	4/6/99
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3A
Conc. Spiked:	0.80 mg/kg	0.80 mg/kg	0.80 mg/kg	2.4 mg/kg	15 mg/kg
Matrix Spike % Recovery:	93	79	85	92	80
Matrix Spike Duplicate % Recovery:	90	78	81	92	93
Relative % Difference:	2.7	1.6	4.5	0.0	15

LCS Batch#:	4LCS040699	4LCS040699	4LCS040699	4LCS040699	LCS040699B
Date Prepared:	4/6/99	4/6/99	4/6/99	4/6/99	4/6/99
Date Analyzed:	4/6/99	4/6/99	4/6/99	4/6/99	4/6/99
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3A
LCS % Recovery:	98	83	86	96	86

% Recovery Control Limits:	50-150	50-150	50-150	50-150	60-140
----------------------------	--------	--------	--------	--------	--------

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.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Julianne Fegley
Project Manager



Sequoia Analytical

680 Chesapeake Drive
404 N. Wiger Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

Gettler-Ryan - Dublin 6747 Sierra Court, Suite J Dublin, CA 94568 Attention: Barbara Sieminski	Client Project ID: Chevron #9-0121, Oakland Sample Matrix: Water Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 904-1676	Sampled: Apr 19, 1999 Received: Apr 20, 1999 Reported: May 12, 1999
---	---	---

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX / MTBE

Analyte	Reporting Limit µg/L	Sample I.D. 904-1676 MW-2A	Sample I.D. 904-1677 MW-3A	Sample I.D. 904-1678 MW-4A	Sample I.D. 904-1679 MW-9	Sample I.D. 904-1680 TB-LB
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	3,900	N.D.
Benzene	0.50	N.D.	N.D.	N.D.	14	N.D.
Toluene	0.50	N.D.	N.D.	N.D.	6.9	N.D.
Ethyl Benzene	0.50	N.D.	N.D.	N.D.	14	N.D.
Total Xylenes	0.50	N.D.	N.D.	N.D.	24	N.D.
MTBE	2.5	9,200	3.1	1,600	140	N.D.
Chromatogram Pattern:		--	--	--	Gasoline & Unidentified Hydrocarbons >C10	--

Quality Control Data

Report Limit Multiplication Factor:	40	1.0	10	10	1.0
Date Analyzed:	4/27/99	4/27/99	4/27/99	4/27/99	4/27/99
Instrument Identification:	HP-2	HP-9	HP-5	HP-9	HP-9
Surrogate Recovery, %: (QC Limits = 70-130%)	100	92	88	126	90

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Project Manager





Sequoia Analytical

680 Chesapeake Drive
404 N. Wiger Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

Gettler-Ryan - Dublin
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Chevron #9-0121, Oakland
Sample Matrix: Water
Analysis Method: EPA 3510/8015 Mod.
First Sample #: 904-1676

Sampled: Apr 19, 1999
Received: Apr 20, 1999
Reported: May 12, 1999

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 904-1676 MW-2A	Sample I.D. 904-1677 MW-3A	Sample I.D. 904-1678 MW-4A	Sample I.D. 904-1679 MW-9
Extractable Hydrocarbons	50	820	93	370	2,600
Chromatogram Pattern:		Unidentified Hydrocarbons C9 - C24	Unidentified Hydrocarbons C9 - C24	Unidentified Hydrocarbons C9 - C24	Unidentified Hydrocarbons > C9

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Extracted:	4/26/99	4/26/99	4/26/99	4/26/99
Date Analyzed:	4/30/99	4/28/99	4/30/99	4/30/99
Instrument Identification:	HP-3B	HP-3A	HP-3B	HP-3A

Extractable Hydrocarbons are quantitated against a fresh diesel standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Project Manager

9041676.GET <2>





Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

Gettler-Ryan - Dublin
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Chevron #9-0121, Oakland
Matrix: Liquid

QC Sample Group: 9041676-680

Reported: May 12, 1999

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater

MS/MSD Batch#:	9041597	9041597	9041597	9041597
Date Prepared:	4/27/99	4/27/99	4/27/99	4/27/99
Date Analyzed:	4/27/99	4/27/99	4/27/99	4/27/99
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	95	90	95	100
Matrix Spike Duplicate % Recovery:	95	90	85	98
Relative % Difference:	0.0	0.0	11	1.7

LCS Batch#:	2LCS042799	2LCS042799	2LCS042799	2LCS042799
Date Prepared:	4/27/99	4/27/99	4/27/99	4/27/99
Date Analyzed:	4/27/99	4/27/99	4/27/99	4/27/99
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
LCS % Recovery:	90	85	90	93

% Recovery Control Limits:	70-130	70-130	70-130	70-130
----------------------------	--------	--------	--------	--------

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.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley

Julianne Fegley
Project Manager





Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

Gettler-Ryan - Dublin
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Chevron #9-0121, Oakland
Matrix: Liquid

QC Sample Group: 9041676-680

Reported: May 12, 1999

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater

MS/MSD	Benzene	Toluene	Ethyl Benzene	Xylenes
Batch#:	9041709	9041709	9041709	9041709
Date Prepared:	4/27/99	4/27/99	4/27/99	4/27/99
Date Analyzed:	4/27/99	4/27/99	4/27/99	4/27/99
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Matrix Spike % Recovery:	95	95	95	98
Matrix Spike Duplicate % Recovery:	90	95	95	100
Relative % Difference:	5.4	0.0	0.0	1.7

LCS Batch#:	5LCS042799	5LCS042799	5LCS042799	5LCS042799
Date Prepared:	4/27/99	4/27/99	4/27/99	4/27/99
Date Analyzed:	4/27/99	4/27/99	4/27/99	4/27/99
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
LCS % Recovery:	100	100	100	102

% Recovery Control Limits:	70-130	70-130	70-130	70-130
----------------------------	--------	--------	--------	--------

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.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Julianne Fegley
Project Manager





Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834
Petaluma, CA 94954
San Carlos, CA 94070-4111

(650) 364-9600
(925) 988-9600
(916) 921-9600
(707) 792-1865
(650) 232-9600

FAX (650) 364-9233
FAX (925) 988-9673
FAX (916) 921-0100
FAX (707) 792-0342
FAX (650) 232-9612

Gettler-Ryan - Dublin
6747 Sierra Court, Suite J
Dublin, CA 94568
Attention: Barbara Sieminski

Client Project ID: Chevron #9-0121, Oakland
Matrix: Liquid

QC Sample Group: 9041676-680

Reported: May 12, 1999

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M.
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater	K. Grubb

MS/MSD	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
Batch#:	9041609	9041609	9041609	9041609	BLK042699
Date Prepared:	4/27/99	4/27/99	4/27/99	4/27/99	4/26/99
Date Analyzed:	4/27/99	4/27/99	4/27/99	4/27/99	4/27/99
Instrument I.D.#:	HP-9	HP-9	HP-9	HP-9	HP-3A
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	500 µg/L
Matrix Spike % Recovery:	95	105	100	102	98
Matrix Spike Duplicate % Recovery:	95	100	100	100	102
Relative % Difference:	0.0	4.9	0.0	1.7	4.0

LCS Batch#:	9LCS042799	9LCS042799	9LCS042799	9LCS042799	LCS042699
Date Prepared:	4/27/99	4/27/99	4/27/99	4/27/99	4/26/99
Date Analyzed:	4/27/99	4/27/99	4/27/99	4/27/99	4/27/99
Instrument I.D.#:	HP-9	HP-9	HP-9	HP-9	HP-3A
LCS % Recovery:	95	100	100	100	80

% Recovery Control Limits:	70-130	70-130	70-130	70-130	60-140
----------------------------	--------	--------	--------	--------	--------

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.

SEQUOIA ANALYTICAL, #1271

Julianne Fegley
Julianne Fegley
Project Manager



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

Chevron Facility Number 9-0121, OAKLAND
Facility Address 3026 LAKESHORE AVENUE
Consultant Project Number 346462
Consultant Name GETTLER-RYAN INC. (GR)
Address 6747 Sierra Ct, Suite J, DUBLIN, CA
Project Contact (Name) BARBARA SIEMINSKI
(Phone) (925)551-7555 (Fax Number) 551-7888

Chevron Contact (Name) PHIL BRIGGS
(Phone) 9904473
Laboratory Name SEQUOIA ANALYTICAL
Laboratory Release Number 9144488
Samples Collected by (Name) HAIG KEVORK
Collection Date 4/19/1999
Signature [Signature]

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water G = Gas	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Lead (Y or N)	Analysis To Be Performed										Remarks	
								STX + TPH GAS (8020 + 8015)	TPH Distill (8015)	Oil and Grease (8020)	Petroleum Hydrocarbons (8010)	Petroleum Aromatics (8020)	Petroleum Organics (8240)	Extractable Organics (8270)	Metals Cd, Cr, Pb, Zn, Ni (8040 or 80)	MTBE			
MW-2A		4	W	G	19:50	HCL (3VOP)	YES	✓	✓									9041576	A-D
MW-3A		4	W	G	16:25			✓	✓									9041577	
MW-4A		4	W	G	16:45			✓	✓									9041578	
MW-9		4	W	G	17:50			✓	✓									9041579	
TB-LB		1	W	G	N/A	HCL		✓										9041680	

Prepared By (Signature) <u>[Signature]</u>	Organization <u>GR</u>	Date/Time	Received By (Signature) <u>[Signature]</u>	Organization	Date/Time	Turn Around Time (Circle Check) 24 Hrs. 48 Hrs. 5 Days 10 Days As Contracted
Prepared By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	
Prepared By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature) <u>[Signature]</u>		Date/Time <u>4/20/99</u> <u>11:12</u>	

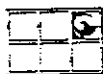


Project CHV/3026 Lakeshore Ave. Owner Chevron U.S.A. Inc.
 Location Oakland, CA Project Number 02030:074.020503
 Date Drilled 8/07/91 Total Depth of Hole 12.0 ft. Diameter 2 in.
 Surface Elevation _____ Water Level Initial 8.5 ft. 24-hour _____
 Screen: Dia 0.75 in. Length 10.0 ft. Slot Size 0.020 in.
 Casing: Dia 0.75 in. Length 2 ft. Type SCH 80 PVC
 Filter Pack Material #2/12 Lapis Lustrre
 Drilling Company Powercore Soil Sampling, Inc. Drilling Method Percussion Hammer
 Driller Jeff Arnold Log by Glen Mitchell
 Geologist/Engineer Ed Simonis License No RG# 4422

See Site Map
For Boring Location

NOTES:

Depth (feet)	Well Completion	Sample ID	Blow Count	Graphic Log	Soil Class	Description (Color, Texture, Structure)
0	[Well Completion Diagram]	A	[Blow Count Diagram]	[Graphic Log Diagram]	GC	CEMENT
1					GC	Brown clayey GRAVEL (fill, loose, moist)
2					CL	Greyish green sandy CLAY (soft, moist, strong hydrocarbon odor)
4					SC	Grey clayey fine SAND (firm, moist, strong hydrocarbon odor)
6		B			SC	
8					CL	▼ Encountered water at 8.5 feet on 8/07/91
10					CL	Grey CLAY (stiff, moist, strong hydrocarbon odor)
12						End of boring at 12 feet. Installed monitoring well.
14						
16						
18						
20						
22						
24						
26						



Project CHV/3026 Lakeshore Ave. Owner Chevron U.S.A. Inc.
 Location Oakland, CA Project Number 020301074.020503
 Date Drilled 8/13/91 Total Depth of Hole 18.0 ft. Diameter 2 in.
 Surface Elevation _____ Water Level Initial 11.5 ft. 24-hour _____
 Screen: Dia 0.75 in. Length 10.0 ft. Slot Size 0.020 in.
 Casing: Dia 0.75 in. Length 8 ft. Type SCH 80 PVC
 Filter Pack Material #2/12 Lapis Lustre
 Drilling Company Powercore Soil Sampling, Inc. Drilling Method Percussion Hammer
 Driller Jeff Arnold Log by Glen Mitchell
 Geologist/Engineer Ed Simonis License No RG# 4422

See Site Map
For Boring Location

NOTES:

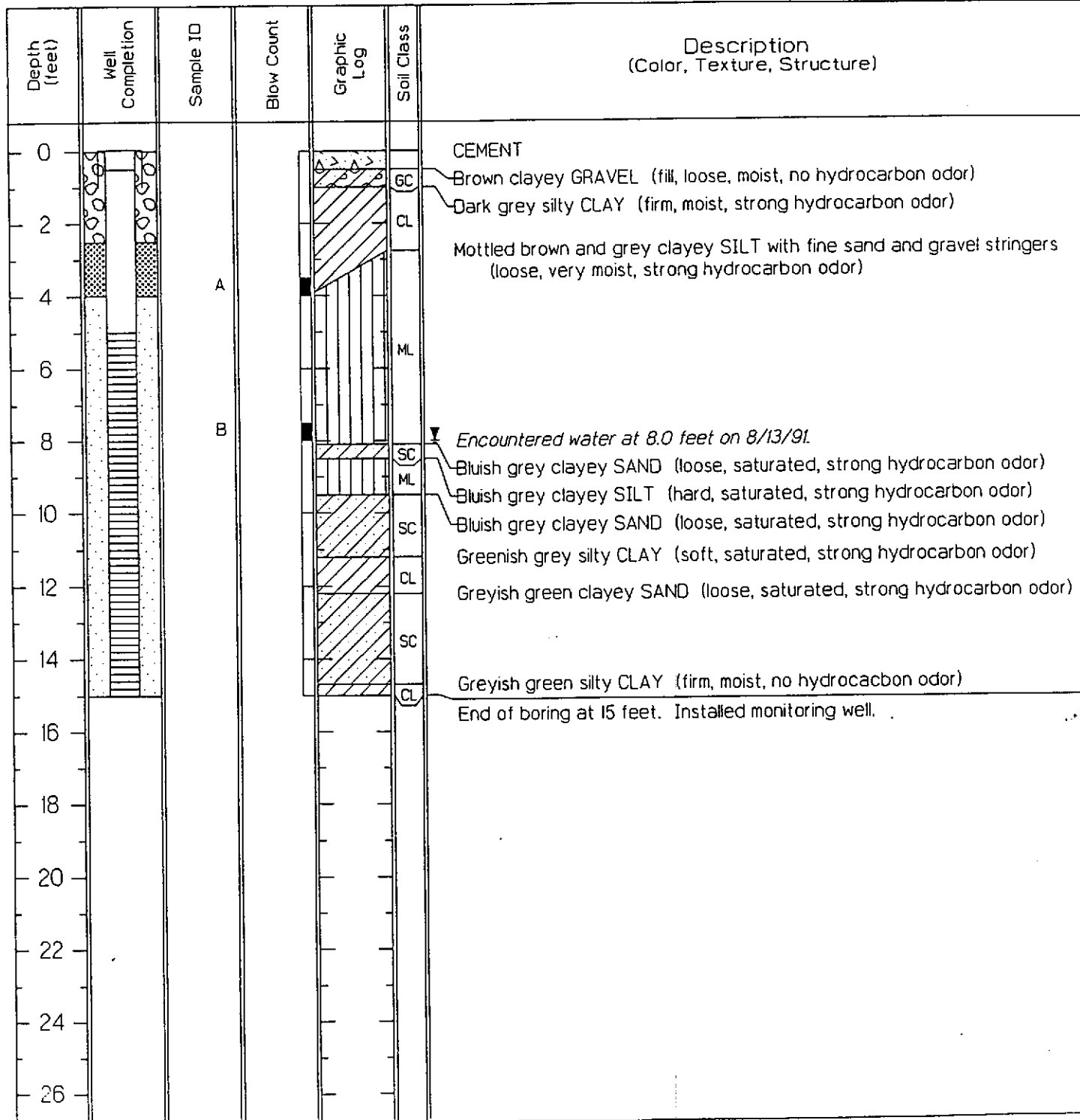
Depth (feet)	Well Completion	Sample ID	Blow Count	Graphic Log	Soil Class	Description (Color, Texture, Structure)
0						CEMENT
0 - 1					GC	Brown clayey GRAVEL (fill, loose, moist, no hydrocarbon odor)
1 - 2		A				Bluish grey silty CLAY (firm, wet, faint hydrocarbon odor)
2 - 4						Mottled bluish grey and green silty CLAY (firm, moist, faint hydrocarbon odor)
4 - 6					CL	
6 - 8		B				Dark grey silty CLAY (firm, wet, strong hydrocarbon odor)
8 - 10						Greenish grey silty CLAY with trace fine sand (soft, very wet, strong hydrocarbon odor)
10 - 12						↓ Encountered water at 11.5 feet on 8/13/91.
12 - 14					ML	Mottled brown and grey clayey SILT (firm, wet, no hydrocarbon odor)
14 - 16					ML	
16 - 18					CL	Brown silty CLAY (firm, moist, no hydrocarbon odor)
18						End of boring at 18 feet. Installed monitoring well.
20						
22						
24						
26						



Project GHV/3026 Lakeshore Ave. Owner Chevron U.S.A. Inc.
 Location Oakland, CA Project Number 020301074.020503
 Date Drilled 8/13/91 Total Depth of Hole 15.0 ft. Diameter 2 in.
 Surface Elevation _____ Water Level Initial 8.0 ft. 24-hour _____
 Screen: Dia 0.75 in. Length 10.0 ft. Slot Size 0.020 in.
 Casing: Dia 0.75 in. Length 5 ft. Type SCH 80 PVC
 Filter Pack Material #2/12 Lapis Lustrre
 Drilling Company Powercore Soil Sampling, Inc. Drilling Method Percussion Hammer
 Driller Jeff Arnold Log by Glen Mitchell
 Geologist/Engineer Ed Simonis License No RG# 4422

See Site Map
For Boring Location

NOTES:





GROUNDWATER
TECHNOLOGY

Drilling Log

MW-4
Monitoring Well **MW-1**

Project CHV/3026 Lakeshore Ave. Owner CHEVRON U.S.A. Products Company
 Location Oakland, California Project No. 02020 2781 Date drilled 06/19/92
 Surface Elev. _____ Total Hole Depth 21.5 ft. Diameter 10 inches ft.
 Top of Casing 6.89 ft. Water Level Initial 6 ft. Static 5.41 ft.
 Screen: Dia 4 in. Length 15 ft. Type/Size 0.020 in.
 Casing: Dia 4 in. Length 4 ft. Type SCH 40 PVC
 Filter Pack Material Lapis Lustre 2/12 Rig/Core Type Mobile B-53/split spoon
 Drilling Company Kvilhaug Well Drilling Method Hollow stem auger Permit # 92281
 Driller Mike Crocker Log By Greg Mischel
 Checked By Dave Kleesattel License No. RG# 5136 *Dnd Floates*

See Site Map
For Boring Location

COMMENTS:

The original MW-1 was destroyed using 10-inch augers. The 3/4-inch casing was removed and replaced with 4-inch casing.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						Concrete
2						CRUSHED ROCK about one-inch diameter (fill)
4						
6						Static groundwater level at 5.41 feet. Encountered groundwater at 6 feet on 06/19/92 (1700 hours).
8						
10						
12						
14						
16						
18						Brown CLAY with little silt (medium stiff, saturated)
20		15	A	4 6 II	CL	
22						End of boring at 21.5 feet. Slough up to 19 feet. Constructed groundwater monitoring well at 19.0 feet.
24						