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April 22, 2003  
File No.: 10-3006-13/13

Ms. Eva Chu  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-9335

**Subject: First Quarter 2003 Groundwater Monitoring Report  
Friesman Ranch Property, Livermore, California**

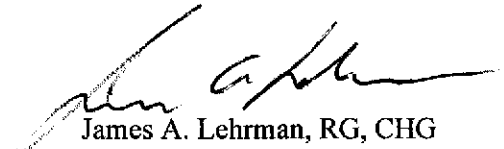
Dear Ms. Chu:

Attached is the First Quarter 2003 Groundwater Monitoring Report for the Friesman Ranch Property, 1600 Friesman Road, Livermore, California (site). The results of this report are consistent with the results of the previous groundwater monitoring events that have been performed at the site, with chemicals of concern only being detected in monitoring wells KMW-6 and KMW-7. No chemicals of concern were detected in the other wells sampled (KMW-1 and KMW-8).

As requested in your letter of March 3, 2003 to Ms. Lorraine del Prado of Children's Hospital and Research Center Foundation, additional investigation of the site was conducted during the first quarter of 2003. The additional work included an investigation of the creek adjacent to the site to assess possible impact from the petroleum hydrocarbon plume, and a well survey to identify water supply wells within 2000 feet of the site.

We trust that the attached submittal meets your requirements. Should you require any additional information and/or clarification, please contact the undersigned at (925) 460-5300.

Very truly yours,  
ATC ASSOCIATES INC.



James A. Lehrman, RG, CHG  
Senior Project Manager

Attachments

cc: Ms. Lorraine del Prado, Children's Hospital and Research Center Foundation  
Ms. Leah Goldberg, Hansen, Bridgett, Marcus, Vlahos and Rudy, LLP

**ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS**

*Rec'd April 24, 2003*

**QUARTERLY  
GROUNDWATER MONITORING REPORT  
FIRST QUARTER 2003  
FRIESMAN RANCH PROPERTY  
LIVERMORE, CALIFORNIA**

Submitted By:

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ATC Project No. 75.23909.0001

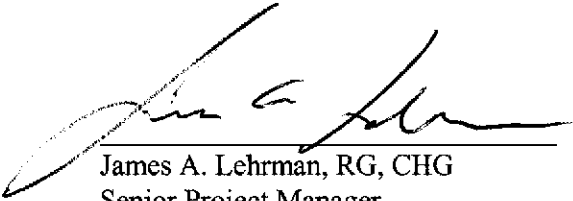
April 22, 2003

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## CERTIFICATION\*

All hydrogeologic and geologic information, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by a California Registered Geologist.



James A. Lehrman, RG, CHG  
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California Certified Hydrogeologist #HG 69

4/22/03  
Date



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**QUARTERLY  
GROUNDWATER MONITORING REPORT  
FIRST QUARTER 2003  
FRIESMAN RANCH PROPERTY  
LIVERMORE, CALIFORNIA**

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**QUARTERLY  
GROUNDWATER MONITORING REPORT  
FIRST QUARTER 2003  
FRIESMAN RANCH PROPERTY  
LIVERMORE, CALIFORNIA**

---

## **1. INTRODUCTION**

This report describes the results of the First Quarter 2003 Groundwater Monitoring Event performed at the Friesman Ranch Property, Livermore, California (hereinafter the site) (Figure 1).

### **1.1 Objectives and Scope of Work**

The objectives of the activities performed were to:

- Continue a regularly scheduled groundwater monitoring program to track spatial and temporal variations in groundwater conditions; and
- Assess current Site groundwater conditions.

To meet these objectives, the following scope of work was implemented:

- Implement the scheduled groundwater monitoring event, which included water-level measurements, an evaluation of free-product thickness (if any); and collection of water quality samples for chemicals-of-concern (COCs), and biological attenuation parameters including biological and chemical oxygen demand for select samples.
- Evaluate bioattenuation parameters; and
- Prepare this quarterly groundwater monitoring report.

In addition to these regularly scheduled activities, a creek investigation and a well survey were performed in accordance with the request of the Alameda County Health Care Services Agency (ACHCSA) in a letter to Ms. Lorraine del Prado of Children's Hospital and Research Center Foundation, dated March 3, 2003.

## **2. FIELD ACTIVITIES**

### **2.1 Introduction**

This section summarizes the field activities performed for the quarterly groundwater monitoring program. Field activities were performed on January 17, 2003. Figure 2 shows the locations of the existing groundwater monitoring wells.

### **2.2 Groundwater Monitoring Activities**

The eight Site wells (KMW-1 through KMW-8) were monitored for depth to groundwater this event. Only wells KMW-1, KMW-6, KMW-7 and KMW-8 were sampled. The goal of these activities was to



measure water levels, assess free-product thickness (if any) and collect water quality samples that accurately represent stabilized aquifer conditions.

Prior to sampling, field instrumentation was calibrated and/or checked before opening the monitoring wells. All instruments were successfully calibrated and checked (Appendix A).

### 2.2.1 Water Level Measurement

The wells were opened and ventilated for a minimum of 0.5 hour. Prior to purging, the depth to water was measured in the wells to the nearest 0.01 foot using a clean, calibrated electronic water-level indicator. Water-level data were used to calculate the required purge volumes for sampling. Measurements were recorded on Water-Level Measurement Records (Appendix A).

### 2.2.2 Groundwater Sample Collection

Upon completion of the water-level measurements, ATC purged select monitoring wells by using a Honda pump and dedicated disposable tubing. During purging, aquifer parameters (hydrogen ion index [pH], temperature, and electrical conductivity) were measured to evaluate whether the water in each well had stabilized prior to sampling (Appendix A). The wells were purged until a minimum of three casing volumes of water were removed, aquifer parameters appeared to stabilize, and water levels were allowed to recover to near static levels before sampling.

Water from each well was collected using disposable polyvinyl chloride (PVC) bailers. Groundwater monitoring well samples were placed in appropriate containers (either 40-milliliter [ml] glass volatile organic analysis [VOA] vials, 1-liter amber glass bottles and/or 500-ml or 250-ml polyethylene bottles), labeled and the containers were then placed in Ziploc™ plastic bags. The samples were then placed in an ice chest packed with loose water-based ice maintained at 4 +/- 2 degrees Celsius (°C) for delivery to the laboratory.

### 2.3 Analytical Laboratory Parameters

Groundwater monitoring well samples were analyzed for the following parameters:

- Total petroleum hydrocarbons as gasoline (TPH-g) using Modified United States Environmental Protection Agency (EPA) Method 8015C;
- Total petroleum hydrocarbons as diesel (TPH-d) using Modified EPA Method 8015C;
- Benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B;
- Methyl tertiary-butyl ether (MTBE) using EPA Method 8021B;
- Alkalinity using Standard Methods for Water and Wastewater (SM) 2320B;
- Ferrous Iron ( $\text{Fe}^{+2}$ ) using EPA Method 200.7;
- Sulfate ( $\text{SO}_4^{-2}$ ) and Nitrate ( $\text{NO}_3^{-}$ ) using EPA Method 300.1;
- Biological Oxygen Demand (BOD) using (SM) 5210B (wells KMW-1 and KMW-6 only); and
- Chemical Oxygen Demand (COD) using EPA Method 410.4 (wells KMW-1 and KMW-6 only).



## **2.4 Quality Assurance/Quality Control Sample Collection**

Normal quality assurance/quality control (QA/QC) sampling activities includes the laboratory preparation and analysis of a trip blank that accompanies the ice chest to and from the laboratory. In addition, a blind duplicate was submitted for well KMW-6.

For this event, the following QA/QC samples were prepared or collected:

- A trip blank; and
- A blind duplicate.

Because only dedicated and/or new equipment was used to purge the wells and collect the samples, no equipment blank was collected.

## **2.5 Investigation-Derived Waste Handling Procedures**

Investigation-derived wastes (IDW – purge water and decontamination rinsate liquids) were containerized onsite in labeled, United States Department of Transportation (DOT)-approved 55-gallon drums.

Drums were inspected prior to use for physical integrity and condition. Each drum was labeled to identify the waste source location, physical contents, date collected and generator's name. A total of two drums (containing monitoring well purge water and decontamination rinsate liquids) of IDW were generated during this quarter's monitoring activities. The drums will be disposed of at an appropriate licensed facility.

## **2.6 Site Restoration**

Following completion of monitoring activities, the work area was left in a presentable and workable condition as near as practicable to original conditions.

## **3.0 SUMMARY OF RESULTS**

### **3.1 Introduction**

Water-level measurements were recorded on January 17, 2003. Groundwater samples were also collected from four of the eight wells on the site and submitted for analysis. The monitoring well samples were analyzed at McCampbell Analytical, Inc., a laboratory certified by the California Department of Health Services (DHS) Environmental Laboratory Accreditation Program (ELAP) for the specific analyses performed.

Tables 1, 2, 3 and 4 summarize the data measured and/or analyzed. Appendix B contains certified analytical laboratory reports and chain-of-custody records.





## 3.2 Water Levels

As part of the groundwater monitoring event, water levels were measured in monitoring wells KMW-1 through KMW-8 on January 17, 2003. Depths to water ranged from 10.85 to 12.77 feet below ground surface (bgs) in wells KMW-3 and KMW-2 respectively (Table 1). In January 2003, groundwater flow was to the northwest with a hydraulic gradient of 0.005 foot per foot (ft/ft). These results are consistent with the previous groundwater monitoring event in October 2002.

## 3.3 Free-Product Thickness

No sheen was observed on any of the samples. No free product was observed or detected in the wells. Historically, no free product has been detected in any of the wells (Appendix C).

## 3.4 Groundwater Monitoring Well Samples

A total of four wells (KMW-1 and KMW-6 through KMW-8) were sampled and analyzed for TPH-g, TPH-d, BTEX, and MTBE. These results are summarized in Table 2. Certified analytical laboratory reports are included in Appendix B.

### 3.4.1 Chemicals of Concern

#### 3.4.1.1 Total Petroleum Hydrocarbons as Gasoline

TPH-g was detected at concentrations of 5,700 micrograms per liter ( $\mu\text{g/L}$ ) in KMW-6 and 1,100  $\mu\text{g/L}$  in KMW-7, but was not detected in any of the other wells. These results are consistent with historical concentrations detected (Table 2).

#### 3.4.1.2 Total Petroleum Hydrocarbons as Diesel

TPH-d was detected at concentrations of 2,100  $\mu\text{g/L}$  in KMW-6 and 610  $\mu\text{g/L}$  in KMW-7, but was not detected in any of the other wells. These results are consistent with historical concentrations detected (Table 2).

#### 3.4.1.3 Aromatic Hydrocarbons

Aromatic hydrocarbons were detected in monitoring wells KMW-6 and KMW-7, but were not detected in the other wells. Benzene was detected in excess of its drinking water maximum contaminant level (MCL), 1  $\mu\text{g/L}$ , at concentrations of 87  $\mu\text{g/L}$  in KMW-6 and 7.8  $\mu\text{g/L}$  in KMW-7. Toluene was detected below its MCL (150  $\mu\text{g/L}$ ) at a concentration of 4.3  $\mu\text{g/L}$  in KMW-6 and 1.3  $\mu\text{g/L}$  in KMW-7. Ethylbenzene was detected below its MCL (700  $\mu\text{g/L}$ ) at concentrations of 170  $\mu\text{g/L}$  in KMW-6 and 24  $\mu\text{g/L}$  in KMW-7. Total xylenes were detected below its MCL (1,750  $\mu\text{g/L}$ ) at concentrations of 100  $\mu\text{g/L}$  in KMW-6 and 84  $\mu\text{g/L}$  in KMW-7. These results are consistent with historical concentrations detected (Table 2).

#### 3.4.1.4 Methyl Tertiary-Butyl Ether

MTBE was not detected in any of the sampled wells. These results are consistent with historical concentrations detected (Table 2).



### 3.4.2 Bio-Parameters

#### 3.4.2.1 Dissolved Oxygen

Dissolved Oxygen (DO) is the most thermodynamically favored electron acceptor used in the biodegradation of fuel hydrocarbons. During aerobic biodegradation, DO concentrations decrease.

DO was measured at 0.47 milligrams per liter (mg/L) in well KMW-7 (Table 4). This well represents the dissolved oxygen inside the hydrocarbon plume. DO measurements in wells KMW-1 and KMW-8 (wells outside the plume) ranged from 0.85 to 0.67 mg/L, respectively. The values indicate relatively anoxic conditions both within the plume and outside of the plume.

#### 3.4.2.2 Oxidation-Reduction Potential

The ORP of groundwater is a measure of electron activity and is an indicator of the relative tendency of a solution to accept or transfer electrons. It influences and is influenced by the nature of biologically mediated degradation of COCs.

ORP ranged from less than -100 millivolts (mV) to -50 mV in wells in which COCs were detected (Table 4). ORP ranged from 115 mV to 155 mV in wells in which COCs were not detected. The values indicate oxidizing conditions outside the plume and reducing conditions inside the COC plume.

#### 3.4.2.3 Hydrogen-ion Index (pH) and Temperature

The pH and temperature of the shallow groundwater were at levels conducive for the metabolic activity of bacteria capable of degrading fuel hydrocarbons (Table 4).

#### 3.4.2.4 Ferrous Iron

In some cases, Ferric Iron ( $\text{Fe}^{+3}$ ) serves as an electron acceptor during anaerobic biodegradation of petroleum hydrocarbons. During this process,  $\text{Fe}^{+3}$  is reduced to  $\text{Fe}^{+2}$ . Ferrous iron can thus be used as an indicator of anaerobic degradation of petroleum compounds.

Ferrous Iron ( $\text{Fe}^{+2}$ ) was detected in KMW-6 at a concentration of 3.9 mg/L, 0.45 mg/L in KMW-7 and 1.1 mg/L in KMW-8 (Table 4). It was not detected in KMW-1.

### 3.4.3 Alkalinity

In general, areas impacted by petroleum hydrocarbons exhibit a total alkalinity higher than that seen in background areas. This is expected because microbially mediated reactions causing biodegradation of these compounds will cause an increase in total alkalinity of the system.

Alkalinity was reported at levels ranging from 310 mg/L in KMW-1 to 530 mg/L in KMW-6 (Table 4). In the impacted areas, the average alkalinity was 505 mg/L. In areas outside the petroleum hydrocarbon plume, the average alkalinity was 345 mg/L.

### 3.4.4 Nitrate

After DO has been depleted in the petroleum hydrocarbon impacted areas, nitrate may be used as an electron acceptor for anaerobic biodegradation via denitrification. Nitrate concentrations are used to estimate the mass of petroleum hydrocarbons that can be degraded by this process.

Nitrate was not reported above the detection limit (1.0 mg/L) in any of the wells sampled (Table 4).



### 3.4.5 Sulfate

After DO, nitrate and  $\text{Fe}^{+3}$  have been depleted in the impacted area, sulfate may be used as an electron acceptor for anaerobic degradation. The process is termed sulfate reduction and results in the production of sulfide.

Sulfate concentrations ranged from <1.0 mg/L in well KMW-6 to 8.9 mg/L in well KMW-8 (Table 4). The average sulfate concentration in the impacted area was 3.5 mg/L, whereas the average sulfate concentration outside the impacted area was 8.5 mg/L. Thus, it appears that sulfate is being reduced in the impacted area.

### 3.4.6 Biological Oxygen Demand (BOD)

BOD is a measure of the demand for oxygen in the subsurface by biological processes.

BOD levels ranged from <2.0 mg/L in well KMW-1 (outside the plume) to 16 mg/L in well KMW-6 (inside the plume).

### 3.4.7 Chemical Oxygen Demand (COD)

COD is a measure of the demand for oxygen in the subsurface by chemical processes.

COD was not detected above the reporting limit of 20 mg/L in either of the two wells (KMW-1 and KMW-6) sampled. This indicates that there are no other significant demands for oxygen in this environment, other than biological demands.

## 3.5 Quality Assurance/Quality Control Samples

The QA/QC samples collected and analyzed for this groundwater monitoring event included a trip blank and a blind duplicate sample. The results for these QA/QC samples are summarized on Table 3 and certified analytical laboratory reports are contained in Appendix B.

### 3.5.1 Trip Blank

One trip blank was prepared and analyzed for the January 2003 groundwater monitoring event. The trip blank contained no detectable concentrations of TPH-g, MTBE or BTEX.

### 3.5.2 Blind Duplicate Sample

One blind duplicate sample (KMW-16) was collected from monitoring well KMW-6 on January 17, 2003. This duplicate sample was analyzed for TPH-g, TPH-d, BTEX, and MTBE.

The Relative Percent Differences (RPD) for TPH-d, TPH-g, benzene, toluene, ethylbenzene and total xylenes (the analytes detected) were 10.0, 1.74, 2.27, 18.95, 5.71 and 0.0 percent, respectively (Table 3). The RPDs for all the analytes detected were below the typical QA/QC goal of less than 20 percent.



#### 4.0 CREEK INVESTIGATION

In order to comply with a request of the ACHCSA made in their letter of March 3, 2003 to Ms. del Prado, an investigation of the creek adjacent to the site was conducted on March 27, 2003. The creek (Arroyo Las Positas) was investigated to assess possible impact from the petroleum hydrocarbon plume. An ATC staff member walked along the creek bed adjacent to the site from the bridge west of well KMW-2 to a point south of well KMW-4. The soil along the sides of the creek bed near stream level was probed at intervals of about every 10 feet to a depth of three to six inches using a metal rod to observe any odor, sheen, or other evidence of petroleum hydrocarbons. No odor, sheen, or other evidence of petroleum hydrocarbons was observed during the investigation.

#### 5.0 WELL SURVEY

Also to comply with a request of the ACHCSA made in their letter of March 3, 2003 to Ms. del Prado, a well survey was performed to identify all water supply wells within 2,000 feet of the site. ATC made a request to the Zone 7 Water Agency for a well location map showing all known wells in the vicinity of the site. Upon review of this map, ATC requested well logs and other available information on wells within 2,000 feet of the site. ATC was informed by the Zone 7 Water Agency that well logs could only be supplied to another government agency; therefore, the well location map was supplied to ACHCSA so that they could make the request.

ACHCSA requested logs from the four wells closest to the site, including the on-site water supply well located approximately 350 feet to the west northwest (upgradient) of the plume. ATC reviewed the well logs and well construction details to assess the effects of well pumping on the plume. The well logs indicate that all of the nearby wells have at least a fifty-foot well seal, and penetrate clayey soils from approximately 20 to 60 feet or more bgs. The depth to water at the site ranges from approximately 10 to 16 feet bgs, and the total depth of the monitoring wells is 24 feet bgs. The petroleum hydrocarbon plume appears to be confined to these shallow depths. Based on the distance from the plume, the well construction, and the soil types encountered, it is unlikely that any of the nearby water supply wells could be impacted by the petroleum hydrocarbon plume. The well location map and the well logs from the four wells closest to the site are included in Appendix C.

#### 6.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The summary and conclusions presented in this section are based on research implemented, information collected, and interpretations developed during this and previous investigations performed at the property. The information evaluated in this report was collected by ATC during the first quarter of 2003. The summary and conclusions that follow are presented in the categories of field activities and groundwater chemistry.

##### 6.1 Field Activities

- Field activities performed consisted of the First Quarter 2003 groundwater monitoring event.
- Water level measurements and the collection of water quality samples were conducted. The samples collected were analyzed for COCs (TPH-g, TPH-d, BTEX, and MTBE), bioattenuation parameters (DO, ORP, alkalinity, ferrous Iron, nitrate, sulfate, BOD and COD).



- Prior to the initiation of field activities, and between sampling locations, all equipment was decontaminated.
- Purge water and decontamination rinsate liquids were containerized and stored on-site in DOT-approved 55-gallon drums. They will be disposed of at a licensed facility.
- Following completion of field activities, the work area was left in a presentable and workable condition, as nearly as practicable to original conditions.

## 6.2 Groundwater Chemistry

- Only two groundwater monitoring well samples (KMW-6 and KMW-7) contained detectable concentrations of petroleum hydrocarbon compounds. The groundwater sample collected from KMW-1 and KMW-8 did not contain detectable concentrations of petroleum hydrocarbon compounds.
- The plume is confined to the site and is stable. Concentrations of COCs continue to decrease with time indicating that natural processes are working to remediate the plume.
- The subsurface environment appears to not be well oxygenated. It appears that anaerobic processes (iron and sulfate reduction) are operating to decrease the concentrations of COCs in the groundwater.
- The BOD and COD concentrations indicate that the injection of ORC (oxygen releasing compound) into the plume would primarily facilitate site cleanup by enhancing microbial activity.

In addition, based on the creek investigation performed at the site on March 27, 2003, we conclude that the petroleum hydrocarbon plume has not impacted the creek. Furthermore, based on the survey of water supply wells within the vicinity of the site, it is unlikely that the petroleum hydrocarbon plume could impact any of these nearby water supply wells.

## 6.3 Recommendations

ATC makes the following recommendations concerning further investigations and remedial actions at the property:

- The regularly scheduled groundwater monitoring program should be continued, with the next event being implemented in April 2003.
- Water levels and free-product thickness should be measured in, and groundwater quality samples should be collected from monitoring wells KMW-1, KMW-6, KMW-7 and KMW-8.
- Groundwater quality samples collected from the three monitoring wells should be analyzed for TPH-g, TPH-d, BTEX and MTBE, as well as bio attenuation parameters.



**TABLE 1**  
**SUMMARY OF GROUNDWATER ELEVATION DATA**  
**FRIESMAN RANCH PROPERTY**  
**LIVERMORE, ALAMEDA COUNTY, CALIFORNIA**

WELL NUMBER	SAMPLING DATE	WATER LEVEL FROM T.O.C. (feet)	FREE-PRODUCT THICKNESS (feet)	T.O.C. ELEVATION USGS Datum (Ft. above MSL)	GROUNDWATER ELEVATIONS USGS Datum (Ft. above MSL)
KMW-1	9/8/97	12.82	0.00	370.12	357.30
	12/28/98	12.72	0.00		357.40
	1/12/99	12.97	0.00		357.15
	3/25/99	11.99	0.00		358.13
	6/21/99	NM	NM		NC
	9/16/99	NM	NM		NC
	10/16/02	14.27	0.00		355.85
	1/17/03	11.67	0.00		358.45
KMW-2	9/8/97	14.28	0.00	370.72	356.44
	12/28/98	14.08	0.00		356.64
	1/12/99	14.32	0.00		356.40
	3/25/99	13.19	0.00		357.53
	6/21/99	NM	NM		NC
	9/16/99	NM	NM		NC
	10/16/02	*	*		*
	1/17/03	12.77	0.00		357.95
KMW-3	9/8/97	12.34	0.00	369.10	356.76
	12/28/98	12.39	0.00		356.71
	1/12/99	15.13	0.00		353.97
	3/25/99	11.59	0.00		357.51
	6/21/99	NM	NM		NC
	9/16/99	NM	NM		NC
	10/16/02	13.69	0.00		355.41
	1/17/03	10.85	0.00		345.20

WELL NUMBER	SAMPLING DATE	WATER LEVEL FROM T.O.C. (feet)	FREE-PRODUCT THICKNESS (feet)	T.O.C. ELEVATION USGS Datum (Ft. above MSL)	GROUNDWATER ELEVATIONS USGS Datum (Ft. above MSL)
KMW-4	9/8/97	13.76	0.00	369.80	356.04
	12/28/98	13.76	0.00		356.04
	1/12/99	14.40	0.00		355.40
	3/25/99	12.89	0.00		356.91
	6/21/99	NM	NM		NC
	9/16/99	NM	NM		NC
	10/16/02	15.92	0.00		353.88
	1/17/03	12.17	0.00		357.63
KMW-5	9/8/97	14.24	0.00	369.52	355.28
	12/28/98	14.17	0.00		355.35
	1/12/99	15.32	0.00		354.20
	3/25/99	13.27	0.00		356.25
	6/21/99	NM	NM		NC
	9/16/99	NM	NM		NC
	10/16/02	16.45	0.00		353.07
	1/17/03	12.60	0.00		356.92
KMW-6	9/8/97	14.28	0.00	370.08	355.80
	12/28/98	14.16	0.00		355.92
	1/12/99	14.47	0.00		355.61
	3/25/99	13.22	0.00		356.86
	6/21/99	14.56	0.00		355.52
	9/16/99	14.29	0.00		355.79
	10/16/02	16.27	0.00		353.81
	1/17/03	12.54	0.00		357.54

WELL NUMBER	SAMPLING DATE	WATER LEVEL FROM T.O.C. (feet)	FREE-PRODUCT THICKNESS (feet)	T.O.C ELEVATION USGS Datum (Ft. above MSL)	GROUNDWATER ELEVATIONS USGS Datum (Ft. above MSL)
KMW-7	12/28/98	12.91	0.00	370.04	357.13
	1/12/99	13.15	0.00		356.89
	3/25/99	12.12	0.00		357.92
	6/21/99	12.86	0.00		357.18
	9/16/99	13.00	0.00		357.04
	10/16/02	14.63	0.00		355.41
	1/17/03	11.77	0.00		358.27
KMW-8	12/28/98	13.37	0.00	368.61	355.24
	1/12/99	13.70	0.00		354.91
	3/25/99	12.48	0.00		356.13
	6/21/99	13.30	0.00		355.31
	9/16/99	13.57	0.00		355.04
	10/16/02	15.85	0.00		352.76
	1/17/03	11.87	0.00		356.74

**NOTES:**

G.S. = Ground Surface

NC = Not Calculable

NM - Not Measured

T.O.C. = Top of casing. All measurements in feet relative to top of casing.

USGS = United States Geological Survey

All wells have 4" ID casing = 0.65 gallons per casing length (foot).

Wells KMW-7 and KMW-8 installed on December 23, 1998

\* Well obstructed, no water level measurement taken



**TABLE 2**  
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**  
**FRIESMAN RANCH PROPERTY**  
**LIVERMORE, ALAMEDA COUNTY, CALIFORNIA**

WELL NUMBER	SAMPLE COLLECTION DATE	TPH-D (µg/L)	TPH-G (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	EIHYL BENZENE (µg/L)	TOTAL XYLENES (µg/L)	MTBE (µg/L)	PAHs (µg/L)	LEAD (µg/L)
KMW-1  dup.	9/8/97	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<10	-
	12/28/98	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<10	7.8
	12/28/98	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<10	5.9
	3/25/99	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-
	6/21/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/16/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/16/02	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-
1/17/03	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	
KMW-2	9/8/97	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<10	-
	12/28/98	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<10	<5.0
	3/25/99	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-
	6/21/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/16/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/16/02	NS	NS	NS	NS	NS	NS	NS	-	-
	1/17/03	NS	NS	NS	NS	NS	NS	NS	NS	NS
KMW-3	9/8/97	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<10	-
	12/28/98	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<10	<5.0
	3/25/99	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-
	6/21/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/16/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/16/02	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-
	1/17/03	NS	NS	NS	NS	NS	NS	NS	NS	NS
KMW-4	9/8/97	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<10	-
	12/28/98	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<10	7.5
	3/25/99	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-
	6/21/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/16/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/16/02	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-
	1/17/03	NS	NS	NS	NS	NS	NS	NS	NS	NS
KMW-5  dup.	9/8/97	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<10	-
	9/8/97	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<10	-
	12/28/98	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<10	8.5
	3/25/99	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-
	6/21/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/16/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/16/02	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-
1/17/03	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KMW-6  dup.  dup.  dup.	9/8/97	3,200, d	13,000, a	250	14	560	490	<150**	140*	-
	12/28/98	1,800, d	3,200, a	86	3.6	140	90	<50**	130*	15
	3/26/99	1,700, d,b	7,000, a	160	5.1	270	200	<100**	100*	<5.0
	3/26/99	1,700, d,b	6,700, a	170	6.5	270	200	<100**	100*	-
	6/21/99	1,500, d,b	3,800, a	170	<0.5	260	160	<10	200*	<5.0
	9/16/99	1,900, d	7,100, a	230	9.8	300	210	<120	<10	<5.0
	10/16/02	1,600, d	4,600, a	100	8.4	190	110	<50	-	-
	10/16/02	1,900, d	5,100, a	110	10	210	110	<50	-	-
	1/17/03	2,100, d	5,700, a	87	4.3	170	100	<25	-	-
	1/17/03	1,900, d	5,800, a	89	5.2	180	100	<25	-	-

WELL NUMBER	SAMPLE COLLECTION DATE	TPH-D (µg/L)	TPH-G (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL BENZENE (µg/L)	TOTAL XYLENES (µg/L)	MTBE (µg/L)	PAHs (µg/L)	LEAD (µg/L)
KMW-7  dup.	12/28/98	1,000, d,h	9,100, a,h	23	17	190	700	<70**	110*	38
	3/25/99	1,200 d,b	4,300, a,h	19	16	56	270	<70**	23 *	22
	6/21/99	1,300, d,b	1,300, a	6.5	<0.5	21	62	<5.0	27 *	<5.0
	6/21/99	1,200, d	2,000, a	6.4	6.7	24	76	<5.0	17 *	-
	9/16/99	1,100, d	950, a	3.3	2	19	33	<10	<10	<10
	10/16/02	480, d	270, a	1.3	<0.5	4	15	<5.0	-	-
	1/17/03	610, d	1,100, a	7.8	1.3	24	84	<10	-	-
KMW-8	12/28/98	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<10	12
	3/25/99	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-
	6/21/99	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-
	9/16/02	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	-	-
	10/16/02	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-
	1/17/03	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-

**Notes:**

- TPH-D Total Petroleum Hydrocarbons as Diesel
- TPH-G Total Petroleum Hydrocarbons as Gasoline
- MTBE Methyl Tertiary-Butyl Ether
- MCL Cal/EPA Maximum Contaminant Level
- µg/L Micrograms per Liter (approx. equal to parts per billion)
- <0.5 Not detected at or above the laboratory method reporting limit
- a Unmodified or weakly modified gasoline is significant
- b Diesel range compounds are significant; no recognizable pattern
- d Gasoline range compounds are significant
- h Lighter than water immiscible sheen is present
- \*\* Reporting limit raised due to high presence of TPH-g
- Not analyzed
- NS Not Sampled
- \* Napthalene only, all other chemicals were <10 micrograms per liter
- PAHs Polyaromatic Hydrocarbons

**TABLE 3**  
**QUALITY ASSURANCE/QUALITY CONTROL SAMPLE ANALYTICAL RESULTS**  
**FRIESMAN RANCH PROPERTY**  
**LIVERMORE, ALAMEDA COUNTY, CALIFORNIA**  
**January 2002**

QA/QC SAMPLE TYPE	SAMPLE ID	SAMPLE COLLECTION DATE	TPH-D (µg/L)	TPH-G (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL- BENZENE (µg/L)	TOTAL XYLENES (µg/L)	MTBE (µg/L)	PAHs (µg/L)	LEAD (µg/L)
Primary Sample	KMW-6	1/17/03	2,100, d	5,700, a	87	4.3	170	100	<25	-	-
Duplicate Sample	KMW-16	1/17/03	1,900, d	5,800, a	89	5.2	180	100	<25	-	-
Trip Blank	Trip Blank	1/17/03	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-
	RPD		10.0%	1.74%	2.27%	18.95%	5.71%	0.00%	NC	NC	NC

**Notes:**

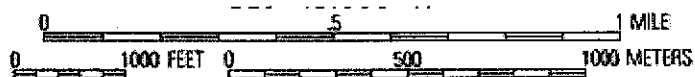
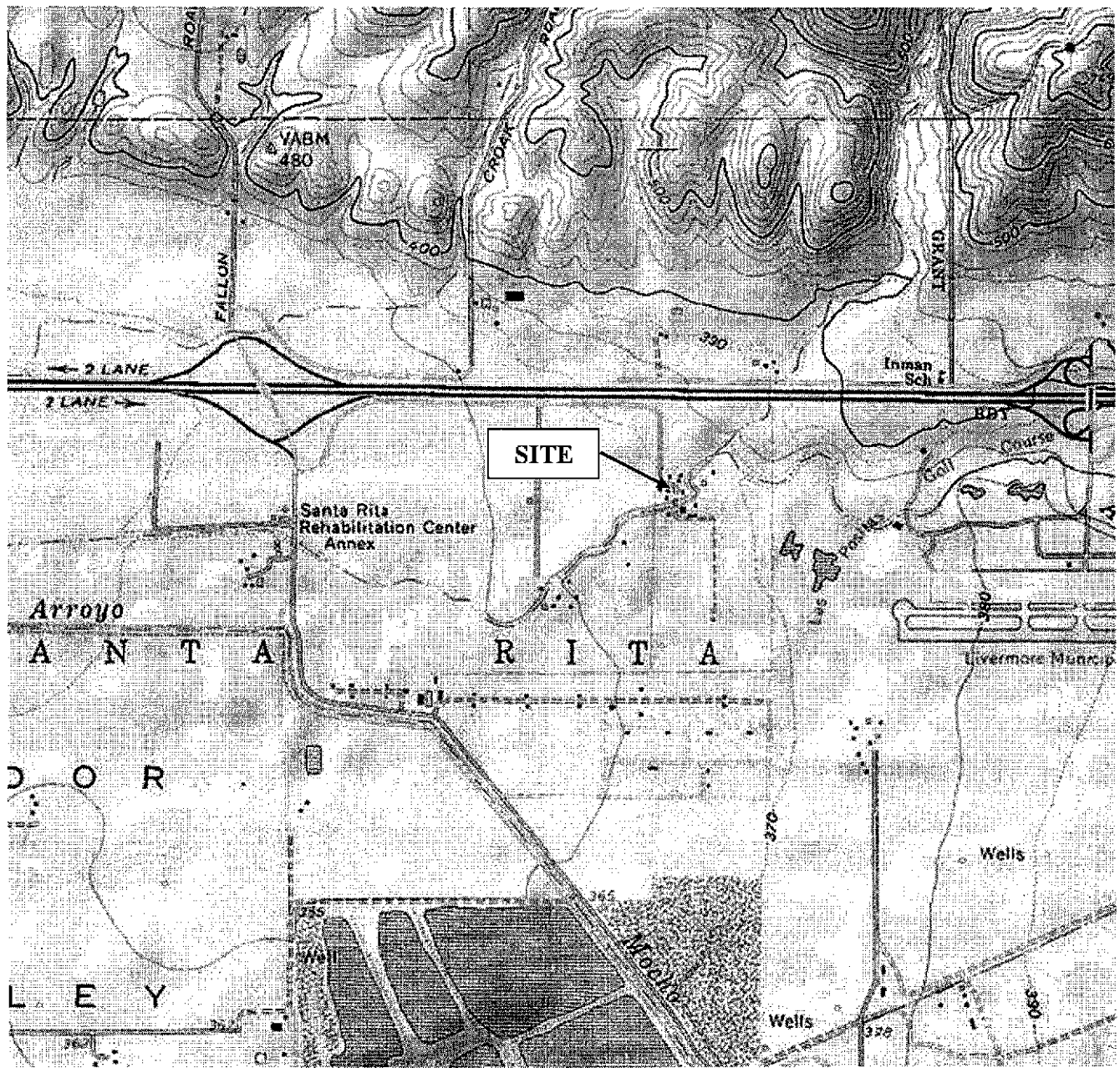
- TPH-D Total Petroleum Hydrocarbons as Diesel
- TPH-G Total Petroleum Hydrocarbons as Gasoline
- MTBE Methyl Tertiary-Butyl Ether
- RPD Relative Percent Difference
- µg/L Micrograms per Liter (approx. equal to parts per billion)
- <0.5 Not detected at or above the laboratory method reporting limit
- a Unmodified or weakly modified gasoline is significant
- b Gasoline range compounds are significant
- d Gasoline range compounds are significant
- NC Not calculable
- Not Analyzed
- PAHs Polyaromatic Hydrocarbons

**TABLE 4**  
**BIO ATTENUATION PARAMETER ANALYTICAL RESULTS**

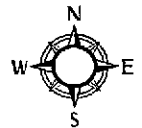
Analyte	KMW-1	KMW-2	KMW-3	KMW-4	KMW-5	KMW-6	KMW-7	KMW-8
<b>Field Measurements</b>								
DO (mg/L)	0.85	NA	NA	NA	NA	NM	0.47	0.67
ORP (mV)	155	NA	NA	NA	NA	<-100	-50	115
Temperature (°C)	16.0	NA	NA	NA	NA	21.1	18.7	18.0
pH	7.2	NA	NA	NA	NA	6.8	6.9	7.0
Turbidity (NTU)	1.9	NA	NA	NA	NA	13.3	38.3	4.1
<b>Laboratory Measurement</b>								
Alkalinity (mg/L)	310	NA	NA	NA	NA	530	480	380
BOD (mg/L)	<2.0	NA	NA	NA	NA	16	NA	NA
COD (mg/L)	<20	NA	NA	NA	NA	<20	NA	NA
Ferrous Iron, FE (II) (mg/L)	<0.05	NA	<0.05	<0.05	<0.05	2.49	<0.05	<0.05
Nitrate (mg/L)	<1.0	NA	NA	NA	NA	<1.0	<1.0	<1.0
Sulfate (mg/L)	8.2	NA	NA	NA	NA	<1.0	7.0	8.9

**Notes:**

1. DO = Dissolved Oxygen.
2. ORP = Oxidation-Reduction Potential (measured in millivolts [mV]).
3. BOD = Biological Oxygen Demand.
4. COD = Chemical Oxygen Demand.
5. NA = Not Analysed.
6. <5.0 = Analyte not present at or above indicated reporting limit.
7. FE(II) = Percent Ferrous Iron represents percentage of Fe(II) of Total Fe in system.
8. NTU = Nephelometric Turbidity Units
9. NM = Not Measured
10. mg/L = milligrams per liter
11. pH = Hydrogen-ion index



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6602 Owens Drive, Suite 100  
Pleasanton, CA 94588  
(925) 460-5300

PROJECT NO: 75.23909.0001

DESIGNED BY: EC

SCALE: SHOWN

REVIEWED BY: JAL

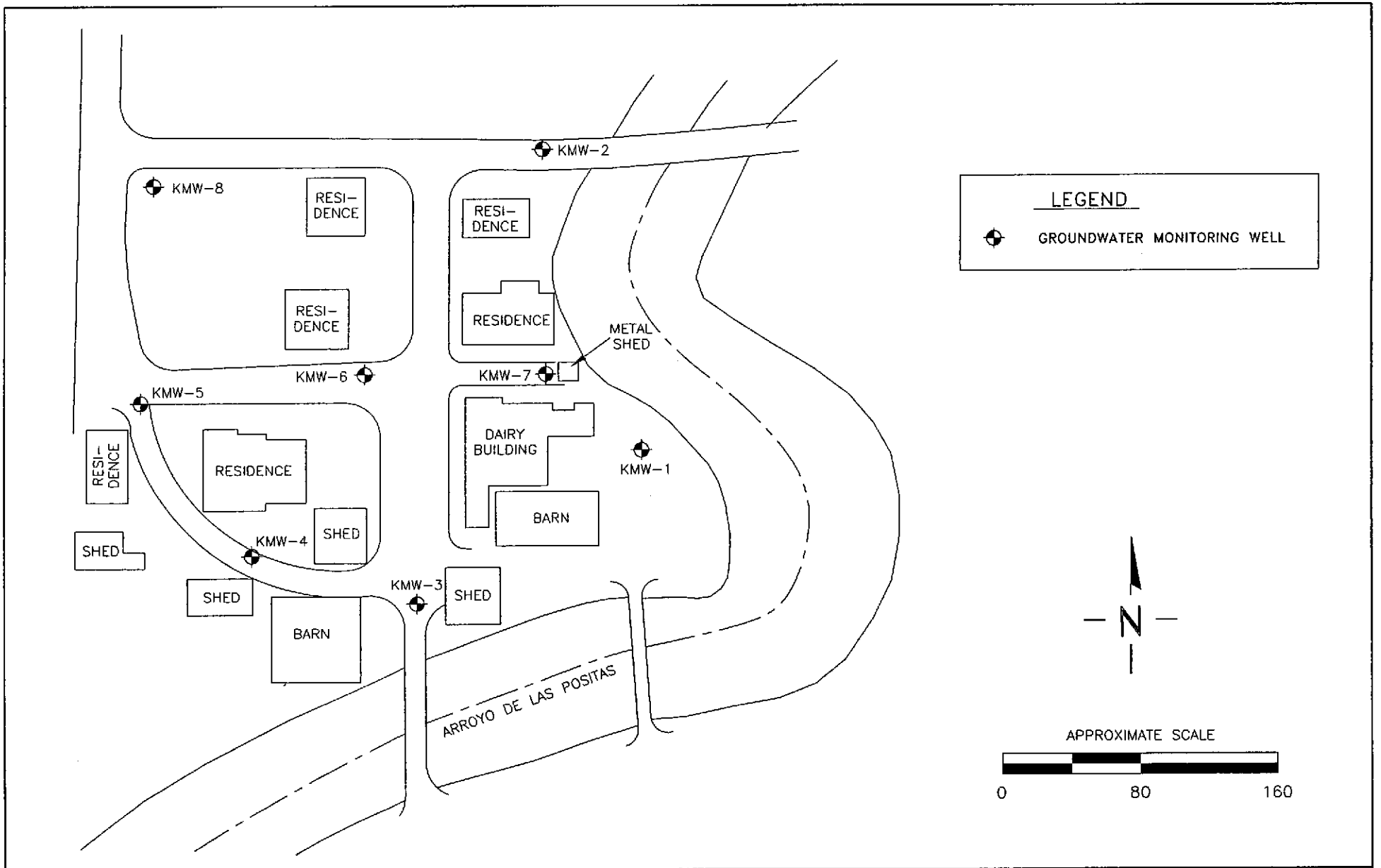
DRAWN BY: EC


DATE: 02/03

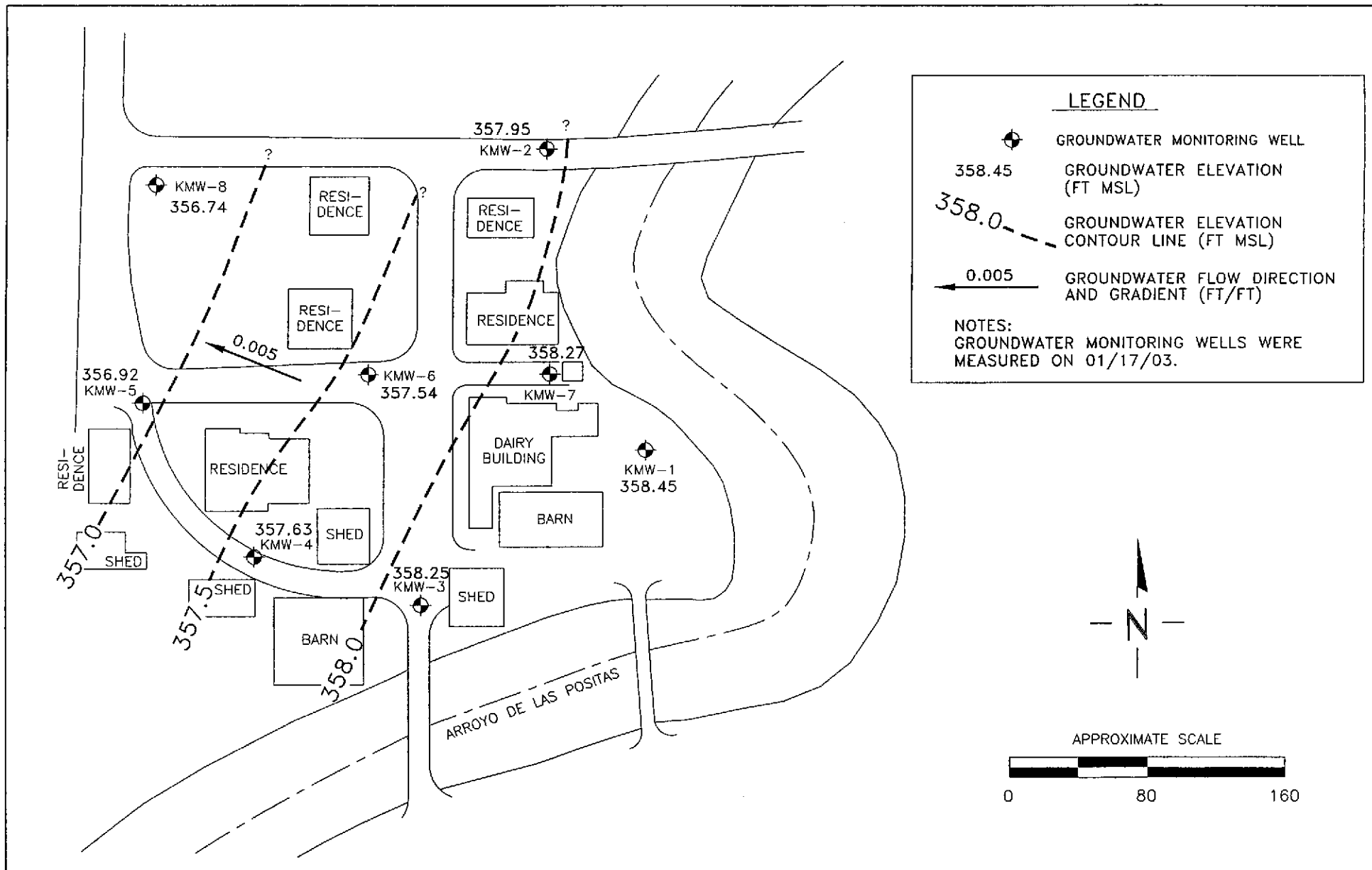
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FIGURE 1  
**SITE LOCATION MAP**

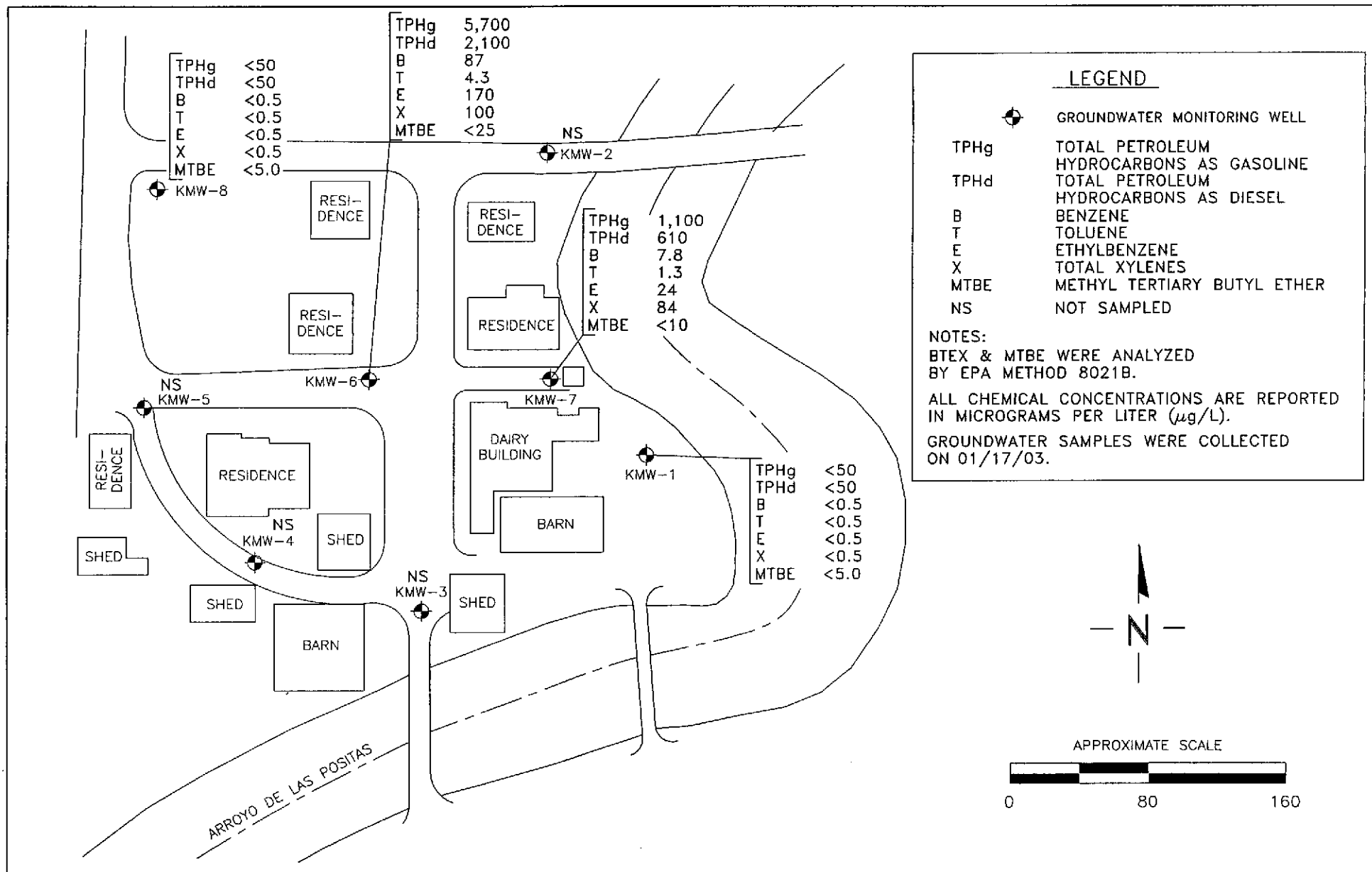
FRIESMAN RANCH PROPERTY  
1600 FRIESMAN ROAD  
LIVERMORE, CALIFORNIA



	REVISED	REVIEWED BY	<b>SITE MAP</b> <b>Friesman Ranch Property</b> 1600 Friesman Road Livermore, California	FIGURE	
	EC	02/24/03		<i>JAL</i>	2
	8X11	0001-SP		REVIEW DATE <i>4/22/03</i>	PROJECT 75.23909.0001



	REVISED	REVIEWED BY	<b>GROUNDWATER ELEVATION CONTOURS (01/03)</b> <b>Friesman Ranch Property</b> 1600 Friesman Road Livermore, California	FIGURE
	EC 02/24/03	<i>JAL</i>		3
	8X11 0001-GW103	REVIEW DATE <i>4/22/03</i>		PROJECT 75.23909.0001



	REVISED	REVIEWED BY	GROUNDWATER ANALYTICAL RESULTS (01/03) Friesman Ranch Property 1600 Friesman Road Livermore, California	FIGURE
	EC 02/24/03	<i>SAL</i>		4
	8X11 0001-AR103	REVIEW DATE <i>4/22/03</i>	PROJECT 75.23909.0001	



## FIELD REPORT/DATA SHEET

Date: 1.17.03

Project Number: 75.23909.0001

Field Technician: P. Arroyo

Day: M Tu W Th P

DTW Order	Well ID	Diam.	Lock	Exp. Cap.	Total Depth	DTW Initial	DTW Final	Time Sampled	Comments
	KMW-1	4"	Good	Good	23.40	11.67	11.78	1000	
	KMW-2	4"	↓	↓	13.30	12.77	12.77	N/A	
	KMW-3	4"			23.90	10.85	10.85	N/A	
	KMW-4	4"			23.65	12.17	12.17	N/A	
	KMW-5	4"			23.40	12.60	12.60	N/A	
	KMW-6	4"			23.40	12.54	12.90	1210	
	KMW-7	4"			23.50	11.77	13.07	11.30	
	KMW-8	4"			23.65	11.87	11.87	1040	

NOTES:

Number of Drums Onsite

Full	Empty	TOTAL
1/2	0	

Estimated Value: \_\_\_\_\_

ARE ALL DRUMS LABELLED WITH THE LABELS FACING OUT

# GROUNDWATER MONITORING WELL PURGE/SAMPLING WORK SHEET

Project Name: FRIESMAN RANCH  
 Address: 1600 FRIESMAN Rd.  
Livermore CA  
 Well Number: KMW-1  
 Development/Purge/Sampler(s): P. Arroyo

Project Number: 75.23909.0001  
 Date: 1.17.03  
 Well Lock Number: \_\_\_\_\_  
 Well Integrity: Good  
 Ambient Conditions: Sunny

Pre-Purge DO (mg/L) 8.5

Screened at		WELL VOLUME CALCULATION				
Well Casing Diameter (in.)	Total Well Depth (ft.)	Depth to Groundwater (GW)	Linear Feet of GW		Gallons Per Linear Foot	1 Well Volume (gal.)
4.5	23.40	11.67	11.73	X	0.17	7.74
4				X	0.38	
4				X	0.66	
4				X	0.83	
6				X	1.5	

### GROUNDWATER SURFACE INSPECTION (BAILER CHECK)

Floating Product (ft.) (in.): None Sheen/Iridescence: None Odor: YES

### GROUNDWATER PURGING PURGE METHOD

Stainless Steel Bailer;  Submersible Pump;  Air Diaphragm Pump;  Honda Pump;  Other \_\_\_\_\_

Stagnant Volumes Purged	Volume Purged (gal.)	Time	pH	Conductivity (µs/cmhos)	Temp. (°C)	Color/Turbidity (other)
0	0	0943	8.1	1.1 MS	14.4	CLEAR
1	7.0	0945	7.3	1.7 MS	14.2	↓
2	14.0	0947	7.2	1.0 MS	15.7	
3	21.0	0949	7.2	0.9 MS	16.0	
4						
5						
6						
7						
8						
9						
10						

Recovery Rate:

Fast  
Medium  
 Slow

### GROUNDWATER SAMPLING

Sampling Equipment: DISPOSABLE BAILER

#### Water Level Recovery

#### Sample Containers

	Depth to GW (ft.)	No.	Preservation Method/pH
(I) Initially	<u>11.67</u>		1 liter (L), amber glass
(P) After Purging	<u>14.10</u>		40 ml VOA
P - 0.8 (P-I) =	<u>12.15</u>	80% Recovery	500 ml polypropylene
(S) Before Sampling	<u>11.78</u>		Trip Blank
(P-S) / (P-I) X 100 =		% Total Recovery	

Sample Date/Time: 1.17.03 / 1000 Turbidity (NTU): 1.9

Calibrate Date/Time: 1.17.03 / 0900 EH (MEV): 155

### PURGED WATER CONTAINMENT

Total drums at site: Water 1 1/2 Soil 0 Water pump through treatment system \_\_\_\_\_

Remarks: \_\_\_\_\_

# GROUNDWATER MONITORING WELL PURGE/SAMPLING WORK SHEET

Project Name: FRIESMAN RANCH  
 Address: 1600 FRIESMAN Rd.  
Livermore, CA  
 Well Number: KMW-6  
 Development/Purge/Sampler(s): P. Arroyo

Project Number: 75.23909.0001  
 Date: 1.17.03  
 Well Lock Number: \_\_\_\_\_  
 Well Integrity: Good  
 Ambient Conditions: Sunny

Screened at		WELL VOLUME CALCULATION				
Well Casing Diameter (in.)	Total Well Depth (ft.)	Depth to Groundwater (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)	
2	23.40	-	=	X	0.17	=
4		12.54	=	X	0.38	=
4.5		10.86	=	X	0.66	= 7.16
5		-	=	X	0.83	=
6		-	=	X	1.5	=

### GROUNDWATER SURFACE INSPECTION (BAILER CHECK)

Floating Product (ft. (in.)): None Sheen/Iridescence: \_\_\_\_\_ Odor: \_\_\_\_\_

### GROUNDWATER PURGING PURGE METHOD

Stainless Steel Bailer;  Submersible Pump;  Air Diaphragm Pump;  Honda Pump;  Other \_\_\_\_\_

Stagnant Volumes Purged	Volume Purged (gal.)	Time	pH	Conductivity (µs/cmhos)	Temp. (°C)	Color/Turbidity (other)
0	0	1158	7.0	1.5 ms	22.0	light brown
1	7.0	1200	6.9	1.4 ms	21.4	↓
2	14.0	1202	6.9	1.4 ms	20.9	Clear
3	21.0	1204	6.8	1.4 ms	21.1	↓
4						
5						
6						
7						
8						
9						
10						

Recovery Rate:

Fast

Medium

Slow

### GROUNDWATER SAMPLING

#### Water Level Recovery

Depth to GW (ft.)

(I) Initially 12.54

(P) After Purging 17.50

P - 0.8 (P-I) = 13.53 80% Recovery

(S) Before Sampling 12.90

(P-S) / (P-I) X 100 = \_\_\_\_\_ % Total Recovery

#### Sampling Equipment: DISPOSABLE BAILER

#### Sample Containers

No.	Preservation Method/pH
1	1 liter (L), amber glass
2	40 ml VOA
3	500 ml polypropylene
4	Trip Blank

Sample Date/Time: 1.17.03 / 1210 Turbidity (NTU): 13.3

Calibrate Date/Time: 1.17.03 / 0900 EH (MEV): > 100

### PURGED WATER CONTAINMENT

Total drums at site: Water 1 1/2 Soil 0 Water pump through treatment system \_\_\_\_\_

Remarks: \_\_\_\_\_

# GROUNDWATER MONITORING WELL PURGE/SAMPLING WORK SHEET

Project Name: FRIESMAN RANCH  
 Address: 1600 Friesman Rd.  
Livermore CA  
 Well Number: KMW-7  
 Development/Purge/Sampler(s): P. Arroyo

Project Number: 75.23909.0001  
 Date: 1.17.03  
 Well Lock Number: \_\_\_\_\_  
 Well Integrity: Good  
 Ambient Conditions: Sunny

Pre-Purge DO (mg/L) <u>.47</u>	
Screened at	<b>WELL VOLUME CALCULATION</b>
Well Casing Diameter (in.)	Total Well Depth (ft.)
Depth to Groundwater (GW)	Linear Feet of GW
Gallons Per Linear Foot	1 Well Volume (gal.)
4	2350
4.5	11.77
6	11.73
X	0.17
X	0.38
X	0.66
X	0.83
X	1.5
	7.74

### GROUNDWATER SURFACE INSPECTION (BAILER CHECK)

Floating Product (ft.) (in.): None Sheen/Iridescence: \_\_\_\_\_ Odor: \_\_\_\_\_

### GROUNDWATER PURGING PURGE METHOD

Stainless Steel Bailer;  Submersible Pump;  Air Diaphragm Pump;  Honda Pump;  Other \_\_\_\_\_

Stagnant Volumes Purged	Volume Purged (gal.)	Time	pH	Conductivity (µs/cmhos)	Temp. (°C)	Color/Turbidity (other)
0	0	1123	7.0	1.3 ms	21.3	CLEAR
1	7.0	1125	7.0	1.4 ms	19.4	↓
2	14.0	1127	7.0	1.4 ms	18.9	
3	21.0	1129	6.9	1.3 ms	18.7	
4						
5						
6						
7						
8						
9						
10						

Recovery Rate:

Fast  
Medium  
 Slow

### GROUNDWATER SAMPLING

Sampling Equipment: Disposable Bailer

#### Water Level Recovery

Depth to GW (ft.)

(I) Initially 11.77

(P) After Purging 18.30

P - 0.8 (P-I) = 13.07 80% Recovery

(S) Before Sampling 13.07

(P-S) / (P-I) X 100 = 80 % Total Recovery

#### Sample Containers

No.	Preservation Method/pH
1 liter (L), amber glass	_____
40 ml VOA	_____
500 ml polypropylene	_____
Trip Blank	_____

Sample Date/Time: 1.17.03 / 1130 Turbidity (NTU): 38.3

Calibrate Date/Time: 1.17.03 / 0900 EH (MEV): -50

### PURGED WATER CONTAINMENT

Total drums at site: Water 1 1/2 Soil 0 Water pump through treatment system \_\_\_\_\_

Remarks: \_\_\_\_\_

# GROUNDWATER MONITORING WELL PURGE/SAMPLING WORK SHEET

Project Name: FRIESMAN RANCA  
 Address: 1600 Friesman Rd.  
Livermore CA  
 Well Number: KMW-8  
 Development/Purge/Sampler(s): P. Arroyo

Project Number: 75.23909.0001  
 Date: 1.17.03  
 Well Lock Number: \_\_\_\_\_  
 Well Integrity: Good  
 Ambient Conditions: Sunny

Pre-Purge DO (mg/L) 1.67

Screened at		WELL VOLUME CALCULATION				
Well Casing Diameter (in.)	Total Well Depth (ft.)	Depth to Groundwater (GW)	Linear Feet of GW	Gallons Per Linear Foot	1 Well Volume (gal.)	
<u>4</u>	<u>23.65</u>	<u>11.87</u>	<u>11.78</u>	X 0.17	<u>7.77</u>	
<u>4.5</u>				X 0.38		
<u>6</u>				X 0.66		
				X 0.83		
				X 1.5		

### GROUNDWATER SURFACE INSPECTION (BAILER CHECK)

Floating Product (ft.) (in.): None Sheen/Iridescence: None Odor: YES

### GROUNDWATER PURGING PURGE METHOD

Stainless Steel Bailer;  Submersible Pump;  Air Diaphragm Pump;  Honda Pump;  Other \_\_\_\_\_

Stagnant Volumes Purged	Volume Purged (gal.)	Time	pH	Conductivity (µs/cmhos)	Temp. (°C)	Color/Turbidity (other)
0	0	1032	7.1	1.1 ms	17.6	CLEAR
1	7.0	1034	7.1	1.2 ms	17.6	↓
2	14.0	1036	7.0	1.2 ms	17.7	
3	21.0	1038	7.0	1.3 ms	18.0	
4						
5						
6						
7						
8						
9						
10						

Recovery Rate:

Fast  
 Medium  
 Slow

### GROUNDWATER SAMPLING

Sampling Equipment: DISPOSABLE BAILER

#### Water Level Recovery

Depth to GW (ft.)

(I) Initially 11.87

(P) After Purging 13.50

P - 0.8 (P-I) = 12.19 80% Recovery

(S) Before Sampling 11.87

(P-S) / (P-I) X 100 = 100 % Total Recovery

#### Sample Containers

No.	Preservation Method/pH
1	1 liter (L), amber glass
2	40 ml VOA
3	500 ml polypropylene
4	Trip Blank

Sample Date/Time: 1.17.03 / 1040 Turbidity (NTU): 4.1

Calibrate Date/Time: 1.17.03 / 0900 EH (MEV): 115

### PURGED WATER CONTAINMENT

Total drums at site: Water 1 1/2 Soil 0 Water pump through treatment system \_\_\_\_\_

Remarks: \_\_\_\_\_



McC Campbell Analytical Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
<http://www.mccampbell.com> E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)

ATC Associates 6602 Owens Drive, #100 Pleasanton, CA 94588	Client Project ID: #75.23909.0001; Friesman Ranch	Date Sampled: 01/17/03
	Client Contact: Jim Lehrman	Date Received: 01/17/03
	Client P.O.:	Date Reported: 01/24/03
		Date Completed: 01/24/03

WorkOrder: 0301226

January 24, 2003

Dear Jim:

Enclosed are:

- 1). the results of 6 analyzed samples from your #75.23909.0001; Friesman Ranch project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McC Campbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Angela Rydelius, Lab Manager









McC Campbell Analytical Inc.

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<http://www.mccampbell.com> E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)

ATC Associates  6602 Owens Drive, #100  Pleasanton, CA 94588	Client Project ID: #75.23909.0001; Friesman Ranch	Date Sampled: 01/17/03
	Client Contact: Jim Lehrman	Date Received: 01/17/03
	Client P.O.:	Date Extracted: 01/17/03
		Date Analyzed: 01/17/03-01/18/03

**Inorganic Anions by IC\***

Extraction method: E300.1

Analytical methods: E300.1

Work Order: 0301226

Lab ID	Client ID	Matrix	Nitrate as N	Sulfate	DF	% SS
0301226-001C	KMW-1	W	ND	8.2	1	80
0301226-002C	KMW-6	W	ND	ND	1	113
0301226-003C	KMW-16	W	ND	ND	1	112
0301226-004C	KMW-7	W	ND	7.0	1	107
0301226-005C	KMW-8	W	ND	8.9	1	108
Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	1.0	1.0	mg/L		
	S	NA	NA	mg/Kg		

\* water samples are reported in mg/L, liquid and soil samples in mg/kg, wipe samples in µg/wipe.  
 # surrogate diluted out of range or surrogate coelutes with another peak; N/A means surrogate not applicable to this analysis.  
 j) sample diluted due to high inorganic content; i) liquid sample that contains greater than ~2 vol. % sediment.



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http://www.mcccampbell.com E-mail: main@mcccampbell.com

ATC Associates  6602 Owens Drive, #100  Pleasanton, CA 94588	Client Project ID: #75.23909.0001; Friesman Ranch	Date Sampled: 01/17/03
	Client Contact: Jim Lehrman	Date Received: 01/17/03
	Client P.O.:	Date Extracted: 01/17/03
		Date Analyzed: 01/17/03

**ICP Metals\***

Extraction method: E200.7

Analytical methods: E200.7

Work Order: 0301226

Lab ID	Client ID	Matrix	Extraction	Iron	DF	% SS
0301226-001C	KMW-1	W	DISS.	ND	1	N/A
0301226-002C	KMW-6	W	DISS.	3.9	1	N/A
0301226-003C	KMW-16	W	DISS.	3.9	1	N/A
0301226-004C	KMW-7	W	DISS.	0.45	1	N/A
0301226-005C	KMW-8	W	DISS.	1.1	1	N/A

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	DISS.	0.05	mg/L
	S	TTLIC	NA	mg/kg

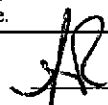
\* water samples are reported in mg/L, soil/sludge/solid/product samples in mg/kg, wipes in µg/wipe and all TCLP / STLC / DISTLC / SPLP extracts in mg/L.

ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

Analytical Methods: EPA 6010C/200.7 for all elements except: 200.9 (water- Sb, As, Pb, Se, Tl); 245.1 (Hg); 7010 (sludge/soil/solid/oil/product/wipes - As, Se, Tl); 7471B (Hg).

DISTLC extractions are performed using STLC methodology except that deionized water is substituted for citric acid buffer as the extraction fluid. DISTLC results are not applicable to STLC regulatory limits.

i) liquid sample that contains greater than ~2 vol. % sediment; this sediment is extracted with the liquid, in accordance with EPA methodologies and can significantly effect reported metal concentrations; z) reporting limit raised due to matrix interference.

 Angela Rydelius, Lab Manager



McC Campbell Analytical Inc.

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 http://www.mcccampbell.com E-mail: main@mcccampbell.com

### QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0301226

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 5667		Spiked Sample ID: 0301230-001A				
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(gas)	ND	60	105	106	0.494	110	107	2.08	80	120
MTBE	300.5	10	NR	NR	NR	98.8	92.8	6.25	80	120
Benzene	ND	10	118	119	0.537	119	115	3.46	80	120
Toluene	ND	10	116	115	1.04	115	111	3.45	80	120
Ethylbenzene	ND	10	119	116	3.22	116	117	1.01	80	120
Xylenes	ND	30	113	113	0	120	113	5.71	80	120
%SS:	107	100	115	113	2.03	113	109	3.56	80	120

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
 NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery =  $100 * (MS - Sample) / (Amount\ Spiked)$ ; RPD =  $100 * (MS - MSD) / (MS + MSD) * 2$ .

\* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.



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### QC SUMMARY REPORT FOR SW8015C

Matrix: W

WorkOrder: 0301226

EPA Method: SW8015C		Extraction: SW3510C			BatchID: 5664		Spiked Sample ID: N/A			
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(d)	N/A	7500	N/A	N/A	N/A	125	130	3.85	70	130
%SS:	N/A	100	N/A	N/A	N/A	111	113	1.59	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
 NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery =  $100 * (MS - Sample) / (Amount\ Spiked)$ ; RPD =  $100 * (MS - MSD) / (MS + MSD) * 2$ .

\* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.



**QC SUMMARY REPORT FOR E300.1**

Matrix: W

WorkOrder: 0301226

EPA Method: E300.1		Extraction: E300.1		BatchID: 5602			Spiked Sample ID: N/A			
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
Nitrate as N	N/A	1	N/A	N/A	N/A	90.9	90.8	0.0978	80	120
Sulfate	N/A	1	N/A	N/A	N/A	101	100	0.0975	80	120
%SS:	N/A	100	N/A	N/A	N/A	95.5	95.3	0.174	80	120

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
 NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery =  $100 * (MS - Sample) / (Amount\ Spiked)$ ; RPD =  $100 * (MS - MSD) / (MS + MSD) * 2$ .

\* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.



McC Campbell Analytical Inc.

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<http://www.mccampbell.com> E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)

### QC SUMMARY REPORT FOR E200.7

Matrix: W

WorkOrder: 0301226

EPA Method: E200.7		Extraction: E200.7		BatchID: 5749			Spiked Sample ID: N/A			
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
Iron	N/A	10	N/A	N/A	N/A	94	91.5	2.64	70	130
All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions: NONE										

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery =  $100 * (MS - Sample) / (Amount\ Spiked)$ ; RPD =  $100 * (MS - MSD) / (MS + MSD) * 2$ .

\* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

# GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

## CERTIFICATE OF ANALYSIS

Report # P020-01

Date: 1/28/03

McCampbell Analytical

Project:

Date Rec'd: 1/20/03

110 2nd Ave. South #D7

Date Started: 1/21/03

Pacheco

CA 94553

PO#

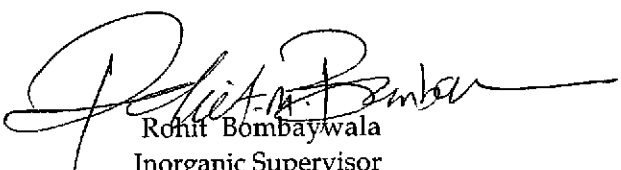
Date Completed: 1/26/03

Date Sampled: 1/17/03

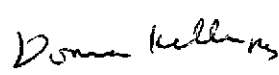
Time:

Sampler:

Sample ID	Lab ID	RL	Method	Analyte	Results	Units
301226-001D	P300609	2.0	SM5210B	B.O.D	ND	mg/L
301226-002D	P300610	2.0	SM5210B	B.O.D	16	mg/L

  
Rohit Bombaywala  
Inorganic Supervisor

Certification # 1157

  
Donna Keller  
Laboratory Director

# GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

## CERTIFICATE OF ANALYSIS

Report # P020-01

Date: 1/22/03

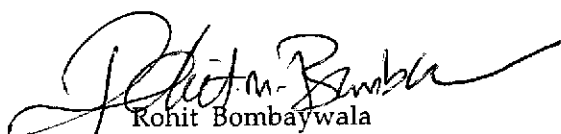
McCampbell Analytical  
110 2nd Ave. South #D7  
Pacheco CA 94553

Project:  
  
PO#

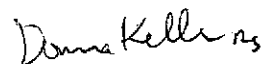
Date Rec'd: 1/20/03  
Date Started: 1/21/03  
Date Completed: 1/21/03

Date Sampled: 1/17/03  
Time: 10:00 am  
Sampler:

Sample ID	Lab ID	RL	Method	Analyte	Results	Units
0301226-001D	P300609	20	410.4	Chemical Oxygen Demand	ND	mg/L
0301226-002D	P300610	20	410.4	Chemical Oxygen Demand	ND	mg/L

  
Rohit Bombaywala  
Inorganic Supervisor

Certification # 1157

  
Donna Keller  
Laboratory Director



# GeoAnalytical Laboratories, Inc.

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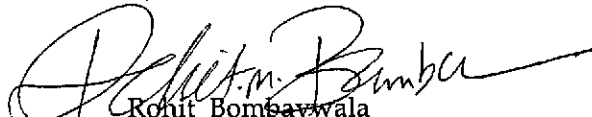
Report# P020-01

## QC REPORT

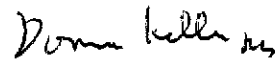
McC Campbell Analytical  
110 2nd Ave. South #D7  
Pacheco CA 94553

Analyte	Method	Batch #	Dates Analyzed	Orig.	Dupl.	MS %Rec	MSD %Rec	RPD	LCS %Rec	Blank	Comments
B.O.D	SM5210B	B00035	1/21/03-1/26/03	292	271			7.5		ND	

\* LCS/LCSD (see comments)

  
Rohit Bombaywala  
Inorganic Supervisor

Certification # 1157

  
Donna Keller  
Laboratory Director

# GeoAnalytical Laboratories, Inc.

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Report# P020-01

## QC REPORT

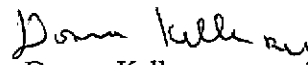
McCampbell Analytical  
110 2nd Ave. South #D7  
Pacheco CA 94553

Analyte	Method	Batch #	Dates Analyzed	Orig.	Dupl.	MS %Rec	MSD %Rec	RPD	LCS %Rec	Blank	Comments
Chemical Oxygen Demand	410.4	I00451	1/21/03			113.3	113.3	0.0	113.3	ND	

\* LCS/LCSD (see comments)

  
Rohit Bombaywala  
Inorganic Supervisor

Certification # 1157

  
Donna Keller  
Laboratory Director

102001

# McC Campbell Analytical Inc.

# CHAIN-OF-CUSTODY RECORD



110 Second Avenue South, #D7  
Pacheco, CA 94553-5560  
(925) 798-1620

WorkOrder: 0301226

**Subcontractor:**

GEO ANALYTICAL LABORATORIES  
1405 Kansas Avenue  
Modesto, CA 95351

TEL: (209) 572-0900  
FAX: (209) 572-0916  
ProjectNo: #75.23909.0001; Friesman Ranch  
Acct #: N/A

Date Received: 1/17/03

Date Printed: 1/17/03

Sample ID	ClientSampID	Matrix	Collection Date	TAT	Requested Tests						
					BOD	COD					
0301226-001D	KMW-1	Water	1/17/03 10:00:00 AM	Standard	1	1	P300609				
0301226-002D	KMW-6	Water	1/17/03 12:10:00 PM	Standard	1	1	P300610				

**Comments:** BOD AND COD STANDARD TAT PLEASE FAX RESULTS AS SOON AS READY; THANK YOU

Relinquished by: <i>Melissa Valle</i>	Date/Time: <i>01-17-03 5pm</i>	Received by: <i>Courier</i>	Date/Time: <i>1/17/03</i>
Relinquished by: <i>Courier</i>	Date/Time: <i>1/20/03 10am</i>	Received by: <i>Rudra Padilla</i>	Date/Time: <i>1/20/03 10am</i>



*alpha*

Alpha Analytical Laboratories Inc.

860 Waugh Lane, H-1, Ukiah, California 95482

e-mail: [clientservices@alpha-labs.com](mailto:clientservices@alpha-labs.com) • Phone: (707) 468-0401 • Fax: (707) 468-5267

24 January 2003

McC Campbell Analytical

Attn: Melissa Valles

110 2nd Ave. South, #D7

Pacheco, CA 94553-5560

RE: ATC Associates

Work Order: A301418

Enclosed are the results of analyses for samples received by the laboratory on 01/20/03 09:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heidi M. Peebles For Sheri L. Speaks  
Project Manager



Alpha Analytical Laboratories Inc.

860 Waugh Lane, H-1, Ukiah, California 95482

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**CHEMICAL EXAMINATION REPORT**

Page 1 of 5

McC Campbell Analytical  
110 2nd Ave. South, #D7  
Pacheco, CA 94553-5560  
Attn: Melissa Valles

Report Date: 01/24/03 11:52  
Project No: 0301226  
Project ID: ATC Associates

Order Number  
A301418

Receipt Date/Time  
01/20/2003 09:35

Client Code  
MCCLAB

Client PO/Reference

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
KMW-1	A301418-01	Water	01/17/03 10:00	01/20/03 09:35
KMW-6	A301418-02	Water	01/17/03 12:10	01/20/03 09:35
KMW-16	A301418-03	Water	01/17/03 12:10	01/20/03 09:35
KMW-7	A301418-04	Water	01/17/03 11:30	01/20/03 09:35
KMW-8	A301418-05	Water	01/17/03 10:40	01/20/03 09:35

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Heidi M. Peebles For Sheri L. Speaks  
Project Manager

1/24/2003



Alpha Analytical Laboratories Inc.

860 Waugh Lane, H-1, Ukiah, California 95482

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CHEMICAL EXAMINATION REPORT

Page 2 of 5

McC Campbell Analytical
110 2nd Ave. South, #D7
Pacheco, CA 94553-5560
Attn: Melissa Valles

Report Date: 01/24/03 11:52
Project No: 0301226
Project ID: ATC Associates

Order Number: A301418
Receipt Date/Time: 01/20/2003 09:35
Client Code: MCCLAB
Client PO/Reference:

Alpha Analytical Laboratories, Inc.

Table with columns: METHOD, BATCH, PREPARED, ANALYZED, DILUTION, RESULT, PQL, NOTE. Contains data for four samples: KMW-1, KMW-6, KMW-16, and KMW-7, each with sub-sections for 'Conventional Chemistry Parameters by APHA/EPA Methods' listing Total Alkalinity, Carbonate Alkalinity, Bicarbonate Alkalinity, and Hydroxide Alkalinity.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Handwritten signature: Heidi M. Peebles

Heidi M. Peebles For Sheri L. Speaks
Project Manager

1/24/2003



Alpha

Alpha Analytical Laboratories Inc.

860 Waugh Lane, H-1, Ukiah, California 95482

e-mail: clientservices@alpha-labs.com • Phone: (707) 468-0401 • Fax: (707) 468-5267

CHEMICAL EXAMINATION REPORT

Page 3 of 5

McC Campbell Analytical  
110 2nd Ave. South, #D7  
Pacheco, CA 94553-5560  
Attn: Melissa Valles

Report Date: 01/24/03 11:52  
Project No: 0301226  
Project ID: ATC Associates

Order Number  
A301418

Receipt Date/Time  
01/20/2003 09:35

Client Code  
MCCLAB

Client PO/Reference

Alpha Analytical Laboratories, Inc.

METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	PQL	NOTE
--------	-------	----------	----------	----------	--------	-----	------

KMW-8 (A301418-05)

Sample Type: Water

Sampled: 01/17/03 10:40

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

*Heidi M. Peebles*

Heidi M. Peebles For Sheri L. Speaks  
Project Manager

1/24/2003



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**CHEMICAL EXAMINATION REPORT**

Page 4 of 5

McC Campbell Analytical  
110 2nd Ave. South, #D7  
Pacheco, CA 94553-5560  
Attn: Melissa Valles

Report Date: 01/24/03 11:52  
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01/20/2003 09:35

Client Code  
MCCLAB

Client PO/Reference

Analyte(s)	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
------------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	------

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

*Heidi M. Peebles*

Heidi M. Peebles For Sheri L. Speaks  
Project Manager

1/24/2003





Alpha Analytical Laboratories Inc.

860 Waugh Lane, H-1, Ukiah, California 95482

e-mail: clientservices@alpha-labs.com • Phone: (707) 468-0401 • Fax: (707) 468-5267

**CHEMICAL EXAMINATION REPORT**

Page 5 of 5

McC Campbell Analytical  
110 2nd Ave. South, #D7  
Pacheco, CA 94553-5560  
Attn: Melissa Valles

Report Date: 01/24/03 11:52  
Project No: 0301226  
Project ID: ATC Associates

Order Number  
A301418

Receipt Date/Time  
01/20/2003 09:35

Client Code  
MCCLAB

Client PO/Reference

**Notes and Definitions**

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- PQL Practical Quantitation Limit

Alpha

# McCAMPBELL ANALYTICAL INC.

110 2<sup>nd</sup> AVENUE SOUTH, #D7  
PACHECO, CA 94553-5560

Telephone: (925) 798-1620

Fax: (925) 798-1622

# CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HOUR 48 HOUR 5 DAY 10 DAY

Report To: Melissa Valles

Bill To: McCampbell Analytical

Project #: 0301224

Project Name: ATC ASSOCIATE

Project Location:

## ANALYSIS REQUEST

COMMENTS

\*36 hr hold time  
please dechlorinate

SAMPLE ID	SAMPLING		# Containers	Type Containers	MATRIX								METHOD PRESERVED	ANALYSIS REQUEST															COMMENTS						
	Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other	Asbestos	BOD	Sulfide	Cyanide	96hr Static % Survival Fish Bio Assay Flat Headminnows & 3 Spine Strickelsback	Odor	Color	MBAS	Hardness	Alkalinity	Turbidity	Nitrate	Fish Bioassay	Flouride	Coliform		Chloride	General Minerals	EPA			
KMW-1	01/17	10:00	1	vac	X							X										X													12.2 Temp
KMW-6		12:10																																-2	
KMW-16		<del>12:10</del>																																-3	
KMW-7		11:30																																-4	
KMW-8		10:40																																-5	

Relinquished By: *Melissa Valles*

Date: 01/17

Time: 5pm

Received By:

Relinquished By:

Date: 1/20/03

Time: 9:35

Received By: *Whitney Peebles*

Relinquished By:

Date:

Time:

Received By:

Remarks: PLEASE FAX RESULTS ASAP

(unpreserved vacs) samples in order from 001-005  
standard TAT

QUOTE #: 030106kd-1



6002 Owens Drive, Suite 100  
 Pleasanton, CA 94588  
 Main Line: (925) 460-5300  
 Facsimile: (925) 463-2559

# CHAIN OF CUSTODY FORM

Project Name: FRIESMAN RANCH Client: CHILDRENS HOSPITAL  
 Project Number: 75.23909.0001 Task: 2  
 Project Address: 1600 FRIESMAN Rd. Livermore, CA  
 Laboratory: M Campbell Analytical Contact: (925) 798-1620  
 Lab Address/Phone: 110 2nd Ave South #D-7 Pacheco, CA  
 ATC Project Manager: JIM LEHRMAN  
 ATC PM Ph. No.: (925) 225-7815 Email: LEHRMAN75@atc-enviro.com  
 ATC Sampler: P. Arroyo Phone: (925) 225-7813

Turnaround  10 day  3 day  2-8 hr  
 Time:  7 day  2 day  other  
 (working days)  5 day  24 hr ( )

## Analyses Requested

ATC Sample ID	Sample Information			Container Information			Comments / Field Notes	TPHg/BTEX/MTBE (8015M#9229) 802.1	Fuel Oxygenates (8260)	TPHd (8015M)	HVOCs (8010)	VOCs (8020)	VOCs (8260)	PP Metals (low detect) (7000/6010)	Cyanide, Total (335.2)	NITRATE, SULFATE, FE	TOTAL ALKALINITY	BOD	COD		
	Date	Time	Matrix			No.														Type	Preservative
			Soil	Water	Vapor																
KMW-1	1-17-03	1000		X		3	VOA	HCL													
KMW-1				X		1	ILAG.	None		X											
KMW-1				X		1	500ml	None								X					
KMW-1				X		1	500ml	None								X					
KMW-1				X		1	500ml	None								X					
KMW-1				X		1	500ml	H2SO4								X					
KMW-6		1210		X		3	VOA	HCL	X												
KMW-6				X		1	ILAG.	None		X											
KMW-6				X		1	500ml	None								X					
KMW-6				X		1	500ml	None								X					
KMW-6				X		1	500ml	None								X					
KMW-6				X		1	500ml	H2SO4								X					
KMW-16				X		3	VOA	HCL	X												
KMW-16				X		3	ILAG.	None		X											
KMW-16				X		1	500ml	None								X					
KMW-16				X		1	500ml	None								X					

Additional Comments: \* FILTER AND PRESERVE IRON SAMPLES UPON LAB ARRIVAL  
\* INVOICE CHILDRENS HOSPITAL DIRECTLY

Relinquished By: [Signature] Date/Time: 1/17/03/1100 Received By: [Signature] Date/Time: 01/17/03 1310  
 Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Sample Condition: Good? Yes  No  On Ice? Yes  No  Cooler Temp: \_\_\_\_\_ Transportation Method: \_\_\_\_\_ Page      of



6602 Owens Drive, Suite 100  
 Pleasanton, CA 94588  
 Main Line: (925) 460-5300  
 Facsimile: (925) 463-2559

0301226

# CHAIN OF CUSTODY FORM

Project Name: Friesman Ranch Client: Childrens Hospital  
 Project Number: 75.23909.0001 Task: 2  
 Project Address: 1600 Friesman Rd. Livermore, CA  
 Laboratory: McCampbell Analytical Contact: (925) 798-1620  
 Lab Address/Phone: 110 2nd Ave South #D-7 Pacheco, CA  
 ATC Project Manager: JIM LEHRMAN  
 ATC PM Ph. No.: (925) 225-7815 Email: LEHRMANJ@atc-enviro.com  
 ATC Sampler: P. Arroyo Phone: (925) 225-7813

Turnaround  10 day  3 day  2-8 hr  
 Time:  7 day  2 day  other  
 (working days)  5 day  24 hr ( )

## Analyses Requested

ATC Sample ID	Sample Information			Container Information			Comments / Field Notes	TPH/IBTEX/MTBE (8015M/8260) 8021	Fuel Oxygenates (8260)	TPHd (8015M)	HVOcs (8010)	VOCs (8020)	VOCs (8260)	PP Metals (low detect) (7000/6010)	Cyanide, Total (335.2)	Nitrate, Sulfate, FE	TOTAL ALKALINITY		
	Date	Time	Matrix			No.												Type	Preservative
			Soil	Water	Vapor														
KMW-7	1-17-03	1130		X		3	VOA	HCL											
KMW-7	1-17-03			X		1	1L A.G.	None		X									
KMW-7				X		1	500 ml	None								X			
KMW-7				X		1	500ml	None								X			
KMW-8		1040		X		3	VOA	HCL	X										
KMW-8				X		1	1L A.G.	None		X									
KMW-8				X		1	500ml	None								X			
KMW-8				X		1	500 ml	None								X			
Trip BLANK				X		1	VOA	HCL	X										

Additional Comments: \* FILTER AND PRESERVE IRON SAMPLES UPON LAB ARRIVAL  
\* INVOICE CHILDRENS HOSPITAL DIRECTLY

Relinquished By: Pete Arroyo Date/Time: 1/17/03/1310 Received By: [Signature] Date/Time: 01/17/03 1310  
 Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Sample Condition: Good? Yes  No  On Ice? Yes  No  Cooler Temp: \_\_\_\_\_ Transportation Method: \_\_\_\_\_ Page      of

# McC Campbell Analytical Inc.

# CHAIN-OF-CUSTODY RECORD



110 Second Avenue South, #D7  
 Pacheco, CA 94553-5560  
 (925) 798-1620

WorkOrder: 0301226

**Client:**

ATC Associates  
 6602 Owens Drive, #100  
 Pleasanton, CA 94588

TEL: (925) 460-5300  
 FAX: (925) 463-2559  
 ProjectNo: #75.23909.0001; Friesman Ranch  
 PO:

Date Received: 1/17/03  
 Date Printed: 1/17/03

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests						
					Alkalinity	BOD	COD	E200_7	E300_1	SW8015C	8021B/8015
0301226-001	KMW-1	Water	1/17/03 10:00:00 AM	<input type="checkbox"/>	D	D	D	C	C	B	A
0301226-002	KMW-6	Water	1/17/03 12:10:00 PM	<input type="checkbox"/>	D	D	D	C	C	B	A
0301226-003	KMW-16	Water	1/17/03 12:10:00 PM	<input type="checkbox"/>	D			C	C	B	A
0301226-004	KMW-7	Water	1/17/03 11:30:00 AM	<input type="checkbox"/>	D			C	C	B	A
0301226-005	KMW-8	Water	1/17/03 10:40:00 AM	<input type="checkbox"/>	D			C	C	B	A
0301226-006	Trip Blank	Water	1/17/03	<input type="checkbox"/>							A

Prepared by: Sonia Valles

**Comments:**

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.



McC Campbell Analytical Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
<http://www.mcccampbell.com> E-mail: [main@mcccampbell.com](mailto:main@mcccampbell.com)

ATC Associates 6602 Owens Drive, #100 Pleasanton, CA 94588	Client Project ID: #75.23909.0001; Friesman Ranch	Date Sampled: 01/17/03
		Date Received: 01/17/03
	Client Contact: Jim Lehrman	Date Reported: 01/24/03
	Client P.O.:	Date Completed: 03/28/03

Work Order: 0301226

March 28, 2003

RE: Analytical Report Revision; Friesman Ranch, Project #75.23909.0001 - sampled 01/17/03

Dear Mr. Scott Perkins,

Please note the revision of the toluene concentration on Client Sample ID "MWK-16" (MAI ID #0301226-003A) from 6.4 ug/L to 5.2 ug/L by EPA 8021B. After further review of the integration of this peak, it was determined that our automated integration software routine drew the integration baseline to mildly over-estimate the actual toluene concentration. By manually re-drawing the toluene baseline to a more appropriate position, a more precise toluene concentration was then calculated. The analyst, shift supervisor and myself all agree that this manually drawn baseline is more accurate than the automated one drawn by Chemstation and is the truest baseline that can be drawn. Furthermore, by re-setting the baseline, the toluene concentration mimicks the toluene concentration found in this sample's blind duplicate, "KMW-6", MAI ID #0301226-002A.

Please feel free to contact me at 925-798-1620 with any further questions or concerns.

Sincerely,

Angela Rydelius  
Laboratory Manager



McC Campbell Analytical Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
http://www.mcccampbell.com E-mail: main@mcccampbell.com

ATC Associates 6602 Owens Drive, #100 Pleasanton, CA 94588	Client Project ID: #75.23909.0001; Friesman Ranch	Date Sampled: 01/17/03
	Client Contact: Jim Lehrman	Date Received: 01/17/03
	Client P.O.:	Date Extracted: 01/18/03-01/22/03
		Date Analyzed: 01/18/03-01/22/03

**Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE\***

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0301226

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	KMW-1	W	ND	ND	ND	ND	ND	ND	1	104
002A	KMW-6	W	5700,a	ND<25	87	4.3	170	100	5	102
003A	KMW-16	W	5800,a	ND<25	89	5.2	180	100	5	92.2
004A	KMW-7	W	1100,a	ND<10	7.8	1.3	24	84	1	107
005A	KMW-8	W	ND	ND	ND	ND	ND	ND	1	109
006A	Trip Blank	W	ND	ND	ND	ND	ND	ND	1	98.3
Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	0.5	1	µg/L
	S	NA	NA	NA	NA	NA	NA	NA	1	mg/Kg

\*water and vapor samples are reported in µg/L, soil and sludge samples in mg/kg, wipe samples in µg/wipe, and TCLP extracts in µg/L.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.

DHS Certification No. 1644

*AR* Angela Rydelius, Lab Manager

ALAMEDA COUNTY ENVIRONMENTAL HEALTH DEPARTMENT  
Division of Environmental Protection

1131 HARBOR BAY PARKWAY, SUITE 250  
ALAMEDA, CA 94502-6577  
Telephone (510) 567-6700 FAX (510) 337-9335

FACSIMILE COVER SHEET

To: Jim. Lehrman

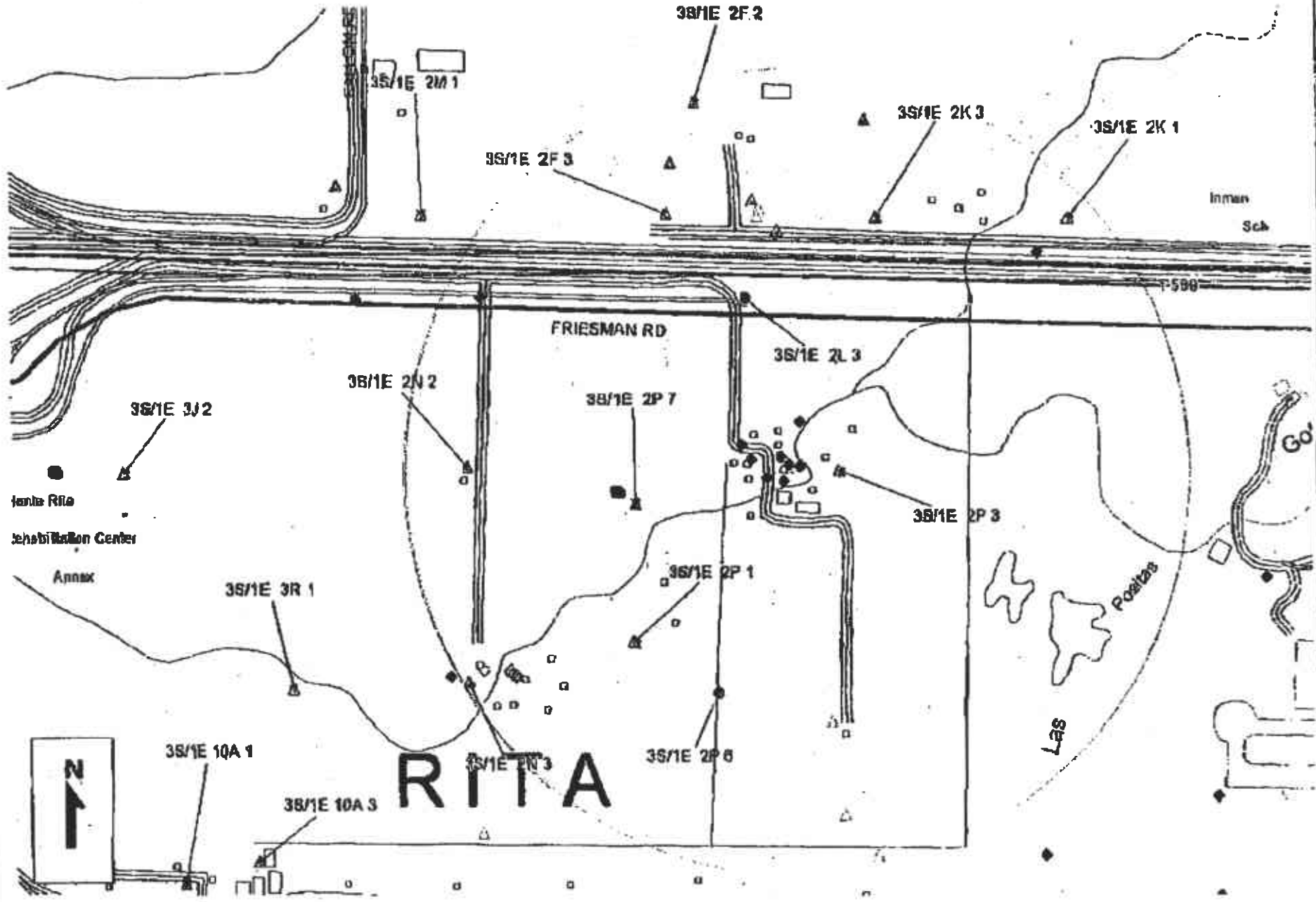
From: Erzhu 510/567-6762

Date: 3/25/03

Notes: I did not request all the well logs  
from zone 7, just the nearest + downgradient  
If you need the others, let me know which ones

Erzhu





**ZONE 7 WATER AGENCY**  
 6897 PARKSIDE DRIVE  
 PLEASANTON, CA 94588

**WELL LOCATION MAP**

**SCALE: 1" = 700 ft**

**DATE: 3/18/03**

**FRIESMAN RANCH**

**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**

3S/1E-2P1

47-1048

LOG OF WELL FOR OCEANOGRAPHY  
Livermore, Calif.

DRILLER: ~~ALVIN FARR~~ *AS*  
*10/7/50*

THICKNESS				
6	8	8	Ft.	
				Top soil <del>and</del> clay 5
6	20	12	6	Brown top soil clay 5
20	45	25	3	Dark gray clay 3
45	52	7	3	Hard gray clay 3
52	59	7	5	Sandy clay 5
59	64	5	10	Packed fine sand 10
64	75	12	25	Sand 25
75	82	8	10	Packed sand 10
82	90	8	10	Sandy clay 10
90	137	47	3	Hard gray clay 3
137	144	7	70	Packed sand 70
144	153	9	3	Gray clay - hard 3
153	167	14	5	Sandy clay 5
167	187	20	3	Hard gray clay 3
187	192	5	10	Packed sand 10
192	207	15	3	Hard gray shale 3
207	297	90	25	Sand and gravel 25
297	300	3	3	Hard and sticky gray clay 3
300	340	40	3	Hard and sticky gray shale 3
340	345	5	3	Hard shale and rock 3
345	357	12	25	Gravel and sand 25
357	370	13	3	Hard gray clay 3
370	375	5	5	Gravel and hard clay 5
375	400	25	5	Hard brown clay and gravel 5

400 Ft. Total Finished Well

400 Ft. Casing

Perforated: ~~375 to 400 ft.~~

50 to 376 ft. - ~~326~~ ft.  
326

3S/1E + 2P1