ENVIRONMENTAL PROTECTION

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ENVIRONMENTAL ENGINEERING, INC
2680 Bishop Drive, Suite 203, San Ramon, CA 94583
TEL (925) 244-6600 • FAX (925) 244-6601

March 10, 2000

3337

– what's the status of air sparge system?

Mr. Barney M. Chan
Alameda County
Department of Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: Claim No. 7912
Site Address: 3609 International Blvd., Oakland, California

Dear Mr. Chan:

A copy of the First Quarter 2000 Groundwater Monitoring report for the subject property is enclosed.

Thank you for your time in reviewing our report. If you have any questions or comments, please call me at (925) 244-6600.

Sincerely,

Mansour Sepehr, Ph.D., P.E.
Principal Hydrogeologist

MS/jb

Enclosure

cc: Mr. Abolghassem Razi w/enclosure
Tony's Express Auto Service

ENVIRONMENTAL ENGINEERING, INC
2680 Bishop Drive, Suite 203, San Ramon, CA 94583
TEL (925) 244-6600 • FAX (925) 244-6601

FIRST QUARTER 2000
GROUNDWATER MONITORING REPORT
Tony's Express Auto Service
Oakland, California

March 10, 2000

Project 99-2331

Prepared for
Tony's Express Auto Service
3609 International Boulevard
Oakland, California

Prepared by

SOMA Environmental Engineering, Inc.
2680 Bishop Drive, Suite 203
San Ramon, California 94583

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1.0 INTRODUCTION

This report presents the results of the first quarter 2000 groundwater monitoring activities conducted by SOMA Environmental Engineering, Inc. (SOMA) on behalf of Mr. Abolghassem Razi, the property owner. The project site is Tony's Express Auto Service, located at 3609 International Boulevard, Oakland, California (the "Site"), see Figure-1.

The Site is located at the intersection of 36th Avenue and International Boulevard (formerly known as East 14th Street), Oakland, California, see Figure-1. It is currently used as a gasoline service station and mechanic shop. The Site is relatively flat, and the surrounding properties are primarily commercial businesses and residential housing. Figure-2 shows the location of the main building, fuel tank areas, and on-site and off-site groundwater monitoring wells. Currently, the groundwater monitoring wells are being monitored on a quarterly basis. The results of the groundwater monitoring programs have indicated elevated levels of petroleum hydrocarbons in the groundwater beneath the Site. The source of petroleum hydrocarbons in the groundwater is believed to be the former underground storage tanks (USTs), which were used to store gasoline at the Site. This report includes the results of historical groundwater monitoring events as well as the results of the first quarter 2000 groundwater monitoring event.

Based on the property owner's request, the recent groundwater-monitoring event was conducted by SOMA in response to Alameda County Environmental Health Services (ACEHS) requirements.

1.1 BACKGROUND

Currently, the Site is used as a gasoline service station. The environmental

investigation at the subject property started since 1992, when Mr. Razi, the property owner retained Soil Tech Engineering, Inc. (STE) of San Jose to conduct a limited subsurface investigation. The purpose of STE's investigation was to determine whether or not the soil near the product lines and underground storage tanks (USTs) have been impacted with petroleum hydrocarbons.

In July 1993, STE removed one single-walled 10,000-gallon gasoline tank and one single-walled 6,000-gallon gasoline tank along with a 550-gallon waste oil tank from the Site. Three double-walled USTs replaced these tanks. Currently, there are one-10,000 gallon double-walled gasoline tank and two-6,000 gallon double-walled gasoline tanks beneath the Site (Figure 2).

In December 1997, Mr. Razi retained Western Geo-Engineers (WEGE) to conduct additional investigation and perform groundwater monitoring on a quarterly basis. The results of WEGE groundwater monitoring events indicated elevated levels of petroleum hydrocarbons and methyl tertiary butyl ether (MTBE) in the groundwater. The historical groundwater elevation data, total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethlybenzene, xylenes, (BTEX) and MTBE concentrations reported by STE and WEGE are included in Table-1 and Table-3.

In April 1999, Mr. Razi retained SOMA to conduct groundwater monitoring, risk based corrective action (RBCA), corrective action plan (CAP) and soil and groundwater remediation at the Site. The results of the RBCA study indicated that the site is a high risk area, therefore, the soil and groundwater in on-and off-site areas need to be remediated. The results of CAP study indicated that installation of a French Drain along with air sparging technique is a cost effective alternative for site remediation.

In late August 1999, SOMA installed a French Drain and initiated a groundwater treatment system to prevent further migration of chemically impacted

groundwater. Currently, this treatment system has been in operation since early December 1999.

On November 2, 1999, HEW Drilling, a subcontractor of SOMA drilled one boring at BART's property and converted it into a monitoring well (MW-12). Figure 2 shows the location of existing wells and monitoring well MW-12. During the drilling operation, relatively undisturbed soil samples and a grab groundwater sample were collected. The results of the chemical analyses of the samples indicated that petroleum hydrocarbon chemicals have reached to MW-12. The soil sample collected at a depth of 15' (zone of water fluctuation) was found to be contaminated with 480 µg/kg TPHg. The grab groundwater sample was found to be impacted with 26.8 µg/L benzene, 8.3 µg/L toluene, 250 µg/L MTBE and 1,110 µg/L TPHg. During this monitoring event MW-12 was also monitored.

1.2 SITE HYDROGEOLOGY

Based on the results of previous investigations, groundwater is encountered at depths ranging between 10 and 11 feet beneath the Site. Figure-2 shows the location of on-site and off-site groundwater monitoring wells. Prior to the operation of the French drain, groundwater flow was found to be from the north to the south with an average gradient of 0.014 ft/ft. As shown in Figure-3, the ground water now flows from all directions toward the French drain. As it shows the capture zone of the drain has extended down gradient to well MW-10.

Based on the results of a pumping test conducted by SOMA, hydraulic conductivity of the saturated sediments ranges between 1.5 and 18.3 feet per day. Assuming the effective porosity of saturated sediments to be 0.35, the groundwater flow velocity ranges between 22 feet and 267 feet per year.

2.0 FIELD ACTIVITIES

Field activities were performed in accordance with the procedures and guidelines of the California Regional Water Quality Control Board, San Francisco Bay Region.

On February 7, 2000, the SOMA field crew measured depth to groundwater in the monitoring wells from the top of casings to the nearest 0.01 foot using an electrical sounder. The depth to groundwater and top of casing elevation data at each groundwater monitoring well were used to calculate the groundwater elevation. A total of 11 groundwater monitoring wells and three risers of the French drain were monitored during this event. Table-1 presents the groundwater elevations and Appendix A presents a summary of field notes for each groundwater monitoring well and the French drain risers.

Before sample collection, each well was purged at least three casing volumes while field readings of pH and temperature were recorded. Each groundwater monitoring well was purged using a 2-inch diameter submersible pump, model ES-60 DC. Groundwater samples were collected using disposable bailers. Each groundwater sample was transferred into two 40-ml VOA vials and sealed properly to prevent developing any air bubbles within the headspace area. The vials were placed in an ice chest and delivered to Delta Environmental Laboratories of Benicia, California for analysis. For field measurements a sufficient sample was transferred into a 500-ml polyethylene container.

The groundwater samples that were kept in polyethylene bottles were immediately used for on-site measurements of ferrous iron (Fe^{+2}), nitrate-N (NO_3^--N), sulfate (SO_4^{-2}), pH, and electrical conductivity (EC).

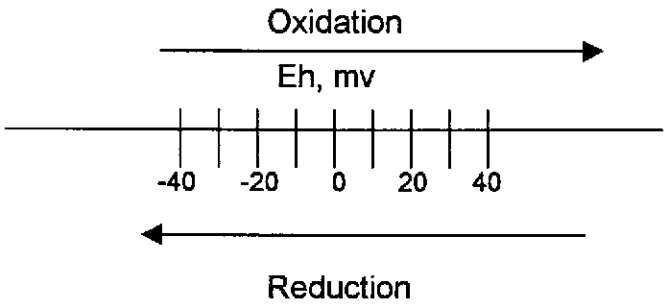
The D.O. and temperature were measured with a dissolved oxygen meter, YSI

Model 50B (YSI Incorporated, Yellow Springs, Ohio 45387 USA), see Appendix A for the result of field measurements. The instrument was calibrated at the Site according to a procedure provided by the manufacturer and prescribed by Taras *et.al.* (1975). Detail of the calibration and measurement procedures can be found in the instrument's handbook. The measurements were corrected for barometric pressure, temperature and salinity using correction factors provided by the user's manual, see Appendix A.

In order to avoid the intrusion of oxygen in ambient air to groundwater samples, the D.O. and temperature measurements were conducted in situ (down-hole inside each monitoring well).

Oxidation-Reduction Potential of groundwater samples was measured using HANNA's ORP electrode. Oxidation is a process in which a molecule or ion losses electron. Reduction is a process by which electrons are gained. A measure of the potential for these processes to occur is called Oxidation Reduction Potential or Eh. The unit of Eh is volt or m-volt and is commonly referred as the redox potential. The most important redox reaction in petroleum contaminated groundwater is the oxidation of petroleum hydrocarbons in the presence of bacteria and free molecular oxygen. Because the solubility of O_2 in water is low (9 mg/L at 25 °C and 11 mg/L at 5 °C), and because O_2 replenishment in subsurface environments is limited, oxidation of only a small amount of petroleum hydrocarbons can result in consumption of all the dissolved oxygen. When all the dissolved O_2 in groundwater is consumed, oxidation of petroleum hydrocarbons can still occur, but the oxidizing agents (i.e., constituents that undergo reduction) are NO^-_3, MnO_2, $Fe(OH)_3$, SO_4^{2-} and others (Freeze and Cherry, 1979). As these oxidizing agents are consumed, the groundwater environment becomes more and more reduced. If the process proceeds far enough, the environment may becomes very strong reduced that the petroleum hydrocarbons may undergo anaerobic degradation and production

of methane and carbon dioxide. The concept of oxidation and reduction in terms of changes in oxidation states is illustrated below.



Fe^{+2}, NO^{-}_{3}-N and SO_4^{-2} were measured colorimetrically using the Hach Model DR/850 colorimeter (Hach Company World Headquarters, P.O. Box 389, Loveland, Colorado 80539-0389). The Hach DR/800 Series Colorimeter is a microprocessor-controlled photometer suitable for colorimetric testing in the laboratory or the field. The required reagents for each specific test are provided in AccuVac ampuls.

Fe^{+2} was measured colorimetrically using Method 8146 (1,10-phenanthroline Method). The 1,10-phenathroline indicator in Ferrous Iron Reagent reacts with Fe^{+2} in the sample to form an orange color. The intensity of orange color is proportional to the iron concentration.

SO_4^{-2} was measured colorimetrically using Method 8051 of Sulfa Ver 4 Method. Sulfate ions in the sample react with Sulfa Ver 4 Sulfate Reagent to form insoluble barium sulfate. The amount of turbidity formed is proportional to the sulfate concentration. The Sulfa Ver 4 also contains a stabilizing agent to hold the barium sulfate in suspension.

NO^{-}_{3}-N was measured colorimetrically using Method 8039 or Cadmium Reduction Method. Cadmium metal in the Nitra Ver 5 Nitrate Reagent reduces nitrates present in the sample to nitrite, the nitrite ion reacts in an acidic medium

with sulfanilic acid to form an intermediate diazonium salt which couples to getistic acid to form an amber-colored product. The intensity of the color is proportional to nitrate-N concentration in the sample.

Electrical conductivity, pH were measured with Hydac Model 910 pH meter. The instrument was calibrated for conductance with a standard solution of known concentration (12,000 us/cm) and for pH with 4, 7 and 10 pH units buffer solutions. All measurements were performed according to the instruction manual provided by the manufacturer.

2.1 LABORATORY ANALYSIS

Delta Environmental Laboratories analyzed the groundwater samples. The measured constituents included TPH –g, BTEX and MTBE.

TPH-g was measured using EPA Method 5030/GCFID. EPA Method 8020 was used to measure BTEX. MTBE levels in the groundwater were measured using EPA Method 8020 and confirmed using EPA Method 8260. The results are presented in Table-3. As discussed, the groundwater parameters in connection with bio-degradation activities such as dissolved oxygen, nitrate, sulfate and ferrous iron were analyzed in the field by SOMA's field staff.

3.0 RESULTS

Table-1 presents the measured groundwater elevations at different groundwater monitoring wells. Depths to watertable are recorded in the field notes (Appendix A). Depths to watertable ranged between 9.25 feet and 15.4 feet. Static water levels ranged between 81.7 feet at the center riser of the French drain and 89.19 feet at MW-5. In comparison with the previous monitoring event, the water level elevations in the monitoring wells increased in the range of 0.25 feet to 4.45 feet.

This is mainly due to operation of the French drain, which was installed in September 1999 and started its full time operation in December 1999. On the Site, during the recent monitoring event the groundwater flow was found to be from the north towards the south, this is consistent with the findings of the previous monitoring events. However, on the off-site properties south of the Site, the groundwater flow has been reversed by the effects of the French drain and is now flowing from the south towards the north. A groundwater elevation contour map is displayed in Figure-3. **As Figure 3 shows the capture zone of the French drain has been extended as far as well MW-10, which is located about 170 feet downgradient of the center riser of the French drain. The historical static water level elevations measured at different monitoring wells are also presented in** Table 1.

Floating products were not found in any of the wells during the current groundwater monitoring event. During the previous groundwater monitoring event also no floating product was observed.

The results of field measurements of some physical and chemical parameters of the groundwater samples are presented in Table-2. Temperature ranged between 19 ^{0}C and 21 ^{0}C. The variation in temperature may reflect the changes in air temperature during sampling, see field notes in Appendix A. Temperature measurements allowed us to make corrections to pH and EC measurements using a Manual Temperature Compensation procedure described in the Hydac Model 910 pH meter manual. D.O. measurements were also corrected automatically for the recorded temperatures, see Appendix A.

Dissolved oxygen concentration in the groundwater samples ranged between 0.62 mg/L at MW-12 and 1.25 mg/L in MW-6. The low oxygen content may suggest an anaerobic biodegradation process in the groundwater system. Figure-4 shows the contour map of D.O. concentration in groundwater. The

dissolved oxygen measurement was conducted down-hole (in-situ) after purging the wells.

Redox potential in the groundwater samples ranged between 55 mv in well MW-10 and –90 mv in Well NW-8. Two monitoring wells MW-5 and MW-10 with minor hydrocarbon contaminations showed an oxidation conditions and the remainder of the wells showed a strong reduced conditions. Low oxygen levels in wells MW-5 and MW-10 in combination with the positive redox potentials is an indication of aerobic oxidation of the petroleum hydrocarbons in these wells. All other contaminated wells are showing strong reduced conditions. In these oxygen depleted wells, anaerobic processes utilizing alternate electron acceptors for oxidation of petroleum hydrocarbons, may be responsible for strong reduced conditions. Possible alternate electron acceptors include nitrate, iron (III) and sulfate (Lovley *et. al.*, 1994). Under strong reduced conditions and lack of other terminal electron acceptors the occurrence of methanogenesis and production of methane gas is highly possible. when will air sparge be initiated ?

During this monitoring event nitrate was only detected in well MW-2. However, in previous monitoring event, nitrate was detected in wells MW-2, MW-4, MW-5 and also MW-12 where low levels of petroleum hydrocarbons were detected. More importantly, the concentrations of dissolved oxygen in all wells are significantly low, and because replenishment of oxygen in subsurface environments is limited, oxidation of only a small amount of petroleum hydrocarbons depletes the oxygen. Under this condition, oxidation of petroleum hydrocarbons can still occur, but the oxidizing agents (i.e., constituents that undergo reduction) are NO^-_3, MnO_2, $Fe(OH)_3$, SO_4^{2-} and others (Lovley *et. al.*, 1994). Disappearance of nitrate in most of the wells may suggest that, under the observed anaerobic condition, nitrate may have been used as a source of terminal electron acceptor by microorganisms (Lovley *et. al.*, 1994). Figure-5 shows the contour map of nitrate concentration in groundwater. should check gw for methane.

Sulfate concentrations ranged between non-detectable and 140 mg/L. This significant variation in sulfate concentrations may reveal a strong demand by microorganisms for a source of terminal electron acceptor for oxidizing contaminant hydrocarbons (Lovley *et. al.*, 1994). Figure-6 shows groundwater sulfate concentration measured on February 7, 2000.

Ferrous iron concentration in groundwater samples ranged between non-detectable and 3.6 mg/l. High concentration of ferrous iron in groundwater is a good indication of biological activities. Figure-7 shows the groundwater ferrous iron concentration measured on February 7, 2000. The presence of higher ferrous iron and absence/lack of electron receptors such as nitrogen, sulfate and dissolved oxygen is indicative of anaerobic biodegradation beneath the Site. Due to the presence of low levels of dissolved oxygen, as well as the nutrients such as nitrates and sulfate, generation of methane gas from petroleum hydrocarbons seems likely.

The pH measurements ranged between 7.56 and 7.95 pH units. Electrical conductivity ranged between 434 µs/cm and 773 µs/cm. The unit of electrical conductivity is Siemens (s) or micro-Siemens (µs) in the SI system. In the past, these units have been known as millimhos and micromhos.

The results of chemical analyses are shown in Table 3. The concentrations of TPH-g ranged between non-detectable (<50 µg/L) in well MW-10 and 44,200 µg/L in MW-8. Benzene concentrations were below the detection limit of 5 µg/L in wells MW-5, MW-7, and MW-10, and peaked at 6,090 µg/L in MW-3. TPH-g and benzene concentration contours in groundwater have been shown in Figures 8 and 9, respectively. MTBE concentrations ranged between non-detectable (<5 µg/L) in wells MW-4, MW-5, and MW-11, and 513 µg/L in MW-12. MTBE concentrations contour map in groundwater has been shown in Figure-10.

The historical data of groundwater contamination is presented in Table 3. Generally, chemical concentrations showed significant increases during the recent groundwater monitoring event in most of the wells. The exceptions are addressed below. Benzene and TPHg concentrations significantly increased in wells MW-1 through MW-4 and MW-8, while, they decreased in wells MW-5, MW-6, MW-7 and MW-10. MTBE concentrations decreased in wells MW-1, MW-8 and MW-10, while, remained below detectable levels in wells MW-4, MW-5, and MW-10. During the second quarter groundwater monitoring event in 1999, a high concentration of MTBE (1291µg/L) was reported in MW-11. However, the results of current and the last two monitoring events could not verify the presence of MTBE greater than the detection limit of 5 µg/L in this well. Therefore, the previously reported elevated MTBE concentration in MW-11 is considered an anomaly.

The results of this monitoring event show that petroleum hydrocarbons have impacted well MW-12 with the concentrations higher than was previously believed. In the last monitoring event MW-12 showed concentrations of 80 µg/L and 229 µg/L for TPH-g and MTBE, respectively. However, these concentrations have risen up to 4000 µg/L for TPHg and 513 µg/L for MTBE. Benzene, which was previously below the detection level of 5 µg/L, has also risen to a value of 351 µg/L.

4.0 TREATMENT SYSTEM OPERATION

The operation of the treatment system was started on December 9, 1999. Since then, more than 300,000 gallons (recording date is March 4, 2000) of groundwater has been treated and discharged to the East Bay Municipal Utility District (EBMUD) under the existing discharge permit (see Appendix A). As required by the discharge permit and the ACEHS, sampling has been performed

on a routine basis. The effluent sampling and maintenance of the system have been performed on a weekly basis from the start of the system to now. The result of the first effluent testing was used to acquire a discharge permit from EBMUD.

Table 4 presents total volume and chemical composition of the effluent treated at the Site. Table-4 shows that all effluent samples during discharge have maintained compliance with the permit, having values below the level of detection limit. Approximately, 23,000 gallons of chemically impacted groundwater per week is being treated by the treatment system. Assuming that the average concentration of TPH-g remains at 17 mg/L (analyzed 12/9/99), then approximately 178 pounds of TPH-g is being removed by the GAC units on a yearly basis. Using a carbon absorption rate of 7.0% (as assumed in the CAP) then approximately 2546 pounds of carbon will be required to treat the groundwater on an annual basis. On January 14, 2000, the system after treating 83,000 gallons of the contaminated groundwater was sampled and shut down awaiting laboratory results and new GAC units. The results showed that up to 326 µg/L MTBE was breaking through the GAC units. However, the system was not operating from that date until the installation the new GACs. On January 17, 2000 the first GAC unit was replaced with a 2000 pound GAC and the second polishing unit was replaced with the same size unit.

5.0 CONCLUSIONS

The results of the February 7, 2000 groundwater-monitoring event are summarized as follows:

1. On the Site, the groundwater flow was found to be from the north towards the south, which was consistent with the findings of the previous monitoring events. However, on the off-site properties south of the Site, the groundwater flow has been reversed by the effects of the French drain and is now flowing from the south towards the north.
2. In comparison with the previous monitoring event, the water level elevations in the monitoring wells increased in the range of 0.25 feet to 4.45 feet. This is mainly due to heavy rainfall events during the January and February 2000 despite of French drain.
3. Benzene concentrations were below the detection limit of 5 µg/L in wells MW-5, MW-7, and MW-10, and peaked at 6,090 µg/L in MW-3.
4. The high concentration of MTBE that was reported in the second quarter groundwater monitoring event in MW-11, could not be verified. Therefore, the previously reported elevated MTBE concentration in MW-11 is considered an anomaly.
5. MTBE decreased in wells MW-1, MW-8 and MW-10, while, remained below detectable levels in wells MW-4, MW-5, and MW-10. However, it increased in the rest of the wells.
6. The results of this monitoring event show that petroleum hydrocarbons have impacted well MW-12 with the concentrations higher than that was previously believed. In the previous monitoring event MW-12 showed concentrations of 80 µg/L and 229 µg/L for TPH-g and MTBE, respectively. However, in the recent monitoring event these concentrations have risen up to 4000 µg/L for TPHg and 513 µg/L for MTBE. Benzene, which was previously below the detection level of 5 µg/L, has also risen to a value of 351 µg/L.

7. Due to the presence of low levels of dissolved oxygen as well as the nutrients such as nitrates and sulfate, generation of methane gas from petroleum hydrocarbon seems likely.
8. TPHg concentrations significantly decreased in wells MW-7, MW-6 and MW-10 and increased considerably in the other wells.

6.0 REPORT LIMITATIONS

This report is the summary of work done by SOMA including observations and descriptions of the Site conditions. It includes the analytical results produced by Delta Environmental Laboratories, as well as the data summaries produced by the previous environmental consultants. The number and location of the wells were selected to provide the required information, but may not be completely representative of the entire Site conditions. All conclusions and recommendations are based on the results of laboratory analysis. Conclusions beyond those specifically stated in this document should not be inferred from this report.

SOMA warrants that the services provided were done in accordance with the generally accepted practices in the environmental engineering and consulting field at the time of this sampling.

7.0 REFERENCES

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TABLES

TABLE 1

Groundwater Elevation Data
Tony's Express
Oakland, California

Date	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-10	MW-11	MW-12	French Drain
Feb-00	**86.79**	**88.73**	**86.83**	**86.60**	**89.19**	**87.82**	**88.33**	**86.40**	**85.29**	**82.34**	**84.64**	**81.70**
Nov-99	83.54	84.48	83.08	83.75	84.74	84.02	84.58	83.60	82.04	82.09	81.64	
Aug.99	84.64	85.08	83.93	84.65	85.49	84.87	85.03	84.50	82.94	83.19		
Jun.99	86.89	87.34	85.98	86.55	87.54	86.87	87.13	86.45	84.59	84.44		
Mar.99	88.08	90.98	89.34	89.39	91.31	90.37	90.83	89.67	87.24	87.13		
Dec.98	86.89	87.64	86.23	86.72	87.84	87.17	87.31	86.50	84.35	84.36		
Sep.98	84.41	85.00	83.10	84.21	85.22	84.67	84.74	84.23	82.61	82.70		
Dec.97	88.69	89.54		88.42	89.89	89.47	89.18	88.30	85.76	85.54		
Apr.97	86.85	87.18	86.05	86.62	87.69	87.01	84.88	84.30	84.47	84.47		
Dec.96	86.32	86.91	85.76	86.27	87.56	86.73	86.86	86.12	84.10	83.95		
Apr.96	89.70	90.45	89.02	89.50	90.80	90.01	90.08	89.27				
Jan.96	87.92	88.65	87.23	87.74	89.01	88.22	88.26	87.46				
Oct.95	84.70	85.16	84.87		85.47	84.83	84.88	84.39				
Jun.95	88.46	88.99	87.53									
Mar.95	89.92	90.90	89.09									
Dec.94	88.67	89.98	87.99									
Oct.94	82.60	83.22	81.99									

TABLE 2

Analytical Results of Groundwater Biodegradation Parameters

WELL	DATE	Nitrate (mg/L)	Sulfate (mg/L)	Ferrous Iron (mg/L)	Dissolved Oxygen (mg/L)	Redox Potential (mv)
MW-1	**2/7/00**	**0.0**	**1.0**	**3.3**	**0.77**	**-74.0**
	11/9/99	0.0	26.0	5.1	0.2	
	8/23/99	0.0	8.0	2.67	1.4	
	6/10/99	0	1	3.17	0.14	
	12/30/97	<0.1	<1	3.04	0.5	
MW-2	**2/7/00**	**6.2**	**55.0**	**0.15**	**1.12**	**-20.0**
	11/9/99	0.9	55.0	1	0.8	
	8/23/99	1.0	60.0	0.62	0.7	
	6/10/99	0.7	40	0.55	0.44	
	6/30/98	<0.1	14	0.5	3.2	
	12/30/97	<0.1	<1	3.35	<0.1	
MW-3	**2/7/00**	**0**	**140**	**3.6**	**0.7**	**-82.0**
	11/9/99	0.0	0.0	3.5	0.61	
	8/23/99	0.0	0.0	3.9	0.8	
	6/10/99	0	0	3.1	0.42	
	6/30/98	0.1	77	0.37	2	
MW-4	**2/7/00**	**0**	**1**	**1.56**	**1.3**	**-31.0**
	11/9/99	0.5	23.0	0.99	0.12	
	8/23/99	0.5	28	0.67	0.15	
	6/10/99	0.4	10	0.81	0.15	
	6/30/98	0.9	7	0.93	1.3	
	12/30/97	4.5	42	0.39	<0.1	
MW-5	**2/7/00**	**0**	**47**	**0.64**	**0.9**	**18**
	11/9/99	2.0	32.0	0.72	0.27	
	8/23/99	2.4	45	1.19	0.75	
	6/10/99	2.5	33.0	0.34	0.25	
	6/30/98	1.6	6	0.5	0.6	
	12/30/97	0.3	18	0.94	<0.1	
MW-6	**2/7/00**	**0**	**0**	**3.02**	**1.25**	**-51**
	11/9/99	0.0	0.0	7.0	0.22	
	8/23/99	0.0	9.0	3.3	0.55	
	6/10/99	0.0	23.0	2.52	0.61	
	6/30/98	0.7	4	0.4	2.5	
	12/30/97	<0.1	5	0.3	<0.1	
MW-7	**2/7/00**	**0**	**41**	**0.53**	**0.91**	**-19**
	11/9/99	0.0	25.0	0.99	0.14	
	8/23/99	0.0	20.0	1.4	0.65	
	6/10/99	0	22	0.19	0.15	
	6/30/98	0.5	4	0.78	1	
	12/30/97	0.2	32	0.23	1.2	

TABLE 2

Analytical Results of Groundwater Biodegradation Parameters

WELL	DATE	Nitrate (mg/L)	Sulfate (mg/L)	Ferrous Iron (mg/L)	Dissolved Oxygen (mg/L)	Redox Potential (mv)
MW-8	**2/7/00**	**0**	**0**	**3.46**	**0.65**	**-90**
	11/9/99	0.0	0.0	8.9	0.38	
	8/23/99	0.0	13.0	8.2	0.2	
	6/10/99	0	0	4.7	0.1	
	6/30/98	<0.1	3	2.82	1.3	
	12/30/97	0.1	<1	3.35	2.5	
MW-10	**2/7/00**	**0**	**0**	**0**	**0.82**	**55**
	11/9/99	0.0	12.0	0.37	0.44	
	8/23/99	0.0	9.0	0.52	0.5	
	6/10/99	0	0	0.25	0.2	
	6/30/98	<0.1	<1	0.38	0.9	
	12/30/97	0.3	<1	2.21	<0.1	
MW-11	**2/7/00**	**0**	**24**	**0.75**	**1.1**	**-14**
	11/9/99	0.0	21.0	0.06	0.22	
	8/23/99	0	52	0.92	0.6	
	6/10/99	0	0	0.28	0.19	
	6/30/98	1.2	6	0.15	2.2	
	12/30/97	3.5	35	0.32	<0.1	
MW-12	**2/7/00**	**0**	**0**	**1.53**	**0.62**	**-42**
	11/9/99	3.1	9	2.21	0.34	
French Drain	**2/7/00**	**0**	**32**	**0.81**	**0.88**	**-40**

TABLE 3
Groundwater Analytical Data

WELL	DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	TPH-g (µg/L)
MW-1	**2/7/00**	**2,280**	**1,380**	**7.7**	**6,130**	**46.5**	**40,000**
	11/9/99	693	15	<5	3,471	49.9	10,000
	8/23/99	678	463	893	2938	37.5	19750
	6/10/99	1110	1460	1330	5265	77	25000
	3/16/99	480	860	850	3000	190	17000
	12/16/98	2500	2400	2300	9500	160	65000
	12/30/97	2300	2100	1400	5100	NA	27000
	4/10/97	NA	NA	NA	NA	NA	NA
	12/9/96	NA	NA	NA	NA	NA	NA
	4/3/96	98	120	63	170	NA	31000
	1/3/96	71	73	50	120	NA	30000
	10/2/95	140	130	140	390	NA	59000
	6/5/95	950	650	570	150	NA	21000
	3/6/95	190	160	150	490	NA	32000
	12/2/94	3800	6600	2300	11000	NA	80000
	10/5/94	24000	21000	2600	15000	NA	320000
MW-2	**2/7/00**	**372**	**639**	**46**	**134**	**8.1**	**6,400**
	11/9/99	<5	<5	<5	<5	<5	<50
	8/23/99	5.65	8.54	4.16	10.9	ND	60
	6/10/99	290	428	211	744	ND	3500
	3/16/99	730	830	610	1900	55	7600
	12/16/98	1400	1600	880	9500	<5	26000
	9/29/98	290	180	160	360	<0.5	29000
	6/30/98	2000	2000	1300	4300	NA	25000
	12/30/97	4900	4900	1600	7000	NA	35000
	4/10/97	150	110	37	0.12	ND	53000
	12/9/96	11	7	2	14	ND	6200
	4/3/96	0.1	92	44	13	NA	27000
	1/3/96	160	130	93	240	NA	46000
	10/2/95	160	130	93	240	NA	46000
	6/5/95	220	330	350	660	NA	8000
	3/6/95	3	3	3	1	NA	490
	12/2/94	1700	2200	1200	3600	NA	42000
	10/5/94	17000	19000	570	10000	NA	260000
MW-3	**2/7/00**	**6,090**	**3,360**	**<5**	**5,780**	**276**	**44,000**
	11/9/99	3,218	1,319	<5	6,697	126	26,000
	8/23/99	7484	8052	1744	9749	141	64000
	6/10/99	8245	6425	1015	7173	274	46000
	3/16/99	4100	6400	1000	6100	470	45000
	12/16/98	5700	3900	1200	6300	410	51000

TABLE 3
Groundwater Analytical Data

WELL	DATE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	MTBE	TPH-g
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
	1/3/96	510	410	210	650	NA	150000
	10/2/95	510	410	210	65	NA	150000
	6/5/95	20000	42000	5800	36000	NA	350000
	3/6/95	20000	42000	5800	36000	NA	350000
	12/2/94	19000	22000	4400	28000	NA	250000
	10/5/94	190000	740000	310000	130000	NA	3000000
MW-4	**2/7/00**	**1,200**	**61**	**<5**	**781**	**<5**	**7,800**
	11/9/99	<5	<5	<5	<5	<5	<50
	8/23/99	497	41	54	145	6.19	660
	6/10/99	298	44.3	18.5	63.7	13.3	1000
	3/16/99	200	35	19	56	11	600
	12/16/98	590	33	28	94	24	1400
	9/29/98	910	77	68	200	18	6200
	6/30/98	780	160	54	200	NA	1700
	12/30/97	410	270	100	1500	NA	2300
	4/10/97	ND	ND	ND	ND	ND	ND
	12/9/96	14	6	4	12	ND	4000
	4/3/96	12	8	5	14	NA	1900
	1/3/96	230	110	10	29	NA	9300
	10/2/95	23	11	10	29	NA	9300
MW-5	**2/7/00**	**<5**	**<5**	**<5**	**7.2**	**<5**	**70**
	11/9/99	<5	<5	<5	<5	<5	<50
	8/23/99	ND	3.58	ND	4.04	ND	120
	6/10/99	3.55	2.84	6.01	3.52	ND	270
	3/16/99	3	0.6	16	2	9.5	650
	12/16/98	1	0.6	ND	2	ND	1400
	9/29/98	2	1	3	3	<.5	270
	6/30/98	<5	<5	15	<10	NA	400
	12/30/97	82	66	59	160	NA	790
	4/10/97	NA	NA	NA	NA	NA	NA
	12/9/96	NA	NA	NA	NA	NA	NA
	4/3/96	1	1	5	4	NA	780
	1/3/96	1	1	4	5	NA	1500
	10/2/95	1	1	4	5	NA	1500
MW-6	**2/7/00**	**1,360**	**521**	**<5**	**4,150**	**6.3**	**17,000**
	11/9/99	1,084	130	<5	10,940	<5	40,000
	8/23/99	3806	3649	1554	7996	9.89	42000
	6/10/99	2060	1650	735	3170	ND	18500
	3/16/99	3900	4300	1600	7000	180	37000

TABLE 3
Groundwater Analytical Data

WELL	DATE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	MTBE	TPH-g
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
	1/3/96	350	310	200	610	NA	120000
	10/2/95	350	310	200	610	NA	120000
MW-7	**2/7/00**	**<5**	**<5**	**<5**	**<5**	**23.2**	**80**
	11/9/99	<5	9.35	<5	<5	12.2	290
	8/23/99	5	9.9	ND	ND	ND	570
	6/10/99	2.97	6.91	4.07	2.92	26.3	320
	3/16/99	3	0.7	1	1	62	300
	12/16/98	5	10	5	20	160	990
	9/29/98	1	0.6	1	2	68	1800
	6/30/98	4	<5	9	<10	NA	620
	12/30/97	130	98	75	200	NA	1400
	4/10/97	NA	NA	NA	NA	NA	NA
	12/9/96	NA	NA	NA	NA	NA	NA
	4/3/96	2	3	5	7	NA	1900
	1/3/96	9	12	17	45	NA	3300
	10/2/95	10	12	17	NA	3300	NA
MW-8	**2/7/00**	**1,080**	**617**	**<5**	**4,160**	**240**	**44,200**
	11/9/99	91.9	<5	<5	3,414	769	10,500
	8/23/99	5379	2438	3001	6960	639	58000
	6/10/99	3610	1635	2175	5913	988	39500
	3/16/99	1800	470	2000	2000	820	22000
	12/16/98	6300	1700	2200	4400	1300	61000
	6/30/98	4600	2800	3500	7300	NA	54000
	12/30/97	6000	1600	2100	4700	NA	28000
	4/10/97	86	55	50	100	ND	24000
	12/9/96	88	43	44	80	ND	27000
	4/3/96	250	170	140	330	NA	58000
	1/3/96	310	250	180	480	NA	94000
	10/2/95	310	250	180	480	NA	94000
MW-10	**2/7/00**	**<5**	**<5**	**<5**	**<5**	**448**	**<50**
	11/9/99	1,134	20.2	<5	70.3	652	2,950
#	11/9/99	65.3	18.7	<5	29.2	1,278	2,580
	8/23/99	2135	97.2	600.0	248	1800	3250
	6/10/99	1168	34	264	154	1195	4200
	3/16/99	15	28	420	250	2800	4100
	12/16/98	3800	51	790	420	1800	8700
	9/29/98	5400	66	970	620	2600	9900
	12/30/97	5300	76	1100	780	NA	10000
	4/10/97	21	9	3	3	ND	1000

TABLE 3

Groundwater Analytical Data

WELL	DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	TPH-g (µg/L)
MW-11	**2/7/00**	20.1	**15.1**	**<5**	**34.6**	**<5**	**700**
	11/9/99	<5	<5	<5	<5	<5	<50
	8/23/99	4.2	3.61	ND	6.04	ND	170
	6/10/99	1240	34.5	290	159	1291	4600
	3/16/99	30	6	53	84	8	710
	12/16/98	27	4	25	33	>0.5	650
	9/29/98	7	0.6	4	9	22	170
	6/30/98	45	24	71	100	NA	1100
	12/30/97	66	97	59	190	NA	710
	4/10/97	ND	ND	ND	ND	ND	ND
MW-12	**2/7/00**	**351**	**36.9**	**<5**	**23.8**	**513**	**4000**
	11/9/99	<5	<5	<5	<5	229	80
F. D.*	**2/7/00**	**419**	**72.2**	**<5**	**522**	**797**	**5,200**

ND Not Detected

\# Duplicate sample of MW-10

* French drain

TABLE 4

Total Volume and Chemical Composition of the Effluent Treated at Tony's Express Oakland California

Date	Volume	Benzene	Toluene	Ethylbenzene	Total Xylene	MTBE
	Gallons	ug/L	ug/L	ug/L	ug/L	ug/L
12/9/99	9,000	ND	ND	ND	ND	ND
12/16/99	30,450	ND	ND	ND	ND	ND
12/23/99	51,680	ND	ND	ND	ND	ND
1/14/00	83,500	ND	ND	ND	ND	185*
1/17/00	**	**	**	**	**	**
1/21/00	103,435	ND	ND	ND	ND	ND
1/28/00	130,600	ND	ND	ND	ND	ND
2/4/00	160,800	ND	ND	ND	ND	ND
2/11/00	190,000	ND	ND	ND	ND	ND
2/18/00	233,000	ND	ND	ND	ND	ND
2/25/00	274,000	ND	ND	ND	ND	ND
2/25/00	274,000	ND	ND	ND	ND	ND
3/2/00	300,000#	NA	NA	NA	NA	NA

* The system was shut down at this date

** At this date the first GAC was replaced with a 2000 lb. GAC. and the second polishing GAC was replaced with the same size GAC

\# At this date transfer pump due to continuous work overheated and stopped. The pump was repaired and started again on March 6,2000

ND Not Detected

NA Not Analyzed

FIGURES

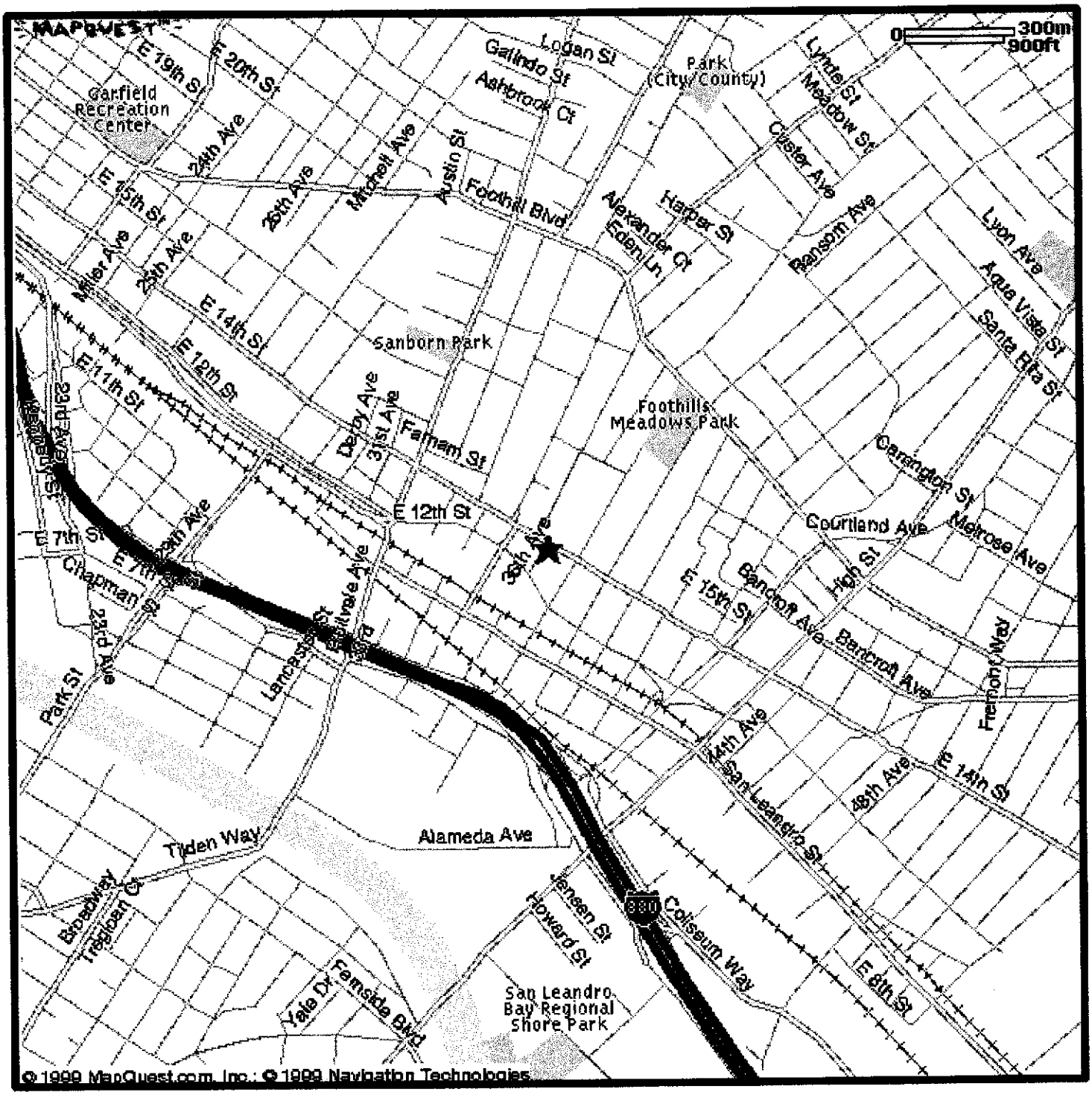


Figure 1: Site Location Map

SOMA ENVIRONMENTAL ENGINEERING, INC.

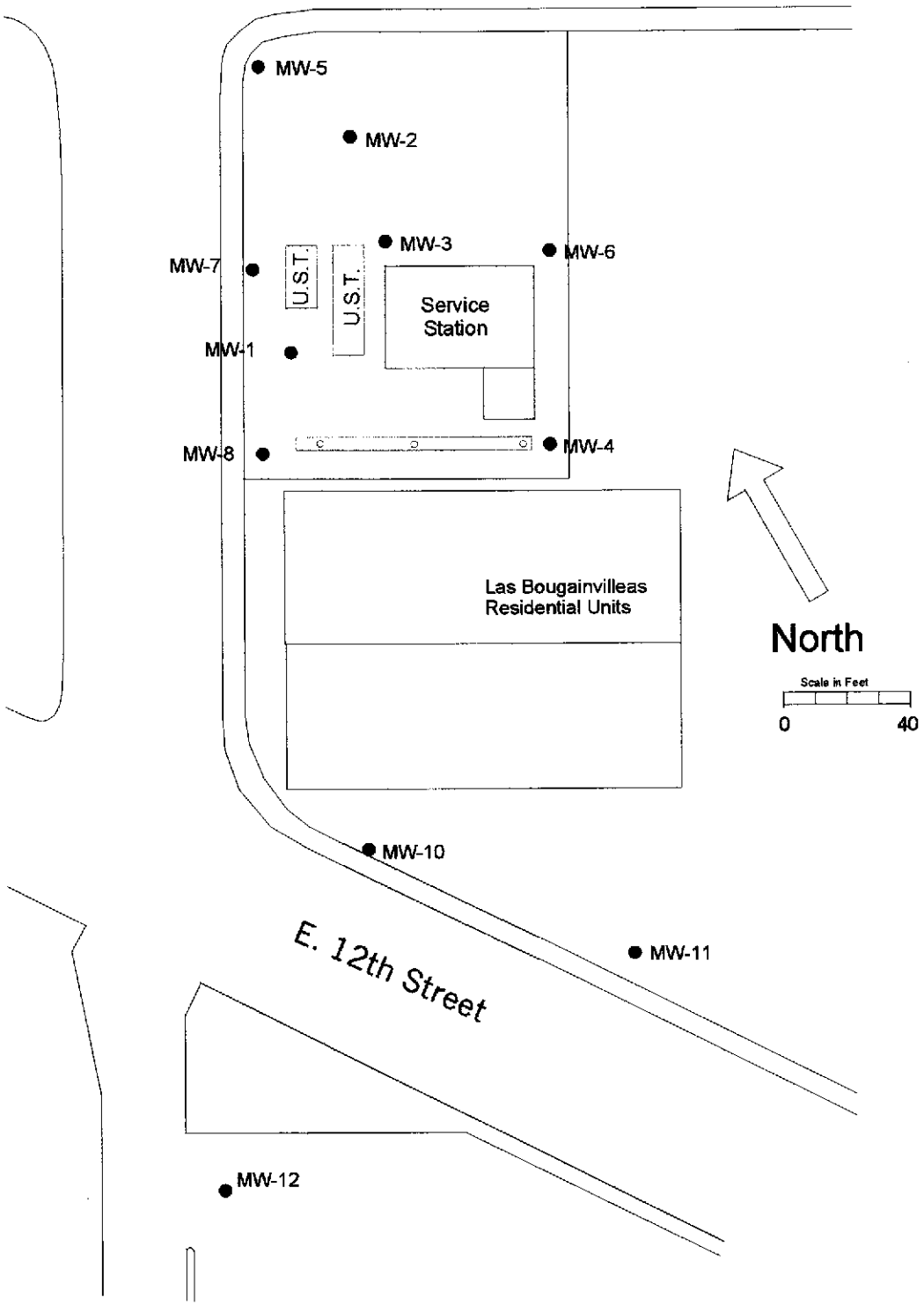


Figure 2: Location of Groundwater Monitoring Wells

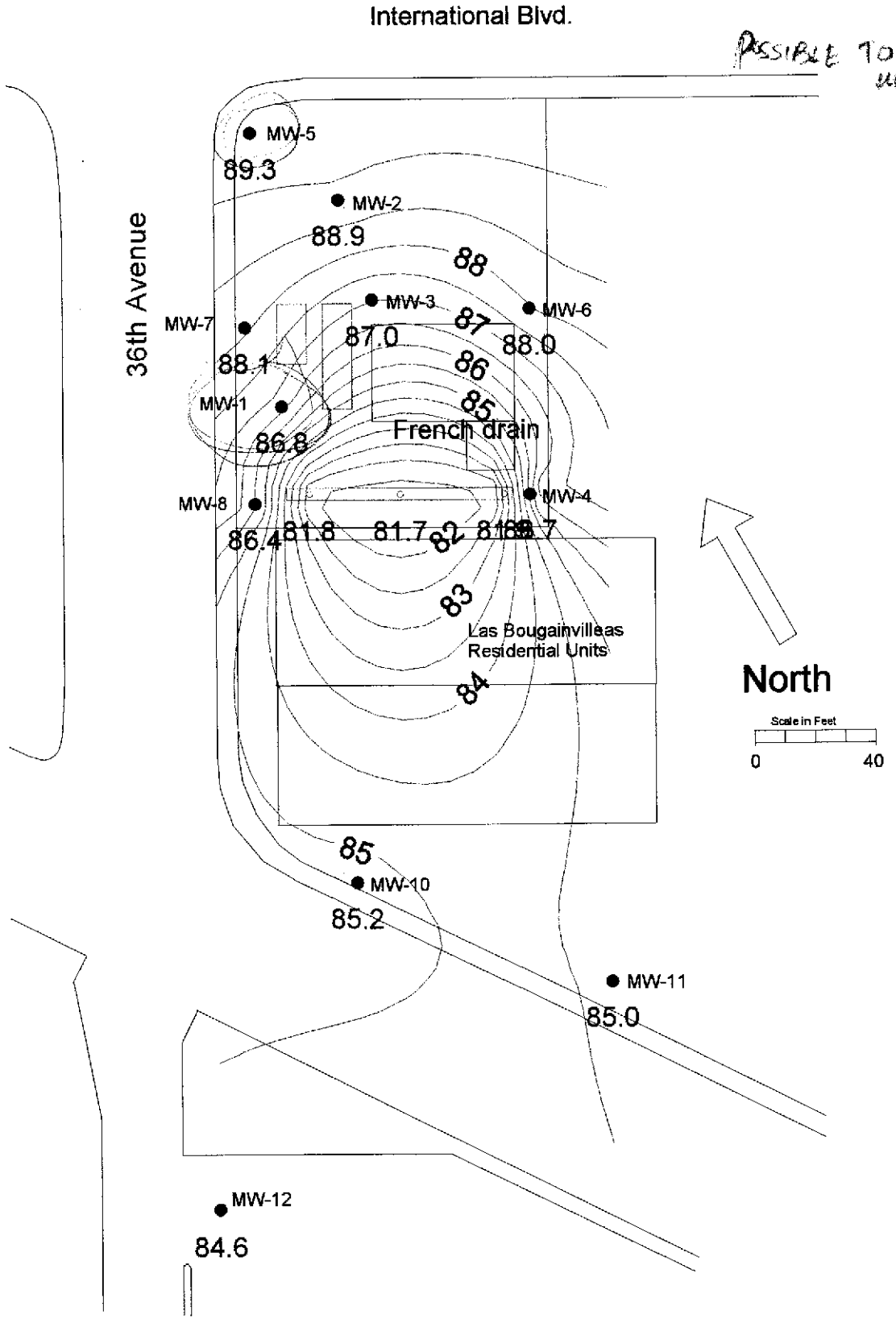


Figure 3: Groundwater Elevation Contour Map, February, 2000

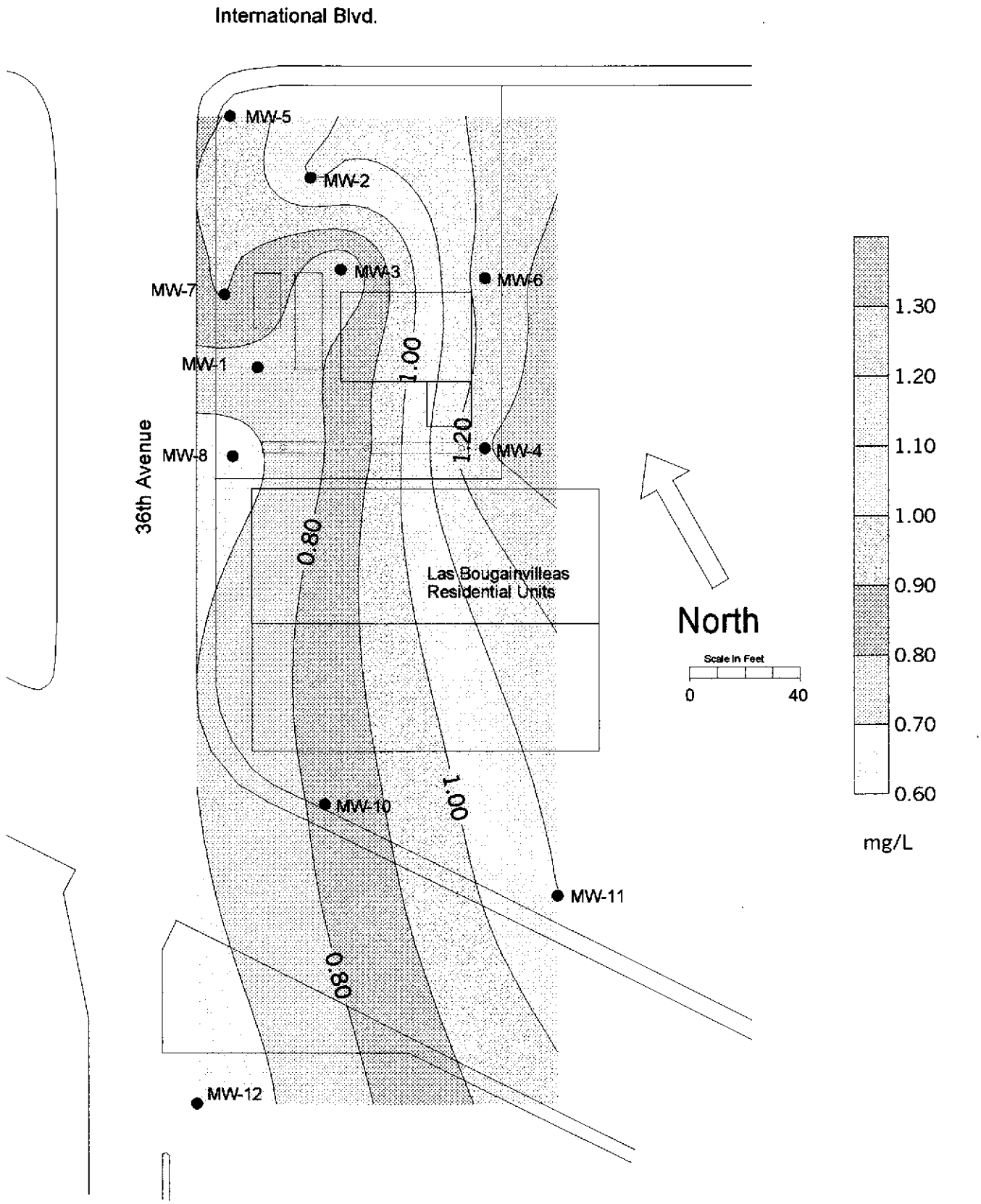


Figure 4: Dissolved Oxygen Concentration in Groundwater, February 7, 2000

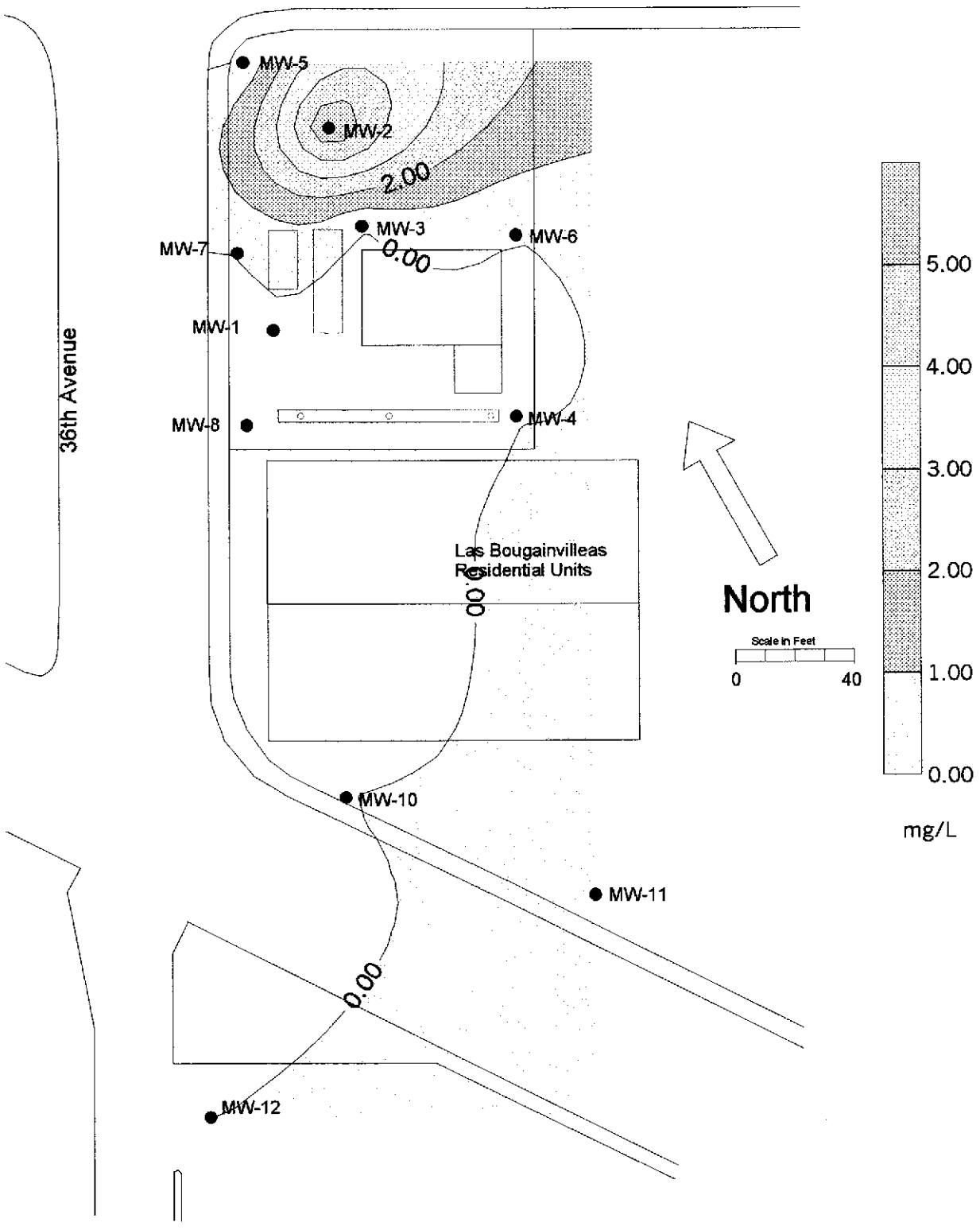


Figure 5: Nitrate Concentration Contour Map in Groundwater, February 7, 2000

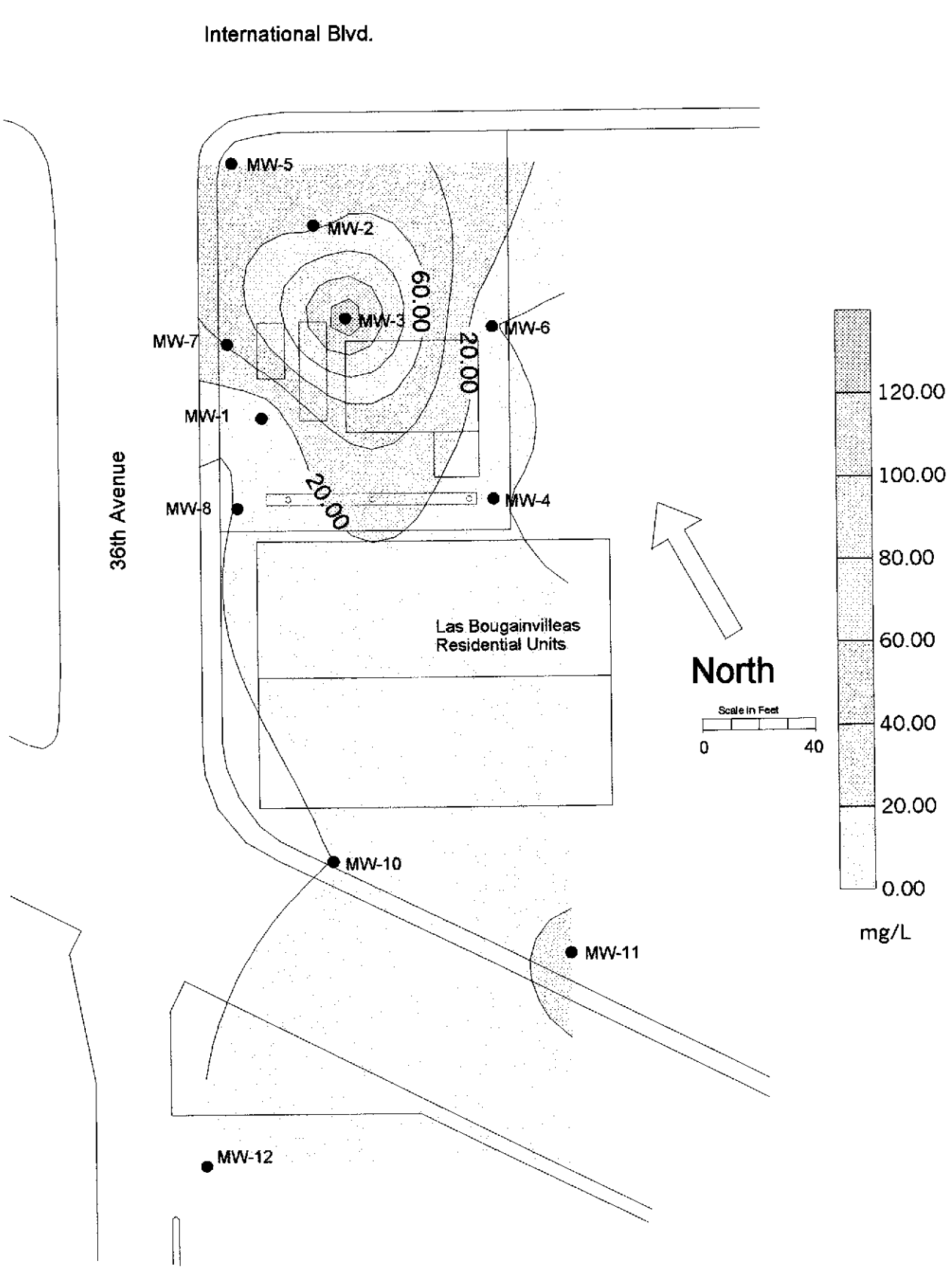


Figure 6: Sulfate Concentration Contour Map in Groundwater, February 7, 2000

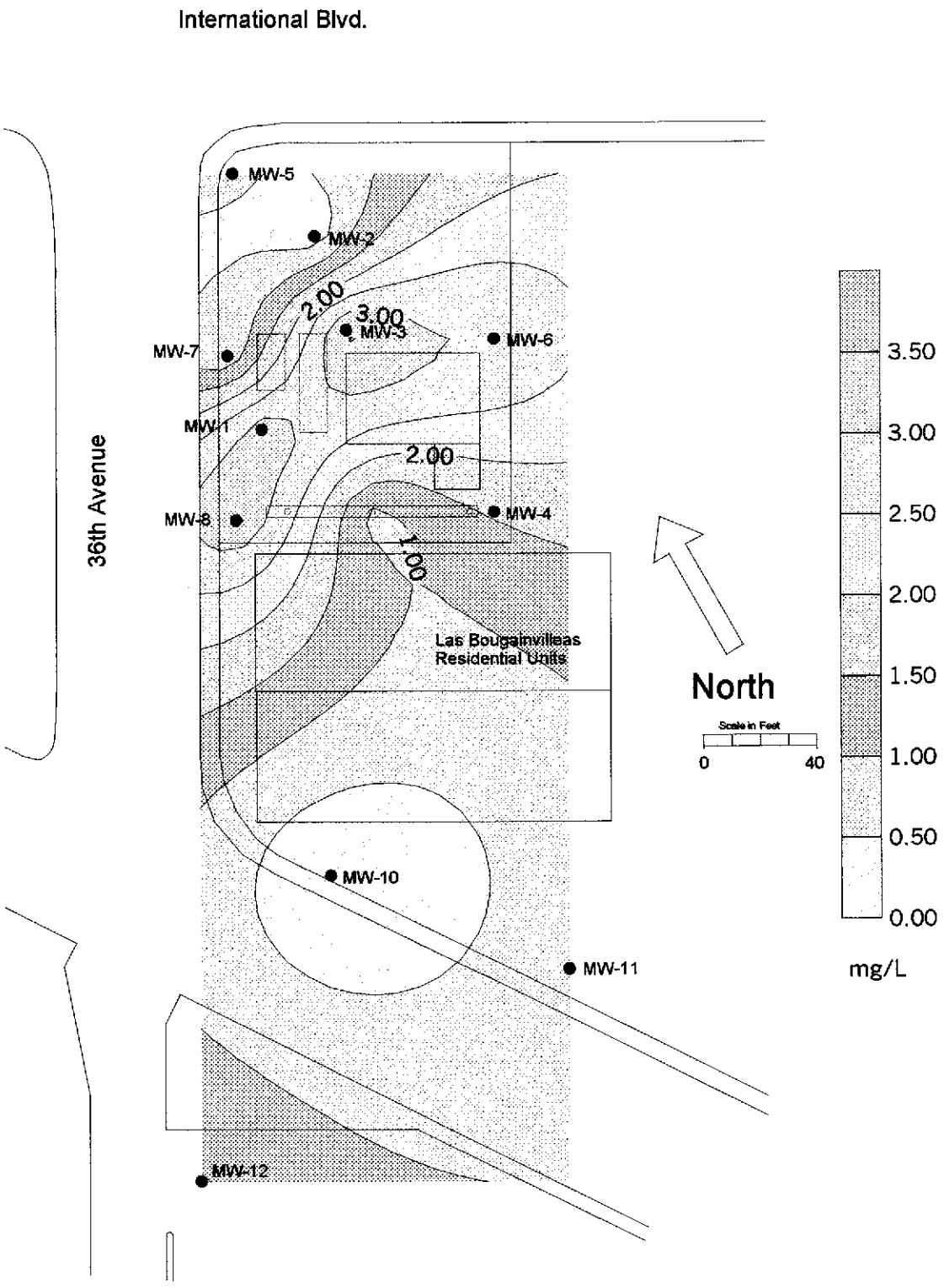


Figure 7: Ferrous Iron Concentration Contour Map in Groundwater, February 7, 1999

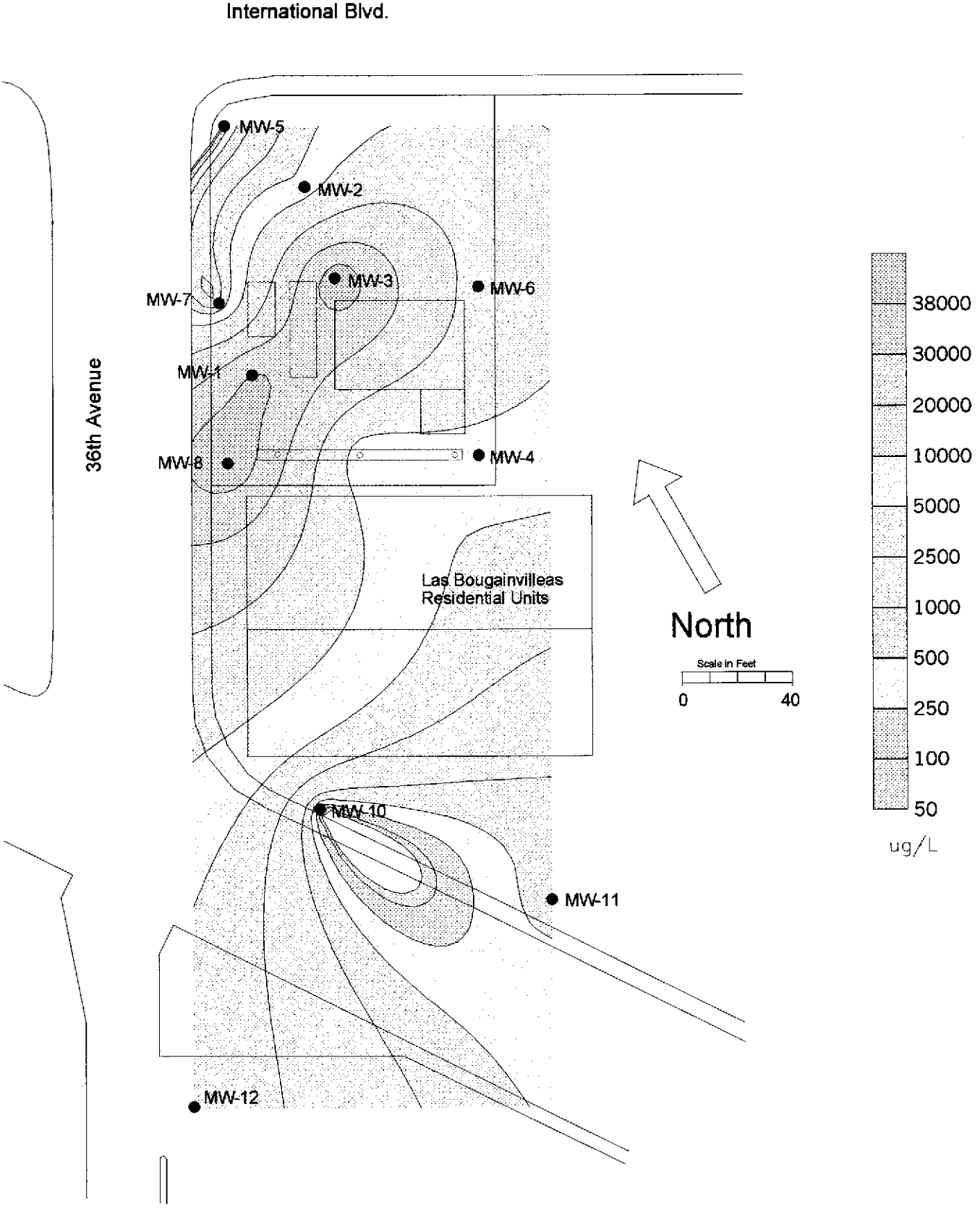


Figure 8: TPH-g Concentration Contour Map in Groundwater, February 7, 2000

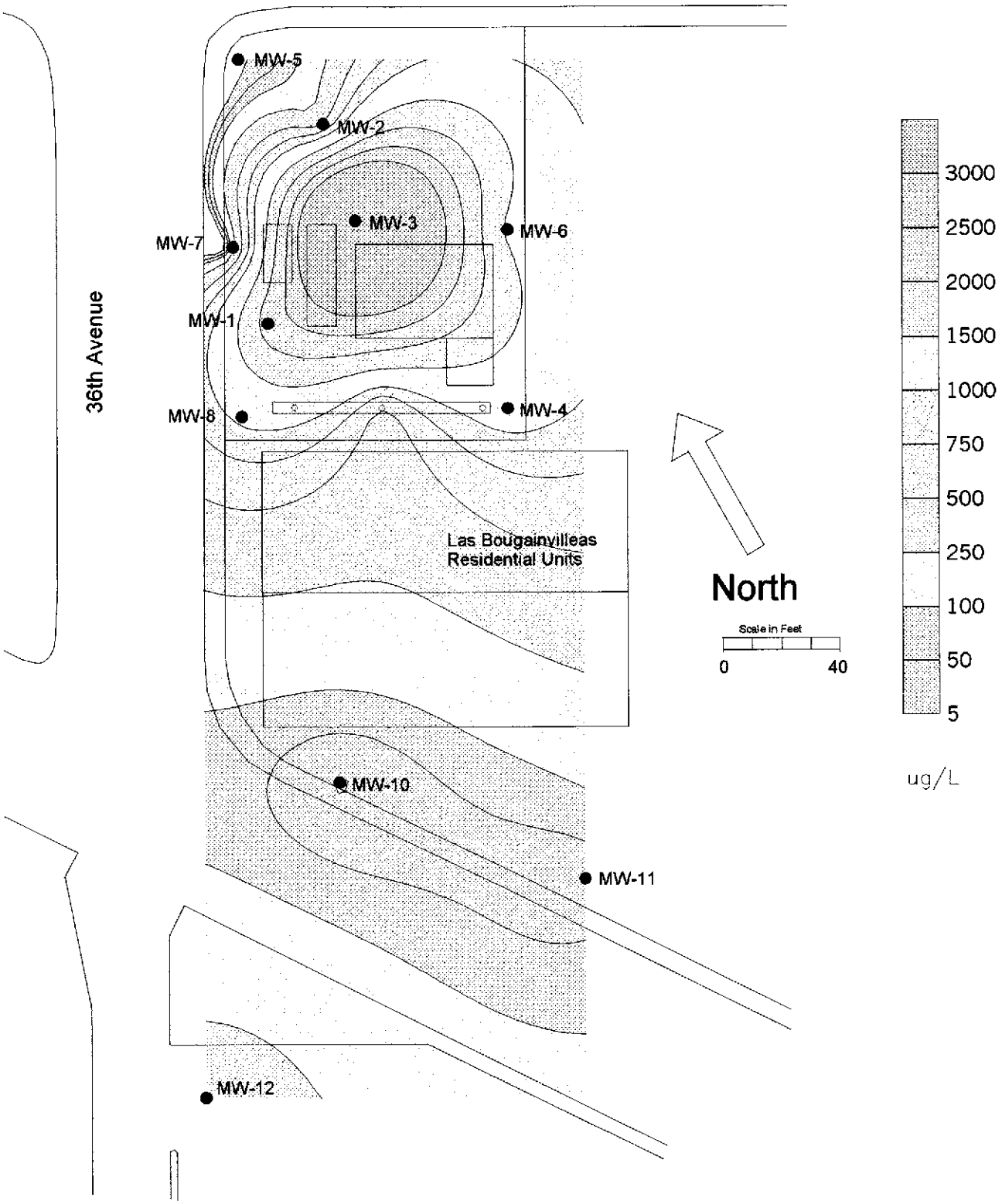


Figure 9: Benzene Concentration Contour Map in Groundwater, February 7, 2000

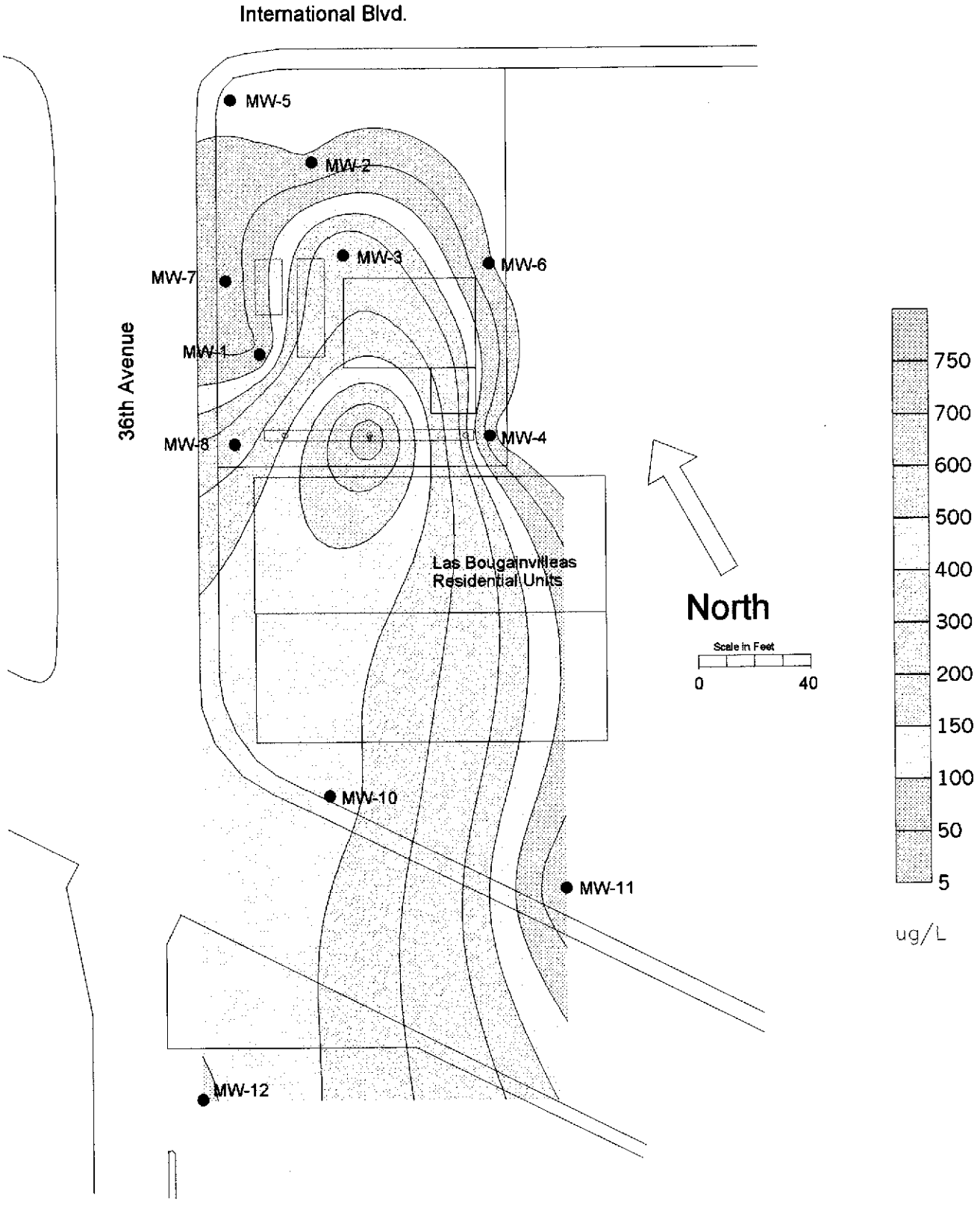


Figure 10: MTBE Concentration Contour Map in Groundwater,February 7, 2000

APPENDIX A

FIELD NOTES, LABORATORY REPORTS, CHAIN OF CUSTODY FORMS, D.O. CORRECTION TABLES AND EBMUD DISCHARGE PERMIT

ENVIRONMENTAL ENGINEERING, INC

Well NO:	MW-1	Project NO:	2331
Casing Diameter:	2"	Address:	3609 International Blvd
Depth of Well:	29.70		Oakland, CA
Elevation of the Casing:	97.99	Date:	2/7/00
Depth to Water Table:	11.2	Sampler:	Naser Pakrou
Elevation of Water Table:	86.79		Patrick Sullivan
Height of Water:	18.50		
Purged Volume:	12 G		

Purging Method:	Bailer ☐	Pump ■
Sampling Method:	Bailer ■	Bailer ☐

Sheen:	Yes ■	No ☐	Describe	slight rainbow	
Odor:	Yes ■	No ☐	Describe	strong pet. Odor	

Field Measurements

Time	Redox	D.O.	Fe^{+2}	NO_3^--N	SO_4^{+2}	pH	Temp	E.C.
	mv	mg/L	mg/L	mg/L	mg/L		°C	us/cm
12:30 PM	-74	0.77	3.3	0	1	7.56	19.1	733

Air temp. 18.6

ENVIRONMENTAL ENGINEERING, INC

Well NO:	MW-2	Project NO:	2331
Casing Diameter:	4"	Address:	3609 International Blvd
Depth of Well:	30.00		Oakland, CA
Elevation of the Casing:	98.58	Date:	2/7/00
Depth to Water Table:	9.85	Sampler:	Naser Pakrou
Elevation of Water Table:	88.73		Patrick Sullivan
Height of Water:	20.15		
Purged Volume:	40.00 G		

Purging Method:	Bailer ☐	Pump ■
Sampling Method:	Bailer ■	Bailer ☐

Sheen:	Yes ☐	No ■	Describe
Odor:	Yes ☐	No ■	Describe

Field Measurements

Time	Redox	D.O.	Fe^{+2}	NO_3^--N	SO_4^{+2}	pH	Temp	E.C.
	mv	mg/L	mg/L	mg/L	mg/L		°C	us/cm
3:30 PM	-20	1.12	0.15	6.2	55	7.69	19.8	670

Air temp. 16.7

ENVIRONMENTAL ENGINEERING, INC

Well NO:	MW-3	Project NO:	2331
Casing Diameter:	4"	Address:	3609 International Blvd
Depth of Well:	29.75		Oakland, CA
Elevation of the Casing:	97.78	Date:	2/7/00
Depth to Water Table:	10.95	Sampler:	Naser Pakrou
Elevation of Water Table:	86.83		Patrick Sullivan
Height of Water:	18.80		
Purged Volume:	40.00 G		

Purging Method:	Bailer ☐	Pump ■
Sampling Method:	Bailer ■	Bailer ☐

Sheen:	Yes ☐	No ■	Describe	
Odor:	Yes ■	No ☐	Describe	slight

Field Measurements

Time	Redox	D.O.	Fe^{+2}	NO_3^--N	SO_4^{+2}	pH	Temp	E.C.
	mv	mg/L	mg/L	mg/L	mg/L		°C	us/cm
4:00 PM	-82	0.7	>3.3	0	140	7.6	19.2	773
			3.6					

Air temp 15.7

ENVIRONMENTAL ENGINEERING, INC

Well NO:	MW-4	Project NO:	2331
Casing Diameter:	2"	Address:	3609 International Blvd
Depth of Well:	24.34		Oakland, CA
Elevation of the Casing:	97.85	Date:	2/7/00
Depth to Water Table:	11.25	Sampler:	Naser Pakrou
Elevation of Water Table:	86.60		Patrick Sullivan
Height of Water:	13.09		
Purged Volume:	12.00 G		

Purging Method:	Bailer ☐	Pump ■
Sampling Method:	Bailer ■	Bailer ☐

Sheen:	Yes ☐	No ☐	Describe
Odor:	Yes ☐	No ☐	Describe

Field Measurements

Time	Redox	D.O.	Fe^{+2}	NO_3^--N	SO_4^{+2}	pH	Temp	E.C.
	mv	mg/L	mg/L	mg/L	mg/L		°C	us/cm
4:35 PM	-31	1.3	1.56	0	1	7.73	17.4	626

Air temp. 15.5

ENVIRONMENTAL ENGINEERING, INC

Well NO:	MW-5	Project NO:	2331
Casing Diameter:	2"	Address:	3609 International Blvd
Depth of Well:	26.08		Oakland, CA
Elevation of the Casing:	99.04	Date:	2/7/00
Depth to Water Table:	9.85	Sampler:	Naser Pakrou
Elevation of Water Table:	89.19		Patrick Sullivan
Height of Water:	16.23		
Purged Volume:	12.00 G		

Purging Method:	Bailer ☐	Pump ■
Sampling Method:	Bailer ■	Bailer ☐

Sheen:	Yes ☐	No ■	Describe
Odor:	Yes ☐	No ■	Describe

Field Measurements

Time	Redox	D.O.	Fe^{+2}	NO_3^--N	SO_4^{+2}	pH	Temp	E.C.
	mv	mg/L	mg/L	mg/L	mg/L		°C	us/cm
2:15 PM	18	0.9	0.64	0	47	7.6	20.4	691

Air temp. 19.8

ENVIRONMENTAL ENGINEERING, INC

Well NO:	MW-6	Project NO:	2331
Casing Diameter:	2"	Address:	3609 International Blvd
Depth of Well:	24.45		Oakland, CA
Elevation of the Casing:	98.77	Date:	2/7/00
Depth to Water Table:	10.95	Sampler:	Naser Pakrou
Elevation of Water Table:	87.82		Patrick Sullivan
Height of Water:	13.50		
Purged Volume:	12.00 G		

Purging Method:	Bailer ☐	Pump ■
Sampling Method:	Bailer ■	Bailer ☐

Sheen:	Yes ■	No ☐	Describe	slight rainbow	
Odor:	Yes ■	No ☐	Describe	slight pet. Odor	

Field Measurements

Time	Redox	D.O.	Fe^{+2}	NO_3^--N	SO_4^{+2}	pH	Temp	E.C.
	mv	mg/L	mg/L	mg/L	mg/L		°C	us/cm
3:50 PM	-51	1.25	3.02	0	0	7.57	18.9	672

Air temp. 16.6

ENVIRONMENTAL ENGINEERING, INC

Well NO:	MW-7	Project NO:	2331
Casing Diameter:	2"	Address:	3609 International Blvd
Depth of Well:	24.60		Oakland, CA
Elevation of the Casing:	97.83	Date:	2/7/00
Depth to Water Table:	9.50	Sampler:	Naser Pakrou
Elevation of Water Table:	88.33		Patrick Sullivan
Height of Water:	15.10		
Purged Volume:	12.00 G		

Purging Method:	Bailer ☐	Pump ■
Sampling Method:	Bailer ■	Bailer ☐

Sheen:	Yes ☐	No ■	Describe	
Odor:	Yes ■	No ☐	Describe	slight petrol. Odor

Field Measurements

Time	Redox	D.O.	Fe^{+2}	NO_3^--N	SO_4^{+2}	pH	Temp	E.C.
	mv	mg/L	mg/L	mg/L	mg/L		°C	us/cm
2:30 PM	-19	0.91	0.53	0	41	7.74	19.9	434

Air temp. 17.9

ENVIRONMENTAL ENGINEERING, INC

Well NO:	MW-8	Project NO:	2331
Casing Diameter:	2"	Address:	3609 International Blvd
Depth of Well:	26.34		Oakland, CA
Elevation of the Casing:	97.25	Date:	2/7/00
Depth to Water Table:	10.85	Sampler:	Naser Pakrou
Elevation of Water Table:	86.40		Patrick Sullivan
Height of Water:	15.49		
Purged Volume:	12.00 G		

Purging Method:	Bailer □	Pump ■
Sampling Method:	Bailer ■	Bailer □

Sheen:	Yes ■	No □	Describe	slight	
Odor:	Yes ■	No □	Describe	slight pet. Odor	

Field Measurements

Time	Redox	D.O.	Fe^{+2}	NO_3^--N	SO_4^{+2}	pH	Temp	E.C.
	mv	mg/L	mg/L	mg/L	mg/L		°C	us/cm
11:30 AM	-90	0.65	>3.3	0	0	7.58	19.5	666
			3.46					

Air temp. 19.6

ENVIRONMENTAL ENGINEERING, INC

Well NO:	MW-10	Project NO:	2331
Casing Diameter:	2"	Address:	3609 International Blvd
Depth of Well:	24.35		Oakland, CA
Elevation of the Casing:	94.54	Date:	2/7/00
Depth to Water Table:	9.25	Sampler:	Naser Pakrou
Elevation of Water Table:	85.29		Patrick Sullivan
Height of Water:	15.10		
Purged Volume:	12.00 G		

Purging Method:	Bailer □	Pump ■
Sampling Method:	Bailer ■	Bailer □

Sheen:	Yes □	No ■	Describe
Odor:	Yes □	No ■	Describe

Field Measurements

Time	Redox	D.O.	Fe^{+2}	NO_3^--N	SO_4^{+2}	pH	Temp	E.C.
	mv	mg/L	mg/L	mg/L	mg/L		°C	us/cm
5:15 PM	55	0.82	0	0	0	7.94	18.7	569

Air temp. 15.1

ENVIRONMENTAL ENGINEERING, INC

Well NO:	MW-11	Project NO:	2331
Casing Diameter:	2"	Address:	3609 International Blvd
Depth of Well:	24.30		Oakland, CA
Elevation of the Casing:	95.94	Date:	2/7/00
Depth to Water Table:	13.60	Sampler:	Naser Pakrou
Elevation of Water Table:	82.34		Patrick Sullivan
Height of Water:	10.70		
Purged Volume:	6.00 G		

Purging Method:	Bailer ☐	Pump ■
Sampling Method:	Bailer ■	Bailer ☐

Sheen:	Yes ☐	No ■	Describe
Odor:	Yes ☐	No ■	Describe

Field Measurements

Time	Redox	D.O.	Fe^{+2}	NO_3^--N	SO_4^{+2}	pH	Temp	E.C.
	mv	mg/L	mg/L	mg/L	mg/L		°C	us/cm
5:00 PM	-14	1.1	0.75	0	24	7.95	18	533

Air temp. 15.1

ENVIRONMENTAL ENGINEERING, INC

Well NO:	MW-12	Project NO:	2331
Casing Diameter:	4"	Address:	3609 International Blvd
Depth of Well:	30.00		Oakland, CA
Elevation of the Casing:	94.84	Date:	2/7/00
Depth to Water Table:	10.20	Sampler:	Naser Pakrou
Elevation of Water Table:	84.64		Patrick Sullivan
Height of Water:	19.80		
Purged Volume:	40.00 G		

Purging Method:	Bailer ☐	Pump ■
Sampling Method:	Bailer ■	Bailer ☐

Sheen:	Yes ☐	No ■	Describe
Odor:	Yes ☐	No ■	Describe

Field Measurements

Time	Redox	D.O.	Fe^{+2}	NO_3^--N	SO_4^{+2}	pH	Temp	E.C.
	mv	mg/L	mg/L	mg/L	mg/L		°C	us/cm
5:30 PM	-42	0.62	1.53	0	0	7.84	18.5	705

Air temp. 14.5

ENVIRONMENTAL ENGINEERING, INC

Well NO:	F.D.C.R.	Project NO:	2331
Casing Diameter:	6"	Address:	3609 International Blvd
Depth of Well:			Oakland, CA
Elevation of the Casing:	97.10	Date:	2/7/00
Depth to Water Table:	15.4	Sampler:	Naser Pakrou
Elevation of Water Table:	81.7		Patrick Sullivan
Height of Water:			
Purged Volume:	n/a		

Purging Method:	Bailer ☐	Pump ☐
Sampling Method:	Bailer ■	Bailer ☐

Sheen:	Yes ☐	No ■	Describe	
Odor:	Yes ■	No ☐	Describe	slight pet. odor

Field Measurements

Time	Redox	D.O.	Fe^{+2}	NO_3^--N	SO_4^{+2}	pH	Temp	E.C.
	mv	mg/L	mg/L	mg/L	mg/L		°C	us/cm
1:30 PM	-40	0.88	0.81	0	32	7.79	19.5	613

Air temp. 19.0

Soma

2680 Bishop Dr., Ste 203
San Ramon, CA 94583

Client Project ID:
2331
3609 International Blvd.
Oakland, CA

Ref.:	R4756400
Method	5030 GCFID/ 8020
Sampled:	2/7/00
Received:	2/8/00
Matrix:	Water
Analyzed:	2/17-21/00
Reported:	2/21/00
Units:	ug/L

Attention : Dr. M. Sepehr

Laboratory Results for BTEX , MTBE & TPH-G Analysis

Sample	Benzene	Toluene	Ethylbenzene	Total-Xylene	MTBE	TPH-Gas
MW-1	2280	1380	7.7	6130	46.5	40000
MW-2	372	639	46	134	8.1	6400
MW-3	6090	3360	ND	5780	276	44000
MW-4	1200	61	ND	781	ND	7800
MW-5	ND	ND	ND	7.20	ND	70
MW-6	1360	521	ND	4150	6.30	17000
MW-7	ND	ND	ND	ND	23.2	80
MW-8	1080	617	ND	4160	240	44200
MW-10	ND	ND	ND	ND	448	ND
MW-11	20.1	15.1	ND	34.6	ND	700
MW-12	351	36.9	ND	23.8	513	4000
FD Co Rinse	419	72.2	ND	522.0	797	5200
Det.Limits	5 ug/L	5 ug/L	5 ug/L	5 ug/L	5 ug/L	50 ug/L
Method	8020	8020	8020	8020	8020/8260	5030/GCFID

* The results reported for MTBE are confirmed values by GC/MS; EPA 8260.

Delta Environmental Laboratories

Hossein KhoshKhoo, Ph.D.,
Laboratory Director/ President

685 Stone Road #11 & 12 • Benicia, CA 94510 • (707) 747-6081 • (800) 747-6082 • Fax (707) 747-6082

Quality Control Report

SOMA
2680 Bishop Drive, Suite 203
San Ramon, CA 94583

Client Project ID:
2331
3609 International Blvd.
Oakland, CA

Sample : Blank

Attention: Dr. M Sepehr

Ref.:	Q 4756400
Method	5030 GCFID/ 8020 / 8260
Sampled:	2/7/00
Received:	2/8/00
Matrix:	Water
Analyzed:	2/17-21/00
Analyst	DS
Reported:	2/21/00
Units:	ug/L

Quality Control Report for TPH ,BTEX & MTBE

Analyte	Detection Limit ug/L	Sample Result ug/L	Spike Added ug/L	% MS Recovery	% MSD Recovery	Relative % Difference RPD	Method
Benzene	5.0	ND	20	97	99	2.0	8020
Toulene	5.0	ND	20	100	106	5.8	8020
Ethylbenzene	5.0	ND	20	104	97	7.0	8020
T-Xylene	5.0	ND	40	100	106	5.8	8020
MTBE	5.0	ND	20	105	119	13	8260
TPH-Gas,GC/FID	50	ND	400	105	115	9	5030

Delta Environmental Laboratories

H.Khosh Khoo, PhD.,
Laboratory Director/President

Delta Environmental Laboratories

Chain of Custody (COC) Form

685 Stone Road #11 & 12
Benicia, Ca. 94510
(707) 747-6081, 800-747-6082 FAX (707) 747-6082

Results to: Naser Pakrou
Client Name SOMA
Address
City
Telephone 925 2446600 Fax 925 244 660
SAMPLER (signature)
Turnaround Time Standard

Project Name 3609 Int-Blvd
Oakland CA
LAB ID Proj 2331
Ref # 4756

Analysis Requested

#	Sample ID	Date	Time	Matrix	No. of containers	pH	Temperature	TPHg, BTEX & MTBE	Comments
1	MW-1	2/7/00			2			✓	8015/8020 Confirm
2	MW-2	2/7/00			4			✓	MTBE Peaks
3	MW-3	2/7/00			4			✓	with 8260
4	MW-4	2/7/00			4			✓	
5	MW-5	2/7/00			4			✓	
6	MW-6	2/7/00			4			✓	
7	MW-7	2/7/00			4			✓	
8	MW-8	2/7/00			4			✓	
9	MW-10	2/7/00			4			✓	
10	MW-11	2/7/00			4			✓	
11	MW-12	2/7/00			4			✓	

Special Instructions: Confirmed

Relinquished by: Date 2/8/00
Received by: Date 2/8/00
Relinquished by: Date 2/8/00

Have all samples received been stored on ice? ___
Did any VOA samples received have any head space? ___
Were samples in appropriate containers and packaged properly? ___
Were samples received in good condition? ___

OXYGEN SOLUBILITY AND CALIBRATION VALUE TABLES

TABLE A — Solubility of Oxygen in mg/L in Water Exposed to Air at 760 mm Hg Pressure

Temp °C	Chlorinity: 0 Salinity: 0	5.0 9.0	10.0 18.1	15.0 27.1	20.0 36.1	25.0 45.2
0.0	14.62	13.73	12.89	12.10	11.36	10.66
1.0	14.22	13.36	12.55	11.78	11.07	10.39
2.0	13.83	13.00	12.22	11.48	10.79	10.14
3.0	13.46	12.66	11.91	11.20	10.53	9.90
4.0	13.11	12.34	11.61	10.92	10.27	9.66
5.0	12.77	12.02	11.32	10.66	10.03	9.44
6.0	12.45	11.73	11.05	10.40	9.80	9.23
7.0	12.14	11.44	10.78	10.16	9.58	9.02
8.0	11.84	11.17	10.53	9.93	9.36	8.83
9.0	11.56	10.91	10.29	9.71	9.16	8.64
10.0	11.29	10.66	10.06	9.49	8.96	8.45
11.0	11.03	10.42	9.84	9.29	8.77	8.28
12.0	10.78	10.18	9.62	9.09	8.59	8.11
13.0	10.54	9.96	9.42	8.90	8.41	7.95
14.0	10.31	9.75	9.22	8.72	8.24	7.79
15.0	10.08	9.54	9.03	8.54	8.08	7.64
16.0	9.87	9.34	8.84	8.37	7.92	7.50
17.0	9.67	9.15	8.67	8.21	7.77	7.36
18.0	9.47	8.97	8.50	8.05	7.62	7.22
19.0	9.28	8.79	8.33	7.90	7.48	7.09
20.0	9.09	8.62	8.17	7.75	7.35	6.96
21.0	8.92	8.46	8.02	7.61	7.21	6.84
22.0	8.74	8.30	7.87	7.47	7.09	6.72
23.0	8.58	8.14	7.73	7.34	6.96	6.61
24.0	8.42	7.99	7.59	7.21	6.84	6.50
25.0	8.26	7.85	7.46	7.08	6.73	6.39
26.0	8.11	7.71	7.33	6.96	6.62	6.29
27.0	7.97	7.58	7.20	6.85	6.51	6.18
28.0	7.83	7.44	7.08	6.73	6.40	6.09
29.0	7.69	7.32	6.96	6.62	6.30	5.99
30.0	7.56	7.19	6.85	6.51	6.20	5.90
31.0	7.43	7.07	6.73	6.41	6.10	5.81
32.0	7.31	6.96	6.62	6.31	6.01	5.72
33.0	7.18	6.84	6.52	6.21	5.91	5.63
34.0	7.07	6.73	6.42	6.11	5.82	5.55
35.0	6.95	6.62	6.31	6.02	5.73	5.46
36.0	6.84	6.52	6.22	5.93	5.65	5.38
37.0	6.73	6.42	6.12	5.84	5.56	5.31
38.0	6.62	6.32	6.03	5.75	5.48	5.23
39.0	6.52	6.22	5.93	5.66	5.40	5.15
40.0	6.41	6.12	5.84	5.58	5.32	5.08
41.0	6.31	6.03	5.75	5.49	5.24	5.01
42.0	6.21	5.93	5.67	5.41	5.17	4.93
43.0	6.12	5.84	5.58	5.33	5.09	4.86
44.0	6.02	5.75	5.50	5.25	5.02	4.79
45.0	5.93	5.67	5.41	5.17	4.94	4.72

TABLE B — Calibration Values for Various Atmospheric Pressures and Altitudes

PRESSURE		ALTITUDE			CORRECTION
in. Hg	mm Hg	kPa	Feet	m	FACTOR (%)
30.23	768	102.3	-276	-84	101
29.92	760	101.3	0	0	100
29.61	752	100.3	278	85	99
29.33	745	99.3	558	170	98
29.02	737	98.3	841	256	97
28.74	730	97.3	1126	343	96
28.43	722	96.3	1413	431	95
28.11	714	95.2	1703	519	94
27.83	707	94.2	1995	608	93
27.52	699	93.2	2290	698	92
27.24	692	92.2	2587	789	91
26.93	684	91.2	2887	880	90
26.61	676	90.2	3190	972	89
26.34	669	89.2	3496	1066	88
26.02	661	88.2	3804	1160	87
25.75	654	87.1	4115	1254	86
25.43	646	86.1	4430	1350	85
25.12	638	85.1	4747	1447	84
24.84	631	84.1	5067	1544	83
24.53	623	83.1	5391	1643	82
24.25	616	82.1	5717	1743	81
23.94	608	81.1	6047	1843	80
23.62	600	80.0	6381	1945	79
23.35	593	79.0	6717	2047	78
23.03	585	78.0	7058	2151	77
22.76	578	77.0	7401	2256	76
22.44	570	76.0	7749	2362	75
22.13	562	75.0	8100	2469	74
21.85	555	74.0	8455	2577	73
21.54	547	73.0	8815	2687	72
21.26	540	71.9	9178	2797	71
20.94	532	70.9	9545	2909	70
20.63	524	69.9	9917	3023	69
20.35	517	68.9	10293	3137	68
20.04	509	67.9	10673	3253	67
19.76	502	66.9	11058	3371	66

EBMUD

WASTEWATER DISCHARGE PERMIT
Terms and Conditions
APPLICANT INFORMATION

PERMIT NUMBER _____

APPLICANT BUSINESS NAME

Tony's Express Auto Service

PERSON TO BE CONTACTED IN EVENT OF EMERGENCY

Bryce Scofield
Name

(925) 244-6600 (925) 244-6600
Day Phone Night Phone

(925) 244-6601
Fax Number

ADDRESS OF PREMISES DISCHARGING WASTEWATER

3609 International Boulevard
Street Address

Oakland, CA 94601
City Zip Code

PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Bryce Scofield
Name

Environmental Engineer
Title

(925) 244-6600 (925) 244-6601
Day Phone Fax Number

FACILITY MAILING ADDRESS

3609 International Boulevard
Street Address

Oakland, CA 94601
City Zip Code

N/A
Electronic Mail Address (E-Mail)

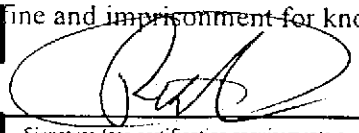
CHIEF EXECUTIVE OFFICER/DULY AUTHORIZED REPRESENTATIVE

Abolghassem Razi Owner
Name (printed) Title

3609 International Boulevard Oakland, CA 94601
Street Address City Zip Code

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that the qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



11-22-99
Signature (see certification requirements on reverse)

Date

Revised 6/26/97