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September 21, 2001

SEP 25 2001

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

Subject: **StID#3337**
Site Address: 3609 International Blvd., Oakland, California

Dear Mr. Chan:

A copy of SOMA's "Third Quarter 2001 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

REGISTERED PROFESSIONAL ENGINEER
MANSOUR SEPEHR
No. C042928
Exp. 3-31-04
CIVIL
STATE OF CALIFORNIA

Enclosure

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

Certification

SEP 25 2001

This report has been prepared by SOMA Environmental Engineering, Inc. on behalf of Mr. Abolghassem Razi, the property owner at 3609 International Boulevard, Oakland, California, to comply with Alameda County Department of Environmental Health Service's requirements for the Third Quarter 2001 groundwater monitoring event.

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

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1.0 Introduction

This report has been prepared by SOMA Environmental Engineering, Inc. (SOMA) on behalf of Mr. Abolghassem Razi, the owner of the property. The site, Tony's Express Auto Service, is located at 3609 International Boulevard at the intersection of 36th Avenue in Oakland, California (the "Site"), as shown in Figure 1. The Site is located in an area consisting primarily of commercial and residential uses.

This report summarizes the results of the third quarter 2001 groundwater monitoring event conducted on August 8, 2001 at the Site, including the results of the laboratory analysis of the groundwater samples, which were analyzed for:

- Total petroleum hydrocarbons as gasoline (TPH-g)
- Benzene, toluene, ethylbenzene, total xylenes (collectively referred to as BTEX)
- Methyl tertiary Butyl Ether (MtBE)

These activities were performed in accordance with the general guidelines of the Regional Water Quality Control Board (RWQCB) and the Alameda County Environmental Health Services (ACEHS).

This report also describes the operation of the groundwater and vapor extraction and treatment system installed by SOMA in December 1999.

1.1 Background

Currently, the Site is used as a gasoline service station. The environmental investigation at the subject property started in 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) had 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 (at the locations shown in Figure 2).

In December 1997, Mr. Razi retained Western Geo-Engineers (WEGE) to conduct additional investigations and perform groundwater monitoring on a quarterly basis. The results of the 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 (TPH-g), benzene, toluene, ethlybenzene, xylenes, (BTEX) and MtBE concentrations reported by STE and WEGE are included in Tables 2 and 5 of this report.

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 groundwater site, therefore, the soil and groundwater in on-and off-site areas needed to be remediated. The results of the CAP study indicated that installation of a French drain combined with a vapor extraction system would be a cost effective alternative for site remediation.

In late August 1999, SOMA installed a French drain and groundwater treatment system to prevent further migration of chemically impacted groundwater. This treatment system has been in operation since early December 1999.

In July 2000, SOMA installed a vapor extraction system based on the recommendation of the Corrective Action Plan (CAP) document dated July 1, 1999 prepared by SOMA, followed by approval from the Alameda County Department of Environmental Health.

The Site is located at the intersection of 36th Avenue and International Boulevard (formerly known as East 14th Street), Oakland, California. It currently houses 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 the on-site and off-site groundwater monitoring wells. The groundwater monitoring wells are currently monitored on a quarterly basis. Past groundwater monitoring events 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 third quarter 2001 groundwater monitoring event.

1.2 Site Hydrogeology

Previous investigations have shown that groundwater is encountered at depths of approximately 10 to 11 feet beneath the Site. Figure 2 shows the location of the on-site and off-site groundwater monitoring wells. Prior to the operation of the French drain, the groundwater was found to flow from the north to the south with an average gradient of 0.014 ft/ft. When the groundwater extraction system is in operation, the groundwater flows from all directions toward the French drain. The capture zone of the drain has extended down gradient past well MW-10.

Based on the results of a pumping test conducted by SOMA, the hydraulic

conductivity of the saturated sediments ranges from 1.5 to 18.3 feet per day. Assuming that the effective porosity of saturated sediments is 0.35, the groundwater velocity ranges from 22 to 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 August 8, 2001, SOMA's field crew measured the depths to groundwater in the monitoring wells from the top of casings to the nearest 0.01 feet 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 10 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 detailed summary of the field notes for each groundwater monitoring well.

Prior to collecting the groundwater samples, each well was purged of at least three casing volumes of water, and field measurements of pH and temperature were recorded. A 2-inch diameter submersible pump (model ES-60 DC) was used to purge each well. Groundwater samples were then collected using disposable bailers. Each groundwater sample was transferred into two 40-mL VOA vials and sealed properly to prevent the development of any air bubbles within the headspace area. The vials were placed in an ice chest and delivered on the same day to Delta Environmental Laboratories of Benicia, California for analysis. For field measurements, samples were transferred into 500-mL polyethylene containers.

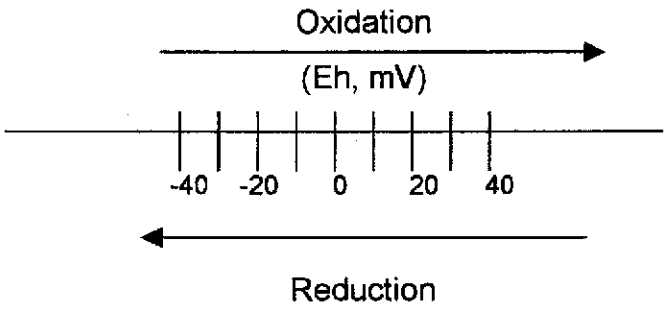
The groundwater samples that were kept in polyethylene bottles were immediately used for on-site measurements of nitrate-N (NO_3^--N), sulfate (SO_4^{-2}), ferrous iron (Fe^{+2})

In order to obtain accurate measurements of other groundwater parameters and especially to avoid the intrusion of oxygen from ambient air to groundwater samples, these measurements were conducted in Situ (i.e., down-hole inside each monitoring well). The D.O. and temperature were measured with a dissolved oxygen meter, YSI Model 50B (YSI Incorporated, Yellow Springs, Ohio 45387 USA); see the field notes in Appendix A for the details of the 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. Other groundwater parameters such as pH, turbidity, electrical conductivity (EC), and Oxidation Reduction Potential were measured in Situ using Horiba, Model U-22 multi-parameter instrument. The equipment was calibrated at the Site using standard solutions and procedures provided by the manufacture.

The Horiba U-22 portable microprocessor-based turbidity probe provides lab-grade accuracy, even in the field. The unit of measure adopted by the ISO Standard is the FTU (Formazine Turbidity Unit), which is identical to the NTU (Nephelometric Turbidity Unit). The instrument was calibrated at two points, 0 FTU and 10 FTU, using the two calibration solutions of primary standard AMCO-AEPA-1 at 0 FTU and 10 FTU that were supplied with the meter. Suspended materials cause the cloudy appearance of water or turbidity. Turbidity is one of the most important parameters used to determine the quality of drinking water. It has been found that there is a strong correlation between the turbidity level and the Biological Oxygen Demand of the natural water bodies. Turbidity is an indicator and, as such, does not reveal the presence or quantity of specific

pollutants in groundwater. It does, however, provide general information on the extent of the suspended solids in groundwater.

The Horiba U-22 ORP electrode was used to measure the Oxidation-Reduction Potential of the groundwater samples. Oxidation is a process in which a molecule or ion loses one or several electrons. Reduction is a process by which a molecule or ion gains one or several electrons. The Oxidation Reduction Potential, or Eh, is a measure of the potential for these processes to occur. The unit of Eh, which is commonly referred to as the redox potential, is the Volt or m-Volt. 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 the rate of O_2 replenishment in subsurface environments is limited, oxidation of only a small amount of petroleum hydrocarbons can result in the 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., the 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 become very strongly reduced, and the petroleum hydrocarbons may undergo anaerobic degradation, possibly resulting in the production of methane gas 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: the 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 with getistic acid to form an amber-colored product. The intensity of the color is proportional to nitrate-N concentration in the sample.

2.1 Laboratory Analysis

Delta Environmental Laboratories of Benicia 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 8260B. The results of the laboratory analysis are presented in Table 4 and discussed below. As discussed before, the groundwater constituents related to bio-degradation activities (such as dissolved oxygen, redox potential, turbidity, nitrate, ferrous iron, and sulfate) were analyzed in the field by SOMA, and are presented in Table 3.

3.0 Results

Table 1 presents the measured groundwater elevations at different groundwater monitoring wells and the risers of the French drain. At each location, depth to watertable and the elevation of the top of casing were used to calculate the watertable elevation relative to the assumed datum. Depths to watertable in the monitoring wells and the risers of the French drain ranged from 11.64 to 14.10 feet. The corresponding watertable elevations ranged from 82.60 to 85.25 feet. Figure 3 displays the groundwater elevation contour map. The contour map does not show the impact of the French drain on the water level elevations of the surrounding monitoring wells because the system was off due to the algae grown inside the storage tank interfering the sensors and clogging the GAC units. This was later remedied when SOMA installed a polishing GAC unit and got rid of the algae with chlorine. Therefore, 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 that were conducted prior to the installation of the French drain.

Table 2 displays the historical static water level elevations measured at the monitoring wells and the risers of the French drain. During the recent monitoring event, in comparison with the previous monitoring event, the water level elevations decreased in every well, by 1.82 to 2.67 feet. The decrease in water level can be attributed to the onset of the dry season.

Historically, no floating products have been detected in any of the on-or-off site monitoring wells.

The field measurements of some physical and chemical parameters of the groundwater samples are presented in detail in the field notes in Appendix A, and are summarized in Table 3, along with their historical values. Water temperatures ranged from 18.9°C to 20.8 °C. The variation in temperature may reflect the changes in air temperature during sampling, see the field notes in Appendix A.

The dissolved oxygen concentrations in the groundwater samples ranged from 1.17 mg/L in well MW-3 to 2.03 mg/L in well MW-2. The low oxygen content may suggest the presence of anaerobic biodegradation processes in this groundwater system. Figure 4 shows the concentration contour map of D.O. concentrations in the groundwater. The D.O. has been largely consumed in the vicinity of the most polluted wells (in and around the fueling islands).

The turbidity of the groundwater samples ranged from 0 FTU to 990 FTU. The maximum turbidity was recorded in monitoring well MW-8.

The Redox potential in the groundwater samples ranged from –62.0 mV in well MW-8 to +320 mV in Well MW-4. Monitoring wells MW-2, MW-4, MW-5, MW-10, and MW-12 showed oxidized conditions, while the remainder of the wells showed strongly reduced conditions. The low oxygen levels in wells MW-2, MW-4, MW-5,

MW-10, and MW-12), in combination with the positive redox potentials, suggest the presence of weak aerobic oxidation of the petroleum hydrocarbons in these wells. However, the other monitoring wells impacted by petroleum show strongly reduced conditions. In these oxygen-depleted environments, anaerobic processes utilizing alternate electron acceptors for oxidation of petroleum hydrocarbons may be responsible for the reduced conditions. Possible alternate electron acceptors include nitrate, iron (III) and sulfate (Lovley *et. al.*, 1994). Under strongly reduced conditions and a lack of other terminal electron acceptors, the occurrence of methanogenesis and production of methane gas is highly possible.

During this monitoring event, nitrate was detected in wells MW-2, MW-3, MW-4, MW-5, and MW-8. As discussed earlier, the concentrations of dissolved oxygen in all wells were quite low, and because the 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). The disappearance of nitrate in many of the wells may suggest that, under the observed anaerobic conditions, nitrate may have been consumed as a source of terminal electron acceptors by microorganisms (Lovley *et. al.*, 1994). Figure 5 shows the contour map of nitrate concentration in the groundwater; the nitrate concentrations are lower in the more polluted MW-3 and its downgradient regions.

Sulfate concentrations ranged from 0 mg/L in well MW-12 to 51 mg/L in well MW-2. Sulfate-depleted subsurface contaminated environments 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 the groundwater sulfate concentration contour map, as measured on August 8, 2001.

Ferrous iron concentrations in the groundwater samples ranged from 0.0 mg/L in MW-10 to 7.00 mg/L in well MW-3, the most polluted region. High concentrations of ferrous iron in the groundwater is a good indication of biological activities. Figure 7 shows the groundwater ferrous iron concentration contour map, as measured on August 8, 2001. The presence of high ferrous iron concentrations and low concentrations 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 nutrients such as nitrates and sulfate, generation of methane gas from the biodegradation of petroleum hydrocarbons seems likely.

The pH measurements ranged from 6.50 to 7.35. Electrical conductivity ranged from 618 μS/cm to 1090 μS/cm.

Table 4 displays the results of the laboratory analyses of the groundwater samples. TPH-g was detected in every sample, with concentrations ranging from 125 μg/L in monitoring well MW-4 to 41,750 μg/L in monitoring well MW-3. Figure 8 displays the contour map of TPH-g in the groundwater.

Benzene concentrations ranged from 1 μg/L in monitoring wells MW-5 to 3,485 μg/L in MW-3. In a duplicate sample (MW-3D), benzene concentration was reported at 3,075 μg/L. Figure 9 displays the contour map of Benzene in the groundwater.

MtBE concentrations ranged from 1.4 μg/L in MW-5 to 2,000 μg/L in well MW-1. Presence of high levels of MtBE in MW-1 was unprecedented, since the previous maximum reported MtBE concentration at this well was about 190 μg/L, which was reported in March 1999, before the operation of groundwater treatment system. Therefore, on September 10, 2001 SOMA's field crew collected another groundwater sample from MW-1 and submitted it to Delta Environmental for

analysis. The results of the laboratory analysis confirmed elevated levels of petroleum hydrocarbons and MtBE in groundwater sample collected from MW-1. Based on our discussion with the Site's owner it appears that the high levels of MtBE in MW-1, located in close proximity of the current USTs, is due to the new fuel release. Apparently, the new release occurred due to overfilling one of the USTs. Figure 10 displays the contour map of MtBE in the groundwater.

Table 5 presents the historical data of groundwater contamination. Generally speaking, most of the contaminant concentrations in most of the wells had decreased since last quarter. Concentrations in MW-12, which had significantly increased last quarter and raised our concern, decreased significantly this quarter. The high concentration of MtBE reported in MW-12 during the previous monitoring event was unreal because of laboratory error. A letter from Curtis & Tompkins dated August 9, 2001 explains the nature error, see Appendix A for more details.

During this event, compared with the previous event, benzene concentrations decreased significantly in four of the wells, mostly notably in MW-3 and MW-12. MtBE concentrations decreased in seven out of nine wells. TPH-g concentrations decreased in four of the wells this quarter.

4.0 Groundwater Treatment System Operation

The treatment system began operation on December 9, 1999. Since that time, more than 1,230,000 gallons of groundwater have been treated and discharged to the East Bay Municipal Utility District (EBMUD) under the existing discharge permit (as of August 3, 2001).

As required by the discharge permit and the ACEHS, sampling of the groundwater treatment system has been performed on a routine basis. The effluent sampling and maintenance of the system was performed on a weekly

basis from the start of the system operation to the end of July 2000. From August 2000 onward, maintenance of the system continued weekly, but sampling was performed on a monthly basis. The result of the first effluent testing was used to acquire a discharge permit from EBMUD.

Table 6 presents the total volume and chemical composition of the effluent treated at the Site. Table 6 shows that all of the effluent samples have maintained compliance with the permit, having concentrations below the laboratory detection limits. The laboratory's reports are included in Appendix A of this report. A total of 7,880 gallons of chemically impacted groundwater was treated since the last reporting date of June 29, 2001. As discussed in the previous monitoring reports, the effluent passing both GAC units is regularly being collected for chemical analysis. The schedule for re-furbishing the GAC units is based on the analytical results of the effluent samples. The first GAC unit was re-furbished as soon as traces of chemicals broke through the unit. The second GAC unit is serving as a polishing unit and is always kept highly active. This procedure ensures that the effluent discharging to EBMUD has non-detectable levels of contaminants.

Figure 11 displays the cumulative weight of TPH-g and MtBE extracted from the subsurface by the groundwater treatment system. [illegible] approximately 100.23 pounds of TPH-g and 4.42 pounds of MtBE have been removed during the operation of the treatment system, over its entire life to date.

5.0 Vapor Extraction System Operation

The Vapor Extraction System (VES) consists of 6 vapor extraction wells, a de-moisturizing unit, a blower and four drums of Granulated Active Carbon (GAC) filters. The VES began operation on July 24, 2000. Since then, more than 3,000,000 liters/day of soil gas has been extracted from the vadose zone and treated with the GAC filters before being discharged into the atmosphere. When

the system first began to operate, the influent had a concentration of 394 ppmv petroleum hydrocarbons, but this gradually dropped, and after 31 days of operation decreased to 68 ppmv. On January 4, 2001, due to an entire month of extremely low influent concentrations (i.e., less than 10 ppm of hydrocarbons), the SVE system was turned off.

On August 7, 2001 a pilot test was conducted to evaluate the efficiency of the VES. During this test it was confirmed that considerable amounts of volatile organic hydrocarbons have been accumulated in the vadose zone under the Site. During this test the influent concentration was found to be 119 ppm, using a Photo Ionization Detector (PID) equipment, while the effluent concentration was above the permissible concentration of 10 ppm. Therefore, the system was turned off and on August 8, 2001, three of four GACs were replaced with new ones and the system was started. Since then the system was under continuous operation and was extracting 85 CFM of contaminated air from the vadose zone. Until the reporting date of September 6, 2001, the maintenance and monitoring of the system was continued on a weekly basis and the final concentration of the extracted vapors was shown to be 85 ppm. Based on the statistics that were presented in Table 7, the Vapor Extraction System has removed approx. 100 pounds of petroleum hydrocarbons from the vadose zone beneath the Site since it was installed.

6.0 Conclusions and Recommendations

The findings of the third quarter 2001 groundwater monitoring event can be summarized as follows:

1. With treatment system shut down, the groundwater flow direction was found to be from north to south
2. In comparison with the previous monitoring event, the water level

elevations decreased by approximately 1.82 to 2.67 feet in all of the wells. This result is attributable to the onset of the dry season.

3. Benzene was detected in all wells with a peak concentration of 3,485 µg/L in MW-3.

4. MtBE concentrations were below the detection limit of 2.0 µg/L in MW-2 and peaked at 2000 µg/L in well MW-1. Subsequent sampling results indicated significant concentrations of petroleum hydrocarbons and constituents at this well. MtBE was reported at 52,000 µg/L in a groundwater sample collected from MW-1 on September 10, 2001.

5. TPH-g was detected in every monitoring well, with concentrations ranging up to 41,750 µg/L in monitoring well MW-3. In 4 of the 9 wells, TPH-g concentrations decreased significantly since the previous monitoring event.

6. Under the observed low levels of DO and nutrients such as nitrates and sulfate, in some of the wells, generation of methane gas from the biodegradation of petroleum hydrocarbon in on-site areas seems likely to occur.

7. So far, more than 1,230,000 gallons of groundwater have been treated and discharged to the East Bay Municipal Utility District (EBMUD) under the existing discharge permit.

8. All effluent samples have maintained compliance with the permit, with all contaminant concentrations remaining below the laboratory detection limit.

9. An estimated total of 100.23 pounds of TPH-g and 4.42 pounds of MtBE

have been removed since the installation of the groundwater treatment system.

10. The Vapor Extraction System has removed over 199 pounds of petroleum hydrocarbons from the vadose zone beneath the Site since it was installed.

11. Elevated concentrations in the off-site well MW-12, which was erroneously reported by Curtis Tompkins Laboratory for second quarter 2001, dropped significantly back to the level consistent with those prior to last quarter.

7.0 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 summaries of data produced by 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 the 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.

8.0 References

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TABLES

Table 1

Groundwater Elevation Data, August 8, 2001

3609 International Boulevard, Oakland, California

Monitoring Well	Depth to Water (ft.)	Top of Casing Elevation (ft.)	Groundwater Elevation (ft.)	Product Thickness (ft.)
MW-1	13.51	97.99	84.48	ND
MW-2	13.53	98.58	85.05	ND
MW-3	14.10	97.78	83.68	ND
MW-4	13.80	97.85	84.05	ND
MW-5	13.79	99.04	85.25	ND
MW-6	NA	98.77	-	ND
MW-7	13.02	97.83	84.81	ND
MW-8	12.97	97.25	84.28	ND
MW-10	11.64	94.54	82.90	ND
MW-11	13.04	95.94	82.90	ND
MW-12	12.24	94.84	82.60	ND
F.D. Center	13.30	97.10	83.80	ND
F.D. East	13.69	97.90	84.21	ND
F.D. West	13.08	96.90	83.82	ND

ND Not Detected

Table 2
Historical Groundwater Elevation Data
3609 International Boulevard, 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
Aug-01	**84.48**	**85.05**	**83.68**	**84.05**	**85.25**	-	**84.81**	**84.28**	**82.90**	**82.90**	**82.60**	**83.80**
May-01	86.49	87.58	85.97	86.35	87.92	86.95	87.23	86.10	84.74	84.79	84.32	81.25
Mar-01	89.03	90.03	88.35	88.61	90.37	89.28	89.79	88.50	86.47	86.33	85.80	87.71
Nov-00	84.79	85.98	84.38	84.80	85.49	85.37	85.88	84.70	83.19	83.39	82.79	80.25
Aug-00	84.63	85.55	84.05	84.5	85.82	84.99	85.2	84.38	83.02	81.07	82.77	81.4
May-00	86.50	87.70	86.10	86.39	88.01	87.07	87.31	86.10	85.09	82.14	84.36	81.50
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 3
Groundwater Biodegradation Parameters
3609 International Boulevard, Oakland, California

Well	Date	Nitrate (mg/L)	Sulfate (mg/L)	Ferrous Iron (mg/L)	Dissolved Oxygen (mg/L)	Redox Potential (mV)	Turbidity (FTU)
MW-1	**8/8/01**	**0.0**	**23.0**	**2.18**	**1.71**	**-35.0**	**200**
	5/22/01	0.0	21.0	0.34	1.36	32.5	40.90
	3/13/01	4.4	80.0	0.5	0.53	-4.70	66.0
	11/2/00	0.0	33.0	1.1	0.56	-39.40	18.00
	8/9/00	0.0	0.0	1.7	0.32	-40.0	219.0
	5/31/00	2.8	0.0	0.57	0.30	-37.0	30
	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	**8/8/01**	**7.4**	**51**	**0.09**	**2.03**	**160**	**0**
	5/22/01	0.0	25	0.71	0.80	274	160
	3/13/01	6.8	80.0	0.1	0.89	117.9	24.15
	11/2/00	0.0	7.9	0.7	1.35	111	ND
	8/9/00	5.4	0	0.72	0.76	-74	1000
	5/31/00	2.5	54.0	0.18	0.8	-55.0	30.9
	2/7/00	6.2	55.0	0.15	1.12	-20.0	-
	11/9/99	0.9	55.0	1.0	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	**8/8/01**	**0.7**	**11**	**7**	**1.17**	**-54**	**28**
	5/22/01	0.2	16	6.72	0.08	-32	98
	3/13/01	0	0	2.66	0.62	-60	26.91
	11/2/00	0	28	4.1	0.83	-94	4,816
	8/9/00	0	0	6.1	0.4	-72	123
	5/31/00	0.00	4.00	7.80	0.45	-117.0	188.0
	2/7/00	0.00	140.00	3.60	0.70	-82.00	-
	11/9/99	0.00	0.00	3.50	0.61	-	-
	8/23/99	0.00	0.00	3.90	0.80	-	-
	6/10/99	0.00	0.00	3.10	0.42	-	-
	6/30/98	0.10	77.00	0.37	2.00	-	-

Table 3
Groundwater Biodegradation Parameters
3609 International Boulevard, Oakland, California

Well	Date	Nitrate (mg/L)	Sulfate (mg/L)	Ferrous Iron (mg/L)	Dissolved Oxygen (mg/L)	Redox Potential (mV)	Turbidity (FTU)
MW-4	**8/8/01**	**6**	**30**	**0.09**	**1.54**	**320**	**320**
	5/22/01	0.1	31	0.47	1.27	193.9	50
	3/13/01	3.2	48	0.51	0.72	9.4	190
	11/2/00	4.5	45	0	0.6	-39	ND
	8/9/00	1	14	0.32	0.46	-50	83
	5/31/00	0.50	40.00	0.25	0.50	-40.0	26.8
	2/7/00	0.00	1.00	1.56	1.30	-31.0	-
	11/9/99	0.50	23.00	0.99	0.12	-	-
	8/23/99	0.50	28.00	0.67	0.15	-	-
	6/10/99	0.40	10.00	0.81	0.15	-	-
	6/30/98	0.90	7.00	0.93	1.30	-	-
	12/30/97	4.50	42.00	0.39	<0.1	-	-
MW-5	**8/8/01**	**0.2**	**37.0**	**0.73**	**1.35**	**103**	**300**
	5/22/01	14.8	13.0	1.1	1.2	167	593
	3/13/01	1.00	45	0.33	1.01	34.2	35.36
	11/2/00	6.5	31	1.02	0.56	49	ND
	8/9/00	0	26	0	1.97	80	490
	5/31/00	0.00	50.00	0.35	0.48	-25.0	27.2
	2/7/00	0.00	47.00	0.64	0.90	18.0	-
	11/9/99	2.00	32.00	0.72	0.27	-	-
	8/23/99	2.40	45.00	1.19	0.75	-	-
	6/10/99	2.50	33.00	0.34	0.25	-	-
	6/30/98	1.60	6.00	0.50	0.60	-	-
	12/30/97	0.30	18.00	0.94	<0.1	-	-
MW-6	**8/8/01**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	5/22/01	0.0	17.0	1.3	0.12	-9.5	413
	3/13/01	1.3	79	2.63	0.75	-42.1	83
	11/2/00	0	16	2.65	0.8	-34	618
	8/9/00	2.5	0	4.1	0.65	-33	1000
	5/31/00	0.00	0.00	3.27	0.72	-62.0	111.0
	2/7/00	0.00	0.00	3.02	1.25	-51.0	-
	11/9/99	0.00	0.00	7.00	0.22	-	-
	8/23/99	0.00	9.00	3.30	0.55	-	-
	6/10/99	0.00	23.00	2.52	0.61	-	-
	6/30/98	0.70	4.00	0.40	2.50	-	-
	12/30/97	<0.1	5.00	0.30	<0.1	-	-

Table 3
Groundwater Biodegradation Parameters
3609 International Boulevard, Oakland, California

Well	Date	Nitrate (mg/L)	Sulfate (mg/L)	Ferrous Iron (mg/L)	Dissolved Oxygen (mg/L)	Redox Potential (mV)	Turbidity (FTU)
MW-7	**8/8/01**	**0.0**	**13.0**	**0.51**	**1.62**	**-18**	**140**
	5/22/01	0.0	12.0	0.79	1.71	56	49.8
	3/13/01	0	40	3.3	0.79	-10.4	110
	11/2/00	3.5	30	0.27	0.58	-11.6	ND
	8/9/00	0	17	0.95	0.26	-33	131
	5/31/00	0.00	28.00	0.72	0.30	-52.0	34.9
	2/7/00	0.00	41.00	0.53	0.91	-19.0	-
	11/9/99	0.00	25.00	0.99	0.14	-	-
	8/23/99	0.00	20.00	1.40	0.65	-	-
	6/10/99	0.00	22.00	0.19	0.15	-	-
	6/30/98	0.50	4.00	0.78	1.00	-	-
	12/30/97	0.20	32.00	0.23	1.20	-	-
MW-8	**8/8/01**	**0.8**	**25.0**	**1.5**	**1.24**	**-62**	**990**
	5/22/01	0.0	5.0	3.3	1.16	-8.8	179
	3/13/01	2.1	12	3.3	0.48	-76	110
	11/2/00	-	16	73.3	-	-104.9	350
	8/9/00	0	7	3.3	0.5	-91	94
	5/31/00	0.00	0.00	3.30	0.45	-95.0	13.0
	2/7/00	0.00	0.00	3.46	0.65	-90.0	-
	11/9/99	0.00	0.00	8.90	0.38	-	-
	8/23/99	0.00	13.00	8.20	0.20	-	-
	6/10/99	0.00	0.00	4.70	0.10	-	-
	6/30/98	<0.1	3.00	2.82	1.30	-	-
	12/30/97	0.10	<1	3.35	2.50	-	-
MW-10	**8/8/01**	**0**	**11**	**0**	**1.56**	**52**	**19.6**
	5/22/01	1.7	12.9	0.1	1.76	105	19.56
	3/13/01	0	0	0.23	0.65	28	32.11
	11/2/00	1.3	13	0.42	0.53	26.7	ND
	8/9/00	0	0	0.4	0.45	19	116
	5/31/00	0.00	0.00	0.29	0.40	17.0	22.4
	2/7/00	0.00	0.00	0.00	0.82	55.0	-
	11/9/99	0.00	12.00	0.37	0.44	-	-
	8/23/99	0.00	9.00	0.52	0.50	-	-
	6/10/99	0.00	0.00	0.25	0.20	-	-
	6/30/98	<0.1	<1	0.38	0.90	-	-
	12/30/97	0.30	<1	2.21	<0.1	-	-

Table 3
Groundwater Biodegradation Parameters
3609 International Boulevard, Oakland, California

Well	Date	Nitrate (mg/L)	Sulfate (mg/L)	Ferrous Iron (mg/L)	Dissolved Oxygen (mg/L)	Redox Potential (mV)	Turbidity (FTU)
MW-11	8/8/01	NA	NA	NA	NA	NA	NA
	5/22/01	0.0	20	0.53	2.13	40.5	32.3
	3/13/01	0	78	0.34	0.79	114.7	111
	11/2/00	1.5	21	0.44	0.6	17	ND
	8/9/00	1.5	0	0.8	0.48	10	42
	5/31/00	5.20	10.00	0.69	0.50	-15.0	12
	2/7/00	0.00	24.00	0.75	1.10	-14.0	-
	11/9/99	0.00	21.00	0.06	0.22	-	-
	8/23/99	0.00	52.00	0.92	0.60	-	-
	6/10/99	0.00	0.00	0.28	0.19	-	-
	6/30/98	1.20	6.00	0.15	2.20	-	-
	12/30/97	3.50	35.00	0.32	<0.1	-	-
MW-12	8/8/01	0	0.0	2.46	1.66	3	72
	5/22/01	1.9	0.0	2.38	1.76	-18.9	6.28
	3/13/01	0	0	1.44	0.64	-5.6	8.42
	11/2/00	0	6	1.93	0.6	12	19
	8/9/00	0	0	2.84	0.31	-48	56
	5/31/00	0.00	0.00	2.11	0.29	-54.0	7.7
	2/7/00	0.00	0.00	1.53	0.62	-42.0	-
	11/9/99	3.10	9.00	2.21	0.34	-	-

Table 4

Groundwater Analytical Data, August 8, 2001

3609 International Boulevard, Oakland, California

Monitoring Well	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE* (µg/L)	TPH-g (µg/L)
MW-1	852	342	568	1,606	2,000	14,820
MW-1D***	2,575	1,075	1,089	3,810	52,000	36,650
MW-2	4.0	3.8	3.3	11	ND	125
MW-3	3,485	2,670	1,255	5,420	52	41,750
MW-4	12	2.2	3.9	9.0	ND	133
MW-5	1.0	1.1	3.4	7.3	1.4	258
MW-6	NS	NS	NS	NS	NS	NS
MW-7	3.7	3.0	6.2	18.9	10	610
MW-8	153	46	373	345	174	5,620
MW-10	35	0.6	11	1.8	64	242
MW-11	NS	NS	NS	NS	NS	NS
MW-12	71	1.8	2.8	4.0	142	2,090
MW-3D**	3,075	2,245	1,100	4,810	49	40,950
MW-9**	72	1.8	3	3.4	149	2,017
DL	0.5	0.5	0.5	0.5	2.0	50

NS Not Sampled
DL Minimum laboratory detection limit
ND Not Detected (i.e., below DL)
* MTBE analyzed with EPA Method 8260
** MW-3D and MW-9 are duplicate samples of MW-3 and MW-12 respectively
*** Sample was collected on Sepember 10, for confirmation purposes.

Table 5
Historical Groundwater Analytical Data
3609 International Boulevard, Oakland, California

Well	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MtBE (µg/L)	TPH-g (µg/L)
MW-1	**8/8/01**	**852**	**342**	**568**	**1,606**	**2,000**	**14,820**
	5/22/01	310	81	82	388	150	4,900
	3/13/01	1,005	440	108	2,030	16	14,570
	11/2/00	435	52	ND	689	10	7,050
	8/9/00	638	<5	<5	<5	17.1	11,000
	5/31/00	610	350	310	1,400	<5	15,610
	2/7/00	2,280	1,380	8	6,130	47	40,000
	11/9/99	693	15	<5	3,471	50	10,000
	8/23/99	678	463	893	2,938	38	19,750
	6/10/99	1,110	1,460	1,330	5,265	77	25,000
	3/16/99	480	860	850	3,000	190	17,000
	12/16/98	2,500	2,400	2,300	9,500	160	65,000
	12/30/97	2,300	2,100	1,400	5,100	NA	27,000
	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	31,000
	1/3/96	71	73	50	120	NA	30,000
	10/2/95	140	130	140	390	NA	59,000
	6/5/95	950	650	570	150	NA	21,000
	3/6/95	190	160	150	490	NA	32,000
	12/2/94	3,800	6,600	2,300	11,000	NA	80,000
	10/5/94	24,000	21,000	2,600	15,000	NA	320,000

Table 5
Historical Groundwater Analytical Data
3609 International Boulevard, Oakland, California

Well	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MtBE (µg/L)	TPH-g (µg/L)
MW-2	**8/8/01**	**4**	**4**	**3**	**11**	**ND**	**125**
	5/22/01	37	75	55	179	2.7	870
	3/13/01	18	34	1.3	225	ND	932
	11/2/00	ND	ND	ND	ND	ND	ND
	8/9/00	<5	<5	<5	<5	<5	<50
	5/31/00	130	330	130	570	<5	2,930
	2/7/00	372	639	46	134	8	6,400
	11/9/99	<5	<5	<5	<5	<5	<50
	8/23/99	6	9	4	11	ND	60
	6/10/99	290	428	211	744	ND	3,500
	3/16/99	730	830	610	1,900	55	7,600
	12/16/98	1,400	1,600	880	9,500	<5	26,000
	9/29/98	290	180	160	360	<0.5	29,000
	6/30/98	2,000	2,000	1,300	4,300	NA	25,000
	12/30/97	4,900	4,900	1,600	7,000	NA	35,000
	4/10/97	150	110	37	0	ND	53,000
	12/9/96	11	7	2	14	ND	6,200
	4/3/96	0	92	44	13	NA	27,000
	1/3/96	160	130	93	240	NA	46,000
	10/2/95	160	130	93	240	NA	46,000
	6/5/95	220	330	350	660	NA	8,000
	3/6/95	3	3	3	1	NA	490
	12/2/94	1,700	2,200	1,200	3,600	NA	42,000
MW-3	**8/8/01**	**3,485**	**2,670**	**1,255**	**5,420**	**52**	**41,750**
	5/22/01	5,400	3,100	1,400	6,400	200	44,000
	3/13/01	2,250	140	ND	1,284	110	14,754
	11/2/00	6,789	4,816	676	7,258	83	48,000
	8/9/00	8,900	5,636	883	7,356	176	76,000
	5/31/00	15,000	8,900	1,500	7,400	<5	68,000
	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	7,484	8,052	1,744	9,749	141	64,000
	6/10/99	8,245	6,425	1,015	7,173	274	46,000
	3/16/99	4,100	6,400	1,000	6,100	470	45,000
	12/16/98	5,700	3,900	1,200	6,300	410	51,000
	1/3/96	510	410	210	650	NA	150,000
	10/2/95	510	410	210	65	NA	150,000
	6/5/95	20,000	42,000	5,800	36,000	NA	350,000
	3/6/95	20,000	42,000	5,800	36,000	NA	350,000
	12/2/94	19,000	22,000	4,400	28,000	NA	250,000
	10/5/94	190,000	740,000	310,000	130,000	NA	3,000,000

Table 5
Historical Groundwater Analytical Data
3609 International Boulevard, Oakland, California

Well	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MtBE (µg/L)	TPH-g (µg/L)
MW-4	**8/8/01**	**12**	**2.2**	**3.9**	**9.0**	**ND**	**133**
	5/22/01	12	1.9	4.1	9.8	ND	80
	3/13/01	ND	ND	3.2	8.7	ND	62
	11/2/00	5.30	ND	ND	8	ND	ND
	8/9/00	5.08	<5	<5	<5	<5	370
	5/31/00	42	19	16	67	<5	552
	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	660
	6/10/99	298	44	19	64	13	1,000
	3/16/99	200	35	19	56	11	600
	12/16/98	590	33	28	94	24	1,400
	9/29/98	910	77	68	200	18	6,200
	6/30/98	780	160	54	200	NA	1,700
	12/30/97	410	270	100	1,500	NA	2,300
	4/10/97	ND	ND	ND	ND	ND	ND
	12/9/96	14	6	4	12	ND	4,000
	4/3/96	12	8	5	14	NA	1,900
	1/3/96	230	110	10	29	NA	9,300
	10/2/95	23	11	10	29	NA	9,300
MW-5	**8/8/01**	**1.0**	**1.1**	**3.4**	**7.30**	**1.4**	**258**
	5/22/01	ND	ND	2.1	0.57	4.4	180
	3/13/01	6.1	1.9	6.6	5.9	ND	382
	11/2/00	ND	ND	ND	ND	ND	ND
	8/9/00	<5	<5	<5	<5	<5	<50
	5/31/00	7.4	24	12	32.4	<5	627.4
	2/7/00	<5	<5	<5	7	<5	70
	11/9/99	<5	<5	<5	<5	<5	<50
	8/23/99	ND	4	ND	4	ND	120
	6/10/99	4	3	6	4	ND	270
	3/16/99	3	1	16	2	10	650
	12/16/98	1	1	ND	2	ND	1,400
	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	1,500
	10/2/95	1	1	4	5	NA	1,500

Table 5
Historical Groundwater Analytical Data
3609 International Boulevard, Oakland, California

Well	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MtBE (µg/L)	TPH-g (µg/L)
MW-6	**8/8/01**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
	5/22/01	760	450	1,600	4,270	ND	27,000
	3/13/01	713	459	238	2,363	ND	15,637
	11/2/00	1,387	618	ND	5,250	ND	19,000
	8/9/00	1,306	870	<5	5,162	<5	24,000
	5/31/00	1,700	1,200	17	3,600	<5	21,700
	2/7/00	1,360	521	<5	4,150	6	17,000
	11/9/99	1,084	130	<5	10,940	<5	40,000
	8/23/99	3,806	3,649	1,554	7,996	10	42,000
	6/10/99	2,060	1,650	735	3,170	ND	18,500
	3/16/99	3,900	4,300	1,600	7,000	180	37,000
	1/3/96	350	310	200	610	NA	120,000
	10/2/95	350	310	200	610	NA	120,000
MW-7	**8/8/01**	**3.70**	**3.0**	**6.2**	**18.9**	**10**	**610**
	5/22/01	ND	9.1	1.3	2.3	28	370
	3/13/01	0.97	ND	0.76	ND	78	82
	11/2/00	ND	ND	ND	ND	9.1	50
	8/9/00	<5	<5	<5	<5	11.7	80
	5/31/00	4.9	22	4.2	21.9	29	494.9
	2/7/00	<5	<5	<5	<5	23	80
	11/9/99	<5	9	<5	<5	12	290
	8/23/99	5	10	ND	ND	ND	570
	6/10/99	3	7	4	3	26	320
	3/16/99	3	1	1	1	62	300
	12/16/98	5	10	5	20	160	990
	9/29/98	1	1	1	2	68	1,800
	6/30/98	4	<5	9	<10	NA	620
	12/30/97	130	98	75	200	NA	1,400
	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	1,900
	1/3/96	9	12	17	45	NA	3,300
	10/2/95	10	12	17	NA	3,300	NA

Table 5
Historical Groundwater Analytical Data
3609 International Boulevard, Oakland, California

Well	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MtBE (µg/L)	TPH-g (µg/L)
MW-8	**8/8/01**	**153**	**46**	**373**	**345**	**174**	**5,620**
	5/22/01	110	28	140	194	410	3,100
	3/13/01	81	16	71	270	221	2,360
	11/2/00	278	350	209	980	21	3,000
	8/9/00	632	5.38	<5	2,686	37.3	22,000
	5/31/00	940	130	1,600	3,960	75	25,940
	2/7/00	1,080	617	<5	4,160	240	44,200
	11/9/99	92	<5	<5	3,414	769	10,500
	8/23/99	5,379	2,438	3,001	6,960	639	58,000
	6/10/99	3,610	1,635	2,175	5,913	988	39,500
	3/16/99	1,800	470	2,000	2,000	820	22,000
	12/16/98	6,300	1,700	2,200	4,400	1,300	61,000
	6/30/98	4,600	2,800	3,500	7,300	NA	54,000
	12/30/97	6,000	1,600	2,100	4,700	NA	28,000
	4/10/97	86	55	50	100	ND	24,000
	12/9/96	88	43	44	80	ND	27,000
	4/3/96	250	170	140	330	NA	58,000
	1/3/96	310	250	180	480	NA	94,000
	10/2/95	310	250	180	480	NA	94,000
MW-10	**8/8/01**	**35**	**1**	**11**	**2**	**64**	**242**
	5/22/01	630	11	200	31	270	2,900
	3/13/01	969	18	41	72	630	4,935
	11/2/00	ND	ND	ND	ND	145	ND
	8/9/00	1,055	26	54	53.8	1,283	6,800
	5/31/00	1,500	25	390	107.1	580	4,400
	2/7/00	<5	<5	<5	<5	448	<50
	11/9/99	1,134	20	<5	70	652	2,950
	8/23/99	2,135	97	600	248	1,800	3,250
	6/10/99	1,168	34	264	154	1,195	4,200
	3/16/99	15	28	420	250	2,800	4,100
	12/16/98	3,800	51	790	420	1,800	8,700
	9/29/98	5,400	66	970	620	2,600	9,900
	12/30/97	5,300	76	1,100	780	NA	10,000
	4/10/97	21	9	3	3	ND	1,000

Table 5
Historical Groundwater Analytical Data
3609 International Boulevard, Oakland, California

Well	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MtBE (µg/L)	TPH-g (µg/L)
MW-11	**8/8/01**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
	5/22/01	12	8.3	3.3	9.8	12	280
	3/13/01	8.6	2.1	10	14	ND	273
	11/2/00	ND	ND	ND	ND	ND	60
	8/9/00	10.5	5.94	<5	7.75	<5	590
	5/31/00	27	13	9.5	29.0	<5	477
	2/7/00	20	15	<5	35	<5	700
	11/9/99	<5	<5	<5	<5	<5	<50
	8/23/99	4	4	ND	6	ND	170
	6/10/99	1,240	35	290	159	1,291	4,600
	3/16/99	30	6	53	84	8	710
	12/16/98	27	4	25	33	>0.5	650
	9/29/98	7	1	4	9	22	170
	6/30/98	45	24	71	100	NA	1,100
	12/30/97	66	97	59	190	NA	710
	4/10/97	ND	ND	ND	ND	ND	ND
MW-12	**8/8/01**	**71**	**1.8**	**3**	**4**	**142**	**2,090**
	5/22/01	1,200	ND	95	165	1,900	31,000
	3/13/01	13	5.6	5.5	11	214	1,517
	11/2/00	9.3	19.0	ND	7.40	215	1,010
	8/9/00	15.4	12.4	<5	<5	185	1,730
	5/31/00	230	10	34	12	200	3,930
	2/7/00	351	37	<5	24	513	4,000
	11/9/99	<5	<5	<5	<5	229	80

Table 6
Total Volume of Water Treated and Effluent Chemistry
3609 International Boulevard, Oakland, California

Month	Date	Meter Reading (gallons)	Lab Results For Influent and Effluent* (concentrations in µg/L) MtBE	TPH-g	Benzene	Toluene	Ethyl benzene	Total Xylenes
August	8/3/01	1,232,480	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
July	7/26/01	1,227,270	ND	ND	ND	ND	ND	ND
			330	2400	260	30	ND	450
	7/11/01	1,226,730	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
June	6/29/01	1,224,600	NA	NA	NA	NA	NA	NA
		1,224,600	300	6,600	1,100	350	210	1,470
	6/16/01	1,216,580	NA	NA	NA	NA	NA	NA
		1,216,580	NA	NA	NA	NA	NA	NA
	6/7/01	1,216,580	NA	NA	NA	NA	NA	NA
		1,216,580	NA	NA	NA	NA	NA	NA
May	5/30/01	1,205,198	NA	NA	NA	NA	NA	NA
		1,205,198	NA	NA	NA	NA	NA	NA
	5/23/01	1,194,390	NA	NA	NA	NA	NA	NA
		1,194,390	NA	NA	NA	NA	NA	NA
	5/17/01	1,182,360	ND	ND	ND	ND	ND	ND
		1,182,360	NA	NA	NA	NA	NA	NA
	5/10/01	1,166,850	NA	NA	NA	NA	NA	NA
		1,166,850	NA	NA	NA	NA	NA	NA
	5/5/01	1,151,600	NA	NA	NA	NA	NA	NA
		1,151,600	NA	NA	NA	NA	NA	NA
April	4/28/01	1,135,690	NA	NA	NA	NA	NA	NA
		1,135,690	NA	NA	NA	NA	NA	NA
	4/21/01	1,113,570	NA	NA	NA	NA	NA	NA
		1,113,570	NA	NA	NA	NA	NA	NA
	4/11/01	1,082,700	NA	ND	ND	ND	ND	ND
		1,082,700	NA	17,170	1,627	532	103	2,083
	4/6/01	1,065,540	NA	NA	NA	NA	NA	NA
		1,065,540	NA	NA	NA	NA	NA	NA

Table 6
Total Volume of Water Treated and Effluent Chemistry
3609 International Boulevard, Oakland, California

Month	Date	Meter Reading (gallons)	Lab Results For Influent and Effluent* (concentrations in µg/L) MtBE	TPH-g	Benzene	Toluene	Ethyl benzene	Total Xylenes
March	3/29/01	1,036,330	NA	NA	NA	NA	NA	NA
			NA	NA	NA	NA	NA	NA
	3/21/01	1,036,070	NA	NA	NA	NA	NA	NA
		1,036,070	NA	NA	NA	NA	NA	NA
	3/17/01	1,035,100	NA	NA	NA	NA	NA	NA
		1,035,100	NA	NA	NA	NA	NA	NA
	3/13/01	1,032,500	ND	ND	ND	ND	ND	ND
		1,032,500	267	7250	701	81	ND	795
	3/2/01	996,520	NA	NA	NA	NA	NA	NA
		996,520	NA	NA	NA	NA	NA	NA
February	2/10/01	975,490	System shut down for maintenance and cleaning.					
January	1/29/01	957,880	ND	ND	ND	ND	ND	ND
	1/29/01	957,880	ND	ND	ND	ND	ND	ND
December	12/5/00	883,000	ND	ND	ND	ND	ND	ND
	12/5/00	883,000	ND	ND	ND	ND	ND	ND
November	11/24/00		ND	ND	ND	ND	ND	ND
	11/24/00		ND	ND	ND	ND	ND	ND
	11/1/00	842,000	ND	ND	ND	ND	ND	ND
	11/1/00	842,000	ND	ND	ND	ND	ND	ND
October	10/1/00	809,000	ND	ND	ND	ND	ND	ND
	10/1/00	809,000	ND	ND	ND	ND	ND	ND
August	8/24/00	778,000	ND	ND	ND	ND	ND	ND
July	7/26/00	726,000	ND	ND	ND	ND	ND	ND
	7/19/00	718,000	ND	ND	ND	ND	ND	ND
	7/13/00	712,000	ND	ND	ND	ND	ND	ND
	7/7/00	706,000	ND	ND	ND	ND	ND	ND
June	06/29/00	700,000	ND	ND	ND	ND	ND	ND
	06/21/00	682,220	ND	ND	ND	ND	ND	ND
	06/16/00	669,720	ND	ND	ND	ND	ND	ND

Table 6
Total Volume of Water Treated and Effluent Chemistry
3609 International Boulevard, Oakland, California

Month	Date	Meter Reading (gallons)	Lab Results For Influent and Effluent* (concentrations in µg/L)					
			MtBE	TPH-g	Benzene	Toluene	Ethyl benzene	Total Xylenes
	06/10/00	651,200	ND	ND	ND	ND	ND	ND
May	05/31/00	629,000	ND	ND	ND	ND	ND	ND
	05/23/00	603,700	ND	ND	ND	ND	ND	ND
	05/18/00	570,000	ND	ND	ND	ND	ND	ND
	05/10/00	530,400	ND	ND	ND	ND	ND	ND
April	04/30/00	488,300	ND	ND	ND	ND	ND	ND
	04/18/00	485,300	ND	ND	ND	ND	ND	0.51
	04/10/00	440,200	ND	ND	ND	ND	ND	ND
	04/04/00	390,100	ND	ND	ND	ND	ND	ND
March	03/24/00	388,000	ND	ND	ND	ND	ND	ND
	03/17/00	357,100	ND	ND	ND	ND	ND	ND
	03/10/00	329,000	ND	ND	ND	ND	ND	ND
	03/03/00	300,000						
February	02/25/00	274,000	ND	ND	ND	ND	ND	ND
	02/18/00	233,000	ND	ND	ND	ND	ND	ND
	02/11/00	190,000	ND	ND	ND	ND	ND	ND
	02/04/00	160,800	ND	ND	ND	ND	ND	ND
January	01/28/00	130,600	ND	ND	ND	ND	ND	ND
	01/21/00	103,435	ND	ND	ND	ND	ND	ND
	01/14/00	83,500	185	ND	ND	ND	ND	ND
December	12/23/99	51,680	1486	NA	ND	ND	ND	ND
	12/23/99	51,680	ND	NA	ND	ND	ND	ND
	12/16/99	30,450	963	NA	ND	ND	ND	ND
	12/16/99	30,450	ND	NA	ND	ND	ND	ND
	12/09/99	9,000	230	ND	ND	ND	ND	ND
Pumping began on December 6, 1999								

* Effluent is equivalent to GAC-2

Table 7

Total Mass of Petroleum Hydrocarbons Removed by Vapor Extraction System

3609 International Boulevard, Oakland, California

Date	Time	PID (ppmv)		Flow Rate (cfm)	Time Elapsed (Hours)	Air Flow (Liters)	Mass Removed [1] (pounds)
		Influent	Effluent				
7/24/00	5:00	394.0	0.0	85	0	0	0.00
7/25/00	5:15	38.0	2.0	95	24	3,914,096	1.01
7/26/00	5:05	207.0	1.0	80	48	3,228,121	4.52
7/27/00	9:00	160.0	5.0	92	64	2,500,944	2.71
7/28/00	4:30	141.0	7.0	87	96	4,656,139	4.44
7/29/00	1:30	225.0	8.0	85	117	3,032,734	4.62
7/30/00	9:00	226.0	12.0	85	136	2,816,110	4.31
7/31/00	3:00	141.0	5.0	85	166	4,332,478	4.13
8/1/00	5:00	135.0	4.0	80	192	3,533,942	3.23
8/2/00	4:00	80.0	4.0	80	215	3,126,180	1.69
8/3/00	5:00	60.0	5.0	85	240	3,610,398	1.47
8/4/00	3:00	57.0	4.0	85	262	3,177,150	1.23
8/5/00	2:00	97.0	8.0	87	285	3,399,721	2.23
8/6/00	12:00	114.0	8.0	80	307	2,990,259	2.31
8/7/00	12:00	93.0	9.0	85	331	3,465,982	2.18
8/8/00	4:30	152.0	10.0	85	360	4,115,854	4.23
8/10/00	10:00	173.0	1.0	85	377	2,527,279	2.96
8/11/00	7:00	78.0	4.0	70	410	3,924,715	2.07
8/12/00	9:00	100.0	6.0	70	424	1,665,031	1.13
8/13/00	5:00	107.0	9.0	70	456	3,805,784	2.75
8/14/00	12:30	122.0	5.0	70	476	2,319,150	1.91
8/15/00	6:00	103.0	12.0	70	505	3,508,457	2.44
8/16/00	12:30	112.0	0.0	70	524	2,200,219	1.67
8/18/00	9:00	90.0	0.0	75	568	5,670,449	3.45
8/21/00	12:00	74.0	5.0	80	643	10,194,065	5.10
8/24/00	12:00	68.0	13.0	80	712	9,378,540	4.31
8/27/00	12:30	68.5	2.0	80	785	9,854,263	4.57
8/31/00	1:30	52.0	6.0	80	882	13,184,324	4.64
9/4/00	12:30	54.0	5.0	80	977	12,912,482	4.72
9/7/00	12:00	55.0	3.0	80	1,048	9,718,342	3.62
9/11/00	4:30[2]	141.0	0.0	80	1,149	13,660,047	13.03
9/14/00	9:30	56.0	5.0	80	1,214	8,834,856	3.35
9/18/00	2:00	46.0	9.5	80	1,314	13,660,047	4.25
9/18/00	4:30[3]	34.0	0.0	80	1,317	339,802	0.08
9/21/00	4:30	43.0	1.0	80	1,389	9,786,302	2.85
9/25/00	5:30	55.0	6.0	80	1,486	13,184,324	4.91
9/28/00	9:00	47.5	7.5	80	1,550	8,766,896	2.82
10/1/00	1:00	38.5	6.0	80	1,626	10,329,986	2.69
10/5/00	3:00[4]	28.5	3.0	80	1,724	13,320,245	2.57
10/5/00	5:00	36.0	0.0	80	1,726	271,842	0.07
10/8/00	3:00	28.5	3.0	80	1,796	9,514,460	1.83
10/14/00	3:00	24.5	2.5	80	1,940	19,572,604	3.24
10/17/00	2:00	36.5	3.5	80	2,011	9,650,381	2.38
10/20/00	8:30	18.5	3.5	80	2,078	9,038,737	1.13
10/25/00	2:00	38.0	3.7	80	2,203	17,058,068	4.39
10/29/00	10:00	35.0	4.0	80	2,295	12,504,719	2.96

Table 7

Total Mass of Petroleum Hydrocarbons Removed by Vapor Extraction System

3609 International Boulevard, Oakland, California

Date	Time	PID (ppmv)		Flow Rate (cfm)	Time Elapsed (Hours)	Air Flow (Liters)	Mass Removed [1] (pounds)
		Influent	Effluent				
11/2/00	4:00	30.5	4.0	80	2,397	13,863,928	2.86
11/7/00	4:00	30.0	6.0	80	2,517	16,310,504	3.31
11/19/00	12:00	92.7	5.5	80	2,801	38,601,525	24.20
11/24/00	13:30	25.0	6.5	80	2,923	16,514,385	2.79
11/29/00	15:00	14.5	3.5	80	3,044	16,514,385	1.62
12/4/00	16:30	10.7	1.0	80	3,190	19,776,486	1.43
12/13/00	15:30	24.0	3.0	80	3,405	29,222,986	4.74
12/28/00	14:30	10.0	6.0	85	3,764	51,845,314	3.51
1/4/2001[5]	14:00	8.7	3.7	85	3,907	20,723,684	1.22
					Total Mass of Petroleum Hydrocarbons Removed =		**187.86**
					Average Daily Removal Rate (pounds / day)=		***1.15***

[1] The representative molecular weight of hydrocarbons was assumed to be 78 gram/mole and used the measured temperature of Vapor (36 °C) in converting ppm-v to ppm on mass basis.

[2] System accidentally shut down from main box, readings taken 30 minutes after startup.

[3] GAC Replaced

[4] GAC-1 removed, new GAC installed at effluent end

[5] SVE System turned off for rainy season due to low influent concentrations

FIGURES

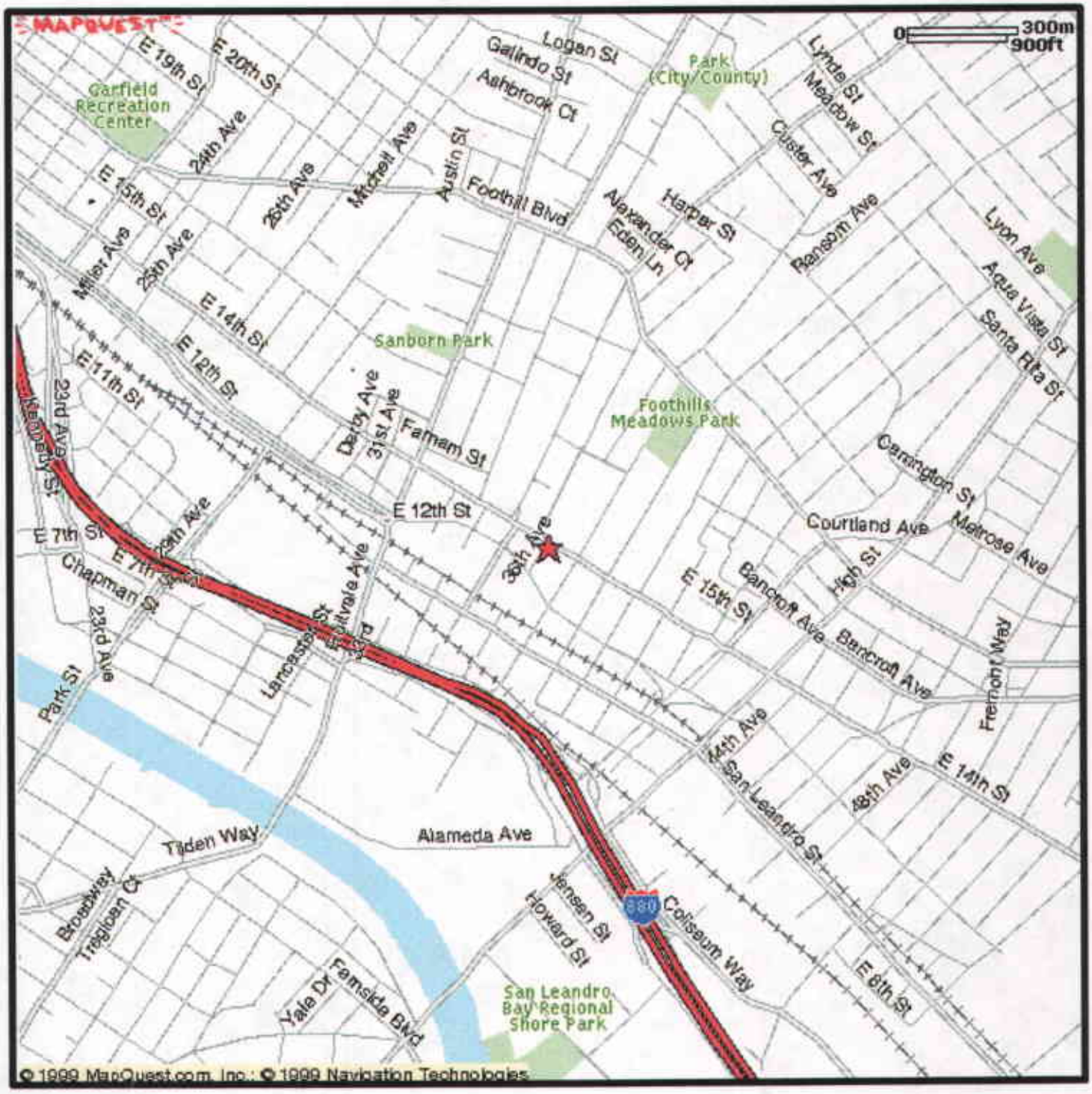

Figure 1: Site Location Map

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ENVIRONMENTAL ENGINEERING, INC.

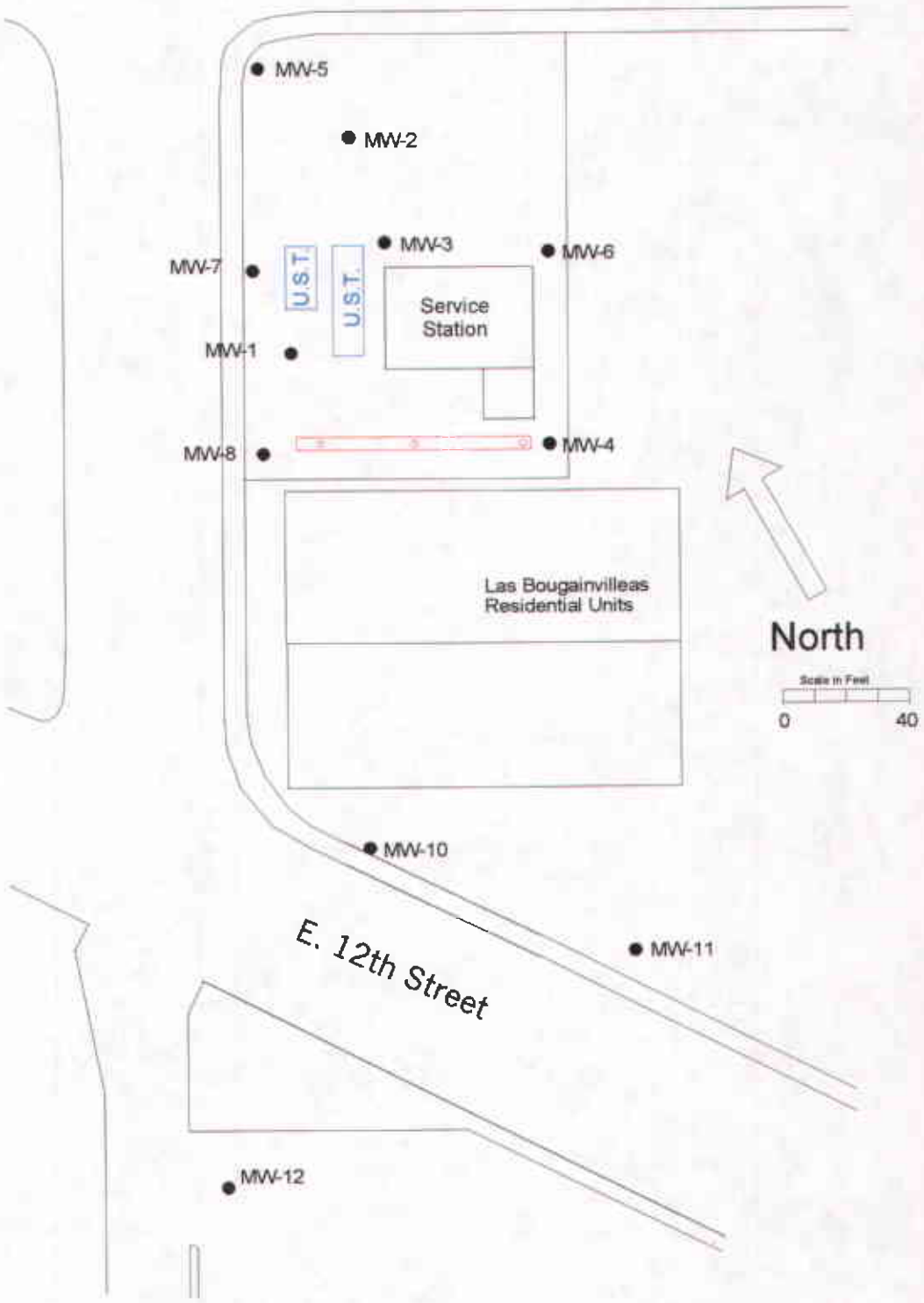


Figure 2: Location of Groundwater Monitoring Wells

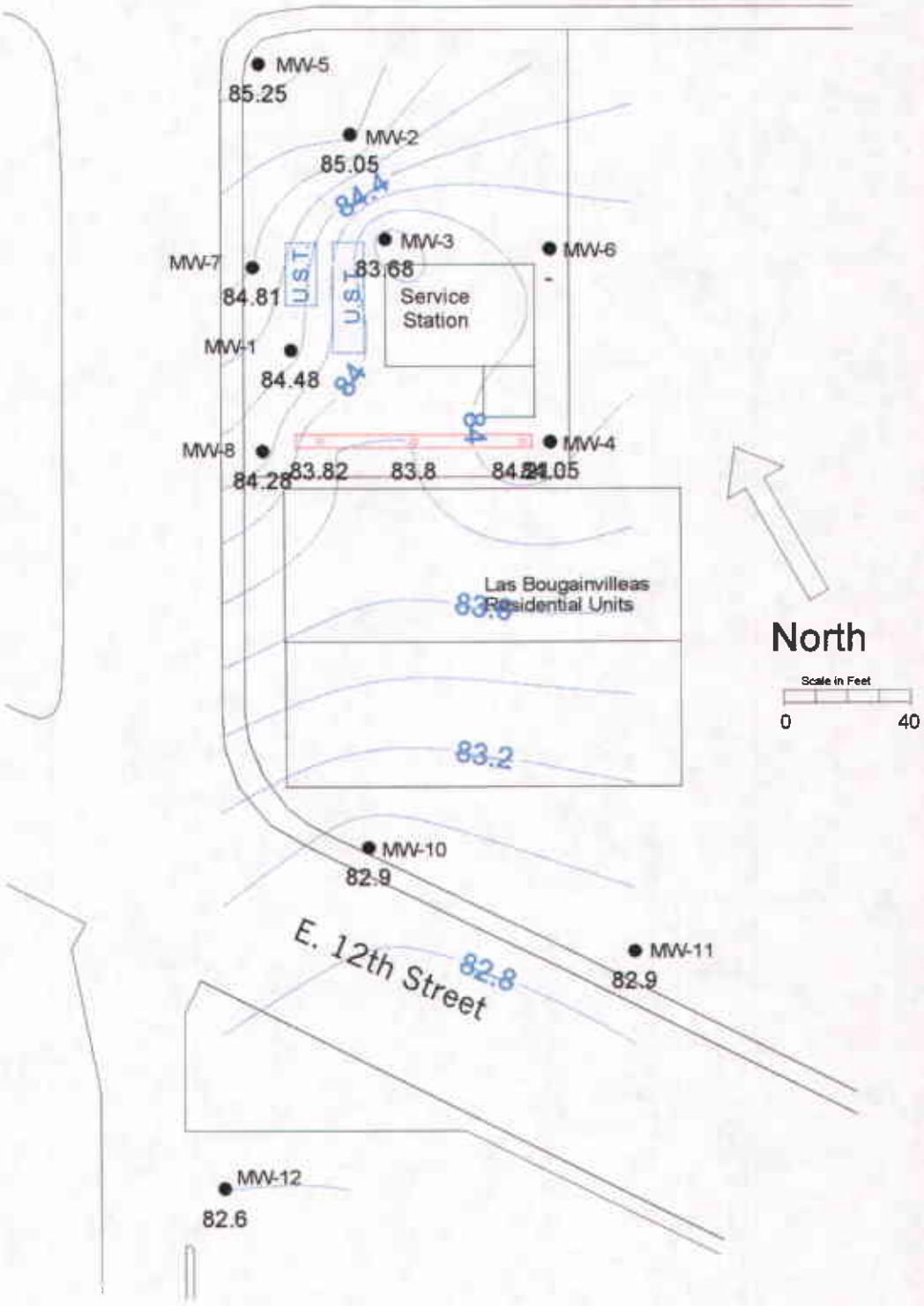


Figure 3: Groundwater Elevation Contour Map, August 8, 2001

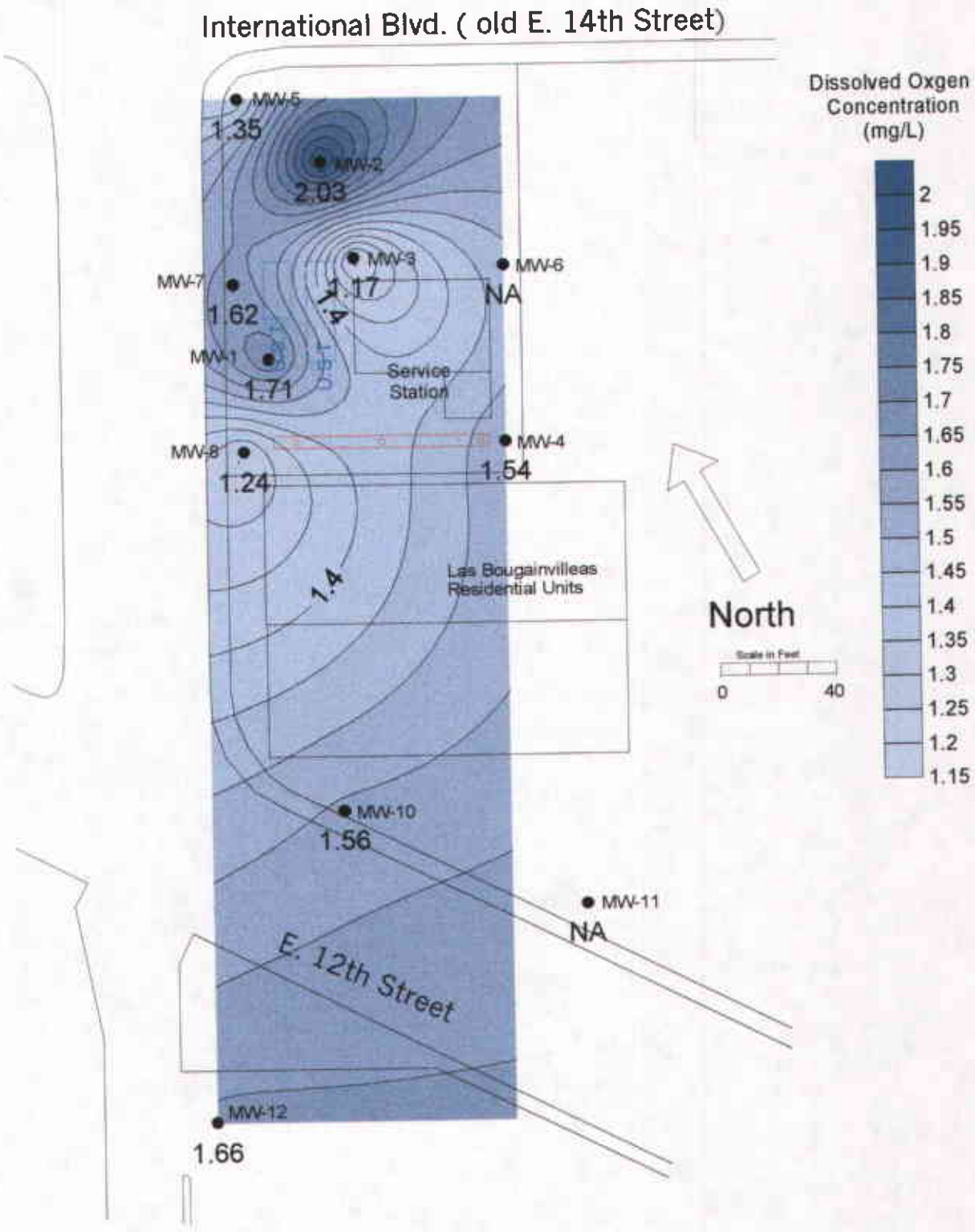


Figure 4: Dissolved Oxygen Concentration in Groundwater August 8, 2001

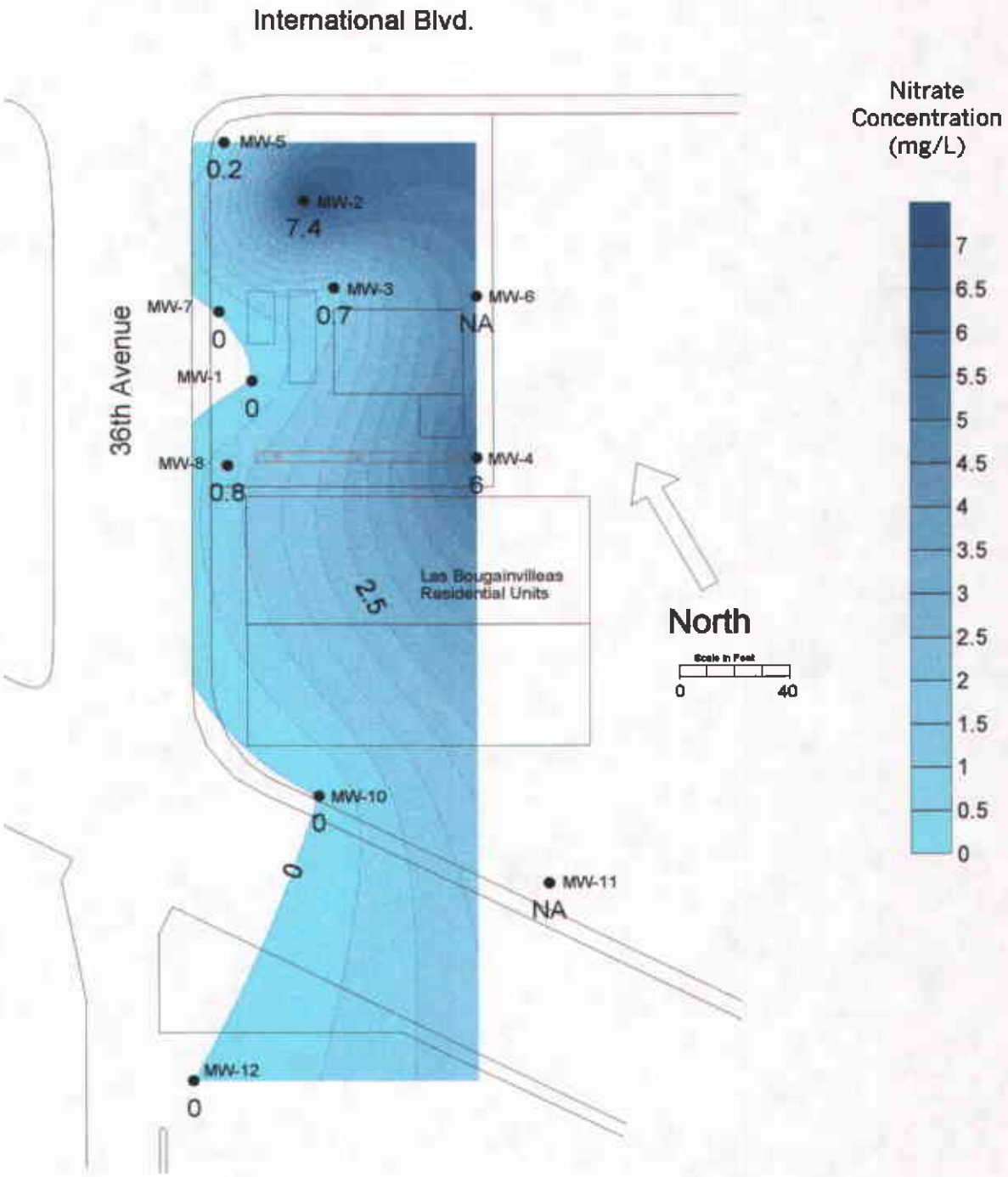


Figure 5: Nitrate Concentration Contour Map in Groundwater, August 8, 2001

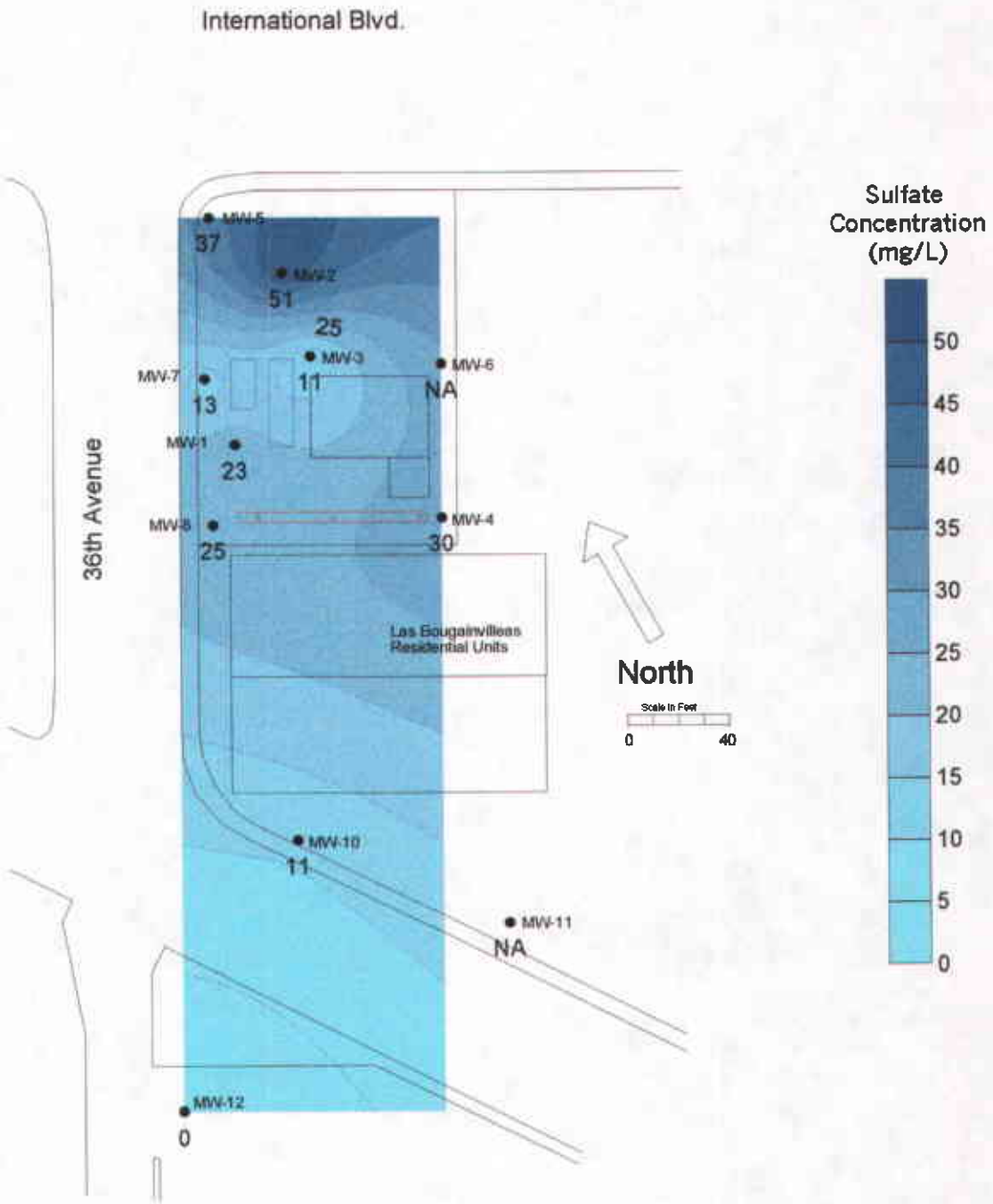


Figure 6: Sulfate Concentration Contour Map in Groundwater, August 8, 2001

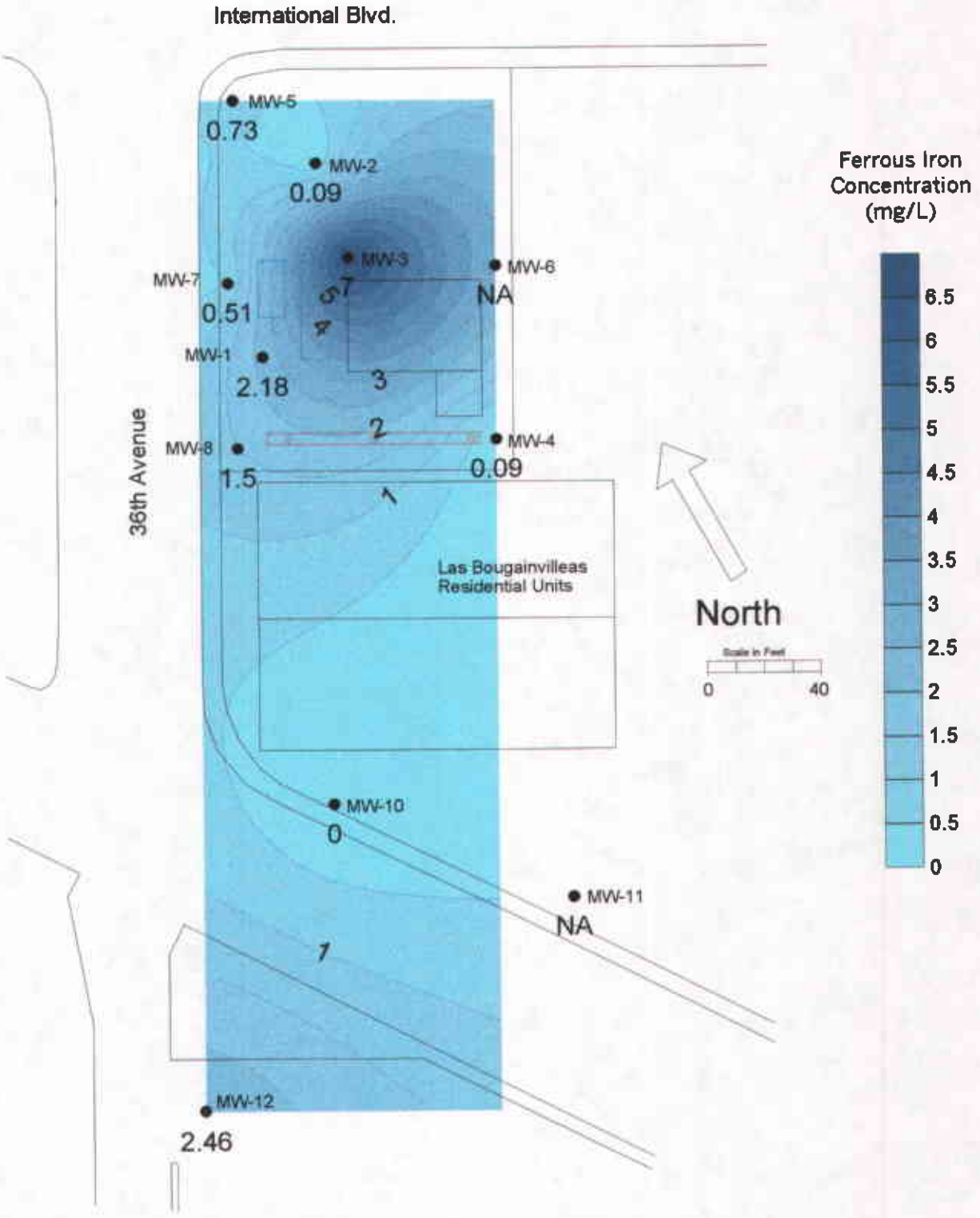


Figure 7: Ferrous Iron Concentration Contour Map in Groundwater, August 8, 2001

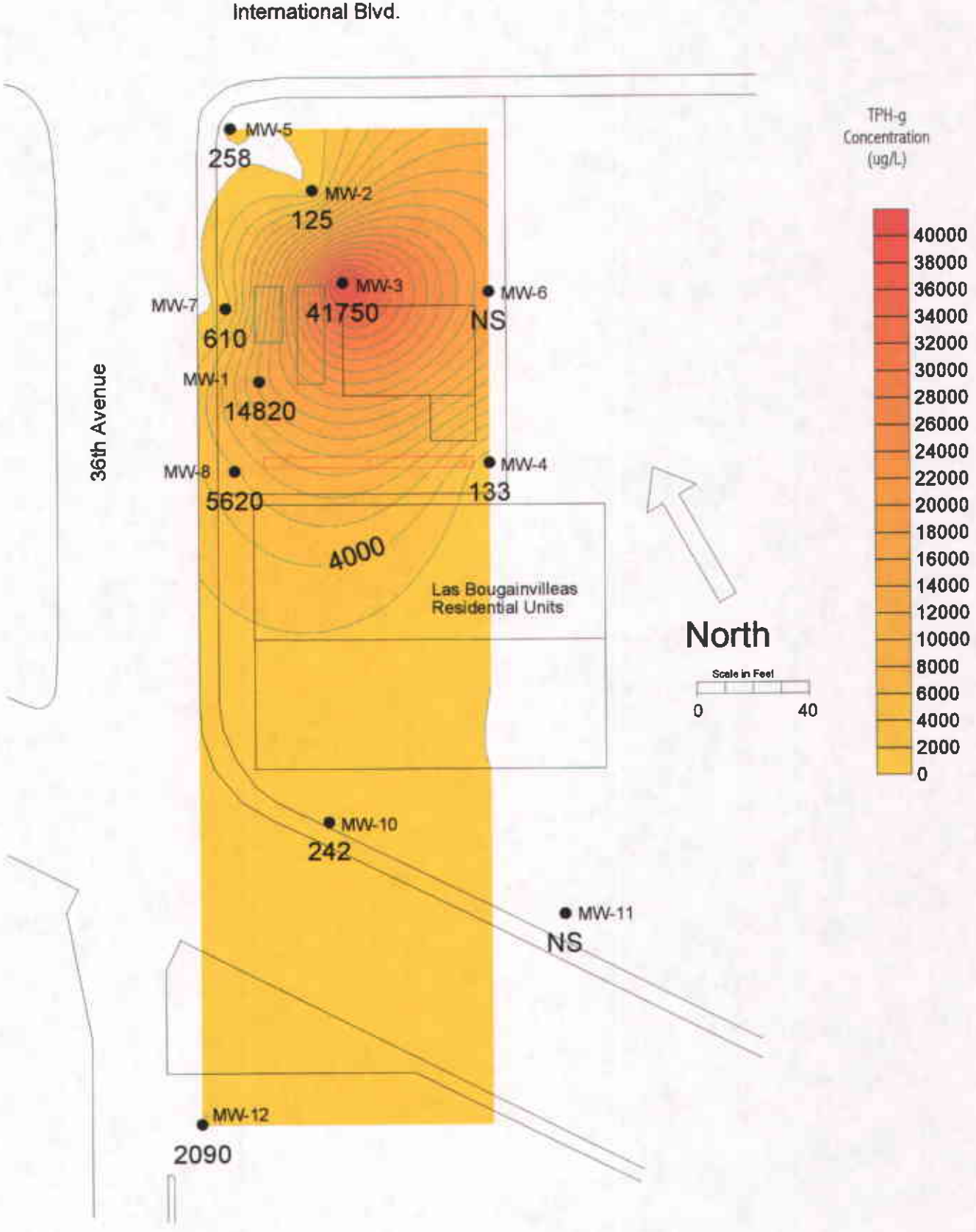


Figure 8: TPH-g Concentration Contour Map in Groundwater, August 8, 2001

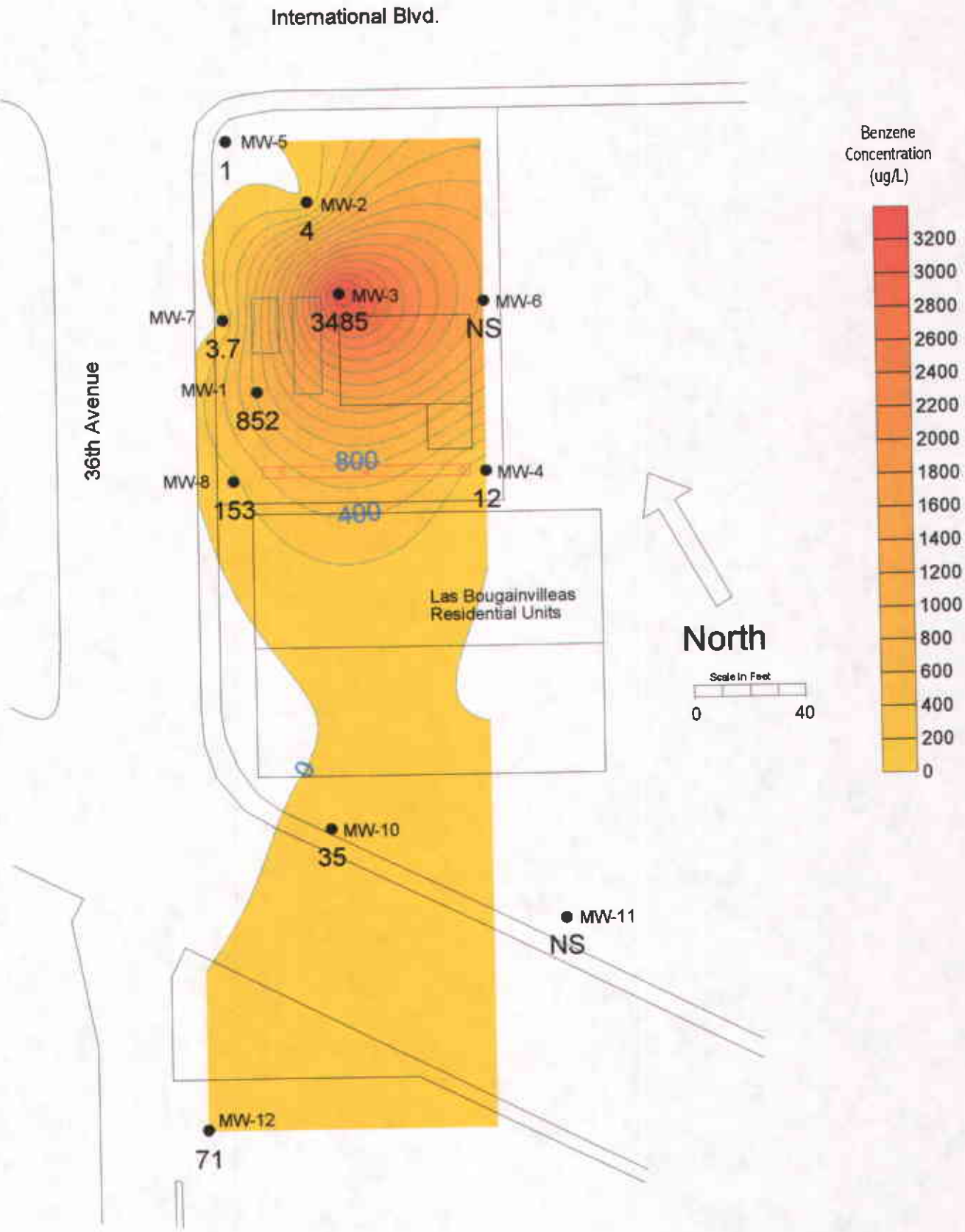


Figure 9: Benzene Concentration Contour Map in Groundwater, August 8, 2001

SOMA
ENVIRONMENTAL ENGINEERING, INC.

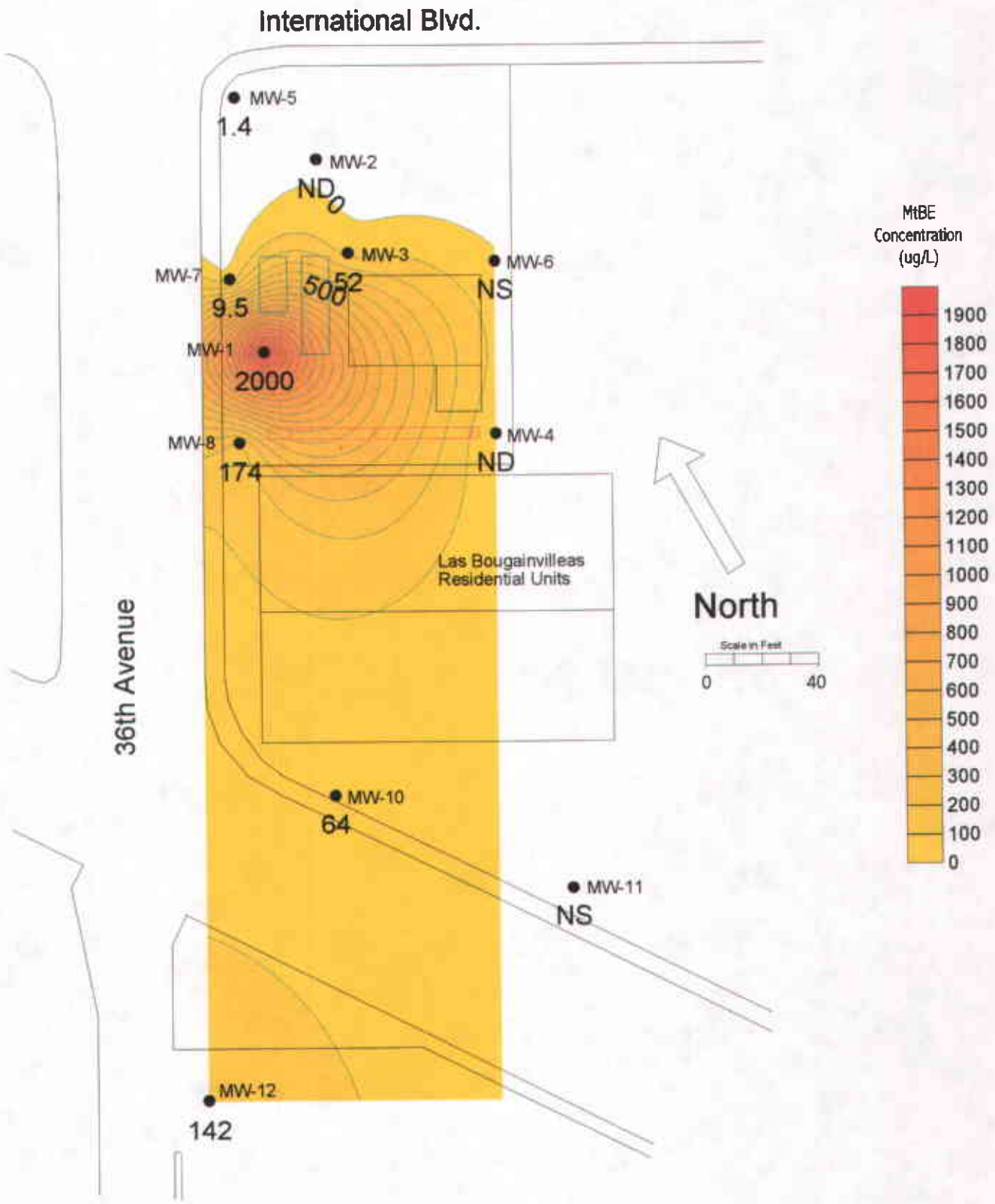
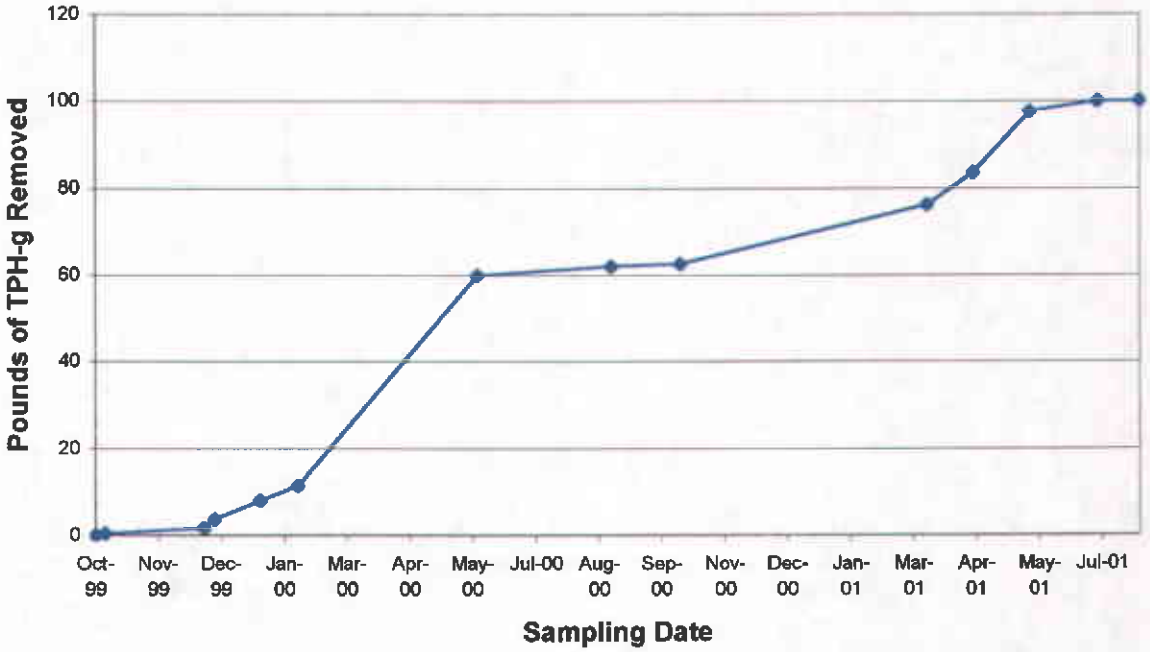
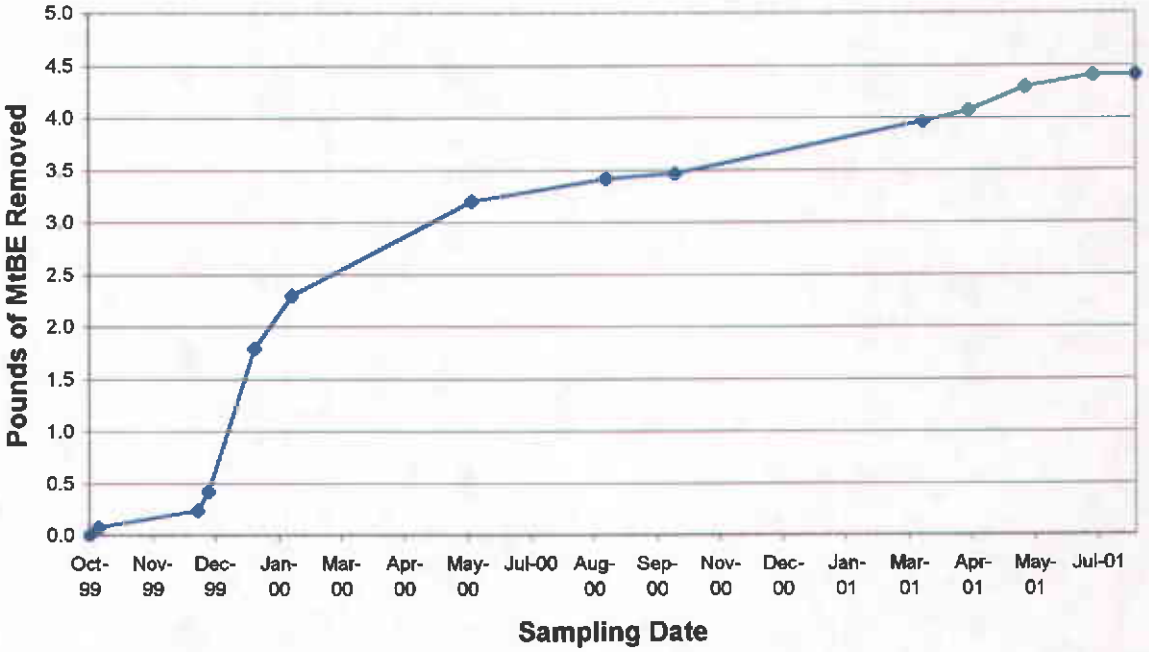


Figure 10: MtBE Concentration Contour Map in Groundwater, August 8, 2001

Figure 11
Cumulative Weight of TPH-g and MtBE Extracted from Groundwater Since Installation of the Treatment System
3609 International Boulevard, Oakland, California





APPENDIX A

FIELD NOTES, CHAIN OF CUSTODY FORMS, LABORATORY REPORTS, DO CORRECTION TABLES

ENVIRONMENTAL ENGINEERING, INC

Well No.:	1	**Project No.:**	2331
Casing Diameter:	2 inches	**Address:**	3609 International Blvd.
Depth of Well:	_____ feet		Oakland, CA
Elevation of the Casing:	97.99 feet		
Depth to Water Table:	13.51 feet	**Date:**	Aug 8, 2001
Elevation of Water Table:	84.48 feet	**Sampler:**	Naser Pakrou
Height of Water:	_____ feet		Siu Lee
Purged Volume:	_____ gallons		

Purging Method: **Bailer** ☐ **Pump** ☑

Sampling Method: **Bailer** ☑ **Pump** ☐

Color: **Yes** ☐ **No** ☑ **Describe** _____

Sheen: **Yes** ☐ **No** ☑ **Describe** _____

Odor: **Yes** ☑ **No** ☐ **Describe** slight odor

Field Measurements

Time	DO (mg/L)	pH	EC (µS/cm	Turbidity (FTU)	ORP (mV)	Fe^{+2} (mg/L)	NO_3^{-1} (mg/L)	SO_4^{+2} (mg/L)	Temp (°C)
11:30	1.71	6.5	768	200	-35	2.18	0.0	23	19.8

ENVIRONMENTAL ENGINEERING, INC

Well No.:	2	**Project No.:**	2331
Casing Diameter:	4 inches	**Address:**	3609 International Blvd.
Depth of Well:	_____ feet		Oakland, CA
Elevation of the Casing:	98.58 feet		
Depth to Water Table:	13.53 feet	**Date:**	Aug 8, 2001
Elevation of Water Table:	85.05 feet	**Sampler:**	Naser Pakrou
Height of Water:	_____ feet		Siu Lee
Purged Volume:	_____ gallons		

Purging Method: **Bailer** ☐ **Pump** ☑

Sampling Method: **Bailer** ☑ **Pump** ☐

Color: **Yes** ☐ **No** ☑ **Describe** _____

Sheen: **Yes** ☐ **No** ☑ **Describe** _____

Odor: **Yes** ☐ **No** ☑ **Describe** _____

Field Measurements

Time	DO (mg/L)	pH	EC (µS/cm	Turbidity (FTU)	ORP (mV)	Fe^{+2} (mg/L)	NO_3^{-1} (mg/L)	SO_4^{+2} (mg/L)	Temp (°C)
1:00	2.03	7.19	642	0.0	160	0.09	7.4	51	20.5

ENVIRONMENTAL ENGINEERING, INC

Well No.:	3	**Project No.:**	2331
Casing Diameter:	4 inches	**Address:**	3609 International Blvd.
Depth of Well:	____ feet		Oakland, CA
Elevation of the Casing:	97.78 feet		
Depth to Water Table:	14.10 feet	**Date:**	Aug 8, 2001
Elevation of Water Table:	83.68 feet	**Sampler:**	Naser Pakrou
Height of Water:	____ feet		Siu Lee
Purged Volume:	____ gallons		

Purging Method: **Bailer** ☐ **Pump** ☒

Sampling Method: **Bailer** ☒ **Pump** ☐

Color: **Yes** ☐ **No** ☒ **Describe** ____

Sheen: **Yes** ☐ **No** ☒ **Describe** ____

Odor: **Yes** ☒ **No** ☐ **Describe** strong petroleum odor

Field Measurements

Time	DO (mg/L)	pH	EC (µS/cm	Turbidity (FTU)	ORP (mV)	Fe^{+2} (mg/L)	NO_3^{-1} (mg/L)	SO_4^{+2} (mg/L)	Temp (°C)
1:30	1.17	6.97	1100	28	-54	7.0	0.7	11	19.76

ENVIRONMENTAL ENGINEERING, INC

Well No.:	4	**Project No.:**	2331
Casing Diameter:	2 inches	**Address:**	3609 International Blvd.
Depth of Well:	_____ feet		Oakland, CA
Elevation of the Casing:	97.85 feet		
Depth to Water Table:	13.80 feet	**Date:**	Aug 8, 2001
Elevation of Water Table:	85.05 feet	**Sampler:**	Naser Pakrou
Height of Water:	_____ feet		Siu Lee
Purged Volume:	_____ gallons		

Purging Method: **Bailer** ☐ **Pump** ☑

Sampling Method: **Bailer** ☑ **Pump** ☐

Color: **Yes** ☐ **No** ☑ **Describe** _____

Sheen: **Yes** ☐ **No** ☑ **Describe** _____

Odor: **Yes** ☐ **No** ☑ **Describe** _____

Field Measurements

Time	DO (mg/L)	pH	EC (µS/cm	Turbidity (FTU)	ORP (mV)	Fe^{+2} (mg/L)	NO_3^{-1} (mg/L)	SO_4^{+2} (mg/L)	Temp (°C)
2:00	1.54	6.96	615	320	320	0.09	6.0	30	18.9

ENVIRONMENTAL ENGINEERING, INC

Well No.:	5	**Project No.:**	2331
Casing Diameter:	2 inches	**Address:**	3609 International Blvd.
Depth of Well:	_____ feet		Oakland, CA
Elevation of the Casing:	99.04 feet		
Depth to Water Table:	13.79 feet	**Date:**	Aug 8, 2001
Elevation of Water Table:	85.25 feet	**Sampler:**	Naser Pakrou
Height of Water:	_____ feet		Siu Lee
Purged Volume:	_____ gallons		

Purging Method: **Bailer** ☐ **Pump** ☐

Sampling Method: **Bailer** ☐ **Pump** ☐

Color: **Yes** ☐ **No** ☐ **Describe** _____

Sheen: **Yes** ☐ **No** ☐ **Describe** _____

Odor: **Yes** ☐ **No** ☐ **Describe** _____

Field Measurements

Time	DO (mg/L)	pH	EC (µS/cm	Turbidity (FTU)	ORP (mV)	Fe^{+2} (mg/L)	NO_3^{-1} (mg/L)	SO_4^{+2} (mg/L)	Temp (°C)
12:30	1.35	7.20	684	300	103	0.73	0.2	37	20.5

ENVIRONMENTAL ENGINEERING, INC

Well No.:	6	**Project No.:**	2331
Casing Diameter:	6 inches	**Address:**	3609 International Blvd.
Depth of Well:	_____ feet		Oakland, CA
Elevation of the Casing:	_____ feet		
Depth to Water Table:	_____ feet	**Date:**	Aug 8, 2001
Elevation of Water Table:	_____ feet	**Sampler:**	Naser Pakrou
Height of Water:	_____ feet		Siu Lee
Purged Volume:	_____ gallons		

Not Accessible

Purging Method: **Bailer** ☐ **Pump** ☐

Sampling Method: **Bailer** ☐ **Pump** ☐

Color: **Yes** ☐ **No** ☐ **Describe** _____

Sheen: **Yes** ☐ **No** ☐ **Describe** _____

Odor: **Yes** ☐ **No** ☐ **Describe** _____

Field Measurements

Time	DO (mg/L)	pH	EC (µS/cm	Turbidity (FTU)	ORP (mV)	Fe^{+2} (mg/L)	NO_3^{-1} (mg/L)	SO_4^{+2} (mg/L)	Temp (°C)

ENVIRONMENTAL ENGINEERING, INC

Well No.:	7	**Project No.:**	2331
Casing Diameter:	2 inches	**Address:**	3609 International Blvd.
Depth of Well:	_____ feet		Oakland, CA
Elevation of the Casing:	97.83 feet		
Depth to Water Table:	13.02 feet	**Date:**	Aug 8, 2001
Elevation of Water Table:	84.81 feet	**Sampler:**	Naser Pakrou
Height of Water:	_____ feet		Siu Lee
Purged Volume:	_____ gallons		

Purging Method: **Bailer** ☐ **Pump** ☑

Sampling Method: **Bailer** ☑ **Pump** ☐

Color: **Yes** ☐ **No** ☑ **Describe** _____

Sheen: **Yes** ☐ **No** ☑ **Describe** _____

Odor: **Yes** ☐ **No** ☑ **Describe** _____

Field Measurements

Time	DO (mg/L)	pH	EC (µS/cm	Turbidity (FTU)	ORP (mV)	Fe^{+2} (mg/L)	NO_3^{-1} (mg/L)	SO_4^{+2} (mg/L)	Temp (°C)
12:00	1.62	7.35	618	140	-18	0.51	0.0	13	20.8

ENVIRONMENTAL ENGINEERING, INC

Well No.:	8	**Project No.:**	2331
Casing Diameter:	2 inches	**Address:**	3609 International Blvd.
Depth of Well:	_____ feet		Oakland, CA
Elevation of the Casing:	97.25 feet		
Depth to Water Table:	12.97 feet	**Date:**	Aug 8, 2001
Elevation of Water Table:	84.28 feet	**Sampler:**	Naser Pakrou
Height of Water:	_____ feet		Siu Lee
Purged Volume:	_____ gallons		

Purging Method: **Bailer** ☐ **Pump** ☑

Sampling Method: **Bailer** ☑ **Pump** ☐

Color: **Yes** ☐ **No** ☑ **Describe** _____

Sheen: **Yes** ☑ **No** ☐ **Describe** _____

Odor: **Yes** ☑ **No** ☐ **Describe** strong petroleum odor

Field Measurements

Time	DO (mg/L)	pH	EC (µS/cm	Turbidity (FTU)	ORP (mV)	Fe^{+2} (mg/L)	NO_3^{-1} (mg/L)	SO_4^{+2} (mg/L)	Temp (°C)
2:20	1.24	6.80	1090	990	-62	1.5	0.8	25	19.18

ENVIRONMENTAL ENGINEERING, INC

Well No.:	10	**Project No.:**	2331
Casing Diameter:	2 inches	**Address:**	3609 International Blvd.
Depth of Well:	____ feet		Oakland, CA
Elevation of the Casing:	94.54 feet		
Depth to Water Table:	11.64 feet	**Date:**	Aug 8, 2001
Elevation of Water Table:	82.90 feet	**Sampler:**	Naser Pakrou
Height of Water:	____ feet		Siu Lee
Purged Volume:	____ gallons		

Purging Method: **Bailer** ☐ **Pump** ☑

Sampling Method: **Bailer** ☑ **Pump** ☐

Color: **Yes** ☐ **No** ☑ **Describe** _____

Sheen: **Yes** ☐ **No** ☑ **Describe** _____

Odor: **Yes** ☐ **No** ☑ **Describe** _____

Field Measurements

Time	DO (mg/L)	pH	EC (µS/cm	Turbidity (FTU)	ORP (mV)	Fe^{+2} (mg/L)	NO_3^{-1} (mg/L)	SO_4^{+2} (mg/L)	Temp (°C)
3:00	1.56	7.01	799	500	52	0.0	0.0	11	19.60

ENVIRONMENTAL ENGINEERING, INC

Well No.:	11	**Project No.:**	2331
Casing Diameter:	2 inches	**Address:**	3609 International Blvd.
Depth of Well:	_____ feet		Oakland, CA
Elevation of the Casing:	95.94 feet		
Depth to Water Table:	13.04 feet	**Date:**	Aug 8, 2001
Elevation of Water Table:	82.90 feet	**Sampler:**	Naser Pakrou
Height of Water:	_____ feet		Siu Lee
Purged Volume:	_____ gallons		

Not Accessible
- A boat was parked on top

Purging Method: **Bailer** ☐ **Pump** ☐

Sampling Method: **Bailer** ☐ **Pump** ☐

Color: **Yes** ☐ **No** ☐ **Describe** _____

Sheen: **Yes** ☐ **No** ☐ **Describe** _____

Odor: **Yes** ☐ **No** ☐ **Describe** _____

Field Measurements

Time	DO (mg/L)	pH	EC (µS/cm	Turbidity (FTU)	ORP (mV)	Fe^{+2} (mg/L)	NO_3^{-1} (mg/L)	SO_4^{+2} (mg/L)	Temp (°C)

ENVIRONMENTAL ENGINEERING, INC

Well No.:	12	**Project No.:**	2331
Casing Diameter:	4 inches	**Address:**	3609 International Blvd.
Depth of Well:	_____ feet		Oakland, CA
Elevation of the Casing:	94.84 feet		
Depth to Water Table:	12.24 feet	**Date:**	Aug 8, 2001
Elevation of Water Table:	82.60 feet	**Sampler:**	Naser Pakrou
Height of Water:	_____ feet		Siu Lee
Purged Volume:	_____ gallons		

Purging Method: **Bailer** ☐ **Pump** ☑

Sampling Method: **Bailer** ☑ **Pump** ☐

Color: **Yes** ☐ **No** ☐ **Describe** _____

Sheen: **Yes** ☐ **No** ☐ **Describe** _____

Odor: **Yes** ☐ **No** ☐ **Describe** _____

Field Measurements

Time	DO (mg/L)	pH	EC (µS/cm	Turbidity (FTU)	ORP (mV)	Fe^{+2} (mg/L)	NO_3^{-1} (mg/L)	SO_4^{+2} (mg/L)	Temp (°C)
3:45	1.66	6.91	769	72	3.0	2.46	0.0	0.0	19.7

Delta Environmental Laboratories, LLC

Chain of Custody (COC) Form

685 Stone Road #11 & 12
Benicia, Ca, 94510
(707(747-6081, 800-7476082 FAX (707) 747-6082

Project Name: Proj 2331

3609 Int Blvd
Oakland, Ca

LAB ID Ref #

R 6210

Results to:Naser Pakrou	
SOMA Environmental Engineering	
2680 Bishop Dr., #203	
San Ramon,, CA 94503	
Telephone 1-925-244-6600	Fax 925-244-6601
Sampler's Signature Naser Pakrou	
Turnaround Time Standard	

Analysis Requested

Special Instructions::

#	Sample ID	Date	Time	Matrix	No. of containers	pH	Temperature	TPH-g ~~8015/8020~~	TPH - D/OIL,8015M	BTEX only 8020/602	Oxygenates, 8260	~~VOC~~ 8260 X BTEX only	SVOC 8270/625	Oil and Grease,5520 B,C,F	PCB 8082	MTBE, 8260 B	Pestcides 8081		Others	Comments
1	Mw-1	8/8/	11:00	H2O	3			J	✓			✓				✓				
2	Mw-2		11:00																	
3	Mw-3		1:30																	
4	Mw-4		2:0																	
5	Mw-5		12:30																	
6	Mw-~~3~~-D		1:45																	
7	Mw-7		12:0																	
8	Mw-8		2:20																	
9	Mw-9		3:30																	
10	Mw-10		3:0																	

Relinquished by: Naser Pakrou	Date 8/9/01	Laboratory Comments: samples received in good condition
Received By: Dina Saniva	Date 8/9/01	
Relinquished by:	Date	
Received By:	Date	

For Lab Use Only:

Delta Environmental Laboratories, LLC

Chain of Custody (COC) Form

685 Stone Road #11 & 12
Benicia, Ca, 94510
(707) 747-6081, 800-7476082 FAX (707) 747-6082

Project Name: Proj 2331

Results to:Naser Pakrou	
SOMA Environmental Engineering	
2680 Bishop Dr., #203	
San Ramon, CA 94503	
Telephone 1-925-244-6600	Fax 925-244-6601
Sampler's Signature	
Turnaround Time Standard	

LAB ID / Ref # 3609 Ent Blvd Oakland, CA

R6210

Special Instructions::

#	Sample ID	Date	Time	Matrix	No. of containers	pH	Temperature	TPH-g+BTEX, 8020/5030	TPH - D/OIL,8015M	BTEX only 8020/602	Oxygenates, 8260	VOC 8260 BTEX	SVOC 8270/625	Oil and Grease,5520 B,C,F	PCB 8082	MTBE, 8260 B	Pestcides 8081		Others	Comments
11	MW-12	8/8	3:45	H2O	3			✓	✓			✓			✓	✓				

Relinquished by: Naser Pakrou	Date 8/9/01	Laboratory Comments: samples received in good condition	
Received By: Dina Samimi	Date 8/9/01		
Relinquished by:	Date		
Received By:	Date		

For Lab Use Only:

DELTA
ENVIRONMENTAL LABORATORIES, Ltd

SOMA
2680 Bishop Drive #203
San Ramon, CA 94503

Client Project ID:
Project # 2331
3609 INT Blvd
Oakland, CA

QC Batch: 8151601

Attention: Naser Pakrou

Ref.	R6210_400
Method:	EPA 5030/8015M
Sampled:	08/08/01
Received:	08/09/01
Matrix	Water
Prepared	08/15/01
Analyzed:	8/15-16/01
Reported:	08/20/01
Analyst:	DS
Unit	ug/L
QC batch	8151601
COC no.	6210
Work Order:	2331

Laboratory Results of Analysis forTPH-G

Analyte	Detection Limit ug/L	Results Sample ID				
		MW-1	MW-2	MW-3	MW-4	MW-5
TPH-G	50	14,820	125	41,750	133	258
Surrogate		% Recovery				
Bromofluorobenzene		111	111	106	110	103

ND:Not Detected

Delta Environmental Laboratories,

Hossein Khosh Khoo, Ph.D.
Laboratory Director/ President

SOMA
2680 Bishop Drive #203
San Ramon, CA 94503

Client Project ID:
Project # 2331
3609 MLT Blvd
Oakland, CA

Ref.	R6210_101
Method:	EPA 8260B
Sampled:	08/08/01
Received:	08/09/01
Matrix	Water
Prepared	08/15/01
Analyzed:	8/15-16/01
Reported:	08/20/01
Analyst:	DS
Unit	ug/L
QC batch	8151601
COC no.	6210
Work Order:	2331

QC Batch: 8151601

Attention: Naser Pakrou

Laboratory Results of Analysis for BTEX & MTBE

Analyte	CAS#	Detection Limit ug/L	Results Sample ID					
			MW-3-D	MW-7	MW-8	MW-9	MW-10	MW-12
BTEX								
Benzene	71-43-2	0.5	3,075	3.7	153	72	35	71
Toluene	108-88-3	0.5	2,245	3.0	46	1.8	0.6	1.8
Ethylbenzene	100-41-4	0.5	1,100	6.2	373	2.9	11	2.8
m-p-Xylenes	1330-20-7	0.5	3,410	16	317	3.4	1.8	3.3
o-xylene	95-47-6	0.5	1,400	2.9	28	0.7	ND	0.7
MTBE	01634-04-4	0.5	49	9.5	174	149	64	142
Surrogate	**Conc**		**% Recovery**					
Bromofluorobenzene	20		103	105	88	91	88	88

ND Not Detected

Delta Environmental Laboratories,

Hossein Khosh Khoo, Ph.D.
Laboratory Director/ President

Quality Control Report

Client:
SOMA
2680 Bishop Drive, #203
San Ramon, CA 94503

Client Project ID:
Project # 2331
3609 INT Blvd
Oakland, CA

QC Batch: 8151601

Ref.:	Q6210_400
Method	EPA /8015M5030
Sampled:	8/8/01
Received:	8/9/01
Matrix:	Water
Analyzed:	8/15-16/01
Analyst	DS
Reported:	8/20/01
Units:	ug/L
Sample ID	Blank

Quality Control Report for TPH-G Analysis

Analyte	Detection Limit ug/L	Sample Result ug/L	Spike Added ug/L	% MS Recovery	% MSD Recovery	Relative % Difference RPD	Method
TPH-G	50	ND	400	101	103	2.0	5030/8015M
Surrogate	**Conc.**			**% Recovery**			
Bromofluorobenzene	20			102	104		

Delta Environmental Laboratories

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

Quality Control Report

Client:
SOMA
2680 Bishop Drive, #203
San Ramon, CA 94503

Client Project ID:
Project # 2331
3609 INT Blvd
Oakland, CA

QC Batch: 8151601

Ref.:	Q6210_100
Method	EPA8260B
Sampled:	8/8/01
Received:	8/9/01
Matrix:	Water
Analyzed:	8/15-16/01
Analyst	DS
Reported:	8/20/01
Units:	ug/L
Sample ID	Blank

Quality Control Report for MTBE & BTEX Analysis

Analyte	Detection Limit ug/L	Sample Result ug/L	Spike Added ug/L	% MS Recovery	% MSD Recovery	Relative % Difference RPD	Method
Benzene	0.5	ND	20	94	95	1.1	8260B
Toulene	0.5	ND	20	94	94	0.0	8260B
Ethylbenzene	0.5	ND	20	96	107	10.8	8260B
Total-Xylene	1.0	ND	40	96	102	6.1	8260B
MTBE	0.5	ND	20	96	100	4.1	8260B
Surrogate	**Conc.**			**% Recovery**			
Bromofluorobenzene	20			92	91		

Delta Environmental Laboratories

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

SOMA
2680 Bishop Drive #203
San Ramon, CA 94503

Client Project ID:
Project # 2331
3609 INT Blvd
Oakland, CA

QC Batch: 8151601

Attention: Naser Pakrou

Ref.	R6210_401
Method:	EPA 5030/8015M
Sampled:	08/08/01
Received:	08/09/01
Matrix	Water
Prepared	08/15/01
Analyzed:	8/15-16/01
Reported:	08/20/01
Analyst:	DS
Unit	ug/L
QC batch	8151601
COC no.	6210
Work Order:	2331

Laboratory Results of Analysis forTPH-G

Analyte	Detection Limit ug/L	Results Sample ID					
		MW-3-D	MW-7	MW-8	MW-9	MW-10	MW-12
TPH-G	50	40,950	610	5,620	2,017	242	2,090
Surrogate		% Recovery					
Bromofluorobenzene		102	99	103	105	109	107

ND:Not Detected

Delta Environmental Laboratories,

Hossein Khosh Khoo, Ph.D.
Laboratory Director/ President

DELTA
ENVIRONMENTAL LABORATORIES, Ltd

SOMA
2680 Bishop Drive #203
San Ramon, CA 94503

Client Project ID:
Project # 2331
3609 INT Blvd
Oakland, CA

Ref.	R6210_102
Method:	EPA 8260B
Sampled:	08/08/01
Received:	08/09/01
Matrix	Water
Prepared	08/15/01
Analyzed:	8/15-16/01
Reported:	08/20/01
Analyst:	DS
Unit	ug/L
QC batch	8151601
COC no.	6210
Work Order:	2331

Attention: Naser Pakrou

QC Batch: 8151601

Laboratory Results of Analysis for BTEX & MTBE

Analyte	CAS#	Detection Limit ug/L	Results
			Sample ID
			Blank
BTEX			
Benzene	71-43-2	0.5	ND
Toluene	108-88-3	0.5	ND
Ethylbenzene	100-41-4	0.5	ND
m-p-Xylenes	1330-20-7	0.5	ND
o-xylene	95-47-6	0.5	ND
MTBE	01634-04-4	0.5	ND
Surrogate	**Conc.**		**% Recovery**
Bromofluorobenzene	20		86

ND:Not Detected

Delta Environmental Laboratories,

Hossein Khosh Khoo, Ph.D.
Laboratory Director/ President

SOMA
2680 Bishop Drive #203
San Ramon, CA 94503

Client Project ID:
Project # 2331
3609 INT Blvd
Oakland, CA

QC Batch: 8151601

Attention: Naser Pakrou

Ref:	R6210_402
Method:	EPA 5030/8015M
Sampled:	08/08/01
Received:	08/09/01
Matrix	Water
Prepared	08/15/01
Analyzed:	8/15-16/01
Reported:	08/20/01
Analyst:	DS
Unit	ug/L
QC batch	8151601
COC no.	6210
Work Order:	2331

Laboratory Results of Analysis forTPH-G

Analyte	Detection Limit ug/L	Results
		Sample ID
		Blank
TPH-G	50	ND
Surrogate		**% Recovery**
Bromofluorobenzene		58

ND:Not Detected

Delta Environmental Laboratories,

Hossein Khosh Khoo, Ph.D.
Laboratory Director/ President

SOMA
2680 Bishop Drive #203
San Ramon, CA 94503

Client Project ID:
Project # 2331
3609 INT Blvd
Oakland, CA

Attention: Naser Pakrou

QC Batch: 8151601

Ref.	R6210_100
Method:	EPA 8260B
Sampled:	08/08/01
Received:	08/09/01
Matrix	Water
Prepared	08/15/01
Analyzed:	8/15-16/01
Reported:	08/20/01
Analyst:	DS
Unit	ug/L
QC batch	8151601
COC no	6210
Work Order:	2331

Laboratory Results of Analysis for BTEX & MTBE

Analyte	CAS#	Detection Limit ug/L	Results Sample ID				
			MW-1	MW-2	MW-3	MW-4	MW-5
BTEX							
Benzene	71-43-2	0.5	852	4.0	3,485	12	1.0
Toluene	108-88-3	0.5	342	3.8	2,670	2.2	1.1
Ethylbenzene	100-41-4	0.5	568	3.3	1,255	3.9	3.4
m-p-Xylenes	1330-20-7	0.5	1,299	8.1	3,835	7.0	6.2
o-xylene	95-47-6	0.5	307	2.4	1,585	2.0	1.1
MTBE	01634-04-4	0.5	2,000	ND	52	ND	1.4
Surrogate	**Conc.**		**% Recovery**				
Bromofluorobenzene	20		93	103	101	101	100

ND:Not Detected

Delta Environmental Laboratories,

Hossein Khosh Khoo, Ph.D.
Laboratory Director/ President

Laboratories, LLC

Chain of Custody (COC) Form

685 Stone Road #11 & 12
Benicia, Ca, 94510
(707(747-6081, 800-7476082 FAX (707) 747-6082

sults to:Naser Pakrou
MA Environmental Engineering
80 Bishop Dr., #203
n Ramon, CA 94503
ephone 1-925-244-6600 Fax 925-244-6601
pler's Signature
naround Time Rush

Project Name: 3369 Int Blvd Oakland 2331
LAB ID
Ref #

Analysis Requested

Sample ID	Date	Time	Matrix	No. of containers	pH	Temperature	Hal Preserved	TPHg, BTEX, MTBE 8260	Others	Comments
MW-1	9/10	11:45	H2O	2			V	V		

0251

Special Instructions::

hed by: [signature]
By:
Date 9/10/01
hed by:
By:
Date 9/10/01
Date
Date
se Only:

Laboratory Comments:
Sample received in icebox and in a good condition

a2\deltastuff

09/11/01 TUE 04:22 FAX 17077476082 D-E-L-T-A 004

WATER • WASTE WATER • HAZARDOUS WASTE • FUEL • AIR • SOIL

DELTA ENVIRONMENTAL LABORATORIES, Ltd

SOMA
2680 Bishop Drive #203
San Ramon, CA 94503

Client Project ID:
3369 Int Blvd
Oakland 2331

QC Batch: 9101101

Attention: Naser Pakrou

Ref.	R6281_400
Method:	EPA 8020/5030
Sampled:	09/10/01
Received:	09/10/01
Matrix	Water
Prepared	09/10/01
Analyzed:	09/10/01
Reported:	09/10/01
Analyst:	DS
Unit	ug/L
QC batch	91001
COC no.	6281
Work Order:	3369

Laboratory Results of Analysis for BTEX & TPH-G

Analyte	CAS#	Detection Limit ug/L	Results
			Sample ID
			MW-1
BTEX			
Benzene	71-43-2	0.5	2,575
Toluene	108-88-3	0.5	1,075
Ethylbenzene	100-41-4	0.5	1,089
m,p-Xylenes	1330-20-7	0.5	3,035
o-xylene	95-47-6	0.5	775
TPH-G		50	36,650
Surrogate	Conc.		% Recovery
Bromofluorobenzene	20		91

ND:Not Detected

Delta Environmental Laboratories,

Hossein Kiash Khoo, Ph.D.
Laboratory Director/ President

WATER • WASTE WATER • HAZARDOUS WASTE • FUEL • AIR • SOIL

DELTA ENVIRONMENTAL LABORATORIES, Ltd

SOMA
2680 Bishop Drive #203
San Ramon, CA 94503

Client Project ID:
3369 Int Blvd
Oakland 2331

Ref.	R6281_100
Method:	EPA 8260
Sampled:	09/10/01
Received:	09/10/01
Matrix	Water
Prepared	09/10/01
Analyzed:	09/10/01
Reported:	09/10/01
Analyst:	DS
Unit	ug/L
QC batch	9101101
COC no.	6281
Work Order:	2331

QC Batch: 9101101

Attention: Naser Pakrou

Laboratory Results of Analysis for MTBE

Analyte	CAS#	Detection Limit ug/L	Results Sample ID MW-1
MTBE	01634-04-4	0.5	52,000
Surrogate	**Conc**		**% Recovery**
Bromofluorobenzene	20		80

ND:Not Detected

Delta Environmental Laboratories,

Hossein Khosh Khoo, Ph.D.
Laboratory Director/ President

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