EXXON COMPANY, U.S.A.

P.O. BOX 4032 • CONCORD, CA 94524-4032

MARKETING DEPARTMENT • ENVIRONMENTAL ENGINEERING

MARLA D. GUENSLER
SENIOR ENGINEER
(925) 246-8776
(925) 246-8798 FAX

September 14, 1998

Mr. Scott Seery
Alameda County Health Care Services
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

RE: Exxon RAS #7-7003/349 Main St., Pleasanton, CA

Dear Mr. Seery:

Attached for your review and comment is a ***Site Closure Request Report***, for the above referenced site. This report was prepared by Delta Environmental Consultants, Inc. of Rancho Cordova, California. The results of the Risk-Based Corrective Action (RBCA) analysis contained in the report indicate that the residual hydrocarbons remaining at the site do not appear to be at concentration levels which exceed a human health-based risk of one in one million. Based on the results of the RBCA analysis and current site conditions, it is recommended that the site be evaluated for closure.

If you have any questions or comments, please contact me at (925) 246-8776.

Sincerely,

Marla D. Guensler
Senior Engineer

MDG/tjm

attachment: Delta's *Site Closure Request Report* dated August 21, 1998.

cc: w/attachment:
Mr. David Lunn - Alameda Co. Flood Control and Water Conservation District
Mr. Dennis Mischek - California Regional WQCB - San Francisco Bay Region

w/o attachment:
Mr. James R. Brownell - Delta Environmental Consultants, Inc.

SITE CLOSURE REQUEST REPORT

FORMER EXXON SERVICE STATION NO. 7-7003
349 MAIN STREET
PLEASANTON, CALIFORNIA
DELTA PROJECT NO. D094-838

August 21, 1998

Prepared By

DELTA ENVIRONMENTAL CONSULTANTS, INC.
3164 Gold Camp Drive, Suite 200
Rancho Cordova, California 95670
(916) 638-2085

TABLE OF CONTENTS

TABLE OF CONTENTS-Continued

Tables

Figures

Appendices

SITE CLOSURE REQUEST REPORT

FORMER EXXON SERVICE STATION NO. 7-7003
349 MAIN STREET
PLEASANTON, CALIFORNIA
DELTA PROJECT NO. D094-838

1.0 INTRODUCTION

1.1 Purpose

Delta Environmental Consultants, Inc. (Delta), has been authorized by Exxon Company U.S.A. (Exxon), to review investigative work and remedial actions conducted at and adjacent to former Exxon Service Station No. 7-7003 located at 349 Main Street, Pleasanton, Alameda County, California, and assess if the residual concentrations of petroleum hydrocarbons in the subsurface are at levels which would allow site closure. The risk analysis was conducted using the *Standard Guide for Risk-Based Corrective Action (RBCA) Applied to Petroleum Release Sites* (ASTM E 1739 - 95) and the *Guidance Manual for Risk-Based Corrective Action* (Conner, et al., 1995).

2.0 BACKGROUND INFORMATION

2.1 Site Location and Description

Former Exxon Service Station No. 7-7003 is located at 349 Main Street, in Pleasanton, Alameda County, California (Township 3 South, Range 1 East, Section 31, Livermore Baseline and Meridian), within the jurisdiction of the Alameda County Flood Control and Water Conservation District - Zone 7 (Zone 7). The site is shown on the 7.5 minute topographical United States Geological Survey Map, Dublin Quadrangle, presented in Figure 1.

The site is a former Exxon retail gasoline station located in the center of the business district in the City of Pleasanton. Immediately north and east, the site is bounded by Angela Street and Main Street, respectively. A Bank of America (B of A) office and associated asphalt-paved parking lot (which is the property of B of A) borders the Exxon property to the west and south. A gift shop is present at the northeast corner of

the intersection of Main Street and Angela Street. Additional businesses in the area include a hair salon and gift store west of the site across Main Street, and a coffee shop north of the site across Angela Street.

The former station building and related features, including the basins of the former underground storage tanks (USTs), are depicted in Figure 2. The surface topography of the site is generally flat, with an elevation of approximately 344 feet above mean sea level. Customer entrances to the site were from both Main Street and Angela Street. The site was predominantly paved with asphalt. The site currently has a commercial building with an asphalt parking lot.

2.2 Site History

The site was formerly a retail gasoline service station operated by Exxon. Records were not available to Delta indicating when the original USTs were installed and when the original station was constructed. In July 1989, three steel USTs, each with a 8,000-gallon capacity, and one 500-gallon used-oil tank and the associated product line piping were removed from the site. In August 1989, three fiberglass USTs (one 12,000-gallon and two 10,000-gallon capacity) and one used-oil tank (500-gallon capacity) and associated product line piping were installed in new tank basin areas. The tanks were used to store unleaded, premium unleaded, and leaded gasoline. The station was closed by Exxon and the fiberglass replacement USTs were excavated and removed in May 1993. The former locations of the steel USTs, the initial used oil tank (1), and the fiberglass and replacement used oil tank (2) are shown on Figure 2.

2.3 Summary of Previous Work

Environmental investigative activities at the site were first conducted by Applied GeoSystems (AGS) in June 1989. The environmental investigative work was initiated during the removal and replacement of the four original steel USTs (AGS Report No. 19025-1V dated July 20, 1989). In January 1990, AGS advanced four soil borings (B-1A and B-1 through B-3) completing B-1A, B-2, and B-3 as ground water monitoring wells MW-1 through MW-3, respectively. Quarterly ground water monitoring was then initiated at the site. In June 1990, AGS advanced nine borings (B-4 through B-12) completing borings B-10 and B-12 as ground water monitoring wells MW-4 and MW-5, respectively. In March 1991, soil borings B-13 through B-18 were advanced and ground water monitoring wells MW-6 and MW-7 and

vapor extraction well VE-1 were installed in B-15, B-16, and B-18, respectively. The location of these soil borings and vapor extraction well are shown in Figure 2.

In May 1993, soil borings B-19 through B-21 were drilled and ground water monitoring well MW-8 and vapor extraction wells VE-2 and VE-3 were installed in B-19, B-20, and B-21, respectively. Their locations are shown in Figure 2. The fiberglass USTs installed at the site as replacement tanks in August 1989 and associated product line piping were removed in May 1993. Records were not available to Delta indicating the date when the fiberglass USTs and associated piping were removed. Additionally, Delta could not obtain records indicating what the material was used to backfill either of the former tank basins.

Ground water monitoring wells MW-2 and MW-8 were destroyed to facilitate the construction of a commercial building on the site in November 1996. Ground water monitoring wells MW-3 through MW-5 and vapor extraction wells VE-1 through VE-3 were destroyed in April 1997.

2.4 Regional Geology

The site is located in the north-central portion of the Livermore Valley, within the eastern edge of the Coast Ranges Geomorphic Province. The Livermore Valley slopes gently towards the west.

Livermore Valley is underlain by non-water bearing rocks and water bearing rocks and sediments (DWR, Department of Water Resources Bulletin No. 118-2, 1966, 1974). The non-water bearing rocks are marine sandstone, and conglomerate sandstone of Eocene to Miocene age. These rocks are exposed in the mountains surrounding Livermore Valley and are found at depths greater than 1,000 feet beneath the valley floor.

The Plio-Pleistocene age Livermore Formation overlaps the Tassajara Formation beneath the north portion of the valley and is exposed over broad regions south of the valley. Sediments of this formation consist primarily of clayey gravel in a sandy clay matrix. Sedimentary units south of the valley dip gently north, and are nearly level beneath the valley floor, and dip gently south beneath the north edge of the valley (DWR, Department of Water Resources Bulletin No. 118-2, 1966).

Surficial valley-fill material overlie both the Tassajara Foundation and the Livermore Formation and range from a few feet to approximately 400 feet in thickness. The Pleistocene to Holocene age sediments include unconsolidated sand, gravel, and clay which occur as either terrace deposits, alluvial fan deposits with gravely clayey facies, alluvium, basin deposits, and channel deposits of active streams (DWR, Department of Water Resources Bulletin No. 118-2, 1966, 1974).

2.5 Regional Hydrogeology

Ground water beneath the area of investigation is located within the Livermore ground water basin. The sediments and water bearing units comprising the Livermore Valley ground water basin include valley-fill materials of the Tassajara Formation and the Livermore Formation (DWR, Department of Water Resources Bulletin No. 118-2, 1966, 1974). The Livermore Valley ground water basin is characterized by hydrologic discontinuities, and is segregated into sub-basins on the basis of localized faults. The Livermore Valley ground water system is a multi-layered system with an unconfined aquifer overlying sequential partially confined aquifers. Ground water in the basin generally flows to the west (DWR, Department of Water Resources Bulletin No. 118-2, 1966, 1974). The principal streams in the area are Arroyo Valley Creek and Arroyo Mocho Creek, which flow toward the western end of the valley. Both creeks are greater than one half mile from the site.

2.6 Water Well Search

Delta conducted a review of the Zone 7 records in Pleasanton, California. The records indicate that eight wells at six locations exist within a 1/2 -mile radius of the site. The information provided by Zone 7 for each well site is compiled in Table 1. The locations of the wells are plotted on Figure 3. According to the Zone 7 records, five of the wells are monitoring wells, one is an active water-supply well, one is an abandoned water-supply well, and one is used for electrolysis protection.

3.0 SOIL AND GROUND WATER ASSESSMENT RESULTS

3.1 Soil Borings and Site Geology

AGS advanced fifteen soil borings from the base and sidewalls of the UST basin area of the former steel tanks at depths ranging between 7 and 24 feet below surface grade (bsg). One soil sample (S-13-NTB) was obtained from the new tank basin and six soil samples (S-3-PL1 through S-3-PL6) were collected at approximately 3 feet bsg beneath the original product line locations in August 1989. Four soil borings (B-1A and B-1 through B-3) were advanced to depths of approximately 40 feet bsg in January 1990. Soil borings B-1A, B-2, and B-3 were completed as ground water monitoring wells MW-1, MW-2, and MW-3, respectively. Nine soil borings (B-4 through B-12) were advanced to depths ranging between 31 and 42 feet bsg in June 1990. Soil borings B-10 and B-12 were completed as ground water monitoring wells MW-4 and MW-5, respectively. Two soil borings (B-13 and B-14) were advanced to approximate depths of 33 feet bsg in February 1991. One off-site soil boring B-15 was advanced to approximately 60 feet bsg and completed as ground water monitoring well MW-6 in February 1991. One off-site soil boring B-16 was advanced to approximately 46 feet bsg and completed as ground water monitoring well MW-7 in February 1991. Two soil borings (B-17 through B-18) were advanced to approximate depths of 27 feet bsg in March 1991. Soil boring B-18 was completed as vapor extraction well VE-1. Three soil borings (B-19 through B-21) were advanced to depths ranging between 25 and 26 feet bsg in March 1993. Ground water monitoring well MW-8 and vapor extraction wells VE-2 and VE-3 were installed in B-19, B-20, and B-21, respectively. The locations of the borings/wells are depicted in Figure 4.

Soil data collected during the drilling indicates the alluvial sediments underlying the site consists of silty sand, clay, and sandy clay, with interlayered lenses of silty sand and clayey sand. Figure 4 shows the traces of two geologic cross sections: cross sections A-A' and B-B'. Figures 5 and 6 illustrate the inferred subsurface lithologies along the cross sections,.

3.2 Soil Sample Analytical Results

Soil samples were collected from beneath the former steel USTs, and following additional excavation from the basin sidewalls immediately above static water. Ground water was observed at approximately 26 feet bsg. The location of the soil samples are illustrated in Figures 7 and 8.

Soil samples were submitted for chemical analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), and total petroleum hydrocarbons (TPH) as gasoline. The soil sample collected from beneath the used oil tank was also analyzed for total oil and grease, cadmium, chromium, lead and zinc. Analytical results are compiled in Table 2. Following removal and sampling beneath the former USTs, the product lines were removed. Six soil samples (S-3-PL1 through S-3-PL6) were collected beneath the former lines. These samples were analyzed for BTEX and TPH as gasoline and the analytical results are summarized in Table 3. The locations of the soil samples are shown on Figure 8. Based on information from the AGS report dated October 24, 1991, an additional foot of soil was overexcavated in the area beneath soil samples S-23-T1B, S-21-T2B and S-23-T3B, during tank replacement activities.

Soil samples were also collected for laboratory analysis from the soil borings. One to four soil samples were analyzed for BTEX, TPH as gasoline, and total lead from each boring with the exception of B-18. No samples were collected from B-18 due to its close proximity to B-13. Analytical results from soil boring samples are presented in Table 4.

3.3 Well Construction

A total of eight ground water monitoring wells (MW-1 through MW-8) and three vapor extraction wells (VE-1 through VE-3) were installed at the site. The well depths ranged from 25 to 58 feet bsg. A summary of the well construction details are included in Table 5.

3.4 Ground Water Level Measurements, Flow Direction, and Hydraulic Gradient

Depth to ground water beneath the site has been measured in the monitoring and vapor extraction wells during quarterly monitoring events between November 1989 and May 1997. Cumulative depth to ground water data is included in Table 6. Monitoring wells MW-2 through MW-5 and MW-8 were destroyed in

late 1996 and early 1997, therefore, the water table level measurements from the ground water monitoring event conducted on May 19, 1996, were used to illustrate the ground water table contours and flow direction shown in Figure 9. Ground water depth at the site is approximately 20 feet below surface grade (bsg).

3.5 Ground Water Analytical Results

Ground water samples have been collected since November 1989 for laboratory analysis of BTEX and total purgeable petroleum hydrocarbons (TPPH) as gasoline on a quarterly basis. Methyl tertiary butyl ether (MTBE) has been analyzed in ground water samples since May 1995. Cumulative analytical results are summarized in Table 6.

4.0 DISTRIBUTION OF PETROLEUM HYDROCARBONS IN SOIL

Soil sample analytical results suggest that concentrations of benzene and TPH as gasoline are highest in the location adjacent to the initial UST basin area. Figure 10 and Figure 11 illustrate the inferred distribution of benzene and TPH as gasoline in soil (plan view) between 0 to 20 feet and 20 to 40 feet bsg, respectively. Concentrations utilized in the construction of these figures were obtained from investigation activities performed since 1989. It is anticipated that current concentrations of hydrocarbons in soil are actually lower due to nearly ten years of naturally occurring bioremediative processes following the removal of the steel tanks. The inferred vertical distribution of benzene and TPH as gasoline in soil is illustrated in the cross sections shown in Figures 5 and 6.

5.0 DISTRIBUTION OF PETROLEUM HYDROCARBONS IN GROUND WATER

Concentrations of BTEX, MTBE, and TPH as gasoline in ground water were below laboratory reporting limits for four consecutive sampling quarters in samples collected from monitoring wells MW-3 through MW-8, with the following exceptions : monitoring well MW-4 contained toluene at 3.7 micrograms per liter (µg/L) on December 31, 1996 and MW-8 contained TPPH as gasoline at 79 µg/L on June 25, 1996 and toluene and total xylenes at 0.62 and 6.8 µg/L, respectively, on November 30, 1995. Concentrations of benzene have been reported in MW-1 and MW-2 within the last four consecutive quarters at a maximum concentration of 11 µg/L (MW-1). However, the benzene concentrations were below the laboratory reporting limit of 0.5 µg/L in each well during the last sampling event (May 19, 1997 for MW-1 and

September 25, 1996 for MW-2). Ground water samples collected from monitoring well MW-1 have shown a decreasing trend in BTEX and TPH as gasoline and appear to be stable in MW-2. Residual petroleum hydrocarbons in ground water appear to be stable, as the surrounding well samples exhibited a consistent history of being below the laboratory's reporting limits prior to destruction.

6.0 RISK-BASED CORRECTIVE ACTION

A RBCA Tiered analysis was performed to assess if current representative soil and ground water BTEX concentration levels at the site meet criteria established for regulatory closure. The analysis was conducted under guidance from the *Standard Guide for RBCA Applied at Petroleum Release Sites* (ASTM, 1995) and *Tier 2 Guidance Manual for Risk-Based Corrective Action* (Conner, et al., 1995).

7.0 BACKGROUND OF PRIMARY SOURCES

7.1 Chemicals of Concern

BTEX compounds have been identified as the chemicals of concern (COCs) at the site. Appendix A provides chemical characteristics, toxicity data, and physical data for these compounds. Residual petroleum hydrocarbon COCs on-site have impacted the subsurface soil. However, the impacts are limited to the immediate area of the former UST basin area between a depth of approximately 18.5 to 30 feet bsg. Based on ground water analytical results, the COCs have impacted ground water in the vicinity of the site but appear to be stable. Concentrations of BTEX were not reported in MW-6 and MW-7 during the last monitoring event conducted on June 15, 1998.

For conservative purposes, the representative concentrations for the ground water constituents were based on data collected during the last four sampling events at each well.

7.2 Primary Sources

The primary source of COCs at the site associated with the initial gasoline USTs. Activities associated with these tanks and the dispensing of fuel, impacted the subsurface soil with residual petroleum hydrocarbons. Based on the presumed location of the hydrocarbons, the ground water is not considered to

be a potential primary source, however, BTEX constituents have been reported in ground water at the site as a result of the residual petroleum hydrocarbons in the soil.

8.0 SECONDARY SOURCES

An exposure pathway evaluation was performed to assess the health risk from the impacted mediums at the site, termed secondary sources by the RBCA guidance manual. The exposure pathway evaluation is summarized in Table 7.

8.1 Impacted Surface Soil

Surface soil, defined as soil from just below the surface to a depth of three feet below grade, was not impacted by the primary source of petroleum hydrocarbons on-site. Laboratory analyses of surface soil samples S-3-PL1 through S-3-PL6 did not detect BTEX constituents. The exposure pathways for surface soil were not considered further during the RBCA analysis.

8.2 Impacted Subsurface Soil

Subsurface soil, defined as soil greater than three feet below surface grade, was impacted by the primary source of petroleum hydrocarbons on-site. For the RBCA analysis, twenty-three soil samples selected at depths ranging from 18.5 to 33 feet bsg were used to evaluate a representative source concentration value for each COC. The average concentrations from the soil sample analytical results were computed and used as the individual constituent representative concentrations in the RBCA analysis. This technique will remove anomalies while ensuring that the results are still conservative, and is in accordance with the *Tier 2 Guidance Manual for Risk-Based Corrective Action* (Conner, et al, 1995). The representative average BTEX concentrations for the collective soil source area are: benzene, 0.046 milligrams per kilogram (mg/kg); toluene, 0.055 mg/kg; ethylbenzene, 0.1 mg/kg; and total xylenes, 0.13 mg/kg. The interpreted residual source area is located in the area of the former steel gasoline UST basin. The size of the impacted area is approximately 27,400 cubic feet estimated as a volume 70 feet long by 27 feet wide by 14.5 feet deep. The subsurface soil input data for the RBCA analysis is contained in Appendix A. Values for constituents below laboratory reporting limits were computed as half the reporting limit, as per RBCA guidelines.

Three exposure pathways were considered for the RBCA evaluation for subsurface soil. The *RBCA Guidance Manual for Risk-Based Corrective Action* and associated spreadsheet models were used in the evaluation. Appendix B contains subsurface soil Tier 1 RBCA Risk-Based Screening Level (RBSL) modeling output results and risk assessment results. Appendix C contains subsurface soil Tier 2 RBCA Site Specific Threshold Limit (SSTL) modeling output results and risk assessment results. The following subsections discuss the exposure pathways assessed for the impacted subsurface soil.

8.2.1 Volatilization to Outdoor Air

The RBCA Tier 1 guidance model was used to establish RBSLs for assessing the potential pathway of petroleum hydrocarbon vapor constituents from the impacted subsurface soil to outdoor air. The model results indicate a RBSL for benzene in subsurface soil of 22 mg/kg. The representative benzene source concentration of 0.046 mg/kg is less than the computed RBSL. Representative subsurface soil concentration levels are below the Tier 1 RBSLs for this exposure pathway for toluene, ethylbenzene, and total xylenes. The modeling results are contained in Table 8.

8.2.2 Volatilization to Indoor Air

A building has been constructed on-site, and is likely to exist on-site in the future. Future use of the site is anticipated to be commercial, therefore, vapors to indoor air from impacted subsurface soil were evaluated as a potential exposure pathway. The RBCA guidance system model was used to compute appropriate RBSLs for this potential exposure pathway. The RBSL model is conservative because it assumes vapor equilibrium with soil, no decay of COCs, and an infinite source. The model also assumes that a building will be placed directly above the impacted soil.

8.2.2.1 Tier 1 Volatilization to Indoor Air

The model estimated a RBSL of 0.01 mg/kg for benzene for this exposure pathway. The representative benzene source concentration is 0.046 mg/kg, and exceeds the RBSL for this exposure pathway. A RBSL was calculated by the Tier 1 model for toluene and resulted in a value of 70 mg/kg. The representative toluene source concentration of 0.055 mg/kg is below the RBSL criteria. Similarly, the representative concentrations for ethylbenzene and total xylenes were less than RBSL values calculated for those constituents. The Tier 1 modeling results are summarized in Table 8. Since the Tier 1 RBSL value was exceeded for benzene, a Tier 2 analysis was performed for this pathway.

8.2.2.2 Tier 2 Volatilization to Indoor Air

A Tier 2 analysis was performed for this pathway because the benzene RBSL was exceeded. The Tier 2 analysis was performed to compute a SSTL concentration value, using additional site specific input information in the analysis. The Tier 2 modeling results are summarized in Table 8 and the input information is included in Appendix C. The model estimated a SSTL of 0.047 mg/kg for benzene. The representative benzene source concentration (0.046 mg/kg) is less than the SSTL for this exposure pathway.

As previously stated in Section 8.2.2, the model is conservative due to the assumptions that soil vapor is in equilibrium with the soil, that there has not been and will not be any decay of COCs, that there is an infinite source, and that the building is placed entirely over the impacted soil. Data utilized in this model have been collected since 1989 and do not evaluate the decay or remediation of hydrocarbons by naturally occurring processes that have occurred at the site. The model also assumes that the building will encompass the entire lateral extent of impacted soil. Figure 12 shows the inferred lateral extent of hydrocarbons remaining in soil and the location of the recently constructed building. Although the building overlies a portion of the affected area, it does not encompass the entire affected area. By not covering the entire affected area, a reduction in the representative source concentration for benzene (0.046 mg/kg) for volatilization to indoor air would be observed.

8.2.3 Leaching to Ground Water

The exposure pathway of residual BTEX constituents from impacted subsurface soil leaching to ground water was considered to ensure protection of ground water. The RBCA model estimated a benzene RBSL of 0.23 mg/kg for this exposure pathway for a commercial well located on-site. The model is conservative because it does not allow for natural attenuation of the leachate and assumes equilibrium between the absorbed soil phase and aqueous phases. The results indicate that the representative benzene concentration in ground water (0.046 mg/kg) does not exceed the RBSL criteria for this exposure pathway. The representative toluene, ethylbenzene, and total xylenes also do not exceed the computed individual RBSLs for this exposure pathway. The modeling results for this potential pathway are contained in Table 8.

8.3 Impacted Ground Water

8.3.1 Vapors to Outdoor Air

Ground water at the site averages 20 feet bsg, thus the emission potential from vapors in the ground water to outdoor air is not likely. This pathway was considered however, for conservative purposes. The computed benzene RBSL for the potential exposure pathway of vaporization from ground water to outdoor air is 30 µg/L. The representative benzene concentration in ground water (0.00057 µg/L) is less than the computed RBSL for this exposure. The remaining BTEX constituent RBSL values were greater than the solubility of each constituent in water. The RBSL ground water results are summarized in Table 9.

8.3.2 Vapors to Indoor Air

Since the site is predominantly paved and will likely remain so in the future, petroleum hydrocarbon vapors are unlikely to be released from the ground water to an enclosed space (indoor air), however, this pathway was considered for conservative purposes. The representative benzene concentration in ground water (0.00057 µg/L) does not exceed the computed RBSL (0.023 µg/L) for this pathway. The computed RBSL for toluene (92 µg/L) is greater than the representative toluene concentration (0.00052 µg/L). The computed RBSLs for total xylenes and ethylbenzene are greater than the solubility of each respective constituent representative concentrations in water. The RBSL ground water results for this exposure pathway are summarized in Table 9.

8.3.3 Ingestion

Ground water beneath the site in the shallow unconfined aquifer has been impacted by petroleum hydrocarbons. The nearest drinking water well to the site is approximately one-half mile north of the site, thus it is unlikely residual petroleum hydrocarbons in ground water at the site will impact drinking water. The exposure pathway of ingestion was considered for a commercial well on-site to conservatively ensure the protection of the ground water supply.

The RBCA analysis model estimated a ground water benzene RBSL of 0.0029 µg/L. The representative benzene concentration is 0.00057 µg/L, which is less than the computed RBSL value. Toluene, ethylbenzene, and total xylenes have representative concentrations below the respective RBSLs for this

potential exposure pathway as well. The RBSL ground water results and representative concentrations are summarized in Table 9.

8.4 Exposure to Surface Water

No surface water bodies exist within a one mile radius of the site. It is unlikely that exposure from residual hydrocarbons in either the subsurface soil or ground water will impact any surface water bodies in the vicinity of the site. Additionally, there is no sensitive habitat or recreational use of surface water within one mile of the site.

9.0 CONCLUSIONS

A RBCA analysis was performed for former Exxon Service Station No. 7-7003, located at 349 Main Street, Pleasanton, California. The RBCA analysis indicates that the current representative BTEX concentrations in ground water do not exceed the conservative Tier 1 RBSLs computed for the investigated pathways. The RBCA analysis results indicate that the representative benzene concentration in subsurface soil exceeded the Tier 1 RBSL, however, the Tier 2 (more specific) SSTL concentration was not exceeded. The results of the RBCA analysis indicate that the residual hydrocarbons remaining at the site do not appear to be at concentration levels which exceed a human health-based risk of one in one million. Based on the results of the RBCA analysis and current site conditions, Delta recommends the site be evaluated for closure.

10.0 REMARKS/SIGNATURES

The interpretations contained in this report represent our professional opinions and are based, in part, on information supplied by the client. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

A copy of this report should be forwarded to the following agencies:

Mr. Scott Seery
Alameda County
Environmental Health Department
1131 Harbor Bay Parkway
Alameda, California 94501-6577

Mr. Dennis Mishek
California Regional Water Quality Control Board,
San Francisco Region
2101 Webster Street, Suite 500
Oakland, California 94612

Mr. David Lunn
Alameda County Flood Control and Water
Conservation District - Zone 7
5997 Parkside Drive
Pleasanton, California 94566

PREPARED BY:

DELTA ENVIRONMENTAL CONSULTANTS, INC.

Michael Berrington
Project Geologist

8/21/98
Date

REVIEWED BY:

James R. Brownell, R.G.
Project Manager
California Registered Geologist No. 5078

8/21/98
Date

REGISTERED GEOLOGIST
JAMES R. BROWNELL
No. 5078
EXP. 8/31/00
STATE OF CALIFORNIA

REFERENCES

American Industrial Health Council, 1994, Exposure Factors Sourcebook.

American Society of Testing Materials (ASTM), 1991. *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites*, ASTM E-1739, Philadelphia, PA.

Conner, J.A., J.P. Nevin, M. Malander, C. Stanley, G. DeVaull, 1995, *Tier 2 RBCA Guidance Manual for Risk Based Corrective Action*, Ground Water Services, Inc.

USEPA, 1989, *Exposure Factors Handbook*, EPA / 600 / 8-89 / 043, NTIS No. PB90-10677.

USEPA, 1991, *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual Supplemental Guidance: Standard Default Exposure Factors*, Interim Final, OSWER Directive 9285.6-03, NTIS NO. PB91-921314.

USEPA, 1992, *Dermal Exposure Assessment: Principles and Applications, Interim Report*, EPA / 600 / 8-91 / 011B.

USEPA, 1994, *How to Evaluate Alternative Clean Up Technologies for Underground Storage Tank Sites - A Guide for Corrective Action Plan Reviewers*, EPA 510-B-94-003, Chapter IX.

U.S. Department of Agriculture Soil Conservation Service, 1978.

TABLE 1

WATER WELLS WITHIN A 1/2 MILE RADIUS

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Well Location Number[a]	Well Type	Well Owner	Well Location	Well Status	Screen Interval	Well Depth	Year Well Installed	Number of Wells
1	Water Supply	Unknown	Vervais Ave. & Santa Rita	Active	Unknown	82	Unknown	1
2	Water Supply	Unknown	4558 2nd Street	Abandoned	Unknown	35	Unknown	1
3	Monitoring	Unknown	Case Ave. & Bernal Ave.	Monitoring	Unknown	25	Unknown	1
4	Electrolysis	Unknown	249 Main Street	Protection	Unknown	Unknown	Unknown	1
5	Monitoring	Unknown	1st Street & Bernal Ave.	Monitoring	Unknown	28.5 - 95	Unknown	3
6	Monitoring	Unknown	200 Bernal Ave.	Monitoring	Unknown	72	Unknown	1

[a] Well number corresponds to that shown on Figure 3.

NOTE: Data based on Alameda County Flood Control and Water Conservation District records.

TABLE 2

SOIL SAMPLE ANALYTICAL RESULTS FROM TANK REMOVAL ACTIVITIES

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Sample ID	Date Sampled	Sample Location	Depth (feet)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TPH as gasoline (mg/kg)	TPH as diesel (mg/kg)	Total Oil and Grease (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	Zinc (mg/kg)
S-14-T1A	08/01/89	Tank Basin	14	<0.1	<0.1	<0.1	<0.1	<1.0	NA	NA	NA	NA	NA	NA
S-14-T2A	08/01/89	Tank Basin	14	<0.1	<0.1	<0.1	<0.1	<1.0	NA	NA	NA	NA	NA	NA
S-14-T3A	08/01/89	Tank Basin	14	<0.1	<0.1	<0.1	<0.1	<1.0	NA	NA	NA	NA	NA	NA
S-23-T1B	08/01/89	Tank Basin	23	0.5	<0.1	<0.1	<0.1	150	NA	NA	NA	NA	NA	NA
S-21-T2B	08/01/89	Tank Basin	21	<0.1	<0.1	<0.1	<0.1	2.2	NA	NA	NA	NA	NA	NA
S-23-T3B	08/01/89	Tank Basin	23	0.3	0.2	<0.1	<0.1	130	NA	NA	NA	NA	NA	NA
S-20-NWE	08/01/89	Tank Pit Wall	20	<0.1	<0.1	<0.1	<0.1	1.3	NA	NA	NA	NA	NA	NA
S-20-NWW	08/01/89	Tank Pit Wall	20	<0.1	<0.1	<0.1	<0.1	<1.0	NA	NA	NA	NA	NA	NA
S-20-WW	08/01/89	Tank Pit Wall	20	<0.1	<0.1	4.5	1.4	15	NA	NA	NA	NA	NA	NA
S-7-WOT	08/01/89	Used Oil Tank Pit	7	<0.1	<0.1	<0.1	<0.1	<1.0	<5.0	<50	<0.1	42	13	44
S-15-CPE	08/02/89	Tank Basin	15	<0.1	<0.1	<0.1	<0.1	<1.0	NA	NA	NA	NA	NA	NA
S-15-CPW	08/02/89	Tank Basin	15	<0.1	<0.1	<0.1	<0.1	<1.0	NA	NA	NA	NA	NA	NA
S-24-T1B	08/02/89	Tank Basin	24	<0.1	<0.1	<0.1	<0.1	<1.0	NA	NA	NA	NA	NA	NA
S-24-T3B	08/02/89	Tank Basin	24	2.7	<0.1	15	2.8	40	NA	NA	NA	NA	NA	NA
S-24-T1B'	08/03/89	Tank Basin	24	<0.1	<0.1	<0.1	<0.1	4.3	<5	NA	NA	NA	NA	NA
S-13-NPB	08/04/89	New Tank Basin	13	<0.1	<0.1	<0.1	<0.1	<1.0	10	NA	NA	NA	NA	NA

TPH = Total petroleum hydrocarbons.
mg/kg = Concentrations in milligrams per kilogram.

NOTE: Samples collected by Applied GeoSystems.

TABLE 3

SOIL SAMPLE ANALYTICAL RESULTS FROM PRODUCT LINE REMOVAL ACTIVITIES

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Sample	Date	Depth (feet)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TPH as gasoline (mg/kg)
S-3-PL1	08/08/89	3	<0.1	<0.1	<0.1	<0.1	<1.0
S-3-PL2	08/08/89	3	<0.1	<0.1	<0.1	<0.1	<1.0
S-3-PL3	08/08/89	3	<0.1	<0.1	<0.1	<0.1	<1.0
S-3-PL4	08/08/89	3	<0.1	<0.1	<0.1	<0.1	<1.0
S-3-PL5	08/08/89	3	<0.1	<0.1	<0.1	<0.1	<1.0
S-3-PL6	08/08/89	3	<0.1	<0.1	<0.1	<0.1	<1.0

TPH = Total petroleum hydrocarbons.

mg/kg = Concentrations in milligrams per kilogram.

TABLE 4

SOIL SAMPLE ANALYSIS FROM DRILLING ACTIVITIES

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Sample I.D.	Date Collected	Depth (feet)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TPH[a] as gasoline (mg/kg)	Total Lead (mg/kg)
S-11-B1	02/14/90	11.0	<0.05	<0.05	<0.05	<0.05	<2.0	NA
S-21-B1	02/14/90	21.0	0.061	0.32	9.7	17	320	6.4
S-33-B1	02/14/90	33.0	<0.05	<0.05	<0.05	0.2	4.3	NA
MW-1/S-16-B1A	02/15/90	16.0	<0.05	<0.05	<0.05	<0.05	<2.0	NA
S-25.5-B1A	02/15/90	25.5	<0.05	<0.05	0.94	1.3	52	8.3
S-30.5-B1A	02/15/90	30.5	<0.05	<0.05	<0.05	<0.05	<2.0	NA
MW-2/S-20-B2	02/14/90	20.0	<0.05	<0.05	<0.05	<0.05	<2.0	NA
S-25.5-B2	02/14/90	25.5	<0.05	<0.05	<0.05	<0.05	<2.0	5.2
S-30.5-B2	02/14/90	30.5	0.086	0.3	0.066	0.4	17	NA
MW-3/S-20-B3	02/14/90	20.0	<0.05	<0.05	<0.05	0.11	<2.0	NA
S-25-B3	02/14/90	25.0	<0.05	<0.05	<0.05	<0.05	<2.0	6.8
S-33-B3	02/14/90	33.0	<0.05	<0.05	<0.05	<0.05	<2.0	NA
S-18.5-B4	05/29/90	18.5	<0.005	0.0067	<0.005	<0.005	<1.0	NA
S-21-B4	05/29/90	21.0	0.02	0.016	0.066	1.1	13	6.4
S-26-B4	05/29/90	26.0	<0.005	0.018	<0.005	<0.005	<1.0	NA
S-18.5-B5	05/30/90	18.5	<0.005	0.025	<0.005	<0.005	2.3	NA
S-21-B5	05/30/90	21.0	5.5	5.3	33	35	1,400	14
S-26.5-B5	05/30/90	26.5	<0.005	0.0088	<0.005	<0.005	<1.0	NA
S-18.5-B6	05/30/90	18.5	<0.005	0.054	<0.005	<0.005	<1.0	NA
S-26-B6	05/30/90	26.0	2.1	0.55	1.2	0.86	180	12
S-28.5-B6	05/30/90	28.5	0.0054	0.018	0.0039	<0.005	<1.0	NA
S-18.5-B7	05/30/90	18.5	0.0073	0.029	0.009	0.02	3.5	NA
S-26-B7	05/30/90	26.0	0.011	0.05	0.042	0.018	<1.0	14
S-31-B7	05/30/90	31.5	0.0081	0.028	<0.005	0.015	<1.0	NA
S-18.5-B8	05/31/90	18.5	<0.005	0.027	<0.005	<0.005	<1.0	NA
S-26-B8	05/31/90	26.0	0.0058	0.011	<0.005	<0.005	<1.0	5.7
S-31-B8	05/31/90	31.0	0.016	0.038	<0.005	<0.005	<1.0	NA
S-21-B9	05/31/90	21.0	<0.005	0.014	<0.005	0.0058	<1.0	NA
S-26-B9	05/31/90	26.0	<0.005	0.012	<0.005	<0.005	<1.0	4.9
S-31-B9	05/31/90	31.0	<0.005	0.034	<0.005	0.0057	<1.0	NA

TABLE 4

SOIL SAMPLE ANALYSIS FROM DRILLING ACTIVITIES

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Sample I.D.	Date Collected	Depth (feet)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TPH[a] as gasoline (mg/kg)	Total Lead (mg/kg)
MW-4/S-16-B10	05/31/90	16.0	<0.005	<0.005	<0.005	0.013	<1.0	NA
S-23.5-B10	05/31/90	23.5	<0.005	0.0055	<0.005	<0.005	<1.0	7.2
S-31-B10	05/31/90	31.0	<0.005	0.033	<0.005	0.014	<1.0	NA
S-43.5-B10	05/31/90	43.5	<0.005	0.036	<0.005	0.0062	<1.0	NA
S-18.5-B11	06/01/90	18.5	<0.005	0.022	<0.005	<0.005	<1.0	NA
S-21-B11	06/01/90	21.0	<0.005	<0.005	<0.005	<0.005	<1.0	5.5
S-28.5-B11	06/01/90	28.5	<0.005	0.014	<0.005	<0.005	<1.0	NA
MW-5/S-21-B12	06/04/90	21.0	<0.005	<0.005	<0.005	0.026	<1.0	3.8
S-28.5-B12	06/04/90	28.5	<0.005	<0.005	<0.005	0.015	<1.0	NA
S-21-B13	02/27/91	21.0	<0.005	<0.005	<0.005	<0.005	<1.0	<0.5
S-21.5-B13	02/27/91	23.5	<0.005	<0.005	5.3	3.9	580	<0.5
S-21-B14	02/27/91	21.0	<0.005	<0.005	<0.005	<0.005	<1.0	<0.5
S-23.5-B14	02/27/91	23.5	<0.005	<0.005	<0.005	<0.005	<1.0	<0.5
MW-6/S-26-B15	02/28/91	26.0	<0.005	<0.005	<0.005	0.007	<1.0	<0.5
MW-7/S-23.5-B16	03/01/91	23.5	<0.005	<0.005	<0.005	<0.005	<1.0	<0.5
MW-7/S-31-B16	03/01/91	31.0	<0.005	<0.005	<0.005	<0.005	<1.0	<0.5
S-16-B17	03/07/91	16.0	<0.005	<0.005	<0.005	0.011	<1.0	<0.5
S-23-B17	03/07/91	23.0	0.041	0.075	0.041	0.053	15	<0.5
MW-8/S-5-B19	05/04/93	5.0	<0.005	<0.005	<0.005	<0.005	<1.0	NA
MW-8/S-10-B19	05/04/93	10.0	<0.005	<0.005	<0.005	<0.005	<1.0	NA
MW-8/S-15-B19	05/04/93	15.0	<0.005	<0.005	<0.005	<0.005	<1.0	NA
MW-8/S-17.5-B19	05/04/93	17.5	<0.005	<0.005	<0.005	<0.005	<1.0	NA
MW-8/S-25.5-B19	05/04/93	25.5	<0.005	<0.005	<0.005	<0.005	<1.0	NA
VE-2/S-5-B20	05/03/93	5.0	<0.005	<0.005	<0.005	<0.005	<1.0	NA
VE-2/S-10-B20	05/03/93	10.0	<0.005	<0.005	<0.005	<0.005	<1.0	NA
VE-2/S-15-B20	05/03/93	15.0	<0.005	<0.005	<0.005	<0.005	<1.0	NA
VE-2/S-20-B20	05/03/93	18.0	<0.005	<0.005	<0.005	<0.005	<1.0	NA
VE-2/S-24.5-B20	05/03/93	24.5	<0.005	<0.005	<0.005	<0.005	<1.0	NA

TABLE 4

SOIL SAMPLE ANALYSIS FROM DRILLING ACTIVITIES

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Sample I.D.	Date Collected	Depth (feet)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TPH[a] as gasoline (mg/kg)	Total Lead (mg/kg)
VE-3/S-5-B21	05/03/93	5.0	<0.005	<0.005	<0.005	<0.005	<1.0	NA
VE-3/S-5-B21	05/03/93	10.0	<0.005	<0.005	<0.005	<0.005	<1.0	NA
VE-3/S-5-B21	05/03/93	15.0	<0.005	<0.005	<0.005	<0.005	<1.0	NA
VE-3/S-5-B21	05/03/93	17.5	<0.005	<0.005	<0.005	<0.005	<1.0	NA

[a] Low to medium boiling point hydrocarbons

TPH = Total petroleum hydrocarbons.
NA = Not analyzed.

Note: Samples from borings by Applied Geo Systems

TABLE 5

SUMMARY OF MONITORING WELL CONSTRUCTION DETAILS

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Well I.D.	Date Installed	Status	Diameter (inches)	Total Depth (feet)	Slotted Interval (feet)	Slot Size (inches)	Sand Interval (feet)	Bentonite Interval (feet)	Grout Interval (feet)
B1A/MW-1	02/15/90	Inoperable	4	40.0	38.5-24	0.020	38.5-23	23-21	21-0
B-2/MW-2	02/13/90	Destroyed 11/27/96	4	41.0	40-26	0.020	40-25	25-23	23-0
B-3/MW-3	02/14/90	Destroyed 04/14/97	4	40.5	40-25	0.020	40-23	23-20	20-0
B-10/MW-4	05/31/90	Destroyed 04/14/97	4	48.5	47-37	0.020	47-36	36-35	35-0
B-12/MW-5	06/04/90	Destroyed 04/14/97	4	35.0	35-24	0.020	35-23	23-21	21-0
B-15/MW-6	02/28/91	Active	4	58.0	58-38	0.020	58-36	36-35	35-0
B-16/MW-7	03/01/91	Active	4	46.5	46.5-28	0.020	46.5-26	26-25	25-0
B-19/MW-8	05/04/93	Destroyed 11/27/96	4	26.0	26-17	0.010	26-15	15-13.5	13.5-0
B-18/VE-1	03/07/91	Destroyed 04/14/97	2	27.0	27-16.5	0.010	27-16	16-15	15-0
B-20/VE-2	05/03/93	Destroyed 04/14/97	4	25.0	25-11	0.010	25-9.5	9.5-8.5	8.5-0
B-21/VE-3	05/03/93	Destroyed 04/14/97	4	25.5	25.5-13	0.010	25.5-11	11-9.5	9.5-0

TABLE 6

GROUND WATER MONITORING DATA

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Monitoring Well	Date	Reference Elevation (feet)	Depth to Ground Water (feet)	Ground Water Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPPH as gasoline (µg/L)	Lead (ppm)	Total Oil and Grease (ppm)	VOC (µg/L)	MTBE (µg/L)	Comments
MW-1	02/23/90	343.83	26.08	317.75	21	9.2	59	19	3,300	100	NA	NA	NA	No LPH
	06/15/90		26.49	317.34	7.9	5.9	32	58	1,300	<50	NA	NA	NA	No LPH
	08/01/90		26.47	317.36	77	280	50	250	2,500	<50	NA	NA	NA	No LPH
	12/18/90		28.00	315.83	9.0	2.0	43	400	390	<100	NA	NA	NA	No LPH
	03/19/91		23.63	320.20	45	12	240	300	4,500	<100	NA	12.0[a]	NA	No LPH
	06/27/91		22.11	321.72	5.4	2.6	29	34	710	<100	NA	ND	NA	No LPH
	09/26/91		27.75	316.08	1.9	<0.5	0.6	0.6	290	<100	NA	ND	NA	No LPH
	01/10/92		25.61	318.22	52	15	690	496	5,400	<100	NA	6.1[a]	NA	No LPH
	03/12-13/92		22.52	321.31	87	22	1,200	1,000	1,400	NA	NA	14[a], 2.1[b], 1.2[c] 0.5[d], 0.8[e]	NA	No LPH
	06/09/92		21.53	322.30	27	5.9	400	300	4,500	<100	<5,000	ND	NA	No LPH
	09/28-29/92		29.84	313.99	<0.5	0.9	<0.5	<0.5	60	NA	<5,000	ND	NA	No LPH
	12/12/92		23.86	319.97	53	18	1,100	570	1,400	NA	<5,000	49[a]	NA	No LPH
	02/02-03/93		19.00	324.83	61	27	900	840	10,000	NA	<5,000	19[a], 2.2[b] 1.1[d],2.4[e]	NA	No LPH
	06/08-09/93		16.62	327.21	42	32	970	720	7,500	NA	<5,000	1.8[a], 1.0[c], 0.8[e]	NA	No LPH
	09/22-23/93		19.63	324.20	36	34	820	540	6,600	NA	<5,000	0.6[e]	NA	No LPH
	11/17-18/93		20.82	323.01	24	10	470	300	5,900	NA	NA	ND	NA	No LPH
	02/16-17/94		21.47	322.36	42	15	470	330	6,700	NA	NA	ND	NA	No LPH
	05/12-13/94		19.78	324.05	26	9.4	400	210	4,000	NA	<5,000	ND	NA	No LPH
	09/07/94		21.16	322.67	3.5	2.0	17	18	170	NA	NA	ND	NA	No LPH
	12/02/94		NM	NC	NS	NS	NS	NS	NS	NS	NS	NS	NS	Dry
	03/06/95		18.70	325.13	9.8	5.2	130	80	1,500	NA	NA	ND	NA	No LPH
	05/30/95		17.70	326.13	41	14	480	270	6,200	NA	NA	ND	<50	No LPH
	09/06/95		20.21	323.62	8.1	5.7	120	65	1,500	NA	NA	NA	<12	No LPH
	11/30/95		21.47	322.36	1.9	0.7	5.3	5.5	77	NA	NA	NA	<5.0	No LPH
	03/28/96		15.45	328.38	54	5.8	420	210	6,700	NA	NA	NA	<50	No LPH
	06/25/96		18.91	324.92	17	12	110	72	1,600	NA	NA	NA	11	No LPH
	09/25/96		21.10	322.73	11	5.1	37	36	500	NA	NA	NA	<5.0	No LPH
	12/31/96		19.38	324.45	11	7.0	48	41	540	NA	NA	NA	<5.0	No LPH
	05/19/97		17.64	326.19	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	09/17/97		NM	NC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM
	12/23/97		NM	NC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM
	03/24/98		NM	NC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM
	06/15/98		NM	NC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM

TABLE 6

GROUND WATER MONITORING DATA

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Monitoring Well	Date	Reference Elevation (feet)	Depth to Ground Water (feet)	Ground Water Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPPH as gasoline (µg/L)	Lead (ppm)	Total Oil and Grease (ppm)	VOC (µg/L)	MTBE (µg/L)	Comments
MW-2	02/23/90	344.22	26.31	317.91	3.0	2.0	0.98	6.5	650	8.0	NA	NA	NA	No LPH
	06/15/90		26.25	317.97	<0.5	2.6	<0.5	<0.5	670	<50	NA	NA	NA	No LPH
	08/01/90		26.15	318.07	24	130	37	170	1,300	<50	NA	NA	NA	No LPH
	12/18/90		27.94	316.28	<0.3	0.5	1.0	3.0	470	<100	NA	NA	NA	No LPH
	03/19/91		23.41	320.81	10	3.4	6.1	3.8	700	<100	NA	ND	NA	No LPH
	06/27/91		21.63	322.59	8.7	2.1	8.8	33	1,400	<100	NA	ND	NA	No LPH
	09/26/91		27.19	317.03	<0.5	0.6	0.6	3.9	300	<100	NA	ND	NA	No LPH
	01/10/92		25.67	318.55	9.3	1.0	2.4	3.2	800	<100	NA	ND	NA	No LPH
	03/12-13/92		22.28	321.94	<0.5	0.6	0.63	1.0	350	NA	NA	ND	NA	No LPH
	06/09/92		21.17	323.05	1.9	2.5	2.51	5.1	150	<100	NA	ND	NA	No LPH
	09/28-29/92		29.58	314.64	<0.5	<0.5	<0.5	<0.5	71	NA	NA	ND	NA	No LPH
	12/12/92		NM	NC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM
	02/02-03/93		18.69	325.53	3.9	8.2	21	20	720	NA	NA	NA	NA	No LPH
	06/08-09/93		16.32	327.90	0.5	3.3	5.7	2.0	160	NA	NA	NA	NA	No LPH
	09/22-23/93		19.43	324.79	0.7	5.6	4.0	2.6	240	NA	NA	NA	NA	No LPH
	11/17-18/93		20.56	323.66	1.2	2.3	3.2	1.3	490	NA	NA	NA	NA	No LPH
	02/16-17/94		20.93	323.29	<0.5	2.3	1.0	2.0	280	NA	NA	NA	NA	No LPH
	05/12-13/94		19.64	324.58	<0.5	0.7	0.6	3.8	100	NA	NA	NA	NA	No LPH
	09/07/94		20.93	323.29	<0.5	<0.5	3.8	2.9	410	NA	NA	NA	NA	No LPH
	12/02/94		20.39	323.83	<0.5	<0.5	<0.5	<0.5	55	NA	NA	NA	NA	No LPH
	03/06/95		18.66	325.56	<0.5	<0.5	<0.5	<0.5	190	NA	NA	NA	NA	No LPH
	05/30/95		17.69	326.53	0.55	<0.5	<0.5	<0.5	58	NA	NA	NA	<2.5	No LPH
	09/06/95		20.18	324.04	<0.5	<0.5	<0.5	<0.5	81	NA	NA	NA	<2.5	No LPH
	11/30/95		21.17	323.05	3.4	<0.5	<0.5	0.85	200	NA	NA	NA	<5.0	No LPH
	03/28/96		NM	NC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM
	06/25/96		18.91	325.31	1.4	<0.5	<0.5	<0.5	68	NA	NA	NA	<5.0	No LPH
	09/25/96		20.92	323.30	<0.5	<0.5	<0.5	<0.5	170	NA	NA	NA	<5.0	No LPH
	11/27/96		Well destroyed											

TABLE 6

GROUND WATER MONITORING DATA

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Monitoring Well	Date	Reference Elevation (feet)	Depth to Ground Water (feet)	Ground Water Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPPH as gasoline (µg/L)	Lead (ppm)	Total Oil and Grease (ppm)	VOC (µg/L)	MTBE (µg/L)	Comments
MW-3	02/23/90	342.70	24.78	317.92	<0.5	<0.5	<0.5	<0.5	<20	100	NA	NA	NA	No LPH
	06/15/90		25.29	317.41	<0.5	<0.5	<0.5	<0.5	200	<50	NA	NA	NA	No LPH
	08/01/90		25.40	317.30	54	380	23	400	3,200	<50	NA	NA	NA	No LPH
	12/18/90		26.84	315.86	8.0	12	6.0	24	200	<100	<5,000	4.1[e]	NA	No LPH
	03/19/91		22.13	320.57	<0.5	<0.5	<0.5	<0.5	<50	<100	<5,000	ND	NA	No LPH
	06/27/91		21.04	321.66	<0.5	<0.5	<0.5	<0.5	<50	<100	<5,000	ND	NA	No LPH
	09/26/91		26.63	316.07	<0.5	<0.5	<0.5	<0.5	<50	<100	<5,000	ND	NA	No LPH
	01/10/92		24.26	318.44	<0.5	<0.5	<0.5	<0.5	<50	<100	5,100	ND	NA	No LPH
	03/12-13/92		21.60	321.10	<0.5	<0.5	<0.5	<0.5	<50	NA	5,000	ND	NA	No LPH
	06/09/92		20.88	321.82	<0.5	<0.5	<0.5	<0.5	<50	<100	<5,000	ND	NA	No LPH
	09/28-29/92		28.67	314.03	<0.5	<0.5	<0.5	<0.5	<50	NA	<5,000	ND	NA	No LPH
	12/12/92		20.73	321.97	<0.5	<0.5	<0.5	1.3	<50	NA	<5,000	NA	NA	No LPH
	02/02-03/93		19.30	323.40	<0.5	<0.5	<0.5	<0.5	<50	NA	<5,000	NA	NA	No LPH
	06/08-09/93		15.89	326.81	0.6	0.9	3.4	2.8	<50	NA	<5,000	NA	NA	No LPH
	09/22-23/93		18.63	324.07	<0.5	1.0	1.6	4.4	<50	NA	NA	NA	NA	No LPH
	11/17-18/93		19.97	322.73	<0.5	<0.5	<0.5	1.5	<50	NA	NA	NA	NA	No LPH
	02/16-17/94		20.64	322.06	1.5	5.3	1.6	9.2	<50	NA	NA	NA	NA	No LPH
	05/12-13/94		18.32	324.38	<0.5	0.8	<0.5	2.8	<50	NA	NA	NA	NA	No LPH
	09/07/94		20.52	322.18	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	12/02/94		19.59	323.11	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	03/06/95		16.98	325.72	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	05/30/95		16.65	326.05	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	09/06/95		18.86	323.84	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	11/30/95		20.76	321.94	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	03/28/96		14.93	327.77	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	06/25/96		17.85	324.85	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	09/25/96		20.29	322.41	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	12/31/96		17.82	324.88	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	04/14/97		Well destroyed											

TABLE 6

GROUND WATER MONITORING DATA

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Monitoring Well	Date	Reference Elevation (feet)	Depth to Ground Water (feet)	Ground Water Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPPH as gasoline (µg/L)	Lead (ppm)	Total Oil and Grease (ppm)	VOC (µg/L)	MTBE (µg/L)	Comments
MW-4	06/15/90	343.38	30.94	312.44	<0.5	<0.5	<0.5	<0.5	<20	<50	NA	NA	NA	No LPH
	08/01/90		31.21	312.17	5.2	5.4	5.4	9.9	120	<50	NA	NA	NA	No LPH
	12/18/90		32.86	310.52	7.0	1.0	<0.3	2.0	50	<100	NA	NA	NA	No LPH
	03/19/91		26.76	316.62	1.8	0.8	2.2	11	160	<100	NA	ND	NA	No LPH
	06/27/91		25.91	317.47	<0.5	<0.5	<0.5	<0.5	<50	<100	NA	ND	NA	No LPH
	09/26/91		32.29	311.09	<0.5	<0.5	<0.5	<0.5	<50	<100	NA	1.0[e]	NA	No LPH
	01/10/92		29.06	314.32	0.9	<0.5	7.6	4.4	98	<100	NA	1.0[e]	NA	No LPH
	03/12-13/92		24.25	319.13	1.2	<0.5	5.3	4.3	82	NA	NA	ND	NA	No LPH
	06/09/92		25.00	318.38	0.6	1.0	<0.5	2.5	<50	<100	NA	0.7[e]	NA	No LPH
	09/28-29/92		34.41	308.97	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	ND	NA	No LPH
	12/12/92		30.77	312.61	1.0	0.9	7.0	11	99	NA	NA	ND	NA	No LPH
	02/02-03/93		21.03	322.35	2.3	2.2	6.2	8.4	170	NA	NA	ND	NA	No LPH
	06/08-09/93		18.35	325.03	0.7	0.9	0.7	<0.5	<50	NA	NA	0.6[e]	NA	No LPH
	09/22-23/93		21.86	321.52	0.8	2.0	3.1	5.3	59	NA	NA	ND	NA	No LPH
	11/17-18/93		22.98	320.40	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	ND	NA	No LPH
	02/16-17/94		23.94	319.44	8.7	17	4.2	24	98	NA	NA	0.5[e]	NA	No LPH
	05/12-13/94		22.30	321.08	0.8	0.9	0.7	6.1	<50	NA	NA	ND	NA	No LPH
	09/07/94		23.44	319.94	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	ND	NA	No LPH
	12/02/94		23.07	320.31	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	ND	NA	No LPH
	03/06/95		20.52	322.86	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	ND	NA	No LPH
	05/30/95		19.16	324.22	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	ND	<2.5	No LPH
	09/06/95		22.26	321.12	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	11/30/95		23.67	319.71	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	03/28/96		16.50	326.88	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	06/25/96		20.38	323.00	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	09/25/96		23.16	320.22	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	12/31/96		22.55	320.83	<0.5	3.7	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	04/14/97		Well destroyed											

TABLE 6

GROUND WATER MONITORING DATA

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Monitoring Well	Date	Reference Elevation (feet)	Depth to Ground Water (feet)	Ground Water Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPPH as gasoline (µg/L)	Lead (ppm)	Total Oil and Grease (ppm)	VOC (µg/L)	MTBE (µg/L)	Comments
MW-5	06/15/90	345.20	26.94	318.26	<0.5	<0.5	<0.5	<0.5	<20	60	NA	NA	NA	No LPH
	08/01/90		26.90	318.30	9.7	12	7.6	17	120	<50	NA	NA	NA	No LPH
	12/18/90		28.31	316.89	2.0	3.5	2.0	8.0	50	<100	NA	NA	NA	No LPH
	03/19/91		23.98	321.22	<0.5	<0.5	<0.5	<0.5	160	<100	NA	NA	NA	No LPH
	06/27/91		22.41	322.79	<0.5	<0.5	<0.5	<0.5	<50	<100	NA	0.5[a]	NA	No LPH
	09/26/91		27.77	317.43	<0.5	<0.5	<0.5	<0.5	<50	<100	NA	ND	NA	No LPH
	01/10/92		26.38	318.82	<0.5	<0.5	<0.5	0.6	98	<100	NA	ND	NA	No LPH
	03/12-13/92		22.08	323.12	<0.5	<0.5	<0.5	<0.5	82	NA	NA	ND	NA	No LPH
	06/09/92		31.98	313.22	NS	NS	NS	NS	NS	NS	NS	NS	NS	No LPH
	09/28-29/92		30.26	314.94	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	12/12/92		27.20	318.00	0.9	11	0.5	3.1	210	NA	NA	ND	NA	No LPH
	02/02-03/93		20.01	325.19	<0.5	2.7	<0.5	0.9	70	NA	NA	NA	NA	No LPH
	06/08-09/93		16.80	328.40	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	09/22-23/93		20.28	324.92	1.0	<0.5	1.1	2.1	<50	NA	NA	NA	NA	No LPH
	11/17-18/93		21.19	324.01	<0.5	<0.5	<0.5	0.9	<50	NA	NA	NA	NA	No LPH
	02/16-17/94		21.61	323.89	1.2	4.3	1.4	8.2	<50	NA	NA	NA	NA	No LPH
	05/12-13/94		20.61	324.59	1.7	2.3	1.5	9.1	<50	NA	NA	NA	NA	No LPH
	09/07/94		21.63	323.57	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	12/02/94		21.12	324.08	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	03/06/95		19.67	325.53	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	05/30/95		18.63	326.57	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	09/06/95		21.02	324.18	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	11/30/95		21.87	323.33	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	03/28/96		16.19	329.01	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	06/25/96		19.92	325.28	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	09/25/96		21.68	323.52	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	12/31/96		20.17	325.03	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	04/14/97		Well destroyed											

TABLE 6

GROUND WATER MONITORING DATA

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Monitoring Well	Date	Reference Elevation (feet)	Depth to Ground Water (feet)	Ground Water Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPPH as gasoline (µg/L)	Lead (ppm)	Total Oil and Grease (ppm)	VOC (µg/L)	MTBE (µg/L)	Comments
MW-6	03/19/91	342.25	34.42	307.83	<0.5	<0.5	<0.5	<0.5	<50	<100	NA	ND	NA	No LPH
	06/27/91		35.01	307.24	2.6	1.8	0.8	<0.30	<50	<100	NA	ND	NA	No LPH
	09/26/91		40.34	301.91	<0.5	<0.5	<0.5	<0.5	<50	<100	NA	ND	NA	No LPH
	01/10/92		36.20	306.05	<0.5	<0.5	<0.5	<0.5	<50	<100	NA	ND	NA	No LPH
	03/12-13/92		31.95	310.30	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	ND	NA	No LPH
	06/09/92		33.22	309.03	<0.5	<0.5	<0.5	<0.5	<50	<100	NA	ND	NA	No LPH
	09/28-29/92		40.96	301.29	<0.5	<0.5	0.9	0.9	<50	NA	NA	ND	NA	No LPH
	12/12/92		NM	NC	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	NM
	02/02/93		26.51	315.74	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	06/08/93		22.62	319.63	0.6	0.7	1.7	1.8	<50	NA	NA	NA	NA	No LPH
	09/22/93		26.74	315.51	<0.5	<0.5	0.7	1.1	<50	NA	NA	NA	NA	No LPH
	11/17-18/93		28.49	313.76	0.6	0.8	1.2	3.9	<50	NA	NA	NA	NA	No LPH
	02/16-17/94		29.83	312.42	3.8	7.9	2.0	11	51	NA	NA	NA	NA	No LPH
	05/12-13/94		27.89	314.36	0.6	1.0	<0.5	2.7	<50	NA	NA	NA	NA	No LPH
	09/07/94		28.81	313.44	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	12/02/94		28.55	313.70	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	03/06/95		24.70	317.55	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	05/30/95		22.03	320.22	<0.5	0.52	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	09/06/95		26.54	315.71	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	11/30/95		28.90	313.35	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	03/28/96		NM	NC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM
	06/25/96		22.96	319.29	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	09/25/96		27.80	314.45	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	12/31/96		26.34	315.91	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	05/19/97		25.70	316.55	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	09/17/97		28.54	313.71	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	12/23/97		28.93	313.32	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	03/24/98		19.00	323.25	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	06/15/98		21.21	321.04	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH

TABLE 6

GROUND WATER MONITORING DATA

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Monitoring Well	Date	Reference Elevation (feet)	Depth to Ground Water (feet)	Ground Water Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPPH as gasoline (µg/L)	Lead (ppm)	Total Oil and Grease (ppm)	VOC (µg/L)	MTBE (µg/L)	Comments
MW-7	03/19/91	343.62	24.68	318.94	<0.5	<0.5	<0.5	<0.5	140	<100	NA	0.7[a], 0.8[g]	NA	No LPH
	06/27/91		23.10	320.52	5.2	5.6	3.9	16	100	<100	NA	ND	NA	No LPH
	01/10/92		26.98	316.64	<0.5	<0.5	<0.5	<0.5	<50	<100	NA	ND	NA	No LPH
	03/12-13/92		21.86	321.76	<0.5	<0.5	<0.5	<0.5	120		NA	ND	NA	No LPH
	06/09/92		22.32	321.30	<0.5	<0.5	<0.5	<0.5	81	<100	NA	ND	NA	No LPH
	09/28-29/92		31.92	311.70	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	ND	NA	No LPH
	12/12/92		28.80	314.82	5.1	6.9	3.3	19	200	NA	NA	NA	NA	No LPH
	02/02-03/93		19.50	324.12	<0.5	6.6	0.6	1.7	170	NA	NA	NA	NA	No LPH
	06/08-09/93		16.72	326.90	<0.5	0.8	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	09/22-23/93		19.90	323.72	0.6	0.9	0.7	1.1	<50	NA	NA	NA	NA	No LPH
	11/17-18/93		20.75	322.87	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	02/16-17/94		21.36	322.26	0.9	2.7	<0.5	3.2	<50	NA	NA	NA	NA	No LPH
	05/12-13/94		20.32	323.30	<0.5	1.1	<0.5	1.6	<50	NA	NA	NA	NA	No LPH
	09/07/94		21.19	322.43	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	12/02/94		20.95	322.67	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	03/06/95		19.35	324.27	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	05/30/95		18.19	325.43	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	09/06/95		20.57	323.05	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	11/30/95		21.64	321.98	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	03/28/96		NM	NC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM
	06/25/96		19.51	324.11	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	09/25/96		21.30	322.32	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	12/31/96		20.52	323.10	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	05/19/97		NM	NC	NS	NS	NS	NS	NS	NS	NS	NS	NS	No LPH
	09/17/97		21.64	321.98	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	12/23/97		21.27	322.35	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	03/24/98		15.64	327.98	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	06/15/98		17.77	325.85	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH

TABLE 6

GROUND WATER MONITORING DATA

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Monitoring Well	Date	Reference Elevation (feet)	Depth to Ground Water (feet)	Ground Water Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPPH as gasoline (µg/L)	Lead (ppm)	Total Oil and Grease (ppm)	VOC (µg/L)	MTBE (µg/L)	Comments
MW-8	06/08-09/93	344.00	15.78	328.22	<0.5	1.1	0.8	1.7	65	NA	NA	NA	NA	No LPH
	09/22-23/93		18.86	325.14	4.1	8.9	6.7	14	110	NA	NA	NA	NA	No LPH
	11/17-18/93		20.01	323.99	<0.5	0.9	<0.5	<0.5	78	NA	NA	NA	NA	No LPH
	02/16-17/94		20.30	323.70	<0.5	1.8	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	05/12-13/94		18.92	325.08	<0.5	1.0	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	09/07/94		20.25	323.75	<0.5	<0.5	<0.5	<0.5	67	NA	NA	NA	NA	Sheen
	12/02/94		19.73	324.27	<0.5	<0.5	<0.5	<0.5	110	NA	NA	NA	NA	No LPH
	03/06/95		17.66	326.34	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	05/30/95		16.97	327.03	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	09/06/95		19.30	324.70	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	11/30/95		20.44	323.56	<0.5	0.62	<0.5	6.8	<50	NA	NA	NA	<5.0	No LPH
	03/28/96		14.91	329.09	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	06/25/96		18.10	325.90	<0.5	<0.5	<0.5	<0.5	79	NA	NA	NA	<5.0	No LPH
	09/25/96		20.20	323.80	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	11/27/96		Well destroyed											

TABLE 6

GROUND WATER MONITORING DATA

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Monitoring Well	Date	Reference Elevation (feet)	Depth to Ground Water (feet)	Ground Water Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPPH as gasoline (µg/L)	Lead (ppm)	Total Oil and Grease (ppm)	VOC (µg/L)	MTBE (µg/L)	Comments
VE-1	09/28/92	343.38	21.92	321.46	NS	NS	NS	NS	NS	NS	NS	NS	NS	No LPH
	06/08/93		16.44	326.94	<5.0	15	830	500	5,800	NA	NA	NA	NA	No LPH
	09/22-23/93		19.47	323.91	5.4	21	380	240	3,700	NA	NA	NA	NA	No LPH
	11/17-18/93		20.64	322.74	5.8	2.0	220	180	3,600	NA	NA	NA	NA	No LPH
	02/16-17/94		21.20	322.18	31	4.0	500	300	7,600	NA	NA	NA	NA	No LPH
	05/12-13/94		19.69	323.69	0.7	<0.5	56	33	970	NA	NA	NA	NA	No LPH
	09/07/94		21.30	322.08	7.3	46	620	150	8,100	NA	NA	NA	NA	No LPH
	12/02/94		20.63	322.75	3.4	37	450	210	8,300	NA	NA	NA	NA	No LPH
	03/06/95		18.40	324.98	<0.5	<0.5	<0.5	<0.5	52	NA	NA	NA	NA	No LPH
	05/30/95		17.58	325.80	15	<5[i]	270	89	3,400	NA	NA	NA	<2.5	No LPH
	09/06/95		20.32	323.06	<0.5	<0.5	1.6	<0.5	100	NA	NA	NA	<2.5	No LPH
	11/30/95		21.75	321.63	48	10	240	35	5,200	NA	NA	NA	<50	No LPH
	03/28/96		15.75	327.63	<5.0[i]	<5.0[i]	250	81	3,800	NA	NA	NA	<50	No LPH
	06/25/96		18.99	324.39	19	<5.0[i]	140	42	3,800	NA	NA	NA	8	No LPH
	09/25/96		21.32	322.06	<0.5	7.0	65	21	2,500	NA	NA	NA	<5.0	No LPH
	12/31/96		19.40	323.98	<0.5	<0.5	<0.5	0.86	270	NA	NA	NA	<5.0	No LPH
	04/14/97		Well destroyed											

TABLE 6

GROUND WATER MONITORING DATA

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Monitoring Well	Date	Reference Elevation (feet)	Depth to Ground Water (feet)	Ground Water Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPPH as gasoline (µg/L)	Lead (ppm)	Total Oil and Grease (ppm)	VOC (µg/L)	MTBE (µg/L)	Comments
VE-2	06/08/93	343.39	16.20	327.19	10	18	900	340	7,000	NA	NA	NA	NA	No LPH
	09/22-23/93		19.23	324.16	15	33	240	82	2,600	NA	NA	NA	NA	No LPH
	11/17-18/93		20.44	322.95	22	<0.5	220	56	3,500	NA	NA	NA	NA	No LPH
	02/16-17/94		20.90	322.49	45	<5.0	220	60	3,400	NA	NA	NA	NA	No LPH
	05/12-13/94		19.41	323.98	19	29	66	110	1,900	NA	NA	NA	NA	No LPH
	09/07/94		20.94	322.45	5.5	<0.5	9.0	3.0	690	NA	NA	NA	NA	Sheen
	12/02/94		20.30	323.09	3.7	21[h]	50	8.8	1,900	NA	NA	NA	NA	No LPH
	03/06/95		18.14	325.25	<0.5	<0.5	9.4	1.3	460	NA	NA	NA	NA	No LPH
	05/30/95		17.29	326.10	<1.0	<1.0	20	2.3	580	NA	NA	NA	<5.0	Sheen
	09/06/95		19.99	323.40	<1.0	<1.0	<1.0	<1.0	290	NA	NA	NA	12	No LPH
	11/30/95		21.33	322.06	13	0.64	2.7	4.1	990	NA	NA	NA	<5.0	No LPH
	03/28/96		15.23	328.16	<0.5	<0.5	11	1.1	460	NA	NA	NA	8.2	No LPH
	06/25/96		18.53	324.86	31	13	210	87	3,400	NA	NA	NA	28	No LPH
	09/25/96		20.96	322.43	<0.5	<0.5	<0.5	<0.5	610	NA	NA	NA	11	No LPH
	12/31/96		19.12	324.27	5.0	0.54	0.59	0.56	390	NA	NA	NA	<5.0	No LPH
	04/14/97		Well destroyed											

TABLE 6

GROUND WATER MONITORING DATA

Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Monitoring Well	Date	Reference Elevation (feet)	Depth to Ground Water (feet)	Ground Water Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPPH as gasoline (µg/L)	Lead (ppm)	Total Oil and Grease (ppm)	VOC (µg/L)	MTBE (µg/L)	Comments
VE-3	06/08/93	343.39	16.48	326.91	3.1	3.1	18	15	130	NA	NA	NA	NA	No LPH
	09/22-23/93		18.96	324.43	11	7.3	13	32	130	NA	NA	NA	NA	No LPH
	11/17-18/93		20.00	323.39	NS	NS	NS	NS	NS	NS	NS	NS	NS	No LPH
	02/16-17/94		21.02	322.37	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	05/12-13/94		20.58	322.81	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	09/07/94		20.35	323.04	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	12/02/94		21.85	321.54	NS	NS	NS	NS	NS	NS	NS	NS	NS	No LPH
	03/06/95		19.12	324.27	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	NA	No LPH
	05/30/95		17.37	326.02	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	09/06/95		19.49	323.90	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<2.5	No LPH
	11/30/95		20.96	322.43	NS	NS	NS	NS	NS	NS	NS	NS	NS	No LPH
	12/31/95		NM	NC	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	NM
	03/28/96		15.68	327.71	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	06/25/96		18.37	325.02	1.5	0.62	<0.5	<0.5	67	NA	NA	NA	5.1	No LPH
	09/25/96		20.04	323.35	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	12/31/96		20.84	322.55	<0.5	<0.5	<0.5	<0.5	<50	NA	NA	NA	<5.0	No LPH
	04/14/97		Well destroyed											

[a] Chloroform.
[b] Methylene chloride.
[c] 1,2-Dichloroethane.
[d] Trichloroethane.
[e] Tetrachloroethane.
[f] Sample was diluted due to the presence of high levels of hydrocarbons.
[g] Bromodichloromethane.
[h] The presence of this compound confirmed by second column, however, the confirmation concentration differed from the reported result by more than a factor of two.
[i] Elevated detection limit quantified by multiplying laboratory reporting limits by report limit multiplication factor.

Reference elevation = Elevation relative to mean sea level.
Depth to ground water = Measured from notch/mark on north edge of well casing
µg/L = Micrograms per liter.
ppm = parts per million
TPPH = Total purageble petroleum hydrocarbons or total petroleum hydrocarbons (TPH) by EPA Method 8015 Modified
VOC = Volatile organic compounds
MTBE = Methyl tertiary butyl ether.
LPH = Liquid-phase petroleum hydrocarbons
NA = Not analyzed
NM = Not measured
NC = Not calculated

TABLE 7

EXPOSURE PATHWAY EVALUATION

Former Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Impacted Medium	Exposure Pathway	Pathway Selected for Evaluation	Reason for Selection or Non-selection
Surface Soils (< 3 feet)	Vapor Inhalation and Dust Ingestion	No	The site is primarily a paved surface and surface soils remain unimpacted.
	Dermal Contact and/or Ingestion	No	Personal contact is limited by the paved surface; therefore this pathway was eliminated from consideration.
	Leaching to Ground Water	No	This pathway was considered for subsurface soils greater than 3 feet below surface grade; surface soils remain unimpacted.
Subsurface Soils (> 3 feet)	Volatilization to Outdoor (Ambient) Air	Yes	The site is primarily paved thus limiting emissions from surface soils to ambient air, however, this pathway was considered.
	Volatilization to Indoor (Enclosed Spaces) Air	Yes	Any future property use will likely include a building.
	Dermal Contact and/or Ingestion	No	This pathway is highly unlikely due to the depth of impacted subsurface soils.
	Leaching to Ground Water	Yes	This pathway was considered to ensure that ground water was protected to the most stringent level.
Ground Water	Volatilization to Outdoor (Ambient) Air	Yes	Dilute BTEX concentrations are not expected to result in significant emissions relative to vapors from soils, however, this pathway was considered.
	Volatilization to Indoor (Enclosed Spaces) Air	Yes	This pathway is not considered likely, however, it was considered for conservative purposes.
	Ground Water Ingestion	Yes	Recent ground water monitoring results do not indicate impact from the release on-site; however, a worst-case scenario was considered to ensure protection of ground water to the most stringent level.
	Discharge to Surface Water	No	Ground water is not expected to discharge into any surface waters.

TABLE 8

SOIL RISK-BASED SCREENING LEVEL AND SITE SPECIFIC TARGET LEVEL SUMMARY

Former Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Chemical of Concern	Exposure Pathway	Representative Concentration (mg/kg)	RBSL (mg/kg)	Exceed?	SSTL (mg/kg)	Exceed?
Benzene	Vapors to Outdoor (Ambient) Air	0.046	22.0	No	N/A	N/A
	Vapors to Indoor (Enclosed Spaces) Air		0.01	Yes	0.047	No
	Leaching to Ground Water		0.23	No	N/A	N/A
Toluene	Vapors to Outdoor (Ambient) Air	0.055	>Res	No	N/A	N/A
	Vapors to Indoor (Enclosed Spaces) Air		70.0	No	N/A	N/A
	Leaching to Ground Water		>Res	No	N/A	N/A
Ethylbenzene	Vapors to Outdoor (Ambient) Air	0.1	>Res	No	N/A	N/A
	Vapors to Indoor (Enclosed Spaces) Air		120.0	No	N/A	N/A
	Leaching to Ground Water		>Res	No	N/A	N/A
Xylenes	Vapors to Outdoor (Ambient) Air	0.13	>Res	No	N/A	N/A
	Vapors to Indoor (Enclosed Spaces) Air		>Res	No	N/A	N/A
	Leaching to Ground Water		>Res	No	N/A	N/A

RBSL = Risk-based screening level.
SSTL = Site specific target level.
mg/kg = Milligrams per kilogram.
>Res = A concentration greater than saturation would be required to exceed applicable health criteria.
N/A = Not applicable. SSTL was not calculated because RBSL was not exceeded. RBSL values are adjusted by a 0.1 Slope factor.

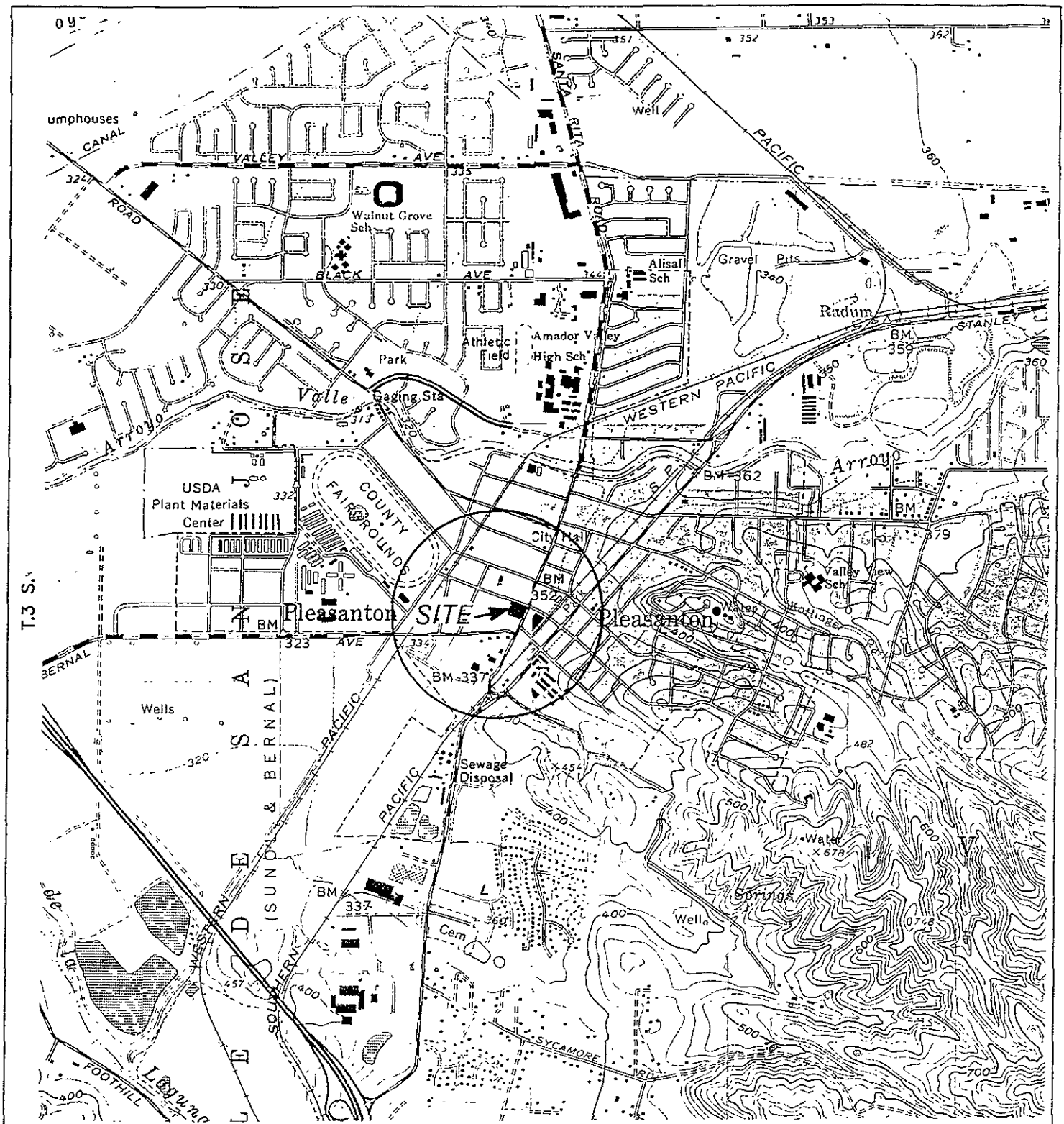
TABLE 9

GROUND WATER RISK-BASED SCREENING LEVEL SUMMARY

Former Exxon Service Station No. 7-7003
349 Main Street
Pleasanton, California

Chemical of Concern	Exposure Pathway	Representative Concentration (µg/L)	RBSL (µg/L)	Exceed?	SSTL (µg/L)	Exceed?
Benzene	Vapors to Outdoor (Ambient) Air	0.00057	30.0	No	N/A	N/A
	Vapors to Indoor (Enclosed Spaces) Air		0.023	No	N/A	N/A
	Leaching to Ground Water		0.0029	No	N/A	N/A
Toluene	Vapors to Outdoor (Ambient) Air	0.00052	>Sol	No	N/A	N/A
	Vapors to Indoor (Enclosed Spaces) Air		92.0	No	N/A	N/A
	Leaching to Ground Water		20.0	No	N/A	N/A
Ethylbenzene	Vapors to Outdoor (Ambient) Air	0.00074	>Sol	No	N/A	N/A
	Vapors to Indoor (Enclosed Spaces) Air		>Sol	No	N/A	N/A
	Leaching to Ground Water		10.0	No	N/A	N/A
Xylenes	Vapors to Outdoor (Ambient) Air	0.0068	>Sol	No	N/A	N/A
	Vapors to Indoor (Enclosed Spaces) Air		>Sol	No	N/A	N/A
	Leaching to Ground Water		>Sol	No	N/A	N/A

RBSL = Risk-based screening level.
SSTL = Site specific target level.
µg/L = Micrograms per liter.
N/A = Not applicable. SSTL was not calculated because RBSL was not exceeded. RBSL values are adjusted by a 0.1 Slope factor.
>Sol = A concentration greater than the solubility in water.



GENERAL NOTES:
BASE MAP FROM U.S.G.S.
DUBLIN & LIVERMORE, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1980

North

CALIF

QUADRANGLE LOCATION

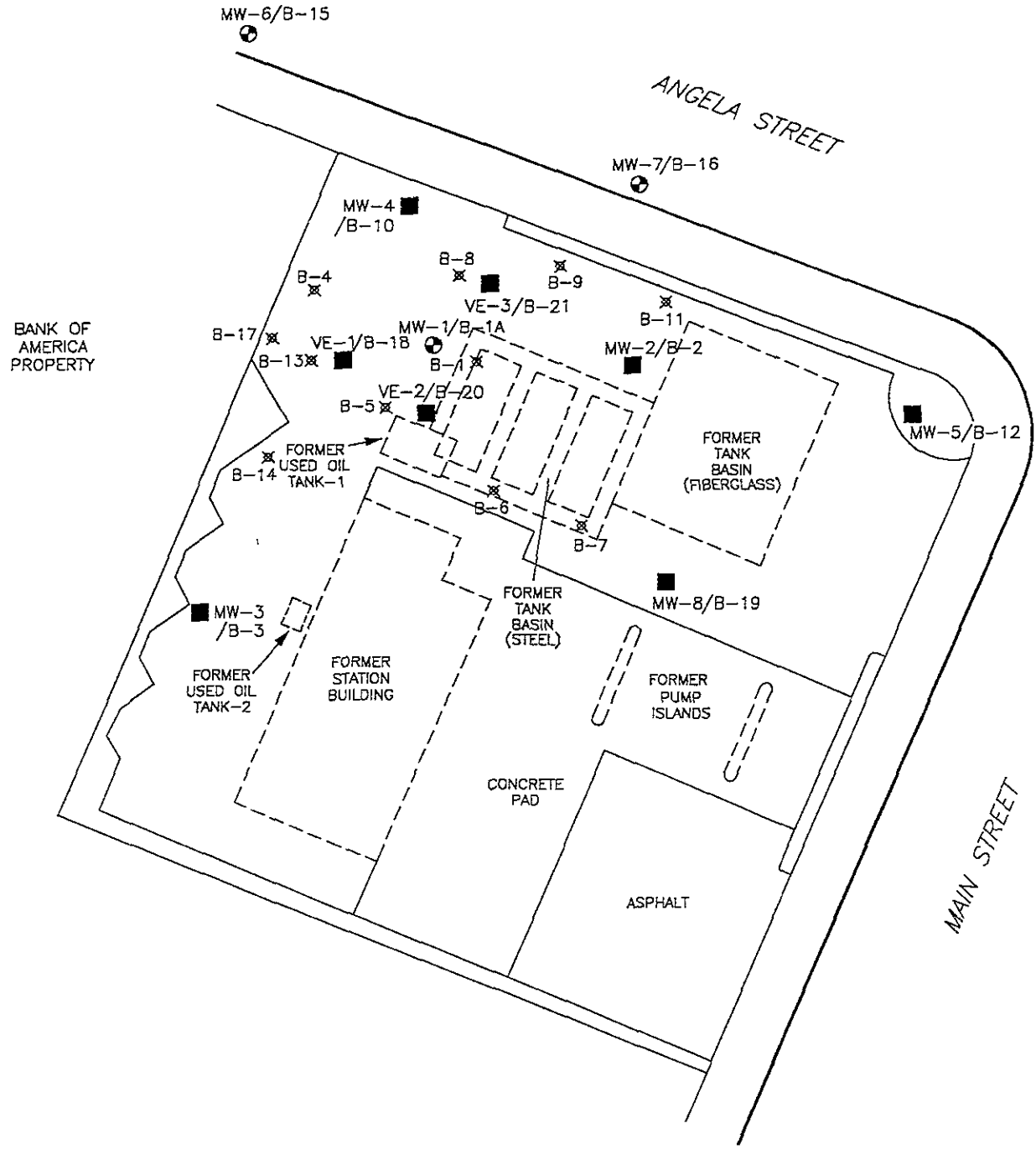
0 2000 FT

SCALE 1 : 24,000

FIGURE 1
SITE LOCATION MAP
EXXON STATION NO. 7-7003
349 MAIN STREET
PLEASANTON, CA.

PROJECT NO. DC94-838	DRAWN BY I.H. 8/24/94
FILE NO. —	PREPARED BY REC
REVISION NO. 1	REVIEWED BY JRB 10/14/94

Delta Environmental Consultants, Inc.



North

0 30 FT

SCALE

LEGEND:

⊙ VE-1	VAPOR EXTRACTION WELL LOCATION
◔ MW-1	MONITORING WELL LOCATION
■ MW-2	DESTROYED MONITORING WELL LOCATION
■ VE-1	DESTROYED VAPOR EXTRACTION WELL LOCATION
⊠ B-1	SOIL BORING LOCATION

FIGURE 2

SITE MAP

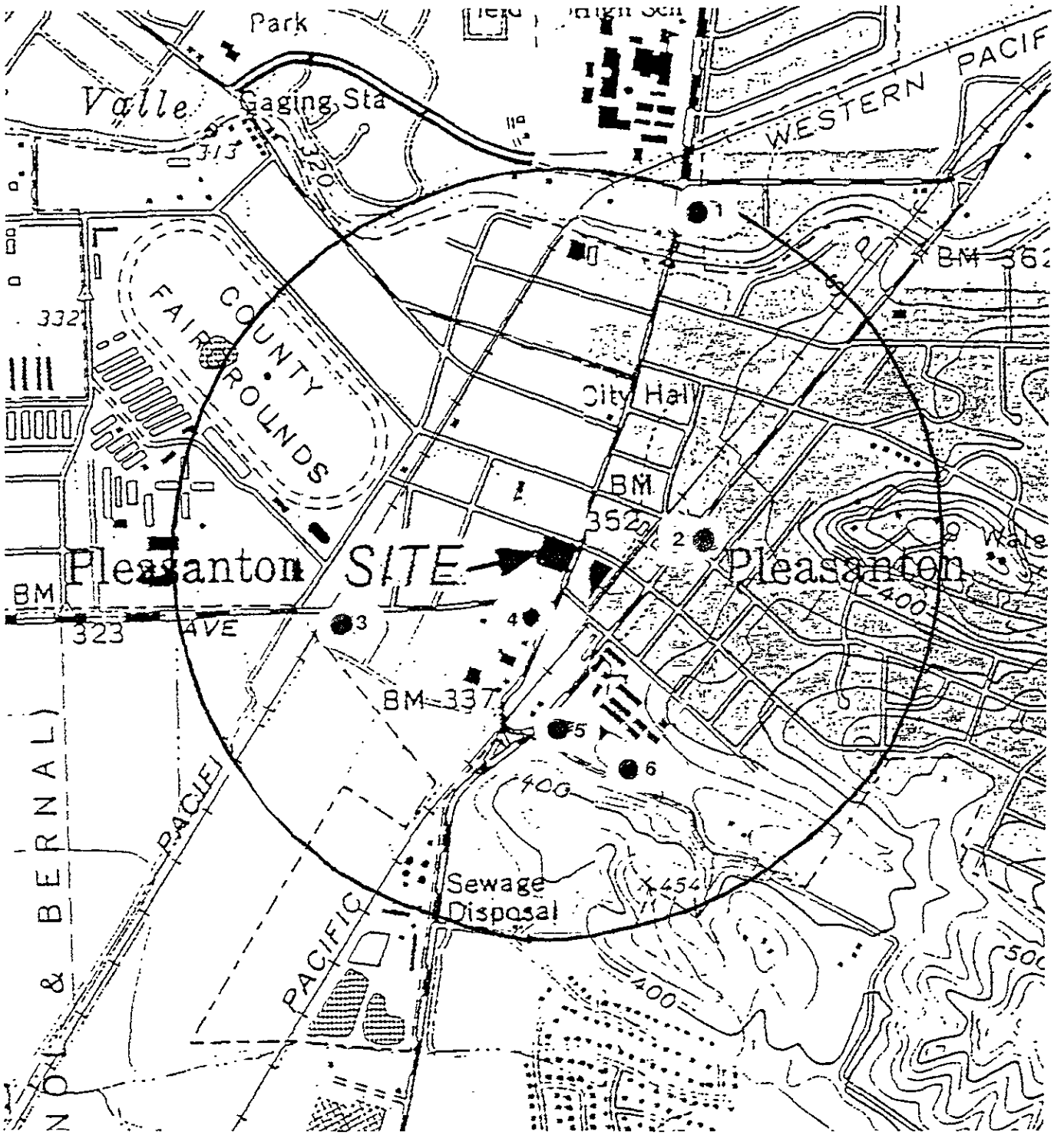
EXXON STATION NO. 7-7003

349 MAIN STREET

PLEASANTON, CA.

PROJECT NO. D094-838	DRAWN BY M.L. 8/6/98
FILE NO. 94-838-1	PREPARED BY BIH
REVISION NO. 8	REVIEWED BY JRB 8/20/98

Delta Environmental Consultants, Inc.



GENERAL NOTES:
BASE MAP FROM U.S.G.S.
UBLIN & LIVERMORE, CA
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1980

North

1 ● ACTIVE WATER SUPPLY WELL
2 ● ABANDONED WATER SUPPLY WELL
3,5,6 ● MONITORING WELLS
4 ● ELECTROLYSIS PROTECTION WELL

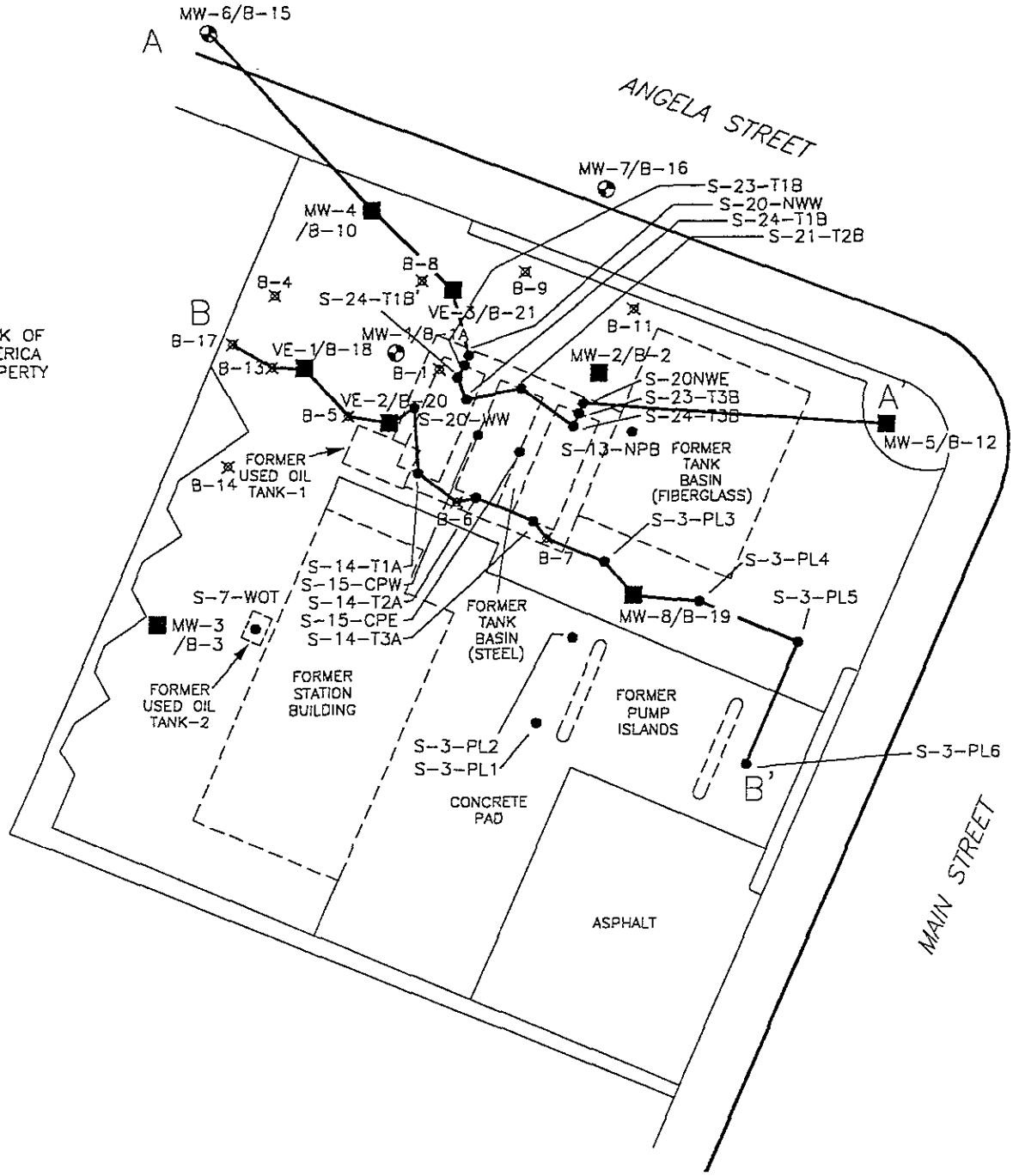
0 1000 FT
SCALE

QUADRANGLE LOCATION

FIGURE 3
WATER WELL LOCATION MAP
WITHIN A 1/2 MILE RADIUS OF SITE
EXXON STATION NO. 7-7003
349 MAIN STREET
PLEASANTON, CA

PROJECT NO. D094-838	DRAWN BY M.L. 7/23/97
FILE NO. –	PREPARED BY CKA
REVISION NO 1	REVIEWED BY CKA

Delta Environmental Consultants, Inc.



North

0 30 FT

SCALE

LEGEND:

⊙ VE-1	VAPOR EXTRACTION WELL LOCATION
◒ MW-1	MONITORING WELL LOCATION
■ MW-2	DESTROYED MONITORING WELL LOCATION
■ VE-1	DESTROYED VAPOR EXTRACTION WELL LOCATION
⊠ B-1	SOIL BORING LOCATION
• S-23-T3B	SOIL SAMPLE LOCATION

FIGURE 4

GEOLOGIC CROSS SECTION LOCATION MAP

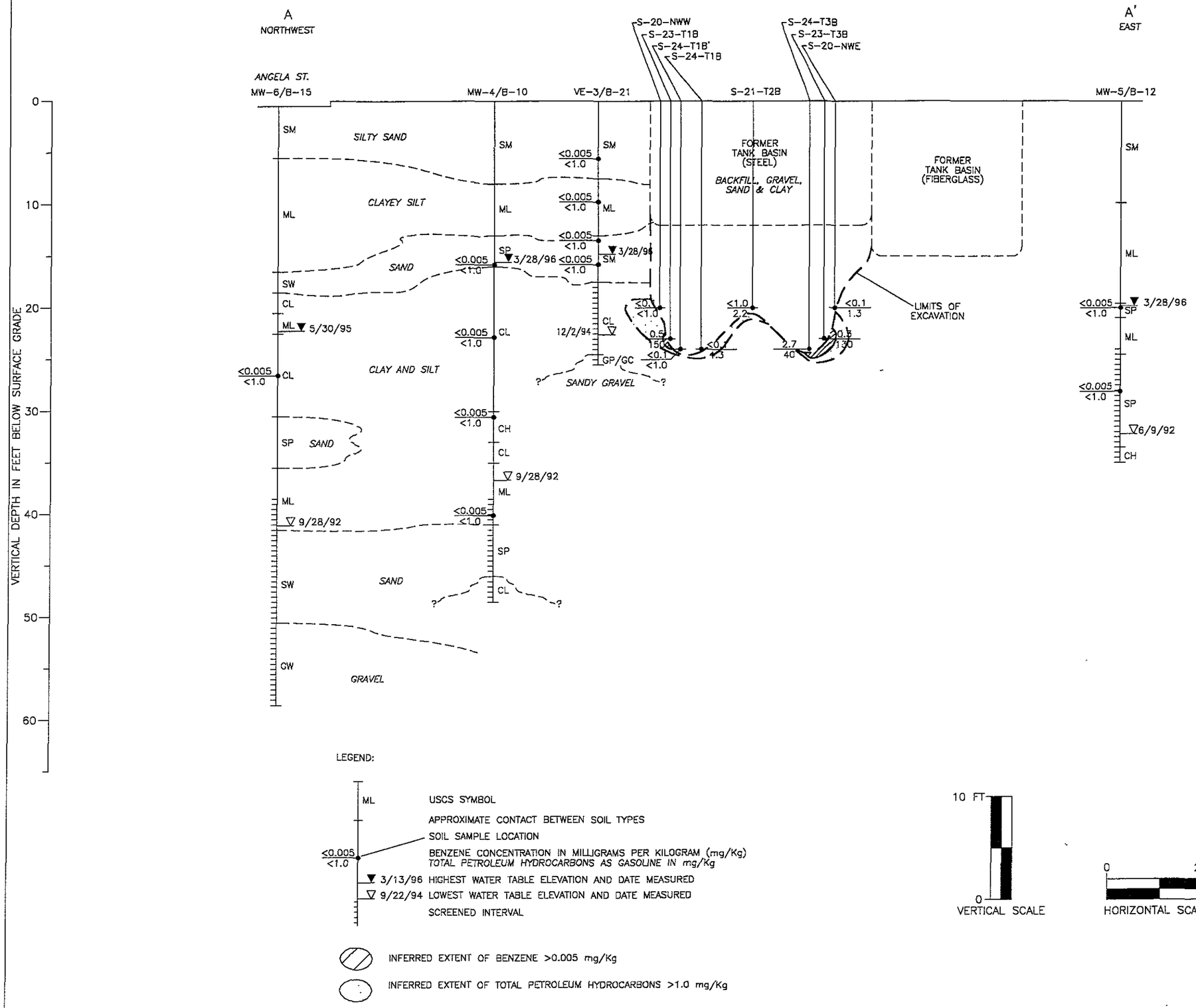
EXXON STATION NO. 7-7003

349 MAIN STREET

PLEASANTON, CA.

PROJECT NO. 0094-838	DRAWN BY M.L. 8/6/98
FILE NO. 94-838-1	PREPARED BY BIH
REVISION NO. 4	REVIEWED BY 8/21/98

Delta Environmental Consultants, Inc.



LEGEND:

- ML — USCS SYMBOL
- APPROXIMATE CONTACT BETWEEN SOIL TYPES
- SOIL SAMPLE LOCATION
- <0.005 / <1.0 — BENZENE CONCENTRATION IN MILLIGRAMS PER KILOGRAM (mg/Kg) / TOTAL PETROLEUM HYDROCARBONS AS GASOLINE IN mg/Kg
- ▼ 3/13/96 HIGHEST WATER TABLE ELEVATION AND DATE MEASURED
- ▽ 9/22/94 LOWEST WATER TABLE ELEVATION AND DATE MEASURED
- SCREENED INTERVAL
- INFERRED EXTENT OF BENZENE >0.005 mg/Kg
- INFERRED EXTENT OF TOTAL PETROLEUM HYDROCARBONS >1.0 mg/Kg

10 FT — 0 VERTICAL SCALE

0 — 20 FT HORIZONTAL SCALE

FIGURE 5

GEOLOGIC CROSS SECTION A–A'

EXXON STATION NO. 7–7003

349 MAIN STREET

PLEASANTON, CA

PROJECT NO. D094–838	DRAWN BY M.L. 7/28/98
FILE NO. 94–838–2	PREPARED BY BIH
REVISION NO. 3	REVIEWED BY JRB 8/21/98

Delta Environmental Consultants, Inc.

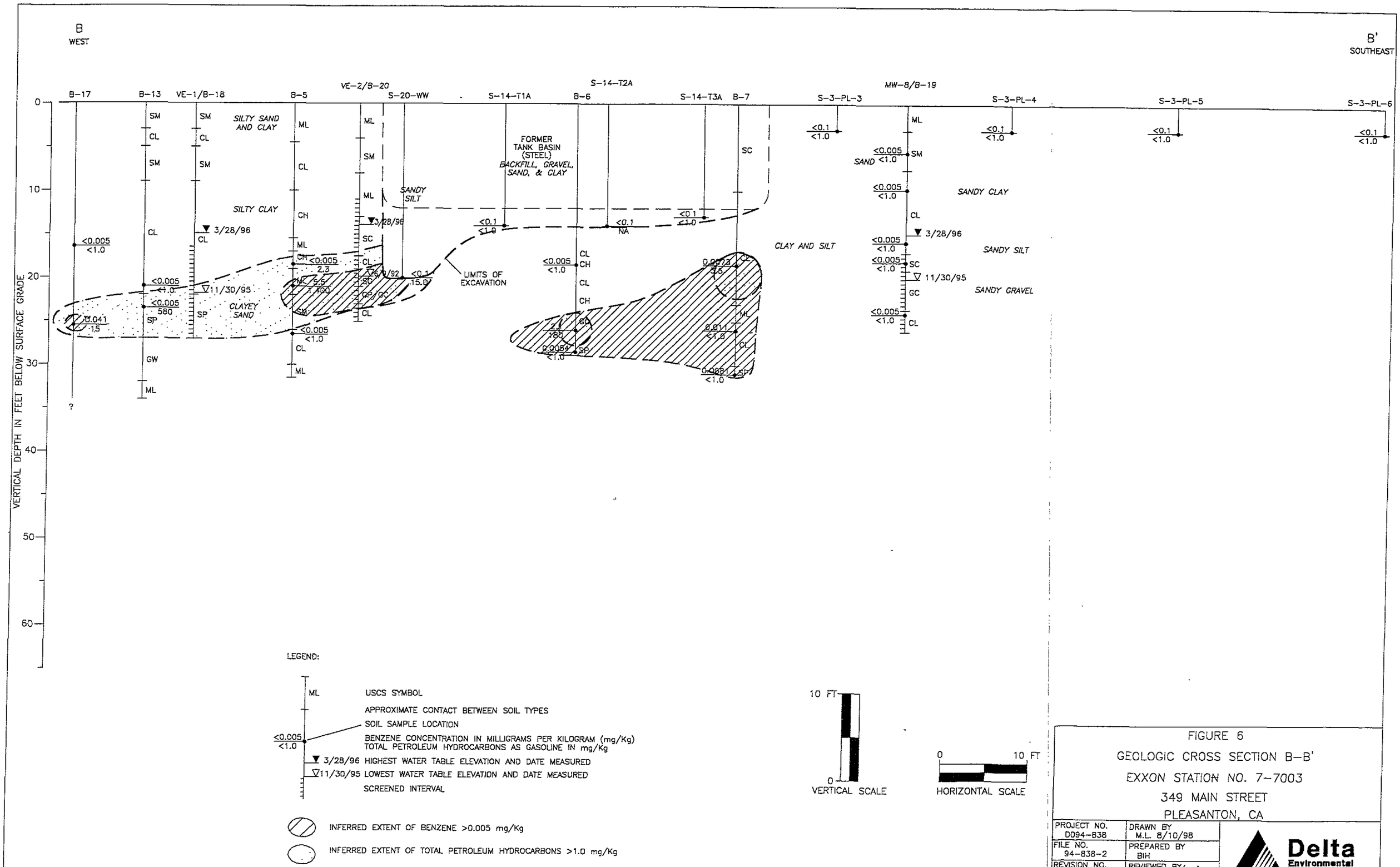


FIGURE 6

GEOLOGIC CROSS SECTION B–B'

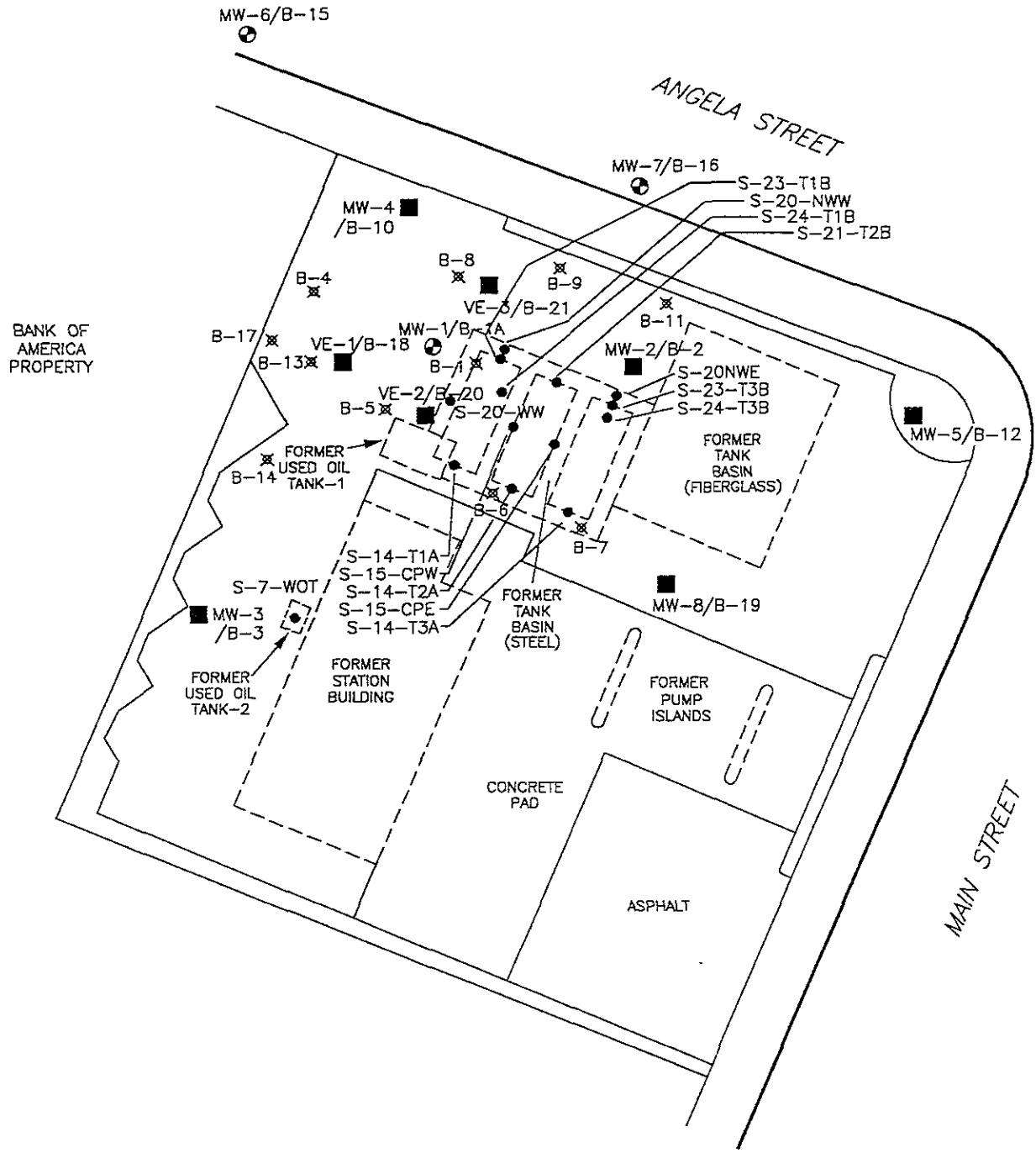
EXXON STATION NO. 7–7003

349 MAIN STREET

PLEASANTON, CA

PROJECT NO. D094–838	DRAWN BY M.L. 8/10/98
FILE NO. 94–838–2	PREPARED BY BIH
REVISION NO. 3	REVIEWED BY BRB 8/21/98

Delta Environmental Consultants, Inc.



North

0 30 FT

SCALE

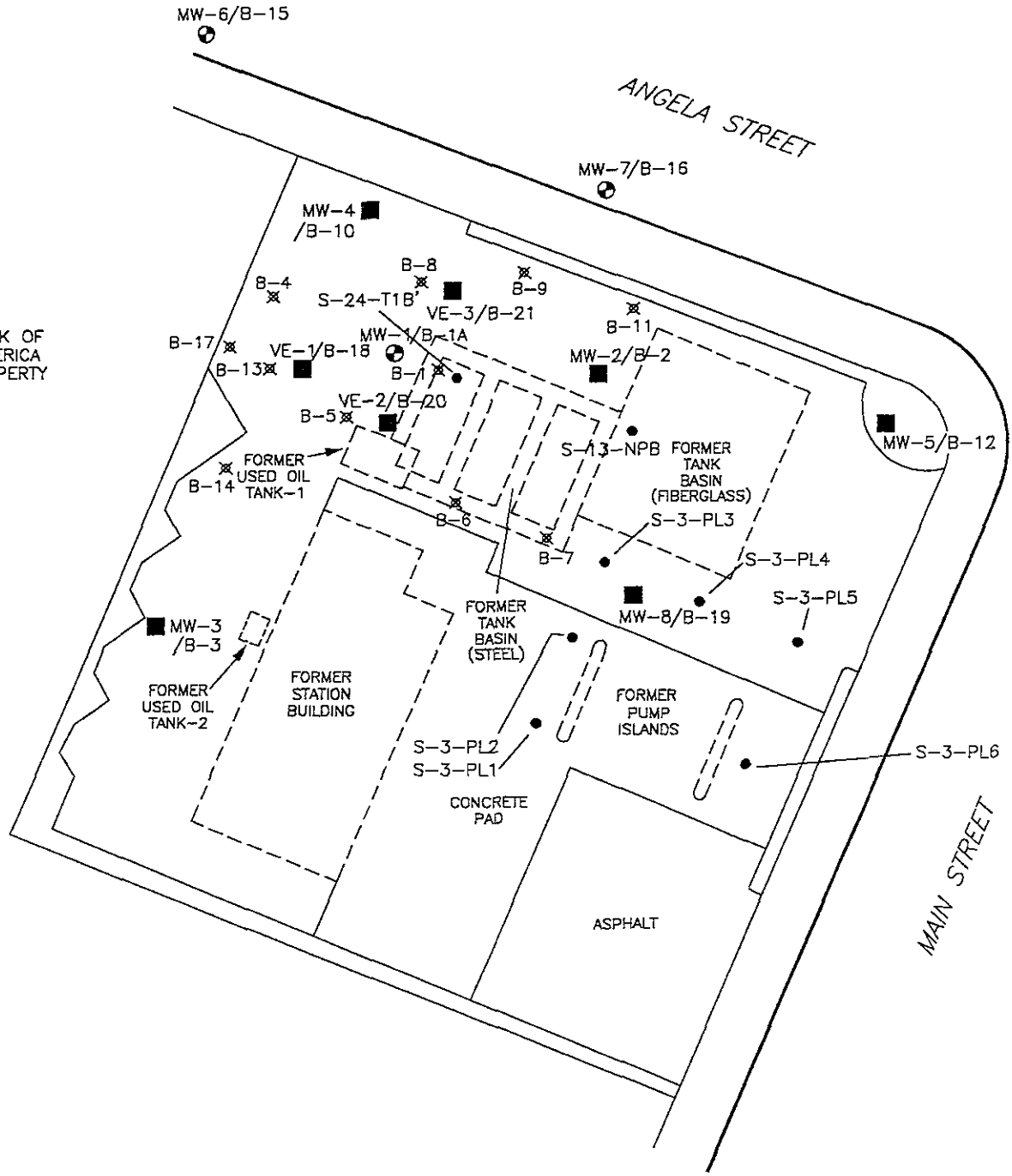
LEGEND:

⊙ VE-1	VAPOR EXTRACTION WELL LOCATION
◔ MW-1	MONITORING WELL LOCATION
■ MW-2	DESTROYED MONITORING WELL LOCATION
■ VE-1	DESTROYED VAPOR EXTRACTION WELL LOCATION
⊠ B-1	SOIL BORING LOCATION
• S-23-T3B	SOIL SAMPLE LOCATION

FIGURE 7
SOIL SAMPLE LOCATION MAP OF TANK REMOVAL ACTIVITIES – AUGUST 1 & 2, 1989
EXXON STATION NO. 7-7003
349 MAIN STREET
PLEASANTON, CA.

PROJECT NO. D094-838	DRAWN BY M.L. 8/6/98
FILE NO. 94-838-1	PREPARED BY BIH
REVISION NO. 10	REVIEWED BY JRB 8/20/98

Delta Environmental Consultants, Inc.



North

0 30 FT

SCALE

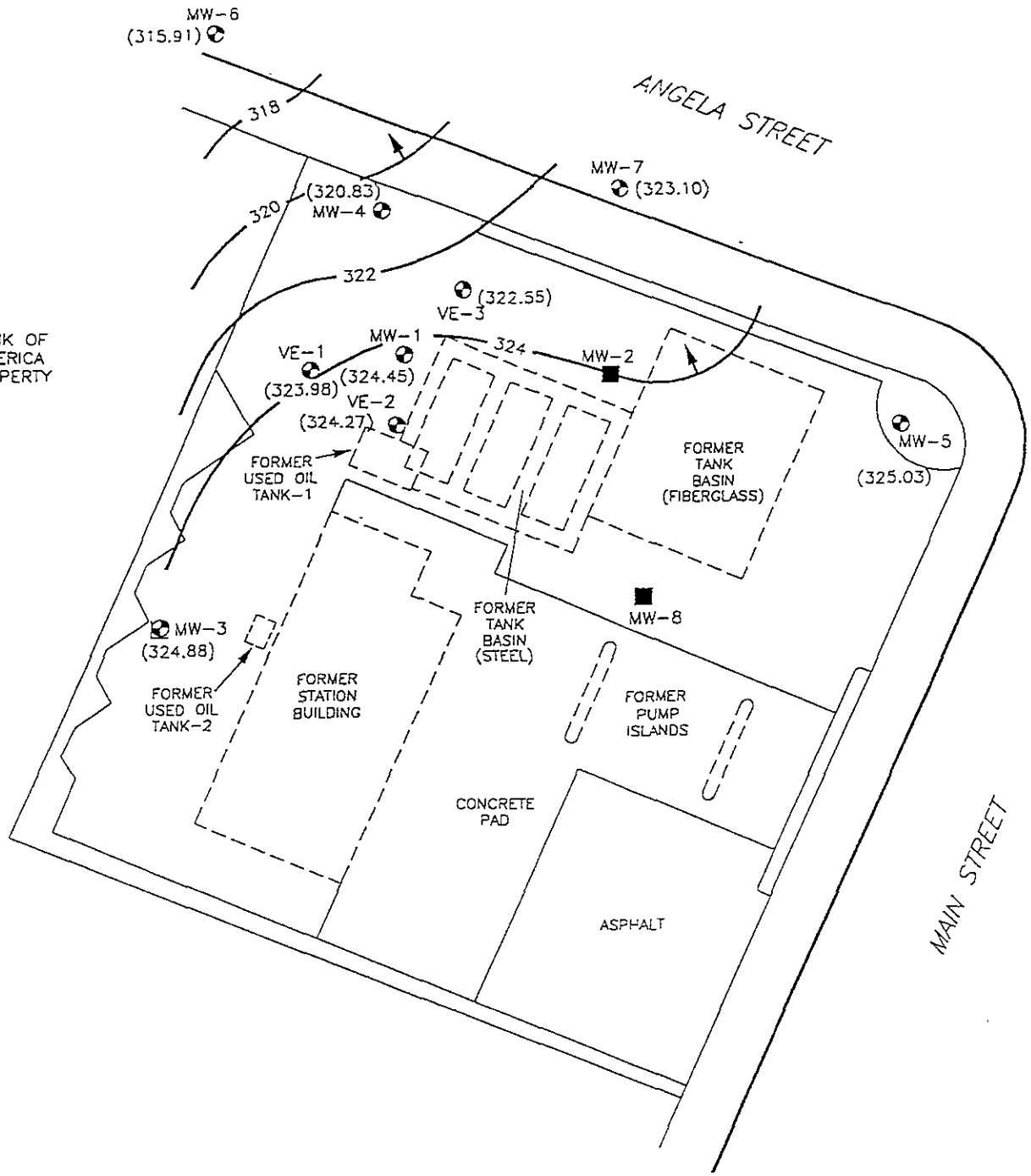
LEGEND:

⊙ VE-1	VAPOR EXTRACTION WELL LOCATION
◔ MW-1	MONITORING WELL LOCATION
■ MW-2	DESTROYED MONITORING WELL LOCATION
■ VE-1	DESTROYED VAPOR EXTRACTION WELL LOCATION
⊠ B-1	SOIL BORING LOCATION
• S-23-T3B	SOIL SAMPLE LOCATION

FIGURE 8
SOIL SAMPLE LOCATION MAP OF TANK REMOVAL ACTIVITIES – AUGUST 3 & 4, 1989
EXXON STATION NO. 7-7003
349 MAIN STREET
PLEASANTON, CA.

PROJECT NO. 0094-838	DRAWN BY M.L. 8/6/98
FILE NO. 94-838-1	PREPARED BY BIH
REVISION NO. 4	REVIEWED BY 8/20/98

Delta Environmental Consultants, Inc.



North

0 30 FT

SCALE

LEGEND:

- ⊙ VE-1 — VAPOR EXTRACTION WELL LOCATION
- ⊕ MW-1 — MONITORING WELL LOCATION
- ■ MW-2 — DESTROYED MONITORING WELL LOCATION
- (323.98) — GROUND WATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- — 322 — — INFERRED WATER TABLE CONTOUR IN FEET ABOVE MEAN SEA LEVEL
- ← — GROUND WATER FLOW DIRECTION

FIGURE 9

WATER TABLE CONTOUR MAP – 12/31/96

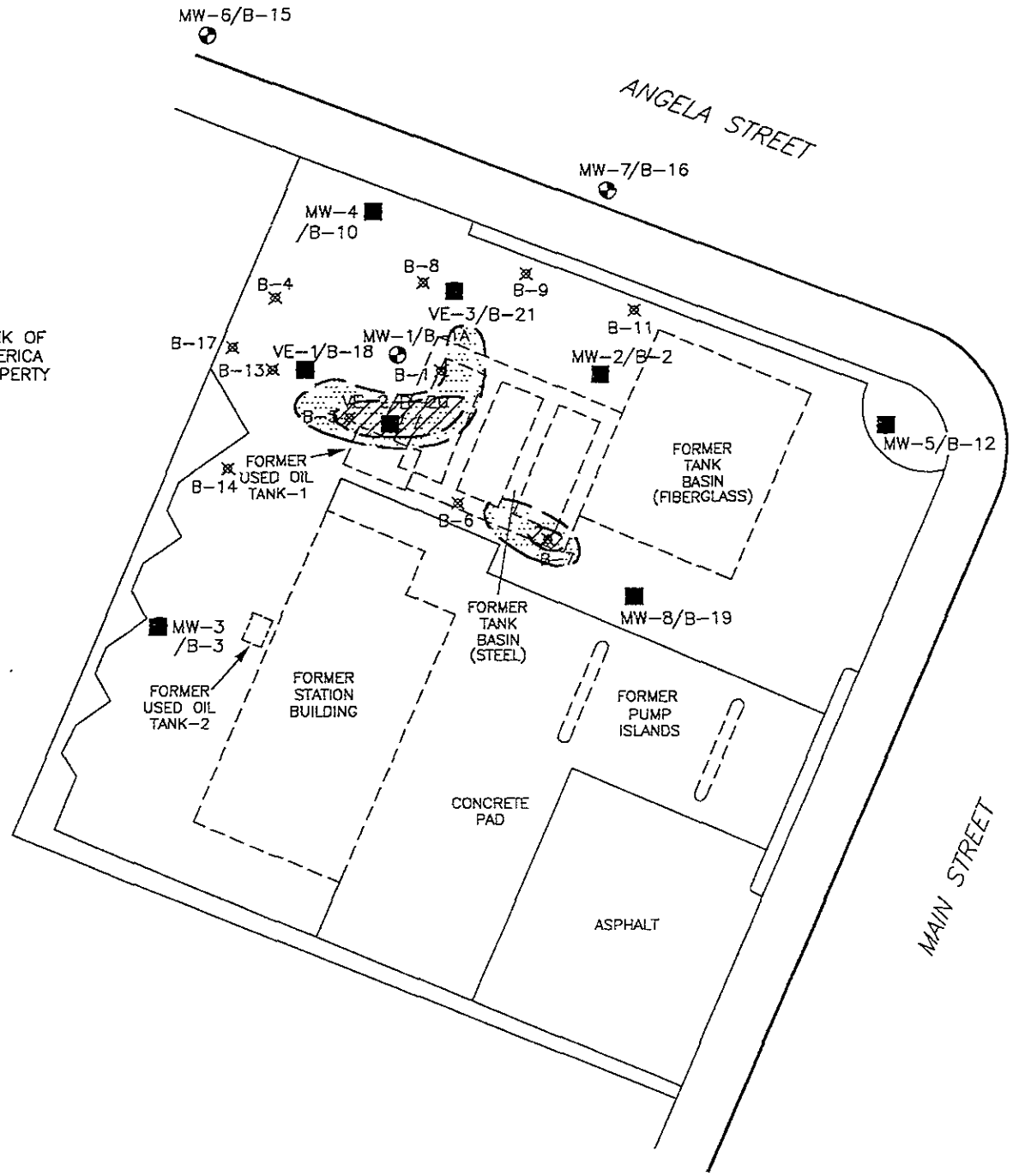
EXXON STATION NO. 7-7003

349 MAIN STREET

PLEASANTON, CA.

PROJECT NO. 0094-838	DRAWN BY M.L. 11/24/97
FILE NO. 94-838-1	PREPARED BY LJM
REVISION NO. 3	REVIEWED BY JKB 8/21/98

Delta Environmental Consultants, Inc.



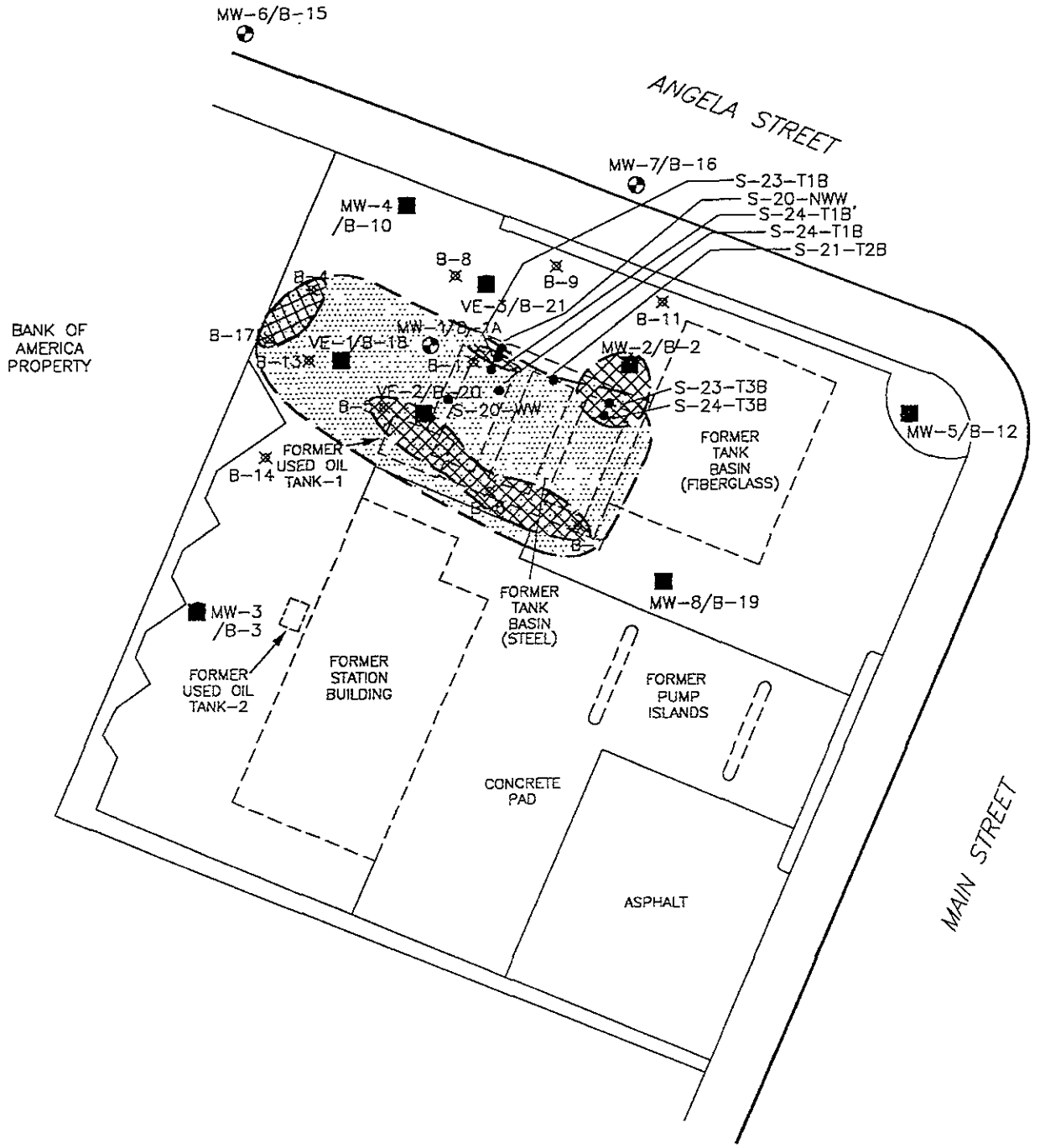
LEGEND:

- ⊙ VE-1 — VAPOR EXTRACTION WELL LOCATION
- ■ MW-2 — DESTROYED MONITORING WELL LOCATION
- ■ VE-1 — DESTROYED VAPOR EXTRACTION WELL LOCATION
- ⊠ B-1 — SOIL BORING LOCATION
- INFERRED EXTENT OF BENZENE > 0.005 mg/Kg
- INFERRED EXTENT OF TPH > 1.0 mg/Kg

FIGURE 10
INFERRED EXTENT OF PETROLEUM HYDROCARBONS IN SUBSURFACE SOIL – 0–20' bsg.
EXXON STATION NO. 7–7003
349 MAIN STREET
PLEASANTON, CA.

PROJECT NO. D094-838	DRAWN BY M.L. 8/6/98
FILE NO. 94-838-1	PREPARED BY BIH
REVISION NO. 3	REVIEWED BY JKB 8/21/98

Delta Environmental Consultants, Inc.



North

0 30 FT

SCALE

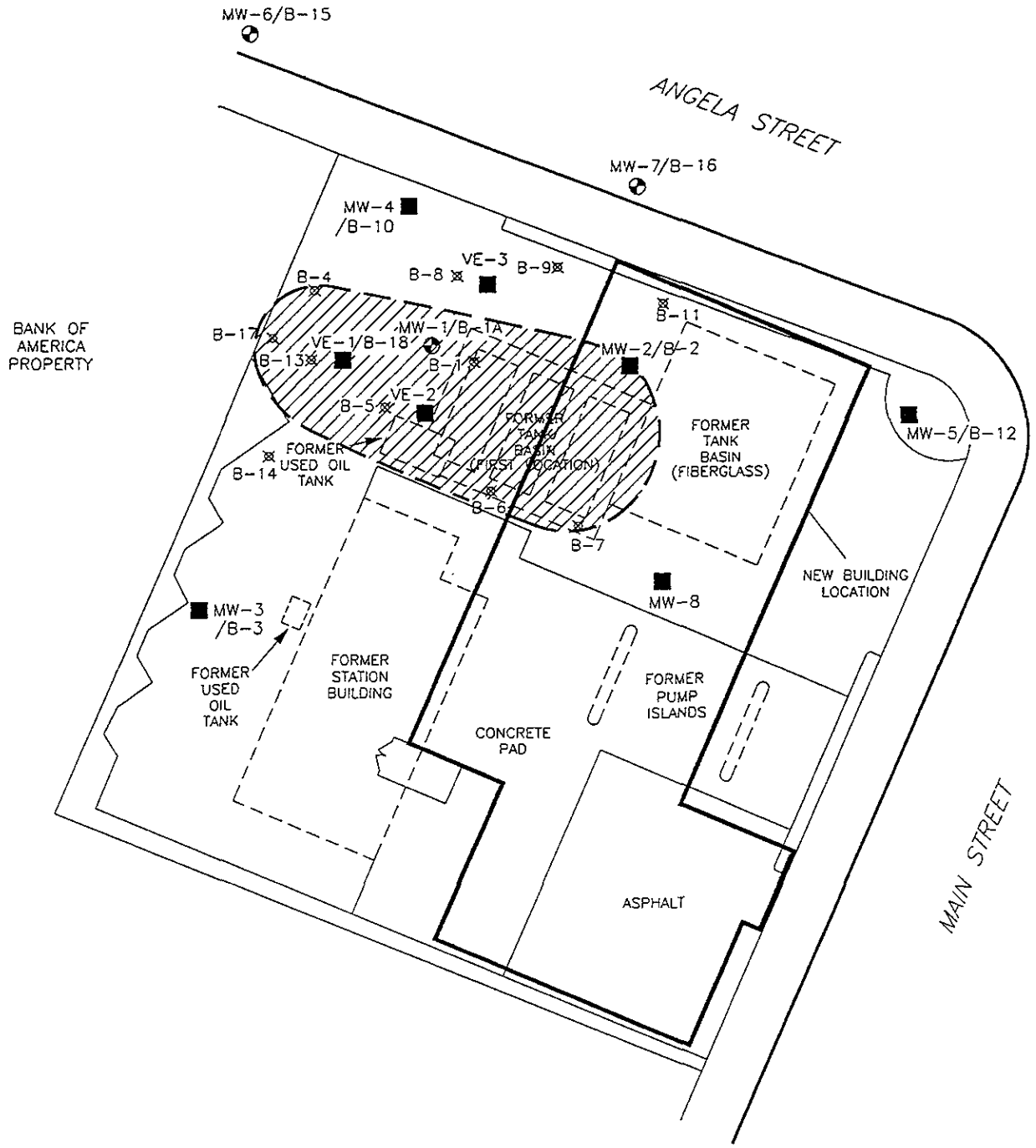
LEGEND:

⊙ VE-1	VAPOR EXTRACTION WELL LOCATION
■ MW-2	DESTROYED MONITORING WELL LOCATION
■ VE-1	DESTROYED VAPOR EXTRACTION WELL LOCATION
⊠ B-1	SOIL BORING LOCATION
● S-23-T3B	SOIL SAMPLE LOCATION
	INFERRED EXTENT OF BENZENE > 0.005 mg/Kg
	INFERRED EXTENT OF TPH > 1.0 mg/Kg

FIGURE 11
INFERRED EXTENT OF PETROLEUM HYDROCARBONS IN SUBSURFACE SOIL – 20'–40' bsg.
EXXON STATION NO. 7–7003
349 MAIN STREET
PLEASANTON, CA.

PROJECT NO. D094–838	DRAWN BY M.L. 8/6/98
FILE NO. 94–838–1	PREPARED BY BIH
REVISION NO. 3	REVIEWED BY 8/21/98

Delta Environmental Consultants, Inc.



North

0 30 FT

SCALE

LEGEND:

- VE-1 — VAPOR EXTRACTION WELL LOCATION
- MW-1 — MONITORING WELL LOCATION
- MW-2 — DESTROYED MONITORING WELL LOCATION
- VE-1 — DESTROYED VAPOR EXTRACTION WELL LOCATION
- B-1 — SOIL BORING LOCATION
- INFERRED EXTENT OF TPH

FIGURE 12

EXISTING BUILDING LOCATION MAP

EXXON STATION NO. 7-7003

349 MAIN STREET

PLEASANTON, CA.

PROJECT NO. D094-838	DRAWN BY M.L. 11/19/97
FILE NO. 94-838-1	PREPARED BY CKA
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.

APPENDIX A

RBCA Analysis Input Parameters

RBCA CHEMICAL DATABASE

Physical Property Data

CAS Number	Constituent	type	Molecular Weight (g/mole) MW	ref	Diffusion Coefficients in air (cm2/s) Dair	re	in water (cm2/s) Dwat	re	log (Koc) or log(Kd) (@ 20 - 25 C) (l/kg) Koc	ref	Henry's Law Constant (@ 20 - 25 C) (atm-m3/mol)	(unitless)	re	Vapor Pressure (@ 20 - 25 C) (mm Hg) Pure Component	ref	Solubility (@ 20 - 25 C) (mg/l) Pure Component	ref	acid pKa	base pKb	ref
71-43-2	Benzene	A	78.1	5	9.30E-02	A	1.10E-05	A	1.58	A	5.29E-03	2.20E-01	A	9.52E+01	4	1.75E+03	A			
100-41-4	Ethylbenzene	A	106.2	5	7.60E-02	A	8.50E-06	A	1.98	A	7.69E-03	3.20E-01	A	1.00E+01	4	1.52E+02	5			
108-88-3	Toluene	A	92.4	5	8.50E-02	A	9.40E-06	A	2.13	A	6.25E-03	2.60E-01	A	3.00E+01	4	5.15E+02	29			
1330-20-7	Xylene (mixed isomers)	A	106.2	5	7.20E-02	A	8.50E-06	A	2.38	A	6.97E-03	2.90E-01	A	7.00E+00	4	1.98E+02	5			

Exxon Station No.7-7003 Pleasanton, California By: L.J.McGahan Date Completed: 8/20/97

Software version: v 1.0

RBCA CHEMICAL DATABASE

Toxicity Data

CAS Number	Constituent	Reference Dose (mg/kg/day) Oral RfD_oral	ref	Inhalation RfD_inhal	re	Slope Factors 1/(mg/kg/day) Oral SF_oral	ref	Inhalation SF_inhal	ref	EPA Weight of Evidence	Is Constituent Carcinogenic ?
71-43-2	Benzene	-	R	1.70E-03	R	1.00E-01	A	1.00E-01	A	A	TRUE
100-41-4	Ethylbenzene	1.00E-01	A	2.86E-01	A	-	R	-	R	D	FALSE
108-88-3	Toluene	2.00E-01	A,R	1.14E-01	,	-	R	-	R	D	FALSE
1330-20-7	Xylene (mixed isomers)	2.00E+00	A,R	2.00E+00	A	-	R	-	R	D	FALSE

Exxon Station No.7-7003 Pleasanton, California By: L.J.McGahan Date Completed: 8/20/97

Software version: v 1.0

SCREEN 7.1
GROUNDWATER
CONCENTRATION
CALCULATOR

Choose UCL Percentile

90% (must be 0.9 or 0.95)

Analytical Data (Up to 50 Data Points)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Well Name	MW-1	MW-1	MW-1	MW-1	MW-2	MW-2	MW-3	MW-3	MW-3	MW-4	MW-4	MW-4	MW-5	MW-5
Date Sampled	6/25/96	9/25/96	12/31/96	5/19/97	6/25/96	9/29/25	6/25/96	9/25/96	12/31/96	6/25/96	9/25/96	12/31/96	6/25/97	9/25/96
	0.017	0.011	0.011	0.00025	0.0014	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
	0.11	0.037	0.048	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
	0.012	0.0051	0.007	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.0037	0.00025	0.00025
	0.072	0.036	0.041	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025

Calculated Distribution of Data	Default Detection Limit (mg/L)
Lognormal	0.005
Lognormal	0.002
Lognormal	0.002
Lognormal	0.005

15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MW-5	MW-6	MW-6	MW-6	MW-6	MW-7	MW-7	MW-7	MW-8	MW-8	VE-1	VE-1	VE-1	VE-2	VE-2	VE-2	VE-3	VE-3	VE-3	
12/31/96	6/25/96	9/25/96	12/31/96	5/19/97	6/25/96	9/25/96	12/31/96	6/25/96	9/25/96	6/25/96	9/25/96	12/31/96	6/25/96	9/25/96	12/31/96	6/25/96	9/25/96	12/31/96	
0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.019	0.00025	0.00025	0.031	0.00025	0.005	0.0015	0.00025	0.00025	
0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.14	0.065	0.00025	0.21	0.00025	0.00059	0.00025	0.00025	0.00025	
0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.0025	0.007	0.00025	0.013	0.00025	0.00054	0.00062	0.00025	0.00025	
0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.042	0.021	0.00086	0.087	0.00025	0.00056	0.00025	0.00025	0.00025	

SCREEN 7.3
SUBSURFACE SOILS
CONCENTRATION
CALCULATOR

UCL Percentile
90% (must be 0.9 or 0.95)

Analytical Data (Up to 50 Data Points)

	1	2	3	4	5	6	7	8	9	10	11
Calculated Distribution of Data	Default Detection Limit (mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Sample Name		23-T1B	23-T3B	21-T2B	20-NWE	20-WW	24-T3B	24-T1B	21-B1	33-B1	25.5-B1A	30.5-B2
Date Sampled		8/1/89	8/1/89	8/1/89	8/1/89	8/1/89	8/2/89	8/3/89	2/14/90	2/14/90	2/15/90	2/14/90
Lognormal	0.005	0.5	0.3	0.05	0.05	0.05	2.7	0.05	0.061	0.025	0.025	0.086
Lognormal	0.005	0.05	0.05	0.05	0.05	4.5	15	0.05	9.7	0.025	0.94	0.086
Lognormal	0.005	0.05	0.2	0.05	0.05	0.05	0.05	0.05	0.32	0.025	0.025	0.3
Lognormal	0.005	0.05	0.1	0.05	0.05	1.4	2.8	0.05	17	0.2	1.3	0.4

12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
21-B4	16.5-B5	21-B5	26-B6	26.5-B6	16.5-B7	26-B7	31.5-B7	26-B8	31-B8	21.5-B13	23-B17					
5/29/90	5/30/90	5/30/90	5/30/90	5/30/90	5/30/90	5/30/90	5/30/90	5/31/90	5/31/90	2/27/91	3/7/91					
0.02	0.0025	5.5	2.1	0.0054	0.0073	0.011	0.0081	0.0058	0.016	0.0025	0.041					
0.066	0.0025	33	1.2	0.0039	0.009	0.042	0.0025	0.0025	0.0025	5.3	0.041					
0.016	0.025	5.3	0.55	0.018	0.029	0.05	0.028	0.011	0.033	0.0025	0.075					
1.1	0.0025	36	0.86	0.0025	0.02	0.018	0.015	0.0025	0.0025	3.9	0.053					

APPENDIX B

Tier 1 RBCA Evaluation Worksheets

RBCA TIER 1/TIER 2 EVALUATION

Output Table 1

Site Name: Exxon 7-7003 | Job Identification: D094-838
Site Location: Pleasanton, CA | Date Completed: 8/20/97
Completed By: L J McGahan

Software: GSI RBCA Spreadsheet
Version: v 1 0

NOTE: values which differ from Tier 1 default values are shown in bold italics and underlined.

DEFAULT PARAMETERS

Exposure Parameter	Definition (Units)	Residential Adult	Residential (1-6yrs)	Residential (1-16 yrs)	Commercial/Industrial Chronic	Commercial/Industrial Constrctn
ATc	Averaging time for carcinogens (yr)	70				
ATn	Averaging time for non-carcinogens (yr)	30	6	16	25	1
BW	Body Weight (kg)	70	15	35	70	
ED	Exposure Duration (yr)	30	6	16	25	1
EF	Exposure Frequency (days/yr)	350			250	180
EF.Derm	Exposure Frequency for dermal exposure	350			250	
IRgw	Ingestion Rate of Water (l/day)	2			1	
IRs	Ingestion Rate of Soil (mg/day)	100	200		50	100
IRadj	Adjusted soil ing. rate (mg•yr/kg•d)	1.1E+02			9.4E+01	
IRa.in	Inhalation rate indoor (m^3/day)	15			20	
IRa.out	Inhalation rate outdoor (m^3/day)	20			20	10
SA	Skin surface area (dermal) (cm^2)	5.8E+03		2 0E+03	5 8E+03	5 8E+03
SAadj	Adjusted dermal area (cm^2•yr/kg)	2 1E+03			1.7E+03	
M	Soil to Skin adherence factor	1				
AAFs	Age adjustment on soil ingestion	FALSE			FALSE	
AAFd	Age adjustment on skin surface area	FALSE			FALSE	
tox	Use EPA tox data for air (or PEL based)	TRUE				
gwMCL?	Use MCL as exposure limit in groundwater?	FALSE				

Matrix of Exposed Persons to Complete Exposure Pathways		Residential	Commercial/Industrial Chronic	Commercial/Industrial Constrctn
Groundwater Pathways:				
GW.i	Groundwater Ingestion	FALSE	TRUE	
GW.v	Volatilization to Outdoor Air	FALSE	TRUE	
GW b	Vapor Intrusion to Buildings	FALSE	TRUE	
Soil Pathways				
S v	Volatiles from Subsurface Soils	FALSE	TRUE	
SS v	Volatiles and Particulate Inhalation	FALSE	FALSE	FALSE
SS d	Direct Ingestion and Dermal Contact	FALSE	FALSE	FALSE
S.l	Leaching to Groundwater from all Soils	FALSE	TRUE	
S b	Intrusion to Buildings - Subsurface Soils	FALSE	TRUE	

Matrix of Receptor Distance and Location on- or off-site		Residential Distance	Residential On-Site	Commercial/Industrial Distance	Commercial/Industrial On-Site
GW	Groundwater receptor (cm)		TRUE		TRUE
S	Inhalation receptor (cm)		TRUE		TRUE

Matrix of Target Risks		Individual	Cumulative
TRab	Target Risk (class A&B carcinogens)	1 0E-06	
TRc	Target Risk (class C carcinogens)	1 0E-05	
THQ	Target Hazard Quotient	1 0E+00	
Opt	Calculation Option (1, 2, or 3)	1	
Tier	RBCA Tier	1	

Surface Parameters	Definition (Units)	Residential	Commercial/Industrial Chronic	Commercial/Industrial Construction
t	Exposure duration (yr)	30	25	1
A	Contaminated soil area (cm^2)	***1.7E+06***		
W	Length of affected soil parallel to wind (cm)	***3 0E+02***		1.0E+03
W gw	Length of affected soil parallel to groundwater (c	***3.0E+02***		
Uair	Ambient air velocity in mixing zone (cm/s)	2 3E+02		
delta	Air mixing zone height (cm)	2.0E+02		
Lss	Definition of surficial soils (cm)	***9 1E+01***		
Pe	Particulate areal emission rate (g/cm^2/s)	2.2E-10		

Groundwater	Definition (Units)	Value
delta gw	Groundwater mixing zone depth (cm)	***6.1E+02***
I	Groundwater infiltration rate (cm/yr)	3.0E+01
Ugw	Groundwater Darcy velocity (cm/yr)	2.5E+03
Ugw tr	Groundwater Transport velocity (cm/yr)	6 6E+03
Ks	Saturated Hydraulic Conductivity(cm/s)	
grad	Groundwater Gradient (cm/cm)	
Sw	Width of groundwater source zone (cm)	
Sd	Depth of groundwater source zone (cm)	
BC	Biodegradation Capacity (mg/L)	
BIO?	Is Bioattenuation Considered	FALSE
phi eff	Effective Porosity in Water-Bearing Unit	3 8E-01
foc.sat	Fraction organic carbon in water-bearing unit	1 0E-03

Soil	Definition (Units)	Value	vadose	foundation
hc	Capillary zone thickness (cm)	5 0E+00		
hv	Vadose zone thickness (cm)	***6.1E+02***		
rho	Soil density (g/cm^3)	1.7		
foc	Fraction of organic carbon in vadose zone	0.01		
phi	Soil porosity in vadose zone	0 38		
Lgw	Depth to groundwater (cm)	***6 1E+02***		
Ls	Depth to top of affected soil (cm)	***5.6E+02***		
Lsubs	Thickness of affected subsurface soils (cm)	***4.4E+02***		
pH	Soil/groundwater pH	6.5		
		capillary	vadose	foundation
phi.w	Volumetric water content	0 342	0 12	0 12
phi a	Volumetric air content	0 038	0 26	0 26

Building	Definition (Units)	Residential	Commercial
Lb	Building volume/area ratio (cm)	2 0E+02	3 0E+02
ER	Building air exchange rate (s^-1)	1 4E-04	2 3E-04
Lcrk	Foundation crack thickness (cm)	1 5E+01	
eta	Foundation crack fraction	0.01	

Dispersive Transport Parameters	Definition (Units)	Residential	Commercial
Groundwater			
ax	Longitudinal dispersion coefficient (cm)		
ay	Transverse dispersion coefficient (cm)		
az	Vertical dispersion coefficient (cm)		
Vapor			
dcy	Transverse dispersion coefficient (cm)		
dcz	Vertical dispersion coefficient (cm)		

RBCA SITE ASSESSMENT | **Tier 1 Worksheet 6.2**

Site Name: Exxon 7-7003 | Completed By: L.J. McGahan

Site Location: Pleasanton, CA | Date Completed: 8/20/1997

SUBSURFACE SOIL RBSL VALUES (> 3 FT BGS)

Target Risk (Class A & B) 1 0E-6 ☐ MCL exposure limit? **Calculation Option: 1**

Target Risk (Class C) 1 0E-5 ☐ PEL exposure limit?

Target Hazard Quotient 1.0E+0

RBSL Results For Complete Exposure Pathways ("x" If Complete)

CONSTITUENTS OF CONCERN		Representative Concentration	X Soil Leaching to Groundwater			X Soil Volatilization to Indoor Air		X Soil Volatilization to Outdoor Air		Applicable RBSL	RBSL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)	Residential: (on-site)	Commercial: (on-site)	Regulatory(MCL)* (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential: (on-site)	Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
71-43-2	Benzene	4.6E-2	NA	2.3E-1	NA	NA	1.0E-2	NA	2.2E+1	1.0E-2	■	4.0E+00
100-41-4	Ethylbenzene	1.0E-1	NA	>Res	NA	NA	1.2E+2	NA	>Res	1.2E+2	☐	<1
108-88-3	Toluene	5.5E-2	NA	>Res	NA	NA	7.0E+1	NA	>Res	7.0E+1	☐	<1
1330-20-7	Xylene (mixed isomers)	1.3E-1	NA	>Res	NA	NA	>Res	NA	>Res	>Res	☐	<1

Software: GSI RBCA Spreadsheet Serial: G-395-PMX-154

Version: v 1.0

RBCA SITE ASSESSMENT

Tier 1 Worksheet 6.3

Site Name: Exxon 7-7003
Site Location: Pleasanton, CA

Completed By: L.J. McGahan
Date Completed: 8/20/1997

GROUNDWATER RBSL VALUES

Target Risk (Class A & B) 1.0E-6
Target Risk (Class C) 1.0E-5
Target Hazard Quotient 1.0E+0

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 1

RBSL Results For Complete Exposure Pathways ("x" If Complete)

CONSTITUENTS OF CONCERN		Representative Concentration	X	Groundwater Ingestion			X	Groundwater Volatilization to Indoor Air		X	Groundwater Volatilization to Outdoor Air		Applicable RBSL	RBSL Exceeded ?	Required CRF
CAS No.	Name	(mg/L)		Residential: (on-site)	Commercial (on-site)	Regulatory(MCL) (on-site)		Residential, (on-site)	Commercial (on-site)		Residential (on-site)	Commercial, (on-site)	(mg/L	"■" If yes	Only if "yes" left
71-43-2	Benzene	5.7E-4		NA	2.9E-3	NA		NA	2.3E-2		NA	3.0E+1	2.9E-3	☐	<1
100-41-4	Ethylbenzene	7.4E-4		NA	1.0E+1	NA		NA	>Sol		NA	>Sol	1.0E+1	☐	<1
108-88-3	Toluene	5.2E-4		NA	2.0E+1	NA		NA	9.2E+1		NA	>Sol	2.0E+1	☐	<1
1330-20-7	Xylene (mixed isomers)	6.8E-4		NA	>Sol	NA		NA	>Sol		NA	>Sol	>Sol	☐	<1

Software: GSI RBCA Spreadsheet
Version: v 1.0

Serial: G-395-PMX-154

Site Name: Exxon 7-7003 | Site Location: Pleasanton, CA | Completed By: L.J. McGahan | Date Completed: 8/20/1997 | 1 OF 6

TIER 1 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

AIR EXPOSURE PATHWAYS ☐ [CHECKED IF PATHWAY IS ACTIVE]

SURFACE SOILS: VAPOR AND DUST INHALATION

Constituents of Concern	Exposure Concentration 1) Source Medium: Surface Soil Conc (mg/kg)	2) NAF Value (m^3/kg) Receptor		3) Exposure Medium Air: POE Conc (mg/m^3) (1) / (2)		4) Exposure Multiplier (IRxETxEFxED)/(BWxAT) (m^3/kg-day)		5) Average Daily Intake Rate (mg/kg-day) (3) X (4)	
Benzene	0.0E+0								
Ethylbenzene	0.0E+0								
Toluene	0.0E+0								
Xylene (mixed isomers)	0.0E+0								

NOTE:
ABS = Dermal absorption factor (dim)
AF = Adherance factor
AT = Averaging time (days)
BW = Body Weight (kg)
CF = Units conversion factor
ED = Exp. duration (yrs)
EF = Exposure frequencey (days/yr)
ET = Exposure time (hrs/day)
IR = Intake rate (L/day or mg/day)
POE = Point of exposure
SA = Skin surface area (cm^2)

Site Name: Exxon 7-7003 | Site Location: Pleasanton, CA | Completed By: L.J. McGahan | Date Completed: 8/20/1997 | 2 OF 6

TIER 1 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

AIR EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SUBSURFACE SOILS: VAPOR INHALATION

Constituents of Concern	Exposure Concentration 1) Source Medium: Subsurface Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor: On-Site Commercial		3) Exposure Medium: Air POE Conc. (mg/m^3) (1) / (2) On-Site Commercial		4) Exposure Multiplier (IRxETxEFxED)/(BWxAT) (m^3/kg-day) On-Site Commercial		5) Average Daily Intake Rate (mg/kg-day) (3) X (4) On-Site Commercial		TOTAL PATHWAY INTAKE (mg/kg-day) (Sum intake values from surface & subsurface routes) On-Site Commercial	
Benzene	4.6E-2	1.5E+5		3.0E-7		7.0E-2		2.1E-8		2.1E-8	
Ethylbenzene	1.0E-1	1.5E+5		6.5E-7		2.0E-1		1.3E-7		1.3E-7	
Toluene	5.5E-2	1.5E+5		3.6E-7		2.0E-1		7.0E-8		7.0E-8	
Xylene (mixed isomers)	1.3E-1	1.5E+5		8.5E-7		2.0E-1		1.7E-7		1.7E-7	

NOTE. ABS = Dermal absorption factor (dim); AF = Adherance factor; AT = Averaging time (days); BW = Body Weight (kg); CF = Units conversion factor; ED = Exp. duration (yrs); EF = Exposure frequencey (days/yr); ET = Exposure time (hrs/day); IR = Intake rate (L/day or mg/day); POE = Point of exposure; SA = Skin surface area (cm^2)

Site Name: Exxon 7-7003 Site Location: Pleasanton, CA Completed By: L.J. McGahan Date Completed: 8/20/1997

TIER 1 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SOIL EXPOSURE PATHWAYS ☐ (CHECKED IF PATHWAY IS ACTIVE)

SURFACE SOILS OR SEDIMENTS:
DERMAL CONTACT

	Exposure Concentration	4) Exposure Multiplier (SAxAFxABSxCFxEFxED)/(BWxAT) (1/day)		5) Average Daily Intake Rate (mg/kg-day)	
	1) Source Medium				
Constituents of Concern	Surface Soil Conc (mg/kg)	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial
Benzene	0.0E+0				
Ethylbenzene	0.0E+0				
Toluene	0.0E+0				
Xylene (mixed isomers)	0.0E+0				

NOTE:
ABS = Dermal absorption factor (dim)
AF = Adherance factor
AT = Averaging time (days)
BW = Body Weight (kg)
CF = Units conversion factor
ED = Exp. duration (yrs)
EF = Exposure frequencey (days/yr)
ET = Exposure time (hrs/day)
IR = Intake rate (L/day or mg/day)
POE = Point of exposure
SA = Skin surface area (cm^2)

Site Name: Exxon 7-7003 Site Location: Pleasanton, CA Completed By: L.J. McGahan Date Completed: 8/20/1997

TIER 1 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SOIL EXPOSURE PATHWAYS ☐ (CHECKED IF PATHWAY IS ACTIVE)

SURFACE SOILS OR SEDIMENTS: INGESTION

	Exposure Concentration	4) Exposure Multiplier (IRxCxEFxED)/(BWxAT) (1/day)		5) Average Daily Intake Rate (mg/kg-day)		TOTAL PATHWAY INTAKE (mg/kg-day) (Sum intake values from dermal & ingestion routes.)	
	1) Source Medium						
Constituents of Concern	Surface Soil Conc (mg/kg)	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial
Benzene	0.0E+0						
Ethylbenzene	0.0E+0						
Toluene	0.0E+0						
Xylene (mixed isomers)	0.0E+0						

NOTE:
ABS = Dermal absorption factor (dim)
AF = Adherance factor
AT = Averaging time (days)
BW = Body Weight (kg)
CF = Units conversion factor
ED = Exp. duration (yrs)
EF = Exposure frequencey (days/yr)
ET = Exposure time (hrs/day)
IR = Intake rate (L/day or mg/day)
POE = Point of exposure
SA = Skin surface area (cm^2)

Site Name: Exxon 7-7003 | Site Location: Pleasanton, CA | Completed By: L.J. McGahan | Date Completed: 8/20/1997 | 5 OF 6

TIER 1 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SOIL: LEACHING TO GROUNDWATER/ INGESTION

Constituents of Concern	Exposure Concentration 1) Source Medium: Soil Concentration (mg/kg)	2) NAF Value (L/kg) Receptor: On-Site Commercial		3) Exposure Medium Groundwater - POE Conc. (mg/L) (1)/(2): On-Site Commercial		4) Exposure Multiplier (IRxEFxED)/(BWxAT) (L/kg-day): On-Site Commercial		5) Average Daily Intake Rate (mg/kg-day): On-Site Commercial	
Benzene	4.6E-2	8.1E+1		5.6E-4		3.5E-3		2.0E-6	
Ethylbenzene	1.0E-1	1.8E+2		5.6E-4		9.8E-3		5.4E-6	
Toluene	5.5E-2	2.4E+2		2.3E-4		9.8E-3		2.2E-6	
Xylene (mixed isomers)	1.3E-1	4.2E+2		3.1E-4		9.8E-3		3.1E-6	

NOTE: AT = Averaging time (days) | BW = Body Weight (kg) | CF = Units conversion factor | ED = Exp duration (yrs) | EF = Exposure frequencey (days/yr) | IR = Intake rate (L/day) | POE = Point of exposure

RBCA SITE ASSESSMENT | **Tier 1 Worksheet 8.1**

Site Name: Exxon 7-7003 | Site Location: Pleasanton, CA | Completed By: L.J. McGahan | Date Completed: 8/20/1997 | *6 OF 6*

TIER 1 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

GROUNDWATER: INGESTION

Exposure Concentration

Constituents of Concern	1) Source Medium: Groundwater Concentration (mg/L)	2) NAF Value (dim) Receptor: On-Site Commercial		3) Exposure Medium: Groundwater POE Conc (mg/L) (1)/(2) On-Site Commercial		4) Exposure Multiplier (IRxEFxED)/(BWxAT) (L/kg-day) On-Site Commercial		5) Average Daily Intake Rate (mg/kg-day) On-Site Commercial		**MAX. PATHWAY INTAKE (mg/kg-day)** *(Maximum intake of active pathways soil leaching & groundwater routes)* On-Site Commercial	
Benzene	5.7E-4	1.0E+0		5.7E-4		3.5E-3		2.0E-6		2.0E-6	
Ethylbenzene	7.4E-4	1.0E+0		7.4E-4		9.8E-3		7.2E-6		7.2E-6	
Toluene	5.2E-4	1.0E+0		5.2E-4		9.8E-3		5.1E-6		5.1E-6	
Xylene (mixed isomers)	6.8E-4	1.0E+0		6.8E-4		9.8E-3		6.7E-6		6.7E-6	

NOTE. AT = Averaging time (days) | BW = Body Weight (kg) | CF = Units conversion factor | ED = Exp duration (yrs) | EF = Exposure frequencey (days/yr) | IR = Intake rate (L/day or mg/day) | POE = Point of exposure

RBCA SITE ASSESSMENT | **Tier 1 Worksheet 8.2**

Site Name: Exxon 7-7003 | Site Location: Pleasanton, CA | Completed By: L.J. McGahan | Date Completed: 8/20/1997 |

TIER 1 PATHWAY RISK CALCULATION

AIR EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAYS ARE ACTIVE)

		CARCINOGENIC RISK						TOXIC EFFECTS			
	(1) EPA	(2) Total Carcinogenic Intake Rate (mg/kg/day)		(3) Inhalation Slope Factor	(4) Individual COC Risk (2) x (3)		(5) Total Toxicant Intake Rate (mg/kg/day)		(6) Inhalation Reference Dose	(7) Individual COC Hazard Quotient (5) / (6)	
Constituents of Concern	Carcinogenic Classification	On-Site Commercial		(mg/kg-day)^-1	On-Site Commercial		On-Site Commercial		(mg/kg-day)	On-Site Commercial	
Benzene	A	2.1E-8		1.0E-1	2.1E-9		5.8E-8		1.7E-3	3.4E-5	
Ethylbenzene	D						1.3E-7		2.9E-1	4.4E-7	
Toluene	D						7.0E-8		1.1E-1	6.1E-7	
Xylene (mixed isomers)	D						1.7E-7		2.0E+0	8.4E-8	
Total Pathway Carcinogenic Risk =					2.1E-9	0.0E+0	*Total Pathway Hazard Index =*			3.5E-5	0.0E+0

Site Name: Exxon 7-7003 | Site Location: Pleasanton, CA | Completed By: L.J. McGahan | Date Completed: 8/20/1997 | 2 OF 3

TIER 1 PATHWAY RISK CALCULATION

SOIL EXPOSURE PATHWAYS ☐ (CHECKED IF PATHWAYS ARE ACTIVE)

		CARCINOGENIC RISK					TOXIC EFFECTS				
	(1) EPA Carcinogenic Classification	(2) Total Carcinogenic Intake Rate (mg/kg/day)		(3) Oral Slope Factor	(4) Individual COC Risk (2) x (3)		(5) Total Toxicant Intake Rate (mg/kg/day)		(6) Oral Reference Dose	(7) Individual COC Hazard Quotient (5) / (6)	
Constituents of Concern		On-Site Residential	On-Site Commercial	(mg/kg-day)^-1	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial	(mg/kg-day)	On-Site Residential	On-Site Commercial
Benzene	A			1.0E-1							
Ethylbenzene	D								1.0E-1		
Toluene	D								2.0E-1		
Xylene (mixed isomers)	D								2.0E+0		
Total Pathway Carcinogenic Risk =					0.0E+0	0.0E+0			*Total Pathway Hazard Index =*	0.0E+0	0.0E+0

RBCA SITE ASSESSMENT | **Tier 1 Worksheet 8.2**

Site Name: Exxon 7-7003 | Site Location: Pleasanton, CA | Completed By: L.J. McGahan | Date Completed: 8/20/1997 | *3 OF 3*

TIER 1 PATHWAY RISK CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAYS ARE ACTIVE)

	CARCINOGENIC RISK						TOXIC EFFECTS					
	(1) EPA	(2) Total Carcinogenic Intake Rate (mg/kg/day)		(3) Oral Slope Factor	(4) Individual COC Risk (2) x (3)		(5) Total Toxicant Intake Rate (mg/kg/day)		(6) Oral Reference Dose	(7) Individual COC Hazard Quotient (5) / (6)	
Constituents of Concern	Carcinogenic Classification	On-Site Commercial		(mg/kg-day)^-1	On-Site Commercial		On-Site Commercial		(mg/kg-day)	On-Site Commercial	
Benzene	A	2.0E-6		1.0E-1	2.0E-7						
Ethylbenzene	D						7.2E-6		1.0E-1	7.2E-5	
Toluene	D						5.1E-6		2.0E-1	2.5E-5	
Xylene (mixed isomers)	D						6.7E-6		2.0E+0	3.3E-6	
Total Pathway Carcinogenic Risk =					2.0E-7	0.0E+0	*Total Pathway Hazard Index =*			1.0E-4	0.0E+0

Serial: G-395-PMX-154 Software: GSI RBCA Spreadsheet Version: v 1.0

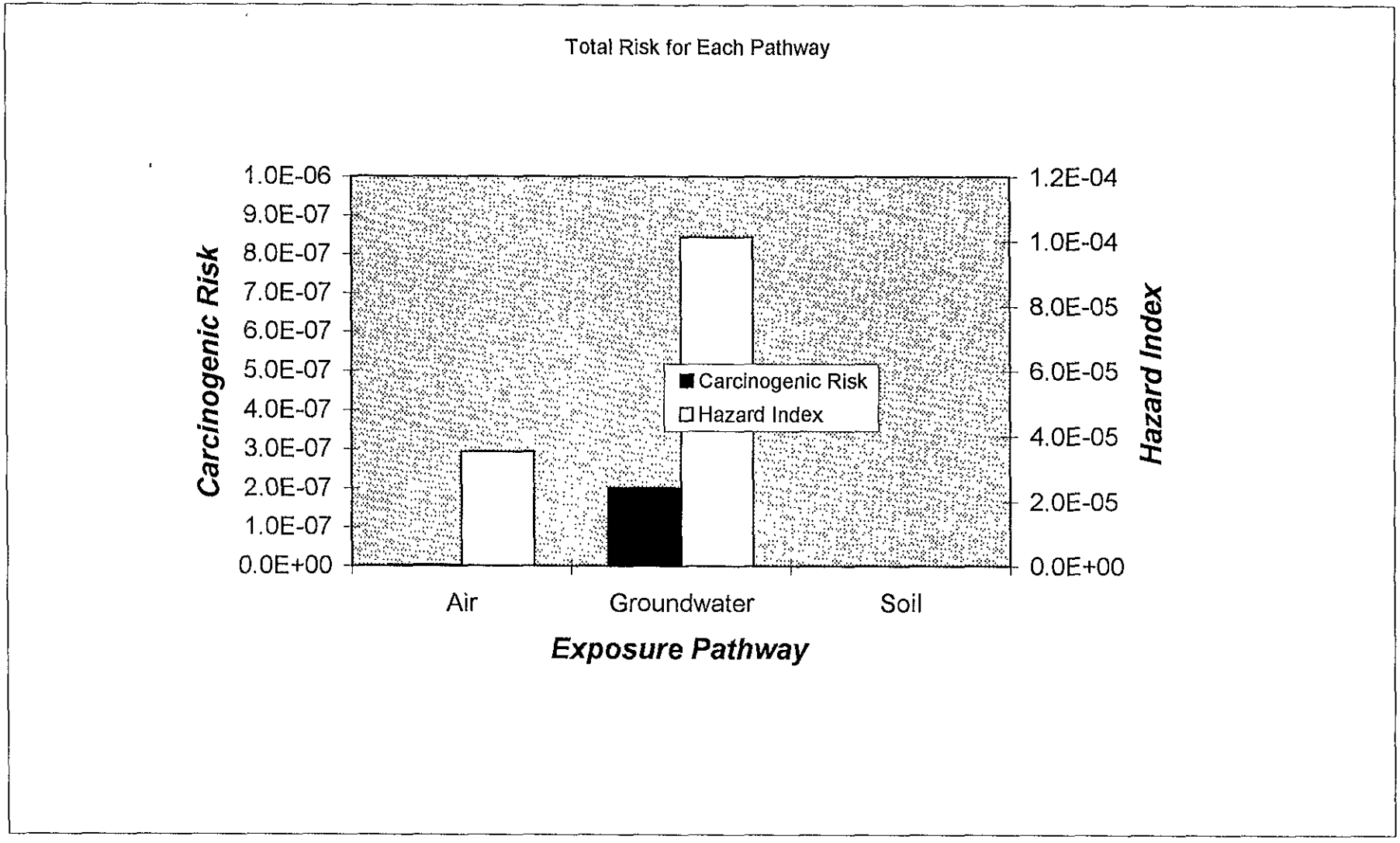
RBCA SITE ASSESSMENT | **Tier 1 Worksheet 8.3**

Site Name: Exxon 7-7003
Site Location: Pleasanton, CA

Completed By: L.J. McGahan
Date Completed: 8/20/1997

TIER 1 BASELINE RISK SUMMARY TABLE

EXPOSURE PATHWAY	BASELINE CARCINOGENIC RISK					BASELINE TOXIC EFFECTS				
	Individual COC Risk		Cumulative COC Risk		Risk Limit(s) Exceeded?	Hazard Quotient		Hazard Index		Toxicity Limit(s) Exceeded?
	Maximum Value	Target Risk	Total Value	Target Risk		Maximum Value	Applicable Limit	Total Value	Applicable Limit	
AIR EXPOSURE PATHWAYS										
Complete:	2.1E-9	1.0E-6	2.1E-9	N/A	☐	3.4E-5	1.0E+0	3.5E-5	N/A	☐
GROUNDWATER EXPOSURE PATHWAYS										
Complete:	2.0E-7	1.0E-6	2.0E-7	N/A	☐	7.2E-5	1.0E+0	1.0E-4	N/A	☐
SOIL EXPOSURE PATHWAYS										
Complete:	0.0E+0	1.0E-6	0.0E+0	N/A	☐	0.0E+0	1.0E+0	0.0E+0	N/A	☐
CRITICAL EXPOSURE PATHWAY (Select Maximum Values From Complete Pathways)										
	2.0E-7	1.0E-6	2.0E-7	N/A	☐	7.2E-5	1.0E+0	1.0E-4	N/A	☐


Total Risk for Each Pathway
1.0E-06
9.0E-07
8.0E-07
7.0E-07
6.0E-07
5.0E-07
4.0E-07
3.0E-07
2.0E-07
1.0E-07
0.0E+00
Carcinogenic Risk
1.2E-04
1.0E-04
8.0E-05
6.0E-05
4.0E-05
2.0E-05
0.0E+00
Hazard Index
Carcinogenic Risk
Hazard Index
Air
Groundwater
Soil
Exposure Pathway

APPENDIX C

Tier 2 RBCA Evaluation Worksheets

RBCA TIER 1/TIER 2 EVALUATION

Output Table 1

Site Name: Exxon 7-7003 | Job Identification: D094-838 | Software: GSI RBCA Spreadsheet
Site Location: Pleasanton, CA | Date Completed: 8/21/97 | Version: v 1.0
Completed By: L.J. McGahan

NOTE: values which differ from Tier 1 default values are shown in bold italics and underlined

DEFAULT PARAMETERS

Exposure Parameter	Definition (Units)	Residential Adult	Residential (1-6yrs)	Residential (1-16 yrs)	Commercial/Industrial Chronic	Commercial/Industrial Constrctn
ATc	Averaging time for carcinogens (yr)	70				
ATn	Averaging time for non-carcinogens (yr)	30	6	16	25	1
BW	Body Weight (kg)	70	15	35	70	
ED	Exposure Duration (yr)	30	6	16	25	1
EF	Exposure Frequency (days/yr)	350			250	180
EF.Derm	Exposure Frequency for dermal exposure	350			250	
IRgw	Ingestion Rate of Water (l/day)	2			1	
IRs	Ingestion Rate of Soil (mg/day)	100	200		50	100
IRadj	Adjusted soil ing. rate (mg•yr/kg•d)	1.1E+02			9 4E+01	
IRa in	Inhalation rate indoor (m^3/day)	15			20	
IRa.out	Inhalation rate outdoor (m^3/day)	20			20	10
SA	Skin surface area (dermal) (cm^2)	5.8E+03		2 0E+03	5 8E+03	5 8E+03
SAadj	Adjusted dermal area (cm^2•yr/kg)	2.1E+03			1.7E+03	
M	Soil to Skin adherence factor	1				
AAFs	Age adjustment on soil ingestion	FALSE			FALSE	
AAFd	Age adjustment on skin surface area	FALSE			FALSE	
tox	Use EPA tox data for air (or PEL based)	TRUE				
gwMCL?	Use MCL as exposure limit in groundwater?	FALSE				

Matrix of Exposed Persons to Complete Exposure Pathways		Residential	Commercial/Industrial Chronic	Commercial/Industrial Constrctn
Groundwater Pathways:				
GW i	Groundwater Ingestion	FALSE	TRUE	
GW.v	Volatilization to Outdoor Air	FALSE	TRUE	
GW.b	Vapor Intrusion to Buildings	FALSE	TRUE	
Soil Pathways				
S v	Volatiles from Subsurface Soils	FALSE	TRUE	
SS v	Volatiles and Particulate Inhalation	FALSE	FALSE	FALSE
SS.d	Direct Ingestion and Dermal Contact	FALSE	FALSE	FALSE
S.l	Leaching to Groundwater from all Soils	FALSE	TRUE	
S.b	Intrusion to Buildings - Subsurface Soils	FALSE	TRUE	

Matrix of Receptor Distance and Location on- or off-site		Residential Distance	Residential On-Site	Commercial/Industrial Distance	Commercial/Industrial On-Site
GW	Groundwater receptor (cm)		TRUE		TRUE
S	Inhalation receptor (cm)		TRUE		TRUE

Matrix of Target Risks		Individual	Cumulative
TRab	Target Risk (class A&B carcinogens)	1 0E-06	
TRc	Target Risk (class C carcinogens)	1 0E-05	
THQ	Target Hazard Quotient	1.0E+00	
Opt	Calculation Option (1, 2, or 3)	1	
Tier	RBCA Tier	2	

Surface Parameters	Definition (Units)	Residential	Commercial/Industrial Chronic	Commercial/Industrial Construction
t	Exposure duration (yr)	30	25	1
A	Contaminated soil area (cm^2)	***1.7E+06***		
W	Length of affected soil parallel to wind (cm)	***3.0E+02***		
W.gw	Length of affected soil parallel to groundwater (c	***3.0E+02***		
Uair	Ambient air velocity in mixing zone (cm/s)	***3.3E+02***		
delta	Air mixing zone height (cm)	2 0E+02		
Lss	Definition of surficial soils (cm)	***9.1E+01***		
Pe	Particulate areal emission rate (g/cm^2/s)	2 2E-10		

Groundwater	Definition (Units)	Value
delta.gw	Groundwater mixing zone depth (cm)	***6.1E+02***
I	Groundwater Infiltration rate (cm/yr)	3.0E+01
Ugw	Groundwater Darcy velocity (cm/yr)	2.5E+03
Ugw.tr	Groundwater Transport velocity (cm/yr)	6.6E+03
Ks	Saturated Hydraulic Conductivity(cm/s)	
grad	Groundwater Gradient (cm/cm)	
Sw	Width of groundwater source zone (cm)	
Sd	Depth of groundwater source zone (cm)	
BC	Biodegradation Capacity (mg/L)	
BIO?	Is Bioattenuation Considered	FALSE
phi eff	Effective Porosity in Water-Bearing Unit	3 8E-01
foc sat	Fraction organic carbon in water-bearing unit	1 0E-03

Soil	Definition (Units)	Value		
hc	Capillary zone thickness (cm)	5 0E+00		
hv	Vadose zone thickness (cm)	***6.1E+02***		
rho	Soil density (g/cm^3)	1 7		
foc	Fraction of organic carbon in vadose zone	0 01		
phi	Soil porosity in vadose zone	0 38		
Lgw	Depth to groundwater (cm)	***6.1E+02***		
Ls	Depth to top of affected soil (cm)	***5.6E+02***		
Lsubs	Thickness of affected subsurface soils (cm)	***4.4E+02***		
pH	Soil/groundwater pH	6 5		
		capillary	vadose	foundation
phi w	Volumetric water content	0 342	0 12	0 12
phi a	Volumetric air content	0 038	0.26	0 26

Building	Definition (Units)	Residential	Commercial
Lb	Building volume/area ratio (cm)	2 0E+02	3 0E+02
ER	Building air exchange rate (s^-1)	1.4E-04	***3.4E-04***
Lcrk	Foundation crack thickness (cm)	***1.0E+01***	
eta	Foundation crack fraction	***0 001***	

Dispersive Transport Parameters	Definition (Units)	Residential	Commercial
Groundwater			
ax	Longitudinal dispersion coefficient (cm)		
ay	Transverse dispersion coefficient (cm)		
az	Vertical dispersion coefficient (cm)		
Vapor			
dcy	Transverse dispersion coefficient (cm)		
dcz	Vertical dispersion coefficient (cm)		

RBCA SITE ASSESSMENT | **Tier 2 Worksheet 9.2**

Site Name: Exxon 7-7003
Site Location: Pleasanton, CA

Completed By: L.J. McGahan
Date Completed: 8/21/1997

SUBSURFACE SOIL SSTL VALUES (> 3 FT BGS)

Target Risk (Class A & B) 1.0E-6
Target Risk (Class C) 1 0E-5
Target Hazard Quotient 1.0E+0

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 1

SSTL Results For Complete Exposure Pathways ("x" If Complete)

CONSTITUENTS OF CONCERN		Representative Concentration	X Soil Leaching to Groundwater			X Soil Volatilization to Indoor Air		X Soil Volatilization to Outdoor Air		Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)	Residential (on-site)	Commercial (on-site)	Regulatory(MCL), (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential: (on-site)	Commercial. (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
71-43-2	Benzene	4.6E-2	NA	2.3E-1	NA	NA	4.7E-2	NA	3.2E+1	4.7E-2	☐	<1
100-41-4	Ethylbenzene	1.0E-1	NA	>Res	NA	NA	>Res	NA	>Res	>Res	☐	<1
108-88-3	Toluene	5.5E-2	NA	>Res	NA	NA	5.3E+2	NA	>Res	5.3E+2	☐	<1
1330-20-7	Xylene (mixed isomers)	1.3E-1	NA	>Res	NA	NA	>Res	NA	>Res	>Res	☐	<1

Software: GSI RBCA Spreadsheet
Version. v 1.0

Serial: G-395-PMX-154

Site Name: Exxon 7-7003 | Site Location: Pleasanton, CA | Completed By: L.J. McGahan | Date Completed: 8/21/1997 | *1 OF 6*

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

AIR EXPOSURE PATHWAYS ☐ (CHECKED IF PATHWAY IS ACTIVE)

SURFACE SOILS: VAPOR AND DUST INHALATION

Constituents of Concern	Exposure Concentration: 1) Source Medium — Surface Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor		3) Exposure Medium Air POE Conc. (mg/m^3) (1) / (2)		4) Exposure Multiplier ((IRxETxEFxED)/(BWxAT)) (m^3/kg-day)		5) Average Daily Intake Rate (mg/kg-day) (3) X (4)	
Benzene	0.0E+0								
Ethylbenzene	0.0E+0								
Toluene	0.0E+0								
Xylene (mixed isomers)	0.0E+0								

NOTE. ABS = Dermal absorption factor (dim); AF = Adherance factor; AT = Averaging time (days); BW = Body Weight (kg); CF = Units conversion factor; ED = Exp. duration (yrs); EF = Exposure frequencey (days/yr); ET = Exposure time (hrs/day); IR = Intake rate (L/day or mg/day); POE = Point of exposure; SA = Skin surface area (cm^2)

Site Name: Exxon 7-7003 | Site Location: Pleasanton, CA | Completed By: L.J. McGahan | Date Completed: 8/21/1997 | 2 OF 6

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

AIR EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SUBSURFACE SOILS: VAPOR INHALATION

Exposure Concentration

Constituents of Concern	1) Source Medium: Subsurface Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor: On-Site Commercial		3) Exposure Medium: Air, POE Conc. (mg/m^3) (1) / (2): On-Site Commercial		4) Exposure Multiplier (IRxETxEFxED)/(BWxAT) (m^3/kg-day): On-Site Commercial		5) Average Daily Intake Rate (mg/kg-day) (3) X (4): On-Site Commercial		TOTAL PATHWAY INTAKE (mg/kg-day) (Sum intake values from surface & subsurface routes.): On-Site Commercial	
Benzene	4.6E-2	2.2E+5		2.0E-7		7 0E-2		1.4E-8		1.4E-8	
Ethylbenzene	1.0E-1	2.2E+5		4.5E-7		2.0E-1		8.8E-8		8.8E-8	
Toluene	5.5E-2	2.2E+5		2.5E-7		2.0E-1		4.8E-8		4.8E-8	
Xylene (mixed isomers)	1.3E-1	2.2E+5		5.9E-7		2.0E-1		1.2E-7		1.2E-7	

NOTE:
ABS = Dermal absorption factor (dim)
AF = Adherance factor
AT = Averaging time (days)
BW = Body Weight (kg)
CF = Units conversion factor
ED = Exp duration (yrs)
EF = Exposure frequencey (days/yr)
ET = Exposure time (hrs/day)
IR = Intake rate (L/day or mg/day)
POE = Point of exposure
SA = Skin surface area (cm^2)

Site Name: Exxon 7-7003 Site Location: Pleasanton, CA Completed By: L.J. McGahan Date Completed: 8/21/1997

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SOIL EXPOSURE PATHWAYS ☐ (CHECKED IF PATHWAY IS ACTIVE)

SURFACE SOILS OR SEDIMENTS:

DERMAL CONTACT

	Exposure Concentration	4) Exposure Multiplier (SAxAFxABSxCFxEFxED)/(BWxAT) (1/day)		5) Average Daily Intake Rate (mg/kg-day)	
Constituents of Concern	1) Source Medium Surface Soil Conc (mg/kg)	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial
Benzene	0.0E+0				
Ethylbenzene	0.0E+0				
Toluene	0.0E+0				
Xylene (mixed isomers)	0.0E+0				

NOTE: ABS = Dermal absorption factor (dim); AF = Adherance factor; AT = Averaging time (days); BW = Body Weight (kg); CF = Units conversion factor; ED = Exp. duration (yrs); EF = Exposure frequencey (days/yr); ET = Exposure time (hrs/day); IR = Intake rate (L/day or mg/day); POE = Point of exposure; SA = Skin surface area (cm^2)

Site Name: Exxon 7-7003 Site Location: Pleasanton, CA Completed By: L.J. McGahan Date Completed: 8/21/1997

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SOIL EXPOSURE PATHWAYS ☐ (CHECKED IF PATHWAY IS ACTIVE)

SURFACE SOILS OR SEDIMENTS:
INGESTION

	Exposure Concentration	4) Exposure Multiplier (IRxCxEFxED)/(BWxAT) (1/day)		5) Average Daily Intake Rate (mg/kg-day)		TOTAL PATHWAY INTAKE (mg/kg-day) (Sum intake values from dermal & ingestion routes)	
	1) Source Medium						
Constituents of Concern	Surface Soil Conc. (mg/kg)	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial
Benzene	0 0E+0						
Ethylbenzene	0.0E+0						
Toluene	0.0E+0						
Xylene (mixed isomers)	0.0E+0						

NOTE.
ABS = Dermal absorption factor (dim)
AF = Adherance factor
AT = Averaging time (days)
BW = Body Weight (kg)
CF = Units conversion factor
ED = Exp. duration (yrs)
EF = Exposure frequencey (days/yr)
ET = Exposure time (hrs/day)
IR = Intake rate (L/day or mg/day)
POE = Point of exposure
SA = Skin surface area (cm^2)

Site Name: Exxon 7-7003 | Site Location: Pleasanton, CA | Completed By: L.J. McGahan | Date Completed: 8/21/1997 | 5 OF 6

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SOIL: LEACHING TO GROUNDWATER/ INGESTION

Exposure Concentration

Constituents of Concern	1) Source Medium: Soil Concentration (mg/kg)	2) NAF Value (L/kg) Receptor: On-Site Commercial		3) Exposure Medium: Groundwater POE Conc. (mg/L) (1)/(2) On-Site Commercial		4) Exposure Multiplier (IRxEFxED)/(BWxAT) (L/kg-day) On-Site Commercial		5) Average Daily Intake Rate (mg/kg-day) On-Site Commercial	
Benzene	4.6E-2	8.1E+1		5.6E-4		3.5E-3		2.0E-6	
Ethylbenzene	1.0E-1	1.8E+2		5.6E-4		9.8E-3		5.4E-6	
Toluene	5.5E-2	2.4E+2		2.3E-4		9.8E-3		2.2E-6	
Xylene (mixed isomers)	1.3E-1	4.2E+2		3.1E-4		9.8E-3		3.1E-6	

NOTE: AT = Averaging time (days) | BW = Body Weight (kg) | CF = Units conversion factor | ED = Exp. duration (yrs) | EF = Exposure frequencey (days/yr) | IR = Intake rate (L/day) | POE = Point of exposure

RBCA SITE ASSESSMENT | **Tier 2 Worksheet 8.1**

Site Name: Exxon 7-7003 | Site Location: Pleasanton, CA | Completed By: L.J. McGahan | Date Completed: 8/21/1997 | *6 OF 6*

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

GROUNDWATER: INGESTION

Constituents of Concern	Exposure Concentration: 1) Source Medium — Groundwater Concentration (mg/L)	2) NAF Value (dlm) — Receptor: On-Site Commercial		3) Exposure Medium — Groundwater: POE Conc (mg/L) (1)/(2): On-Site Commercial		4) Exposure Multiplier (IRxEFxED)/(BWxAT) (L/kg-day): On-Site Commercial		5) Average Daily Intake Rate (mg/kg-day): On-Site Commercial		MAX. PATHWAY INTAKE (mg/kg-day) (Maximum intake of active pathways soil leaching & groundwater routes.): On-Site Commercial	
Benzene	5.7E-4	1.0E+0		5.7E-4		3.5E-3		2.0E-6		2.0E-6	
Ethylbenzene	7.4E-4	1.0E+0		7.4E-4		9.8E-3		7.2E-6		7.2E-6	
Toluene	5.2E-4	1.0E+0		5.2E-4		9.8E-3		5.1E-6		5.1E-6	
Xylene (mixed isomers)	6.8E-4	1.0E+0		6.8E-4		9.8E-3		6.7E-6		6.7E-6	

NOTE: AT = Averaging time (days) | BW = Body Weight (kg) | CF = Units conversion factor | ED = Exp duration (yrs) | EF = Exposure frequencey (days/yr) | IR = Intake rate (L/day or mg/day) | POE = Point of exposure

Site Name: Exxon 7-7003 | Site Location: Pleasanton, CA | Completed By: L.J. McGahan | Date Completed: 8/21/1997 | 1 OF 3

TIER 2 PATHWAY RISK CALCULATION

AIR EXPOSURE PATHWAYS ■ CHECKED IF PATHWAYS ARE ACTIVE!

Constituents of Concern	(1) EPA Carcinogenic Classification	CARCINOGENIC RISK: (2) Total Carcinogenic Intake Rate (mg/kg/day) On-Site Commercial		(3) Inhalation Slope Factor (mg/kg-day)^-1	(4) Individual COC Risk (2) x (3) On-Site Commercial		TOXIC EFFECTS: (5) Total Toxicant Intake Rate (mg/kg/day) On-Site Commercial		(6) Inhalation Reference Dose (mg/kg-day)	(7) Individual COC Hazard Quotient (5) / (6) On-Site Commercial	
Benzene	A	1.4E-8		1.0E-1	1.4E-9		4.0E-8		1.7E-3	2.4E-5	
Ethylbenzene	D						8.8E-8		2.9E-1	3.1E-7	
Toluene	D						4.8E-8		1.1E-1	4.2E-7	
Xylene (mixed isomers)	D						1.2E-7		2 0E+0	5.8E-8	
Total Pathway Carcinogenic Risk =					1.4E-9	0.0E+0	*Total Pathway Hazard Index =*			2.4E-5	0.0E+0

Site Name: Exxon 7-7003 | Site Location: Pleasanton, CA | Completed By: L.J. McGahan | Date Completed: 8/21/1997 | 2 OF 3

TIER 2 PATHWAY RISK CALCULATION

SOIL EXPOSURE PATHWAYS ☐ (CHECKED IF PATHWAYS ARE ACTIVE)

		CARCINOGENIC RISK					TOXIC EFFECTS				
	(1) EPA Carcinogenic Classification	(2) Total Carcinogenic Intake Rate (mg/kg/day)		(3) Oral Slope Factor	(4) Individual COC Risk (2) x (3)		(5) Total Toxicant Intake Rate (mg/kg/day)		(6) Oral Reference Dose	(7) Individual COC Hazard Quotient (5) / (6)	
Constituents of Concern		On-Site Residential	On-Site Commercial	(mg/kg-day)^-1	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial	(mg/kg-day)	On-Site Residential	On-Site Commercial
Benzene	A			1.0E-1							
Ethylbenzene	D								1.0E-1		
Toluene	D								2.0E-1		
Xylene (mixed isomers)	D								2.0E+0		
Total Pathway Carcinogenic Risk =					0.0E+0	0.0E+0			*Total Pathway Hazard Index =*	0.0E+0	0.0E+0

RBCA SITE ASSESSMENT | **Tier 2 Worksheet 8.2**

Site Name: Exxon 7-7003 | Site Location: Pleasanton, CA | Completed By: L.J. McGahan | Date Completed: 8/21/1997 | *3 OF 3*

TIER 2 PATHWAY RISK CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAYS ARE ACTIVE)

		CARCINOGENIC RISK						TOXIC EFFECTS			
	(1) EPA	(2) Total Carcinogenic Intake Rate (mg/kg/day)		(3) Oral Slope Factor	(4) Individual COC Risk (2) x (3)		(5) Total Toxicant Intake Rate (mg/kg/day)		(6) Oral Reference Dose	(7) Individual COC Hazard Quotient (5) / (6)	
Constituents of Concern	Carcinogenic Classification	On-Site Commercial		(mg/kg-day)^-1	On-Site Commercial		On-Site Commercial		(mg/kg-day)	On-Site Commercial	
Benzene	A	2.0E-6		1.0E-1	2.0E-7						
Ethylbenzene	D						7.2E-6		1.0E-1	7.2E-5	
Toluene	D						5.1E-6		2.0E-1	2.5E-5	
Xylene (mixed isomers)	D						6.7E-6		2.0E+0	3.3E-6	

Total Pathway Carcinogenic Risk = 2.0E-7 | 0.0E+0

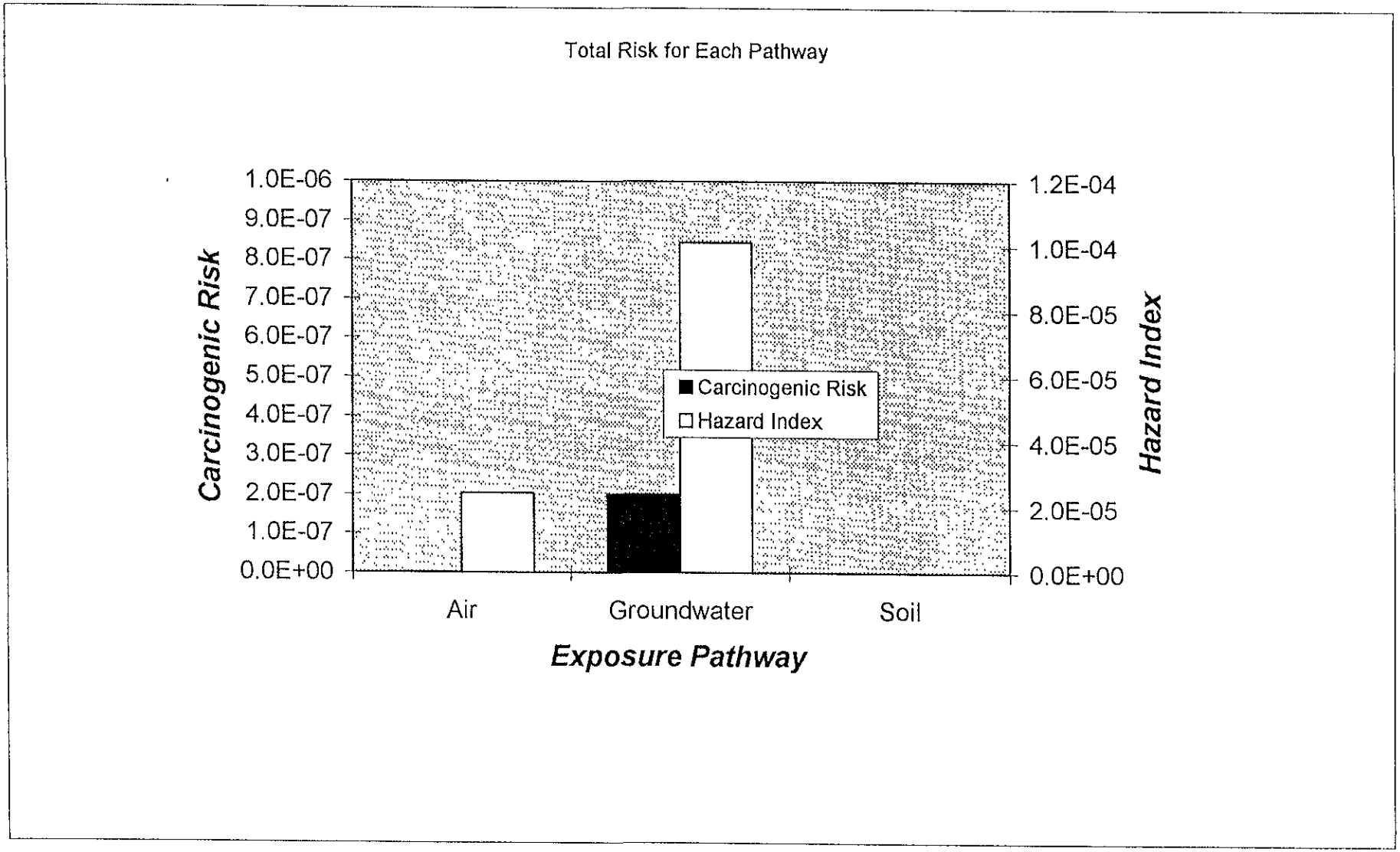
Total Pathway Hazard Index = 1.0E-4 | 0.0E+0

Site Name: Exxon 7-7003
Site Location: Pleasanton, CA

Completed By: L.J. McGahan
Date Completed: 8/21/1997

TIER 2 BASELINE RISK SUMMARY TABLE

	BASELINE CARCINOGENIC RISK					BASELINE TOXIC EFFECTS				
	Individual COC Risk		Cumulative COC Risk		Risk Limit(s) Exceeded?	Hazard Quotient		Hazard Index		Toxicity Limit(s) Exceeded?
EXPOSURE PATHWAY	Maximum Value	Target Risk	Total Value	Target Risk		Maximum Value	Applicable Limit	Total Value	Applicable Limit	
AIR EXPOSURE PATHWAYS										
Complete:	1.4E-9	1.0E-6	1.4E-9	N/A	☐	2.4E-5	1.0E+0	2.4E-5	N/A	☐
GROUNDWATER EXPOSURE PATHWAYS										
Complete:	2.0E-7	1.0E-6	2.0E-7	N/A	☐	7.2E-5	1.0E+0	1.0E-4	N/A	☐
SOIL EXPOSURE PATHWAYS										
Complete:	0.0E+0	1.0E-6	0.0E+0	N/A	☐	0.0E+0	1.0E+0	0.0E+0	N/A	☐
CRITICAL EXPOSURE PATHWAY (Select Maximum Values From Complete Pathways)										
	2.0E-7	1.0E-6	2.0E-7	N/A	☐	7.2E-5	1.0E+0	1.0E-4	N/A	☐


Total Risk for Each Pathway
1.0E-06
9.0E-07
8.0E-07
7.0E-07
6.0E-07
5.0E-07
4.0E-07
3.0E-07
2.0E-07
1.0E-07
0.0E+00
Carcinogenic Risk
1.2E-04
1.0E-04
8.0E-05
6.0E-05
4.0E-05
2.0E-05
0.0E+00
Hazard Index
Carcinogenic Risk
Hazard Index
Air
Groundwater
Soil
Exposure Pathway